

Features

- Zero reverse recovery current
- Zero forward recovery voltage
- Temperature independent switching behavior
- High temperature operation
- High frequency operation

V_{RRM}	1200V
$I_F (T_C = 153.5^\circ\text{C})$	15A*
Q_c	80nC*

Benefits

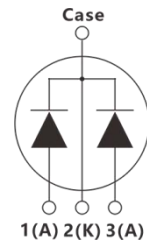
- Unipolar rectifier
- Substantially reduced switching losses
- No thermal run-away with parallel devices
- Reduced heat sink requirements

Applications

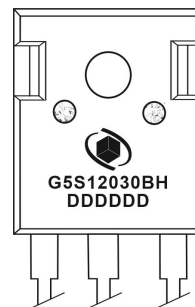
- SMPS, PFC
- Solar application, UPS, EV/HEV
- Motor drives, Wind turbine, Rail traction



TO-247AB



Inner Circuit



G = GPT
5 = Gen5
S = SiC Schottky Diode
120 = Voltage Rating 1200V
30 = Current Rating 30A
BH = TO-247-AB
DDDDDD = Traceable Code

* Per leg; **Per device



Maximum Ratings (at $T_j = 25^\circ\text{C}$, unless otherwise specified)

Parameter	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	1200	V
Surge Peak Reverse Voltage	V_{RSM}	1200	V
Continuous Forward Current $T_c = 25^\circ\text{C}$ $T_c = 135^\circ\text{C}$ $T_c = 153.5^\circ\text{C}$	I_F	46.5* 22* 15*	A
Repetitive Peak Forward Surge Current $T_c = 25^\circ\text{C}$, $t_p = 10\text{ms}$, Half Sine Pulse, $D=0.3$	I_{FRM}	75*	A
Non-Repetitive Forward Surge Current $T_c = 25^\circ\text{C}$, $t_p = 10\text{ms}$, Half Sine Pulse	I_{FSM}	180*	A
i^2t Value $T_c = 25^\circ\text{C}$, $t_p = 10\text{ms}$, Half Sine Pulse	$\int i^2 dt$	162*	A^2s
Power Dissipation $T_c = 25^\circ\text{C}$ $T_c = 110^\circ\text{C}$	P_{tot}	200* 87*	W
Operating Junction Range	T_j	-55 to +175	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^\circ\text{C}$
Mounting Torque, M3 Screw	M	1	Nm

* Per leg; **Per device

Electrical Characteristics (at $T_J = 25^\circ\text{C}$, unless otherwise specified, Per leg)

Parameter	Symbol	Test Condition	Value			Unit
			min.	typ.	max.	
DC Blocking Voltage	V_{DC}		1200	-	-	V
Forward Voltage	V_F	$I_F = 15\text{A}$				V
		$T_J = 25^\circ\text{C}$	-	1.40	1.7	
		$T_J = 175^\circ\text{C}$	-	1.89	2.5	
Reverse Current	I_R	$V_R = 1200\text{V}$				μA
		$T_J = 25^\circ\text{C}$	-	3	50	
		$T_J = 175^\circ\text{C}$	-	32	100	
Total Capacitance	C	$f = 1\text{MHz}$				pF
		$V_R = 0\text{V}$	-	1138	-	
		$V_R = 400\text{V}$	-	75	-	
		$V_R = 800\text{V}$	-	64	-	
Total Capacitive Charge	Q_C	$V_R = 800\text{V}$ $T_J = 25^\circ\text{C}$	-	80	-	nC
Capacitance Stored Energy	E_C	$V_R = 800\text{V}$	-	38	-	μJ

Thermal Characteristics

Parameter	Symbol	Test Condition	Value			Unit
			min.	typ.	max.	
Thermal Resistance, junction-case	$R_{th(j-c)}$		-	0.75* 0.375**	-	$^\circ\text{C}/\text{W}$

*Per leg; **Per device

Typical Characteristics Curves(Per leg)

