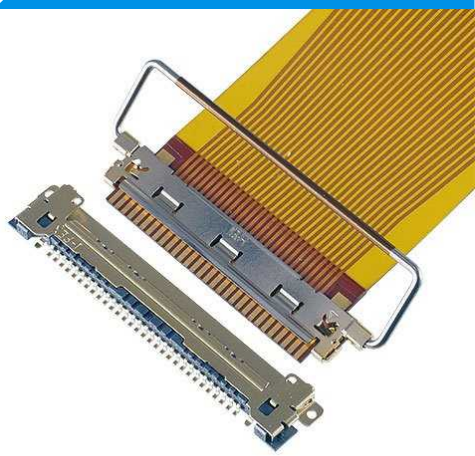
CABLINE®-VSF

Mechanical lock, 0.5 mm pitch, Horizontal mating type FPC plug connector



Product Specifications:

Mating type		Horizontal
Board Pitch (mm)		0.5
Wiping Length (mm)		0.62
Mated size (mm)	Height	1.0 +/- 0.1
	Width	Formula: 7.55 + (0.5*?p)
	Depth	5.97
Pin Counts	Range	Up to 50
	Available	30, 40

Applicable FPC

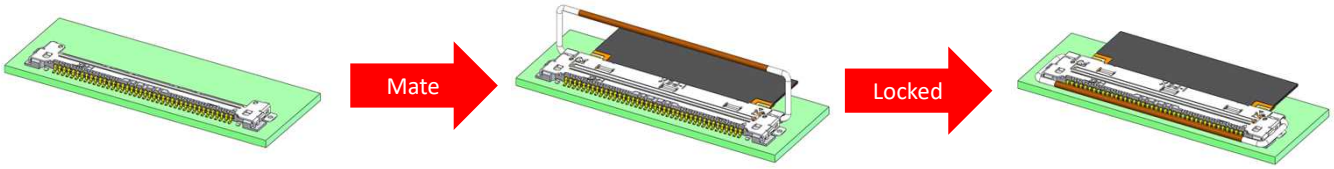
FPC Type	Shielded/Non-shielded FPC
FPC Pitch (mm)	0.5
FPC Contact Point	Top
FPC Thickness (mm)	Contact Area: 0.28 +0.02/-0.03
	Ground Area: 0.34 ±0.05

Applicable Standards (Reference Only):

eDP HBR2(5.4Gbps)
USB3.2 Gen1(5Gbps/Lane)

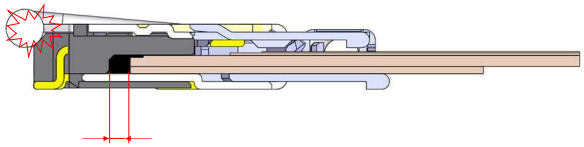
* Please inquire for pin counts not listed or outside of the pin count range.

Mechanical Locking Bar Prevents Incomplete Mating and Back-out/Un-mating

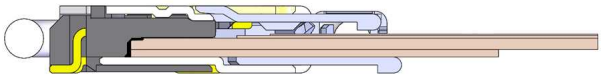


Interference

Mechanical locking bar can be locked only when plug is fully mated to receptacle.

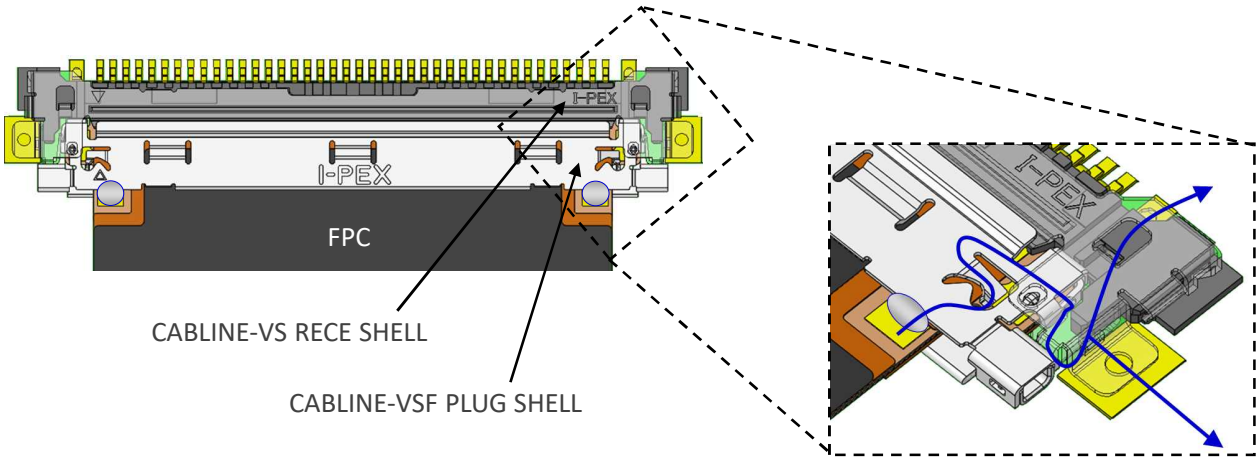


Incomplete mating



Complete mating

EMI Shielding and Multi-point Ground Design

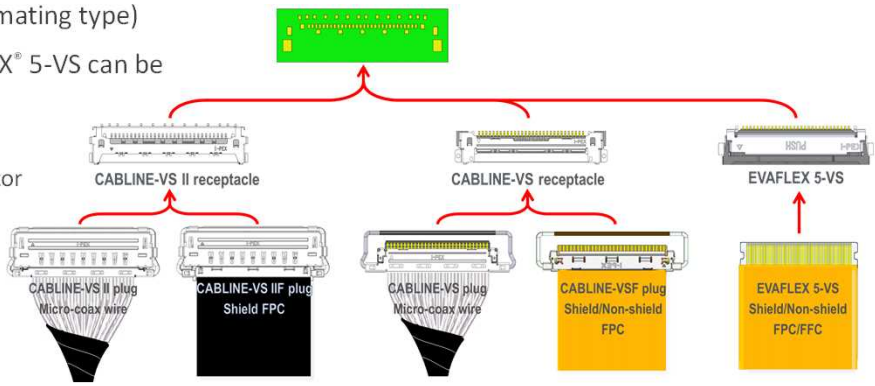


Multiple Connector Options with I-PEX VS Series

I-PEX VS series (0.5 mm pitch, horizontal mating type)

