

# CABLINE® -CAL

Low mating height (Height 0.8 mm max.), High-data-rate transfer (40 Gbps/lane PAM3), Mechanical lock, 0.4 mm pitch, Horizontal mating type micro-coaxial connector

**Product Specifications:**

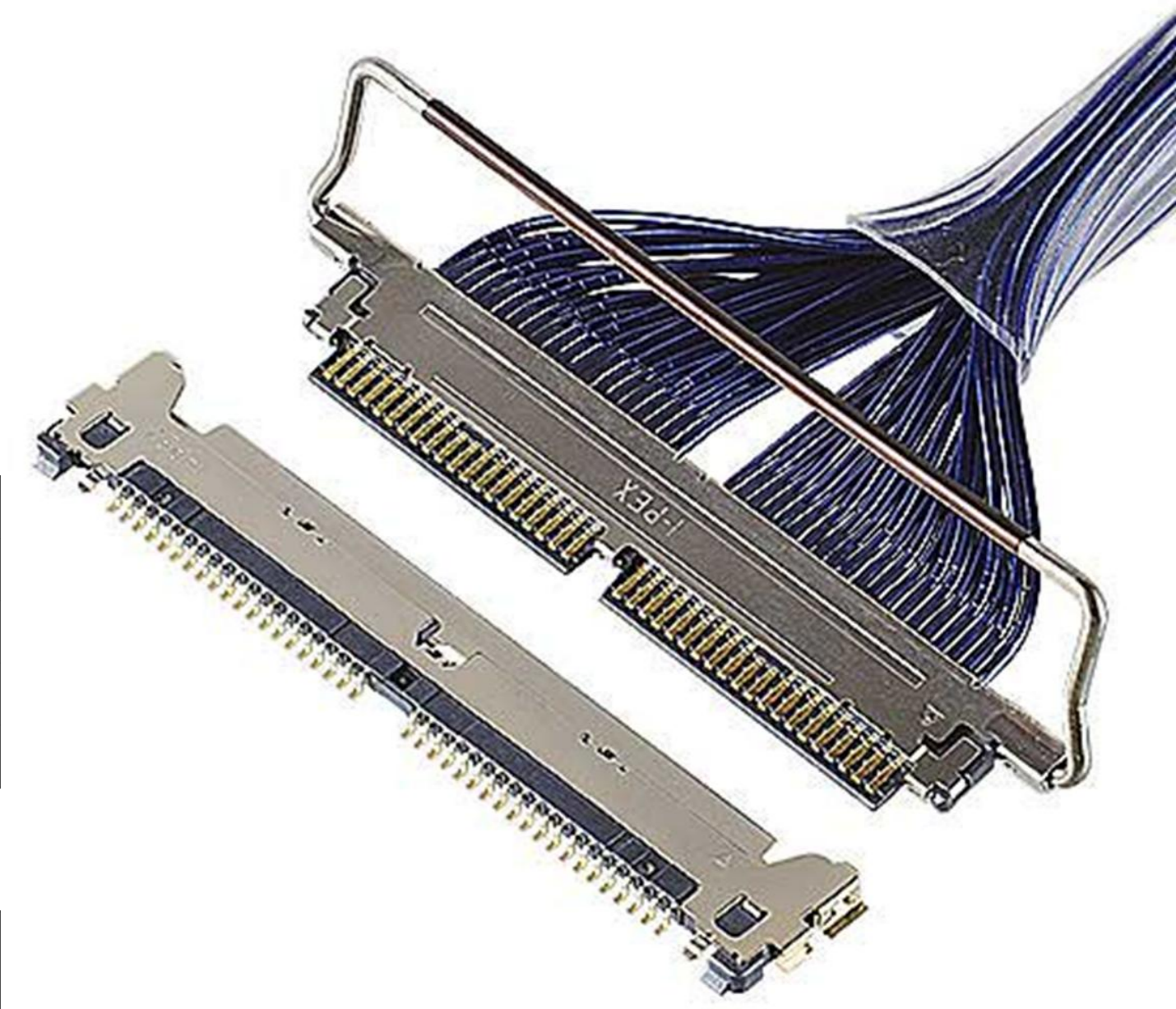
Mating Type	Horizontal	
Board Pitch	0.4 mm	
Wiping Length	0.4 mm	
Mated Size	Height	0.80 max.
	Width	10 to 20p: 6.85 + (0.4 x pin count) mm 22 to 40p: 8.05 + (0.4 x pin count) mm
	Depth	5.5 mm
Pin Counts	Range	Up to 40
	Available	30, 40

**Applicable Cable Size:**

Maximum O.D.	0.4 mm
Micro-Coaxial for Signal	45 ohm : AWG 38 or smaller
	50 ohm : AWG 40 or smaller
Twinaxial	-
Discrete	AWG 34 or smaller

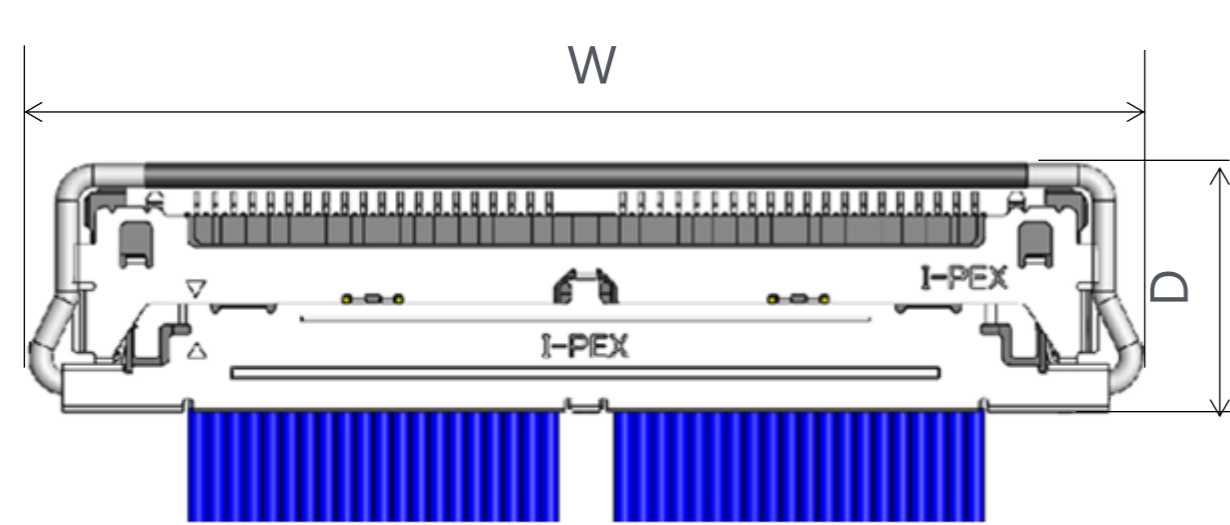
**Applicable Standards (Reference Only):**

USB4 Gen4 (40 Gbps/ Lane PAM3), DisplayPort UHBR20 (20 Gbps/Lane)

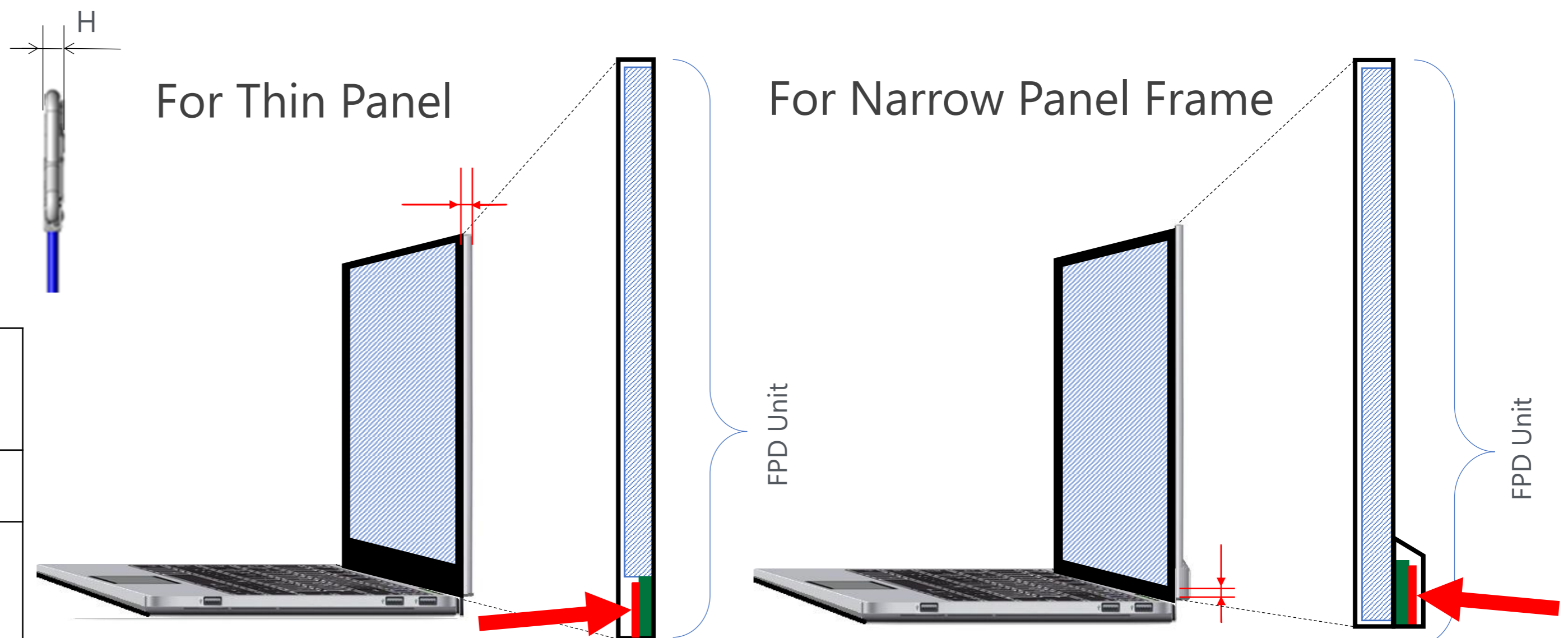


\* Please inquire for pin counts not listed or outside of the pin count range.

## ► Suitable for Low-Height Connector Space



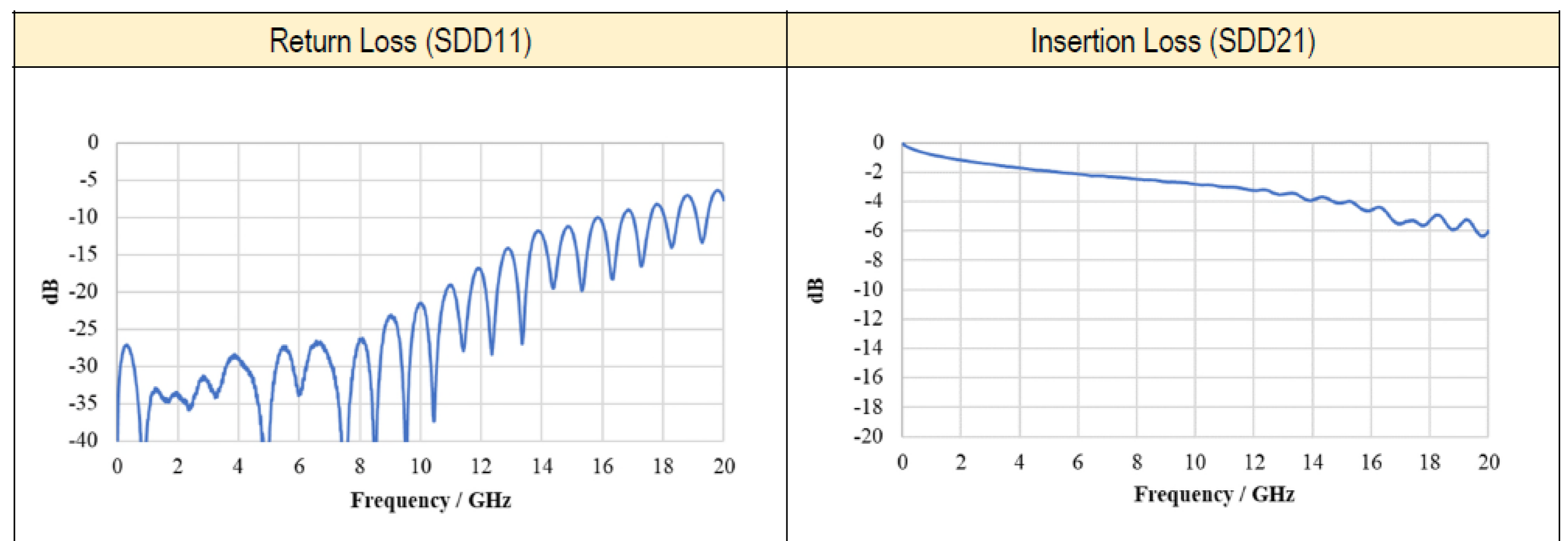
CABLLINE® -CAL 40 pin Mated Set Dimensions		
W	D	H
24.05 mm	5.50 mm	0.80 mm max.



