METDA

Semiconductors

Shijiazhuang METDA Electronic Technology Co.,LTD

2019. 3

METDA Technology Co.,LTD
Address: 113#Hezuo Road, Shijiazhuang,HeBei Provence,CHINA
Tel.: +86-0311-87091914 Fax:+86-0311-87045695
Website:http://www.metdac.com E-mail: alex@metdac.com

METDA

Introduction

Shijiazhuang METDA Electronic Technology Corporation (METDA) was established in 1993, there are more than 300 staff in the company, and it is the sub-company of HSRI (Hebei Semiconductor Research Institute). HSRI was founded in 1956 in Beijing and then moved to Shijiazhuang in 1963. After 60 years of development, it has become one of China's most comprehensive semiconductor institute with large scale, strong technical strength and professional structure. The professional directions are in five main areas of microelectronics, optoelectronics, MEMS , high-end semiconductor sensors, optical electromechanical integrated micro-system and in other basic supporting are as such as cevamic package and material, measurement and detection. It is the first batch of master of engineering admissions training units and joint training doctor units after reforming and opening up in China.

METDA has three sub-companies: North-China Integrated Circuit Corporation Limited, Hebei Century Star Electronic Science Corporation Limited, Beijing Micro Electronic Development Corporation Limited. METDA has two major product areas which cover microelectronics, optoelectronics. METDA’s major markets include domestic, Europe, Asia, the Americas and other countries and regions. Currently METDA has been one of the most comprehensive semiconductor companies with large-scale civilian products industry and foreign trade in optoelectronics, microwave in China.

Optoelectronic products are mainly for the full range of optical products which include photoelectronic chip, photoelectric module, supporting packages and so on. Microwave products include microwave monolithic, devices, modules, components, micro-systems and other products. METDA also actively expands business scope.

In 2017, the total sales volume reached 751 million RMB, and value of sales in international markets exceeded 334 million RMB. With the strong support from all users, all the METDA staff will work together, work hard, continue to carry forward vigorously the fine traditions and work style and make greater contributions to China's semiconductor industry!

Contents

1.MMIC······1
1.1 Low noise amplifier chip······1
1.2 Power amplifier chip······4
I) Gain block amplifier chip······4
II) GaAs Driver Amplifier Chip······5
III) GaAs power amplifier chip······6
IV) GaN Driver Amplifier Chip······8
V) GaN power amplifier chip······9
VI) GaAs Bidirectional Amplifier Chip······11
1.3 Digital control phase shifter chip······12
1.4 Digital control Delay chip······14
1.5 Attenuator chip······15
I) Digital control attenuator chip······15
II) Electrical control attenuator chip······17
III) Fixed attenuator chip······17
IV) Temperature compensation attenuator chip······18
V) Thin Film Wide Band Attenuator Chips······19
VI) GaAs Digital/ESC Attenuator Chip······19
1.6 Voltage-controlled oscillator chip······19
1.7 Multifunctional chip······20
I) Digital control phase shifting & attenuation integrated chip······20
II) Transmitting & Receiving multifunctional chip······21
III) Amplitude & Phase control multifunctional chip······22
IV) GaN Special Multifunctional Chip······23
V) Bidirectional transmitting & receiving, variable frequency multifunctional chip······23
VI) GaAs Mixer Multifunctional Chip······23
VII) GaAs /SiGe Mixer Multifunctional Chip······24
VIII) GaAs Special Multifunctional Chip······25
1.8 Switch chip······25
I) GaAs FET switch chip (negative voltage control)······25
II) GaAs FET switch chip (positive voltage control)······26
III) GaAs PIN switch chip······27
IV) GaN FET switch chip······28
1.9 Frequency mixer chip······29
I) Passive double balanced mixer chip······29
II) I/Q mixer chip······30
III) Double balanced mixer (with local oscillator buffer) chip······31
IV) Multifunctional down-conversion chip······31
V) Multifunctional up-conversion chip······32
VI) QPSK modulator chip······32
VII) Harmonic mixer chip······32
1.10 Frequency divider/multiplier chip······32
I) Active frequency multiplier chip······32
II) Passive frequency multiplier chip······33
III) Frequency divider chip······33
1.11 Limiter chip······34
1.12 Power detector chip······35
1.13 Equalizer chip······35
1.14 Resistor chip······37
1.15 Diamond/GaAs/GaN/Power Load Chip······37
1.16 Capacitor chip······37
1.17 Power divider/synthesizer chip······37
I) 90° bridge······37
II) 180° bridge chip······38
III) 0° three-circuit power divider chip······39

IV) 0° four-circuit power divider chip······39
V) GaAs Power Divider Chip······39
1.18 Filter chip······40
1.19 Directional coupler chip······41
1.20 GaAs T-type Bias Chips······42
1.21 Radio Frequency/Digital Circuits······42
1.21.1 GaAs/GaN/CMOS Driver Chip······42
1.21.2 Serial-to-parallel driver······43
I) CMOS technology, serial-to-parallel FET driver······43
II) CMOS technology, serial-to-parallel PIN driver······44
III) GaAs technology, serial-to-parallel FET driver······44
1.21.3 Parallel driver······45
I) CMOS technology, parallel FET driver······45
II) CMOS technology, parallel PIN driver······45
III) CMOS technology, parallel high voltage PIN driver······47
IV) CMOS technology, large current driver······47
V) GaAs technology, parallel FET driver······47
1.21.4 General integrated circuit······48
I) COMS technology, gate circuit······48
II) CMOS technology, serial-to-parallel circuit······49
III) GaAs technology, gate circuit······50
IV) GaAs technology, serial-to-parallel······50
V) Counter······50
1.21.5 Power supply management chip······51
I) Bias chip······51
II) Large 5V~18V current driver······51
III) 28V power amplifier modulation driver chip······53
IV) 50V and above power amplifier modulation driver chip······53
V) Power amplifier gate driver chip······53
1.22 Navigation/Communication Circuits······54
1.22.1 Frequency synthesizer······54
I) Frequency synthesizer chip······54
II) Frequency synthesizer chip with integrated VCO······54
1.22.2 Navigation/Communication······54
I) Navigation/Communication frequency converter chip······54
II) Navigation/Communication low noise amplifier······54
1.22.3 Satellite mobile communication······55
I) Power amplifier for satellite mobile communication······55
II) Low noise amplifier for satellite mobile communication······55
1.22.4 General communication······55
I) Broadband communication amplifier······55
1.23 MEMS Circulator/Isolator······55
I) Circulator······55
II) Isolator······55
III) Circular isolation module······56
1.24 CMOS PLL Chips······56
1.25 CMOS A/D Conversion Processing Chip······56
1.26 CMOS Power Supply Management Chip······56
2 Microwave Micro-packaging Circuit······57
2.1 GaAs/SiGe GainBlock Amplifier······57
2.2 GaAs Low Noise Amplifier Chips······58
2.3 GaAs/GaN Driving Amplifier······59
2.4 GaAs/GaN Power Amplifier······60
2.5 GaAs Bidirectional Amplifier······60
2.6 GaAs Digital Control Phase Shifter······61
2.7 GaAs Switch······61

2.8 GaAs Digital Control/Electrical Control Attenuator······62
2.9 GaAs limiter MMIC······63
2.10 GaAs Frequency Mixer······63
2.11 GaAs Mixer Multifunctional MMIC······64
2.12 GaAs Voltage-controlled Oscillator······65
2.13 GaAs Frequency Divider······65
2.14 GaAs power divider······65
2.15 GaAs Filter Chip······66
2.16 GaAs Amplitude Equalizer······66
2.17 GaAs Coupler/Bridge······66
2.18 GaAs Digital Control Variable Gain Amplifier······67
2.19 GaAs Special Multifunctional Chip······67
2.20 SiGe Digital Control Variable Gain Amplifier······67
2.21 CMOS Power Supply Management Chip······67
2.22 Transmitting & Receiving Multifunctional Chip······67
2.23 GaAs Amplitude & Phase Multifunctional Chip······67
3.Transistor······68
3.1 GaN Microwave Power FET······68
3.1.1 GaN Pre-matched Transistor······68
3.1.2 L Band GaN Internally Matched Transistor······69
3.1.3 S Band GaN Internally Matched Transistor······69
3.1.4 C Band GaN Internally Matched Transistor······70
3.1.5 X、 Ku Band GaN Internally Matched Transistor······71
3.2 GaN Power Module······71
3.2.1 GaN Power Amplifier Carrier with transistor······71
3.2.2 GaN Power Amplifier Carrier······72
3.2.3 GaN Power Amplifier Module······73
3.2.4 INP Power Amplifier Module······75
3.3 GaAs Microwave Power FET······75
3.3.1 GaAs Power FET······75
3.3.2 GaAsInternally Matched Transistor······75
3.4 Si Microwave Power Transisor······77
3.4.1 Si LDMOS Power Transisor······77
3.4.2 Si Pulse Power Transisor······78
3.5 GaN Pre-Matched Transistors······79
3.6 GaN Internally Matched Transistors······81
3.7 GaN Power Amplifier Modules······86
4 Microwave Package Product······88
4.1 Microwave Small Package······88
4.1.1 Low Noise Amplifier······88
I) Micro Package Low Noise Amplifier······88
II) carrier Low Noise Amplifier······89
III) Mini Package Wide-band Amplifier······89
IV) Low Noise Amplifier Module······90
4.1.2 Power Amplifier······90
I) GaAs Mini Package Power Amplifier······90
II) GaN Mini Package Power Amplifier······91
III) GaN Power Amplifier with carrier······91
IV) GaN power Amplifier carrier······92
V) GaN Power Amplifier Module······93
VI) INP Power Amplifier Module······95
4.1.3 Digital Phase Shifter/Delayer······95
I) Mini Package Digital Phase Shifter······95
II) Mini Package Digital Delayer······95
III) Digital Phase Shifter Module······95

1.MMIC

1.1 Low noise amplifier chip

Indexes / Model	Frequency range (GHz)	Gain (dB)	Gain flatness (dB)	Noise factor (dB)	Input voltage standing wave ratio (VSWR)	Output VSWR	P1dB (dBm)	Power consumption (V/mA)	Chip size (mm×mm×mm)
NC10217C-106	DC-6	31*	-	2.5*	⩽1.5	⩽2	8*	5/25	0.52×0.50×0.08
NC10200C-103	0.7-3	29*	±0.75*	1.6*	1.6*	1.4*	18*	5/65	2.12×1.55×0.07
NC1074C-0835A	0.8-3.5	28*	±0.7*	1.5*	1.8*	1.3*	12*	5/55	2.70×1.30×0.07
NC10251C-103	1-3	14*	±0.5*	2.2*	1.5*	1.5*	20*	5/65	1.45×1.15×0.07
NC10106C-103	1-3	15*	±0.7*	1.5*	1.7*	1.5*	13*	5/30	1.64×1.25×0.07
NC1011C-108	1-8	21*	±0.5*	1.8*	1.5*	1.8*	14*	5/80	2.40×1.20×0.07
NC10160C-112	1-12	14.5*	±1*	1.6*	1.6*	1.3*	16*	5/35	2.60×1.40×0.07
NC10237C-1225	1.2-2.5	22*	±0.5*	1.4*	1.6*	1.6*	16*	5/80	2.50×1.57×0.07
NC1007C-2224A	2-2.4	⩾28.5	±0.5*	1.05*	⩽1.5	⩽1.6	10*	5/50	2.35×1.40×0.07
NC10252C-204	2-4	16*	±0.5*	2.2*	1.5*	1.5*	18.5*	5/45	1.55×1.55×0.07
NC1064C-206B	2-6	13*	±0.6*	2*	1.6*	1.6*	17*	4/65, 5/65	1.75×1.40×0.07
NC1064C-206BM	2-6	13*	±0.6*	2*	1.6*	1.6*	17*	4/65, 5/65	1.75×1.40×0.07
NC1033C-206B	2-6	25*	±1.5* (Positive slope)	1.5*	1.5*	1.5*	16*	5/75	2.15×1.20×0.07
NC1033C-206BM	2-6	25*	±1.5* (Positive slope)	1.5*	1.5*	1.5*	16*	5/75	2.15×1.20×0.07
NC10247C-220	2-20	17*	±0.5*	2.5*	1.6*	1.5*	13*	5/55	3.10×1.40×0.07
NC10202C-204	2.2-4	32*	±0.75*	1.2*	1.6*	1.4*	20*	5/90	2.10×1.25×0.07
NC1045C-2545A	2.5-4.5	⩾24	±1* (Positive slope)	1.3*	1.5*	1.5*	10*	5/45	2.50×1.40×0.07
NC10184C-2570	2.5-7	28*	±0.2*	1.1*	1.5*	1.5*	7*	5/20	2.35×1.30×0.07
NC10184C-2570M	2.5-7	28*	±0.2*	1.1*	1.5*	1.5*	7*	5/20	2.35×1.30×0.07
NC1068C-2638	2.6-3.8	24*	±0.3*	1.05*	1.4*	1.3*	11*	5/42	2.48×1.35×0.07
NC10148C-408	4-8	14*	±0.5*	1.8*	1.6*	1.6*	14*	5/60	1.30×1.05×0.07
NC1080C-506	5-6	⩾13	±0.1*	⩽1.8	⩽1.6	⩽2.0	17*	5/60	1.40×1.40×0.07
NC1080C-506M	5-6	⩾13	±0.1*	⩽1.8	⩽1.6	⩽2.0	17*	5/60	1.40×1.40×0.07
NC1047C-506A	5-6	21*	±0.3*	⩽1.0	1.5*	1.3*	⩾11	5/55	2.70×1.30×0.07
NC1047C-506AM	5-6	21*	±0.3*	⩽1.0	1.5*	1.3*	⩾11	5/55	2.70×1.30×0.07
NC10167C-506	5-6	24*	±0.1*	1.1*	1.4*	1.4*	10*	5/40	2.30×1.20×0.07
NC1030C-5258A	5-6	⩾14	±0.2*	⩽2	⩽1.4	⩽1.6	18.5*	5/65, 8/65	1.40×1.40×0.07
NC1030C-5258AM	5-6	⩾14	±0.2*	⩽2	⩽1.4	⩽1.6	18.5*	5/65, 8/65	1.40×1.40×0.07
NC10260C-518	5-18	20*	±0.5*	1.4*	2*	1.6*	11*	5/60	1.80×1.20×0.07
NC10260C-518	5-18	20*	±0.5*	1.4*	2*	1.6*	11*	5/60	1.80×1.20×0.07
NC10260C-518M	5-18	20*	±0.5*	1.4*	2*	1.6*	11*	5/60	1.80×1.20×0.07
NC10266C-618	5-19	13*	±0.3*	2.5*	1.8*	1.8*	10*	5/50	1.80×1.20×0.07
NC1069C-612	6-12	9*	±0.7* (Positive slope)	⩽3	⩽1.8	⩽1.8	13*	5/40	1.47×1.10×0.07
NC1069C-612M	6-12	9*	±0.7* (Positive slope)	⩽3	⩽1.8	⩽1.8	13*	5/40	1.47×1.10×0.07
NC1078C-612	6-12	⩾8	±0.7*	⩽3.5	⩽2.1	⩽1.9	11*	5/30	1.47×1.10×0.07
NC1078C-612M	6-12	⩾8	±0.7*	⩽3.5	⩽2.1	⩽1.9	11*	5/30	1.47×1.10×0.07
NC10259C-613	6-13	20*	±0.4*	1.2*	1.6*	1.6*	9*	5/30	1.80×1.20×0.07
NC10259C-613	6-13	20*	±0.4*	1.2*	1.6*	1.6*	9*	5/30	1.80×1.20×0.07
NC10259C-613M	6-13	20*	±0.4*	1.2*	1.6*	1.6*	9*	5/30	1.80×1.20×0.07
NC10185C-713	7-13	⩾11	±0.5*	2.8*	1.6*	1.6*	21*	5/100	1.85×1.10×0.07
NC10243C-713	7-13	15	±0.7	2.3	1.6	1.6	15	5/55, 8/55	1.70×1.30×0.07

Model \ Indexes	Frequency range (GHz)	Gain (dB)	Gain flatness (dB)	Noise factor (dB)	Input voltage standing wave ratio (VSWR)	Output VSWR	P1dB (dBm)	Power consumption (V/mA)	Chip size (mm×mm×mm)
NC10153C-714	7-14	⩾7	±0.3*	⩽3.5	⩽2.0	⩽2.0	21*	5/90	1.20×1.10×0.07
NC10153C-714M	7-14	⩾7	±0.3*	⩽3.5	⩽2.0	⩽2.0	21*	5/90	1.20×1.10×0.07
NC10221C-812	8-12	9*	±0.2*	2.5*	1.2*	1.5*	10*	5/20	1.30×1.10×0.07
NC10221C-812M	8-12	9*	±0.2*	2.5*	1.2*	1.5*	10*	5/20	1.30×1.10×0.07
NC10253C-812	8-12	14*	±0.75*	3.5*	1.6*	1.4*	9*	5/30	1.66×1.00×0.07
NC10253C-812M	8-12	14*	±0.75*	3.5*	1.6*	1.4*	9*	5/30	1.66×1.00×0.07
NC10191C-812	8-12	15.5*	±0.5*	1.7*	1.5*	1.3*	11*	3/50	1.30×1.00×0.07
NC1065C-812A	8-12	17*	±0.5* (Positive slope)	1.8*	1.5*	1.5*	18*	5/95	2.02×1.05×0.07
NC1065C-812AM	8-12	17*	±0.5* (Positive slope)	1.8*	1.5*	1.5*	18*	5/95	2.02×1.05×0.07
NC10190C-812	8-12	20*	±0.6*	1.8*	1.4*	1.6*	20*	5/90	1.60×1.05×0.07
NC10190C-812M	8-12	20*	±0.6*	1.8*	1.4*	1.6*	20*	5/90	1.60×1.05×0.07
NC1001C-812S	8-12	⩾20	±0.25*	1.2*	⩽1.5	⩽1.5	8*	5/40	1.85×1.05×0.07
NC10162C-812	8-12	20.5*	±0.3*	1.3*	1.4*	1.2*	16*	5/55	2.00×1.20×0.07
NC10162C-812M	8-12	20.5*	±0.3*	1.3*	1.4*	1.2*	16*	5/55	2.00×1.20×0.07
NC10170C-812	8-12	22*	±0.3*	1.8*	1.3*	1.5*	19*	5/85	1.90×1.10×0.07
NC10230C-812	8-12	25*	±0.2*	1.3*	1.5*	1.5*	5*	5/25	2.25×1.20×0.07
NC10151C-812	8-12	⩾25	±0.6*	⩽2	⩽1.5	⩽1.8	20*	5/90	2.15×1.05×0.07
NC10151C-812M	8-12	⩾25	±0.6*	⩽2	⩽1.5	⩽1.8	20*	5/90	2.15×1.05×0.07
NC10149C-812	8-12	27*	±0.8*	1.3*	1.5*	1.3*	2*	5/12, 3.3/12	2.70×1.30×0.07
NC10149C-812M	8-12	27*	±0.8*	1.3*	1.5*	1.3*	2*	5/12, 3.3/12	2.70×1.30×0.07
NC10257C-812	8-12	22*	±1*	1.4*	1.5*	1.5*	12.5*	5/40	2.15×1.10×0.07
NC10257C-812M	8-12	22*	±1*	1.4*	1.5*	1.5*	12.5*	5/40	2.15×1.10×0.07
NC10207C-813	8-13	21*	±0.5*	1.8*	1.5*	1.5*	16*	5/55	1.75×1.10×0.07
NC10180C-814	8-14	28*	±0.5*	1.8*	1.6*	1.6*	17*	5/80	2.35×1.30×0.07
NC10218C-820	8-20	11*	±1.8*	3.5*	2.3*	2.3*	12*	5/70	1.70×1.10×0.07
NC10164C-1016	10-17	28*	±1.2* (Positive slope)	1.5*	1.3*	1.5*	2*	5/15	2.35×1.10×0.07
NC10164C-1016M	10-17	28*	±1.2* (Positive slope)	1.5*	1.3*	1.5*	2*	5/15	2.35×1.10×0.07
NC10256C-1020	10-20	27*	±0.6*	1.3*	1.5*	1.5*	3*	5/15	2.35×1.00×0.07
NC10256C-1020M	10-20	27*	±0.6*	1.3*	1.5*	1.5*	3*	5/15	2.35×1.00×0.07
NC10157C-1215	11-16	⩾20	±1*	1.4*	1.6*	1.5*	3*	5/15	2.35×1.10×0.07
NC10223C-1218	12-18	15*	±0.5*	2.8*	1.6*	1.6*	16*	5/55	1.60×1.10×0.07
NC10175C-1219	12-19	26*	±0.6*	1.5*	1.5*	1.5*	3*	5/15	2.40×0.95×0.07
NC10175C-1219M	12-19	26*	±0.6*	1.5*	1.5*	1.5*	3*	5/15	2.40×0.95×0.07
NC10239C-1418	14-18	28*	±0.9*	1.3*	1.8*	1.6*	10*	5/55	2.25×1.05×0.07
NC10194C-1824	18-24	18*	±0.4*	2*	1.5*	2.3*	-5*	5/12	2.35×0.95×0.07
NC10166C-1825	18-25	25*	±0.4*	1.8*	1.5*	1.5*	-1*	5/10	2.15×0.90×0.07
NC10166C-1825M	18-25	25*	±0.4*	1.8*	1.5*	1.5*	-1*	5/10	2.15×0.90×0.07
NC10219C-1826	18-26	22*	±0.8*	2.3*	1.6*	1.6*	12*	5/40	2.00×1.10×0.07
NC10176C-1826	18-27	22*	±0.3*	1.8*	1.6*	1.6*	-2*	5/9	2.00×0.90×0.07
NC10176C-1826M	18-27	22*	±0.3*	1.8*	1.6*	1.6*	-2*	5/9	2.00×0.90×0.07
NC1076C-1923A	19-23	23*	±1*	2*	1.8*	1.8*	10*	5/50	2.70×1.35×0.07
NC10172C-1925	19-25	26*	±1*	1.8*	1.5*	1.5*	12*	4/35, 5/35	2.20×1.10×0.07
NC10121C-2226A	22-26	23*	±1*	2*	1.8*	1.8*	10*	5/48	2.70×1.35×0.07

Indexes / Model	Frequency range (GHz)	Gain (dB)	Gain flatness (dB)	Noise factor (dB)	Input voltage standing wave ratio (VSWR)	Output VSWR	P1dB (dBm)	Power consumption (V/mA)	Chip size (mm×mm×mm)
NC10173C-2232	22-32	21*	±0.5*	2*	1.8*	1.5*	1*	5/12	1.85×0.80×0.07
NC10173C-2232M	22-32	21*	±0.5*	2*	1.8*	1.5*	1*	5/12	1.85×0.80×0.07
NC10229C-2640	26-40	16*	±2*	2.5*	1.8*	2*	4*	5/28	1.90×0.85×0.07
NC10193C-2833	28-33	⩾13	±0.8*	⩽3.5	⩽1.5	⩽1.5	⩾2	5/12	1.65×0.95×0.07
NC10192C-2933	29-33	⩾14	±0.2*	⩽3.8	⩽1.5	⩽1.5	⩾8	5/20	1.65×0.95×0.07
NC10264C-3240	32-40	21*	±0.8*	2.3*	1.6*	1.6*	4*	5/15	1.80×0.80×0.07
NC10264C-3240M	32-40	21*	±0.8*	2.3*	1.6*	1.6*	4*	5/15	1.80×0.80×0.07
NC10240C-3240	32-40	13*	±1*	5*	2*	2*	14*	5/50	1.53×0.80×0.07
NC10211C-3337	33-37	22*	±0.7*	2.3*	⩽2	⩽2	10*	5/50	1.70×0.80×0.07
NC10214C-4046	40-46	17*	±0.7*	2.5*	2*	2*	⩾0	5/30	1.95×0.80×0.07
NC10213C-5765	57-65	23*	±1*	⩽4	⩽2.5	⩽2	3*	2.5/55	2.60×0.90×0.07
NC10245C-9096	90-96	17*	±1*	3.8*	2.5*	2.5*	6*	5/60	1.38×3.03×0.05

Frequency (GHz)	Gain (dB)	Noise (dB)	P_{-1} (dBm)	OIP3 (dBm)	Power Supply (V/mA)	Chip Size (mm)	Part Number	Substitution Model	Production and Environmental Standard
0.1~20	15	3.0	+13	+23	+5/50	2.40x1.30x0.07	BW306	-	Q/AT 24037-2016
0.1~20	16	2.5	+13	+24	+5/50	3.10x1.30x0.07	BW303	-	Q/AT 24039A-2017
0.1~20	16	2.5	+13	+23	+5/60	3.10x1.30x0.07	BW300	-	Q/AT 24555-2017
0.7~5	14	2.2	+20	+28	+5/65	1.43x1.15x0.08	BW265	-	Q/AT 23179-2014
0.8~20	17	2.5	+14	+24	+5/75	2.90x1.30x0.07	BW308	-	Q/AT 24556-2017
1.0~6.5	20	2.0	+11	+21	+5/60	1.70x1.10x0.07	BW295	-	Q/AT 24360-2017
1~10	18	3.0	+7	+18	+5/22	2.10x1.20x0.07	BW1249	-	Q/AT 24589-2017
1~12	14	2.2	+15	+28	+5/50	1.70x1.30x0.07	BW1248	-	Q/AT 24832-2018
1.2~1.4	36	0.8	+10	+19	+5/50	2.00x1.70x0.07	BW263	-	Q/AT 25053-2018
2~6	25	1.0	+10	+21	+5/45	1.90x1.20x0.07	BW279	-	Q/AT 24185-2016
2~20	15	2.5	+14	+23	+5/65	3.10x1.30x0.07	BW301	HMC462	Q/AT 24170A-2017
2~20	17	2.5	+15	+24	+5/70	3.10x1.30x0.07	BW302	HMC462	Q/AT 24554-2017
2~20	18	2.5	+19	+25	+5/100	2.80x1.30x0.07	BW551	-	Q/AT 24557-2017
2.7~3.5	29	0.75	+11	+23	+5/50	2.55x1.15x0.07	BW276	-	Q/AT 24833-2018
4~6	28	0.9	+6	+18	+5/20	2.00x1.10x0.07	BW264	-	-
4~8	22	1.0	+8	+20	+5/50	1.70x1.10x0.07	BW278	-	-
5~6	25	0.9	+11	+22	+5/52	1.70x1.10x0.07	BW282	-	Q/AT 25196-2018
5~14	19	2.7	+19	+30	+5/150	1.39x0.80x0.10	BW281	-	Q/AT 23911-2016
6~13	21	1.3	+9	+19	+5/42	1.80x1.10x0.07	BW290	-	Q/AT 24453-2017
6~18	27	1.8	+10	+20	+5/55	2.65x1.25x0.07	BW283	-	-
8~12	20	1.6	+15	+24	+5/65	2.30x0.92x0.07	BW291	-	Q/AT 23281-2018

Frequency (GHz)	Gain (dB)	Noise (dB)	P_{-1} (dBm)	OIP3 (dBm)	Power Supply (V/mA)	Chip Size (mm)	Part Number	Substitution Model	Production and Environmental Standard
8~12	24	1.0	+8	+19	+5/20	1.40x0.80x0.07	BW268	-	Q/AT 23967-2016
8~12	24	1.0	+6	+17	+5/20	1.90x0.80x0.07	BW269	-	Q/AT 23845-2016
8~12	22	1.1	+2	+12	+5/14	1.90x0.80x0.07	BW270	-	-
10~18	24	1.1	+9	+19	+5/25	1.34x0.80x0.07	BW296	-	Q/AT 24442-2017
10~20	16	2.5	+5	+15	+5/25	2.0x0.80x0.07	BW1247	-	Q/AT 24795-2018
14~18	26	1.6	+9	+20	+5/55	1.70x0.90x0.07	BW289	-	Q/AT 24834-2018
18~26.5	26	2.2	+10	+19	+5/55	1.90x1.10x0.10	BW292	-	Q/AT 24835-2018
20~34	22	2.0	+4	+16	+5/18	1.50x0.70x0.07	BW1246	-	Q/AT 24810-2018
32~38	28	3.0	+12	+22	+5/35	1.70x0.70x0.07	BW1245	-	Q/AT 24813-2018
34~40	23	2.6	+15	+22	+5/33	1.50x0.70x0.07	BW1244	-	-

Frequency (GHz)	Gain (dB)	Noise (dB)	P_{-1} (dBm)	Ped (dBm)	Power Supply (V/mA)	Chip Size (mm)	Part Number	Substitution Model	Production and Environmental Standard
0.8~2	31	1.6	+17	43(CW)	+5/105	3.4x1.7x0.07	BW2653	-	Q/AT 24854-2018
1.2~1.4	35.5	0.9	+11	50(200us,20%)	+5/55	3.2x1.7x0.07	BW2650	-	Q/AT 24047-2017
6~18	24	2.5	+9	40(200us,20%)	+5/55	4.0x1.85x0.07	BW2668	-	Q/AT 25065-2018
7~13	25	1.8	+6	45(200us,25%)	+5/25	3.6*1.2*0.07	BW2663	-	-
8~12	23	2.1	-1	44(200us,10%)	+5/28	3.5x2.4x0.07	BW2661	-	Q/AT 24907-2018
8~12	23	2.2	-1	44(200us,10%)	+5/25	3.3x2.0x0.07	BW2662	-	Q/AT 24908-2018
8~12	27	2.1	+3	44(200us,10%)	+5/25	3.3x2.0x0.07	BW2657	-	Q/AT 24905-2018
9~16	29	1.7	+10	37(50us,10%)	+5/22	2.8*1.3*0.07	BW2664	-	-
10~18	27	1.8	+9	37(2ms,20%)	+5/20	2.2*1.45*0.07	BW2665	-	-
14~18	27	1.6	+9	37(1ms,40%)	+5/20	3.9*1.3*0.07	BW2666	-	-

Frequency (GHz)	Gain (dB)	Noise (dB)	P_{-1} (dBm)	OIP3 (dBm)	Power Supply (V/mA)	Chip Size (mm)	Part Number	Substitution Model	Production and Environmental Standard
8~12	21	1.5	+8	+18	+10/50	2.20x1.10x0.08	BW293	-	Q/AT 24847-2018
14~18	17	1.8	+17	+28	+15/50	1.70x1.10x0.08	BW294	-	Q/AT 23648-2015

Notes: For all above chips, the case packaging products and the module products can be provided; "*" represents the typical value; and "M" represents the mirror version.

1.2 Power amplifier chip

I) Gain block amplifier chip

Indexes / Model	Frequency range	Gain (dB)			Input VSWR	Output VSWR	P1dB @1.0GHz (dBm)	Device voltage (V)	Working current (mA)	Chip size (mm×mm×mm)
		0.1GHz	1.0GHz	3.0GHz						
NC11170C-103	DC-3	⩾19	⩾18.3	⩾16.5	⩽1.7	⩽1.5	⩾7*	3.1	19	0.43×0.43×0.08
NC11224C-103	DC-3	⩾23.1	⩾22.9	⩾21.7	⩽1.4	⩽1.9	12*	3.4	35	0.51×0.52×0.08
NC11235C-103	DC-3	⩾18.1	⩾18.2	⩾18.4	⩽1.5	⩽2	12*	3.4	35	0.60×0.50×0.08
NC11123C-0035	DC-3.5	⩾13.6	⩾13.6	⩾13.6	⩽1.7	⩽1.6	15.7*	5	53	0.35×0.42×0.08
NC11323C-104	DC-4	⩾21	⩾21	⩾21	1.5*	1.8*	20.8*	5	72	0.70×0.62×0.08
NC11324C-104	DC-4	⩾15	⩾15	⩾15	1.8*	1.6*	19.8*	5	77	0.70×0.62×0.08
NC11269C-105	DC-5	⩾17	⩾17	⩾17	⩽1.4	2*	12*	3.6	35	0.50×0.55×0.08
NC11252C-106	DC-6	⩾17.5	⩾17.5	⩾17.5	2*	2*	20.5*	5	77	0.70×0.63×0.08
NC11236C-106	DC-6	⩾19.6	⩾19.5	⩾19.5	2.5*	2*	21*	5	75	0.80×0.84×0.08
NC11253C-106	DC-6	⩾21	⩾20.5	⩾19.5	2*	2*	21*	5	76	0.70×0.64×0.08

Frequency (GHz)	Function	Gain (dB)	Noise (dB)	P_{-1} (dBm)	OIP3 (dBm)	Turn-off degree (dB)	Power Supply (V/mA)	Chip Size (mm)	Model	Substitution Model	Production and Environmental Standard
0.01~0.8	SiGe,high gain	33	1.9	+10	-	-	+5.0/30	0.55x0.45x0.18	BW600	INA-02184	Q/AT 23463-2015
0.01~1.9	SiGe,high gain	29	3.6	+10.8	-	-	+5.0/26	0.68x0.45x0.18	BW601	UPC2710TB	Q/AT 24183-2016
0.01~3.1	SiGe,low power	16	3.0	-9	-	-	+3.0/6.8	0.60x0.45x0.18	BW630	UPC2749TB	Q/AT 24878-2018
0.1 ~5	-	20	3.6	+11	+22	-	+5.0/35	0.45x0.50x0.10	BW186	NBB500	Q/AT 22487-2012
0.1 ~7	-	18	3.8	+12	+23	-	+5.0/40	0.45x0.50x0.10	BW187	NBB400	-
0.1 ~13	-	12.5	5.2	+13	+25	-	+5.0/50	0.45x0.50x0.10	BW192	NBB310	-
0.1 ~1	-	15.5	1.6	+10	+17	-	+1.8/12	1.00x0.50x0.07	BW180	-	Q/AT 24590-2017
0.1 ~1.5	-	15.5	1.6	+10	+18	-	+1.8/12	1.00x0.50x0.07	BW181	-	Q/AT 22804-2013
0.1~3	-	21	2.2	+19	+28	-	+5.0/50	1.10x0.90x0.07	BW204	-	Q/AT 24726-2017
0.1~3	-	13	5.0	+17	+30	-	+5.0/58	1.00x0.50x0.07	BW200	-	-
0.1 ~3.5	Including input filter	15	4.5	+16	+25	-	+5.0/50	1.00x0.50x0.07	BW184	-	Q/AT 22316A-2018
0.1 ~6.5	-	14	4.0	+18	+28	-	+5.0/65	1.00x0.50x0.07	BW195	-	Q/AT 24872-2018
0.1 ~6.5	-	14	4.5	+18	+27	-	+5.0/55	1.00x0.50x0.07	BW188	-	Q/AT 24593-2017
0.1 ~7	-	14	5.5	+17	+28	-	+5.0/65	1.00x0.50x0.07	BW203	-	Q/AT 24594-2017
0.5 ~9	Including input DC block	13	4.5	+19	+27	-	+5.0/75	1.00x0.50x0.07	BW201	-	Q/AT 24725-2017
0.5 ~9	Including input DC block	13	4.5	+17	+25	-	+5.0/75	1.00x0.50x0.07	BW189	-	Q/AT 22317-2015

II) GaAs Driver Amplifier Chip

Frequency (GHz)	Gain (dB)	Noise (dB)	P_{-1} (dBm)	Psat (dBm)	OIP3 (dBm)	Power Supply (V/mA)	Chip Size (mm)	Part Number	Substitution Model	Production and Environmental Standard
2~6	24	3.5	+14	+16	+24	+5.0/60	1.60x0.90x0.10	BW563	-	Q/AT 24890-2018
4~8	20	4.0	+16	+16.5	+23	+5.0/70	1.40x0.90x0.07	BW574	-	Q/AT 24295-2016
4~19	21	10.0	+22.5	+23	+36	+5.0/180	2.35x1.10x0.07	BW1764	-	-
4.5~6	22.5	5.5	+18.5	+20	+28	+5.0/60	1.40x1.40x0.07	BW572	-	Q-AT 24880-2018
5~20	22	10.0	+20	+21	+28	+5.0/120	1.35x1.25x0.07	BW573	-	Q/AT 23909-2016
6~13	19.5	3.0	+20	+21	+28	+5.0/130	1.40x0.80x0.07	BW1752	-	Q/AT 24841-2018
6~20	14.5	5.5	+19.5	+20	+26	+5.0/107	0.94x0.94x0.07	BW1768	-	Q/AT 24906-2018
6~18	18	-	+26	+27	-	+5.0/320	2.00x1.30x0.07	BW1765	-	Q/AT 24583-2017
6~18	15	7.0	+18	+20	+26	+5.0/95	1.10x0.98x0.10	BW228G	-	Q/AT 25054-2018
6~18	18	10	+16	+17	+24	+5.0/55	1.5x0.95x0.07	BW576	-	Q/AT 24451-2017
7~13	17	5.0	+17	+17.5	+30	+28/22	1.90x0.90x0.07	BW1761	-	Q/AT 24413-2018
8~12	21	+6.0	+17	+18	+27	+5.0/65	1.50x0.80x0.07	BW583	-	Q/AT 24818-2018
8~12	20	3.0	+21	+22	+30	+5.0/110	1.40x0.80x0.07	BW1755	-	Q/AT 24366-2017
8~12	19	5.0	+25	+25.5	+30	+28/75	1.85x0.90x0.07	BW1758	HMC451	Q/AT 24588-2018
10~15	28	6.0	+14	+16	+24	+5.0/60	1.40x0.90x0.07	BW566	-	Q/AT 24891-2018
10~15	23	11.0	+11.5	+13	+22.5	+5.0/60	1.55x0.90x0.07	BW567	HMC441	Q/AT 24892-2018
10~20	17.5	5.0	+18	+19	+28	+5.0/80	1.29x0.75x0.07	BW561	-	Q/AT 24581-2017
10~26	20	7.0	+17	+18	+27	+5.0/90	1.70x0.90x0.07	BW1766/ BW1767	HMC441	Q/AT 24657-2017
14~18	9	4.0	+16	+17	+22	+5.0/25	0.9x0.65x0.07	BW582	-	Q/AT 24921-2018
14~18	20	7.0	+21	+22	+26	+7.0/65	1.60x0.90x0.07	BW1756	-	Q/AT 24558-2017
30~38	15	6.0	+14	+15	+18	+5.0/46	1.60x1.00x0.07	BW1769	-	-
0.5~3	12	2.7	+18	+19	+29	+5.0/45	1.90x1.20x0.07	BW1750	-	-
0.5~4	21	5.5	+16	+17	+26	+5.0/55	1.60x1.90x0.07	BW581	-	Q/AT 24155-2016
0.8~6.5	21	3.5	+17	+18	+25	+5.0/65	1.86x1.00x0.07	BW553	-	Q/AT 23374-2014

Frequency (GHz)	Gain (dB)	Noise (dB)	P_{-1} (dBm)	Psat (dBm)	OIP3 (dBm)	Power Supply (V/mA)	Chip Size (mm)	Part Number	Substitution Model	Production and Environmental Standard
1~1.5	16	3.0	+18	+19	+29	+5.0/55	1.60x1.00x0.07	BW1751	-	-
1~3	22	7.5	+15	+17	+26	+5.0/55	2.00x1.40x0.10	BW564	-	Q/AT 24889-2018
1~4	23	3.5	+17	+18.5	+28	+5.0/65	1.40x1.65x0.10	BW569	-	Q/AT 23912-2016
2~3.5	15	5.5	+19	+20	+29	+5.0/90	1.55x1.00x0.07	BW586	-	-
2~6	16	5.5	+16	+18	+26	+5.0/75	1.90x1.00x0.08	BW555	-	Q/AT 23646-2015
2~6	24	3.0	+14	+15.5	+22	+5.0/50	1.50x1.00x0.08	BW556	-	Q/AT 24840-2017
2~6	26	3.4	+21	+22	+28	+5.0/105	1.50x1.00x0.07	BW552	-	Q/AT 23645-2015

III) GaAs power amplifier chip

Frequency (GHz)	Gain (dB)	Psat (dBm)	IM3 (dBc)	Efficiency (%)	Power Supply (V/mA)	Chip Size (mm)	Part Number	Substitution Model	Production and Environmental Standard
1~1.4	29	+28	-40	48	+5.0/0.38	3.00x1.575x0.10	BW239	-	-
1.2~1.4	26	+26	-42	33	+5.0/0.24	2.00x1.425x0.10	BW241	-	-
1.2~1.4	26	+26	-42	36	+5.0/0.24	2.00x1.325x0.10	BW243	-	-
2.2-3.5	22	+29	-40	35	+9.0./0.24	1.90x1.30x0.10	BW242	-	Q-AT 24881-2018
2.7~3.5	27	+41	-	35	+8.5/3.00	4.07x4.35x0.10	BW234	-	Q/AT 22921-2013
2.7~3.5	22	+37	-	38	+8.0/1.70	3.50x2.40x0.10	BW1150	-	Q/AT 24855-2018
4~5	28	+41	-30	38	+8.5/3.00	4.15x4.30x0.10	BW1151	-	Q-AT 24902-2018
6.8~9	28	+33	-40	33	+6.0/0.90	3.81x2.57x0.10	BW210	-	Q/AT 22191-2011
8~12	23	+29	-30	30	+8.0/0.21	2.66x1.54x0.10	BW222	-	-
8~12	23.5	+29	-35	40	+8.0/0.18	2.49x1.20x0.10	BW222G	-	-
12.7~15.4	24	+32	-42	28	+6.0/0.72	3.51x2.25x0.10	BW212	EMMC075	Q/AT 25047-2018
12.8~14.6	22	+32	-25	32	+5.0/0.78	3.70x2.15x0.10	BW224	-	-
15~17.5	21	+36	-	25	+8.0/1.40	4.37x3.47x0.10	BW220	-	Q-AT 24883-2018
16.2~17.6	22	+34	-	29	+8.0/0.72	3.60x2.15x0.10	BW227	-	Q-AT 24884-2018
24.2~27	20	+33	-	27	+6.0/1.00	2.49x1.90x0.10	BW238	-	-
30~39	19	+28.5	-	30	+5.0/0.45	3.40x1.70x0.10	BW1154	-	-
30~39	18	+26	-	37	+5.0/0.24	2.60x1.10x0.10	BW1153	-	-
32~38	23	+29.5	-	35	+5.0/0.50	3.65x1.70x0.10	BW1152	-	-

Indexes / Model	Frequency range (GHz)	Psat (dBm)	P1dB (dBm)	Gain (dB)	Gain flatness (dB)	Additional efficiency (%)	Input VSWR	Quiescent current (mA)	Working current (mA)	Chip size (mm×mm×mm)
NC11315C-103	DC-3	24*	23*	14*	-	40*	1.5*	110	5	0.98×0.98×0.10
NC1170C-1216A	1-1.6	31*	29*	31*	±0.8*	⩾30	1.7*	440	8	2.80×1.65×0.10
NC11127C-1319	1.3-1.9	⩾23	21*	⩾17	±0.5*	⩾30	2*	80	8	1.76×1.72×0.10
NC11129C-1319	1.3-1.9	⩾24	⩾22	⩾9	±0.5*	⩾30	1.8*	100	8	1.60×2.30×0.10
NC11258C-1924P2	1.9-2.4	33*	-	28*	-	45*	1.6*	460	8	2.30×1.80×0.10
NC11286C-206	1.9-6.1	30*	29*	22*	±0.75*	30*	1.8*	360	8	3.10×2.50×0.10
NC1121C-203M	2-3	⩾28.5	⩾28	15*	±0.5*	-	2.5*	300	5～8	1.42×1.60×0.10
NC11312C-206	2-6	-	20*	-	±0.5*	-	1.5*	90	5	1.43×1.17×0.07
NC11131C-2127	2.1-2.7	⩾33	31*	29*	±0.5*	⩾30	2*	800	8	2.14×1.58×0.10
NC11132C-2127	2.1-2.7	⩾34	33*	⩾23	±0.5*	⩾30	2*	1000	8	2.50×1.78×0.10

Model \ Indexes	Frequency range (GHz)	Psat (dBm)	P1dB (dBm)	Gain (dB)	Gain flatness (dB)	Additional efficiency (%)	Input VSWR	Quiescent current (mA)	Working current (mA)	Chip size (mm×mm×mm)
NC11137C-2227	2.2-2.7	24*	22*	17*	±0.5*	-	2*	100	8	1.62×1.70×0.10
NC11136C-2227A	2.2-2.7	26*	24*	12*	±0.5*	-	1.7*	100	8	1.42×1.80×0.10
NC11238C-2229	2.2-2.9	29*	-	22*	-	-	1.5*	250	5～8	2.50×2.15×0.08
NC11167C-204	2.2-4.3	⩾30	-	25*	±1.5*	35*	1.6*	450	8	2.50×2.30×0.10
NC11374C-2735	2.7-3.5	21.5*	19.5*	13*	±0.6*	25*	1.2*	110	5	1.70×1.65×0.08
NC11226C-305	3-5	28*	-	25*	-	30*	1.6*	380	9	2.60×1.90×0.10
NC1128C-3045A	3-5.3	-	23*	23*	±0.6*	-	⩽2	180	5	1.50×1.75×0.10
NC11375C-408	4-8	23*	21.5*	18.5*	±0.5*	-	1.7*	96	5	1.60×1.30×0.07
NC11149C-506AM	5-6	27*	25*	21*	±0.2*	-	1.5*	200	8	2.10×1.50×0.10
NC1194C-506	5-6	⩾30	-	22.5*	±0.5*	-	1.7*	550	8	2.38×1.60×0.10
NC1187C-506	5-6	⩾32.5	31*	22.5*	±0.5*	-	2*	650	8	2.38×1.60×0.10
NC11165C-506	5-6	38*	-	26*	±0.5*	37*	1.5*	2800	8	3.60×3.15×0.10
NC11249C-506P10	5-6	40*	-	25*	±0.4*	45*	⩽2.5	2300	8	3.88×2.85×0.10
NC11242C-506P12	5-6	40.8*	-	23*	±0.4*	40*	2.5*	3600	8	4.50×4.20×0.10
NC11256C-506P16	5-6	42*	-	24*	±0.4*	38*	2*	3800	8.5	4.35×4.08×0.10
NC11232C-507	5-7	28*	-	20*	±0.5*	38*	2*	200	8/5	2.00×1.80×0.10
NC11142C-520	5-20	20*	20*	22*	±1.5*	-	1.5*	130	5	1.60×1.20×0.10
NC1113C-613	6-13	10.5*	9.5*	⩾8.5	±0.75*	-	⩽2	35	5～8	1.50×1.50×0.10
NC1113C-613AM	6-13	-	8*	9*	±1*	-	⩽2	35	5～8	1.50×1.50×0.85
NC11255C-618	6-18	-	21*	15.5*	±0.5*	-	1.8*	105	5	1.07×1.07×0.07
NC11244C-618	6-18	-	21.5*	16*	±1.5*	-	⩽2.4	108	5	1.10×1.10×0.07
NC11158C-618	6-18	⩾34.5	-	⩾18	⩽±1	⩾20	⩽3.5	1100	8	4.30×5.75×0.10
NC11128C-618	6-18	35*	-	19*	-	25*	1.8*	1200	8	4.30×2.90×0.10
NC11278C-618	6-18	24*	22*	20*	±1*	-	1.8*	135	5	1.35×1.10×0.07
NC11261C-618	6-18	-	11*	8*	±1*	-	1.8*	28	5	0.76×0.86×0.07
NC11150C-6585A	6.5-8.5	30.5*	-	⩾25	±1*	-	⩽1.7	400	8	3.20×2.30×0.10
NC11245C-715	7-15	-	21*	18*	±1*	-	⩽2.1	105	5	1.00×1.07×0.07
NC1129C-812	8-12	23*	21*	20*	±1*	-	1.5*	80	8	2.00×1.40×0.08
NC11177C-812	8-12	27*	-	23*	±0.75*	30*	2*	150	8	2.50×1.28×0.10
NC11166C-812	8-12	33*	-	24*	⩽±0.75	⩾40	⩽2	700	8	2.80×1.50×0.10
NC11282C-812P6	8-12	38*	-	21*	±0.5*	35*	1.5*	1840	8	3.05×2.20×0.08
NC11277C-812P12	8-12	⩾41	-	20*	±0.5*	37*	⩽2	3200	8	3.50×4.00×0.08
NC11271C-8510P15A	8.5-10.5	41.8*	-	20*	±0.5*	37*	⩽2	3600	8	3.20×4.00×0.08
NC11355C-915	9-15	28*	27*	20*	±1*	40*	2*	200	5	2.32×1.02×0.70
NC11148C-1215	12-15	34.5*	-	19.5*	±0.5*	32*	2.5*	1100	8	3.50×1.62×0.10
NC11147C-1230	12-30	-	17.5*	15.5*	±1.5*	-	1.6*	118	5	2.70×1.20×0.10
NC11143C-1317	13-17	24*	22*	20*	±1.8*	-	1.5*	130	8	2.00×1.50×0.07
NC11331C-1319P1	13-19	30*	29*	27*	±0.75*	30*	2*	200	8	2.70×1.20×0.08
NC11302C-1314P4	13.5-14.5	36.3*	36*	23*	±0.5*	32*	2*	1700	7	3.40×2.50×0.08
NC11320C-1319	13-19	22*	20.5*	19*	±0.5*	-	1.6*	110	5	1.75×1.00×0.07
NC11300C-1418	14-18	20*	18*	18*	±0.5*	-	1.7*	65	5	1.75×1.00×0.07
NC11201C-1418	14-18	⩾31	-	⩾19	⩽±0.4	30*	⩽2.5	600	8	3.45×2.65×0.10
NC11160C-1418	14-18	⩾34	-	⩾19	±0.4*	30*	2.0*	660	8	3.65×1.70×0.10

Model \ Indexes	Frequency range (GHz)	Psat (dBm)	P1dB (dBm)	Gain (dB)	Gain flatness (dB)	Additional efficiency (%)	Input VSWR	Quiescent current (mA)	Working current (mA)	Chip size (mm×mm×mm)
NC11115C-1518	15-17.6	⩾33	-	⩾19	±0.5*	28*	2.5*	660	8	3.45×1.54×0.10
NC11200C-1618	16-18	⩾34	-	⩾19	⩽±0.3	35*	⩽2	660	8	3.45×1.65×0.10
NC11358C-1720	17.5-20.5	27.5*	26.5*	20*	±1*	35*	2*	70	5	1.83×1.48×0.07
NC11313C-1821	18-21.5	⩾29	⩾28	⩾21	⩽±0.3	⩾33	⩽2.2	300	6	2.70×1.55×0.07
NC11248C-1822	18-22	⩾26	⩾25	⩾22	⩽±0.5	⩾33	⩽2.5	180	5	1.85×1.20×0.08
NC11247C-1823P2	18.5-23	⩾34	⩾33	⩾22	⩽±0.5	⩾20	⩽2	1900	6	4.40×2.50×0.08
NC11274C-1922	19-22	⩾25	⩾23	⩾23	⩽±0.5	⩾35	⩽2	130	5	1.85×1.10×0.08
NC11349C-1922	19-22	24.5*	23.5*	26.5*	±1*	38*	2*	110	5	1.90×1.05×0.70
NC11270C-1923	19-23	⩾26	⩾25	⩾21	⩽±0.5	35*	⩽2	160	5	1.70×1.10×0.08
NC11352C-1923	19-23	⩾20	⩾19	⩾20	⩽±0.25	⩾26	⩽2	60	5	1.75×1.20×0.07
NC11308C-1921	19.5-22	⩾23	⩾22	⩾23	⩽±0.3	⩾30	⩽2	80	5	1.84×1.10×0.07
NC11151C-2227	22-27	32*	⩾31	⩾18	⩽±0.5	⩾30	⩽2.5	800	6	3.37×2.50×0.08
NC11301C-2427P1	24-27	⩾30	⩾29	⩾22	±0.25	⩾35	⩽2	350	5.7	2.65×1.55×0.07
NC11310C-2431P4	24-31	36*	35*	18*	±0.5*	22*	2*	2500	6	4.29×4.50×0.08
NC11311C-2431P2	24-31	34*	33*	19*	±0.5*	22*	1.5*	1200	6	3.18×2.25×0.08
NC11263C-2526	24.5-26	⩾24	⩾23	⩾25	⩽±0.5	⩾35	⩽2.5	115	5	1.85×1.20×0.08
NC11275C-2526	25-26	⩾23	⩾22	⩾21	⩽±0.5	⩾33	⩽2	95	5	2.00×1.10×0.08
NC11174C-2427	24.5-27	-	⩾13	⩾8	⩽±0.5	-	⩽2	20	5	1.80×1.50×0.08
NC11268C-2526	25-26.5	⩾16	⩾15	⩾23	⩽±0.5	⩾20	⩽2	35	5	2.00×1.10×0.08
NC11172C-2527	25-27	26*	⩾25	⩾18	⩽±0.75	⩾35	⩽2	140	5	1.80×1.15×0.08
NC11379C-2527	25-27	⩾27	⩾26.5	⩾21	±0.5*	30*	2*	230	6	2.50×1.55×0.07
NC11220C-2627	26-27	⩾21	⩾19	⩾24	±0.5*	⩾35	⩽2.5	60	5	1.80×1.10×0.08
NC11348C-2931	28-32	24*	23*	24*	±1*	38*	2*	120	5	2.10×1.10×0.07
NC11241C-2831	28.5-31.5	-	⩾14	⩾15	⩽±1	-	⩽2.5	50	5	1.70×1.10×0.08
NC11265C-2931	28.5-31.5	⩾25	⩾24	⩾22	⩽±0.5	⩾30	⩽2.5	115	5	2.00×1.10×0.08
NC11332C-2931P3	29-31	⩾35	⩾34	⩾24	⩽±0.3	⩾22	⩽2.5	1600	6	3.67×2.70×0.07
NC11307C-2931	29-31.5	⩾25.5	⩾24	⩾25.5	⩽±0.3	⩾35	⩽2.5	110	5	2.10×1.10×0.07
NC11354C-3040P1	30-40	30*	28*	20*	±1*	20*	1.5*	630	4.5	3.25×1.80×0.10
NC11333C-3136	31-36	25*	22*	22*	±1*	25*	2.5*	250	4.5	3.71×1.76×0.10
NC11329C-3138	31-38	28*	26*	18*	±1*	26*	2.5*	260	5	3.52×1.00×0.10
NC11353C-3240	32-40	28*	25*	20*	±1*	35*	1.2*	250	5	3.35×1.75×0.10
NC11367C-3240	32-40	23*	20*	23*	±1*	35*	2.5*	80	5	2.25×1.03×0.10
NC11328C-3337	33-37	22*	21*	25*	±1.5*	35*	2.5*	60	5	2.80×1.17×0.07
NC11145C-3337	33-37	⩾27	-	⩾16	-	⩾20	-	500	5.5	3.95×1.63×0.10
NC11175C-3436	34-36	⩾30	28*	17*	±1.0*	30*	2.5*	500	6	3.95×1.69×0.10
NC11216C-3436	34-36	36.5*	-	15*	±0.5*	20*	⩽2.5	3500	6.5	3.07×3.71×0.10
NC11314C-3743	37-43	24*	22*	22*	±1*	30*	2*	150	4	1.90×1.18×0.10
NC11297C-5861	58-61	26*	25.5*	17.5*	±0.75*	25*	2*	220	4	3.50×1.65×0.07
NC11317C-8896	88-96	20*	-	15*	±1*	12*	-	190	4	1.60×4.40×0.07

IV) GaN Driver Amplifier Chip

Frequency (GHz)	Gain Power (dB)	Psat (dBm)	OIP3 (dBm)	Efficiency (%)	Power Supply (V/mA)	Chip Size (mm)	Part Number	Substitution Model	Production and Environmental Standard
1.2~1.6	23	+26.5	+30	22	+28/0.10	2.15x1.15x0.08	BW579	-	Q/AT 24919-2018

Frequency (GHz)	Gain Power (dB)	Psat (dBm)	OIP3 (dBm)	Efficiency (%)	Power Supply (V/mA)	Chip Size (mm)	Part Number	Substitution Model	Production and Environmental Standard
2~6	17	+26	-	-	+28/0.13	1.80x1.50x0.08	BW575	-	Q/AT 24917-2018
5~6	21	+29	+30	25	+28/0.10	1.50x1.20x0.08	BW562	-	-
5~6	9	+30	+35	20	+28/0.15	1.70x1.10x0.08	BW1775	-	Q/AT 24151-2017
8~12	16	+24	+28	10	+28/0.12	2.00x1.40x0.08	BW570	-	Q-AT24898-2018
8~12	16	+26	+30	15	+28/0.13	1.80x1.40x0.08	BW571	-	-
8~12	25	+27.5	+34	18	+28/0.09	2.40x1.250x0.08	BW1777	-	-
16~18	24	+34	+32	43	+28/0.20	2.5x1.3x0.08	BW1774	-	Q/AT 24401-2017

V) GaN power amplifier chip

Model \ Indexes	Frequency range (GHz)	Psat (dBm)	Power gain (dB)	Gain flatness (dB)	Additional efficiency (%)	Input VSWR	Quiescent current (mA)	Working voltage (V)	Working conditions	Chip size (mm×mm×mm)
NC11687C-0320P10	0.35-2.0	40	15	-	40	2.5	-	28	Continuous wave	3.40×1.70×0.08
NC11675C-0820P10	0.8-2.0	40	27	±1.5	40	2	500	28	Pulse	1.50×1.30×0.10
NC11636C-1924	1.9-2.4	26.2	20	±1.0	20	1.5	75	28	Continuous wave	2.50×2.60×0.10
NC11651C-218P8	2-18	⩾39	7	±1.0	⩾20	2	880	28	Continuous wave	2.50×4.85×0.10
NC11647C-218P2	2-18	34	7	⩽±1.7	15	2	500	28	Continuous wave	2.80×2.50×0.10
NC11688C-218P10	2-18	40	15	-	20	2.5	-	28	Continuous wave	5.00×3.50×0.08
NC11690C-2128P10	2.1-2.8	40	27	±0.5	50	2	500	28	Continuous wave	2.35×2.70×0.08
NC11648C-2325P8	2.3-2.5	⩾39	⩾26	⩽±0.4	50	1.6	500	28	Pulse	2.42×2.80×0.10
NC11648C-2325P8M	2.3-2.5	⩾39	⩾26	⩽±0.4	50	1.6	500	28	Pulse	2.42×2.80×0.10
NC11629C-2735	2.7-3.5	20	10	±1	⩾10	1.5	28	28	Pulse	1.55×1.66×0.10
NC116122C-204P30	2-4	45	18	±0.5	40	1.5	2200	28	Continuous wave	3.50×4.20×0.10
NC116147C-2735P5	2.7-3.5	38	25	±0.5	47	2	-	28	Pulse	2.30×1.89×0.10
NC116142C-3436P40	3.4-3.6	46	22	±0.5	40	1.9	400	28	Continuous wave	4.00×3.60×0.10
NC116143C-3742P8	3.7-4.2	39	20	±0.5	63	2.2	90	28	Continuous wave	2.40×1.40×0.10
NC116133C-408P20	4-8	43	21	±0.5	35	2	1350	28	Continuous wave	3.65×4.00×0.08
NC11634C-408P25	4-8	44	22	±1	36	2.4	1500	28	Pulse	3.55×4.17×0.10
NC11689C-512P40	5-12	46	21	⩽±1	30	1.2	2500	28	Pulse	5.00×5.70×0.08
NC116131C-514P15	5-14	41.5	20	±0.5	38	2	1000	28	Pulse	3.80×2.00×0.08
NC116112C-514P20	5-14	43	18	±0.5	30	1.6	-	28	Pulse	4.80×3.00×0.08
NC116137C-618P6	6-18	38	17	±0.5	25	2.5	560	28	Continuous wave	3.00×1.80×0.08
NC11669C-618P10	6-18	40	16	±0.5	20	2.5	1400	28	Continuous wave	3.40×4.10×0.08
NC116128C-713P25	7-13	44	21	±0.5	35	2.1	2000	28	Pulse	3.50×3.50×0.80
NC116134C-713	7-13	26	16	±0.5	20	2	60	28	Pulse/Continuous wave	2.06×1.56×0.08
NC116114C-810P60	8-10	48	22	±0.5	45	2	3100	28	Pulse	3.70×4.00×0.08
NC11677C-812P1	8-12	30	21	±0.5	20	1.8	100	28	Continuous wave	1.92×1.30×0.08
NC11678C-812	8-12	28	17	±0.5	20	1.6	140	28	Pulse	1.92×1.33×0.10
NC11650C-812P25	8-12	44.3	24	⩽±0.5	42	2	1000	28	Pulse	3.10×2.15×0.10
NC11619C-812P50	8-12	47	20	⩽±0.8	⩾40	⩽2.0	2500	28	Pulse	4.70×5.20×0.10
NC116126C-812	8-12	26	16	±0.5	20	2.2	60	28	Continuous wave	2.06×1.56×0.10
NC116127C-812P20	8-12	43	21	±0.5	35	2	1000	28	Continuous wave	3.20×2.70×0.80
NC116110C-8510P25	8.5-10.5	44	24	-	48	-	2500	28	Pulse	2.60×3.10×0.80
NC116102C-8510P50	8.5-10.5	47	21	±0.5	45	2	2000	28	Pulse	4.00×5.10×0.08
NC116121C-915P30	9-15	45	20	±0.5	30	2	1500	28	Pulse/Continuous wave	2.50×3.50×0.10

Model \ Indexes	Frequency range (GHz)	Psat (dBm)	Power gain (dB)	Gain flatness (dB)	Additional efficiency (%)	Input VSWR	Quiescent current (mA)	Working voltage (V)	Working conditions	Chip size (mm×mm×mm)
NC116123C-915P20	9-15	42	21	⩽±0.75	35	2	1000	28-30	Pulse	2.50×1.80×0.10
NC116117C-1011P50	10-11	47	21	±0.5	40	2	1900	28	Pulse	3.70×4.90×0.08
NC11670C-1018	10-18	27	14	±1.5	13	2.0	170	28	Continuous wave	1.78×1.44×0.10
NC11656C-1018	10-18	26	14	±2	-	2	160	28	Continuous wave	1.90×1.33×0.10
NC11661C-1018	10-18	27	17	±1.5	12	2	190	28	Continuous wave	2.18×1.32×0.10
NC11635C-1018P22	10-18	44	18	-	25	2	2000	28	Pulse	3.00×3.20×0.10
NC116124C-1113P25	11-13	44	20	±0.5	35	2.5	1500	28	Continuous wave	4.00×4.10×0.10
NC116144C-1217P35	12-17	45.5	21.5	±0.5	35	1.8	2630	28	Pulse	4.10×4.15×0.10
NC116146C-1217P40	12-17	46	22	±0.5	36	2	2700	28	Pulse	4.00×4.15×0.10
NC116156C-1218P30	12-18	45	20	±0.5	30	2	2380	28	Pulse	4.10×4.15×0.10
NC116154C-1315P40	13-15	46	21	±0.5	35	2.5	3000	28	Pulse	3.80×5.90×0.10
NC116129C-1315P35	13-15	45.5	22	±0.3	33	2	-	28	Continuous wave	5.00×6.65×0.08
NC11680C-1415P25	14-15	44	21	±1.5	30	2.5	2000	28	Pulse	3.40×4.10×0.10
NC116136C-1415P30	14-15	45	22	-	35	-	-	28	Continuous wave	5.00×6.65×0.80
NC11691C-1416P50	14-16	47	21	±0.4	30	2.5	3000	32	Pulse	3.50×5.00×0.08
NC116155C-1418P40	14-18	46	21	±0.5	30	2.35	-	28	Pulse	3.80×4.00×0.08
NC116157C-1418P40	14-18	46	21	±0.3	35	2.5	3000	28	Pulse	3.50×5.20×0.10
NC11630C-1418P15	14-18	42	18	±0.5	37	2.5	600	28	Pulse	3.00×2.10×0.08
NC11663C-1418	14-18	26	21	±1	11	2	190	28	Continuous wave	2.18×1.32×0.10
NC11681C-1518P50	14.5-18	47	20	±0.4	35	2.5	3000	32	Pulse	3.50×5.00×0.08
NC116106C-1517P9	15-17	39.5	20	±0.3	37	-	120	28	Pulse	2.30×1.50×0.10
NC116159C-1518P14	15-18	41.5	23	±0.5	35	1.5	1500	28	Pulse	4.10×2.30×0.10
NC116138C-1517P60	15.5-17.5	48	20	±0.5	30	2.5	3000	28	Pulse	3.60×5.90×0.10
NC11613C-1618P30	15.5-18	45	20	⩽±0.5	33	⩽2.5	2500	28	Pulse	3.60×3.50×0.10
NC116153C-1618P6	16-18	38	19	-	30	-	280	28	Pulse	2.30×1.50×0.80
NC116107C-1618P9	16-18	39.5	21	±0.3	36	2	200	28	Pulse	2.30×1.50×0.10
NC116105C-1826P7	18-26	38.5	11	±1.5	18	-	-	22	Continuous wave	3.20×2.70×0.10
NC116103C-1921P20	19-21	43	18	±0.5	20	2.5	1500	28	Pulse	3.50×4.10×0.80
NC116139C-2128P10	24-28	40	17	±0.5	30	2.1	1100	20	Continuous wave	3.57×3.17×0.10
NC116141C-2427P5	24.25-27.5	37	18	±0.5	31	2.2	630	20	Continuous wave	3.21×1.57×0.10
NC116140C-2731P10	27-31	40	18	±0.5	30	2.2	1270	20	Continuous wave	3.60×3.08×0.10
NC11696C-3238P12	32-38	41	13	±0.75	20	2.5	2000	22	Pulse/Continuous wave	4.67×4.42×0.10
NC116119C-3238P2	32-38	32	18	±0.5	20	2.5	300	22	Continuous wave	3.11×1.21×0.10
NC116125C-3238P6	32-38	38	15	±1.0	22	2.5	1500	22	Pulse	4.70×2.50×0.10
NC11673C-3240P1	32-40	30	18	±1	20	2.0	200	22	Pulse	3.14×1.25×0.10
NC11674C-3337P10	33-37	40	14	±2	20	2.5	2400	22	Pulse	5.09×4.52×0.10
NC116109C-3436P20	34-36	43	14	±0.5	25	2	3500	22	Pulse	5.37×4.36×0.10
NC11672C-3436P15A	34-36	41.8	13.8	±0.5	20	2.5	2500	22	Pulse	4.95×4.45×0.10
NC116118C-3437P10	34.5-37.5	40	12	±1.5	25	2	2000	22	Pulse	4.88×4.44×0.10
NC116150C-4345P10	43.5-45.5	40	13	±0.5	20	2	1500	22	Pulse/Continuous wave	5.26×5.45×0.10
NC11686C-9096P1	88-96	30	11	±1	＞15	2	350	15	Continuous wave	3.30×1.50×0.05
NC116104C-9096	90-96	25	-	±0.5	17	2.5	90	15-18	Continuous wave	3.20×1.40×0.05

Frequency (GHz)	Gain Power (dB)	Psat (dBm)	Efficiency (%)	Power Supply (V/mA)	Chip Size (mm)	Part Number	Substitution Model	Production and Environmental Standard
0.2~1.8	11	+38	54	+28/0.38	2.30x1.60x0.08	BW1180	-	Q/AT 24311-2016
0.2~2.2	10	+39.5	50	+28/0.65	2.70x1.60x0.08	BW1167	-	-
1.2~1.6	26	+40	50	+28/0.80	3.00x2.10x0.08	BW1194	-	-
2~6	19	+44	36	+28/3.0	3.50x4.10x0.08	BW1158	-	-
2.7~3.5	21	+43	45	+28/1.80	3.30x2.24x0.08	BW258	-	Q/AT 23082-2018
2.7~3.5	21	+41	48	+28/1.10	2.94x2.24x0.08	BW259	-	Q/AT 23287-2014
2.7~3.5	24	+40	40	+28/0.90	2.90x2.20x0.08	BW1193	-	Q/AT 25055-2018
4.2~5	23	+45	50	+28/2.40	3.60x3.85x0.08	BW1172	-	Q/AT 24752-2017
4.4~5.1	19	+40	48	+28/0.90	2.80x2.00x0.08	BW1195	-	-
4.4~6	22	+43	48	+28/1.70	3.00x2.24x0.08	BW252	-	-
4.4~6	20.5	+44.5	47	+28/2.20	2.85x3.50x0.08	BW1168	-	-
4.5~7.5	19	+39	42	+28/0.80	3.30x1.50x0.08	BW1179	-	Q/AT 24375-2017
5~6	20.5	+40.5	47	+28/0.90	2.80x2.00x0.08	BW1198	-	Q/AT 24916-2018
5~6.5	22	+36	48	+28/0.35	1.70x1.40x0.08	BW251	-	Q-AT 24899-2018
7~9	21	+41	44	+28/1.10	3.00x2.00x0.08	BW1196	-	Q-AT 24900-2018
7~13	22	+45	36	+28/3.50	3.95x3.80x0.08	BW1165	-	Q/AT 24876-2018
8~12	21	+43	40	+28/1.90	3.00x2.00x0.08	BW253	-	-
8~12	22	+44	40	+28/1.00	3.35x3.50x0.08	BW1164	-	Q-AT 24903-2018
12.5~15	22.5	+46.5	36	+28/1.70	4.05x6.35x0.08	BW1163	-	Q-AT 24923-2018
13.5~17.5	20	+44	36	+28/2.80	3.30x3.65x0.08	BW1187	-	Q/AT 24462-2017
14~18	20	+42	36	28/1.80	3.00x2.00x0.08	BW255	-	Q-AT 24901-2018
14.5~17	20	+42	34	28/1.70	3.00x2.00x0.08	BW254	-	Q/AT 24819-2018
19~21	15	+40	29	28/1.20	2.80x2.00x0.08	BW248	-	-
26~30	17	+37	30	20/0.90	3.45x1.82x0.08	BW1175	-	-
32~38	17	+37	27	20/1.00	3.40x1.60x0.08	BW1174	-	-

Notes: For all above chips, the case packaging products and the module products can be provided.

VI) GaAs Bidirectional Amplifier Chip

Frequency (GHz)	Function	Gain Power (dB)	Psat (dBm)	Noise (dB)	Power Supply (V/mA)	Control Voltage (V)	Chip Size (mm)	Part Number	Substitution Model	Production and Environmental Standard
0.5~2	Bidirectional amplifier	24	+16	4.5	+5.0/60	0/+5	2.40x2.20x0.07	BW595	-	Q/AT 24821-2018
0.5~2	Bidirectional amplifier	17	+16	2.5	+5.0/50	0/+5	2.40x1.80x0.07	BW1795	-	Q/AT 24560-2017
0.7~3	Bidirectional amplifier	12	+17	4.0	+5.0/55	0/-5	1.65x2.40x0.07	BW596	-	Q/AT 24915-2018
0.8~3.5	Bidirectional amplifier	16	+18	2.8	+5.0/65	0/+5	1.70x2.10x0.07	BW1789	-	Q/AT 24926-2018
0.8~3.5	Bidirectional amplifier	25 13	+19 +19.5	3.5 3.0	+5.0/100 +5.0/75	0/+5	3.20x2.00x0.07	BW1790	-	Q/AT 24927-2018
1~3	Bidirectional amplifier	24	+16	5.0	+5.0/60	0/-5	2.20x2.10x0.07	BW597	-	Q/AT 24914-2018
1~3	Bidirectional amplifier	21	+15.5	5.0	+5.0/60	0/-5	2.20x2.10x0.07	BW598	-	Q/AT 24041-2018
1~3	Bidirectional amplifier	19 21	+16 +16	7.0 5.0	+5.0/60 +5.0/60	0/+5	2.45x2.90x0.07	BW1792	-	Q/AT 24404-2017
1~4.5	Bidirectional amplifier	13	+16	4.0	+5.0/70	0/+5	1.70x2.05x0.07	BW589	-	Q/AT 24912-2018
1~5	Bidirectional amplifier	19	+15	5.0	+5.0/70	0/+5	1.70x2.30x0.07	BW590	-	Q/AT 24911-2018
2~18	Bidirectional amplifier	14	+12	4.0	+5.0/60	0/-5	3.10x2.10x0.07	BW1793	-	Q/AT 24559-2017
2~20	Bidirectional amplifier	14	+13	4.0	+5.0/65	0/-5	3.10x2.10x0.07	BW592	-	Q/AT 24040-2016
3~7	Bidirectional amplifier	21	+18	5.0	+5.0/80	0/-5	2.00x1.40x0.07	BW599	-	Q/AT 24913-2018
4~8	Bidirectional amplifier	17	+13	5.0	+5.0/70	0/-5	2.00x2.10x0.07	BW593	-	-
6~18	Bidirectional amplifier	16	+18.5	7.0	+5.0/110	0/+5	2.20x1.70x0.07	BW1796	-	Q/AT 23940-2016

Frequency (GHz)	Function	Gain Power (dB)	Psat (dBm)	Noise (dB)	Power Supply (V/mA)	Control Voltage (V)	Chip Size (mm)	Part Number	Substitution Model	Production and Environmental Standard
6~18	Bidirectional amplifier	2 11	+11 +18	5.0 8.0	+5.0/25 +5.0/75	0/+5	2.30x1.60x0.07	BW1787	-	Q/AT 24895-2018
7~13	Bidirectional amplifier	18	+10	3.5	+5.0/50	0/-5	2.00x2.20x0.07	BW594	-	Q/AT 24820-2018
7.5~12	Bidirectional amplifier	16 25	+13 +19	6.0 6.0	+5.0/45 +5.0/85	0/+5	1.90x1.50x0.07	BW1791	-	Q/AT 24885-2018
8~12	Bidirectional amplifier	26	+16	3.5	+5.0/110	0/-5	2.35x2.16x0.07	BW559	-	Q/AT 24910-2018
8~12	Bidirectional amplifier	26 27	+10 +19.5	4.0 5.0	+5.0/55 +5.0/175	0/-5	2.50x2.20x0.07	BW560	-	Q/AT 24909-2018
8~14	Bidirectional amplifier	6 6	+11 +13	5.0 5.0	+5.0/40 +5.0/40	0/+5	1.70x2.30x0.07	BW587	-	Q/AT 24822-2018
8~14	Bidirectional amplifier	6 15	+11 +14	5.0 8.0	+5.0/40 +5.0/45	0/+5	1.80x2.30x0.07	BW588	-	Q/AT 24823-2018
14~17	Bidirectional amplifier	8 16	+10 +12	5.0/ 6.5	+5.0/20 +5.0/30	0/+5	3.00x2.00x0.07	BW1785/BW1786	-	Q/AT 24893-2018

1.3 Digital control phase shifter chip

Indexes / Model	Frequency range (GHz)	Bits (bit)	Insertion loss (dB)	Root mean square error (°)	Input VSWR	Output VSWR	Amplitude variation of various states (dB)	Control level (V)	Chip size (mm×mm×mm)
NC1220C-112	1-1.2	6	4.8*	1*	1.3*	1.4*	±0.15*	0/-5	6.20×2.00×0.10
NC12167C-1012PD	1-1.2	6	5.5*	1*	1.3*	1.3*	±0.3*	+5/0	5.00×2.50×0.07
NC1252C-1214PD	1.2-1.4	6	⩽5.5	1*	⩽1.6	⩽1.6	±0.3*	+5/0	4.50×2.15×0.07
NC12113C-1214	1.2-1.4	6	⩽5.5	1*	⩽1.6	⩽1.6	±0.3*	0/-5	4.50×1.80×0.07
NC12147C-1214	1.2-1.4	2	1.2*	-	1.4*	1.4*	0.2*	0/-5	1.10×1.50×0.07
NC12124C-1518	1.5-1.8	6	⩽6	⩽3	⩽1.8	⩽1.8	±0.5*	0/-5	6.20×2.00×0.10
NC12116C-1620	1.6-2.0	6	5*	3*	1.5*	1.5*	±0.3*	0/-5	4.00×1.85×0.07
NC12116C-1620PD	1.6-2.0	6	5*	3*	1.5*	1.5*	±0.5*	+5/0	4.00×1.85×0.07
NC12106C-225SD	2-2.5	6	4.5*	2*	1.5*	1.5*	±0.5*	+5/0	4.00×2.20×0.07
NC12106C-225PD	2-2.5	6	4.5*	1.5*	1.4*	1.4*	±0.3*	+5/0	4.00×1.80×0.07
NC1224C-225A	2-2.5	6	⩽5.5	⩽2.5	⩽1.7	⩽1.7	±0.5*	0/-5	4.00×1.50×0.10
NC12172C-206	2-6	6	12*	3*	1.8*	1.8*	±0.5*	0/-5	5.00×3.00×0.07
NC12172C-206PD	2-6	6	13*	4*	2.3*	2.3*	±0.5*	+5/0	4.80×3.00×0.07
NC12179C-206PD	2-6	8	13*	4*	2*	2*	±1*	+5/0	6.30×3.50×0.07
NC1215C-2735A	2.7-3.5	6	⩽5.5	⩽2	⩽1.7	⩽1.6	±0.4*	0/-5	4.00×1.50×0.07
NC1215C-2735PD	2.7-3.5	6	⩽5.5	⩽2	⩽1.7	⩽1.6	±0.4*	+5/0	4.00×1.70×0.07
NC12184C-3134PD	3.1-3.4	6	5*	1*	1.5*	1.5*	±0.5*	+5/0	4.00×1.50×0.07
NC12157C-3742	3.7-4.2	6	5.5*	1.2*	1.4*	1.4*	±0.2*	0/-5	3.65×1.50×0.07
NC12110C-407	4-7	Fixed	0.3*	-	1.3*	1.3*	±0.2*	-	1.30×1.70×0.10
NC12109C-414	4-14	Fixed	0.3*	-	1.3*	1.3*	±0.2*	-	1.30×1.70×0.10
NC1289C-4550	4.5-5.0	6	5.5*	1*	⩽1.6	⩽1.6	±0.4*	0/-5	3.80×1.50×0.07
NC12149C-4560PD	4.5-6.0	8	6*	2*	1.5*	1.5*	±0.4*	+5/0	4.30×1.90×0.07
NC1235C-506A	5-6	6	⩽6.3	⩽2	⩽1.4	⩽1.5	±0.35*	0/-5	4.00×1.55×0.10
NC1268C-506PD	5-6	5	⩽5.3	2*	⩽1.5	⩽1.5	±0.35*	+5/0	3.40×1.60×0.07
NC12103C-506PD	5-6	6	⩽6.0	⩽2	⩽1.5	⩽1.5	±0.35*	+5/0	3.60×1.60×0.07
NC1278C-618	6-18	6	⩽14	⩽6	⩽2.3	⩽2.3	±1.5*	0/-5	3.00×3.00×0.07
NC1278C-618PD	6-18	6	⩽14	⩽6	⩽2.3	⩽2.3	±1.5*	+5/0	3.00×3.10×0.07
NC12125C-618	6-18	Fixed	⩽0.6	-	⩽2	⩽2	±0.25*	-	0.90×2.00×0.10
NC1270C-6585	6.5-8.5	6	7.3*	3*	1.7*	1.7*	±0.8*	0/-5	4.00×1.55×0.10
NC12104C-810SD	8-10	5	7*	1*	1.4*	1.4*	±0.4*	+5/0	3.50×2.30×0.07
NC12133C-810	8-10	5	6.5*	-	1.3*	1.4*	±0.4*	0/-5	3.50×1.65×0.07
NC12133C-810M	8-10	5	6.5*	-	1.3*	1.4*	±0.4*	0/-5	3.50×1.65×0.07

Model \ Indexes	Frequency range (GHz)	Bits (bit)	Insertion loss (dB)	Root mean square error (°)	Input VSWR	Output VSWR	Amplitude variation of various states (dB)	Control level (V)	Chip size (mm×mm×mm)
NC1286C-812PD	8-12	6	8.5*	2.5*	1.5*	1.5*	±0.4*	+5/0	3.50×1.80×0.07
NC12136C-1418PD	14-18	6	9*	3.5*	1.5*	1.6*	±0.6*	+5/0	3.00×1.40×0.07
NC12148C-1518	15-18	5	9*	3*	1.5*	1.5*	±0.6*	0/-5	2.40×1.30×0.07
NC12137C-1518	15-18	6	9*	2.5*	1.5*	1.5*	±0.5*	0/-5	2.80×1.20×0.07
NC12129C-1721PD	17-21	6	8*	2.5*	1.9*	1.6*	±0.6*	+5/0	3.30×1.40×0.07
NC12129C-1721SD	17-21	6	8*	2.5*	1.9*	1.6*	±0.6*	+5/0	3.30×1.80×0.07
NC1285C-1923	18.5-23.5	5	≤9	≤4	≤2.1	≤2.1	≤±1	0/-5	3.00×1.20×0.07
NC1285C-1923PD	18.5-23.5	5	≤9	≤3.5	≤2	≤2.0	≤±0.9	+5/0	3.00×1.40×0.07
NC1285C-1923SD	18.5-23.5	5	8*	2.5*	1.9*	1.8*	±0.6*	+5/0	3.30×1.80×0.07
NC1273C-1923	18.5-23.5	6	≤9.5	≤3	≤1.9	≤2	±0.9*	0/-5	3.30×1.20×0.07
NC1273C-1923M	18.5-23.5	6	≤9.5	≤3	≤1.9	≤2	±0.9*	0/-5	3.30×1.20×0.07
NC1273C-1923SD/C	18.5-23.5	6	≤10	3*	1.7*	1.9*	≤1.0*	+5/0	3.30×1.80×0.07
NC1273C-1923PD	18.5-23.5	6	≤9.5	≤4	≤2	≤2.1	±0.9*	+5/0	3.30×1.40×0.07
NC12160C-2429	24-29	6	10*	2*	1.5*	1.5*	±0.5*	0/-5	2.50×1.20×0.07
NC1295C-2932	29-32	6	≤11	≤3	≤2.0	≤2	±0.6*	0/-5	2.80×1.20×0.07
NC1295C-2932PD	29-32	6	≤11	≤3	≤2.0	≤2	±0.6*	+5/0	2.80×1.70×0.07
NC1295C-2932SD/A	29-32	6	≤11	≤3	≤2.0	≤2	±0.6*	+5/0	2.80×2.00×0.07
NC12163C-3040	30-40	6	8*	4*	1.7*	1.6*	±0.75*	0/-5	3.15×1.30×0.07
NC1253C-3436	34-36	5	8.6*	3*	2.0*	2*	±0.5*	0/-5	1.80×1.10×0.07
NC12140C-3436PD	34-36	1	3.5*	3*	1.8*	1.8*	±0.3*	+5/0	1.10×1.00×0.07
NC1290C-4246	42-46	6	12*	4*	1.8*	1.6*	±1.1*	0/-5	2.70×1.20×0.07
NC1290C-4246SD/A	42-46	6	12*	4*	≤2	≤1.8	±1*	+5/0	2.70×1.80×0.07
NC1290C-4246PD	42-46	6	12*	4*	≤2	≤1.8	±1*	+5/0	2.70×1.60×0.07

Frequency (GHz)	Function	Insertion loss (dB)	Return loss (dB)	RMS error (°)	Each state amplitude variation (dB)	Chip Size (mm)	Part Number	Substitution Model	Production and Environmental Standard
0.4~1.2	6bit,LSB:5.625°,Integrated Drive	12	15	2.0°	±0.5	7.2x3.9x0.1	BW1251D/1252D	-	Q/AT 24435-2018
0.8~2	6bit,LSB:5.625° Integrated Drive	11	15	2.5°	±0.5	5.60x3.9x0.1	BW327D	-	Q/AT 24930-2018
0.8~2	6bit,LSB:5.625°	11	15	2.5°	±0.5	5.60x3.6x0.1	BW327	-	Q/AT 24931-2018
1.2~1.4	6bit,LSB:5.625°,Integrated Drive	4	20	0.5°	±0.5	2.5x3.3x0.1	BW1255D	-	Q/AT 24434-2017
1.2~1.4	6bit,LSB:5.625°	4	20	0.5°	±0.5	2.5x3.3x0.1	BW1255	-	Q/AT 24378-2017
1.2~1.6	8bit,LSB:1.4°	5	16	2.0°	±0.5	3.05x3.55x0.1	BW316	-	-
1.5~1.8	8bit,LSB:1.4°	5	15	2.0°	±0.5	2.89x3.15x0.1	BW319	-	-
1.6~3.2	6bit,LSB:5.625°	10	15	2.5°	±0.5	5.00x3.00 x 0.1	BW326	-	-
1.6~3.2	6bit,LSB:5.625°Integrated Drive	10	15	2.5°	±0.5	5.00x3.20 x 0.1	BW326D	-	-
2~6	1bit,LSB:90°	2.5	15	2.0°	±0.4	1.2 x2.3 x 0.1	BW1257	-	Q/AT 24784-2018
2~6	6bit,LSB:5.625° Integrated Drive	14	12	2.5°	±0.7	4.9x2.9x0.1	BW335D	-	Q/AT 24432-2017
2.1~3.2	6bit,LSB:5.625°	11.5	15	2.0°	±0.5	4.60x2.80x0.1	BW310	-	-
2.5~3.7	6bit,LSB:5.625°	5	16	1.5°	±0.4	4.00x1.58x0.1	BW311	-	-
2.5~3.7	6bit,LSB:5.625°Integrated Drive	6	15	1.5°	±0.5	3.70x2.10x0.1	BW1253D	-	Q/AT 24572-2017
5~6	6bit,LSB:5.625°	6	18	1.0°	±0.5	3.89x1.45x0.1	BW312	-	-

Frequency (GHz)	Function	Insertion loss (dB)	Return loss (dB)	RMS error (°)	Each state amplitude variation (dB)	Chip Size (mm)	Part Number	Substitution Model	Production and Environmental Standard
6~7.5	6bit,LSB:5.625° Integrated Drive	7	15	1.6°	±0.5	3.9x2.0x0.1mm	BW1250D	-	-
8~12	6bit,LSB:5.625°	8.0	15	2.0°	±0.5	4.05x1.60x0.1	BW332	-	Q/AT 24932-2018
8~12	6bit,LSB:5.625° Integrated Drive	8.0	15	2.0°	±0.5	4.05x1.80x0.1	BW332D	-	Q/AT 24460-2017
8~12	0°,±10°,±20°	0.2	22	-	±0.1	1.33x1.74x0.1	BW339	-	-
8~12	4bit,LSB:22.5°	7.0	15	2.5°	±0.5	2.0x2.0x0.1	BW330	HMC543	Q/AT 24373-2017
8~12	6bit,LSB:5.625°	8	15	1.3°	±0.5	2.9x1.4x0.1	BW1254	-	Q/AT 24379-2017
8~12	6bit,LSB:5.625°,Integrated Drive	8	15	1.3°	±0.5	2.9x1.6x0.1	BW1254D	-	Q/AT 24433-2017
8.5~11.5	6bit,LSB:5.625°	8.0	15	1.0°	±0.5	4.05x1.60x0.1	BW313	-	Q/AT 24933-2018
11~17	6bit,LSB:5.625°	9.5	15	2.5°	±0.5	2.90 x1.2x0.1	BW334	-	-
12~15	6bit,LSB:5.625°	7.8	15	4.0°	±0.5	3.00x1.30x0.1	BW314	-	-
14~18	1bit,LSB:180° Integrated Drive	2.5	20	2.0°	±0.4	1.10x1.10x0.1	BW336D	-	-
14~18	6bit,LSB:5.625°	8.5	15	1.5°	±0.5	2.90x1.30x0.1	BW337	-	-
14~18	6bit,LSB:5.625° Integrated Drive	8.5	15	1.5°	±0.5	2.90x1.40x0.1	BW337D	-	Q/AT 24529-2017
32~38	5bit,LSB:11.25°	7.5	12	2 .0°	±0.5	2.30x1.60x0.1	BW1256	-	Q/AT 24528-2017

Notes: For all above chips, the case packaging products and the module products can be provided; "*" represents the typical value; "PD" represents the parallel driver; "SD" represents the serial driver.

1.4 Digital control delayer chip

Model \ Indexes	Frequency range (GHz)	Bits (bit)	Insertion loss (dB)	Input VSWR	Output VSWR	Stepping (ps)	Maximum delay (ps)	Control level (V)	Chip size (mm×mm×mm)
NC12171C-0420	0.35-2	6	12*	1.4*	1.3*	25	1575	0/-5	5.00×4.00×0.07
NC12117C-106	0.5-6	1	≤12	1.5*	1.5*	1428	1428	0/-5	3.00×4.20×0.07
NC12118C-106	0.5-6	3	≤13	1.4*	1.4*	178	1246	0/-5	4.50×3.50×0.07
NC12115C-106	0.5-6	8	≤18	1.5*	1.5*	5	1275	0/-5	5.50×3.50×0.07
NC12107C-107	0.5-7	6	≤14	1.5*	1.5*	14	882	0/-5	5.00×3.50×0.07
NC12145C-107PD	0.5-7	4	14*	1.5*	1.5*	80	1280	+5/0	3.50×4.50×0.07
NC12146C-107PD	0.5-8	1	12*	1.4*	1.4*	1280	1280	+5/0	3.00×3.80×0.07
NC12128C-112PD	1-12	1	≤12	1.4*	1.4*	833	833	+5/0	3.00×3.20×0.07
NC12126C-218	2-18	6	≤22	1.7*	1.7*	10	630	0/-5	4.00×2.60×0.07
NC12126C-218PD	2-18	6	≤22	1.7*	1.7*	10	630	+5/0	4.00×2.90×0.07
NC12127C-218	2-18	6	≤18	1.6*	1.6*	5	315	0/-5	2.60×2.80×0.07
NC12153C-218	2-18	5	10.5*	1.6*	1.6*	1	31	0/-5	2.50×1.50×0.07
NC12153C-218PD	2-18	5	10.5*	1.6*	1.6*	1	31	+5/0	2.50×1.60×0.07
NC12183C-312	2.6-12	1	4*	1.5*	1.5*	-	200	-	1.00×1.75×0.07
NC12164C-618	6-18	6	10.5*	1.6*	1.6*	1.3	82	0/-5	2.50×2.00×0.07
NC12180C-618PD	6-18	7	25*	1.8*	1.8*	6	762	+5/0	4.20×3.70×0.07
NC12143C-811	8-11	4	11.5*	1.5*	1.65*	26	390	0/-5	3.45×2.55×0.07
NC12155C-812	8-12	1	6.5*	1.2*	1.4*	416	416	0/-5	2.15×2.40×0.07
NC12158C-812PD	8-12	4	16*	1.7*	1.4*	50	750	+5/0	4.00×3.60×0.07
NC1264C-812	8-12	6	7.5*	1.5*	1.5*	-	-	0/-5	4.50×1.50×0.10
NC1287C-812	8-12	1	≤3	≤1.65	≤1.65	100	100	0/-5	1.46×1.65×0.07
NC1287C-812PD	8-12	1	≤3	≤1.65	≤1.65	100	100	+5/0	1.46×1.65×0.07
NC1293C-812A	8-12	Fixed	≤2.1	≤1.5	≤1.5	-	100	-	1.03×1.70×0.07
NC1293C-812B	8-12	Fixed	≤3.4	≤1.5	≤1.5	-	200	-	2.31×1.80×0.10

Model \ Indexes	Frequency range (GHz)	Bits (bit)	Insertion loss (dB)	Input VSWR	Output VSWR	Stepping (ps)	Maximum delay (ps)	Control level (V)	Chip size (mm×mm×mm)
NC12121C-812PD	8-12	2	7*	1.6*	1.6*	105	315	+5/0	2.50×2.50×0.07
NC12120C-812	8-12	1	≤3	1.3*	1.3*	102	102	0/-5	1.30×1.70×0.07
NC12120C-812PD	8-12	1	≤3.5	1.3*	1.3*	102	102	+5/0	1.40×1.70×0.07
NC12132C-812PD	8-12	2	7*	≤1.6	≤1.6	105	315	+5/0	2.10×2.65×0.07
NC12141C-812	8-12	3	14*	1.8*	1.4*	104	728	0/-5	3.00×4.50×0.07
NC12135C-812	8-12	4	12*	1.7*	1.7*	26	390	0/-5	3.45×2.55×0.07
NC12105C-910	8.5-10.5	7	17.5*	1.6*	1.6*	5.5	700	0/-5	4.10×4.20×0.07
NC12185C-910PD	9-10	2	6*	1.4*	1.4*	-	-	+5/0	2.40×3.50×0.07
NC1283C-910	9-10	6	≤8.5	≤1.7	≤1.7	1.625	102.5	0/-5	4.50×1.50×0.10
NC12170C-1018	10-18	3	14*	1.5*	1.6*	62.5	437.5	0/-5	3.50×3.00×0.07
NC12173C-1018	10-18	3	15.5*	1.5*	1.5*	71.4	500	0/-5	3.20×3.50×0.07
NC1299C-1418PD	14-18	2	≤8	≤1.5	≤1.5	62.5	187.5	+5/0	2.20×2.30×0.07
NC12144C-1418PD	14-18	6	10	1.5	1.5	0.975	31	+5/0	2.50×2.30×0.07
NC12165C-1921PD	19-21	3	17*	1.4*	1.4*	50	350	+5/0	2.30×2.50×0.07
NC12174C-2832	28-32	3	12*	1.5*	1.5*	33.11	299	0/-5	3.00×4.70×0.07
NC12174C-2832PD	28-32	3	12*	2*	2*	33.11	299	+5/0	3.00×4.70×0.07
NC12175C-2832	28-32	1	8.5*	1.5*	1.5*	264.9	264.9	+5/0	3.00×3.00×0.07
NC12175C-2832PD	28-32	1	9*	1.8*	1.8*	264.9	264.9	+5/0	3.00×3.00×0.07
NC12139C-2932	29-32	3	24*	1.7*	1.8*	33.11	231.77	0/-5	2.00×2.50×0.07
NC12169C-3240	32-40	3	13.5*	1.7*	1.6*	28.57	200	0/-5	3.00×3.00×0.07
NC12176C-3240	32-40	6	19*	1.6*	1.5*	0.446	28.13	0/-5	3.50×1.10×0.07
NC12176C-3240PD	32-40	6	19*	1.6*	1.5*	0.446	28.13	+5/0	3.50×1.10×0.07

Notes: For all above chips, the case packaging products and the module products can be provided; "*" represents the typical value; "PD" represents the parallel driver; "SD" represents the serial driver.

1.5 Attenuator chip

I) Digital control attenuator chip

Model \ Indexes	Frequency range (GHz)	Bits (bit)	Insertion loss (dB)	Stepping (dB)	Attenuation range (dB)	Additional phase shift (°)	Input VSWR	Output VSWR	Control level (V)	Chip size (mm×mm×mm)
NC1349C-109	DC-9	1	≤1	-	0/25	±45*	≤1.5	≤1.5	0/-5	1.40×1.40×0.10
NC1347C-109	DC-9	1	2*	-	32	-	≤1.6	≤1.6	0/-5	1.00×1.40×0.10
NC1358C-112	DC-12	1	1.2*	-	0/40	±55*	≤1.5	≤1.5	0/-5	2.05×1.40×0.10
NC1362C-112	DC-12	1	1*	-	0/20	-	≤1.5	≤1.5	0/-5	1.00×1.10×0.10
NC1322C-118A	DC-18	1	≤1.6	-	0/16	±5*	≤1.3	≤1.3	0/-5	1.10×1.35×0.10
NC1348C-118	DC-18	1	≤2	-	0/32	±60*	≤1.6	≤1.6	0/-5	1.18×1.48×0.10
NC1352C-118	1-18	1	≤1	-	0/10	±20*	≤1.6	≤1.6	0/-5	0.80×1.10×0.10
NC1351C-812	8-12	1	1.2*	-	32	-	≤1.6	≤1.6	0/-5	1.00×1.35×0.10
NC1361C-1517	15-17	1	≤3	-	0/32	±1.5*	≤1.5	≤1.5	0/-5	1.40×1.55×0.10
NC13105C-3040PD	30-40	1	1.6*	-	0/20	-	1.7*	1.7*	+5/0	1.50×1.40×0.07
NC13106C-3040PD	30-40	1	2.2*	-	0/30	-	1.8*	1.8*	+5/0	1.70×1.40×0.07
NC13146C-112PD	DC-12	2	1.5*	10	10-30	±100*	1.6*	1.6*	+5/0	2.10×1.40×0.07
NC13112C-1826	18-26	2	2.2*	10	10/20	-	1.6*	1.6*	0/-5	1.30×1.40×0.10
NC13140C-2040PD	20-40	2	≤3	5	10-30	-	≤2	≤2	+5/0	1.50×1.40×0.07
NC1363C-112	DC-12	3	≤3.5	10	10-70	-	≤1.8	≤1.8	0/-5	2.70×1.55×0.10

Model \ Indexes	Frequency range (GHz)	Bits (bit)	Insertion loss (dB)	Stepping (dB)	Attenuation range (dB)	Additional phase shift (°)	Input VSWR	Output VSWR	Control level (V)	Chip size (mm×mm×mm)
NC1325C-118PD	0.5-18	3	≤2.8	5	5-35	-	≤1.5	≤1.5	+5/0	2.10×1.40×0.10
NC1333C-108	0.5-8.5	3	≤2.5	3	3-21	-	≤1.6	≤1.6	0/-5	2.20×1.40×0.10
NC1341C-118	0.5-18	3	≤3.5	5	5-35	±5*	≤1.5	≤1.6	0/-5	2.10×1.40×0.10
NC13122C-120	1-20	3	0.7*	-	0.25-1.75	-	1.6*	1.6*	0/-5	1.20×1.00×0.10
NC13110C-812	8-12	3	0.55*	0.25	0.25-1.75	±1.5*	1.5*	1.5*	0/-5	1.10×1.00×0.10
NC13111C-1218	12-18	3	0.72*	0.25	0.25-1.75	±1.5*	1.5*	1.5*	0/-5	1.00×1.00×0.10
NC13121C-2040PD	20-40	3	4.5*	5	5-35	-	1.6*	1.6*	+5/0	1.50×1.50×0.10
NC13163C-118PD	DC-18	4	1.5*	0.25	0-3.75	10	1.6*	1.6*	+5/0	1.50×1.40×0.07
NC1326C-118	0.5-18	4	≤1.6	0.25	0.25-3.75	±2.5*	≤1.4	≤1.6	0/-5	2.10×1.40×0.10
NC1342C-812	8-12	4	≤2.8	2	2-30	±25*	≤1.5	≤1.3	0/-5	2.70×1.40×0.10
NC1380C-2540	25-40	4	≤3	0.5	0.5-7.5	±6*	≤1.8	≤1.7	0/-5	1.40×1.00×0.07
NC1396C-3436	34-36	4	1.2*	0.25	0.25-1	±3*	1.4*	1.4*	0/-5	0.75×1.00×0.07
NC1367C-123	DC-23	5	≤3.5	0.25	0.25-7.75	±8*	≤1.6	≤1.6	0/-5	2.00×1.35×0.10
NC1314C-108A	DC-8	5	≤2.8	1	1-31	±8*	≤1.6	≤1.6	0/-5	2.50×1.50×0.10
NC13114C-140PD	DC-40	5	7.5*	1	1-31	0-40	1.8*	1.8*	+5/0	2.29×0.95×0.07
NC1307C-618A	0.5-18	5	3.3*	0.5	0.5-15.5	±3*	≤1.6	≤1.6	0/-5	2.70×1.40×0.10
NC1392C-1218	12-18	5	≤3.5	0.5	0.5-15.5	±5*	≤1.5	≤1.6	0/-5	1.70×1.10×0.10
NC1374C-1830	18-30	5	≤3	0.5	0.5-15.5	±10*	≤2.0	≤2.0	0/-5	2.25×1.00×0.07
NC13104C-1923	19-23	5	≤3.7	0.5	0.5-15.5	±4*	≤1.6	≤1.7	0/-5	1.80×1.20×0.07
NC1376C-2428	24-28	5	≤3	0.5	0.5-15.5	±5*	≤1.9	≤1.8	0/-5	2.25×1.00×0.07
NC1377C-2540	25-40	5	≤3.5	0.25	0.25-7.75	±6*	≤1.8	≤1.7	0/-5	1.50×1.00×0.07
NC1373C-2632	26-32	5	≤3	0.5	0.5-15.5	±5*	≤1.8	≤1.8	0/-5	2.25×1.00×0.07
NC1378C-2640	26-40	5	≤3.5	0.5	0.5-15.5	±10*	≤1.8	≤1.8	0/-5	2.25×1.05×0.07
NC13129C-4246	42-46	5	2.7*	0.5	0.5-15.5	±5*	1.6*	1.6*	0/-5	2.25×1.10×0.07
NC13144C-104	0.5-4	6	4*	0.5	0.5-31.5	-	1.8*	1.5*	0/+5	2.25×2.10×0.07
NC1315C-108A	DC-8	6	≤3.2	0.5	0.5-31.5	±8*	1.4*	1.4*	0/-5	2.50×1.40×0.10
NC1302C-108(K)	DC-8	6	≤4	-	1-51	-	≤1.7	≤1.7	0/-5	3.50×1.40×0.10
NC13131C-108PD	DC-8	6	≤3.5	0.5	0.5-31.5	-	≤1.5	≤1.5	+5/0	3.00×1.50×0.07
NC13164C-108PD	DC-8	6	2.5*	0.5	31.5	5	1.7*	1.6*	+5/0	2.73×1.35×0.70
NC13160C-120PD	DC-20	6	5*	0.5	0-31.5	20	1.8*	1.8*	+5/0	2.50×1.40×0.07
NC13115C-140PD	DC-40	6	7.5*	0.5	0.5-31.5	-	1.8*	1.8*	+5/0	2.60×1.00×0.07
NC1324C-618	0.5-18	6	≤5.9	0.5	0.5-31.5	±5.5*	≤1.5	≤1.5	0/-5	3.10×1.50×0.10
NC1321C-118	0.5-18	6	≤6.1	1	1-63	-	≤1.4	≤1.4	0/-5	3.60×1.45×0.10
NC1320C-118	0.5-18	6	≤4.5	0.5	0.5-31.5	-	≤1.4	≤1.4	0/-5	3.10×1.45×0.10
NC13132C-102	1-2	6	1.5*	0.5	0-31.5	-	≤1.4	≤1.4	0/-5	2.10×0.95×0.07
NC13123C-208PD	2-8	6	3.2*	0.5	0.5-31.5	-	≤1.5	≤1.5	+5/0	3.00×1.50×0.07
NC13135C-208	2-8	6	4.5*	0.5	0.5-31.5	-	1.5*	1.5*	+5/0	3.50×2.00×0.10
NC13165C-618PD	6-18	6	3.5*	0.5	0-31.5	10	1.6*	1.6*	+5/0	3.00×1.40×0.07
NC1397C-618A	6-18	6	5*	0.5	0.5-31.5	±5*	1.5*	1.5*	0/-5	3.10×1.50×0.07
NC1397C-618PD	6-18	6	≤5.2	0.5	0.5-31.5	±5*	1.5*	1.5*	+5/0	3.10×1.50×0.07
NC1306C-812	8-12	6	3.5*	0.5	0.5-31.5	-	≤1.6	≤1.6	0/-5	2.70×1.45×0.10
NC1346C-812	8-12	6	≤4.1	0.5	0.5-31.5	±4*	≤1.6	≤1.6	0/-5	3.25×1.55×0.10
NC13113C-812PD	8-12	6	4.6*	0.5	0.5-31.5	±5*	≤1.35	≤1.35	+5/0	3.10×1.40×0.07

Model \ Indexes	Frequency range (GHz)	Bits (bit)	Insertion loss (dB)	Stepping (dB)	Attenuation range (dB)	Additional phase shift (°)	Input VSWR	Output VSWR	Control level (V)	Chip size (mm×mm×mm)
NC1370C-1218	10-18	6	≤4.5	0.5	0.5-31.5	±8*	≤1.6	≤1.7	0/-5	2.80×1.30×0.10
NC1375C-1923	19-23	6	≤3.5	0.5	0.5-31.5	±10*	≤2.0	≤2.0	0/-5	3.30×1.10×0.07
NC1375C-1923M	19-23	6	≤3.5	0.5	0.5-31.5	±10*	≤2.0	≤2.0	0/-5	3.30×1.10×0.07
NC1395C-2430	24-30	6	≤3.8	0.5	0.5-31.5	±10*	≤1.8	≤1.9	0/-5	3.30×1.10×0.07
NC1399C-2634	26-34	6	≤4	0.5	0.5-31.5	±15*	≤1.8	≤1.8	0/-5	3.30×1.10×0.07
NC1399C-2634M	26-34	6	≤4	0.5	0.5-31.5	±15*	≤1.8	≤1.8	0/-5	3.30×1.10×0.07
NC13100C-3240	32-40	6	≤4.3	0.5	0.5-31.5	±15*	≤1.7	≤1.8	0/-5	3.30×1.10×0.07

II) Electric control attenuator chip

Model \ Indexes	Frequency range (GHz)	Insertion loss (dB)	Attenuation range (dB)	Input VSWR	Output VSWR	Control level (V)	Chip size (mm×mm×mm)
NC13103C-104	DC-4	1*	0-23	2*	2*	0～2.5	1.60×1.00×0.10
NC13108C-140	DC-40	2.5*	0-20	2*	2*	-5～0	1.10×1.00×0.10
NC13159C-104	1-4	0.7*	20	1.3*	1.3*	0～1.5	1.50×1.00×0.07
NC13159C-104M	1-4	0.7*	20	1.3*	1.3*	0～1.5	1.50×1.00×0.07
NC1372C-203	2-3	1*	0-30	1.3*	1.3*	0～2	2.00×1.50×0.10
NC13128C-409	4-9	≤1.8	0-35	≤2	≤2	0～2.5	2.80×1.10×0.10
NC1386C-409	4-9	≤1.5	0-35	≤2	≤2	0～2	2.00×1.20×0.10
NC13102C-608	6-8	2.2*	0-36	2.5*	2.5*	0～5	2.30×1.00×0.10
NC1387C-713	7-13	≤1.5	0-40	≤1.7	≤1.7	0～2	2.00×1.00×0.10
NC13120C-812	8-12	2.2*	0-25	2*	2*	0～2.5	1.60×1.00×0.10
NC1389C-1222	12-22	≤3	0-40	≤1.8	≤1.8	0～5	2.00×1.00×0.10
NC1390C-1830	18-30	≤3	0-40	≤2	≤2	0～5	2.00×0.90×0.10
NC1391C-2040	20-40	≤4	0-40	≤2.3	≤2.3	0～5	2.00×0.80×0.10
NC13124C-2550	25-50	4.5*	0-40	1.9*	1.9*	0～5	1.35×0.70×0.10

III) Fixed attenuator chip

Model \ Indexes	Frequency range (GHz)	Attenuation (dB)	Input VSWR	Output VSWR	Chip size (mm×mm×mm)
NC1338C-120 (A/B/C/D/E/F/G/H/L/K/M/J)	DC-20	11/10/9/6/3/2/0/1/ (0/1/2/3)/ (5/6/7/8)/4/5	≤1.3	≤1.3	0.58×0.63×0.10
NC13139C-120	DC-20	(0/0.5/1/1.5/2)	≤2	≤2	1.00×0.60×0.10
NC13147C-120	DC-20	(0/0.25/0.5/0.75/1/1.25/1.5/1.75)	1.5*	1.5*	0.55×0.91×0.10
NC1368C-150 (A/B/C/D/E/F/G/H/K/L/M/N/P)	DC-50	0/0.2/0.5/1/2/3/5/6/9/10/11/ (0/1/2/3)/(0/1/2/3)/(5/6/7/8)	≤1.6	≤1.6	0.70×0.70×0.10
NC1388C-167 (A/B/C/D/E/F/G/H/K/L/M/N/P/ Q/S/T/W/TF/X/Y)	DC-67	0/0.5/1/2/3/4/5/6/7/8/9/10/11/15/ 20/(0/1/2/3)/(5/6/7/8)/25/30/40	≤1.6	≤1.6	0.50×0.50×0.10
NC13142C-120	1-20	0/0.5/1/1.5/2/2.5/3/3.5	1.5*	1.5*	0.70×0.75×0.10

Frequency (GHz)	Attenuation (dB)	Attenuation Accuracy (dB)	Max.Power (dBm)	Return Loss (dB)	Chip Size (mm)	Part Number	Substitution Model	Production and Environmental Standard
0.1~40	0.15	+0.3	-	20	0.57x0.62x0.1	BW108	HMC650	Q/AT 21996-2011
0.1~40	0.15	+0.3	-	20	0.57x0.79x0.1	BW109	HMC650	Q/AT 21996-2011
0.1~40	0.5	±0.3	+30	20		BW099	-	Q/AT 24173-2016
0.1~40	1	±0.3	+30	20		BW101	-	Q/AT 21996-2011
0.1~40	2	±0.3	+29	20	0.57x0.62x0.1	BW102	HMC652	Q/AT 21996-2011
0.1~40	3	±0.3	+28	20		BW103	HMC653	Q/AT 21996-2011
0.1~40	5	±0.3	+27	20		BW104	-	Q/AT 21996-2011
0.1~40	6	±0.3	+27	20		BW105	HMC655	Q/AT 21996-2011
0.1~40	10	±0.4	+27	20		BW106	HMC656	Q/AT 21996-2011
0.1~40	15	±0.4	+27	20	0.57x0.79x0.1	BW107	HMC657	Q/AT 21996-2011
0.1~40	20	±0.5	+27	20		BW100	HMC658	Q/AT 24174-2016
0.1~40	1.5/0/3, optional	±0.3	+27	20		BW098	-	Q/AT 23198-2014
0.1~40	1/0/2, optional	±0.3	+27	20		BW097	-	Q/AT 23198-2014
0.1~40	0.5/0/1, optional	±0.3	+27	20	1.05 x0.62 x0.1	BW096	-	Q/AT 23198-2014
0.1~40	3/0/5, optional	±0.3	+27	20		BW095	-	Q/AT 23198-2014
0.1~40	2/0/4, optional	±0.3	+27	18		BW094	-	Q/AT 23198-2014

IV) Temperature compensation attenuator chip

Indexes / Model	Frequency range (GHz)	Compensation attenuation (dB)	Input VSWR	Output VSWR	Chip size (mm×mm×mm)
NC13150C-140	DC-40	1.5	1.6*	1.6*	0.60×0.80×0.07
NC13151C-140	DC-40	2.5	1.3*	1.3*	0.60×0.80×0.07
NC13152C-140	DC-40	3	1.4*	1.4*	0.60×0.80×0.07

Frequency (GHz)	Attenuation (dB)	Attenuation Accuracy (dB)	Rated Power (dBm)	Return Loss (dB)	Chip Size (mm)	Part Number	Substitution Model	Production and Environmental Standard
0.1~18	0.15	+0.3	+20	18		BFA00MA	TS0500G	Q/AT 23280-2014
0.1~18	1	±0.3	+20	18		BFA01MA	TS0501G	Q/AT 23280-2014
0.1~18	2	±0.3	+20	18		BFA02MA	TS0502G	Q/AT 23280-2014
0.1~18	3	±0.3	+20	18		BFA03MA	TS0503G	Q/AT 23280-2014
0.1~18	4	±0.4	+20	18	1.91x1.52x0.3	BFA04MA	TS0504G	Q/AT 23280-2014
0.1~18	5	±0.4	+20	18		BFA05MA	TS0505G	Q/AT 23280-2014
0.1~18	6	±0.4	+20	18		BFA06MA	TS0506G	Q/AT 23280-2014
0.1~18	8	±0.5	+20	18		BFA08MA	TS0508G	Q/AT 23280-2014
0.1~18	10	±0.5	+20	18		BFA10MA	TS0510G	Q/AT 23280-2014

Notes: For all above chips, the case packaging products and the module products can be provided; "*" represents the typical value; "PD" represents the parallel driver.