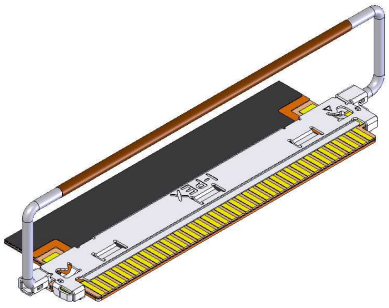
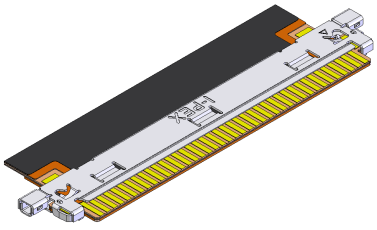
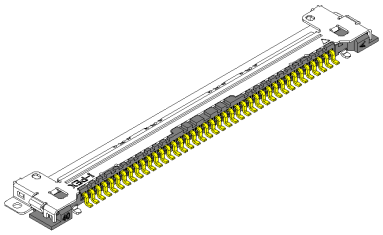
CABLINE-VS, VS II receptacles and EVAFLEX® 5-VS can be mounted to the same PCB layout.

CABLINE-VS Receptacle:
Has #1 share in the Notebook PC panel connector market as VESA standard connector.



Component Parts Details

Component Parts

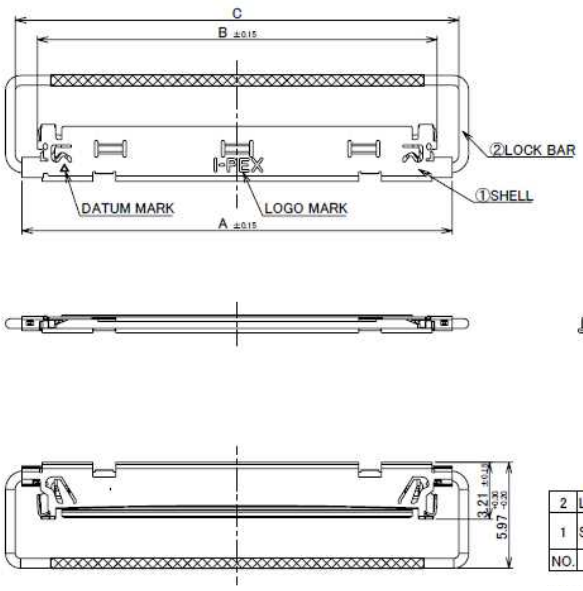
WITH LOCK BAR TYPE		WITHOUT LOCK BAR TYPE
	OR	
CABLINE-VSF SHELL ASS'Y PLUG with FPC		CABLINE-VSF SHELL PLUG with FPC
		
CABLINE-VS RECEPTACLE		

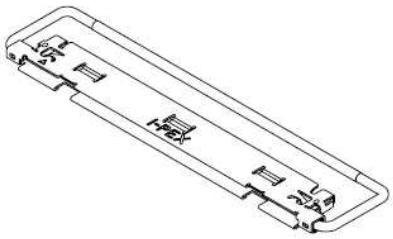
Rev.#

Shell Assembly

Recommended P/N	20645-0**T-01		
PART No.	A	B	C
20645-030T-01	19.30	17.56	20.05
20645-040T-01	24.30	22.56	25.05

Halogen Free RoHS Compliant





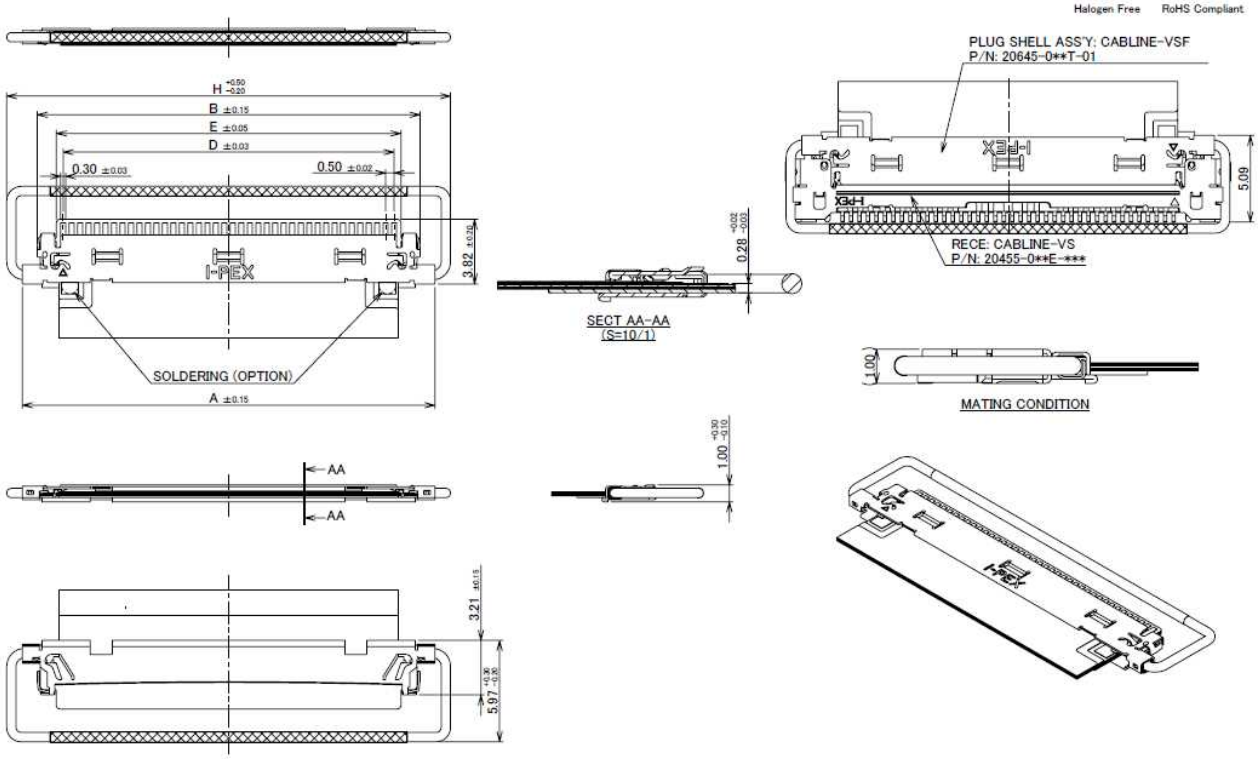
NO.	DISCRIPTION	MATERIAL	FINISH , REMARKS
2	LOCK BAR	SUS	-
1	SHELL	PHOSPHOR BRONZE	ALL OVER Ni 1.00 μ m MIN. CONTACT & SOLDERING AREA : Au 0.01 μ m MIN.