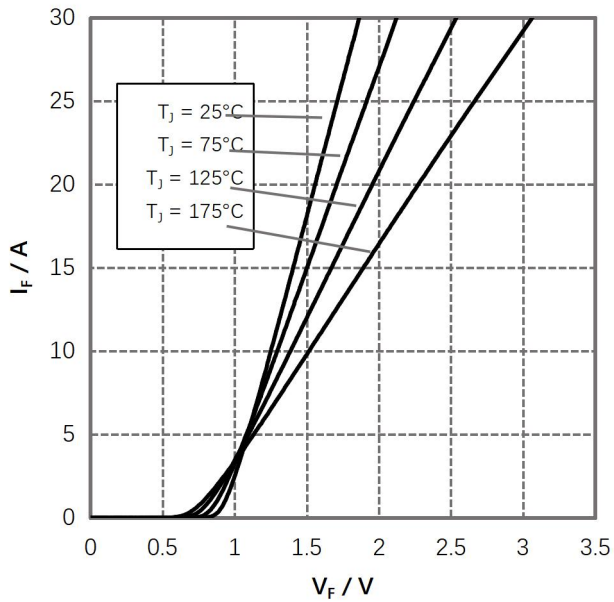


Figure 1. Forward Characteristics

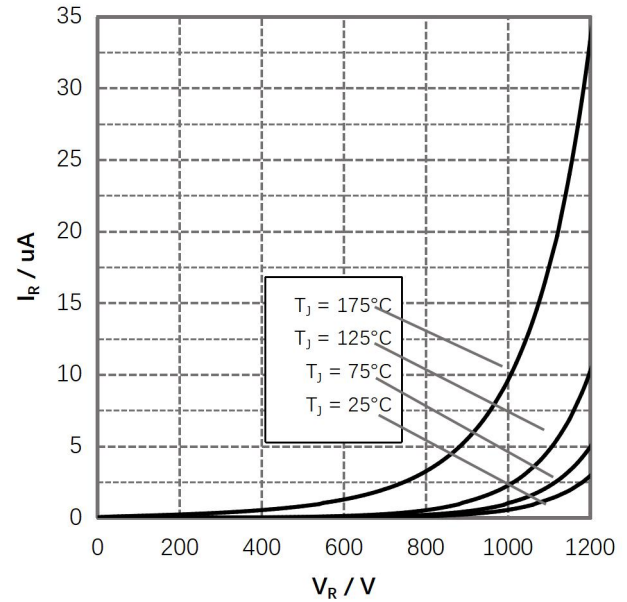


Figure 2. Reverse Characteristics

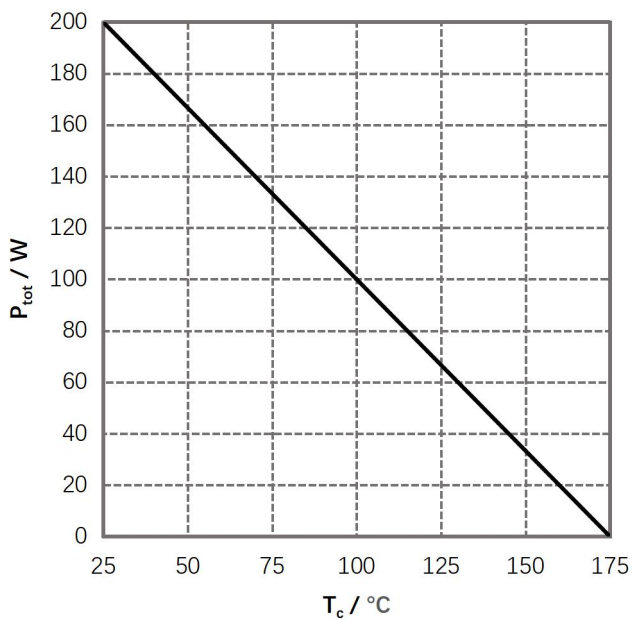


Figure 3. Power Derating

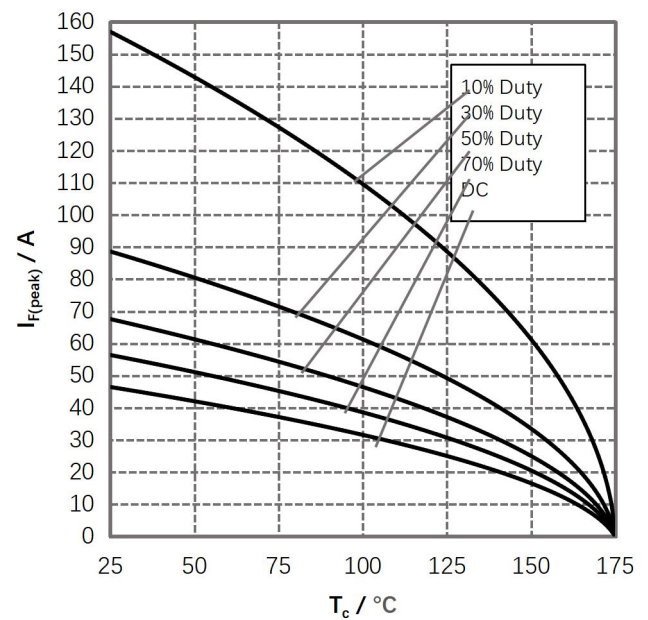


Figure 4. Current Derating

Typical Characteristics Curves(Per leg)