V) Thin Film Wide Band Attenuator Chips

Frequency (GHz)	Attenuation (dB)	Attenuation Accuracy (dB)	Rated Power (dBm)	Return Loss (dB)	Chip Size (mm)	Part Number	Substitution Model	Production and Environmental Standard
0.1~18	0.15	+0.3	+20	18	1.91x1.52x0.3	BFA00MA	TS0500G	Q/AT 23280-2014
0.1~18	1	±0.3	+20	18		BFA01MA	TS0501G	Q/AT 23280-2014
0.1~18	2	±0.3	+20	18		BFA02MA	TS0502G	Q/AT 23280-2014
0.1~18	3	±0.3	+20	18		BFA03MA	TS0503G	Q/AT 23280-2014
0.1~18	4	±0.4	+20	18		BFA04MA	TS0504G	Q/AT 23280-2014
0.1~18	5	±0.4	+20	18		BFA05MA	TS0505G	Q/AT 23280-2014
0.1~18	6	±0.4	+20	18		BFA06MA	TS0506G	Q/AT 23280-2014
0.1~18	8	±0.5	+20	18		BFA08MA	TS0508G	Q/AT 23280-2014
0.1~18	10	±0.5	+20	18		BFA10MA	TS0510G	Q/AT 23280-2014
0.1~18	15	±0.5	+20	18		BFA15MA	TS0515G	Q/AT 23280-2014
0.1~18	20	±0.8	+20	18		BFA20MA	TS0520G	Q/AT 23280-2014

VI) GaAs Digital/ESC Attenuator Chip

Frequency (GHz)	Function (dB)	Attenuation Rang (dB)	Insertion Loss (dB)	Return Loss (dB)	Additional Phase Shift (o)	Tuning voltage (V)	Dimension	Part Number	Substitution Model	Production and Environmental Standard
0.1~8	6bit	0.5~31.5	2.5	15	±5	-	2.40x1.0x0.1	BW179	-	Q/AT 24935-2018
0.1~8	6bit	0.5~31.5	2.5	15	±5	-	2.40x1.4x0.1	BW179D	-	Q/AT 24936-2018
0.1~13	6bit	0.5~31.5	3.5	15	-	-	1.10x1.10x0.1	BW153D	-	Q/AT24937-2018
0.1~18	1bit	10	1.8	15	-	-	0.80x0.85x0.1	BW154G	-	-
0.1~18	1bit	16	3.0	15	-	-	1.10x1.00x0.1	BW155G	-	-
0.1~18	1bit	20	2.6	15	-	-	1.10x0.90x0.1	BW156G	-	Q/AT 24179-2016
0.1~18	1bit	20	2.3	15	≤±5	-	1.57x0.70x0.1	BW166	-	Q/AT 24035-2016
0.1~18	1bit	30	3.0	15	-	-	1.10x1.00x0.1	BW165G	-	-
0.1~18	1bit	32	1.5	22	-	-	1.20x1.00x0.1	BW171D	-	Q/AT 24172-2016
0.1~18	3bit	5~35	3.5	15	-	-	2.00x1.10x0.1	BW150D	-	-
0.1~18	4bit	1~15	2.4	15	-	-	1.88x1.20x0.1	BW158	-	-
0.1~18	4bit	3~45	5.0	15	-	-	1.93x1.10x0.1	BW162G	-	Q/AT 24180-2016
0.1~18	5bit	0.5~15.5	2.8	16	-	-	2.03x1.20x0.1	BW151	-	-
0.1~18	5bit	0.5~15.5	2.6	15	≤±5	-	2.00x1.20x0.1	BW159	-	-
0.1~18	6bit	0.5~31.5	4.0	15	≤±5	-	2.70x1.32x0.1	BW161	-	Q/AT 23312-2014
0.1~18	6bit	0.5~31.5	3.3	17	-	-	2.51x1.35x0.1	BW152	-	-
0.1~18	6bit	0.5~31.5	3.3	13	≤±5	-	2.58x1.04x0.1	BW163	-	Q/AT 22985-2014

1.6 Voltage-controlled oscillator chip

Indexes / Model	Frequency range (GHz)	Tuning voltage (V)	Output power (dBm)	SSB phase noise @ 100kHz (dBc)	Second harmonic suppression (dBc)	Power consumption (V/mA)	Chip size (mm×mm×mm)
NC14001C-2022	2-2.15	0-10	6.5*	-103*	>7	3/41	2.00×1.40×0.10
NC14002C-2426	2.4-2.55	0-10	7.5*	-107*	>6	3/41	2.00×1.40×0.10
NC14003C-2628	2.6-2.8	0-10	6.7*	-110*	>5	3/42	2.00×1.40×0.10
NC14004C-2831	2.8-3.05	0-10	8*	-109*	>6	3/45	1.70×1.40×0.10
NC14005C-3134	3.1-3.35	0-10	8.3*	-110*	>6	3/49	1.70×1.40×0.10
NC14006C-3335	3.3-3.5	0-10	8.5*	-110*	>5	3/49	1.70×1.40×0.10
NC14007C-3537	3.5-3.7	0-10	8.6*	-110*	>5	3/50	1.70×1.40×0.10
NC14008C-3840	3.8-4	0-10	8.6*	-107*	>5	3/46	1.70×1.40×0.10

Model \ Indexes	Frequency range (GHz)	Tuning voltage (V)	Output power (dBm)	SSB phase noise @ 100kHz (dBc)	Second harmonic suppression (dBc)	Power consumption (V/mA)	Chip size (mm×mm×mm)
NC14009C-3942	3.9-4.15	0-10	2*	-102*	>12	3/50	1.85×1.40×0.10
NC14010C-4144	4.1-4.4	0-10	9*	-109*	>5	3/53	1.70×1.40×0.10
NC14011C-4345	4.3-4.5	0-10	4*	-103*	>15	3/53	1.85×1.40×0.10
NC14012C-4650	4.6-5	0-10	7*	-102*	>15	3/55	1.85×1.40×0.10
NC14013C-5458	5.4-5.8	0-10	8*	-104*	>15	3/63	1.85×1.40×0.10
NC14014C-5761	5.7-6.1	0-10	8*	-104*	>13	3/63	1.85×1.40×0.10
NC14015C-6166	6.1-6.6	0-10	8*	-98*	>12	3/64	1.85×1.40×0.10
NC14016C-6672	6.6-7.2	0-10	6*	-91*	>5	3/63	1.70×1.40×0.10

Main circuit frequency (GHz)	Main circuit power (dBm)	Branch circuit frequency (GHz)	Branch circuit power (dBm)	Main circuit phase noise @ 100kHz (dBc/Hz)	Main circuit 1/2f0 suppression (dBc)	Power supply (V/mA)	Overall dimensions (mm)	Model	Substitution Model	Production and Environmental Standard
6.75~7.45	+12	1/2f0	+7	-110	-40	5/180	2.50x1.60x0.1	BW422	HMC507	-
7.3~8.2	+13	1/2f0	+8	-112	-35	5/190	2.50x1.60x0.1	BW423	HMC508	-
7.8~8.6	+11	1/2f0	+8	-109	-35	5/180	2.50x1.60x0.1	BW424	HMC509	-
8.25~9.15	+12	1/2f0	+7	-109	-30	5/200	2.50x1.60x0.1	BW426	HMC509	Q/AT24184-2016
8.65~9.7	+10	1/2f0	+8	-112	-30	5/200	2.50x1.60x0.1	BW430	HMC510	-
8.9~9.8	+11	1/2f0	+8	-112	-30	5/200	2.50x1.60x0.1	BW427	HMC511	-
9.1~10.3	+10	1/2f0	+7	-111	-30	5/200	2.50x1.60x0.1	BW431	HMC511	-
9.35~10.55	+11	1/2f0	+11	-110	-30	5/200	2.50x1.60x0.1	BW428	HMC530	-
9.5~10.8	+10	1/2f0	+9	-108	-25	5/200	2.50x1.60x0.1	BW432	HMC530	-
10.3~11.5	+10	1/2f0	+9	-109	-25	5/200	2.50x1.60x0.1	BW429	HMC513	-
11.0~12.4	+10	1/2f0	+11	-108	-20	5/200	2.50x1.60x0.1	BW433	HMC582	-
11.9~13.3	+9	1/2f0	+11	-108	-20	5/200	2.50x1.60x0.1	BW434	HMC583	-
12.9~14.1	+8	1/2f0	+11	-106	-20	5/200	2.50x1.60x0.1	BW435	HMC584	-
13.9~15.1	+6	1/2f0	+11	-104	-18	5/200	2.50x1.60x0.1	BW436	HMC531	-
23.8~25	+9	1/16f0	-5	-92	-15	5/210	2.50x1.60x0.1	BW418	HMC533	-

Notes: For all above chips, the case packaging products and the module products can be provided; "*" represents the typical value.

1.7 Multifunctional chip (★The products in this catalog are the universal multifunctional chips, and users are welcome to submit their own customized requirements.★)

I) Digital control phase shifting & attenuation integrated chip

Model \ Indexes	Frequency range (GHz)	Insertion loss (dB)	Input VSWR	Phase shifting bits	Phase shifting range (°)	Attenuation bits	Attenuation range (dB)	Control level (V)	Chip size (mm×mm×mm)
NC15203C-1113SD	1.1-1.3	⩽6	⩽1.8	7	2.8-357.2	7	0-31.75	+5/0	5.85×3.00×0.07
NC15211C-1214SD	1.2-1.4	⩽6	⩽1.6	6	5.6-354.3	4	0.5-7.5	+5/0	4.50×2.70×0.07
NC1564C-225SD	2-2.5	5.2*	1.5*	6	5.6-354.3	4	0.5-7.5	+5/0	5.00×2.20×0.07
NC15208C-225SD	2-2.5	5.5*	⩽1.6	6	5.6-354.3	4	0.5-7.5	+5/0	5.00×2.20×0.07
NC15214C-2735PD	2.7-3.5	3*	1.5*	-	-	6	0.5-31.5	+5/0	2.50×2.00×0.07
NC15202C-506SD	5-6	6*	1.4*	5	11.2-348.7	5	0.5-15.5	+5/0	3.10×3.45×0.07
NC1561C-506PD	5-6	6	1.5	5	11.2-348.7	5	0.5-15.5	+5/0	2.50×3.50×0.07
NC15226C-5974SD	5.9-7.4	⩽8	⩽1.5	6	354.375	4	7.5	+5/0	4.30×2.00×0.07
NC15206C-811SD	8-11	12*	1.7*	6	5.6-354.3	6	0.5-31.5	+5/0	5.00×2.50×0.07
NC15224C-8510SD	8.5-10.5	3*(Gain)	1.7*	6	0-360	6	0.5-31.5	+5/0	5.70×2.50×0.07

Indexes / Model	Frequency range (GHz)	Insertion loss (dB)	Input VSWR	Phase shifting bits	Phase shifting range (°)	Attenuation bits	Attenuation range (dB)	Control level (V)	Chip size (mm×mm×mm)
NC15224C-8510SDM	8.5-10.5	3*(Gain)	1.7*	6	0-360	6	0.5-31.5	+5/0	5.70×2.50×0.07
NC15218C-8810PD	8.8-10	8*	1.4*	5	11.2-348.7	-	-	+5/0	2.90×1.22×0.07
NC15218C-8810PDM	8.8-10	8*	1.4*	5	11.2-348.7	-	-	+5/0	2.90×1.22×0.07
NC15325C-9298	9.2-9.8	3*(Gain)	1.7*	6	0-360	6	0.5-31.5	0/-5	5.70×1.90×0.07
NC15200C-1317SD	13-17	⩽10.5	⩽1.5	5	11.2-348.7	-	-	+5/0	3.50×1.80×0.07
NC15212C-1518SD	15-18	⩽16	⩽1.8	6	5.6-354.3 (Double circuit)	6	0.5-31.5	+5/0	4.00×4.00×0.07
NC15217C-1618SD/A	16-18	13*	1.8*	6	5.6-354.3	6	0.5-31.5	+5/0	4.50×2.10×0.07
NC15217C-1618SD/B	16-18	13*	1.8*	6	5.6-354.3	6	0.5-31.5	+5/0	4.50×2.10×0.07
NC1525C-1923	19-23	⩽13	1.6*	6	5.6-354.3	5	0.5-15.5	0/-5	4.50×1.50×0.07
NC1525C-1923PD	19-23	⩽13	1.6*	6	5.6-354.3	5	0.5-15.5	+5/0	4.50×1.50×0.07
NC1525C-1923SD/C	19-23	12*	1.7*	6	5.6-354.3	5	0.5-15.5	+5/0	4.50×1.90×0.07
NC1568C-1923SD/A	19-23	13.5*	⩽1.9	6	5.6-354.3	6	0.5-31.5	+5/0	5.10×1.90×0.07
NC1531C-1923	19-23.5	10*	⩽1.8	6	5.6-354.3 (Double circuit)	-	-	+5/0	3.80×2.55×0.07
NC1531C-1923M	19-23.5	10*	⩽1.8	6	5.6-354.3 (Double circuit)	-	-	+5/0	3.80×2.55×0.07
NC15216C-2224SD	22-24	12*	⩽2	6	5.6-354.3	5	0.5-15.5	+5/0	4.50×2.30×0.07
NC15222C-2224SD	22-24	12*	1.6*	6	5.6-354.3	5	0.5-15.5	+5/0	4.50×1.90×0.07
NC15205C-2526SD/A	25.2-26.5	⩽13	1.4*	6	5.6-354.3	-	-	+5/0	3.70×2.10×0.07
NC1557C-2932SD/A	29-32	⩽14	⩽2	6	5.6-354.3	6	0.5-31.5	+5/0	5.10×2.15×0.07
NC15210C-2932SD	29-32	11*	1.6*	6	5.6-354.3 (Double circuit)	-	-	+5/0	3.40×2.75×0.07
NC15210C-2932SDM	29-32	11*	1.6*	6	5.6-354.3 (Double circuit)	-	-	+5/0	3.40×2.75×0.07
NC1558C-2932SD	29-32	⩽13	⩽2	6	5.6-354.3	6	0.5-31.5	+5/0	4.25×2.15×0.07
NC15227C-3337	33-37	13*	2*	6	0-360	5	0-15.5	0/-5	4.00×1.20×0.07
NC15227C-3337SD	33-37	13*	2*	6	0-360	5	0-15.5	+5/0	4.00×2.20×0.07
NC15233C-3337	33-37	13*	1.8*	6	0-360	6	23.5	0/-5	5.00×1.60×0.07
NC15201C-4346PD	43-46	⩽16	⩽2	6	5.6-354.3	5	0.5-15.5	+5/0	4.50×1.50×0.07
NC15201C-4346SD	43-46	⩽16	⩽2	6	5.6-354.3	5	0.5-15.5	+5/0	4.50×1.90×0.07
NC15204C-4346PD	43-46	15.5*	⩽2	6	5.6-354.3	6	0.5-31.5	+5/0	5.10×1.70×0.07
NC15204C-4346SD	43-46	15.5*	⩽2	6	5.6-354.3	6	0.5-31.5	+5/0	5.10×2.00×0.07

II) Transmitting & Receiving multifunctional chip

Indexes / Model	Frequency range (GHz)	Receiving gain (dB)	Receiving noise factor (dB)	Transmitting gain (dB)	Transmitting power (dBm)	Input VSWR	Output VSWR	Power supply voltage (V)	Control level (V)	Chip size (mm×mm×mm)
NC1588C-102	0.9-2.1	32*	2.7*	32*	15*	1.8*	1.8*	+5	0/-5	3.00×3.50×0.07
NC15141C-1214	1.2-1.4	22*	3*	14*	14*	1.5*	1.5*	+5	0/-5	3.30×2.80×0.07
NC15123C-3545	3.5-4.5	13*	2.5*	13*	16.5*	1.8*	1.5*	+5	0/-5	2.45×2.35×0.07
NC1589C-407	4-7	29.5*	2.7*	32.5*	15*	1.8*	1.8*	+5	0/-5	3.00×3.50×0.07
NC1592C-812	8-12	19*	2.2*	19*	14*	1.2*	1.3*	+5	0/-5	2.60×2.40×0.07
NC1576C-8510	8.5-10.5	10*	3*	8*	21*	1.5*	1.6*	+5	0/-5	2.15×2.25×0.07
NC15116C-1517	15-17	23*	2.5*	23*	12*	1.5*	1.5*	+5	0/-5	2.90×2.10×0.10
NC1577C-1923	19-23	16*	2.5*	23.5*	20*	1.8*	2.2*	+5/-2	0/-5	3.00×1.80×0.07
NC1578C-1923	19-23	18*	2.5*	16*	6.5*	1.8*	2*	+5	0/-5	2.20×1.80×0.07
NC1579C-1923	19-23	19*	2.5*	21*	22.5*	1.8*	2*	+5/-2	0/-5	2.20×1.80×0.07
NC15106C-2123	21-23	23*	2.5*	28*	13*	⩽2	⩽2	3.5/-0.4	0/-5	3.50×2.50×0.07
NC15107C-2123	21-23	23*	2.5*	30*	18*	2.4*	2*	3.5/-0.4	0/-5	3.50×2.50×0.07

Model \ Indexes	Frequency range (GHz)	Receiving gain (dB)	Receiving noise factor (dB)	Transmitting gain (dB)	Transmitting power (dBm)	Input VSWR	Output VSWR	Power supply voltage (V)	Control level (V)	Chip size (mm×mm×mm)
NC15117C-3337	33-37	18*	4*	27*	20*	2*	2*	+5/-0.5	+5/0	3.09×2.00×0.70
NC1595C-3337	33-37	22*	≤5	22*	12*	2*	2*	+5	+5/0	2.60×2.10×0.07
NC15136C-3337	33-37	11*	5.5*	20*	13*	2*	2*	+5	0/-5	1.96×1.60×0.07

Frequency (GHz)	Function	Gain(dB) Receive/ Relax	P_{-1}(dBm) Receive/ Transmit	Operating Voltage (V)	Quiescent Current (mA) Receive/ Transmit	Chip Size (mm)	Part Number	Production and Environmental Standard
2~4	Realizing the functions of transmitting & receiving switching and gain, transmitting & receiving at both terminals	26/26	15/15	+5/-5	85/85	2.4x3.3x0.1	BWM212	-
2~4	Realizing the functions of transmitting & receiving switchingand gain, transmitting & receiving at single terminal; integrating1-bit 20dB digital control attenuator	24.5/25.5	15/15	+5/-5	85/85	2.6x3.3x0.1	BWM213	-
33~37	Realizing the functions of transmitting & receiving switching and gain	23/23	13/14	+5	40/40	2.2x1.8x0.07	BWM900 /BWM901	Q/AT 24894-2018

III) Amplitude & Phase control multifunctional chip

Model \ Indexes	Frequency range (GHz)	Transmitting gain (dB)	Receiving gain (dB)	Input/ output VSWR	Transmitting P1dB (dBm)	Phase shifting bits	Phase shifting accuracy (°)	Attenuation bits	Attenuation accuracy (dB)	Power supply voltage (V)	Control level (V)	Chip size (mm×mm×mm)
NC15311C-1923SD	1.9-2.3	≥15	-	≤2	≥18	6	2	6	0.4	+5/-5	+5/0	4.20×3.20×0.07
NC15306C-218PD	2-18	≥0	≥0	≤1.8	≥10	6-bit TTD	-	-	-	+5/-5	+5/0	5.00×4.50×0.07
NC15331C-218PD	2-18	2*	2*	1.7*	11*	5-bit TTD	3	5	1.5	+5/-5	+5/0	4.50×5.00×0.07
NC1537C-2735PD	2.7-3.5	4.5*	-7.5*	1.5*	20*	6	2*	6	0.3*	+5/-5	+5/0	4.50×3.50×0.07
NC15330C-2931PD	2.9-3.1	23*	-	1.5*	16*	-	-	1	1.6	+5/-5	+5/0	2.70×1.50×0.07
NC1538C-506PD	5-6	-6*	5*	1.5*	-	6	2.5*	6	1*	+5/-5	+5/0	4.00×3.55×0.07
NC1506C-506A	5-6	10*	10*	1.6*	19*	5	2	-	-	+5/-5	+5/0	4.20×2.90×0.07
NC15303C-506SD	5-6	≥16	≥3	≤2	≥16	6	3	6	0.5*	+8/+5/-5	+5/0	4.20×3.70×0.07
NC15314C-506PD	5-6	7*	4*	1.8*	9*	6	3*	6	0.3*	+5/-5	+5/0	4.00×3.58×0.07
NC15329C-618PD	6-18	5*	3*	2.5*	14*	6	6*	6	1.2*	+5/-5	+5/0	5.50×4.50×0.07
NC15349C-812PD	8-12	9*	7*	1.8*	7.5*	6-bit TTD	6*	6	0.5*	+5	0/-5	5.10×3.50×0.07
NC1517C-812SD	8-12	6*	5*	≤1.8	12*	6	≤3.5	6	1*	+5/-5	+5/0	5.00×3.80×0.10
NC15318C-812PD	8-12	1*	7.5*	1.5*	7.5*	6	3	6	0.5*	+5/-5	+5/0	5.10×3.50×0.07
NC15321C-812SD	8-12	18*	12*	1.8*	23*	6	3	6	1*	+8/+5/-5	+5/0	4.86×4.00×0.07
NC15323C-812SD	8-12	11*	-	1.6*	19*	6	3	-	-	+8/+5/-5	+5/0	4.50×2.20×0.07
NC15320-8510PD	8.5-10	1.5*	1*	1.5*	12*	6	1.0*	6	0.3*	+5/-5	+5/0	3.50×2.55×0.07
NC15328C-1418SD	14-18	6.5*	6.5*	1.7*	12*	6	5	6	0.6*	+5/-5	+5/0	3.50×4.80×0.07
NC15334C-1418SD	14-18	16.5*	15*	1.4*	20.5*	6	4*	6	0.7*	+5/-5	+5/0	3.40×4.80×0.07
NC15305C-1923SD	19.5-23	7*	7*	1.5*	3*	6	4*	5	0.4*	+5/-5	+3.3/0	4.75×3.20×0.07

Frequency (GHz)	Function	Receive Gain (dB)	Transmit Gain (dB)	P_{-1} (dBm)	Operating Voltage (V)	Quiescent Current (mA)	Chip Size (mm)	Part Number	Production and Environmental Standard
1.2~1.4	Amplitude & Phase control multifunctional chip, internally integrated with amplifier, switch, 6-bit digital control attenuator and 6-bit digital control phase shifter; parallel control	5.0	18	25dBm (Saturation power)	+5V (receiving) +5V (transmitting) -0.5V (transmitting) -5V	30mA 170mA (dynamic) -8mA	4.0x4.0x0.1	BWM407	Q/AT 24571-2017
1.2~1.4	Amplitude & Phase control multifunctional chip, internally integrated with amplifier, switch, 6-bit digital control attenuator and 6-bit digital control phase shifter; parallel control	5.0	18	25dBm (Saturation power)	+5V (receiving) +5V (transmitting) -0.5V (transmitting) -5V	30mA 170mA (dynamic) -8mA	5.0x4.0x0.1	BWM400	Q/AT 24110-2016
2.7~3.5	Amplitude & Phase control multifunctional chip, internally integrated with amplifier, switch, 6-bit digital control attenuator and 6-bit digital control phase shifter; parallel control	-8.0	5	19	+5/-5	70/12	3.9x4.0x0.1	BWM412	-
8~12	Amplitude & Phase control multifunctional chip, internally integrated with amplifier, switch, 6-bit digital control attenuator, 6-bit digital control phase shifter and serial-to-parallel converter	12.5	13.5	14	+5/-5	50/18	5.0x3.6x0.1	BWM245	Q/AT 24942-2018
8.5~11.5	Amplitude & Phase control multifunctional chip, internally integrated with amplifier, switch, 6-bit digital control attenuator, 6-bit digital control phase shifter and serial-to-parallel converter	12.5	13.5	14	+5/-5	50/18	5.0x3.6x0.1	BWM293	Q/AT 24943-2018

Frequency (GHz)	Function	Receive Gain (dB)	Transmit Gain (dB)	P_{-1} (dBm)	Operating Voltage (V)	Quiescent Current (mA)	Chip Size (mm)	Part Number	Production and Environmental Standard
14~18	Amplitude & Phase control multifunctional chip, internally integrated with amplifier, switch, 6-bit digital control attenuator and 6-bit digital control phase shifter; parallel control	9.0	23	-	+5/-5	75/160	4.8x3.8x0.1	BWM243	-

IV) GaN Special Multifunctional Chip

Frequency (GHz)	Function	Gain Power (dB)	Psat (dBm)	P.A.E. (%)	Insertion Losss (dB)	Power Supply (V/mA)	Control Voltage (V)	Chip Size (mm)	Part Number	Production and Environmental Standard
14~18	Power amplifier & Switch chip, internally integrated with power amplifier and switch	24.5	+35.5	32	1.1	+28/0.5	0/-28V	3.60x1.50x0.08	BWM397/398	Q/AT 24847-2018
14.5~17.5	Power amplifier & Switch chip, internally integrated with power amplifier and switch	23.5	+41.5	35	0.9	+28/1.5	0/-28V	4.00x2.65x0.10	BWM305	Q/AT 23648-2015

V) Bidirectional transmitting & receiving, variable frequency multifunctional chip

Indexes / Model	Frequency range (GHz)	LO driving power (dBm)	Receiving gain (dB)	Receiving noise factor (dB)	Receiving LO-RF isolation (dB)	Transmitting gain (dB)	Transmitting P1dB (dBm)	Transmitting LO-RF isolation (dB)	Working voltage/ current (V/mA)	Chip size (mm×mm×mm)
NC15104C-2325	RF: 1.8-2.5 LO: 1.5-3 IF: 0.2-0.8	-5~0	18*	-	⩾62	14*	17*	⩾10	+5/110 (receiving) /170 (transmitting),-5/4	2.90×4.40×0.07
NC15104C-2325M	RF: 1.8-2.5 LO: 1.5-3 IF: 0.2-0.8	-5~0	18*	-	⩾62	14*	17*	⩾10	+5/110 (receiving) /170 (transmitting),-5/4	2.90×4.40×0.07
NC15103C-2735	RF: 2-4 LO: 1.5-5 IF: DC-0.8	-5~0	18*	7*	⩾60	13*	15*	⩾5	+5/220,-5/4	4.10×4.70×0.07
NC15409C-206	RF: 2-6 LO: 2-6 IF: DC-1	0	5	-	40	12	13	10	5/250	4.30×4.75×0.07
NC15400C-408	RF: 4-8 LO: 3-9 IF: 0.2-2	-5~0	12*	11*	⩾50	12*	3*	⩾15	+5/190,-5/4	3.30×4.10×0.07
NC15404C-618	RF: 6-18 LO: 6-20 IF: 0.01-6	0	7*	-	⩾41	7*	12*	⩾4	+5/330	3.40×3.50×0.07
NC15401C-812	RF: 8-12 LO: 9-15 IF: 1-3	0	5*	10*	⩾50	5*	9*	⩾5	+5/150	3.30×3.40×0.07
NC15411C-812	RF: 8-12 LO: 8-15 IF: 2-3	-3	8	5	60	8	15	10	5/250	2.30×4.50×0.07
NC15411C-812M	RF: 8-12 LO: 8-15 IF: 2-3	-3	8	5	60	8	15	10	5/250	2.30×4.50×0.07
NC15410C-1018	RF: 10-18 LO: 3-9 IF: 2-6	0	38	-	-	8	8	-	5/250	3.50×6.10×0.07
NC15412C-9295	RF: 92-95 LO: 27.7-29.7 IF: 5-11	10	4	-	-	-	-	-	4/330	2.80×5.30×0.07
NC15412C-9295M	RF: 92-95 LO: 27.7-29.7 IF: 5-11	10	4	-	-	-	-	-	4/330	2.80×5.30×0.07

Notes: For all above chips, the case packaging products and the module products can be provided; "*" represents the typical value; "PD" represents the parallel driver; "SD" represents the serial driver; "M" represents the mirror version; "ND" represents the phase inverter.

VI) GaAs Mixer Multifunctional Chip

RF Frequency (GHz)	LO Frequency (GHz)	Function	IF Frequency (GHz)	Conversion Gain (dB)	LO/RF Isolation (dB)	LO Level (dBm)	Voltage/ Current (V/mA)	Chip Size (mm)	Model	Production and Environmental Standard
0.7~2	0.7~2	Double balance mixer.Integrated with LO driver amplifier	DC ~1	4	15	-7	+5/60+50	3.45x3.1x0.1	BWM210	-
0.7~2	0.7~2	Double balance mixer.Integrated with LO driver amplifier	DC ~1	-8	30	-7	+5/60	2.0x3.1x0.1	BWM211	-
1~1.5	1~1.5	I/Q mixer.Integrated with LO driver amplifier	DC -0.5	-8	40	+0	+5/50	3.6x 2.5 x 0.1	BWM230	Q/AT 24645-2017
1~3	1~3	Double balance mixer.Integrated with LO driver amplifier	DC ~1	-8	35	-5	+5/65	1.7x3.4x0.1	BWM209	-
1.8~6	1.8~6	Double balance mixer.Integrated with LO driver amplifier	DC -2.5	-8	28	0~+6	+5/49	1.05x2.45x0.1	BWM251	Q/AT 24131-2016
2~4	2~4	Double balance mixer.Integrated RF terminal 6 bits digital controlled attenuator and RF INA	DC ~1	14	65	+14	+5/50	2.95x 2.9x 0.1	BWM235	-
2.7~3.5	3~4	Double balance mixer.Integrated with LO gating switch LO driver amplifier and RF band –pass filter	0.4-1.1	-11	40	-7	+5/38	3.7x 2.35x 0.1	BWM234	-

RF Frequency (GHz)	LO Frequency (GHz)	Function	IF Frequency (GHz)	Conversion Gain (dB)	LO/RF Isolation (dB)	LO Level (dBm)	Voltage/ Current (V/mA)	Chip Size (mm)	Model	Production and Environmental Standard
4~8	4~8	Double balance mixer.Integrated with LO driver amplifier and RF bilateral amplifier	DC ~3	10	8	-7	+5/60+50	3.5x2.0x0.1	BWM218	-
4~12	4~12	Double balance mixer.Integrated with LO driver amplifier	DC ~3	-8.5	40	+5	+5/25	1.3x 1.6x 0.1	BWM262 /263	-
5~6	8~10	Double balance mixer.Integrated with LO driver amplifier and RF bilateral amplifier	3~3.5	10/20	0	-7	+5/33+45	2.95x 2.7x 0.1	BWM236	-
6~12	6~18	Double balance mixer.Integrated with LO driver amplifier and tri-port low –pass filter	DC ~6	-8	30	-5	+5/56	1.52x2.9x0.1	BWM252	-
7~13	7~17	Double balance mixer.Integrated with LO driver amplifier	DC -4	-8	20	-3	+5/60	2.2x0.9 x 0.1	BWM215	-
7~13	7~17	Double balance mixer.Integrated with LO driver amplifier and RF bilateral amplifier	DC-4	11	0	-3	+5/60+45	2.2x2.8 x 0.1	BWM216	-
7~17	7~17	Double balance mixer.Integrated with driver amplifier and medium frequency low –pass filter	DC~3	-7.5	30	-5	+5/65	3.0x1.36x0.1	BWM214	-
18~25	18~25	Double balance mixer.Integrated with driver amplifier and medium frequency low –pass filter	DC~7	-8	22	0	+5/60	1.2x2.3x0.1	BWM217	-
35~37	31.25~33.75	Double balanced mixer,integrated with local oscillator, radio frequency & intermediate frequency amplifiers, RF digital control attenuator and intermediate frequency filter	3.25~3.75	25	-	-2	+5/180	4.0x2.5x0.1	BWM284	Q/AT 24874-2018

VII) GaAs /SiGe Mixer Multifunctional Chip

Frequency (GHz)	Function	IF Frequency (GHz)	Frequency conversion loss (dB)	LO/RF Isolation (dB)	LO/IF Isolation (dB)	Image rejection ratio (dB)	P_{-1} (dBm)	LO Power (dBm)	Chip Size (mm)	Part Number	Substitution Model	Production and Environmental Standard
0.5~2	Double balance mixer	DC~1	8.0	50	38	-	+11	+13	2.10x1.45x0.1	BW364/365	-	-
0.6~2.4	Double balance mixer	DC ~1.3	8.0	45	35	-	+11	+13	1.80x1.40x0.1	BW360/361	-	-
0.7~2.2	HighIP3	DC ~0.8	8.5	47	35	-	+17	+19	1.90x1.40x0.1	BW380	-	-
0.8~3.2	Double balance mixer	DC ~1.4	8.0	50	40	-	+11	+13	2.30x1.35x0.1	BW366/367	-	-
1~1.5	I/Q	DC ~0.5	8.0	50	17	30	+12	+16	2.8x 2.5 x 0.1	BW398	-	Q/AT 24647-2017
1~4	Double balance mixer	DC ~1	8.0	50	37	-	+11	+14	1.70x1.25x0.1	BW1350/1351	-	-
1.5~4.5	Double balance mixer	DC ~2.5	7.5	40	30	-	+11	+13	1.80x1.00x0.1	BW350/350A	-	Q/AT 22447-2012/ Q/AT 23897-2016
2~3	I/Q	DC ~1	8.0	42	18	28	+13	+17	2.35x2.00x0.1	BW395	-	-
2~6	Double balance mixer	DC ~3	7.5	40	32	-	+11	+13	1.80x1.00x0.1	BW351/351A	-	Q/AT 23619-2015
2.5~3.7	I/Q	DC ~1.2	8.0	37	15	25	+14	+17	1.70x1.25x0.1	BW390	-	-
2.5~8	Double balance mixer	DC ~4	8.0	35	30	-	+11	+13	1.47x0.85x0.1	BW362/363	HMC557	Q/AT 24648-2017
2.8~4.2	I/Q	DC ~1	8.0	55	17	32	+14	+16	2.0x1.8x0.1	BW397	-	-
3.5~7	I/Q	DC ~3	8.0	33	15	23	+14	+17	1.70x1.25x0.1	BW391	-	-
3.5~7	High IP3	DC ~3	8.5	52	48	-	+18	+19	1.70x1. 0x0.1	BW1354/1355	-	-
3.5~7	Double balance mixer	DC ~3	9.0	45	40	-	+11	+13	1.70x0.90x0.1	BW368/369	-	-
4~8	Double balance mixer	DC ~3	7.0	42	30	-	+11	+13	1.40x0.85x0.1	BW352/352A	HMC129	Q/AT 24296-2016
4~8	Double balance mixer	DC ~3	7.5	45	48	-	+12	+13	1.5x1.0x0.1	BW383/384	-	Q/AT 24082-2016
4~12	Double balance mixer	DC ~4	8.5	50	42	-	+12	+14	1.8x1.4x0.1	BW1356/1357	-	-
5~12	Double balance mixer	DC ~5	8.0	48	40	-	+12	+13	1.3x0.75x0.1	BW373/374	-	-
6~18	Double balance mixer	DC ~7	8.0	45	40	-	+12	+14	1.1x1.1x0.1	BW377/378	-	Q/AT 23844-2016
6~18	Double balance mixer	DC ~6	8.0	35	25	-	+11	+13	1.30x0.80x0.1	BW356/357	HMC141/142	Q/AT 22808-2013
7~14	High IP3	DC -5	8.0	45	38	-	+18	+19	1.7x1.0 x0.1	BW1364/1365	-	-

Frequency (GHz)	Function	IF Frequency (GHz)	Frequency conversion loss (dB)	LO/RF Isolation (dB)	LO/IF Isolation (dB)	Image rejection ratio (dB)	P_{-1} (dBm)	LO Power (dBm)	Chip Size (mm)	Part Number	Substitution Model	Production and Environmental Standard
7~14	Double balance mixer	DC~5	8.0	45	50	-	+12	+14	1.1x1.1x0.1	BW375/376	-	Q/AT 24403-2017
7~15	Double balance mixer	DC~4.5	8.0	38	32	-	+11	+13	1.25x0.94x0.1	BW353/354	-	Q/AT 23155-2014
8~12	I/Q	DC~4.5	8.0	37	15	30	+14	+17	1.53x1.05x0.1	BW393	HMC521/527	-
10~20	I/Q	DC~4	8.5	32	20	25	+14	+17	1.70x1.20x0.1	BW394	HMC522/528	-
10~20	Double balance mixer	DC~6	8.0	32	30	-	+11	+13	1.15x0.76x0.1	BW358/359	HMC554	-
10~20	Double balance mixer	DC~6	8.0	45	50	-	+12	+14	1.2x0.8x0.1	BW371/372	-	-
12~18	High IP3	DC~6	8.5	41	37	-	+15	+19	1.35x0.8x0.1	BW1360	-	-
14~26	Double balance mixer	DC~6	8.0	45	40	-	+12	+14	1.1x0.8x0.1	BW385/386	-	-
18~32	Double balance mixer	DC~10	8.5	44	42	-	+12	+14	1.1x0.9x0.1	BW1362	-	-

VIII) GaAs Special Multifunctional Chip

Frequency (GHz)	Function	Receive Gain (dB)	P_{-1} (dBm)	Operating Voltage (V)	Quiescent Current (mA)	Chip Size (mm)	Part Number	Production and Environmental Standard
1~3	Intermediate frequency variable gain amplifier, internally integrated with 6-bit digital control attenuator and amplifier	32	13.5	0/-5	62	2.20x3.10x0.1	BWM291	Q/AT 24530-2017
5~6	Power divider & Switch chip, internally integrated with power divider and switch; return loss: 16dB	-6	-	TTL +5/-5	7.5	3.20x1.50x0.1	BWM229	-
7~13	Broadband amplitude control chip, internally integrated with amplifier, switch and 6-bit digital control attenuator	18.5	10	+5/-5	40	2.90x1.00x0.1	BWM206	-
21~23	Amplitude control chip, internally integrated with amplifier and 2-bit digital control attenuator; basic attenuation bits: 5dB and 10dB	14	9	+5/-5	20	2.2x0.8x0.1	BWM607/ BWM608	Q/AT 24827-2018

1.8 Switch chip

I) GaAs FET switch chip (negative voltage control)

Indexes / Model	Type	Frequency range (GHz)	Insertion loss (dB)	Isolation (dB)	ON state VSWR	OFF state VSWR	P1dB (dBm)	Switching time (ns)	Control level (V)	Chip size (mm×mm×mm)
NC1615C-112	SPST	DC-12	≤1.2	35*	≤1.8	≤2	23*	10	0/-5	1.40×1.40×0.10
NC1601C-118PD	SPST	DC-18	1.5*	40*	1.2*	1.4*	20@ 10GHz	-	+5/0	1.15×1.00×0.07
NC16114C-118	SPST	DC-18	1.5*	40*	1.2*	1.4*	20@ 10GHz	-	0/-5	1.50×1.00×0.07
NC1644C-120	SPST	DC-26	≤2	45*	≤1.5	≤1.5	23*	10	0/-5	1.30×1.00×0.10
NC1608C-140	SPST	DC-40	≤1.2	25	≤1.5	≤1.5	-	10	0/-5	1.10×0.85×0.07
NC1631C-112PD	SPST	0.5-12	1.3*	40*	1.5*	N/A	27*	-	+5/0	1.50×1.00×0.07
NC16110C-1932	SPST	19-32	1.2*	42*	1.5*	1.5*	-	10	0/-5	2.10×1.30×0.07
NC1632C-2527PD	SPST	25-27	1.5*	40*	1.5*	1.5*	20*	10	+5/0	2.00×1.50×0.07
NC16103C-3040	SPST	30-40	≤1.8	≥37	≤2	≤2	-	10	0/-5	2.00×0.08×0.07
NC1641C-104	SPDT	DC-4	≤0.5	≥28	≤1.3	≤1.3	-	10	+5/0	0.90×0.85×0.07
NC16112C-105PD	SPDT	DC-5	≤2	65*	≤2	≤2	30*	≤50	+5/0	1.80×1.60×0.07
NC1620C-106	SPDT	DC-6	≤1.2	≥55	1.4*	1.4*	20*	10	0/-5	1.40×1.45×0.10
NC16106C-106	SPDT	DC-6	1.5*	40*	1.5*	1.5*	23*	10	+5/0	2.60×1.50×0.10
NC16113C-106PD	SPDT	DC-6	1.2*	50*	1.4*	1.5*	27*	20	+5/0	2.00×1.60×0.07
NC1628C-112	SPDT	DC-12	≤1	≥35	≤1.4	N/A	23*	10	+5/0	1.00×1.50×0.10
NC16105C-112PD	SPDT	DC-12	1*	40*	≤1.3	≤1.3	27*	10	+5/0	1.20×1.50×0.10
NC16105C-112PDM	SPDT	DC-12	1*	40*	≤1.3	≤1.3	27*	10	+5/0	1.20×1.50×0.10
NC1603C-110	SPDT	DC-12	≤1.2	50@3GHz 43@10GHz	≤1.5	N/A	23*	5	0/-5	1.50×1.50×0.10

Indexes / Model	Type	Frequency range (GHz)	Insertion loss (dB)	Isolation (dB)	ON state VSWR	OFF state VSWR	P1dB (dBm)	Switching time (ns)	Control level (V)	Chip size (mm×mm×mm)
NC1630C-112	SPDT	DC-12	≤1.5	≥45	≤1.5	≤1.5	20*	10	0/-5	1.40×1.40×0.10
NC16117C-112PD	SPDT	DC-12	1.3*	45*	1.3*	-	20*	30	+5/0	1.50×1.20×0.07
NC16122C-113	SPDT	DC-13	0.9*	30*	1.6*	N/A	23*	30	0/-5	0.96×0.08×0.07
NC1602C-118A	SPDT	DC-18	≤2	60@10GHz 45@18GHz	≤1.5	≤1.5	23*	10	0/-5	1.50×1.45×0.10
NC1646C-120	SPDT	DC-20	≤2.4	40*	≤1.5	≤1.5	23*	10	0/-5	2.00×1.00×0.10
NC16121C-140	SPDT	DC-40	3	20*	1.8*	N/A	15*	25	0/-5	0.85×0.55×0.07
NC16120C-167	SPDT	DC-67	7*	30*	2*	N/A	12*	25	0/-5	1.80×1.50×0.07
NC16118C-102	SPDT	1-2	0.4*	40*	1.3*	1.3*	27*	25	+5/0	0.96×0.70×0.07
NC1634C-104	SPDT	1-4	0.55*	30*	1.5*	N/A	28*	-	0/-5	0.70×0.70×0.10
NC16104C-112	SPDT	1-12	≤0.8	32*	≤1.5	≤1.5	25*	10	0/-5	0.96×0.70×0.10
NC16119C-811	SPDT	8-11	1.1*	30*	1.3*	-	27*	30	0/-5	0.96×0.70×0.07
NC1648C-910	SPDT	9-10	≤0.8	≥30	≤1.5	≤1.5	27*	8	0/-5	1.00×1.00×0.10
NC1610C-1830	SPDT	18-30	≤2	≥32	1.5*	1.5*	20*	10	0/-5	1.80×1.20×0.07
NC1633C-2227PD	SPDT	22-27	1.4*	≥40	1.5*	N/A	20*	10	+5/0	1.80×1.35×0.07
NC1647C-2227PD	SPDT	22-27	≤2	≥38	1.5*	1.5*	20*	10	+5/0	2.00×1.65×0.07
NC1616C-2540	SPDT	25-40	≤2.5	≥25	≤2	≤2	20*	10	0/-5	1.05×1.20×0.10
NC16102C-4050	SPDT	40-50	≤2	40*	≤1.5	≤1.5	-	10	0/-5	1.05×1.00×0.07
NC1604C-112	SP3T	DC-12	≤1.5	50@6GHz 40@12GHz	≤1.5	N/A	23*	8	0/-5	1.50×1.50×0.10
NC1605C-112	SP3T	DC-12	1.2/2.2	40*	1.4*	1.4*	23*	10	0/-5	2.00×2.00×0.10
NC1605C-112M	SP3T	DC-12	1.2/2.2	40*	1.4*	1.4*	23*	10	0/-5	2.00×2.00×0.10
NC1605C-112NL	SP3T	DC-12	1.2/2.2	40*	1.4*	1.4*	23*	10	0/-5	2.00×2.00×0.10
NC1605C-112PD	SP3T	DC-12	1.2/2.2	≥40	≤1.5	≤1.5	25*	10	+5/0	2.00×2.00×0.07
NC1607C-118	SP3T	DC-18	≤2	≥35	1.5*	1.5*	20*	≤8	0/-5	1.50×1.50×0.10
NC1626C-118	SP3T	DC-18	2.5*	40*	≤2	≤2	20*	8	0/-5	1.45×1.50×0.10
NC1627C-118	SP3T	DC-18	≤3.4	≥40	≤1.7	N/A	23*	8	0/-5	1.60×1.90×0.10
NC1639C-118	SP3T	DC-18	≤3.5	≥40	≤1.6	≤1.6	23*	8	0/-5	1.50×2.00×0.07
NC1639C-118PD	SP3T	DC-18	≤3.5	≥40	≤1.6	≤1.6	23*	8	+5/0	1.50×2.00×0.07
NC1611C-2030	SP3T	20-30	2.5*	25*	1.8*	1.8*	25*	10	0/-5	1.80×1.50×0.07
NC1609C-120	SP4T	DC-20	2*	35*	2*	N/A	-	10	0/-5	1.50×2.00×0.10
NC1624C-120	SP4T	DC-20	≤2.3	≥25	≤1.8	N/A	23*	10	0/-5	1.50×2.00×0.10
NC1625C-120	SP4T	DC-20	≤2.3	≥20	≤1.4	≤1.4	23*	10	0/-5	1.50×2.00×0.10

II) GaAs FET switch chip (positive voltage control)

Indexes / Model	Type	Frequency range (GHz)	Insertion loss (dB)	Isolation (dB)	Return loss (dB)	Withstanding power (dBm)	Switching time (ns)	Control level (V)	Chip size (mm×mm×mm)
NC16511C-0006	SPDT	DC-6	0.6*	38*	15*	27*	80*	+5/0	0.92×0.61×0.10
NC16512C-0006	SPDT	DC-6	0.7*	40*	15*	27*	80*	+5/0	1.02×0.76×0.10

III) GaAs PIN switch chip

Model \ Indexes	Type	Frequency range (GHz)	Insertion loss (dB)	Isolation (dB)	ON state VSWR	OFF state VSWR	Withstanding power (dBm)	Switching time (ns)	Control level (V)	Chip size (mm×mm×mm)
NC1669C-218	SPST	2-18	≤0.8	≥40	≤1.6	N/A	+33(CW)	20	+5/-5	2.00×0.75×0.10
NC1666C-1540R	SPST	15-40	≤1	40*	≤1.6	N/A	-	20	+5/-5	1.60×0.70×0.10
NC1671C-2040	SPST	20-40	≤1	≥35	≤1.4	N/A	+33(CW)	20	+5/-5	1.00×0.75×0.10
NC1683C-9096	SPST	90-96	1.8*	25*	2*	N/A	-	20	+5/-5	1.40×0.70×0.10
NC1690C-0820	SPDT	0.8-2	0.5*	60*	1.4*	N/A	+30(CW)	20	+5/-5	2.40×1.40×0.10
NC1663C-206	SPDT	2-6	≤0.8	≥45	≤1.5	N/A	+30(CW)	20	+5/-5	2.50×1.20×0.10
NC1670C-218	SPDT	2-18	≤1.2	≥45	≤1.6	N/A	+30(CW)	20	+5/-5	2.00×1.30×0.10
NC1676C-409	SPDT	4-9	0.5*	70*	1.2*	N/A	+30(CW)	20	+5/-5	2.40×1.40×0.10
NC1687C-408	SPDT	4.5-7.5	0.6*	45*	1.2*	N/A	+33(CW)	20	+5/-5	3.00×1.60×0.10
NC1679C-1220	SPDT	12-20	≤0.8	40*	1.5*	N/A	+33(CW)	20	+5/-5	2.40×1.30×0.10
NC1699C-1018	SPDT	10-18	0.8*	55*	1.4*	N/A	+34(CW)	20	+5/-5	2.00×1.20×0.10
NC1677C-1830	SPDT	18-30	≤1.3	≥40	≤1.8	N/A	+33(CW)	20	+5/-5	2.00×1.40×0.10
NC1677C-1830R	SPDT	18-30	≤1.3	≥40	≤1.8	N/A	+33(CW)	20	+5/-5	2.00×1.40×0.10
NC1695C-2040	SPDT	20-40	0.9*	40*	1.8*	-	+23	20	+5/-5	1.60×1.00×0.10
NC1672C-2432	SPDT	24-32	≤0.7	≥43	≤1.5	N/A	-	20	+5/-5	2.00×1.20×0.10
NC1678C-2540	SPDT	25-40	≤1.3	≥40	≤1.8	N/A	+33(CW)	20	+5/-5	2.00×1.40×0.10
NC1678C-2540R	SPDT	25-40	≤1.3	≥40	≤1.8	N/A	+33(CW)	20	+5/-5	2.00×1.40×0.10
NC1674C-2838	SPDT	28-38	≤1	≥30	≤1.6	N/A	+34(CW)	20	+5/-5	2.00×1.10×0.10
NC1681C-3337R	SPDT	33-37	0.8*	24*	1.5*	N/A	+33(CW)	20	-5/+10	1.10×1.10×0.10
NC1686C-3337	SPDT	33-37	1.1*	35*	1.6*	2.3*	+33(CW)	20	+5/-5	1.60×1.10×0.10
NC1686C-3337R	SPDT	33-37	1.1*	35*	1.6*	2.3*	+33(CW)	20	+5/-5	1.60×1.10×0.10
NC1696C-3337	SPDT	33-37	0.8*	45*	1.4*	-	+34	20	-10/+5	2.00×1.00×0.10
NC16150C-3436	SPDT	34-36	0.8*	55*	1.4*	N/A	+41.2(CW)	50	+5/-15	2.05×1.00×0.10
NC1698C-4565	SPDT	45-65	0.6*	25*	1.6*	N/A	-	50	+5/-5	1.65×0.90×0.10

Frequency (GHz)	Function	Insertion Loss (dB)	Isolation (dB)	Return Loss (dB)	P_{-1} (dBm)	Driving Method (V)	Chip Size (mm)	Part Number	Substitution Model	Production and Environmental Standard
0.1~4	SPDT absorptive	0.6	45	20	28	0/+5	1.38x0.85x0.1	BW116	-	Q/AT 22515-2012
0.1~4	SP4T absorptive	1	45	20	21	0/+5	2.2x2x0.1	BW1026D	HMC240	-
0.1~4	SPDT absorptive	0.7	40	18	25	0/+5	1.38x1x0.1	BW1032D	-	Q/AT 24934-2018
0.1~6	SPDT reflective	0.3	40	20	26	0/+5	0.7x0.68x0.1	BW117		-
0.1~6	SPDT absorptive	0.8	65	20	28	0/-5	1.38x1.16x0.1	BW111	HMC322	Q/AT 22268-2011
0.1~6	SPDT reflective	0.6	50	20	25	0/-5	1.06x1.25x0.1	BW112	-	-
0.1~6	SPDT reflective	0.5	35	20	25	0/+5	1.00x1.00x0.1	BW1024D	- HMC607	Q/AT 24431-2017
0.1~6	SPST absorptive	0.6	45	15	23	Current driver	0.76x0.9x0.1	BW1009D	-	Q/AT 24543-2017
0.1~10	SP8T absorptive	2.2	50	15	22	Built-in 3:8 decoder	2.05x1.50x0.1	BW124		-
0.1~12	SPDT reflective	0.7	40	25	23	0/-5	1.16x0.78x0.1	BW118	-	-
0.1~12	Y-type reflection	2.0	50	18	25	Built-in 2:4 decoder	1.8 x1.8 x 0.1	BW1029D	-	Q/AT 24826-2018
0.1~15	SPDT reflective	1.2	40	25	22	0/-5	1.27x0.83x0.1	BW119	-	-
0.1~15	SPDT absorptive	1.4	60	20	25	0/-5	2.05x1.10x0.1	BW127		Q/AT 24171-2016
0.1~20	SP3T reflective	1.8	40	20	18	Built-in 2:4 decoder	1.6 x1.95 x 0.1	BW1027D/ BW1028D		Q/AT 24700-2017

Frequency (GHz)	Function	Insertion Loss (dB)	Isolation (dB)	Return Loss (dB)	P_{-1} (dBm)	Driving Method (V)	Chip Size (mm)	Part Number	Substitution Model	Production and Environmental Standard
0.1~20	SPST absorptive	1.5	50	25	28	0/-5	1.05x0.84x0.1	BW110	-	Q/AT 22180-2011
0.1~20	SPST absorptive	1.4	40	15	25	0/+5	1.10x0.95x0.1	BW1017D	-	Q/AT 23775-2015
0.1~20	SPDT absorptive	1.5	50	20	20	0/-5	1.30x0.85x0.1	BW113	HMC347	Q/AT 22415-2012
0.1~20	SP4T absorptive, mirror image design	2.0	45	17	20	Built-in 2:4 decoder	1.92x1.60x0.1	BW121/122	HMC641	Q/AT 22537-2012
0.1~20	SPDT absorptive	2	50	15	25	0/+5	1.44x1.00x0.1	BW1023D	-	Q/AT 24430-2017
0.1~30	SPDT reflective	1.5	30	20	25	0/-5	1.40x0.94x0.1	BW114	-	Q/AT 22520-2012
0.1~30	GaAs PIN, SPST reflective	0.5	45	18	30	Current driver	1.60x0.93x0.1	BW143	BW143	Q/AT 24811-2017
0.1~30	GaAs PIN, SP4T reflective	0.6	45	23	23	Current driver	1.30x1.08x0.1	BW144	BW144	-
0.1~35.0	SP4T reflective	2.5	35	13	18	Built-in 2:4 decoder	1.18x1.43x0.1	BW125	BW125	Q/AT 22737-2013
0.1~35	SP4T reflective	3	30	15	15	Current driver	1.20x1.45x0.1	BW1013D	BW1013D	Q/AT 24544-2017
0.1~40	SPDT reflective	2.2	30	15	17	0/-5	1.00x0.72x0.1	BW129	BW129	Q/AT 22807-2013
0.4~0.7	SP4T reflective	0.4	45	20	33	Built-in 2:4 decoder	1.5 x1.45 x 0.1	BW1030D/ BW1031D	-	Q/AT 24701-2017
2~12	SP4T reflective	2.0	40	15	29	Built-in 2:4 decoder	2.0 x2.0 x 0.1	BW1021D/ BW1022D	-	Q/AT 24637-2017
2~18	GaAs PIN, SP3T reflective, built-in bias	0.7	48	20	22	Current driver	1.80x1.80x0.1	BW145	MA4SW310B	Q/AT 23574-2015
2~18	GaAs PIN, SPDT reflective, built-in bias	0.8	45	14	24	Current driver	1.73x1.28x0.1	BW147	MA4SW210B	-
4~26	GaAs PIN, SPST reflective, built-in bias circuit and blocking capacitor	0.4	55	22	30	Current driver	1.35x0.69x0.1	BW142	-	-
6~24	GaAs PIN, SPDT reflective, built-in bias circuit	0.8	50	15	23	Current driver	1.59x1.00x0.1	BW141	-	-
10~24	GaAs PIN, SPDT reflective, built-in bias circuit	1.2	50	20	34	Current driver	1.87x1.31x0.1	BW140	HMC970	-
11~17	SPDT reflective	0.9	40	17	35	0/-5	2.00x1.50x0.1	BW1003	-	Q/AT 24527-2017
20~40	SPDT reflective	1.4	25	15	21	0/-5	1.77x0.8x0.1	BW133	-	-

IV) GaN FET switch chip

Model \ Indexes	Type	Frequency range (GHz)	Insertion loss (dB)	Isolation (dB)	ON state VSWR	OFF state VSWR	Input $P_{-0.2}$ (dBm)	Switching time (ns)	Control level (V)	Chip size (mm×mm×mm)
NC16607C-102	SPDT	DC-2	0.6*	30*	1.2*	N/A	49.5*	25*	0/-40	1.20×1.00×0.08
NC16601C-106	SPDT	DC-6	0.8*	35*	1.5*	N/A	45*	25*	0/-35	2.00×1.30×0.08
NC16609C-118	SPST	DC-18	0.5*	23*	1.5*	N/A	46*	20*	0/-28	0.90×0.60×0.08
NC16603C-0820	SPDT	0.8-2	0.4*	40*	1.3*	N/A	49*	20*	0/-40	1.20×1.00×0.08
NC16602C-618	SPDT	6-18	1*	35*	1.4*	N/A	36*	15*	0/-20	1.30×0.90×0.08
NC16611C-812	SPDT	8-12	0.8*	35*	1.4*	N/A	46*	20*	0/-40	2.00×2.00×0.08
NC16608C-840	SPDT	8-40	3*	20*	1.7*	N/A	33*	20*	0/-20	1.10×0.90×0.08
NC16610C-1018	SPDT	10-18	1*	27*	1.6*	N/A	41*	20*	0/-28	2.00×1.30×0.08
NC16613C-3337	SPDT	33-37	1.2*	24*	1.5*	N/A	33*	15*	0/-28	1.50×0.90×0.08

Frequency (GHz)	Function	Insertion Loss (dB)	Isolation (dB)	Return Loss (dB)	P_{-1} (dBm)	Driving Method (V)	Chip Size (mm)	Part Number	Substitution Model	Production and Environmental Standard
0.1~6	SPDT, 10W	0.5	32	20	40	0/ -28	1.8x1.0x0.1	BW1047	-	-
0.1~8	SPDT, 10W	0.9	50	20	40	0/ -28	1.6x1.4x0.1	BW1044	-	-
0.1~18	SPDT, 5W	1.6	35	20	37	0/ -28	1.6x1.2x0.1	BW1040	-	-
1~5	SPDT, 20W Positive, absorptive	1.1	40	15	43	0/ +28	2.4x1.6x0.1	BW1041	-	Q/AT 24077-2017
6~18	SPDT, 10W	1.0	35	15	40	0/ -28	2.4x1.9x0.1	BW136	-	Q/AT 24415-2018
8~12	SPDT, 10W	0.6	35	20	40	0/ -28	2.0x2.1x0.1	BW137	-	-
8~12	SPDT, 20W	0.7	37	20	43	0/ -28	2.0x2.35x0.1	BW1048	-	-
8~12	SPDT, 40W	0.8	30	16	46	0/ -28	2.0x2.35x0.1	BW138	-	-

Frequency (GHz)	Function	Insertion Loss (dB)	Isolation (dB)	Return Loss (dB)	P_{-1} (dBm)	Driving Method (V)	Chip Size (mm)	Part Number	Substitution Model	Production and Environmental Standard
8~12	SPDT, 40W	0.75	35	18	46	0/ -28	2.0x2.1x0.1	BW1043	-	-
12~18	SPDT, 10W	0.85	36	17	40	0/ -28	2.0x1.8x0.1	BW135	-	-

Notes: For all above chips, the case packaging products and the module products can be provided; "*" represents the typical value; "R" represents that +5V is corresponding to the ON state and -5V is corresponding to the OFF state; "PD" represents the parallel driver.

1.9 Frequency mixer chip

I) Passive double balanced mixer chip

Model \ Indexes	Frequency range (GHz)	Intermediate frequency range (GHz)	Frequency conversion loss (dB)	LO-RF isolation (dB)	LO-IF isolation (dB)	RF-IF isolation (dB)	Local oscillator power (dBm)	Chip size (mm×mm×mm)
NC17120C-0412	0.4-1.2	DC-0.5	10*	≥48	≥41	≥12	13*	1.80×2.00×0.10
NC1707C-0717	0.7-1.7	DC-0.5	≤9.5	≥46	≥41	≥14	13*	1.80×1.40×0.10
NC1707C-0717M	0.7-1.7	DC-0.5	≤9.5	≥46	≥41	≥14	13*	1.80×1.40×0.10
NC1702C-1537	1-4	DC-1	≤10	≥40	≥27	≥14	13*	1.50×1.20×0.10
NC1702C-1537M	1-4	DC-1	≤10	≥40	≥27	≥14	13*	1.50×1.20×0.10
NC1706C-1545	1.5-4.5	DC-1.5	≤8.5	≥36	≥31	≥15	13*	1.50×1.20×0.10
NC1706C-1545M	1.5-4.5	DC-1.5	≤8.5	≥36	≥31	≥15	13*	1.50×1.20×0.10
NC1709C-185	1.8-5	DC-2	≤9	≥40	≥26	≥12	13*	1.50×1.40×0.10
NC1709C-185M	1.8-5	DC-2	≤9	≥40	≥26	≥12	13*	1.50×1.40×0.10
NC1714C-1922	1.9-2.2	0.2	≤9	≥40	≥32	≥12	8*	2.20×1.20×0.10
NC1705C-265	2-6.5	DC-2.5	≤9	≥37	≥25	≥12	13*	1.30×1.00×0.10
NC17159C-2440	2.4-4	DC-1	8*	22*	22*	10*	15*	1.50×0.90×0.08
NC1701C-2570	2.5-7	DC-2.5	≤8.5	≥30	≥23	≥13	13*	1.30×1.00×0.10
NC1701C-2570M	2.5-7	DC-2.5	≤8.5	≥30	≥23	≥13	13*	1.30×1.00×0.10
NC1708C-308	3-8	DC-3	≤8.5	≥34	≥23	≥12	13*	1.30×1.00×0.10
NC1704C-410	4-10	DC-4	≤9	≥32	≥21	≥14	13*	1.20×0.90×0.10
NC17114C-410	4.5-10.5	DC-5	≤10	≥40	≥35	≥18	10*	1.19×1.10×0.10
NC1719C-612	6-12	DC-5	≤9	≥33	≥24	≥11	13*	1.40×1.30×0.10
NC17108C-615	6-15.5	DC-7	≤10.5	≥35	≥32	≥12	13*	1.03×1.00×0.10
NC1743C-618A	6-18	DC-6	≤9.5	≥35	≥25	≥11	13*	1.30×1.18×0.10
NC1743C-618AM	6-18	DC-6	≤9.5	≥35	≥25	≥11	13*	1.30×1.18×0.10
NC17104C-620	6-20	DC-6	≤9	≥34	≥25	≥12	13*	1.80×1.19×0.10
NC1703C-7514	7-14	DC-3	≤9	≥28	≥25	≥18	13*	1.20×0.90×0.10
NC1703C-7514M	7-14	DC-3	≤9	≥28	≥25	≥18	13*	1.20×0.90×0.10
NC17111C-725	7-25	DC-6	≤9	≥32	≥23	≥9	13*	1.34×1.18×0.10
NC17111C-725M	7-25	DC-6	≤9	≥32	≥23	≥9	13*	1.34×1.18×0.10
NC1710C-812	RF: 8-12 LO: 10-16	2-4	≤8.5	≥27	≥22	≥15	15*	1.40×1.40×0.10
NC1710C-812M	RF: 8-12 LO: 10-16	2-4	≤8.5	≥27	≥22	≥15	15*	1.40×1.40×0.10
NC1717C-1020	10-20	DC-8	≤9.5	≥26	≥16	≥10	13*	1.00×1.40×0.10
NC1717C-1020M	10-20	DC-8	≤9.5	≥26	≥16	≥10	13*	1.00×1.40×0.10
NC1733C-1328	13-28	DC-10	≤10	≥25	≥15	≥8	13*	1.00×1.20×0.10
NC1733C-1328M	13-28	DC-10	≤10	≥25	≥15	≥8	13*	1.00×1.20×0.10
NC17107C-1434	14-34	DC-10	≤10.8	≥35	≥30	≥8	13*	1.01×1.06×0.10
NC17107C-1434M	14-34	DC-10	≤10.8	≥35	≥30	≥8	13*	1.01×1.06×0.10
NC17115C-1437	14-37	DC-9	≤10	≥30	≥35	≥16	13*	1.01×1.06×0.10

Model \ Indexes	Frequency range (GHz)	Intermediate frequency range (GHz)	Frequency conversion loss (dB)	LO-RF isolation (dB)	LO-IF isolation (dB)	RF-IF isolation (dB)	Local oscillator power (dBm)	Chip size (mm×mm×mm)
NC1734C-1530	15-30	DC-10	⩽10	⩾23	⩾15	⩾9	13*	1.00×1.30×0.10
NC1734C-1530M	15-30	DC-10	⩽10	⩾23	⩾15	⩾9	13*	1.00×1.30×0.10
NC17106C-1740	17-40	DC-10	⩽10.8	⩾25	⩾30	⩾8	13*	1.01×1.06×0.10
NC17102C-1832	18-32	DC-8	⩽10	⩾30	⩾22	⩾12	13*	1.30×1.18×0.10
NC1718C-1850	18-50	DC-16	⩽11	⩾25	⩾23	⩾10	15*	1.20×1.40×0.10
NC1718C-1850M	18-50	DC-16	⩽11	⩾25	⩾23	⩾10	15*	1.20×1.40×0.10
NC17100C-1927	19-27	DC-9	⩽10	⩾33	⩾30	⩾15	13*	1.00×1.00×0.10
NC17101C-2132	21-32	DC-5	⩽10	⩾25	⩾38	⩾20	13*	1.32×1.11×0.10
NC17003C-2440M	24-40	DC-8	⩽10	⩾24	⩾32	⩾13	13*	1.07×1.00×0.10
NC17173C-3240	RF: 32-40 LO: 42-50	6-18	⩽9	⩾37	⩾25	⩾12	12-15	0.90×0.90×0.07
NC17173C-3240M	RF: 32-40 LO: 42-50	6-18	⩽9	⩾37	⩾25	⩾12	12-15	0.90×0.90×0.07
NC17151C-5266	52-66	DC-8	⩽9	32*	20*	30*	12*	1.40×1.15×0.07
NC17151C-5266M	52-66	DC-8	⩽9	32*	20*	30*	12*	1.40×1.15×0.07
NC1749C-9096	83-100	DC-18	⩽9	25*	-	-	10*	0.94×1.12×0.10
NC1749C-9096M	83-100	DC-18	⩽9	25*	-	-	10*	0.94×1.12×0.10
NC17164C-9096	RF: 87-100 LO: 80-100	DC-12	9	25	-	-	13	1.10×1.60×0.07
NC17163C-9294	RF: 92-94 LO: 80-100	DC-12	11	35	-	-	12	2.30×5.30×0.07
NC17163C-9294M	RF: 92-94 LO: 80-100	DC-12	11	35	-	-	12	2.30×5.30×0.07
NC17153C-9296	RF: 92-96 LO: 80-100	DC-12	9*	26*	-	-	13*	1.60×2.40×0.07
NC17153C-9296M	RF: 92-96 LO: 80-100	DC-12	9*	26*	-	-	13*	1.60×2.40×0.07

II) I/Q mixer chip

Model \ Indexes	Frequency range (GHz)	Intermediate frequenc range (GHz)	Frequency conversion loss (dB)	Image rejection ratio (dB)	LO-RF isolation (dB)	LO-IF isolation (dB)	RF-IF isolation (dB)	Local oscillator power (dBm)	Chip size (mm×mm×mm)
NC1736C-102	1-2	DC-0.7	⩽10	⩾20	⩾45	⩾15	⩾25	16*	2.20×2.70×0.10
NC1726C-203	2-3	DC-1	⩽10	⩾17	⩾45	⩾20	⩾15	15*	2.30×2.30×0.10
NC1747C-2540	2.5-4	DC-1	⩽10	⩾20	⩾38	⩾18	⩾23	15*	1.90×2.50×0.10
NC17134C-365	3-6.5	DC-3.5	7*	30*	45	20	30	16*	1.95×2.00×0.08
NC17129C-385	3-8.5	DC-3.5	7*	25*	45	30	45	16*	2.40×2.40×0.08
NC1745C-406	3.9-6.2	DC-1.5	⩽10	⩾27	⩾40	⩾18	⩾25	15*	2.00×2.50×0.10
NC1721C-405	4-5.5	DC-1.5	⩽9	⩾20	⩾40	⩾20	⩾15	15*	2.10×1.75×0.10
NC17116C-408	4.5-8	DC-2	⩽11	⩾20	⩾42	⩾25	⩾30	15*	1.60×1.60×0.10
NC17142C-610	6-10	DC-3.5	10*	35*	35*	13*	-	15*	1.50×1.15×0.08
NC17141C-612	6-12	DC-3.5	10*	20*	22*	20*	-	15*	1.60×1.30×0.08
NC1729C-812	8-12	DC-2	⩽10	⩾20	⩾35	⩾20	⩾15	15*	1.80×1.40×0.10
NC17155C-812	8-12	DC-3.5	7*	40*	42*	22*	35*	15*	1.47×1.50×0.08
NC17124C-1218	12-18	DC-3.5	⩽7	⩾25	⩾30	⩾25	⩾35	13*	1.40×1.40×0.08
NC17105C-1523	15-23	DC-3	⩽10	⩾17	⩾25	⩾5	⩾21	15*	1.80×2.00×0.10
NC17131C-2036	20-36	DC-8	9*	25*	35*	20*	30*	16*	1.26×1.38×0.08
NC17154C-2533	25-33	DC-5	10*	35*	40*	20*	30*	17*	1.47×1.80×0.08
NC17130C-2638	26-38	DC-8	9*	28*	40*	15*	40*	16*	1.22×1.38×0.08
NC17132C-3246	32-46	DC-7	11*	30*	30*	20*	35*	16*	1.38×1.38×0.08
NC17137C-5266	52-66	DC-8	9*	22*	32*	20*	30*	16*	1.40×1.15×0.07

III) Double balanced mixer (with local oscillator buffer) chip

Model \ Indexes	Frequency range RF&LO (GHz)	Intermediate frequency range (GHz)	Frequency conversion loss (dB)	LO-RF isolation (dB)	LO-IF isolation (dB)	RF-IF isolation (dB)	Local oscillator power (dBm)	Power consumption (V/mA)	Chip size (mm×mm×mm)
NC17126C-102	0.5-2	DC-0.5	10*	20*	15*	12*	-3*	5/105	2.00×4.00×0.08
NC17126C-102M	0.5-2	DC-0.5	10*	20*	15*	12*	-3*	5/105	2.00×4.00×0.08
NC1744C-103	1-3	DC-1	≤12	≥27	≥20	≥13	0*	5/60	4.50×2.00×0.10
NC1744C-103M	1-3	DC-1	≤12	≥27	≥20	≥13	0*	5/60	4.50×2.00×0.10
NC1722C-1922	1.9-2.2	0.2	≤10	≥25	≥20	≥12	-3*	5/21	1.80×2.30×0.10
NC1713C-206	2-6	DC-2.5	≤9	≥37	≥25	≥12	0*	5/80	2.40×1.80×0.10
NC1713C-206M	2-6	DC-2.5	≤9	≥37	≥25	≥12	0*	5/80	2.40×1.80×0.10
NC1748C-410	4-11	DC-4	≤10	≥22	≥13	≥14	0*	5/80	1.80×3.40×0.10
NC1748C-410M	4-11	DC-4	≤10	≥22	≥13	≥14	0*	5/80	1.80×3.40×0.10
NC17166C-515	RF: 5-15 LO: 6-18	DC-6	10*	25*	16*	14*	0*	5/100	1.80×2.30×0.07
NC17166C-515M	RF: 5-15 LO: 6-18	DC-6	10*	25*	16*	14*	0*	5/100	1.80×2.30×0.07
NC17161C-618	6-18	DC-5	≤9	≥22	≥32	≥28	0	5/120	1.60×2.90×0.07
NC17161C-618M	6-18	DC-5	≤9	≥22	≥32	≥28	0	5/120	1.60×2.90×0.07
NC17162C-618	6-18	DC-6	≤9	≥22	≥22	≥20	0-5	5/120	1.60×2.90×0.07
NC17162C-618M	6-18	DC-6	≤9	≥22	≥22	≥20	0-5	5/120	1.60×2.90×0.07
NC17156C-620	6-20	DC-6	≤9	≥21	≥17	≥18	0*	5/110	1.60×2.40×0.07
NC1725C-714	7-14	DC-4	≤10	≥12	≥12	≥17	0*	5/90	2.60×1.80×0.10
NC1725C-714M	7-14	DC-4	≤10	≥12	≥12	≥17	0*	5/90	2.60×1.80×0.10
NC17149C-1022	10-22	DC-10	≤9	≥24	≥20	≥21	0*	5/70	1.60×2.40×0.08
NC17118C-2023	18-25	DC-3	≤8.5	≥9	≥27	≥35	0*	5/85	1.40×2.50×0.10
NC17118C-2023M	18-25	DC-3	≤8.5	≥9	≥27	≥35	0*	5/85	1.40×2.50×0.10
NC17143C-3240	32-40	DC-2.5	11*	30*	65*	30*	-5*	5/80	2.60×1.00×0.07
NC17143C-3240M	32-40	DC-2.5	11*	30*	65*	30*	-5*	5/80	2.60×1.00×0.07
NC17150C-5666	56-66	DC-8	8*	20*	10*	30*	0*	4/75	2.75×1.23×0.07

IV) Multifunctional down-conversion chip

Model \ Indexes	Radio frequency range (GHz)	Local oscillator frequency range (GHz)	Intermediate frequency range (GHz)	Conversion gain (dB)	Noise factor (dB)	Output 1dB compression point (dBm)	Output third-order intercept point (dBm)	LO-RF isolation (dB)	Local oscillator power (dBm)	Power consumption (V/mA)	Chip size (mm×mm×mm)
NC1720C-2035	2-3.5	2.4-3.1	0.4-0.5	10*	9*	9*	15.5*	≥42	0*	5/105	3.60×2.30×0.10
NC1731C-0518	3-6	3-6	DC-1.8	2*	≤11	3.7*	7.5*	≥42	3*	5/59	3.20×1.60×0.10
NC1731C-0518M	3-6	3-6	DC-1.8	2*	≤11	3.7*	7.5*	≥42	3*	5/59	3.20×1.60×0.10
NC17119C-506	5-6	3.2-7.8	0.8-1.8	18*	-	≥17	-	≥14	0*	5/160	3.60×3.60×0.10
NC1750C-810	8-10	8-10	DC-1.0	16*	1.8*	3*	-	55*	-3	5/120	2.80×3.80×0.07
NC1723C-812	8-12	10-16	2-4	3*	-	≥16	-	≥17	3*	5/156	4.00×1.80×0.10
NC17122C-812	8-12	10-16	2.5-3.5	13*	12*	17*	-	47*	-3*	5/185	3.20×4.20×0.07
NC1741C-810	8.5-10	6-12	1-3	48*	≤2.2	≥9	-	-	12*	5/120	2.80×3.50×0.10
NC17125C-910	9-10	8.4-10.6	DC-0.6	29*	-	≥3.5	-	≥65	-3*	5/250	4.00×4.30×0.10
NC17112C-1314	12-16	8-14	1.5-4	23*	-	9*	-	≥42	12*	5/75	2.50×2.50×0.10
NC17165C-1618	16-18	15-18	0.4-0.8	5*	5	-10	0	50*	-15*	5/200	2.80×3.40×0.07
NC17165C-1618M	16-18	15-18	0.4-0.8	5*	5	-10	0	50*	-15*	5/200	2.80×3.40×0.07
NC17148C-5266	52-66	52-66	DC-8	8*	6*	10*	15*	38*	12*	4/55	2.75×1.23×0.07
NC17157C-8797	87-97	80-100	DC-12	13*	4.5*	-3*	-	40*	13*	4/65	1.60×3.10×0.07
NC17152C-9296	92-96	80-100	DC-12	14*	7*	0*	-	40*	13*	4/65	1.60×4.30×0.07
NC17152C-9296M	92-96	80-100	DC-12	14*	7*	0*	-	40*	13*	4/65	1.60×4.30×0.07

Model \ Indexes	Radio frequency range (GHz)	Local oscillator frequency range (GHz)	Intermediate frequency range (GHz)	Conversion gain (dB)	Noise factor (dB)	Output 1dB compression point (dBm)	Output third-order intercept point (dBm)	LO-RF isolation (dB)	Local oscillator power (dBm)	Power consumption (V/mA)	Chip size (mm×mm×mm)
NC17152C-9296	92-96	80-100	DC-12	14*	7*	0*	-	40*	13*	4/65	1.60×4.30×0.07
NC17152C-9296M	92-96	80-100	DC-12	14*	7*	0*	-	40*	13*	4/65	1.60×4.30×0.07

V) Multifunctional up-conversion chip

Model \ Indexes	Intermediate frequency range (GHz)	Local oscillator frequency range (GHz)	Radio frequency range (GHz)	Conversion gain (dB)	Noise factor (dB)	Output 1dB compression point (dBm)	Output third-order intercept point (dBm)	LO-RF isolation (dB)	Local oscillator power (dBm)	Power consumption (V/mA)	Chip size (mm×mm×mm)
NC1732C-0518	DC-1.8	3-6	3-6	5*	≤11	7.5*	17.5*	≥18	3*	5/59	3.20×1.60×0.10
NC1728C-2035	0.4-0.5	2.4-3.1	2-3.5	17*	≤10	≥14	≥22	≥16	0*	5/105	3.60×2.30×0.10
NC17158C-9296	0.01-12	80-100	92-96	9*	-	10*	-	-	12*	4/200	1.60×6.70×0.07

VI) QPSK modulator chip

Model \ Indexes	Frequency range RF&LO (GHz)	Insertion loss (dB)	Carrier suppression degree (dB)	Modulation amplitude error (dB)	Modulation phase error (°)	Modulation signal level (V)	Driving current (mA)	Power consumption (V/mA)	Chip size (mm×mm×mm)
NC17110C-102	1-2	≤5	≥40	≤0.5	≤3	-	-	-	2.60×2.40×0.10
NC17117C-2124	2.1-2.4	≤5	≥35	≤0.5	≤3	-	-	-	2.60×2.40×0.10
NC1746C-2224	22-24	≤10	≥25	≤0.5	≤5	±1.2*	≥12	-	2.00×2.00×0.10
NC1740C-2527	25-27	≤10	≥25	≤0.5	≤5	±1.2*	≥12	-	1.90×2.00×0.10

VII) Harmonic mixer chip

Model \ Indexes	Frequency range (GHz)	Intermediate frequency range (GHz)	Frequency conversion loss (dB)	LO-RF isolation (dB)	LO-IF isolation (dB)	RF-IF isolation (dB)	Local oscillator power (dBm)	Voltage (V)	Chip size (mm×mm×mm)
NC17138C-2450	24-50	0.01-5	10*	6*	4*	18*	2*	3.5	1.28×0.85×0.07
NC17139C-1432	14-32	0.01-5	10*	0*	5*	15*	2*	5	1.55×0.90×0.07
NC17140C-1636	16-36	0.5-3	2* (Gain)	-2*	15*	30*	2*	3.5	1.40×1.46×0.07

Notes: For all above chips, the case packaging products and the module products can be provided; "*" represents the typical value.

1.10 Frequency divider/multiplier chip

I) Active frequency multiplier chip

Model \ Indexes	Input signal frequency range (GHz)	Output signal frequency range (GHz)	Clock multiplier factor	Output power (dBm)	Fundamental wave isolation (dBc)	Third harmonic isolation (dBc)	Power consumption (V/mA)	Chip size (mm×mm×mm)
NC17723C-306	1.5-3	3-6	2	3/14	10*	15	5/82	2.30×1.10×0.07
NC17710C-408	1.33-2.67	4-8	3	3*	30*	-	5/83	2.30×2.30×0.07
NC17725C-408	2-4	4-8	2	3/17	17*	17	5/90	2.30×1.00×0.07
NC1795C-611	3-5.5	6-11	2	3*	12*	16*	5/90	2.30×1.15×0.07
NC1771C-618A	3-9	6-18	2	12.5*	30*	35*	5/106	1.40×1.15×0.10
NC17702C-712	1.75-3	7-12	4	2*	40*	-	5/62	1.30×1.15×0.10
NC1792C-721	3.5-10.5	7-21	2	15*	25*	26*	5/110	1.45×1.20×0.07
NC17703C-7512	0.9375-1.5	7.5-12	8	2*	50*	-	5/68	1.62×1.15×0.10
NC17709C-814	2.66-2.67	8-14	3	3*	12*	-	5/76	3.40×1.15×0.07
NC17724C-814	4-7	8-14	2	3/12	25*	10	5/75	2.30×1.00×0.07
NC17712C-816	4-8	8-16	2	12*	12*	7*	5/62	2.30×1.00×0.07
NC17704C-912	0.5625-0.75	9-12	16	1*	60*	-	5/78	2.00×1.15×0.10
NC1780C-1424	7-12	14-24	2	14.5*	23*	20*	3.5/80	1.15×1.15×0.10
NC17708C-1624	8-12	16-24	2	14*	10*	15*	5/80	1.15×1.15×0.07

Model \ Indexes	Input signal frequency range (GHz)	Output signal frequency range (GHz)	Clock multiplier factor	Output power (dBm)	Fundamental wave isolation (dBc)	Third harmonic isolation (dBc)	Power consumption (V/mA)	Chip size (mm×mm×mm)
NC1779C-1830A	9-15	18-30	2	13*	20*	12*	5/71	1.15×1.15×0.10
NC17706C-1832	9-16	18-32	2	10*	27*	27*	5/30	1.63×0.88×0.07
NC1791C-1929	9.5-15	19-29	2	12*	18*	28*	5/86	1.15×1.15×0.07
NC1797C-3040	15-20	30-40	2	15	35*	-	5/90	1.15×1.15×0.07
NC17720C-5266	26-33	52-66	2	15*	25*	-	5/80	2.27×1.16×0.07
NC17718C-5466	27-33	54-66	2	16*	40*	-	5/130	3.25×1.28×0.07
NC17719C-5466	27-33	54-66	2	18*	25*	-	5/140	3.25×1.16×0.07
NC17722C-5664	14-16	56-64	4	15*	40*	17	5/120	3.80×1.35×0.07
NC17716C-7685	9.5-10.6	76-84.5	8	10*	-	-	3/-0.2	4.37×1.90×0.07
NC17721C-8091	10-11.375	80-91	8	13*	-	-	4/200	5.00×1.95×0.07
NC17717C-8596	10.6-12	84.5-96	8	10*	-	-	4/-0.2	7.35×1.95×0.07
NC17711C-8796	29-32	87-96	3	20*	-	-	4/200	1.60×5.65×0.07
NC17726C-8796	29-32	87-96	3	20*	-	-	4/330	6.50×1.95×0.07
NC17727C-3545	17.5-22.5	35-45	2	3*	25*	-	5/92	1.15×1.15×0.07

II) Passive frequency multiplier chip

Model \ Indexes	Input signal frequency range (GHz)	Output signal frequency range (GHz)	Conversion gain (dB)	Fundamental wave isolation (dBc)	Third harmonic isolation (dBc)	Fourth harmonic isolation (dBc)	Input power (dBm)	Chip size (mm×mm×mm)
NC1772C-1024	1-2.4	2-4.8	-15*	45*	45*	45*	12-18	1.25×0.94×0.08
NC1773C-204	2-4	4-8	-15*	45*	45*	45*	12-18	1.06×0.90×0.08
NC1774C-306	3-6	6-12	-15*	50*	45*	45*	12-18	0.95×0.64×0.08
NC1790C-408	4-8	8-16	-12*	45*	45*	35*	12-18	1.30×0.80×0.07
NC1787C-612	6-12	12-24	-13*	35*	36*	35*	12-18	1.30×1.00×0.07
NC17707C-2745	9-15	27-45	-14*	30*	-	45*	15	0.97×1.05×0.08
NC17701C-1836	9-18	18-36	-12*	32*	40*	-	15	1.02×0.65×0.07
NC1798C-3050	15-25	30-50	-12*	32*	-	-	15	1.02×0.60×0.07
NC1799C-2044	10-22	20-44	-12*	30*	40*	-	15	1.02×0.63×0.07
NC1794C-4656	23-28	46-56	-15*	28*	-	-	15	1.55×0.89×0.07
NC1793C-5065	25-32.5	50-65	-14*	35*	-	-	15	0.89×0.62×0.07
NC17705C-78108	26-36	78-108	-17*	30*	-	-	15	0.50×1.58×0.07
NC17715C-90100	45-50	90-100	-16*	40*	-	-	15	1.60×1.20×0.07

III) Frequency divider chip

Model \ Indexes	Frequency range (GHz)	Frequency dividing ratio	Frequency dividing ratio	Power consumption (V/mA)	Input power (dBm)	Output power @ 3GHz (dBm)	Chip size (mm×mm×mm)
NC1755C-107	1-7	5	+5	515	0	-3	1.800×0.585×0.075
NC1756C-107	1-7	3	+5	470	0	-3	1.800×0.585×0.075
NC1761C-107	1-7	2	5	250	0	-6	1.50×0.85×0.075
NC1762C-107	1-7	4	5	300	0	-6	1.80×0.85×0.075
NC1758C-214	2-14	2	+5	420	0	-5	1.10×0.60×0.10
NC1759C-214	2-14	4	+5	530	0	-5	1.30×0.60×0.10
NC1760C-214	2-14	8	+5	660	0	-5	1.60×0.60×0.10
NC1757C-309	3-9	1/2/4/8	+5	800	0	0	1.800×1.200×0.075

Input frequency (GHz)	Functional description	Output power (dBm)	Reverse leakage (dB)	Phase noise @100kHz (dBc/Hz)	Power supply (V/mA)	Chip size (mm)	Model	Substitution Model	Production and Environmental Standard
0.1~7	Three divided frequency bands	-4	60	-146	+5/75	1.60x0.75x0.1	BW443	HMC437	-
0.1~7	Five divided frequency bands	-4	60	-146	+5/80	1.60x1.0x0.1	BW444	HMC438	-
0.1~12	Two divided frequency bands	-3	55	-146	+5/80	1.37x0.70x0.1	BW440	HMC492	-
0.1~12	Four divided frequency bands	-3	60	-146	+5/95	1.60x0.75x0.1	BW441	HMC493	-
0.1~12	Eight divided frequency bands	-3	60	-146	+5/100	1.87x0.75x0.1	BW442	HMC494	-
2~18	Two divided frequency bands	-4	56	-146	+5/75	1.15 x0.8 x0.1	BW445	-	-
10~20	Two divided frequency bands	-4	56	-146	+5/75	1.20x0.8 x0.1	BW446	-	Q/AT 23077-2014

Notes: For all above chips, the case packaging products and the module products can be provided; "*" represents the typical value.

1.11 Limiter chip

Indexes / Model	Frequency range (GHz)	Frequency dividing ratio	Frequency dividing ratio	Power consumption (V/mA)	Input power (dBm)	Output power @ 3GHz (dBm)	Chip size (mm×mm×mm)
NC1811C-108	1-8	0.35*	≤1.3	≤1.4	15*	40*	1.60×0.70×0.10
NC1840C-1214	1.2-1.4	0.35*	1.3*	1.3*	16*	50*	2.00×1.50×0.10
NC1824C-105	1.5-4.5	0.5*	1.6*	1.6*	15*	43*	1.80×1.00×0.10
NC1807C-206	2-6	≤0.5	≤1.5	≤1.5	15*	37*	1.62×0.74×0.10
NC1803C-218	2-18	0.6*	≤2	≤2	15*	36*	1.62×0.74×0.10
NC1848C-218	2-18	1.2*	2*	2*	16*	41*	1.60×0.70×0.10
NC1841C-506	5-6	0.5*	1.3*	1.3*	16*	50*	2.00×1.50×0.10
NC1832C-508	5-8	1*	1.2*	1.2*	17*	37*	3.00×3.60×0.10
NC1843C-512	5-12	0.7*	1.6*	1.6*	16*	44*	2.00×1.20×0.10
NC1808C-618	6-18	≤0.5	≤1.6	≤1.6	15*	36*	1.62×0.74×0.10
NC1818C-622	6-22	≤1	≤2.1	≤2.1	16*	38.5*	1.00×0.90×0.10
NC1844C-713	7-13	0.7*	1.6*	1.6*	17*	44*	1.80×1.20×0.10
NC1816C-811	8-11	≤0.35	≤1.3	≤1.3	15*	35*	1.60×0.70×0.10
NC1810C-812	8-12	≤0.6	≤1.5	≤1.5	15*	40*	1.60×0.70×0.10
NC1853C-812	8-12	0.6*	1.6*	1.6*	16*	45*	2.00×1.20×0.10
NC1842C-8510A	8.5-10.5	0.6*	1.3*	1.3*	16*	49*	2.00×1.20×0.10
NC1838C-1018A	10-18	0.6*	1.5*	1.5*	17.5*	43*	2.00×1.20×0.10
NC1821C-1218	12-18	0.6*	1.4*	1.4*	15*	40*	1.20×0.70×0.10
NC1817C-1826	18-26	≤1	≤1.4	≤1.4	17*	33*	1.00×0.80×0.10
NC1833C-3238	26-38	0.8*	1.4*	1.4*	17*	34*	1.00×0.60×0.10
NC1850C-3238	32-38	1*	1.8*	1.8*	17*	37*	1.00×0.70×0.10

Frequency (GHz)	Insertion Loss (dB)	Return Loss (dB)	Limiting Level (dBm)	Max Input Power (CW) W	Chip Size (mm)	Part Number	Substitution Model	Production and Environmental Standard
0.1~10	0.3	-25	+15	5	1.17x0.94x0.1	BW480	-	Q/AT 24288-2016
0.1~18	0.5	-20	+16	2	1.23x0.66x0.1	BW481	-	Q/AT 23026-2014
1~1.4	0.15	-20	+14.5	100	1.75x1.25x0.1	BW1550	-	-
1~2	0.4	-15	+14.5	100	1.75x1.25x0.1	BW484	-	-
1~6	0.5	-12	+16	20	1.80x1.30x0.1	BW487	-	Q/AT 24754-2017
2~4	0.4	-15	+15	40	1.80x1.15x0.1	BW485	-	Q/AT 23468-2015
5~6	0.9	-20	+18.5	10	2.75 x2.65 x0.1	BW1552	-	-
5~6	0.4	-15	+15.5	20	1.90x1.15x0.1	BW486	-	-

Frequency (GHz)	Insertion Loss (dB)	Return Loss (dB)	Limiting Level (dBm)	Max Input Power (CW) W	Chip Size (mm)	Part Number	Substitution Model	Production and Environmental Standard
8~12	0.7	-15	+15.5	20 (2ms,30%)	1.65 x1.25 x0.1	BW1555	-	Q/AT 24111-2017
10~18	0.7	-15	+16	20 (2ms,20%)	1.4 x1.45 x0.1	BW1599	-	Q/AT 24455-2017

Notes: For all above chips, the case packaging products and the module products can be provided; the withstanding power is the continuous wave (CW) or pulse withstanding power; "*" represents the typical value.

1.12 Power detector chip

Model \ Indexes	Frequency range (GHz)	Frequency dividing ratio	Frequency dividing ratio	Power consumption (V/mA)	Input power (dBm)	Output power @ 3GHz (dBm)	Chip size (mm×mm×mm)
NC1987C-126	DC-26.5	⩽2.2	⩽2	⩽2	-	-	1.80×0.80×0.10
NC1984C-112	1-12	-	Astatic coupler	-	⩾30	5	1.20×1.20×0.10
NC1988C-115	1-15	1.2*	1.8*	1.8*	-	5	1.00×0.70×0.08
NC19802C-125	1-25	-	Astatic coupler	-	30	5 (Positive slope)	1.25×0.70×0.07
NC19805C-125	1-25	-	Astatic coupler	-	30	5 (Negative slope)	1.25×0.70×0.07
NC19806C-250	2-50	-	Astatic coupler	-	30	5	1.25×0.70×0.07
NC1989C-250	2-50	-	Astatic coupler	-	30	5	1.25×0.70×0.07
NC19801C-530	5-30	-	⩽1.9	-	25	5	1.00×0.70×0.08
NC1986C-618	6-18	-	Astatic coupler	-	-	5	0.60×0.45×0.08
NC1985C-1027	10-27	⩽1.3	⩽1.5	⩽1.5	⩾20	4.5	1.62×1.40×0.08
NC19807C-1040	10-40	-	Astatic coupler	-	30	5	1.25×0.70×0.07
NC19803C-1240	12-40	-	Astatic coupler	-	30	5	1.25×0.70×0.07
NC19808C-1560	15-60	-	Astatic coupler	-	30	5	1.25×0.70×0.07
NC19804C-1860	18-60	-	Astatic coupler	-	30	5	1.25×0.70×0.07

1.13 Equalizer chip

Model \ Indexes	Frequency range (GHz)	Insertion loss (dB)	Equilibrium range (dB)	Input VSWR	Output VSWR	Chip size (mm×mm×mm)
NC6027C-102	0.05-2	0.6@2GHz	1.5*	1.1*	1.1*	0.85×1.20×0.10
NC6026C-102	0.1-2	0.5@2GHz	5*	1.3*	1.3*	0.85×1.30×0.10
NC6017C-103	0.1-3	0.7@3GHz	9.5*	1.2*	1.2*	0.85×1.40×0.10
NC6036C-140A	0.1-40	1@40GHz	6*	1.3*	1.3*	0.65×1.16×0.10
NC6036C-140B	0.1-40	1@40GHz	7.5*	1.5*	1.5*	0.65×1.16×0.10
NC6032C-0515	0.5-1.5	0.5@1.5GHz	3.5*	1.2*	1.2*	0.85×1.30×0.10
NC6019C-108	0.5-8	0.9@8GHz	10*	1.2*	1.2*	0.85×1.00×0.10
NC6037C-0912	0.9-1.2	0.45@0.9GHz	0.9*	1.2*	1.2*	0.85×1.00×0.10
NC6003C-1323	1.3-2.3	0.9@2.3GHz	3.5*	1.2*	1.2*	0.85×1.20×0.10
NC6025C-206	2-6	0.4@2GHz	5.5*	1.4*	1.4*	0.85×1.40×0.10
NC6033C-206	2-6	0.8@6GHz	4*	1.4*	1.4*	0.85×1.50×0.10
NC6034C-206	2-6	0.5@2GHz	2*	1.5*	1.5*	0.85×1.20×0.10
NC6012C-212A	2-12	0.95@12GHz	2.5*	1.3*	1.3*	0.85×1.00×0.10
NC6012C-212B	2-12	0.95@12GHz	1.5*	1.3*	1.3*	0.85×1.00×0.10
NC6018C-212	2-12	0.4@12GHz	4*	1.2*	1.2*	0.85×1.35×0.10
NC6013C-218	2-18	1.7@18GHz	2.5*	⩽1.3	⩽1.3	0.85×0.85×0.10
NC6014C-218	2-18	1.4@18GHz	3.5*	1.3*	1.3*	0.85×0.80×0.10
NC6015C-218	2-18	1.4@18GHz	2*	1.2*	1.2*	0.85×0.80×0.10

Model \ Indexes	Frequency range (GHz)	Insertion loss (dB)	Equilibrium range (dB)	Input VSWR	Output VSWR	Chip size (mm×mm×mm)
NC6021C-218	2-18	0.5@18GHz	4.5*	1.3*	1.3*	0.70×0.85×0.10
NC6028C-2731	2.7-3.1	1@3.1GHz	1.3*	1.3*	1.3*	0.85×1.60×0.10
NC6038C-3134	3.1-3.4	1.5@3.4GHz	0.9*	1.2*	1.2*	0.85×1.00×0.10
NC6020C-612	6-12	0.25@12GHz	1.5*	1.3*	1.3*	0.85×1.10×0.10
NC6023C-612	6-12	0.6@12GHz	3*	1.2*	1.2*	0.85×1.10×0.10
NC6016C-614	6-14	0.55@14GHz	6*	≤1.3	≤1.3	0.80×1.40×0.10
NC6006C-812	8-12	1.1@12GHz	3*	≤1.8	≤1.8	0.85×1.40×0.10
NC6029C-8510	8.5-10.5	1.4@10.5GHz	2*	1.3*	1.3*	0.85×1.35×0.10
NC6024C-8810	8.8-10.4	0.55@10.4GHZ	0.7*	1.3*	1.3*	0.55×0.85×0.10
NC6008C-1418A	14-18	0.75@18GHz	2*	1.2*	1.2*	0.85×0.80×0.10

Notes: For all above chips, the case packaging products and the module products can be provided; "*" represents the typical value.