Rev.10

POS.	A	B	D	E	H
30	19.30	17.56	14.50	15.30	21.15
40	24.30	22.56	19.50	20.30	26.15

FPC ASS'Y STATE

Halogen Free RoHS Compliant

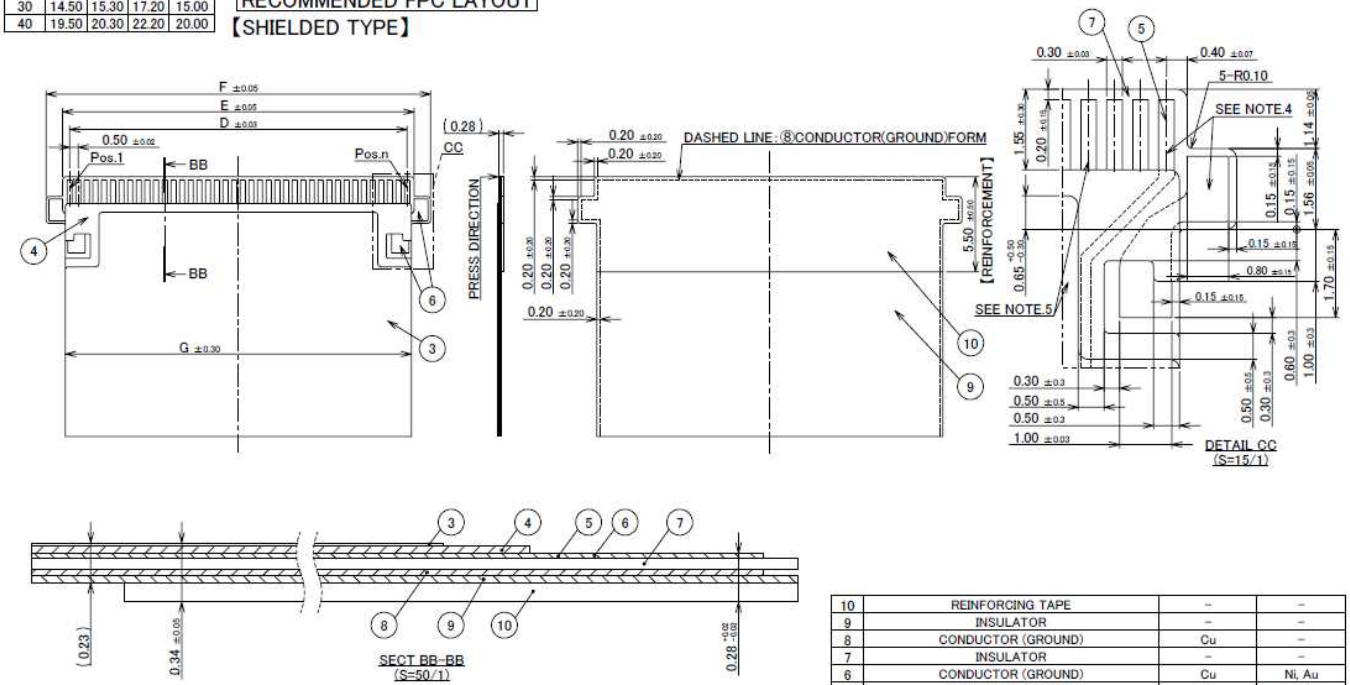


Rev.10

Shell Assembly

POS.	D	E	F	G
30	14.50	15.30	17.20	15.00
40	19.50	20.30	22.20	20.00

RECOMMENDED FPC LAYOUT
【SHIELDED TYPE】



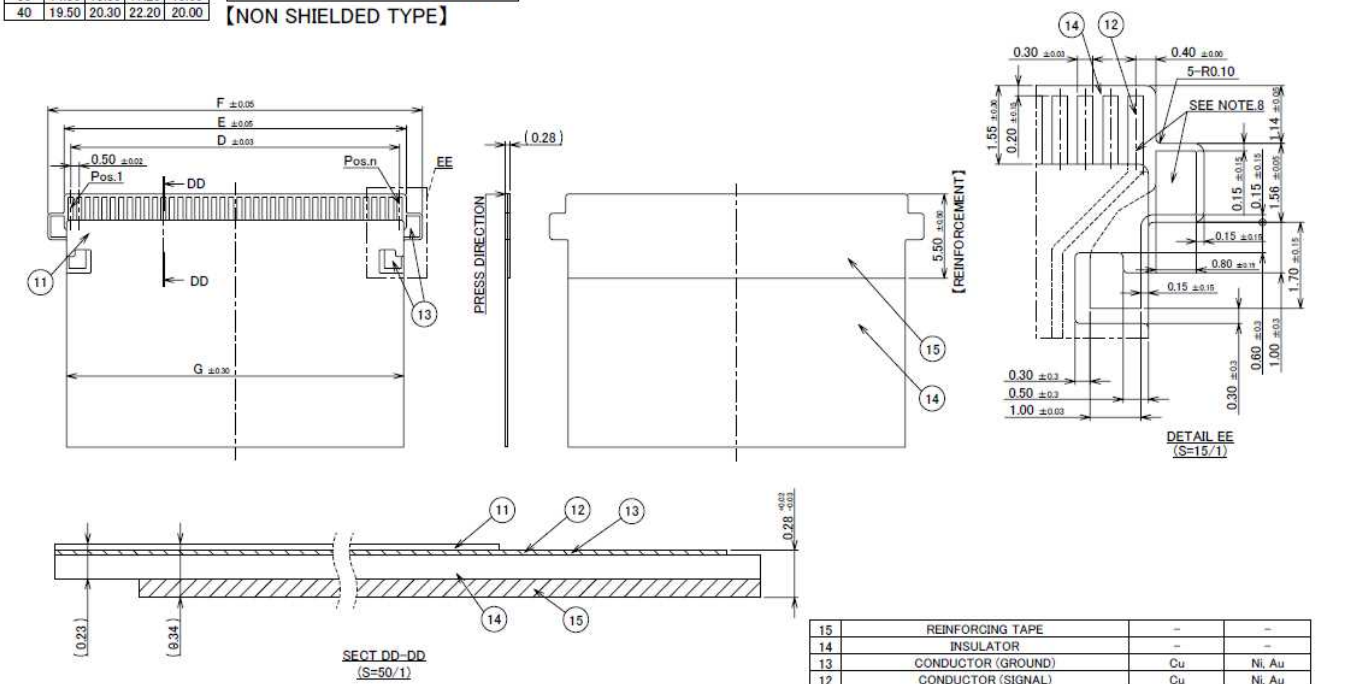
NO.	DESCRIPTION	MATERIAL	PLATING
10	REINFORCING TAPE	–	–
9	INSULATOR	–	–
8	CONDUCTOR (GROUND)	Cu	–
7	INSULATOR	–	–
6	CONDUCTOR (GROUND)	Cu	Ni, Au
5	CONDUCTOR (SIGNAL)	Cu	Ni, Au
4	INSULATOR	–	–
3	SHIELD FILM	–	–

NOTES.
1. ADHESIVE SHOULD USE THERMOSETTING.
2. No.6 : CONDUCTOR(GROUND) AND No.8 : CONDUCTOR(GROUND) ARE CARRYING OUT THE ELECTRICAL CONNECTION.
3. No.3 : SHIELD FILM AND No.8 : CONDUCTOR(GROUND) ARE CARRYING OUT THE ELECTRICAL CONNECTION.
4. No.5 : CONDUCTOR(SIGNAL) AND No.6,8 : CONDUCTOR(GROUND) ARE NOT CONTACTING.
