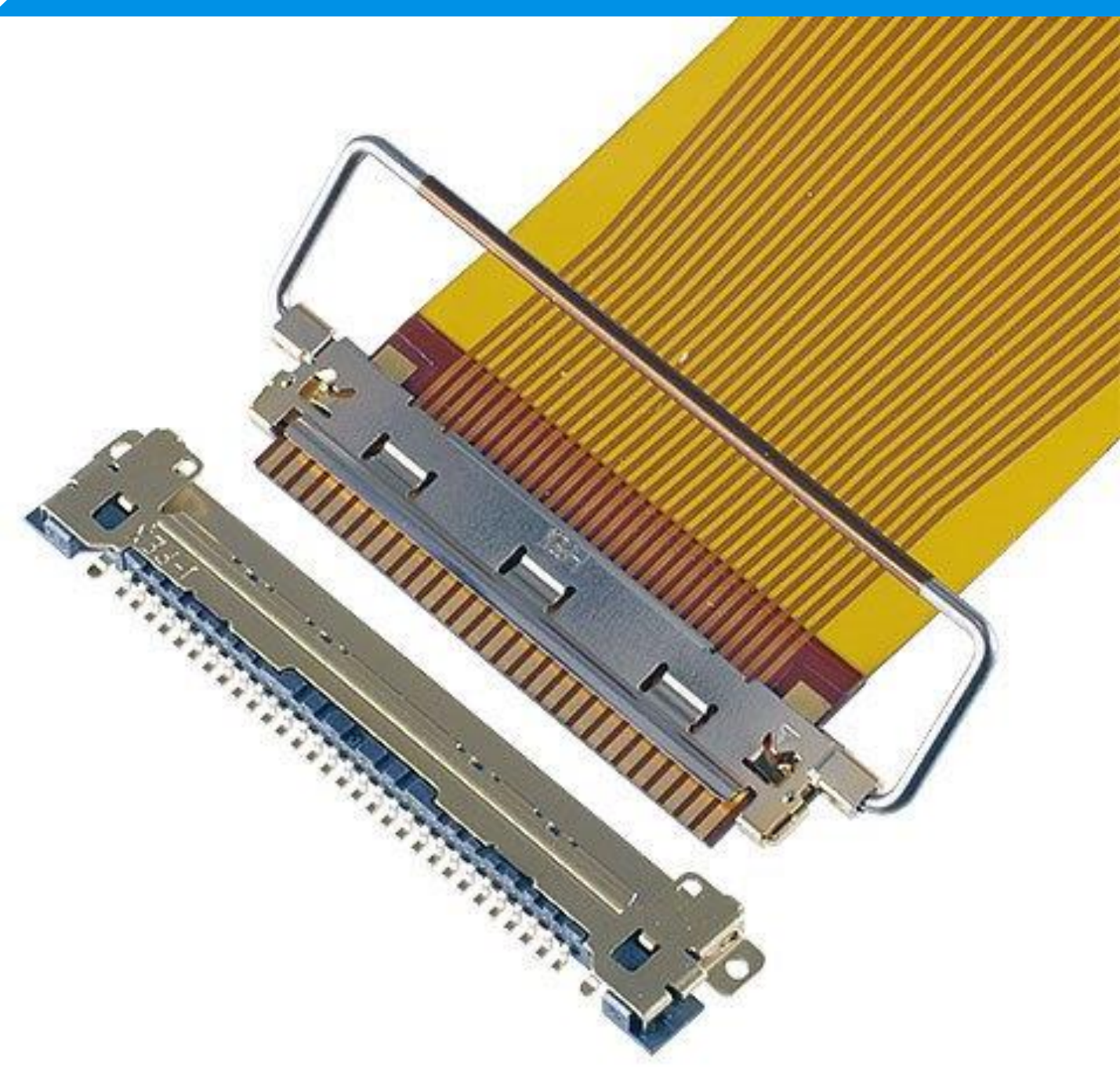


CABLINE®-VSF

Mechanical lock with shielding and multi-point ground, suitable for high-data-rate transfer (32 Gbps/lane), 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 60
	Available	30, 40

Applicable FPC

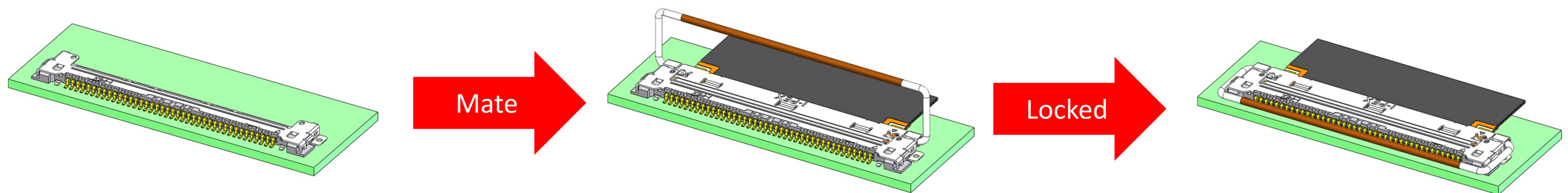
FPC Type	Shielded/Non-shielded FPC
FPC Pitch (mm)	0.5
FPC Contact Point	Top
FPC Thickness (mm)	Contact Area: 0.28 +0.02/-0.03
	Ground Area: 0.34 ± 0.05

Applicable Standards (Reference Only):

32 Gbps/ Lane, USB4 Gen4 (40 Gbps/ Lane PAM3)
Display Port UHBR20 (20 Gbps/Lane)

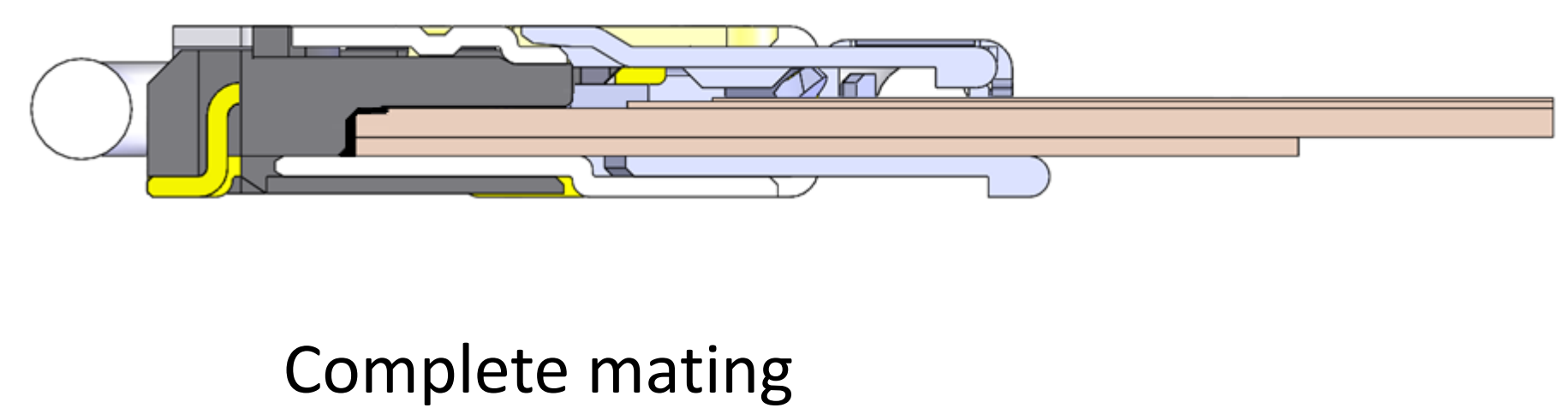
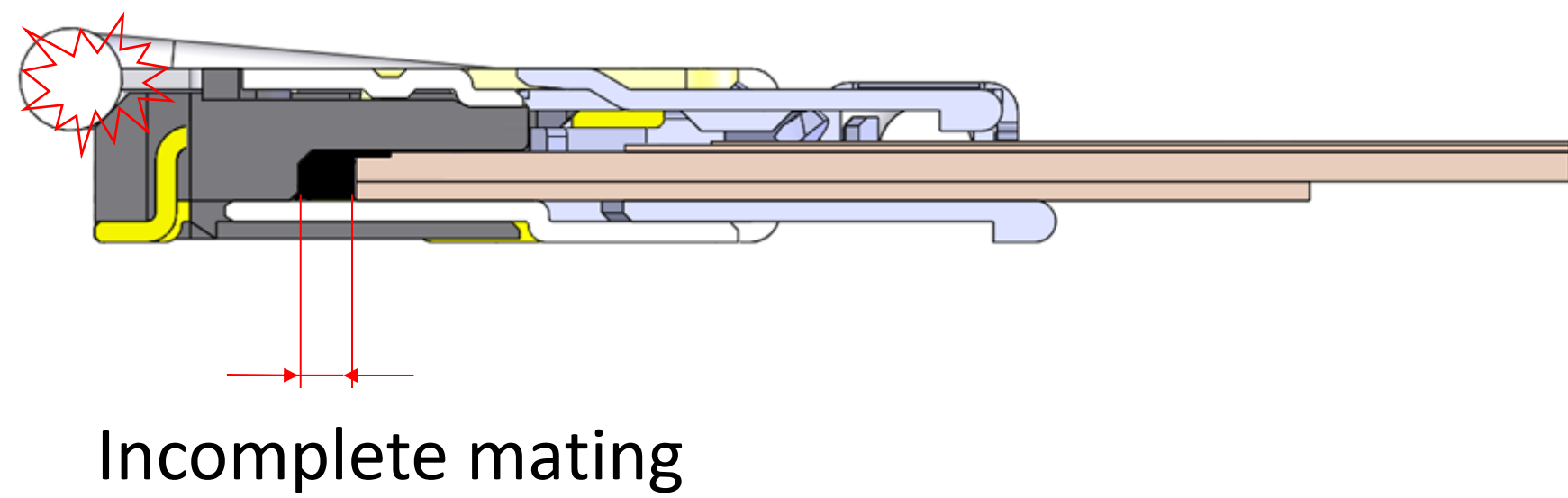
* Please inquire for pin counts not listed or outside of the pin count range.