Frequency (GHz)	Equilibrium type	Equilibrium quantity (dB)	Insertion Loss (dB)	Return Loss (dB)	Chip size (mm)	Part Number	Production and Environmental Standard
0.8~6.5	Negative slope	6.0	1	15	0.82x0.75x0.1	BWAES-R8/6R5-6	Q/AT 24178-2016
0.95~2.15	Negative slope	3.9	1	17	0.82x1.07x0.1	BWAES-R95/2R15-3R9	-
0.95~2.15	Negative slope	4.5	1	17	0.82x1.1x0.1	BWAES-R95/2R15-4R5	-
1~2	Negative slope	3	0.8	17	0.82 x1.3x0.1	BWAES-1/2-3	-
1~6	Negative slope	3	0.8	17	0.82 x0.8x0.1	BWAES-1/6-3	-
1~8	Negative slope	3.5	0.9	17	0.82x0.78x0.1	BWAES-1/8-3R5	-
1.7~2.7	Negative slope	3	0.8	17	0.82x0.89x0.1	BWAES-1R7/2R7-3	-
1.7~2.7	Negative slope	4	1	17	0.82x0.89x0.1	BWAES-1R7/2R7-4	-
1.7~2.7	Negative slope	5	1.1	17	0.82x0.82x0.1	BWAES-1R7/2R7-5	-
2~4	Negative slope	3	1.1	17	0.82x0.8x0.1	BWAES-2/4-3	-
2~4	Negative slope	4	1.1	17	0.82x0.8x0.1	BWAES-2/4-4	-
2~18	Negative slope	8	1.5	15	0.82x0.75x0.1	BWAES-2/18-8	Q/AT 24178-2016
6~12	Negative slope	2.8	1.5	17	0.82x0.80x0.1	BWAES-6/12-2R8	-
6~12	Negative slope	5	1	18	0.85 x0.70x0.1	BWAES-6/12-5	-
6~12	Negative slope	6.8	1.1	18	0.90 x0.70x0.1	BWAES-6/12-6R8	-
6~18	Negative slope	3	0.9	20	0.75x0.7x0.1	BWAES-6/18-3	-
6~18	Negative slope	4	0.9	22	0.75x0.75x0.1	BWAES-6/18-4	-
6~18	Negative slope	5	0.9	23	0.75x0.75x0.1	BWAES-6/18-5	-
6~18	Negative slope	6.0	1	15	1.70x2.30x0.1	BWAES-6/18-6	Q/AT 24177-2016
6~18	Negative slope	2	1.1	20	0.75x0.75x0.1	BWAES-6/18-2	Q/AT 24547-2017
8~12	Negative slope	2.0	0.8	20	0.80x0.75x0.1	BWAES-8/12-2	-
8~12	Negative slope	2.9	1.2	17	2.00x1.20x0.1	BWAES-8/12-2R9	Q/AT 23319-2015
8~12	Negative slope	4.0	0.8	20	0.8x0.7x0.1	BWAES-8/12-4	-
8~12	Negative slope	4.6	1.5	15	2.00x1.20x0.1	BWAES-8/12-4R6	Q/AT 23320-2015
8~12	Negative slope	5.0	1.1	20	0.80x0.75x0.1	BWAES-8/12-5	-
8~12	Negative slope	5.8	1.4	17	0.80x0.75x0.1	BWAES-8/12-5R8	-

1.14 Resistor chip

Indexes / Model	Resistance（Ω）	Maximum withstanding current (A)	Chip size (mm×mm×mm)
NC6101C-A/B/C/D/E/F/G/H/K/L/M/N/P	(25/50/100)/(25/50/100)/5/8/10/12/15/20/30/40/50/100/2	0.08/0.08/0.3/0.3/0.3/0.3/0.3/0.3/0.3/0.3/0.3/0.3/0.8	0.50×0.50×0.10
NC6103C	100/360/200/300/140/400	0.025	0.50×0.50×0.10
NC6106C	0.5K-3K	0.008	0.50×0.50×0.10
NC6107C	50	0.9	2.00×2.00×0.25
NC6108C-2040	25	0.9	1.90×1.10×0.08
NC6109C-167	41.5	0.35	1.10×0.58×0.08

Frequency (GHz)	Resistance (ohm)	Chip size (mm)	Part Number	Substitution Model	Production and Environmental Standard
150	4/8/12	0.45x0.50x0.1	BW517	-	-
150	5/10/15	0.45x0.50x0.1	BW518	-	-
150	20/40/60	0.48x0.58x0.1	BW519	-	-
100	50/100/150	0.58x0.58x0.1	BW520	-	-
100	10/20/30	0.40x0.40x0.1	BW529	-	-
2	300, 500, 600, 1000, 2000, 4000, 6000, discretely	0.60x0.40x0.1	BW1689-1695	-	-
250	100	1.05x0.60x0.1	BW1696	-	-
200	200	1.05x0.90x0.1	BW1697	-	-
150	430	1.05x1.35x0.1	BW1698	-	-
100	470	1.05x1.45x0.1	BW1699	-	-
300	5/10	0.55x0.65x0.1	BW1687/1688	-	Q/AT 24573-2017

1.15 Diamond/GaAs/GaN/Power Load Chip

Frequency (GHz)	Max.Power (W)	Impedance (ohm)	Insertion Loss (dB)	Chip size (mm)	Part Number	Substitution Model	Production and Environmental Standard
0.1~4	10	50	15	1.8 x1x0.1	BW1685	-	-
0.1-5	50	50	18	2.4x3.35x0.3	BW1679	-	-
0.1-22	10	50	18	1.02x1.37x0.1	BW526	-	Q/AT 23559-2015
0.1-40	1	50	18	0.5x0.4x0.1	BW528	-	Q/AT 23318-2015
10~40	10	50	20	1.06x1.06x0.1	BW521	-	Q/AT 23188-2014

1.16 Capacitor chip

Indexes / Model	Capacitance (pF)	Withstanding voltage (V)	Chip size (mm×mm×mm)
NC6201C-10/20/50/100/200/1000	20/50/100/200	50	0.55×0.55×0.15
NC6203C-A/B/C/D/E	4/6/10/15/20	20	0.50×0.50×0.10

1.17 Power divider/synthesizer chip

I) 90° bridge

Indexes / Model	Frequency range (GHz)	Insertion loss (dB)	Insertion loss flatness (dB)	Input/output VSWR	Amplitude imbalance (dB)	Phase imbalance (°)	Isolation (dB)	Chip size (mm×mm×mm)
NC6535C-1424	1.4-2.4	1.3*	1.8*/1.5*	1.8*/1.5*	±0.2*	±2*	10*	0.80×1.16×0.10
NC6549C-1624	1.6-2.4	1.1*	1.5*/1.7*	1.5*/1.7*	±0.2*	±2*	20*	0.85×1.37×0.10

Model \ Indexes	Frequency range (GHz)	Insertion loss (dB)	Insertion loss flatness (dB)	Input/output VSWR	Amplitude imbalance (dB)	Phase imbalance (°)	Isolation (dB)	Chip size (mm×mm×mm)
NC6549C-1624M	1.6-2.4	1.1*	1.5*/1.7*	1.5*/1.7*	±0.2*	±2*	20*	0.85×1.37×0.10
NC6550C-3044	3-4.4	0.5*	1.2*	1.2*	±0.1*	±2*	20*	0.85×1.37×0.10
NC6550C-3044M	3-4.4	0.5*	1.2*	1.2*	±0.1*	±2*	20*	0.85×1.37×0.10
NC6532C-306	3-6	1*	1.6*	1.6*	±0.2*	±2*	18*	0.75×1.16×0.10
NC6533C-408	4-8	0.7*	1.2*/1.4*	1.2*/1.4*	±0.3*	±3*	16*	0.70×1.16×0.10
NC6553C-510	5-10	0.5*	1.2*/1.3*	1.2*/1.3*	±0.5*	±2*	19*	1.05×2.00×0.10
NC6554C-510	5-10	0.7*	1.2*/1.25*	1.2*/1.25*	±0.5*	±2.5*	20*	1.05×2.00×0.10
NC6559C-618	6-18	0.75*	1.2*	1.2*	±1*	±1*	22*	1.95×6.20×0.10
NC6559C-618M	6-18	0.75*	1.2*	1.2*	±1*	±1*	22*	1.95×6.20×0.10
NC6521C-618	6-18	⩽0.8	⩽1.8	⩽1.8	-	-	-	1.10×4.30×0.09
NC6506C-618	6-18	⩽0.9	⩽1.5	⩽1.5	±0.9*	±2*	⩾18	1.30×4.00×0.10
NC6506C-618M	6-18	⩽0.9	⩽1.5	⩽1.5	±0.9*	±2*	⩾18	1.30×4.00×0.10
NC6555C-713	7-13	0.7*	1.3*/1.2*	1.3*/1.2*	±0.4*	±2*	20*	0.83×2.00×0.10
NC6509C-812	8-12	⩽0.5	⩽1.4	⩽1.4	±0.3*	±1*	⩾20	1.30×4.15×0.10
NC6509C-812A	8-12	⩽0.7	⩽1.3	⩽1.3	⩽±0.3	±3*	⩾20	1.30×2.00×0.10
NC6536C-812	8-12	0.9*	1.2*	1.2*	±0.2*	±1*	20*	0.65×1.15×0.10
NC6542C-1020	10-20	0.65*	1.3*	1.3*	±0.4*	±3*	19*	0.80×2.40×0.10
NC6543C-1022	10-22	0.65*	1.2*/1.25*	1.2*/1.25*	±0.4*	±1*	20*	0.80×2.40×0.10
NC6534C-1218	12-18	1.2*	1.2*/1.8*	1.2*/1.8*	±0.2*	±2*	35*	0.75×1.00×0.10
NC6548C-1428	14-28	0.6*	1.2*/1.25*	1.2*/1.25*	±0.4*	±1.5*	19*	0.80×1.82×0.10
NC6540C-1428	14-28	0.65*	1.2*	1.2*	±0.5*	±2*	25*	0.80×1.82×0.10
NC6538C-1732	17-32	0.8*	1.3*	1.3*	±0.25*	±2*	17*	1.20×1.06×0.10
NC6544C-2042	20-42	0.55*	1.1*/1.4*	1.1*/1.4*	±0.4*	±3*	15*	0.80×1.43×0.10
NC6545C-2042	20-42	0.6*	1.1*/1.3*	1.1*/1.3*	±0.5*	±2*	15*	0.80×1.43×0.10
NC6546C-2855	28-55	0.6*	1.3*/1.6*	1.3*/1.6*	±0.5*	±2*	14*	0.80×1.18×0.10
NC6547C-2855	28-55	0.9*	1.4*/1.5*	1.4*/1.5*	±0.6*	±3.5*	18*	0.80×1.18×0.10

II) 180° bridge chip

Model \ Indexes	Frequency range (GHz)	Insertion loss (dB)	Insertion loss flatness (dB)	VSWR	Amplitude imbalance (dB)	Phase imbalance (°)	Isolation (dB)	Chip size (mm×mm×mm)
NC6537C-2224	2.2-2.4	0.6*	⩽±0.1	-	±0.2*	-4	-	0.80×0.56×0.08

Model \ Indexes	Frequency range (GHz)	Insertion loss (dB)	Insertion loss flatness (dB)	VSWR	Isolation (dB)	Chip size (mm×mm×mm)
NC6525C-0515	0.5-1.5	⩽1	±0.2*	⩽1.6	⩾13	1.50×2.00×0.10
NC6501C-0820	0.8-2	⩽0.8	±0.2*	⩽1.5	⩾15	2.40×1.75×0.10
NC6523C-104U	0.8-4	⩽1.1	±0.3*	⩽1.8	⩾14	1.70×1.20×0.10
NC6520C-103	1-3	⩽1	±0.2*	⩽1.5	⩾14	1.90×1.20×0.10
NC6503C-206U	2-6	⩽0.9	±0.2*	⩽1.5	⩾17	1.40×0.90×0.10
NC6504C-208U	2-8	⩽1.1	±0.2*	⩽1.7	⩾16	1.40×0.90×0.10
NC6563C-218	2-18	1.5*	±0.5*	1.8*/1.5*	15*	2.00×2.00×0.10
NC6507C-618U	6-18	⩽1	±0.2*	⩽1.6	⩾17	1.40×0.90×0.10
NC6529C-812	8-12	⩽0.6	±0.1*	⩽1.3	⩾20	1.20×1.60×0.10

Model \ Indexes	Frequency range (GHz)	Insertion loss (dB)	Insertion loss flatness (dB)	VSWR	Isolation (dB)	Chip size (mm×mm×mm)
NC6566C-812	8-12	0.4*	±0.1*	1.2*	20*	0.75×0.72×0.10
NC6556C-1020	10-20	0.9*	±0.5*	1.4*/1.3*	18*	1.40×0.90×0.10
NC6558C-1035U	10-35	0.8*	±0.3*	1.5*	18*	1.10×0.85×0.10
NC6560C-1218	12-18	0.5	±0.1*	1.2*	20*	0.85×0.70×0.10
NC6565C-1218	12-18	0.6*	±0.2*	1.2*	20*	2.80×1.60×0.10
NC6524C-1826U	18-26	⩽0.7	±0.2*	⩽1.3	⩾19	1.35×1.80×0.10
NC6557C-2224	22-24	0.7*	±0.1*	1.3*	18*	2.80×1.60×0.10
NC6551C-2230	22-30	0.5*	±0.3*	1.5*/1.2*	18*	1.08×1.60×0.10
NC6552C-2240	22-40	0.6*	±0.3*	1.7*/1.6*	22*	1.95×1.05×0.10
NC6514C-2631U	26-31	0.6*	±0.2*	1.4*	20*	1.80×1.35×0.10
NC6562C-3040	30-40	0.4*	±0.2*	1.2*/1.1*	20*	1.00×0.80×0.10
NC6561C-3040	30-40	0.6*	±0.2*	1.2*/1.1*	16*	0.70×0.62×0.10
NC6539C-3240	32-40	6*	±0.5*	2*	15*	4.00×1.95×0.10
NC6517C-3436	34-36	⩽0.7	±0.2*	⩽1.6	⩾17	1.20×2.10×0.10
NC6531C-4050	40-50	0.7*	±0.25*	1.4*	⩾18	1.60×0.90×0.10

III) 0° three-circuit power divider chip

Model \ Indexes	Frequency range (GHz)	Insertion loss (dB)	Equilibrium range (dB)	Input VSWR	Output VSWR	Chip size (mm×mm×mm)
NC6530C-0827	0.8-2.7	0.8*	±0.2*	1.5*	⩾15	1.60×1.80×0.10
NC6502C-203	2-3	⩽0.6	±0.2*	⩽1.6	⩾19	1.65×1.50×0.10
NC6519C-406	3.5-6.5	⩽0.8	±0.2*	⩽1.9	⩾14	1.90×1.50×0.10
NC6512C-812	8-12	⩽0.8	±0.2*	⩽1.5	⩾15	1.90×1.30×0.10
NC6526C-1218	12-18	⩽0.8	±0.3*	⩽1.8	⩾18	1.50×1.20×0.10
NC6518C-2040	20-40	⩽0.8	±0.2*	⩽2	⩾15	1.65×1.20×0.10

IV) 0° four-circuit power divider chip

Model \ Indexes	Frequency range (GHz)	Insertion loss (dB)	Equilibrium range (dB)	Input VSWR	Output VSWR	Chip size (mm×mm×mm)
NC6564C-218	2-18	2.5*	±1*	2*/1.5*	20*	3.15×4.40×0.10
NC6567C-812	8-12	0.7*	±0.2*	1.3*	16*	2.00×1.50×0.10

V) GaAs Power Divider Chip

Frequency (GHz)	Function	Insertion Loss (dB)	Isolation (dB)	Return Loss (dB)	Static Level	Chip size (mm)	Part Number	Substitution Model	Production and Environmental Standard
0.1~40	0°, 1-to-2	3.8	6.6	22	1C	0.76 x0.55x 0.1	BW510	-	-
0.5~1.5	0°, 1-to-2	0.7	15	15	0	1.72x1.40x0.1	BW490	-	Q/AT 22281-2012
0.5~1.5	0°, 1-to-2	0.7	22	20	1B	1.70x1.40x0.1	BW1601	-	Q/AT 23873-2016
1~2	0°, 1-to-2	0.7	30	20	0	1.10 x1.10x 0.1	BW499	-	-
1~3	0°, 1-to-2	0.7	18	18	0	1.40x1.12x0.1	BW491	-	Q/AT 22880-2013
1~3	0°, 1-to-2	0.7	22	20	1B	1.40x1.05x0.1	BW1602	-	-
1~18	0°, 1-to-2	1.8	22	20	1C	2.60 x2.20 x0.1	BW498	-	Q/AT 22593-2012
1.2~2.4	45°, 1-to-2	3.0	22	20	1B	3.2 x 2.0 x 0.1	BW1636/1633	-	Q/AT 23714-2018
1.2~2.4	90°, 1-to-2	3.0	22	20	1B	3.2 x 2.0 x 0.1	BW1637/1634	-	Q/AT 23714-2018

Frequency (GHz)	Function	Insertion Loss (dB)	Isolation (dB)	Return Loss (dB)	Static Level	Chip size (mm)	Part Number	Substitution Model	Production and Environmental Standard
1.2~2.4	135°, 1-to-2	3.0	22	20	1B	3.2 x 2.0 x 0.1	BW1638/1635	-	Q/AT 23714-2018
1.2~2.4	180°, 1-to-2	3.0	22	20	1B	3.2 x 2.0 x 0.1	BW1639	-	Q/AT 23714-2018
2~6	0°, 1-to-2	0.6	15	18	0	1.22x1.01x0.1	BW492	-	Q/AT 23620-2015
2~6	0°, 1-to-2	0.6	22	20	1B	1.00x0.80x0.1	BW1603	-	Q/AT 24124-2016
2~18	0°, 1-to-4	1.0	20	20	1C	2.00x2.05x0.1	BW497	-	Q/AT 22592-2012
2~18	0°, 1-to-4	2.0	20	15	1C	3.85 x4.3x 0.1	BW509	-	Q/AT 23410-2014
2.5-6	0°, 1-to-4	1.5	20	20	0	2.00x1.25x0.1	BW505	-	Q/AT 24175-2016
3~9	0°, 1-to-2	0.6	20	15	0	1.27x1.01x0.1	BW493	-	Q/AT 22282-2012
3~9	0°, 1-to-2	0.6	22	20	1B	1.10x1.00x0.1	BW1604	-	-
6~18	0°, 1-to-2	0.6	20	18	0	1.01x0.80x0.1	BW494	-	Q/AT 22283-2012
6~18	0°, 1-to-2	0.6	22	20	1C	1.00x0.80x0.1	BW506	-	Q/AT 23883-2016
6~18	0°, 1-to-4	1.5	20	20	0	1.70x1.10x0.1	BW508	-	-
6~18	0°, 1-to-3	1.0	20	15	1C	2.20x1.30x0.1	BW1600	-	Q/AT 23409-2014
6~18	0°, 2-to-4	1.2	20	18	1B	1.60x2.70x0.1	BW1649	-	-
8~12	0°, 1-to-2	0.4	20	15	1C	1.50x1.10x0.1	BW1608	-	-
8~12	0°, 1-to-3	0.7	22	20	1C	1.45 x1.25x0.1	BW500	-	Q/AT 22212-2014
10~20	0°, 1-to-2	0.8	25	20	1C	0.90x1.40x0.1	BW1609	-	Q/AT 24402-2017
12~18	0°, 1-to-4	1.0	18	15	1B	2.60x1.50x0.1	BW1607	-	-
12~26.5	0°, 1-to-2	0.8	20	18	1C	2.02x1.88x0.1	BW495	-	Q/AT 23921-2016
14~18	0°, 1-to-3	0.7	22	18	1C	1.18x1.00x0.1	BW501	-	Q/AT 23197-2014
15~17	0°, 1-to-2	0.6	28	18	1C	2.30x1.20x0.1	BW502	-	Q/AT 24176-2016
18~40	0°, 1-to-2	0.8	20	18	1C	1.67x1.40x0.1	BW496	-	Q/AT 23154-2014
22~32	0°, 1-to-4	0.8	17	18	1C	2.00x0.90x0.1	BW507	-	-

1.18 Filter chip

Indexes / Model	Passband frequency range (GHz)	Type	Passband loss (dB)	Return loss (dB)	Out of band (OOB) attenuation (dBc)	Chip size (mm×mm×mm)
NC6655C-003	DC-0.3	Low-pass	2.5*	-12*	20@0.65GHz	2.40×1.10×0.10
NC6601C-005	DC-0.5	Low-pass	1@0.01GHz,1.6@0.5GHz	≤-15	20@1.1GHz,40@1.4GHz	2.40×1.00×0.10
NC6602C-010	DC-1	Low-pass	1.8@1GHz,0.9@0.2GHz	≤-15	20@1.8GHz,40@2.3GHz	2.40×1.00×0.10
NC6643C-010	DC-1	Low-pass	≤1.8	≤-15	20@1.85GHz,40@2GHz	1.60×0.80×0.10
NC6603C-015	DC-1.5	Low-pass	0.9@0.3GHz,2@1.5GHz	≤-15	20@2.4GHz,40@3GHz	2.40×1.00×0.10
NC6604C-020	DC-2	Low-pass	1@1GHz,1.7@2GHz	≤-15	20@3.1GHz,40@3.8GHz	2.40×1.00×0.10
NC6605C-025	DC-2.5	Low-pass	0.9@1.2GHz,1.8@2.5GHz	≤-15	20@3.7GHz,40@4.8GHz	2.40×0.90×0.10
NC6606C-030	DC-3	Low-pass	1@1.7GHz,1.7@3GHz	≤-15	20@4.5GHz,40@5.6GHz	1.80×1.00×0.10
NC6607C-035	DC-3.5	Low-pass	0.9@1.9GHz,1.9@3.5GHz	≤-15	20@5.1GHz,40@6.4GHz	1.80×1.00×0.10
NC6608C-040	DC-4	Low-pass	0.9@2GHz 1.8@4GHz	≤-15	20@5.7GHz,40@7.1GHz	1.80×1.00×0.10
NC6609C-045	DC-4.5	Low-pass	1@2.8GHz 1.8@4.5GHz	≤-15	20@6.5GHz,40@8.1GHz	1.80×1.00×0.10
NC6641C-045	DC-4.5	Low-pass	≤2	≤-15	20@6.3GHz, 40@7.9GHz	1.60×0.80×0.10
NC6610C-050	DC-5	Low-pass	1@3GHz 1.8@5GHz	≤-15	20@7.25GHz,40@9GHz	1.80×1.00×0.10
NC6611C-055	DC-5.5	Low-pass	1@3.7GHz 1.8@5.5GHz	≤-15	20@7.9GHz,40@9.8GHz	1.80×1.00×0.10
NC6612C-060	DC-6	Low-pass	1@5GHz 1.4@6GHz	≤-15	20@8.3GHz,40@10GHz	2.40×1.00×0.10
NC6642C-060	DC-6	Low-pass	≤1.5	≤-15	20@8.1GHz,40@10GHz	1.60×0.80×0.10
NC6616C-070	DC-7	Low-pass	1.7@6GHz 2.4@7GHz	≤-15	20@9.3GHz,40@10.9GHz	1.50×1.00×0.10

Model \ Indexes	Passband frequency range (GHz)	Type	Passband loss (dB)	Return loss (dB)	Out of band (OOB) attenuation (dBc)	Chip size (mm×mm×mm)
NC6617C-080	DC-8	Low-pass	1.7@7GHz 2.4@8GHz	≤-15	20@10.3GHz,40@11.9GHz	1.50×1.00×0.10
NC6618C-095	DC-9.5	Low-pass	1.7@8.5GHz 2.2@9.5GHz	≤-15	20@12.5GHz,40@14.3GHz	1.50×1.00×0.10
NC6619C-010	DC-10	Low-pass	1.7@8GHz 2.8@10GHz	≤-15	20@12.5GHz,40@14.1GHz	1.90×0.90×0.10
NC6620C-013	DC-13	Low-pass	1.8@12GHz 2.2@13GHz	≤-15	20@17.2GHz,40@20.1GHz	1.50×0.90×0.10
NC6621C-014	DC-14	Low-pass	2@13GHz 2.4@14GHz	≤-15	20@17.9GHz,40@19.8GHz	1.67×0.90×0.10
NC6622C-015	DC-15	Low-pass	1.9@14GHz 2.2@15GHz	≤-15	20@19.8GHz,40@22.9GHz	1.50×0.90×0.10
NC6623C-017	DC-17	Low-pass	2.9@18GHz 2.5@15GHz	≤-15	20@22GHz,40@25GHz	1.90×0.90×0.10
NC6614C-1705	1.7-5	High-pass	1.5@1.7GHz 0.4@5GHz	≤-15	20@0.9GHz,40@0.6GHz	1.80×1.00×0.10
NC6613C-206	2-6	High-pass	1.5@2GHz 1@2.5GHz	≤-15	20@1.1GHz,40@0.75GHz	1.80×0.90×0.10
NC6628C-312	3-12	High-pass	≤2.2	≤-15	20@1.9GHz,40@1.4GHz	1.40×0.90×0.10
NC6629C-420	4.5-20	High-pass	≤1.9	≤-15	20@2.7GHz,40@2GHz	1.40×1.00×0.10
NC6630C-520	5-20	High-pass	≤2	≤-15	20@3.1GHz,40@2.4GHz	1.40×1.00×0.10
NC6631C-620	6-20	High-pass	≤2.5	≤-15	20@4.2GHz,40@3.1GHz	1.40×1.00×0.10
NC6635C-740	7-40	High-pass	≤2.5	≤-13	20@4.8GHz,40@3.5GHz	1.40×0.90×0.10
NC6624C-840	8-40	High-pass	2@8GHz 1.4@9GHz	≤-20	20@5.4GHz,40@4GHz	1.30×0.90×0.10
NC6645C-940	9-40	High-pass	2.2*	-12*	20@6.9GHz,40@6.5GHz	1.10×0.85×0.10
NC6636C-1040	10-40	High-pass	≤3	≤-13	20@7.6GHz,40@6.0GHz	1.40×1.00×0.10
NC6646C-1940	19-40	High-pass	2.5*	-15*	20@16.6GHz,40@9.3GHz	1.40×0.85×0.10
NC6638C-1923	19-23	Band-pass	≤2.1	≤1.6	≥35@,29GHz～31GHz	1.04×0.90×0.10
NC6639C-1923	19-23	Band-pass	≤2.5	≤1.6	≥40@,29GHz～31GHz	1.04×0.90×0.10
NC6637C-2932	29-32	Band-pass	≤2	≤1.6	≥40@,19GHz～21GHz	2.25×1.30×0.10
NC6627C-3436	34-36	Band-pass	2.9*	≤-10.5	33@31GHz,27@41GHz	2.20×1.10×0.08
NC6625C-3436	34-36	Band-pass	2.9@35GHz	≤-12	31@31GHz,22@40GHz	2.00×1.10×0.08
NC6626C-3437	34-37	Band-pass	2.8@36GHz	≤-12	40@31GHz,23@40GHz	2.20×1.10×0.08
NC6649C-065	DC-6.5	Band-reject	0.32*	-15*	55	3.30×1.26×0.10
NC6651C-022	DC-22	Band-reject	0.7*	-14*	21	0.85×0.80×0.10
NC6654C-9294	92-94	Band-pass	5*	-10*	22@96GHz	2.30×4.40×0.07

Note: "*" represents the typical value.

1.19 Directional coupler chip

Model \ Indexes	Frequency range (GHz)	Loss (dB)	Coupling degree (dB)	Coupling flatness (dB)	Port VSWR (dB)	Chip size (mm×mm×mm)
NC6701C-206	2-6	≤0.6	15*	≤3.5	≤1.2	4.00×1.30×0.10
NC6702C-206	2-6	≤0.4	20*	≤3.5	≤1.2	4.00×1.30×0.10
NC6711C-2762	2.7-6.2	0.5*	15*	2*	1.2*	4.30×1.75×0.10
NC6711C-2762M	2.7-6.2	0.5*	15*	2*	1.2*	4.30×1.75×0.10
NC6709C-218	2-18	1*	12*	2.5*	≤1.5	3.00×1.40×0.10
NC6703C-618	6-18	≤0.7	15*	≤3.5	≤1.2	2.00×1.30×0.10
NC6704C-618	6-18	≤0.6	20*	≤3.5	≤1.3	2.00×1.30×0.10
NC6710C-1840	18-40	≤1	13-15	≤1.5	≤1.5	1.00×1.45×0.10
NC6710C-1840M	18-40	≤1	13-15	≤1.5	≤1.5	1.00×1.45×0.10
NC6705C-1850	18-50	≤0.6	20*	≤2.5	≤1.5	1.40×1.25×0.10
NC6705C-1850M	18-50	≤0.6	20*	≤2.5	≤1.5	1.40×1.25×0.10
NC6706C-1850	18-50	≤0.7	15*	≤2.5	≤1.5	1.40×1.25×0.10

Indexes / Model	Frequency range (GHz)	Loss (dB)	Coupling degree (dB)	Coupling flatness (dB)	Port VSWR (dB)	Chip size (mm×mm×mm)
NC6706C-1850M	18-50	⩽0.7	15*	⩽2.5	⩽1.5	1.40×1.25×0.10
NC6707C-1850	18-50	⩽1	10*	⩽2.5	⩽1.5	1.40×1.25×0.10
NC6707C-1850M	18-50	⩽1	10*	⩽2.5	⩽1.5	1.40×1.25×0.10

Frequency (GHz)	Function	Insertion Loss (dB)	Isolation (dB)	Return Loss (dB)	Chip Size (mm)	Part Number	Production and Environmental Standard
0.8~2	90° bridge	0.8	23	23	1.8x1.0x0.1	BW536	-
1.2-1.4	25dB Coupler	0.1	55	20	2.2x1.3x0.1	BW549	-
1.2~1.4	19dB Coupler	0.2	40	20	2.05x1.65x0.1	BW1700/1701	Q/AT 24653-2017/ Q/AT 24652-2017
1.2~1.4	25dB Coupler	0.1	45	20	2.2 x1.3x0.1	BW1702/1703	Q/AT 24112-2016/ Q/AT 24129-2016
1.3~2.6	90° bridge	0.7	23	23	1.6 x0.9x 0.1	BW537	-
2~6	15dB Coupler	0.4	-	25	4 x1.3 x0.1	BW540	-
2~6	20dB Coupler	0.4	-	25	4 x1.3 x0.1	BW541	Q/AT 23562-2018
2~18	20dB Coupler	1.2	-	15	2.8 x3.15 x0.1	BW542	Q/AT 23579-2015
2~18	15 dB Coupler	0.8	-	15	2.5 x2.3 x0.1	BW548	-
2.7~3.5	90° bridge	0.6	23	20	1.25 x0.85x 0.1	BW530	-
5~6	20dB Coupler	0.3	29	20	2.60x1.30x0.1	BW1705	Q/AT 24702-2017
6~18	15dB Coupler	0.5	-	20	1.84x1.30x0.1	BW543	Q/AT 23789-2016
6~18	20dB Coupler	0.4	-	20	2.00x1.30x0.1	BW544	Q/AT 23935-2016
8~12	10dB Coupler	0.4	-	21	2.00x1.30x0.1	BW545	Q/AT 23876-2016
12~20	35dB Coupler	0.6	-	23	2.00x2.00x0.1	BW546	-
15~40	20dB Coupler	0.8	-	20	1.55 x0.90x0.1	BW547	Q/AT 24773-2017
22~32	90° bridge	1.5	20	15	1.95 x0.80x0.1	BW535	-

Notes: For all above chips, the case packaging products and the module products can be provided; "*" represents the typical value.

1.20 GaAs T-type Bias Chips

Frequency (GHz)	Insertion Loss (dB)	Input Return Loss (dB)	Out Return Loss (dB)	Max .Input 0.1 Current (mA)	Max. Input RF Power (W)	Chip Size (mm)	Part Number	Substitution Model	Production and Environmental Standard
1~11	0.2	25	25	150	5	0.65x1.21x0.1	BW524/524A	-	Q/AT 24186-2016
10~40	0.5	18	18	200	5	0.90x0.88x0.1	BW522	-	Q/AT 24808-2018

1.21 Radio Frequency/Digital Circuits

1.21.1 GaAs/GaN/CMOS Driver Chip

Function	Max Frequency (MHz)	Quiescent Current (mA)	Switching Time (nS)	Input Low Level (V)	Input High Level (V)	Chip Size (mm)	Part Number	Substitution Model	Production and Environmental Standard
1-bit GaN driver	10	0.55	20	-28	0	1.23x1.28x0.15	BW766	-	Q/AT 24851-2018
40mA double-circuit in-phase/out-phase PIN driver	10	0.5	20	-5	+5	1.31x0.81x0.26	BW770/771	-	Q/AT 24975-2018
60mA double-circuit in-phase/out-phase PIN driver	10	0.5	20	-5	+5	1.70x0.81x0.26	BW772/773	-	Q/AT 24976-2018
28-bit serial-to-parallel, with the functions of chip selection and read-back	10	2	-	-5 (GaAs) 0 (CMOS)	-5 (GaAs) 0 (CMOS)	3.45x1.32x0.26	BW790	-	-
26-bit serial-to-parallel, with the function of chip selection	10	1	20	-5 (GaAs) 0 (CMOS)	-5 (GaAs) 0 (CMOS)	2.6x1.9x0.15	BW819	-	Q/AT 24848-2018
27-bit serial-to-parallel, with the function of chip selection	10	1	20	-5 (GaAs) 0 (CMOS)	-5 (GaAs) 0 (CMOS)	4.0x1. 5x0.15	BW814	-	Q/AT 24836-2018
27-bit serial-to-parallel, with the function of chip selection	10	1	20	-5 (GaAs) 0 (CMOS)	-5 (GaAs) 0 (CMOS)	2.59x2.16x0.15	BW815	-	Q/AT 24837-2018
28-bit serial-to-parallel, with the function of chip selection	10	1	20	-5 (GaAs) 0 (CMOS)	-5 (GaAs) 0 (CMOS)	3.45x1.32x0.15	BW813	-	Q/AT 24897-2018
1-bit phase inverter	-	1	20	0	+5	0.51x0.51x0.26	BW801	-	-
CMOS decoder, 3:8 decoder, 2:4 decoder	-	1	20	0	+5	1.72x0.61x0.26 0.96x0.61x0.26	BW802~BW805	-	-

1.21.2 Serial-to-parallel driver

I) CMOS technology, serial-to-parallel FET driver

Model \ Indexes	Function	Output voltage (output opencircuit) (V)		Driving current (mA)	Input current (μA)	Chip internal current (mA)	Clock frequency (MHz)	Chip size (mm×mm×mm)
		Low level	High level					
NC20103C	6-bit serial-to-parallel, with the function of serial output	-5*	0	±2*	<1	<1	10*	2.03×1.45×0.30
NC2044C	8-bit serial-to-parallel, complementary outputs (For the input, power supply and ground, power up on the left)	-5*	0	±2*	<1	<1	10*	3.50×1.83×0.30
NC2044-1C	8-bit serial-to-parallel, complementary outputs (For the input, power supply and ground, power up from below)	-5*	0	±2*	<1	<1	10*	3.50×1.83×0.30
NC2075C	8-bit serial-to-parallel, low level enable, complementary output	-5*	0	±2*	<1	<1	10*	3.50×1.83×0.30
NC20104C	8-bit serial-to-parallel, with the functions of chip selection and serial output	-5*	0	±2*	<1	<1	10*	2.52×1.17×0.30
NC2058C	12-bit serial-to-parallel, 3 independent bits	-5*	0	±2*	<1	<3	10*	5.47×1.83×0.30
NC20100C	12-bit serial-to-parallel, low level enable, power-on reset	-5	0	±2*	<1	<1	10*	3.50×1.45×0.30
NC2099C	13-bit serial-to-parallel, low level enable, with the function of serial output, power-on reset	-5	0	±2*	<1	<1	10*	3.67×1.45×0.30
NC2045C	16-bit serial-to-parallel, complementary output	-5*	0	±2*	<1	<1	10*	5.47×1.83×0.30
NC20105C	With the address bit, 16-bit serial-to-parallel	-5*	0	±2*	<1	<1	10*	3.02×1.46×0.30
NC2097C	20-bit serial-to-parallel, alternative, low level enable	-5*	0	±2*	<1	<3	10*	3.50×1.46×0.30
NC2059-1C	26-bit serial-to-parallel, alternative, low level enable, with the function of read-back [1]	-5*	0	±2*	<1	<3	10*	3.50×1.46×0.30
NC2059-1CM	26-bit serial-to-parallel, alternative, low level enable, with the function of read-back [1]	-5*	0	±2*	<1	<3	10*	3.50×1.46×0.30
NC2091C	26-bit serial-to-parallel, alternative,low level enable, the control bits of serial input data are located at both ends of the array.	-5*	0	±2*	<1	<3	10*	3.50×1.46×0.30
NC2091-1C	26-bit serial-to-parallel, alternative, low level enable, the control bits of serial input data are located at both ends of the array; the layout of PAD is different from that of NC2091C.	-5*	0	±2*	<1	<3	10*	3.50×1.46×0.30
NC2092C	26-bit serial-to-parallel, alternative,low level enable, the control bits of serial input data are located at both ends of the array.	-5*	0	±2*	<1	<3	10*	3.50×1.46×0.30
NC2096C	2×13-bit serial-to-parallel, alternative, high level enable	-5*	0	±2*	<1	<3	10*	3.50×1.46×0.30
NC20102C	26-bit serial-to-parallel, alternative, low level enable	-5*	0	±2*	<1	<1	10*	3.20×1.45×0.30
NC2077C	27-bit serial-to-parallel, alternative, low level enable, with the function of read-back [1]	-5*	0	±2*	<1	<3	10*	3.50×1.46×0.30
NC2077CM	27-bit serial-to-parallel, alternative, low level enable, with the function of read-back [1]	-5*	0	±2*	<1	<3	10*	3.50×1.46×0.30

Model \ Indexes	Function	Output voltage (output opencircuit) (V)		Driving current (mA)	Input current (μA)	Chip internal current (mA)	Clock frequency (MHz)	Chip size (mm×mm×mm)
		Low level	High level					
NC20106C	27-bit serial-to-parallel	-5*	0	±2*	<1	<1	10*	4.27×1.46×0.30
NC20107C	8×13-bit serial-to-parallel, one-out-of-eight, complementary output	-5	0	±2	100	0.2	50	3.69×1.46×0.30
NC20108C	8×13-bit serial-to-parallel, one-out-of-eight, parallel output circuit	-5	0	±2	100	0.1	50	2.76×1.46×0.30

Notes: The above drivers are compatible with TTL input; "*" represents the typical value; [1]: the read-back level is CMOS level; "M" represents the mirror version.

II) CMOS technology, serial-to-parallel PIN driver

Model \ Indexes	Function	Output voltage (typical driving current) (V)		Driving current (mA)	Input current (μA)	Chip internal current (mA)	Clock frequency (MHz)	Chip size (mm×mm×mm)
		Low level	High level					
NC2079C	4-bit serial input, 4-circuit parallel output, with the function of serial output	-9*	4*	+20/-40	<1	<1.5	10*	1.15×1.46×0.30
NC2093C	6-bit serial input, 6-circuit parallel output, with the function of serial output	-9*	4*	+20/-40	<1	<3	10*	1.99×1.46×0.30
NC2094C	12-bit serial input, 12-circuit parallel output, with the function of serial output	-9*	4*	+20/-40	<1	<3	10*	3.15×1.46×0.30
NC20150C	24-bit serial input, 12-circuit parallel output, alternative, with the function of serial output	-40*	2*	+20/-40	100*	2*	50*	4.99×2.53×0.30

Note: "*" represents the typical value.

III) GaAs technology, serial-to-parallel FET driver

Model \ Indexes	Function	Output voltage (output open circuit) (V)		Driving current (mA)	Input current (μA)	Chip quiescent current (mA)	Clock frequency (MHz)	Chip size (mm×mm×mm)
		Low level	High level					
NC2209C	6-bit serial-to-parallel, complementary output	-5*	-0.1*	±0.2*	0.2*	9*	10*	2.25×1.45×0.07
NC2209-1C	6-bit serial-to-parallel, with the function of power-on reset	-5	-0.1*	±0.2*	0.1*	3.5*	10*	2.25×1.45×0.07
NC2215-1C	6-bit serial-to-parallel, with the function of odd-even check, complementary output	-5*	-0.1*	±0.2*	0.05*	3.5*	10*	2.50×1.45×0.07
NC2234C	6-bit serial-to-parallel, with the function of power-on reset and serial output	-5*	-0.1*	±0.2*	0.05*	3*	10*	2.50×1.45×0.07
NC2222-4C	Low power consumption 12-bit serial-to-parallel, complementary output	-5*	-0.1*	±0.2*	0.05*	4.5*	10*	3.85×1.45×0.07
NC2221C	18-bit serial-to-parallel, complementary output	-5*	-0.1*	±0.2*	0.05*	10*	10*	4.80×1.45×0.07
NC2220C	20-bit serial-to-parallel, low level enable	-5*	-0.1*	±0.2*	0.2*	10*	10*	4.20×1.80×0.07
NC2232C	Low power consumption 24-bit serial-to-parallel	-5*	-0.1*	±0.2*	0.05*	10*	10*	3.30×2.00×0.07
NC2217-1C	32-bit serial-to-parallel, complementary output	-5*	-0.1*	±0.2*	0.2*	12*	10*	5.15×2.08×0.07

Notes: The above drivers are compatible with TTL input, for which the -5V power supply is provided; "*" represents the typical value.

1.21.3 Parallel driver

I) CMOS technology, parallel FET driver

Indexes / Model	Function	Output voltage (output opencircuit) (V)		Typical driving current(mA)	Input current (μA)	Chip internal current (mA)	Switching time (ns)	Chip size (mm×mm×mm)
		Low level	High level					
NC2034-1C	1-circuit input, 1 pair of complementary outputs	-5*	0	±2*	<1	<1	10*	0.73×1.31×0.30
NC2035-1C	2-circuit inputs, 2 pairs of complementary outputs	-5*	0	±2*	<1	<1.5	10*	1.02×1.31×0.30
NC2036-1C	3-circuit inputs, 3 pairs of complementary outputs	-5*	0	±2*	<1	<3	10*	1.31×1.31×0.30
NC2037-1C	4-circuit inputs, 4 pairs of complementary outputs	-5*	0	±2*	<1	<3	10*	1.85×1.31×0.30
NC2038-1C	2-circuit decoder inputs, 4 pairs of complementary outputs	-5*	0	±2*	<1	<1	10*	1.85×1.31×0.30
NC2039-1C	5-circuit inputs, 5 pairs of complementary outputs	-5*	0	±2*	<1	<3	10*	2.24×1.31×0.30
NC2040-1C	6-circuit inputs, 6 pairs of complementary outputs	-5*	0	±2*	<1	<3	10*	2.24×1.31×0.30
NC2041-1C	6-circuit inputs, 4 pairs of complementary outputs, 2-circuit in-phase outputs	-5*	0	±2*	<1	<3	10*	2.24×1.31×0.30
NC2043-1C	2-circuit decoder inputs, 4 pairs of complementary outputs	-5*	0	±2*	<1	<1	10*	1.85×1.31×0.30
NC2055-1C	7-circuit inputs, complementary outputs	-5*	0	±2*	<1	<4	10*	2.81×1.31×0.30
NC2056-1C	8-circuit inputs, complementary outputs	-5*	0	±2*	<1	<4	10*	2.81×1.31×0.30
NC20201C	1-circuit input, 1 pair of complementary outputs	-20~-10	0	±10*	<1	<0.01	<20	0.96×1.46×0.30
NC20207C	1-circuit input, 1 pair of complementary outputs(Single power supply)	-40~-20	0	±10*	<400	<1.5	<20	1.26×1.45×0.30
NC20213C	2-circuit inputs, 2 pairs of complementary outputs	-40~-20	0	±10*	<100	<2	<20	1.36×1.46×0.30

II) CMOS technology, parallel PIN driver

Indexes / Model	Function	Output voltage (typical driving current) (V)		Driving current (mA)	Input current (μA)	Chip internal current (mA)	Switching time (ns)	Chip size (mm×mm×mm)
		Low level	High level					
NC2016-1C	Double-circuit, in-phase, dual outputs	⩽-4	⩾4	±20*	<1	<3	12*	1.24×1.83×0.30
NC2017C	Double-circuit, out-phase, dual outputs	⩽-4	⩾4	±20*	<1	<3	12*	1.24×1.83×0.30
NC2018-1C	Double circuits, one-circuit in-phase output, one-circuit out-phase output	⩽-4	⩾4	±20*	<1	<3	12*	1.24×1.83×0.30
NC2019C	Double-circuit, in-phase, dual outputs	⩽-4	⩾4	±40*	<1	<3	12*	1.24×1.83×0.30

Indexes / Model	Function	Output voltage (typical driving current) (V)		Driving current (mA)	Input current (μA)	Chip internal current (mA)	Switching time (ns)	Chip size (mm×mm×mm)
		Low level	High level					
NC2020-1C	Double-circuit, out-phase, dual outputs	⩽-4	⩾4	±40*	<1	<3	12*	1.24×1.83×0.30
NC2021-1C	Double circuits, one-circuit in-phase output, one-circuit out-phase output	⩽-4	⩾4	±40*	<1	<3	12*	1.24×1.83×0.30
NC2022C	Double-circuit, in-phase, dual outputs	⩽-4	⩾4	±60*	<1	<3	12*	1.24×1.83×0.30
NC2023C	Double-circuit, out-phase, dual outputs	⩽-4	⩾4	±60*	<1	<3	12*	1.24×1.83×0.30
NC2024-1C	Double circuits, one-circuit in-phase output, one-circuit out-phase output	⩽-4	⩾4	±60*	<1	<3	12*	1.24×1.83×0.30
NC2025-1C	Double-circuit, in-phase, dual outputs	⩽-4	⩾4	±80*	<1	<3	12*	1.24×1.83×0.30
NC2026-1C	Double-circuit, out-phase, dual outputs	⩽-4	⩾4	±80*	<1	<3	12*	1.24×1.83×0.30
NC2027-1C	Double circuits, one-circuit in-phase output, one-circuit out-phase output	⩽-4	⩾4	±80*	<1	<2	12*	1.24×1.83×0.30
NC2047C	2-4 decoder, 4-circuit outputs	⩽-4	⩾4	±10*	<1	<3	20*	1.46×1.83×0.30
NC2048C	3-8 decoder, 8-circuit outputs	⩽-4	⩾4	±10*	<1	<4	20*	2.47×1.83×0.30
NC2053C	Double-circuit complementary 4-circuit outputs	⩽-4	⩾4	±10*	<1	<3	12*	1.24×1.83×0.30
NC2060C	High level enable, complementary dual outputs	⩽-4	⩾4	±40*	<1	<1.5	12*	1.05×1.85×0.30
NC2061C	High level enable, complementary dual outputs; when not working, the output is "High".	⩽-4	⩾4	±40*	<1	<1.5	12*	1.05×1.85×0.30
NC2062C	2-4 decoder, 4-circuit outputs	⩽-4	⩾4	±40*	<1	<1.5	12*	1.54×1.85×0.30
NC20319C	Double-circuit, in-phase outputs	-4.5*	4.3*	+10/-20	1*	0.5*	30*	0.73×1.05×0.30
NC20320C	Double-circuit, in-phase outputs	-4.5*	4.3*	+10/-20	1*	0.5*	30*	0.73×1.05×0.30
NC20321C	Double-circuit, in-phase outputs	-4.5*	4.3*	+10/-20	1*	0.5*	30*	0.73×1.05×0.30
NC20322C	Double-circuit inputs, double-circuit out-phase outputs, VDD=5-18V	0.5*	VDD-0.5	±50*	<10	<2	<30	1.20×1.46×0.30
NC20323C	Double-circuit inputs, double-circuit complementary outputs, VDD=5-18V	0.5*	VDD-0.5	±50*	<10	<2	<30	1.20×1.46×0.30
NC20324C	Double-circuit inputs, double-circuit in-phase outputs, VDD=5-18V	0.5*	VDD-0.5	±50*	<10	<2	<30	1.20×1.46×0.30

III) CMOS technology, parallel high voltage PIN driver

Indexes / Model	Function	Output voltage (typical driving current) (V)		Driving current (mA)	Input current (μA)	Chip internal current (mA)	Switching time (ns)	Chip size (mm×mm×mm)
		Low level	High level					
NC2063C	High level enable, complementary dual outputs, open drain electrode	10* (Open circuit)	4*	-40*	<1	<5	50*	1.05×1.85×0.30
NC2064C	High level enable, complementary dual outputs, open drain electrode	4*	10* (Open circuit)	+40*	<1	<5	50*	1.05×1.85×0.30
NC20301C	Double-circuit, logic control dual outputs	-19.5~-9	4.58*	+20*/-40*	<100	<0.1	<20	0.96×1.46×0.30
NC20302C	Single-circuit, enable control, complementary outputs	-19.5~-9	4.58*	+20*/-40*	<1	<0.01	<20	0.96×1.46×0.30
NC20312C	Double-circuit, in-phase outputs	-19.5~-9	4.5*	+20/-40	<1	<0.01	<20	0.96×1.46×0.30
NC20313C	8-circuit inputs, complementary outputs	-19.5~-9	4.5*	+20/-40	<1	<0.01	<20	0.96×1.46×0.30
NC20314C	Double-circuit, out-phase outputs	-19.5~-9	4.5*	+20/-40	<1	<0.01	<20	0.96×1.46×0.30
NC20315C	Four-circuit, controllable output logic	-19.5~-9	4.5*	+20/-40	<1	<0.01	<20	1.36×1.46×0.30
NC20316C	Double-circuit, in-phase outputs	-39.2～-7.2	4.5*	±40	<100	<1	<20	1.42×1.72×0.30
NC20317C	Double-circuit, complementary outputs	-39.2～-7.2	4.5*	±40	<100	<1	<20	1.42×1.72×0.30
NC20318C	Double-circuit, out-phase outputs	-39.2～-7.2	4.5*	±40	<100	<1	<20	1.42×1.72×0.30

IV) CMOS technology, large current driver

Indexes / Model	Function	Output voltage (open circuit) (V)		Driving current (mA)	Peak current (A)	Input current (μA)	Chip internal current (mA)	Switching time (ns)	Chip size (mm×mm×mm)
		Low level	High level						
NC20303C	5V~18V current driver	0	V_{DD}	500*	12*	<1	<1.5	20*	2.34×1.46×0.30
NC20309C	5V~18V current driver, single-circuit, in-phase output	0*	V_{DD}	200*	6*	<1	<1	20*	1.03×1.46×0.30
NC20310C	5V~18V current driver, single-circuit, out-phase output	0*	V_{DD}	200*	6*	<1	<1	20*	1.03×1.46×0.30
NC20307C	5V current driver, single-circuit, in-phase output	0*	5*	150*	-	<1	<0.01	10*	0.96×1.46×0.30
NC20308C	5V current driver, single-circuit, out-phase output	0*	5*	150*	-	<1	<0.01	10*	0.96×1.46×0.30

V) GaAs technology, parallel FET driver

Indexes / Model	Function	Output voltage (output open circuit) (V)		Driving current (mA)	Input current (μA)	Chip quiescent current (mA)	Switching time (ns)	Chip size (mm×mm×mm)
		Low level	High level					
NC2201C	1-circuit input, complementary outputs	-5*	-0.1*	±0.2*	0.2*	<1.5	7-25	0.70×0.85×0.07

Model \ Indexes	Function	Output voltage (output open circuit) (V)		Driving current (mA)	Input current (μA)	Chip quiescent current (mA)	Switching time (ns)	Chip size (mm×mm×mm)
		Low level	High level					
NC2202C	2-circuit inputs, complementary outputs	-5*	-0.1*	±0.2*	0.2*	<2	7-25	1.10×0.85×0.07
NC2204C	4-circuit inputs, complementary outputs	-5*	-0.1*	±0.2*	0.2*	<4	7-25	1.60×0.85×0.07
NC2206-1C	6-circuit inputs, complementary outputs	-5*	-0.1*	±0.2*	0.2*	<6	7-25	2.25×0.85×0.07
NC2213C	One-out-of-four, complementary outputs	-5*	-0.1*	±0.2*	0.2*	<9	7-25	1.60×0.85×0.07
NC2239C	4-circuit inputs, complementary outputs	-5*	-0.3*	±0.2*	0.2*	<4	10*	1.60×0.85×0.07

Notes: The above drivers are compatible with TTL input, for which the -5V power supply is provided; "*" represents the typical value.

1.21.4 General integrated circuit

I) COMS technology, gate circuit

Model \ Indexes	Function	Output voltage (output open circuit) (V)		Driving current (mA)	Input current (μA)	Chip quiescent current (μA)	Switching time (ns)	Chip size (mm×mm×mm)
		Low level	High level					
NC2080C	Hex inverter	0	5*	±6*	<1	<1	10*	1.46×1.46×0.30
NC2081C	Four 2-input AND gates	0	5*	±6*	<1	<1	10*	1.46×1.46×0.30
NC2082C	3-8 decoder, three Enable inputs	0	5*	±4*	<1	<1	8*	1.46×1.46×0.30
NC2083C	Eight bidirectional bus transceivers	0	5*	±3*	<1	<1	7*	1.46×1.46×0.30
NC2084C	Eight-wire buffer line driver	0	5*	±3*	<1	<1	10*	1.46×1.46×0.30
NC2069C	3-8 decoder, analog switch	0	5*	±2*	<1	<1	10*	1.54×1.85×0.30
NC2090C	Double eight-bit 3.3V-5V bidirectional converters	0	3.3*/5*	+10*/-5*	<1	<2mA	10*	3.49×1.46×0.30
NC2095C	Four-bit differential receiving circuit	0	5*	-15*/+25*	<1	<1	10*	2.33×1.45×0.30
NC20401C	4-16 decoder	0	5*	±4*	<1	<1	10*	1.68×1.46×0.30
NC20402C	Single two-input OR gate	0	5*	±4*	<1	<1	10*	0.58×0.50×0.30
NC20403C	Single two-input NOR gate	0	5*	±4*	<1	<1	10*	0.58×0.50×0.30
NC20404C	Single two-input NAND gate	0	5*	±4*	<1	<1	10*	0.58×0.50×0.30

Model \ Indexes	Function	Output voltage (output open circuit) (V)		Driving current (mA)	Input current (μA)	Chip quiescent current (μA)	Switching time (ns)	Chip size (mm×mm×mm)
		Low level	High level					
NC20405C	Single two-input AND gate	0	5*	±4*	<1	<1	10*	0.58×0.50×0.30
NC20406C	Eight inverting buffer drivers	0	5*	±4*	<1	<1	6*	1.44×1.46×0.30
NC20407C	Comparator circuit	0	5*	-15*/+25*	-	<1mA	-	1.04×0.72×0.30
NC20408C	Pulse broadening circuit	0	5*	-0.4*/+0.5*	-	<1mA	-	1.04×0.48×0.30
NC20501-1C	Detecting -5V voltage	0	5*	±2*	1*	<1mA	10*	0.73×1.05×0.30
NC20502-1C	Detecting -5V voltage	0	5	24*	1*	0.5*	10*	0.65×1.05×0.30
NC20412C	Transmitting & Receiving control signal shaping	0	5*	10*	<1	<1	<10	1.33×1.46×0.30
NC20413C	3-8 decoder driver and switch driver	0	5*	±10/±20	<100	<10	10*	1.10×1.10×0.30
NC20414C	Enable control, 3-8 decoder driver and switch driver	0	5*	±10/±20	<100	<10	10*	1.10×1.10×0.30

II) CMOS technology, serial-to-parallel circuit

Model \ Indexes	Function	Output voltage (output open circuit) (V)		Driving current (mA)	Input current (μA)	Chip quiescent current (μA)	Clock frequency (MHz)	Chip size (mm×mm×mm)
		Low level	High level					
NC20409C	2-bit serial-to-parallel, serial output of clock falling edge data	0	5*	±2*	1*	500*	10*	0.99×1.45×0.30
NC20417C	2-bit serial-to-parallel, serial output of clock rising edge data	0	5*	±2*	1	500	10	0.99×1.45×0.30
NC2086C	8-bit serial-to-parallel (Input, power supply and ground on the left; output at the upper side)	0	5*	±2	<1	<1	10*	1.61×1.46×0.30
NC2086-1C	8-bit serial-to-parallel, complementary outputs (the input, power supply and ground, and the output are arranged up and down)	0	5*	±2	<1	<1	10*	1.61×1.46×0.30
NC2088C	12-bit serial-to-parallel, complementary outputs (input, power supply and ground on the left; output at the upper side)	0	5*	±2	<1	<1	10*	2.32×1.46×0.30
NC2088-1C	12-bit serial-to-parallel, complementary outputs (the input/output power supply and the ground are arranged up and down)	0	5*	±2	<1	<1	10*	2.32×1.46×0.30
NC2089C	24-bit serial-to-parallel, low level enable, alternative output	0	5*	±2	<1	<1	10*	2.32×1.45×0.30
NC20101C	8-bit serial-to-parallel (one-bit serial output, eight-bit three-state parallel output)	0	5*	±2*	<1	<1	10*	1.44×1.46×0.30
NC20411C	13-bit serial-to-parallel (with the functions of chip selection and power-on reset) driver	0	5*	±2*	<1	<1	10*	1.78×1.46×0.30
NC20415C	24-bit serial-to-parallel, low level enable	0	5*	±2*	1*	1*	10*	2.59×1.46×0.30

Model \ Indexes	Function	Output voltage (output open circuit) (V)		Driving current (mA)	Input current (μA)	Chip quiescent current (μA)	Clock frequency (MHz)	Chip size (mm×mm×mm)
		Low level	High level					
NC20416C	26-bit serial-to-parallel, low level enable, alternative	0	5*	±2*	1*	<1	10*	2.37×1.10×0.30
NC20416-1C	26-bit serial-to-parallel, low level enable, alternative, different PAD layout	0	5*	±2*	1*	<1	10*	1.80×1.10×0.30
NC20418C	Double-circuit, complementary, 4 outputs	0.2	4.3	20	1	0.1	10	0.76×1.46×0.30

III) GaAs technology, gate circuit

Model \ Indexes	Function	Output voltage (output open circuit) (V)		Driving current (mA)	Input current (μA)	Chip quiescent current (μA)	Switching time (ns)	Chip size (mm×mm×mm)
		Low level	High level					
NC2235C	General 2-4 decoder	0*	5*	±0.2*	0.2*	1.5*	7-25	1.20×0.85×0.07
NC2236C	General 3-8 decoder	0*	5*	±0.2*	0.2*	2.2*	7-25	1.65×0.85×0.07
NC2242C	3-8 decoder with Enable	0	5*	±0.2*	0.1*	4.5*	7-25	1.90×0.85×0.07

IV) GaAs technology, serial-to-parallel

Model \ Indexes	Function	Output voltage (output open circuit) (V)		Driving current (mA)	Input current (μA)	Chip quiescent current (μA)	Clock frequency (MHz)	Chip size (mm×mm×mm)
		Low level	High level					
NC2237C	Low power consumption, 2-bit serial-to-parallel, with the function of serial output	0	5*	±0.2*	0.3*	3.5*	10*	1.15×1.45×0.07
NC2230C	6-bit positive voltage serial-to -parallel	0	5*	±0.2*	0.3*	8*	10*	2.15×1.20×0.07
NC2247C	8-bit positive voltage serial-to-parallel	0	5	±0.2*	0.1*	5.2*	20*	2.20×1.45×0.07

V) Counter

Model \ Indexes	Function	Output voltage (output open circuit) (V)		Driving current (mA)	Input current (μA)	Chip quiescent current (μA)	Clock frequency (MHz)	Chip size (mm×mm×mm)
		Low level	High level					
NC2218-1C	GaAs technology, 2-32 multimode counter	5*	0	±0.2*	0.2*	5.5*	2*	4.95×2.00×0.07

Notes: The above drivers are compatible with TTL input; "*" represents the typical value.

1.21.5 Power supply management chip

I) Bias chip

Model \ Indexes	Applicable environment	Function	Load capacity	Input current/input level	Working voltage (V)	Typical switching frequency	Chip size (mm×mm×mm)
NCC01C	Peripheral bias of power amplifier	Three-circuit, dual-mode, programmable bias current source	-	1-5mA/0.5-2.5mA	3~5	-	1.45×0.92×0.3
NCC06C	Peripheral bias of power amplifier	25mA switched capacitor type voltage converter	25mA	-	3~8	500kHz/1MHz	1.45×0.85×0.30
NCC07C	Peripheral bias of power amplifier	External adjustable negative voltage bias	100mA	-0.5V~-3.5V	-5	-	0.92×0.66×0.30
NCC08C	Peripheral bias of power amplifier	Programmable negative voltage bias	50mA	-0.5V~-1.2V	-5	-	0.92×0.78×0.30
NCC09C	Peripheral bias of power amplifier	Programmable negative voltage bias	100mA	-1.0V~-3.5V	-5	-	0.92×0.92×0.30
NCC10C	Peripheral bias of power amplifier	10mA switched capacitor type voltage converter	100mA	-	3~5	500kHz/1MHz	1.45×1.88×0.30
NCC11C	Peripheral bias of power amplifier	Optional negative voltage bias of multi-circuit outputs	150mA	-0.5V~-1.0V	-5	-	0.92×1.07×0.30
NCC12C	Peripheral bias of power amplifier	Optional negative voltage bias of multi-circuit outputs	150mA	-1.6V~-2.6V	-5	-	0.92×1.07×0.30
NCC13C	Peripheral bias of power amplifier	External adjustable negative voltage bias	150mA	-0.5V~-3.6V	-5	-	0.92×0.71×0.30
NCC14C	Driver power supply	Special bias	15mA	12V	50	-	1.18×1.04×0.30
NCC16C	Peripheral bias of power amplifier	External adjustable negative voltage bias integrating the function of negative voltage controlling positive voltage	200mA	-0.4V~-3.5V	-5	-	1.58×1.04×0.30
NCC17C	Peripheral bias of power amplifier	External adjustable negative voltage bias integrating the function of negative voltage controlling positive voltage	200mA	-0.4V~-3.5V	-5	-	1.58×1.04×0.30
NCC19C	Peripheral bias of power amplifier	Programmable negative voltage bias with bidirectional current capability	200mA	-0.4V~-3.5V	-5	-	1.10×1.00×0.30
NCC20C	Peripheral bias of power amplifier	Negative voltage bias changing with temperature	50mA	-1.7V~-2V	-5	-	1.10×0.64×0.30

II) Large 5V~18V current driver

Double-circuit driver								
Model \ Indexes	Applicable environment	Function	Characteristics	Output voltage (low/high) (V)	Peak current (A)	Working voltage (V)	Switching time (ns)	Chip size (mm×mm×mm)
NCD01C-04A	GaAs power amplifier modulation	Large current MOSFET driver	Double-circuit positive phase	0/VS	4	5~18	≤35	1.17×1.45×0.30
NCD01C-04B			Positive phase + negative phase					1.17×1.45×0.30
NCD01C-04C			Double-circuit negative phase					1.17×1.45×0.30
NCD03C-1P5A	GaAs power amplifier modulation		Double-circuit positive phase	0/VS	1.5	5~18	≤35	0.85×1.45×0.30
NCD03C-1P5B			Positive phase + negative phase					0.85×1.45×0.30
NCD03C-1P5C			Double-circuit negative phase					0.85×1.45×0.30
NCD04C-03A	GaAs power amplifier modulation		Double-circuit positive phase	0/VS	3	5~18	≤35	1.03×1.45×0.30
NCD04C-03B			Positive phase + negative phase					1.03×1.45×0.30
NCD04C-03C			Double-circuit negative phase					1.03×1.45×0.30
NCD07C-01A	GaAs power amplifier modulation	Large current MOSFET driver with Enable	Double-circuit positive phase	0/VS	1.5	5~18	≤35	1.24×1.45×0.30
NCD07C-01B			Positive phase + negative phase					1.24×1.45×0.30
NCD07C-01C			Double-circuit negative phase					1.24×1.45×0.30
NCD08C-03A	GaAs power amplifier modulation		Double-circuit positive phase	0/VS	3	5~18	≤35	1.45×1.45×0.30
NCD08C-03B			Positive phase + negative phase					1.45×1.45×0.30
NCD08C-03C			Double-circuit negative phase	Double-circuit negative phase				1.45×1.45×0.30
NCD67C	GaAs power amplifier modulation	Large current MOSFET driver with negative voltage Enable	Double-circuit negative phase	Double-circuit negative phase	3	5~12	≤15	1.10×2.20×0.30
NCD52C	GaAs power amplifier modulation	5V double-circuit drain electrode modulator	Double-circuit in-phase	Double-circuit in-phase	0.2 (DC)	5	≤10	1.13×1.46×0.3
NCD65C-09A	GaAs power amplifier modulation	Double-circuit drain electrode modulator	Double-circuit in-phase	Double-circuit in-phase	0.5 (DC)	5~12	≤10	1.16×2.20×0.30
NCD65C-09B			In-phase + out-phase	In-phase + out-phase				1.16×2.20×0.30
NCD65C-09B-M			Out-phase + in-phase	Out-phase + in-phase				1.16×2.20×0.30
NCD65C-09C			Double-circuit out-phase	Double-circuit out-phase				1.16×2.20×0.30

Single-circuit driver									
Model \ Indexes	Applicable environment	Function	Characteristics	Output voltage (low/high) (V)	Peak current (A)	Driving current (DC) (A)	Working voltage (V)	Switching time (ns)	Chip size (mm×mm×mm)
NCD02C-06A	GaAs power amplifier modulation	Large current MOSFET driver	Single-circuit in-phase	0/VS	6	0.1	5~18	≤30	0.81×1.45×0.30
NCD02C-06B			Single-circuit out-phase						0.81×1.45×0.30
NCD05C-09A	GaAs power amplifier modulation		Single-circuit in-phase	0/VS	9	0.2	5~18	≤60	1.05×1.45×0.30
NCD05C-09B			Single-circuit out-phase						1.05×1.45×0.30
NCD06C-12A	GaAs power amplifier modulation		Single-circuit in-phase	0/VS	12	0.3	5~18	≤75	1.35×1.45×0.30
NCD06C-12B			Single-circuit out-phase						1.35×1.45×0.30
NCD44C-06A	GaAs power amplifier modulation	Large current MOSFET driver with Enable	Single-circuit in-phase	0/VS	6	0.1	5~18	≤30	1.07×1.45×0.30
NCD44C-06B			Single-circuit out-phase						1.07×1.45×0.30

Single-circuit driver									
Model \ Indexes	Applicable environment	Function	Characteristics	Output voltage (low/high) (V)	Peak current (A)	Driving current (DC) (A)	Working voltage (V)	Switching time (ns)	Chip size (mm×mm×mm)
NCD45C-09A	GaAs power amplifier modulation	Large current MOSFET driver with Enable	Single-circuit in-phase	0/VS	9	0.2	5~18	≤60	1.3×1.45×0.30
NCD45C-09B			Single-circuit out-phase						1.3×1.45×0.30
NCD46C	GaAs power amplifier modulation		Single-circuit in-phase (low side)	0/VS	6	0.1	5~18	≤30	1.08×1.45×0.30
NCD22C-02A	GaAs power amplifier modulation	Large current MOSFET driver with negative voltage Enable	Single-circuit in-phase	0/VS	2	-	5~18	≤25	0.75×1.45×0.30
NCD22C-02B			Single-circuit out-phase						0.75×1.45×0.30
NCD23C-04A	GaAs power amplifier modulation		Single-circuit in-phase	0/VS	4	-	5~18	≤20	0.85×1.45×0.30
NCD23C-04B			Single-circuit out-phase						0.85×1.45×0.30
NCD24C-06A	GaAs power amplifier modulation	Large current MOSFET driver with negative voltage Enable	Single-circuit in-phase	0/VS	6	0.1	5~18	≤20	0.95×1.45×0.30
NCD24C-06B			Single-circuit out-phase						0.95×1.45×0.30
NCD25C-09A	GaAs power amplifier modulation		Single-circuit in-phase	0/VS	9	0.2	5~18	≤45	1.20×1.45×0.30
NCD25C-09B			Single-circuit out-phase						1.20×1.45×0.30
NCD27C	3.3V input, 5V driver	5V inverting MOSFET driver	-	0~VDD	1.5	-	5	≤12	0.60×0.52×0.30

Multifunctional driver								
Model \ Indexes	Applicable environment	Function	Characteristics	Peak current (A)	Driving current (DC) (A)	Working voltage (V)	Switching time (ns)	Chip size (mm×mm×mm)
NCD28C	5~12V multifunctional driver	Multifunctional MOSFET driver	Three modes	12	0.5	5~12	≤12	2.90×2.75×0.30
NCD29C			Three modes	10	0.5	5~12	≤12	2.90×1.80×0.30
NCD58C			Three modes	10	0.5	5~12	≤10	2.90×1.80×0.30

Model \ Indexes	Applicable environment	Function	Working voltage of positive power supply (V)	Working voltage of negative power supply (V)	Output adjustable gate voltage (V)	MOSFFET driving current (mA)	Negative voltage output driving current (mA)	Chip size (mm×mm×mm)
NCD68C	GaAs power amplifier modulation	Providing the adjustable gate voltage and drain electrode modulation for power amplifier	5~12	-6~-4.5	-2~-0.5	±100	±50	1.10×1.41×0.30

Model \ Indexes	Applicable environment	Function	Working voltage (V)	Working frequency of serial-to-parallel circuit (MHz)	Power supply modulation circuit			Chip size (mm×mm×mm)
					Driving current (mA)	ON state resistance (Ω)	Switching frequency (KHz)	
NCD61C	Tile-type TR module	Multifunctional circuit with power supply modulation and digital control	5	25	200	0.4	200	4.50×4.00×0.30

III) 28V power amplifier modulation driver chip

Model \ Indexes	Applicable environment	Driving tube type	EN control mode	Driving current (A)	Typical working voltage (V)	Typical switching frequency	Chip size (mm×mm×mm)
NCD10C	28V GaN power amplifier modulation	PMOS	Negative voltage Enable	2	28	0~100	1.5×1.76×0.3
NCD11C	28V GaN power amplifier modulation	PMOS	Negative voltage enable	1.5	28	0~100	1.5×1.76×0.3
NCD12C	28V GaN power amplifier modulation	PMOS	Negative voltage enable	1	28	0~100	1.5×1.76×0.3
NCD35C	28V GaN power amplifier modulation	PMOS	Negative voltage enable	1	28	0~100	1.5×1.5×0.3
NCD13C	28V GaN power amplifier modulation	PMOS	Positive voltage enable	1.5	28	0~100	1.5×1.76×0.3
NCD14C	28V GaN power amplifier modulation	PMOS	Positive voltage enable	1	28	0~100	1.5×1.5×0.3

IV) 50V and above power amplifier modulation driver chip

Model \ Indexes	Applicable environment	Driving tube type	EN control mode	Driving current (A)	Typical working voltage (V)	Typical switching frequency	Chip size (mm×mm×mm)
NCD36C	20~70V GaN power amplifier modulation	PMOS	Negative voltage enable	1.5	50	0~300	2.33×2.53×0.3
NCD51C	20~300V GaN power amplifier modulation	NMOS	Positive voltage enable	1.5	100	0~300	2.33×2.38×0.30

V) Power amplifier gate driver chip

Model \ Indexes	Applicable environment	EN control mode	Driving current (mA)	Typical working voltage (V)	Working frequency (MHz)	Switching time (ns)	Chip size (mm×mm×mm)
NCD47C	Power amplifier gate driver	1	20	5	≤1	≤25	1.13×1.46×0.30

Notes: For all above chips, the products in the customized encapsulation mode, such as plastic packaging and ceramic packaging, can be provided.

1.22 Navigation/Communication Circuits

1.22.1 Frequency synthesizer

I) Frequency synthesizer chip

Model \ Indexes	Type	RF input frequency (GHz)	Normalized noise (dBc/Hz)	Spurious suppression (dBc)	Working voltage (V)	Working current (mA)	Chip size (mm×mm×mm)
NCA03C	Multimode integer	0.5~8	-226	-80	3.3/5	70	1.43×1.63×0.20
NCA04C	Multimode integer	0.5~8	-230	-80	3.3/5	82	1.43×1.63×0.20
NCA05C	Dual-mode integer	0.3~5.5	-223	-75	3.3/5	18	1.10×1.63×0.20
NCA06C	Dual-mode integer	0.3~8	-226	-75	3.3/5	28	1.10×1.63×0.20
NCA07C	Multimode decimal	0.5~8	-213	-60	3.3/5	82	1.93×1.63×0.20
NCA14C	Low frequency integer	0.005~0.6	-226	-75	3.3/5	10	1.10×1.63×0.20

II) Frequency synthesizer chip with integrated VCO

Model \ Indexes	Type	RF output frequency (MHz)		Phase noise @100kHz (dBc/Hz)	Working voltage (V)	Working current (mA)	Chip size (mm×mm×mm)
NCA08C	Narrow-band integer	1025~1175	2050~2350	-109	3.3	120	2.23×1.63×0.20
NCA09C	Narrow-band integer	1125~1275	2250~2550	-107	3.3	120	2.23×1.63×0.20
NCA10C	Narrow-band integer	1250~1425	2500~2850	-106	3.3	120	2.23×1.63×0.20
NCA11C	Narrow-band integer	1350~1625	2700~3250	-105	3.3	120	2.23×1.63×0.20
NCA12C	Narrow-band integer	1450~1710	2900~3420	-104	3.3	120	2.23×1.63×0.20
NCA13C	Narrow-band integer	1650~1950	3300~3900	-103	3.3	120	2.23×1.63×0.20
NCA15C	Narrow-band fraction	Downward frequency division available	1920~2250	-109	3.3	200	2.94×1.63×0.20
NCA16C	Narrow-band fraction	Downward frequency division available	2200~2700	-107	3.3	200	2.94×1.63×0.20
NCA17C	Narrow-band fraction	Downward frequency division available	2650~3150	-106	3.3	200	2.94×1.63×0.20
NCA18C	Narrow-band fraction	Downward frequency division available	3100~3500	-105	3.3	200	2.94×1.63×0.20
NCA19C	Narrow-band fraction	Downward frequency division available	3650~4050	-102	3.3	200	2.94×1.63×0.20
NCA20C	Low frequency integer	15~500	15~500	-103	3.3	50	1.40×1.60×0.20

1.22.2 Navigation/Communication

I) Navigation/Communication frequency converter chip

Model \ Indexes	Radio frequency (GHz)	LO frequency (GHz)	IF frequency (MHz)	Conversion gain	SSB noise factor	IF output P-1	IF output OIP3	Power consumption (V/mA)	Chip size (mm×mm×mm)
NCAS1502C-1220	1.2-2.0	1.2-2.0	10-200	12dB@1.268GHz	9dB@1.268GHz	13dBm@46MHz	22dBm@46MHz	3.3/42	1.80×2.60×0.07
NCAS11C	1.2-2.0	1.2-2.0	10-250	13dB@1.268GHz	17dB@1.268GHz	17dBm@46MHz	29dBm@46MHz	3.3/72	1.90×2.60×0.07

II) Navigation/Communication low noise amplifier

Model \ Indexes	Frequency range (GHz)	Gain (dB)	Gain flatness (dB)	Noise factor (dB)	Input VSWR	Output VSWR	P1dB (dBm)	OIP3 (dBm)	Power consumption (V/mA)	Chip size (mm×mm×mm)
NCE17C	1.1-3.0	31@1.3GHz	±1	0.7	≤2	≤2	3	7	3/11	1.30×1.60×0.07
NCE21C	1.0-4.0	14.5@2GHz	-	1.2	≤2	≤2	15	24	3.3/21	1.30×1.20×0.07
NCE26C	1.0-2.5	20@1.3GHz	-	0.7	≤2.0	≤1.5	12	20	3.3/15	1.30×1.20×0.07

1.22.3 Satellite mobile communication

I) Power amplifier for satellite mobile communication

Model \ Indexes	Frequency range (GHz)	Linear gain (dB)	Linear output power (dBm)	Power gain (dB)	Power added efficiency (%)	Static power consumption (V/A)	Chip size (mm×mm×mm)
NCE07C	1.9-2.1	35	33.5	34	40	3.7/0.2	1.64×1.25×0.08

II) Low noise amplifier for satellite mobile communication

Model \ Indexes	Frequency range (GHz)	Gain (dB)	Gain flatness (dB)	Noise factor (dB)	Input VSWR	Output VSWR	P1dB (dBm)	OIP3 (dBm)	Power consumption (V/mA)	Chip size (mm×mm×mm)
NCE05C	2.1-2.3	16	±0.5	0.7	≤1.5	≤1.5	8	15	1.8/11	1.00×1.20×0.07

1.22.4 General communication

I) Broadband communication amplifier

Model \ Indexes	Frequency range (GHz)	Gain (dB)	Noise factor (dB)	Input VSWR	Output VSWR	P1dB (dBm)	OIP3 (dBm)	Power consumption (V/mA)	Chip size (mm×mm×mm)
NCE02C	DC-3.5	16.4@1GHz	3.3	≤1.8	≤1.8	19@1GHz	36@1GHz	5/70	0.69×0.71×0.07
NCE09C	DC-4	20@1GHz	2.8	≤1.8	≤1.8	20@1GHz	36@1GHz	5/87	0.56×0.45×0.07
NCE16C	0.03-1	-15–32 (variable)	-	≤2	≤2	13	-	3.3/45	1.58×0.98×0.30
NCE20C	DC-0.6	16.4@0.2GHz	3.2	<1.3	<1.3	13.7@0.2GHz	33.6@0.2GHz	5/47	0.98×0.53×0.30
NCE46C	DC-6	23.4@1GHz	2.2@1GHz	-	-	17@1GHz	27@1GHz	+5/79	1.00×0.55×0.08
NCP1001C	DC -10G	23.2@1GHz	2	≤1.8	≤1.8	17@1GHz	27@1GHz	5/79	1.00×0.55×0.08

1.23 MEMS Circulator/Isolator

I) Circulator

Model \ Indexes	Frequency range	Insertion loss (dB)	Isolation (dB)	VSWR	Size (mm×mm)	Remarks
SiDCR6/18-11	6-18	1.8	11	2	7×9	-
SiDCR8/18-11	8-18	0.7	15	1.4	7×8	-
SiDCR14/18-11	14-18	0.6	20	1.3	6×6	-
SiDCR15/17-12	15-17	0.5	20	1.3	4×4	-
SiDCR15/17-13	15-17	0.5	20	1.25	5×5	-
SiDCR24/27-11	24-27	0.6	18	1.3	4.5×5.5	-
SiDCR32/38-11	32-38	0.65	16	1.35	4×5	-
SiDCR34/36-11	34-36	0.5	20	1.3	4×4	-

II) Isolator

Model \ Indexes	Frequency range	Insertion loss (dB)	Isolation (dB)	VSWR	Size (mm×mm)	Remarks
SiIS11/14-11	11-14	0.5	17	1.25	5×6.5	-
SiIS12/18R5-11	12-18	0.6	15	1.3	6.5×5	-
SiIS19/24-11	19-24	0.6	14	1.25	6.5×5	Ports pulled at the neutral position
SiIS22/24-11	22-24	0.6	17	1.3	6×6	-
SiIS27/31-11	27-31	0.7	16	1.3	6.5×5	Ports pulled at the neutral position
SiIS30/32-11	30-32	0.5	18	1.25	5×5	-
SiIS33/37-111	33-37	0.6	17	1.25	5×4.5	-

III) Circular isolation module

Model \ Indexes	Frequency range	Insertion loss (dB)		Isolation (dB)		VSWR	Size (mm×mm)	Remarks
		Single section	Double sections	Single section	Double sections			
SiDCR8/12-21	8-12	0.6	1.2	15	25	1.35	10×8	The antenna terminal is pulled at the neutral position, and the distance between receiving terminal and transmitting terminal is 7.4mm.
SiDCR8/12-22	8-12	0.5	1	15	25	1.3	10×8	The antenna terminal is on the left, and the distance between receiving terminal and transmitting terminal is 7.4mm.
SiDCR9/10-21	9-10	0.5	1	13	25	1.3	7.4×10.5	-
SiDCR10/18-21	10-18	0.8	1.4	12	23	1.4	9×8	-
SiDCR14/18-21	14-18	0.6	1	15	25	1.35	7×7	The distance between receiving terminal and transmitting terminal is 5.3mm.
SiDCR15/17-P1	15-17	0.5	0.9	15	25	1.3	7×7	The distance between receiving terminal and transmitting terminal is 5.3mm.

1.24 CMOS PLL Chips

Working frequency (GHz)	Reference input (MHz)	Phase discrimination frequency (MHz)	Noise background (dBc/Hz)	Chip Size (mm)	Part Number	Production and Environmental Standard
0.1375~4.4	105	32	-217	2.50x2.65x0.18	BW726	ADF4350
0.8~6.5	350	100	-221	1.40x1.74x0.18	BW720	ADF4106

1.25 CMOS A/D Conversion Processing Chip

Resolution (bit)	Sampling frequency (MHz)	Signal-to-noise ratio (dBFS)	Spurious free dynamic range @6.5MHz (dBFS)	Chip Size (mm)	Part Number	Production and Environmental Standard
12	80	69.7	87.8	2.39x3.04x0.15	BW820	AD9236

1.26 CMOS Power Supply Management Chip

Operating Current (V)	Function	Output Current (mA)	Return Loss (dB)	Chip Size (mm)	Part Number	Production and Environmental Standard
3~12	Converting TTL level to CMOS level, providing independent double-circuit outputs, providing maximum output current of 0.5A and 2A respectively, with independent enable control	500/2000		1.96x2.30x0.15	BW761	Q/AT 24879-2018
12~32	Edge triggered, power PMOSFET driver; 12-32V input, VDD-10V~VDD output; when the 22nF capacitor load is driven, the rising time is 44ns, the falling time is 31ns, and the peak current is 14A.	-		2.33x2.38x0.15	BW763	Q/AT 23631-2018
12~32	Level triggered, power PMOSFET driver; 12-32V input, VDD-10V~VDD output; when the 22nF capacitor load is driven, the rising time is 44ns, the falling time is 31ns, and the peak current is 14A.	-		2.33x2.38x0.15	BW760	Q/AT 23712-2016
-5	Providing the gate voltage for amplifier, with a load capacity of 50mA; the chip has five control bits, and the gate voltage is controlled to change within a range of -1.2V~-3.2V; the stepping between -1.5V and -2.5V is 50mV, and the stepping within other ranges is 100mV.	±50		1.1×0.8×0.15	BW747	Q/AT 24409-2017
-5	Providing the gate voltage for amplifier, with a load capacity of ±100mA; the chip has four control bits, and the gate voltage is controlled to change within a range of -0.5V~-2.0V; the stepping is 100mV.	±100		1.1×0.8×0.15	BW748	Q/AT 24410-2017
5~10	Used for the power supply modulation of amplifier drain electrode. When the standby control bit is active, TTL signals are input and 0~VDD square wave signals with the same frequency and phase are output; integrated with fast discharge channel; the drain electrode level falling time is less than 20ns.	250		1.4×1.2×0.15	BW749	Q/AT 24411-2017
5~10	Used for the power supply modulation of amplifier drain electrode. When the standby control bit is active, TTL signals are input, and 0~VDD square wave signals with the same frequency and phase are output. When the standby control bit is inactive, the output is 0. This chip has a built-in fast discharge channel, so as to reduce the falling time of drain electrode level.	400		2.1x1.3x0.15	BW755	Q/AT 25049-2018
5~8	Power PMOSFET driver; TTL signals are input, and 0~VDD driving signals are output; when the 5nF capacitor load is driven, the rising time is 44ns, and the falling time is 45ns.	-		1.1x1.3 x 0.15	BW756	Q/AT 25050-2018
12~48	Power PMOSFET driver. When negative voltage enable is active, TTL signals are input, and VDD-10V~VDD driving signals are output; when the 22nF capacitor load is driven, the rising time is 44ns, the falling time is 45ns, and the peak current is 7A.	-		2.40x2.40x0.15	BW752	Q/AT 24600-2017
12~48	Power PMOSFET driver, integrated with power amplifier gate voltage bias function; when negative voltage enable is active, TTL signals are input, and VDD-10V~VDD driving signals are output; when the 22nF capacitor load is driven, the rising time is 44ns, the falling time is 45ns, and the peak current is 7A; the gate voltage is adjustable within the range of -3.2V~-1.2V.	-		2.40x3.20x0.15	BW753	Q/AT 24599-2017
5~8	Power PMOSFET driver; TTL signals are input, and 0~VDD driving signals are output; when the 2nF capacitor load is driven, the rising time is 44ns, and the falling time is 45ns.	-		1.1x0.8x0.15	BW751	Q/AT 25051-2018

2 Microwave Micro-packaging Circuit

2.1 GaAs/SiGe GainBlock Amplifier

Frequency (GHz)	Function	Gain (dB)	P_{-1} (dBm)	Noise (dB)	Power Supply (V/mA)	Operating Current (mA)	Package	Part Number	Substitution Model	Production and Environmental Standard
0.01~1.8	SiGe,High gain	28	8.8	3.7	+5V/27mA	27	SM3BM	BW601SM3BM	-	Q/AT 25116-2018
0.01~0.7	-	14	13	4.0	+5V/35mA	35	SM84	HEC5183A	-	Q/AT 22409-2012
0.01~0.7	-	14	17	5.0	+5V/45mA	45	SM84	HEC5188A	-	Q/AT 22386-2012
0.01~0.7	SiGe,High gain	34	12	2.0	+5V/35mA	35	SM84	HEC5600A	-	Q/AT 25007-2018
0.01~0.7	-	19	12	4.0	+5V/45mA	45	SM84	HEC5701A	-	Q/AT 25008-2018
0.01~0.7	-	20	8	4.0	+5V/35mA	35	SM84	HEC5186A	NBB500	Q/AT 22410-2012
0.1~0.7	-	15	20	4.0	+5V/60mA	60	SM84	HEC5702A	-	Q/AT 25009-2018
0.1~0.7	-	14	19	5.0	+5V/55mA	55	SM84	HEC5705A	-	Q/AT 25010-2018
0.1~0.7	-	15	17	4.0	+5V/45mA	45	SM84	HEC5184A	-	Q/AT 25080-2018
0.1~0.7	-	15	4	2.0	+5V/15mA	15	SM84	HEC5181A	-	Q/AT 25006-2018
0.1~0.8	-	16	20	2.0	+5V/56mA	56	SM84	HEC5196	-	Q/AT 23977-2016
0.1~0.8	-	27	7	2.5	+5V/30mA	30	SM84	HEC5197	-	Q/AT 25005-2018
0.1~1.5	Integrated with 1.5GHz low pass	18	10	5.0	+5V/35mA	35	SM84	HEC5186FB	-	Q/AT 23149-2014
0.1~2.5	-	19	8	3.5	+5V/35mA	35	SM84	HEC5186B	NBB500	Q/AT 22410-2012
0.1~2.5	-	14	19	5.0	+5V/60mA	60	SM84	HEC5705B	-	Q/AT 25011-2018
0.1~2.5	-	13	12	4.0	+5V/30mA	30	SM84	HEC5183B	-	Q/AT 22409-2012
0.1~2.5	-	14	17	5.0	+5V/45mA	45	SM84	HEC5188B	-	Q/AT 22386-2012
0.2~1.4	-	13	17	6.0	+5V/55mA	55	SM84	HEC5200B	-	Q/AT 25001-2018
0.2~2	-	18	10	4.0	+5V/40mA	40	SM84	HEC5187B	-	Q/AT 25000-2018
0.2~2	Low power	15	-7	2.5	+3V/6mA	6	SM84	HEC5630	-	Q/AT 25003-2018
0.5~2.5	-	13	19	4.0	+5V/65mA	65	SM84	HEC5201B	-	Q/AT 25002-2018
0.5~3	-	20	18	2.0	+5V/45mA	45	SM84	HEC5204B	-	Q/AT 25079-2018
1.0~2.5	Low Noise	23	19	1.5	+5V/60mA	60	SM84	HEC5266C	-	Q/AT 24187-2017
1.0~6.5	-	27	16	5.0	+5V/90mA	90	SM84	HEC5288C	-	Q/AT 22383-2018
1.0~6.5	-	12	11	5.0	+5V/45mA	45	SM84	HEC5192C	-	Q/AT 22411-2012
1.5~3	High gain	25	12	3.0	+5V/30mA	30	SM84	HEC5193	-	Q/AT 23610-2015
1.5~4.5	-	16	18	3.5	+5V/60mA	60	SM84	HEC5195	-	Q/AT 23651-2015
2.5~4.5	High gain	27	13	2.8	+5V/35mA	35	SM84	HEC5194	-	Q/AT 24669-2017

2.2 GaAs Low Noise Amplifier Chips

Frequency (GHz)	Gain (dB)	Noise (dB)	P-1 (dBm)	OIP3 (dBm)	Power Supply (V/mA)	Package	Part Number	Substitution Model	Production and Environmental Standard
0.1~20	16	2.5	+12	+24	+5/60	SM5	BW303SM5	-	Q/AT 25014-2018
0.7~4	14.5	2.5	+19	+30	+5/65	SM84	BW265SM84	-	Q/AT 23976-2016
0.7~5	14	2.2	+20	+28	+5/70	H30	BW265H30	-	Q/AT 24991-2018
0.8~5	14	2.5	+19	+28	+5/65	SM4	BW265SM4	-	Q/AT 24080-2018
1~5	14	2.5	+19	+28	+5/65	PQ4	BW265PQ4	-	Q/AT 24967-2018
1~6.5	20	2.0	+11	+21	+5/60	PQ4	BW295PQ4	-	Q/AT 24967-2018
1~10	18	4.0	+6	+18	+5/22	PQ5	BW1249PQ5	-	Q/AT 24970-2018
1.2~1.4	35	0.9	+11	+18	+5/50	PQ5	BW263PQ5	-	Q/AT 24970-2018
2~6	25	1.0	+10	+21	+5/45	H30	BW279H30	-	Q/AT 24991-2018
2~6	24	1.0	+12	+24	+5/45	SM4	BW279SM4	-	Q/AT 24708-2018
2~6	24	1.0	+12	+24	+5/50	SM5H	BW279SM5H	-	Q/AT 25013-2018
2~20	16	2.5	+14	+24	+5/75	SM7H	BW301SM7H	-	Q/AT 25015-2018
2~20	15	3.0	+12	+22	+5/65	SM5	BW301SM5	HMC462LP5E	Q/AT 25014-2018
2.7~3.5	28	1.0	+12	+22	+5/55	SM5	BW276SM5	HMC462LC5	Q/AT 25014-2018
2.7~3.5	29	0.8	+11	+23	+5/50	PQ5	BW276PQ5	-	Q/AT 24970-2018
4~6	28	0.9	+6	18	+5/20	PQ4	BW264PQ4	-	Q/AT 24967-2018
4~8	22	1.1	+8	+24	+5/49	SM5H	BW278SM5H	-	Q/AT 25013-2018
5~6	24	1.0	+11	+21	+5/49	SM5H	BW282SM5H	-	Q/AT 25013-2018
5~14	19	2.7	+19	+28	+5/150	SM4	BW281SM4	-	Q/AT 25012-2018
5~14	20	2.7	+19	+30	+5/150	FN5	BW281FN5	-	Q/AT 23974-2016
6~13	21	1.3	+9	+19	+5/42	PQ4	BW290PQ4	-	Q/AT 24967-2018
6~13	21	1.5	+10	+22	+5/42	SM4	BW290SM4	-	Q/AT 24705-2018
6~13	20	1.3	+10	+22	+5/42	SM5H	BW290SM5H	-	Q/AT 25013-2018
6~13	20	1.5	+10	+25	+5/42	SM4	BW286SM4	-	Q/AT 25012-2018
6~18	26	1.8	+10	+20	+5/55	SM7H	BW283SM7H	-	Q/AT 25015-2018
7~17	26	1.8	+10	+20	+5/55	SM5	BW283SM5	-	Q/AT 25014-2018
8~12	24	1.0	+8	+19	+5/20	PQ4	BW268PQ4	-	Q/AT 24967-2018
8~12	22	1.1	+2	+12	+5/14	PQ4	BW270PQ4	-	Q/AT 24967-2018
8~12	20	1.6	+15	+26	+5/65	PQ5	BW291PQ5	-	Q/AT 24970-2018
8~12	22	1.5	+12	+24	+5/50	SM4	BW287SM4	-	Q/AT 24704-2018
8~12	30	1.2	+11	+21	+5/65	SM4	BW288SM4	-	Q/AT 25012-2018
8~12	19	1.7	+14	+22	+5/65	SM5	BW291SM5	-	Q/AT 25014-2018
10~18	24	1.2	+9	+19	+5/25	PQ4	BW296PQ4	-	Q/AT 24967-2018
14~18	26	1.6	+9	+20	+5/55	PQ4	BW289PQ4	-	Q/AT 24967-2018
14~18	26	1.4	+9.5	+18	+5/54	SM5H	BW289SM5H	-	Q/AT 25013-2018
18~26.5	25	3.2	+9	+18	+5/55	PQ4	BW292PQ4	-	Q/AT 24967-2018

2.3 GaAs/GaN Driving Amplifier

Frequency (GHz)	Gain (dB)	P_{-1} (dBm)	Psat (dBm)	Power Supply (V/mA)	Package	Part Number	Substitution Model	Production and Environmental Standard
0.5~3	12	18	19	+5/48	PQ4	BW1750PQ4	-	Q/AT 24969-2018
0.5~4	21	16	17	+5/55	PQ4	BW581PQ4	-	Q/AT 24969-2018
0.8~6	20	+17	-	+5/65	SM84	BW553SM84	-	Q/AT 24992-2018
0.8~6.5	20	17	18	+5/60	SM4	BW553SM4	-	Q/AT 23866-2016
1~1.5	16	18	19	+5/55	PQ4	BW1751PQ4	-	Q/AT 24969-2018
1~3	22	15	17	+5/55	PQ4	BW564PQ4	-	Q/AT 24969-2018
1~3	21	15	18	+5/55	H30	BW564H30	-	Q/AT 24991-2018
1~4	23	16	17	+5/65	SM84	BW569SM84	-	Q/AT 24992-2018
1~6	20	17	18	+5/60	SM4M	BW553SM4M	-	Q/AT 24079-2018
2~3.5	15	19	20	+5/90	PQ4	BW586PQ4	-	Q/AT 24969-2018
2~5.5	15	17	19	+5/72	SM4	BW555SM4	-	Q/AT 25017-2018
2~6	26	20	22	+5/100	PQ4	BW552PQ4	-	Q/AT 24969-2018
2~6	16	16	18	+5/75	PQ4	BW555PQ4	-	Q/AT 24969-2018
2~6	24	16	18	+5/60	PQ4	BW563PQ4	-	Q/AT 24969-2018
2~6	24	14	15.5	+5/55	H30	BW556H30	-	Q/AT 24991-2018
2~6	24	+14	-	+5/50	SM84	BW556SM84	-	Q/AT 24992-2018
2~6	24	16	18	+5/50	SM4	BW556SM4	-	Q/AT 24706-2018
2~6	23	15	16	+5/50	SM5H	BW556SM5H	-	Q/AT 25018-2018
2~6	22	-	25	+28/100	QF4	BW575QF4	-	Q/AT 25019-2018
2~6	35	-	30	+28/130	QF4	BW568QF4	-	Q/AT 25019-2018
4~8	20	16	17	+5/69	FN5	BW574FN5	-	Q/AT 25020-2018
6~13	18	18	19	+5/130	H30	BW1752H30	-	Q/AT 24991-2018
6~15	15	+18	20	+5/100	SM3	BW228GSM3	HMC441LP3E	Q/AT 25021-2018
6~18	15	+16	18	+5/100	SM3B	BW228GSM3B	HMC441LC3B	Q/AT 24466-2018
6~18	15	18	20	+5/90	FN5	BW228GFN5	-	Q/AT 25020-2018
8~12	21	16	17.5	+5/65	H30	BW583H30	-	Q/AT 24991-2018
10~15	22	11	13	+5/56	SM5H	BW567SM5H	-	Q/AT 25018-2018
10~15	28	14.5	16	+5/65	FN5	BW566FN5	-	Q/AT 25020-2018

2.4 GaAs/GaN Power Amplifier

Frequency (GHz)	Power Gain (dB)	Psat (dBm)	Efficiency (%)	Power Supply (V/mA)	Package	Part Number	Substitution Model	Production and Environmental Standard
1.2~1.6	26	40	50	28/0.70	SM7H	BW1194SM7H	-	Q/AT 24995-2018
1.2~1.6	26	40	50	28/0.75	QF4	BW1194QF4	-	Q/AT 24993-2018
1.2~1.6	23	26.5	30	28/0.1	QF4	BW579QF4	-	Q/AT 24993-2018
2.2~3.5	19	29	33	9/0.25	PQ4	BW242PQ4	-	Q/AT 24994-2018
2.2~3.5	19	29	30	9/0.25	SM4	BW242SM4	-	Q/AT 23232-2014
2.7~3.5	21	41	48	28/1.1	SM7H	BW259SM7H	-	Q/AT 24995-2018
2.7~3.5	21	40	45	28/0.9	SM7H	BW1193SM7H	-	Q/AT 24995-2018
4.4~5.1	19	40	47	28/0.8	SM7H	BW1195SM7H	-	Q/AT 24995-2018
4.4~6	22	43	46	28/1.6	QF4	BW252QF4	-	Q/AT 24993-2018
5~6	21	41	45	28/1.0	SM7H	BW1198SM7H	-	Q/AT 24995-2018
5~6.5	22	36	45	28/0.35	QF4	BW251QF4	-	Q/AT 24993-2018
7~9	21	41	42	28/1.0	SM7H	BW1196SM7H	-	Q/AT 24995-2018
8~12	16	26	18	28/0.13	SM7H	BW571SM7H	-	Q/AT 24995-2018
8~12	20	28	28	8/0.21	SM5	BW222SM5	-	Q/AT 25089-2018
8~12	19	28	40	8/0.25	SM5	BW222GSM5	-	Q/AT 24261-2016
8~12	20	29	40	8/0.25	SM7H	BW222GSM7H	-	Q/AT 24996-2018
8~12	22	43	38	28/1.9	SM7H	BW253SM7H	-	Q/AT 24995-2018
14~18	20	42	35	28/1.8	SM7H	BW255SM7H	-	Q/AT 24995-2018
16~18	24	34	40	28/0.2	SM7H	BW1774SM7H	-	Q/AT 24995-2018

2.5 GaAs Bidirectional Amplifier

Frequency (GHz)	Gain (dB)	Noise (dB)	P_{-1} (dBm)	Power Supply (V/mA)	Control Voltage (V/mA)	Package	Part Number	Substitution Model	Production and Environmental Standard
0.5~2	17	3	16	5/50	0/+5	SM7H	BW1795SM7H	-	Q/AT 25022-2018
1~3	24	5.0	16	5/60	0/-5	SM7H	BW597SM7H	-	Q/AT 25022-2018
1~5	19	5	16	5/70	0/+5	SM7H	BW590SM7H	-	Q/AT 25022-2018
2~18	14	4	12	5/60	0/-5	SM7H	BW1793SM7H	-	Q/AT 25022-2018
2~20	14	4	13	5/65	0/-5	SM7H	BW592SM7H	-	Q/AT 25022-2018
3~7	21	5	18	5/80	0/-5	SM7H	BW599SM7H	-	Q/AT 25022-2018
4~8	17	5	13	5/70	0/-5	SM7H	BW593SM7H	-	Q/AT 25022-2018
6~18	16	7	18.5	5/110	0/+5	SM7H	BW1796SM7H	-	Q/AT 25022-2018
8~12	26	3.5	16	5/110	0/-5	SM7H	BW559SM7H	-	Q/AT 25022-2018

2.6 GaAs Digital Control Phase Shifter

Frequency range (GHz)	Functional description	Insertion loss (dB)	Phase shifting accuracy (RMS)	Amplitude fluctuation (dB)	Encapsulation mode	Model	Substitution Model	Production and Environmental Standard
0.4~1.2	6bit,LSB: 5.625°	13.0	2°	±0.5	SM105	BW1251D/1252DSM105	-	Q/AT 24962-2018
0.8~2	6bit,LSB: 5.625°	11.5	2.5°	±0.5	SM105	BW327DSM105	-	Q/AT 24962-2018
1.2~1.4	6bit,LSB: 5.625°	4.0	0.5°	±0.5	SM105	BW1255DSM105	-	Q/AT 24962-2018
1.2~1.6	8bit,LSB: 1.4°	5.0	2°	±1	SM7C	BW316SM7C	-	Q/AT 24960-2018
1.5~1.8	8bit,LSB: 1.4°	5.0	2°	±0.5	SM6H	BW319SM6H	-	Q/AT 24961-2018
1.6~3.2	6bit,LSB: 5.625°	10.0	1.5°	±0.5	SM105	BW326DSM105	-	Q/AT 24962-2018
2.1~3.2	6bit,LSB: 5.625°	11.5	2°	±0.5	SM7C	BW310SM7C	-	Q/AT 24960-2018
2.5~3.7	6bit,LSB:5.625°	6.5	2°	±0.5	SM6H	BW1253DSM6H	-	Q/AT 24961-2018
2.5~3.7	6bit,LSB: 5.625°	6.0	1°	±0.5	SM7H	BW311DSM7H	-	Q/AT 25109-2018
5~6	6bit,LSB: 5.625°	7.0	2.5°	±0.6	SM6H	BW312DSM6H	-	Q/AT 24961-2018
6~7.5	6bit,LSB:5.625°	7.5	2°	±0.8	SM6H	BW1250DSM6H	-	Q/AT 24961-2018
8~12	6bit,LSB:5.625°	8.0	1.3°	±0.5	PQ5	BW1254DPQ5	-	Q/AT 24959-2018
8~12	6bit,LSB: 5.625°	8.5	2°	±0.5	SM7H	BW332DSM7H	-	Q/AT 25109-2018
8.5~11.5	6bit,LSB: 5.625°	8.0	1.3°	±0.5	SM7H	BW313DSM7H	-	Q/AT 25109-2018
11~17	6bit,LSB:5.625°	9.5	2.5°	±0.5	PQ5	BW334PQ5	-	Q/AT 24959-2018
12~15	6bit,LSB:5.625°	8.0	3°	±1	PQ5	BW314PQ5	-	Q/AT 24959-2018
14~18	1bit,LSB:180°	2.7	1.5°	±0.2	PQ3	BW336DPQ3	-	Q/AT 24957-2018
14~18	6bit,LSB:5.625°	9.0	1.5°	±0.5	PQ5	BW337DPQ5	-	Q/AT 24959-2018

2.7 GaAs Switch

Working frequency (MHz)	Functional description	Insertion loss (dB)	Isolation (dB)	Return loss (dB)	Driving mode (V)	Encapsulation mode	Model	Substitution Model	Production and Environmental Standard
0.1~6	SPDT reflective	0.5	35	17	0/+5	SM3	BW117SM3	HMC221B Different packages	Q/AT 23371-2014
0.1~6	SPDT reflective	0.5	35	17	0/+5	SM3B	BW117SM3B	-	Q/AT 24081-2018
0.1~6	SPDT absorptive, built-in driver	1.5	50	17	-5V+TTL	SM4	BW111DSM4	-	Q/AT 25025-2018
0.1~12	SP4T absorptive, built-in 2:4 decoder	1.8	35	15	-5V+TTL	PQ4	BW121PQ4	-	Q/AT 24945-2018
0.1~14	SPDT absorptive, built-in driver	1.8	45	15	-5V+TTL	PQ4	BW113DPQ4	-	Q/AT 24945-2018
0.1~14	SPDT reflective, built-in driver	1.5	40	15	-5V+TTL	PQ4	BW119DPQ4	-	Q/AT 24945-2018
0.1~18	SPST absorptive	2.0	40	15	0/-5	SM3B	BW110SM3B	-	Q/AT 24192-2016
0.1~18	SPDT absorptive	1.8	40	15	0/-5	SM3B	BW113SM3B	HMC347LP3E	Q/AT 24193-2016
0.1~22	SPDT reflective	1.8	35	15	0/-5V	PQ3	BW129PQ3	-	Q/AT 25082-2018

Working frequency (MHz)	Functional description	Insertion loss (dB)	Isolation (dB)	Return loss (dB)	Driving mode (V)	Encapsulation mode	Model	Substitution Model	Production and Environmental Standard
0.1~12	SPST absorptive, built-in driver	2.0	60	15	-5V+TTL	SM4	BW110DSM4	-	Q/AT 23458-2015
0.1~12	SPST absorptive, built-in driver	2.0	60	15	-5V+TTL	SM4M	BW110DSM4M	-	Q/AT 24191-2016
0.1~12	SP4T absorptive, built-in 2:4 decoder	3.5	40	15	-5V+TTL	SM4	BW121SM4	HMC641LC4	Q/AT 25025-2018
0.1~10	SPDT absorptive, built-in driver	2.3	40	15	-5V+TTL	SM4M	BW113DSM4M	HMC641LP4E	Q/AT 25026-2018
0.1~15	SPST absorptive	2.0	50	15	0/-5V	SM3BM	BW110SM3BM	-	Q/AT 23840-2016
0.1~16	SPDT absorptive	2.0	45	15	0/-5V	SM3BM	BW113SM3BM	-	Q/AT 25027-2018
0.1~4	SPDT absorptive, built-in driver	0.8	45	15	+5V+TTL	PQ4	BW116DPQ4	HMC347C8	Q/AT 24945-2018
0.1~4	SPDT absorptive, built-in driver	1.2	45	20	+5V+TTL	PQ5	BW1026DPQ5	HMC347G8	Q/AT 24946-2018
0.1~4	SPDT absorptive, built-in driver	1.0	45	15	+5V+TTL	PQ4	BW1032DPQ4	HMC347LP3	Q/AT 24945-2018
0.1~4	SPDT absorptive, built-in driver	1.0	44	12	+5V+TTL	SM4M	BW116DSM4M	Different packages	Q/AT 25026-2018
0.1~6	SPDT absorptive, built-in driver	0.6	36	15	+5V+TTL	SM3M	BW1024DSM3M	-	Q/AT 25083-2018
0.1~12	SPDT absorptive, built-in driver	1.8	45	15	+5V+TTL	PQ4	BW1023DPQ4	-	Q/AT 24945-2018
0.1~18	SP3T reflective, built-in 2:4 decoder	1.8	40	15	-5V+TTL	PQ4	BW1027DPQ4	-	Q/AT 24945-2018
0.4~0.7	SP4T reflective, built-in 2:4 decoder	0.5	45	22	-5V+TTL	PQ4	BW1030DPQ4	-	Q/AT 24945-2018
2~12	SP4T reflective, built-in 2:4 decoder	1.7	30	15	-5V+TTL	SM4M	BW1021DSM4M	-	Q/AT 25026-2018
2~12	SP4T reflective, built-in 2:4 decoder	1.7	30	15	-5V+TTL	SM4M	BW1022DSM4M	-	Q/AT 25026-2018
11~17	SPDT reflective	1.3	42	15	0/-5V	PQ4	BW1003PQ4	-	Q/AT 24945-2018