5. No.5 : CONDUCTOR(SIGNAL) AND No.3 : SHIELD FILM ARE NOT CONTACTING.

Rev.10

POS.	D	E	F	G
30	14.50	15.30	17.20	15.00
40	19.50	20.30	22.20	20.00

RECOMMENDED FPC LAYOUT
【NON SHIELDED TYPE】



NO.	DESCRIPTION	MATERIAL	PLATING
15	REINFORCING TAPE	–	–
14	INSULATOR	–	–
13	CONDUCTOR (GROUND)	Cu	Ni, Au
12	CONDUCTOR (SIGNAL)	Cu	Ni, Au
11	INSULATOR	–	–

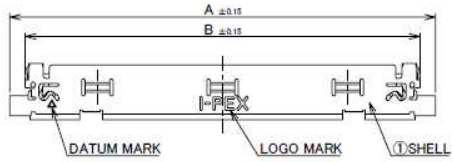
NOTES.
6. ADHESIVE SHOULD USE THERMOSETTING.
7. No.12 : CONDUCTOR(SIGNAL) AND No.13 : CONDUCTOR(GROUND) ARE NOT CONTACTING.

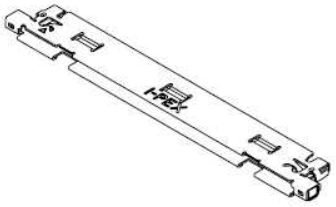
Rev.10

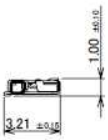
Shell

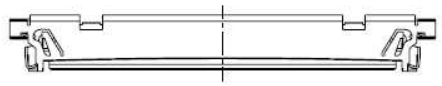
Recommended P/N	3049-0**1	
PART No.	A	B
3049-0301	19.30	17.56
3049-0401	24.30	22.56

Halogen Free RoHS Compliant









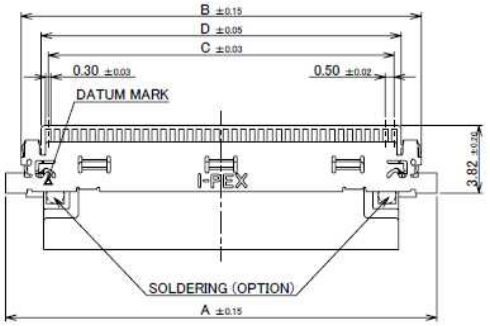
NO.	DISCRIPTION	MATERIAL	FINISH , REMARKS
1	SHELL	PHOSPHOR BRONZE	ALL OVER Ni 1.00 μm MIN. CONTACT & SOLDERING AREA : Au 0.01 μm MIN.