▶ Mechanical locking bar prevents incomplete mating and back-out/unmating

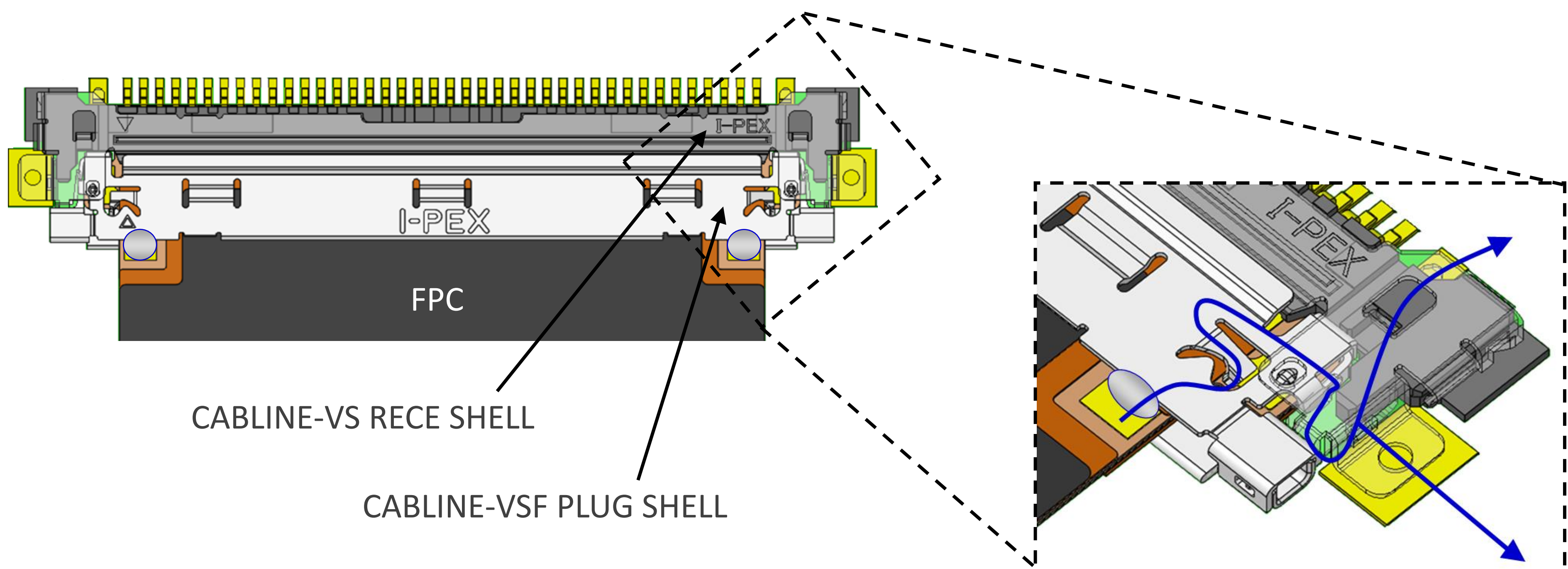


Interference

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



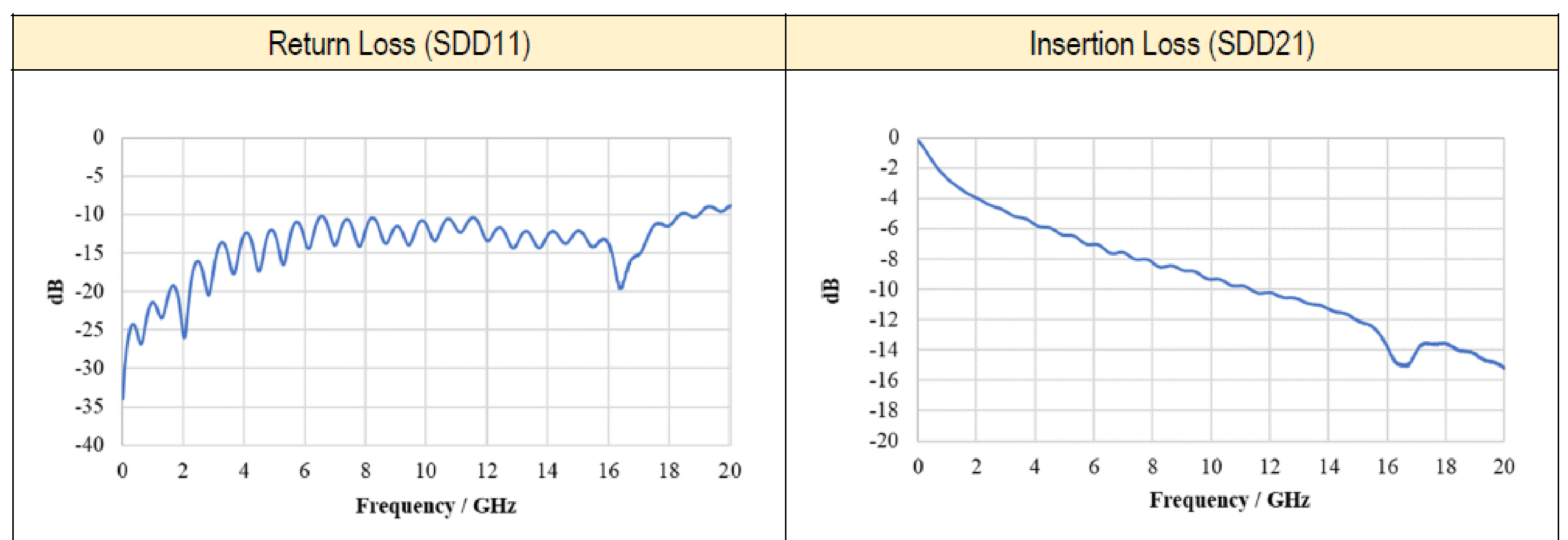
▶ EMI shielding and multi-point ground design



▶ High-data-rate transfer, ideal for 32 Gbps/lane applications

Measurement results

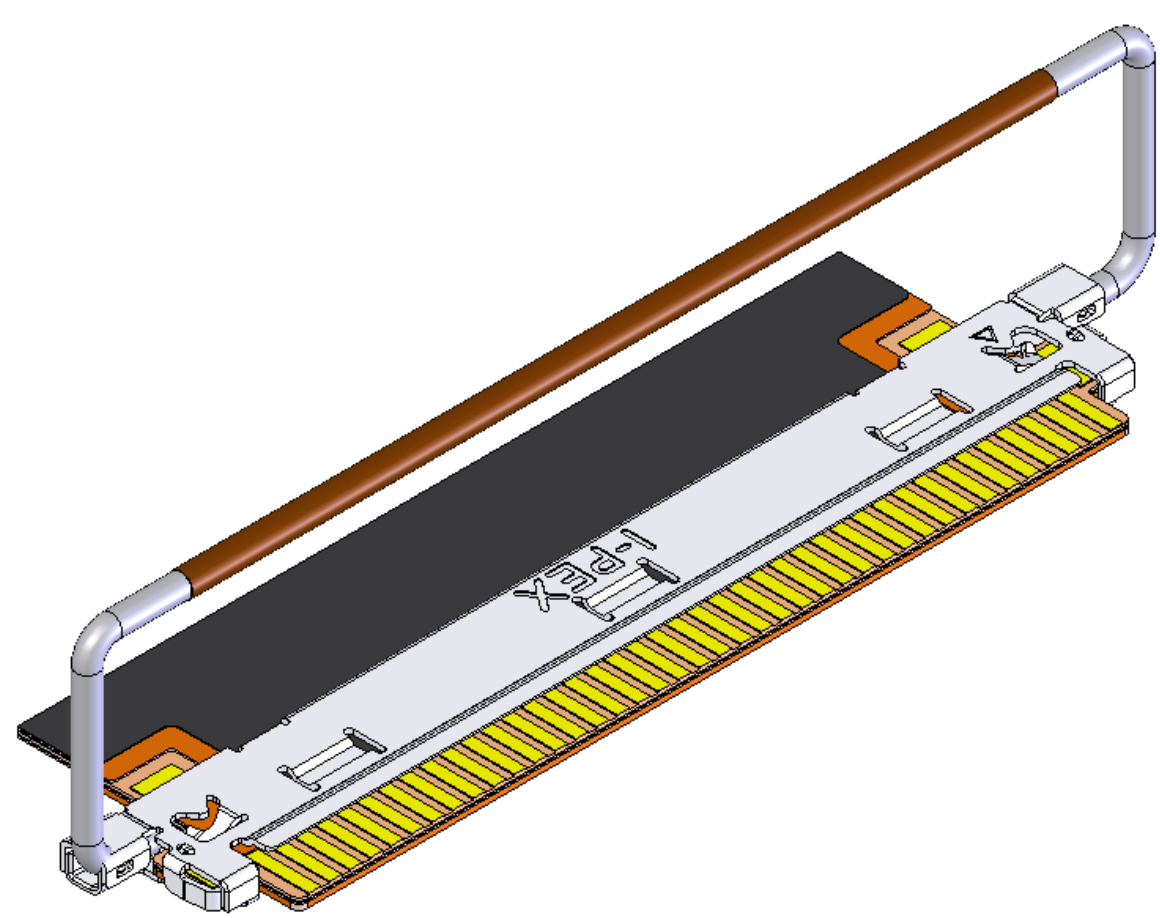
Connector: CABLINE-VSF 40P
FPC: Shielded FPC, Differential 100 ohm, Length : 100 mm
Pin Assignment: GSSGSSG