2.8 GaAs Digital Control/Electric Control Attenuator

Frequency (GHz)	Function	Attenuation range (dB)	Insertion Loss (dB)	Return Loss (dB)	Additional phase shift (°)	Package Type	Part Number	Substitution Model	Production and Environmental Standard
0.1~10	1bit	10	1.0	15	-	SM3	BW154SM3	-	Q/AT 25028-2018
0.1~10	1bit	30	1.6	15	-	SM3	BW165SM3	-	Q/AT 25028-2018
0.1~10	3bit, built-in driver	5~35	2.2	15	-	SM4	BW150SM4	-	Q/AT 25029-2018
0.1~10	4bit, built-in driver	1~15	3.5	15	-	SM4	BW158SM4	-	Q/AT 25029-2018
0.1~10	4bit, built-in driver	3~45	3.5	15	-	SM4	BW162GSM4	-	Q/AT 25029-2018
0.1~10	6bit, built-in driver	0.5~31.5	3.0	15	-	SM5M	BW152SM5M	-	Q/AT 25032-2018
0.1~10	4bit, built-in driver	3~45	3.5	15	-	SM5H	BW162GSM5H	-	Q/AT 25084-2018
0.1~12	6bit, low phase shift, built-in driver	0.5~31.5	3.3	15	±5	SM5	BW161SM5	-	Q/AT 22384-2012
0.1~12	6bit, built-in driver	0.5~31.5	3.5	15	-	SM5	BW152SM5	-	Q/AT 22633-2012
0.1~13	6bit, built-in driver	0.5~31.5	4	12		SM3	BW153DSM3	HMC424LP3	Q/AT 25028-2018
0.1~12	1bit	16	2.0	15	-	SM4	BW155GSM4	-	Q/AT 25029-2018
0.1~12	5bit, low phase shift, built-in driver	0.5-15.5	2.5	15	±5	SM4M	BW159SM4M	-	Q/AT 25031-2018
0.1~12	6bit, low phase shift, built-in driver	0.5-31.5	3.0	15	±5	PQ5	BW164PQ5	-	Q/AT 24951-2018
0.1~12	6bit, built-in driver	0.5-31.5	3.0	15	-	PQ5	BW152PQ5	-	Q/AT 24951-2018
0.1~14	6bit, low phase shift, built-in driver	0.5-31.5	3.0	15	±5	PQ5	BW163PQ5	-	Q/AT 24951-2018
0.1~18	3bit, built-in driver	5-35	3.0	15	-	PQ4	BW150DPQ4	-	Q/AT 24952-2018
0.1~18	4bit, built-in driver	1-15	3.0	15	-	PQ4	BW158DPQ4	-	Q/AT 24952-2018
0.1~18	5bit, low phase shift, built-in driver	0.5-15.5	3.0	15	±2	PQ4	BW159PQ4	-	Q/AT 24952-2018
0.1~18	1bit, built-in driver	20	2.5	12	-	PQ4	BW166PQ4	-	Q/AT 24952-2018
0.1~20	6bit, built-in driver	0.5-31.5	4.5	15	-	PQ5	BW174DPQ5	-	Q/AT 24951-2018
0.1~30	5bit, built-in driver	0.5-15.5	4	12	-	PQ4	BW173DPQ4	-	Q/AT 24952-2018
0.1 ~8	6bit, low phase shift, built-in driver	0.5-31.5	2.7	17	±3	PQ5	BW179DPQ5	-	Q/AT 24951-2018
0.1~20	6bit, low phase shift, built-in driver	0.5-31.5	4.0	15	±2	PQ5	BW176DPQ5	-	Q/AT 24951-2018

Frequency (GHz)	Function	Attenuation range (dB)	Insertion Loss (dB)	Return Loss (dB)	Additional phase shift (°)	Package Type	Part Number	Substitution Model	Production and Environmental Standard
8~12	6bit, low phase shift, built-in driver	0.5-31.5	4.0	15	±5	SM5	BW178DSM5	-	Q/AT 25030-2018
8~14	6bit, low phase shift, built-in driver	0.5-31.5	4.5	15	±2	PQ5	BW178DPQ5	-	Q/AT 24951-2018
10~18	5bit, low phase shift, built-in driver	0.5-15.5	2.7	17	±5	PQ4	BW1052DPQ4	-	Q/AT 24952-2018
14~18	6bit, low phase shift, built-in driver	0.5-31.5	4.6	14	±3	PQ5	BW177DPQ5	-	Q/AT 24951-2018

2.9 GaAs limiter MMIC

Frequency (GHz)	Power Gain (dB)	Psat (dBm)	Efficiency (%)	Power Supply (V/mA)	Package	Part Number	Substitution Model	Production and Environmental Standard
1.2~1.6	26	40	50	28/0.70	SM7H	BW1194SM7H	-	Q/AT 24995-2018
1.2~1.6	26	40	50	28/0.75	QF4	BW1194QF4	-	Q/AT 24993-2018
1.2~1.6	23	26.5	30	28/0.1	QF4	BW579QF4	-	Q/AT 24993-2018
2.2~3.5	19	29	33	9/0.25	PQ4	BW242PQ4	-	Q/AT 24994-2018
2.2~3.5	19	29	30	9/0.25	SM4	BW242SM4	-	Q/AT 23232-2014
2.7~3.5	21	41	48	28/1.1	SM7H	BW259SM7H	-	Q/AT 24995-2018
2.7~3.5	21	40	45	28/0.9	SM7H	BW1193SM7H	-	Q/AT 24995-2018
4.4~5.1	19	40	47	28/0.8	SM7H	BW1195SM7H	-	Q/AT 24995-2018
4.4~6	22	43	46	28/1.6	QF4	BW252QF4	-	Q/AT 24993-2018
5~6	21	41	45	28/1.0	SM7H	BW1198SM7H	-	Q/AT 24995-2018
5~6.5	22	36	45	28/0.35	QF4	BW251QF4	-	Q/AT 24993-2018
7~9	21	41	42	28/1.0	SM7H	BW1196SM7H	-	Q/AT 24995-2018
8~12	16	26	18	28/0.13	SM7H	BW571SM7H	-	Q/AT 24995-2018
8~12	20	28	28	8/0.21	SM5	BW222SM5	-	Q/AT 25089-2018
8~12	19	28	40	8/0.25	SM5	BW222GSM5	-	Q/AT 24261-2016
8~12	20	29	40	8/0.25	SM7H	BW222GSM7H	-	Q/AT 24996-2018
8~12	22	43	38	28/1.9	SM7H	BW253SM7H	-	Q/AT 24995-2018
14~18	20	42	35	28/1.8	SM7H	BW255SM7H	-	Q/AT 24995-2018
16~18	24	34	40	28/0.2	SM7H	BW1774SM7H	-	Q/AT 24995-2018

2.10 GaAs Frequency Mixer

LO/RF Frequency (GHz)	Function	IF Frequency (GHz)	Frequency conversion loss (dB)	LO/RF Isolation (dB)	LO/IF Isolation (dB)	IP3 (dBm)	Image rejection ratio (dB)	P_{-1} (dBm)	LO Power (dBm)	Package Type	Part Number	Substitution Model	Production and Environmental Standard
0.5~1.8	Double balance mixer	DC ~1	8.5	50	40	-	-	+12	+13	SM84	BW364SM84	-	Q/AT 24427-2017
0.6~2.4	Double balance mixer	DC ~1.3	9.0	45	35	20	-	+10	+13	SM4	BW360SM4	-	Q/AT 25034-2018
0.6-2.4	Double balance mixer	DC~1.3	9.0	40	35	20	-	+12	+13	PQ4	BW360PQ4	-	Q/AT 24964-2018
0.6-2.4	Double balance mixer	DC -1.3	8	45	40	+17	-	+11	+13	SM4M	BW361SM4M	-	Q/AT 25035-2018
0.7~2.2	High IP3	DC ~0.8	8.5	48	36	25	-	+15.5	+20	SM84	BW380SM84	-	Q/AT 25036-2018
0.8~3.0	Double balance mixer	DC ~1.4	9.0	46	40	-	-	+12.5	+13	SM84	BW366SM84	-	Q/AT 25036-2018
1.0~4.0	Double balance mixer	DC ~1.5	8	50	37	20	-	+13	+14	SM4M	BW1350SM4M	-	Q/AT 25035-2018
1.5~4.5	Double balance mixer	DC ~2.5	7.5	20	10	-	-	+11	-3	SM84	BW350LSM84	-	Q/AT 25036-2018
1.5~4.5	Double balance mixer	DC ~2.5	7.5	44	30	-	-	+11	+13	SM84	BW350SM84	-	Q/AT 23106-2014
1.5~4.5	Double balance mixer	DC ~2.5	7.5	40	30	17	-	+11	+13	SM4	BW350SM4	HMC213MS8E Different packages	Q/AT 23924-2016
2~3	I/Q	DC ~1	9	38	14	-	30	14	15~17	SM5M	BW395SM5M	-	Q/AT 23576-2015
2~5.5	Double balance mixer	DC ~3	7.5	24	15	-	-	+11	-2	SM84	BW351LSM84	-	Q/AT 25036-2018
2~5.5	Double balance mixer	DC ~3	7.5	46	30	-	-	+10.5	+13	SM84	BW351SM84	-	Q/AT 25036-2018
2~6	Double balance mixer	DC ~3	7.5	40	30	+17	-	+11	+13	SM4	BW351SM4	-	Q/AT 25034-2018

LO/RF Frequency (GHz)	Function	IF Frequency (GHz)	Frequency conversion loss (dB)	LO/RF Isolation (dB)	LO/IF Isolation (dB)	IP3 (dBm)	Image rejection ratio (dB)	P_{-1} (dBm)	LO Power (dBm)	Package Type	Part Number	Substitution Model	Production and Environmental Standard
2-6	Double balance mixer	DC -3	8	40	30	+17	-	+11	+13	SM4M	BW351SM4M	-	Q/AT 25035-2018
2.5~3.7	I/Q	DC ~2	8.0	35	25	-	25	+12	+17	SM4	BW390SM4	-	Q/AT 23972-2016
2.5~8	Double balance mixer	DC ~3	8.0	35	25	-	-	+10	+13	SM4	BW362SM4	HMC557LC4	Q/AT 25034-2018
2.5-8	Double balance mixer	DC -3	8.0	35	25	+17	-	+11	+13	SM4M	BW362SM4M	-	Q/AT 23000-2015
2.8~4.2	I/Q	DC ~1	9	50	16	-	30	13	17	SM4M	BW397SM4M	-	Q/AT 25035-2018
3.5~7	Double balance mixer	DC ~3	8.5	50	45	+18	-	+13	+13	SM4	BW368SM4	-	Q/AT 25034-2018
3.5-7	Double balance mixer	DC -3	8.5	52	45	+18	-	+13	+13	SM4M	BW368SM4M	-	Q/AT 25035-2018
3.5~7	Double balance mixer	DC ~3	8	50	42	22	-	+17.5	+13	SM4M	BW1354SM4M	-	Q/AT 25035-2018
3.9~6.5	I/Q	DC ~2	8.0	35	25	-	25	+12	+17	SM4	BW391SM4	HMC620LC4	Q/AT 25034-2018
4~7.5	Double balance mixer	DC ~3	8.0	42	30	-	-	+10	+13	SM84	BW352SM84	HMC129LC4	Q/AT 25036-2018
4~8	Double balance mixer	DC~3	7.5	40	30	20	-	+11	+13	PQ4	BW352PQ4	-	Q/AT 24964-2018
4~8	Double balance mixer	DC ~3	7.5	45	45	18	-	+13	+13	SM4M	BW383SM4M	-	Q/AT 25035-2018
4~12	Double balance mixer	DC~4	8	50	45	20	-	+13	+14	PQ4	BW1356PQ4	-	Q/AT 24964-2018
5~12	Low LO	DC~3	7.5	40	45	20	-	+13	+5	PQ4	BWM262PQ4	-	Q/AT 24964-2018
5~12	Double balance mixer	DC ~5	9	45	40	18	-	+13	+13	SM4M	BW373SM4M	-	Q/AT 25035-2018
6~18	Double balance mixer	DC ~6	8.0	30	30	17	-	+11	+13	SM3	BW370SM3	-	Q/AT 25033-2018
6~18	Double balance mixer	DC ~6	9.0	40	30	-	-	+10	+13	SM3B	BW370SM3B	HMC141C8 Different packages	Q/AT 25037-2018
6~18	Double balance mixer	DC -6	8.5	45	40	-	-	+12.5	+14	SM5H	BW377SM5H	-	Q/AT 25038-2018
7~14	Double balance mixer	DC ~5	8	38	40	20	-	+12	+13	SM3M	BW375SM3M	-	Q/AT 25113-2018
7~15	Double balance mixer	DC~4.5	7.5	40	30	20	-	+11	+13	PQ4	BW353PQ4	-	Q/AT 24964-2018
7~17	Double balance mixer	DC -6	8.0	35	30	+18	-	+10	+13	SM4M	BW357SM4M	-	Q/AT 25035-2018
8~12	I/Q	DC ~4.5	9.0	40	16	-	30	+14	+17	SM4	BW393SM4	HMC521LC4	Q/AT 25034-2018
10~20	Double balance mixer	DC ~6	8	32	30	20	-	+12.5	+13	FN5	BW358FN5	HMC554LC3B Different packages	Q/AT 25039-2018
10~20	Double balance mixer	DC -6	9	45	42	20	-	+12	+14	FN5	BW372FN5	-	Q/AT 25039-2018
12~18	High IP3	DC~6	8	45	40	25	-	+19	+19	PQ4	BW1360PQ4	-	Q/AT 24964-2018

2.11 GaAs Mixer Multifunctional MMIC

LO/RF Frequency (GHz)	Function	IF Frequency (GHz)	Conversion Gain (dB)	LO/RF Isolation (dB)	LO/IF Isolation (dB)	Image rejection ratio (dB)	Down conversion P-1 (dBm)	LO Power (dBm)	Package Type	Part Number	Substitution Model	Production and Environmental Standard
0.7~2	Multifunctional	DC ~1	4	15	27	-	3	-7	SM6H	BWM210SM6H	-	Q/AT 24966-2018
0.7~2	Low local oscillator	DC~1	-8	30	27	-	12	-7	SM6H	BWM211SM6H	-	Q/AT 24966-2018
1~1.5	Multifunctional	DC~0.5	-8	35	3	24	11	0	SM6H	BWM230SM6H	-	Q/AT 24966-2018
1~3	Low local oscillator	DC~1	-8	35	30	-	12	-5	SM6H	BWM209SM6H	-	Q/AT 24966-2018
1.8~6	Low local oscillator	DC~2.5	-8.5	25	12	-	13	-3	SM5M	BWM251SM5M	-	Q/AT 23138-2015
2~4	Multifunctional	DC~2	14.5	60	45	-	11	14	SM6H	BWM235SM6H	-	Q/AT 24966-2018
3~7	Low local oscillator	DC ~3.5	8.5	35	30	-	+14	0	SM5	BWM116SM5	-	Q/AT 25040-2018
4~8	Multifunctional	DC ~3	10	8	30	-	-5	-7	SM6H	BWM218SM6H	-	Q/AT 24966-2018
5~6	Multifunctional	3~3.5	10	15	27	-	-5	-8	SM5M	BWM236SM5M	-	Q/AT 25085-2018
7~13	Multifunctional	DC~4	-8.0	25	25	-	+12	-3	PQ5	BWM215PQ5	-	Q/AT 24965-2018

2.12 GaAs Voltage-controlled Oscillator

Frequency (GHz)	Main circuit power (dBm)	Branch circuit frequency (GHz)	Branch circuit power (dBm)	Main circuit phase noise @100kHz (dBc/Hz)	Main circuit 1/2f0 suppression (dBc)	Power Supply (V/mA)	Package Type	Part Number	Substitution Model	Production and Environmental Standard
6.8~7.5	+12	1/2f0	+7	-110	-30	5/170	SM5	BW422SM5	HMC507LP5E	-
7.3~8.2	+11	1/2f0	+7	-112	-35	5/190	SM5	BW423SM5	HMC508LP5E	-
7.8~8.6	+11	1/2f0	+7	-109	-35	5/180	SM5	BW424SM5	HMC509LP5E	-
8.25~9.15	+12	1/2f0	+7	-109	-30	5/200	SM5	BW426SM5	HMC509LP5E	Q/AT 23884-2016
8.9~9.8	+11	1/2f0	+7	-110	-30	5/200	SM5	BW427SM5	HMC511LP5E	-
9.4~10.6	+12	1/2f0	+10	-110	-25	5/200	SM5	BW428SM5	HMC530LP5E	-
9.5-10.8	+10	1/2f0	+7	-109	-25	5/200	SM5	BW432SM5	HMC530LP5E	-
10.35～11.55	+9	1/2f0	+7	-109	-25	5/200	SM5	BW429SM5	HMC513LP5E	-
11~12.4	+10	1/2f0	+11	-108	-20	5/200	SM5	BW433SM5	HMC513LP5E	-
11.9~13.3	+9	1/2f0	+11	-108	-20	5/200	SM5	BW434SM5	HMC583LP5E	-
12.9~14.1	+7	1/2f0	+11	-106	-20	5/200	SM5	BW435SM5	HMC584LP5E	-

2.13 GaAs Frequency Divider

Frequency (GHz)	Function	Output Power (dBm)	Reverse leakage (dB)	Phase noise @100kHz (dBc/Hz)	Power Supply (V/mA)	Package Type	Part Number	Substitution Model	Production and Environmental Standard
0.1~7	Three divided frequency bands	-4	60	-146	+5/75	SM4	BW443SM4	HMC437SM8GE	Q/AT 25104-2018
0.1~7	Five divided frequency bands	-4	60	-146	+5/80	SM4	BW444SM4	HMC438LP3GE	Q/AT 25104-2018
0.1~12	Two divided frequency bands	-3	55	-146	+5/80	SM4	BW440SM4	HMC361S8GE	Q/AT 25104-2018
0.1~12	Four divided frequency bands	-3	60	-146	+5/95	SM4	BW441SM4	HMC362S8G	Q/AT 23459-2015
0.1~12	Eight divided frequency bands	-3	60	-146	+5/100	SM4	BW442SM4	HMC63S8G	Q/AT 25104-2018
2~18	Two divided frequency bands	-4	56	-146	+5/75	SM4	BW445SM4	HMC492LP3E	Q/AT 25104-2018
10~20	Two divided frequency bands	-4	56	-146	+5/75	SM4	BW446SM4	-	Q/AT 25104-2018

2.14 GaAs power divider

Frequency (GHz)	Function	Insertion Loss (dB)	Isolation (dB)	Return Loss (dB)	Package Type	Part Number	Substitution Model	Production and Environmental Standard
0.5~1.2	0°, 2 circuits	0.7	15	13	SM4	BW490SM4	-	Q/AT 25043-2018
0.5~1.2	0°, 2 circuits	0.6	20	18	SM84	BW490SM84	-	Q/AT 25045-2018
0.5~1.5	0°, 2 circuits	0.7	20	19	PQ4	BW490PQ4	-	Q/AT 24973-2018
0.5~1.5	0°, 2 circuits	0.5	20	19	PQ4	BW1601PQ4	-	Q/AT 24973-2018
1~2	0°, 2 circuits	0.7	15	15	SM3	BW499SM3	-	Q/AT 25041-2018
1~2	0°, 2 circuits	0.9	30	20	SM84	BW499SM84	-	Q/AT 25045-2018
1~2	0°, 2 circuits	0.8	25	15	SM3M	BW499SM3M	-	Q/AT 25042-2018
1~3	0°, 2 circuits	1.0	20	19	PQ4	BW1602PQ4	-	Q/AT 24973-2018
1~3	0°, 2 circuits	0.7	15	13	SM4	BW491SM4	-	Q/AT 25043-2018
1~3	0°, 2 circuits	0.9	20	15	SM84	BW491SM84	-	Q/AT 25045-2018
1~3	0°, 2 circuits	0.9	18	15	SM4M	BW491SM4M	-	Q/AT 25044-2018
1~3	0°, 2 circuits	1.0	20	15	SM4	BW1602SM4	-	Q/AT 25043-2018
1.2~2.4	0°, 2 circuits	3.0	20	20	SM6H	BW1637SM6H	-	Q/AT 24972-2018
2~6	0°, 2 circuits	0.8	15	13	SM3	BW492SM3	-	Q/AT 23942-2016
2~6	0°, 2 circuits	1.0	25	15	SM3M	BW492SM3M	-	Q/AT 23716-2015
2~14	0°, 2 circuits	1.3	15	13	SM4	BW497SM4	-	Q/AT 23943-2016
3~5	0°, 2 circuits	0.7	25	20	SM84	BW493SM84	-	Q/AT 25045-2018
3~9	0°, 2 circuits	0.6	15	13	SM3	BW493SM3	-	Q/AT 25041-2018

Frequency (GHz)	Function	Insertion Loss (dB)	Isolation (dB)	Return Loss (dB)	Package Type	Part Number	Substitution Model	Production and Environmental Standard
3~9	0°, 2 circuits	1.2	20	15	SM3M	BW493SM3M	-	Q/AT 24377-2017
6~12	0°, 2 circuits	0.6	15	13	SM3	BW494SM3	-	Q/AT 22788-2013
6~18	0°, 2 circuits	1.3	20	15	PQ3	BW506PQ3	-	Q/AT 25114-2018
8~12	0°, 2 circuits	0.5	20	12	PQ4	BW1608PQ4	-	Q/AT 24973-2018

2.15 GaAs Filter Chip

Frequency (GHz)	Function	Insertion Loss (dB)	Return Loss (dB)	Out of band (OOB) attenuation (dB)	Package Type	Part Number	Production and Environmental Standard
0.1~2	Low pass filter	2.3@2.0GHz； 1.3@1.0GHz	15	20@3.0GHz； 40@3.6~18 GHz	SM4	BWLF-2-SM4	-
0.1~2.5	Low pass filter	2.3@2.5GHz； 1.6@2.0GHz	15	20@4.0GHz； 40@4.8~18 GHz	SM4	BWLF-2R5-SM4	-
0.1~3	Low pass filter	2.6@3.0GHz； 1.8@2.5GHz	15	20@4.3GHz； 40@5.2~18 GHz	SM4	BWLF-3-SM4	Q/AT 23376-2014
0.1~3.5	Low pass filter	2.0@3.5GHz； 1.5@3.0GHz	15	20@5.3GHz； 40@6.6~18 GHz	SM4	BWLF-3R5-SM4	-
0.1~4	Low pass filter	2.2@4.0GHz； 1.8@3.5GHz	15	20@5.6GHz； 40@6.7~18 GHz	SM4	BWLF-4-SM4	Q/AT 23411-2014
0.1~5	Low pass filter	2.2@5.0GHz； 1.7@4.5GHz	15	20@7.0GHz； 40@8.2~18 GHz	SM4	BWLF-5-SM4	-

2.16 GaAs Amplitude Equalizer

Frequency (GHz)	Equilibrium type	Equilibrium quantity (dB)	Insertion Loss (dB)	Return Loss (dB)	Package Type	Part Number	Production and Environmental Standard
0.8~6.5	Negative slope	5.8	1.2	15	SM3	BWAES-R8/6R5-6- SM3	Q/AT23341-2014
1~2	Negative slope	3	0.8	15	SM3	BWAES-1/2-3- SM3	Q/AT 24195-2016
1~8	Negative slope	3.3	1.0	15	SM3	BWAES-1/8-3R5- SM3	Q/AT 25046-2018
2~4	Negative slope	3	1.2	15	SM3	BWAES-2/4-3- SM3	Q/AT 25046-2018
2~4	Negative slope	4	1.2	15	SM3	BWAES-2/4-4- SM3	Q/AT 23342-2014
2~18	Negative slope	8	1.7	15	PQ3	BWAES-2/18-8-PQ3	Q/AT 24105-2018
6~12	Negative slope	5	1.3	18	PQ3	BWAES-6/12-5-PQ3	Q/AT 24105-2018
6~18	Negative slope	5	1.2	15	PQ3	BWAES-6/18-5-PQ3	Q/AT 24105-2018
8~12	Negative slope	4.8	1.2	14	SM3	BWAES-8/12-4R6- SM3	Q/AT 25046-2018

2.17 GaAs Coupler/Bridge

Frequency (GHz)	Function	Insertion Loss (dB)	Isolation (dB)	Return Loss (dB)	Package Type	Part Number	Substitution Model	Production and Environmental Standard
0.8~2	90° bridge	1	20	20	PQ4	BW536PQ4	-	Q/AT 24968-2018
1.3~2.6	90° bridge	1.0	20	21	PQ4	BW537PQ4	-	Q/AT 24968-2018
2~6	Coupler	0.7	20	15	SM6H	BW541SM6H	-	Q/AT 24953-2018
5~6	20dB coupler	0.6	-	20	PQ5	BW1705PQ5	-	Q/AT 24956-2018
6~13	15dB coupler	0.8	-	18	PQ4	BW543PQ4		Q/AT 24955-2018
6~13	20dB coupler	0.8	-	15	PQ4	BW544PQ4		Q/AT 24955-2018
6~18	90° bridge	1.3	20	15	PQ4	BW531PQ4		Q/AT 24968-2018
8~12	10dB coupler	0.8	-	15	PQ4	BW545PQ4		Q/AT 24955-2018

2.18 GaAs Digital Control Variable Gain Amplifier

Frequency (GHz)	Gain range (dB)	Gain step (dB)	Output 1dB compression (dBm)	Noise (dB)	Attenuation accuracy (dB)	Operating Current (mA)	Part Number	Substitution Model	Production and Environmental Standard
0.7~5	-20.5-11	0.5	9.5	5.5	0.6	65	BWM151SM6H	-	Q/AT 25086-2018
0.8~18	-19.5-12	0.5	14	5	0.6	65	BWM295SM7H	-	Q/AT 24521-2017
8~12	-12.5-19	0.5	7.5	5.5	0.4	20	BWM152SM6H	-	Q/AT 25086-2018
8~12	5-35	5	20	5	0.2	130	BWM144SM7B	-	Q/AT 24997-2018
8~12	1-31.5	1	17.5	6	0.4	50	BWM150SM7B	-	Q/AT 24997-2018

2.19 GaAs Special Multifunctional Chip

Frequency (GHz)	Function	Receive Gain (dB)	P_{-1} (dBm)	Operating Voltage (V)	Quiescent Current (mA)	Chip Size (mm)	Part Number	Production and Environmental Standard
5~6	The power dividing switch can realize the gating function of four-way switch.	-5.8	-	TTL +5/-5	7.5	6.0*6.0	BWM229SM6H	Q/AT 25087-2018
7~13	Broadband amplitude control chip, internally integrated with amplifier, switch and 6-bit digital control attenuator	18.5	10	+5V, -5V	40	5.0*5.0	BWM206PQ5	Q/AT 25088-2018

2.20 SiGe Digital Control Variable Gain Amplifier

Frequency (GHz)	Gain range (dB)	Gain step (dB)	Output 1dB compression (dBm)	Noise (dB)	Attenuation accuracy (dB)	Operating Current (mA)	Part Number	Substitution Mode	Production and Environmental Standard
10-700	-2.5-44.5	1	10.8@300MHz	8.0@300MHz	±(0.3+4% × Attenuation)	68	BW640SM4	-	Q/AT 23514-2015
10-700	-7.5-41.5	1	14.0@300MHz	8.0@300MHz	±(0.3+5% × Attenuation)	92	BW640GSM4	-	Q/AT 23078-2014

2.21CMOS Power Supply Management Chip

Operating Current (V)	Function	Output Current (mA)	Chip Size	Part Number	Substitution Mode	Production and Environmental Standard
12~32	Edge triggered, power PMOSFET driver; 12-32V input, VDD-10V~VDD output; when the 22nF capacitor load is driven, the rising time is 44ns, the falling time is 31ns, and the peak current is 14A.	-	SM5	BW763SM5	-	Q/AT 23547-2015
12~32	Level triggered, power PMOSFET driver; 12-32V input, VDD-10V~VDD output; when the 22nF capacitor load is driven, the rising time is 44ns, the falling time is 31ns, and the peak current is 14A.	-	SM5	BW760SM5	-	Q/AT 24601-2017

2.22 Transmitting & Receiving Multifunctional Chip

Frequency (GHz)	Function	Receive/ Transmit Gain(dB)	Receive/ Transmit P-1(dBm)	Operating Voltage	Quiescent Current (mA)	Part Number	Substitution Mode	Production and Environmental Standard
2~4	Realizing the functions of transmitting & receiving switching and gain, transmitting & receiving at both terminals	26/26	1818	+5/-5V	85	BWM212SM6H	-	Q/AT 24954-2018
2~4	Realizing the functions of transmitting/receiving and gain, internally integrated with bidirectional amplifier, 20dB digital control attenuator and receiving & transmitting control switch.	24.5 /25	18.5/18.5	+5/-5V	85	BWM213SM6H	-	Q/AT 24954-2018

2.23GaAs Amplitude & Phase Multifunctional Chip

Frequency (GHz)	Function	Receive Gain (dB)	Transmitter (dB)	TransmitP_{-1} (dBm)	Operating Voltage	Quiescent Current (mA)	Part Number	Production and Environmental Standard
1.2~1.4	Amplitude & Phase control multifunctional chip, internally integrated with amplifier, switch, 6-bit digital control attenuator and 6-bit digital control phase shifter; parallel control	5	18	25dBm (Saturation power)	+5V (receiving) +5V (transmitting) -0.5V (transmitting) -5V	30mA 170mA (dynamic) 8mA	BWM407SM7C	Q/AT 25107-2018
2.7~3.5	Amplitude & Phase control multifunctional chip, internally integrated with amplifier, switch, 6-bit digital control attenuator and 6-bit digital control phase shifter; parallel control	-7.5	5	19.5	+5/-5	75/12	BWM412SM7C	Q/AT 24799-2017

3.Transistor

3.1 GaN Microwave Power FET

3.1.1 GaN Pre-matched Transistor

Feature / Part Number	Frequency (GHz)	Psat (dBm)	P.A.E. (%)	Gain (dB)	Voltage (V)	Operating Condition	Package	Dimension (mm×mm×mm)
NC43117S-0102P500	0.136-0.267	56.7	70	17	48	Pulse width： 800μsDuty cycle： 20%	PG1031F	41.4×10.2×4.5
NC43113S-0102P900	0.137-0.267	59.5	70	17	48	Pulse width： 600μsDuty cycle： 20%	PG1031F	41.4×10.2×4.5
NC4394S-0203P490	0.22-0.27	≥56.9	≥67	≥17.9	50	Pulse width1000μsDuty cycle： 20%	PG1021F	34.0×10.2×4.5
NC4333S-0304P150	0.35-0.45	51.76	≥65	≥17	50	Pulse width： 300μsDuty cycle： 15%	QF0714-2	29.3×10.2×4.0
NC43125S-0304P1300	0.35-0.45	≥61.14	≥70	≥16	50	Pulse width： 300μsDuty cycle： 15%	PG1031F	41.4×10.1×4.5
NC43107S-0407P600	0.38-0.7	57.8	60	16	50	Pulse width： 500μsDuty cycle： 10%	PG1031F	41.4×10.2×4.5
NC43160S-0405P2100	0.41-0.481	63.3	65	15	60	Pulse width： 300μsDuty cycle： 10%	PG1031F	41.4×10.2×4.5
NC4313S-04P680	0.42-0.48	58.5	65	≥17	50	Pulse width： 300μsDuty cycle： 10%	PG1031F	41.4×10.2×4.5
NC4314S-04P1200	0.42-0.48	61	65	≥17	50	Pulse width： 300μsDuty cycle： 10%	PG1031F	41.4×10.2×4.5
NC4348S-0506P600	0.48-0.61	≥57.8	≥65	≥15	50	Pulse width： 3msDuty cycle： 30%	PG1031F	41.4×10.2×4.5
NC4385S-0406P680	0.48-0.61	58.3	70	17	50	Pulse width1300μsDuty cycle： 30%	PG1031F	41.4×10.2×4.5
NC43155S-0540P25	0.5-4	44	50	12	28	CW	QF047A	14.0×4.2×2.6
NC4365S-0608P550	0.65-0.85	≥57.8	≥65	≥15.5	50	Pulse width： 300μsDuty cycle： 10%	PG1031F	41.4×10.2×4.5
NC41626S-102P80	0.9-2	48	30	10	28	Pulse width： 30μsDuty cycle： 30%	QF1034-2A	25.4×9.8×4.0
NC43128S-0920P80	0.9-2	49	40	12	30	Pulse width： 100μsDuty cycle： 40%	QF1034-2A	5.4×9.8×24.0
NC4303S-0911P120	0.9-1.2	51	60	16	36	Pulse width： 40μDuty cycle： 5%	QF051A	20.3×5.8×3.5
NC4376S-0912P250	0.96-1.25	54	55	14	36	CW	QF0713-2C	25.4×10.2×4.5
NC4320S-0912P650	0.96-1.215	58.13	65	15	50	Pulse width： 100μsDuty cycle： 10%	QF0713-2B	25.4×10.2×4.0
NC4321S-0912P350	0.96-1.215	55.45	65	15	50	Pulse width： 100μsDuty cycle： 10%	QF0713-2B	25.4×10.2×4.0
NC4329S-0912P800	0.96-1.215	59	65	16	50	Pulse width： 100μsDuty cycle： 1%	QF0713-2B	25.4×10.2×4.0
NC4330S-0912P250	0.96-1.25	54	55	14	50	CW	QF0713-2C	25.4×10.2×4.0
NC4374S-1011P1200	1-1.1	60.8	60	15	50	Pulse width： 30μsDuty cycle： 1%	QF0713-2B	25.4×10.2×4.0
NC4306S-1P130	1.2	51	65	16.3	32	CW	QF0713-2	25.4×10.2×4.0
NC4381S-1112P100	1.1-1.2	50	65	16	48	Pulse width： 300μsDuty cycle： 20%	QF0307-2	20.3×5.8×3.0
NC4382S-1112P600	1.1-1.2	57.8	65	15	48	Pulse width： 300μsDuty cycle： 20%	QF0713-2B	25.4×10.2×4.0
NC41640S-1114P90	1.1-1.4	49.5	50	14	28	Pulse width： 300μsDuty cycle： 10%	QF051B	25.4×10.2×4.0
NC43136S-1115P200	1.1-1.5	53	65	14	28	CW	QF0713-2C	25.4×10.2×4.0
NC4344S-1213P450	1.2-1.3	56.5	68	15.5	45	Pulse width： 500μsDuty cycle： 11%	QF0713-2B	25.4×10.2×4.0
NC43129S-1214P150	1.2-1.4	51.8	68	14	28	Pulse width： 500μsDuty cycle： 20%	QF0713-2C	25.4×10.2×4.0
NC4398S-1214P500	1.2-1.4	57	65	15	48	Pulse width： 5μsDuty cycle： 30%	QF0713-2B	25.4×10.2×4.0
NC4399S-1214P300	1.2-1.4	54.8	65	15	48	Pulse width： 5μsDuty cycle： 30%	QF0713-2B	25.4×10.2×4.0
NC4308S-1214P400	1.2-1.4	56	65	15	48	Pulse width： 5msDuty cycle： 10%	QF0713-2C	25.4×10.2×4.0
NC4309S-1214P500	1.2-1.4	57	65	15	48	Pulse width： 5msDuty cycle： 10%	QF0713-2C	25.4×10.2×4.0
NC4331S-1214P550	1.2-1.4	57.4	65	17	48	Pulse width： 300μsDuty cycle： 20%	QF0713-2C	25.4×10.2×4.0
NC4341S-1214P650	1.2-1.4	58.1	65	15	50	Pulse width： 300μsDuty cycle： 10%	QF0713-2C	25.4×10.2×4.0
NC4358S-1214P200	1.2-1.4	53	58	15	48	Pulse width： 500μsDuty cycle： 20%	QF0713-2B	25.4×10.2×4.0
NC4359S-1214P560	1.2-1.4	57.5	65	15	48	Pulse width： 500μsDuty cycle： 20%	QF0713-2B	25.4×10.2×4.0
NC4311S-1314P380	1.3-1.5	56	65	15	48	Pulse width： 300μsDuty cycle： 10%	QF0714-2C	29.2×10.2×4.0
NC4312S-1314P650	1.3-1.5	58	65	15	48	Pulse width： 300μsDuty cycle： 10%	QF0714-2C	29.2×10.2×4.0
NC4316S-1116P150	1.1-1.7	52	60	14	36	CW	QF0713-2C	25.4×10.2×4.0
NC4340S-1317P150	1.3-1.7	51.8	60	13	28	Pulse width： 20μsDuty cycle： 30%	QF0713-2	25.4×10.2×4.0

Part Number \ Feature	Frequency (GHz)	Psat (dBm)	P.A.E. (%)	Gain (dB)	Voltage (V)	Operating Condition	Package	Dimension (mm×mm×mm)
NC4315S-1516P250	1.4-1.7	54	60	15	42	CW	QF0713-2	25.4×10.2×4.0
NC43159S-1415P180	1.47-1.53	52.55	55	12	28	CW	QF0528-04	29.0×5.8×4.0
NC4305S-1P130	1.6	51	65	16.3	32	CW	QF0713-2	25.4×10.1×4.0
NC4347S-1617P50	1.61-1.64	47	55	14.5	28	CW	QF136	24.2×17.4×5.0
NC43158S-102P100	1-2	50	45	12	30	CW	QF1034-2A	25.4×9.8×4.0
NC41641S-102P100	1-2	50	40	11	36	Pulse width：1msDuty cycle：30%	QF1034-2A	9.8×25.4×4.0
NC43127S-2028P80	2-2.8	49	50	12	30	Pulse width：100μsDuty cycle：40%	QF1034-2A	25.4×9.8×4.0
NC43126S-2842P70	2.8-4.2	48.5	45	7	30	Pulse width：100μsDuty cycle：40%	QF1034-2A	25.4×9.8×4.0
NC43137S-3436P110	3.4-3.6	50.4	65	12	48	Pulse width：100μsDuty cycle：10%	QF238	10.2×10.2×4.0

3.1.2 L Band GaN Internally Matched Transistor

Part Number \ Feature	Frequency (GHz)	Psat (dBm)	Gain (dB)	Gain Flatness (dB)	PAE (%)	Voltage (V)	Operation Condition	Package	Dimension (mm×mm×mm)
NC43162S-1516P50	1.55-1.61	47	12	±0.2	60	28	CW	QF136G	24.2×17.4×5.0
NC43162S-1516P50	1.55-1.61	47	12	±0.2	60	28	CW	QF136G	24.2×17.4×5.0
NC43146S-16P80	1.61-1.62	49	15	±0.3	65	32	CW	QF136	24.2×17.4×5.0
NC4364S-1617P64	1.61-1.64	48	14	±1	60	28	CW	QF136	24.2×17.4×5.0
NC43161S-1112P50	1.165-1.286	47	12	±0.5	60	28	CW	QF136G	24.2×17.4×5.0
NC4363S-1720P35	1.7-2	45.5	14	±1	60	28	CW	QF136	24.2×17.4×5.0

3.1.3 S Band GaN Internally Matched Transistor

Part Number \ Feature	Frequency (GHz)	Psat (dBm)	Gain (dB)	Gain Flatness (dB)	P.A.E. (%)	Voltage (V)	Operating Condition	Package	Dimension (mm×mm×mm)
NC41637S-1823P10	1.8-2.3	40.5	14.5	±0.5	55	36	CW	QF136HG	24.0×17.4×5.0
NC41612S-1823P20	1.8-2.3	43	13	±0.6	55	28	CW	QF136HG	24.0×17.4×5.0
NC41613S-1823P30	1.8-2.3	44.8	13	±0.6	55	28	CW	QF136HG	24.0×17.4×5.0
NC4307S-1920P15	1.9-2	42	13.5	±0.3	55	28	CW	QF089	18.0×8.7×2.3
NC43108S-1921P1500	1.9-2.1	61.8	11.5	±0.3	55	48	Pulse width：100μs Duty cycle：1%	QF136HP	24.0×17.4×5.0
NC43109S-1921P100	1.9-2.1	50	13	±0.3	55	48	Pulse width：100μs Duty cycle：1%	QF136HP	24.0×17.4×5.0
NC4343S-2223P50	2.2-2.3	47	13	±0.5	55	28	CW	QF136HP	24.0×17.4×5.0
NC4361S-2223P64	2.25-2.3	48	14	±1	60	28	Pulse width：200ms Duty cycle：20%	QF136	24.0×17.4×5.0
NC4362S-2224P25	2.2-2.4	44	14	±1	60	28	Pulse width：200ms Duty cycle：20%	QF136	24.0×17.4×5.0
NC41623S-2325P100	2.3-2.5	50	12	±0.3	50	28	CW	QF136HG	24.0×17.4×5.0
NC4366S-2731P120	2.7-3.1	51	12	±0.6	55	28	CW	QF136HP	24.0×17.4×5.0
NC4367S-2731P200	2.7-3.1	53	15	±0.6	60	34	Pulse width：300μs Duty cycle：10%	QF136HU	24.0×17.4×5.0
NC4371S-2224P25	2.2-2.4	44	14	±1	60	28	Pulse width：200ms Duty cycle：20%	QF136	24.0×17.4×5.0
NC43123S-2224P15	2.2-2.4	41.8	11.8	±0.5	60	28	CW	QF136PC	24.0×17.4×5.0
NC4372S-2223P64	2.25-2.3	48	14	±1	60	28	Pulse width：200ms Duty cycle：20%	QF136	24.0×17.4×5.0
NC43110S-2325P1500	2.3-2.5	61.8	11.5	±0.3	55	48	Pulse width：100μs Duty cycle：1%	QF136HP	24.0×17.4×5.0
NC43111S-2325P100	2.3-2.5	50	13	±0.3	55	48	Pulse width：100μs Duty cycle：1%	QF136HP	24.0×17.4×5.0
NC43121S-2325P200	2.3-2.5	53	12	±0.6	65	32	Pulse width：450μs Duty cycle：15%	QF136HP	24.0×17.4×5.0
NC43122S-2325P280	2.3-2.5	54.5	12	±0.6	65	32	Pulse width：450μs Duty cycle：15%	QF136HP	24.0×17.4×5.0
NC4389S-2427P60	2.4-2.7	47.8	13	±0.4	55	28	Pulse width：200μs Duty cycle：10%	QF92-4A	21.0×12.9×4.5
NC43157S-2731P400	2.7-3.1	56	13	±0.5	55	36	Pulse width：300μs Duty cycle：15%	QF136HU	24.0×17.4×5.0

Part Number \ Feature	Frequency (GHz)	Psat (dBm)	Gain (dB)	Gain Flatness (dB)	P.A.E. (%)	Voltage (V)	Operating Condition	Package	Dimension (mm×mm×mm)
NC4375S-2731P500	2.7-3.1	57.5	13	±0.6	55	48	Pulse width：100μs Duty cycle：10%	QF136HP	24.0×17.4×5.0
NC4356S-2731P170	2.7-3.1	52.5	12	±1	60	28	Pulse width：3msDuty cycle：30%	QF136HU	24.0×17.4×5.0
NC41604S-2735P100	2.7-3.5	50	12	±0.5	50	28	Pulse width：2msDuty cycle：30%	QF136PC	24.0×17.4×5.0
NC41634S-2735P200	2.7-3.5	53	12	±0.5	50	28	Pulse width：300μs Duty cycle：10%	QF136PC	24.0×17.4×5.0
NC4360S-2735P250	2.7-3.5	54	12	±0.6	60	48	Pulse width：500μsDuty cycle：20%	QF136HP	24.0×17.4×5.0
NC43147S-2735P300	2.7-3.5	54.8	13	±0.5	55	48	Pulse width：500μs Duty cycle：20%	QF136PC	24.0×17.4×5.0
NC43148S-2735P100	2.7-3.5	50	13	±0.5	55	48	Pulse width：500μsDuty cycle：20%	QF136HU	24.0×17.4×5.0
NC43105S-2735P80	2.7-3.5	49	13	±0.5	60	28	Pulse width：500μs Duty cycle：20%	QF136HP	24.0×17.4×5.0
NC43154S-2930P160	2.9-3.0	52	11.5	±0.2	60	28	Pulse width：60μsDuty cycle：30%	QF136HU	24.0×17.4×5.0
NC4357S-2831P70	2.8-3.1	48.5	13	±0.5	55	34	Pulse width：300μsDuty cycle：10%	QF136GC	24.0×17.4×5.0
NC4349S-2832P55	2.8-3.2	47.5	11.5	±0.5	50	28	Pulse width：400μsDuty cycle：20%	QF136GC	24.0×17.4×5.0
NC43156S-3133P240	3.1-3.3	54	12	±0.4	65	32	Pulse width：100μsDuty cycle：15%	QF136HU	24.0×17.4×5.0
NC4377S-3134P280	3.1-3.4	54.5	12	±0.5	60	32	Pulse width：450μs Duty cycle：15%	QF136HU	24.0×17.4×5.0
NC4378S-3134P200	3.1-3.4	53	12	±0.5	60	32	Pulse width：450μs Duty cycle：15%	QF136HU	24.0×17.4×5.0
NC43145S-3134P400	3.1-3.4	56	13	±0.8	55	48	Pulse width：400μs Duty cycle：20%	QF136HU	24.0×17.4×5.0
NC41630S-3135P20	3.1-3.5	43	12	±0.2	50	36	Pulse width：2msDuty cycle：30%	QF92-4A	21.0×12.9×4.5
NC41636S-3135P200	3.1-3.5	53	12	±0.4	50	28	Pulse width：300μs Duty cycle：20%	QF136HP	24.0×17.4×5.0
NC41631S-3135P300	3.1-3.5	55	14	±0.4	55	36	Pulse width：300μs Duty cycle：20%	QF136HP	24.0×17.4×5.0

3.1.4 C Band GaN Internally Matched Transistor

Part Number \ Feature	Frequency (GHz)	Psat (dBm)	Gain (dB)	Gain Flatness (dB)	P.A.E. (%)	Voltage (V)	Operating Condition	Package	Dimension (mm×mm×mm)
NC4384S-3742P8	3.7-4.2	39	14	±0.4	55	28	CW	QF92-4A	21.0×12.9×4.5
NC43112S-3742P200	3.7-4.2	53	12	±0.4	⩾50	28	Pulse width：400μs Duty cycle：20%	QF136HP	24.0×17.4×5.0
NC4328S-3742P100	3.7-4.2	50	12	±0.4	55	28	CW	QF136PC	24.0×17.4×5.0
NC4327S-4450P160	4.4-5	52	11	±0.5	50	32	CW	QF136PC	24.0×17.4×5.0
NC43142S-4450P60	4.4-5	48	12.5	±0.5	48	28	CW	QF136PC	24.0×17.4×5.0
NC41633S-4548P200	4.5-4.8	53	10	±0.25	45	28	Pulse width：1ms Duty cycle：10%	QF136PC	24.0×17.4×5.0
NC4335S-4549P200	4.5-4.9	53	12	±0.5	55	28	Pulse width：300μs Duty cycle：20%	QF136PE	24.0×17.4×5.0
NC4350S-4549P55	4.5-4.95	47.5	11.5	±0.5	50	28	Pulse width：400μsDuty cycle：20%	QF136GC	24.0×17.4×5.0
NC43116S-4853P100	4.8-5.3	50.0	12	±0.5	45	28	CW	QF136PC	24.0×17.4×5.0
NC43133S-5159P300	5.1-5.9	54.7	11.5	±0.5	50	32	Pulse width：5μs Duty cycle：1%	QF136PE	24.0×17.4×5.0
NC41602S-506P100	5-6	50	12	±0.75	45	28	Pulse width：400μs Duty cycle：50%	QF136HG	24.0×17.4×5.0
NC4345S-506P250	5-6	54	9	±1	40	40	Pulse width：2msDuty cycle：30%	QF136PE	24.0×17.4×5.0
NC43139S-5258P20	5.2-5.8	43	10	±0.75	45	28	CW	QF136HK	12.9×21.0×4.5
NC43140S-5258P160	5.2-5.8	52	10	±0.75	40	48	Pulse width：450μs Duty cycle：30%	QF136PE	24.0×17.4×5.0
NC43141S-5258P270	5.2-5.8	54.3	10	±0.75	40	48	Pulse width：450μs Duty cycle：30%	QF136PE	24.0×17.4×5.0
NC4317S-5359P160	5.3-5.9	52	12	±0.5	50	28	Pulse width：40ms Duty cycle：50%	QF136PC	24.0×17.4×5.0
NC4322S-5359P250	5.3-5.9	54	11	±0.5	50	36	Pulse width：500μs Duty cycle：20%	QF136PC	24.0×17.4×5.0
NC4353S-5359P200	5.3-5.9	53	12	±1	50	28	Pulse width：300μsDuty cycle：20%	QF136PE	24.0×17.4×5.0
NC43153S-5359P100	5.3-5.9	50	12	±0.5	50	28	CW	QF136PE	24.0×17.4×5.0
NC4379S-5359P160	5.3-5.9	52	12	±0.5	50	28	Pulse width：300μs Duty cycle：20%	QF136PE	24.0×17.4×5.0
NC4380S-5359P90	5.3-5.9	49.5	11	±1	50	28	Pulse width：300μs Duty cycle：20%	QF136PE	24.0×17.4×5.0
NC4391S-5359P80	5.3-5.9	49	12	±0.5	60	28	Pulse width：1000μs Duty cycle：20%	QF136PE	24.0×17.4×5.0

Part Number \ Feature	Frequency (GHz)	Psat (dBm)	Gain (dB)	Gain Flatness (dB)	P.A.E. (%)	Voltage (V)	Operating Condition	Package	Dimension (mm×mm×mm)
NC43119S-5759P100	5.7-5.9	50	10	±0.5	45	28	CW	QF136PE	24.0×17.4×5.0
NC4387S-5767P40	5.7-6.7	46	10	±0.75	45	28	CW	QF136HK	21.0×12.9×4.8
NC4323S-5967P100	5.9-6.7	50	8.5	±1	50	28	Pulse width：10μs Duty cycle：30%	QF136PC	24.0×17.4×5.0
NC4369S-5967P25	5.9-6.7	44	9	±1	45	28	CW	QF136HK	21.0×12.9×4.8
NC4388S-5967P25	5.9-6.7	44	10	±0.75	45	28	CW	QF136HK	21.0×12.9×4.8
NC4310S-6472P18	6.4-7.2	42.5	12.5	±0.5	40	28	CW	QF92B	21.0×12.9×4.8
NC41639S-6472P150	6.4-7.2	51.8	10.8	±0.5	45	28	Pulse width：400μs Duty cycle：30%	QF136PC	24.0×17.4×5.0
NC43100S-6472P30	6.4-7.2	45	21	±0.4	45	36	Pulse width：200μs Duty cycle：20%	QF136GC	24.0×17.4×5.0
NC43101S-6472P300	6.4-7.2	54.8	10	±0.4	45	36	Pulse width：200μs Duty cycle：20%	QF136PC	24.0×17.4×5.0
NC43118S-6472P100	6.4-7.2	50.0	10	±0.75	40	28	CW	QF136PE	24.0×17.4×5.0
NC43152S-6472P70	6.4-7.2	48.5	8	±0.5	40	28	Pulse width：1μs Duty cycle：100%	QF136PE	24.0×17.4×5.0
NC43102S-7074P160	7-7.4	52	10	±0.3	42	36	Pulse width：200μs Duty cycle：20%	QF136PC	24.0×17.4×5.0
NC43103S-7074P300	7-7.4	54.8	10	±0.3	42	36	Pulse width：200μs Duty cycle：20%	QF136PC	24.0×17.4×5.0

3.1.5 X、Ku Band GaN Internally Matched Transistor

Part Number \ Feature	Frequency (GHz)	Psat (dBm)	Gain (dB)	Gain Flatness (dB)	P.A.E. (%)	Voltage (V)	Operating Condition	Package	Dimension (mm×mm×mm)
NC43132S-7785P100	7.7-8.5	50	9	±0.5	45	28	Pulse width：2ms Duty cycle：20%	QF136PE	24.0×17.4×5.0
NC4395S-7893P250	7.8-9.3	54	9	±0.5	45	60	Pulse width：1μs Duty cycle：2‰	QF136PE	24.0×17.4×5.0
NC4396S-7893P1200	7.8-9.3	60.8	9	±0.5	45	60	Pulse width：1μs Duty cycle：2‰	QF136PE	24.0×17.4×5.0
NC4397S-7893P2000	7.8-9.3	63	9	±0.5	45	60	Pulse width：1μs Duty cycle：2‰	QF136PE	24.0×17.4×5.0
NC4397S-7893P2000M	7.8-9.3	63	9	±0.5	45	60	Pulse width：1μs Duty cycle：2‰	QF136PE	24.0×17.4×5.0
NC43134S-7983P20	7.9-8.3	43	8	±0.5	50	24	CW	QF136HK	21.0×12.9×4.8
NC41627S-809P150	8-9	51.8	8.5	±0.5	40	32	Pulse width：1ms， Duty cycle：35%	QF136PE	24.0×17.4×5.0
NC43115S-8596P250	8.5-9.6	54	9	±0.6	40	40	Pulse width：300μs Duty cycle：20%	QF136PE	24.0×17.4×5.0
NC4392S-8695P100	8.6-9.5	50	8.5	±0.5	40	28	Pulse width：300μs Duty cycle：20%	QF136PE	24.0×17.4×5.0
NC4336S-9096P50	9-9.6	47	8.5	±0.5	37	28-32	Pulse width：400μs Duty cycle：30%	QF136PE	24.0×17.4×5.0
NC41610S-910P100	9-10	50	8	±0.5	37	28	Pulse width：1msDuty cycle：35%	QF136PE	24.0×17.4×5.0
NC41620S-910P130	9-10	51	8	±0.5	36	28	Pulse width：1ms Duty cycle：35%	QF136PE	24.0×17.4×5.0
NC41628S-910P150	9-10	51.8	8.5	±0.5	38	32	Pulse width：1ms Duty cycle：30%	QF136PE	24.0×17.4×5.0
NC4326S-910P170	9-10	52.4	8.5	±0.5	37	32	Pulse width：500μs Duty cycle：30%	QF136PE	24.0×17.4×5.0
NC43114S-910P250	9-10	54	9	±0.6	40	40	Pulse width：300μs Duty cycle：20%	QF136PE	24.0×17.4×5.0
NC43135S-910P200	9-10	53	8	±0.6	38	36	Pulse width：3ms Duty cycle：20%	QF136PE	24.0×17.4×5.0
NC41607S-910	9-10	46	8	±0.5	30	28	CW	QF136HK	21.0×12.9×4.8
NC4325S-9398P50	9.3-9.8	47	9	±0.5	38	28	Pulse width：100μs Duty cycle：10%	QF136PE	24.0×17.4×5.0
NC4301S-9510P100	9.5-10.5	50	7	±0.5	32	32	CW	QF136PE	24.0×17.4×5.0
NC43138S-1011P1000	10-10.8	60	7	±1	50	50	Pulse width：15μs Duty cycle：2%	QF136PE	24.0×17.4×5.0
NC43149S-1011P300	10-10.8	54.7	9	±0.5	35	80	Pulse width：15μs Duty cycle：2%	QF136PE	24.0×17.4×5.0
NC4324S-1415P100	14-14.5	50	6	±0.5	25	40	Pulse width：10μs Duty cycle：1%	QF136PE	24.0×17.4×5.0

3.2 GaN Power Module

3.2.1 GaN Power Amplifier Carrier with transistor

Part Number \ Feature	Frequency (GHz)	Gain (dB)	Gain Flatness (dB)	Psat (dBm)	P.A.E. (%)	VSWRin	Voltage (V)	Package	Dimension (mm×mm×mm)
NC31633MC-0405P64	0.425-0.475	28	±0.5	48	55	2	50	Carrier	16.0×111.0×5.0

Part Number \ Feature	Frequency (GHz)	Gain (dB)	Gain Flatness (dB)	Psat (dBm)	P.A.E. (%)	VSWRin	Voltage (V)	Package	Dimension (mm×mm×mm)
NC316121MC-0814P100	0.87-1.4	11	±0.5	50	50	3	48	Carrier	24.0×17.4×5.0
NC316122MC-0814P300	0.87-1.4	11.5	±0.8	54.8	45	3	48	Carrier	24.0×17.4×5.0
NC31637MC-111P160	1-1.12	40	±1	52	40	2	36	Carrier	24.0×16.0×1.5
NC31611MC-1114P90	1.1-1.4	14	±0.5	49.5	50	>3	28	Carrier	25.0×39.0×2.5
NC31646MC-1214P600	1.2-1.4	16	±0.5	58	50	1.5	48	Carrier	45.0×80.0×5.0
NC31626MC-2731P200	2.7-3.1	12	±0.5	53	55	-	28	Carrier	40.0×30.0×6.0
NC31621MC-2735P200	2.7-3.5	12	±0.6	53	45	-	28	Carrier	40.0×30.0×7.0
NC316119MC-2735P100	2.7-3.5	13	±0.8	50	50	2	48	Carrier	80.0×45.0×6.0
NC316120MC-2735P300	2.7-3.5	12	±0.8	54.8	55	2	48	Carrier	80.0×45.0×6.0
NC31620MC-3135P200	3.1-3.5	12	±0.5	53	50	-	28	Carrier	40.0×30.0×6.0
NC31622MC-4549P200	4.5-4.9	10	±0.5	53	45	-	28	Carrier	40.0×30.0×6.0
NC31617MC-506P60	5-6	19.5	±0.2	47.5	30	-	28	Carrier	12.9×11.9×2.0

3.2.2 GaN Power Amplifier Carrier

Part Number \ Feature	Frequency (GHz)	Gain (dB)	Gain Flatness (dB)	Psat (dBm)	P.A.E. (%)	VSWRin	Voltage (V)	Package	Dimension (mm×mm×mm)
NC316113MC-0912P20	0.96-1.23	29	±0.5	43	40	2	28	Carrier	20.0×15.0×5.0
NC316113MC-0912P20M	0.96-1.23	29	±0.5	43	40	2	28	Carrier	20.0×15.0×5.0
NC31636MC-1215P70	1.2-1.5	28.5	±0.6	48.5	60	2	50	Carrier	16.0×11.0×5.0
NC31636MC-1215P70M	1.2-1.5	28.5	±0.6	48.5	60	2	50	Carrier	16.0×11.0×5.0
NC316106MC-2324P230	2.34-2.46	12.5	±0.5	53.5	55	3	28	Carrier	20.0×16.0×1.2
NC31638MC-2735P50	2.7-3.5	9.5	±0.3	47.5	40	3	28	Carrier	12.8×16.0×1.3
NC316100MC-2735P450	2.7-3.5	12	±0.5	56.5	55	3	48	Carrier	20.0×15.0×1.2
NC31632MC-2735P230	2.7-3.5	12.5	±0.5	53.5	53	3	48	Carrier	20.0×15.0×1.2
NC316104MC-2735P12	2.7-3.5	24	±0.5	41	40	2	48	Carrier	8.0×6.6×1.2
NC316111MC-2735P130	2.7-3.5	11	±0.5	51	55	-	32	Carrier	8.0×6.6×1.2
NC316111MC-2735P130M	2.7-3.5	11	±0.5	51	55	-	32	Carrier	15.0×6.6×1.2
NC316114MC-2735P25	2.7-3.5	23	±0.5	44	40	2	32	Carrier	8.0×6.6×1.2
NC316116MC-2735P150	2.7-3.5	11	±0.5	51.7	57	3	36	Carrier	15.0×6.6×1.2
NC316116MC-2735P150M	2.7-3.5	11	±0.5	51.7	57	2.5	36	Carrier	15.0×6.6×1.2
NC31648MC-3135P130	3.1-3.5	11	±0.5	51	60	3	28	Carrier	14.0×15.0×1.2
NC31649MC-3135P230	3.1-3.5	12	±0.5	53.5	60	3	32	Carrier	14.0×15.0×1.2
NC316109MC-3135P30	3.1-3.5	25	±0.5	45	40	2	48	Carrier	8.0×6.6×1.2
NC31640MC-4549P50	4.45-4.95	27	±0.5	47	50	2	28	Carrier	16.0×10.0×1.2
NC316117MC-506P130	5-6	26	±0.5	51	45	2	28	Carrier	20.0×12.0×1.7
NC316102MC-5259P200	5.2-5.9	11	±0.5	53.1	55	2	28	Carrier	14.0×15.0×1.2
NC316103MC-5259P200	5.2-5.9	28	±0.5	53	53	2	28	Carrier	14.0×15.0×1.2
NC31641MC-5359P100	5.3-5.9	30	±0.5	50	50	2	28	Carrier	20.0×12.0×1.2
NC31642MC-5359P50	5.3-5.9	27	±0.5	47	50	2	28	Carrier	20.0×12.0×1.2
NC31643MC-5359P80	5.3-5.9	33	±0.5	49	53	1.8	28	Carrier	20.0×12.0×1.2
NC316112MC-5359P130	5.3-5.9	42	±0.5	51	50	2	28	Carrier	20.0×12.0×1.2
NC31645MC-5260P60	5.2-6	25	±0.6	47.8	50	2	28	Carrier	20.0×12.0×1.2
NC316101MC-1011P64	10-10.4	8	±0.5	48	45	3	28	Carrier	15.0×8.0×1.2

3.2.3 GaN Power Amplifier Module

Feature / Part Number	Frequency (GHz)	Gain (dB)	Gain Flatness (dB)	Psat (dBm)	P.A.E. (%)	VSWRin	Voltage (V)	Package	Dimension (mm×mm×mm)
NC316242M-0203P3	0.219-0.221	20	±0.5	35	35	2	12	Module	29.0×30.0×8.0
NC316210M-0304P30	0.35-0.45	36	±0.5	45	50	2	28	Module	77.5×55.8×15.0
NC316218M-0304P7	0.35-0.45	30	±0.5	38.5	40	2	48	Module	17.0×17.0×5.3
NC316221M-0405P30	0.4-0.5	32	±0.5	40	40	2	50	Module	77.5×55.8×15.0
NC31666M-0405P40	0.4-0.5	34	±0.5	47	40	1.5	50	Module	77.5×55.8×15.0
NC31658M-0406P11	0.4-0.61	31	±0.5	40.6	60	2	36	QF136GC	17.4×24.0×5.0
NC316209M-0406P30	0.41-0.61	35	±0.5	45	50	2	42	Module	35.0×35.0×8.0
NC316237M-0406P20	0.41-0.61	33	±0.5	43	-	2	36	Module	240×15.5×4.2
NC316227M-0814P100	0.87-1.4	11	±0.5	50	50	2	48	Module	80.0×45.0×6.0
NC316228M-0814P300	0.87-1.4	11	±0.5	55	45	2	48	QF136GC	17.4×24.0×5.0
NC316239M-0912P20	0.96-1.23	28	±0.5	43	40	2	28	Module	20.0×17.0×5.5
NC316239M-0912P20M	0.96-1.23	28	±0.5	43	40	2	28	Module	20.0×17.0×5.5
NC316231M-0912P45	0.96-1.225	46	±0.5	46.5	50	2	36	Module	55.0×50.0×12.0
NC316215M-0912P12	0.96-1.215	31	±0.5	41	30	1.5	50	Module	45.0×80.0×10.0
NC316216M-0912P316	0.96-1.215	15	±0.6	55	50	1.5	50	Module	45.0×80.0×10.0
NC316217M-0911P630	0.96-1.125	15	±1	58	50	1.5	50	Module	45.0×80.0×10.0
NC31628M-0820P50	0.8-2	9	±1.5	47	45	3	28	QF136GC	17.4×24.0×5.0
NC31667M-0912P50	0.96-1.23	30	±0.6	47	40	2	50	Module	20.0×17.0×5.5
NC316203M-0911P200	0.99-1.12	50	±0.5	53	50	1.5	36	Module	16.0×35.0×1.5
NC31685M-0911P200	0.99-1.13	40	±0.5	53	20	2	50	Module	38.0×30.0×8.0
NC316226M-0911P200	0.99-1.13	40	±0.75	53	40	2	36	Module	38.0×30.0×8.0
NC31650M-0911P130	0.99-1.13	15	±0.5	51.1	50	-	50	QF136G	17.4×24.0×5.0
NC316222M-104P100	1-4	8	±2.5	50	35	2	48	QF136GC	17.4×24.0×5.0
NC31672M-1214P70	1.2-1.4	29	±0.5	48.5	60	-	50	QF136G	17.4×24.0×5.0
NC31686M-1214P40	1.2-1.4	17	±0.5	46	60	2.5	36	QF136G	17.4×24.0×5.0
NC31698M-1214P18	1.2-1.4	29	±0.5	42.5	60	2	48	QF136G	17.4×24.0×5.0
NC316201M-1214P15	1.2-1.4	25	±0.5	41.76	20	2	48	QF136G	17.4×24.0×5.0
NC316232M-1214P600	1.2-1.4	17	±0.5	58	65	2	48	Module	45.0×80.0×5.0
NC316223M-1214P600	1.2-1.4	16	±0.5	58	60	1.5	48	Module	45.0×80.0×5.0
NC316229M-1214P20	1.28-1.45	31	±0.5	43	50	2.5	45	Module	52.0×30.0×15.0
NC316230M-1617P3	1.61-1.66	25	±0.5	35	50	2	69	Module	40.0×30.0×10.0
NC31699M-1921P6	1.9-2.1	30	±0.5	38	40	2	28	QF92-4	12.9×21.0×4.5
NC316233M-1923P20	1.9-2.3	14	±1	43	50	-	28	QF92-4AC	12.9×21.0×4.5
NC31613M-204P64	2-4	⩾8.5	±1.0	⩾48.5	⩾35	-	36	Module	35.6×17.6×7.0
NC31651M-204P50	2-4	7.0	±1	47.5	40	2	28	QF136GC	17.4×24.0×5.0
NC31659M-2224P16	2.2-2.4	26	±1	42	55	2	28	QF92-4	12.9×21.0×4.5
NC31688M-2224P3	2.2-2.4	20	±0.5	35	40	1.5	12	Module	29.0×30.0×8.5
NC316235M-2223P400	2.275-2.325	46	±0.5	56	55	2	36	Module	45.0×25.0×5.5
NC316200M-2325P6	2.3-2.5	30	±0.5	38	45	2	28	QF92-4	21.0×12.9×4.5
NC31664M-267P30	2.67	10	-	45	50	3	28	QF136GC	24.0×17.4×5.0
NC31665M-267P3	2.67	20	-	35	50	2	28	QF92-4AC	21.0×12.9×4.5
NC316206M-267P1	2.675	23	±0.5	31	30	3	28	QF92-4AC	21.0×12.9×4.5

Feature / Part Number	Frequency (GHz)	Gain (dB)	Gain Flatness (dB)	Psat (dBm)	P.A.E. (%)	VSWRin	Voltage (V)	Package	Dimension (mm×mm×mm)
NC316207M-267P10	2.675	10	±0.5	40	50	3	28	QF136GC	24.0×17.4×5.0
NC31674M-2627P5	2.6-2.7	25	±0.5	37	50	2	28	QF92-4	21.0×12.9×4.5
NC31606M-2730P150	2.7-3	42	⩽±1	52	58	-	28	QF2545-5	25.0×45.0×5.5
NC31616M-2730P12	2.7-3	24	±0.2	41.5	50	-	28	QF92-4AC	21.0×12.9×4.5
NC31657M-2731P12	2.7-3.1	23	±0.5	40.8	45	2	28	QF97-4AC	21.0×12.9×4.5
NC31614M-2735P120	2.7-3.5	10	±0.5	51.5	50	-	32	QF136G	24.0×17.4×5.0
NC31615M-2735P50	2.7-3.5	10	±0.5	47.5	50	-	28	QF136G	24.0×17.4×5.0
NC31609S-2735	2.7-3.5	10	±0.5	19	-	2	24	QF089	18.0×8.7×2.3
NC316208M-2735P30	2.7-3.5	40	±0.5	45	30	1.5	28	Module	120.0×45.0×14.0
NC31653M-2832P30	2.8-3.2	12.1	±0.5	44.8	55	-	28	QF136G	24.0×17.4×5.0
NC316234M-2829P400	2.854-2.858	36	±0.5	56	55	2	48	QF2545-5B	45.0×25.0×5.5
NC316238M-3133P15	3.1-3.3	15	±0.6	42	30	2	32	QF2235-5	20.0×35.0×5.5
NC31687M-3134P16	3.1-3.4	32	±0.3	42	45	2	28	QF92-4AC	21.0×12.9×4.5
NC31687M-3134P16M	3.1-3.4	32	±0.3	42	45	2	28	QF92-4AC	21.0×12.9×4.5
NC31690M-3134P25	3.1-3.4	27	±0.4	44	40	2.5	28	QF136HG	24.0×17.4×5.0
NC31689M-3135P200	3.1-3.5	41	±0.5	53	55	2	32	Module	38.0×24.0×5.5
NC31669M-3135P230	3.1-3.5	12	±0.5	53.5	60	3	32	QF136GD	24.0×17.4×5.0
NC31661M-3135P100	3.1-3.5	40	±0.5	50	50	2	32	Module	40.0×28.0×6.0
NC31668M-3135P130	3.1-3.5	11	±0.5	51	60	3	28	QF136GD	24.0×17.4×5.0
NC31624M-3135P20	3.1-3.5	25	±0.5	42.5	45	<2:1	36	QF92-4AC	21.0×12.9×4.5
NC316220M-3135P12	3.1-3.5	24	±1	41.5	45	1.8	28	QF92-4AC	21.0×12.9×4.5
NC316213M-3742P16	3.7-4.2	22	±0.5	42	40	2	28	QF92-4AC	21.0×12.9×4.5
NC31677M-3943P4	3.9-4.3	25	±0.5	36	40	2	28	QF92-4AC	21.0×12.9×4.5
NC31678M-3943P50	3.9-4.3	11	±0.5	47	50	3	28	QF136GC	24.0×17.4×5.0
NC316204M-3943P20	3.9-4.3	10	±0.5	43	50	3	28	QF136GC	24.0×17.4×5.0
NC316205M-3943P2	3.9-4.3	26	±0.5	34	30	3	28	QF92-4AC	21.0×12.9×4.5
NC31694M-406P64	4-6	8	±1.5	48	35	3	30	QF136GC	24.0×17.4×5.0
NC31675M-4348P15	4.3-4.8	15	±0.6	42	40	2	28	QF136HG	24.0×17.4×5.0
NC31656M-4450P5	4.4-5	20	±1	37	38	2	28	QF92-4	21.0×12.9×4.5
NC31611S-4549P10	4.5-4.9	17	±0.5	40	30	1.5	28	QF089	18.0×8.7×2.3
NC31652M-4549P30	4.5-4.95	12.1	±0.5	44.8	55	-	28	QF136G	24.0×17.4×5.0
NC31695M-510P40	5-10	34	±1.5	46	25	2	28	-	337.0×110.0×8.0
NC31671M-5259P200	5.2-5.9	11	±0.5	53.1	55	2	28	QF136GD	24.0×17.4×5.0
NC31692M-5359P130	5.3-5.9	41	±0.5	51	50	1.5	28	-	45.0×25.0×6.0
NC31697M-5359P100	5.3-5.9	10	±0.5	50	50	3	28	QF136GD	24.0×17.4×5.0
NC31660M-5359P50	5.3-5.9	27	±0.5	47	50	2	28	QF136GD	24.0×17.4×5.0
NC316212M-8596P80	8.5-9.6	17.5	±0.5	49	28	-	28	Module	35.0×40.0×7.8
NC31670M-1011P64	10-10.4	8	±0.5	48	45	3	28	QF136GD	24.0×17.4×5.0
NC31602S-8510P30	8.8-10	20	±0.4	44.5	26	-	28	QF089	18.0×8.7×2.3
NC31607M-812P100	8-12	21	±0.6	50	35	⩽2.0	30	MQFM2425-X6	24.9×14.0×7.8
NC31680M-1011P130	10-11	19	±0.3	51	35	2	28	Module	32.0×32.0×7.8
NC31681M-1011P40	10-11	41	±0.3	46	35	2	28	Module	60.0×26.0×7.8
NC31696M-1015P10	10-15	28	±1.5	40	20	2	28	-	337×110×8.0

3.2.4 INP Power Amplifier Module

Feature / Part Number	Frequency (GHz)	Gain (dB)	Gain Flatness (dB)	Psat (dBm)	P.A.E. (%)	VSWRin	Voltage (V)	Package
NC31110M-090110	90-110	21	±1.5	20	10	3.0	2	Module-WR10
NC31111M-210220	210-220	20	±2.5	8	2.5	2.0	5	Module-WR4

3.3 GaAs Microwave Power FET

3.3.1 GaAs Power FET

Feature / Part Number	Frequency (GHz)	Psat (dBm)	P.A.E. (%)	Gain (dB)	Voltage (V)	Package	Dimension (mm×mm×mm)
NC4133S-2	2.3	29.5(P1dB)*	47*	13.5*	10	QF061	16.0×5.0×4.0
NC4142S-2	2.3	31.5(P1dB)*	41*	11.5*	10	QF061	16.0×5.0×4.0
NC41200S-2	2.3	28.5(P1dB)*	45*	12*	10	QF061	16.0×5.0×4.0
NC4117S-4	4	27*	-	10*	8	QF34	10.6×3.5×2.8
NC41143S-8	8	27*	40*	13*	10	QF060	8.5×2.5×2.5
NC4118S-12	12	20*	-	7*	7	QF41A	15.0×4.0×5.0
NC4144S-14	14.5	19.5(P1dB)	21*	6*	10	QF062	8.5×2.5×2.5
NC4145S-14	14.5	23(P1dB)*	27*	6*	10	QF060	8.5×2.5×2.5
NC41194S-14	14.5	27*	30*	7*	10	QF062	8.5×2.5×2.5

Note: "*" stands for typical value.

3.3.2 GaAsInternally Matched Transistor

Feature / Part Number	Frequency (GHz)	Psat (dBm)	P.A.E. (%)	Gain (dB)	Gain Flatness (dB)	Voltage (V)	Package	Dimension (mm×mm×mm)
NC41167S-1P4	1.057-1.077	⩾36	⩾55	⩾15	±0.3	9.5	QF92B	21.0×12.9×4.8
NC41148S-1213	1.24-1.30	40*	55*	15*	±0.2*	9	QF136H	24.0×17.4×5.0
NC41124S-1112	1.14-1.24	35*	50*	15*	±0.15*	9	QF92B	21.0×12.9×24.8
NC41125S-1112	1.15-1.23	40*	50*	15*	±0.15*	9	QF136H	24.0×17.4×5.0
NC41126S-1213	1.24-1.30	35*	50*	15*	±0.15*	9	QF92B	21.0×12.9×4.8
NC4170S-1213	1.24-1.30	⩾43	⩾45	⩾14	±0.25*	10	QF136H	24.0×17.4×5.0
NC4173S-1213	1.24-1.30	⩾33.5	⩾50	⩾14.5	±0.2*	10	QF92B	12.9×21.0×4.8
NC4193S-1213	1.24-1.30	⩾41.5	⩾55	⩾14	±0.15*	9	QF136H	24.0×17.4×5.0
NC4194S-1213	1.24-1.30	⩾42.5	⩾55	⩾14	±0.2*	9	QF136H	24.0×17.4×5.0
NC41127S-1213	1.24-1.30	44*	55*	14*	±0.15*	9	QF136H	24.0×17.4×5.0
NC41157S-1516	1.54-1.60	40*	50*	15*	±0.3*	9	QF136H	24.0×17.4×5.0
NC41128S-1516	1.54-1.60	35*	47*	15*	±0.15*	9	QF92B	21.0×12.9×4.8
NC4171S-1516	1.55-1.60	⩾43	⩾45	⩾14	±0.25*	10	QF136H	24.0×17.4×5.0
NC4174S-1516	1.55-1.60	⩾33.5	⩾50	⩾14.5	±0.2*	10	QF92B	21.0×12.9×4.8
NC4167S-1617	1.63-1.73	⩾43.5	⩾45	⩾14	±0.25*	10	QF136H	24.0×17.4×5.0
NC41168S-1617P30	1.63-1.67	44.8*	45*	12*	±0.5*	10	QF136H	24.0×17.4×5.0
NC41141S-2123	2.13-2.23	42.5*	45*	14*	±0.5*	10	QF136H	24.0×17.4×5.0
NC41195S-2122P30	2.155-2.215	44.8*	45*	12*	±1*	10	QF136H	24.0×17.4×5.0
NC41118S-2223	2.2-2.3	35*	50*	15*	±0.5*	10	QF92B	21.0×12.9×4.8
NC41114S-2223	2.2-2.3	⩾41*	⩾50	⩾14	±0.3*	9	QF136H	24.0×17.4×5.0
NC41138S-2223	2.2-2.3	41.8*	45*	14*	±0.5*	10	QF136H	24.0×17.4×5.0
NC41159S-2223	2.2-2.3	38*(P1dB)	50*	14*	±0.3*	10	QF92B	24.0×17.4×5.0
NC4155S-2123	2.2-2.3	43*	45*	13*	±0.5*	10	QF136H	24.0×17.4×5.0

Feature / Part Number	Frequency (GHz)	Psat (dBm)	P.A.E. (%)	Gain (dB)	Gain Flatness (dB)	Voltage (V)	Package	Dimension (mm×mm×mm)
NC41171S-2224P16	2.2-2.4	⩾42	⩾45	⩾13.5	±0.3*	10	QF136H	24.0×17.4×5.0
NC41172S-2224P7	2.2-2.4	⩾38.5	⩾45	⩾13.5	±0.3*	9	QF136H	24.0×17.4×5.0
NC4132S-2325	2.3-2.5	⩾42(P1dB)	⩾42	⩾14	±0.5*	10	QF136H	24.0×17.4×5.0
NC41144S-2731	2.7-3.1	36*	45*	13*	±0.5*	10	QF92B	21.0×12.9×4.8
NC4113S-2731	2.7-3.1	⩾39	⩾35	⩾12	±0.5*	9	QF92B	21.0×12.9×4.8
NC41117S-3134	3.1-3.4	36*	40*	12*	±0.5*	10	QF92B	21.0×12.9×4.8
NC4137S-3135	3.1-3.5	⩾35.5(P1dB)	⩾40	⩾11.5	±0.5*	10	QF92B	21.0×12.9×4.8
NC4169S-3439	3.4-3.9	42.5(P1dB)	⩾42	14*	±0.6*	10	QF136H	24.0×17.4×5.0
NC4123S-3640	3.6-4.0	⩾35.5(P1dB)	⩾40	⩾11.5	±0.5*	9	QF92B	21.0×12.9×4.8
NC4124S-3640	3.6-4.0	⩾40.5(P1dB)	⩾40	⩾10.5	±0.5*	9	QF92B	21.0×12.9×4.8
NC41192S-3638P18	3.6-3.8	42.5*	45*	12*	±0.4*	9	QF92B	21.0×12.9×4.8
NC41190S-3840P18	3.8-4.0	42.5*	45*	12*	±0.4*	9	QF92B	21.0×12.9×4.8
NC4138S-3842	3.8-4.2	⩾40.5(P1dB)	⩾40	⩾10.5	±0.5*	9	QF92B	21.0×12.9×4.8
NC41153S-4143	4.1-4.3	36.5*(P1dB)	40*	12*	±0.5*	10	QF92B	21.0×12.9×4.8
NC41174S-4143P18	4.1-4.3	42.5* (P1dB)	50*	12*	±0.5*	9	QF92B	21.0×12.9×4.8
NC4116S-4244	4.2-4.4	⩾41	⩾35	⩾12	±0.5*	9	QF92B	21.0×12.9×4.8
NC41115S-4244	4.2-4.4	39.5*(P1dB)	45*	12*	±0.3*	10	QF92B	21.0×12.9×4.8
NC41183S-4548P4	4.5-4.8	⩾35.5(P1dB)	⩾40	⩾11.5	±0.5*	9	QF92B	21.0×12.9×4.8
NC41204S-4548P16	4.5-4.8	42* (P1dB)	45*	11.5*	±0.5*	9	QF92B	21.0×12.9×4.8
NC4140S-4854	4.8-5.4	⩾40	⩾41	⩾10	±0.5*	10	QF92B	21.0×12.9×4.8
NC4141S-4854	4.8-5.4	⩾33	⩾45	⩾11	±0.5*	10	QF97-2	9.7×16.0×3.0
NC4126S-4854	4.8-5.4	⩾46.5(P1dB)	⩾41	⩾9	±0.8*	10	QF136H	24.0×17.4×5.0
NC4102S-5258	5.2-5.8	⩾36	⩾40	⩾10	±0.5*	10	QF92B	21.0×12.9×4.8
NC4103S-5258	5.2-5.8	⩾39	⩾37	⩾10	±0.5*	10	QF92B	21.0×12.9×4.8
NC4107S-5258	5.2-5.8	⩾44	⩾35	⩾10	±0.5*	9	QF136H	24.0×17.4×5.0
NC4127S-5359	5.5-6.0	⩾45	⩾40	⩾10	±0.8*	10	QF136H	24.0×17.4×5.0
NC4122S-5359	5.3-5.9	⩾47	⩾40	⩾8	±0.5*	10	QF136H	24.0×17.4×5.0
NC41135S-5359	5.3-5.9	49*	36*	8*	±0.5*	10	QF136P	24.0×17.4×5.0
NC41196S-5359	5.3-5.9	16*	40*	10*	±1*	8.5	QF089B	18.0×8.7×2.3
NC41116S-5967	5.9-6.7	⩾39	⩾40	⩾10	±0.5*	10	QF92B	21.0×12.9×4.8
NC41205S-6472P16	6.4-7.2	42*	36*	9.5*	±0.4*	10	QF136HE	24.0×17.4×5.0
NC4177S-6872	6.8-7.2	⩾39	⩾35	⩾9	±0.5*	10	QF92B	21.0×12.9×4.8
NC4178S-6872	6.8-7.2	⩾41.2	⩾35	⩾8.5	±0.5*	10	QF92B	21.0×12.9×4.8
NC4179S-6872	6.8-7.2	⩾41.8	⩾33	⩾8.5	±0.5*	10	QF92B	21.0×12.9×4.8
NC4180S-6872	6.8-7.2	⩾44	⩾35	⩾8.5	±0.5*	10	QF136H	24.0×17.4×5.0
NC4181S-6872	6.8-7.2	⩾46.5	⩾35	⩾8.5	±0.5*	10	QF136H	24.0×17.4×5.0
NC41147S-7179	7.1-7.9	47.8*	30*	6.5*	±0.8*	10	QF136H	24.0×17.4×5.0
NC41140S-7785	7.7-8.5	35*	35*	8*	±0.5*	10	QF92B	21.0×12.9×4.8
NC41151S-7785	7.7-8.5	36.5*	38*	8.5*	±0.5*	10	QF92B	21.0×12.9×4.8
NC4153S-7785	7.7-8.5	38*(P1dB)	⩾35	8*	±0.5*	10	QF92B	21.0×12.9×4.8
NC4154S-7785	7.7-8.5	41.5*(P1dB)	⩾30	7.5*	±0.5*	10	QF92B	21.0×12.9×4.8
NC4190S-7785	7.7-8.5	⩾42	⩾35	⩾7	±0.5*	10	QF92B	21.0×12.9×4.8
NC41134S-7785	7.7-8.5	43.5*	30*	7*	±0.5*	10	QF136H	24.0×17.4×5.0

Feature / Part Number	Frequency (GHz)	Psat (dBm)	P.A.E. (%)	Gain (dB)	Gain Flatness (dB)	Voltage (V)	Package	Dimension (mm×mm×mm)
NC4183S-7785	7.7-8.5	⩾47	⩾30	⩾6.5	±0.8*	10	QF136HE	24.0×17.4×5.0
NC41191S-8088P15	8-8.8	41.5*	30*	6.5*	±1.5*	10	QF92B	21.0×12.9×4.8
NC4182S-8595	8.5-9.5	⩾45.5	⩾30	⩾6.5	±0.5*	10	QF136H	24.0×17.4×5.0
NC41163S-8596	8.5-9.6	42*	32*	7.5*	±0.5*	10	QF92B	4.0×17.4×5.0
NC41155S-8797	8.7-9.7	46*	32*	7.5*	±0.5*	8.5	QF136H	24.0×17.4×5.0
NC41162S-8810	8.8-10	43.5*	35*	7*	±0.5*	8.5	QF136H	24.0×17.4×5.0
NC41133S-8810	8.8-10	45.5*	35*	7*	±0.5*	8.5	QF136H	24.0×17.4×5.0
NC41166S-8810P35	8.8-10	45.5*	33*	7.5*	±0.5*	10	QF136T	24.0×17.4×5.0
NC41136S-910	9-9.6	45.5*	30*	7.5*	±0.5*	10	QF136H	24.0×17.4×5.0
NC4104S-910	9-10	⩾39	⩾30	⩾7	±0.5*	9	QF92B	21.0×12.9×4.8
NC4146S-910	9-10	⩾41.8	⩾30	⩾6.8	±0.5*	10	QF92B	21.0×12.9×4.8
NC4108S-910	9-10	⩾43	⩾30	⩾7	±0.5*	9	QF136H	24.0×17.4×5.0
NC4121S-910	9-10	⩾44	⩾30	⩾7	±0.5*	9	QF136H	24.0×17.4×5.0
NC4120S-910	9-10	⩾44.8	⩾30	⩾6.8	±0.5*	9	QF136H	24.0×17.4×5.0
NC41131S-910	9.1-10.1	35*	30*	8*	±0.5*	10	QF92B	21.0×12.9×4.8
NC41132S-910	9.1-10.1	41*	30*	7*	±0.5*	10	QF92B	21.0×12.9×4.8
NC41137S-9295	9.2-9.5	46*	30*	7*	±0.25*	10	QF136H	24.0×17.4×5.0
NC4110S-9498	9.4-9.8	⩾33	⩾30	⩾7.5	±0.2*	8	QF97-2	16.0×9.7×3.0
NC4111S-9498	9.4-9.8	⩾39	⩾30	⩾7.5	±0.2*	8	QF92B	21.0×12.9×4.8
NC4112S-9498	9.4-9.8	⩾41.7	⩾30	⩾7	±0.2*	10	QF92B	21.0×12.9×4.8
NC4129S-9510	9.5-10.5	⩾39	⩾30	⩾7.5	±0.5*	10	QF92B	21.0×12.9×4.8
NC4147S-9510	9.5-10.5	⩾41.8	⩾30	⩾6.8	±0.5*	10	QF92B	21.0×12.9×4.8
NC4125S-9510	9.5-10.5	⩾44.8	⩾30	⩾6.8	±0.5*	10	QF136H	24.0×17.4×5.0
NC4161S-9510	9.5-10.5	⩾36	30	⩾7	±0.6*	10	QF97-2	16.0×9.7×3.0
NC4131S-1011	10.3-10.7	⩾41.8	⩾30	⩾6.8	±0.5*	10	QF92B	21.0×12.9×4.8
NC4148S-1011	10.3-10.7	⩾44	⩾30	⩾6.5	±0.5*	10	QF136H	24.0×17.4×5.0
NC4130S-1011	10.4-10.6	⩾37	⩾35	⩾7	±0.3*	8	QF97-2	16.0×9.7×3.0
NC41188S-1011P20	10.4-10.6	43*	35*	7.5*	±0.4*	8～9	QF136T	24.0×17.4×5.0

Note: “*” stands for typical value.

3.4 Si Microwave Power Transisor

3.4.1 Si LDMOS Power Transisor

Feature / Part Number	Frequency (MHz)	Psat (W)	Gain (dB)	P.A.E. (%)	Voltage (V)	Pulse width (μs)	Duty cycle (%)	Package	Dimension (mm×mm×mm)
NC4212S-0102P250	138-188	250*	16*	60*	32	300	7	PG1021A	34.0×10.2×4.5
NC4201S-0260P150	220-260	150*	15.7*	55*	28	3000	30	PG1021A	34.0×10.2×4.5
NC4202S-0260P10	220-260	10*	15.7*	55*	28	3000	30	PG1021A	34.0×10.2×4.5
CD492	380-480	10*	13*	50*	28	1200	35	QF102A	13.0×6.4×4.0
CD493	380-480	350*	17*	55*	36	1200	35	PG1031A	41.2×10.2×4.5
CS0406-420	470~610	420*	15.8*	55*	36	16000	33	PG1031A	41.2×10.2×4.5
CS0406-420A	410~510	490*	16.5*	55*	36	650	22	PG1031A	41.2×10.2×4.5
NC4216S-0405P300	420-530	300*	16*	50*	34	1000	20	PG1021A	34.0×10.2×4.5
CS0406-10	485~606	10*	13*	50*	28	20000	35.7	QF102A	13.0×6.4×4.0
CS0406-15	485~606	15*	14*	50*	28	20000	35.7	QF051C	20.0×5.8×4.0

Feature / Part Number	Frequency (MHz)	Psat (W)	Gain (dB)	P.A.E. (%)	Voltage (V)	Pulse width (μs)	Duty cycle (%)	Package	Dimension (mm×mm×mm)
CS0406-200	485~606	200*	15.2*	50*	28	20000	35.7	PG1021A	34.0×10.2×4.5
CS0406-350	485~606	350*	17*	52*	36	20000	35.7	PG1031A	41.2×10.2×4.5

Note: "*" stands for typical value.

3.4.2 Si Pulse Power Transisor

Feature / Part Number	Frequency (GHz)	Psat (W)	Gain (dB)	Collector Efficiency (%)	Voltage (V)	Pulse width (μs)	Duty cycle (%)	Package	Dimension (mm×mm×mm)
WD0564	0.87~0.99	15*	8.75*	50*	28	300	15	QF81	22.8×10.2×4.5
WD0565	0.87-0.99	90*	8.4*	50*	32	300	15	QF81	22.8×10.2×4.5
WD0563	0.87~0.99	220*	7.4*	50*	36	300	15	LS127L	22.8×9.8×5.0
WD0563A	0.87~0.99	185*	7.2*	57*	32	300	15	LS127L	22.8×9.8×5.0
WD0561	0.87-0.99	10*	8*	50*	36	300	15	QF81	22.8×10.2×4.5
WD0562	0.87-0.99	40*	8*	50*	36	300	15	QF81	22.8×10.2×4.5
3DA516	0.96~1.215	30*	7.8*	45*	35	63	10	QF81	22.8×10.2×4.5
3DA518	0.96~1.215	85*	7.5*	45*	35	63	10	QF81	22.8×10.2×4.5
3DA518C	0.96~1.215	90*	8.4*	38*	50	10	10	QF81	22.8×10.2×4.5
3DA519	0.96~1.215	150*	7.5*	45*	35	63	10	QF81	22.8×10.2×4.5
3DA520	0.96~1.215	300*	7*	38*	50	63	10	LS127A	22.8×9.8×5.0
3DA520C	0.96	400*	8*	45*	50	32	2	LS127A	22.8×10.2×4.5
WD0551	0.96~1.215	25*	7*	40*	36	10	40	QF81	22.8×10.2×4.5
WD0622	0.96~1.225	85*	7.5*	38*	30	10	40	QF81	22.8×10.2×4.5
WD0616	1.2~1.4	10*	10*	45*	28	800	40	QF81	22.8×10.2×4.5
WD0617	1.2~1.4	50*	7*	48*	28	800	40	QF81	22.8×10.2×4.5
WD0618	1.2~1.4	100*	7*	50*	31	800	40	LS127L	22.8×9.8×5.0
3DA507	1.2~1.4	25*	9.5*	50*	28	150	10	LG05	20.8×6.4×3.9
3DA508	1.2~1.4	40*	8.5*	50*	40	150	10	LG05	20.8×6.4×3.9
3DA509	1.2~1.4	80*	7.5*	50*	40	150	10	QF81	22.8×10.2×4.5
3DA510	1.2~1.4	110*	7.4*	50*	40	150	10	QF81	22.8×10.2×4.5
3DA511	1.2~1.4	240*	7.4*	50*	40	150	10	LS127L	22.8×9.8×5.0
3DA532	1.2~1.4	150*	8*	38*	36	6000	25	LS127L	22.8×9.8×5.0
3DA533	1.44~1.66	225*	7.5*	38*	40	200	10	LS127L	22.8×9.8×5.0
3DA525	3.1~3.4	≥5.5	≥9	≥33	32	300	10	SG02	23.0×9.9×5.0
3DA526	3.1~3.4	≥11	≥9	≥31	32	500	10	SG02	23.0×9.9×5.0
3DA527	3.1~3.4	≥25	≥7.45	≥38	36	300	10	SG02	23.0×9.9×5.0
3DA528	3.1~3.4	≥45	≥7	≥36	32	500	10	SG01	23.0×9.9×5.0
3DA529	2.7~3.0	≥110	≥8.5	≥42	36	300	10	SG14	23.0×9.9×5.0
3DA530	2.8~3.1	≥110	≥8.5	≥38	36	300	10	SG14	23.0×9.9×5.0
NC4206S-2728P2	2.7-2.8	1.5*	7*	-	24	0.5	25	QF0305-2	6.5×6.5×2.8

Note: "*" stands for typical value.