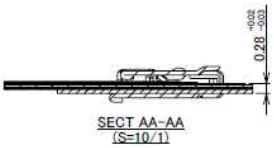
Rev.8

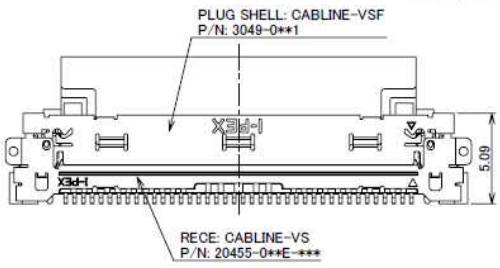
POS.	A	B	C	D
30	19.30	17.56	14.50	15.30
40	24.30	22.56	19.50	20.30

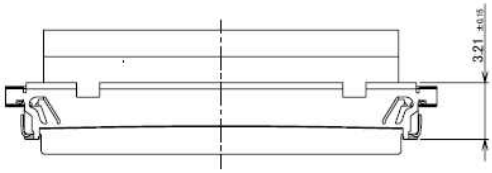
FPC ASS'Y STATE

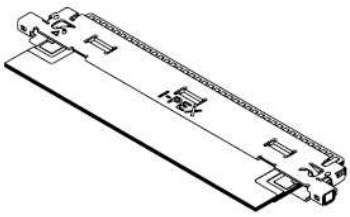
Halogen Free RoHS Compliant









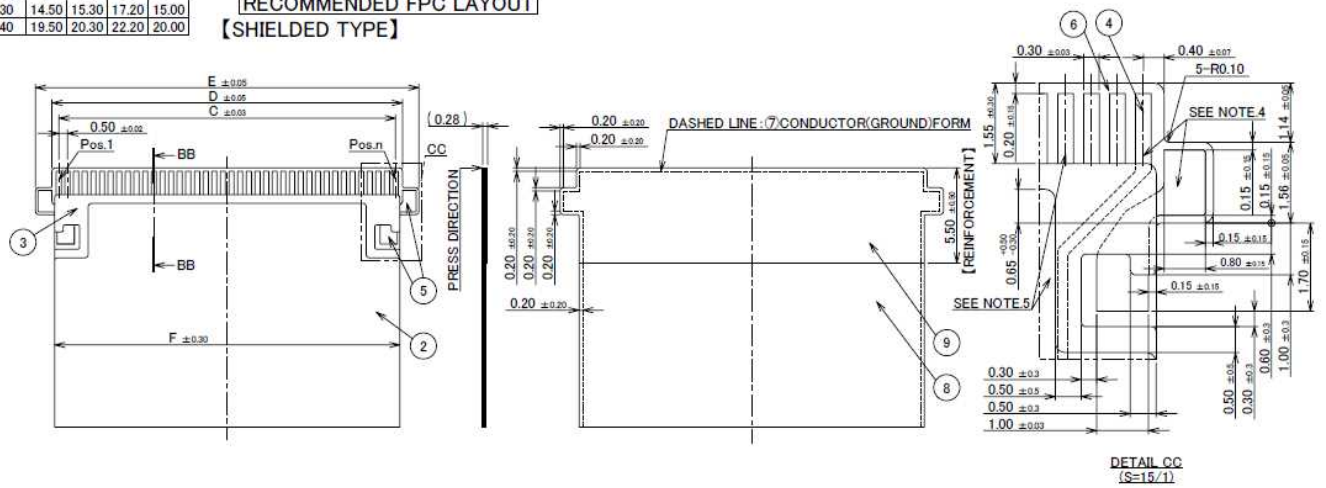


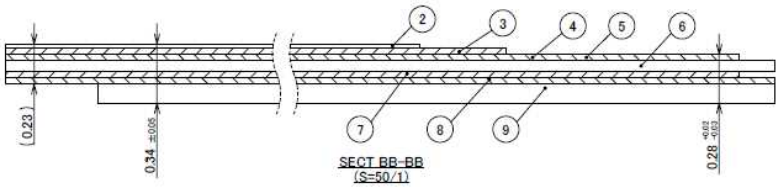
Rev.8

Shell

POS.	C	D	E	F
30	14.50	15.30	17.20	15.00
40	19.50	20.30	22.20	20.00

RECOMMENDED FPC LAYOUT
【SHIELDED TYPE】





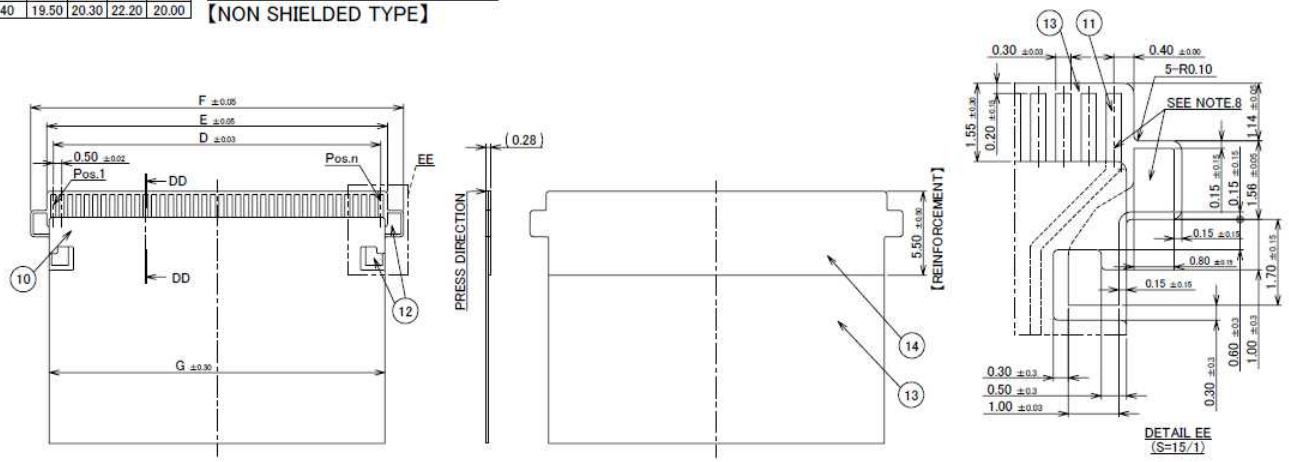
NO.	DESCRIPTION	MATERIAL	PLATING
9	REINFORCING TAPE	–	–
8	INSULATOR	–	–
7	CONDUCTOR (GROUND)	Cu	–
6	INSULATOR	–	–
5	CONDUCTOR (GROUND)	Cu	Ni, Au
4	CONDUCTOR (SIGNAL)	Cu	Ni, Au
3	INSULATOR	–	–
2	SHIELD FILM	–	–