Component Parts Details

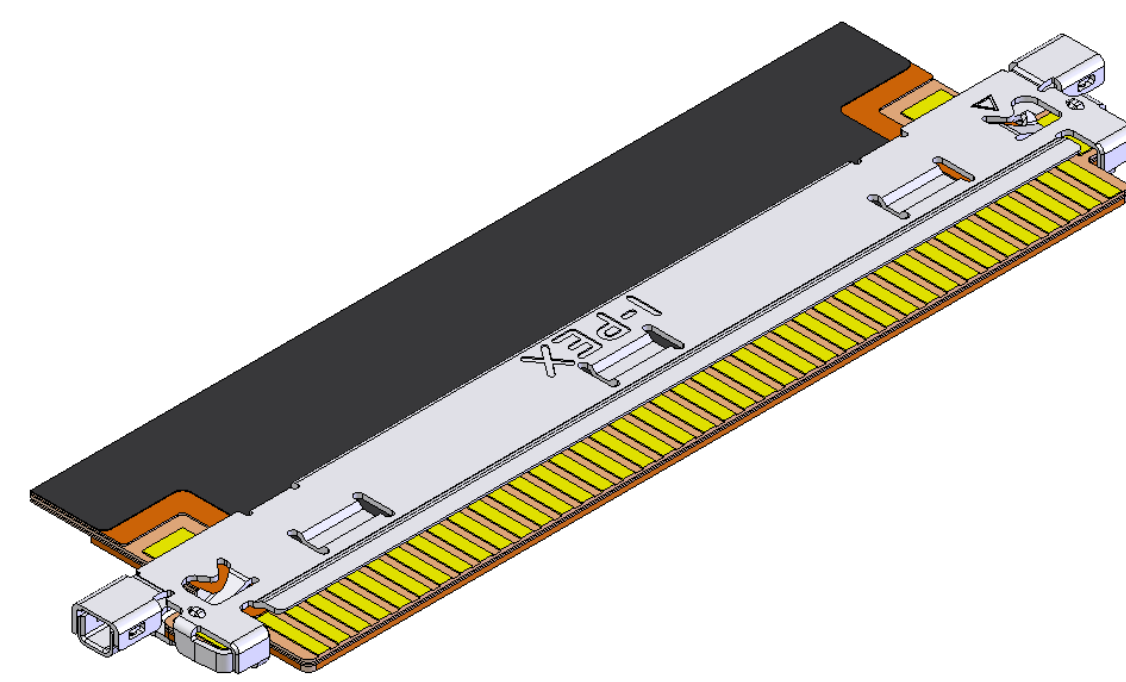
Component Parts

WITH LOCK BAR TYPE



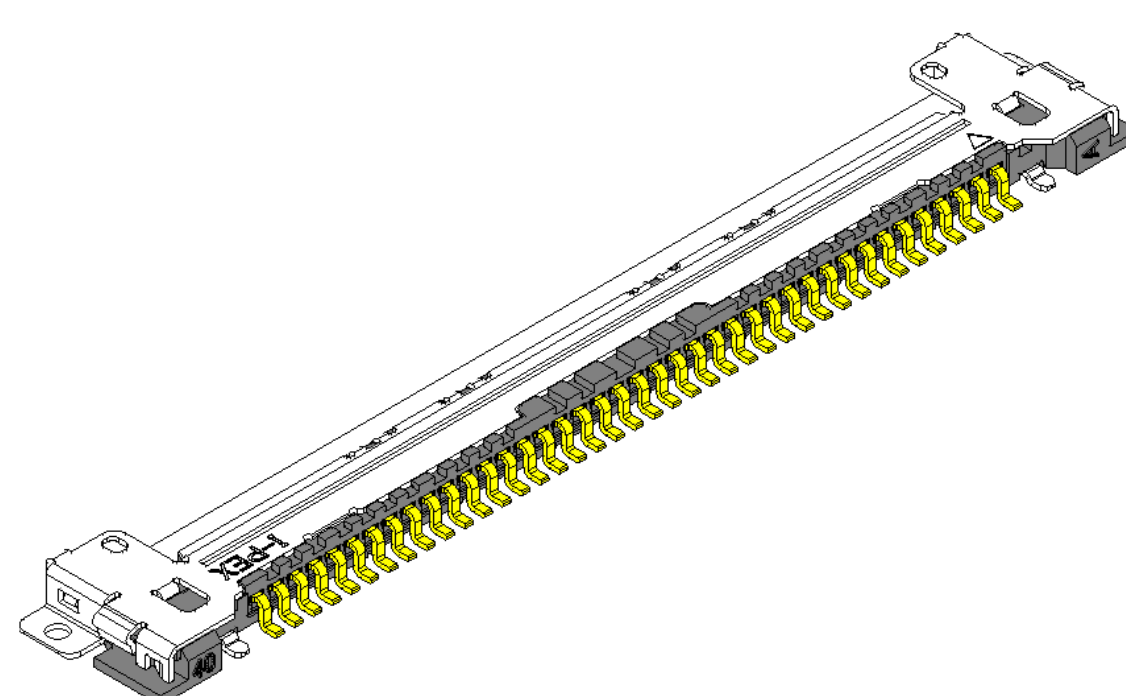
CABLINE-VSF SHELL ASS'Y PLUG with FPC

WITHOUT LOCK BAR TYPE



CABLINE-VSF SHELL PLUG with FPC

OR



CABLINE-VS RECEPTACLE

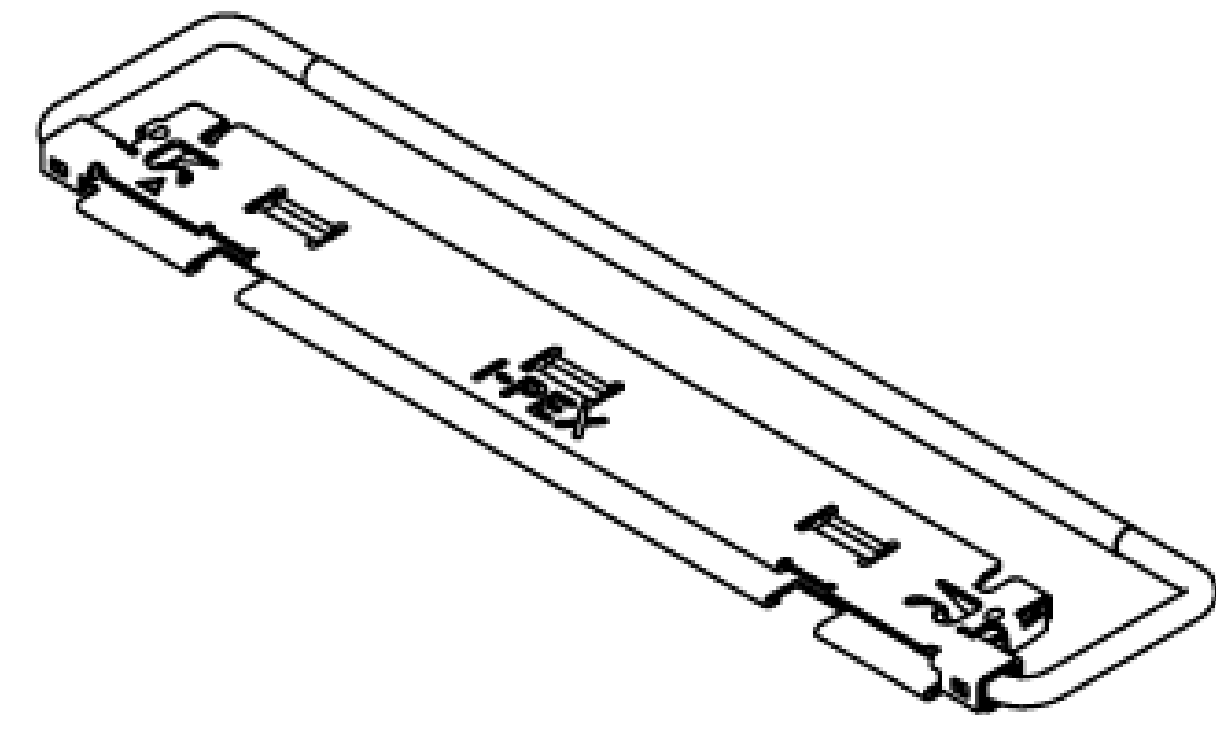
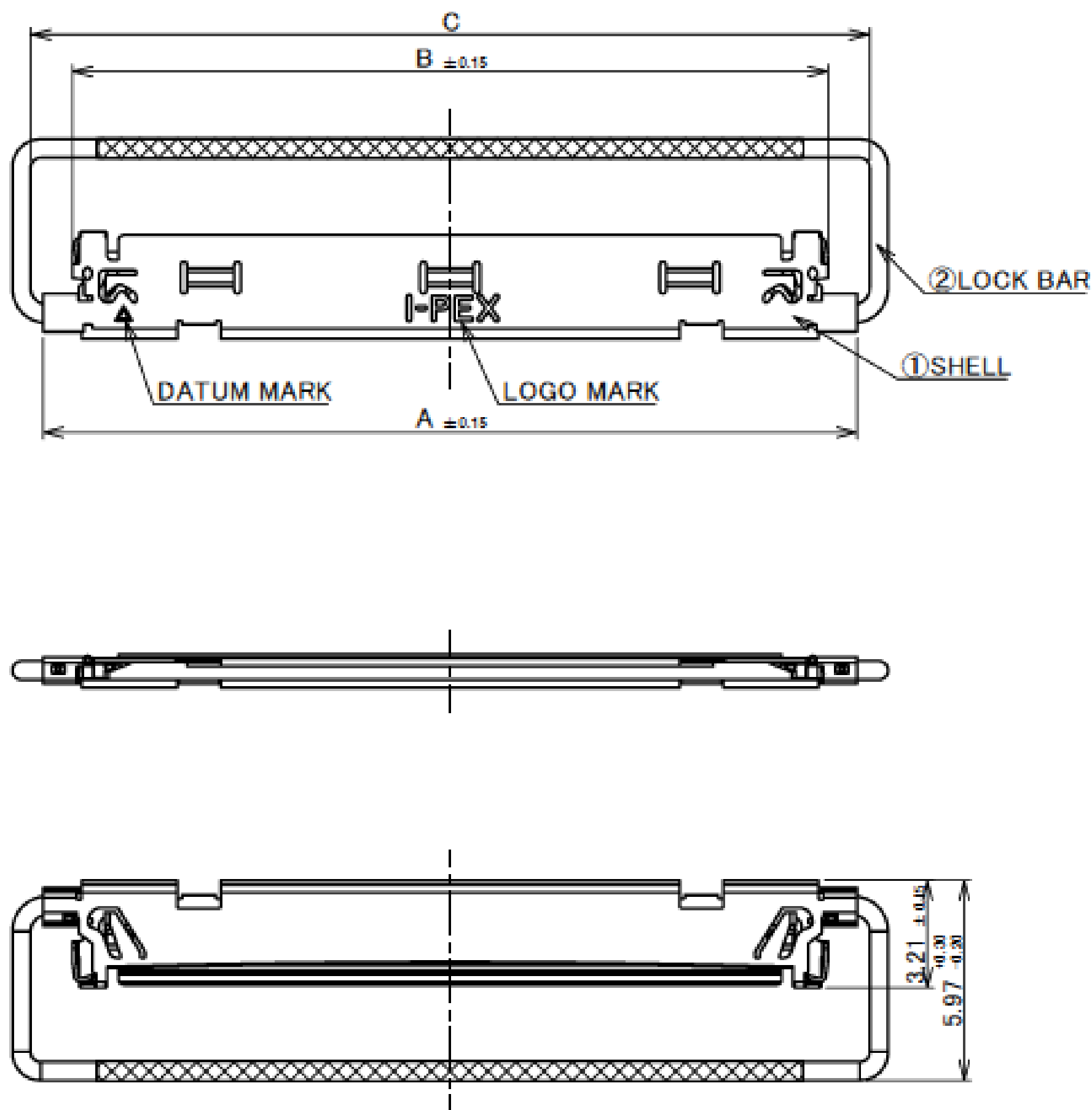
Shell Assembly

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



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

Rev.15

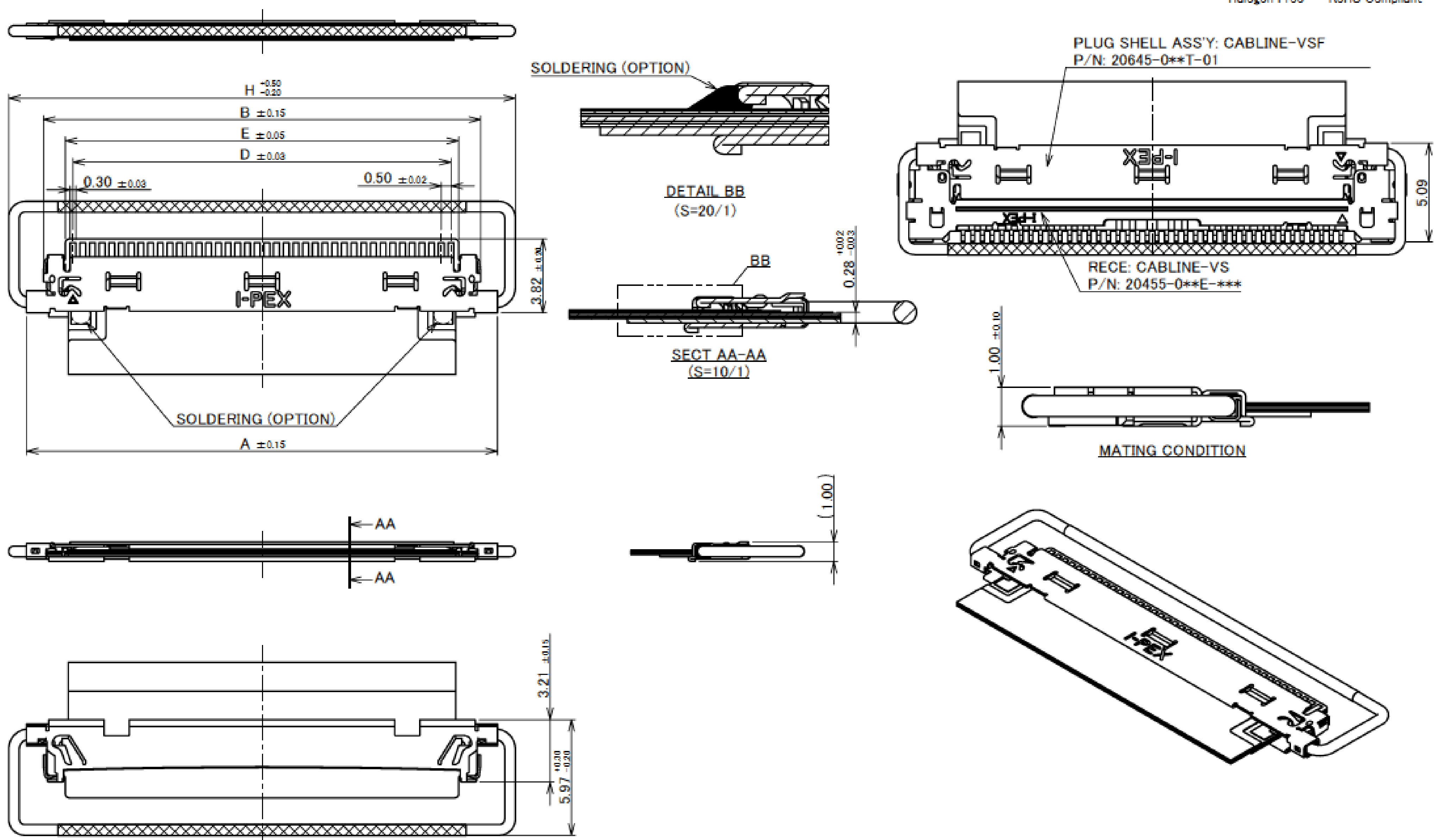
POS.	A	B	D	E	H
30	19.30	17.56	14.50	15.30	21.15
40	24.30	22.56	19.50	20.30	26.15