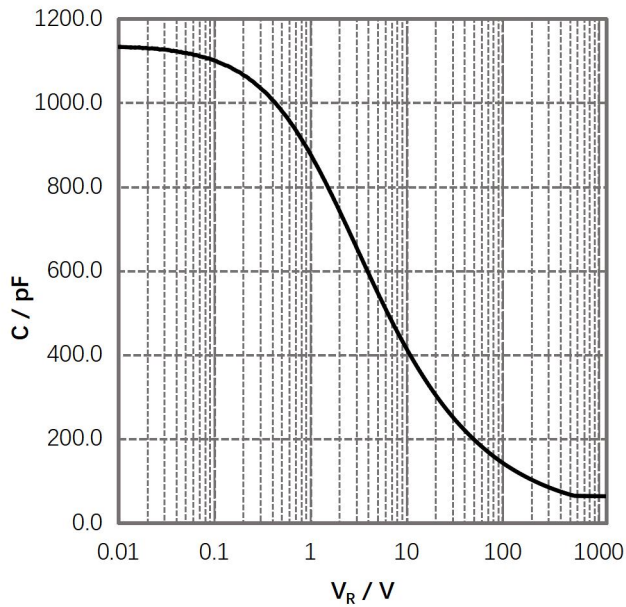


Figure 5. Capacitance vs. Reverse Voltage

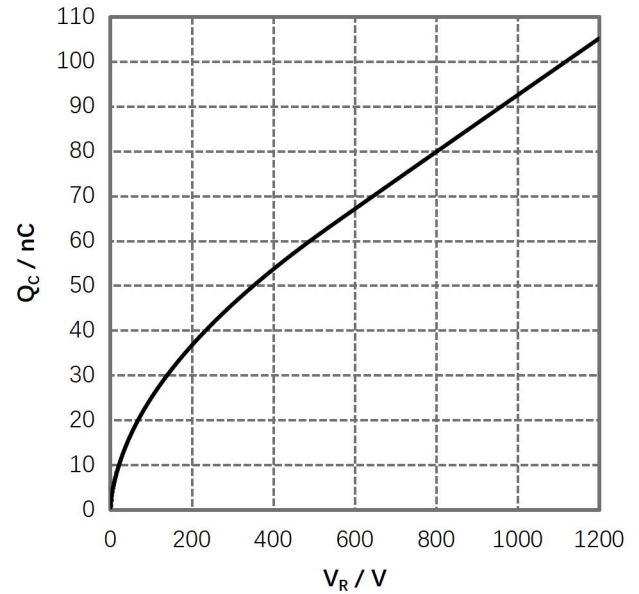


Figure 6. Reverse Charge vs. Reverse Voltage

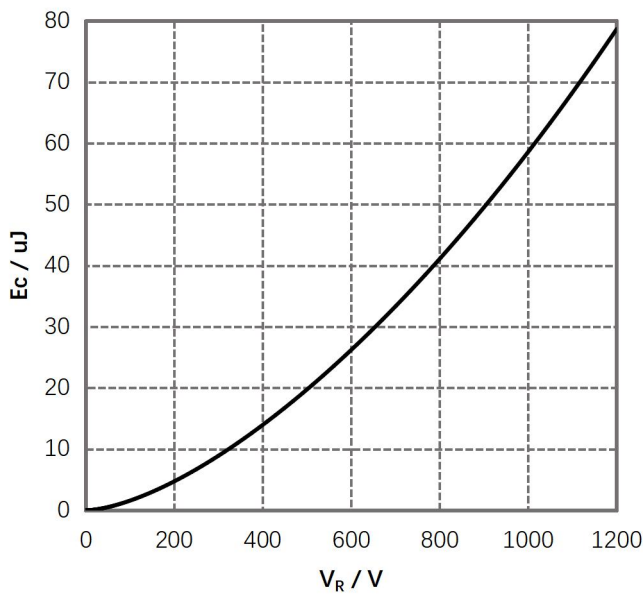


Figure 7. Capacitance Stored Energy

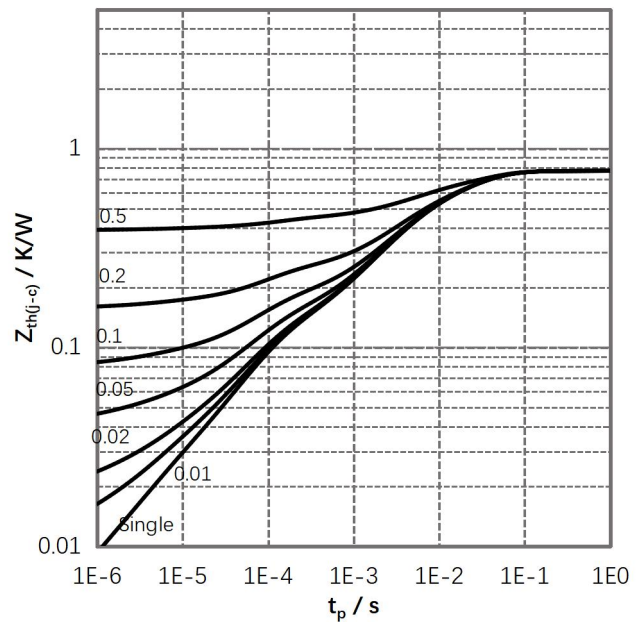
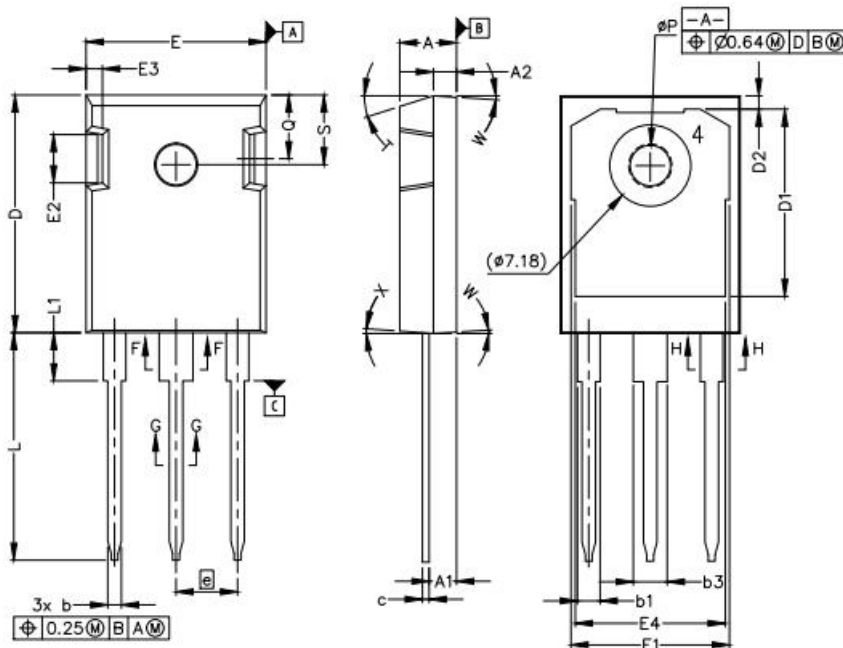


Figure 8. Transient Thermal Impedance

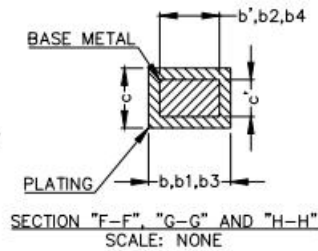


Package Dimensions



NOTE:
1. ALL METAL SURFACES: TIN PLATED, EXCEPT AREA OF CUT
2. DIMENSIONING & TOLERANCING CONFIRM TO
ASME Y14.5M-1994.
3. ALL DIMENSIONS ARE IN MILLIMETERS.
ANGLES ARE IN DEGREES.
4. THIS DRAWING WILL MEET ALL DIMENSIONS REQUIREMENT
OF JEDEC OUTLINES TO-247 AD.

1 - GATE
2 - DRAIN (COLLECTOR)
3 - SOURCE (EMITTER)
4 - DRAIN (COLLECTOR)



SYMBOL	MIN	MAX
A	4.83	5.21
A1	2.29	2.54
A2	1.91	2.16
b'	1.07	1.28
b	1.07	1.33
b1	1.91	2.41
b2	1.91	2.16
b3	2.87	3.38
b4	2.87	3.13
c'	0.55	0.65
c	0.55	0.68
D	20.80	21.10
D1	16.25	17.65
D2	0.95	1.25
E	15.75	16.13
E1	13.10	14.15
E2	3.68	5.10
E3	1.00	1.90
E4	12.38	13.43
e	5.44 BSC	
N	3	
L	19.81	20.32
L1	4.10	4.40
φP	3.51	3.65
Q	5.49	6.00
S	6.04	6.30
T	17.5° REF.	
W	3.5° REF.	
X	4° REF.	

Ordering Information

Part Number	Marking	Package	Packaging Mode
G5S12030BH	G5S12030BH	TO-247AB	30 pcs / Tube

Notes

- Global Power Technology reserves the right to change or modify any of the products and their inherent physical and technical specifications without prior notice.
- The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics.

Related Links

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