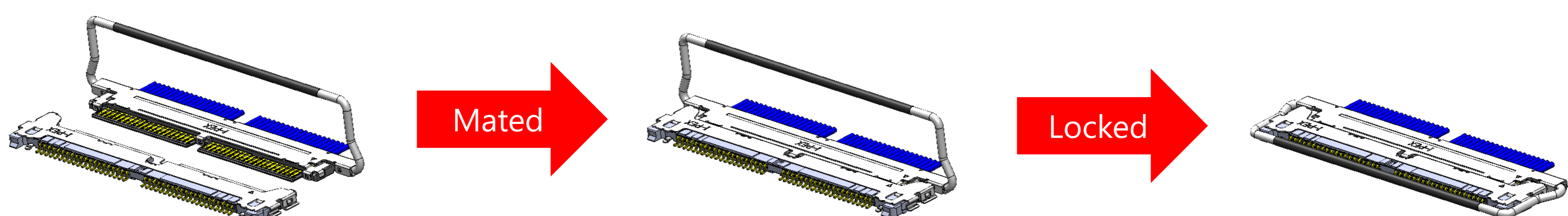
## ► High-data-rate transfer, ideal for 40 Gbps/lane PAM3 applications

**Measurement results**

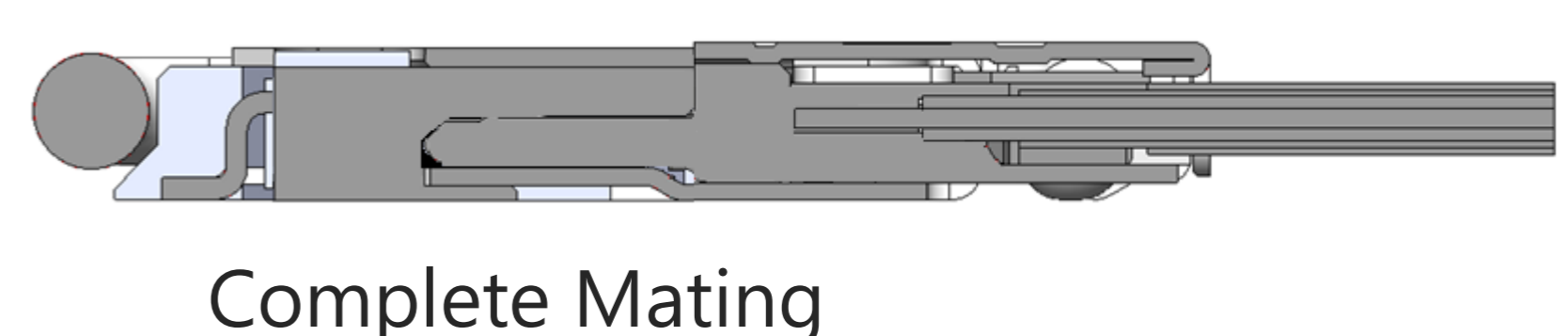
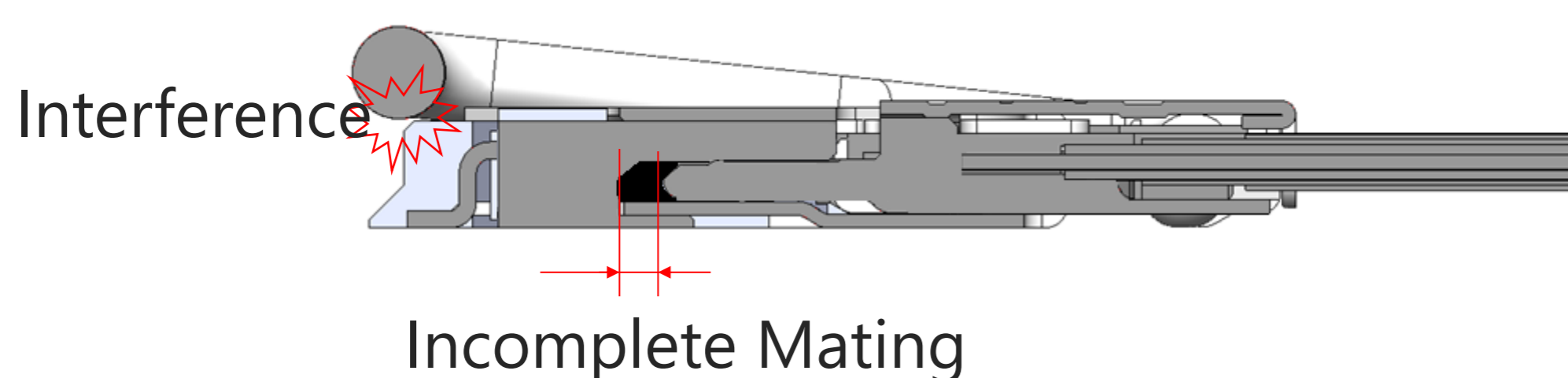
Connector: CABLINE-CAL 30 pin  
Cable: Micro-coaxial cable AWG 40, 45 ohm, Length : 100 mm  
Pin Assignment: GSSGSSG



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

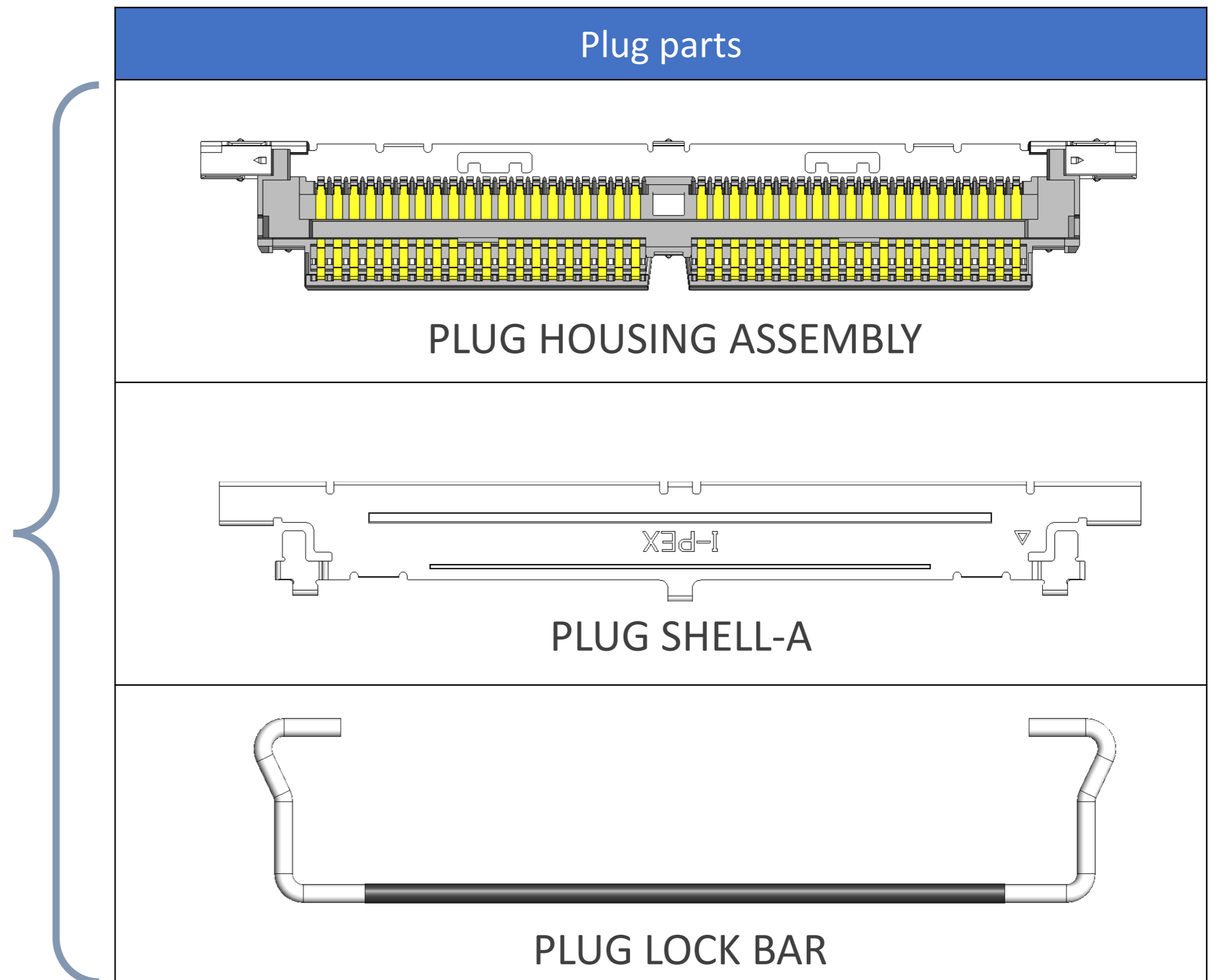
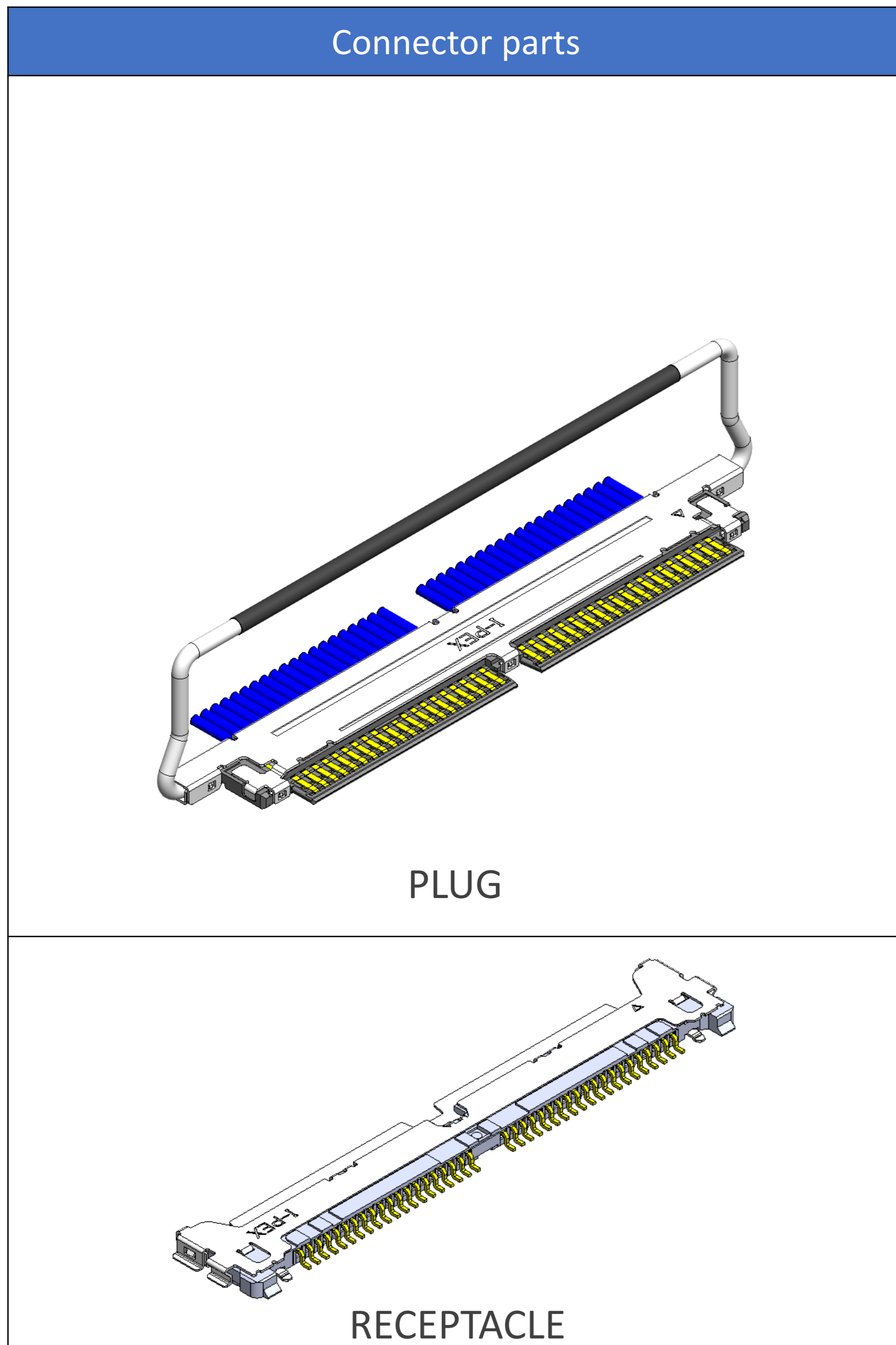