FPC ASS'Y STATE



Halogen Free

RoHS Compliant

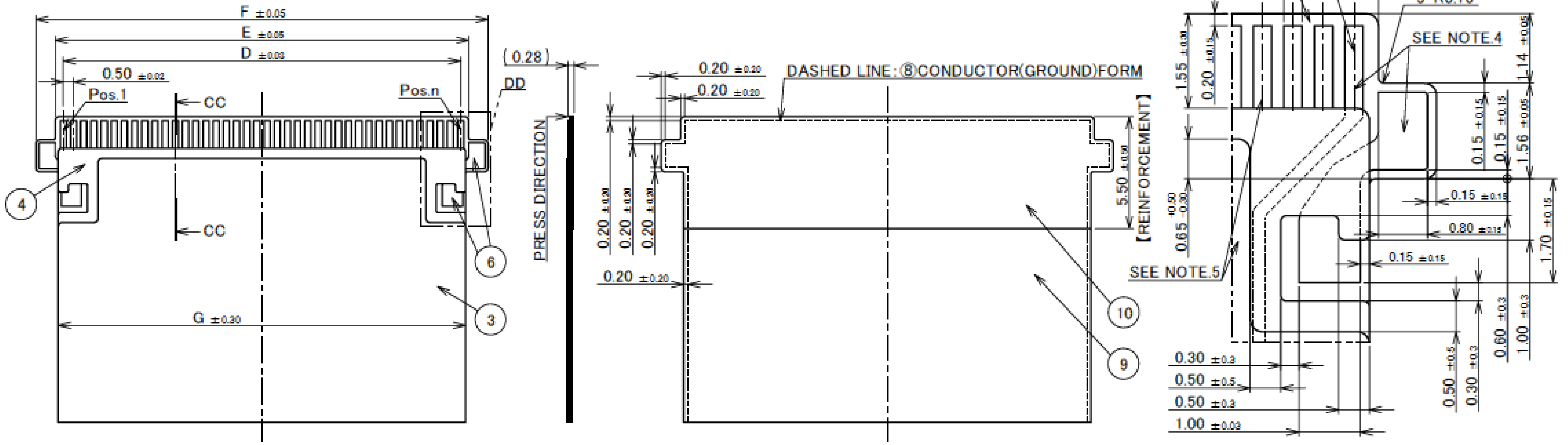


Rev.15

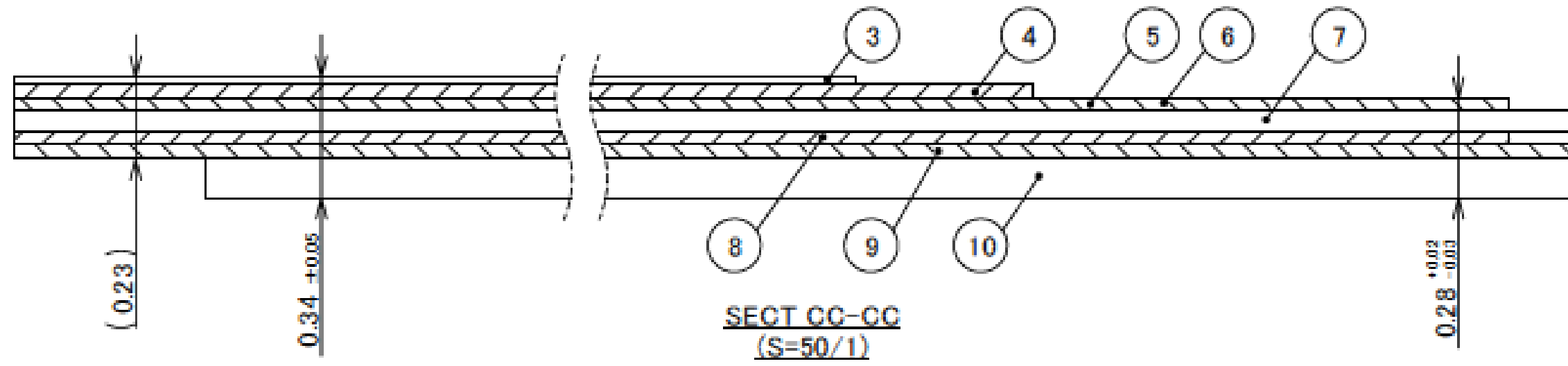
Shell Assembly

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】



DETAIL DD
(S=15/1)



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	-	-

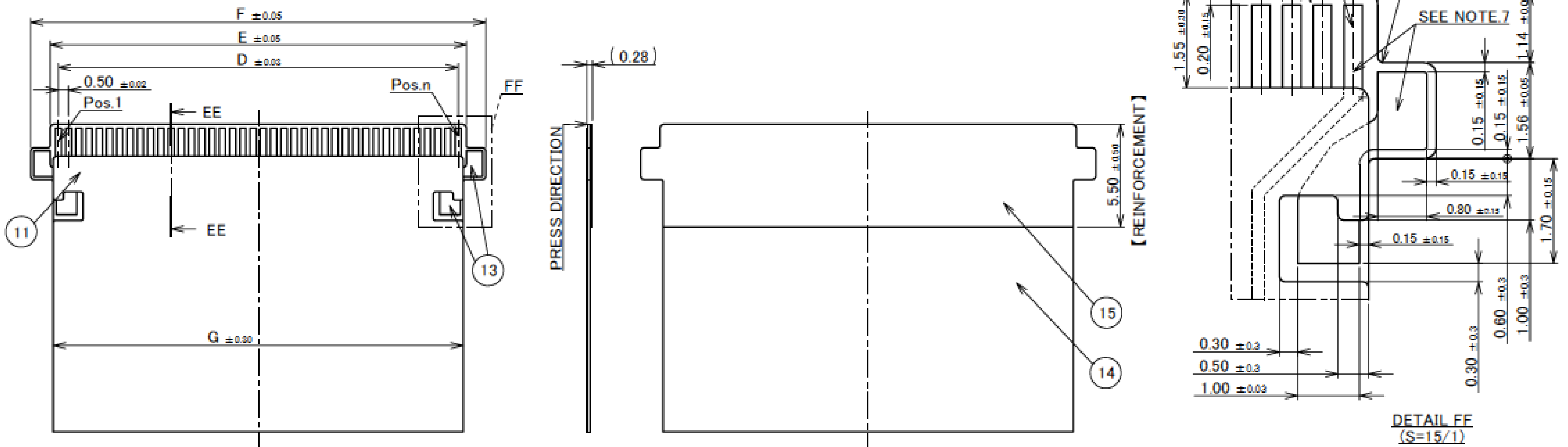
NOTES

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

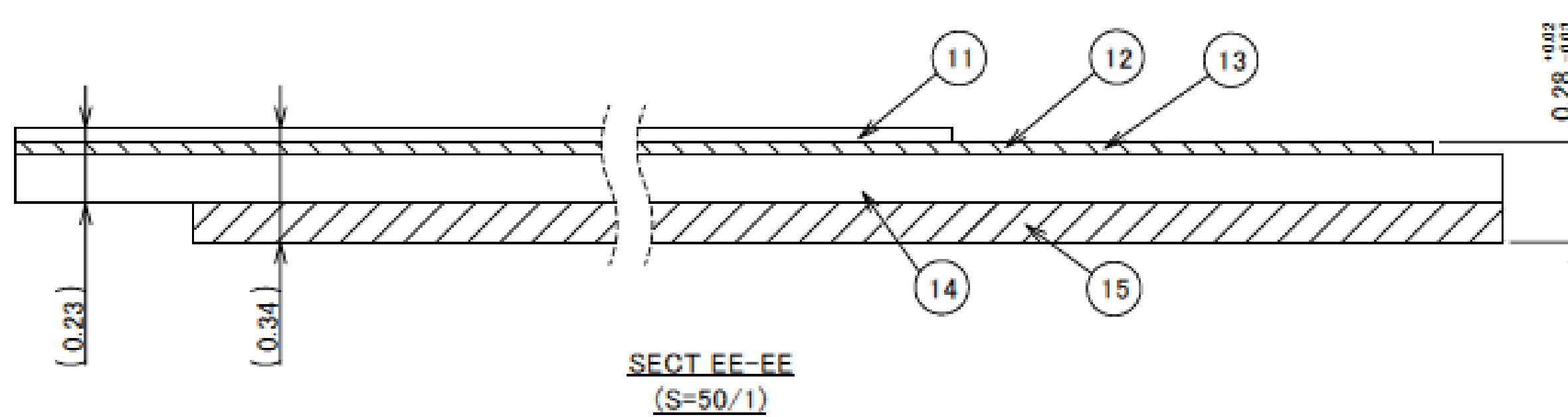
Rev.15

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】



DETAIL FF
(S=15/1)



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

NOTES

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

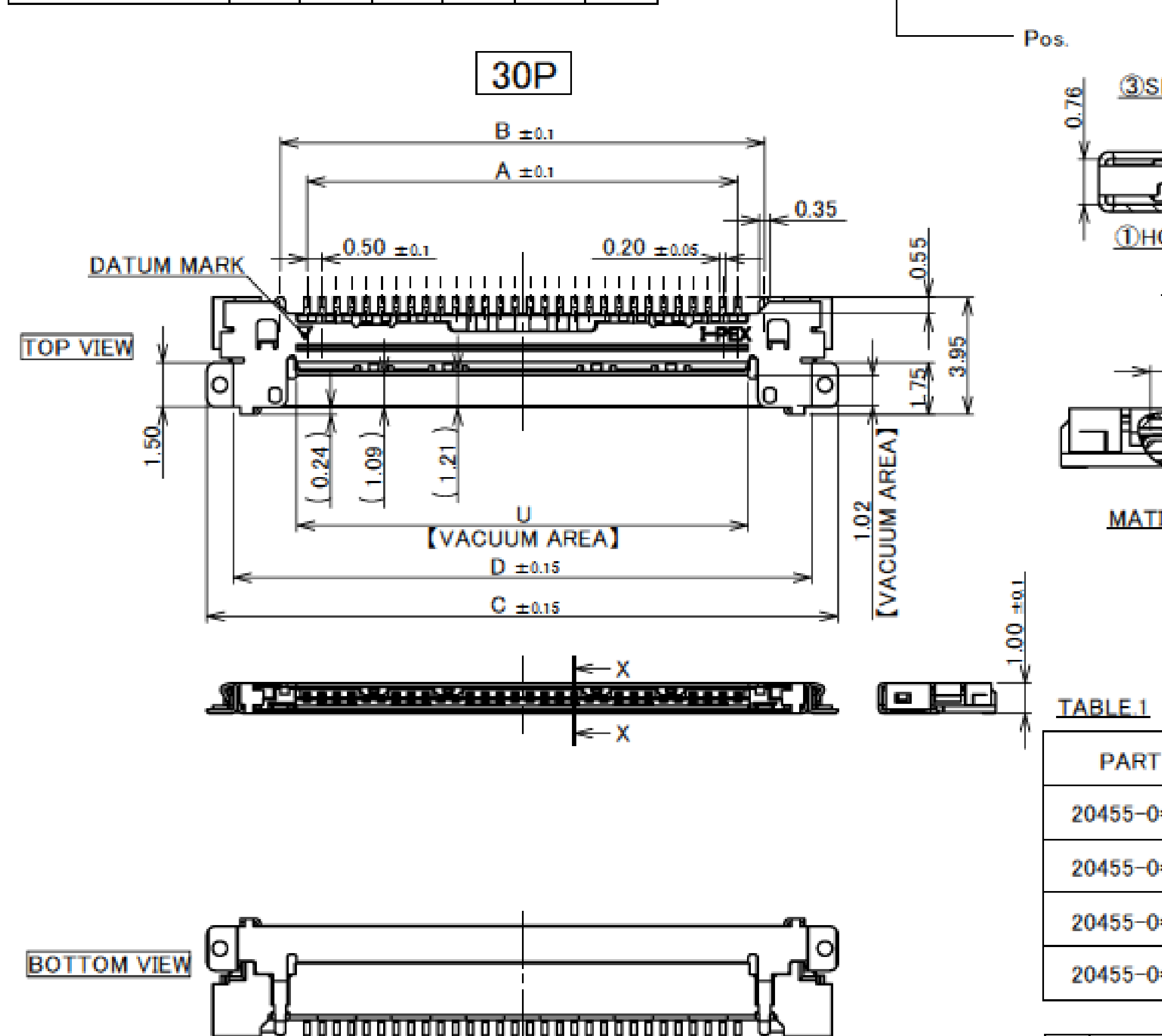
Rev.15

ITEMS	SPECIFICATION
RATING VOLTAGE	100V AC (PER CONTACT)
RATING AMPERAGE (FOR SIGNAL CONTACT)	0.5A AC/DC (PER CONTACT PIN) ※AVAILABLE UP TO 20PIN 0.3A AC/DC (PER CONTACT PIN) ※AVAILABLE FOR ALL PIN
OPERATING TEMPERATURE	233~358K(-40°C~+85°C)
OPERATING HUMIDITY	85% MAX.
CONTACT RESISTANCE (FOR SIGNAL CONTACT)	INITIAL : 60mohm MAX. / AFTER TEST : \triangle 40mohm MAX.
GROUND SHELL RESISTANCE	INITIAL : 60mohm MAX. / AFTER TEST : \triangle 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***