3.5 GaN Pre-Matched Transistors

Part Number \ Feature	Frequency (GHz)	Psat (dBm)	P.A.E. (%)	Gain (dB)	Operating Voltage (V)	Typical Operating Condition	Package
NC43117S-0102P500	0.136-0.267	56.7	17	70	48	Pulse Width：800μs Duty Cycle：20%	PG1031F
NC43113S-0102P900	0.137-0.267	59.5	17	70	48	Pulse Width：600μs Duty Cycle：20%	PG1031F
NC4383S-0102P400	0.137-0.270	≥56	≥16	70	36-42	Pulse Width：300μs Duty Cycle：20%	PG1031F
NC4333S-0304P150	0.35-0.45	51.76	≥17	≥65	50	Pulse Width：300μs Duty Cycle：15%	QF0714-2
NC4334S-0304P1300	0.35-0.45	61.14	≥17	≥65	50	Pulse Width：300μs Duty Cycle：15%	PG1031F
NC43107S-0407P600	0.38-0.7	57.8	16	60	50	Pulse Width：500μs Duty Cycle：10%	PG1031F
NC4351S-0405P1500	0.41-0.485	≥61.76	≥15	≥65	50	Pulse Width：300μs Duty Cycle：10%	PG1031F
NC4313S-04P680	0.42-0.48	58.5	≥17	65	50	Pulse Width：300μs Duty Cycle：10%	PG1031F
NC4314S-04P1200	0.42-0.48	61	≥17	65	50	Pulse Width：300μs Duty Cycle：10%	PG1031F
NC4348S-0506P600	0.48-0.61	≥57.8	≥15	≥65	50	Pulse Width：3ms Duty Cycle：30%	PG1031F
NC41626S-102P80	0.9-2	48	10	30	28	Pulse Width：30μs Duty Cycle：30%	QF1034-2A
NC4303S-0911P120	0.9-1.2	51	16	60	36	Pulse Width：40μs Duty Cycle：5%	QF051A
NC43128S-0920P80	0.9-2.0	49	12	40	30	Pulse Width：100μs Duty Cycle：40%	QF1034-2A
NC4376S-0912P250	0.96-1.25	54	14	55	36	CW	QF0713-2C
NC4320S-0912P650	0.96-1.215	58.13	15	65	50	Pulse Width：100μs Duty Cycle：10%	QF0713-2B
NC4321S-0912P350	0.96-1.215	55.45	15	65	50	Pulse Width：100μs Duty Cycle：10%	QF0713-2B
NC4329S-0912P800	0.96-1.215	59	16	65	50	Pulse Width：100μs Duty Cycle：1%	QF0713-2B
NC4330S-0912P250	0.96-1.25	54	14	55	50	CW	QF0713-2
NC4374S-1011P1200	1.0-1.1	60.8	15	60	50	Pulse Width：30μs Duty Cycle：1%	QF0713-2B
NC4386S-1011P1400	1.0-1.1	61.4	16	60	50	Pulse Width：50μs Duty Cycle：4%	QF0713-2
NC41641S-102P100	1-2	50	11	40	36	Pulse Width：1ms Duty Cycle：30%	QF1034-2A
NC4381S-1112P100	1.1-1.2	50	16	65	48	Pulse Width：300μs Duty Cycle：20%	QF0307-2
NC4382S-1112P600	1.1-1.2	57.8	15	65	48	Pulse Width：300μs Duty Cycle：20%	QF0713-2B
NC41640S-1114P90	1.1-1.4	49.5	14	50	28	Pulse Width：300μs Duty Cycle：10%	QF051B
NC43136S-1115P200	1.1-1.5	53	14	65	28	CW	QF0713-2C
NC4316S-1116P150	1.1-1.7	52	14	60	36	CW	QF0713-2
NC4344S-1213P450	1.2-1.3	56.5	15.5	68	45	Pulse Width：500μs Duty Cycle：11%	QF0713-2B
NC43129S-1214P150	1.2-1.4	51.8	14	68	28	Pulse Width：500μs Duty Cycle：20%	QF0713-2C
NC4358S-1214P200	1.2-1.4	53	15	58	48	Pulse Width：500μs Duty Cycle：20%	QF0713-2B
NC4399S-1214P300	1.2-1.4	54.8	15	65	48	Pulse Width：5μs Duty Cycle：30%	QF0713-2B
NC4308S-1214P400	1.2-1.4	56	15	65	50	Pulse Width：300μs Duty Cycle：10%	QF0713-2
NC4309S-1214P500	1.2-1.4	57	15	65	50	Pulse Width：300μs Duty Cycle：10%	QF0713-2
NC4331S-1214P550	1.2-1.4	57.4	15	65	50	Pulse Width：300μs Duty Cycle：20%	QF0713-2B
NC4359S-1214P560	1.2-1.4	57.5	15	65	48	Pulse Width：500μs Duty Cycle：20%	QF0713-2B
NC4341S-1214P650	1.2-1.4	58.1	15	65	50	Pulse Width：300μs Duty Cycle：10%	QF0713-2B
NC43131S-1215P500	1.2-1.5	57	15	65	50	Pulse Width：100μs Duty Cycle：10%	QF0713-2
NC4355S-1213P30	1.25-1.35	44.8	15	60	28	CW	QF051C
NC4311S-1314P380	1.3-1.5	56	15	65	50	Pulse Width：300μs Duty Cycle：10%	QF0714-2A
NC4312S-1314P650	1.3-1.5	58	15	65	50	Pulse Width：300μs Duty Cycle：10%	QF0714-2A
NC4315S-1516P250	1.4-1.7	54	15	60	42	CW	QF0713-2
NC4347S-1617P50	1.61-1.64	47	14.5	55	28	CW	QF136
NC4306S-1P130	1.2	51	16.3	65	32	CW	QF0713-2

Part Number \ Feature	Frequency (GHz)	Psat (dBm)	P.A.E. (%)	Gain (dB)	Operating Voltage (V)	Typical Operating Condition	Package
NC4305S-1P130	1.6	51	16.3	65	32	CW	QF0713-2
NC43127S-2028P80	2.0-2.8	49	12	50	30	Pulse Width：100μs Duty Cycle：40%	QF1034-2A
NC41614S-2P50	2.3	47	13	60	28	CW	QF051A
NC43126S-2842P70	2.8-4.2	48.5	7	45	30	Pulse Width：100μs Duty Cycle：40%	QF1034-2A
NC43137S-3436P110	3.4-3.6	50.4	12	65	48	Pulse Width：100μs Duty Cycle：10%	QF238
NC4340S-1317P150	13.8-17.8	51.8	13	60	28	Pulse Width：20μs Duty Cycle：30%	QF0713-2
HEG048N	DC~4	20 W	60%	12	28	Pulse	QF047B
HEG049P	DC~4	50 W	60%	12	28	Pulse	QF051C
HEG227P	0.35~0.4	60 W	70%	13	28	CW	QF051C
HEG828R	0.4~0.5	600 W	70%	17	50	Pulse	PG1031A
HEG829R	0.4~0.5	1000 W	70%	17	50	Pulse	PG1031A
HEG065N	0.48-0.61	15 W	73%	16	48	Pulse	QF047B
HEG064N	0.48-0.61	60 W	73%	16	48	Pulse	QF047B
HEG826R	0.48-0.61	600 W	70%	16	48	Pulse	PG1031A
HEG412N	0.6~0.7	60 W	70%	16	50	CW	QF047B
HEG057N	0.96~1.23	30 W	70%	16	50	CW	QF047B
HEG049N	0.96~1.23	60 W	70%	16	50	CW	QF047B
HEG636M	0.96~1.25	100 W	65%	13	28	Pulse	QF1034-2A
HEG821M	0.96~1.25	200 W	65%	15	48	Pulse	QF1034-2A
HEG820M	0.96~1.23	250 W	70%	16	50	Pulse	QF1034-2A
HEG831M	0.96~1.23	650 W	70%	16	50	Pulse	QF1034-2A
HEG832Q	0.96~1.23	800 W	70%	16	50	Pulse	QF0713-2A
HEG833Q	0.96~1.23	1000 W	70%	16	50	Pulse	QF0713-2A
HEG844Q	0.96~1.23	1500 W	70%	15	50	Pulse	QF0713-2A
HEG819M	1.2-1.4	200 W	65%	14	36	Pulse	QF1034-2A
HEG822M	1.2-1.4	400 W	65%	14	36	Pulse	QF1034-2A
HEG823M	1.2-1.4	500 W	65%	15	48	Pulse	QF1034-2A
HEG816M	1.2-1.4	650 W	65%	15	48	Pulse	QF1034-2A
HEG837Q	1.2~1.5	650 W	65%	15	50	Pulse	QF0713-2A
HEG805M	1.3-1.45	400 W	65%	14	36	Pulse	QF1034-2A
HEG806M	1.3-1.45	500 W	65%	15	50	Pulse	QF1034-2A
HEG807M	1.3-1.45	600 W	65%	15	50	Pulse	QF1034-2A
HEG655Q	1.3~1.8	200 W	60%	14	50	CW	QF0713-2A
HEG619N	1.9-2.1	100 W	65%	15	50	Pulse	QF106B
HEG622P	1.8-2.2	100 W	65%	12	28	Pulse	QF051B
HEG811N	2.3-2.4	250 W	60%	15	50	Pulse	QF106B
HEG838Q	2.4~2.5	250 W	65%	15	50	CW	QF0713-2A

Note： * is typical

3.6 GaN Internally Matched Transistors

Feature / Part Number	Frequency (GHz)	Psat	Gain (dB)	Gain Flatness (dB)	P.A.E. (%)	Operating Voltage (V)	Typical Operating Condition	Package
NC41601S-1112P65	1.14-1.24	48	15	±0.5	60	28	CW	QF136HG
NC41619S-1112P80	1.15-1.23	49	14.5	±0.5	60	28	CW	QF136HG
NC43146S-16P80	1.61-1.62	49	15	±0.3	65	32	CW	QF136
NC4364S-1617P64	1.61-1.64	48	14	±1	60	28	PulseWidth：200ms Duty Cycle：20%	QF136
NC4363S-1720P35	1.7-2.0	45.5	14	±1	60	28	PulseWidth：200ms Duty Cycle：20%	QF136
NC4346S-1720P35	1.7-2	45.5	14.5	±0.5	55	28	CW	QF136HP
NC41637S-1823P10	1.8-2.3	40.5	14.5	±0.5	55	36	CW	QF136HG
NC41612S-1823P20	1.8-2.3	43	13	±0.6	55	28	CW	QF136HG
NC41613S-1823P30	1.8-2.3	44.8	13	±0.6	55	28	CW	QF136HG
NC4307S-1920P15	1.9-2	42	13.5	±0.3	55	28	CW	QF089
NC43109S-1921P100	1.9-2.1	50	13	±0.3	55	48	Pulse Width：100μs Duty Cycle：1%	QF136HP
NC43108S-1921P1500	1.9-2.1	61.8	11.5	±0.3	55	48	Pulse Width：100μs Duty Cycle：1%	QF136HP
NC4343S-2223P50	2.2-2.3	47	13	±0.5	55	28	CW	QF136HP
NC4361S-2223P64	2.25-2.3	48	14	±1	60	28	Pulse Width：200ms Duty Cycle：20%	QF136
NC43123S-2224P15	2.2-2.4	41.8	11.8	±0.5	60	28	CW	QF136PC
NC4362S-2224P25	2.2-2.4	44	14	±1	60	28	Pulse Width：200ms Duty Cycle：20%	QF136
NC43121S-2325P200	2.3-2.5	53	12	±0.6	65	32	Pulse Width：450μs Duty Cycle：15%	QF136HP
NC43122S-2325P280	2.3-2.5	54.5	12	±0.6	65	32	Pulse Width：450μs Duty Cycle：150%	QF136HP
NC41623S-2325P100	2.3-2.5	50	12	±0.3	50	28	CW	QF136HG
NC43110S-2325P1500	2.3-2.5	61.8	11.5	±0.3	55	48	Pulse Width：100μs Duty Cycle：1%	QF136HP
NC4389S-2427P60	2.4-2.7	47.8	13	±0.4	55	28	Pulse Width：200μs Duty Cycle：10%	QF92-4A
NC41611S-2731P150	2.7-3.1	51.8	12	±0.5	58	28	Pulse Width：2ms Duty Cycle：30%	QF136HP
NC41635S-2731P200	2.7-3.1	53	12.5	±0.5	55	28	Pulse Width：1ms Duty Cycle：30%	QF136HP
NC4356S-2731P170	2.7-3.1	52.5	12	±1	60	28	Pulse Width：3ms Duty Cycle：30%	QF136HU
NC4366S-2731P120	2.7-3.1	51	12	±0.6	55	28	CW	QF136HP
NC4367S-2731P200	2.7-3.1	53	15	±0.6	60	34	Pulse Width：300μs Duty Cycle：10%	QF136HU
NC4375S-2731P500	2.7-3.1	57.5	13	±0.6	55	48	Pulse Width：100μs Duty Cycle：10%	QF136HP
NC43105S-2735P80	2.7-3.5	49	13	±0.5	60	28	Pulse Width：500μs Duty Cycle：20%	QF136HP
NC41604S-2735P100	2.7-3.5	50	12	±0.5	50	28	Pulse Width：2msDuty Cycle：30%	QF136PC
NC41634S-2735P200	2.7-3.5	53	12	±0.5	50	28	Pulse Width：300μs Duty Cycle：10%	QF136PC
NC4360S-2735P250	2.7-3.5	54	12	±0.6	60	48	Pulse Width：500μs Duty Cycle：20%	QF136HP
NC4357S-2831P70	2.8-3.1	48.5	13	±0.5	55	34	Pulse Width：300μs Duty Cycle：10%	QF136GC
NC4338S-2832P200	2.8-3.2	53	12	±0.4	60	28	Pulse Width：300μs Duty Cycle：20%	QF136HP
NC4349S-2832P55	2.8-3.2	47.5	11.5	±0.5	50	28	Pulse Width：400μs Duty Cycle：20%	QF136GC
NC4377S-3134P280	3.1-3.4	54.5	12	±0.5	60	32	Pulse Width：450μs Duty Cycle：15%	QF136HU
NC43145S-3134P400	3.1-3.4	56	13	±0.8	55	48	Pulse Width：300μs Duty Cycle：20%	QF136HU
NC41630S-3135P20	3.1-3.5	43	12	±0.2	50	36	Pulse Width：2ms Duty Cycle：30%	QF92-4A
NC41636S-3135P200	3.1-3.5	53	12	±0.4	50	28	Pulse Width：300μs Duty Cycle：20%	QF136HP
NC41631S-3135P300	3.1-3.5	55	14	±0.4	55	36	Pulse Width：300μs Duty Cycle：20%	QF136HP
NC4384S-3742P8	3.7-4.2	39	14	±0.4	55	28	CW	QF92-4A
NC4328S-3742P100	3.7-4.2	50	12	±0.4	55	28	CW	QF136PC
NC43112S-3742P200	3.7-4.2	53	12	±0.4	⩾50	28	Pulse Width：400μs Duty Cycle：20%	QF136HP

Part Number \ Feature	Frequency (GHz)	Psat	Gain (dB)	Gain Flatness (dB)	P.A.E. (%)	Operating Voltage (V)	Typical Operating Condition	Package
NC4327S-4450P160	4.4-5	52	11	±0.5	50	32	CW	QF136PC
NC41633S-4548P200	4.5-4.8	53	10	±0.25	45	28	Pulse Width： 1ms Duty Cycle： 10%	QF136PC
NC4335S-4549P200	4.5-4.9	53	12	±0.5	55	28	Pulse Width： 300μs Duty Cycle： 20%	QF136PE
NC4350S-4549P55	4.5-4.95	47.5	11.5	±0.5	50	28	Pulse Width： 400μs Duty Cycle： 20%	QF136GC
NC41602S-506P100	5-6	50	12	±0.75	45	28	Pulse Width： 400μs Duty Cycle： 50%	QF136HG
NC4345S-506P250	5-6	54	9	±1	40	40	Pulse Width： 2ms Duty Cycle： 30%	QF136PE
NC43133S-5159P300	5.1-5.9	54.7	11.5	±0.5	50	32	Pulse Width： 5μs Duty Cycle： 1%	QF136PE
NC43139S-5258P20	5.2-5.8	43	10	±0.75	45	28	CW	QF136HK
NC43141S-5258P270	5.2-5.8	54.3	10	±0.75	40	48	Pulse Width： 450μs Duty Cycle： 30%	QF136PE
NC4317S-5359P160	5.3-5.9	52	12	±0.5	50	28	Pulse Width： 40ms Duty Cycle： 50%	QF136PC
NC4322S-5359P250	5.3-5.9	54	11	±0.5	50	40	Pulse Width： 2ms Duty Cycle： 30%	QF136PC
NC4380S-5359P90	5.3-5.9	49.5	11	±1	50	28	Pulse Width： 300μs Duty Cycle： 20%	QF136PE
NC4379S-5359P160	5.3-5.9	52	12	±0.5	50	28	Pulse Width： 300μs Duty Cycle： 20%	QF136PE
NC4353S-5359P200	5.3-5.9	53	12	±1	50	28	Pulse Width： 300μs Duty Cycle： 20%	QF136PE
NC4387S-5767P40	5.7-6.7	46	10	±0.75	45	28	CW	QF136HK
NC4369S-5967P25	5.9-6.7	44	9	±1	45	28	CW	QF136HK
NC4388S-5967P25	5.9-6.7	44	10	±0.75	45	28	CW	QF136HK
NC4323S-5967P100	5.9-6.7	50	8.5	±1	50	28	Pulse Width： 10μs Duty Cycle： 30%	QF136PC
NC4310S-6472P18	6.4-7.2	42.5	12.5	±0.5	40	28	CW	QF92B
NC43118S-6472P100	6.4-7.2	50	10	±0.75	40	28	CW	QF136PE
NC41639S-6472P150	6.4-7.2	51.8	10.8	±0.5	45	28	Pulse Width： 400μs Duty Cycle： 30%	QF136PC
NC43101S-6472P300	6.4-7.2	54.8	10	±0.4	45	36	Pulse Width： 200μs Duty Cycle： 20%	QF136PC
NC43103S-7074P300	7.0-7.4	54.8	10	±0.3	42	36	Pulse Width： 200μs Duty Cycle： 20%	QF136PC
NC43132S-7785P100	7.7-8.5	50	9	±0.5	45	28	Pulse Width： 2000μs Duty Cycle： 20%	QF136PE
NC43134S-7983P20	7.9-8.3	43	8	±0.5	50	24	CW	QF136HK
NC4339S-7893P300	7.8-9.3	54.7	8	±0.5	45	50	Pulse Width： 100μs Duty Cycle： 1%	QF136PE
NC4397S-7893P2000	7.8-9.3	63	9	±0.5	45	60	Pulse Width： 1μs Duty Cycle： 10%	QF136PE
NC4397S-7893P2000M	7.8-9.3	63	9	±0.5	45	60	Pulse Width： 1μs Duty Cycle： 10%	QF136PE
NC41627S-809P150	8-9	51.8	8.5	±0.5	40	32	Pulse Width： 1ms, Duty Cycle： 35%	QF136PC
NC4392S-8695P100	8.6-9.5	50	8.5	±0.5	40	28	Pulse Width： 300μs Duty Cycle： 20%	QF136PC
NC43115S-8596P250	8.5-9.6	54	9	±0.6	40	40	Pulse Width： 300μs Duty Cycle： 20%	QF136PE
NC43135S-910P200	9-10	53	8	±0.6	38	36	Pulse Width： 3000μs Duty Cycle： 20%	QF136PE
NC43114S-910P250	9-10	54	9	±0.6	40	40	Pulse Width： 300μs Duty Cycle： 20%	QF136PE
NC41610S-910P100	9-10	50	8	±0.5	37	28	Pulse Width： 1ms Duty Cycle： 35%	QF136PC
NC41620S-910P130	9-10	51	8	±0.5	36	28	Pulse Width： 1ms Duty Cycle： 35%	QF136PC
NC41628S-910P150	9-10	51.8	8.5	±0.5	38	32	Pulse Width： 1ms Duty Cycle： 30%	QF136PC
NC4326S-910P170	9-10	52.4	8.5	±0.5	37	32	Pulse Width： 500μs Duty Cycle： 30%	QF136PC
NC4325S-9398P50	9.3-9.8	47	9	±0.5	38	28	Pulse Width： 100μs Duty Cycle： 10%	QF136PC
NC4301S-9510P100	9.5-10.5	50	7	±0.5	32	32	CW	QF136PC
NC4336S-9096P50	9-9.6	47	8.5	±0.5	37	28-32	Pulse Width： 400μs Duty Cycle： 30%	QF136PC
NC43138S-1011P1000	10-10.8	60	7	±1	50	50	Pulse Width： 15μs Duty Cycle： 2%	QF136PE
NC4324S-1415P100	14-14.5	50	6	±0.5	25	40	Pulse Width： 10μs Duty Cycle： 1%	QF136PC

Part Number \ Feature	Frequency (GHz)	Psat	Gain (dB)	Gain Flatness (dB)	P.A.E. (%)	Operating Voltage (V)	Typical Operating Condition	Package
HEG234A-1	0.425-0.475	50 W	27	-	60%	50	Pulse	Substrate
HEG234A-2	0.425-0.475	50 W	27	-	60%	50	Pulse	Substrate
HEG229A	1.2-1.4	60 W	23	-	65%	28	Pulse	Substrate
HEG224A	1.2-1.4	70 W	22	-	65%	28	Pulse	Substrate
HEG223A	1.31-1.45	80 W	29	-	55%	50	Pulse	Substrate
HEG214A	1.31-1.45	50 W	25	-	55%	28	Pulse	Substrate
HEG122A	2.0-2.1	12 W	12	-	60%	28	CW	Substrate
HEG031A-1	2.2-2.4	20 W	12	-	60%	28	CW	Substrate
HEG067A	2.7-3.1	30 W	23.5	-	50%	48	Pulse	Substrate
HEG099A	2.7-3.5	40 W	25	-	50%	48	Pulse	Substrate
HEG400A4	3.1-3.4	80 W	12	-	65%	32	Pulse	Substrate
HEG400A3	2.7-3.5	80 W	12	-	58%	32	Pulse	Substrate
HEG212A-2	2.7-3.5	70 W	10	-	60%	28	Pulse	Substrate
HEG604A	2.7-3.5	110 W	11	-	55%	32	Pulse	Substrate
HEG400A5	2.7-3.5	130 W	11	-	55%	32	Pulse	Substrate
HEG631A	2.7-3.5	130 W	13	-	55%	48	Pulse	Substrate
HEG611A	2.7-3.5	130 W	11	-	55%	32	Pulse	Substrate
HEG648A	2.7-3.5	160 W	13	-	55%	48	Pulse	Substrate
HEG605A	2.7-3.5	200 W	10	-	50%	28	Pulse	Substrate
HEG817A	2.7-3.5	230 W	13	-	55%	48	Pulse	Substrate
HEG818A	2.7-3.5	220 W	12	-	50%	48	Pulse	Substrate
HEG827A	2.7-3.1	250 W	13	-	55%	48	Pulse	Substrate
HEG225A	4.4-5.0	60 W	10	-	55%	28	Pulse	Substrate
HEG005A	5.2-5.9	30 W	10	-	50%	28	CW	Substrate
HEG070A	5.2-5.9	50 W	26	-	55%	28	Pulse	Substrate
HEG408A	5.2-5.9	80 W	26	-	50%	28	Pulse	Substrate
HEG835A	5.2-5.9	200 W	26	-	50%	28	Pulse	Substrate
HEG024A	7.5-8.5	25 W	25	-	40%	28	CW	Substrate
HEG050F	0.389-0.409	20 W	31	-	65%	28	CW	QF2332-06
HEG032F	0.51-0.54	30 W	32	-	65%	28	CW	QF2332-06
HEG062T	0.48-0.61	25 W	32	-	65%	50	CW	BF04
HEG044E	0.89-1.0	10 W	25	-	60%	28	Pulse	QF136GC
HEG060E	0.99-1.15	10 W	25	-	60%	28	Pulse	QF136GC
HEG639E	0.96-1.25	100 W	11	-	0.6	28	Pulse	QF136GC
HEG634B	1.15-1.23	90 W	11	-	65%	28	CW	QF136PC
HEG209B	1.35-1.4	60 W	11	-	74%	28	CW	QF136PC
HEG640B	1.35-1.4	100 W	12	-	70%	28	CW	QF136PC
HEG641B	1.35-1.4	100 W	14	-	70%	50	CW	QF136PC
HEG001D	1.2-1.4	20 W	12	-	60%	28	CW	QF92-4
HEG010D	1.2-1.4	10 W	14	-	55%	28	CW	QF92-4
HEG126L	1.2-1.6	10 W	12	-	60%	28	CW	QF089
HEG127D	1.2-1.9	10 W	28	-	57%	28	CW	QF92-4
HEG081E-1	1.2-1.5	20 W	25	-	55%	28	CW	QF136GC

Part Number \ Feature	Frequency (GHz)	Psat	Gain (dB)	Gain Flatness (dB)	P.A.E. (%)	Operating Voltage (V)	Typical Operating Condition	Package
HEG128E	1.2-1.4	30 W	26	-	57%	28	CW	QF136GC
HEG117E	1.2-1.4	60 W	12	-	70%	28	Pulse	QF136GC
HEG205D	1.2-1.4	60 W	10	-	55%	28	Pulse	QF92-4
HEG644E	1.2-1.4	100 W	14	-	55%	48	Pulse	QF136GC
HEG600B	1.2-1.4	100 W	12	-	55%	28	Pulse	QF136PC
HEG608E	1.2-1.4	200 W	14	-	60%	48	Pulse	QF136GC
HEG608B	1.2-1.4	200 W	15	-	55%	50	Pulse	QF136PC
HEG029E	1.3-1.5	20 W	28	-	50%	28	Pulse	QF136GC
HEG230E	1.3-1.8	80 W	11	-	55%	28	CW	QF136GC
HEG632B	1.46-1.49	80 W	13	-	70%	36	CW	QF136PC
HEG085D	1.55-1.60	20 W	12	-	60%	28	CW	QF92-4
HEG053D	1.61-1.62	18 W	11	-	60%	28	CW	QF92-4
HEG220E	1.4-1.8	60 W	11	-	60%	28	Pulse	QF136GC
HEG100D	2.2-2.4	8 W	12	-	55%	32	CW	QF92-4
HEG107E	2.2-2.3	12 W	35	-	45%	28	CW	QF136GC
HEG030D	2.2-2.3	12 W	11	-	60%	28	CW	QF92-4
HEG037L	2.0-6.0	1 W	24	-	20%	28	CW	QF089
HEG008D-1	2.0-2.3	8 W	10	-	55%	28	CW	QF92-4
HEG008D-2	2.0-2.3	8 W	10	-	55%	28	CW	QF92-4
HEG023D	2.0-2.3	16 W	11	-	60%	28	CW	QF92-4
HEG031D	2.2-2.3	20 W	11	-	60%	28	CW	QF92-4
HEG019B	2.2-2.3	40 W	11	-	60%	28	CW	QF136PC
HEG411B	2.2-2.3	100 W	12	-	58%	28	CW	QF136PC
HEG403E	2.3-2.8	80 W	11	-	60%	28	Pulse	QF136GC
HEG646B	2.4-2.8	100 W	12	-	60%	28	CW	QF136HP
HEG840B	2.3-2.5	1400 W	11	-	55%	50	Pulse	QF136HP
HEG405B	2.7-3.1	80 W	12	-	60%	28	Pulse	QF136PC
HEG616B	2.7-3.0	200 W	12	-	55%	32	Pulse	QF136PC
HEG824B	2.7-3.1	500 W	13	-	50%	48	Pulse	QF136PC
HEG825B	2.7-3.1	600 W	11	-	53%	48	Pulse	QF136HP
HEG401E	3.1-3.5	80 W	11	-	55%	28	Pulse	QF136GC
HEG615B	3.1-3.5	120 W	11	-	58%	28	Pulse	QF136 PC
HEG612B	3.1-3.5	160 W	11	-	58%	28	Pulse	QF136 PC
HEG803B	3.1-3.5	220 W	11	-	58%	28	Pulse	QF136PC
HEG006D	2.7-3.5	10 W	34	-	35%	28	CW	QF92-4
HEG009L	2.7-3.5	10 W	19.5	-	40%	28	CW	QF089
HEG002L	2.7-3.5	20 W	19.5	-	40%	28	Pulse	QF089
HEG052D-1	2.7-3.5	20 W	17	-	35%	28	CW	QF92-4
HEG052D-2	2.7-3.5	20 W	17	-	35%	28	CW	QF92-4
HEG200B	2.7-3.5	60 W	11	-	55%	28	Pulse	QF136PC
HEG601B	2.7-3.5	120 W	11	-	55%	28	Pulse	QF136PC
HEG629B	2.7-3.3	160 W	12	-	55%	28	Pulse	QF136PC
HEG813B	2.7-3.5	250 W	11	-	50%	32	Pulse	QF136PC

Feature / Part Number	Frequency (GHz)	Psat	Gain (dB)	Gain Flatness (dB)	P.A.E. (%)	Operating Voltage (V)	Typical Operating Condition	Package
HEG043D	3.6-4.2	12 W	11	-	50%	48	CW	QF92-4
HEG633B	3.6-4.2	120 W	13	-	55%	48	Pulse	QF136PC
HEG038L	4.4-5.0	10W	18	-	40%	28	CW	QF089
HEG039L	4.4-6.0	20 W	18	-	40%	28	Pulse	QF089
HEG047D	4.4-5.0	4 W	18	-	45%	28	CW	QF92-4
HEG102D	4.4-5.0	4 W	32	-	45%	28	CW	QF92-4
HEG021C	4.4-5.0	5 W	10	-	50%	28	CW	QF92B
HEG028C	4.4-5.0	15 W	10	-	50%	28	CW	QF92B
HEG013C	4.4-5.0	30 W	10	-	55%	28	CW	QF136HK
HEG202C	4.4-5.0	60 W	10	-	50%	28	CW	QF136HK
HEG602B	4.4-5.0	100 W	10	-	50%	28	CW	QF136PC
HEG652B	4.4-5.0	150 W	10	-	50%	28	CW	QF136PC
HEG808B	4.4-5.0	200 W	10	-	50%	28	Pulse	QF136PC
HEG040L	5.0-6.5	4 W	18	-	40%	28	CW	QF089
HEG034L	5.0-6.0	10 W	19	-	40%	28	CW	QF089
HEG007C	5.2-5.9	16 W	10	-	50%	28	CW	QF136HK
HEG088E	5.2-5.9	18 W	30	-	40%	28	Pulse	QF136GC
HEG077E	5.2-5.9	30 W	26	-	50%	28	CW	QF136GC
HEG005C	5.2-5.9	30 W	10	-	50%	28	CW	QF136HK
HEG203C	5.2-5.9	60 W	10	-	50%	28	Pulse	QF136HK
HEG603B	5.2-5.9	100 W	10	-	50%	28	CW	QF136PC
HEG814B	5.2-5.9	180 W	10	-	50%	28	Pulse	QF136PC
HEG025C	5.9-6.6	25 W	9	-	50%	28	CW	QF92B
HEG215C	5.9-6.6	60 W	9	-	50%	28	CW	QF92B
HEG630B	5.9-6.6	100 W	9	-	50%	28	CW	QF136PC
HEG073L	4.4-7.0	8 W	17	-	40%	28	CW	QF089C
HEG063C	5.9-7.4	25 W	9	-	50%	28	CW	QF136HK
HEG018C	6.9-7.4	25 W	9	-	45%	28	CW	QF136HK
HEG036C	6.4-7.2	30 W	9	-	45%	28	CW	QF136HK
HEG204C	6.4-7.2	60 W	9	-	45%	28	CW	QF136HK
HEG624B	6.4-7.2	100 W	9	-	45%	28	CW	QF136PC
HEG108L	7.0-9.0	9 W	17	-	38%	28	CW	QF089
HEG024C	7.7-8.5	25 W	8	-	40%	28	CW	QF136HK
HEG221C	7.7-8.5	50 W	8	-	40%	28	CW	QF136HK
HEG642B	7.7-8.5	100 W	8	-	40%	28	CW	QF136PC
HEG061C	8.6-9.5	30 W	8	-	40%	32	CW	QF136HK
HEG015C	9.0-10.0	30 W	8	-	40%	32	CW	QF136HK
HEG207C	9.0-10.0	60 W	8	-	40%	32	CW	QF136HK

3.7 GaN Power Amplifier Modules

Part Number \ Feature	Frequency (GHz)	Gain (dB)	Gain Flatness (dB)	Psat	P.A.E. (%)	VSWRin	Operating Voltage (V)	Package
NC31633MC-0405P64	0.425-0.475	28	±0.5	48	55	2	50	Substrate
NC316113MC-0912P20	0.9-1.23	29	-	43.5	40	2	28	Substrate
NC316113MC-0912P20M	0.9-1.23	29	-	43.5	40	2	28	Substrate
NC31604MC-102P80	0.9-2	⩾12	±0.5	⩾49	55	-	28	Substrate
NC31644MC-0912P50	0.96-1.23	30	±0.4	47	50	2	50	Substrate
NC31647MC-0912P20	0.96-1.23	28	±0.4	43	40	2	28	Substrate
NC31647MC-0912P20M	0.96-1.23	28	±0.4	43	40	2	28	Substrate
NC316105MC-0912P250	0.96-1.25	15	±1	54	55	5	36	Substrate
NC316108MC-0911P50	0.99-1.11	36	±0.4	47	40	2	36	Substrate
NC31637MC-111P160	1-1.12	40	±1	52	40	2	36	Substrate
NC31611MC-1114P90	1.1-1.4	14	±0.5	49.5	50	>3	28	Substrate
NC31646MC-1214P600	1.2-1.4	16	±0.5	58	50	1.5	48	Substrate
NC31636MC-1215P70	1.2-1.5	28.5	±0.6	48.5	60	2	50	Substrate
NC31636MC-1215P70M	1.2-1.5	28.5	±0.6	48.5	60	2	50	Substrate
NC316106MC-2324P230	2.34-2.46	12.5	±0.5	53.5	55	3	28	Substrate
NC31626MC-2731P200	2.7-3.1	12	±0.5	53	55	-	28	Substrate
NC31601MC-2731P200	2.7-3.1	⩾43	±0.3	⩾53	44	-	28	Substrate
NC31638MC-2735P50	2.7-3.5	9.5	±0.3	47.5	40	3	28	Substrate
NC31602MC-2735P80	2.7-3.5	⩾39	±0.3	⩾49	50	-	28	Substrate
NC31631MC-2735P130	2.7-3.5	11	±0.5	51	50	3	32	Substrate
NC316116MC-2735P150	2.7-3.5	11	±0.5	51.7	57	2.5	36	Substrate
NC31621MC-2735P200	2.7-3.5	12	±0.6	53	45	-	28	Substrate
NC31632MC-2735P230	2.7-3.5	13.5	±0.5	53.5	50	3	48	Substrate
NC316100MC-2735P450	2.7-3.5	12.5	±0.5	56.5	60	3	48	Substrate
NC316107MC-3135P160	3.1-3.5	32	±0.5	52	50	3	28	Substrate
NC31620MC-3135P200	3.1-3.5	12	±0.5	53	50	-	28	Substrate
NC31649MC-3135P230	3.1-3.5	12	±0.5	53.5	60	3	32	Substrate
NC31640MC-4549P50	4.45-4.95	27	±0.5	47	50	2	28	Substrate
NC31622MC-4549P200	4.5-4.9	10	±0.5	53	45	-	28	Substrate
NC31617MC-506P60	5-6	19.5	±0.2	47.5	30	-	28	Substrate
NC316103MC-5259P200	5.2-5.9	28	±0.5	53	53	2	28	Substrate
NC31645MC-5260P60	5.2-6.0	25	±0.6	47.8	50	2	28	Substrate
NC316112MC-5359P130	5.3-5.9	42	±0.5	51	50	2	28	Substrate
NC316101MC-1011P64	10-10.4	8	±0.5	48	45	3	28	Substrate
NC31666M-0405P40	0.4-0.5	36	±0.5	46	50	1.4	50	Module
NC31658M-0406P11	0.4-0.61	31	±0.8	40.6	60	2	36	QF136GC
NC31673M-0406P25	0.48-0.61	39	±0.4	44	50	2	50	Module
NC31628M-0820P50	0.8-2	9	±1.5	47	45	3	28	QF136GC
NC316217M-0911P630	0.96-1.125	15	±1	58	50	1.5	50	Module
NC316203M-0911P200	0.99-1.12	50	±0.5	53	50	1.5	36	Module
NC31650M-0911P130	0.99-1.13	15	±0.5	51.1	50	-	50	QF136G
NC316222M-104P100	1-4	8	±2.5	50	35	2	48	QF136GC

Part Number / Feature	Frequency (GHz)	Gain (dB)	Gain Flatness (dB)	Psat	P.A.E. (%)	VSWRin	Operating Voltage (V)	Package
NC31672M-1214P70	1.2-1.4	29	±0.5	48.5	60	-	50	QF136G
NC316223M-1214P600	1.2-1.4	16	±0.5	58	60	1.5	48	Module
NC31699M-1921P6	1.9-2.1	30	±0.5	38	40	2	28	QF92-4
NC31613M-204P64	2-4	⩾8.5	±1.0	⩾48.5	⩾35	-	36	Substrate
NC31651M-204P50	2-4	7	±1	47.5	40	2	28	QF136GC
NC31659M-2224P16	2.2-2.4	26	±1	42	55	2	28	QF92-4
NC316200M-2325P6	2.3-2.5	30	±0.5	38	45	2	28	QF92-4
NC31674M-2627P5	2.6-2.7	25	±0.5	37	50	2	28	QF92-4
NC31664M-267P30	2.67	10	-	45	50	3	28	QF136GC
NC31606M-2730P150	2.7-3	42	⩽±1	52	58	-	28	QF2545-5
NC31616M-2730P12	2.7-3	24	±0.2	41.5	50	-	28	QF92-4AC
NC31657M-2731P12	2.7-3.1	23	±0.5	40.8	45	2	28	QF97-4AC
NC31614M-2735P120	2.7-3.5	10	±0.5	51.5	50	-	32	QF136G
NC31615M-2735P50	2.7-3.5	10	±0.5	47.5	50	-	28	QF136G
NC31609S-2735	2.7-3.5	10	±0.5	19	-	2	24	QF089
NC316208M-2735P30	2.7-3.5	40	±0.5	45	30	1.5	28	Module
NC31653M-2832P30	2.8-3.2	12.1	±0.5	44.8	55	-	28	QF136G
NC31687M-3134P16	3.1-3.4	32	±0.3	42	45	2	28	QF92-4AC
NC31687M-3134P16M	3.1-3.4	32	±0.3	42	45	2	28	QF92-4AC
NC31624M-3135P20	3.1-3.5	25	±0.5	42.5	45	<2:1	36	QF92-4AC
NC31668M-3135P130	3.1-3.5	11	±0.5	51	60	3	28	QF136GD
NC31669M-3135P230	3.1-3.5	12	±0.5	53.5	60	3	32	QF136GD
NC316213M-3742P16	3.7-4.2	22	±0.5	42	40	2	28	QF92-4AC
NC31678M-3943P50	3.9-4.3	11	±0.5	47	50	3	28	QF136GC
NC31675M-4348P15	4.3-4.8	15	±0.6	42	40	2	28	QF136HG
NC31656M-4450P5	4.4-5	20	±1	37	38	2	28	QF92-4
NC31611S-4549P10	4.5-4.9	17	±0.5	40	30	1.5	28	QF089
NC31652M-4549P30	4.5-4.95	12.1	±0.5	44.8	55	-	28	QF136G
NC31694M-406P64	4-6	8	±1.5	48	35	3	30	QF136GC
NC31695M-510P40	5-10	34	±1.5	46	25	2	28	337×110×8
NC31671M-5259P200	5.2-5.9	11	±0.5	53.1	55	2	28	QF137GD
NC31660M-5359P50	5.3-5.9	27	±0.5	47	50	2	28	QF136GD
NC31697M-5359P100	5.3-5.9	10	±0.5	50	50	3	28	QF136GD
NC31684M-618	6-18	18	±2.5	15	22	2.5	24	Module
NC31607M-812P100	8-12	21	±0.6	50	35	⩽2.0	30	MQFM2425-X6
NC31602S-8510P30	8.8-10	20	±0.4	44.5	26	-	28	QF089
NC31680M-1011P130	10-11	19	±0.3	51	35	2	28	Package
NC316225M-1315P50	13.75-15.35	20	-	47	-	-	28	Module
NC31676M-1517P40	15-17	36	±0.75	46	28	-	28	MQF
NC31654M-3435P25	34.8-35.2	15	±0.5	44	16.7	1.2	22	Module
NC31655M-3435P16	34.8-35.2	15	±0.5	42	20	1.2	22	Module
NC316214M-088094P2	88-94	16	±1.5	33	10	2	18	Module
NC316219M-105110	105-110	14	±0.5	23	4	2.5	15	Module

Part Number \ Feature	Frequency (GHz)	Gain (dB)	Gain Flatness (dB)	Psat	P.A.E. (%)	VSWRin	Operating Voltage (V)	Package
HEG106E	2.7-3.5	30	-	10 W	40%	-	32	QF136GC
HEG606J	2.7-3.5	40	-	80 W	50%	-	28	QF3045
HEG618J	3.1-3.4	40	-	100 W	53%	-	28	QF2840
HEG650J	3.1-3.5	40	-	120 W	53%	-	32	QF2545-5A
HEG620J	2.7-3.5	40	-	200 W	50%	-	32	QF2545-5A
HEG841J	2.7-3.5	33	-	400 W	45%	-	48	QF2545-5A
HEG232J	4.4-5.0	40	-	60 W	55%	-	28	QF2545-5A
HEG651J	4.4-5.0	40	-	100 W	55%	-	28	QF2545-5A
HEG653J	4.4-5.0	40	-	200 W	50%	-	28	QF2545-5A
HEG233J	5.2-5.9	40	-	60 W	50%	-	28	QF2545-5A
HEG654J	5.2-5.9	40	-	100 W	50%	-	28	QF2545-5A
HEG649J	5.2-5.9	40	-	150 W	50%	-	28	QF2545-5A

4 Microwave Package Product

4.1 Microwave Small Package

4.1.1 Low Noise Amplifier

I) Micro Package Low Noise Amplifier

P/N \ Paramete	Frequency (GHz)	Gain (dB)	Gain Flatness (dB)	Noise (dB)	P1dB (dBm)	VSWRin	VSWRout	Power Consumption (V/mA)	Package	Dimension (mm×mm×mm)
NC30149S-0420	0.4-2	22@0.6GHz	±0.7@100MHz	0.4@0.6GHz	22*	1.6*	1.3*	5/130 4/100 3/75	SM64D	9.2×9.2×3.3
NC30150S-0716	0.7-1.6	34*	±0.5*	0.7*	12*	1.5*	1.4*	5/70 4/55 3/40	SM84C	5.0×7.0×2.3
NC3047Q-0730	0.7-3	29*	±0.5*	1.8*	18*	1.5*	1.2*	5/65	CQFN24A-1	4.0×4.0×1.2
NC30135S-0835	0.8-3.5	27*	±0.7*	1.7*	12*	⩽2	⩽2	5/55	SM03C	6.35×6.35×2.2
NC30137S-125	1-3	29*	±0.3*	1.5*	18*	1.5*	1.3*	5/65	SM03C	6.35×6.35×2.2
NC3041Q-1035	1-3.5	16*	±1.2*	2.1*	15*	1.5*	1.2*	5/30	CQFN24A-1	4.0×4.0×1.2
NC30147S-110	1-10	21*	±1*	1.8*	16*	1.7*	1.5*	5/80	SM03C	6.35×6.35×2.2
NC30153S-2024	2-2.4	17*	±0.8*	0.7*	18*	1.5*	1.5*	5/70	SM64D	9.2×9.2×3.3
NC3084S-2224A	2-2.4	30*	±0.3*	1.2*	12*	<1.6*	<1.6	5/47	SM03C	6.35×6.35×2.2
NC30129S-206	2-6	13*	±0.5*	2.4*	17*	1.5*	1.5*	5/80	SM03C	6.35×6.35×2.2
NC30129S-206M	2-6	13*	±0.5*	2.4*	17*	1.5*	1.5*	5/80	SM03C	6.35×6.35×2.2
NC30133S-206	2-6	24*	±1.4*	1.8*	18*	2*	2*	5/85	QF046A	8.7×11.0×3.5
NC30133S-206M	2-6	24*	±1.4*	1.8*	18*	2*	2*	5/85	QF046A	8.7×11.0×3.5
NC30136S-206	2-6	25*	±1*	1.7*	17*	1.5*	1.5*	5/75	SM03C	6.35×6.35×2.2
NC30146S-2545	2.5-4.5	25*	±0.4*	1.2*	10*	1.3*	1.3*	5/45	SM03C	6.35×6.35×2.2
NC3025Q-2570A	2.5-7	27*	±1*	1.2*	7*	1.5*	1.5*	5/20	CQFN08A	5.5×5.5×1.2
NC30120S-2570	2.5-7	27*	±1.2*	1.3*	8*	1.5*	1.8*	5/20	SM03C	6.35×6.35×2.2
NC30120S-2570M	2.5-7	27*	±1.2*	1.3*	8*	1.5*	1.8*	5/20	SM03C	6.35×6.35×2.2
NC3026Q-506A	4-7	25*	±0.3*	1.2*	6*	1.5*	1.5*	5/20	CQFN08A	5.5×5.5×1.2
NC3026Q-506AM	4-7	25*	±0.3*	1.2*	6*	1.5*	1.5*	5/20	CQFN08A	5.5×5.5×1.2
NC30111S-408	4-8	14*	±0.3*	2.3*	15*	1.3*	1.5*	5/50	QF046C	8.7×11.0×3.5
NC3051Q-408A	4-8	14*	±0.3*	1.8*	16*	1.6*	1.7*	5/50	CQFN08A	5.5×5.5×1.2
NC3098S-408	4-8	15*	±0.3*	2*	16*	1.8*	1.8*	5/55	SM03C	6.35×6.35×2.2
NC30105S-506	5-6	13*	±0.3*	1.8*	16*	1.5*	1.7*	5/75	SM03C	6.35×6.35×2.2
NC30105S-506M	5-6	13*	±0.3*	1.8*	16*	1.5*	1.7*	5/75	SM03C	6.35×6.35×2.2

Parameter / P/N	Frequency (GHz)	Gain (dB)	Gain Flatness (dB)	Noise (dB)	P1dB (dBm)	VSWRin	VSWRout	Power Consumption (V/mA)	Package	Dimension (mm×mm×mm)
NC3035Q-506A	5-6	14*	±0.3*	2*	17*	1.5*	1.7*	5/60	CQFN08A	5.5×5.5×1.2
NC3036Q-506A	5-6	14*	±0.5*	2.2*	11*	1.3*	1.4*	5/35	CQFN08A	5.5×5.5×1.2
NC3020S-5258A	5-6	24*	±0.5*	1.4*	11*	1.5*	1.6*	5/35	SM03B	6.35×6.35×2.8
NC3033S-506A	5-6	24*	±0.5*	1.4*	11*	1.5*	1.6*	5/35	QF046C	8.7×11.0×3.5
NC30132S-506	5-6	15*	±0.2*	1.8*	18.5*	1.2*	1.3*	5/65	QF046C	8.7×11.0×3.5
NC3064S-506M	5-6	21*	±0.3*	1.4*	11*	1.4*	1.7*	5/50	QF046C	8.7×11.0×3.5
NC3055Q-612	6-12	8*	±0.5*	3.5*	14*	1.5*	1.6*	5/50	CQFN08A	5.5×5.5×1.2
NC30148S-612	6-12	21*	±0.5*	1.4*	9*	1.3*	1.6*	5/30	QF046C	8.7×11.0×3.5
NC3062Q-618A	6-18	20*	±0.7*	1.7*	11*	1.5*	1.6*	5/60	CQFN08A	5.5×5.5×1.2
NC3056Q-618A	6-18	21*	±1.5*	2*	11*	1.4*	1.3*	5/80	CQFN08A	5.5×5.5×1.2
NC3050Q-712A	7-12	22*	±0.5*	1.3*	10*	1.3*	1.6*	5/25	CQFN08A	5.5×5.5×1.2
NC3070Q-712	7-13	25*	±0.2*	1.3*	9*	1.4*	1.3*	5/25	CQFN08A	5.5×5.5×1.2
NC10145S-812	8-12	15.5*	±0.5*	2.8*	19*	1.3*	1.4*	5/90	QF046C	8.7×11.0×3.5
NC10145S-812M	8-12	15.5*	±0.5*	2.8*	19*	1.3*	1.4*	5/90	QF046C	8.7×11.0×3.5
NC30142S-812	8-12	18.5*	±0.7*	1.8*	15*	1.5*	1.6*	5/60	QF046C	8.7×11.0×3.5
NC30142S-812M	8-12	18.5*	±0.7*	1.8*	15*	1.5*	1.6*	5/60	QF046C	8.7×11.0×3.5
NC3037Q-812A	8-12	19*	±0.8*	2.5*	19*	1.8*	1.5*	5/90	CQFN08A	5.5×5.5×1.2
NC3039Q-812A	8-12	19*	±0.5*	1.8*	14*	1.8*	1.5*	5/55	CQFN08A	5.5×5.5×1.2
NC30104S-812	8-12	25*	±1.3*	2.3*	19*	1.8*	1.7*	5/85	QF046C	8.7×11.0×3.5
NC30104S-812M	8-12	25*	±1.3*	2.3*	19*	1.8*	1.7*	5/85	QF046C	8.7×11.0×3.5
NC3057Q-813	8-13	21*	±0.4*	1.7*	16*	1.3*	1.4*	5/55	CQFN08A	5.5×5.5×1.2
NC3034Q-919A	9-19	27*	±1.5*	1.8*	13*	1.5*	1.6*	5/60	CQFN08A	5.5×5.5×1.2
NC3052Q-1017	10-17	27*	±1.5*	1.5*	3*	1.5*	1.6*	5/20	CQFN08A	5.5×5.5×1.2
NC3053Q-1020	10-20	26*	±0.5*	1.7*	2*	1.5*	1.5*	5/15	CQFN08A	5.5×5.5×1.2
NC3048Q-1116A	11-16	22*	±1.5*	1.7*	3*	1.8*	1.5*	5/15	CQFN08A	5.5×5.5×1.2
NC3054Q-1118	11-18	24*	±0.5*	1.6*	12*	1.5*	1.6*	5/50	CQFN08A	5.5×5.5×1.2
NC3058Q-1826	18-26	25*	±0.7*	1.9*	-1*	1.5*	1.5*	5/10	CQFN08A	5.5×5.5×1.2

II) Carrier Low Noise Amplifier

Paramete / P/N	Frequency (GHz)	Gain (dB)	Gain Flatness (dB)	Noise (dB)	P1dB (dBm)	VSWRin	VSWRout	Power Consumption (V/mA)	Package	Dimension (mm×mm×mm)
NC30126MC-2735	2.7-3.5	32*	±0.65*	0.6*	10*	1.5*	1.4*	5/23	carrier	5.8×4.5×1.5

III) Mini Package Wide-band Amplifier

Paramete / P/N	Frequency (GHz)	Gain (dB)				P1dB* (dBm)				Noise (dB)	Power Consumption (V/mA)	Package	Dimension (mm×mm×mm)
		0.1 GHz	1 GHz	2 GHz	3 GHz	0.1 GHz	1 GHz	2 GHz	3 GHz				
NC3047S-103	DC-3	19	18.5	17	15.5	8	8	6	5	3.8*	3.1/19	ST26	2.0×1.1
NC3068Q-103	DC-3	19.5	19	18.5	17.5	8	7.5	7.4	6.5	3.8*	3.1/19	CQFN12	3.0×3.0×1.2
NC3046S-103	DC-3	20	19.5	18.5	17	-	12	11	-	3.8*	3.4/35	ST26	2.0×1.1
NC3049S-104	DC-4	19.5	18.8	17.7	17.2	17.5	17	-	14.5	4*	4.6/60	ST26	2.0×1.1
NC3085S-104	DC-4	21.3	20.3	18.7	16.8	-	12	12	-	3.5*	3.9/35	ST26	2.0×1.1
NC3066Q-105	DC-5	14.5	14.5	14.5	14.5	15	15	13.8	11	3.5*	3.8/45	CQFN12	3.0×3.0×1.2
NC30108S-106	DC-6	17.7	17	15.8	14.8	15	15	14	13	3.8*	3.7/45	ST26	2.0×1.1
NC30116S-106	DC-6	18.8	18	17	16	16.8	16.3	15.8	14.4	3.8*	3.7/60	ST26	2.0×1.1

Paramete / P/N	Frequency (GHz)	Gain (dB)				P1dB* (dBm)				Noise (dB)	Power Consumption (V/mA)	Package	Dimension (mm×mm×mm)
		0.1 GHz	1 GHz	2 GHz	3 GHz	0.1 GHz	1 GHz	2 GHz	3 GHz				
NC30109S-106	DC-6	24.5	23.4	20.5	18.5	13.8	12.8	11.9	11	4*	3.7/35	ST26	2.0×1.1
NC30155S-104	0.03-4	16	15	14	14	19	20	20	19.8	2*	5/85	SM132	4.5×2.5×1.6
NC31103S-102	0.05-2	20.6	20.1	20	-	20	20	19	-	3.2*	5/75	SM91	4.5×2.5×1.6
NC3067Q-104	0.05-4	31.3	31	30.5	29.6	8.0	8	8	8	2.5*	5/25	CQFN12	3.0×3.0×1.2
NC30123S-102	0.1-2	18.5	18.7	18.4	-	16.5	16.9	16.2	-	3.5*	5/60	SM84	5.0×7.0×2.3
NC30122S-102	0.1-2	22.8	22.8	21.7	-	13.9	14	13	-	3*	5/40	SM84	5.0×7.0×2.3
NC30114S-102	0.1-3	17.2	17.7	17.4	-	11.4	10.9	9.5	-	3.3*	5/35	SM84	5.0×7.0×2.3
NC30127S-103	0.1-3	17.3	17.6	17.2	16.2	15.0	15.4	14.2	12.5	3*	5/45	SM84	5.0×7.0×2.3
NC30128S-103	0.1-3	19.7	17	14.2	12	23.7	23.6	23.6	23.5	3.5*	5/115	SM132	4.5×2.5×1.6
NC30115S-102	0.1-3	29.8	29.7	28.9	27.8	7.5	8	7.7	6.5	2.5*	5/25	SM84	5.0×7.0×2.3

IV) Low Noise Amplifier Module

Paramete / P/N	Frequency (GHz)	Gain (dB)	Gain Flatness (dB)	Noise (dB)	P1dB (dBm)	VSWRin	VSWRout	Power Consumption (V/mA)	Package	Dimension (mm×mm×mm)
NC3099M-109	1-9	40*	±1.2*	1.7*	13*	1.5*	1.5*	5/135	SMA-92A	11.4×12.2×4.3
NC30110M-919	9-19	27*	±1.5*	1.8*	14*	1.6*	1.8*	5/60	SMA-92A	11.4×12.2×4.3
NC3098M-919	9-19	40*	±1.3* (Positive slope)	1.8*	20*	1.7*	1.4*	5/150	SMA-75A	29.0×19.0×6.7
NC3092M-1318A	12-18	⩾35	⩽±1 (Positive slope)	⩽1.8	⩾13	⩽1.8	⩽1.8	5/85	SMA-75A	29.0×19.0×6.7
NC30111M-1219	12-19	26*	±0.7*	1.5*	2*	1.4*	1.6*	5/12	SMA-92A	11.4×12.2×4.3
NC30112M-1826	18-26	24*	±0.4*	1.8*	-2*	1.4*	1.4*	5/10	SMA-92A	11.4×12.2×4.3
NC30113M-1826	18-26	23*	±1.2*	2.3*	12*	1.4*	1.6*	5/40	SMA-92A	11.4×12.2×4.3
NC30118M-1840A	18-40	22*	±1.8*	5*	9*	1.8*	1.8*	5/110	SMA-75A	29.0×19.0×6.7
NC30114M-2933	29-33	14*	±0.5*	3.5*	8*	1.8*	1.8*	5/20	SMA-92A	11.4×12.2×4.3
NC30121M-075110	75-110	17*	±1*	4.2*	-5*	2*	2*	5/39	Module-WR10	25.0×23.0×20.0
NC30122M-110170	110-170	20*	±4*	5.6*	-5*	2.5*	2.5*	5/45	Module-WR6	25.0×23.0×20.0
NC30123M-210220	210-220	18*	±2*	8.5*	-3*	2*	2*	5/45	Module-WR4	33.0×23.0×20.0

Note： "*"is typical； "M" is mirror；

4.1.2 Power Amplifier

I) GaAs Mini Package Power Amplifier

Paramete / P/N	Frequency (GHz)	Power Gain (dB)	Pout (dBm)	VSWRin	VSWRout	PAE (%)	Power Consumption (V/mA)	Package	Dimension (mm×mm×mm)
NC31100S-1113P1	1.1-1.3	⩾30	31.5*	⩽2	⩽2.3	40*	8/500	QF089	8.7×18.1×2.5
NC31139S-1722P3	1.7-2.2	28*	34.5*	2*	2*	31*	8/1300	QF089	8.7×18.1×2.5
NC31137S-1924P2	1.9-2.4	28*	33*	2*	2.2*	38*	8/700	QF089	8.7×18.1×2.5
NC31136S-2127P2	2.1-2.7	23*	34*	2.2*	2.2*	30*	8/1200	QF089	8.7×18.1×2.5
NC31134S-2227	2.2-2.7	10*	26*	2*	2.2*	22*	8/120	QF089	8.7×18.1×2.5
NC31138S-2229	2.2-2.9	24*	29*	2*	2*	26*	8/400	QF089	8.7×18.1×2.5
NC3108S-2942A	2.9-4.2	20*	36*	1.8*	2.5*	32*	8/2000	QF089	8.7×18.1×2.5
NC31131S-304P5	3-4	19*	37*	2*	-	33*	8/2500	QF089	8.7×18.1×2.5
NC31109S-4450P4	4.4-5.0	27*	37*	2*	-	37*	8/2300	QF089	8.7×18.1×2.5
NC3193S-506P13	5-6	22.5*	41*	2.5*	-	30*	10.5/5600	QF92-4A	13.5×21.0×5.0
NC3193S-506P13M	5-6	22.5*	41*	2.5*	-	30*	10.5/5600	QF92-4A	13.5×21.0×5.0
NC31143S-506P5M	5-6	21*	38*	2.3*	-	26*	8/2800	QF089	8.7×18.1×2.5

P/N \ Paramete	Frequency (GHz)	Power Gain (dB)	Pout (dBm)	VSWRin	VSWRout	PAE (%)	Power Consumption (V/mA)	Package	Dimension (mm×mm×mm)
NC31135S-507	5-7	20*	28*	2*	2.3*	23*	8/200	QF089	8.7×18.1×2.5
NC3114S-506	5-6	18*	30*	2*	2.5*	30*	8/600	QF089	8.7×18.1×2.5
NC31142S-506P1	5-6	22*	31*	2*	2*	31*	8/800	QF089	8.7×18.1×2.5
NC31119S-5359P7	5-6	23*	38.5*	2.1*	-	37*	8/3000	QF089	8.7×18.1×2.5
NC31127S-618P2	6-18	17*	33*	3*	3*	18*	8/1700	QF089	8.7×18.1×2.5
NC31149S-6472P2A	6.4-7.2	23*	33*	2.6*	3*	30*	8/1000	QF087B	8.7×18.1×2.5
NC31122S-811	8-12	17*	24.5*	2*	2.5*	20*	8/350	QF089	8.7×18.1×2.5
NC31124S-812P1	8-12	22*	30*	2.3*	-	20*	8/800	QF089	8.7×18.1×2.5
NC31129S-812P8	8-12	17*	40.5*	2.3*	-	28*	8/5000	QF089	8.7×18.1×2.5
NC31132S-812	8-12	21*	23*	1.8*	1.8*	20*	8/130	QF089	8.7×18.1×2.5
NC31144S-812P5	8-12	16*	37*	2.3*	2.7*	30*	8/2200	QF089	8.7×18.1×2.5
NC3185S-8810P7	8.8-10	21*	38.5*	2*	2.5*	32	10/2200	QF089	8.7×18.1×2.5
NC31118S-8810P2	8.8-10	23*	33*	2.3*	2.5*	28	8/900	QF089	8.7×18.1×2.5
NC3187S-8810P2	8.8-10.4	27*	32*	2.5*	2.5*	25	8/800	QF089	8.7×18.1×2.5

II) GaN Mini Package Power Amplifier

P/N \ Paramete	Frequency (GHz)	Power Gain (dB)	Pout (dBm)	VSWRin	VSWRout	PAE (%)	Power Consumption (V/mA)	Package	Dimension (mm×mm×mm)
NC31627M-0820P9	0.8-2	26	39	2	2	50	28/800	QF92-4AD	13.5×21.0×5.0
NC31613S-1426P5	1.4-2.6	14.5	37	3	2	50	28/350	QF92-4AC	13.5×21.0×5.0
NC31617S-2065P20	2-6.5	22	43	2	-	30	28/2900	QF136GC	14.7×24.5×5.5
NC31609S-2735	2.7-3.5	10	19	2	2	-	28/60	QF089	8.7×18.1×2.5
NC31628S-2735P8	2.7-3.5	21	39	2	2	40	28/900	QF92-4AC	13.5×21.0×5.0
NC31612S-3135P10	3.1-3.5	15	40	2	-	30	28/500	QF089	8.7×18.1×2.5
NC31611S-4549P10	4.5-4.9	17	40	2.5	-	30	28/2500	QF089	8.7×18.1×2.5
NC31622S-506P34	5-6	18	45.4	2.5	-	35	28/3800	QF089	8.7×18.1×2.5
NC31621S-5359P20	5-6	17	43	2.4	-	33	28/2200	QF089	8.7×18.1×2.5
NC31620S-618P6	6-18	13	37.5	3	-	17	28/1800	QF089	8.7×18.1×2.5
NC31619S-812P11	8-12	18	40.5	3	-	32	28/1300	QF089	8.7×18.1×2.5
NC31614S-812P30	8-12	19	45	2.7	-	30	28/4800	QF089	8.7×18.1×2.5
NC31615S-812P20	8-12	22	43	2.7	-	35	28/1000	QF089	8.7×18.1×2.5
NC31618S-812P18	8-12	21	42	2.5	-	30	28/2200	QF089	8.7×18.1×2.5
NC31602S-8510P30	8.8-10	20	44	2.5	-	33	28/2700	QF089	8.7×18.1×2.5
NC31616S-912P1	9-12	14	30	2.2	2.5	20	28/170	QF089	8.7×18.1×2.5

III) GaN Power Amplifier with carrier

P/N \ Paramete	Frequency (GHz)	Gain (dB)	Gain Flatness (dB)	Psat (dBm)	PAE (%)	VSWRin	Voltage (V)	Package	Dimension (mm×mm×mm)
NC31633MC-0405P64	0.425-0.475	28	±0.5	48	55	2	50	Carrier	16.0×111.0×5.0
NC316121MC-0814P100	0.87-1.4	11	±0.5	50	50	3	48	Carrier	24.0×17.4×5.0
NC316122MC-0814P300	0.87-1.4	11.5	±0.8	54.8	45	3	48	Carrier	24.0×17.4×5.0
NC31637MC-111P160	1-1.12	40	±1	52	40	2	36	Carrier	24.0×16.0×1.5
NC31611MC-1114P90	1.1-1.4	14	±0.5	49.5	50	>3	28	Carrier	25.0×39.0×2.5
NC31646MC-1214P600	1.2-1.4	16	±0.5	58	50	1.5	48	Carrier	45.0×80.0×5.0

Paramete P/N	Frequency (GHz)	Gain (dB)	Gain Flatness (dB)	Psat (dBm)	PAE (%)	VSWRin	Voltage (V)	Package	Dimension (mm×mm×mm)
NC31626MC-2731P200	2.7-3.1	12	±0.5	53	55	-	28	Carrier	40.0×30.0×6.0
NC31621MC-2735P200	2.7-3.5	12	±0.6	53	45	-	28	Carrier	40.0×30.0×7.0
NC316119MC-2735P100	2.7-3.5	13	±0.8	50	50	2	48	Carrier	80.0×45.0×6.0
NC316120MC-2735P300	2.7-3.5	12	±0.8	54.8	55	2	48	Carrier	80.0×45.0×6.0
NC31620MC-3135P200	3.1-3.5	12	±0.5	53	50	-	28	Carrier	40.0×30.0×6.0
NC31622MC-4549P200	4.5-4.9	10	±0.5	53	45	-	28	Carrier	40.0×30.0×6.0
NC31617MC-506P60	5-6	19.5	±0.2	47.5	30	-	28	Carrier	12.9×11.9×2.0

Note： MC means carrier； Carrier means transistor mounting on the carrier broad.

IV) GaN power Amplifier carrier

Paramete P/N	Frequency (GHz)	Gain (dB)	Gain Flatness (dB)	Psat (dBm)	PAE (%)	VSWRin	Voltage (V)	Package	Dimension (mm×mm×mm)
NC316113MC-0912P20	0.96-1.23	29	±0.5	43	40	2	28	carrier	20.0×15.0×5.0
NC316113MC-0912P20M	0.96-1.23	29	±0.5	43	40	2	28	carrier	20.0×15.0×5.0
NC31636MC-1215P70	1.2-1.5	28.5	±0.6	48.5	60	2	50	carrier	16.0×11.0×5.0
NC31636MC-1215P70M	1.2-1.5	28.5	±0.6	48.5	60	2	50	carrier	16.0×11.0×5.0
NC316106MC-2324P230	2.34-2.46	12.5	±0.5	53.5	55	3	28	carrier	20.0×16.0×1.2
NC31638MC-2735P50	2.7-3.5	9.5	±0.3	47.5	40	3	28	carrier	12.8×16.0×1.3
NC316100MC-2735P450	2.7-3.5	12	±0.5	56.5	55	3	48	carrier	20.0×15.0×1.2
NC31632MC-2735P230	2.7-3.5	12.5	±0.5	53.5	53	3	48	carrier	20.0×15.0×1.2
NC316104MC-2735P12	2.7-3.5	24	±0.5	41	40	2	48	carrier	8.0×6.6×1.2
NC316111MC-2735P130	2.7-3.5	11	±0.5	51	55	-	32	carrier	8.0×6.6×1.2
NC316111MC-2735P130M	2.7-3.5	11	±0.5	51	55	-	32	carrier	15.0×6.6×1.2
NC316114MC-2735P25	2.7-3.5	23	±0.5	44	40	2	32	carrier	8.0×6.6×1.2
NC316116MC-2735P150	2.7-3.5	11	±0.5	51.7	57	3	36	carrier	15.0×6.6×1.2
NC316116MC-2735P150M	2.7-3.5	11	±0.5	51.7	57	2.5	36	carrier	15.0×6.6×1.2
NC31648MC-3135P130	3.1-3.5	11	±0.5	51	60	3	28	carrier	14.0×15.0×1.2
NC31649MC-3135P230	3.1-3.5	12	±0.5	53.5	60	3	32	carrier	14.0×15.0×1.2
NC316109MC-3135P30	3.1-3.5	25	±0.5	45	40	2	48	carrier	8.0×6.6×1.2
NC31640MC-4549P50	4.45-4.95	27	±0.5	47	50	2	28	carrier	16.0×10.0×1.2
NC316117MC-506P130	5-6	26	±0.5	51	45	2	28	carrier	20.0×12.0×1.7
NC316102MC-5259P200	5.2-5.9	11	±0.5	53.1	55	2	28	carrier	14.0×15.0×1.2
NC316103MC-5259P200	5.2-5.9	28	±0.5	53	53	2	28	carrier	14.0×15.0×1.2
NC31641MC-5359P100	5.3-5.9	30	±0.5	50	50	2	28	carrier	20.0×12.0×1.2
NC31642MC-5359P50	5.3-5.9	27	±0.5	47	50	2	28	carrier	20.0×12.0×1.2
NC31643MC-5359P80	5.3-5.9	33	±0.5	49	53	1.8	28	carrier	20.0×12.0×1.2
NC316112MC-5359P130	5.3-5.9	42	±0.5	51	50	2	28	carrier	20.0×12.0×1.2
NC31645MC-5260P60	5.2-6	25	±0.6	47.8	50	2	28	carrier	20.0×12.0×1.2
NC316101MC-1011P64	10-10.4	8	±0.5	48	45	3	28	carrier	15.0×8.0×1.2

V) GaN Power Amplifier Module

P/N \ Paramete	Frequency (GHz)	Gain (dB)	Gain Flatness (dB)	Psat (dBm)	PAE (%)	VSWRin	Voltage (V)	Package	Dimension (mm×mm×mm)
NC316242M-0203P3	0.219-0.221	20	±0.5	35	35	2	12	Module	29.0×30.0×8.0
NC316210M-0304P30	0.35-0.45	36	±0.5	45	50	2	28	Module	77.5×55.8×15.0
NC316218M-0304P7	0.35-0.45	30	±0.5	38.5	40	2	48	Module	17.0×17.0×5.3
NC316221M-0405P30	0.4-0.5	32	±0.5	40	40	2	50	Module	77.5×55.8×15.0
NC31666M-0405P40	0.4-0.5	34	±0.5	47	40	1.5	50	Module	77.5×55.8×15.0
NC31658M-0406P11	0.4-0.61	31	±0.5	40.6	60	2	36	QF136GC	17.4×24.0×5.0
NC316209M-0406P30	0.41-0.61	35	±0.5	45	50	2	42	Module	35.0×35.0×8.0
NC316237M-0406P20	0.41-0.61	33	±0.5	43	-	2	36	Module	240×15.5×4.2
NC316227M-0814P100	0.87-1.4	11	±0.5	50	50	2	48	Module	80.0×45.0×6.0
NC316228M-0814P300	0.87-1.4	11	±0.5	55	45	2	48	QF136GC	17.4×24.0×5.0
NC316239M-0912P20	0.96-1.23	28	±0.5	43	40	2	28	Module	20.0×17.0×5.5
NC316239M-0912P20M	0.96-1.23	28	±0.5	43	40	2	28	Module	20.0×17.0×5.5
NC316231M-0912P45	0.96-1.225	46	±0.5	46.5	50	2	36	Module	55.0×50.0×12.0
NC316215M-0912P12	0.96-1.215	31	±0.5	41	30	1.5	50	Module	45.0×80.0×10.0
NC316216M-0912P316	0.96-1.215	15	±0.6	55	50	1.5	50	Module	45.0×80.0×10.0
NC316217M-0911P630	0.96-1.125	15	±1	58	50	1.5	50	Module	45.0×80.0×10.0
NC31628M-0820P50	0.8-2	9	±1.5	47	45	3	28	QF136GC	17.4×24.0×5.0
NC31667M-0912P50	0.96-1.23	30	±0.6	47	40	2	50	Module	20.0×17.0×5.5
NC316203M-0911P200	0.99-1.12	50	±0.5	53	50	1.5	36	Module	16.0×35.0×1.5
NC31685M-0911P200	0.99-1.13	40	±0.5	53	20	2	50	Module	38.0×30.0×8.0
NC316226M-0911P200	0.99-1.13	40	±0.75	53	40	2	36	Module	38.0×30.0×8.0
NC31650M-0911P130	0.99-1.13	15	±0.5	51.1	50	-	50	QF136G	17.4×24.0×5.0
NC316222M-104P100	1-4	8	±2.5	50	35	2	48	QF136GC	17.4×24.0×5.0
NC31672M-1214P70	1.2-1.4	29	±0.5	48.5	60	-	50	QF136G	17.4×24.0×5.0
NC31686M-1214P40	1.2-1.4	17	±0.5	46	60	2.5	36	QF136G	17.4×24.0×5.0
NC31698M-1214P18	1.2-1.4	29	±0.5	42.5	60	2	48	QF136G	17.4×24.0×5.0
NC316201M-1214P15	1.2-1.4	25	±0.5	41.76	20	2	48	QF136G	17.4×24.0×5.0
NC316232M-1214P600	1.2-1.4	17	±0.5	58	65	2	48	Module	45.0×80.0×5.0
NC316223M-1214P600	1.2-1.4	16	±0.5	58	60	1.5	48	Module	45.0×80.0×5.0
NC316229M-1214P20	1.28-1.45	31	±0.5	43	50	2.5	45	Module	52.0×30.0×15.0
NC316230M-1617P3	1.61-1.66	25	±0.5	35	50	2	69	Module	40.0×30.0×10.0
NC31699M-1921P6	1.9-2.1	30	±0.5	38	40	2	28	QF92-4	12.9×21.0×4.5
NC316233M-1923P20	1.9-2.3	14	±1	43	50	-	28	QF92-4AC	12.9×21.0×4.5
NC31613M-204P64	2-4	⩾8.5	±1.0	⩾48.5	⩾35	-	36	Module	35.6×17.6×7.0
NC31651M-204P50	2-4	7.0	±1	47.5	40	2	28	QF136GC	17.4×24.0×5.0
NC31659M-2224P16	2.2-2.4	26	±1	42	55	2	28	QF92-4	12.9×21.0×4.5
NC31688M-2224P3	2.2-2.4	20	±0.5	35	40	1.5	12	Module	29.0×30.0×8.5
NC316235M-2223P400	2.275-2.325	46	±0.5	56	55	2	36	Module	45.0×25.0×5.5
NC316200M-2325P6	2.3-2.5	30	±0.5	38	45	2	28	QF92-4	21.0×12.9×4.5
NC31664M-267P30	2.67	10	-	45	50	3	28	QF136GC	24.0×17.4×5.0
NC31665M-267P3	2.67	20	-	35	50	2	28	QF92-4AC	21.0×12.9×4.5
NC316206M-267P1	2.675	23	±0.5	31	30	3	28	QF92-4AC	21.0×12.9×4.5

Paramete / P/N	Frequency (GHz)	Gain (dB)	Gain Flatness (dB)	Psat (dBm)	PAE (%)	VSWRin	Voltage (V)	Package	Dimension (mm×mm×mm)
NC316207M-267P10	2.675	10	±0.5	40	50	3	28	QF136GC	24.0×17.4×5.0
NC31674M-2627P5	2.6-2.7	25	±0.5	37	50	2	28	QF92-4	21.0×12.9×4.5
NC31606M-2730P150	2.7-3	42	≤±1	52	58	-	28	QF2545-5	25.0×45.0×5.5
NC31616M-2730P12	2.7-3	24	±0.2	41.5	50	-	28	QF92-4AC	21.0×12.9×4.5
NC31657M-2731P12	2.7-3.1	23	±0.5	40.8	45	2	28	QF97-4AC	21.0×12.9×4.5
NC31614M-2735P120	2.7-3.5	10	±0.5	51.5	50	-	32	QF136G	24.0×17.4×5.0
NC31615M-2735P50	2.7-3.5	10	±0.5	47.5	50	-	28	QF136G	24.0×17.4×5.0
NC31609S-2735	2.7-3.5	10	±0.5	19	-	2	24	QF089	18.0×8.7×2.3
NC316208M-2735P30	2.7-3.5	40	±0.5	45	30	1.5	28	Module	120.0×45.0×14.0
NC31653M-2832P30	2.8-3.2	12.1	±0.5	44.8	55	-	28	QF136G	24.0×17.4×5.0
NC316234M-2829P400	2.854-2.858	36	±0.5	56	55	2	48	QF2545-5B	45.0×25.0×5.5
NC316238M-3133P15	3.1-3.3	15	±0.6	42	30	2	32	QF2235-5	20.0×35.0×5.5
NC31687M-3134P16	3.1-3.4	32	±0.3	42	45	2	28	QF92-4AC	21.0×12.9×4.5
NC31687M-3134P16M	3.1-3.4	32	±0.3	42	45	2	28	QF92-4AC	21.0×12.9×4.5
NC31690M-3134P25	3.1-3.4	27	±0.4	44	40	2.5	28	QF136HG	24.0×17.4×5.0
NC31689M-3135P200	3.1-3.5	41	±0.5	53	55	2	32	Module	38.0×24.0×5.5
NC31669M-3135P230	3.1-3.5	12	±0.5	53.5	60	3	32	QF136GD	24.0×17.4×5.0
NC31661M-3135P100	3.1-3.5	40	±0.5	50	50	2	32	Module	40.0×28.0×6.0
NC31668M-3135P130	3.1-3.5	11	±0.5	51	60	3	28	QF136GD	24.0×17.4×5.0
NC31624M-3135P20	3.1-3.5	25	±0.5	42.5	45	<2:1	36	QF92-4AC	21.0×12.9×4.5
NC316220M-3135P12	3.1-3.5	24	±1	41.5	45	1.8	28	QF92-4AC	21.0×12.9×4.5
NC316213M-3742P16	3.7-4.2	22	±0.5	42	40	2	28	QF92-4AC	21.0×12.9×4.5
NC31677M-3943P4	3.9-4.3	25	±0.5	36	40	2	28	QF92-4AC	21.0×12.9×4.5
NC31678M-3943P50	3.9-4.3	11	±0.5	47	50	3	28	QF136GC	24.0×17.4×5.0
NC316204M-3943P20	3.9-4.3	10	±0.5	43	50	3	28	QF136GC	24.0×17.4×5.0
NC316205M-3943P2	3.9-4.3	26	±0.5	34	30	3	28	QF92-4AC	21.0×12.9×4.5
NC31694M-406P64	4-6	8	±1.5	48	35	3	30	QF136GC	24.0×17.4×5.0
NC31675M-4348P15	4.3-4.8	15	±0.6	42	40	2	28	QF136HG	24.0×17.4×5.0
NC31656M-4450P5	4.4-5	20	±1	37	38	2	28	QF92-4	21.0×12.9×4.5
NC31611S-4549P10	4.5-4.9	17	±0.5	40	30	1.5	28	QF089	18.0×8.7×2.3
NC31652M-4549P30	4.5-4.95	12.1	±0.5	44.8	55	-	28	QF136G	24.0×17.4×5.0
NC31695M-510P40	5-10	34	±1.5	46	25	2	28	-	337.0×110.0×8.0
NC31671M-5259P200	5.2-5.9	11	±0.5	53.1	55	2	28	QF136GD	24.0×17.4×5.0
NC31692M-5359P130	5.3-5.9	41	±0.5	51	50	1.5	28	-	45.0×25.0×6.0
NC31697M-5359P100	5.3-5.9	10	±0.5	50	50	3	28	QF136GD	24.0×17.4×5.0
NC31660M-5359P50	5.3-5.9	27	±0.5	47	50	2	28	QF136GD	24.0×17.4×5.0
NC31607M-812P100	8-12	21	±0.6	50	35	≤2.0	30	MQFM2425-X6	24.9×14.0×7.8
NC316212M-8596P80	8.5-9.6	17.5	±0.5	49	28	-	28	Module	35.0×40.0×7.8
NC31602S-8510P30	8.8-10	20	±0.4	44.5	26	-	28	QF089	18.0×8.7×2.3
NC31670M-1011P64	10-10.4	8	±0.5	48	45	3	28	QF136GD	24.0×17.4×5.0
NC31680M-1011P130	10-11	19	±0.3	51	35	2	28	Module	32.0×32.0×7.8
NC31681M-1011P40	10-11	41	±0.3	46	35	2	28	Module	60.0×26.0×7.8
NC31696M-1015P10	10-15	28	±1.5	40	20	2	28	-	337×110×8.0

VI) INP Power Amplifier Module

Paramete / P/N	Frequency (GHz)	Gain (dB)	Gain Flatness (dB)	Psat (dBm)	PAE (%)	VSWRin	Voltage (V)	Package
NC31110M-090110	90-110	21	±1.5	20	10	3.0	2	Module-WR10
NC31111M-210220	210-220	20	±2.5	8	2.5	2.0	5	Module-WR4

Note： "M" means mirror； "*" mean typical.

4.1.3 Digital Phase Shifter/Delayer

I) Mini Package Digital Phase Shifter

Paramete / P/N	Frequency (GHz)	Bit	Insertion Loss (dB)	RMS (°)	VSWRin	VSWRout	Controlled Method	Controlled Level (V)	Voltage (V)	Package	Dimension (mm×mm×mm)
NC3224S-7785	7.7-8.5	5	<9.5	<3	<1.8	<1.8	Parallel Port	0/+5	-5	SM75	8.5×8.5×2.7
NC3225S-7785	7.7-8.5	5	<9.5	<3	<1.8	<1.8	Series Port	0/+5	-5	QF072A	10.0×14.5×3.6
NC3234S-8510PD	8.5-10.5	5	<10	2.5*	<2	<2	Parallel Port	0/+5	-5	SM75	8.5×8.5×2.7
NC3241S-1012PD	1-1.2	6	<6.5	3*	<1.6	<1.6	Parallel Port	0/+5	-5	SM71	12.5×10.0×2.4
NC3239S-0913SD	0.9-1.3	6	<6	3*	<1.6	<1.6	Series Port	0/+5	-5	SM71	12.5×10.0×2.4
NC3220S-1214	1.2-1.4	6	<6	2*	<1.6	<1.6	Parallel Port	0/+5	-5	SM55A	9.0×8.0×2.8
NC3237S-1620PD	1.6-2	6	5	2	<1.6	<1.6	Parallel Port	0/+5	-5	SM55A	9.0×8.0×2.8
NC3232S-1926PD	1.9-2.6	6	≤6.5	<4.5	≤2	≤2	Parallel Port	0/+5	-5	SM55A	9.0×8.0×2.8
NC3207S-225B	2-2.5	6	<6.5	<1.8	<1.7	<1.7	Parallel Port	0/+5	-5	SM43	8.6×8.6×2.4
NC3233S-225SD	2-2.5	6	4.5*	3.5*	1.5*	1.5*	Series Port	0/+5	-5	SM66	9.0×6.0×2.8
NC3227S-3134	3.1-3.4	6	<6.5	2*	1.6*	1.6*	Parallel Port	0/+5	-5	SM75	8.5×8.5×2.7
NC3210Q-3742PD	3.7-4.2	6	<7	3*	<1.8	<1.8	Parallel Port	0/+5	-5	CQFN40	6.0×6.0×1.2
NC3230S-4550PD	4.5-5	6	≤6	-	≤1.8	≤1.7	Parallel Port	0/+5	-5	SM55A	9.0×8.0×2.8
NC3216S-5258	5.2-5.8	6	<7.8	<3	<1.8	<1.8	Parallel Port	0/+5	-5	SM55A	9.0×8.0×2.8
NC3222S-5974	5.9-7.4	6	<8	<3	<1.8	<1.8	Parallel Port	0/+5	-5	SM55A	9.0×8.0×2.8
NC3240S-812PD	8-12	6	9	3*	<1.6	<1.6	Parallel Port	0/+5	-5	SM75	8.5×8.5×2.7
NC3201Q-913	9-12.5	6	≤10.5	≤3.5	≤2	≤2	Parallel Port	0/+5	-5	CQFN32E	5.0×5.0×1.0
NC3207Q-506	4.4-6	8	7.5*	-	1.5*	1.6*	Parallel Port	0/+5	-5	CQFN40	6.0×6.0×1.2

II) Mini Package Digital Delayer

Paramete / P/N	Frequency (GHz)	Bit	Insertion Loss (dB)	Max Delay Value (ps)	VSWRin	VSWRout	Controlled Method	Controlled Level (V)	Voltage (V)	Package	Dimension (mm×mm×mm)
NC3229S-107PD	0.5-7	6	≤16	882	1.5*	1.5*	Parallel Port	0/+5	-5	SM55A	9.0×8.0×2.8

III) Digital Phase Shifter Module

Paramete / P/N	Frequency (GHz)	Bit	Insertion Loss (dB)	VSWRin	VSWRout	Controlled Method	Controlled Level (V)	Voltage (V)	Input /output connecto	Package	Dimension (mm×mm×mm)
NC3222M-1012PD	1.0-1.2	6	5.5*	1.6*	1.6*	Parallel Port	0/+5	-5	SMA	SMA-102	20.0×20.0×6.0
NC3221M-618PD	6-18	6	13.8*	2.5*	2.5*	Parallel Port	0/+5	-5	SMA	SMA-102	20.0×20.0×6.0
NC3227M-812PD	8-12	6	9*	<1.6	<1.6	Parallel Port	0/+5	-5	SMA	SMA-102	20.0×20.0×6.0
NC3226M-1418PD	14-18	6	9*	1.5*	1.6*	Parallel Port	0/+5	-5	SMA	SMA-102	20.0×20.0×6.0
NC3225M-1923PD	19-23	6	10*	1.9*	2*	Parallel Port	0/+5	-5	SMA	SMA-102B	20.0×20.0×6.0
NC3224M-1923SD	19-23	6	10*	1.9*	2*	Series Port	0/+5	-5	SMA	SMA-102B	20.0×20.0×6.0

IV) Digital Delayer Module

Paramete / P/N	Frequency (GHz)	Bit	Insertion Loss (dB)	Max Delay Value (ps)	VSWRin	VSWRout	Controlled Method	Controlled Level (V)	Voltage (V)	Input / output connector	Package	Dimension (mm×mm×mm)
NC3220M-218PD	2-18	6	18.5*	315	1.8*	1.8*	Parallel Port	0/+5	-5	SMA	SMA-102	20.0×20.0×6.0

Note： "*" means typical； "PD" means parallel， "SD" means series.

4.1.4 Digital /Electrically Controlled/Fixed Attenuator

I) Mini Package Digital Attenuator

Paramete / P/N	Frequency (GHz)	Bit	Insertion Loss (dB)	Attenuation (dB)	VSWRin	VSWRout	Controlled Method	Controlled Level (V)	Voltage (V)	Package	Dimension (mm×mm×mm)
NC3336S-105PD	DC-5	1	1.5*	20	1.6*	1.6*	Parallel Port	0/+5	-5	SM39B	7.0×7.0×2.4
NC3318S-106	DC-6	1	<3	32	<1.6	<1.6	Parallel Port	0/+5	-5	SM65	6.0×7.0×2.8
NC3317Q-112PD	DC-12	1	2.2*	40	1.6*	1.6*	Parallel Port	0/+5	-5	CQFN08A	5.5×5.5×1.2
NC3305Q-112	DC-6	3	2.5*	5-35	1.6*	1.6*	Parallel Port	0/+5	-5	CQFN24A-1	4.0×4.0×1.2
NC3319S-103	DC-3	5	<3.5	1-31	<1.6	<1.6	Parallel Port	0/+5	-5	SM89	7.0×7.0×2.4
NC3306Q-112	DC-6	5	7.5*	0.25-7.75	1.6*	1.6*	Parallel Port	0/+5	-5	CQFN24A-1	4.0×4.0×1.2
NC3309Q-110PD	DC-6	5	2.5*	0.5-15.5	1.6*	1.6*	Parallel Port	0/+5	-5	CQFN24A-1	4.0×4.0×1.2
NC3323S-108	DC-8	5	<4.5	1-31	<1.8	<1.8	Parallel Port	0/+5	-5	SM75	8.5×8.5×2.7
NC3315S-812	8-12	5	<5.5	1-31	<1.8	<1.8	Parallel Port	0/+5	-5	QF0708-8	10.7×14.5×3.6
NC3315Q-102	DC-2	6	<2.5	0.5-31.5	<1.5	<1.5	Parallel Port	0/+5	-5	CQFN32E	5.0×5.0×1.0
NC3303S-103	DC-4	6	<3	0.5-31.5	<1.6	<1.6	Parallel Port	0/+5	-5	SM39	7.0×7.0×2.4
NC3330S-104SD	DC-4	6	<3.5	0.5-31.5	<1.8	<1.8	Series Port	0/+5	-5	SM55A	9.0×8.0×2.8
NC3322S-105	DC-5	6	<4	1-51	<1.8	<1.8	Parallel Port	0/+5	-5	SM39	7.0×7.0×2.4
NC3320S-108	DC-8	6	<4.5	0.5-31.5	<2	<1.8	Parallel Port	0/+5	-5	SM75	8.5×8.5×*2.7
NC3308Q-108	DC-8	6	<4	0.5-31.5	<1.9	<1.6	Parallel Port	0/+5	-5	CQFN32E	5.0×5.0×1.0
NC3308Q-108A	DC-8	6	<4	0.5-31.5	<1.9	<1.6	Parallel Port	0/+5	-5	CQFN32A	5.0×5.0×1.2
NC3307Q-103	0.2-3	6	3*	0.5-31.5	1.5*	1.6*	Parallel Port	0/+5	+5	CQFN24A-1	4.0×4.0×1.2
NC3312Q-0510PD	0.5-10	6	5.5*	10-70	1.8*	1.8*	Parallel Port	0/+5	-5	CQFN22	7.0×7.0×1.2
NC3304Q-812	8-12	6	4.3*	0.5-31.5	1.9*	1.8*	Parallel Port	0/+5	-5	CQFN32E	5.0×5.0×1.0
NC3306S-102	DC-2	7	<3.1	0.5-63.5	<1.5	<1.6	Parallel Port	0/+5	-5	SM55A	9.0×8.0×2.8

Note： This circuit could be supplied high reliability product with internally GaAs driver.

II) Tiny package electrical attenuator

Paramete / P/N	Frequency (GHz)	Insertion Loss (dB)	Attenuation (dB)	Input VSWR	Output VSWR	Controlled Level (V)	Package	Dimension (mm×mm×mm)
NC3328S-103	1-2	<4.5	0-30	2*	2*	0-2.5	SM75	8.5×8.5×2.7
NC3333S-203	2-3	1.4*	0-30	1.7*	1.8*	0-2	SM03C	6.35×6.35×2.2
NC3321S-2226	2-3	<2.5	45	<1.8	<3	0-2	QF046C	8.7×11.0×3.7
NC3331S-3574	3.5-7.4	2.2*	0-30	1.7*	1.7*	0-2.7	QF046A	8.7×11.0×3.7
NC3313Q-120	1-20	3*	0-20	2.5*	2.2*	-5~0	CQFN08A	5.5×5.5×1.2

III) Tiny Package Fixed Attenuator

Paramete / P/N	Frequency (GHz)	Attenuation (dB)	Input VSWR	Output VSWR	Package	Dimension (mm×mm×mm)
NC3310S-107-1/2/3/4/5/6/7	DC-7	1/2/3/4/5/6/7	<1.6	<1.6	QF059	Φ1.75×1.2
NC3316Q-120A/B/C/D/E/F/ G/H/K/L/M/N/P/Q/S/T	DC-20	0/0.5/1/2/3/4/5/6/7/8/9/10/11/15/20/25	<1.6	<1.6	CQFN02	2.5×2.5×1.2

IV) Digital Attenuator Module

Paramete P/N	Frequency (GHz)	Bit	Insertion Loss (dB)	Max Delay Value (ps)	VSWRin	VSWRout	Controlled Method	Controlled Level (V)	Voltage (V)	Input /output connecto	Package	Dimension (mm×mm×mm)
NC3333M-2231PD	22-31	1	30	3.5	1.5	1.5	Parallel Port	0/+5	-5	SMA	SMA-102B	20.0×20.0×6.0
NC3330M-2224PD	22-24	5	1-31	6.0	1.6	1.6	Parallel Port	0/+5	-5	SMA	SMA-102B	20.0×20.0×6.0
NC3331M-108PD	DC-8	6	1-50	3.4	1.5	1.5	Parallel Port	0/+5	-5	SMA	SMA-102	20.0×20.0×6.0
NC3335M-218PD	2-18	6	0.5-31.5	8	2	2	Parallel Port	0/+5	-5	SMA	SMA-102	20.0×20.0×6.0
NC3327M-618PD	6-18	6	0.5-31.5	5*	1.8*	1.8*	Parallel Port	0/+5	-5	SMA	SMA-102	20.0×20.0×6.0
NC3328M-1923	19-23	6	0.5-31.5	3.3	1.7	1.7	Parallel Port	0/+5	-5	SMA	SMA-102B	20.0×20.0×6.0

Note: "*" stands for typical value; "PD" stands for parallel drive and "SD" stands for serial drive.

4.1.5 Microwave Switch

I) Tiny Package Microwave Switch

Paramete P/N	Type	Frequency (GHz)	Insertion Loss (dB)	Isolation (dB)	Switch Time (ns)	On VSWR	Off VSWR	Controlled Method	Controlled Level (V)	Operation Voltage (V)	Package	Dimension (mm×mm×mm)
NC3618Q-112	SPST	DC-6	<2	>30	<10	<1.6	<1.6	Parallel Port	0/+5	-5	CQFN24A-1	4.0×4.0×1.2
NC3608S-110	SPST	DC-10	<3	>35	<30	<1.8	<1.8	Parallel Port	0/+5	-5	SM75	8.5×8.5×2.6
NC3631Q-112	SPST	DC-12	2*	40*	<10	1.6*	-	Parallel Port	0/+5	-5	CQFN08A	5.5×5.5×1.2
NC3615S-106	SPDT	DC-1	1.5*	40*	20*	1.4*	1.4*	Parallel Port	0/+5	-5	SM09	6.6×5.5×2.6
NC3603S-102K	SPDT	DC-2	<1.1	>40	<20	<1.3	<1.3	Parallel Port	0/+5	-5	SM24	8.2×5.1×2.6
NC3611Q-104	SPDT	DC-4	<1.5	>29	<20	<1.5	<1.5	Parallel Port	0/+5	-5	CQFN24A-1	4.0×4.0×1.2
NC3619S-106	SPDT	DC-6	<1.5	>30	<10	<1.6	-	Parallel Port	0/+5	-5	SM65	6.0×7.0×2.8
NC3621Q-106	SPDT	DC-6	2*	35*	20*	1.5*	-	Parallel Port	0/+5	-5	CQFN24A-1	4.0×4.0×1.2
NC3610S-108A	SPDT	DC-8	<2.5	>40	<30	<1.8	<1.8	Parallel Port	0/+5	-5	SM75	8.5×8.5×2.6
NC3622Q-0550	SPDT	0.5-5	2.5*	37*	20*	1.6*	-	Parallel Port	0/+5	-5	CQFN32A	5.0×5.0×1.2
NC3613S-104	SP3T	DC-4	<2	>30	<30	<1.6	-	Parallel Port	0/+5	-5	SM75	8.5×8.5×2.6
NC3614S-104	SP4T	DC-4	<2.3	>30	<30	<1.6	-	Parallel Port	0/+5	-5	SM75	8.5×8.5×2.6

II) Tiny PackageGaN Microwave Switch

Paramete P/N	Type	Frequency (GHz)	Insertion Loss (dB)	Isolation (dB)	$P_{-0.2}$ (dBm)	Switch Time (ns)	On VSWR	Off VSWR	Controlled Method	Controlled Level (V)	Operation Voltage (V)	Package	Dimension (mm×mm×mm)
NC36606S-106	SPDT	DC-6	3	30	45	25	2.5	-	Parallel Port	0/+5	-35	QF0812-5	8.5×13.76×2.7
NC36605S-102	SPDT	DC-2	1	30	47	25	1.5	-	Parallel Port	0/+5	-40	QF0812-5	8.5×13.76×2.7

III) Microwave Switch Module

Paramete P/N	Type	Frequency (GHz)	Insertion Loss (dB)	Isolation (dB)	Switch Time (ns)	On VSWR	Off VSWR	Controlled Method	Controlled Level (V)	Operation Voltage (V)	Package	Dimension (mm×mm×mm)
NC3619M-2640	SPST	26-40	2*	30*	20*	1.7*	-	Parallel Port	0/+5	-5、+5	SMA-100B	16.8×17.6×6.0
NC3621M-118	SPDT	DC-18	3.5*	41*	30*	1.8*	1.8*	Parallel Port	0/+5	-5	SMA-101	20.4×18.6×6.0
NC3626M-1831	SPDT	18-31	2.2*	22*	15*	1.6*	1.7	Parallel Port	0/+5	-5	SMA-100B	16.8×17.6×6.0
NC3627M-075110	SPDT	75-110	3.8*	30*	-	2*	-	Parallel Port	0/+5	-3	Module-WR10	42.0×22.0×20.0
NC3624M-112	SP4T	DC-12	2.2*	27	30*	1.9*	-	Parallel Port	0/+5	-5	SMA-122	38.0×23.0×6.0

Note: "*" stands for typical value.

4.1.6 Mixer

I) SMT Passive Double Balanced Mixer

Paramete / P/N	Frequency RF&LO (GHz)	IF (GHz)	Conversion Loss (dB)	LO-RF Isolation (dB)	LO-IF Isolation (dB)	RF-IF Isolation (dB)	LO Power (dBm)	Package	Dimension (mm×mm×mm)
NC37107S-0717	0.7-1.7	DC-0.5	10*	50*	45*	20*	13*	SM03C	6.35×6.35×2.3
NC3711Q-0717	0.7-1.7	DC-0.5	9*	45*	40*	20*	13*	CQFN24A	4.0×4.0×1.2
NC3711Q-0717M	0.7-1.7	DC-0.5	9*	45*	40*	20*	13*	CQFN24A	4.0×4.0×1.2
NC3751S-1922	1.9-2.2	DC -0.5	9*	35*	35*	15*	10*	SM03C	6.35×6.35×2.3
NC3702S-104	1-4	DC-1	9*	40*	25*	20*	13*	SM03C	6.35×6.35×2.3
NC3701Q-1545	1.5-4.5	DC-1.5	9*	40*	35*	25*	13*	CQFN24A-1	4.0×4.0×1.2
NC37111S-1845	1.8-5	DC-2	8*	45*	35*	20*	13*	SM03C	6.35×6.35×2.3
NC37111S-1845M	1.8-5	DC -2	8*	45*	35*	20*	13*	SM03C	6.35×6.35×2.3
NC3701S-2570	2.5-7	DC-2.5	9*	40*	30*	20*	13*	SM03C	6.35×6.35×2.3
NC3701S-2570M	2.5-7	DC-2.5	9*	40*	30*	20*	13*	SM03C	6.35×6.35×2.3
NC3704Q-2570	2.5-7	DC-2.5	9*	35*	30*	20*	13*	CQFN24A-1	4.0×4.0×1.2
NC3704Q-2570M	2.5-7	DC-2.5	9*	35*	30*	20*	13*	CQFN24A-1	4.0×4.0×1.2
NC3703Q-4510	4.5-10.5	DC-5	10*	35*	30*	25*	13*	CQFN24A-1	4.0×4.0×1.2
NC37110S-615	6-15	DC-7	10*	30*	30*	20*	13*	SM75	8.5×8.5×2.6
NC3709Q-1220	12-20	DC-6	9*	30*	35*	20*	14*	CQFN24A-1	4.0×4.0×1.2
NC3733M-083100	83-100	DC-18	9*	25*	-	-	10*	Module-WR10	20.0×23.5×30.0

II) SMT I/Q Mixer

Paramete / P/N	Frequency RF&LO (GHz)	IF (GHz)	Conversion Loss (dB)	Mirror Rejection (dB)	Amplitude Unbalance (dB)	Phase Unbalance (Deg)	LO Power (dBm)	Package	Dimension (mm×mm×mm)
NC3712S-102	1-2	DC-0.7	8*	25*	1*	5*	15*	SM75	8.5×8.5×2.6
NC37103S-203	2-3	DC-1	9*	15*	1*	5*	16*	SM75	8.5×8.5×2.6
NC37109S-812	8-12	DC-3.5	8*	30*	1*	5*	15*	SM75	8.5×8.5×2.6
NC3712Q-1218	12-18	DC-3.5	8*	25*	1*	5*	15*	CQFN24A-1	4.0×4.0×1.2

III) SMT QPSK、 BPSK Modulator

Paramete / P/N	Type	Carrier Frequency (GHz)	Insertion Loss (dB)	Carrier Rejection (dB)	Modulation Amplitude Error(dB)	Modulation Phase Error (dB)	Carrier Power (dBm)	Modulation Signal Level (V)	Package	Dimension (mm×mm×mm)
NC3748S-1314	BPSK	1.3-1.4	2.6*	45*	0.3*	3*	0*	0/+5	SM55A	9×8×2.7
NC37100S-203	QPSK	2-3	7*	30*	0.5*	3*	16*	±1	SM75	8.5×8.5×2.6
NC3747S-3134	BPSK	3.1-3.4	6.4*	45*	0.3*	1.0*	0*	0/+5	SM55A	9×8×2.7

IV) Integrated LO Driven Double Balanced Mixer

Paramete / P/N	Frequency RF&LO (GHz)	LO Frequency (GHz)	IF (GHz)	Conversion Loss (dB)	LO-RF Isolation (dB)	LO Power (dBm)	Power Dissipation (V/mA)	Package	Dimension (mm×mm×mm)
NC37112S-206	2-6	2-6	DC-2.5	8*	40*	0*	5/72	SM03C	6.35×6.35×2.3
NC3714Q-206	2-6	2-6	DC-2.5	9*	35*	0*	5/72	CQFN24A-1	4.0×4.0×1.2
NC37113S-714	7-14	7-14	DC-4	8*	20*	0*	5/90	SM75	8.5×8.5×2.6

V) Tiny PackageMultifunctional Down Converter

Paramete / P/N	Frequency RF&LO (GHz)	IF (GHz)	Conversion Loss (dB)	Noise (dB)	LO-RF Isolation (dB)	RFInput1dB Compression Power Lever (dBm)	LO Power (dBm)	Power Dissipation (V/mA)	Package	Dimension (mm×mm×mm)
NC3713Q-912	9-12	DC-3.5	9*	2.5*	25*	-4*	0*	5/270	CQFN32E	5.0×5.0×1.0

Note: "*" stands for typical value; "M" stands for mirrored version

4.1.7 Frequency Multiplier

P/N \ Paramete	Frequency (GHz)	Output Frequency (GHz)	Output Power (dBm)	Fundamental Suppression (dBc)	Third Harmonic Suppression (dBc)	Input Return Loss (dB)	Output Return Loss (dB)	Dynamic Current (mA)	Quiescent Current (mA)	Package	Dimension (mm×mm×mm)
NC37701Q-1618	8-9	16-18	⩽16	⩾10	⩾5	-6	-5	<90	<80	CQFN24A-1	4.0×4.0×1.2
NC37702Q-1424	7-12	14-24	⩽18.5	⩾10	⩾10	-5	-1	<90	<80	CQFN24A-1	4.0×4.0×1.2
NC37701M-080100	10-12.5	80-100	⩾10	⩾20	-	-	-	<28	-	Module-WR10	-
NC37702M-085096	10.6-12	84.5-96	⩾16	⩾20	-	-	-	<480	-	Module-WR10	-
NC37703M-090100	45-50	90-100	⩾-2 (Pi:17dBm)	⩾35	-	-	-	passive	passive	Module-WR10	-

Note: "*" stands for typical value;

4.1.8 Limiter

I) Tiny Package Limiter

P/N \ Paramete	Frequency (GHz)	Insertion Loss (dB)	VSWRin	Output VSWR	Limiting Level (dBm)	Peak Power (dBm)	Package	Dimension (mm×mm×mm)
NC3813S-102	1-2	0.5*	1.5*	1.5*	17*	50(CW)	SMA-97	14.7×16.0×4.0
NC3815S-108A	1-8	0.6*	1.5*	1.5*	15*	40(CW)	QF0609-2	5.8×9.46×2.5
NC3815S-108B	1-8	0.6*	1.5*	1.5*	15*	40(CW)	QF0306-2	5.8×3.15×2.5
NC3811Q-108A	1-8	⩽1	⩽1.7	⩽1.7	15*	40(CW)	CQFN08A	5.5×5.5×1.2
NC3816S-1545A	1.5-4.5	0.7*	1.5*	1.5*	15*	43(CW)	QF0609-2	5.8×9.46×2.5
NC3816S-1545B	1.5-4.5	0.7*	1.5*	1.5*	15*	43(CW)	QF0306-2	5.8×3.15×2.5
NC3812S-203	2-3	0.6*	1.5*	1.5*	18*	50(CW)	SMA-97	14.7×16.0×4.0
NC3817S-206A	2-6	0.4*	1.5*	1.5*	15*	37(CW)	QF0609-2	5.8×9.46×2.5
NC3817S-206B	2-6	0.4*	1.5*	1.5*	15*	37(CW)	QF0306-2	5.8×3.15×2.5
NC3810Q-206A	2-6	⩽1	⩽1.8	⩽1.8	15*	37(CW)	CQFN08A	5.5×5.5×1.2
NC3809Q-216A	2-16	⩽1	1.6*	1.6*	15*	36(CW)	CQFN08A	5.5×5.5×1.2
NC3811S-2735	2.7-3.5	0.6*	1.5*	1.5*	18*	50(CW)	SMA-97	14.7×16.0×4.0
NC3810S-506	5-6	0.7*	1.5*	1.5*	18*	50(Pulse)	QF046C	8.7×11.0×3.7
NC3803Q-506	5-6	0.8*	1.4*	1.4*	15*	40(10W)	CQFN24A-1	4.0×4.0×1.2
NC3807Q-812A	8-12	1.4*	1.5*	1.6*	16*	40(10W) (CW)	CQFN08A	5.5×5.5×1.2

Note: "*" stands for typical value;

4.1.9 Passive Circuit

I) Tiny Package Power Divider / Combiner

P/N \ Paramete	Function	Frequency (GHz)	Insertion Loss (dB)	Insertion Loss Flatness (dB)	Amplitude Unbalanced (dB)	Phase unbalanced (°)	Isolation (dB)	VSWR	Package	Dimension (mm×mm×mm)
NC6505S-0830	0°2 channel	0.8-3	⩽1.3	±0.3*	±0.15*	±4*	18*	1.8*	SM03C	6.35×6.35×2.2
NC6502S-206	0° 2 channels	2-6	<1.5	⩽0.8	±0.2*	±4*	>15	<1.8	SM03C	6.35×6.35×2.2
NC6504S-0727	0°3 channels	0.7-2.7	⩽1.5	⩽0.3	±0.3*	±4*	15*	1.8*	SM03C	6.35×6.35×2.2
NC6503Q-307	0°3 channels	3-7	⩽1.5	⩽0.3	±0.25	±3*	⩾10	2*	CQFN32A	5.0×5.0×1.2
NC6506Q-1415	0°3 channels	14-15	⩽1.5	⩽0.4	±0.3	±2*	⩾15	<1.8	CQFN24A-1	4.0×4.0×1.2

II) Power Divider / Combiner Module

P/N \ Paramete	Function	Frequency (GHz)	Insertion Loss (dB)	Insertion Loss Flatness (dB)	Amplitude Unbalanced (dB)	Phase unbalanced (°)	Isolation (dB)	VSWR	Package	Dimension (mm×mm×mm)
NC6506M-0820	0°2 channels	0.8-2.0	⩽1.5	⩽0.3	±0.4*	±4	⩾13	⩽2	SMA-67	31.0×18.0×8.0
NC6510M-618	0°4 channels	6.0-18.0	⩽1.8	⩽0.4*	±1*	±8*	⩾14	⩽2.5	SMA-110	77.6×35.0×11.0
NC6513M-1826	0°2 channels	18.0-26.0	⩽1.5	⩽0.4*	±1*	±5*	⩾19	⩽1.8	SMA-67	31.0×18.0×8.0
NC6514M-2631	0°2 channels	26.0-31.0	⩽1.8	⩽0.4*	±1*	±5*	⩾16	⩽1.8	SMA-67	31.0×18.0×8.0

III) Tiny Package Power Detector

Paramete / P/N	Frequency (GHz)	Detection (dB)	VSWRin	Detection sensitivity (mV/mW)	Voltage (V)	Operation Current (mA)	Package	Dimension (mm×mm×mm)
NC3901Q-112	1-12	-15~15	-	-	+5	2*	CQFN24A-1	4.0×4.0×1.2
NC3901S-112	1-12	-15~15	-	-	+5	2*	SM03C	6.35×6.35×2.2
NC3904Q-125	1-25	-15~15	2.5*	230*	+5	1*	CQFN08A	5.5×5.5×1.2
NC3903Q-140	10-40	-15~15	2.5*	280*	+5	1*	CQFN08A	5.5×5.5×1.2

IV) Tiny Package Equalizer

Paramete / P/N	Frequency (GHz)	Insertion Loss (dB)	Equalization amount (dB)	VSWRin	OutputVSWR	Package	Dimension (mm×mm×mm)
NC6001S-103	0.1-3	1.2*	9*	1.25*	1.25*	SM03C	6.35×6.35×2.2
NC6002Q-0580	0.1-8	2*	9.5*	1.8*	1.8*	CQFN24A-1	4.0×4.0×1.2
NC6003Q-508	5-8	3*	6.7*	1.8*	1.8*	CQFN24A-1	4.0×4.0×1.2
NC6004Q-1323	1.3-2.3	12*	11*	1.4*	1.4*	CQFN32E	5.0×5.0×1.0
NC6005Q-103	0.1-3	1.2*	9*	1.2*	1.2*	CQFN24A-1	4.0×4.0×1.2
NC6006Q-212	2-12	1.6*	3.8*	1.4*	1.4*	CQFN24A-1	4.0×4.0×1.2

Note: "*" stands for typical value.

4.1.10 Frequency Source

I) DRO

Paramete / P/N	Function	Power (dBm)	Phase Noise			Frequency temperature stability-55~85℃ (ppm)	Operation Voltage (V)	Operation Current (mA)	Package	Dimension (mm×mm×mm)
			dBc/Hz /5kHz	dBc/Hz /10kHz	dBc/Hz/ 100kHz					
NC3419M-1112	11-12	⩾26	⩽1.3	⩽-85	⩽-90	2.5*	+10	270	SMA-78	15.0×26.0×9.0
NC3418M-1213	12-13	⩾26	<1.5	⩽-85	⩽-90	2.5*	+10	340	SMA-79	27.0×26.0×10.0
NC3416M-1415	14-15	⩾15	⩽1.5	⩽-85	⩽-95	1*	+8	200	SMA-83	40.0×28.0×14.5
NC3415M-1516	15-16	Double channel ⩾10	⩽1.5	⩽-85	⩽-95	1*	+8	180	SMA-83	40.0×28.0×14.5
NC3413M-1617	16-17	Double channel >12	⩽1.5	⩽-80	⩽-90	1*	+8	100	SMA-81	28.0×26.0×13.5

II) Frequency Synthesizer

Paramete / P/N	Type	RFInput Power (GHz)	RFInput (MHz)	Phase Frequency (MHz)	Normalization Noise(dBc/Hz)	Charge pump current (mA)	Current (mA)	Package	Dimension (mm×mm×mm)
NC3401Q-0580	Multimode integer/decimal	0.5-8	1-200	0.1-50	-230/-213	0.25-4	82	CQFN24C	4.0×4.0×1.5
NC3402Q-0580	Multimode integer	0.5-8	1-200	0.1-100	-225	0.25-2	70	CQFN24C	4.0×4.0×1.5
NC3403Q-0580	Multimode integer	0.5-8	1-200	0.1-100	-230	0.25-4	82	CQFN24C	4.0×4.0×1.5
NC3411Q-0355	Multimode integer	0.3-5.5	10-200	0.1-100	-223	0.625-5	18	CQFN20	4.0×4.0×1.5
NC3411S-0355	Multimode integer	0.3-5.5	10-200	0.1-100	-223	0.625-5	18	CSOP16-05A	5.5×5.8×2.5
NC3412Q-0380	Multimode integer	0.3-8	10-200	0.1-100	-226	0.625-5	28	CQFN20	4.0×4.0×1.5
NC3412S-0380	Multimode integer	0.3-8	10-200	0.1-100	-226	0.625-5	28	CSOP16-05A	5.5×5.8×2.5
NC3413Q-0106	Multimode integer	0.05-0.6	10-300	0.1-100	-230	0.625-5	10	CQFN20	4.0×4.0×1.5
NC3413S-0106	Multimode integer	0.05-0.6	10-300	0.1-100	-230	0.625-5	10	CSOP16-05A	5.5×5.8×2.5

III) VCO

Paramete P/N	Frequency (GHz)	Phase NoisedBc /Hz(VT=5V)		Output Power (dBm)	Tuning Voltage (V)	Power Supply (V)	current (mA)	Package	Dimension (mm×mm×mm)
		@10k	@100k						
NC3451Q-2022	2-2.25	-78	-108	5.5*	1-11	3	36	CQFN24C	4.0×4.0×1.5
NC3452Q-2325	2.3-2.58	-85	-107	6.5*	1-11	3	41	CQFN24C	4.0×4.0×1.5
NC3453Q-2731	2.78-3.13	-86	-109	5.7*	1-11	3	44	CQFN24C	4.0×4.0×1.5
NC3454Q-2831	2.83-3.15	-86	-109	7*	1-11	3	44	CQFN24C	4.0×4.0×1.5
NC3455Q-3034	3.02-3.4	-89	-110	7.3*	1-11	3	46	CQFN24C	4.0×4.0×1.5
NC3456Q-3235	3.2-3.51	-87	-110	7.5*	1-11	3	47	CQFN24C	4.0×4.0×1.5
NC3457Q-3438	3.4-3.8	-87	-110	7.6*	1-11	3	51	CQFN24C	4.0×4.0×1.5
NC3458Q-3740	3.6-4.1	-87	-107	7.6*	1-11	3	45	CQFN24C	4.0×4.0×1.5
NC3459Q-3842	3.8-4.2	-87	-109	1*	1-11	3	57	CQFN24C	4.0×4.0×1.5
NC3460Q-3944	3.9-4.48	-80	-101	8*	1-11	3	51	CQFN24C	4.0×4.0×1.5
NC3461Q-4246	4.2-4.65	-80	-103	3*	1-11	3	54	CQFN24C	4.0×4.0×1.5
NC3462Q-4651	4.6-5.15	-80	-102	6*	1-11	3	55	CQFN24C	4.0×4.0×1.5
NC3463Q-5358	5.3-5.8	-78	-105	7*	1-11	3	64	CQFN24C	4.0×4.0×1.5
NC3464Q-5763	5.75-6.3	-81	-103	7*	1-11	3	63	CQFN24C	4.0×4.0×1.5
NC3465Q-6066	6.05-6.66	-75	-98	7*	1-11	3	65	CQFN24C	4.0×4.0×1.5
NC3466Q-6573	6.55-7.34	-71	-90	5*	1-11	3	64	CQFN24C	4.0×4.0×1.5
NC3467Q-408	4-8	-75	-96	5*	1-15	5	68	CQFN32	4.0×4.0×1.5
NC3468Q-510	5-10	-70	-95	5*	1-15	5	72	CQFN32	4.0×4.0×1.5

Note: "*" stands for typical value.