Mechanical locking bar can be locked only when plug is fully mated to receptacle



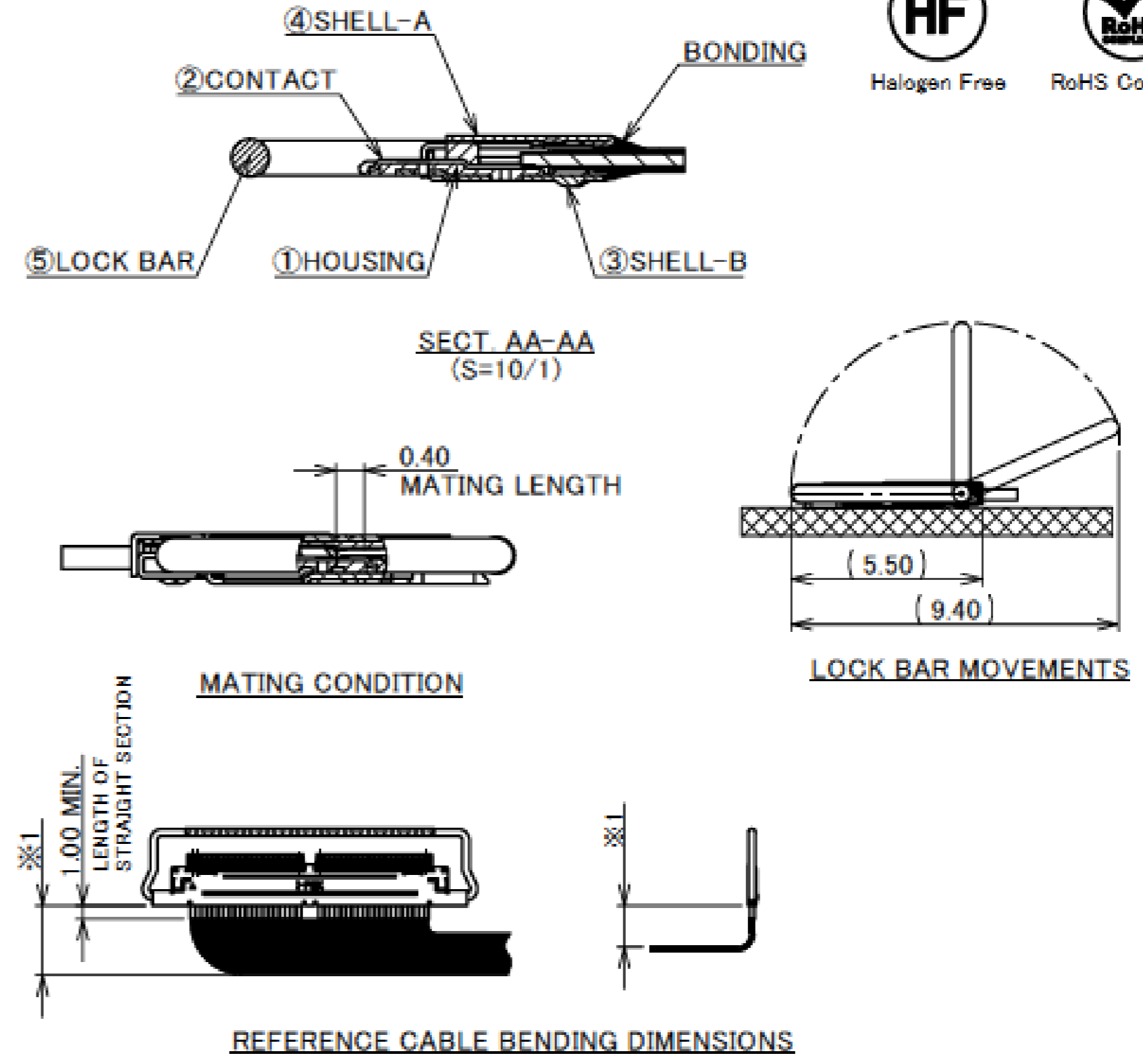
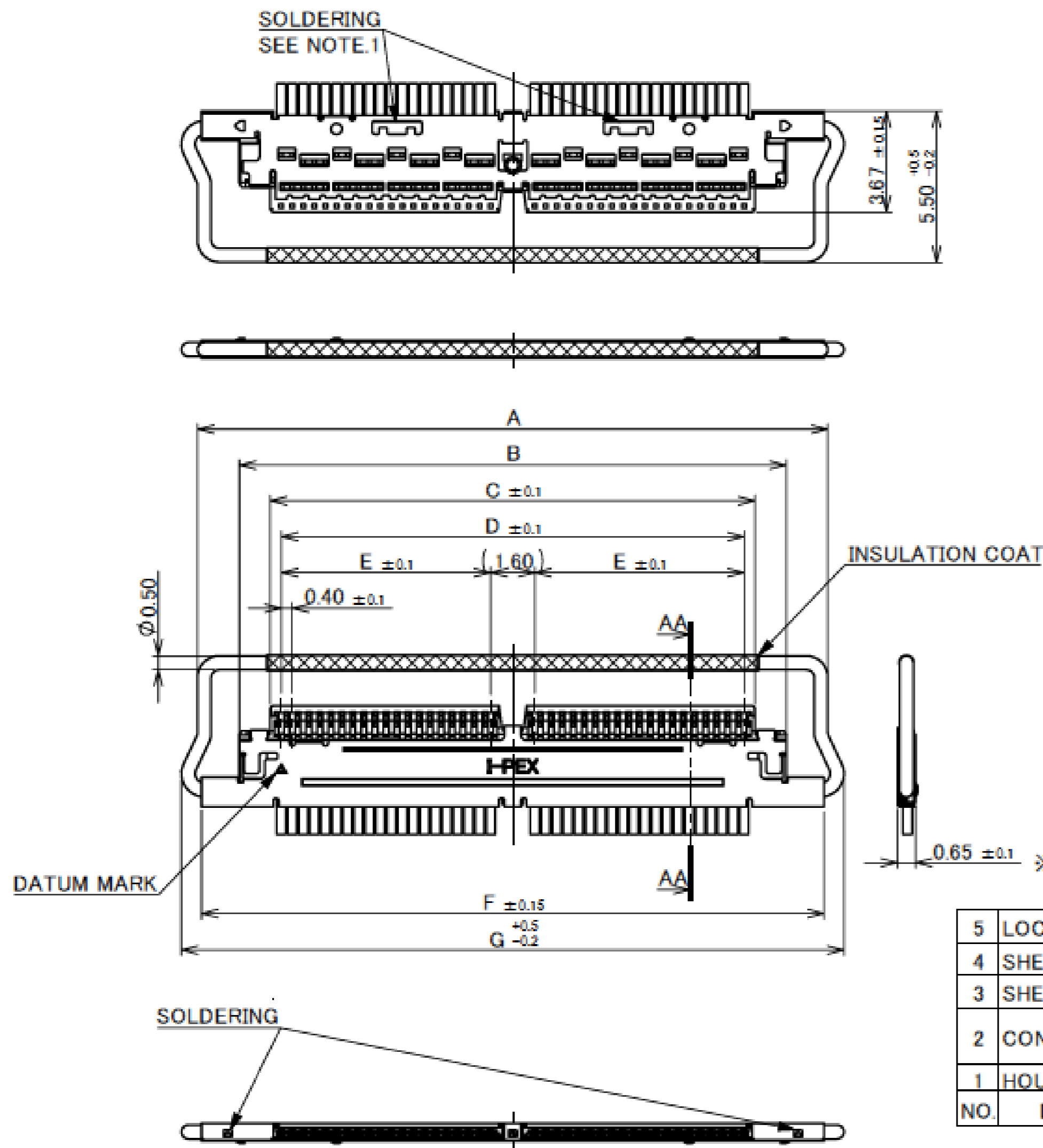
# Component Parts Details

## Component Parts



# Plug for Cable Assembly

Recommended P/N		20728-0**T-01						
PART NO.	Pos.	A	B	C	D	E	F	G
20728-030T-01	30	18.89	15.86	13.60	12.80	5.60	18.60	20.05
20728-040T-01	40	22.89	19.86	17.60	16.80	7.60	22.60	24.05