Rev.15

Receptacle Assembly

Recommended P/N	20455-0**E-76 (30P/40P/50P)	20455-A20E-76 (20P)					
PART NO.	Pos.	A	B	C	D	U	
20455-020E-#2	20	9.50	11.30	16.25	14.47	10.20	
20455-030E-##	30	14.50	16.30	21.25	19.47	15.20	
20455-040E-###	40	19.50	21.30	26.25	24.47	20.20	
20455-050E-####	50	24.50	26.30	31.25	29.47	25.20	



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	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-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 0.02 μm MIN. OVER Ni 1.00 μm MIN.
20455-0**E-76	WITHOUT	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.

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.34

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	U		
20455-A20E-##	20	9.50	11.30	16.25	14.47	15.32	15.84	10.20		

P/N: 20455-A20E-##
A: TYPE-A
SEE TABLE 2

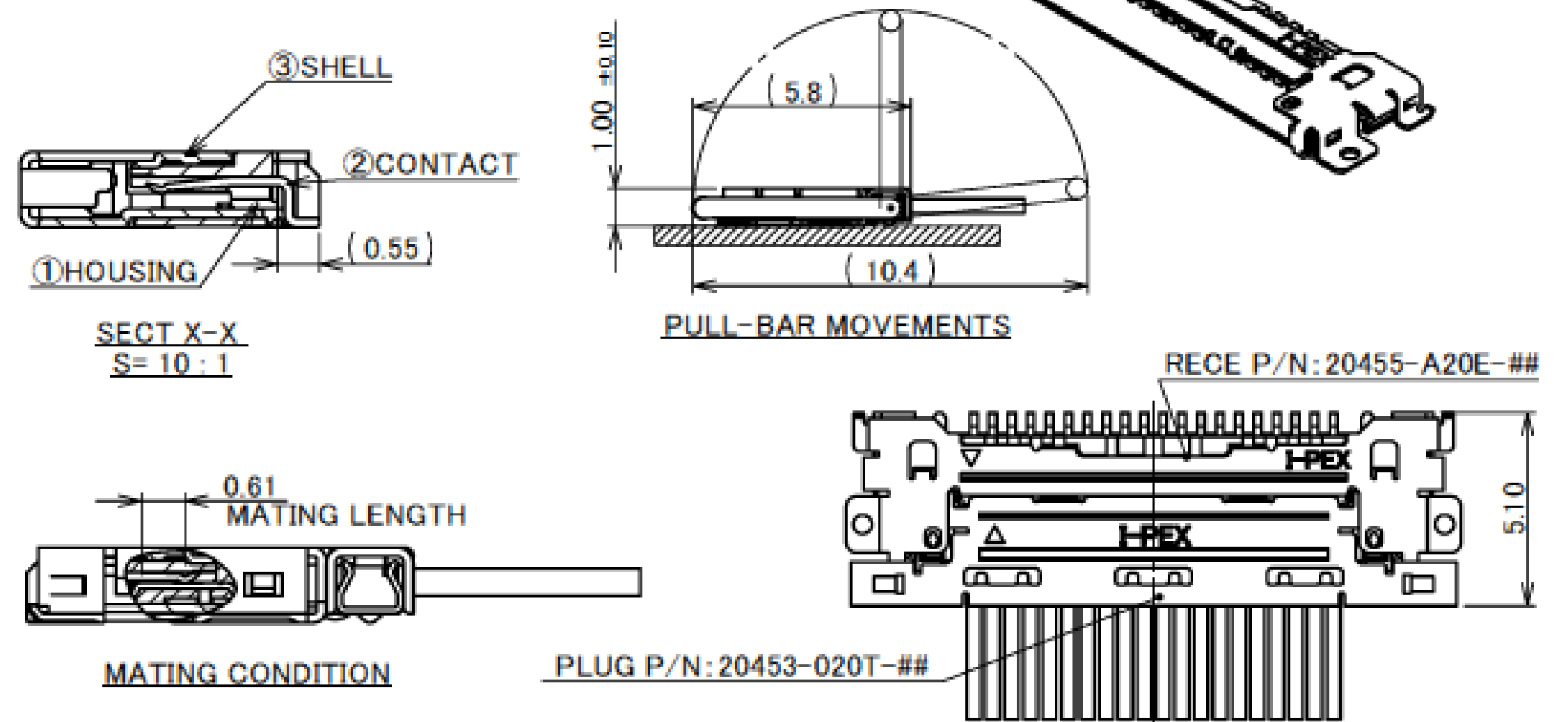
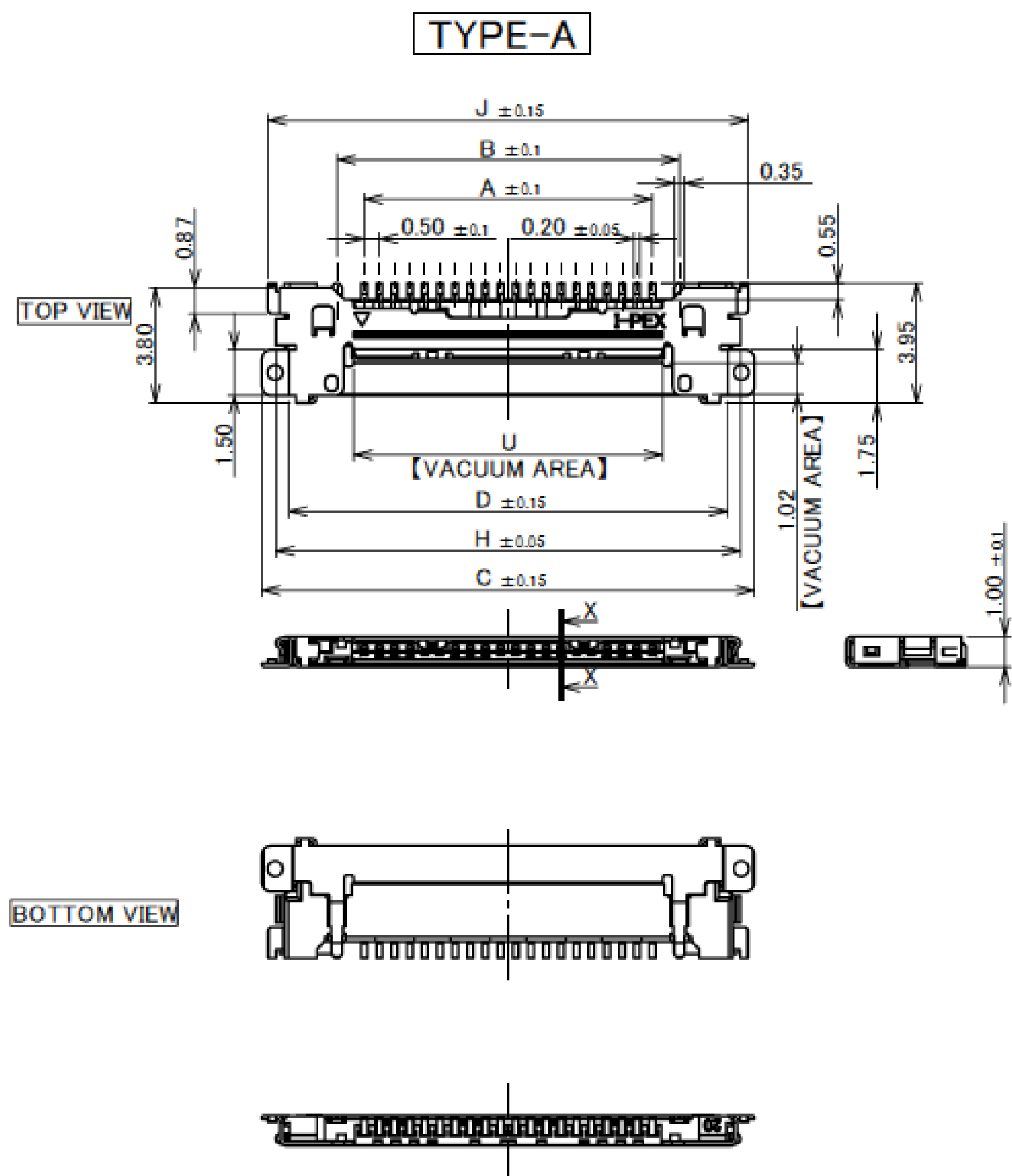
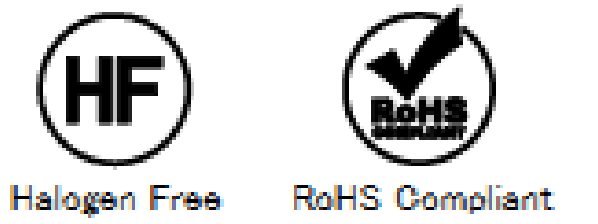