4.1.11 Multifunction Circuit

I) Rx Multifunction Circuit

Paramete P/N	Function	Frequency (GHz)	Gain (dB)	Noise (dB)	Peak Power (W)	Output P_{-1} (dBm)	Power Dissipation (V/mA)	Package	Dimension (mm×mm×mm)
NC3571S-1214	4 channels amplitude and phase control (6 bits phase shift, 4 bits Attenuation)	1.2-1.4	⩾10	1.9*	-	5.5*	5/170 -5/15	SM113	25.0×20.0×3.25
NC3526Q-0830PD	Amplifier Attenuation 4 channels (4 bits Attenuation)	0.8-3	14*	2.3*	-	-	5/65 -5/2	CQFN20F	9.0×9.0×1.2
NC3584S-6672	Limiting Attenuation amplifier (5 bits Attenuation)	6.4-7.2	30*	4.3*	10WPulse	11*	5/110 -5/6	QF0511-9	16.0×13.8×3.45
NC3590S-5259	Limiting Attenuation amplifier (5 bits Attenuation)	5.2-5.9	29*	4*	10WPulse	15*	5/130 -5/6	QF0511-9	16.0×13.8×3.45
NC3591S-3135	Limiting Attenuation amplifier (5 bits Attenuation)	3.1-3.5	29*	3.5*	10WPulse	15*	5/130 -5/6	QF0511-9	16.0×13.8×3.45
NC3598S-5259	Limiting Attenuation amplifier (1 bits Attenuation)	5-6	13*	2.5*	10WCW	12*	5/65 -5/6	SM55A	9.0×8.0×2.65
NC3580S-3574	Attenuation Amplifier (Electrical Attenuation)	3.5-7.4	23*	3.5*	-	13.5*	+5/65	QF098	16.0×13.8×3.45
NC3587S-1022	Attenuation amplifier (6 bits Attenuation)	1-2.2	25*	5.5*	-	14*	+5/55 +5/70	SM89	11.4×8.9×1.9
NC3588S-512	Phase shift amplifier (5bits phase shift)	5-12	10*	3.5*	-	12*	5/90	QF0511-9	16.0×13.8×3.45
NC3550S-5359	Limiting amplifier phase shift (5bits phase shift)	5.3-5.9	27*	⩽1.7	10WCW	⩾0	5/105	QF0511-9	16.0×13.8×3.45
NC3594S-506	Limiting amplifier	5-6	24*	1.6*	100W Pulse	7*	5/55	OF046C	8.7×11.0×3.45
NC3594S-506M	Limiting amplifier	5-6	24*	1.6*	100W Pulse	7*	5/55	OF046C	8.7×11.0×3.45
NC3595S-8810	Limiting amplifier	8.8-10	19*	2*	40W Pulse	8*	5/55	QF046C	8.7×11.0×3.45
NC3595S-8810M	Limiting amplifier	8.8-10	19*	2*	40W Pulse	8*	5/55	QF046C	8.7×11.0×3.45
NC35179M-2224	Attenuation amplifier Attenuation (6bits Attenuation)	22-24	2.4*	-	-	-	-5/5 +5/70	SMA-102B	20.0×20.0×6.0
NC35145M-2931	Attenuation Amplifier Attenuation (6bits Attenuation)	29-31	3.6*	-	-	-	-5/5 +5/70	SMA-76	20.0×20.0×6.0

II) Tx Multifunction Circuit

Paramete / P/N	Function	Frequency (GHz)	Small Signal Gain(dB)	Output P_{-1} (dBm)	Power Dissipation (V/mA)	Package	Dimension (mm×mm×mm)
NC3582S-2024	Phase shift amplifier (6 bits phase shift)	2-2.4	27*	31*	8/600,-5/10,+5/1,-0.6/1	QF0913-14	16.5×18.4×3.45

III) Public Channel Multi-function Circuit

Paramete / P/N	Function	Frequency (GHz)	Rx Gain (dB)	Tx Gain (dB)	Power Dissipation (V/mA)	Controlled Relation	Package	Dimension (mm×mm×mm)
NC35106S-2025SD	Amplitude and phase control (6 shift phase 4 bits Attenuation)	2-2.5	-6.8*	-	-5/3	TTL/including serial-to-parallel circuit	SM55A	9.0×8.0×2.65
NC35106S-2025SDM	Amplitude and phase control (6 shift phase 4 bits Attenuation)	2-2.5	-6.8*	-	-5/3	TTL/including serial-to-parallel circuit	SM55A	9.0×8.0×2.65
NC3521Q-0914SD	Amplitude and phase control (7 shift phase 7 bits Attenuation)	0.9-1.4	-6.5*	-	-5/15	TTL/including serial-to-parallel circuit	CQFN28	9.0×9.0×1.4
NC3522Q-1925SD	Amplitude and phase control (6 shift phase 4 bits Attenuation)	1.9-2.5	-5.5*	-	-5/12	TTL/including serial-to-parallel circuit	CQFN28	9.0×9.0×1.4
NC3523Q-506SD	Amplitude and phase control (5 shift phase 5 bits Attenuation)	5-6	-7*	-	-5/8	TTL/including serial-to-parallel circuit	CQFN28	9.0×9.0×1.4
NC3551Q-102	Two-way magnification	1-2	32*	32*	5/65	0/-5	CQFN16C	7.0×7.0×1.4
NC3552Q-204	Two-way magnification	2-4	26*	29*	5/50	0/-5	CQFN16C	7.0×7.0×1.4
NC3553Q-407	Two-way magnification	4-7	28*	31*	5/95	0/-5	CQFN16C	7.0×7.0×1.4
NC35104S-106	Two-way magnification	1-6	19*	-	-5/1 +5/70	0/+5	QF072A	10.0×14.5×3.45
NC3581Q-225SD	Phase shift switch(6-bit phase, SPDT)	2-2.5	-7*	-	-5/3 +5/3	TTL/including serial-to-parallel circuit	CQFN40	6.0×6.0×1.2
NC35192M-812	Amplitude and phase control (6 shift phase 6 bits Attenuation)	8-12	-15*	-	-5/5	TTL/including serial-to-parallel circuit	M2012	20.0×20.0×6.0

Note: Various multi-function Module products can be customized according to user requirements; "*" stands for typical value; "PD" stands for parallel drive, "SD" stands for serial drive; "M" stands for mirrored version.

4.2 Analog/Digital Small Package Circuit

4.2.1 Power Modulator

Paramete / P/N	Frequency (GHz)	Output Voltage (Output channel on)(V)		Drive Current (mA)	Input Current (μA)	Quiescent Current (mA)	Switch Time (ns)	Package	Dimension (mm×mm×mm)
		Low level	High Leve						
NC20201F	PMOS amplifier modulation driver, the Input channel 1, channel 1 Output	0*	28*	1000*	1*	3*	400*	CSOP10	6.35×6.35×2.45
NC20202F	PMOS amplifier modulation driver, the Input channel 1, channel 1 Output	0*	28*	2000*	1*	3*	410*	CSOP10	6.35×6.35×2.45
NC20203F	PMOS amplifier modulation driver, the Input channel 1, channel 1 Output	0*	28*	1500*	1*	3*	400*	CSOP10	6.35×6.35×2.45
NC20205F	Drive high voltage PMOS power tube, turn off discharge function	0*	28*	1500*	-	3*	400*	CSOP10	6.35×6.35×2.45
NC20206F	Drive high voltage PMOS power tube, turn off discharge function	0*	28*	1000*	-	3*	387*	CSOP10	6.35×6.35×2.45

Note: "*" stands for typical value.

4.2.2 Parallel driver

I) CMOS process parallel FET driver

Paramete / P/N	Frequency (GHz)	Output Voltage (Output channel on)(V)		Drive Current (mA)	Input Current (μA)	Quiescent Current (mA)	Switch Time (ns)	Package	Dimension (mm×mm×mm)
		Low level	High Leve						
NC2034-1F	1 channel Input, Output complementary	-5*	0	±2*	<1	<1	10*	FP08E	6.0×6.0×2.0
NC2035-1F	2 channels Input, Output complementary	-5*	0	±2*	<1	<2	10*	FP08E	6.0×6.0×2.0
NC2036-1F	3 channels Input, Output complementary	-5*	0	±2*	<1	<2	10*	FP16F	10.4×7.4×2.3
NC2037-1F	4 channels Input, Output complementary	-5*	0	±2*	<1	<2	10*	FP16F	10.4×7.4×2.3
NC2038-1F	2-channels Input, 4-for-1,Complementary Output	-5*	0	±2*	<1	<1	10*	FP16F	10.4×7.4×2.3
NC2043-1F	2-channels Input, 4-for-1,Complementary Output	-5*	0	±2*	<1	<1	10*	FP16F	10.4×7.4×2.3

Note: The above drivers are compatible with TTLInput, -5V power supply, "*" stands for typical value.

II) CMOS process parallel PIN driver

Paramete / P/N	Frequency (GHz)	Output voltage (V)		Drive Current (mA)	Input Current (μA)	Current (mA)	Switch Time (ns)	Package	Dimension (mm×mm×mm)
		Low level	High Leve						
NC2016-1F	Dual-channel,Dual-phase double Output	⩽-4	⩾4	±20*	<1	<3	12*	FP08E	6.0×6.0×2.0
NC2017F	Dual-channel, inverting double output	⩽-4	⩾4	±20*	<1	<3	12*	FP08E	6.0×6.0×2.0
NC2018-1F	Dual channel, 1 channel same phase, 1 channel reverting Output	⩽-4	⩾4	±20*	<1	<3	12*	FP08E	6.0×6.0×2.0
NC2019F	Dual-channel,Dual-phase double Output	⩽-4	⩾4	±40*	<1	<3	12*	FP08E	6.0×6.0×2.0
NC2020-1F	Dual-channel, inverting double output	⩽-4	⩾4	±40*	<1	<3	12*	FP08E	6.0×6.0×2.0
NC2021-1F	Dual channel, 1 channel same phase, 1 channel reverting Output	⩽-4	⩾4	±40*	<1	<3	12*	FP08E	6.0×6.0×2.0
NC2022F	Dual-channel,Dual-phase double Output	⩽-4	⩾4	±60*	<1	<3	12*	FP08E	6.0×6.0×2.0
NC2023F	Dual-channel, inverting double output	⩽-4	⩾4	±60*	<1	<3	12*	FP08E	6.0×6.0×2.0
NC2024-1F	Dual channel, 1 channel same phase, 1 channel reverting Output	⩽-4	⩾4	±60*	<1	<3	12*	FP08E	6.0×6.0×2.0
NC2025-1F	Dual-channel,Dual-phase double Output	⩽-4	⩾4	±80*	<1	<3	12*	FP08E	6.0×6.0×2.0
NC2026-1F	Dual-channel, inverting double output	⩽-4	⩾4	±80*	<1	<3	12*	FP08E	6.0×6.0×2.0
NC2027-1F	Dual channel, 1 channel same phase, 1 channel reverting Output	⩽-4	⩾4	±80*	<1	<2	12*	FP08E	6.0×6.0×2.0
NC2047F	2-4 decoding, 4-channels output	⩽-4	⩾4	±10*	<1	<3	20*	FP08E	6.0×6.0×2.0
NC2048F	3-8decoding, 8-channels output	⩽-4	⩾4	±10*	<1	<4	20*	FP08E	6.0×6.0×2.0
NC2053F	Dual complement， 4Output	⩽-4	⩾4	±10*	<1	<3	12*	FP08E	6.0×6.0×2.0
NC2060F	With enable, complementary Output	⩽-4	⩾4	±40*	<1	<3	12*	FP08E	6.0×6.0×2.0
NC2062F	2-4 decoding, 4-channels outpu	⩽-4	⩾4	±40*	<1	<1.5	12*	CSOP10	6.35×6.35×2.45
NC2064F	High enable, complementary Output,Drain on	⩽-4	10*(open)	-40*	<1	<1.5	50*	FP08E	6.0×6.0×2.0
NC2063F	High enable, complementary Output,Drain on	-10* (open)	⩾4	+40*	<1	<5	200*	FP08E	6.0×6.0×2.0
NC20308F	TTL reverting Output	0*	5*	150*	1*	0.01*	10*	CSOP10	6.35×6.35×2.45

Note: The above drivers are compatible with TTLInput, ±5V power supply, "*" stands for typical value.

III) GaAs process parallel driver

Paramete / P/N	Frequency (GHz)	Output Voltage (Output channel on)(V)		Drive Current (mA)	Input Current (μA)	Quiescent Current (mA)	Switch Time (ns)	Package	Dimension (mm×mm×mm)
		Low level	High Leve						
NC2201F	1 channel Input, Output complementary	-5*	-0.1*	±0.2*	0.2*	<1	10*	FP08E	6.0×6.0×2.0
NC2202F	2 channel s Input, Output complementary	-5*	-0.1*	±0.2*	0.2*	<2	10*	FP08E	6.0×6.0×2.0
NC2204F	4 channels Input, Output complementary	-5*	-0.1*	±0.2*	0.2*	<4	10*	FP08E	6.0×6.0×2.0
NC2213F	4 select 1, complementary Output	-5*	-0.1*	±0.2*	0.2*	<6	10*	FP08E	6.0×6.0×2.0

Note: The above drivers are compatible with TTLInput, -5V power supply, "*" stands for typical value.

IV) CMOS process parallel high voltage PIN driver

Paramete / P/N	Frequency (GHz)	Output Voltage (Output channel on)(V)		Drive Current (mA)	Input Current (μA)	Quiescent Current (mA)	Switch Time (ns)	Package	Dimension (mm×mm×mm)
		Low level	High Leve						
NC20312F	2 channels Input, Output in phase	-20*	5*	40*	1*	0.5*	20*	FP08E	6.0×6.0×2.0
NC20316F	2 channels Input, Output in phase	-40*	5*	40*	100*	1*	20*	FP08E	6.0×6.0×2.0

V) CMOS Process Parallel High Voltage FET Driver

Paramete / P/N	Frequency (GHz)	Output Voltage (Output channel on)(V)		Drive Current (mA)	Input Current (μA)	Quiescent Current (mA)	Switch Time (ns)	Package	Dimension (mm×mm×mm)
		Low level	High Leve						
NC20209F1	channel Input, Output complementary	-40*	0*	40*	1*	1*	20*	FP08E	6.0×6.0×2.0

Note: "*" stands for typical value;

4.2.3 Series to parallel driver

I) CMOS process Series to parallel driver

Paramete P/N	Frequency (GHz)	Output Voltage (Output channel on)(V)		Drive Current (mA)	Input Current (μA)	Quiescent Current (mA)	Switch Time (ns)	Package	Dimension (mm×mm×mm)
		Low level	High Leve						
NC2086-1F	8-bit serial to parallel	0	5*	2*	<1	<1	10*	CSOP24F	8.6×6.2×2.45
NC2088-1F	12-bit serial to parallel	0	5*	2*	<1	<1	10*	CSOP24F	8.6×6.2×2.45
NC20415F	24-bit serial to parallel	0	5*	2*	<1	<1	10*	CSOP32	8.8×18.4×2.45

Note: The above drivers are compatible with TTLInput, 5V power supply, "*" stands for typical value.

4.2.4 High speed frequency measuring circuit

Paramete P/N	Operation Frequency (MHz)	Frequency error (MHz)	High frequency signal Input power (dBm)	Control signal level	Power consumption (mW)	Package	Dimension (mm×mm×mm)
NC2104Q	100-900	⩽1	+6-+12	TTL	⩽20	CQFP40B	14.6×14.6×2.67
NC2106Q	100-1500	⩽1	+6-+12	TTL	⩽20	CQFP40B	14.6×14.6×2.67

4.2.5 Counter

Paramete P/N	Frequency (GHz)	Output Voltage (Output channel on)(V)		Drive Current (mA)	Input Current (μA)	Quiescent Current (mA)	Switch Time (ns)	Package	Dimension (mm×mm×mm)
		Low level	High Leve						
NC2218F	2-32 multimode counter	5*	0	±2*	0.2*	<10	2*	FP16F	10.4×7.4×2.3

Note: "*" stands for typical value.

5 VCO PLS

5.1 Frequency Oscillator

5.1.1 SMT VCO

Part Number	Frequency MHz	Tuning voltage V	Tuning Sensitivity MHz/V Typ	Power output dBm Typ	Harmonic dBc Typ	Phase Noise @10/100KHz dBc/Hz Typ	Tune Port capacitor pF Typ	Power V/mA Max	Package
MVCO038W	25-50	0-12	3	7±3	-12	-120/-140	1000	5/15	SMT
MVCO032	30-34	0-5	2.3	5±2	-10	-116/-136	1000	8/16	SMT
MVCO50J	40-60	3-15	2.0	8±2	-15	-135/-155	1000	5/25	SMT
MVCO57.5	40-75	1-12	4.4	0±2	-25	-117/-137	1000	5/18	SMT
MVCO044	41-47	0.5-4.5	3.4	4±1	-15	-115/-135	1000	5/18	SMT
MVCO060C	44-75	0.5-8.0	4	6.5±2	-10	-120/-140	1000	5/25	SMT
MVCO060W	45-65	0.5-5	5	1.5±2	-16	-117/-137	1000	5/16	SMT
MVCO65J	60-70	0.5-4.5	3.0	8±2	-15	-135/-155	1000	5/25	SMT
MVCO075W	50-100	0 -12	5	6±3	-12	-125/-145	1000	5/14	SMT
MVCO74J	68-80	1.5-11	2.0	8±2	-15	-133/-153	1000	5/25	SMT
MVCO065	50-80	0.5-4.5	9	0±2	-8	-120/-140	1000	5/15	SMT
MVCO060B	57-63	0.5-4.5	2.5	0±2	-8	-120/-140	1000	5/16	SMT
MVCO070	67-73	0.5-4.5	2.5	0±2	-10	-123/-143	1000	5/16	SMT
MVCO080A	70-90	0.5-4.5	7	2±2	-10	-120/-140	1000	5/18	SMT
MVCO080	80-81	0.6-2.4	3	0±2	-8	-121/-141	330	5/16	SMT
MVCO82J	71-93	2 -10	3.4	8±2	-15	-130/-150	1000	5/25	SMT
MVCO85J	80-90	0.5-4.5	3.0	8±2	-15	-130/-150	1000	5/25	SMT
MVCO90.6	83-94	0.5-4.5	3.2	5±2	-8	-124/-144	1000	8/25	SMT
MVCO90J	75-105	1-12	3.4	8±2	-15	-130/-150	1000	5/25	SMT
MVCO106	91-121	2-9	5.5	6±2	-8	-122/-142	1000	8/25	SMT
MVCO106J	91-121	1-9	4.4	8±2	-15	-128/-148	1000	5/25	SMT
MVCO113J	105-120	0.5-4.5	4.5	8±2	-15	-130/-150	1000	5/25	SMT
MVCO120W	100-140	0.5-5	10.5	4±4	-10	-118/-138	1000	5/14	SMT
MVCO150W	100-200	0-15	7-12	6±3	-12	-120/-140	1000	5/15	SMT

Part Number	Frequency MHz	Tuning voltage V	Tuning Sensitivity MHz/V Typ	Power output dBm Typ	Harmonic dBc Typ	Phase Noise @10/100KHz dBc/Hz Typ	Tune Port capacitor pF Typ	Power V/mA Max	Package
MVCO123A	108-138	0.5-4.5	10	9±2	-8	-115/-135	1000	5/20	SMT
MVCO123	117.5-126.5	0.3-3	4	2±2	-40	-120/-140	330	3.3/13	SMT
MVCO150	140-160	0.5-4.5	6	0±2	-12	-118/-138	330	5/15	SMT
MVCO300W	150-450	0-20	15-23	3±3	-8	-108/-128	390	5/35	SMT
MVCO184	154-213	0.5-8	7-13	6.5±2	-8	-114/-134	1000	8/25	SMT
MVCO165	160-170	0.5-4.5	3.8	0±2	-20	-118/-138	330	5/14	SMT
MVCO185J	180-190	0.5-4.5	3.2	8±2	-15	-128/-148	330	5/25	SMT
MVCO200	170-238	1-12	10.5	1±2	-17	-110/-130	400	5/15	SMT
MVCO190	185-195	0-5	3	0±2	-17	-118/-138	400	5/15	SMT
MVCO205	199-210	0.5-4	4	0±3	-20	-120/-140	30	5/12	SMT
MVCO223J	219-226	1-12	1.5	8±2	-15	-125/-145	330	5/25	SMT
MVCO233	223-243	0.5-4.5	6	0±2	-16	-115/-135	250	3/15	SMT
MVCO245J	240-250	0.5-4.5	3.0	8±2	-15	-125/-145	330	5/25	SMT
MVCO280J	270-290	0.5-4.5	6	8±2	-15	-125/-145	330	5/25	SMT
MVCO450W	300-600	1-18	15-30	3±3	-10	-100/-120	100	5/25	SMT
MVCO348	305-392	0-5	15-26	8±2	-10	-100/-120	200	5/15	SMT
MVCO395W	310-480	0.2-4.8	40-55	-5±3	-25	-95/-115	510	5/17	SMT
MVCO325	315-335	0.5-4.5	5	6±2	-15	-118/-138	100	5/15	SMT
MVCO345	330-360	0.5-4.5	6	0±2	-15	-112/-132	100	5/10	SMT
MVCO385	360-410	0.5-4.5	14	3±3	-15	-113/-133	200	5/15	SMT
MVCO385W	360-410	0.5-4.5	14	3±3	-15	-110/-130	200	5/15	SMT
MVCO375J	370-380	0.5-4.5	3.5	8±2	-15	-125/-145	220	5/25	SMT
MVCO405	380-430	0-4.5	15	0±2	-20	-116/-136	100	5/20	SMT
MVCO395A	385-405	0.5-4.5	9	0±2	-10	-118/-138	330	5/13	SMT
MVCO400	390-410	0 5	6	0±2	-13	-111/-130	100	5/10	SMT
MVCO600W	400-800	0.5-15	25-45	7±3	-10	-100/-120	82	8/30	SMT
MVCO420A	405-435	0.5-4.5	10	0±2	-15	-116/-136	100	5/12	SMT
MVCO440	420-460	0.5-4.5	12	0±2	-15	-115/-135	100	5/12	SMT
MVCO457	420-494	0.5-4.5	25	0±2	-20	-110/-130	51	5/20	SMT
MVCO460	450-470	0.5-3	12	4±2	-16	-114/-134	100	3.3/12	SMT
MVCO465	450-480	0.5-4.5	13	0±3	-20	-114/-134	100	5/12	SMT
MVCO490	470-515	0.5-4.5	15	0±3	-20	-113/-133	100	5/10	SMT
MVCO495-S	470-520	0.5-4.5	16	-2±2	-8	-107/-127	51	3/15	SMT2
MVCO500D	485-515	0.5-4.5	13.5	0±2	-25	-117/-137	51	5/15	SMT
MVCO516	496-536	0-5	14.5	5±2	-20	-115/-135	100	8/18	SMT
MVCO750W	520-1000	0-15	26-46	10±2	-10	-104/-124	51	12/25	SMT
MVCO540	530-550	0.5-4.5	8	4±2	-20	-117/-137	51	5/15	SMT
MVCO565	550-580	0.5-4.5	11	0±3	-18	-110/-130	100	5/10	SMT
MVCO600	580-620	0.5-4.5	12.5	0±3	-14	-115/-135	68	5/14	SMT
MVCO600D	585-615	0.5-4.5	12.5	0±2	-25	-116/-136	51	5/15	SMT
MVCO800W	600-1200	1-18	26-46	6±3	-8	-103/-123	51	5/30	SMT
MVCO622	602-642	0.5-4.5	12	0±2	-16	-115/-135	100	5/12	SMT
MVCO638A	625-650	2.2-4.2	21	3±2	-25	-115/-135	51	5/13	SMT

Part Number	Frequency MHz	Tuning voltage V	Tuning Sensitivity MHz/V Typ	Power output dBm Typ	Harmonic dBc Typ	Phase Noise @10/100KHz dBc/Hz Typ	Tune Port capacitor pF Typ	Power V/mA Max	Package
MVCO650	640-660	0.5-4.5	8	6±2	-20	-117/-137	51	5/18	SMT
MVCO645	645-659.5	0 3.3	8	0±2	-20	-115/-135	51	3.3/10	SMT
MVCO669	649-689	0.5-4.5	13.5	0±2	-14	-115/-135	68	5/12	SMT
MVCO690A	670-710	0.5-4.5	14.5	2±2	-15	-115/-135	68	5/18	SMT
MVCO710	670-750	0.8-4.2	30	0±3	-12	-108/-128	51	5/20	SMT
MVCO700D	680-720	0.5-4.5	15.5	0±2	-25	-116/-136	51	5/20	SMT
MVCO720A	690-750	0.5-4.5	23	0±2	-25	-114/-134	51	5/18	SMT
MVCO950B	700-1400	0-15	35-70	7±3	-8	-98/-118	51	12/30	SMT
MVCO730	710-750	0.5-4.5	16	0±2	-12	-113/-133	68	5/14	SMT
MVCO745	710-780	0.5-4.5	22	0±3	-25	-115/-135	51	5/20	SMT
MVCO732	714-749	2.2 4.2	25	3±2	-25	-112/-132	51	5/15	SMT
MVCO737	720-750	0.5-4.5	10	0±2	-25	-120/-140	51	5/25	SMT
MVCO765	720-810	0.8-4.2	32	0±3	-12	-108/-128	51	5/20	SMT
MVCO760	740-780	0.5-4.5	16	0±2	-15	-115/-135	50	5/17	SMT
MVCO756	743-769	0.5-4.5	11	1±2	-20	-115/-135	51	5/18	SMT
MVCO766	753-778	1.8-4.5	14	0±2	-24	-115/-135	51	5/16	SMT
MVCO810B-S	760-860	0.5-4.5	30	-2±2	-10	-100/-120	51	3/12	SMT2
MVCO810A	765-855	0.8-4.2	35	0±3	-10	-105/-125	51	5/20	SMT
MVCO804	766-841	0.5-4.5	26	0±2	-30	-112/-132	51	5/20	SMT
MVCO801	781-820	1.8-4.5	22	0±2	-27	-112/-132	51	5/20	SMT
MVCO950	800-1100	0.5-4.5	70-105	2±2	-25	-98/-118	47	5/22	SMT
MVCO1200W	800-1600	0.5-18	40-80	9±3	-10	-102/-122	51	11.5/30	SMT
MVCO825A	805-844	1.8-4.5	23	0±2	-25	-113/-133	51	5/18	SMT
MVCO830	810-850	0.5-4.5	12	0±2	-15	-110/-130	50	5/15	SMT
MVCO830B	810-850	0.5-4.5	12	2±2	-12	-115/-135	47	5/17	SMT
MVCO860A	815-905	0.8-4.2	34	0±2	-15	-105/-125	51	5/20	SMT
MVCO832-S	820-845	0.5-4.5	12	1±3	-12	-110/-130	51	5/20	SMT2
MVCO850D	840-860	0.5-4.5	10	0±2	-10	-115/-135	51	5/15	SMT
MVCO855A	840-870	0.5-4.5	15	0±3	-12	-112/-132	51	5/26	SMT
MVCO875A	845-905	0-5	16	0±2	-13	-110/-130	51	5/30	SMT
MVCO1000W	850-1150	0-5	70-110	2±2	-20	-95/-115	47	5/20	SMT
MVCO880A	855-905	0.5-4.5	17	0±3	-15	-109/-129	47	5/15	SMT
MVCO875-S	865-885	0.5-2.5	14	-3±3	-15	-110/-130	47	3/12	SMT2
MVCO881AX	869-894	2.2-4.2	21	3±2	-22	-112/-132	30	5/16	SMT
MVCO885A	869-901	1.8-4.5	16	0±2	-24	-113/-133	51	5/12	SMT
MVCO922	875-970	0.5-4.5	30	0±2	-17	-105/-125	47	5/16	SMT
MVCO900-3	890-910	0.5-4.5	12	3±2	-10	-110/-130	47	5/15	SMT
*MVCO1140	895-1385	2.5-12	45-80	12±1	-12	-100/-120	100	5/55	SMT1
MVCO1050W	900-1200	0.5-4.5	75-105	2±2	-20	-98/-118	47	5/25	SMT
MVCO1100	900-1300	0.5-10	45-75	3±2	-10	-97/-117	47	5/20	SMT
MVCO965	920-1010	0.8-4.2	37	0±3	-22	-102/-122	51	5/24	SMT
MVCO940	920-960	0.5-4.5	12	0±2	-15	-110/-130	50	5/15	SMT
MVCO944	921-967	1.8-4.5	22	0±2	-25	-110/-130	51	5/25	SMT

Part Number	Frequency MHz	Tuning voltage V	Tuning Sensitivity MHz/V Typ	Power output dBm Typ	Harmonic dBc Typ	Phase Noise @10/100KHz dBc/Hz Typ	Tune Port capacitor pF Typ	Power V/mA Max	Package
MVCO943	925-960	2.2-4.2	25	3±2	-15	-109/-129	30	5/16	SMT
MVCO1200	950-1450	0-10	70-110	2±2	-20	-96/-116	47	5/19	SMT
MVCO1325W	950-1700	0.3-4.7	110-260	7±3	-12	-96/-116	51	10/30	SMT
MVCO1550W	950-2150	1-23	40-130	12±2	-13	-100/-120	51	5/60	SMT
MVCO1010	965-1010	0.8-4.2	40	0±3	-24	-103/-123	51	5/22	SMT
MVCO1010A	975-1045	0.5-4.5	20	4±2	-20	-110/-130	51	5/25	SMT
MVCO1000B	980-1020	0.5-4.5	18	0±2	-20	-113/-133	51	5/17	SMT
MVCO1000D	980-1020	0.5-4.5	15	0±2	-20	-113/-133	51	5/15	SMT
MVCO1030	985-1075	0.5-4.5	30	0±3	-25	-102/-122	51	5/23	SMT
MVCO1018-S	1000-1036	0.5-4.5	11	1±3	-15	-110/-130	51	5/20	SMT2
MVCO1250W	1000-1500	0.5-20	19-38	3±2	-13	-102/-122	51	10/30	SMT
MVCO1500W	1000-2000	0.5-15	50-115	9±4	-10	-100/-120	47	12/30	SMT
MVCO1700	1000-2400	1-20	50-140	6±3	-10	-93/-113	51	10/30	SMT
MVCO1050	1030-1070	0.5-4.5	20	3±2	-25	-115/-135	51	5/30	SMT
MVCO1075	1030-1120	0.5-4.5	33	0±3	-25	-102/-122	51	5/17	SMT
MVCO1450W	1050-1850	0.5-12	50-110	6±3	-15	-100/-120	51	10/30	SMT
MVCO1078	1078	1.-2.5	12	6±2	-25	-110/-130	51	5/25	SMT
MVCO1093A	1080-1105	2.2-4.2	20	3±2	-25	-110/-130	30	5/20	SMT
MVCO1100D	1080-1120	0.5-4.5	15	0±2	-20	-112/-132	51	5/25	SMT
MVCO1180	1090-1270	0.5-4.5	50	4±2	-20	-106/-126	51	5/25	SMT
*MVCO1360	1120-1620	1-14	40-65	3±3	-12	-101/-121	52	10/30	SMT1
MVCO1150	1140-1160	0.5-4.5	10	6±2	-20	-113/-133	51	5/20	SMT
MVCO1190	1150-1230	0.8-4.2	34	0±3	-20	-103/-123	51	5/18	SMT
MVCO1200D	1180-1220	0.5-4.5	18	0±2	-25	-112/-132	51	5/25	SMT
MVCO1250	1200-1300	0.5-4.5	30	0±2	-15	-105/-125	40	5/15	SMT
MVCO1207	1202-1212	0.5-4.5	10	4±2	-20	-110/-130	51	5/25	SMT
S1222	1212-1232	0.3-3	20	1±2	-10	-102/-122	51	3/10	SMT3
MVCO1670W	1240-2100	2-15	80	7±3	-15	-98/-118	51	5/30	SMT
*MVCO1491	1250-1732	2.5-12	40-75	10±1.5	-15	-98/-119	100	5/60	SMT1
MVCO1268	1263-1273	0.5-4.5	10	4±2	-20	-110/-130	51	5/25	SMT
MVCO1300D	1280-1320	0.5-4.5	20	0±2	-25	-110/-130	51	5/25	SMT
MVCO1550A	1300-1800	0.5-4.5	130-190	5±2	-12	-95/-115	51	5/30	SMT
MVCO1468W	1325-1612	2-10	40	8±2	-15	-103/-123	51	5/25	SMT
MVCO1433	1341-1524	0.5-4.5	52	0±2	-12	-105/-125	51	5/20	SMT
MVCO1600W	1350-1850	2-15	50	4±2	-25	-103/-123	51	12/30	SMT
MVCO1515	1415-1615	1.5-4.5	70-140	-1±2	-15	-97/-117	51	5/20	SMT
MVCO1500	1450-1550	0.5-4.5	38	0±2	-25	-105/-125	51	5/20	SMT
MVCO1675	1450-1900	0.5-20	17-37	5±2	-12	-101/-121	51	10/30	SMT
MVCO1475	1460-1500	0.5-4.5	18	3±2	-12	-112/-132	51	5/28	SMT
MVCO1530	1480-1580	0.5-5	25	4±2	-20	-108/-128	51	5/30	SMT
MVCO1536	1499-1574	1.8-4.5	42	0±2	-18	-103/-123	51	5/24	SMT
MVCO1525	1500-1550	0.5-5	15	4±2	-20	-110/-130	51	5/30	SMT
MVCO1550	1500-1600	0.5-4.5	30	0±2	-15	-102/-122	51	5/18	SMT

Part Number	Frequency MHz	Tuning voltage V	Tuning Sensitivity MHz/V Typ	Power output dBm Typ	Harmonic dBc Typ	Phase Noise @10/100KHz dBc/Hz Typ	Tune Port capacitor pF Typ	Power V/mA Max	Package
MVCO1750A	1500-2000	2-20	23-46	12±2	-15	-100/-120	51	12/60	SMT
MVCO1607	1503-1710	0.5-4.5	60	0±3	-17	-104/-124	20	5/20	SMT
MVCO1556	1511-1586	1.8-4.5	47	3±2	-13	-105/-125	51	5/30	SMT
S1529	1519-1539	0.3-3	24	1±2	-10	-97/-117	51	3/10	SMT3
MVCO1610W	1540-1680	0.8-4.2	52	0±2	-12	-102/-122	51	5/20	SMT
MVCO1600	1550-1650	0.5-4.5	32	0±2	-25	-100/-120	40	5/15	SMT
MVCO1620M	1590-1670	1-3	44	0±3	-12	-104/-124	51	5/23	SMT
MVCO1632	1594-1669	1.8-4.5	45	3±2	-13	-105/-125	51	5/30	SMT
MVCO1750	1600-1900	2-10	22-60	5±2	-13	-100/-120	51	5/28	SMT
MVCO1660	1630-1690	0.5-4.5	32	0±2	-25	-100/-120	30	3.3/15	SMT
MVCO1669	1639-1699	1.8-4.5	34	0±2	-15	-105/-125	30	5/30	SMT
MVCO1715	1650-1780	0.8-4.2	55	0±3	-10	-105/-125	51	5/22	SMT
MVCO1776	1675-1877	0.5-4.5	60	0±3	-15	-103/-123	51	5/22	SMT
MVCO2400W	1700-3100	1-15	80-210	0±3	-15	-90/-110	51	5/25	SMT
MVCO1810	1710-1910	0.5-4.5	60	0±2	-15	-104/-124	51	5/30	SMT
MVCO1749	1719-1779	1.8-4.5	39	3±2	-13	-107/-127	51	5/30	SMT
MVCO1830	1760-1890	0.8-4.2	51	0±3	-10	-103/-123	51	5/22	SMT
MVCO1850	1800-1900	0.5-4.5	43	0±2	-15	-103/-123	30	5/25	SMT
MVCO1925	1800-2050	0.5-4.5	85	0±2	-15	-103/-123	51	5/30	SMT
MVCO1843B	1805-1880	2.2-4.2	44	3±2	-24	-103/-123	51	5/28	SMT
MVCO1847	1805-1889	1.8-4.5	43	0±2	-10	-103/-123	51	5/28	SMT
MVCO1898	1805-1990	0.5-5	55	1±2	-15	-103/-123	51	5/28	SMT
MVCO1887	1820-1955	0.5-4.5	44	0±2	-18	-100/-120	20	5/25	SMT
MVCO1880	1830-1930	0.5-4.5	39	3±2	-15	-105/-125	51	5/35	SMT
MVCO2000A	1867-2131	0-5	85	0±2	-18	-100/-120	20	5/20	SMT
MVCO1878	1868-1888	0.5-4.5	10	1±2	-20	-108/-128	51	5/28	SMT
MVCO1915	1870-1960	0.5-4.5	33	0±3	-20	-100/-120	51	5/28	SMT
MVCO2150W	1900-2400	0.5-10	45-85	1±2	-12	-94/-114	51	8/30	SMT
MVCO1982	1915-2050	0.5-4.5	43	0±2	-22	-102/-122	20	5/25	SMT
MVCO1960	1920-2000	0.5-4.5	27	0±2	-15	-100/-120	20	5/20	SMT
MVCO1960C	1930-1990	1.8-4.5	42	3±2	-13	-105/-125	51	5/30	SMT
MVCO1960CX	1930-1990	2.2-4.2	45	3±2	-20	-103/-123	51	5/25	SMT
MVCO1972	1930-2014	1.8-4.5	43	0±2	-15	-103/-123	51	5/32	SMT
MVCO1985M	1981-1989	0-3.3	30	0±2	-15	-104/-124	51	3.3/20	SMT
MVCO2050A	2000-2100	0.5-5	34	2±2	-20	-106/-126	51	5/30	SMT
MVCO2300A	2000-2600	2-20	23-47	12±2	-15	-100/-120	51	12/60	SMT
MVCO2500W	2000-3000	0-15	30-140	6±3	-10	-95/-115	51	12/35	SMT
MVCO2280	2020-2540	0.5-10	65	2±2	-12	-94/-114	51	8/28	SMT
MVCO2050	2030-2070	0-3.3	30	0±1.5	-30	-95/-115	20	3/12	SMT
MVCO2090	2030-2150	0.5-4.5	37	0±2	-20	-103/-123	20	5/30	SMT
MVCO2100	2060-2140	0.5-4.5	24	0±2	-13	-105/-125	25	5/15	SMT
MVCO2080D	2070-2090	0.5-4.5	8	5±2	-20	-108/-128	51	5/30	SMT
MVCO2150	2100-2200	0.5-4.5	33	0±2	-30	-98/-118	25	5/15	SMT

Part Number	Frequency MHz	Tuning voltage V	Tuning Sensitivity MHz/V Typ	Power output dBm Typ	Harmonic dBc Typ	Phase Noise @10/100KHz dBc/Hz Typ	Tune Port capacitor pF Typ	Power V/mA Max	Package
MVCO2250	2200-2300	0.5-4.5	35	0±3	-30	-98/-118	25	5/15	SMT
MVCO2400	2200-2600	1-15	35	2±2	-12	-102/-122	51	8/28	SMT
MVCO2350	2300-2400	0.5-4.5	45	0±2	-30	-105/-125	25	5/30	SMT
MVCO2500	2350-2650	0.3-4.7	81	1±2	-17	-102/-122	20	5/35	SMT
MVCO2675	2350-3000	1-12	50-100	3±2	-10	-95/-115	51	8/28	SMT
MVCO2425W	2360-2480	0-5	47	0±2	-20	-105/-125	51	5/30	SMT
MVCO2550	2375-2715	1-15	33	2±2	-15	-100/-120	51	5/30	SMT
MVCO2600	2400-2600	0.5-4.5	60	6±2	-30	-100/-120	20	12/30	SMT
MVCO2705	2400-3000	0.5-10	65-95	1±2	-10	-95/-115	51	5/25	SMT
MVCO2700A	2450-2950	2-15	50	3±2	-15	-95/-115	51	12/30	SMT
MVCO2617.5	2480-2755	0.5-4.5	85	2±2	-12	-100/-120	51	5/30	SMT
MVCO2600W	2530-2670	0-5	44	0±2	-25	-107/-127	51	5/30	SMT
MVCO2920	2600-3240	0.5-11	70-120	4±2	-12	-93/-113	51	8/28	SMT
MVCO2700	2640-2760	0-5	36	0±2	-15	-103/-123	51	5/30	SMT
MVCO2800A	2700-2900	0.5-4.5	85	0±2	-15	-97/-117	51	5/25	SMT
MVCO2758	2710-2805	0.5-4.5	50	0±2	-15	-99/-119	51	5/25	SMT
MVCO2925	2800-3050	0.5-4.5	110	2±2	-15	-98/-118	20	5/22	SMT
MVCO2950	2850-3050	0.5-4.5	80	5±2	-17	-99/-119	51	5/30	SMT
MVCO3000	2900-3150	0.5-4.5	80	0±3	-25	-95/-115	20	5/25	SMT
MVCO3125	2900-3250	0.5-4.5	70-130	1±2	-15	-98/-118	20	5/25	SMT
MVCO3150	2950-3150	1-10	70	1±2	-17	-95/-115	51	5/20	SMT
MVCO3070	3010-3130	0-5	36	0±2	-15	-102/-122	51	5/30	SMT
MVCO3180	3080-3280	0-5	60	3±2	-20	-95/-115	20	5/30	SMT
MVCO3550	3100-4000	1-15	70	2±2	-15	-93/-113	20	8/33	SMT
MVCO3165	3120-3210	0.5-4.5	43	0±2	-20	-97/-117	51	5/33	SMT
MVCO3210	3160-3260	0.5-4.5	47	0±2	-20	-98/-118	51	5/33	SMT
MVCO3250	3200-3300	0.5-4.5	40	2±3	-20	-95/-115	20	5/30	SMT
MVCO3265	3230-3310	0.5-4.5	46	0±2	-20	-97/-117	51	5/33	SMT
MVCO3325	3250-3400	0.5-5	55	0±2	-25	-96/-116	51	5/40	SMT
MVCO3456	3262-3650	1-12	38	1±2	-20	-94/-114	51	5/20	SMT
MVCO3315	3270-3360	0.5-4.5	45	0±2	-20	-97/-117	51	5/33	SMT
MVCO3392.5	3325-3460	0.5-4.5	70	3±2	-20	-99/-119	51	5/35	SMT
MVCO3940	3550-4330	1-15	55-90	0±2	-15	-93/-113	20	8/25	SMT
MVCO4350	3600-5100	0-20	50-170	4±3	-10	-80/-100	51	12/30	SMT
MVCO3710	3680-3740	0.5-4.5	35	5±2	-20	-97/-117	51	5/33	SMT
MVCO3950	3700-4200	1-8	80-150	5±2	-20	-80/-100	51	12/30	SMT
MVCO3950A	3700-4225	1-15	46	2±2	-15	-95/-115	20	8/33	SMT
MVCO4150	3700-4600	1-15	72	2±2	-15	-93/-113	20	8/33	SMT
MVCO3850	3800-3900	0-5	38	3±2	-20	-95/-115	20	8/30	SMT
MVCO4100D	4050-4210	1-6	38	9±2	-15	-97/-117	20	5/55	SMT
MVCO4375	4100-4650	1-15	60	1.5±2	-15	-96/-116	20	8/33	SMT
MVCO4400	4200-4600	1-15	36	2±2	-15	-94/-114	20	8/33	SMT
MVCO4750	4200-5300	1-20	65	2±2	-15	-87/-107	20	8/33	SMT

Part Number	Frequency MHz	Tuning voltage V	Tuning Sensitivity MHz/V Typ	Power output dBm Typ	Harmonic dBc Typ	Phase Noise @10/100KHz dBc/Hz Typ	Tune Port capacitor pF Typ	Power V/mA Max	Package
MVCO4600	4300-4900	1-15	55	0±2	-15	-92/-112	20	8/33	SMT
MVCO4525	4350-4700	1-15	30	0±2	-15	-94/-114	20	8/33	SMT
MVCO4700	4400-5000	2-14	65	8±2	-15	-92/-112	20	5/55	SMT
MVCO4800	4400-5200	1-15	72	0±2	-15	-90/-110	20	8/33	SMT
MVCO4800T2	4400-5225	1-15	62	-2±2	-15	-94/-114	20	8/65	SMT
MVCO4813	4400-5225	0.5-18	20-80	3±2	-15	-93/-113	51	8/30	SMT
MVCO4500	4450-4550	0-5	45	0±3	-20	-88/-108	20	8/30	SMT
MVCO4660	4620-4720	0.5-4.5	50	2±2	-20	-97/-117	51	5/25	SMT
MVCO5400T2	5000-5810	1-15	62	-2±2	-15	-92/-112	20	8/65	SMT
MVCO5200	5080-5160	0-5	30	0±3	-20	-88/-108	20	8/30	SMT
MVCO5650	5620-5670	0.5-4.5	35	2±2	-20	-92/-112	51	5/26	SMT
MVCO6090	6000-6180	0-5	65	2±2	-20	-86/-106	20	8/30	SMT

5.1.2 Low Noise Voltage Controlled Oscillator with Ceramic Resonator

Part Number	Frequency MHz	Tuning voltage V	Tuning Sensitivity MHz/V Typ	Power output dBm Typ	Harmonic dBc Typ	Freq Drift Typ	Phase Noise @10/100KHz dBc/Hz Typ	Tune Port capacitor pF Typ	Power V/mA Max	Package
CRO440D/S	405-475	1-11	5-12	10	-10	3	-113/-133	100	12/60	DIP-22C/SP-22
MCRO422	417-427	0.5-4.5	4	6	-10	2	-116/-136	100	5/20	SM-2
CRO450D/S	450	2-10	1.5	10	-10	1	-125/-145	90	12/60	DIP-22C/SP-22
CRO500/S	500	1-11	1.5	10	-10	1	-123/-143	90	12/65	DIP-22C/SP-22
GRO500D/S	500	-	-	13	-10	0.4	-123/-143	90	12/65	DIP-22C/SP-22
CRO540D/S	505-575	1-11	4-8	10	-10	3	-113/-133	90	12/60	DIP-22C/SP-22
CRO512D/S	509-515	1-11	2	10	-10	2	-117/-137	90	12/65	DIP-22C/SP-22
CRO536D/S	528-544	1-19	1.5	10	-10	2	-117/-137	90	12/65	DIP-22C/SP-22
MCRO585	545-605	0-10	8	10	-10	2	-120/-140	100	12/30	SM-2
CRO600D/S	560-640	1-12	2-3	10	-10	3	-117/-137	90	12/65	DIP-22C/SP-22
CRO620/S	620	1-11	1.5	10	-10	1	-120/-140	90	12/65	DIP-22C/SP-22
MCRO646	641-651	0.5-4.5	4	6	-10	2	-122/-142	100	5/20	SM-2
CRO680/S	650-730	1-11	6-10	10	-10	3	-113/-133	90	12/60	DIP-22C/SP-22
CRO656/S	656	-3.5-3.5	3	6	-10	1	-110/-130	90	5/65	DIP-22C/SP-22
MCRO698	681-716	0.5-9	5	7	-10	2	-118/-138	100	8/25	SM-2
GRO700D/S	700	-	-	10	-10	2	-120/-140	90	12/65	DIP-22C/SP-22
MCRO720	720	0.5-4.5	2.4	9	-10	2	-126/-146	100	5/30	SM-2
CRO805/S	800-812	1-11	2	10	-10	1.5	-120/-140	90	12/65	DIP-22C/SP-22
MCRO845	845	0.5-4.5	2	9	-10	2	-122/-142	100	8/30	SM-2
MCRO896	891-901	0.5-4.5	4	6	-10	2	-122/-142	100	5/20	SM-1B
CRO918D/S	900-935	1.5-4.5	14	10	-10	2	-117/-137	90	5/55	DIP-22C/SP-22
GRO900D/S	900	-	-	10	-10	2	-120/-140	90	12/65	DIP-22C/SP-22
MCRO930	925-935	0.5-4.5	4	6	-10	2	-120/-140	100	5/25	SM-1B
CRO960D/S	955-965	1-11	1.5	10	-10	1.5	-120/-140	90	12/65	DIP-22C/SP-22
MCRO976	971-981	0.5-4.5	4	10	-10	2	-120/-140	100	5/25	SM-1B
CRO1000/S	1000	1-11	1.5	10	-10	1.5	-120/-140	90	12/65	DIP-22C/SP-22
GRO1000D/S-5	1000	-	-	11	-10	2	-120/-140	90	5/65	DIP-22C/SP-22
MCRO1024	1019-1029	0.5-4.5	4	6	-10	2	-123/-143	100	5/25	SM-1B

Part Number	Frequency MHz	Tuning voltage V	Tuning Sensitivity MHz/V Typ	Power output dBm Typ	Harmonic dBc Typ	Freq Drift Typ	Phase Noise @10/100KHz dBc/Hz Typ	Tune Port capacitor pF Typ	Power V/mA Max	Package
GRO1030D/S	1030	-	-	12	-10	2	-120/-140	90	12/65	DIP-22C/SP-22
MCRO1030	1030	0.5-4.5	2	6	-10	2	-126/-146	100	5/30	SM-2
MCRO1089	1059-1119	0.5-12	7	6	-10	2	-117/-137	100	5/25	SM-1B
GRO1090D/S	1090	-	-	12	-10	2	-120/-140	90	12/65	DIP-22C/SP-22
CRO1100/S	1095-1105	1-11	1.5	10	-10	1.5	-119/-139	90	12/65	DIP-22C/SP-22
GRO1100D/S	1100	-	-	10	-10	2	-120/-140	90	12/65	DIP-22C/SP-22
MCRO1144	1109-1179	0.5-12	8	6	-10	2	-110/-130	100	5/25	SM-1B
CRO1125D/S	1110-1140	1-14	2	10	-10	2	-120/-140	90	12/65	DIP-22C/SP-22
MCRO1135	1130-1140	0.5-4.5	4	8	-10	2	-125/-145	100	5/30	SM-1B
CRO1160D/S	1155-1165	1-11	1.5	10	-10	2.5	-118/-138	90	12/65	DIP-22C/SP-22
CRO1170D/S	1160-1180	1-11	2.5	10	-10	2.5	-115/-135	90	9/65	DIP-22C/SP-22
MCRO1207	1169-1245	0.5-12	8	6	-10	2	-110/-130	100	5/25	SM-1B
CRO1185D/S	1185	1-11	1.5	10	-10	2.5	-115/-135	90	12/65	DIP-22C/SP-22
CRO1200D/S	1195-1205	1-11	1.5	10	-10	2.5	-115/-135	90	12/65	DIP-22C/SP-22
CRO1230D/S	1230	1-11	1.5	10	-10	2.5	-115/-135	90	12/65	DIP-22C/SP-22
MCRO1280	1240-1320	0.5-12	8	6	-10	2	-110/-130	100	5/30	SM-1B
MCRO1263	1243-1283	0.5-4.5	12	7	-10	2	-115/-135	100	5/30	SM-1B
CRO1270D/S	1270-1280	1-9	2	10	-10	2.5	-115/-135	90	12/65	DIP-22C/SP-22
MCRO1340	1335-1345	0.5-4.5	4	6	-10	2	-123/-143	100	5/30	SM-1B
MCRO1391	1381-1401	0.5-4.5	8	5	-10	2	-117/-137	100	5/30	SM-1B
CRO1400D/S	1395-1405	1-11	1.5	10	-10	2.5	-115/-135	90	12/65	DIP-22C/SP-22
MCRO1400	1395-1405	0.5-4.5	4	6	-10	2	-122/-142	100	5/30	SM-1B
CRO1440D/S	1440	1-11	1.5	10	-10	3	-115/-135	90	12/65	DIP-22C/SP-22
CRO1470D/S	1465-1475	1-11	1.5	10	-10	3	-115/-135	90	12/65	DIP-22C/SP-22
MCRO1475	1470-1480	0.5-4.5	7	4	-10	2	-121/-141	100	5/30	SM-2
MCRO1490	1485-1495	0.5-4.5	4	6	-10	2	-120/-140	100	5/30	SM-1B
CRO1500D/S	1500	1-11	1.5	10	-10	3	-115/-135	90	12/65	DIP-22C/SP-22
MCRO1539.5	1519-1559	0-8	12	3	-10	2	-115/-135	100	5/30	SM-1B
MCRO1549	1539-1559	0.5-4.5	8	5	-10	2	-116/-136	100	5/30	SM-1B
CRO1575D/S	1570-1580	1-11	1.5	10	-10	3	-115/-135	90	12/65	DIP-22C/SP-22
MCRO1600	1590-1610	0-5	6	10	-10	2	-115/-135	100	8/36	SM-1B
MCRO1606.4	1596-1616	0.5-4.5	10	4	-10	2	-117/-137	100	8/30	SM-1B
MCRO1731	1691-1771	0.4-5.4	20	4	-10	6	-109/-129	100	5/30	SM-1B
CRO1700D/S	1695-1705	1-11	1.5	10	-10	3.5	-115/-135	90	12/65	DIP-22C/SP-22
GRO1700D/S	1700	-	-	10	-10	2	-120/-140	90	12/65	DIP-22C/SP-22
CRO1755D/S	1742-1768	1.5-13.5	4	10	-10	6	113/-133	90	12/60	DIP-22C/SP-22
CRO1750D/S	1750	1-11	2.5	10	-10	3.5	-115/-135	90	12/65	DIP-22C/SP-22
CRO1795D/S	1780-1810	1.5-13.5	4	10	-10	6	-113/-133	90	12/60	DIP-22C/SP-22
MCRO1790	1780-1800	0.5-4.5	6	6	-10	3	-118/-138	100	5/30	SM-1B
MCRO1800	1790-1810	0.5-4.5	8	5	-15	3	-117/-137	56	5/30	SM-1B
CRO1825D/S	1810-1840	1-14	2	10	-10	2	-120/-140	90	12/70	DIP-22C/SP-22
MCRO1820	1810-1830	0.5-4.5	12	7	-15	3	-117/-137	56	8/30	SM-1B
CRO1834D/S	1826-1842	1.5-13.5	2.5	10	-10	6	-113/-133	90	12/60	DIP-22C/SP-22

Part Number	Frequency MHz	Tuning voltage V	Tuning Sensitivity MHz/V Typ	Power output dBm Typ	Harmonic dBc Typ	Freq Drift Typ	Phase Noise @10/100KHz dBc/Hz Typ	Tune Port capacitor pF Typ	Power V/mA Max	Package
CRO1850D/S	1850	2-10	2.2	10	-10	4	-115/-135	90	12/65	DIP-22C/SP-22
MCRO1858	1858	0.5-4.5	4	5	-15	3	-115/-135	56	8/30	SM-1B
MCRO1878	1866-1890	0.5-4.5	12	2	-15	3	-115/-135	56	5/20	SM-1B
CRO1875D/S	1870-1880	1-11	1.5	10	-10	4	-113/-133	90	12/65	DIP-22C/SP-22
GRO1875D/S	1875	-	-	10	-10	2	-120/-140	90	12/65	DIP-22C/SP-22
MCRO1900	1890-1910	0.5-4.5	8	6	-15	3	-119/-139	56	8/30	SM-1B
CRO1900D/S	1895-1905	1-11	2.4	10	-10	5	-112/-132	90	12/65	DIP-22C/SP-22
CRO1934D/S	1934	2-10	2.5	10	-10	5	-114/-134	90	12/65	DIP-22C/SP-22
MCRO1950	1940-1960	0.5-4.5	10	8	-15	4	-117/-137	56	8/30	SM-1B
CRO1950D/S	1950	2-10	1.8	10	-10	5	-115/-135	90	12/65	DIP-22C/SP-22
CRO1975D/S	1975	2-10	1.8	10	-10	6	-114/-134	90	12/65	DIP-22C/SP-22
MCRO2000	1990-2010	0.5-4.5	6	5	-15	4	-118/-138	56	5/30	SM-1B
CRO2000D/S	1995-2005	1-11	2	10	-10	4	-113/-123	90	12/65	DIP-22C/SP-22
CRO2000D/S-5	1995-2005	1-8	3	10	-10	4	-120/-140	90	5/65	DIP-22C/SP-22
GRO2000D/S	2000	-	-	10	-15	2	-120/-140	90	12/65	DIP-22C/SP-22
MCRO2043.5	2004-2083	0.4-5.4	20	4	-15	6	-109/-129	56	5/30	SM-1B
CRO2016D/S	2016	2-10	2.2	10	-15	5	-112/-132	90	12/64	DIP-22C/SP-22
MCRO2065	2025-2105	0.4-5.4	20	4	-15	6	-109/-129	56	5/30	SM-1B
MCRO2040	2030-2050	0.5-4.5	8	6	-15	4	-118/-138	56	5/30	SM-1B
MCRO2057	2047-2067	0.5-4.5	12	3	-15	4	-116/-136	56	5/30	SM-1B
MCRO2048	2048	0.5-4.5	5	5	-15	4	-120/-140	56	5/30	SM-1B
CRO2051D/S	2049-2053	1-10	2.5	10	-15	5	-110/-130	90	12/65	DIP-22C/SP-22
CRO2058D/S	2058	2-10	1.8	10	-15	5	-114/-134	90	12/67	DIP-22C/SP-22
CRO2100D/S	2095-2105	1-8	2.5	13	-15	5	124/-141	51	12/70	DIP-22C/SP-22
MCRO2105	2095-2115	0.5-4.5	10	6	-15	4	-117/-137	56	8/33	SM-1B
CRO2121D/S	2119-2123	1-10	2.5	10	-15	5	-110/-130	90	12/65	DIP-22C/SP-22
MCRO2130	2120-2140	0.5-4.5	10	7	-15	4	-116/-136	56	8/28	SM-1B
MCRO2133	2133	0.5-4.5	7	3	-15	4	-117/-137	56	5/30	SM-1B
MCRO2160	2140-2171	0.5-4.5	13	7	-15	4	-116/-136	56	5/30	SM-1B
MCRO2207	2167-2247	0.4-5.4	20	4	-15	6	-109/-129	56	5/30	SM-1B
MCRO2185	2171-2199	0.5-4.5	11	3	-15	4	-117/-137	56	5/30	SM-1B
GRO2180D/S	2180	-	-	10	-15	2	-120/-140	90	12/65	DIP-22C/SP-22
CRO2190D/S	2190	1-11	2.5	10	-15	5	-110/-130	90	12/65	DIP-22C/SP-22
CRO2300D/S	2200-2400	2-16	9-19	10	-15	5	-112/-132	90	12/65	DIP-22C/SP-22
MCRO2200	2200	0.5-4.5	7	3	-15	4	-122/-142	56	5/30	SM-2
MCRO2225	2215-2235	0.5-4.5	9	2	-15	4	-118/-138	56	5/30	SM-1B
MCRO2250	2235-2265	0.5-4.5	15	4	-15	4	-115/-135	56	5/30	SM-1B
CRO2240D/S	2240	1-11	2.5	10	-15	5	-110/-130	90	12/65	DIP-22C/SP-22
MCRO2278	2265-2291	0.5-4.5	12	5	-15	4	-117/-137	56	8/30	SM-1B
MCRO2300	2290-2310	0.5-4.5	10	5	-15	5	-116/-136	56	5/30	SM-1B
GRO2300D/S	2300	-	-	10	-15	2	-117/-137	90	12/65	DIP-22C/SP-22
CRO2304D/S	2302-2306	1-10	2.5	10	-15	5	-110/-130	90	12/65	DIP-22C/SP-22
MCRO2350	2340-2360	0.5-4.5	10	5	-15	5	-117/-137	56	5/30	SM-1B

Part Number	Frequency MHz	Tuning voltage V	Tuning Sensitivity MHz/V Typ	Power output dBm Typ	Harmonic dBc Typ	Freq Drift Typ	Phase Noise @10/100KHz dBc/Hz Typ	Tune Port capacitor pF Typ	Power V/mA Max	Package
MCRO2370	2360-2380	0.5-4.5	10	6	-15	5	-115/-135	56	5/30	SM-1B
MCRO2404	2371-2437	0.4-5.4	20	4	-15	8	-109/-129	56	5/30	SM-1B
CRO2374D/S	2372-2376	1-11	2.5	10	-15	5	-110/-130	90	12/65	DIP-22C/SP-22
MCRO2563W	2375-2715	1-14	25-35	6±2	-15	8	-105/-125	56	5/30	SM-1B
MCRO2387	2377-2397	0.5-4.5	10	6	-15	5	-115/-135	56	5/30	SM-1B
CRO2400D/S	2400	1-11	2.5	10	-15	5	-110/-130	90	12/65	DIP-22C/SP-22
CRO2500D/S	2400-2600	2-16	9-19	10	-15	5	-108/-128	90	12/65	DIP-22C/SP-22
MCRO2425	2400-2450	0.5-4.5	20	6	-15	8	-115/-135	56	5/30	SM-1B
MCRO2500	2480-2520	0.5-4.5	20	6	-15	8	-115/-135	56	5/30	SM-1B
MCRO2750W	2500-3000	0-15	25-45	5±2	-15	8	-100/-120	56	5/30	SM-1B
MCRO2550	2530-2570	0.5-4.5	20	5	-15	8	-114/-134	56	5/30	SM-1B
MCRO2560	2540-2580	0.5-4.5	20	5	-15	8	-114/-134	56	8/28	SM-1B
MCRO2575	2555-2595	0.5-4.5	19	3	-15	8	-113/-133	56	5/30	SM-1B
CRO2560D/S	2560	4-8	1	10	-15	5	-120/-140	90	12/65	DIP-22C/SP-22
MCRO2600	2590-2610	0.5-4.5	6	5	-15	5	-114/-134	56	5/30	SM-1B
CRO2630D/S	2600-2660	1-14	4	10	-15	3	-117/-137	90	12/70	DIP-22C/SP-22
MCRO2640	2620-2660	0.5-4.5	20	5.4	-15	8	-113/-133	56	5/30	SM-1B
MCRO2630	2630	0.5-4.5	5	5	-15	5	-119/-139	56	5/30	SM-1B
MCRO2677	2657-2697	0.5-4.5	20	6	-15	8	-113/-133	56	8/30	SM-1B
MCRO2680	2680	0.5-4.5	7	7	-15	6	-115/-135	56	5/30	SM-1B
MCRO2700	2690-2710	0.5-4.5	12	8	-15	6	-114/-134	56	8/30	SM-1B
MCRO2720	2705-2735	0.5-4.5	18	6	-15	6	-113/-133	56	5/30	SM-1B
MCRO2735	2730-2740	0.5-4.5	5	6	-15	5	-117/-137	56	5/30	SM-1B
MCRO2750	2730-2770	0.5-4.5	15	6	-15	8	-112/-132	56	5/30	SM-1B
CRO2752D/S	2749-2755	1-10	2.5	10	-15	5	-110/-130	90	12/65	DIP-22C/SP-22
MCRO2780	2760-2800	0.5-4.5	15	6	-15	8	-112/-132	56	5/30	SM-1B
MCRO2800	2795-2805	0-5	5	9	-15	5	-119/-139	56	8/28	SM-1B
MCRO2825	2810-2840	0.5-4.5	13	5	-15	6	-115/-135	56	5/30	SM-1B
MCRO2850	2845-2855	0.5-4.5	6	5	-15	5	-117/-137	56	5/25	SM-1B
MCRO2880	2860-2900	0.5-4.5	23	5	-15	8	-111/-131	56	9/30	SM-1B
MCRO2900	2900	0.5-4.5	7	5	-15	5	-116/-136	56	5/30	SM-1B
MCRO2920	2900-2940	0.5-4.5	24	4	-15	8	-112/-132	56	9/30	SM-1B
MCRO3100W	2900-3300	0-15	20-40	5±2	-15	10	-102/-132	56	5/30	SM-1B
MCRO2990	2962-3018	0.5-4.5	27	6	-15	8	-110/-130	56	9/30	SM-1B
MCRO2973	2968-2978	0.5-4.5	5	4	-15	6	-119/-139	56	5/30	SM-1B
MCRO3000	2995-3005	0.5-4.5	5	6	-15	6	-115/-135	56	5/30	SM-1B
GRO3000D/S	3000	-	-	10	-15	3	-115/-135	45	12/65	DIP-22C/SP-22
MCRO3046	3018-3074	0.5-4.5	29	5	-15	8	-111/-131	56	9/30	SM-1B
MCRO3052.5	3052.5	0.5-4.5	8	6	-15	6	-116/-136	56	5/30	SM-1B
MCRO3100	3070-3130	0-12	9	6	-15	6	-112/-132	56	5/30	SM-1B
CRO3100D/S	3100	2-10	2.7	10	-15	6	-108/-128	45	12/65	DIP-22C/SP-22
CRO3100D-5	3100	2-10	2	9	-15	6	-120/-140	45	5/65	DIP-22C/SP-22
MCRO3135	3100-3170	0.5-4.5	26	8	-15	8	-109/-129	56	9/30	SM-1B

Part Number	Frequency MHz	Tuning voltage V	Tuning Sensitivity MHz/V Typ	Power output dBm Typ	Harmonic dBc Typ	Freq Drift Typ	Phase Noise @10/100KHz dBc/Hz Typ	Tune Port capacitor pF Typ	Power V/mA Max	Package
GRO3110D/S	3110	-	-	10	-15	4	-115/-135	45	12/65	DIP-22C/SP-22
MCRO3150	3145-3155	0.5-4.5	8	6	-15	6	-113/-133	56	5/30	SM-1B
CRO3150D/S	3150	2-10	3	10	-15	6	-106/-126	45	12/65	DIP-22C/SP-22
CRO3159D/S	3159	2-10	2.8	10	-15	8	-106/-126	45	12/65	DIP-22C/SP-22
MCRO3175	3165-3185	0.5-4.5	8	6	-15	6	-114/-134	56	5/30	SM-1B
MCRO3200	3190-3210	0.5-4.5	10	8	-15	6	-114/-134	56	5/30	SM-1B
CRO3200D/S	3200	2-10	1.8	10	-15	8	-110/-130	45	12/65	DIP-22C/SP-22
GRO3200D/S	3200	-	-	10	-15	4	-115/-135	45	12/65	DIP-22C/SP-22
MCRO3228	3200-3255	0.5-4.5	20	9	-15	9	-112/-132	56	9/30	SM-1B
MCRO3250	3240-3260	0.5-4.5	13	8	-15	6	-112/-132	56	5/30	SM-1B
CRO3241D/S	3241	2-10	2.4	10	-15	8	-107/-127	45	12/65	DIP-22C/SP-22
CRO3283D/S	3283	2-10	2.1	10	-15	8	-108/-138	45	12/65	DIP-22C/SP-22
MCRO3317	3293-3340	0.5-4.5	16	5	-15	8	-112/-132	56	5/30	SM-1B

5.1.3 Hybrid VCO

Part Number	Frequency MHz	Tuning voltage V	Tuning Sensitivity MHz/V Typ	Power output dBm Typ	Harmonic dBc Typ	Phase Noise @10/100KHz dBc/Hz Typ	Tune Port capacitor pF Typ	Power V/mA Max	Package
HE(M)120	15-17	4-10	0.5	10	-20	-125/-145	1000	12/15	TO(SMO)-8D
HES880A	25-50	1-14	2-4	10±1.5	-10	-123/-143	1000	12/30	SM64D
HE(M)880A	25-50	1.5-12	2-3	10±1.5	-10	-134/-154	1000	12/15	TO(SMO)-8D
HE(M)880AL-L	29-31	1-4	0.5-1.5	8±1.5	-20	-135/-155	1000	5/20	TO(SMO)-8D
HE885	30-110	2-10	2-3	10±2	-10	-115/-135	390	12/55	DIP-22A
HE(M)880AZ	40-80	1.5-15	3-5	13±1.5	-10	-127/-147	1000	12/20	TO(SMO)-8D
HE(M)880AM-L	45-53	0.5-4.5	2-4	8±1.5	-20	-133/-155	1000	5/20	TO(SMO)-8D
HES880B	50-100	0.5-15	3-6	10±1.5	-10	-123/-143	1000	12/30	SM64D
HE(M)881K-L	91-121	1-9	3-6	7±2	-15	-130/-150	1000	5/23	TO(SMO)-8D
HE(M)882	100-200	0-20	5-9	13±1.5	-10	-115/-135	400	12/30	TO(SMO)-8D
HE(M)882K	100-300	1-20	7-15	10±2	-10	-105/-125	300	12/60	TO(SMO)-8D
HE(M)883-8C	150-300	1-18	7-11	13±1.5	-10	-109/-129	300	12/30	TO(SMO)-8C
HE(M)883K	150-450	1-19	8-28	10±2	-10	-100/-120	300	12/70	TO(SMO)-8D
HE(M)884	200-400	0-20	9-13	13±1.5	-10	-107/-126	300	12/30	TO(SMO)-8D
HE226	225-582	1.5-14	2-5	11±2	-10	-102/-125	150	12/40	DIP-16
HE(M)884K	250-500	0-20	14-24	13±1.5	-10	-105/-125	300	12/30	TO(SMO)-8C
V320S	300-350	1-14	3-5	10±1.5	-10	-117/-137	90	12/70	SM64D
HES401B	300-600	1-19	10-30	13±1.5	-10	-105/-125	300	12/30	SM64D
HE(M)401-L	300-600	1-19	12-22	8±1.5	-10	-105/-127	300	5/50	TO(SMO)-8D
HES711A	350-390	1-11	4-6	10	-10	-118/-138	180	5/60	SM64D
HES711B	390-440	1-11	6-9	10	-10	-117/-137	180	5/60	SM64D
HE(M)401D	400-800	1-18	15-40	13±1.5	-10	-105/-125	150	12/30	TO(SMO)-8C
HE(M)401M-L	400	1-4	2	8±1.5	-20	-120/-140	300	5/50	TO(SMO)-8D
HE(M)401MA-L	400-500	1-15	6-10	8±1.5	-15	-109/-132	300	5/50	TO(SMO)-8D
HES402B	500-1000	1-19	20-40	13±1.5	-10	-105/-125	90	12/30	SM64D
HE(M)402B	500-1000	0-20	20-40	13±1.5	-10	-105/-125	90	12/30	TO(SMO)-8C
HE(M)402E	500	2-8	10-12	13±1.5	-10	-104/-124	90	12/35	TO(SMO)-8C

Part Number	Frequency MHz	Tuning voltage V	Tuning Sensitivity MHz/V Typ	Power output dBm Typ	Harmonic dBc Typ	Phase Noise @10/100KHz dBc/Hz Typ	Tune Port capacitor pF Typ	Power V/mA Max	Package
HE(M)402C	600-1200	1-19	20-45	14±1.5	-10	-100/-121	90	12/30	TO(SMO)-8C
HES711C	610-660	1-11	5-9	10	-10	-114/-134	90	12/60	SM64D
HE(M)483	700-1400	1-19	26-69	12±1.5	-10	-99/-119	90	12/65	TO(SMO)-8C
HE(M)711H	700-750	1-11	5-8	10	-13	-114/-134	90	12/70	TO(SMO)-8D
HE(M)402CA-L	700-1200	1.5-13	30-60	10±2	-15	-102/-122	100	5/50	TO(SMO)-8D
HE(M)402CB-L	750-1350	2-13	35-70	10±2	-15	-102/-122	100	5/50	TO(SMO)-8D
HES721	800-1200	1-14	30-40	10±1.5	-10	-94/-114	90	12/70	SM64D
HE(M)403AN	800-1400	1-15	30-60	12±1.5	-10	-100/-121	90	12/70	TO(SMO)-8D
HE(M)403B	800-1500	0-20	35-65	14±1.5	-10	-100/-120	90	12/30	TO(SMO)-8C
HE(M)484	800-1600	1-19	26-70	12±1.5	-10	-98/-118	90	12/65	TO(SMO)-8C
TOMB095(SM)	900-1600	1-18	30-70	12±1.5	-10	-98/-118	90	12/35	TO(SMO)-8C
HE(M)405W	900-1800	1-20	40-100	12±1.5	-10	-95/-115	90	12/65	TO(SMO)-8C
HE(M)405WK	900-2140	1-21	40-100	12±1.5	-10	-96/-117	90	12/70	TO(SMO)-8C
HE(M)484A-L	950-1600	1-13.5	45-90	10±2	-15	-102/-122	100	5/50	TO(SMO)-8D
HE(M)831C1	960-1220	2-16	14-24	10/0[c]	-12	-98/-118	90	12/70	TO(SMO)-8E
HES405	1000-2000	1-17	40-100	10±1.5	-10	-98/-120	90	12/70	SM64D
HE(M)405Y	1200-2400	1-20	40-100	11±1	-10	-93/-115	90	12/65	TO(SMO)-8C
HE(M)405C	1200	2-8	40-70	16±1.5	-12	-96/-115	45	12/35	TO(SMO)-8C
HE(M)404B	1500-2000	1-17	20-50	12±1.5	-10	-96/-117	90	12/65	TO(SMO)-8C
HE(M)404BG	1500-2500	1.5-16	40-100	12.5±1.5	-13	-90/-110	90	12/70	TO(SMO)-8C
HE(M)404BK	1500-3000	1-20	40-100	12.5±1.5	-13	-90/-110	90	12/70	TO(SMO)-8C
HE(M)404BL	1600-3200	1-19	40-100	12.5±1.5	-13	-89/-110	90	12/65	TO(SMO)-8C
HES831	1800-1950	1-14	15-25	10±1.5	-15	-95/-118	90	12/70	SM64D
HE(M)831	1800-1950	1-14	15-25	11/0[c]	-15	-95/-118	90	12/70	TO(SMO)-8E
HE(M)723	1800-2100	1-14/20-30a	0-10/1-2b	10/0[c]	-15	-95/-115	90	12/70	TO(SMO)-8E
HES406	2000-4000	1-20	60-250	10±1.5	-13	-85/-108	90	5/60	SM64D
HE(M)486B	2000-3000	1-15	50-100	12.5±1.5	-15	-89/-110	45	12/30	TO(SMO)-8C
HE(M)406	2000-4000	1-20	60-250	11.5±1.5	-13	-87/-110	90	12/65	TO(SMO)-8C
HE(M)832	2200-2600	1-14	30-50	11/0[c]	-15	-91/-113	90	12/70	TO(SMO)-8E
HE(M)725	2300-2600	1-14/20-30a	0-10/1-2b	10/0[c]	-15	-90/-110	90	12/70	TO(SMO)-8E
HE(M)486ZE-L	2450-2950	2-16	30-60	10±2	-15	-98/-120	100	5/45	TO(SMO)-8D
HE(M)406Y	2500-5000	0-20	60-270	10.5±1.5	-13	-81-/106	90	12/65	TO(SMO)-8C
HE(M)486ZG-L	2500-3000	2-12	40-80	10±2	-15	-99/-120	100	5/45	TO(SMO)-8D
HES714	2800-4200	1-20	100-55	10±1.5	-15	-84/-108	45	5/65	SM64D
HE(M)716C	3000-6000	1-18	90-300	11.5±1.5	-13	-80/-106	90	12/75	TO(SMO)-8C
HE(M)487-L	3000-4000	1-14	60-120	10±2	-15	-95/-115	100	5/45	TO(SMO)-8D
HE(M)716D	3500-7000	1-19	80-330	10.5±1.5	-13	-77/103	90	12/75	TO(SMO)-8C
HES102	4000-8000	1-20	100-400	11±1.5	-15	-77/-102	45	12/70	SM64D
HE(M)102K	4000-6000	0.3-5.5	320-460	11.5±1.5	-15	-78/-105	45	9/65	TO(SMO)-8C
HE(M)715-L	4000-5000	1-15	60-100	8±1.5	-15	-86/-111	45	5/60	TO(SMO)-8D
HE(M)716E	4500-9000	1-20	140-440	11.5±1.5	-15	-70/-97	45	12/75	TO(SMO)-8C
HES715E	5000-5500	1-10	40-90	8±2	-20	-83/-108	45	5/60	SM64D
HES716	5000-6000	1-15	80-120	10±1.5	-15	-82/-105	45	12/70	SM64D

Part Number	Frequency MHz	Tuning voltage V	Tuning Sensitivity MHz/V Typ	Power output dBm Typ	Harmonic dBc Typ	Phase Noise @10/100KHz dBc/Hz Typ	Tune Port capacitor pF Typ	Power V/mA Max	Package
HE(M)102LC	6000-8000	1-14	110-270	11.5±1.5	-15	-/-98	45	12/65	TO(SMO)-8C
HE(M)717K	6000-9000	1-14	140-310	11.5±1.5	-15	-/-97	45	12/70	TO(SMO)-8C
HES716C	6600-7000	1-11	40-80	8±2	-20	-80/-104	45	5/60	SM64D
HE(M)717KA	7000-9000	1-14	100-300	11.5±1.5	-15	-/-96	45	12/70	TO(SMO)-8C
HE(M)488P	7000-7300	2-8	75-150	11±1	-15	-72/-99	45	9/75	TO(SMO)-8C
HE(M)716LB	7000-8000	1-15	50-120	11±1.5	-15	-76/-102	45	12/70	TO(SMO)-8C
HE832J1	7000-9000	2-11	130-340	11/0°	-20	-70/-98	45	12/75	SP-1
HES718	8000-9000	1-14	60-110	10±1.5	-20	-72/-97	45	12/70	SM64D
HE(M)718K	8000-10000	1-14	130-270	11.5±1.5	-15	-/-94	45	12/70	TO(SMO)-8C
HE(M)718KA	8000-11000	0.5-20	60-300	10.5±1.5	-15	-/-93	45	12/70	TO(SMO)-8C
ZDQ073	8000-12000	0.3-14.5	200-400	12.5±2.5	-15	70-/-96	45	12/300	-
HE(M)489C	8900-9300	1-8	80-110	11±1	-15	--/-95	45	12/70	TO(SMO)-8C
HE(M)718KB	9000-11000	1-15	60-230	10.5±1.5	-15	-/-93	45	12/70	TO(SMO)-8C
HE(M)489G	9000-9400	1-8	80-110	11±1	-15	--/-95	45	12/70	TO(SMO)-8C
HE(M)718	9000-10000	1-14	80-300	8±1.5	-20	-75/-100	45	12/75	TO(SMO)-8C
HE(M)718ZA-L	9000-9500	1-11	100-300	7±1.5	-15	-77/-101	45	5/70	TO(SMO)-8D
HE(M)718-L	9000-10000	1-11	50-300	7±1.5	-15	-77/-100	45	5/70	TO(SMO)-8D
HE(M)489I	9300-9700	1-10	100-200	11±1.5	-15	--/-93	45	12/70	TO(SMO)-8C
HE(M)718ZB-L	9500-10000	1-11	100-300	7±1.5	-15	-77/-100	45	5/70	TO(SMO)-8D
HE(M)489D	9700-10200	1-8	90-120	11±1	-15	--/-93	45	12/70	TO(SMO)-8C
HE(M)718LA	10000-11000	1-11	80-360	8±1.5	-20	-75/-100	45	12/75	TO(SMO)-8C
HE(M)718ZC-L	10000-10500	1-5	100-300	6±1.5	-15	-76/-100	45	5/70	TO(SMO)-8D
HE(M)489E	10500-11500	1-11	40-350	10.5±1.5	-20	--/-91	45	12/75	TO(SMO)-8C
HE(M)718ZD-L	10500-11000	1-5	150-400	6±1.5	-15	-77/-102	45	5/55	TO(SMO)-8D
HE(M)718LB	11000-12000	1-19	30-130	10.5±1.5	-20	--/-90	45	12/70	TO(SMO)-8C
HE(M)718ZE-L	11000-11500	1-5	100-300	6±1.5	-15	-73/-98	45	5/70	TO(SMO)-8D
HE(M)489F	11500-12500	1-10	130-330	11±2	-15	--/-90	45	12/70	TO(SMO)-8C
HE(M)718ZF-L	11500-12000	1-5	100-300	6±1.5	-15	-71/-95	45	5/70	TO(SMO)-8D
ZDQ074	12000-18000	0.3-14.5	250-850	12.5±2.5	-15	-/-92	45	12/300	-
ZDQ074A	12000-13000	1-10	130-330	12±2	-15	--/-90	45	12/100	2C
ZDQ074B	13000-14000	1-10	130-330	12±2	-15	--/-90	45	12/100	2C
ZDQ074C	14000-16000	0.5-14.5	60-320	12±2	-15	--/-87	45	12/100	2C
ZDQ074D	16000-18000	0.5-14.5	80-400	12±2	-15	--/-70	45	12/100	2C
ZDQ074E	18000-20000	1-11	200-600	12±2	-15	-70/-94	45	5/180	4C

5.1.4 SAW VCO

Part Number	Frequency MHz	Tuning voltage V	Bandwidth KHz Typ	Power output dBm Typ	Harmonic dBc Typ	Freq Drift Typ	Phase Noise @10/100KHz dBc/Hz Typ	Tune Port capacitor pF Typ	Power V/mA Max	Package
FFSO315	315	-	-	12±2	-30	±75	-130/-160	470	12/40	DIP-14F
FFSO433	433	-	-	12±2	-30	±75	-125/-155	470	12/40	DIP-14F
FFSO622	622	-	-	12±2	-30	±75	-125/-155	470	12/40	DIP-14F
FFSO970	970	-	-	12±2	-30	±250	-107/-150	470	12/40	DIP-14F
FFSO1030	1030	-	-	12±2	-30	±250	-107/-150	470	12/40	DIP-14F
FFSO1090	1090	-	-	12±2	-30	±250	-107/-150	470	12/40	DIP-14F
VCSO300	300	0.5-4.5	30	12±2	-30	-	-129/-160	470	5/50	DIP-14F
VCSO500	500	1-12	100	12±2	-30	-	-120/-155	470	12/50	DIP-14F

5.1.5 MPLL-A series PLL Synthesizer (12×12×4)(mm)

Part Number	Frequency Range f(MHz)	Output Power Po(dBm)	Step Size (kHz)	Switching Time (mS)	Harmonic Output 2nd (dBc)	Spurious Output (dBc)	Phase Noise (dBc/Hz)	Vpll/Ipll (V/mA)	Vvco/Ivco (V/mA)
MPLL62AC-500k	59-65	2±2	500	<5	-10	-70	-120	+5/5	+5/15
MPLL330BC-25k	325-335	2±2	25	<20	-12	-70	-108	+5/8	+5/15
MPLL990BC-50k	970-1010	2±2	50	<15	-12	-70	-107	+5/8	+5/15
MPLL1325CC-200k	1300-1350	2±2	200	<5	-12	-70	-105	+5/12	+5/15
MPLL2217CC-125k	2182-2252	1±2	125	<5	-15	-70	-98	+5/12	+5/20
MPLL3333CC-250k	3293-3373	1±2	250	<10	-15	-70	-93	+5/12	+5/20
MPLL4410EC-125k	4370-4450	0±2	125	<10	-15	-70	-90	+3/15	+5/20
MPLL5815EC-2M	5780-5850	0±2	2000	<5	-15	-70	-82	+3/15	+3/25

5.1.6 MPLL-D series PLL Synthesizer (20×15×4)(mm)

Part Number	Frequency Range f(MHz)	Output Power Po(dBm)	Step Size (kHz)	Switching Time (mS)	Harmonic Output 2nd (dBc)	Spurious Output (dBc)	PhaseNoise (10kHz/100kHz) (dBc/Hz)	Vpll/Ipll (V/mA)	Vvco/Ivco (V/mA)
MPLL55AD-10k	50-60	2±2	10	<15	-30	-75	-110/-130	+5/5	+5/15
MPLL105AD-20k	100-110	0±2	20	<30	-30	-75	-112/-133	+5/5	+5/15
MPLL140AD-20k	135-145	0±2	20	<30	-20	-75	-113/-135	+5/5	+5/15
MPLL150AD-20k	145-155	0±2	20	<30	-20	-75	-113/-135	+5/5	+5/15
MPLL290AD-20k	285-295	0±2	20	<30	-20	-75	-113/-135	+5/5	+5/15
MPLL385BD-25k	380-390	0±2	25	<15	-15	-75	-111/-132	+5/7	+5/20
MPLL615BD-25k	610-620	0±2	25	<15	-15	-75	-111/-132	+5/7	+5/20
MPLL755BD-30k	730-780	0±2	30	<15	-15	-75	-108/-128	+5/7	+5/20
MPLL836BD-30k	824-849	0±2	30	<15	-15	-75	-108/-128	+5/7	+5/20
MPLL881BD-30k	869-894	0±2	30	<15	-15	-75	-109/-129	+5/7	+5/20
MPLL1015BD-30k	990-1040	0±2	30	<15	-15	-75	-108/-128	+5/7	+5/20
MPLL1620BD-50k	1590-1650	0±2	50	<15	-15	-75	-102/-122	+5/7	+5/28
MPLL1777BD-200k	1747-1807	2±2	200	<6	-15	-75	-90/-117	+5/7	+5/28
MPLL1810BD-50k	1780-1840	0±2	50	<15	-15	-75	-103/-123	+5/7	+5/28
MPLL2140BD-200k	2110-2170	2±2	200	<6	-15	-75	-90/-117	+5/7	+5/28
MPLL2280BD-50k	2240-2320	0±2	50	<15	-25	-75	-101/-121	+5/7	+5/28
MPLL2386BD-200k	2341-2431	3±2	200	<5	-25	-75	-92/-120	+5/7	+5/28
MPLL2650CD-200k	2600-2700	2±2	200	<5	-25	-75	-92/-117	+5/12	+5/28
MPLL2800CD-200k	2700-2900	2±2	200	<5	-25	-75	-92/-117	+5/12	+5/28

Part Number	Frequency Range f(MHz)	Output Power Po(dBm)	Step Size (kHz)	Switching Time (mS)	Harmonic Output 2nd (dBc)	Spurious Output (dBc)	PhaseNoise (10kHz/100kHz) (dBc/Hz)	Vpll/Ipll (V/mA)	Vvco/Ivco (V/mA)
MPLL3250CD-250k	3200-3300	2±2	250	＜5	-25	-75	-92/-117	+5/12	+5/30
MPLL3550ED-250k	3500-3600	2±2	250	＜5	-25	-75	-90/-115	+3.3/17	+5/30
MPLL4450ED-500k	4400-4500	0±2	500	＜5	-25	-75	-90/-113	+3.3/17	+5/35
MPLL5150ED-500k	5100-5200	0±2	500	＜5	-25	-75	-85/-111	+3.3/17	+5/35
MPLL5800ED-1M	5750-5850	0±2	1000	＜5	-25	-70	-85/-110	+3.3/17	+5/35
MPLL7200FD-500k	7160-7240	0±2	500	＜5	-25	-70	-82/-108	+3.3/17	+5/35

5.1.7 MPS-A series Fixed Frequency PLL Synthesizer (12×12×4)(mm)

Part Number	Frequency Output f(MHz)	Output Power Po(dBm)	Harmonic Output 2nd (dBc)	Spurious Output (dBc)	PhaseNoise (dBc/Hz)	Vpll/Ipll (V/mA)	Vvco/Ivco (V/mA)
MPS330A -10M	330	2±1.5	-10	＜-75	-113	+5/15	+5/20
MPS460A -12M	460	2±1.5	-10	＜-75	-110	+5/15	+5/20
MPS771A -12M	771	2±1.5	-10	＜-75	-110	+5/15	+5/20
MPS1000A-20M	1030	2±1.5	-10	＜-75	-108	+5/15	+5/20
MPS1575.42A -10.23M	1575.42	0±1.5	-12	＜-75	-103	+5/15	+5/28
MPS1600A-100M	1600	3±1.5	-12	＜-75	-105	+5/15	+5/28
MPS2180A- 40M	2180	0±1.5	-12	＜-75	-100	+5/15	+5/28
MPS2246.508A-15M	2246.508	0±1.5	-12	＜-70	-95	+5/15	+5/28
MPS2565.648A-15M	2565.648	0±1.5	-12	＜-70	-95	+5/15	+5/28
MPS2810A-20M	2810	0±1.5	-15	＜-75	-93	+5/20	+5/28
MPS3150A-20M	3150	0±1.5	-15	＜-70	-93	+5/20	+5/28
MPS3500A-100M	3500	0±1.5	-15	＜-70	-93	+5/20	+5/30

5.1.8 MPS-D series Fixed Frequency PLL Synthesizer (20×15×4)(mm)

Part Number	Frequency Output f(MHz)	Output Power Po(dBm)	Harmonic Output 2nd (dBc)	Spurious Output (dBc)	PhaseNoise 10kHz (dBc/Hz)	Vpll/Ipll (V/mA)	Vvco/Ivco (V/mA)
MPS20.16D-12M	20.16	2±1.5	-15	＜-80	-115	+5/10	+5/15
MPS80D-20M	80	2±1.5	-15	＜-80	-130	+5/10	+5/15
MPS100D-20M	100	2±1.5	-15	＜-80	-125	+5/10	+5/15
MPS140D-20M	140	2±1.5	-15	＜-80	-125	+5/10	+5/15
MPS150D-20M	150	2±1.5	-15	＜-80	-125	+5/10	+5/15
MPS290D-20M	290	2±1.5	-15	＜-80	-118	+5/15	+5/15
MPS406D-10M	406	2±1.5	-15	＜-80	-112	+5/15	+5/20
MPS760D-10M	760	2±1.5	-15	＜-80	-112	+5/15	+5/20
MPS830D-10M	830	2±1.5	-15	＜-80	-113	+5/15	+5/20
MPS1000D-60M	1000	2±1.5	-20	＜-80	-110	+5/15	+5/20
MPS1575.42D-10.23M	1575.42	2±1.5	-20	＜-80	-105	+5/15	+5/28
MPS2000D-100M	2000	2±1.5	-20	＜-80	-103	+5/15	+5/28
MPS2260D-80M	2260	2±1.5	-25	＜-80	-102	+5/15	+5/28
MPS2246.508D-15M	2246.508	2±1.5	-25	＜-80	-98	+5/15	+5/28
MPS2565.648D-15M	2565.648	2±1.5	-25	＜-80	-98	+5/15	+5/28
MPS2810D-20M	2810	2±1.5	-25	＜-80	-95	+5/20	+5/28
MPS3150D-20M	3150	2±1.5	-25	＜-75	-95	+5/20	+5/28
MPS3330D-100M	3330	2±1.5	-25	＜-75	-95	+5/20	+5/30

Part Number	Frequency Output f(MHz)	Output Power Po(dBm)	Harmonic Output 2nd (dBc)	Spurious Output (dBc)	PhaseNoise 10kHz (dBc/Hz)	Vpll/Ipll (V/mA)	Vvco/Ivco (V/mA)
MPS3500D-100M	3500	2±1.5	-25	<-75	-95	+5/20	+5/30
MPS4100D-100M	4100	0±1.5	-25	<-75	-92	+5/20	+5/35
MPS4800D-100M	4800	0±1.5	-25	<-75	-90	+5/20	+5/35
MPS5220D-100M	5220	0±1.5	-25	<-70	-90	+5/20	+5/35
MPS5600D-100M	5600	0±1.5	-25	<-70	-90	+5/20	+5/35
MPS7200D-100M	7200	0±1.5	-25	<-70	-85	+5/20	+5/35

5.1.9 PLS Series of Synthesizer

Output Freq F(GHz)	Mode	Output Power dBm (TYP)	Harmonic dBc (TYP)	Suppression dBc (TYP)	Low Power consumption series			Low phase noise series		
					Phase detect Freq Mhz	Phase Noise dBc/Hz@ 10kHz (TYP)	Power V/mA (TYP)	Phase detect Freq Mhz	Phase Noise dBc/Hz@ 10kHz (TYP)	Power V/mA (TYP)
1	Integer	10	- 20	- 70	25	- 113	5V/90mA	100	- 124	5V/130mA
2		10	- 20	- 70	25	- 107	5V/90mA	100	- 118	5V/130mA
3		10	- 20	- 70	25	- 103	5V/90mA	100	- 115	5V/130mA
4		10	- 20	- 70	25	- 100	5V/90mA	100	- 112	5V/130mA
5		10	- 20	- 70	25	- 98	5V/90mA	100	- 110	5V/130mA
6		10	- 20	- 70	5	- 90	5V/90mA	100	- 109	5V/130mA
7		10	- 20	- 70	5	- 88	5V/90mA	100	- 108	5V/130mA
8		7	- 20	- 70	25	- 94	5V/160mA	100	- 107	5V/130mA
9		7	- 20	- 70	25	- 93	5V/160mA	100	- 106	5V/200mA
10		7	- 20	- 70	25	- 92	5V/160mA	100	- 105	5V/200mA
12		7	- 20	- 70	5	- 84	5V/160mA	100	- 104	5V/200mA
14		7	- 20	- 70	5	- 82	5V/160mA	100	- 102	5V/200mA
16		7	- 20	- 70	25	- 88	5V/160mA	100	- 100	5V/200mA
2.001	Decimal	10	- 20	- 60	25	- 96	5V/90mA	100	- 116	5V/130mA
4.001		10	- 20	- 60	25	- 90	5V/90mA	100	- 113	5V/130mA
8.002		7	- 20	- 60	20	- 84	5V/160mA	100	- 107	5V/130mA
16.01		7	- 20	- 60	20	- 76	5V/160mA	100	- 101	5V/200mA

5.1.10 DRO,PDRO

Series	Frequency f(MHz)	Relative Bandwidth (%)	Tuning Voltage (V)	Output Power (dBm)	Non Harmonic (dBc)	Harmonic (dBc)	Phase Noise 10kHz (dBc/Hz) Typ	Frequency Drift ppm/℃ Typ	Power V/mA Typ	Package
DRO	5~18	-	-	5~15	-20	-80	6G -105 /-125; 10G -102 /-122; 15G -99 /-119; 18G -95 /-115	±1	9/80~180	OS-4
DRVCO	5~18	0.2	0~12	5~15	-20	-80	6G -105 /-125; 10G -102 /-122; 15G -99 /-119; 18G -95 /-115	±1.5	9/80~180	OS-4
PDRO	1~4	-	-	5~15	-20	-80	Phase noise of reference +(20log(N)+3)	-	12/200	OS-5

6 HID DA Module Passive control

6.1 Microwave&RF Amplifier Module

Mode	Frequency f(GHz)	Gain Gp(dB)		Gain Flatness Δ Gp(dB)Max	NF Fn(dB)		P-1(dBm)		VSWR Typ	V/mA
		Typ	Min		Typ	Max	Typ	Min		
MKF001030-0210	0.1—2.6	29	26	±2.0	1.7	1.8	10.5	10	1.7:1	15/80
MKF020090-0310	2.5—8.4	31.5	31	±1.0	1.2	1.5	10.8	10	2.0:1	5/90
MKF0408-0113	4—8	11	10	±0.5	2.3	2.5	15	13	1.8:1	12/40
MKF0408-0213	4—8	21	20	±0.5	2.3	2.5	15	13	1.8:1	12/60
MKF0408-0313	4—8	32	30	±0.5	2.3	2.5	15	13	1.8:1	12/80
MKF0408-0216	4—8	21	20	±0.5	2.7	3.0	17	16	1.8:1	12/80
MKF0408-0316	4—8	32	30	±0.5	2.7	3.0	17	16	1.8:1	12/100
MKF0208-0110	2—8	11	10	±1.0	2.2	2.5	11	10	1.8:1	12/40
MKF0208-0210	2—8	21	20	±1.0	2.7	3.0	11	10	1.8:1	12/50
MKF0208-0310	2—8	32	30	±1.0	2.7	3.0	11	10	1.8:1	12/80
MKF0208-0213	2—8	21	20	±1.0	2.7	3.0	14	13	1.8:1	12/60
MKF0208-0313	2—8	32	30	±1.0	2.7	3.0	14	13	1.8:1	12/80
MKF0812-0110	8—12	12	10	±1.0	1.8	2.5	12	10	2.0:1	12/40
MKF0812-0210	8—12	26	20	±1.0	2.0	2.5	12	10	2.0:1	12/80
MKF0812-0310	8—12	31	30	±1.0	2.0	2.5	12	10	2.0:1	12/100
MKF1218-0210	12—18	16	14	±1.5	2.5	3.5	11	10	2.0:1	12/70
MKF1218-0213	12—18	22	20	±1.5	2.8	3.5	14	13	2.0:1	12/140
MKF1218-0313	12—18	28	26	±1.5	2.8	3.5	14	13	2.0:1	12/180
MKF0618-0113	6—18	14	12	±1.5	4.0	5.0	14	13	1.5:1	12/70
MKF0618-0213	6—18	20	18	±1.5	4.0	5.0	14	13	1.5:1	12/100
MKF0618-0313	6—18	28	26	±1.5	4.0	5.0	14	13	1.5:1	12/130
MKF0218-0108	2—18	20	18	±1.0	4.5	5.0	11	10	2.0:1	12/90
MKF0218-0213	2—18	30	28	±2.0	4.5	5.0	14	13	2.0:1	12/130

6.1.1 Broadband Limiting Amplifiers

Model	Frequency f(MHz)	Gain Gp(dB) Typ	Gain Flatness Δ Gp(dB)Max	Po(dBm) Typ	Hamionic Suppression (dB)	Fn(dB)Typ	V/mA
HE072/HEM072/HES072	10—300	10	±0.5	0	-20	7.0	15/25
HE072A/HEM072A/HES072A	2—100	13	±0.5	0	-25	5.0	15/25
HE072B/HEM072B/HES072B	10—400	10	±0.5	-3.5	-25	5.0	5/15
HE073/HEM073	10—300	20	±0.5	0	-20	7.5	15/45
HE073A/HEM073A	200—500	20	±0.5	0	-20	6.0	15/45
HE073B/HEM073B	2—100	26	±0.5	0	-30	6.0	15/45
HE188/HEM188/HES188	5—1100	11.5	±0.5	14	-20	8.5	15/55
HE188A/HEM188A/HES188A	1000—2000	10.5	±0.5	14	-15	9.5	15/55
HEM188B	2000—4000	11	±0.5	12	-	8.0	5/50
HE195*	10—300	75	±0.5	12	-	3.5	12/240
HE195C	10—100	60	±0.5	-3.5	-	7.0	5/80
HE259	400—1100	48	±0.5	5.0	-	6.0	12/230
SFQ012	1100—1900	65	±1.0	0	-	7.5	5/280
SFQ012A	4000—8000	12	±0.75	10	-	7.5	5/65
SFQ012B	8000—1200	11	±0.75	10	-	7.5	5/65

6.1.2 Limiting Low Noise Amplifiers

Model	Frequency (GHz)	Power handling (W)	Gain (dB)	Noise Figure (dB)	VSWR	Package(Size)(mm)
HEM550-6	0.38-0.48	120, 300us, 33%	21	1.3	1.5	Sm25
HE1103	2.1-2.5	1, CW	31	1.0	1.3	Sm25
HE222-1	3.1-3.4	70, 300us, 10%	31	1.3	1.5	Sm25
HES207-3	2.7-3.5	100, 300us, 10%	31	1.6	1.5	Sm25
HE207-8	2.7-3.0	300, 1ms, 10%	34	1.6	1.5	27x18x5
JDF039A-1	3.1-3.4	110, 300us, 10%	30	1.3	1.5	19.9x9.2x6
JDF039A-5	0.8-2	50, 200us, 10%	30	1.6	1.6	19.9x9.2x5
JDF039A-6	0.9-1.2	200, 300us, 10%	35	1.5	1.2	24x13x8
MKF086095-0300	8.6-9.5	30, 100us, 10%	31	2.0	1.8	14x13.5x6.3
MKF1011-0210	10-10.5	20, 300us, 10%	24	1.8	1.5	24x17x8
JDF081	0.47-0.61	500, 20ms, 35%	24	1.4	1.5	86x30x15.5
SS-XFY321/361-27	0.32-0.36	1600, 3ms, 30%	27	1.4	1.5	Custom SMA Package
JDF080A	1.2-1.4	1000, 150us, 10%	25	1.3	1.3	Custom SMA Package
JDF039A-2	3.1-3.4	1000, 200us, 10%	36	1.6	1.5	50x24x11
HE207-4	3.1-3.4	150, 100us, 15%	26.5	1.3	1.3	18x12.5x5
HE207-5	3.1-3.4	150, 100us, 15%	26.5	1.3	1.3	22x8x6
JDF124	2.7-3.5	20, 400us, 15%	26	1.3	1.3	20.8x16.2x6.2
1214	1.2-1.4	80, 100us, 10%	35	1.4	1.5	14x8x1.2
2735	2.7-3.5	200, 200us, 10%	26	1.3	1.3	10x10x1.2

6.2 Passive and control Circuits Module

6.2.1 GaAs Switch

Part Number	Frequency f(MHz)	Switching Time Ton(ns)Typ	ISO(dB)min	I.L (dB)	Type	Power (V)
XN511(K)	DC—200	5	64(60MHz)	1.0(60MHz)	SPST	-
XN521-I/II	DC—300	8	64(60MHz)	1.0(60MHz)	SPST	-5
HE017	DC—300	10	65(60MHz)	1.0(60MHz)	SPDT	-12
HE017A	DC—300	15	65(60MHz)	1.0(60MHz)	SPDT	-5
HE116*	DC—3000	10	50(1GHz)	1.1(1GHz)	SPDT	-5
HE117A	DC—100	15	65(60MHz)	0.6(60MHz)	4-SPST	-5
HE118*	DC—3000	10	50(1GHz)	1.1(1GHz)	SPST	-5
HE118-4	DC—3000	180	55(500MHz)	1.0(500MHz)	SPST	-5
HE139	DC—6000	15	50(1GHz)	1.0(1GHz)	SPDT	-5
HE1035	DC—4000	7	49(700MHz)	1.5(700MHz)	SP4T	-5
MKG031	5000—6000	10	85(5000MHz)	1.2(5000MHz)	SPST	＋5V/-5V

6.2.2 PIN Switch

Part Number	Frequency f(MHz)	IL Typ(dB)f(GHz)		ISOTyp(dB)f(GHz)		VSWR	Switching Time Typ (us)	Type	Mode
		≤1.0	≤2.0	≤1.0	≤2.0				
SWST-1A	20—2000	0.8	1.5	55	50	1.5	0.3	SPST	Reflective
SWST-1B	20—2000	1.0	1.6	65	55	1.5	0.3	SPST	Absorptive
SWDT-1A	20—2000	0.8	1.5	65	45	1.5	0.3	SPDT	Reflective
SWDT-1B	20—2000	0.8	1.5	75	65	1.5	0.3	SPDT	Reflective
SWDT-1C	20—2000	1.2	2.0	65	55	1.5	0.3	SPDT	Absorptive

6.2.3 SWP Series Power Switch

Part Number	Frequency f(MHz)	Switching Time Ton(ns)Typ	ISO(dB)min	I.L (dB)	VSWR Type	Type	Por
SWP10X-20	0.03-18GHz	5	25/23	0.4/1.1	1.5	SPST	Reflective
SWP10X-40	0.03-18GHz	5	50/40	0.5/1.3	1.5	SPST	Reflective
SWP20X-20	0.03-18GHz	5	25/20	0.5/1.5	1.5	SP2T	Reflective
SWP20X-40	0.03-18GHz	5	50/35	0.7/1.8	1.5	SP2T	Reflective
SWP30X-20	0.03-18GHz	5	25/20	0.8/1.6	1.5	SP3T	Reflective
SWP40X-20	0.03-18GHz	5	25/20	0.9/1.8	1.5	SP4T	Reflective
SWP50X-20	0.03-18GHz	5	25/20	1.0/1.9	1.5	SP5T	Reflective
SWP60X-20	0.03-18GHz	5	25/20	1.2/2.0	1.5	SP6T	Reflective

6.2.4 PIN Switch Driver

Part Number	Way	Turn on Ton(ns)Typ	Turn Off Ton(ns)Typ	Output V_{OH}(V)Min	Voltage V_{OL}(V)Max	Output Current I_O(mA)	Power Supply(V)	
HE042A	4	30	50	+3.5	-29	+80	+5	-30
HE051	5	30	50	+4.0	-9.5	+40	+5	-10
HE063	3	40	50	+3.5	-4.0	±40	+5	-5
DR-2	4	40	40	+3.5	-4.0	±40	+5	-5
DR-3	4	40	40	+3.5	-4.0	±40	+5	-5
DR-4	1	80	150	+2.5	-95	+80	+5	-100
DR-5	2	30	50	+3.0	-3.0	±60	+5	-5
DR-12	3	-	-	+96	0.3	+30	+100	+5
HE182	1	-	-	+4.0	-4.0	±40	+5	-5
XN441A/C/D	2/2/4	-	-	+4.5	-4.5	±40	+5	-5

6.3 Microwave&RF Amplifier Module

6.3.1 Gain Block

Model	Frequency f(MHz)	Gain Gp(dB)Typ	NF Fn(dB)Typ	P_{-1}(dBm) Typ	VSWR Typ	V/mA
HE578A	100—3000	20.0 (500MHz) 16.0 (1000MHz) 10.0 (2000MHz)	1.0	18.0	1.5:1	3-5/60
HE578C	0.1—10GHz	11.0	4.9	14.0	1.5:1	12/55