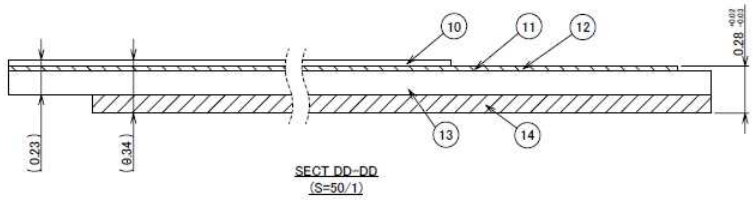
NOTES.
1. ADHESIVE SHOULD USE THERMOSETTING.
2. No.5 : CONDUCTOR(GROUND) AND No.7 : CONDUCTOR(GROUND) ARE CARRYING OUT THE ELECTRICAL CONNECTION.
3. No.2 : SHIELD FILM AND No.7 : CONDUCTOR(GROUND) ARE CARRYING OUT THE ELECTRICAL CONNECTION.
4. No.4 : CONDUCTOR(SIGNAL) AND No.5,7 : CONDUCTOR(GROUND) ARE NOT CONTACTING.
5. No.4 : CONDUCTOR(SIGNAL) AND No.2 : SHIELD FILM ARE NOT CONTACTING.

Rev.8

POS.	C	D	E	F
30	14.50	15.30	17.20	15.00
40	19.50	20.30	22.20	20.00

RECOMMENDED FPC LAYOUT
【NON SHIELDED TYPE】





NO.	DESCRIPTION	MATERIAL	PLATING
14	REINFORCING TAPE	–	–
13	INSULATOR	–	–
12	CONDUCTOR (GROUND)	Cu	Ni, Au
11	CONDUCTOR (SIGNAL)	Cu	Ni, Au
10	INSULATOR	–	–

NOTES.
6. ADHESIVE SHOULD USE THERMOSETTING.
7. No.11 : CONDUCTOR(SIGNAL) AND No.12 : CONDUCTOR(GROUND) ARE NOT CONTACTING.

Rev.8

ITEMS	SPECIFICATION
RATING VOLTAGE	100V AC (PER CONTACT)
RATING AMPERAGE (FOR SIGNAL CONTACT)	0.3A AC/DC (PER CONTACT)
OPERATING TEMPERATURE	233～358K(-40℃～+85℃)
OPERATING HUMIDITY	85% MAX.(NON-CONDENSING)
CONTACT RESISTANCE (FOR SIGNAL CONTACT)	INITIAL : 60mohm MAX. / AFTER TEST : ⊿40mohm MAX.
GROUND SHELL RESISTANCE	INITIAL : 60mohm MAX. / AFTER TEST : ⊿40mohm MAX.
INSULATION RESISTANCE	INITIAL : 1000Mohm MIN. / AFTER TEST : 500Mohm MIN.
DIELECTRIC WITHSTANDING VOLTAGE	AC250V 1min
DURABILITY	30 CYCLES
MATING FORCE (INITIAL / AFTER TEST)	30P : 24.0N MAX. / 40P : 32.0N MAX.
UNMATING FORCE (INITIAL / AFTER TEST)	30P : 1.1N MIN. / 40P : 1.4N MIN.
PRODUCT SPECIFICATION	PRS-1878
TEST REPORT	TR-14095, TR-17048
PACKING STANDARD	PST-14087
INSTRUCTION MANUAL	HIM-13010
ASSEMBLY MANUAL	ASM-13003
APPEARANCE CRITERIA No.	QLS-A***

Receptacle Assembly

Recommended P/N	20455-0**E-76(30P/40P/50P)	20455-A20E-76(20P)

PART NO.	Pos.	A	B	C	D
20455-020E-#2	20	9.50	11.30	16.25	14.47
20455-030E-##	30	14.50	16.30	21.25	19.47
20455-040E-##	40	19.50	21.30	26.25	24.47
20455-050E-##	50	24.50	26.30	31.25	29.47