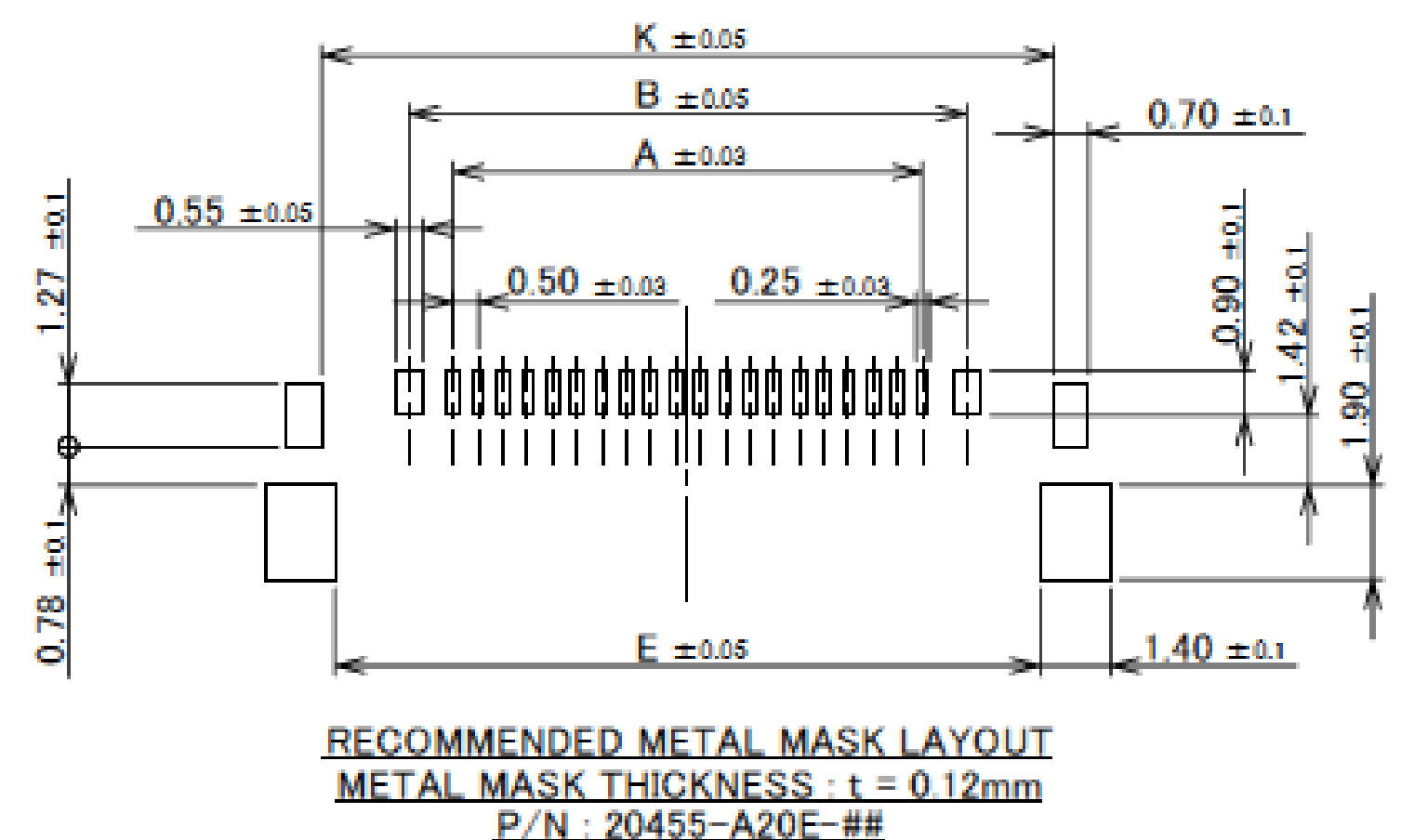
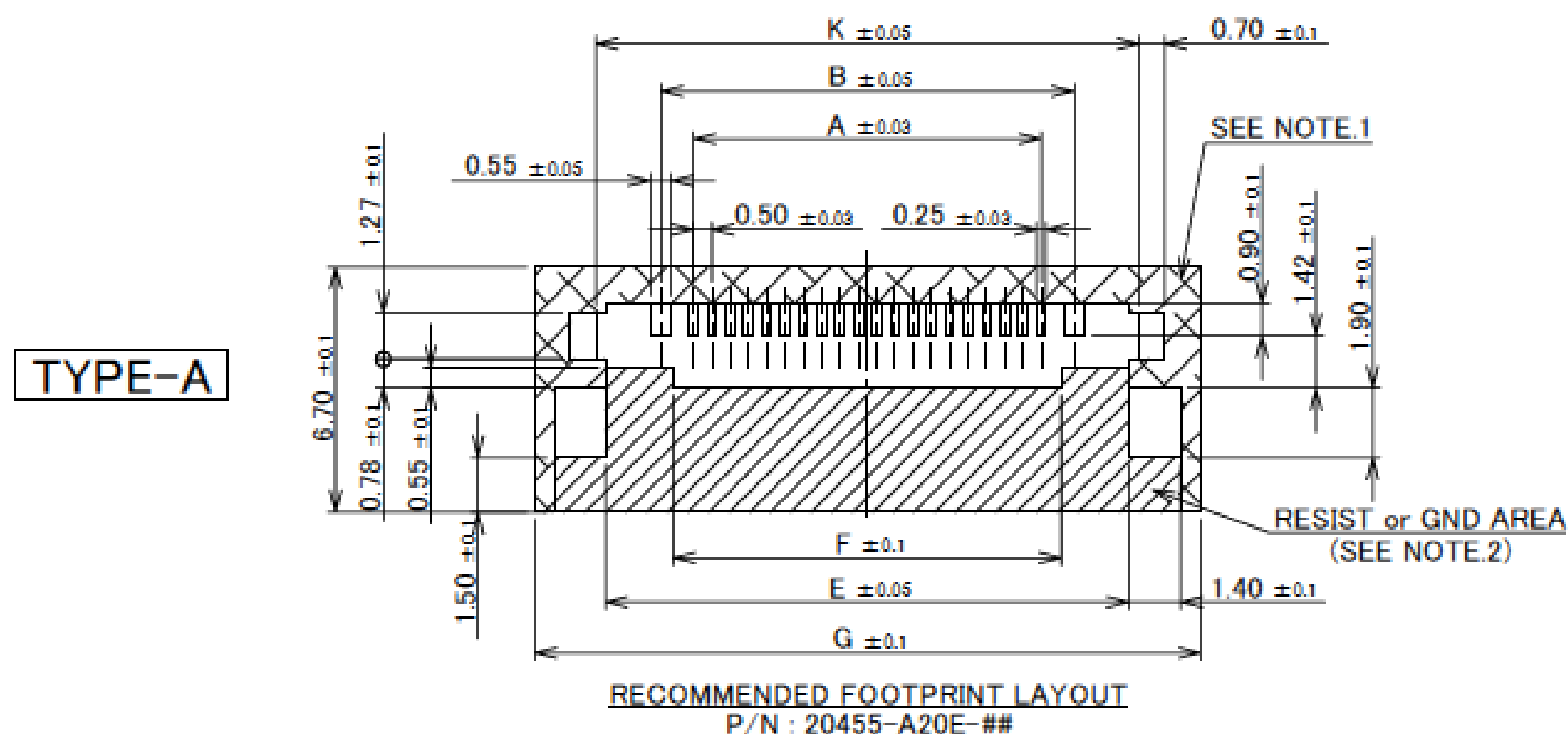
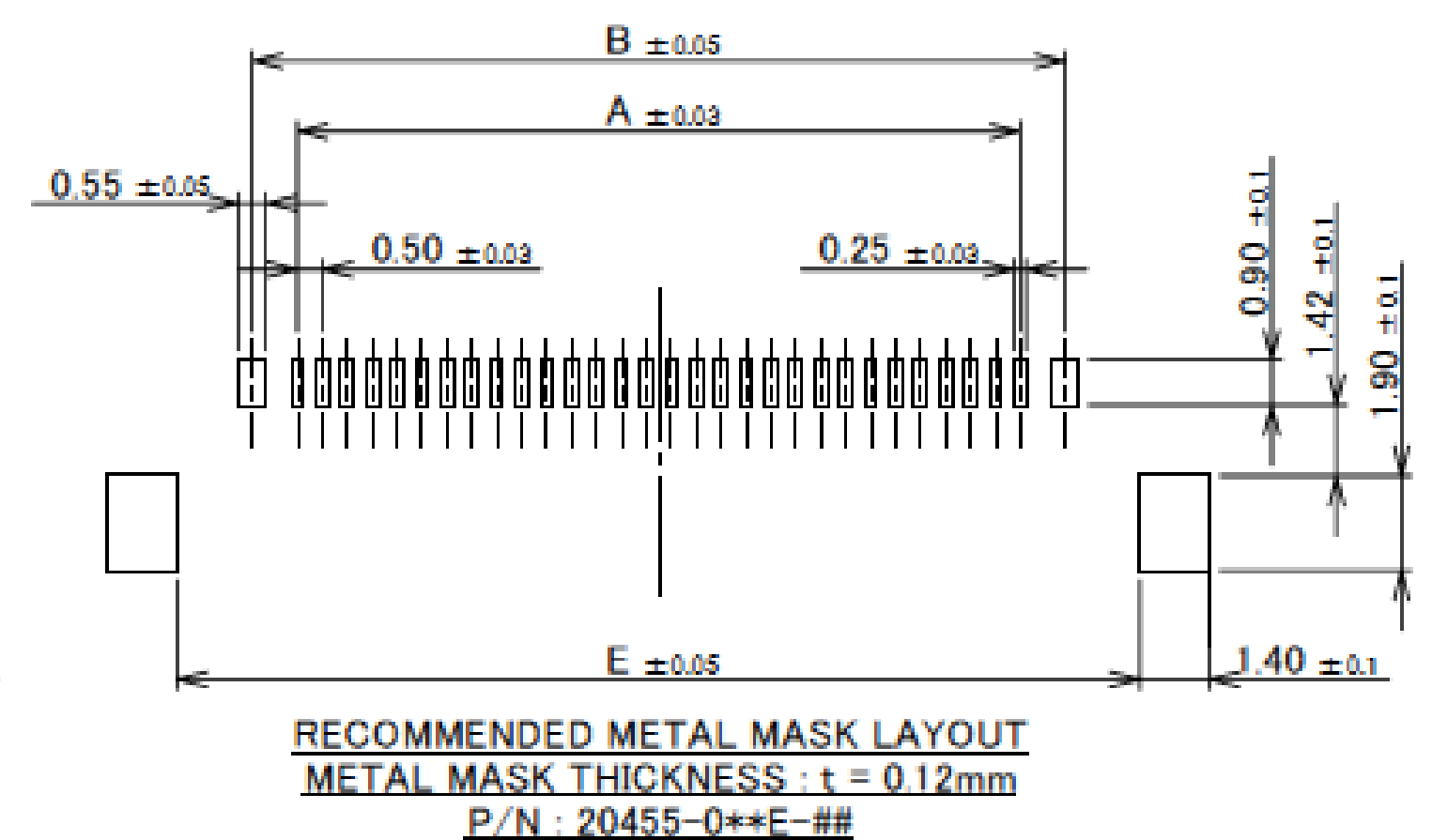
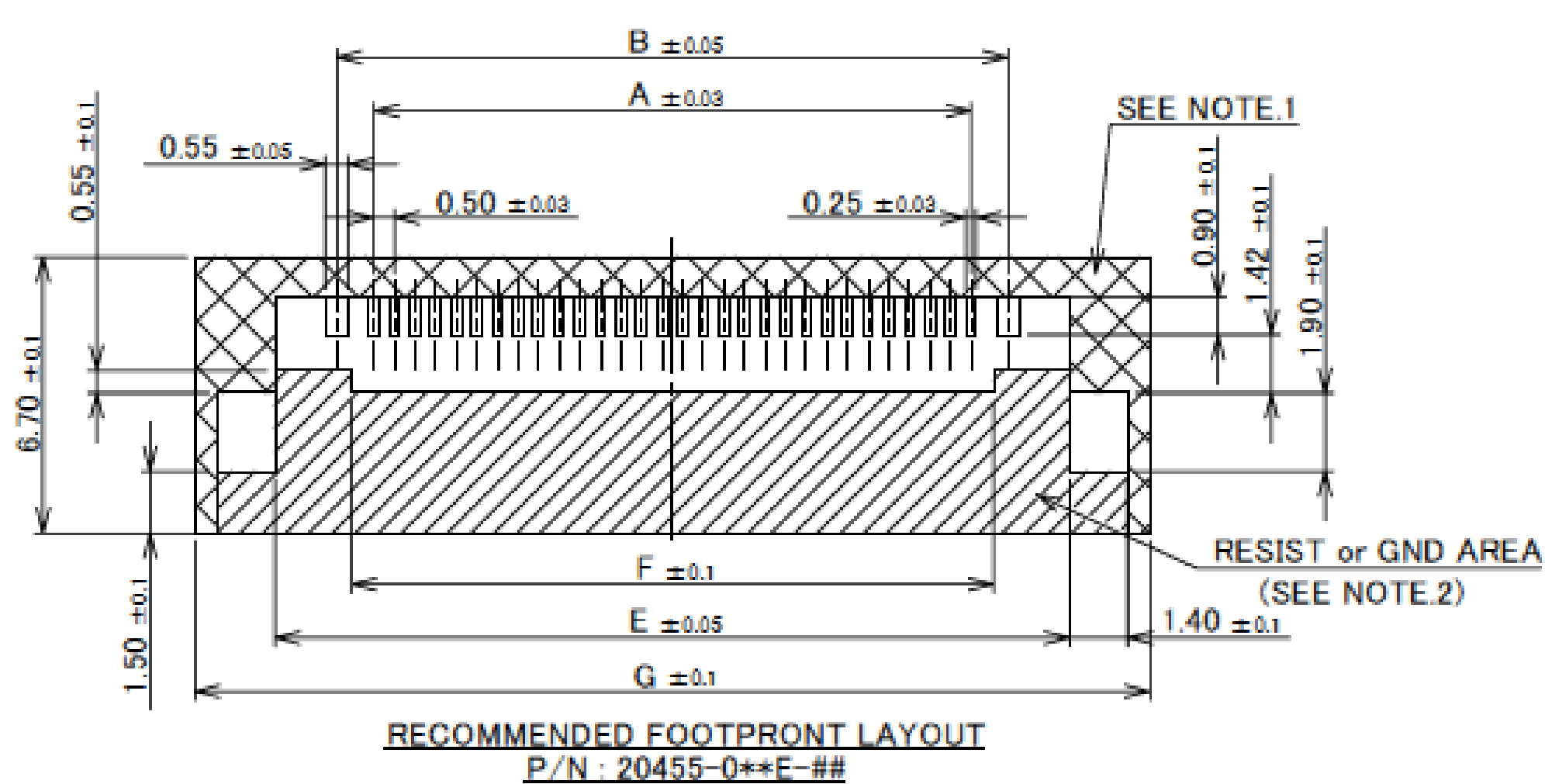
TABLE 2

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	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-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	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.