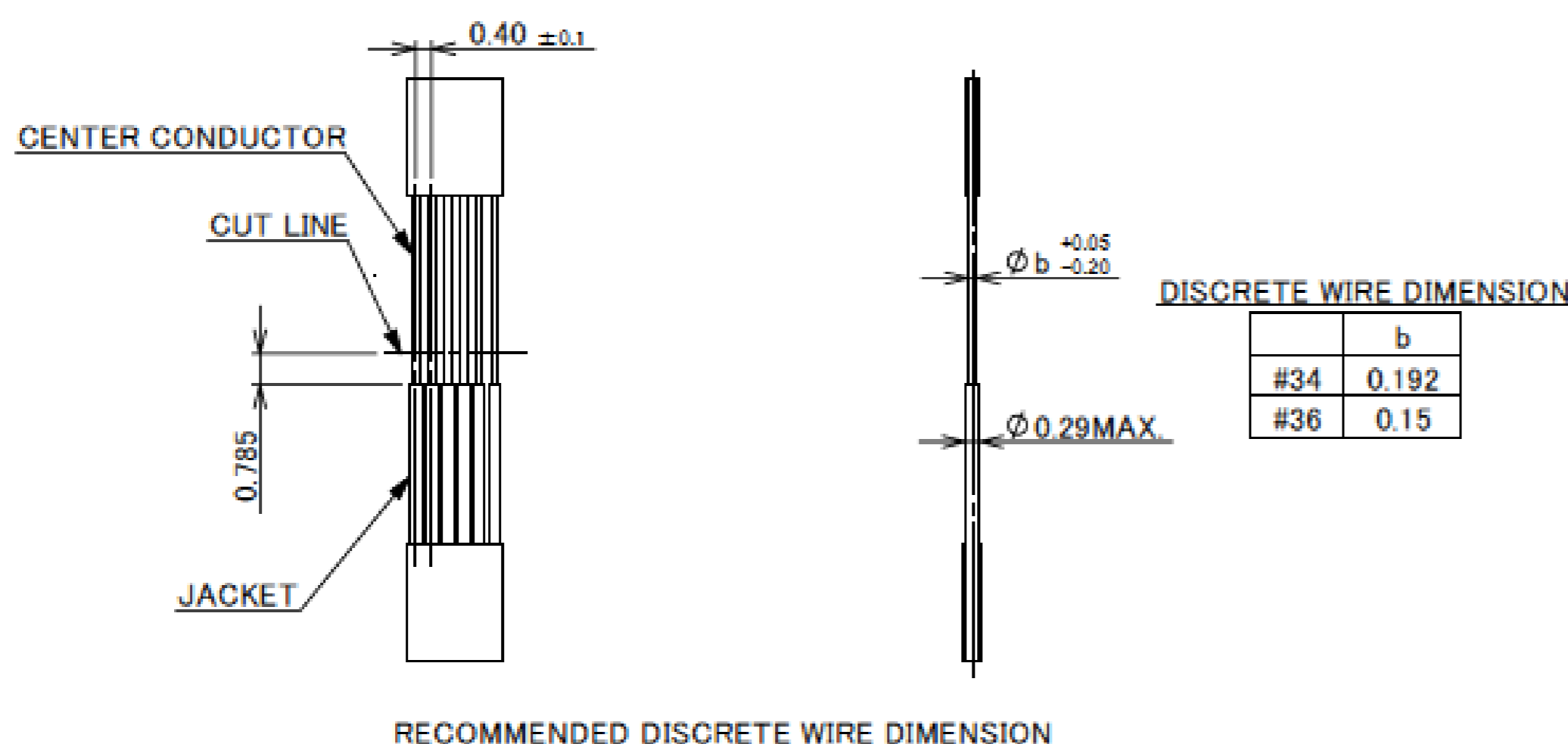
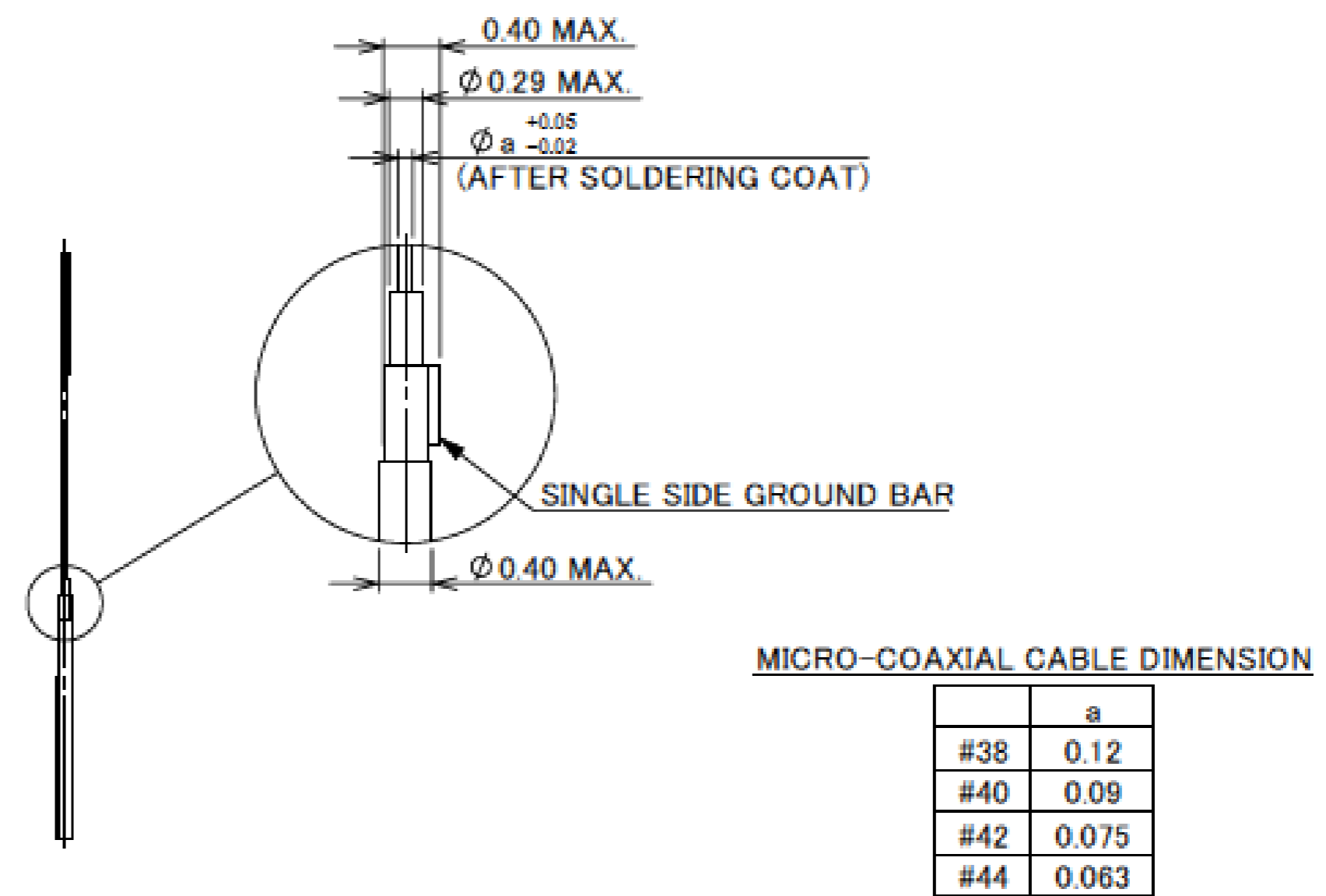
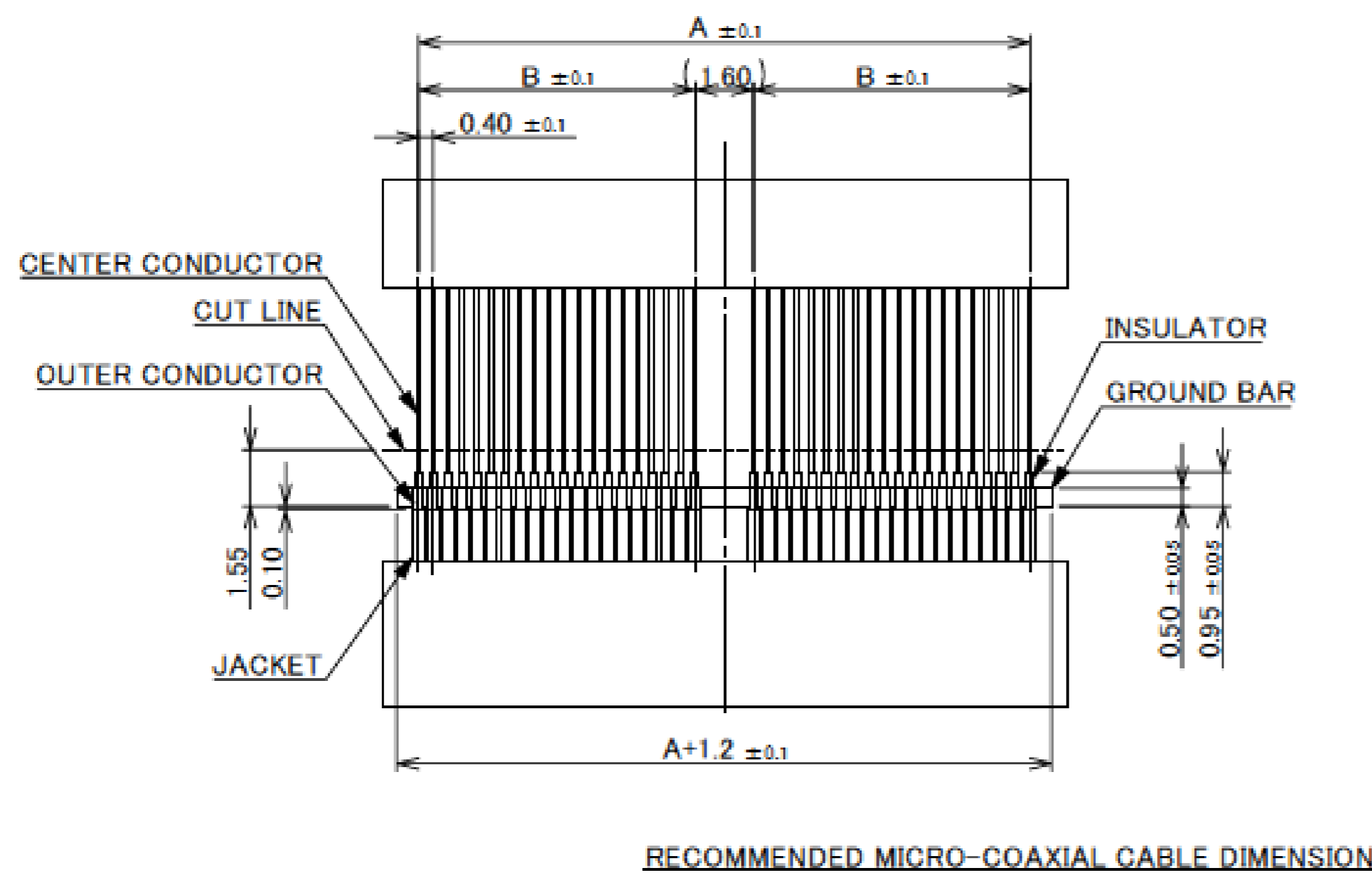
※1: THE BEND DIMENSIONS MAY VARY BASED ON THE SIZE AND QUANTITY OF CABLES. PLEASE CONFIRM THE MINIMUM BENDING RADIUS WITH I-PEX OR THE HARNESS MANUFACTURER.

NO.	DISCRIPTION	MATERIAL	FINISH , REMARKS
5	LOCK BAR	SUS	-
4	SHELL-A	PHOSPHOR BRONZE	PARTIAL Au 0.003 μm MIN. OVER Ni 1.0 μm MIN.
3	SHELL-B	PHOSPHOR BRONZE	PARTIAL Au 0.003 μm MIN. OVER Ni 1.0 μm MIN.
2	CONTACT	PHOSPHOR BRONZE	ALL OVER Ni 1.0 μm MIN. CONTACT & SOLDERING AREA : Au 0.03 μm MIN.
1	HOUSING	LCP	UL94V-0 BLACK RED PHOSPHORUS FREE

NOTES.  
1. SOLDERING IS ONLY A CASE WITH GND-BAR.

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PART NO.	Pos.	A	B
20728-030T-0#	30	12.80	5.60
20728-040T-0#	40	16.80	7.60