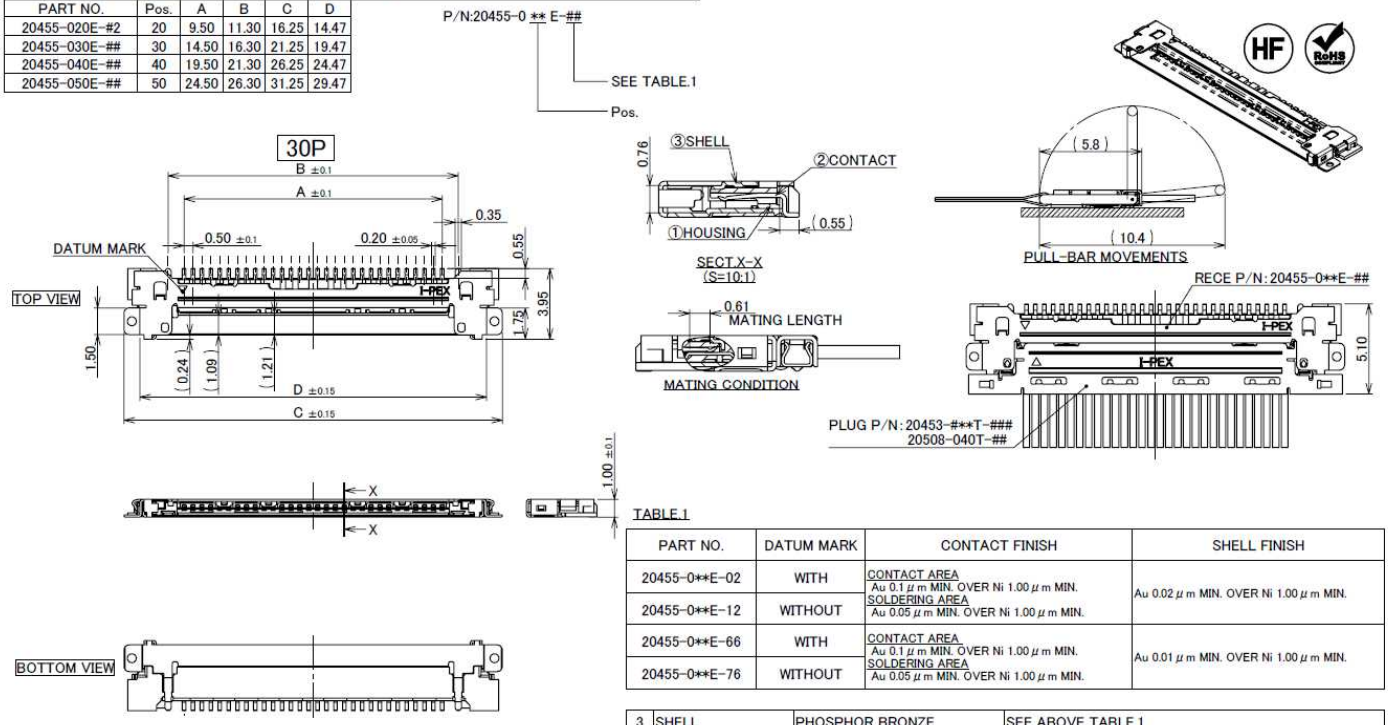


TABLE.1

PART NO.	DATUM MARK	CONTACT FINISH	SHELL FINISH
20455-0**E-02	WITH	CONTACT AREA Au 0.1 μm MIN. OVER Ni 1.00 μm MIN. SOLDERING AREA Au 0.05 μm MIN. OVER Ni 1.00 μm MIN.	Au 0.02 μm MIN. OVER Ni 1.00 μm MIN.
20455-0**E-12	WITHOUT		
20455-0**E-66	WITH	CONTACT AREA Au 0.1 μm MIN. OVER Ni 1.00 μm MIN. SOLDERING AREA Au 0.05 μm MIN. OVER Ni 1.00 μm MIN.	Au 0.01 μm MIN. OVER Ni 1.00 μm MIN.
20455-0**E-76	WITHOUT		

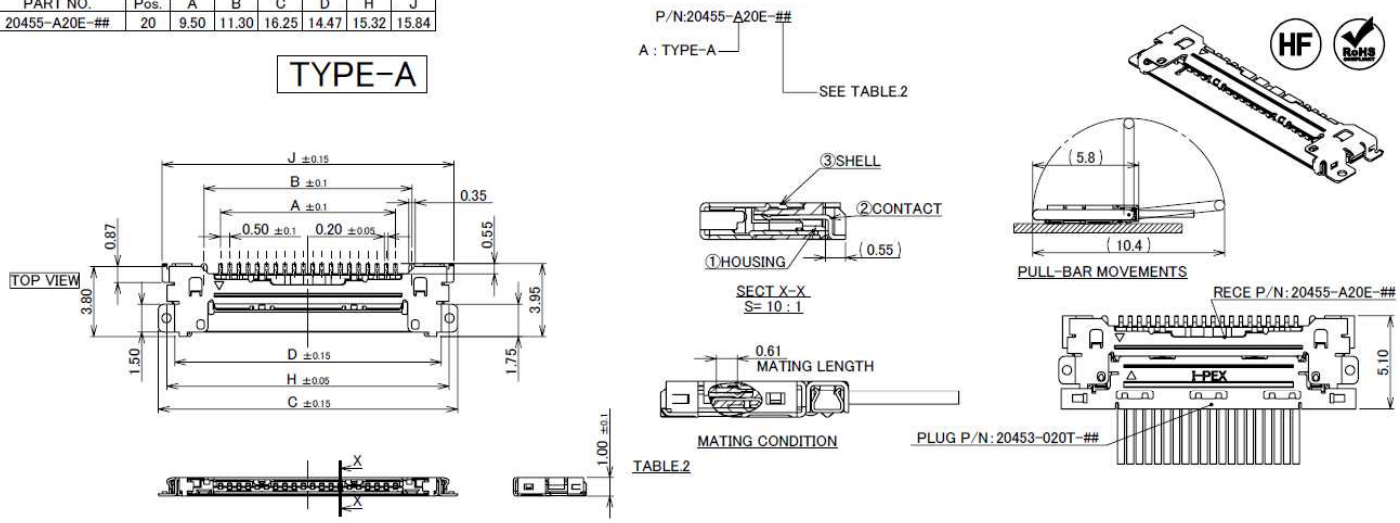
NO.	DISCRIPTION	MATERIAL	FINISH , REMARKS
3	SHELL	PHOSPHOR BRONZE	SEE ABOVE TABLE.1
2	CONTACT	PHOSPHOR BRONZE	SEE ABOVE TABLE.1
1	HOUSING	LCP	UL94V-0, BLACK

Receptacle Assembly

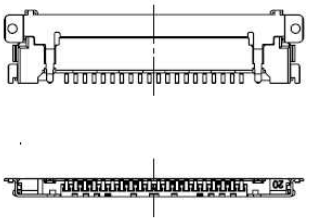
Recommended P/N	20455-0**E-76(30P/40P/50P)	20455-A20E-76(20P)