6.3.2 Broadband Amplifiers

Mode	Frequency f(GHz)	Gain Gp(dB)		Gain Flatness Δ Gp(dB)Max	NF Typ	P_{-1}(dBm)		VSWR Typ	V/mA
		Typ	Min			Typ	Min		
HE279/HEM279	100—3000	31.0	25.0	±1.0	1.5	10.0	12.0	1.6:1	5/52
HE397C/HEM397C	100—4000	16.0	14.0	±1.0	1.4	11.0	9.0	1.6:1	5/30
HE1054A/HEM1054A	10—200	15.5	14.0	±1.0	5.0	11.0	9.0	1.6:1	15/110
HE1054A-3/HEM1054A-3	10—200	15.5	14.0	±1.0	5.0	11.0	9.0	1.6:1	12/110
HE1054B/HEM1054B	10—500	15.0	14.0	±1.0	5.0	23.0	22.0	1.6:1	15/110
HE1054B-3/HEM1054B-3	10—500	15.0	14.0	±1.0	5.0	23.0	22.0	1.6:1	12/110
HE1054C/HEM1054C	1—500	15.5	14.0	±1.0	5.0	19.0	18.0	1.6:1	15/70
HE1054C-3/HEM1054C-3	1—500	15.5	14.0	±1.0	5.0	19.0	18.0	1.6:1	12/70
HE316	3—50	11.0	10.0	±0.5	1.3	21.0	20.0	1.7:1	15/35
HE311/HEM311	1—100	18.0	17.0	±0.5	4.0	18.0	17.0	1.7:1	12/58
HE312/HEM312	1—100	17.0	15.0	±0.5	3.5	19.5	19.0	1.5:1	15/65

Mode	Frequency f(GHz)	Gain Gp(dB)		Gain Flatness Δ Gp(dB)Max	NF Typ	P_{-1}(dBm)		VSWR Typ	V/mA
		Typ	Min			Typ	Min		
HE313	1—110	28.0	27.0	±0.5	2.2	17.0	16.0	1.5:1	15/32
HE315	1—110	20.0	17.0	±0.5	4.5	-	27.0	1.5:1	15/180
HE364B/HEM364B/HES364B	1—200	33.5	32.0	±0.5	1.3	8.0	6.0	1.3:1	15/38
HE380A/HEM380A/HES380A	10—400	14.0	13.0	±0.5	3.5	17.0	16.0	1.5:1	15/40
HE380B/HEM380B/HES380B	10—400	14.0	13.0	±0.5	3.8	20.0	19.0	1.5:1	15/50
HE380C/HEM380C/HES380C	10—400	17.0	16.0	±0.5	3.0	17.0	16.0	1.5:1	15/40
HE380D/HEM380D/HES380D	10—400	17.0	16.0	±0.5	3.2	20.0	19.0	1.5:1	15/50
HE393A/HEM393A	10—500	18.5	17.0	±0.5	2.7	12.0	11.0	1.5:1	5/30
HE393B/HEM393B	10—500	18.5	17.0	±0.5	4.0	17.0	16.5	1.5:1	5/60
HE372B/HEM372B/HES372B	10—500	21.0	19.0	±0.5	2.7/2.2	10.0	9.5	1.5:1	15/25
HE321B/HEM321B/HES321B	10—500	28.0	25.0	±0.5	2.0	4.0	3.0	1.5:1	12/35
HE360A/HEM360A	10—500	29.0	28.0	±0.5	1.7	7.5	6.0	1.5:1	15/38
HE361B/HEM361B/HES361B	10—500	29.0	28.0	±0.5	1.8	7.0	6.0	1.3:1	15/38
HE373B/HEM373B/HES373B	10—1000	16.0	14.0	±1.0	2.8	8.5	8.0	1.7:1	15/18
HE394A/HEM394A	10—1000	16.0	15.0	±0.5	4.0	11.0	10.0	1.8:1	5/30
HE394B/HEM394B	10—1000	16.0	15.0	±0.5	4.5	16.0	15.0	1.7:1	5/60
HE461B/HEM461B/HES461B	10—1000	24.0	23.0	±0.75	3.5	10.5	10.0	1.7:1	15/45
HE374B/HEM374B/HES374B	20—1500	11.0	9.5	±0.75	4.5	9.0	8.5	1.8:1	15/22
HE395A/HEM395A	10—1500	11.5	11.0	±0.5	3.7	10.0	9.0	1.7:1	5/30
HE395B/HEM395B	10—1500	11.5	10.0	±0.5	4.8	14.0	13.0	1.7:1	5/60
HE462B/HEM462B	10—1500	21.0	19.0	±0.75	4.0	8.5	8.0	1.9:1	15/45
HE397A/HEM397A	10—2000	16.0	15.0	±0.5	1.7	16.0	15.0	1.5:1	5/55
HE397B/HEM397B	10—3000	14.5	13.0	±0.5	2.0	16.0	15.0	1.5:1	5/55
HE397B-2	20—3600	22.0	20.0	±1.0	2.5	16.5	15.0	1.7:1	5/85
HE386A/HEM386A/HES386A	20—200	10.5	10.0	±0.5	1.2	-	15.0	1.8:1	15/15
HE386B/HEM386B/HES386B	20—200	10.5	10.0	±0.5	1.4	-	19.0	1.8:1	15/30
HE386D/HEM386D/HES386D	20—200	10.5	10.0	±0.5	1.2	-	10.0	1.8:1	5/10
HE365/HEM365/HES365	20—200	18.0	17.0	±1.0	4.2	18.0	17.0	1.6:1	12/58
HE385C/HEM385C/HES385C	20—250	8.0	7.5	±0.5	1.8	23.3	23.0	2.0:1	15/45
HE389A/HEM389A/HES389A	20—250	30.0	29.0	±0.5	2.0	21.0	20.0	2.0:1	15/45
HE389B/HEM389B	20—250	30.0	29.0	±0.5	3.0	23.5	22.0	2.0:1	15/65
HE387E/HEM387E/HES387E	20—300	25.0	24.0	±0.5	1.0	12.0	11.0	1.5:1	5/18
HE385A/HEM385A/HES385A	20—400	-	8.0	±0.5	1.5	11.0	10.0	1.8:1	15/15
HE385B/HEM385B/HES385B	20—400	-	8.0	±0.5	1.8	18.0	16.0	2.0:1	15/30
HE387A/HEM387A/HES387A	20—400	26.0	25.0	±0.5	2.3	17.0	16.5	2.0:1	15/30
HE387B/HEM387B/HES387B	20—400	26.0	25.0	±0.5	2.7	21.0	20.0	2.0:1	15/45
HE388A/HEM388A	20—400	26.0	25.0	±0.5	3.5	22.5	22.0	2.0:1	15/65
HE381B/HEM381B/HES381B	20—500	12.0	11.0	±0.5	2.4	12.5	12.0	1.5:1	15/32
HE383B/HEM383B/HES383B	20—500	11.0	10.0	±0.5	4.0	16.5	16.0	1.7:1	15/45
HE383C/HEM383C/HES383C	20—500	11.0	10.0	±0.5	4.5	20.0	19.0	1.8:1	15/60
HE396A/HEM396A/HES396A	20—500	10.5	10.0	±0.5	2.0	7.5	7.0	1.8:1	5/17
HE396B/HEM396B/HES396B	20—500	10.5	10.0	±0.5	2.3	-	13.0	1.8:1	5/30
HE391B/HEM391B/HES391B	20—500	16.0	15.0	±0.5	3.8	19.5	19.0	1.5:1	15/65

Mode	Frequency f(GHz)	Gain Gp(dB)		Gain Flatness ΔGp(dB)Max	NF Typ	P-1(dBm)		VSWR Typ	V/mA
		Typ	Min			Typ	Min		
HE390A	20—500	18.0	17.0	±0.75	6.0	27.5	27.0	1.7:1	15/180
HE390B	30—520	16.5	15.0	±0.5	2.3	29.0	28.0	1.9:1	12/180
HE861/HEM861	20—500	32.0	26.0	±0.5	4.0	-	18.0	1.7:1	12/82
HE383B-2L/HEM383B-2L	20—600	11.0	10.0	±0.5	1.5	24.5	24.0	1.8:1	15/110
HE383B-3L/HEM383B-3L	20—600	14.0	13.0	±0.5	1.5	24.5	24.0	1.8:1	15/110
HE388D-2/HEM388D-2	20—600	23.0	21.0	±0.5	0.8	20.0	19.0	1.6:1	5/80
HE388D-4/HEM388D-4	20—600	23.0	21.0	-	0.6	20.5	19.0	1.5:1	5/85
HE391A/HEM391A/HES391A	20—700	16.0	15.0	±0.5	3.0	17.5	17.0	1.8:1	15/55
HE382B/HEM382B	20—1000	11.0	10.0	±0.75	3.5	-	8.0	1.8:1	15/25
HE382B-1/HEM382B-1	20—1000	11.0	10.0	±0.5	1.8	18.5	18.0	1.4:1	5/50
HE382B-2/HEM382B-2	20—1000	15.0	14.0	±0.5	1.5	19.5	19.0	1.5:1	5/50
HE373C/HEM373C	20—1000	12.5	12.0	±0.5	4.2	-	17.0	1.8:1	15/60
HE388E/HEM388E/HES388E	20—1000	20.0	17.0	±0.5	1.0	17.0	15.0	1.7:1	5/60
HE871/HEM871	20—1000	26.0	22.0	±1.0	4.5	-	17.0	1.7:1	12/82
HE872/HEM872	20—1000	37.0	35.0	±0.5	1.2	18.0	17.0	1.7:1	5/80
HE383B-4	100—600	12.0	11.0	±0.5	1.7	-	27.0	1.5:1	15/160
HE387C/HEM387C	100—700	21.0	20.0	±0.5	2.5	16.0	15.0	1.5:1	15/30
HE387D/HEM387D	100—700	22.0	21.0	±0.5	3.8	21.0	20.0	1.5:1	15/55
HE575A/HEM575A	10—3000	12.0	11.0	±0.5	2.8	16.5	15.0	1.6:1	12/50
HE575B/HEM575B	10—3000	12.0	11.0	±0.5	2.8	20.0	19.0	1.6:1	12/75
HE575C	10—1500	13.5	12.0	±0.5	2.8	24.5	24.0	1.6:1	12/145
HE576A/HEM576A	100—3500	12.5	11.0	±0.5	2.8	16.5	15.0	1.6:1	12/50
HE576B/HEM576B	100—3500	12.5	11.0	±0.5	2.8	20.0	19.0	1.6:1	12/80
HE576C	100—3000	12.5	11.0	±0.5	2.7	25.0	24.0	1.6:1	12/150

6.3.3 Low Noise Amplifiers

Mode	Frequency f(GHz)	Gain Gp(dB)		Gain Flatness ΔGp(dB)Max	NF Typ(dBm)		P-1(dBm)		VSWR Typ	V/mA
		Typ	Min		Typ	Min	Typ	Min		
HE550	0.32—0.38	27.0	25.0	±1.25	0.7	1.2	0	-	2.0:1	5/12
HE550A	0.5—0.7	27.0	25.0	±1.25	0.9	1.2	5.0	3.0	2.0:1	12/45
HE550AL	0.5—0.7	27.0	25.0	±1.25	0.9	1.2	5.0	3.0	2.0:1	5/45
HE550B	0.6—1.0	27.0	24.0	±1.25	0.9	1.2	5.0	3.0	2.0:1	12/45
HE550BL	0.6—1.0	27.0	24.0	±1.25	0.9	1.2	5.0	3.0	2.0:1	5/45
HE551/HEM551/HES551	0.9—1.3	30.0	28.0	±1.0	1.0	1.3	11.5	11.0	1:5:1	12/65
HE551L/HEM551L/HES551L	0.9—1.3	30.0	28.0	±1.0	1.1	1.3	12.0	10.0	1:5:1	5/65
HE552/HEM552/HES552	1.2—1.5	28.0	23.0	±1.0	1.1	1.35	12.0	11.0	1:5:1	12/65
HE552L/HEM552L/HES552L	1.2—1.5	28.0	23.0	±1.0	1.1	1.35	12.0	10.0	1.5:1	5/60
HE553/HEM553/HES553	1.4—1.7	28.0	23.0	±1.0	1.1	1.4	12.0	10.0	1.6:1	12/65
HE553L/HEM553L/HES553L	1.4—1.7	28.0	23.0	±1.0	1.1	1.4	12.0	10.0	1.6:1	5/60
HE554/HEM554/HES554	2.0—2.5	24.0	22.0	±1.0	1.1	1.5	10.5	10.0	1.8:1	12/65
HE554L/HEM554L/HES554L	2.0—2.5	24.0	22.0	±1.0	1.1	1.5	10.5	10.0	1.8:1	5/65
HE554B/HEM554B/HES554B	2.4—2.8	24.0	22.0	±1.0	1.2	1.5	10.5	10.0	1.8:1	12/65
HE554BL/HEM554BL/HES554BL	2.4—2.8	24.0	22.0	±1.0	1.2	1.5	10.5	10.0	1.8:1	5/65
HEM554D	2.7—3.0	24.0	23.0	±0.5	1.1	1.3	9.0	8.0	1.5:1	5/60

Mode	Frequency f(GHz)	Gain Gp(dB)		Gain Flatness △Gp(dB)Max	NF Typ(dBm)		P_{-1}(dBm)		VSWR Typ	V/mA
		Typ	Min		Typ	Min	Typ	Min		
HEM554E	2.7－3.0	13.0	12.0	±0.4	0.7	0.8	9.0	8.0	1.4:1	5/45
HE008/HEM008	3.1－3.4	23.0	22.0	±0.5	1.1	1.5	9.0	8.0	1.5:1	12/50
JDF039A	3.1－3.4	31.0	30.0	±0.5	1.3	1.5	11.0	10.0	1.5:1	5/70

6.3.4 Medium Power Amplifiers

Mode	Frequency f(GHz)	Gain Gp(dB)		Gain Flatness △Gp(dB)Max	NF Typ	P_{-1}(dBm)		VSWR Typ	V/mA
		Typ	Min			Typ	Min		
HE571L/HEM571L	1.0－3.5	14.0	12.0	±0.75	3.2	19.0	18.0	1.9:1	5/75
HE572/HEM572/HES572	0.8－3.5	14.0	12.0	±0.75	2.3	15.5	13.0	1.8:1	12/35
HE572L/HEM572L/HES572L	0.8－3.5	14.0	11.0	±0.75	2.3	11.5	10.0	1.8:1	5/36
HE574/HEM574/HES574*	0.6－2.5	14.0	12.0	±1.0	2.9	20.5	19.0	1.8:1	12/65
HE574L/HEM574L/HES574L*	0.6－2.5	14.0	12.0	±1.0	2.9	19.5	18.0	1.8:1	5/65
HE581/HEM581/HES581	0.8－2.5	22.0	19.0	±0.75	3.0	13.5	13.0	1.8:1	12/75
HE581L/HEM581L/HES581L	0.8－2.5	22.0	19.0	±0.75	3.0	13.0	11.0	1.8:1	5/75
HE583/HEM583/HES583*	0.8－2.5	24.0	23.0	±0.75	5.0	20.0	19.0	1.8:1	12/110
HE584/HEM584*	1.5－3.0	24.0	22.0	±1.0	5.0	20.0	18.0	1.8:1	12/110
HE641/HEM641	1.0－3.5	16.0	15.0	±1.5	3.0	20.0	19.0	1.8:1	12/80
HE641B*	1.0－3.5	25.0	24.0	±1.5	5.5	23.5	23.0	2.0:1	12/160
HE641D*	0.5－2.5	25.0	24.0	±1.0	4.5	25.3	24.8	2.0:1	12/200
HE080/HEM080/HES080	1.0－4.0	15.5	15.0	±1.0	3.0	18.0	17.0	1.8:1	5/80
HEM080A	1.0－4.0	25.0	24.0	±1.0	2.5	21.0	20.0	1.7:1	12/100
HE160A*	0.95－1.25	34.5	34.0	±0.5	-	30.5	30.0	1.6:1	9/450
HE160B*	0.95－1.25	32.5	32.0	±0.5	-	33.5	33.0	1.6:1	10/750
HE160C*	0.95－1.25	34.5	33.8	±0.5	-	35.0	34.8	1.6:1	10/1A
HE160D*	0.95－1.25	35.5	35.0	±0.5	-	36.5	36.0	1.6:1	12/1.1A
HE161A*	1.2－1.5	34.5	34.0	±0.5	-	30.5	30.0	1.6:1	9/450
HE161B*	1.2－1.5	32.5	32.0	±0.5	-	33.5	33.0	1.6:1	10/750
HE161C*	1.2－1.5	34.5	33.8	±0.5	-	35.0	34.8	1.6:1	10/1A
HE161D*	1.2－1.5	35.5	35.0	±0.5	-	36.5	36.0	1.6:1	12/1.1A
HE162A*	2.0－2.5	29.5	29.0	±0.5	-	30.5	30.0	1.7:1	9/450
HE162B*	2.0－2.5	29.5	29.0	±0.5	-	33.5	33.0	1.7:1	10/750
HE162C*	2.0－2.5	29.5	29.0	±0.5	-	35.0	34.8	1.7:1	10/1A
HE163A*	2.7－3.1	29.5	29.0	±0.5	-	30.5	30.0	1.7:1	9/450
HE163B*	2.7－3.1	29.5	29.0	±0.5	-	33.5	33.0	1.7:1	10/750
HE163C*	2.7－3.1	29.5	29.0	±0.5	-	35.0	34.8	1.7:1	10/1A
HE164A*	3.1－3.4	29.5	29.0	±0.5	-	30.5	30.0	1.7:1	9/450
HE164B*	3.1－3.4	29.5	29.0	±0.5	-	33.5	33.0	1.7:1	10/750
HE164C*	3.1－3.4	29.5	29.0	±0.5	-	35.0	34.8	1.7:1	10/1A

6.3.5 Wideband Amplifiers

Mode	Frequency f(GHz)	Gain Gp(dB)		Gain Flatness △Gp(dB)Max	NF Typ(dBm)		P_{-1}(dBm)		VSWR Typ	V/mA
		Typ	Min		Typ	Min	Typ	Min		
HE244A	2－8	11	10	±1.0	2.7	3.5	10.5	10	1.8:1	12/40
HE244B	2－8	21	18	±1.0	2.7	3.5	10.5	10	1.8:1	12/80

6.4 Integrated ESC、 Digital Controlled Attenuator

6.4.1Integrated ESC Attenuator

Part Number	Frequency f(MHz)	Insertion Loss I.L(dB)	Max Attenuation Att(dB)	Controlled Port Voltage(V)/Current(m A)	VSWR	Power Supply V/mA
HE412A	5—1000	2.5	23	0—15 / 0—7	2.0:1	15/14
HE412B	20—1000	2.0	24	0—15 / 0—7	2.0:1	15/14
HE891A/HEM891A	5—300	3.0	57	0—15 / 0—20	2.0:1	5/10
HE892/HEM892	20—1000	2.8	40	0—7 / 0—10	1.8:1	5/10
HE893/HEM893	20—3000	4.7	27	0—7 / 0—10	2.0:1	5/10
HE041-1	2000—3000	1.6	50	0—10 / 0—15	1.8:1	-
HE041-2	3000—3800	2.0	45	0—10 / 0—15	1.8:1	-
HE041-3	3800—4500	2.3	40	0—10 / 0—15	1.8:1	-
HE041-4	4500—5500	2.5	35	0—10 / 0—15	2.0:1	-
HE041-5	5000—6000	3.0	35	0—10 / 0—15	2.0:1	-
HE041-42	8000—9000	2.5	40	0—10 / 0—20	1.6:1	-

6.4.2 Integrate Digital Controlled Attenuator

Part Number	Frequency f(MHz)	Insertion Loss I.L(dB)	Total Attenuation Att(dB)	Attenuate Level(dB)	VSWR	Power Supply V/mA
HES741-1	10—1000	1.5	20.0	20	1.5:1	+5/25
HE751-0.25	30—500	6.0	31.75	0.25,0.5,1,2,4,8,16	1.3:1	+5/15
HE751A/HEM751A	50—500	6.0	63.0	1,2,4,8,16,32	1.5:1	+5/15
HE752A	50—200	3.0	1.5	01. ,0.2,0.4,0.8	1.3:1	+5/10
HE751-22	10—2500	4.0	31.5	0.5,1,2,4,8,16	1.5:1	-5/15
HE751-27	10—2000	2.0	32.0	16,16	1.6:1	-5/10

6.4.3 Process Controlled Attenuator Module

Part Number	Frequency f(MHz)	Min Step (dB)	Controlled Bits	InsertionI.L (dB)	Attenuation (dB)	Attenuate Flatness		VSWR
						< 30dB	< 60dB	
SZZ007-1	1.0—2.0	0.5	7	2.0	60	±1	±1.5	1.5:1
SZZ007-2	2.0—3.0	0.5	7	2.0	60	±1	±1.5	1.5:1
SZZ007-3	3.0—4.0	0.5	7	2.0	60	±1	±1.5	1.8:1
SZZ007-4	4.0—5.0	0.5	7	2.5	60	±1	±1.5	1.8:1
SZZ007-5	5.2—5.8	0.5	7	2.5	60	±0.5	±1.5	1.8:1
SZZ007-8	8.0—9.0	0.5	7	3.0	60	±0.5	±1.5	2:1
SZZ007-9	9.0—10.0	0.5	7	3.0	60	±0.5	±1.5	2:1
SZZ007-10	10.0—12.0	0.5	7	3.0	60	±1.0	±1.5	2:1
SZZ00930-1	1.0—2.0	0.5	6	1.3	31.5	±0.5	-	1.6:1
SZZ00930-2	2.0—3.0	0.5	6	1.5	31.5	±0.5	-	1.6:1
SZZ00960-3	3.0—4.0	0.5	7	2.8	60	±0.5	±1	1.8:1
SZZ00960-4	4.0—5.0	0.5	7	2.8	60	±0.5	±1	2:1
SZZ00960-5	5.0—6.0	0.5	7	3.0	60	±0.5	±1	2:1
L-band programmable attenuator	1.25—1.35	0.1	8	6.0	25.5	±0.1	-	1.4:1

6.4.4 Integrated GaAs High-Speed Switch

Part Number	Frequency f(MHz)	Switch SpeedTon(ns) Typ	ISO(dB)min	Insertion LossI.L (dB)	Switch Type	Power Supply(V)
XN511(K)	DC—200	5	64(60MHz)	1.0(60MHz)	SPST	-
XN521-I/II	DC—300	8	64(60MHz)	1.0(60MHz)	SPST	-5
HE017	DC—300	10	65(60MHz)	1.0(60MHz)	SPDT	-12
HE017A	DC—300	15	65(60MHz)	1.0(60MHz)	SPDT	-5

6.4.5 0°Microwave Power Divider/Combiner

Part Number	Frequency f(MHz)	Function	Insertion I.L(dB)	Isolation ISO(dB)Typ	Phase Bits Un-balance △deg (°)Typ	AmplitudeUn-balance △dB(dB)Typ	VSWR Typ
PSM2-2-8	2.0—8.0	2channels	0.5	18	3	0.3	1.3:1
PSM2-3-6	3.0—6.0	2channels	0.45	20	2	0.2	1.3:1
PSM2-4-8	4.0—8.0	2channels	0.45	22	2	0.2	1.3:1
PSM2-4-10	4.0—10.0	2channels	0.7	20	3	0.3	1.3:1
PSM2-7-12.5	7.0—12.5	2channels	0.5	20	3	0.3	1.3:1
PSM2-0220G	2.0—20	2channels	1.5	18	6	0.5	1.5:1
PSM2-0226G	2.0—26.5	2channels	1.6	18	8	0.4	1.5:1
PSM3-0.5-3	0.5—3.0	2channels	0.7	19	4	0.3	1.4:1
PSM3-1-2	1.0—2.0	2channels	0.4	20	2	0.2	1.2:1
PSM3-2-4	2.0—4.0	2channels	0.4	20	2	0.3	1.3:1
PSM3-3-6	3.0—6.0	2channels	0.5	20	3	0.3	1.3:1
PSM3-4-8	4.0—8.0	2channels	0.5	20	3	0.4	1.3:1
PSM3-0220G	2.0—20	2channels	1.5	15	8	1.0	2.0:1
PSM4-0.5-3	0.5—3.0	2channels	0.8	20	3	0.3	1.3:1
PSM4-0.5-6	0.5—6.0	2channels	1.5	19	4	0.6	1.4:1
PSM4-1-2	1.0—2.0	2channels	0.5	22	3	0.3	1.2:1
PSM4-2-4	2.0— 4.0	2channels	0.5	22	3	0.3	1.3:1
PSM4-2-8	2.0— 8.0	2channels	1.0	20	4	0.4	1.4:1
PSM4-3-6	3.0— 6.0	2channels	0.5	21	3	0.3	1.4:1
PSM4-4-8	4.0— 8.0	2channels	0.8	21	4	0.4	1.4:1
PSM4-5-10	5.0—10.0	2channels	0.8	21	4	0.4	1.4:1
PSM4-7-12.5	7.0—12.5	2channels	0.8	19	6	0.4	1.4:1
PSM4-0220G	2.0—20	2channels	1.7	15	6	0.7	1.8:1

6.4.6 High-reliability Wide-band Mixer

Part Number	Frequency RF&LO f(MHz)	IF Output IF (MHz)	conversion (dB)Typ	LO-RF Insertion (dB)Typ	LO-IF Insertion (dB)Ty	RF-IF Insertion (dB)Ty	level (dBm)
HEM280-14	10—1000	DC—1000	9.5	25	20	10	+7
HEM280-14-2	1—500	DC—500	9.0	30	25	20	+7
HEM280-14-3	10—1500	DC—1000	9.5	20	20	10	+7
HEM280-13	10—300	DC—100	8.5	35	25	20	+7
HEM280	10—3000	10—3000	11.0	25	20	20	+101
HEM280-7	2000—4000	100—2000	11.5	20	20	20	+10
HEM280-8	1700—1800	1400—1600	9.5	30	30	25	+8
HEM280-18-1	10—3000	10—3000	11.0	25	20	20	+13

7 Filter

7.1 MEMS Filter (TA=25 ℃)

Serial	Model	Insertion Loss@f0 (dB)	BW1dB (GHz)	Attenuation (dB)	Size (mm) ≤A×B×C
1	SiMF2R5/R8-7D2	2.2	2.1~2.9	≥40@1.4&3.5GHz	6.5×10.7×0.84
2	SiMF2R5/1-9D2	2	2.0~3.0	≥40@1.6&3.5GHz	7×10.2×0.84
3	SiMF2R7/R4-6D3	2.3	2.55~2.95	≥40@2.12&3.45GHz	7×9.4×0.84
4	SiMF2R7/1-7D2	2	2.25~3.2	≥40@1.6&4GHz	7×10.5×0.84
5	SiMF2R75/1R3-9D2	2.5	2.1~3.4	≥40@1.5&4GHz	7×9.4×0.84
6	SiMF2R8/R4-6D3	2.5	2.6~3.0	≥40@2.1&3.4GHz	6.5×10.5×0.84
7	SiMF2R9/R4-7D3	1.8	2.7~3.1	≥40@2.3&3.6GHz	7×9×0.84
8	SiMF2R95/1R3-8D2	1.8	2.3~3.6	≥40@1.7&4.6GHz	7×8.6×0.84
9	SiMF3/2-10D2	1.5	2.0~4.0	≥40@0.8&5GHz	7×8.5×0.84
10	SiMF3R05/R2-6D3	2.8	2.95~3.2	≥40@2.5&3.45GHz	7×9.5×0.84
11	SiMF3R1/R8-7D2	1.5	2.7~3.5	≥40@2.15&4GHz	7×9×0.84
12	SiMF3R23/1R35-7D2	1	2.55~3.9	≥40@1.7&4.65GHz	7×9×0.84
13	SiMF3R3/R4-7D3	2.5	3.1~3.5	≥40@2.75&3.9GHz	7×7.6×0.84
14	SiMS3R3/R4-7D3	3.5	3.1~3.5	≥40@2.5&3.85GHz	9×9×0.42
15	SiMF3R3/1R2-7D2	1.6	2.75~3.9	≥40@1.9&4.55GHz	6.5×8.5×0.84
16	SiMF3R5/R8-8D2	2	3.1~3.9	≥40@2.65&4.4GHz	7×7.3×0.84
17	SiMF3R5/1-7D2	2.5	3.0~4.0	≥40@2.3&4.6GHz	7×8×0.84
18	SiMF3R5/1R4-2	1.4	2.8~4.2	≥40@1.86&5.24GHz	7×8.4×0.84
19	SiMF3R6/R4-7D3	3	3.4~3.8	≥40@2.9&4.2GHz	7×8×0.84
20	SiMF3R6/1-7D2	1.8	3.1~4.15	≥40@2.45&4.8GHz	7×7.5×0.84
21	SiMF3R7/1-6D2	1.5	3.28~4.16	≥40@2.45&4.85GHz	6.5×9×0.84
22	SiMF3R75/1R5-10D2	2	3.1~4.3	≥40@2.65&4.95GHz	7×7.2×0.84
23	SiMF3R8/R7-6E2	1.6	3.45~4.15	≥40@2.7&5.4GHz	7×5.5×0.84
24	SiMF3R85/1R5-11D2	2.2	3.1~4.6	≥40@2.6&5.4GHz	7×7×0.84
25	SiMF3R9/R4-7D2	2.6	3.7~4.1	≥40@3.2&4.65GHz	7×7×0.84
26	SiMF3R9/R6-7D3	2	3.6~4.2	≥40@3.1&4.7GHz	7×7.5×0.84
27	SiMF3R9/1R8-7D2	1.3	3~4.8	≥40@2&6.45GHz	7×7.2×0.84
28	SiMF3R95/R76-2	1.8	3.6~4.3	≥40@3&4.9GHz	7×8×0.84
29	SiMF4R05/R5-7D3	2.6	3.8~4.3	≥40@3.3&4.7GHz	7×7.3×0.84
30	SiMF4R06/R8-7D2	2	3.66~4.46	≥40@3.1&5GHz	7×6.8×0.84
31	SiMF4R13/R15-5E4	3.2	4.05~4.2	≥30@3.6&5GHz	7×8×0.84
32	SiMF4R1/R7-6D3	2	3.75~4.45	≥40@3.2&4.95GHz	7×7.5×0.84
33	SiMF4R2/R1-5E4	3.3	4.15~4.25	≥30@3.8&4.6GHz	7×8×0.84
34	SiMF4R2/1R9-8D2	1.4	3.25~5.15	≥40@2.4&6.3GHz	7×6.5×0.84
35	SiMF4R2/1-6D2	1.6	3.7~4.7	≥40@2.8&5.45GHz	6.5×7.2×0.84
36	SiMF4R2/R2-5D4	2.9	4.15~4.35	≥40@3.7&4.85GHz	7×6.4×0.84
37	SiMF4R35/R3-5D2	3.5	4.2~4.5	≥40@3.77&5GHz	7×6×0.84
38	SiMF4R5/R4-7D3	3	4.3~4.7	≥40@3.85&5.05GHz	7×6.5×0.84
39	SiMF4R5/R8-8D2	2.2	4.1~4.9	≥40@3.6&5.4GHz	7×6×0.84
40	SiMF4R55/R5-7D3	2.6	4.3~4.8	≥40@3.75&5.25GHz	7×6.7×0.84
41	SiMF4R57/R25-7D4	3.5	4.45~4.7	≥40@4.1&5.1GHz	7×7.2×0.84
42	SiMF4R7/1-7D2	1.8	4.25~5.15	≥40@3.5&5.8GHz	7×6.5×0.84

Serial	Model	Insertion Loss@f0 (dB)	BW1dB (GHz)	Attenuation (dB)	Size (mm) ≤ A×B×C
43	SiMF4R9/R2-7D4	3.5	4.75~4.95	≥40@4.3&5.3GHz	7×6.7×0.84
44	SiMF4R87/R75-7D3	1.5	4.45~5.35	≥40@3.9&5.9GHz	7×6.2×0.84
45	SiMF4R9/1R6-7D2	1.3	4.1~5.7	≥40@2.9&7.38GHz	7×6×0.84
46	SiMF5/2R2-10D2	1.6	3.85~6.15	≥40@3.1&7.1GHz	7×5.5×0.84
47	SiMF5/2R2-3	1.3	4.0~6.0	≥40@3&6.9GHz	7×5.6×0.84
48	SiMS5R2/R8-8D2	1.9	4.7~5.6	≥40@4.15&6.1GHz	11×6.8×0.42
49	SiMF5R25/1R5-9D2	1.6	4.55~5.85	≥40@3.95&6.6GHz	7×5.5×0.84
50	SiMS5R3/R5-7D3	2.4	5.1~5.5	≥40@4.5&5.9GHz	9×6×0.42
51	SiMS5R4/R6-6D2	2	5.1~5.7	≥40@4.25&6.3GHz	9×5.7×0.42
52	SiMF5R5/R7-7D3	2	5.15~5.85	≥40@4.6&6.3GHz	7×5.5×0.84
53	SiMF5R55/R7-8D3	2.2	5.2~5.9	≥40@4.7&6.35GHz	7×6×0.84
54	SiMF5R55/R74-7D3	2.1	5.18~5.92	≥40@4.5&6.46GHz	7×6×0.84
55	SiMS5R6/R4-4D2	1.6	5.4~5.8	≥40@4.15&6.17GHz	5×6.6×0.42
56	SiMF5R6/R55-6D3	1.7	5.3~5.8	≥40@4.4&6.7GHz	7×6×0.84
57	SiMF5R65/R22-4E3	2.4	5.54~5.76	≥40@4.7&6.5GHz	7.1×6×0.84
58	SiMF5R75/1R5-9D2	1.6	5.0~6.5	≥40@4.2&7.5GHz	7×5.3×0.84
59	SiMF5R8/2R4-8D2	1.2	4.6~7	≥40@3.6&8.2GHz	7×5.2×0.84
60	SiMS6-7L	0.8	DC~6	≥40@10.5GHz	4.5×3×0.42
61	SiMF6R15/2R1-7D2	1.3	5.1~7.2	≥40@3.94&8.17GHz	7×6×0.84
62	SiMF6R2/R8-7D3	2	5.85~6.65	≥40@5.2&7.2GHz	7×5.5×0.84
63	SiMF6R2/1R6-7D2	1.1	5.0~7.1	≥40@3.82&8.64GHz	7×5×0.84
64	SiMF6R25/R5-6E2	2.2	6.0~6.5	≥40@5&7.3GHz	7×5.3×0.84
65	SiMF6R5/1-6D3	1.2	6.0~7.0	≥40@5&7.8GHz	6.5×5.5×0.84
66	SiMS6R6/R6-6D2	1.7	6.3~7	≥40@5.65&7.53GHz	9×6.1×0.42
67	SiMF6R7/2R1-9D2	1.4	5.65~7.75	≥40@4.8&8.5GHz	7×4.2×0.84
68	SiMF6R75/1R9-9D2	1.5	5.8~7.7	≥40@5&9GHz	8.5×4.5×0.84
69	SiMF6R8/R8-6E3	1.4	6.4~7.2	≥40@5.8&7.8GHz	7×4.6×0.84
70	SiMF6R8/1R3-6D2	1.3	6.2~7.4	≥40@5&8.3GHz	6.5×4.8×0.84
71	SiMS6R8/2-8D2	1.8	5.9~7.76	≥40@4.85&9.5GHz	9×4.8×0.42
72	SiMF6R85/1R3-7D2	1.3	6.15~7.6	≥40@5.3&8.3GHz	6.5×4.8×0.84
73	SiMF6R85/2R8-8D2	1	5.4~8.3	≥40@4.3&9.2GHz	6.5×4.5×0.84
74	SiMF6R9/R6-8D3	2.2	6.6~7.2	≥40@6&7.7GHz	7×4.9×0.84
75	SiMF6R9/2R8-6D1	0.7	5.5~8.3	≥40@3.5&10.3GHz	6×4×0.84
76	SiMF6R98/R65-6D3	2.3	6.65~7.3	≥40@6&8GHz	7×4.3×0.84
77	SiMS7/R6-6D2	2.2	6.7~7.34	≥40@5.95&7.95GHz	9×6.1×0.42
78	SiMF7/1-2	1.3	6.4~7.6	≥40@5.6&8.6GHz	6.5×4.5×0.84
79	SiMF7/2R2-7D2	1	5.9~8.3	≥40@4.7&9.2GHz	7×4.7×0.84
80	SiMF7/4-10D1	0.9	5.0~9.0	≥40@3&10.5GHz	7×4.4×0.84
81	SiMF7R15/R5-7D4	2.8	6.9~7.4	≥40@6.35&7.85GHz	8×4×0.84
82	SiMF7R25/R5-7D4	3	7.0~7.5	≥40@6.4&7.95GHz	8×4×0.84
83	SiMF7R25/4R5-9D1	0.8	5.0~9.5	≥40@3.2&11.2GHz	7×4.4×0.84
84	SiMF7R25/2R1-8D2	1.4	6.2~8.3	≥40@5.2&9GHz	7×4.5×0.84
85	SiMF7R55/R7-6E3	1.4	7.2~7.9	≥40@6.55&8.65GHz	7×4.4×0.84

Serial	Model	Insertion Loss@f₀ (dB)	BW1dB (GHz)	Attenuation (dB)	Size (mm) ≤ A×B×C
86	SiMF7R5/1R7-9D2	1.7	6.5~8.35	≥40@5.7&9.3GHz	7×4.4×0.84
87	SiMF7R5/1R2-7D2	1.6	6.9~8.1	≥40@6.1&8.8GHz	7×4.4×0.84
88	SiMF7R7/1R6-9D2	1.8	6.8~8.4	≥40@6&9.4GHz	7×4.5×0.84
89	SiMF7R92/R3-6E3	2	7.6~8.2	≥40@7.15&8.75GHz	8×6×0.84
90	SiMF8/1-7D3	2	7.4~8.6	≥40@6.6&9.5GHz	7×4×0.84
91	SiMF8/4-11D2	1.2	5.9~10	≥40@4.7&11.4GHz	7×4×0.84
92	SiMS8/1R2-6D2	1.7	7.42~8.6	≥40@6.35&10GHz	9×4.6×0.42
93	SiMF8R05/R3-3	2.2	7.9~8.2	≥40@7.3&8.9GHz	7×4.4×0.84
94	SiMF8R1/R3-3	2	7.95~8.25	≥40@7.3&9GHz	7×4.4×0.84
95	SiMF8R2/R6-6E3	2.2	7.9~8.5	≥40@7.3&9.1GHz	7×3.6×0.84
96	SiMS8R25/R7-6D2	2	7.9~8.6	≥40@7.15&9.15GHz	9×5.3×0.42
97	SiMF8R2/2R3-9D2	1.4	7.15~9.25	≥40@6.2&10GHz	7×3.6×0.84
98	SiMS8R4/1R4-7D2	2.4	7.76~9.04	≥40@7&9.9GHz	11×4.6×0.42
99	SiMF8R4/2-6D2	1.1	7.4~9.4	≥40@5.8&10.6GHz	6.5×4×0.84
100	SiMF8R5/R4-6E3	2.4	8.3~8.7	≥40@7.7&9.3GHz	7×4×0.84
101	SiMS8R6/R6-6D2	2.6	8.33~8.95	≥40@7.5&9.75GHz	9×4.8×0.42
102	SiMS8R6/R8-6D3	2.2	8.2~9.0	≥40@7.5&9.6GHz	9×4.6×0.42
103	SiMF8R7/R6-6E3	2.5	8.4~9.0	≥40@7.8&9.7GHz	7×3.4×0.84
104	SiMF8R7/2R5-7D2	0.9	7.5~9.95	≥40@6&11.05GHz	7×4.2×0.84
105	SiMF8R85/R9-5E2	2.5	8.4~9.3	≥40@7.6&11.5GHz	7×5.5×0.84
106	SiMF8R85/R1-4E5	4.2	8.8~8.9	≥40@8&9.7GHz	7×3.5×0.84
107	SiMF8R9/1-7D3	1.8	8.4~9.4	≥40@7.5&10.2GHz	7×4.3×0.84
108	SiMF9/R1-4E5	5	8.95~9.05	≥40@8.5&9.5GHz	7×3.5×0.84
109	SiMF9/1-7D3	1.6	8.4~9.5	≥40@7.6&10.25GHz	6.5×4.5×0.84
110	SiMF9/1R2-7D3	1.6	8.3~9.6	≥40@7.4&10.4GHz	7×3.5×0.84
111	SiMS9/1R7-8D2	1.4	8.2~9.7	≥40@7.4&10.6GHz	11×4.6×0.42
112	SiMF9/2R2-7D2	1.2	7.82~10.23	≥40@6.46&11.22GHz	7×4×0.84
113	SiMF9/2R6-6D1	0.8	7.7~10.3	≥40@5.8&11.8GHz	6×3.2×0.84
114	SiMF9R05/1R5-5D2	1.6	8.3~9.8	≥40@6&10.8GHz	7×4.5×0.84
115	SiMS9R1/1-6D3	2.2	8.6~9.7	≥40@7.9&10.3GHz	9×4.6×0.42
116	SiMS9R1/R9-6D3	2	8.65~9.55	≥40@7.8&10.5GHz	9×4.8×0.42
117	SiMF9R2/2R4-7D1	1.4	8.0~10.4	≥40@6.9&11.6GHz	7×3.6×0.84
118	SiMF9R25/R6-6E3	2.6	8.95~9.55	≥40@8.35&10.2GHz	7×3.3×0.84
119	SiMF9R25/2R5-8D2	1.3	8~10.5	≥40@7&11.8GHz	7×3.5×0.84
120	SiMF9R35/R7-6E3	1.9	9~9.65	≥40@8.4&10.3GHz	7×4×0.84
121	SiMF9R35/2R2-2	1.2	8.3~10.5	≥40@6.8&11.55GHz	7×4.5×0.84
122	SiMS9R4/1R4-12D2	2	8.7~10.1	≥40@7.7&11.1GHz	9×4×0.42
123	SiMF9R4/1R2-8D2	1.9	8.8~10.05	≥40@7.95&10.85GHz	7×4×0.84
124	SiMS9R45/1R5-10D2	2	8.7~10.2	≥40@8&11GHz	10.5×4.4×0.42
125	SiMF9R5/2-6D2	1	8.45~10.45	≥40@6.7&12.05GHz	7×3.6×0.84
126	SiMF9R5/3-8D2	1.3	8.0~11.0	≥40@6.9&12.3GHz	7×3.5×0.84
127	SiMS9R6/R1-6D5	4.5	9.5~9.7	≥40@9.15&10.1GHz	9×4.5×0.42
128	SiMF9R55/R5-6E3	2.5	9.3~9.8	≥40@8.7&10.5GHz	7×3.8×0.84

Serial	Model	Insertion Loss@f₀ (dB)	BW1dB (GHz)	Attenuation (dB)	Size (mm) ≤ A×B×C
129	SiMF9R6/R3-6E4	3.4	9.45~9.75	≥40@8.9&10.36GHz	7×3.8×0.84
130	SiMS9R6/R3-6D4	4.5	9.45~9.75	≥40@8.9&10.2GHz	9×4.5×0.42
131	SiMS9R6/R6-6D3	2.5	9.3~9.9	≥40@8.55&10.55GHz	9×4.5×0.42
132	SiMS9R6/1R2-8D3	2.4	9.0~10.2	≥40@8.2&10.95GHz	9×4.5×0.42
133	SiMS9R6/1R6-8D2	2.3	8.9~10.4	≥40@8&11.3GHz	8.5×4×0.42
134	SiMS9R63/3R66-11D2	2	7.8~11.46	≥40@6.15&13.2GHz	8×3.4×0.42
135	SiMF9R75/R6-6E3	2.6	9.45~10.05	≥40@8.7&10.7GHz	7×3.1×0.84
136	SiMF9R75/R9-6E3	1.6	9.3~10.2	≥40@8.75&10.85GHz	7×4.4×0.84
137	SiMS9R8/2R2-9D2	1.4	8.72~10.7	≥40@7.9&11.8GHz	11×4.6×0.42
138	SiMF9R85/2R3-7D1	1.2	8.7~11	≥40@7.5&12.4GHz	7×3.5×0.84
139	SiMF9R87/2R75-7D2	1	8.45~11.3	≥40@7&12.4GHz	7×3.5×0.84
140	SiMF9R95/4R1-2	1.1	7.9~12	≥40@5.6&13.3GHz	7×4×0.84
141	SiMF10/R1-4E5	4.5	9.95~10.05	≥40@9.4&10.6GHz	7×3.2×0.84
142	SiMF10/1-7D3	1.6	9.5~10.55	≥40@8.5&11.4GHz	6.5×4.2×0.84
143	SiMF10/1R2-6E3	1.4	9.4~10.6	≥40@8.75&11.35GHz	7×3.9×0.84
144	SiMF10/4-9D1	1.1	8.0~12.0	≥40@6.8&13.7GHz	7×3.2×0.84
145	SiMF10/4-9D2	1	7.85~12.2	≥40@6.4&13.6GHz	7×3.5×0.84
146	SiMS10/4-11D2	2	8.0~12.0	≥40@6.4&13.5GHz	8×3.4×0.42
147	SiMS10/1R6-8D2	1.8	9.25~10.75	≥40@8.35&11.6GHz	9×4.4×0.42
148	SiMF10R1/1R1-8D2	1.8	9.6~10.65	≥40@8.8&11.4GHz	8×4×0.84
149	SiMF10R25/R5-6E3	2.6	9.9~10.5	≥40@9.3&11.2GHz	7×3.8×0.84
150	SiMS10R35/R7-5D3	1.6	10.0~10.7	≥40@9.25&13.5GHz	7×3.5×0.42
151	SiMF10R5/1R2-6E3	1.4	9.9~11.1	≥40@7.5&12.4GHz	7×4×0.84
152	SiMF10R55/3R9-8D2	1	8.5~12.7	≥40@7&14GHz	7×3.5×0.84
153	SiMF10R75/R6-6E3	2.6	10.4~11.0	≥40@9.8&11.7GHz	7×2.9×0.84
154	SiMF10R79/2R18-2	1.7	9.7~11.88	≥40@8.8&13GHz	8.5×3×0.84
155	SiMF10R8/R2-4E5	3.5	10.7~10.9	≥40@9.6&120.8GHz	7×3×0.84
156	SiMS10R95/2R02-9D2	1.4	9.94~11.96	≥40@9&12.9GHz	11×4×0.42
157	SiMF11/R2-5	2.6	10.85~11.15	≥40@10.2&11.9GHz	7×3.7×0.84
158	SiMF11/1-6E3	1.7	10.4~11.5	≥40@9.4&12.4GHz	6.5×3.7×0.84
159	SiMF11/2R4-8D2	1.6	9.8~12.2	≥40@8.7&13.5GHz	7×3×0.84
160	SiMF11/2R5-7D1	1.4	9.75~11.25	≥40@8.5&13.5GHz	7×3.2×0.84
161	SiMF11/2R7-6D1	1.1	9.65~12.35	≥40@7.8&14.3GHz	6×2.6×0.84
162	SiMF11R1/3R4-8D2	1.3	9.4~12.8	≥40@7.8&14.1GHz	6.5×3.5×0.84
163	SiMF11R25/4R5-9D1	1	9.0~13.5	≥40@7.5&14.7GHz	7×3.2×0.84
164	SiMS11R3/1R5-10D2	2	10.55~12.05	≥40@9.6&12.9GHz	10×4×0.42
165	SiMF11R5/3-7D2	1	9.9~13.1	≥40@8.3&14.4GHz	7×3.5×0.84
166	SiMF11R5/4-9D1	1	9.4~13.5	≥40@7.8&15.8GHz	7×3.5×0.84
167	SiMF11R7/R6-6E3	2.6	11.4~12.0	≥40@10.8&12.7GHz	7×2.7×0.84
168	SiMF11R8/1R4-2	1.4	11.1~12.5	≥40@8&13.8GHz	5×4.2×0.84
169	SiMF11R85/R3-4E5	3	11.7~12.0	≥40@10.7&12.9GHz	7×2.8×0.84
170	SiMF11R8/R3-3	2	11.65~11.95	≥40@8&14GHz	5×4×0.84
171	SiMF11R87/3R37-2	1.1	10.1~13.25	≥40@8.3&14.75GHz	7×3.8×0.84

Serial	Model	Insertion Loss@f0 (dB)	BW1dB (GHz)	Attenuation (dB)	Size (mm) ≤A×B×C
172	SiMF12/2R2-7D2	1.2	10.9~13.1	≥40@9.4&14.1GHz	7×3.4×0.84
173	SiMF12R2/1R8-8D2	1.6	11.2~13.1	≥40@10.1&14.1GHz	8×3.5×0.84
174	SiMF12R2/2R3-8D2	1.6	11~13.2	≥40@9.5&14.5GHz	7×3.8×0.84
175	SiMF12R4/7R2-11D2	1.2	8.8~16	≥40@7.2&17.6GHz	7×3.0×0.84
176	SiMF12R5/1-7D3	2.4	12.0~13.0	≥40@10.9&13.8GHz	7×3.5×0.84
177	SiMF12R5/3-8D2	1.4	11.0~14.0	≥40@9.5&15.5GHz	7×3.2×0.84
178	SiMF12R6/5R4-9D2	0.9	9.7~15.3	≥40@8&17GHz	7×3×0.84
179	SiMF12R8/R2-4E5	3	12.7~12.9	≥40@11.8&13.9GHz	7×2.7×0.84
180	SiMF12R8/R5-7D3	3.1	12.6~13.2	≥40@11.6&14GHz	7×3.5×0.84
181	SiMF12R8/2R4-9D2	1.6	11.7~14.0	≥40@10.9&15GHz	8.5×2.5×0.84
182	SiMF12R85/2R3-7D2	1.6	11.7~14.0	≥40@10.2&15.2GHz	7×3.2×0.84
183	SiMF12R97/1R5-3	2.4	12.4~14	≥40@11.1&15.25GHz	7×3.3×0.84
184	SiMF13/1R5-7D3	2.4	12.4~13.9	≥40@11.2&15.15GHz	7×3.3×0.84
185	SiMF13/2-7D2	1.4	11.9~14.1	≥40@10.4&15.1GHz	7×3.2×0.84
186	SiMF13/2R5-7D1	1.4	11.75~14.25	≥40@10.2&15.7GHz	7×2.9×0.84
187	SiMF13/10-10D2	0.6	7.7~17.7	≥40@4GHz, ≥25@21GHz	7×3×0.84
188	SiMF13/2R8-6D1	1.1	11.6~14.4	≥40@9.5&16GHz	6×2.3×0.84
189	SiMF13R35/2R3-7D2	1.6	12.2~14.5	≥40@10.6&15.6GHz	7×3.2×0.84
190	SiMF13R5/3R4-8D2	1.3	11.8~15.2	≥40@10.2&16.65GHz	7×2.7×0.84
191	SiMS13R5/2R4-10D2	2.8	12.3~14.7	≥40@13&17.7GHz	10.5×4.4×0.42
192	SiMS13R78/3R4-8D2	1.3	12.08~15.48	≥40@10.8&17.25GHz	9×3.4×0.42
193	SiMF14/2R2-7D2	1.4	12.84~15.1	≥40@11.1&16.35GHz	7×3×0.84
194	SiMF14R15/1R9-3	2	13.2~15.1	≥40@12.2&16.2GHz	8×4×0.84
195	SiMF14R5/3-7D2	1.1	12.9~16.0	≥40@11&17.4GHz	7×3×0.84
196	SiMF14R55/R5-6D3	3.2	14.3~14.8	≥40@13.4&15.6GHz	8×3×0.84
197	SiMF14R8/2R4-9D2	1.7	13.8~15.9	≥40@12.9&17.1GHz	8.5×2.5×0.84
198	SiMS14R9/2R2-8D2	1.6	13.72~16	≥40@12.5&17.6GHz	9×3.5×0.42
199	SiMF14R9/2R3-10D3	1.7	13.7~16	≥40@12.1&17.6GHz	8×3.2×0.84
200	SiMF15/1R2-6D3	2.6	14.4~15.45	≥40@13.1&16.85GHz	7×3×0.84
201	SiMF15/2R6-7D2	1.5	13.7~16.3	≥40@12&17.7GHz	7×2.7×0.84
202	SiMS15R2/1R6-12D3	2.5	14.4~16	≥40@13.6&16.9GHz	13.5×4×0.42
203	SiMF15R25/6R5-8D1	1	12~18.5	≥40@9.2&20GHz	7×2.8×0.84
204	SiMS15R4/2R4-10D2	2.2	14.2~16.6	≥40@13&17.7GHz	10.5×4.4×0.42
205	SiMF16/R4-4E4	3	15.8~16.3	≥40@15&17.1GHz	7×3×0.84
206	SiMS16/2-8D2	1.7	15~17.1	≥40@13.7&18.3GHz	9×3.5×0.42
207	SiMF16/4-8D2	1	14.0~18.0	≥40@12&19.7GHz	7×2.7×0.84
208	SiMF16R5/1-7D3	3	16.1~16.9	≥40@15&17.8GHz	7×3×0.84
209	SiMS16R7/3-8D2	1.3	15.14~18.1	≥40@13.7&19.95GHz	9×3.4×0.42
210	SiMF16R75/2R5-7D2	1.5	15.4~18.2	≥40@13.5&19.5GHz	7×3×0.84
211	SiMF16R75/4R5-8D2	1	14.5~19.0	≥40@12.2&20.6GHz	7×2.7×0.84
212	SiMF16R9/2R3-10D3	2	15.9~18.1	≥40@14.7&19.3GHz	8×3.2×0.84
213	SiMS17/R4-6S4	3.5	16.8~17.2	≥40@16GHz≥30@17.9GHz	8×3×0.42
214	SiMF17/2R4-7D2	1.6	15.8~18.2	≥40@13.7&19.6GHz	7×2.5×0.84

Serial	Model	Insertion Loss@f₀ (dB)	BW1dB (GHz)	Attenuation (dB)	Size (mm) ≤A×B×C
215	SiMF17/2R6-6D1	1.2	15.7~18.3	≥40@13.1&20.1GHz	6×1.9×0.84
216	SiMF17/4R1-8D1	1.4	14.9~19	≥40@12.8&21GHz	7×2.6×0.84
217	SiMF17R03/2R14-9D2	1.9	15.96~18.1	≥40@14.9&19.4GHz	8.5×2.5×0.84
218	SiMS17/1R5-12D2	2.9	16.25~17.75	≥40@15.4&18.6GHz	13.5×4×0.42
219	SiMF17R5/1R04-7D3	2.5	17~18.04	≥40@15.5&19.15GHz	7×3.3×0.84
220	SiMF17R63/1R14-3	2.6	17.06~18.2	≥40@15.6&19.3GHz	7×3.3×0.84
221	SiMF18R1/4R2-2	1.8	16~20.2	≥40@12.7&21.95GHz	7×4×0.84
222	SiMS18R2-9L	1	DC~17.8	≥20@21GHz	6.3×1.8×0.42
223	SiMF18R5/1R2-7D2	2	17.9~19.1	≥40@16.4&20.1GHz	7×2.5×0.84
224	SiMF18R5/1R3-6D3	2	17.65~19.33	≥40@16&20.32GHz	7×3×0.84
225	SiMF18R7/2R7-2	1.5	17.35~20.05	≥40@15&21.5GHz	7×3.5×0.84
226	SiMF21/2-7D2	1.7	20~22	≥40@18&23.2GHz	7×2.5×0.84
227	SiMF21R15/2-7D2	1.7	20.15~22.15	≥40@18.2&23.5GHz	7×2.5×0.84
228	SiMF21R4/1R8-6D3	2	20.5~22.3	≥40@18&25.8GHz	7×2.3×0.84
229	SiMF21R64/2R84-7D3	1.5	20.05~23.3	≥40@17.7&24.64GHz	7×3×0.84
230	SiMF21R95/R9-6E3	2.8	21.5~22.4	≥40@20.2&24.2GHz	4.5×2.7×0.84
231	SiMF22R05/R9-6E3	3	21.6~22.5	≥40@20.4&24.5GHz	4.5×2.7×0.84
232	SiMF22R25/R9-6E3	2.8	21.8~22.7	≥40@20.5&24.7GHz	4.5×2.7×0.84
233	SiMF22R3/1-6E3	2.8	21.8~22.8	≥35@20.6&24.6GHz	4.5×2.7×0.84
234	SiMF22R3/R9-6E3	2.8	21.85~22.75	≥35@20.6&24.5GHz	4.5×2.7×0.84
235	SiMF22R35/R9-6E3	2.8	21.9~22.8	≥35@20.8&24.6GHz	4.5×2.7×0.84
236	SiMF22R5/1-4	3	22~23	≥40@20.3&24.3GHz	7×3.5×0.84
237	SiMF22R5/1R8-2	1.1	21.6~23.4	≥30@11&25.3GHz	5×3×0.84
238	SiMF22R55/R5-4W3	2.5	22.3~22.8	≥40@21.4&23.95GHz	11×3.7×0.42
239	SiMF22R6/1R6-7D2	2	21.9~23.4	≥40@19.8&24.7GHz	7×2.5×0.84
240	SiMF22R6/1-4W2	1.3	22.05~23.05	≥30@20&26.5GHz	10.1×3.5×0.42
241	SiMF22R6/2-6D2	1.6	21.30~23.89	≥40@19&25.24GHz	7×2.5×0.84
242	SiMF22R7/1R8-7D3	2.1	21.8~23.6	≥40@19.7&24.7GHz	7×2.7×0.84
243	SiMF22R8/1R6-2	1.1	22~23.6	≥40@10&25.4GHz	5×3×0.84
244	SiMF23R35/1R5-3	2.6	22.6~24.2	≥40@20.6&25.2GHz	7×4×0.84
245	SiMF25R25/R3-4W3	2.6	25.1~25.4	≥40@24&26.6GHz	9.3×3.4×0.42
246	SiMF25R37/R4-4W3	2.8	25.17~25.57	≥40@24.2&26.7GHz	9.2×3.5×0.42
247	SiMF26R1/3R8-2	1	24.2~28	≥35@20.9&30.67GHz	7×3.4×0.84
248	SiMF26R1/R5-4W3	2.1	25.85~26.35	≥30@24.55&28GHz	9.2×3.5×0.42
249	SiMF26R25/R4-4W3	1.8	26.1~26.4	≥40@24.9&27.7GHz	9.3×3.4×0.42
250	SiMF26R19/R4-4W3	2.2	26.1~26.5	≥40@24.9&27.9GHz	9.2×3.5×0.42
251	SiMF26R25/3R5-5W2	0.8	24.5~28.2	≥40@19.5&32GHz	7×3.1×0.84
252	SiMF26R35/3R7-2	0.4	24.5~28.2	≥30@21.2&30.8GHz	6.5×3.4×0.84
253	SiMF27R45/3R1-5W1	0.6	25.9~29	≥30@23&31GHz	6×4×0.84
254	SiMS28/2R2-8D3	1.8	26.45~29.5	≥40@23.5&32.5GHz	8×2.3×0.42
255	SiMF28/6-7W2	0.5	25.2~31.2	≥40@21&34.4GHz	7×3.5×0.84
256	SiMF28R5/5-5W2	0.8	25.6~31	≥20@23.5&37GHz	9.6×3.6×0.42
257	SiMS29/4-5W2	1	27.1~31.2	≥40@24GHz≥25@34.6GHz	9.9×3.5×0.42

Serial	Model	Insertion Loss@f0 (dB)	BW1dB (GHz)	Attenuation (dB)	Size (mm) ≤ A×B×C
258	SiMF29R4/3R8-2	0.4	27.6~31.5	≥40@23&35.5GHz	6.2×2.8×0.84
259	SiMF29R9/2R8-7W3	0.8	28.5~31.3	≥40@26.5&32.9GHz	7.2×3.5×0.84
260	SiMS31/1-4W2	1	30.5~31.5	≥40@28&34GHz	7×3.5×0.42
261	SiMS32R2/1R6-4W2	0.6	31.4~33	≥40@28&38.5GHz	8×3.4×0.42
262	SiMS32R7/1R8-4W2	0.8	31.8~33.6	≥35@28.5&37GHz	6.6×3.5×0.42
263	SiMF32R85/1R7-5W2	1	32~33.7	≥40@29&35.6GHz	5.5×2.5×0.84
264	SiMS34/2R4-5W2	0.6	32.4~35.5	≥30@30.2&40GHz	8.2×3.4×0.42
265	SiMS33R9/3R2-5W2	0.6	32.3~35.5	≥35@29&40GHz	7.9×3.5×0.42
266	SiMS34R1/1R4-7W3	2	33.4~34.8	≥35@32.3&35.9GHz	10.5×3.5×0.42
267	SiMF34R25/R7-7W3	2	33.6~34.9	≥40@32&36GHz	6.4×3.5×0.84
268	SiMF34R6/1R6-7W2	1.5	33.8~35.4	≥40@32&36.8GHz	6.3×3.5×0.84
269	SiMF34R75/1R7-7W2	1.6	33.9~35.6	≥40@32&36.9GHz	6.3×3.5×0.84
270	SiMF34R4/2-5W2	0.8	33.5~35.9	≥35@31&39.5GHz	8×3.5×0.42
271	SiMF34R5/2R4-7W2	1.2	33.3~35.7	≥30@32&36.9GHz	6.8×2.5×0.84
272	SiMS34R45/3R3-5W1	0.7	32.8~36.1	≥25@31.2&39GHz	7.8×3.6×0.42
273	SiMS35/2-7W2	1.5	34~36	≥40@32&38GHz	10.5×3.5×0.42
274	SiMS34R9/3R8-5W2	0.6	33~36.8	≥35@29&41.5GHz	7.5×3.5×0.42
275	SiMS36/3-5W2	0.5	34.5~37.5	≥40@31&42.5GHz	7.4×3.5×0.42
276	SiMS38R05/4R3-7W2	1	35.9~40.2	≥40@43&33GHz	5.9×2.5×0.84

7.2 MMIC Filter

7.2.1 MMIC LOW Pass Filters (TA=25 ℃)

Serial	Model	Insertion Loss (dB)	Return Loss (dB)	Attenuation (dB)	Size (mm) L×W×H
1	BWLF-R5	1.7@0.5GHz	15	20@1.3GHz,40@1.65~13GHz	2.1×1.05×0.1
2	BWLF-1	1.6@1.0GHz	15	20@2.1GHz,40@2.7~20.4GHz	2.1×1.05×0.1
3	BWLF-1G	1.4@1.0GHz	17	20@1.7GHz,40@1.93~3.5GHz	1.6×0.8×0.1
4	BWLF-1R5	1.5@1.5GHz	17	20@2.8GHz,40@3.65~23.6GHz	2.1×1.05×0.1
5	BWLF-1R5G	1.2@1.5GHz	17	20@2.55GHz,40@2.93~15.9GHz	1.6×0.8×0.1
6	BWLF-2	1.6@2.0GHz	17	20@3.45GHz,40@4.5~27.2GHz	2.1×1.05×0.1
7	BWLF-2G	1.3@2.0GHz	17	20@3.2GHz,40@3.7~18.5GHz	1.6×0.8×0.1
8	BWLF-2R5	1.5@2.5GHz	17	20@4.35GHz,40@5.5~30.8GHz	2.1×1.05×0.1
9	BWLF-2R5G	1.4@2.5GHz	17	20@3.85GHz,40@4.17~18GHz	1.6×0.8×0.1
10	BWLF-3	1.5@3.0GHz	17	20@5.5GHz,40@6.84~38.7GHz	1.6×0.8×0.1
11	BWLF-3G	1.3@3.0GHz	17	20@4.7GHz,40@5.1~19.4GHz	1.6×0.8×0.1
12	BWLF-3R5	1.5@3.5GHz	15	20@5.9GHz,40@7.4~40GHz	1.6×0.8×0.1
13	BWLF-3R5G	1.3@3.5GHz	17	20@5.3GHz,40@5.8~21.1GHz	1.6×0.8×0.1
14	BWLF-4	1.5@4.0GHz	17	20@6.55GHz,40@8.45~40GHz	1.6×1.05×0.1
15	BWLF-4G	1.4@4.0GHz	17	20@5.7GHz,40@6.2~25.4GHz	1.6×0.8×0.1
16	BWLF-4R5	1.5@4.5GHz	17	20@7.4GHz,40@9.65~40GHz	1.6×0.8×0.1
17	BWLF-5	1.5@5.0GHz	17	20@8.05GHz,40@10.4~40GHz	1.6×1.05×0.1
18	BWLF-5G	1.4@5.0GHz	17	20@7.2GHz,40@7.88~30.3GHz	1.6×0.8×0.1
19	BWLF-5R5	1.5@5.5GHz	17	20@8.9GHz,40@11.6~40GHz	1.6×0.8×0.1
20	BWLF-6	1.6@6.0GHz	17	20@9.4GHz,40@12.1~40GHz	1.6×0.8×0.1

Serial	Model	Insertion Loss (dB)	Return Loss (dB)	Attenuation (dB)	Size (mm) L×W×H
21	BWLF-6G	1.4@6.0GHz	17	20@8.38GHz,40@9.3~29.75GHz	1.6×0.8×0.1
22	BWLF-7	1.5@7.0GHz	17	20@10.7GHz,40@13.3~31.7GHz	1.6×0.8×0.1
23	BWLF-7G	1.3@7.0GHz	17	20@10.1GHz,40@11.1~32.4GHz	1.6×0.8×0.1
24	BWLF-8	1.4@8.0GHz	17	20@12.25GHz,40@15.5~34.8GHz	1.6×0.8×0.1
25	BWLF-8G	1.3@8.0GHz	17	20@11.75GHz,40@13.45~35.3GHz	1.6×0.8×0.1
26	BWLF-9	1.5@9.0GHz	17	20@13.5GHz,40@17~37.2GHz	1.6×0.8×0.1
27	BWLF-9G	1.5@9.0GHz	17	20@12.7GHz,40@14.25~37.3GHz	1.6×0.8×0.1
28	BWLF-10	1.4@10GHz	17	20@14.85GHz,40@18.85~40GHz	1.6×0.8×0.1
29	BWLF-10G	1.4@10GHz	17	20@13.9GHz,40@15.75~36.1GHz	1.6×0.8×0.1
30	BWLF-11	1.4@11GHz	17	20@16.4GHz,40@20.7~40GHz	1.6×0.8×0.1
31	BWLF-11G	1.4@11GHz	17	20@15.2GHz,40@17.3~36.3GHz	1.6×0.8×0.1
32	BWLF-12	1.5@12GHz	17	20@17.85GHz,40@22.6~40GHz	1.6×0.8×0.1
33	BWLF-12G	1.4@12GHz	15	20@16.5GHz,40@18.7~37GHz	1.6×0.8×0.1
34	BWLF-13	1.5@13GHz	17	20@19.3GHz,40@24.4~40GHz	1.6×0.8×0.1
35	BWLF-13G	1.4@13GHz	17	20@17.85GHz,40@20.45~37.5GHz	1.6×0.8×0.1
36	BWLF-14	1.5@14GHz	17	20@21.5GHz,40@27.5~40GHz	1.6×0.8×0.1
37	BWLF-14G	1.4@14GHz	17	20@19.2GHz,40@21.95~38GHz	1.6×0.8×0.1
38	BWLF-15	1.5@15GHz	17	20@22.3GHz,40@28.7~40GHz	1.6×0.8×0.1
39	BWLF-15G	1.5@15GHz	17	20@20.35GHz,40@23.25~38.5GHz	1.6×0.8×0.1
40	BWLF-16	1.6@16GHz	17	20@23.5GHz,40@30.5~40GHz	1.6×0.8×0.1
41	BWLF-16G	1.5@16GHz	17	20@21.7GHz,40@25~39GHz	1.6×0.8×0.1
42	BWLF-17	1.7@17GHz	15	20@25GHz,40@32.4~40GHz	1.6×0.8×0.1
43	BWLF-17G	1.5@17GHz	17	20@23GHz,40@26.4~39.5GHz	1.6×0.8×0.1
44	BWLF-18	1.7@18GHz	15	20@26.3GHz,40@33.2~40GHz	1.6×0.8×0.1
45	BWLF-18G	1.5@18GHz	17	20@24.95GHz,40@29~40GHz	1.6×0.8×0.1
46	BWLF-19	1.7@19GHz	17	20@27.7GHz,40@35.4~40GHz	1.6×0.8×0.1
47	BWLF-19G	1.6@19GHz	17	20@26.1GHz,40@31~40GHz	1.6×0.8×0.1
48	BWLF-20	1.8@20GHz	15	20@29.3GHz,40@37.6~40GHz	1.6×0.8×0.1
49	BWLF-20G	1.6@20GHz	17	20@26.9GHz,40@31.5~40GHz	1.6×0.8×0.1

7.2.2 MMIC High Pass Filters (TA=25 ℃)

Serial	Model	Pass Band (GHz)	Insertion Loss (dB)	Attenuation (dB)	Return Loss (dB)	Size (mm) L×W×H
1	BWHF-1G	1~8	1.9@2.0GHz	20@0.57GHz,40@0.45GHz	17	1.6×0.8×0.1
2	BWHF-2G	2~18	2.3@2.0GHz	20@1.4GHz,40@1.25GHz	17	1.6×0.8×0.1
3	BWHF-3G	3~21	1.5@3.0GHz	20@1.85GHz,40@1.65GHz	17	1.6×0.8×0.1
4	BWHF-4G	4~26.5	1.5@4.0GHz	20@2.65GHz,40@2.39GHz	17	1.6×0.8×0.1
5	BWHF-5G	5~28	1.5@5.0GHz	20@3.35GHz,40@3.04GHz	17	1.6×0.8×0.1
6	BWHF-6G	6~28	1.5@6.0GHz	20@3.95GHz,40@3.6GHz	17	1.6×0.8×0.1
7	BWHF-7G	7~29	1.4@7.0GHz	20@4.6GHz,40@4.2GHz	17	1.6×0.8×0.1
8	BWHF-8G	8~30	1.5@8.0GHz	20@5.5GHz,40@5GHz	17	1.6×0.8×0.1
9	BWHF-9G	9~31	1.5@9.0GHz	20@6.2GHz,40@5.65GHz	17	1.6×0.8×0.1
10	BWHF-10G	10~32	1.7@10.0GHz	20@7.45GHz,40@6.85GHz	17	1.6×0.8×0.1

Serial	Model	Pass Band (GHz)	Insertion Loss (dB)	Attenuation (dB)	Return Loss (dB)	Size (mm) L×W×H
11	BWHF-12G	12~35	1.5@12.0GHz	20@8.4GHz,40@7.65GHz	17	1.6×0.8×0.1
12	BWHF-14G	14~36	1.5@14.0GHz	20@10.1GHz,40@9.3GHz	17	1.6×0.8×0.1
13	BWHF-16G	16~38	1.6@16.0GHz	20@11.5GHz,40@10.5GHz	17	1.6×0.8×0.1
14	BWHF-18G	18~39	1.9@18.0GHz	20@13.8GHz,40@13GHz	17	1.6×0.8×0.1
15	BWHF-20G	20~40	1.7@18.0GHz	20@14.8GHz,40@13.8GHz	17	1.6×0.8×0.1

7.3 FBAR Filter

7.3.1 FBAR Filters chips

Serial	Model	Center frequency (MHz)	Pass Band (MHz)	Stopband Rejection(dBc)	Insertion Loss@f₀ (dB)	Size (mm) L×W×H
1	FBF900T15	900	15	⩾45@860MHz⩾40@940MHz	2.0	145×1.45×0.4
2	FBF1000U10	1000	10	⩾45@960MHz⩾45@1040MHz	2.5	1.45×1.45×0.4
3	FBF1100T10	1100	10	⩾20@1082MHz⩾20@1120MHz	2.0	1.35×1.35×0.4
4	FBF1100U10	1100	10	⩾35@1050MHz⩾35@1140MHz	2.5	1.35×1.35×0.4
5	FBF1200U30	1200	30	⩾30@1150MHz⩾30@1260MHz	2.0	1.4×1.4×0.4
6	FBF1200T15	1200	15	⩾40@1100MHz⩾40@1250MHz	3.0	1.35×1.35×0.4
7	FBF1260U20	1260	20	⩾35@1200MHz⩾30@1320MHz	2.0	1.4×1.4×0.4
8	FBF1268.52U20	1268.52	20	⩾30@1200MHz⩾25@1350MHz	3.0	1.35×1.35×0.4
9	FBF1268.52U25	1268.52	25	⩾15@1205MHz⩾15@1310MHz	1.0	1.35×1.35×0.4
10	FBF1227.6U20	1227.6	20	⩾35@1170MHz⩾30@1300MHz	2.5	1.35×1.35×0.4
11	FBF1227.6U25	1227.6	25	⩾10@1100MHz⩾10@1300MHz	1.0	1.35×1.35×0.4
12	FBF1300T20	1300	20	⩾40@1250MHz⩾40@1350MHz	25	1.2×1.2×0.4
13	FBF1380U60	1380	60	⩾20@1310MHz⩾35@1450MHz	4.0	1.25×1.25×0.4
14	FBF1400U10	1400	10	⩾45@1350MHz⩾45@1450MHz	2.5	1.2×1.2×0.4
15	FBF1450U60	1450	60	⩾15@1360MHz⩾30@1520MHz	3.0	2.05×2.05×0.4
16	FBF1534U45	1534	45	⩾25@1450MHz⩾30@1615MHz	3.5	1.25×1.25×0.4
17	FBF1575.42U20	1575.42	20	⩾40@1520MHz⩾40@1610MHz	2.0	1.0×1.0×0.4
18	FBF1575.42U25	1575.42	25	⩾15@1535MHz⩾10@1610MHz	1.0	1.0×1.0×0.4
19	FBF1561.098U20	1561.098	20	⩾40@1480MHz⩾40@1600MHz	2.5	1.0×1.0×0.4
20	FBF1561.098U25	1561.098	25	⩾10@1470MHz⩾15@1600MHz	1.0	1.0×1.0×0.4
21	FBF1615U20	1615	20	⩾35@1555MHz⩾35@1650MHz	2.0	1.0×1.0×0.4
22	FBF1720U35	1720	35	⩾35@1650MHz⩾30@1780MHz	3.0	1.25×1.25×0.4
23	FBF1800T25	1800	25	⩾20@1773MHz⩾20@1835MHz	2.0	1.0×1.0×0.4
24	FBF1830T25	1830	25	⩾20@1798MHz⩾30@1860MHz	2.0	1.0×1.0×0.4
25	FBF1995U30	1995	30	⩾25@1950MHz⩾25@2035MHz	2.5	1.15×1.15×0.4
26	FBF1995U50	1995	50	⩾15@1920MHz⩾25@2070MHz	2.5	1.0×1.0×0.4
27	FBF2000T30	2000	30	⩾40@1930MHz⩾35@2050MHz	2.5	1.05×1.05×0.4
28	FBF2000U90	2000	90	⩾25@1770MHz⩾15@2100MHz	3.0	1.15×1.15×0.4
29	FBF2013T50	2013	50	⩾35@1930MHz⩾35@2070MHz	2.5	1.0×1.0×0.4
30	FBF2065U20	2065	20	⩾35@2105MHz⩾45@2000MHz	2.0	1.05×1.05×0.4
31	FBF2070U30	2070	30	⩾30@1940MHz⩾30@2130MHz	2.0	1.0×1.0×0.4
32	FBF2100U20	2100	20	⩾35@2020MHz⩾35@2150MHz	2.5	1.05×1.05×0.4
33	FBF2185U30	2185	30	⩾20@2150MHz⩾20@2220MHz	2.5	1.15×1.15×0.4
34	FBF2200U25	2200	25	⩾35@2120MHz⩾35@2260MHz	1.5	1.05×1.05×0.4

Serial	Model	Center frequency (MHz)	Pass Band (MHz)	Stopband Rejection(dBc)	Insertion Loss@f₀ (dB)	Size (mm) L×W×H
35	FBF2280U24	2280	24	⩾15@2240MHz⩾20@2330MHz	2.0	1.15×1.15×0.4
36	FBF2242U30	2242	30	⩾35@2175MHz⩾30@2295MHz	2.5	1.05×1.05×0.4
37	FBF2242U24	2242	24	⩾15@2200MHz⩾20@2282MHz	2.5	1.15×1.15×0.4
38	FBF2282U20	2282	20	⩾40@2220MHz⩾30@2320MHz	2.5	1.4×1.4×0.4
39	FBF2300U30	2300	30	⩾35@2210MHz⩾35@2360MHz	2.0	1.05×1.05×0.4
40	FBF2400U20	2400	20	⩾35@2330MHz⩾35@2460MHz	2.0	1.05×1.05×0.4
41	FBF2460U20	2460	20	⩾35@2400MHz⩾35@2510MHz	2.5	1.4×1.4×0.4
42	FBF2492T8-C	2492	8	⩾30@2470MHz⩾26@2510MHz	4.0	0.9×0.9×0.4
43	FBF2492U20	2492	20	⩾35@2440MHz⩾30@2535MHz	2.0	1.05×1.05×0.4
44	FBF2560U20	2560	20	⩾45@2460MHz⩾40@2620MHz	2.5	1.05×1.05×0.4
45	FBF2500T50	2500	50	⩾40@2420MHz⩾30@2560MHz	2.0	1.05×1.05×0.4
46	FBF2580U50	2580	50	⩾35@2500MHz⩾30@2670MHz	2.5	1.0×1.0×0.4
47	FBF2600U25	2600	25	⩾35@2520MHz⩾35@2670MHz	1.0	1.05×1.05×0.4
48	FBF2700U30	2700	30	⩾35@2600MHz⩾35@2770MHz	2.5	1.05×1.05×0.4
49	FBF2800U50	2800	50	⩾35@2680MHz⩾35@2870MHz	2.5	1.05×1.05×0.4
50	FBF2800U90	2800	90	⩾30@2630MHz⩾30@2960MHz	3.5	1.05×1.05×0.4
51	FBF2900T50	2900	50	⩾40@2730MHz⩾35@2980MHz	2.5	1.05×1.05×0.4
52	FBF2945U65	2945	65	⩾25@2800MHz⩾25@3040MHz	2.5	1.0×1.0×0.4
53	FBF3000T70	3000	70	⩾40@2900MHz⩾35@3080MHz	2.5	1.05×1.05×0.4
54	FBF3100T50	3100	50	⩾40@2930MHz⩾40@3180MHz	2.5	1.05×1.05×0.4
55	FBF3200T70	3200	70	⩾40@3070MHz⩾40@3280MHz	2.0	1.05×1.05×0.4
56	FBF3300U60	3300	60	⩾35@3170MHz⩾35@3400MHz	3.0	1.05×1.05×0.4
57	FBF3345T70	3345	70	⩾45@2980MHz⩾30@3460MHz	3.0	1.0×1.0×0.4
58	FBF3405U55	3405	55	⩾35@3150MHz⩾35@3500MHz	3.0	1.0×1.0×0.4
59	FBF3400T80	3400	80	⩾40@3270MHz⩾35@3510MHz	3.0	1.05×1.05×0.4
60	FBF3600U120	3600	120	⩾20@3450MHz⩾30@3740MHz	3.0	1.05×1.05×0.4
61	FBF3780U70	3780	70	⩾35@3590MHz⩾40@3900MHz	2.5	1.0×1.0×0.4
62	FBF3920U180	3920	180	⩾15@3730MHz⩾8@4090MHz	3.0	1.05×1.05×0.4
63	FBF4400U100	4400	100	⩾15@4100MHz⩾40@4530MHz	2.5	1.0×1.0×0.4
64	FBF4425T50	4425	50	⩾25@4320MHz⩾30@4500MHz	3.5	1.0×1.0×0.4
65	FBF4440U60	4440	60	⩾25@4290MHz⩾25@4580MHz	3.0	1.0×1.0×0.4
66	FBF5200U50	5200	50	⩾20@5100MHz⩾25@5320MHz	4.5	1.0×1.0×0.4

7.3.2 FBAR Filter

Serial	Model	Center frequency (MHz)	Pass Band (MHz)	Stopband Rejection(dBc)	Insertion Loss@f₀ (dB)	Size (mm) L×W×H	Package form
1	FBF900T15-S3F	900	15	⩾45@860MHz⩾40@940MHz	2.0	3.8x3.8x1.8	SM03F
2	FBF1000U10-S3F	1000	10	⩾45@960MHz⩾45@1040MHz	2.5	3.8x3.8x1.8	SM03F
3	FBF1100T10-S3F	1100	10	⩾20@1082MHz⩾20@1120MHz	2.0	3.8x3.8x1.8	SM03F
4	FBF1100U10-S3F	1100	10	⩾35@1050MHz⩾35@1140MHz	2.5	3.8x3.8x1.8	SM03F
5	FBF1200U30-S3F	1200	30	⩾30@1150MHz⩾30@1260MHz	2.0	3.8x3.8x1.8	SM03F
6	FBF1200T15-S3F	1200	15	⩾40@1100MHz⩾40@1250MHz	3.0	3.8x3.8x1.8	SM03F
7	FBF1221T32&1572T26	1221	32	⩾25@1180MHz⩾20@1270MHz	3.0	6.2x3.5x0.9	PCB
		1572	26	⩾25@1460MHz⩾25@1640MHz	3.0		

Serial	Model	Center frequency (MHz)	Pass Band (MHz)	Stopband Rejection(dBc)	Insertion Loss@fc (dB)	Size (mm) L×W×H	Package form
8	FBF1221T32&FBF1572T26	1221	32	≥30@1175MHz≥25@1260MHz	3.0	6.2x4.0x0.9	PCB
		1572	26	≥20@1515MHz≥30@1620MHz	2.5		
9	FBF1260U20-S3F	1260	20	≥35@1200MHz≥30@1320MHz	2.0	3.8x3.8x1.8	SM03F
10	FBF1268.52U20-S	1268.52	20	≥30@1200MHz≥25@1350MHz	3.0	3.8x3.8x1.3	IRK06F 2-6162F(NTK)
11	FBF1268.52U25-S3F	1268.52	25	≥15@1205MHz≥15@1310MHz	1.0	3.8x3.8x1.8	SM03F
12	FBF1227.6U20-S3F	1227.6	20	≥35@1170MHz≥30@1300MHz	2.5	3.8x3.8x1.8	SM03F
13	FBF1227.6U25-S3F	1227.6	25	≥10@1100MHz≥10@1300MHz	1.0	3.8x3.8x1.8	SM03F
14	FBF1300T20-S3F	1300	20	≥40@1250MHz≥40@1350MHz	25	3.8x3.8x1.8	SM03F
15	FBF1380U60-S115	1380	60	≥20@1310MHz≥35@1450MHz	4.0	5.8x3.8x1.8	SM115
16	FBF1400U10-S3F	1400	10	≥45@1350MHz≥45@1450MHz	2.5	3.8x3.8x1.8	SM03F
17	FBF1450U60-S3E	1450	60	≥15@1360MHz≥30@1520MHz	3.0	6.35x6.35x1.8	SM03E
18	FBF1534U45-S115	1534	45	≥25@1450MHz≥30@1615MHz	3.5	5.8x3.8x1.8	SM115
19	FBF1575.42U20-S3F	1575.42	20	≥40@1520MHz≥40@1610MHz	2.0	3.8x3.8x1.8	SM03F
20	FBF1575.42U25-S3F	1575.42	25	≥15@1535MHz≥10@1610MHz	1.0	3.8x3.8x1.8	SM03F
21	FBF1561.098U20-S3F	1561.098	20	≥40@1480MHz≥40@1600MHz	2.5	3.8x3.8x1.8	SM03F
22	FBF1561.098U25-S3F	1561.098	25	≥10@1470MHz≥15@1600MHz	1.0	3.8x3.8x1.8	SM03F
23	FBF1615U20-S3F	1615	20	≥35@1555MHz≥35@1650MHz	2.0	3.8x3.8x1.8	SM03F
24	FBF1720U35-S3F	1720	35	≥35@1650MHz≥30@1780MHz	3.0	3.8x3.8x1.8	SM03F
25	FBF1800T25-S3F	1800	25	≥20@1773MHz≥20@1835MHz	2.0	3.8x3.8x1.8	SM03F
26	FBF1830T25-S3F	1830	25	≥20@1798MHz≥30@1860MHz	2.0	3.8x3.8x1.8	SM03F
27	FBF1995U30-S3F	1995	30	≥25@1950MHz≥25@2035MHz	2.5	3.8x3.8x1.8	SM03F
28	FBF1995U50-S3F	1995	50	≥15@1920MHz≥25@2070MHz	2.5	3.8x3.8x1.8	SM03F
29	FBF2000T30-S3F	2000	30	≥40@1930MHz≥35@2050MHz	2.5	3.8x3.8x1.8	SM03F
30	FBF2000U90-S115	2000	90	≥25@1770MHz≥15@2100MHz	3.0	5.8x3.8x1.8	SM115
31	FBF2013T50-S3F	2013	50	≥35@1930MHz≥35@2070MHz	2.5	3.8x3.8x1.8	SM03F
32	FBF2065U20-S3F	2065	20	≥35@2105MHz≥45@2000MHz	2.0	3.8x3.8x1.8	SM03F
33	FBF2070U30-S3F	2070	30	≥30@1940MHz≥30@2130MHz	2.0	3.8x3.8x1.8	SM03F
34	FBF2100U20-S3F	2100	20	≥35@2020MHz≥35@2150MHz	2.5	3.8x3.8x1.8	SM03F
35	FBF2185U30-S3F	2185	30	≥20@2150MHz≥20@2220MHz	2.5	3.8x3.8x1.8	SM03F
36	FBF2200U25-S3F	2200	25	≥35@2120MHz≥35@2260MHz	1.5	3.8x3.8x1.8	SM03F
37	FBF2280U24-S3F	2280	24	≥15@2240MHz≥20@2330MHz	2.0	3.8x3.8x1.8	SM03F
38	FBF2242U30-S3F	2242	30	≥35@2175MHz≥30@2295MHz	2.5	3.8x3.8x1.8	SM03F
39	FBF2242U24-S3F	2242	24	≥15@2200MHz≥20@2282MHz	2.5	3.8x3.8x1.8	SM03F
40	FBF2282U20-S3F	2282	20	≥40@2220MHz≥30@2320MHz	2.5	3.8x3.8x1.8	SM03F
41	FBF2300U30-S3F	2300	30	≥35@2210MHz≥35@2360MHz	2.0	3.8x3.8x1.8	SM03F
42	FBF2400U20-S3F	2400	20	≥35@2330MHz≥35@2460MHz	2.0	3.8x3.8x1.8	SM03F
43	FBF2460U20-S3F	2460	20	≥35@2400MHz≥35@2510MHz	2.5	3.8x3.8x1.8	SM03F
44	FBF2492T8	2492	8	≥30@2470MHz≥26@2510MHz	4.0	3x3x0.8	Plastic
45	FBF2492T8-T	2492	8	≥30@2470MHz≥26@2510MHz	4.0	3x3x1.3	IRK06F 2-8632A(NTK)
46	FBF2492U20-S3F	2492	20	≥35@2440MHz≥30@2535MHz	2.0	3.8x3.8x1.8	SM03F
47	FBF2560U20-S3F	2560	20	≥45@2460MHz≥40@2620MHz	2.5	3.8x3.8x1.8	SM03F
48	FBF2500T50-S3F	2500	50	≥40@2420MHz≥30@2560MHz	2.0	3.8x3.8x1.8	SM03F
49	FBF2580U50-S3F	2580	50	≥35@2500MHz≥30@2670MHz	2.5	3.8x3.8x1.8	SM03F

Serial	Model	Center frequency (MHz)	Pass Band (MHz)	Stopband Rejection(dBc)	Insertion Loss@f₀ (dB)	Size (mm) L×W×H	Package form
50	FBF2600U25-S3F	2600	25	⩾35@2520MHz⩾35@2670MHz	1.0	3.8x3.8x1.8	SM03F
51	FBF2700U30-S3F	2700	30	⩾35@2600MHz⩾35@2770MHz	2.5	3.8x3.8x1.8	SM03F
52	FBF2800U50-S3F	2800	50	⩾35@2680MHz⩾35@2870MHz	2.5	3.8x3.8x1.8	SM03F
53	FBF2800U90-S115	2800	90	⩾30@2630MHz⩾30@2960MHz	3.5	5.8x3.8x1.8	SM115
54	FBF2900U50-S3F	2900	50	⩾40@2730MHz⩾35@2980MHz	2.5	3.8x3.8x1.8	SM03F
55	FBF2945U65-S3F	2945	65	⩾25@2800MHz⩾25@3040MHz	2.5	3.8x3.8x1.8	SM03F
56	FBF3000T70-S3F	3000	70	⩾40@2900MHz⩾35@3080MHz	2.5	3.8x3.8x1.8	SM03F
57	FBF3100T50-S3F	3100	50	⩾40@2930MHz⩾40@3180MHz	2.5	3.8x3.8x1.8	SM03F
58	FBF3200T70-S3F	3200	70	⩾40@3070MHz⩾40@3280MHz	2.0	3.8x3.8x1.8	SM03F
59	FBF3300U60-S3F	3300	60	⩾35@3170MHz⩾35@3400MHz	3.0	3.8x3.8x1.8	SM03F
60	FBF3345T70-S3F	3345	70	⩾45@2980MHz⩾30@3460MHz	3.0	3.8x3.8x1.8	SM03F
61	FBF3405U55-S3F	3405	55	⩾35@3150MHz⩾35@3500MHz	3.0	3.8x3.8x1.8	SM03F
62	FBF3400T80-S3F	3400	80	⩾40@3270MHz⩾35@3510MHz	3.0	3.8x3.8x1.8	SM03F
63	FBF3600U120-S115	3600	120	⩾20@3450MHz⩾30@3740MHz	3.0	5.8x3.8x1.8	SM115
64	FBF3780U70-S3F	3780	70	⩾35@3590MHz⩾40@3900MHz	2.5	3.8x3.8x1.8	SM03F
65	FBF3920U180-S84	3920	180	⩾15@3730MHz⩾8@4090MHz	3.0	7.0x5.0x2.25	SM84D
66	FBF4400U100-S3F	4400	100	⩾15@4100MHz⩾40@4530MHz	2.5	3.8x3.8x1.8	SM03F
67	FBF4425T50-S3F	4425	50	⩾25@4320MHz⩾30@4500MHz	3.5	3.8x3.8x1.8	SM03F
68	FBF4440U60-S3F	4440	60	⩾25@4290MHz⩾25@4580MHz	3.0	3.8x3.8x1.8	SM03F
69	FBF5200U50-S3F	5200	50	⩾20@5100MHz⩾25@5320MHz	4.5	3.8x3.8x1.8	SM03F

7.4 LC Filter

7.4.1 LC Band Pass Filters

Serial	Model	Center frequency (MHz)	Insertion Loss@f₀ (dB)	Stopband Rejection(dBc)	Bandwidth (MHz)	Size(mm) ⩽A×B×C
1	5MB/E-3.2/T0.2-P2	3.2	3.3	⩾40@2.9&3.6MHz	0.32(3dB)	40×12×9
2	5MB/E-4.4/T0.2-P2	4.4	4.1	⩾40@4&4.9MHz	0.38(3dB)	40×12×9
3	3MB/C-10/H1.5-14	10	0.81	⩾40@3.8&15.9MHz	1.74(0.5dB)	24.7×12.7×6.7
4	4MB/E-10/U4-14	10	0.4	⩾40@4.2&16.3MHz	4.34(1dB)	24.7×12.7×6.7
5	5MB/C-10/T2-18	10	2.02	⩾40@7.8&15MHz	2.18(3dB)	27.2×12.7×6.7
6	6MB/C-10/T6.5-22	10	0.65	⩾40@5.1&17.8MHz	6.93(3dB)	32.4×12.7×8.7
7	5MB/C-10.23/T0.8-S9	10.23	2.9	⩾40@9.2&11.6MHz	0.91(3dB)	27×12×7
8	4MB/C-14/U1-18	14	1.48	⩾40@11.4&17MHz	1.82(1dB)	27.2×12.7×6.7
9	3MBG-15/T1.5-18	15	1.28	⩾40@9.8&20.6MHz	1.43(3dB)	27.2×12.7×6.7
10	5MB/E-15.2/T2-P2	15.2	1.95	⩾40@13.1&17.8MHz	2.37(3dB)	40×12×9
11	6MB/C-19/T2-18	19	2.7	⩾40@16.6&22.2MHz	2.59(3dB)	27.2×12.7×6.7
12	6MB/C-19.2/T2-18	19.2	2.94	⩾40@17.3&21.7MHz	2.14(3dB)	27.2×12.7×6.7
13	5MB/C-20/T2-18	20	2.4	⩾40@17.3&23.2MHz	2.36(3dB)	12.7×27.2×6.7
14	6MB/C-20/T2-18	20	2.66	⩾40@17.8&22.6MHz	2.36(3dB)	27.2×12.7×6.7
15	5MB/E-20.8/T3-P2	20.8	1.66	⩾40@17.6&24.7MHz	3.7(3dB)	40×12×9
16	3MB/C-21.4/T0.4-A1	21.4	6.28	⩾40@20&23MHz	0.48(3dB)	20.32×10.16×10.16
17	3MB/C-21.4/U4-14	21.4	0.65	⩾40@8&35MHz	5.03(1dB)	24.7×12.7×6.7
18	7MB/E-21.4/U7-S10W	21.4	0.76	⩾40@15.94&27.4MHz	7.46(1dB)	40×12×9.5
19	3MB/C-25/U3-14	25	-	⩾40@13&37.2MHz	4.62(1dB)	24.7×12.7×6.7

Serial	Model	Center frequency (MHz)	Insertion Loss@f₀ (dB)	Stopband Rejection(dBc)	Bandwidth (MHz)	Size(mm) ≤ A×B×C
20	5MB/C-27.5/H1-18	27.5	3.6	≥40@24.8&30.6MHz	1.3(0.5dB)	27.2×12.7×6.7
21	5MB/E-28/T2-14	28	3.43	≥40@25.4&30.4MHz	2.2(3dB)	24.7×12.7×6.7
22	3MB/C-30/T10-14	30	0.59	≥40@11&57MHz	12.2(3dB)	24.7×12.7×6.7
23	4MB/C-30/T6-18	30	1.35	≥40@20.5&39MHz	6.13(3dB)	27.2×12.7×6.7
24	5MB/E-30/H8-14	30	0.3	≥40@8&50.3MHz	20(0.5dB)	24.7×12.7×6.7
25	5MB/C-30/T9-18	30	1.26	≥40@20.7&40.8MHz	9.4(3dB)	27.2×12.7×6.7
26	6MB/C-30/T3-18	30	3.1	≥40@26.8&33.5MHz	3.35(3dB)	27.2×12.7×6.7
27	7MB/C-34/T10-22	34	1.23	≥40@26.4&45MHz	10.7(1dB)	32.4×12.7×8.7
28	4MB/C-36/T2.5-18	36	3	≥40@32&41.5MHz	2.9(3dB)	27.2×12.7×6.7
29	3MB/E-37.5/U1-S5	37.5	3.25	≥40@32&43MHz	1.48(1dB)	31.8×12.7×7.1
30	5MB/C-40/T2-S5	40	4.34	≥40@36.5&43.6MHz	2.5(3dB)	31.8×12.7×7.1
31	5MB/E-40/T20-22B	40	0.55	≥40@26.6&56.8MHz	20.9(3dB)	32.4×12.7×8.7
32	6MB/E-40/H20-S5	40	0.57	≥40@21.5&64.1MHz	23.8(0.5dB)	31.8×12.7×7.1
33	5MB/C-42/T6-14	42	2.1	≥40@35&51MHz	6.4(3dB)	24.7×12.7×6.7
34	7MB/E-45/T13-22	45	1.53	≥40@35.2&54.9MHz	12.4(3dB)	32.4×12.7×8.7
35	4MB/C-46/T4-18	46	2.86	≥40@39.4&52.4MHz	4.07(3dB)	27.2×12.7×6.7
36	5MB/C-50/U10-18	50	1.95	≥40@40&63.8MHz	10.8(1dB)	27.2×12.7×6.7
37	6MB/C-50/U50-S2A	50	0.38	≥40@5.77&98.21MHz	58.6(1dB)	27×20×6.6
38	5MB/E-53/T6-22	53	2.38	≥40@44.2&61MHz	7.2(3dB)	32.4×12.7×8.7
39	6MB/E-55/U11-C3	55	1.45	≥40@40.7&65.8MHz	11.52(1dB)	31×13×13
40	4MB/C-56/T7-18	56	2.12	≥40@46&69MHz	7.27(3dB)	27.2×12.7×6.7
41	5MB/E-56/T3-P2	56	4.9	≥40@52.4&60.4MHz	3.28(3dB)	40×12×9
42	5MB/C-56/T3-18	56	4.8	≥40@51.8&61MHz	3.45(3dB)	27.2×12.7×6.7
43	5MB/E-56/H34-22	56	0.56	≥40@22.4&96.3MHz	38.9(0.5dB)	32.4×12.7×8.7
44	6MB/C-56/T10-18	56	2.25	≥40@46.6&67.9MHz	10.71(3dB)	27.2×12.7×6.7
45	3MB/C-60/T5-S5S	60	2.55	≥40@45&74MHz	5.82(3dB)	19.1×12.7×7.1
46	4MB/C-60/T4-14	60	3	≥40@51.5&67.6MHz	5.2(3dB)	24.7×12.7×6.7
47	4MB/C-60/T6-14	60	1.7	≥40@43.7&77.6MHz	8(3dB)	24.7×12.7×6.7
48	4MB/W-60/T9-S4A	60	1.6	≥40@45.7&78.2MHz	10.5(3dB)	25×13.2×6.5
49	4MB/E-60/U10-S5	60	1.17	≥40@38&80.7MHz	14.7(1dB)	31.8×12.7×7.1
50	4MB/E-60/U12-S1G	60	1	≥40@37.7&80.2MHz	13.4(1dB)	20×16×6.5
51	4MB/C-60/U12-S5	60	1.14	≥40@37&90.6MHz	13.3(1dB)	31.8×12.7×7.1
52	4MB/E-60/U20-S1G	60	0.9	≥40@31.6&94.6MHz	21.4(1dB)	20×16×6.5
53	4MB/C-60/T20-C3	60	0.83	≥40@34.2&95.2MHz	28.5(3dB)	31×13×13
54	4MB/E-60/T25-S2A	60	0.7	≥40@33.6&91.2MHz	28.37(3dB)	27×20×6.6
55	5MB/C-60/T1.6-18	60	8.14	≥40@56.7&63.4MHz	2.13(3dB)	27.2×12.7×6.7
56	5MB/C-60/T2.8-18	60	6.21	≥40@56.3&64.6MHz	2.79(3dB)	27.2×12.7×6.7
57	5MB/C-60/T6-18	60	3.16	≥40@52.6&68.8MHz	6.39(3dB)	27.2×12.7×6.7
58	5MB/E-60/T8-22	60	3.1	≥40@52.4&68.1MHz	8.7(3dB)	32.4×12.7×8.7
59	5MB/C-60/U8-18	60	2.2	≥40@48.7&72.1MHz	8(1dB)	27.2×12.7×6.7
60	5MB/C-60/T10-18	60	1.98	≥40@49&75.8MHz	10.3(3dB)	27.2×12.7×6.7
61	5MB/C-60/U12-S5	60	1.51	≥40@44.4&77.2MHz	12.8(1dB)	31.8×12.7×7.1
62	5MB/C-60/H20-S5	60	0.79	≥40@36.9&99.4MHz	23.5(0.5dB)	31.8×12.7×7.1

Serial	Model	Center frequency (MHz)	Insertion Loss@f₀ (dB)	Stopband Rejection(dBc)	Bandwidth (MHz)	Size(mm) ⩽A×B×C
63	5MB/E-60/H20-DE-18	60	1.35	⩾30@35.1&81.3MHz	-	27.2×12.7×6.7
64	5MB/E-60/H23-DE-S5L	60	1.2	⩾40@27.6&93.5MHz	24.7(0.5dB)	38.1×12.7×7.1
65	5MB/E-60/H30-DE-22	60	0.85	⩾40@18.8&104.8MHz	36(0.5dB)	32.4×12.7×8.7
66	6MB/C-60/T10-22	60	2.2	⩾40@50.4&72.7MHz	11(3dB)	32.4×12.7×8.7
67	6MB/C-60/U10-C3L	60	1.9	⩾40@47.4&74.9MHz	12.2(1dB)	38×13×13
68	6MB/C-60/H16-S5	60	0.87	⩾40@28.8&97MHz	19.2(3dB)	31.8×12.7×7.1
69	6MB/E-60/T20-18	60	1.15	⩾40@42.8&78.9MHz	24(3dB)	27.2×12.7×6.7
70	6MB/E-60/U20-14	60	0.89	⩾40@40.5&79.8MHz	25(1dB)	24.7×12.7×6.7
71	6MB/E-60/U20-DE-S5A	60	1.71	⩾40@38.2&79.7MHz	25(1dB)	31.8×12.7×5.7
72	6MB/E-60/T22-22	60	1.1	⩾40@39.4&80.8MHz	24.5(3dB)	32.4×12.7×8.7
73	7MB/E-60/U20-S4G	60	-	⩾40@41.2&79.7MHz	22.2(1dB)	26×10×6.5
74	7MB/E-60/T30-C3L	60	0.91	⩾40@36.7&85.4MHz	33.8(3dB)	38×13×13
75	5MB/E-61.38/T21-S3NA	61.38	1.09	⩾40@42.5&81.2MHz	21.5(3dB)	30×12×7
76	5MB/E-64/H34-22	64	0.61	⩾30@29.4&105.9MHz	38.1(0.5dB)	32.4×12.7×8.7
77	7MB/E-64/U20-S10W	64	2	⩾35@48.4&79.6MHz	20.7(1dB)	40×12×9.5
78	8MB/E-64/U17-C3L	64	-	⩾40@46.65&81.35MHz	19.4(1dB)	38×13×13
79	7MB/E-66/U16-S4G	66	2.23	⩾40@50.1&83.1MHz	17.14(1dB)	26×10×6.5
80	6MB/C-66.5/T9-18	66.5	3.4	⩾40@57.5&77MHz	10.8(3dB)	27.2×12.7×6.7
81	5MB/E-67/T9-22	67	2.8	⩾40@57.1&77MHz	7.28(1.5dB)	32.4×12.7×8.7
82	3MB/C-69/H10-14	69	1.41	⩾40@29&104.5MHz	12.1(0.5dB)	24.7×12.7×6.7
83	6MB/C-69.5/U2.7-C3	69.5	6.3	⩾40@64.5&74.7MHz	3(1dB)	31×13×13
84	6MB/C-69.5/U12-22	69.5	2.1	⩾40@56.8&87.5MHz	12.8(1dB)	32.4×12.7×8.7
85	4MB/E-70/T14-14	70	1.5	⩾40@47.8&87.3MHz	14.7(3dB)	24.7×12.7×6.7
86	4MB/C-70/H20-S9	70	0.8	⩾40@27&112MHz	24.8(0.5dB)	27×12×7
87	4MB/C-70/T20-14	70	0.96	⩾40@34.5&102MHz	23.5(3dB)	24.7×12.7×6.7
88	4MB/E-70/U20-14	70	1.2	⩾40@37.5&102.5MHz	21.3(1dB)	24.7×12.7×6.7
89	5MB/C-70/U4-22	70	4.15	⩾40@62.3&78.2MHz	4.43(1dB)	32.4×12.7×8.7
90	5MB/C-70/U5-22	70	3.51	⩾40@60.5&80.3MHz	5.87(1dB)	32.4×12.7×8.7
91	5MB/E-70/T6-S5L	70	3.7	⩾40@61.7&78MHz	6.57(3dB)	38.1×12.7×7.1
92	5MB/E-70/T10-S5L	70	2.27	⩾40@57.3&83MHz	12.1(3dB)	38.1×12.7×7.1
93	5MB/C-70/T12-14	70	2.57	⩾40@56.9&88.9MHz	12.8(3dB)	24.7×12.7×6.7
94	5MB/C-70/T15-S5A	70	1.9	⩾40@53.6&86.8MHz	15.3(3dB)	31.8×12.7×5.7
95	5MB/E-70/T15-S5L	70	1.95	⩾40@51.8&88MHz	17.1(3dB)	38.1×12.7×7.1
96	5MB/E-70/T20-S5L	70	1.57	⩾40@48.4&93.1MHz	21.3(3dB)	38.1×12.7×7.1
97	5MB/E-70/U20-22	70	1.15	⩾40@50.6&94.6MHz	22.3(1dB)	32.4×12.7×8.7
98	5MB/E-70/T24-S5L	70	1.17	⩾40@45.2&97MHz	25.8(3dB)	38.1×12.7×7.1
99	5MB/E-70/T27-18	70	1.22	⩾40@41.5&97.9MHz	26.4(3dB)	27.2×12.7×6.7
100	5SBP/E-70/T37-2	70	1.09	⩾40@35.2&108.3MHz	39.8(3dB)	25.4×12.7×6.7
101	5MB/C-70/U50-22A	70	0.59	⩾40@13.1&142.2MHz	67(1dB)	32.4×12.7×6.7
102	6SBP/E-70/T5-2A	70	6	⩾40@64.6&76.3MHz	5.05(3dB)	25.4×12.7×6
103	6MB/C-70/U5-C3L	70	3.99	⩾40@62.7&79.6MHz	5.93(1dB)	38×13×13
104	6MB/C-70/T8-S2A	70	3.85	⩾40@62&79.7MHz	9.1(3dB)	27×20×6.6
105	6MB/E-70/T8-S5A	70	3.8	⩾40@61.9&79.3MHz	8.5(3dB)	31.8×12.7×5.7