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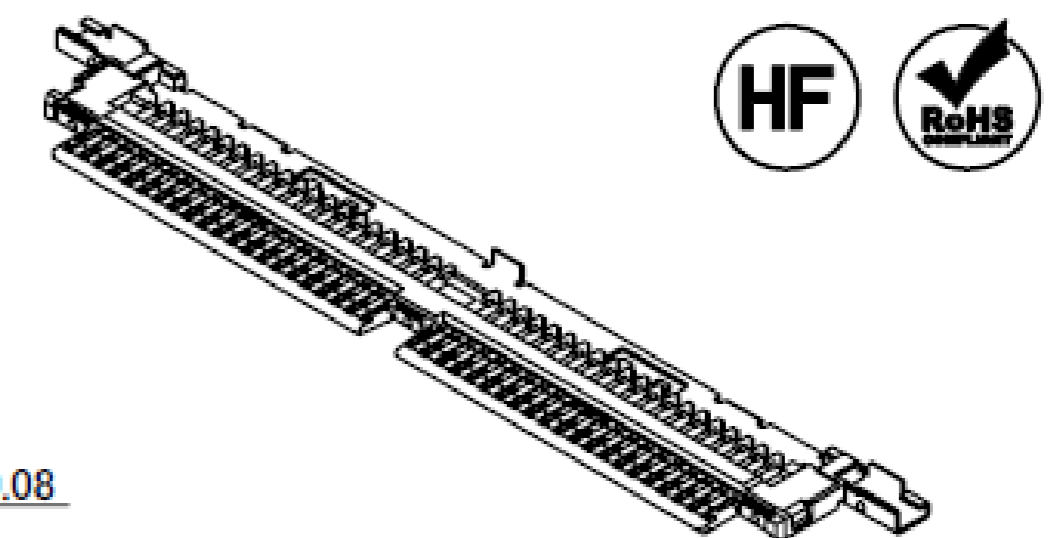
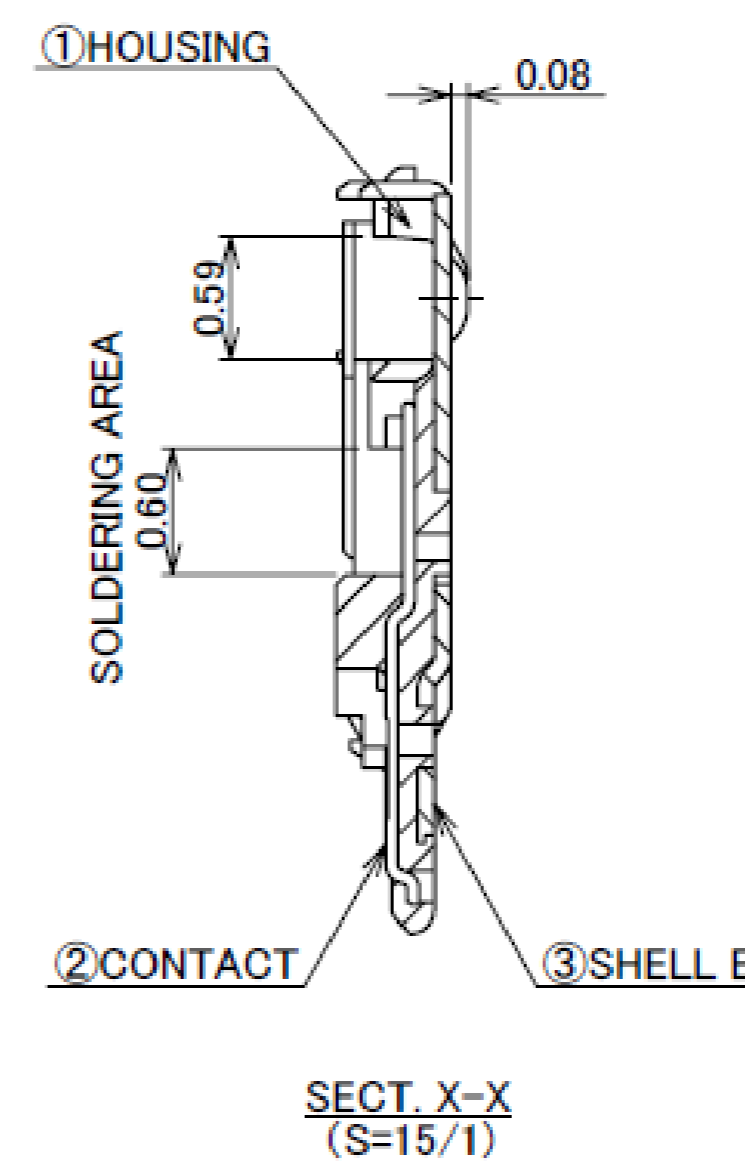
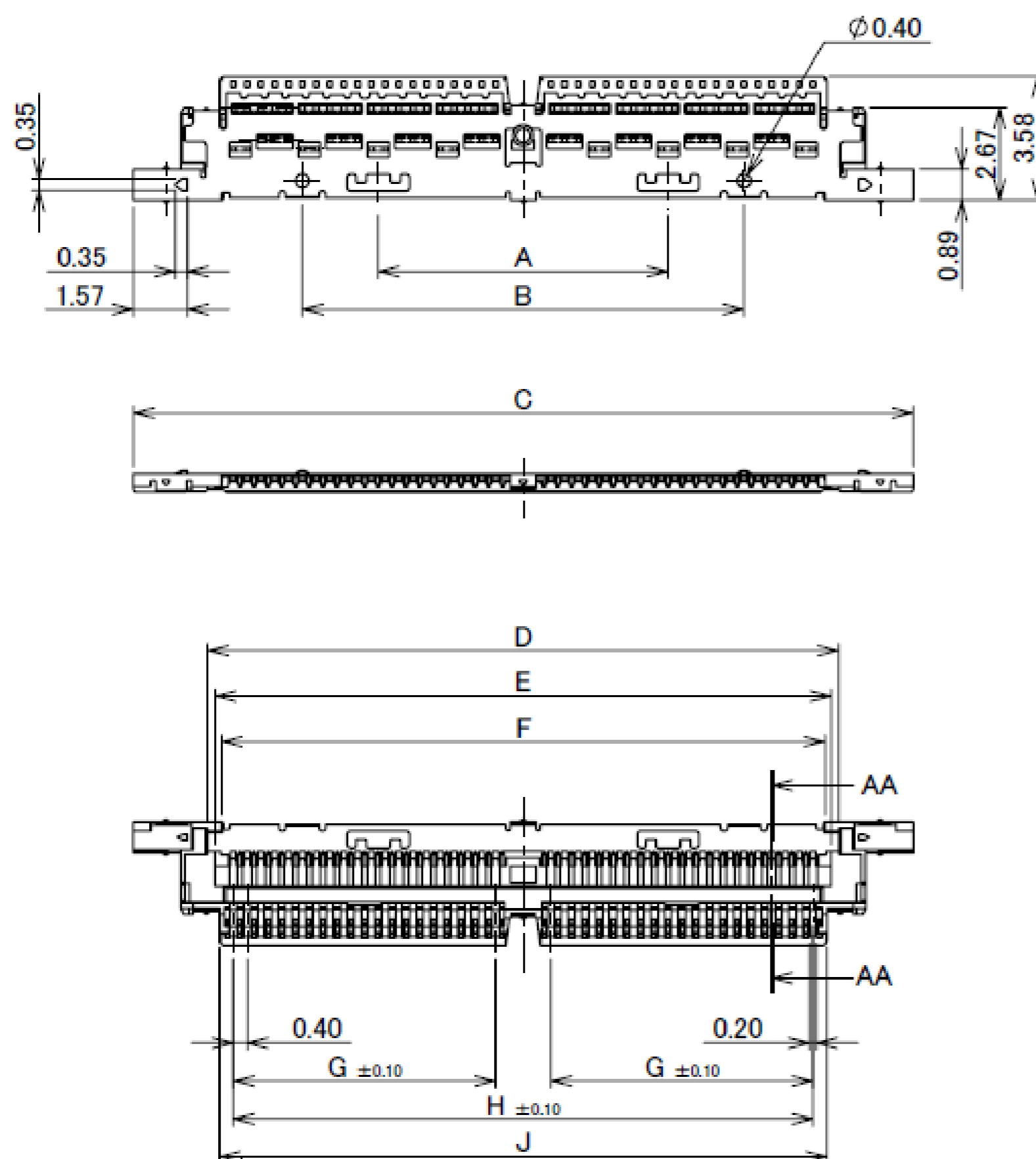
# Plug for Cable Assembly

ITEMS	SPECIFICATION
APPLICABLE CABLE	MICRO-COAXIAL CABLE : AWG# 38,40,42,44 DISCRETE WIRE : AWG# 34,36
RATING VOLTAGE	100V AC (PER CONTACT PIN) ※THIS IS THE RATED VOLTAGE OF THE CONNECTOR. PLEASE NOTE THAT THE RATED VOLTAGE MAY VARY IN THE HARNESS DEPENDING ON THE CABLES USED.
RATING AMPERAGE (FOR CONTACT)	0.15A AC/DC [AWG#44] PER CONTACT PIN/UP TO 40 CONTACTS 0.24A AC/DC [AWG#42] PER CONTACT PIN/UP TO 40 CONTACTS 0.30A AC/DC [AWG#40] PER CONTACT PIN/UP TO 32 CONTACTS 0.50A AC/DC [AWG#38] PER CONTACT PIN, FOR POWER/UP TO 14 CONTACTS 0.80A AC/DC [AWG#36] PER CONTACT PIN, FOR POWER/UP TO 5 CONTACTS 1.00A AC/DC [AWG#34] PER CONTACT PIN, FOR POWER/UP TO 4 CONTACTS  ※ 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% MAX.(NON-CONDENSING)
CONTACT RESISTANCE	INITIAL : 180mohm MAX.(AWG#34) / AFTER TEST : $\triangle$ 40mohm MAX. 275mohm MAX.(AWG#36) 360mohm MAX.(AWG#38) 600mohm MAX.(AWG#40) 700mohm MAX.(AWG#42) 1080mohm MAX.(AWG#44)
GROUND SHELL RESISTANCE	INITIAL : 50mohm 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 : 12.0N MAX. 40P : 16.0N MAX.
UNMATING FORCE (INITIAL / AFTER TEST)	30P : 1.80N MIN. 40P : 2.40N MIN.
CABLE RETENTION FORCE	30P : 11.8N MIN. 40P : 12.4N MIN.
PRODUCT SPECIFICATION	PRS-2371
TEST REPORT	TR-17036
INSTRUCTION MANUAL	HIM-17010
ASSEMBLY MANUAL	ASM-17003
APPEARANCE CRITERIA No.	QLS-A***

Rev.7

# Plug Housing Assembly

Recommended P/N		20777-0**T-01									
PART No.	Pos.	A	B	C	D	E	F	G	H	J	
20777-030T-01	30	4.40	8.80	18.60	14.30	13.85	13.50	5.60	12.80	13.60	
20777-040T-01	40	8.40	12.80	22.60	18.30	17.85	17.50	7.60	16.80	17.60	



**NOTES.**

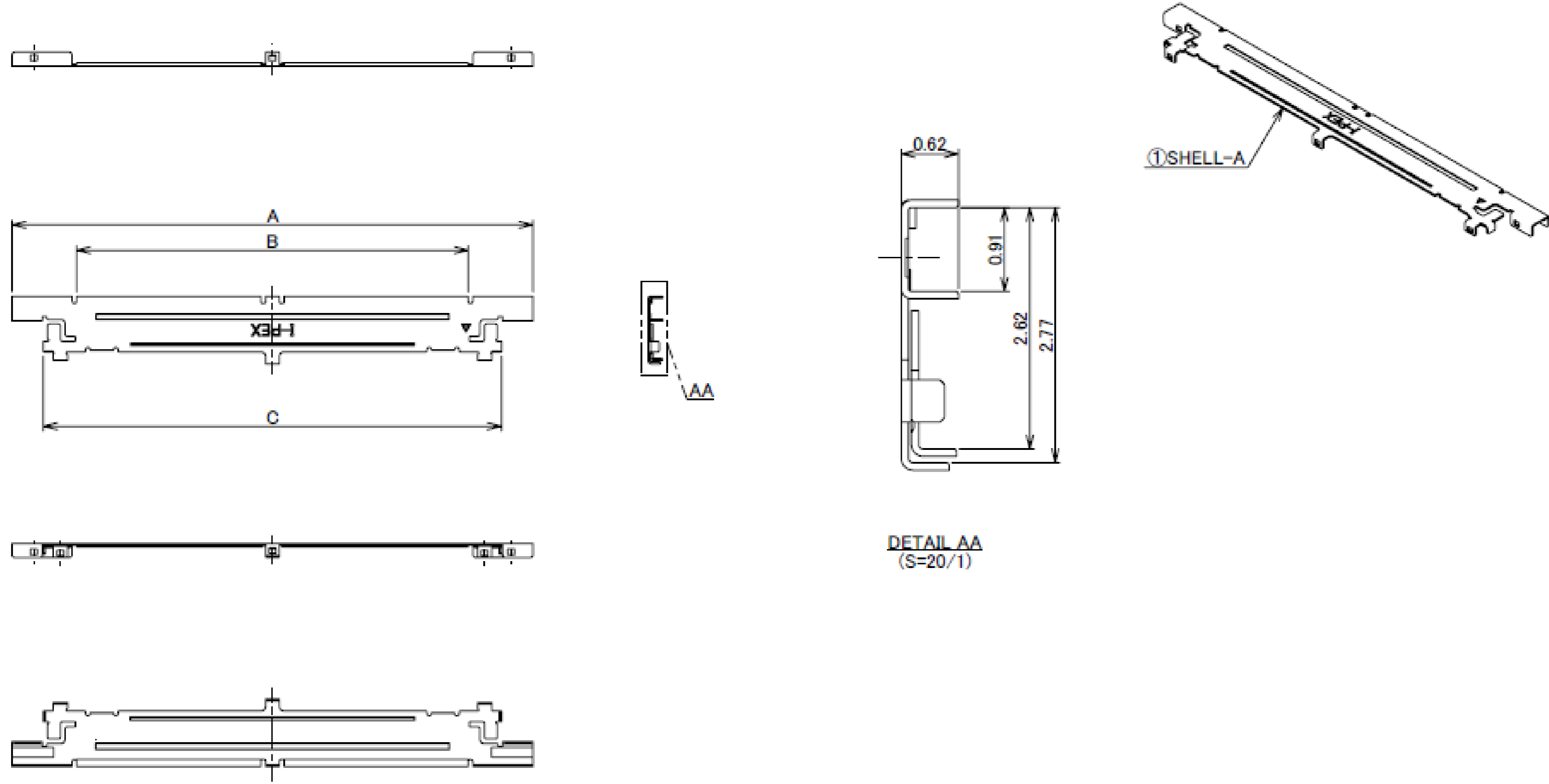
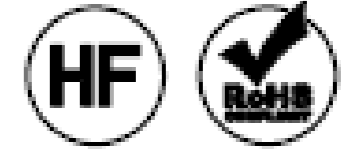
1. THIS PART IS ASSEMBLED WITH P/N: 3298-0\*\*1 AND 3300-\*\*1 AFTER SOLDERING CABLES AND SHALL BE ASSIGNED AS P/N: 20728-0\*\*T-01.