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.34

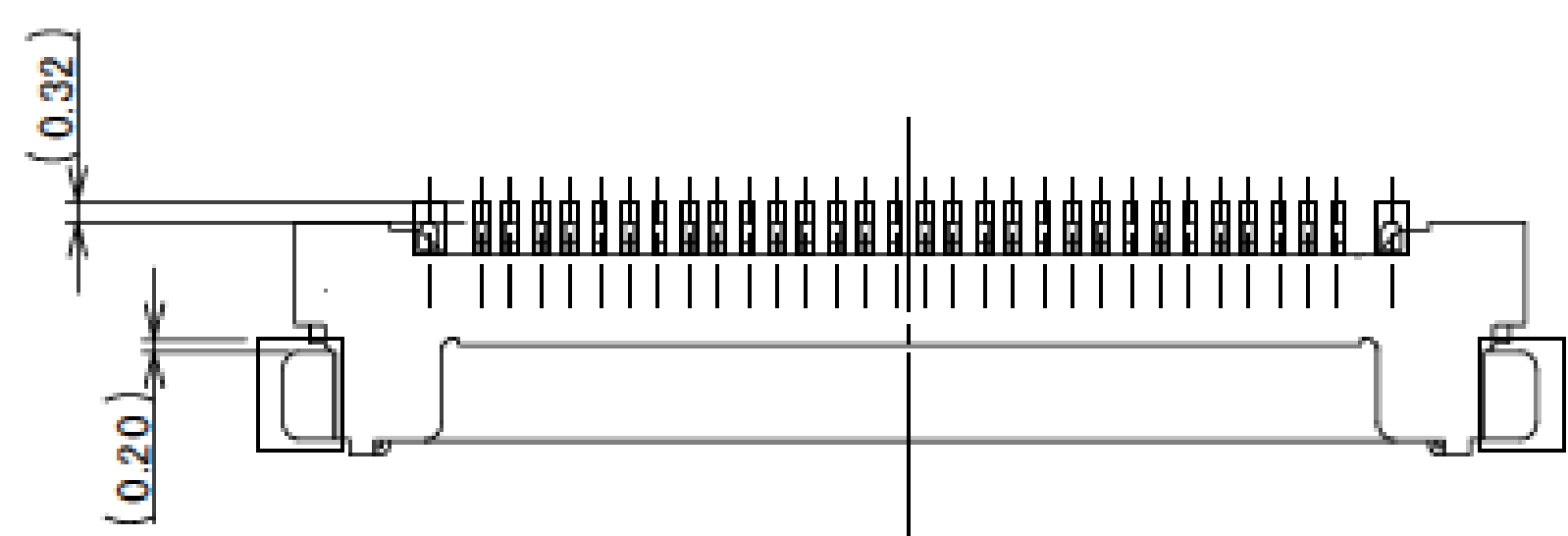
PART NO.	Pos.	A	B	E	F	G	H	J	K
20455-#20E-##	20	9.50	11.30	14.30	10.60	18.20	15.32	15.84	14.84
20455-030E-##	30	14.50	16.30	19.30	15.60	23.20	-	-	-
20455-040E-##	40	19.50	21.30	24.30	20.60	28.20	-	-	-
20455-050E-##	50	24.50	26.30	29.30	25.60	33.20	-	-	-



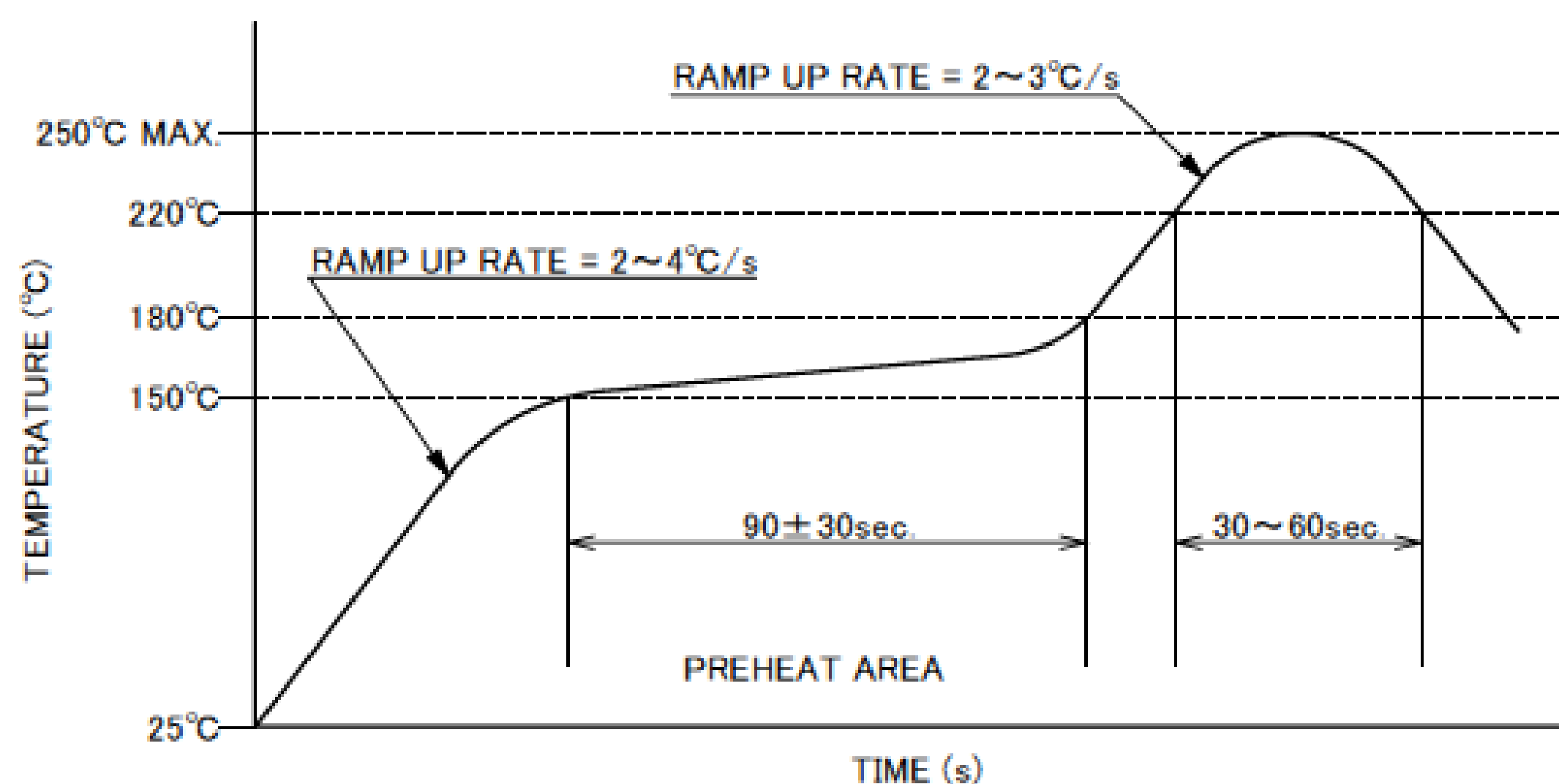
NOTES:
1. IN CASE OF PLUG WITH PULL-BAR, DO NOT MOUNT ANOTHER COMPONENT IN THIS AREA.
2. SOLDER RESIST MUST BE APPLIED TO THIS AREA.

Rev.34

Receptacle Assembly

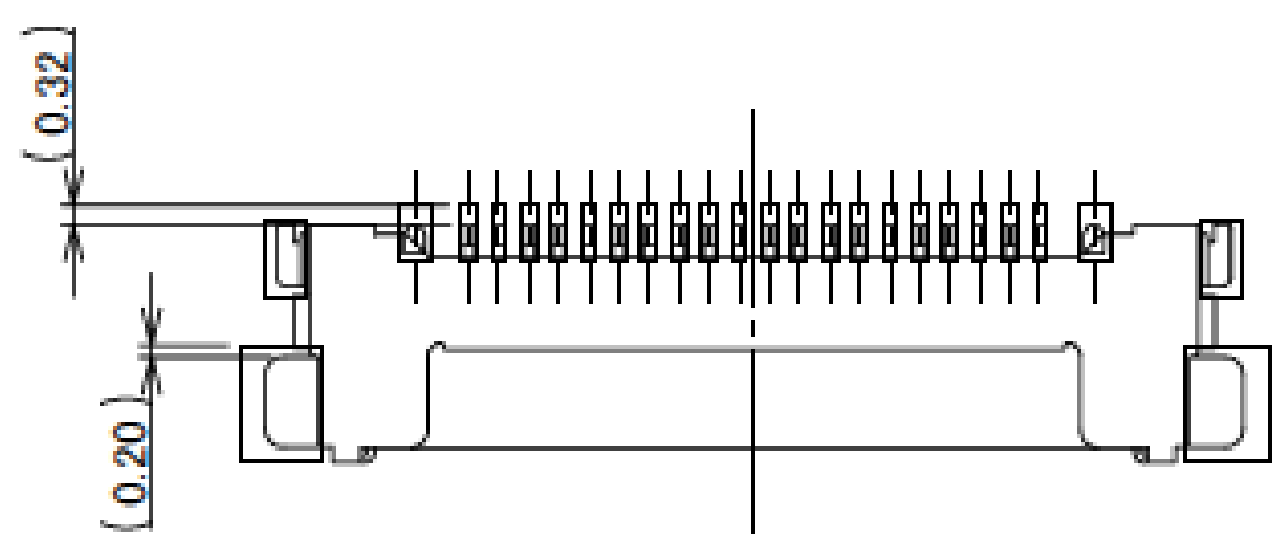


CONNECTOR ON RECOMMENDED FOOTPRINT PATTERN
P/N : 20455-0**E-##



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.34

FOR CABLINE-VSF PLUG SHELL ASSEMBLY (DWG NO. 20645)