Serial	Model	Center frequency (MHz)	Insertion Loss@f₀ (dB)	Stopband Rejection(dBc)	Bandwidth (MHz)	Size(mm) ≤ A×B×C
106	6MB/E-70/U10-C3L	70	1.92	⩾40@59.7&81.7MHz	11.1(1dB)	38×13×13
107	6MB/E-70/U10-S5	70	1.8	⩾30@59&81MHz	11.41(1dB)	31.8×12.7×7.1
108	6MB/C-70/U11-18	70	2.4	⩾40@57.3&86.9MHz	12.1(1dB)	27.2×12.7×6.7
109	6MB/C-70/U20-18	70	1.33	⩾40@48.6&100.1MHz	23.5(1dB)	27.2×12.7×6.7
110	6MB/C-70/U20-22	70	1.33	⩾40@48.7&97.9MHz	22.6(1dB)	32.4×12.7×8.7
111	6MB/E-70/U20-S5	70	1	⩾40@49.6&93.4MHz	26.4(1dB)	31.8×12.7×7.1
112	6MB/C-70/T24-S5	70	1.37	⩾40@47.8&96.5MHz	26.8(3dB)	31.8×12.7×7.1
113	6MB/E-70/U30-S9	70	0.92	⩾40@43.7&110MHz	33.7(1dB)	27×12×7
114	7MB/E-70/U20-C3L	70	1.5	⩾40@51.5&87.9MHz	22.5(1dB)	38×13×13
115	7MB/E-70/U20-S5L	70	1.3	⩾40@48&92MHz	23.5(1dB)	38.1×12.7×7.1
116	8MB/E-70/U22-S5L	70	1.69	⩾40@52.1&91MHz	22.8(1dB)	38.1×12.7×7.1
117	8MB/E-70/T30-C3L	70	1.25	⩾40@47&93.3MHz	33.5(3dB)	38×13×13
118	3MB/C-72.5/U3-14	72.5	-	⩾40@60&99MHz	4.41(1dB)	24.7×12.7×6.7
119	6MB/C-74.9/T10-22	74.9	3.35	⩾40@64.8&86.9MHz	10.8(3dB)	32.4×12.7×8.7
120	3MB/C-75/T4-14	75	4.48	⩾40@67&86MHz	3.86(3dB)	24.7×12.7×6.7
121	4MB/C-75/T6-14	75	3.6	⩾40@62.5&86.5MHz	5.6(3dB)	24.7×12.7×6.7
122	5SBP/C-75/H20-3	75	1.25	⩾40@47.8&110MHz	20.7(0.5dB)	31.8×12.7×6.7
123	4MB/C-80/T5-S5	80	4.2	⩾40@70&91MHz	-	31.8×12.7×7.1
124	4MB/C-80/U12-14	80	1.6	⩾40@52.2&105.2MHz	14.8(1dB)	24.7×12.7×6.7
125	5MB/C-80/T8-18	80	4.15	⩾40@69.5&91MHz	8.35(3dB)	27.2×12.7×6.7
126	5MB/E-80/T20-14	80	1.45	⩾40@64.2&99.1MHz	21.1(3dB)	24.7×12.7×6.7
127	6MB/C-80/T8-18	80	4.87	⩾40@71.1&89.3MHz	8.81(3dB)	27.2×12.7×6.7
128	5MB/C-82.5/T6-14	82.5	5	⩾40@74.4&93.3MHz	6.65(3dB)	24.7×12.7×6.7
129	5MB/C-90/T5-S5L	90	6.7	⩾40@82.8&99.3MHz	5.3(3dB)	38.1×12.7×7.1
130	4MB/C-100/T8-18	100	4.1	⩾40@86.5&116MHz	10.3(3dB)	27.2×12.7×6.7
131	5MB/C-100/T4-14	100	8.1	⩾40@93.5&107.5MHz	4.7(3dB)	24.7×12.7×6.7
132	5MB/C-100/T8-18	100	5.7	⩾40@90&110MHz	8.5(3dB)	27.2×12.7×6.7
133	6MB/C-100/T10-18	100	3.2	⩾40@82.5&118MHz	15.2(3dB)	27.2×12.7×6.7
134	5MB/E-102/U144-22A	102	0.35	⩾40@21.1&212.7MHz	166(1dB)	32.4×12.7×6.7
135	5MB/C-108/U8-18	108	4	⩾40@92.5&124MHz	9.3(1dB)	27.2×12.7×6.7
136	5MB/C-110/T8-S9	110	4.8	⩾40@99&124.5MHz	9.1(3dB)	27×12×7
137	6MB/C-110/U180-S4G	110	0.27	⩾40@7.4&398MHz	219.5(1dB)	26×10×6.5
138	3MB/C-112/U10-S4G	112	1.53	⩾40@65&154MHz	-	26×10×6.5
139	6MB/C-115/T7-22	115	7.4	⩾40@107&125MHz	8.9(3dB)	32.4×12.7×8.7
140	5MB/E-118.52/T41-S3NA	118.52	1.3	⩾40@81&154.3MHz	41.5(3dB)	30×12×7
141	3MB/C-120/T12-14	120	2.35	⩾40@92&153.5MHz	12.9(3dB)	24.7×12.7×6.7
142	4MB/C-120/T8-S5	120	4.84	⩾40@107&135MHz	-	31.8×12.7×7.1
143	4MB/C-120/T10-S2A	120	3.4	⩾40@101&140MHz	11.6(3dB)	27×20×6.6
144	4MB/E-120/U45-S5	120	0.75	⩾40@53.3&196MHz	58.3(1dB)	31.8×12.7×7.1
145	5MB/C-120/T5-18	120	7	⩾40@111&131MHz	5.7(3dB)	27.2×12.7×6.7
146	5MB/C-120/T30-S9	120	1.7	⩾40@89.4&158.2MHz	31.67(3dB)	27×12×7
147	5MB/C-120/U30-S1G	120	1.4	⩾40@85.4&175.6MHz	33.8(1dB)	20×16×6.5
148	6MB/C-120/T4-22	120	11.2	⩾50@114.5&126.2MHz	4.13(3dB)	32.4×12.7×8.7

Serial	Model	Center frequency (MHz)	Insertion Loss@f₀ (dB)	Stopband Rejection(dBc)	Bandwidth (MHz)	Size(mm) ≤ A×B×C
149	6MB/C-120/T20-18	120	3.05	≥40@100&144MHz	21.5(3dB)	27.2×12.7×6.7
150	4MB/C-121.5/T9-14	121.5	3.6	≥40@105&141.5MHz	11.2(3dB)	24.7×12.7×6.7
151	5MB/E-121.795/T51-S3NA	121.795	1.2	≥40@76.2&169.4MHz	51.3(3dB)	30×12×7
152	5MB/C-122/H30-18	122	1.39	≥40@77.4&175.5MHz	35.4(0.5dB)	27.2×12.7×6.7
153	5MB/E-124/U36-S5L	124	1.32	≥40@93&161MHz	39.9(1dB)	38.1×12.7×7.1
154	6MB/C-125/T7-22	125	7.2	≥40@115&134MHz	9.2(3dB)	32.4×12.7×8.7
155	5MB/E-125.42/T51-S3NA	125.42	1.27	≥40@79.3&171MHz	51.3(3dB)	30×12×7
156	3MB/C-129/U25-S4G	129	-	≥40@49&210.5MHz	-	25×10×6.5
157	4MB/C-130/H10-18	130	2.18	≥40@104&163MHz	12.2(0.5dB)	27.2×12.7×6.7
158	4MB/C-130/U30-14	130	2	≥40@75&179MHz	32.6(1dB)	24.7×12.7×6.7
159	5MB/E-130.25/U15-22	130.25	2.3	≥40@105&155MHz	18.3(1dB)	32.4×12.7×8.7
160	5MB/E-132/U24-S10W	132	1.65	≥40@107.5&162.6MHz	25.6(1dB)	40×12×9.5
161	6MB/C-135/T7-22	135	7.35	≥40@125.7&144.3MHz	9.1(3dB)	32.4×12.7×8.7
162	3MB/C-138/H10-14	138	1.88	≥40@94&178.5MHz	12.7(0.5dB)	24.7×12.7×6.7
163	4MB/C-138/U20-S5	138	1.89	≥40@93&178MHz	21.8(1dB)	31.8×12.7×7.1
164	3MB/C-140/U8-14	140	5	≥40@116&177.5MHz	8.65((1dB)	24.7×12.7×6.7
165	3MB/C-140/H20-14	140	1.07	≥40@65&212.5MHz	24.7(0.5dB)	24.7×12.7×6.7
166	4MB/C-140/U8-18	140	3.5	≥40@121&162MHz	8.9(1dB)	27.2×12.7×6.7
167	4MB/C-140/T10-18	140	4.3	≥40@123&161MHz	10.7(3dB)	27.2×12.7×6.7
168	4MB/C-140/U30-18	140	1.22	≥40@77&194MHz	33.8(1dB)	27.2×12.7×6.7
169	4MB/C-140/T36-18	140	1	≥40@77&196MHz	36.5(1dB)	27.2×12.7×6.7
170	5MB/C-140/T8-18	140	-	≥40@127&153MHz	8.7(3dB)	27.2×12.7×6.7
171	5MB/E-140/U36-S4G	140	1.55	≥40@92.7&188.5MHz	40.3(1dB)	26×10×6.5
172	6MB/C-140/H7-C3	140	2.7	≥40@118.7&166.3MHz	19.1(1dB)	31×13×13
173	6MB/C-140/U10-18	140	4.75	≥40@126.1&155.8MHz	11.9(1dB)	27.2×12.7×6.7
174	6MB/E-140/U13-C3L	140	3.6	≥40@123.8&157.6MHz	13.8(1dB)	38×13×13
175	6MB/C-140/U70-S5A	140	-	≥40@81.7&222.7MHz	72.4(1dB)	31.8×12.7×5.7
176	7MB/E-140/U5-S5L	140	6.55	≥40@129.5&151MHz	7.07(1dB)	38.1×12.7×7.1
177	7MB/E-140/U20-S5L	140	2.5	≥40@119.8&162.2MHz	22.7(1dB)	38.1×12.7×7.1
178	7MB/E-140/U26-C3L	140	2.15	≥40@113.8&165.6MHz	28.2(1dB)	38×13×13
179	7MB/E-140/U32-C3L	140	1.72	≥40@110&172MHz	33.8(1dB)	38×13×13
180	5MB/E-143.25/U5-18	143.25	2.9	≥40@121&165MHz	14.46(1dB)	27.2×12.7×6.7
181	5MB/E-148/U24-S10W	148	1.7	≥40@122&179MHz	25.6(1dB)	40×12×9.5
182	3MB/C-150/T9-S1G	150	3.51	≥40@125&172MHz	9.2(3dB)	20×16×6.5
183	3MB/C-150/U30-S4G	150	-	≥40@61&248.5MHz	-	26×10×6.5
184	5SBP/E-150/U50-2	150	1.02	≥40@92.2&212MHz	54.2(1dB)	25.4×12.7×6.7
185	5MB/C-150/U100-18	150	0.66	≥40@59.5&287.2MHz	109.1(1dB)	27.2×12.7×6.7
186	5MB/E-150/U100-S5	150	0.48	≥40@53.5&246.8MHz	109.2(1dB)	31.8×12.7×7.1
187	6MB/C-150/T15-18	150	4.4	≥40@135&167MHz	15(3dB)	27.2×12.7×6.7
188	4MB/C-160/T15-S5A	160	2.5	≥40@127&188MHz	19.5(3dB)	31.8×12.7×5.7
189	5MB/C-160/T16-14	160	3.1	≥40@139&184MHz	18.3(3dB)	24.7×12.7×6.7
190	6MB/C-160/U22-18	160	2.55	≥40@134.6&192.6MHz	24(1dB)	27.2×12.7×6.7
191	4MB/C-177.5/U15-S4G	177.5	2.05	≥40@142&214MHz	20.4(1dB)	26×10×6.5

Serial	Model	Center frequency (MHz)	Insertion Loss@f₀ (dB)	Stopband Rejection(dBc)	Bandwidth (MHz)	Size(mm) ≤ A×B×C
192	7MB/E-178/T16-C3L	178	3.31	≥40@161.2&195.2MHz	21.8(3dB)	38×13×13
193	6MB/E-180/U80-S5LA	180	0.85	≥40@108&252MHz	87.2(1dB)	38.1×12.7×5.7
194	6SBP/E-180/U100-2	180	0.71	≥40@98.4&275.1MHz	107.2(1dB)	25.4×12.7×6.7
195	6MB/C-183/T10-18	183	5.75	≥40@169.8&197.3MHz	11.7(3dB)	27.2×12.7×6.7
196	6MB/E-185/U45-S5	185	1.43	≥40@142&232MHz	46.2(1dB)	31.8×12.7×7.1
197	3MB/C-200/T6-14	200	2.28	≥40@156&241MHz	19.1(3dB)	24.7×12.7×6.7
198	3MB/C-200/U15-S4G	200	1.86	≥40@147&247MHz	-	26×10×6.5
199	3MB/C-200/T18-S5S	200	2.12	≥40@147&240MHz	20.1(3dB)	19.1×12.7×7.1
200	4MB/C-200/T17-S5A	200	3.08	≥40@171&256MHz	-	31.8×12.7×5.7
201	4MB/C-200/T20-S4G	200	2.3	≥40@165&236MHz	19.5(1dB)	26×10×6.5
202	4MB/C-200/T25-S5	200	2.08	≥40@146&249MHz	34.4(3dB)	31.8×12.7×7.1
203	5MB/C-200/U15-S2A	200	2.5	≥40@171&233MHz	17(1dB)	27×20×6.6
204	6MB/C-200/T10-S5	200	3.72	≥40@181.9&218.7MHz	18.2(3dB)	31.8×12.7×7.1
205	6MB/C-200/T20-18	200	3.73	≥40@175.6&225.7MHz	22.3(3dB)	27.2×12.7×6.7
206	6MB/C-200/T20-S5	200	3.86	≥40@181.3&220.9MHz	19.2(3dB)	31.8×12.7×7.1
207	6MB/C-200/U56-18	200	1.34	≥40@139.9&268.8MHz	60.2(1dB)	27.2×12.7×6.7
208	6MB/C-210/T40-S5	210	2.25	≥40@172.2&252.8MHz	41.9(3dB)	31.8×12.7×7.1
209	7MB/E-210/U30-C3L	210	1.8	≥40@179.4&242.4MHz	33.2(1dB)	38×13×13
210	5SBP/C-220/U20-2	220	2.6	≥40@182&260MHz	28.4(1dB)	25.4×12.7×6.7
211	4MB/C-225/U50-S4G	225	1	≥40@141&339MHz	63(1dB)	26×10×6.5
212	6MB/C-233/U246-S5	233	0.38	≥40@45.9&480.4MHz	257.5(1dB)	31.8×12.7×7.1
213	6MB/C-235/U10-18	235	5	≥40@218.5&254.2MHz	11.6(1dB)	27.2×12.7×6.7
214	7MB/E-237/U34-S10W	237	-	≥40@197&272MHz	37.8(1dB)	40×12×9.5
215	4MB/C-240/T20-S5A	240	2.45	≥40@204&282MHz	24.6(3dB)	31.8×12.7×5.7
216	4MB/C-240/T30-18	240	1.97	≥40@187&288MHz	-	27.2×12.7×6.7
217	6MB/E-248/U36-S5L	248	-	≥30@210&290MHz	43(1dB)	38.1×12.7×7.1
218	4MB/C-250/T25-14	250	2	≥40@214&303MHz	27(3dB)	24.7×12.7×6.7
219	6SBP/E-260/U110-2	260	0.73	≥40@163.7&357MHz	117.9(1dB)	25.4×12.7×6.7
220	7MB/E-261/U34-S10W	261	-	≥40@219.9&296.1MHz	37(1dB)	40×12×9.5
221	7MB/C-275/U100-S3L	275	0.87	≥40@196&405MHz	107.4(1dB)	35×15×9
222	7MB/C-275/U350-S3L	275	0.35	≥40@55.6&609.3MHz	352.4(1dB)	35×15×9
223	4MB/C-285/T10-18	285	3.9	≥40@258&315MHz	-	27.2×12.7×6.7
224	7MB/E-285/U34-S10W	285	-	≥40@243.8&321.6MHz	37.9(1dB)	40×12×9.5
225	4MB/C-300/U30-S1G	300	1.63	≥40@233&363MHz	35.8(1dB)	20×16×6.5
226	5MB/E-300/U10-C3	300	3.15	≥40@269&322MHz	18.4(1dB)	31×13×13
227	5MB/C-300/T12-14	300	7.1	≥40@280&323MHz	13.2(3dB)	24.7×12.7×6.7
228	6MB/C-300/T40-22	300	2.5	≥40@260&348MHz	43.6(3dB)	32.4×12.7×8.7
229	6MB/E-300/U110-S5A	300	0.81	≥40@216.9&383MHz	121(1dB)	31.8×12.7×5.7
230	6MB/C-300/U400-18	300	0.25	≥40@40.7&652.1MHz	410(1dB)	27.2×12.7×6.7
231	7MB/C-300/U100-S3L	300	0.88	≥40@223&413MHz	102.1(1dB)	35×15×9
232	7MB/E-300/H170-S5L	300	-	≥40@152.3&448.3MHz	182(0.5dB)	38.1×12.7×7.1
233	7MB/E-300/U200-S3L	300	0.58	≥40@137&456MHz	212.4(1dB)	35×15×9
234	7MB/E-309/U34-S10W	309	-	≥40@266.7&346.8MHz	38.1(1dB)	40×12×9.5

Serial	Model	Center frequency (MHz)	Insertion Loss@f₀ (dB)	Stopband Rejection(dBc)	Bandwidth (MHz)	Size(mm) ≤ A×B×C
235	5MB/E-312.5/U175-S10WB	312.5	0.67	≥40@178&495MHz	190.6(1dB)	40×12×9.5
236	5MB/E-312.5/U215-22A	312.5	0.3	≥40@173&497.5MHz	224.2(1dB)	32.4×12.7×6.7
237	4MB/C-330/T40-S5	330	1.39	≥40@250&423MHz	54.4(3dB)	31.8×12.7×7.1
238	7MB/E-330/U20-S5L	330	2.45	≥40@303&358.2MHz	26.9(1dB)	38.1×12.7×7.1
239	5MB/C-350/U120-18	350	0.8	≥40@212&506MHz	127(1dB)	27.2×12.7×6.7
240	6MB/E-350/U40-DE-S10W	350	3.14	≥40@295.8&392MHz	53(1dB)	40×12×9.5
241	7MB/C-350/U30-22	350	2.68	≥40@312&393MHz	38.1(1dB)	32.4×12.7×8.7
242	7MB/E-356/U34-S10W	356	-	≥40@311&399MHz	43.2(1dB)	40×12×9.5
243	6MB/C-360/T15-18	360	6	≥40@341.1&380.8MHz	14.8(3dB)	27.2×12.7×6.7
244	7MB/E-375/U200-S4GA	375	0.73	≥40@225&525MHz	204.6(1dB)	26×10×5
245	7MB/E-380/U34-S10W	380	-	≥40@334&419MHz	41.5(1dB)	40×12×9.5
246	5MB/C-390/T20-18	390	4.7	≥40@367&424MHz	20.5(3dB)	27.2×12.7×6.7
247	4MB/C-400/T45-S5	400	1.33	≥40@310&482MHz	60.3(3dB)	31.8×12.7×7.1
248	4MB/C-400/U50-S4A	400	-	≥40@288&496MHz	53.8(1dB)	25×13.2×6.5
249	5MB/C-400/U120-S2A	400	0.5	≥40@248&571MHz	143(1dB)	27×20×6.6
250	6MB/C-400/U20-S2A	400	3.5	≥40@365&436.4MHz	26.7(1dB)	27×20×6.6
251	6MB/C-400/U30-18	400	3.05	≥40@359.1&444.2MHz	34.5(1dB)	27.2×12.7×6.7
252	6MB/C-400/U70-S2A	400	1.26	≥40@328.2&496.7MHz	82.7(1dB)	27×20×6.6
253	6MB/E-400/H80-DE-S10	400	1.62	≥40@302&502MHz	109(0.5dB)	40×9.5×9.5
254	6MB/C-400/U85-18	400	1.2	≥40@311.5&520.7MHz	96.1(1dB)	27.2×12.7×6.7
255	6MB/C-400/U112-18	400	0.98	≥40@294.5&558.8MHz	125(1dB)	27.2×12.7×6.7
256	6MB/C-400/U150-18	400	0.78	≥40@257.7&567.7MHz	164.8(1dB)	27.2×12.7×6.7
257	7MB/E-404/U34-S10W	404	-	≥40@358.5&443.6MHz	42.3(1dB)	40×12×9.5
258	6MB/C-410/U20-18	410	3.4	≥40@379&444MHz	23(1dB)	27.2×12.7×6.7
259	7MB/E-428/U34-S10W	428	-	≥40@384&468MHz	39.2(1dB)	40×12×9.5
260	6MB/E-440/T70-S2A	440	1.5	≥40@377&505MHz	82(3dB)	27×20×6.6
261	7MB/E-452/U34-S10W	452	-	≥40@406&496MHz	42(1dB)	40×12×9.5
262	7MB/E-476/U34-S10W	476	-	≥40@430&516MHz	39.5(1dB)	40×12×9.5
263	5MB/C-480/U30-18	480	2.4	≥40@422&538MHz	40.5(1dB)	27.2×12.7×6.7
264	5MB/C-480/T35-S5A	480	2.13	≥40@424&542MHz	-	31.8×12.7×5.7
265	6MB/E-480/U60-S9	480	1.38	≥40@417&548MHz	75.5(1dB)	27×12×7
266	4MB/C-500/T25-14	500	4.5	≥40@456&544MHz	-	24.7×12.7×6.7
267	5MB/C-500/T30-S5	500	3.2	≥40@459&542MHz	32.1(3dB)	31.8×12.7×7.1
268	5MB/C-500/T40-S4G	500	2.9	≥40@452&550MHz	43.5(3dB)	26×10×6.5
269	5MB/C-500/T50-22	500	1.71	≥40@439&569MHz	57.6(3dB)	32.4×12.7×8.7
270	6MB/C-500/U250-18	500	0.87	≥40@280.4&749.7MHz	258(1dB)	27.2×12.7×6.7
271	7MB/C-500/U20-S5L	500	4.12	≥40@465.7&533.5MHz	27.3(1dB)	38.1×12.7×7.1
272	7MB/E-500/U34-S10W	500	-	≥40@455.9&539.5MHz	39.2(1dB)	40×12×9.5
273	7MB/C-507.5/U45-22	507.5	2.62	≥40@459&567.5MHz	48.4(1dB)	32.4×12.7×8.7
274	6MB/E-510/U250-S5A	510	0.6	≥40@304.7&719.5MHz	298(1dB)	31.8×12.7×5.7
275	7MB/C-522.5/U45-22	522.5	2.8	≥40@474&583MHz	48.3(1dB)	32.4×12.7×8.7
276	4MB/C-540/U60-S4A	540	-	≥40@461&663MHz	63.97(1dB)	25×13.2×6.5
277	6MB/C-540/H45-18	540	1.73	≥40@470.8&618.3MHz	52.2(0.5dB)	27.2×12.7×6.7

Serial	Model	Center frequency (MHz)	Insertion Loss@f₀ (dB)	Stopband Rejection(dBc)	Bandwidth (MHz)	Size(mm) ⩽ A×B×C
278	4MB/C-550/U300-S4G	550	-	⩾40@420&583MHz	-	26×10×6.5
279	6MB/E-550/U300-S4G	550	0.47	⩾40@253&786MHz	323.9(1dB)	26×10×6.5
280	7MB/C-560/T50-22	560	2.72	⩾40@513&618MHz	51.2(3dB)	32.4×12.7×8.7
281	5MB/E-573/U18-18	573	3.15	⩾40@531.9&613.2MHz	25.43(1dB)	27.2×12.7×6.7
282	4MB/C-580/T60-S1G	580	1.46	⩾40@491&693MHz	70(3dB)	20×16×6.5
283	6MB/E-596/U60-S9	596	1.43	⩾40@532.4&665.3MHz	74.9(1dB)	27×12×7
284	4MB/C-600/U40-S1G	600	1.8	⩾40@510&682MHz	47(1dB)	20×16×6.5
285	6MB/C-600/U30-18	600	2.8	⩾40@555.7&659.6MHz	33.9(1dB)	27.2×12.7×6.7
286	4MB/C-635/U55-14	635	1.6	⩾40@539&755MHz	65(1dB)	24.7×12.7×6.7
287	6MB/E-665/U570-S9	665	0.46	⩾35@240&1140MHz	647.3(1dB)	27×12×7
288	5MB/C-680/H20-S5A	680	2.8	⩾40@626&737MHz	25.1(0.5dB)	31.8×12.7×5.7
289	6MB/C-700/T50-S5	700	2.67	⩾40@646&781MHz	60.6(3dB)	31.8×12.7×7.1
290	6MB/C-700/U50-S4GA	700	2.96	⩾40@635&778MHz	55.6(1dB)	26×10×5
291	3MB/C-720/T150-14	720	0.69	⩾40@324&1085MHz	165.4(3dB)	24.7×12.7×6.7
292	6MB/C-720/U40-18	720	2.5	⩾40@663&801MHz	46.4(1dB)	27.2×12.7×6.7
293	6MB/E-720/U45-S5	720	2.68	⩾40@656&777MHz	55(1dB)	31.8×12.7×7.1
294	6MB/C-720/U610-22A	720	0.55	⩾40@120&1345MHz	865(1dB)	32.4×12.7×6.7
295	7MB/E-720/U300-S10WBA	720	0.93	⩾40@489&980MHz	326.7(1dB)	40×12×8
296	7MB/E-720/U405-S5L	720	0.48	⩾40@330&1053MHz	435.6(1dB)	38.1×12.7×7.1
297	8MB/C-722.5/U45-S5L	722.5	3	⩾40@663&784MHz	59(1dB)	38.1×12.7×7.1
298	6MB/E-741/U118-S9	741	1.05	⩾35@632&865MHz	143.5(1dB)	27×12×7
299	5MB/C-750/U300-C3	750	0.45	⩾40@407&1145MHz	325.9(1dB)	31×13×13
300	7MB/E-750/U400-S4GA	750	0.61	⩾40@450&1050MHz	422.6(1dB)	26×10×5
301	8MB/E-750/U400-S3L	750	0.86	⩾40@464&1040MHz	420(1dB)	35×15×9
302	6MB/C-780/T60-18	780	2.61	⩾40@719&848MHz	66.5(3dB)	27.2×12.7×6.7
303	4MB/C-800/T40-18	800	2.03	⩾40@712.5&893.5MHz	-	27.2×12.7×6.7
304	4MB/C-800/U40-S4G	800	1.63	⩾40@705&916MHz	59(1dB)	26×10×6.5
305	5MB/E-860/U30-18	860	2.8	⩾40@792&932MHz	43(1dB)	27.2×12.7×6.7
306	6MB/C-878/U40-S5	878	2.9	⩾40@817.6&947.5MHz	52(1dB)	31.8×12.7×7.1
307	6MB/E-895/U110-S9	895	1.25	⩾35@785&1018MHz	137.4(1dB)	27×12×7
308	4MB/C-925/U250-S4G	925	0.6	⩾40@451&1320MHz	282(1dB)	26×10×6.5
309	5MB/C-1000/U50-S5	1000	3.36	⩾40@923&1094MHz	55.5(1dB)	31.8×12.7×7.1
310	4MB/C-1012/U40-18	1012	3	⩾40@915&1105MHz	42(1dB)	27.2×12.7×6.7
311	4MB/C-1092/U264-S4G	1092	0.8	⩾40@635&1518MHz	281(1dB)	26×10×6.5
312	5MB/C-1110/T56-18	1110	3.5	⩾40@1045&1185MHz	52(3dB)	27.2×12.7×6.7
313	7MB/E-1100/H200-S5L	1100	-	⩾40@799&1389MHz	235(0.3dB)	38.1×12.7×7.1
314	8MB/E-1120/U500-S10WBA	1120	0.92	⩾40@767&1470MHz	536(2dB)	40×12×8
315	4MB/C-1135/U250-14	1135	0.91	⩾40@670&1518MHz	268.5(1dB)	24.7×12.7×6.7
316	4MB/E-1150/H300-14	1150	0.77	⩾40@602&1582MHz	345(0.5dB)	24.7×12.7×6.7
317	5MB/C-1170/T130-18	1170	-	⩾40@1025&1348MHz	132(3dB)	27.2×12.7×6.7
318	4MB/C-1200/T100-14	1200	1.95	⩾40@1&1.4GHz	106.8(3dB)	24.7×12.7×6.7
319	4MB/C-1200/T120-S5A	1200	2.04	⩾40@1&1.4GHz	116.9(3dB)	31.8×12.7×5.7
320	5MB/C-1200/T60-S5A	1200	2.85	⩾40@1.08&1.31GHz	93.3(3dB)	31.8×12.7×5.7

Serial	Model	Center frequency (MHz)	Insertion Loss@f₀ (dB)	Stopband Rejection(dBc)	Bandwidth (MHz)	Size(mm) ≤A×B×C
321	6MB/C-1200/T500-S5	1200	0.77	≥40@773&1866MHz	596.2(3dB)	31.8×12.7×7.1
322	6MB/E-1200/T800-C3	1200	0.41	≥40@609&1872MHz	815.5(3dB)	31×13×13
323	6MB/E-1200/U800-22A	1200	0.65	≥40@407&2152MHz	1050(1dB)	32.4×12.7×6.7
324	7MB/C-1200/U50-S5L	1200	3.86	≥40@1135&1276MHz	55(1dB)	38.1×12.7×7.1
325	7MB/E-1200/U200-S5L	1200	0.92	≥33@1036&1363MHz	215(1dB)	38.1×12.7×7.1
326	7MB/E-1200/U300-S10WBA	1200	0.94	≥33@948&1450MHz	327.7(1dB)	40×12×8
327	7MB/E-1200/U600-DE-S10WBA	1200	0.58	≥40@754&1641MHz	690.8(1dB)	40×12×8
328	7MB/E-1200/U660-S5L	1200	0.55	≥40@729&1678MHz	710.5(1dB)	38.1×12.7×7.1
329	6MB/C-1250/U140-18	1250	1.66	≥40@1.08&1.46GHz	157.6(1dB)	27.2×12.7×6.7
330	6MB/C-1258/T50-S5	1258	3.9	≥40@1.18&1.34GHz	62.1(3dB)	31.8×12.7×7.1
331	5MB/C-1260/H240-18	1260	1.19	≥40@1&1.75GHz	253.1(0.5dB)	27.2×12.7×6.7
332	6MB/C-1285/H150-S5A	1285	1.3	≥40@1.03&1.54GHz	172(0.5dB)	31.8×12.7×5.7
333	6MB/E-1300/T220-18	1300	1	≥40@1.1&1.52GHz	244.2(3dB)	27.2×12.7×6.7
334	4MB/C-1348/U50-14	1348	-	≥40@1.25&1.48GHz	60(1dB)	24.7×12.7×6.7
335	7MB/C-1348/U170-18	1348	1.65	≥40@1.18&1.55GHz	174.4(1dB)	27.2×12.7×6.7
336	5MB/E-1350/U100-S4G	1350	2.1	≥40@1.22&1.48GHz	111(1dB)	26×10×6.5
337	6MB/C-1350/U140-18	1350	1.67	≥40@1.15&1.56GHz	183(1dB)	27.2×12.7×6.7
338	5MB/C-1360/H300-S5A	1360	-	≥40@959&1855MHz	320(0.5dB)	31.8×12.7×5.7
339	4MB/E-1410/H260-S4A	1410	-	≥40@1.11&1.79GHz	315(0.5dB)	25×13.2×6.5
340	6MB/C-1430/U70-18	1430	3.47	≥40@1.35&1.52GHz	66.8(1dB)	27.2×12.7×6.7
341	6MB/C-1440/H140-S5A	1440	1.4	≥40@1.2&1.67GHz	161(0.5dB)	31.8×12.7×5.7
342	4MB/C-1455/T200-14	1455	1.8	≥40@1.15&1.75GHz	176(3dB)	24.7×12.7×6.7
343	6MB/C-1475/U100-S2A	1475	2.75	≥40@1.36&1.62GHz	103(1dB)	27×20×6.6
344	5MB/E-1500/U500-S4GA	1500	0.53	≥40@1.12&1.89GHz	552.8(1dB)	26×10×5
345	6MB/C-1500/U200-18	1500	1.55	≥40@1.27&1.77GHz	232(1dB)	27.2×12.7×6.7
346	6MB/C-1550/U166-S5	1550	1.7	≥40@1.35&1.75GHz	175(1dB)	31.8×12.7×7.1
347	3MB/C-1575/U35-S9	1575	1.93	≥40@1.3&1.85GHz	54.5(1dB)	27×12×7
348	3MB/C-1600/H500-S5S	1600	0.39	≥40@0.55&3.75GHz	619.5(0.5dB)	19.1×12.7×7.1
349	4MB/C-1610/T65-14	1610	3.2	≥40@1.5&1.75GHz	70(3dB)	24.7×12.7×6.7
350	5MB/C-1750/U60-18	1750	3.3	≥40@1.62&1.87GHz	69(1dB)	27.2×12.7×6.7
351	4MB/C-1765/H40-18	1765	3.52	≥40@1.6&1.9GHz	43(0.5dB)	27.2×12.7×6.7
352	5MB/C-1790/T330-S2A	1790	0.9	≥40@1.38&2.2GHz	355(3dB)	27×20×6.6
353	6MB/E-1800/U250-S5A	1800	1.24	≥40@1.5&2.09GHz	296(1dB)	31.8×12.7×5.7
354	5MB/C-1840/T170-S5A	1840	1.8	≥40@1.59&2.11GHz	180(3dB)	31.8×12.7×5.7
355	4MB/C-1860/T96-S2A	1860	2.5	≥40@1.65&2.05GHz	107(3dB)	27×20×6.6
356	6MB/C-1860/H70-S2A	1860	2.52	≥40@1.72&2.02GHz	100(0.5dB)	27×20×6.6
357	6MB/C-1883/U166-S5	1883	2.45	≥40@1.7&2.11GHz	168(1dB)	31.8×12.7×7.1
358	4MB/C-1935/U370-14	1935	0.9	≥40@1.35&2.7GHz	430(1dB)	24.7×12.7×6.7
359	3MB/C-2070/T250-14	2070	-	≥40@1.3&2.5GHz	236.5(3dB)	24.7×12.7×6.7
360	7MB/C-2072.5/H120-S10W	2072.5	2.3	≥40@1.88&2.28GHz	160.8(0.5dB)	40×12×9.5
361	6MB/E-2100/U600-C3L	2100	0.57	≥40@1533&2681MHz	652.8(1dB)	38×13×13
362	6MB/C-2217/U166-S5	2217	2.5	≥40@2.03&2.44GHz	167.5(1dB)	31.8×12.7×7.1
363	5MB/C-2280/T100-14	2280	3.6	≥40@2.14&2.45GHz	128(3dB)	24.7×12.7×6.7

Serial	Model	Center frequency (MHz)	Insertion Loss@f₀ (dB)	Stopband Rejection(dBc)	Bandwidth (MHz)	Size(mm) ≤A×B×C
364	4MB/C-2300/H300-14	2300	0.7	≥40@1.55&2.9GHz	363(0.5dB)	24.7×12.7×6.7
365	5MB/E-2500/U1000-S4G	2500	0.65	≥40@1.21&3.42GHz	1088.6(1dB)	26×10×6.5
366	4MB/C-2550/U180-S5	2550	1.75	≥40@2.3&2.85GHz	234(3dB)	31.8×12.7×7.1
367	5MB/C-3400/U600-S5	3400	0.8	≥40@2.6&4.5GHz	740(1dB)	31.8×12.7×7.1
368	5MB/C-3600/T300-S5A	3600	1.14	≥40@3.2&4.1GHz	296(1dB)	31.8×12.7×5.7
369	3MB/C-3700/H600-14	3700	-	≥40@1.6&5.7GHz	-	24.7×12.7×6.7
370	4MB/C-4100/T300-S2A	4100	1.6	≥40@3.7&4.6GHz	351(3dB)	27×20×6.6

7.4.2 LC Low Pass Filters

Serial	Model	Cut-off Frequency (MHz)	Stopband Rejection(dBc)	Insertion Loss (dB)	Size(mm) ≤A×B×C
1	7LP/E-U6-18	6	≥50@9MHz	≤0.8@DC~6MHz	27.2×12.7×6.7
2	9LP/E-T20-18	20	≥50@28~100MHz	≤3@DC~20MHz	27.2×12.7×6.7
3	5LP/E-H25-DE-S5	25	≥40@50MHz	≤0.5@DC~25MHz	31.8×12.7×7.1
4	9LP/C-U30-A1D	30	≥65@60MHz	≤1@DC~30MHz	21×11×6.5
5	9LP/C-T35-18	35	≥60@65MHz	≤3@DC~35MHz	27.2×12.7×6.7
6	7LP/E-U40-14	40	≥30@60~300MHz	≤0.8@DC~40MHz	24.7×12.7×6.7
7	9LP/E-H40-DE-S5	40	≥40@60MHz	≤0.5@DC~40MHz	31.8×12.7×7.1
8	5LP/C-U50-S5	50	≥40@116MHz	≤1.5@DC~50MHz	31.8×12.7×7.1
9	7LP/C-U55-14	55	≥35@130MHz	≤1@DC~55MHz	24.7×12.7×6.7
10	7LP/E-U56-DE-18	56	≥20@75~200MHz	≤1@DC~56MHz	27.2×12.7×6.7
11	7LP/E-U64-18	64	≥40@120~300MHz	≤0.5@DC~64MHz	27.2×12.7×6.7
12	7LP/E-U68-DE-18	68	≥20@90~200MHz	≤1@DC~68MHz	27.2×12.7×6.7
13	9LP/C-T80-18	80	≥40@110MHz	≤3@DC~80MHz	27.2×12.7×6.7
14	9LP/C-T80-18B	80	≥40@110MHz	≤3@DC~80MHz	27.2×12.7×6.7
15	9LP/E-U80-18	80	≥45@110~500MHz	≤1@DC~80MHz	27.2×12.7×6.7
16	9LP/E-U80-22DF	80	≥40@120MHz	≤1@DC~80MHz	32.3×16×8.6
17	9LP/E-U80-DE-22	80	≥50@160MHz	≤0.8@DC~80MHz	32.4×12.7×8.7
18	9LP/E-U92-22	92	≥30@116~300MHz	≤1@DC~92MHz	32.4×12.7×8.7
19	7LP/C-U95-14	95	≥45@190MHz	≤1@DC~95MHz	24.7×12.7×6.7
20	9LP/E-U100-DE-18	100	≥30@140MHz	≤1@DC~100MHz	27.2×12.7×6.7
21	7LP/E-U110-S5	110	≥40@180~350MHz	≤1@DC~110MHz	31.8×12.7×7.1
22	9LP/E-T120-18	120	≥50@150~200MHz	≤0.8@DC~110MHz	27.2×12.7×6.7
23	9LP/C-H144-18	144	≥50@288MHz	≤0.5@DC~144MHz	27.2×12.7×6.7
24	9LP/C-H150-22DF	150	≥40@300MHz	≤0.5@DC~150MHz	32.3×16×8.6
25	7LP/E-H160-S9	160	≥35@280~320MHz	≤0.5@DC~160MHz	27×12×7
26	9LP/E-H180-S9	180	≥30@240~360MHz	≤0.5@DC~180MHz	27×12×7
27	9LP/C-H250-18	250	≥50@495MHz	≤0.5@DC~250MHz	27.2×12.7×6.7
28	9LP/E-U250-DE-S5	250	≥50@340MHz	≤1@DC~250MHz	31.8×12.7×7.1
29	9LP/E-U300-DE-S5	300	≥50@390MHz	≤1@DC~300MHz	31.8×12.7×7.1
30	9LP/C-U400-18	400	≥57@600~1200MHz	≤1.2@DC~400MHz	27.2×12.7×6.7
31	9LP/E-U430-18	430	≥50@512MHz	≤0.2@270~370MHz	27.2×12.7×6.7
32	9LP/E-U700-18	700	≥25@800MHz	≤1.5@DC~700MHz	27.2×12.7×6.7
33	9LP/E-U1000-18	1000	≥25@1.2~2.4GHz	≤1@DC~1000MHz	27.2×12.7×6.7

7.5 Dielectric Filter

Serial	Model	Center frequency (MHz)	Insertion Loss@f₀ (dB)	Stopband Rejection(dBc)	Bandwidth (MHz)	Size(mm) ⩽ A×B×C
1	3DF1/C-420/T15-N	420	1.31	⩾15@f0±18MHz	-	28.2×29×8
2	4DF1/C-480/U30-K	480	0.91	⩾40@428&539MHz	34.3(1dB)	34.5×29×8
3	6DF1/C-480/H20-S	480	1.55	⩾45@442&520MHz	22.7(0.5dB)	46×25×8
4	3DF1/C-488/H3-LP	488	3.41	⩾27@f0±12MHz	4.95(0.5dB)	53.2×26×8
5	3SMT6-500-T10-1	500	1.8	⩾40@468&529MHz	12.4(3dB)	20.2×26.5×7.4
6	5DF1/C-550/T7-K	550	2.91	⩾70@f0±50MHz	12.58(3dB)	40.5×24×9.8
7	5DF1/C-600/T7-K	600	2.74	⩾70@f0±50MHz	14.42(3dB)	40.5×24×9.8
8	5DF1/C-650/T7-K	650	2.7	⩾70@f0±50MHz	14.5(3dB)	40.5×24×9.8
9	7DF1/C-660/U30-K	660	2.72	⩾70@600&800MHz	35.1(1dB)	42×26×8.5
10	3DF41-720U7A	720	4.11	⩾35@f0±30MHz	7.88(1dB)	11.8×11.6×3.8
11	5DF1/C-720/U30-N	720	2.45	⩾35@685&758MHz	35.9(1dB)	40×20×6
12	5SMT4-750-T25-2	750	2.7	⩾40@717&785MHz	27.3(3dB)	22.4×19×5.4
13	3DF41-800T10A	800	4.27	⩾42@0.7&0.9GHz	10(3dB)	11.8×8.5×3.8
14	6DF1/E-815/U45-S	815	1.9	⩾60@f0±60MHz	51(1dB)	43×23×6
15	4DF3/C-840/T15-S	840	2.76	⩾75@960&720MHz	15(3dB)	34×23×6
16	4DF1/C-860/U20-S	860	-	⩾40@815&907MHz	27.1(1dB)	34.5×23×8
17	5DF3/C-880/T6-N	880	7.3	⩾40@f0±10MHz	6.1(3dB)	40.7×23×8
18	5SMT4-890-H50-3	890	1.4	⩾40@817&967MHz	26.8(0.1dB)	22.4×14×5.4
19	3SMT6-900-T10-2	900	2.42	⩾60@f0±100MHz	15(3dB)	20.2×19×7.4
20	3DF41-900T10A	900	3.77	⩾42@f0±100MHz	13.5(3dB)	11.8×9.4×3.8
21	4SMT6-900-T10-2	900	3.63	⩾33@f0±20MHz	13.1(1dB)	26.3×19×7.4
22	5DF3/C-900/T6-N	900	6.8	⩾40@f0±10MHz	6.3(3dB)	40.7×23×8
23	2DF41-920U10G	920	1.76	⩾15@f0±40MHz	13.1(1dB)	7.4×9.74×3.8
24	5DF3/C-920/T6-N	920	7.38	⩾40@f0±10MHz	6.5(3dB)	40.7×23×8
25	7DF1/E-935/U70-N	935	1.75	⩾40@875&1000MHz	69.5(1dB)	42×20×6
26	5DF3/C-940/T6-N	940	7.15	⩾40@f0±10MHz	6.3(3dB)	40.7×23×8
27	3DF1/C-960/T10-N	960	2.91	⩾50@f0±80MHz	11.6(1dB)	18×18.5×6
28	4DF3/C-960/T15-S	960	2.8	⩾75@840&1080MHz	18.7(3dB)	34.5×23×8
29	5DF3/C-960/T6-N	960	7.12	⩾40@f0±10MHz	6.3(3dB)	40.7×23×8
30	5DF3/C-980/T6-N	980	7.22	⩾40@f0±10MHz	6.45(3dB)	40.7×23×8
31	2DF41-1000U10G	1000	2.03	⩾15@f0±40MHz	15.5(1dB)	7.4×8.93×3.8
32	3DF41-1000T10A	1000	2.93	⩾42@f0±100MHz	16.1(3dB)	11.8×8.5×3.8
33	3DF41-1000U20B	1000	-	⩾40@1.1~1.8GHz	23.5(1dB)	9.6×8.86×3.8
34	3DF41-1050T10A	1050	3.27	⩾40@994~1083MHz	-	11.8×8.7×3.8
35	5SMT4-1050-T25-3	1050	2.5	⩾40@1004&1094MHz	34(3dB)	22.4×14×5.4
36	3DF1/C-1060/T10-22	1060	2.59	⩾40@1010&1120MHz	19.6(3dB)	32.4×12.7×8.7
37	5DF51-1072H42N	1072	-	⩾40@973&1142MHz	45.1(0.5dB)	18.9×9.1×5.1
38	3DF41-1100U10A	1100	2.66	⩾40@1.06&1.17GHz	13.1(1dB)	11.8×8.7×4.1
39	3DF1/C-1120/T15-22	1120	2.39	⩾40@1073&1175MHz	23.1(3dB)	32.4×12.7×8.7
40	4SMT4-1192-T80-3	1192	1.15	⩾40@1051&1330MHz	91(3dB)	18.3×14×5.4
41	3DF41-1200T10A	1200	2.97	⩾42@1.1&1.3GHz	20.1(3dB)	11.8×7.2×3.8
42	3DF41-1200U30B	1200	1.85	⩾40@1145&1388MHz	32.5(1dB)	9.6×9×4.1
43	3DF2/C-1227/T30-N	1227	1.31	⩾30@1165&1295MHz	27.5(1dB)	28.2×23×8

Serial	Model	Center frequency (MHz)	Insertion Loss@f₀ (dB)	Stopband Rejection(dBc)	Bandwidth (MHz)	Size(mm) ⩽ A×B×C
44	5DF1/C-1240/T35-N	1240	3	⩾40@1180&1310MHz	37.8(3dB)	26×16×6
45	3DF41-1250U30B	1250	1.41	⩾40@1.19&1.43GHz	37.5(1dB)	9.6×8.7×4.1
46	4DF43-1260U20	1260	-	⩾40@1211&1328MHz	28(1dB)	15.2×10.6×4.1
47	4DF1/C-1265/T50-18	1265	1.79	⩾45@f0±105MHz	54(3dB)	27.2×12.7×6.7
48	5DF1/C-1280/T50-N	1280	2.43	⩾40@1.2&1.37GHz	57.1(3dB)	26×16×6
49	3DF43-1300T10A	1300	3.5	⩾42@1.2&1.4GHz	16.5(3dB)	11.8×6.6×3.8
50	6SMT4-1310-U100-3	1310	1.53	⩾40@1.18&1.44GHz	113(1dB)	26.5×14×5.4
51	5DF1/C-1320/T50-N	1320	2.45	⩾40@1.25&1.4GHz	56.3(3dB)	26×16×6
52	6DF2/C-1348/T24-N-LP	1348	4.8	⩾40@f0±30MHz	28(3dB)	42×29×6
53	5DF43-1360U20E	1360	2.86	⩾45@f0±120MHz	29.7(1dB)	18.9×10.8×4.1
54	5DF1/C-1360/T50-N	1360	2.7	⩾40@1.28&1.45GHz	58.1(3dB)	26×16×6
55	5DF3/C-1380/T15-N	1380	3.4	⩾70@f0±60MHz	17.8(3dB)	40.7×23×8
56	5DF1/C-1400/T35-N	1400	3.2	⩾40@1.34&1.47GHz	39.7(3dB)	26×16×6
57	4DF3/C-1440/U30-S	1440	-	⩾40@1.38&1.51GHz	35.7(1dB)	34.5×23×8
58	5SMT4-1440-U20-3	1440	3.39	⩾40@1398&1483MHz	25.1(3dB)	22.4×14×5.4
59	5DF3/C-1440/U20-N	1440	-	⩾40@1409&1471MHz	20.3(1dB)	40.7×23×8
60	5DF43-1440U20E	1440	-	⩾40@1390&1500MHz	24.4(1dB)	18.9×10.7×4.1
61	5DF1/C-1440/T35-N	1440	3.2	⩾40@f0±60MHz	40.5(3dB)	26×16×6
62	3DF43-1456T12A	1456	3.35	⩾35@f0±56MHz	17.6(3dB)	11.8×9.2×3.8
63	4DF43-1470U12C	1470	2.85	⩾40@1415&1509MHz	13.2(1dB)	15.2×9.1×3.8
64	4DF3/C-1470/T15-N	1470	3.45	⩾40@1.44&1.51GHz	16.8(3dB)	34.5×23×8
65	7DF2/C-1475/U110-N	1475	-	⩾40@1371&1593MHz	116(1dB)	39.1×23×6
66	3DF43-1500T50B	1500	1.5	⩾40@1.34&1.59GHz	50(3dB)	10.6×11.2×4.3
67	5DF3/C-1534/H50-N	1534	1.1	⩾18@f0±80MHz	60(0.5dB)	39×18×8.5
68	6SMT4-1550-H300-3	1550	0.71	⩾40@1.25&1.91GHz	314.6(0.5dB)	26.5×18×5.4
69	4DF3/C-1560/T15-N	1560	3.74	⩾70@f0±90MHz	15.5(3dB)	34.5×23×8
70	3DF43-1561T20A	1561	2.65	⩾40@1.48&1.61GHz	25(3dB)	11.8×10×4.1
71	3DF2/C-1575/T30-N	1575	1.52	⩾30@1505&1640MHz	27.4(1dB)	28.2×23×8.5
72	3DF3/E-1580/T50-N	1580	1.41	⩾40@1.47&1.72MHz	57.6(3dB)	18×16×6
73	5DF2/C-1588/U30-N	1588	2.38	⩾60@f0±100MHz	32.6(1dB)	30.7×23×6
74	4SMT4-1600-T18-LP-2	1600	4.56	⩾65@f0±80MHz	20.2(3dB)	30.5×14×5.4
75	3DF43-1602T20A	1602	2.7	⩾40@1.52&1.65MHz	23(3dB)	11.8×9.7×4.1
76	5DF2/C-1640/T35-N	1640	2.36	⩾48@1.58&1.7MHz	42.4(3dB)	40.7×29×8
77	3SMT6-1650-T20-3	1650	2.45	⩾30@f0±40MHz	21.6(3dB)	20.2×14×7.4
78	3DF43-1680T16A	1680	4.04	⩾35@f0±56MHz	17.6(3dB)	11.8×8×3.8
79	4DF3/C-1680/H140-S5	1680	0.5	⩾40@1.43&1.99GHz	168.5(0.5dB)	31.8×12.7×7.1
80	3DF33-1700U10D	1700	-	⩾40@1579&1752MHz	19.5(1dB)	8.5×9.35×3.3
81	7DF2/C-1722/T130-N	1722	-	⩾40@1606&1854MHz	151.8(3dB)	39.1×23×6
82	7DF3/E-1750/H100-N	1750	1.57	⩾50@f0±125MHz	110.2(0.5dB)	46×20×6
83	5SMT4-1770-U300-3	1770	1	⩾50@1.2&2.6GHz	355(1dB)	26.5×14×5.4
84	3DF43-1778H50B	1778	1.2	⩾40@1.64&2.1GHz	61(0.5dB)	10.6×9.5×4.3
85	4DF2/C-1780/U15-S	1780	2.85	⩾40@1727&1841MHz	26.4(1dB)	26.5×23×6
86	5DF43-1792T30E	1792	3.8	⩾50@f0±128MHz	30(3dB)	19.9×9.5×4.5

Serial	Model	Center frequency (MHz)	Insertion Loss@f₀ (dB)	Stopband Rejection(dBc)	Bandwidth (MHz)	Size(mm) ≤ A×B×C
87	3DF43-1800T60B	1800	1.4	≥40@1.67&2.06GHz	63(0.5dB)	9.6×8.8×3.8
88	4DF3/C-1800/T20-N	1800	3.47	≥40@1.75&1.85GHz	27(3dB)	23×18.8×6.5
89	3DF43-1823H50B	1823	1.4	≥40@1.69&2.13GHz	60(0.5dB)	10.6×9.3×4.3
90	4DF3/C-1882/U25-18	1882	2.88	≥40@f0±70MHz	30.2(1dB)	27.2×12.7×6.7
91	3DF42-1900T15A	1900	3.05	≥42@f0±100MHz	27.1(3dB)	11.8×9.5×3.8
92	3DF43-1913H50B	1913	1.3	≥40@1.77&2.21GHz	67(0.5dB)	10.6×8.8×4.6
93	4DF3/C-1920/T20-N	1920	3.33	≥65@1800&2040MHz	28.9(3dB)	23×18.8×6.5
94	5DF2/C-1950/T30-N	1950	3.8	≥40@1.9&2GHz	32(3dB)	30×16×6
95	4DF42-1960T50C	1960	1.85	≥35@f0±120MHz	62(3dB)	16.2×11×4.3
96	3DF43-1995H40B	1995	-	≥40@1.73&2.13GHz	63(3dB)	9.6×6.7×3.8
97	4DF2/C-1995/U20-N	1995	-	≥40@1925&2072MHz	44.7(1dB)	30×20×8.5
98	3DF2/C-2000/H60-N	2000	0.92	≥40@1.7&2.3GHz	70.5(0.5dB)	26.5×18×8
99	7DF2/C-2000/U20-K	2000	3.78	≥40@1.95&2.05GHz	25.2(1dB)	52.4×29×9.8
100	4DF3/C-2040/T20-N	2040	3.47	≥65@1920&2160GHz	19.6(3dB)	23×18.5×6.5
101	3DF2/C-2042/U30-N	2042	2.25	≥50@f0±200MHz	32.1(1dB)	18×16×6
102	3DF2/C-2042/U100-N	2042	0.9	≥22@f0±200MHz	110.3(1dB)	18×16×6
103	3DF42-2050U16A	2050	-	≥4@f0±18MHz	-	12.8×10.8×4.3
104	5DF2/C-2050/T25-N	2050	3.7	≥37@f0±50MHz	31(3dB)	30×16×6
105	3DF2/C-2062/U30-N	2062	2.27	≥50@f0±200MHz	32.3(1dB)	18×16×6
106	3DF2/C-2062/U100-N	2062	0.98	≥22@1842&2242MHz	116.3(1dB)	18×16×6
107	3DF43-2069U120B	2069	0.5	≥22@1804&2630MHz	170(1dB)	9.6×7.8×4.1
108	4DF52-2092U40M	2092	1.65	≥40@1942&2242MHz	53.4(1dB)	15.5×10×5.6
109	3DF32-2099U20D	2099	3.06	≥30@2021&2179MHz	22.5(1dB)	8.5×8.5×3
110	3DF2/C-2121/T40-N	2121	1.4	≥40@2.03&2.22GHz	40.3(3dB)	28.2×23×8.5
111	5DF2/C-2150/T25-N	2150	3.62	≥40@f0±50MHz	36.8(3dB)	30×16×6
112	4DF2/C-2160/T10-K	2160	5.23	≥40@2140&2182MHz	18(3dB)	74.8×20×14.3
113	4DF42-2185H30C	2185	1.65	≥40@2&2.3GHz	34(0.5dB)	16.2×10.1×4.3
114	3DF2/C-2208/T20-N	2208	2.88	≥5@f0±18.4MHz	25(3dB)	20×18×6
115	3DF42-2218U20A	2218	2.3	≥40@2110&2295MHz	24(1dB)	11.8×7.8×3.8
116	3DF2/C-2218/U30-N	2218	2.12	≥50@f0±200MHz	33.1(1dB)	18×16×6
117	4DF3/C-2218/U21-S5	2218	2.93	≥35@2160&2276MHz	27.4(1dB)	31.8×12.7×7.1
118	4DF42-2218U30F	2218	1.98	≥40@2158&2360MHz	45.9(1dB)	12.2×9.1×4.1
119	3DF2/C-2220/T20-N	2220	2.44	≥27@f0±90MHz	23.2(3dB)	28.2×23×8
120	4DF42-2220T20C	2220	3	≥40@2153&2267MHz	25.2(3dB)	16.2×9×4
121	5SMT4-2225-U50-3	2225	2.7	≥50@2110&2400MHz	54.4(1dB)	22.4×14×5.4
122	3DF2/C-2226.5/U8-N	2226.5	3.86	≥50@f0±75MHz	9.86(1dB)	26.5×18×8
123	5DF2/C-2235/U30-K	2235	-	≥40@f0±55MHz	34.8(1dB)	40.7×23×9.8
124	3DF42-2239U20A	2239	2.7	≥40@2136&2308MHz	27(1dB)	11.8×7.7×3.8
125	3DF2/C-2239/U30-N	2239	2.29	≥50@f0±200MHz	31.3(1dB)	18×16×6
126	4DF42-2239U30F	2239	1.93	≥40@2180&2391MHz	45.6(1dB)	12.2×9.1×4.4
127	3DF42-2250T30A	2250	2.65	≥40@2140&2326MHz	25(3dB)	11.8×9.5×4.1
128	4DF2/C-2250/T30-N	2250	2.3	≥40@2180&2320MHz	33(3dB)	30×20×9
129	5DF2/C-2251/U100-K	2251	1.66	≥40@2.1&2.42GHz	103.2(1dB)	26×20×9.8

Serial	Model	Center frequency (MHz)	Insertion Loss@f₀ (dB)	Stopband Rejection(dBc)	Bandwidth (MHz)	Size(mm) ≤ A×B×C
130	5DF2/C-2275/U30-K	2275	2.4	≥40@f0±75MHz	38(1dB)	40.7×23×9.8
131	3DF2/C-2280.5/U8-N	2280.5	3.99	≥50@f0±75MHz	9.84(1dB)	26.5×18×8
132	4DF42-2282U20C	2282	1.98	≥50@f0±200MHz	34.1(1dB)	15.2×9.2×4.1
133	4DF3/C-2300/U120-S5	2300	1.29	≥40@f0±500MHz	185.7(1dB)	31.8×12.7×7.1
134	3DF42-2385T40A	2385	2.1	≥40@2274&2460MHz	40.2(3dB)	11.8×9×4
135	4DF3/C-2400/T25-S5	2400	3.64	≥40@2355&2452MHz	31.8(3dB)	31.8×12.7×7.1
136	4DF2/C-2420/U20-N	2420	2.9	≥40@2356&2498MHz	31(1dB)	26.5×29×6
137	3DF42-2440H50A	2440	1.38	≥40@2270&2574MHz	52.7(0.5dB)	11.8×8.5×4
138	3DF2/C-2460/H15-N	2460	1.31	≥40@2.1&2.8GHz	38.5(0.5dB)	26.5×18×8
139	3DF42-2492T20A	2492	2.5	≥40@2340&2605MHz	29(3dB)	11.8×8.5×4.1
140	4SMT4-2500-T35-3	2500	3.3	≥75@f0±250MHz	37.8(3dB)	18.3×14×5.4
141	5DF42-2550U60E	2550	-	≥40@2140&2670MHz	73.1(1dB)	18.9×8.4×4.1
142	6DF2/E-2620/H50-N	2620	2.1	≥40@f0±170MHz	59.2(0.5dB)	30.5×18×6
143	5DF2/C-2700/T30-N	2700	3.56	≥35@f0±50MHz	38.3(3dB)	30×16×6
144	5SMT4-2700-U200-3	2700	1.32	≥20@f0±200MHz	229(1dB)	22.4×14×5.4
145	3DF1/C-2840/H20-N	2840	1.15	≥40@2.5&3.2GHz	56.6(0.5dB)	26.5×18×8
146	6SMT4-2850-U300-3	2850	0.91	≥40@2.54&3.21GHz	353.5(1dB)	26.5×14×5.4
147	3DF3/C-2880/U15-14	2880	3.24	≥40@2.21&3.36GHz	19.8(1dB)	24.7×12.7×6.7
148	4DF44-3000T35C	3000	2.66	≥45@f0±120MHz	43.1(3dB)	15.2×10.6×4.1
149	6SMT4-3000-U200-3	3000	1.46	≥40@2.79&3.25MHz	224.5(1dB)	26.5×14×5.4
150	6DF2/C-3000/H240-NS	3000	1	≥12@f0±200MHz	267.8(0.8dB)	36×14.5×8.6
151	5DF44-3028H20E	3028	3.15	≥30@f0±61MHz	25.2(0.5dB)	18.9×10.5×4.1
152	6DF2/C-3100/H35-N	3100	2.92	≥40@3030&3170MHz	39(0.5dB)	31.5×18×6
153	4DF44-3200T40C	3200	2.3	≥60@f0±300MHz	47.2(3dB)	15.2×10×4.1
154	6SMT4-3250-U300-3	3250	1.14	≥40@2.87&3.73GHz	384.4(1dB)	26.5×14×5.4
155	5DF2/C-3300/T30-N	3300	5.47	≥68@f0±100MHz	22.3(1dB)	30.7×29×6
156	6DF2/C-3400/H240-NS	3400	1.08	≥12@f0±200MHz	278(0.8dB)	36×13.5×8.6
157	4SMT4-3500-T35-3	3500	3.02	≥40@f0±100MHz	41.2(3dB)	18.3×14×5.4
158	5DF44-3510T60E	3510	3.3	≥40@3437&3572MHz	41.2(3dB)	18.9×9.5×4
159	5DF2/C-3605/U30-S	3605	4	≥40@3548&3672MHz	31.7(1dB)	26×18×6
160	4DF34-3999U120H	3999	1.75	≥40@3751&4199MHz	144(1dB)	11.7×8.5×3.3
161	6DF2/C-4000/H90-N	4000	1.87	≥40@3834&4162MHz	102(0.5dB)	30.5×18×6
162	5DF2/C-4100/U100-N	4100	1.5	≥60@f0±780MHz	127.1(1dB)	26×18×6.5
163	5DF2/C-4300/T200-K	4300	1.31	≥23@f0±200MHz	227.8(3dB)	30.7×29×6
164	5DF2/C-4640/H50-N	4640	3.3	≥50@f0±200MHz	57.9(0.5dB)	26×16×6
165	7DF2/C-4950/H700-NS	4950	1	≥40@4.25&5.74GHz	932.1(0.5dB)	34.5×15×6
166	4DF2/C-5120/T100-N	5120	1.6	≥70@f0±640MHz	118(3dB)	25.5×20×6

7.6 Cavity Filter

7.6.1 Cavity Band Pass Filters

Serial	Model	Center frequency (MHz)	Insertion Loss@f_0 (dB)	Stopband Rejection(dBc)	Bandwidth (MHz)	Size(mm) ≤ A×B×C
1	4HL10-386.46/T3-O/O	386.46	1.5	≥30@f0±10MHz	7.43(3dB)	135×50×32
2	4HL10-393.66/T3-O/O	393.66	1.37	≥30@f0±10MHz	8.8(3dB)	135×50×32
3	4HL10-397.26/T3-O/O	397.26	1.47	≥30@f0±10MHz	7.69(3dB)	135×50×32
4	3FS10-1050/U20-O/O	1050	-	≥55@DC~700MHz	-	48×49×16
5	4FS10-1105/U290-P/P	1105	-	≥10@DC~750MHz	455(0.5dB)	70×39×40
6	5CC20-1200/U6-O/O	1200	1.34	≥39@f0±7MHz	6.6(1dB)	90×90×42
7	4FS10-1268.52/H50-O/O	1268.52	-	≥20@1.33~1.35GHz	-	135×39×50
8	5FS10-1268.52/T21-O/O	1268.52	0.6	≥40@1244&1293MHz	21.1(3dB)	150×36×46
9	4FS10-1406/T80-P/P	1406	0.5	≥40@1.25&1.55GHz	-	57×36×16
10	8CC20-1575/T50-O/O	1575	0.76	≥33@DC~1535MHz	59.8(3dB)	87×47×35
11	4FS10-1575.42/U3-MCX	1575.42	1.39	≥40@1556&1593MHz	10(1dB)	86.25×60×27
12	4FS10-1638/U16-O/O	1638	0.6	≥50@1695~1700MHz	25(1dB)	60×60×25
13	5FS10-1650/H100-O/O	1650	-	≥40@1.48&1.81GHz	131(0.5dB)	60×20×30
14	7CC20-1680/U70-O/O	1680	1.09	≥40@1.6&1.75GHz	87.6(1dB)	48×37×26
15	4FS10-1800/T100-P/P	1800	0.27	≥40@f0±220MHz	150.1(3dB)	57×21×29
16	7FS10-1840/U100-O/O	1840	-	≥30@1660~1740MHz	168.2(1dB)	81×19×27
17	8FS10-2000/U200-O/O	2000	-	≥55@f0±300MHz	310(1dB)	80×20×25
18	4FS10-2036/T80-P/P	2036	0.55	≥30@f0±110MHz	115(3dB)	57×29×16
19	5FS10-2095/U30-O/O	2095	-	≥85@f0±150MHz	43(1dB)	123×35×25
20	12CC10-2150/H40-O/O	2150	0.72	≥70@f0±100MHz	88(1dB)	143×52×26.5
21	4CC10-2240/T40-P/P	2240	0.7	≥30@f0±80MHz	68(3dB)	57×29×16
22	4FS10-2250/H100-O/O	2250	-	≥50@5.5~5.7GHz	143(0.5dB)	58×25×16
23	4FS10-2280/T100-P/P	2280	0.42	≥35@f0±200MHz	130.8(3dB)	57×21×27
24	6FS10-2280/T40-P/P	2280	1.57	≥35@2.2&2.32GHz	50(3dB)	41×30×25
25	4HD20-2282/U22-P/P	2282	-	≥20@f0±40MHz	39.6(1dB)	84×80×35.8
26	3CC10-2300/U20-O/O	2300	-	≥38@2.2&2.5GHz	52.5(1dB)	45×21×28
27	6CC20-2300/U20-O/O	2300	-	≥40@2269&2329GHz	30.3(1dB)	133×90×30
28	5CC20-2360/H50-P/P	2360	0.91	≥40@2.28&2.44GHz	63.6(0.5dB)	40×24×22
29	4FS10-2443/T30-O/O	2443	-	≥65@f0±400MHz	87.9(3dB)	68×28×18
30	4HD10-2492/T8-O/O	2492	0.67	≥40@f0±20MHz	9(3dB)	90×90×38
31	8FD10-3000/U250-P/P	3000	-	≥40@2.8&3.2Hz	270(1dB)	65×28×13
32	4FS10-3120/H300-P/P	3120	-	≥40@2.18&3.75Hz	450.1(0.5dB)	30×23×10.5
33	13FD10-3125/T250-P/P	3125	1.09	≥40@2960&3285MHz	268(2dB)	100×34×12.5
34	5FS10-3300/T50-O/O	3300	0.8	≥40@f0±90MHz	87.2(3dB)	64×26×12
35	7CC10-3360/T100-O/O	3360	-	≥80@3.6&6.69Hz	132(3dB)	100×32×18
36	8FS10-3400/U220-P/P	3400	0.88	≥40@f0±200MHz	227.6(1dB)	96×20×13
37	8FD10-3400/U250-P/P	3400	-	≥80@3.2&3.61GHz	270(1dB)	65×28×13
38	8CC10-3600/T100-O/O	3600	-	≥80@3.36&6.96GHz	163.3(3dB)	113×32×18
39	9FS10-3720/U200-P/P	3720	0.78	≥65@f0±200MHz	218.1(1dB)	83×12×15.5
40	7FD10-3750/U500-O/O	3750	0.2	≥70@4.7~5GHz	640(1dB)	53×30×13
41	9FS10-3920/U200-P/P	3920	1.04	≥65@f0±200MHz	206.5(1dB)	83×12×15.5
42	6FD10-4000/H1000-SMP	4000	-	≥30@f0±1500MHz	1482.1(0.5dB)	36×29×13

Serial	Model	Center frequency (MHz)	Insertion Loss@f₀ (dB)	Stopband Rejection(dBc)	Bandwidth (MHz)	Size(mm) ⩽A×B×C
43	9FS10-4020/U50-P/P	4020	2.51	⩾80@f0±100MHz	64.3(1dB)	83×12×15.5
44	5FD10-4050/H300-O/O	4050	0.21	⩾40@3.58&4.51GHz	410.2(0.5dB)	50×25×15
45	9FS10-4120/U200-P/P	4120	1.03	⩾65@f0±200MHz	213(1dB)	83×12×15.5
46	6FS10-4150/H100-N/N	4150	-	⩾40@4.04&4.25GHz	115(0.5dB)	86×60×24
47	8FD10-4150/H1400-P/P	4150	-	⩾60@2.6&6GHz	1680(0.5dB)	38×25×10
48	9FS10-4220/U50-P/P	4220	2.45	⩾80@f0±100MHz	65.9(1dB)	83×12×15.5
49	9FD10-4400/U400-O/O	4400	0.63	⩾40@4.1&4.7GHz	412.6(1dB)	61×27×13
50	9FS10-4520/U50-P/P	4520	2.47	⩾80@f0±100MHz	67.9(1dB)	83×12×15.5
51	5FS10-4550/H120-O/O	4550	1.15	⩾40@4.39&4.72GHz	150(0.5dB)	56×31×12.5
52	6FD10-4720/H1000-SMP	4720	-	⩾30@f0±1500MHz	1512.8(0.5dB)	36×29×13
53	3FD10-4940/U30-O/O	4940	-	⩾60@DC~4GHz	66.1(1dB)	37×23×13
54	6FD10-4950/H500-O/OP	4950	0.42	⩾65@3.5~4GHz	594.3(0.5dB)	52×24×14
55	10CC20-5000/U1000-O/O	5000	0.28	⩾65@f0±1000MHz	1050(1dB)	82×37×15
56	6FS10-5250/U110-P/P	5250	-	⩾20@5.4~5.5Hz	140(1dB)	60×20×10
57	3FS10-5350/U400-P/P	5350	-	⩾40@2~2.15GHz	507.3(1dB)	24×15×12
58	13FD10-5500/H1000-O/O	5500	-	⩾55@f0±700MHz	1046(0.5dB)	100×24×17.5
59	5FD10-5600/U65-O/O	5600	1.56	⩾40@f0±110MHz	93.1(1dB)	42×21×10
60	8FD10-5625/H550-P/P	5625	-	⩾40@f0±475MHz	622(0.5dB)	66×20×14
61	9FD10-5650/U500-P/P	5650	-	⩾55@f0±500MHz	580(1dB)	70×23×13
62	7FD10-5750/U200-P/P	5750	-	⩾70@5.15&7.15GHz	329(1dB)	55×21×12
63	6FD10-5800/U400-O/O	5800	-	⩾30@f0±400MHz	466(1dB)	45×22×12
64	5FD10-5850/U130-O/O	5850	-	⩾40@5.57&6.14GHz	249.2(1dB)	62×23×15
65	9FD10-6250/U600-O/O	6250	0.35	⩾35@5.7&6.74GHz	730(1dB)	48×21×12
66	5FS10-6300/T60-O/O	6300	1.2	⩾40@6.15&6.44GHz	122(3dB)	46×16×8
67	6FS10-6300/U800-O/O	6300	0.2	⩾38@f0±800MHz	878(1dB)	70×19×12
68	8FD10-6400/U1800-O/O	6400	0.51	⩾40@4.82&7.92Hz	2126.1(1dB)	77×25×12
69	6FD10-6590/U400-P/O	6590	-	⩾40@6.2&6.98GHz	419.4(1dB)	47×20×12.5
70	9FD10-6600/U500-O/O	6600	0.63	⩾40@6.13&7.08GHz	690(1dB)	58×25×9
71	7FD10-6750/U1520-OP/O	6750	-	⩾35@f0±1450MHz	1661(1dB)	38×22×10
72	8FD10-6795/U180-P/P	6795	-	⩾40@6.62&6.97Hz	232.1(3dB)	67×20×13
73	5FD10-6900/U400-P/P	6900	0.53	⩾65@4.4&7.9GHz	500(1dB)	36×19×10
74	5FD10-6960/T120-O/O	6960	-	⩾80@f0±3360MHz	836.8(3dB)	28×20×11
75	8FD10-7000/T800-OP/O	7000	-	⩾60@f0±940MHz	998(3dB)	45×21×11
76	13FS10-7140/U500-O/O	7140	-	⩾40@6.8&7.5GHz	529.1(1dB)	120×40×13
77	6FS10-7160/T100-O/O	7160	0.8	⩾40@f0±150MHz	127(1dB)	81×16×16
78	3HD10-7210/U7-O/P-1	7210	1.05	⩾25@f0±30MHz	13.3(1dB)	57×20×15
79	4FD10-7210/T100-O/O	7210	0.98	⩾25@f0±150MHz	145.7(3dB)	35×18×11
80	6FS10-7210/T300-O/O	7210	0.65	⩾25@f0±310MHz	390(3dB)	47×17×12
81	3HD10-7223/U7-O/P-1	7223	1.1	⩾40@f0±45MHz	14.2(1dB)	57×20×15
82	7FD10-7500/U500-O/O	7500	-	⩾95@4.85~5.35GHz	720(1dB)	56×19×12
83	7FD10-7500/U1800-O/O	7500	0.22	⩾75@f0±4GHz	1846(1dB)	45×19×13
84	4FD10-7700/U200-P/P	7700	0.55	⩾40@7.2&8.3GHz	294(1dB)	33×19×11
85	6FD10-7730/U200-O/O	7730	-	⩾40@f0±230MHz	213.7(1dB)	60×20×13

Serial	Model	Center frequency (MHz)	Insertion Loss@f₀ (dB)	Stopband Rejection(dBc)	Bandwidth (MHz)	Size(mm) ≤ A×B×C
86	4FD10-7970/H100-O/O	7970	-	≥20@7.58&8.26GHz	233.4(1dB)	38×17×12
87	5FD10-8000/H2000-SMP	8000	0.22	≥40@f0±4000MHz	2648(0.5dB)	32×20×13
88	7FS10-8050/U600-O/O	8050	-	≥40@7.5&8.75GHz	650(1dB)	80×17×12
89	7FD10-8150/U500-O/O	8150	-	≥40@7.68&8.6GHz	567(1dB)	58×18×13
90	9FD10-8200/H800-O/O	8200	-	≥10@f0±520MHz	863(0.5dB)	58×25×9
91	8FD10-8220/H450-O/O	8220	0.74	≥40@7.77&8.66Hz	-	67×19×13
92	7FD10-8225/U500-P/O	8225	1.06	≥30@DC~7775MHz	540.5(1dB)	55×21×12
93	4FS10-8250/U500-P/P	8250	-	≥70@16~18GHz	659.5(1dB)	27×16×8
94	8FD10-8300/U125-O/O	8300	1.41	≥50@f0±300MHz	227.7(1dB)	68×19×13
95	3FD10-8400/T50-P/P	8400	1.02	≥60@7.5&9.3GHz	158(3dB)	35×19×14
96	10FD10-8400/U2000-O/O	8400	0.15	≥40@6.92&9.85GHz	2230(1dB)	56×19×12
97	6FS10-8420/T100-O/O	8420	0.86	≥35@f0±150MHz	138.2(1dB)	81×16×16
98	4FD10-8450/T50-O/O	8450	2.65	≥20@f0±75MHz	78.5(3dB)	35×18×11
99	4FD10-8450/T150-O/O	8450	1.19	≥25@f0±225MHz	213.3(3dB)	35×18×11
100	4HD10-8475/H50-P/P	8475	0.74	≥100@7.1~7.3GMHz	87.2(3dB)	35×35×16
101	7FD10-8500/U1100-P/P	8500	0.51	≥40@7.54~9.42GMHz	1145(1dB)	45×18×12
102	5FD10-8620/U120-P/P	8620	1.6	≥40@f0±200MHz	138.5(1dB)	38×16×11
103	5FD10-8680/H200-O/O	8680	0.69	≥50@f0±400MHz	238.2(0.5dB)	50×18×13
104	5FD10-8750/H30-P/P	8750	2.97	≥72@f0±220MHz	72(1dB)	36×14.5×7.5
105	5FS10-8800/U40-P/P	8800	2.47	≥40@8686&8922MHz	85.4(1dB)	51×18×11
106	8FD10-8820/U300-O/O	8820	-	≥50@f0±300MHz	332.1(1dB)	67×19×13
107	6HD10-8838/H15-O/O	8838	3.64	≥55@f0±60MHz	19.5(0.5dB)	90×21×17
108	6FD10-9000/U1600-O/O	9000	0.37	≥70@DC~4.9GHz	1764(1dB)	41×19×13
109	9FD10-9000/U400-O/O	9000	0.75	≥40@8.68&9.31GHz	440(1dB)	79×18×13
110	3FD10-9200/H430-O/OP	9200	0.31	≥35@f0±2135MHz	460.2(0.5dB)	33×18×13
111	5FS10-9200/U40-P/P	9200	2.07	≥40@9084&9322MHz	78.1(1dB)	51×18×11
112	3FD10-9210/U130-O/O	9210	0.71	≥34@f0±315MHz	148.5(1dB)	41×18×13
113	6FS10-9220/U220-O/O	9220	-	≥70@1000~8520MHz	240.4(1dB)	53×30×12
114	6HD10-9222/H15-O/O	9222	3.94	≥55@f0±60MHz	15.9(0.5dB)	90×21×17
115	6FD10-9238/U180-P/P	9238	-	≥60@f0±320MHz	211.8(1dB)	60×17×13
116	7FD10-9300/H600-P/P	9300	0.49	≥70@f0±1.2GHz	652.1(1dB)	56×13×13
117	6FD10-9358/U460-P/P	9358	0.79	≥60@DC~8.6GHz	515.1(1dB)	50×17×13
118	4FD10-9405/U70-P/P	9405	1.3	≥60@f0±350MHz	132.2(1dB)	45×17×13.5
119	7FD10-9500/U1000-P/P	9500	0.52	≥60@f0±1.2GHz	1045(1dB)	42×18×11
120	7FD10-9600/U1000-P/P	9600	-	≥50@DC~8.1GHz	1240(1dB)	56×17×16.5
121	8FD10-9600/H1600-O/O	9600	0.9	≥40@8&11.2GHz	1750(0.5dB)	62×20×12
122	8FD10-9600/U1600-P/P	9600	-	≥40@8&11.2GHz	2136(1dB)	56×17×16.5
123	6FD10-9750/H600-P/P	9750	0.5	≥40@9.09&10.42GHz	697.1(0.5dB)	38.5×17×11
124	7FD10-9750/U1520-OP/O	9750	0.36	≥35@f0±1450MHz	1650(1dB)	38×22×10
125	6FS10-9900/H1000-P/P	9900	-	≥35@8.72&10.88GHz	1140(1dB)	42×17×9
126	5HD10-10000/T50-O/O	10000	1.63	≥40@f0±100MHz	55.9(3dB)	82×22×16
127	6FD10-10100/T800-O/O	10100	0.47	≥70@DC~8500MHz	926(3dB)	50×17×12
128	5FS10-10300/T60-O/O	10300	2.4	≥40@10.18&10.42Hz	75.2(3dB)	45×15×8

Serial	Model	Center frequency (MHz)	Insertion Loss@f₀ (dB)	Stopband Rejection(dBc)	Bandwidth (MHz)	Size(mm) ≤ A×B×C
129	7FD10-10300/H600-P/P	10300	-	⩾55@f0±800MHz	640.5(0.5dB)	56×13×13
130	5FD10-10320T200-O/O	10320	-	⩾40@9.8&10.8Hz	466.1(3dB)	49×18×13
131	6HD10-10486/T12-OP/OP	10486	4.3	⩾40@f0±20MHz	13.2(3dB)	33×47×16
132	6BJ20-10520/U100-O/O	10520	-	⩾60@f0±200MHz	131.5(1dB)	52×75×18
133	6FD10-10700/U300-P/P	10700	1.1	⩾40@10.33&11.04Hz	357(1dB)	45×14×9
134	7FD10-10700/H600-P/P	10700	-	⩾55@f0±800MHz	710(1dB)	56×13×13
135	7FD10-10950/U500-O/OP	10950	-	⩾40@10.44&11.45GHz	591.1(1dB)	54×17×13
136	8FD10-11000/H1800-O/O	11000	0.68	⩾40@9.41&12.53GHz	1980(0.5dB)	62×20×12
137	6FS10-11200/T280-O/O	11200	0.55	⩾40@f0±300MHz	260(3dB)	36×36×13
138	8FD10-11200/U1600-S/S	11200	0.8	⩾50@f0±1500MHz	1702.1(1dB)	40×14×9
139	11FD10-11250/U3500-O/O	11250	-	⩾60@8.5&14GHz	3650.4(1dB)	45×17×11
140	4FS10-11500/U840-P/P-2	11500	0.42	⩾65@5.84&16.62GHz	1129(1dB)	30×15×14
141	9FD10-11500/U1000-P/P	11500	-	⩾60@10.5&21GHz	1104(1dB)	51×17×11
142	6FD10-11550/U600-P/P	11550	0.68	⩾40@10.9&12.23GHz	742.7(1dB)	41×14×9
143	3FD10-11630/T100-P/P	11630	1.2	⩾80@6&16GHz	193.2(3dB)	31×17×11
144	7FD10-11700/H600-P/P	11700	-	⩾55@f0±800MHz	680(1dB)	56×13×13
145	5FD10-11915/U2000-O/O	11915	-	⩾30@f0±110MHz	2771.9(1dB)	35×20×15
146	5FD10-12500/H500-P/P	12500	-	⩾60@f0±1.5GHz	556.2(0.5dB)	37×16×11
147	8FD10-12500/H1000-O/O	12500	0.33	⩾40@11.54&13.55GHz	1319(0.5dB)	63×21×11
148	4BJ10-12740/U12-O/O	1274	-	⩾40@12.69&12.79GHz	22(1dB)	73×28×16
149	5FD10-12900/U1000-O/O	12900	0.26	⩾40@11.6&14.2GHz	11050(1dB)	35×16×11
150	6BJ20-12900/T400-O/O	12900	-	⩾40@12.5&13.4GHz	462(3dB)	114×25×15
151	7FD10-12900/U1400-P/P	12900	0.43	⩾70@f0±2.2GHz	1575(1dB)	42×17×11
152	8FD10-13000/T800-OP/O	13000	-	⩾60@f0±800MHz	839.3(3dB)	61×18×13
153	3FS10-13140/U500-P/P	13140	0.29	⩾40@f0±1750MHz	689(1dB)	32×13×10.5
154	4FS10-13140/U1050-P/P	13140	-	⩾40@11.3&15.2GHz	1309(1dB)	32×13×10.5
155	7FD10-13200/U600-O/OP	13200	-	⩾40@12.43&13.82GHz	840(1dB)	54×17×13
156	7FS10-13400/U100-SMP	13400	3.8	⩾70@f0±200MHz	127(1dB)	58×14×11
157	8FD10-13500/T800-OP/O	13500	-	⩾60@f0±940MHz	1004(1dB)	59×17×12
158	7FS10-13600/U100-SMP	13600	3.87	⩾70@f0±200MHz	131(1dB)	55×15×11
159	7FS10-13800/U100-SMP	13800	0.39	⩾70@f0±200MHz	133(1dB)	58×14×11
160	7FD10-13850/U300-P/P	13850	-	⩾60@f0±1000MHz	700.6(1dB)	57×17×12
161	9FD10-14000/T800-OP/O	14000	-	⩾60@f0±800MHz	898.3(3dB)	66×18×13
162	4BJ10-14013/U18-O/O	14013	-	⩾40@13.97&14.06GHz	22(1dB)	68×25×15
163	4BJ10-14075/U12-O/O	14075	-	⩾40@14.03&14.12GHz	18(1dB)	68×25×15
164	4BJ10-14198/U18-O/O	14198	-	⩾40@14.12&14.25GHz	24(1dB)	68×25×15
165	7FD10-14250/U1520-OP/O	14250	0.52	⩾33@f0±1450MHz	1746(1dB)	41×22×10
166	4BJ10-14305/U12-O/O	14305	-	⩾40@14.25&14.37GHz	20(1dB)	68×25×15
167	4FD10-14400/T160-P/P	14400	1.76	⩾60@f0±800MHz	284.4(3dB)	37×17×10
168	5FD10-14400/U800-O/O	14400	-	⩾70@f0±2500MHz	1029(1dB)	37×17×10
169	3BJ10-14500/U120-P/P	14500	0.93	⩾40@14.1&14.9GHz	146.2(3dB)	45×30×11
170	6FD10-14500/U3600-P/P	14500	-	⩾40@10.5&18.3GHz	4256(1dB)	30×16×12
171	5FD10-14570/U600-P/P	14570	1.01	⩾40@f0±300MHz	753(1dB)	35×16×9.5

Serial	Model	Center frequency (MHz)	Insertion Loss@f₀ (dB)	Stopband Rejection(dBc)	Bandwidth (MHz)	Size(mm) ≤A×B×C
172	8FD10-14750/H1500-O/O	14750	0.71	≥40@13.3&16.2Hz	1640(0.5dB)	63×21×11
173	11FD10-14750/U3500-O/O	14750	-	≥35@12.4&17.1GHz	3580(1dB)	47×17×11
174	7FS10-14800/U100-O/O	14800	4.29	≥65@f0±250MHz	130.6(1dB)	70×17×12
175	9BJ10-14800/H400-O/O	14800	0.53	≥40@14.46&15.15GHz	486.2(0.5dB)	84×39×14
176	11FD10-14800/T700-O/O	14800	-	≥40@14.3&15.4GHz	816.1(3dB)	69×16×11
177	12FD10-14800/U3300-O/O	14800	0.56	≥58@f0±2.4GHz	3358(1dB)	65×18×11
178	5FS10-14940/U500-P/P	14940	-	≥40@14.11&15.82GHz	780.5(1dB)	51×13×10.5
179	5FD10-15000/T150-P/P	15000	0.55	≥65@f0±500MHz	230.1(3dB)	45×15×10.5
180	6FS10-15000/U1050-P/P	15000	-	≥40@13.9&16.2GHz	1160(1dB)	51×13×10.5
181	4FD10-15100/T500-O/O	15100	-	≥40@13.9&16.3GHz	880.1(3dB)	32×16×11
182	11FD10-15400/T700-O/O	15400	-	≥40@14.9&16GHz	831.1(3dB)	68×16×11
183	5FD10-15500/U500-P/P	15500	-	≥50@f0±1000MHz	602.4(1dB)	32×18×10
184	9FD10-15500/T800-OP/O	15500	1.14	≥60@f0±830MHz	950.6(3dB)	62×17×12
185	4FD10-15520/U500-P/P	15520	0.86	≥50@f0±1500MHz	662.4(1dB)	30×16×9.5
186	11FD10-15700/T700-O/O	15700	-	≥50@15.1&16.3GHz	820(3dB)	69×16×11
187	5BJ10-16000/U100-O/O	16000	0.68	≥70@f0±400MHz	158(1dB)	85×22×13.5
188	8FS10-16500/U800-O/O	16500	-	≥65@f0±1000MHz	879(1dB)	50.5×15×15
189	6FD10-16550/T500-O/O	16550	1.15	≥40@15.9&17.1MHz	576.2(3dB)	48×17×10.5
190	12FD10-17000/T1000-OP/O	17000	0.77	≥60@f0±800MHz	1093(3dB)	73×17×11
191	4FD10-17800/U800-O/O	17800	0.46	≥60@9.1&26.1Hz	1214(1dB)	30×17×11
192	10FD10-18000/T800-OP/O	18000	-	≥60@f0±800MHz	949.6(3dB)	61×18×13
193	3BJ10-18100/U120-O/O	18100	0.75	≥40@17.7&18.5MHz	135.2(1dB)	43×23×11
194	3BJ10-18100/U120-P/P	18100	0.88	≥40@17.7&18.5MHz	135.8(3dB)	43×23×11
195	9FD10-18750/U5500-O/O	18750	0.4	≥50@10.75&24MHz	6.15(1dB)	38×12.5×9
196	12FD10-19000/T1000-OP/O	19000	1.27	≥60@f0±800MHz	1137.1(3dB)	73×17×11
197	12FD10-20000/T1000-OP/O	20000	1.52	≥60@f0±800MHz	1063.7(3dB)	73×17×11
198	13FD10-20300/U1800-O/OP	20300	1.15	≥40@19&21.6GHz	2013(1dB)	62×16×11
199	6FD10-20400/H1600-P/P	20400	-	≥40@18.4&22.5GHz	2190(0.5dB)	32×16×10
200	5FD10-20550/U600-P/P	20550	0.44	≥35@1.95&2.17GHz	933(1dB)	30×15×10
201	5BJ10-21650/H750-K/K	21650	0.66	≥40@20.6&22.9GHz	997.5(0.5dB)	52×19×12
202	5FS10-23800/T500-P/P	23800	1.4	≥40@f0±1000MHz	543.7(3dB)	30×14×11
203	5BJ10-25520/U250-P/P	25520	1.05	≥40@f0±500MHz	482.1(1dB)	46×18×11
204	5BJ10-25520/U320-P/P	25520	0.9	≥40@f0±700MHz	491.2(1dB)	46×18×11
205	9BJ10-25520/U650-P/P	25520	1.05	≥15@f0±475MHz	757.1(1dB)	78×18×11
206	5BJ10-26400/U337.5-P/P	26400	0.89	≥35@f0±600MHz	501.8(1dB)	44×18×11
207	9BJ10-26400/U750-P/P	26400	1.04	≥15@f0±525MHz	854.5(1dB)	74×18×11
208	4BJ10-32050/U600-K/K	32050	-	≥50@DC~24MHz	1540(1dB)	32×17×10

7.6.2 Cavity Low&High Pass Filters

Serial	Model	Cut-off Frequency (MHz)	Insertion Loss (dB)	Stopband Rejection (dBc) ⩾45@656MHz	Size(mm) ⩽A×B×C
1	9TL13-U345-O/O-10W	345	⩽0.6@328~336MHz	⩾45@656MHz	90×Φ12.7
2	15SH-U1100-O/O	1100	⩽2@1.1~9.5GHz	⩾37@DC~915MHz	60×28×12
3	14TL13-U1400-N/N	1400	⩽0.3@1.35~1.4GHz	⩾20@2.7~2.8GHz	135×33×33
4	11SH-U6000-O/O	6000	⩽1@6~18GHz	⩾40@2.4~5.2GHz	31×27×12
5	11SH-U10000-O/O	10000	⩽1.5@10~13GHz	⩾50@5~5.8GHz	28×22×12

8 Ossilator

8.1 Crystal Oscillator

8.1.1 Oven Controlled Crystal Oscillators (OCXOs)

Model	Frequency f(MHz)	Cut	Frequency Stability Vs. Temp (ppm)	Phase Noise SΦ (dBc/Hz) (fm=1KHz/100KHz) 100MHz Typ	Size mm	Output *
OXM97 series	8～40	AT	±0.03～0.3	-140/-150(10MHz)	9x14x6	T/H
OXM97A-H-KW-V@10M	10	AT	±0.03	-145/-152	9x14x6	T/H
Ox12 series	12.8～50	SC	±0.01～0.2	-150/-155(40MHz)	21x13x10	S/T/H
Ox14 series	8～120	AT	±0.05～0.5	-135/-145(10MHz)	24.7x12.6x10	S/T/H
OX20x/OXM25(SMD) series	10～128	SC	±0.01～0.2	-145/-150(10MHz)	20x20x10/25.4x22xH	S/T/H
OX202B-S-JT-R@10M	10	SC	±0.005～0.2	-150/-155(10MHz)	20x20x10	S
OX25x series	10～128	SC	±0.005～0.2	-140/-145	25.4x25.4x12.7	S/T/H
OX254B-H-MR-R@10M	10	SC	±0.005	-150/-155(10MHz)	25.4x25.4x12.7	H
OX36x series	10～128	SC	±0.002～0.2	-140/-145	36x27x12.7	S/T/H
OX36D-H-MR-R@10M	10	SC	±0.003	-150/-155(10MHz)	36x27x12.7	H
DOX36/50x series (Double Oven)	10～20	SC	±0.1ppb～5ppb	-150/-155(10MHz)	36x27x16/50.8x50.8x25	S/T/H

8.1.2 Temperature Compensated Oscillators (TCXOs)

Model	Frequency f(MHz)	Frequency Stability Vs. Temp (ppm)	Operating Temp Max	Power Supply V	Output *	Size mm
TXM05 (SMD)	5～40	±0.28～5	-40～+85℃	3.3	H/C	5x3.2x1.8
TXM07/71(SMD)	5～50	±0.28～5	-40～+85℃	3.3	H/C	5x7x2
TXM97(SMD)	5～50	±0.28～5	-55～+85℃	5/3.3	S/T/H/C	9x14x4
TXM14(SMD)	10～100	±0.5～5	-40～+85℃	12/5/3.3	S/T/H/C	20.6x13.8x5.9
TX12/TX14/TX15	10～120	±0.5～5	-55～+85℃	12/5/3.3	S/T/H/C	-
TXLN14/15	10～120	±0.5～5	-55～+85℃	Phase Noise：-145~ -150dBc/1KHz/100MHz		
TXG36	120～600	±0.5～5	-55～+85℃	12/5	S	36x27x12.7

8.1.3 Phase Locked Crystal Oscillators (PLXs)

Model	Frequency f(MHz)	Phase NoiseS (dBc/Hz) (Locked) (Fm=1KHz/100KHz)100MHz/12V Typ	Size mm	G Sensitivity ppb/g	Function
PLX36 series	10～100	-135/-150	36x27x12.7	1~2	Locked detect
PLX38 series	10～128	-155/-165	38x38x12.7	0.5~2	Locked detect
PLX403 series	10～128	-155/-165	40x40x12	1~2	Locked detect, Option:Reference detect
PLX505/512 series	10～128	-160/-170	50x50x16	0.2~2	Locked&Reference detect Option: internal or external reference

8.1.4 Voltage Controlled Crystal Oscillators (VCXOs)

Model	Frequency f(MHz)	Frequency Stability ppm	Linearity	Tuning sensitivity ppm	Power Supply V	Output *
VXM72(SMD) series	15～1300	±10～50	±5～20%	±12.5～750	3.3	LP
VX12/VX14/VXM14(SMD)	0.75～100	±10～50	±5～20%	±30～200	12/5	S/T/H/C
VXM15 series (SMD)	0.75～700	±10～50	±5～20%	±100～200	3.3	S/H/LP

8.1.5 Voltage Controlled Crystal Oscillators(VCXOs)

Model	Frequency f(MHz)	Frequency Stability Vs. Temp (ppm)	Phase noiseS (dBc/Hz) 100MHz Typ	G Sensitivity ppb/g	Size mm	Output level dBm
OXLN205 series	40～128	±0.02～0.5	B~D	1~3	20X20X10	+7~+12
OXLN205D-S-JT-R@100MD	100	±0.05	-160/1KHz	1~3	20X20X10	+10
OXLNM25 series	40～128	±0.02～0.5	B~D	1~3	22X25X11	+8~+12
OXLN254 series	40～128	±0.02～0.5	A~DE	0.2~3	25X25X12.7	+8~+12
OXLN254D-S-JT-R@100MDE	100	±0.05	-163/1KHz	0.2~3	25X25X12.7	+10
OXLN258 series	40～128	±0.02～0.5	A~CE	0.5~2	25X25X8.5	+8~+12
OXLN258D-S-JT-R@100MCE	100	±0.05	-158/1KHz	0.5~2	25X25X8.5	+10
OXLN36 series	10～128	±0.02～0.5	A~E	0.2~1	36X27X12.7	+8~+12
OXLN38X series	10～128	±0.02～0.5	A~E	0.1~1	38X38XH	+8~+12
OXLN38D-S-KT-V@10MF	10	±0.02	-170/1KHz	0.2~1	38X38X16	+12
OXLN5X series	10~128	±0.02~0.5	C~S	0.2~1	50X50XH	+8~+12
OXLN59D-S-GT-V@100ME	100	±0.2	-165/1KHz	0.2~1	50X50X16	+12
OXLN585 series	10	±0.02	-115/1Hz	0.2~1	50X50X16	+6
OXLN505 series	40~120	±0.002~0.05	A~D	0.5~2	50X50X19	+5~+10
OXLN505D-S-MT-V@100MCE	100	±0.005	-158/1KHz	0.5~2	50X50X19	+7
OXLN59 series	40~120	±0.05~0.5	A~D	0.5~2	50X50X16	+15~+30
OXLN59E-S-GT-V@100MD	100	±0.2	-160/1KHz	0.5~2	50X50X16	+30

8.1.6 Ruggedized Crystal Oscillators (OXKs、PLXKs、TXKs)

Model	Frequency f(MHz)	Cut	Frequency Stability Vs. Temp (ppm)	Phase Noise SΦ (dBc/Hz) (fm=1KHz/100KHz) 100MHz Typ	Size mm	Output *
OXK38 series	40～128	SC	±0.05～0.5	A~D(Static)A~C(Dynamic)	38x38x19	S
OXK40 series	40～128	SC	±0.05～0.5	A~D(Static)A~C(Dynamic)	40x40x20	S
OXK581 series	40～128	SC	±0.05～0.5	A~D(Static)A~D(Dynamic)	50x50x25	S
OXK606 series	40～128	SC	±0.05～0.5	A~D(Static)A~E(Dynamic)	-	S
PLXK509 series	40～128	SC	Same as reference	J~N(Static)	50x50x25	S
PLXK511 series	40～128	SC	Same as reference	J~N(Static)	50x50x25	S
TXK38 series	10～100	AT	±0.5～5	A~B(Static)A~B(Dynamic)	38x38x19	S/H
TXK15 series	10～40	AT	±0.5～5	-135/-150(Static) -125/-150(Dynamic)	25x15x12.7	T/H/C

8.1.7 Clock Module (Tms)

Model	Frequency f(MHz)	Input	Accuracy(24h) uS	Function	Power Supply V	Output Level
Tm50 series	10MHz	1pps（Beidou/GPS）	2	Locked detect、1pps&10MHz output	5	CMOS

8.1.8 Crystal Oscillators (PXOs)

Model	Frequency f(MHz)	Accuracy Ta=25 ℃	Power Supply V	Size mm	Output
PXM72(SMD) series	15～1300	±10～50	±5ppm	3.3	LP
PXM07(SMD) series	10～160	±10～50	±5~10ppm	3.3	H
PXM71(SMD) series	0.75～800	±10～50	±5~10ppm	3.3	H/LP/LD
PX12/PX14/PX15 series	1～160	±10～50	±5ppm	12/5	S/T/H

9 Analog Microwave Catalog

NO.	Product	Band Width (GHz)	Power (dBm)	Efficiency (%)	Channel	Dimension (mm× mm×mm)
1	L band microwave module	0.08	50	50	1	150×70×15
2	L band dual polarized T module	0.6	47.5	30	2	180×90×20
3	S band microwave module	0.4	46	40	1	215×221×32
4	S band microwave module	0.4	50	45	4	240×236×26
5	C band microwave module	0.5	36	-	8	380×90×21
6	C band microwave module	0.5	53	38	2	300×100×45
7	C band 20 channel microwave module	0.6	43	38	20	250×180×40
8	6～12GHz microwave module	6～12	37	15	1	110×26×10
9	X band microwave module	4	39	23	2	80×36×9
10	X band microwave module	0.2	48	25	1	90×110×20
11	X band microwave module	0.6	40	29	4	80×75×8
12	X band microwave module	1	39	30	4	83×69.5×10
13	X band high power microwave module	1.5	50	-	1	166×200×16
14	X band microwave module	2	43	27	2	86×32×8.5
15	X band tile microwave module	1	33	-	1	18×18×6
16	X band 4 channel microwave module	1	40	30	4	80×62.8×8
17	X band 3 channel microwave module	0.6	40.2	26	3	72×43.5×10.7
18	X band 4 channel microwave module	4	36	23	4	70×55×8
19	X band delay amplifier module	2.6	11	-	1	75×40×11
20	6～18GHz microwave module	6～18	36	-	4	80×50×8
21	6～18GHz ultra broadband 4 channel T module	6～18	33	13	4	80×37.5×5.5
22	X-Ku band 4 channel T module	8	39.5	14	4	170×80×15
23	Broad band 4 channel microwave module	4	41.7	25	4	60×44×8.8
24	Ku band 4 channel T module	1	17	-	4	50×55×10.9
25	Ku band 4 channel channel R module	0.6	-	-	4	50×55×10.9
26	Ku band 4 channel channel tile microwave module	2	27	20	4	41.8×8×8.2
27	Ku band microwave module	1	33	-	4	60×40×6.9
28	Ku band high power 4 channel microwave module	1	43	-	4	100×46.8×14
29	Ku band ultra broadband microwave module	6	34	-	4	145×62.2×11
30	Ku band 8 channel microwave module	1	36	-	8	72×60×6.8
31	Ku band 8 channel microwave module	4	33	20	8	86×69.9×6.6
32	Ku band microwave module	2	37	20	2	75×37.6×10
33	Ku band 4 channel microwave module	5	42	21	4	80×63.8×8.5
34	Ku band 4 channel R module	0.6	-	-	4	70×51×10
35	Ku band 4 channel T module	0.6	33	20	4	70×51×10

NO.	Product	Band Width (GHz)	Power (dBm)	Efficiency (%)	Channel	Dimension (mm× mm×mm)
36	Ku band 16 channel microwave module	4	40	25	16	141×60×8.6
37	K band R module	1.6	-	-	8	68×58×7
38	K band 16 channel T module	0.9	21	-	16	120×65×5.8
39	K band 8 channel R module	0.1	-	-	8	66.8×62×6.2
40	Ka band T module	2	25	-	8	60×42×4.8
41	Ka band T module	0.5	25	-	8	73×55×6
42	Ka band 4 channel microwave module	1.2	27	20	4	29.1×20.4×3
43	MMW microwave module	2	27	-	8	20×40×4.8

10 Terahertz MMIC

10.1 LNA

PN	Type	Freq(GHz)	Gain(dB)	P1dB(dBm)	OIP3(dBm)	NF(dB)
MTN1802	LNA	75-110	20	-	-	2.5
MTN1801	LNA	75-110	23	-	-	3.5
MTN1703	LNA	75-95	30	-	-	4.0
MTN1701	LNA	110-170	22	-	-	5.0
MTN1702	LNA	210-230	20	-	-	7.5

10.2 Power Amplifier

PN	Type	Freq(GHz)	Gain(dB)	P1dB(dBm)	OIP3(dBm)	NF(dB)
MTA1801	PA	70-95	18	17	-	-

10.3 Frequency Multiplier

PN	Type	Freq(GHz)	CL(dB)	Pin(dBm)	Pout(dBm)	Harmonic(dB)
MTD1801	X9	70-90	-15	+15	0	30
MTD1701	X9	80-100	-13	+15	2	30
MTD1601	X9	85-105	-15	+15	0	30
MTD1702	X8	80-100	+2	+5	+7	20
MTD1703	X8	80-100	-4	+5	+1	20

10.4 Mixer

PN	Type	RF(GHz)	IF(GHz)	CL(dB)	LO-RF ISO(dB)	LO(dBm)
MTM1701	Double Balanced	80-100	DC-5	11	25	15
MTM1702	Resistive	75-110	DC-5	9.5	20	5
MTM1703	Resistive	75-110	DC-5	11	30	10
MTM1801	Resistive	75-105	DC-5	11	30	0
MTM1704	2nd HM	80-96	DC-5	12	-	13

10.5 Power Detector

PN	Type	Freq(GHz)	Sensitivity(V/W)	RL(dB)	DR(dBm)
MTJ1701	Detector	75-110	3500	15	-50 TO -20
MTJ1702	Detector	110-170	2500	10	-50 TO -20

PN	Type	Freq(GHz)	Loss(dB)	Isolation(dB)	VSWR
MTS1701	SPST	75-110	1.6	20	1.4
MTS1801	SPDT	67-110	2.8	30	1.7
MTS1802	SP4T	70-95	3.5	30	1.8