NO.	DISCRIPTION	MATERIAL	FINISH , REMARKS
3	SHELL-B	PHOSPHOR BRONZE	PARTIAL Au 0.003 μm MIN. OVER 1.00 μm MIN.
2	CONTACT	PHOSPHOR BRONZE	ALL OVER Ni 1.00 μm MIN. CONTACT & SOLDERING AREA : Au 0.03 μm MIN.
1	HOUSING	LCP	UL94-0, BLACK, RED PHOSPHORUS FREE

Rev.4

# Plug Shell-A

Recommended P/N		3298-0**1		
PART No.	Pos.	A	B	C
3298-0301	30	18.60	12.98	15.86
3298-0401	40	22.60	16.98	19.86

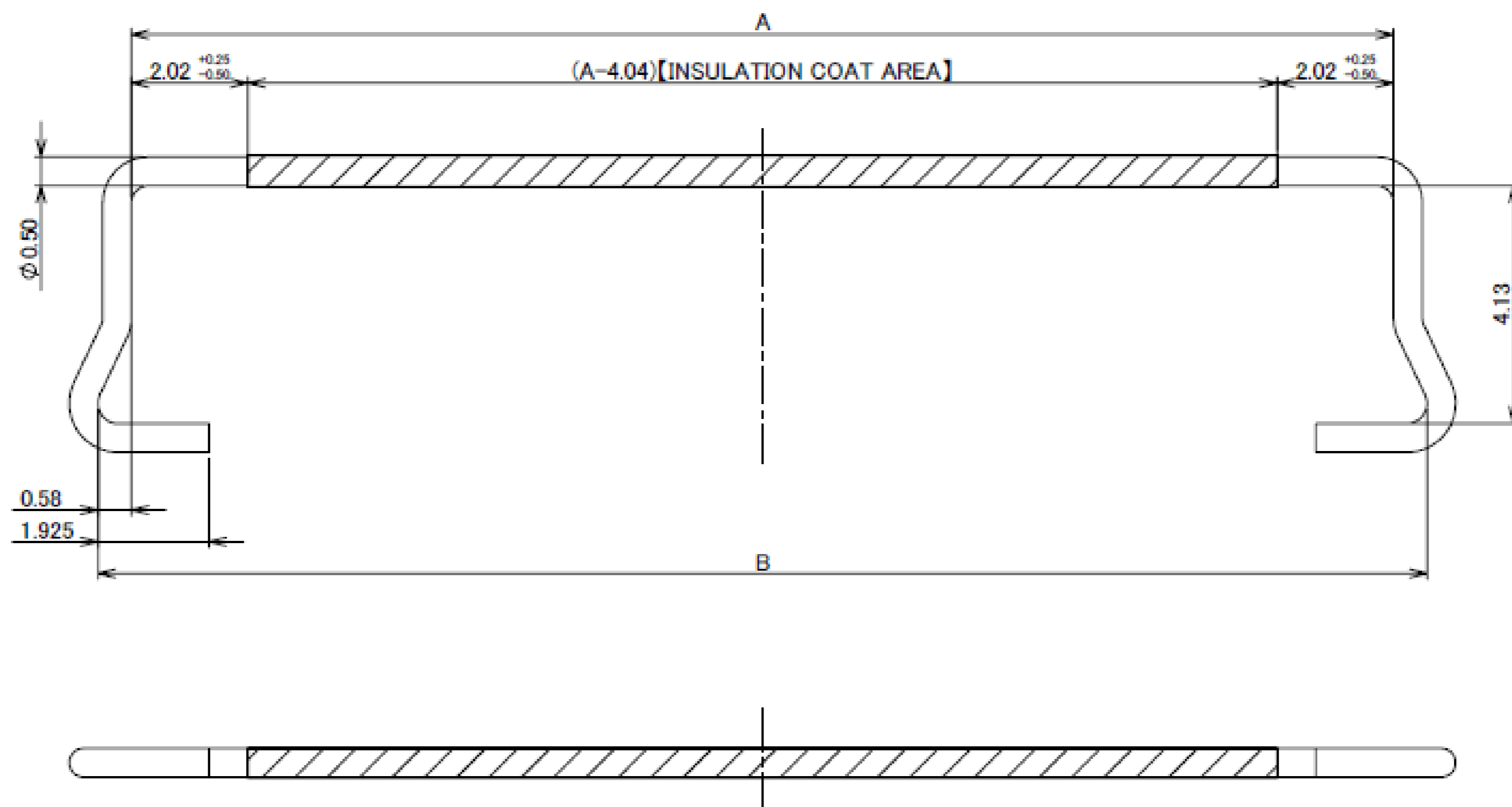
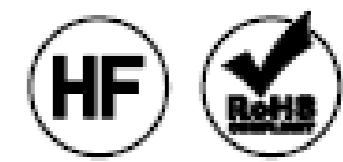


NO.	DISCRIPTION	MATERIAL	FINISH , REMARKS
1	SHELL-A	PHOSPHOR BRONZE	PARTIAL Au 0.003 μm MIN. OVER Ni 1.0 μm MIN.

Rev.3

# Plug Lock Bar

Recommended P/N		3300-0**1	
PART No.	Pos.	A	B
3300-0301	30	17.89	19.05
3300-0401	40	21.89	23.05