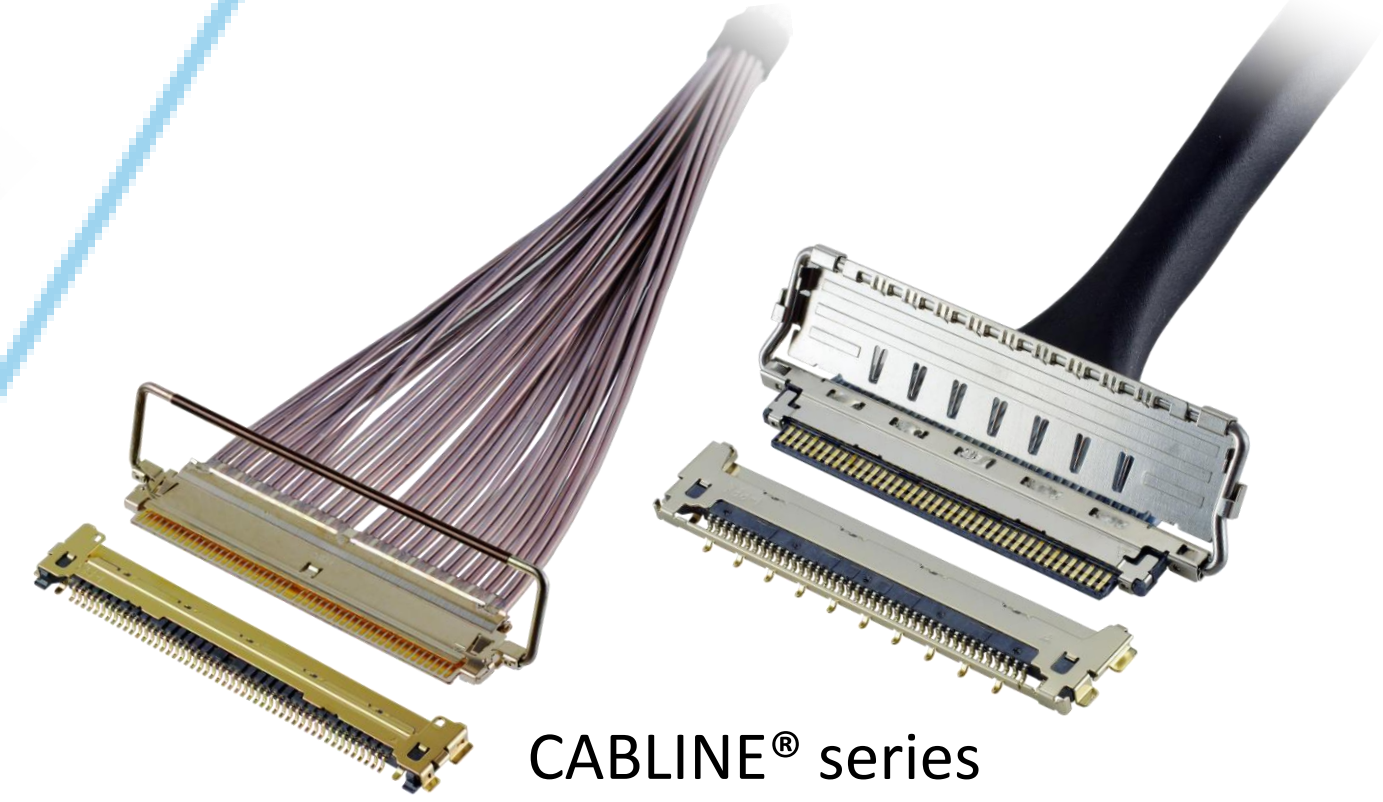
ITEMS	SPECIFICATION
RATING VOLTAGE	100V AC (PER CONTACT PIN)
RATING AMPERAGE (FOR CONTACT)	0.5A AC/DC (PER CONTACT PIN) ※AVAILABLE UP TO 20PIN 0.3A AC/DC (PER CONTACT PIN) ※AVAILABLE FOR ALL PIN ※TESTING BY A REAL MACHINE IS RECOMMENDED BECAUSE TEMPERATURE RISE MAY AFFECTED BY ACTUAL SITUATION.
OPERATING TEMPERATURE	233~358K(-40°C~+85°C)
OPERATING HUMIDITY	85% R.H. MAX.
CONTACT RESISTANCE (FOR SIGNAL CONTACT)	INITIAL : 60mohm MAX. / AFTER TEST : \triangleleft40mohm MAX.
GROUND SHELL RESISTANCE	INITIAL : 60mohm MAX. / AFTER TEST : \triangleleft40mohm 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.
COPLANARITY	0.10 MAX.
PRODUCT SPECIFICATION	PRS-1878
TEST REPORT	TR-14095 (20455-0**E-#2#) TR-17048 (20455-0**E-#9#)
PACKING STANDARD	300-643
INSTRUCTION MANUAL	HIM-13010
APPEARANCE CRITERIA NO.	QLS-A***

Rev.34

Custom Connectors Available

 RF Connectors

MHF® series



CABLINE® series



Micro-Coaxial/Twinax Connectors

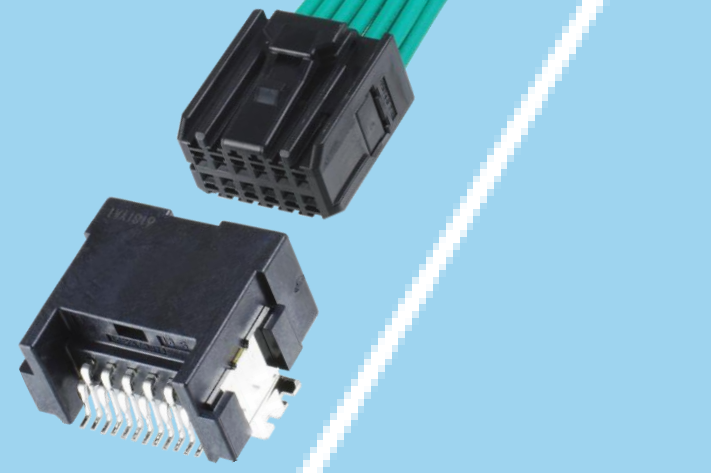


Wire-to-Board Connectors/Terminals

AP series



ISH® series



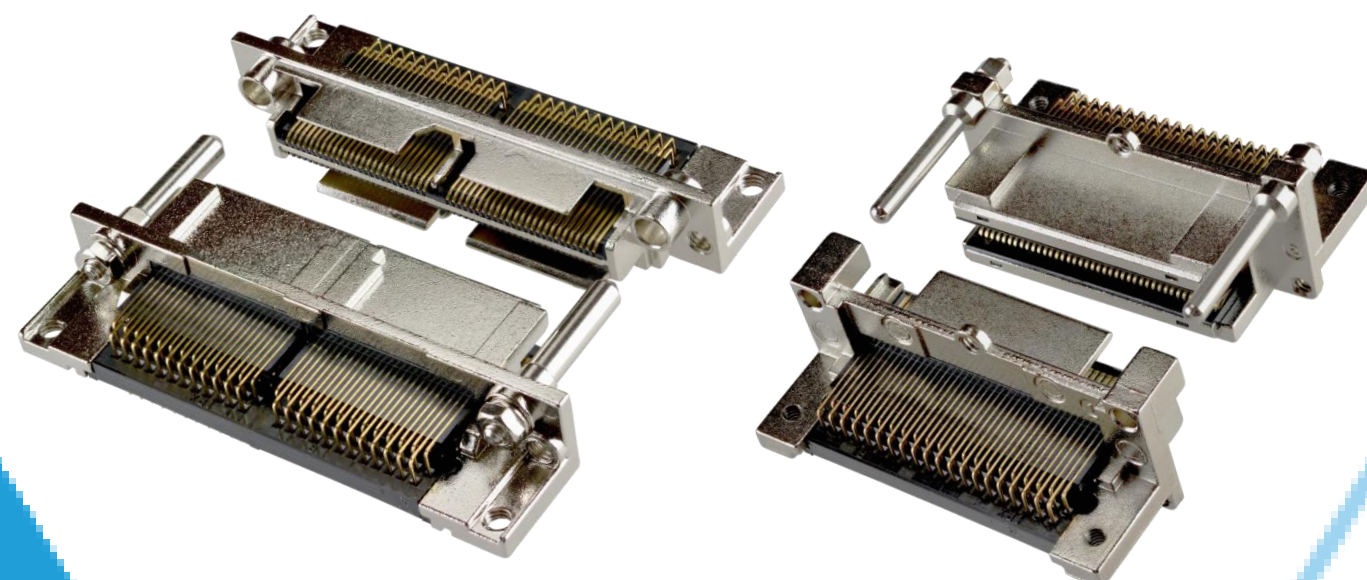
NOVASTACK® series



Board-to-Board Connectors



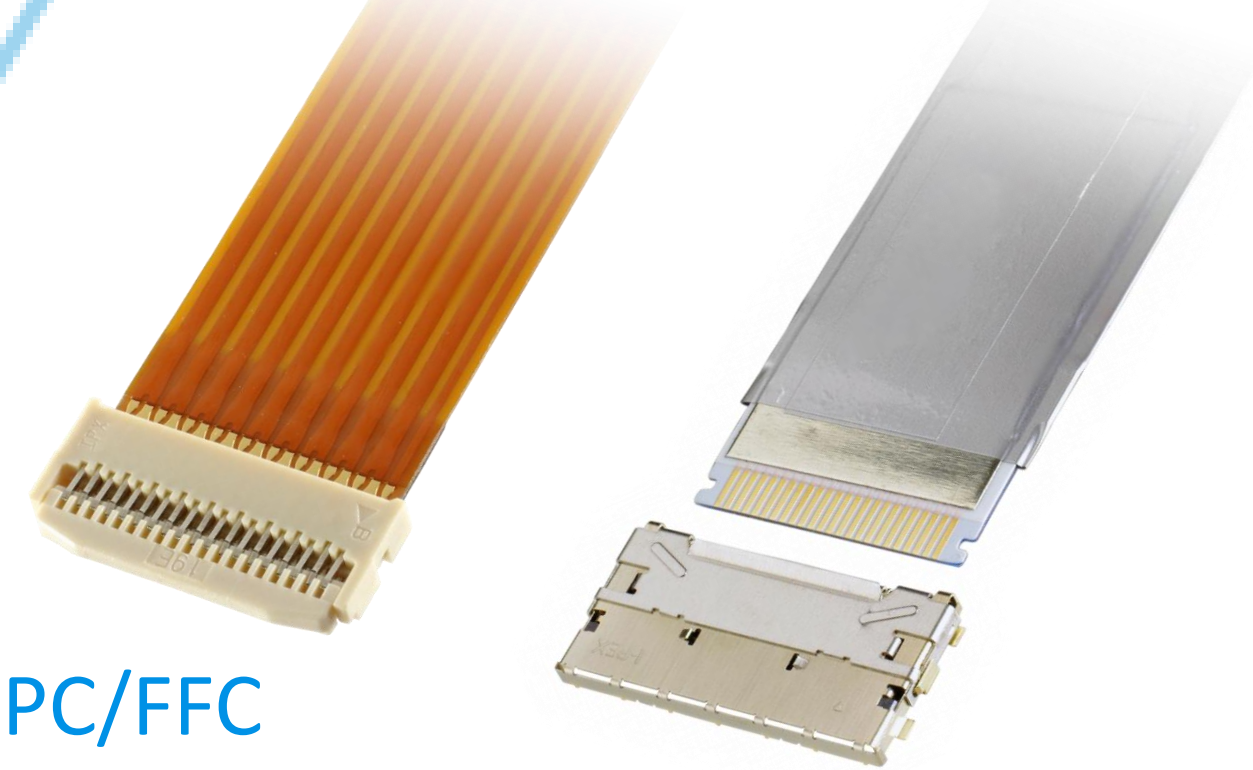
I/O Connectors



MINIDOCK™ series

MINIFLEX® series

EVAFLEX® series



FPC/FFC Connectors



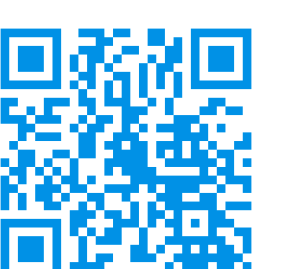
Inquiry



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