PART NO.	Pos.	A	B	C	D	H	J
20455-A20E-##	20	9.50	11.30	16.25	14.47	15.32	15.84

TYPE-A



BOTTOM VIEW

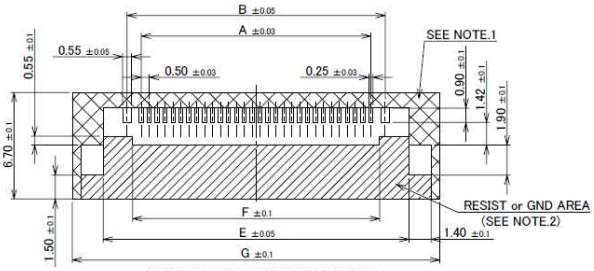


PART NO.	DATUM MARK	CONTACT FINISH	SHELL FINISH
20455-A20E-02	WITH	CONTACT AREA Au 0.1 μm MIN. OVER Ni 1.00 μm MIN. SOLDERING AREA Au 0.05 μm MIN. OVER Ni 1.00 μm MIN.	Au 0.02 μm MIN. OVER Ni 1.00 μm MIN.
20455-A20E-12	WITHOUT		
20455-A20E-66	WITH	CONTACT AREA Au 0.1 μm MIN. OVER Ni 1.00 μm MIN. SOLDERING AREA Au 0.05 μm MIN. OVER Ni 1.00 μm MIN.	Au 0.01 μm MIN. OVER Ni 1.00 μm MIN.
20455-A20E-76	WITHOUT		

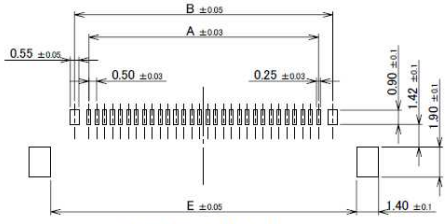
NO.	DISCRIPTION	MATERIAL	FINISH , REMARKS
3	SHELL	PHOSPHOR BRONZE	SEE ABOVE TABLE.1
2	CONTACT	PHOSPHOR BRONZE	SEE ABOVE TABLE.1
1	HOUSING	LCP	UL94V-0, BLACK

Rev.28

PART NO.	Pos.	A	B	E	F	G	H	J	K
20455-#20E-##	20	9.50	11.30	14.30	10.60	18.20	15.32	15.84	14.84
20455-030E-##	30	14.50	16.30	19.30	15.60	23.20	–	–	–
20455-040E-##	40	19.50	21.30	24.30	20.60	28.20	–	–	–
20455-050E-##	50	24.50	26.30	29.30	25.60	33.20	–	–	–

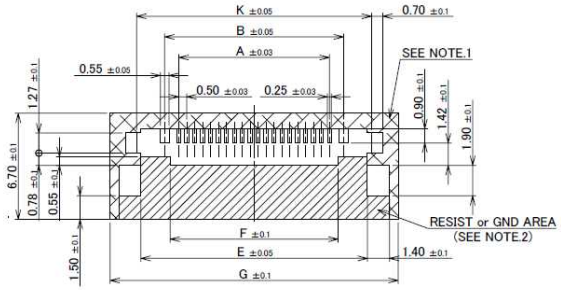


RECOMMENDED FOOTPRONT LAYOUT
P/N : 20455-0**E-##

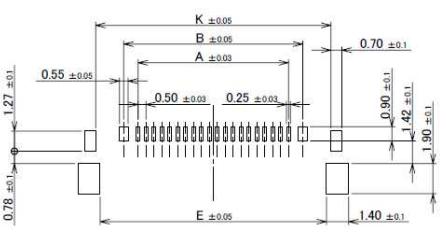


RECOMMENDED METAL MASK LAYOUT
METAL MASK THICKNESS : t = 0.12mm
P/N : 20455-0**E-##

TYPE-A



RECOMMENDED FOOTPRINT LAYOUT
P/N : 20455-A20E-##

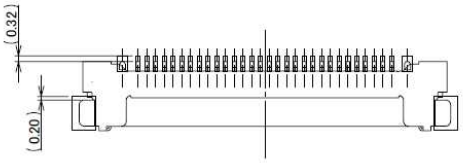


RECOMMENDED METAL MASK LAYOUT
METAL MASK THICKNESS : t = 0.12mm
P/N : 20455-A20E-##

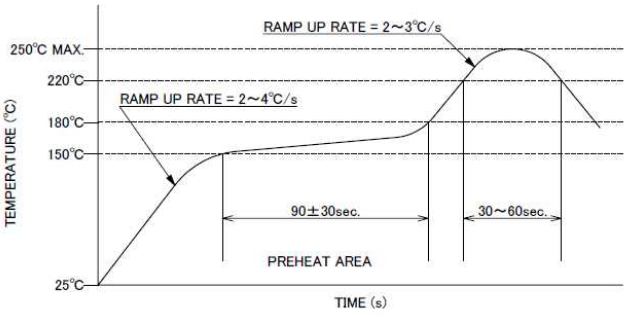
NOTES.
1. IN CASE OF PLUG WITH PULL-BAR,
   THIS AREA CANNOT MOUNT ANOTHER COMPONENTS.
2. SOLDER RESIST SHALL BE APPLIED TO PREVENT SHORT CIRCUITS
   WHEN PLACING SIGNAL LINES ON GROUND AREA.

Rev.28

Receptacle Assembly

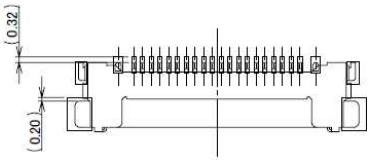


CONNECTOR ON RECOMMENDED FOOTPRINT PATTERN
P/N : 20455-0**E-##



REFLOW TEMPERATURE PROFILE
SENJU METAL INDUSTRY CO., LTD. : M705-SHF(Sn96.5 Ag3.0 Cu0.5)

TYPE-A



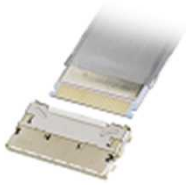
CONNECTOR ON RECOMMENDED FOOTPRINT PATTERN
P/N : 20455-A20E-##

Rev.28

Board to Board

High-Density

Autolocking FPC/FFC



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