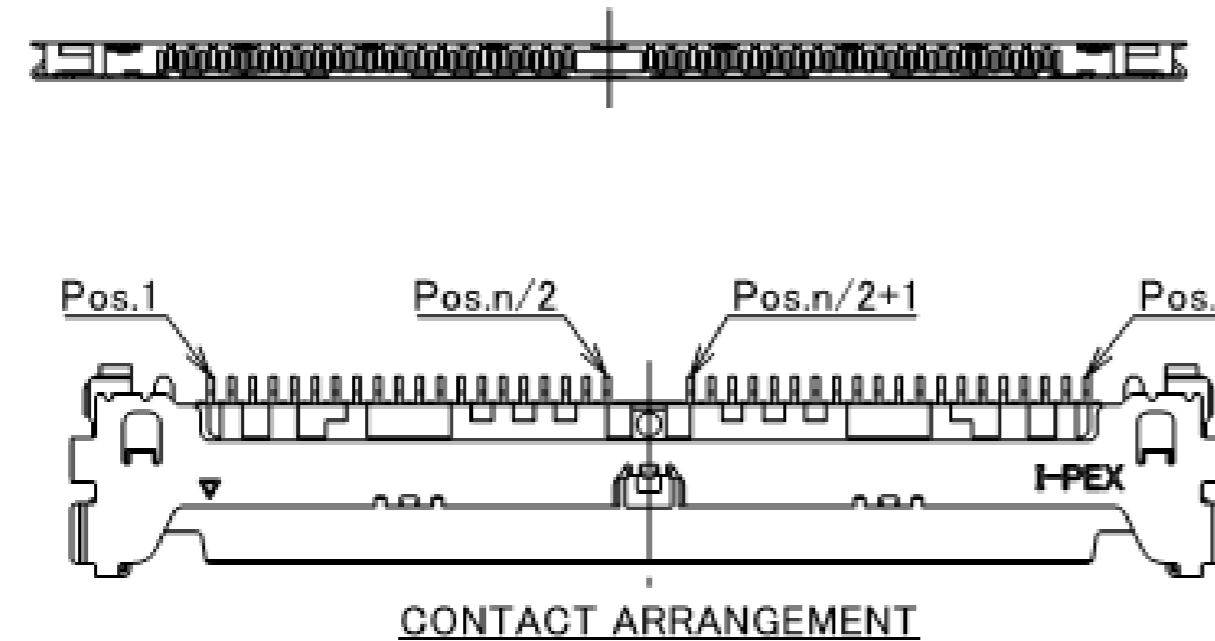
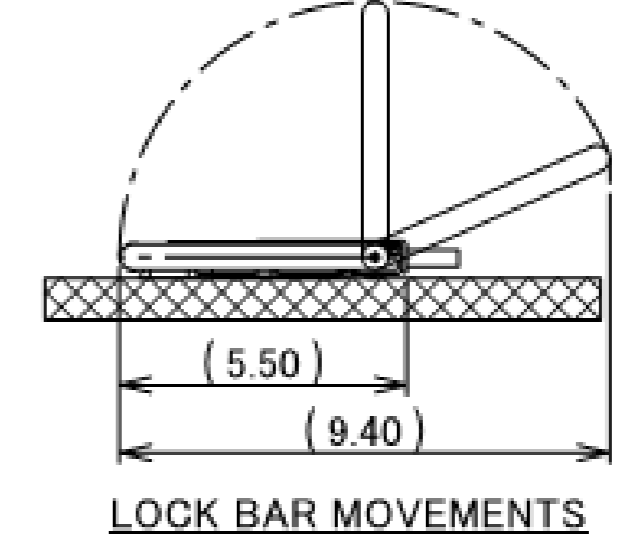
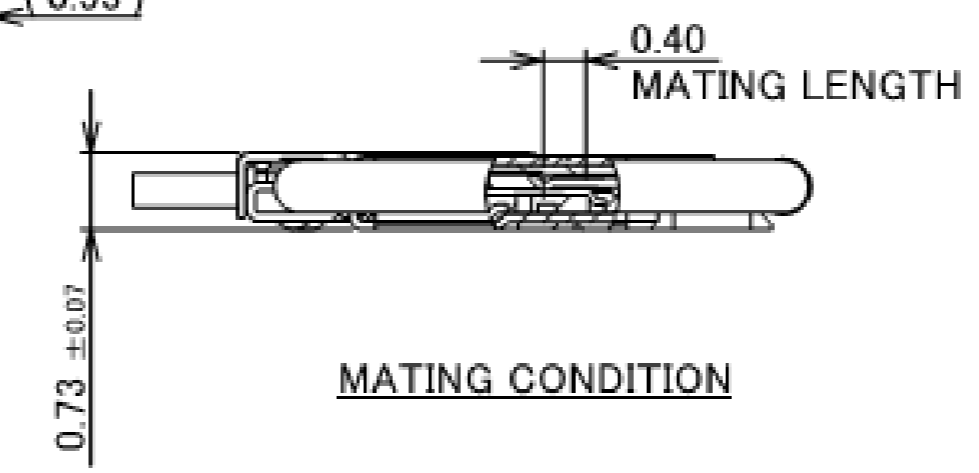
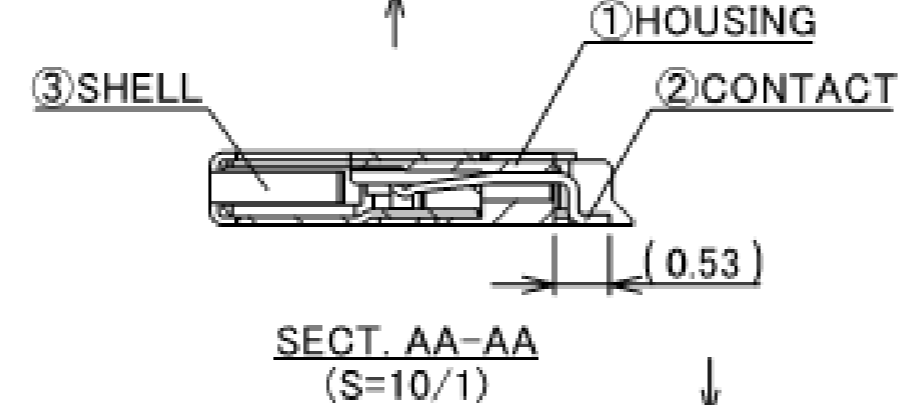
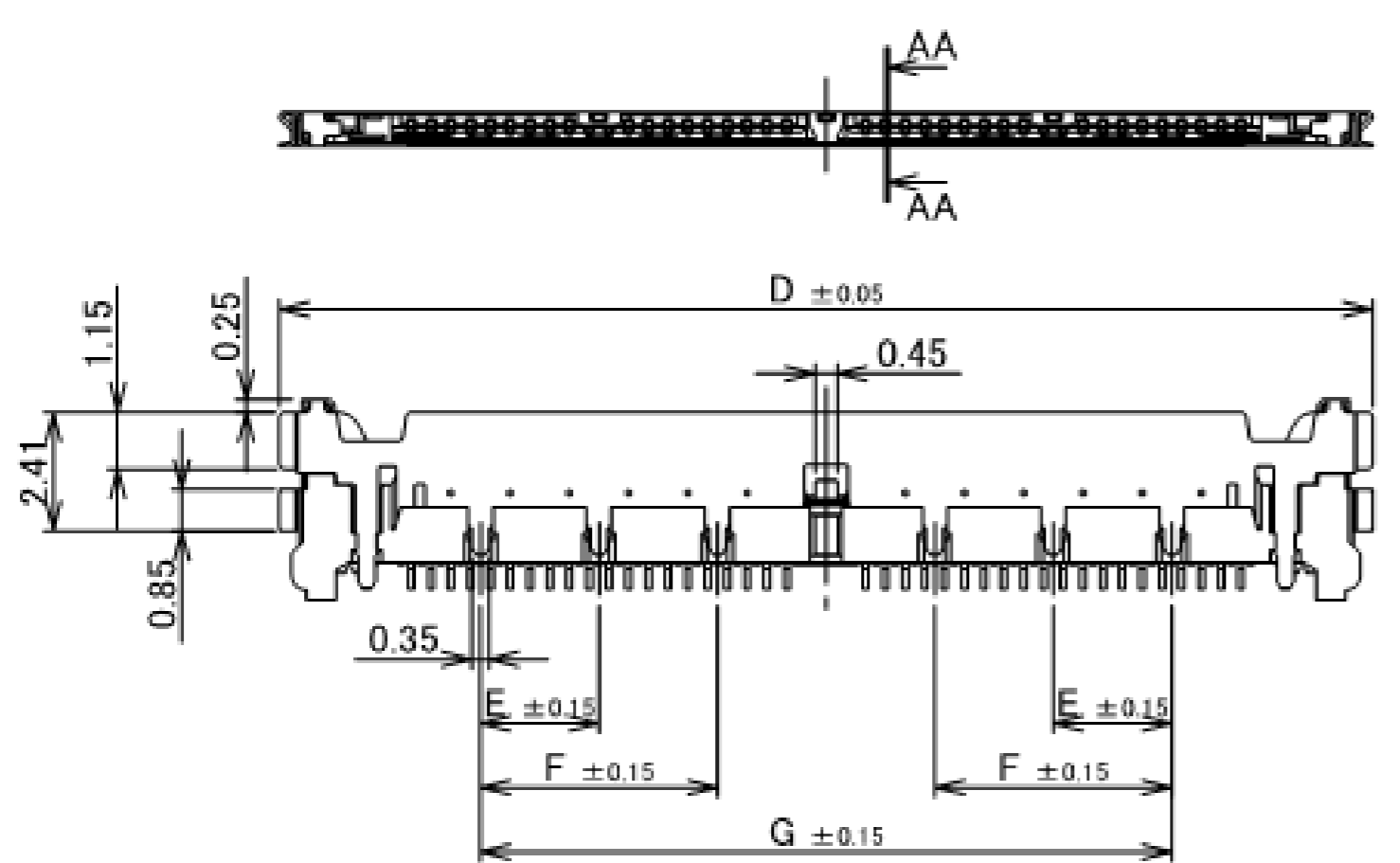
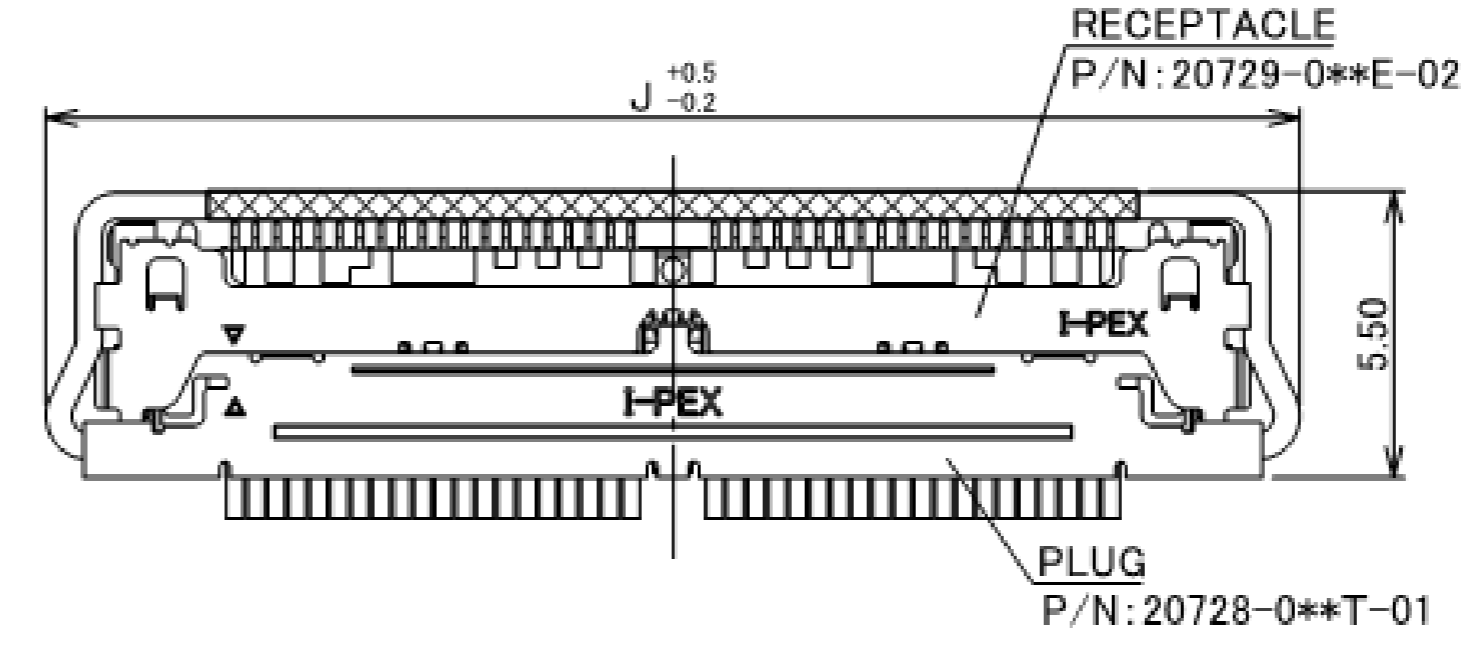
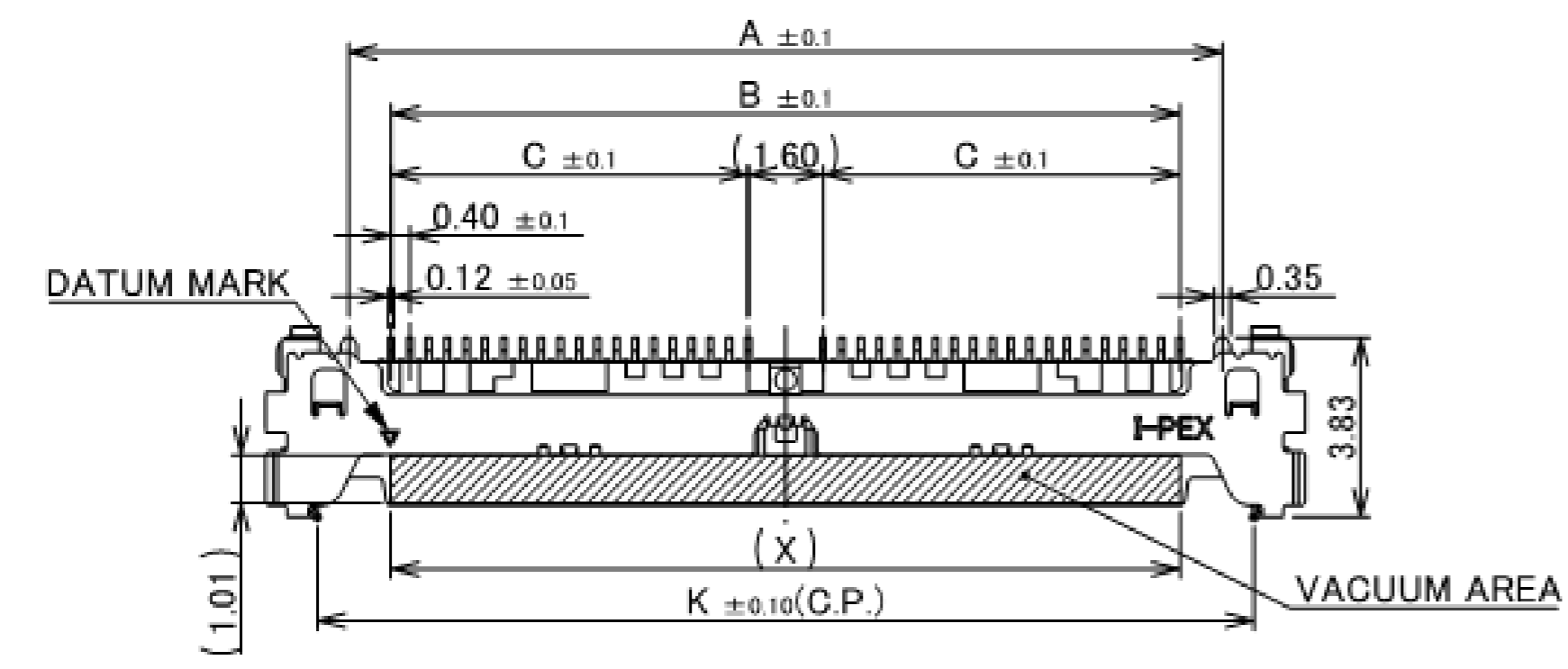
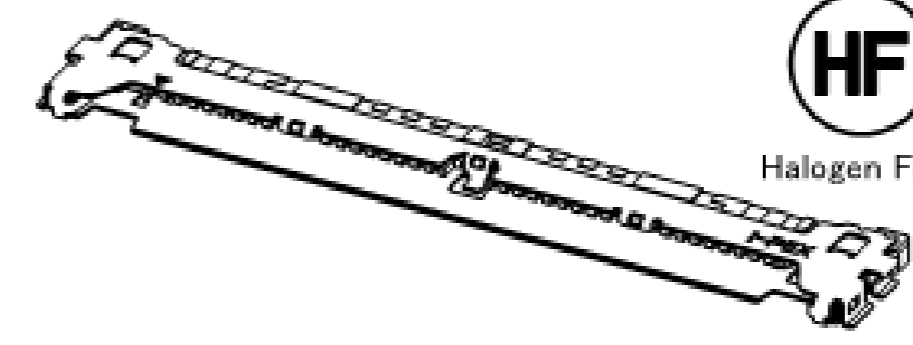


NO.	DISCRIPTION	MATERIAL	FINISH , REMARKS
1	LOCK BAR	SUS	--

Rev.3

# Receptacle Assembly

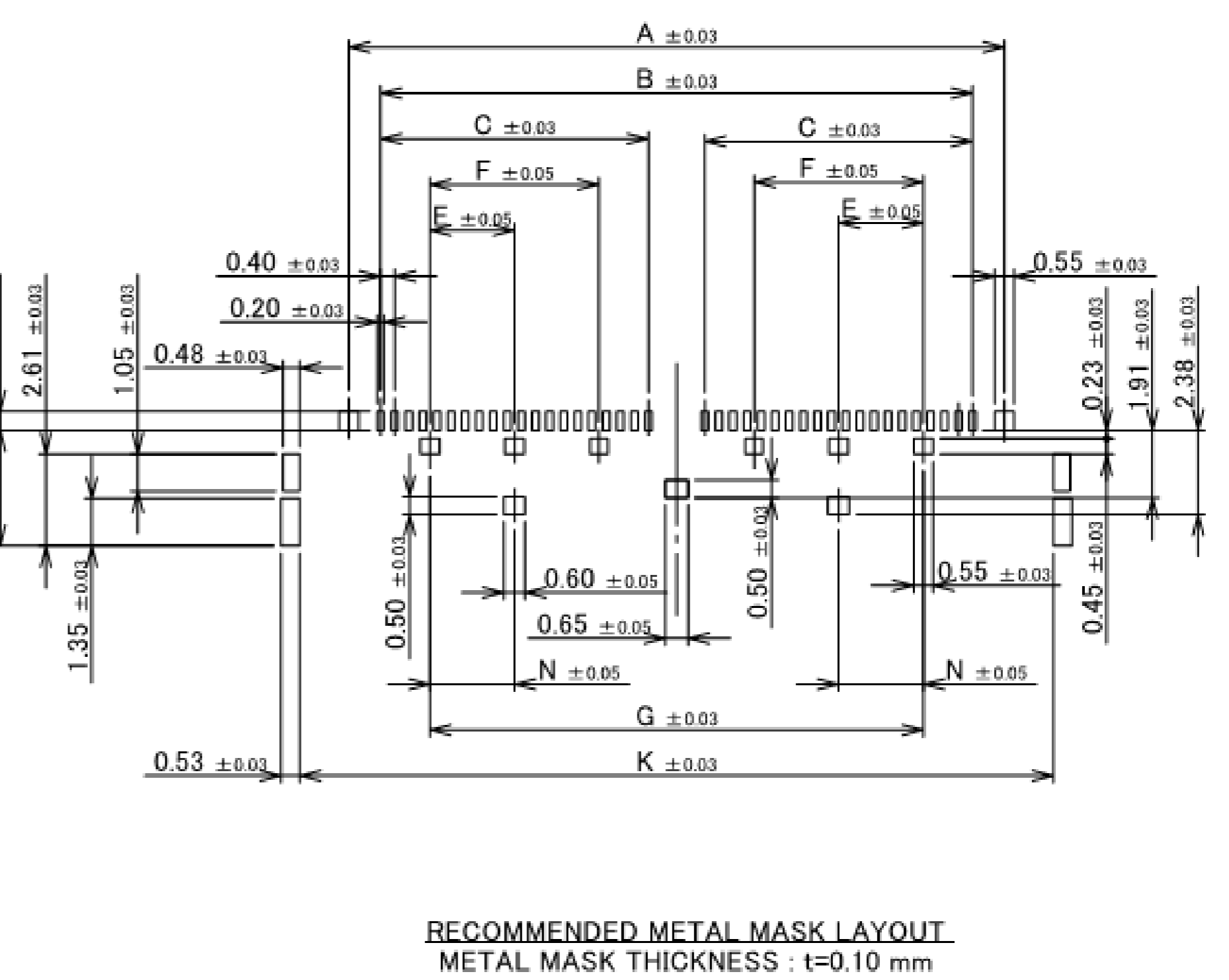
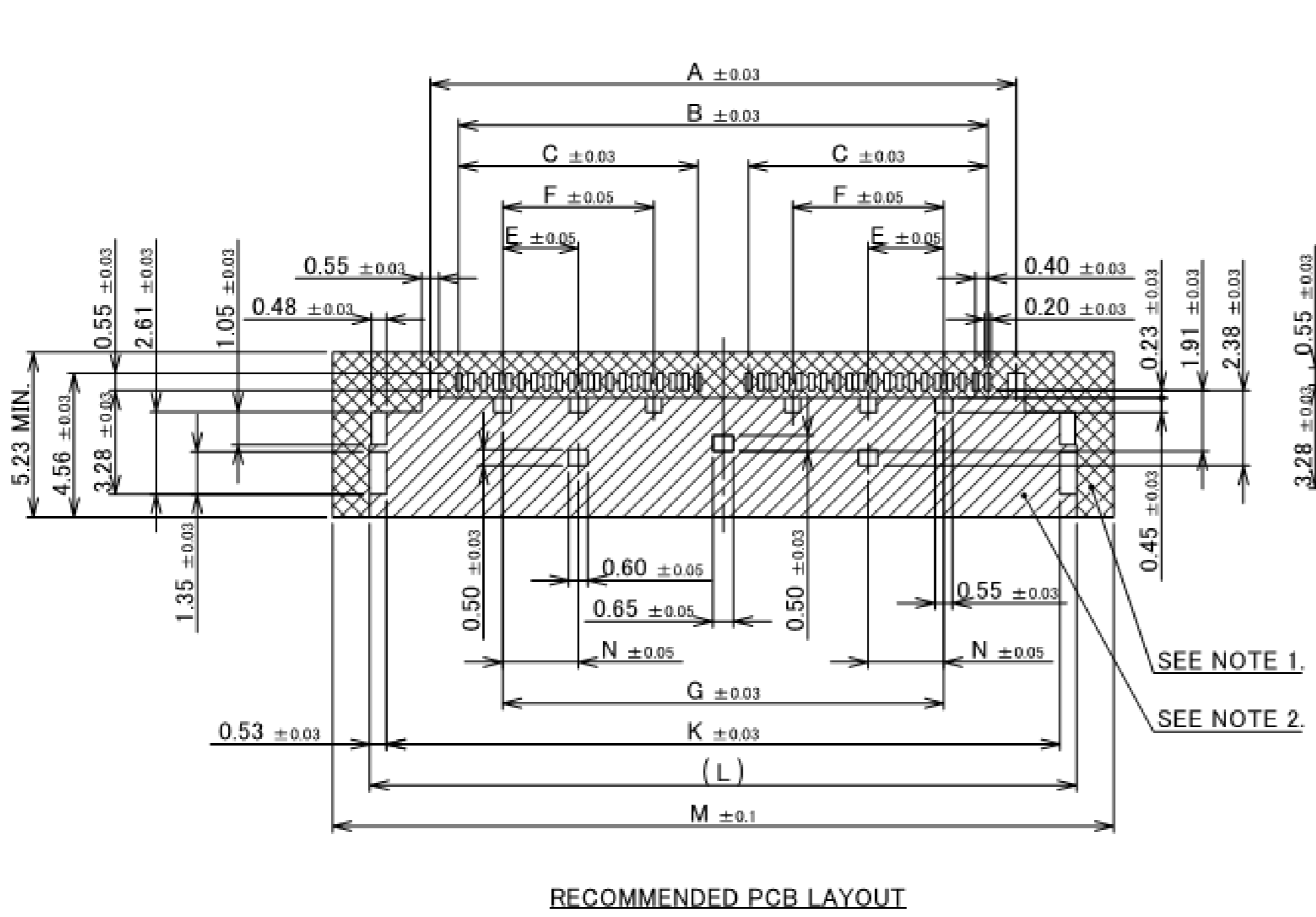
Recommended P/N		20729-0**E-02									
PART NO.	Pos.	A	B	C	D	E	F	G	J	K	X
20729-030E-02	30	14.60	12.80	5.60	18.14	-	2.80	10.00	20.05	15.95	12.81
20729-040E-02	40	18.60	16.80	7.60	22.14	2.40	4.80	14.00	24.05	19.95	16.81



NO.	DISCRIPTION	MATERIAL	FINISH , REMARKS
3	SHELL	PHOSPHOR BRONZE	ALL OVER Ni 1.00 μm MIN. SOLDERING AREA : Au 0.02 μm MIN.
2	CONTACT	PHOSPHOR BRONZE	ALL OVER Ni 1.00 μm MIN. CONTACT & SOLDERING AREA : Au 0.03 μm MIN.
1	HOUSING	LCP	UL94V-0, BLACK, RED PHOSPHORUS FREE

Rev.10

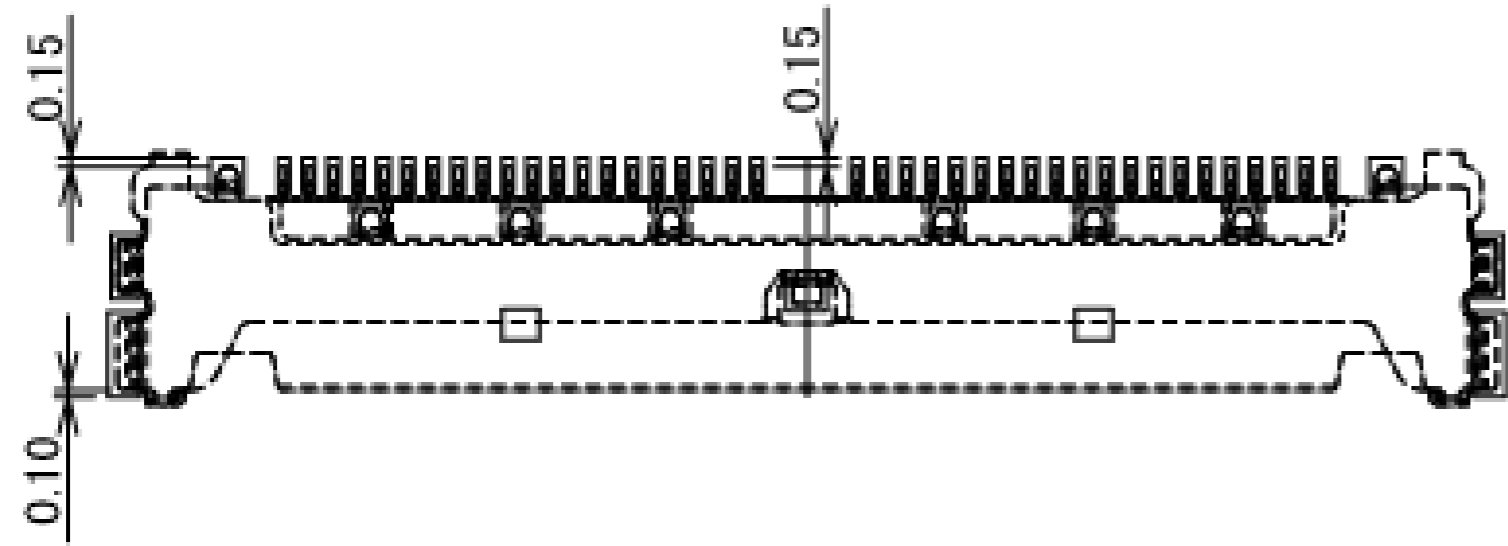
PART NO.	Pos.	A	B	C	E	F	G	K	L	M	N
20729-030E-02	30	14.60	12.80	5.60	-	2.80	10.00	17.38	18.44	20.80	1.40
20729-040E-02	40	18.60	16.80	7.60	2.40	4.80	14.00	21.38	22.44	24.80	2.40



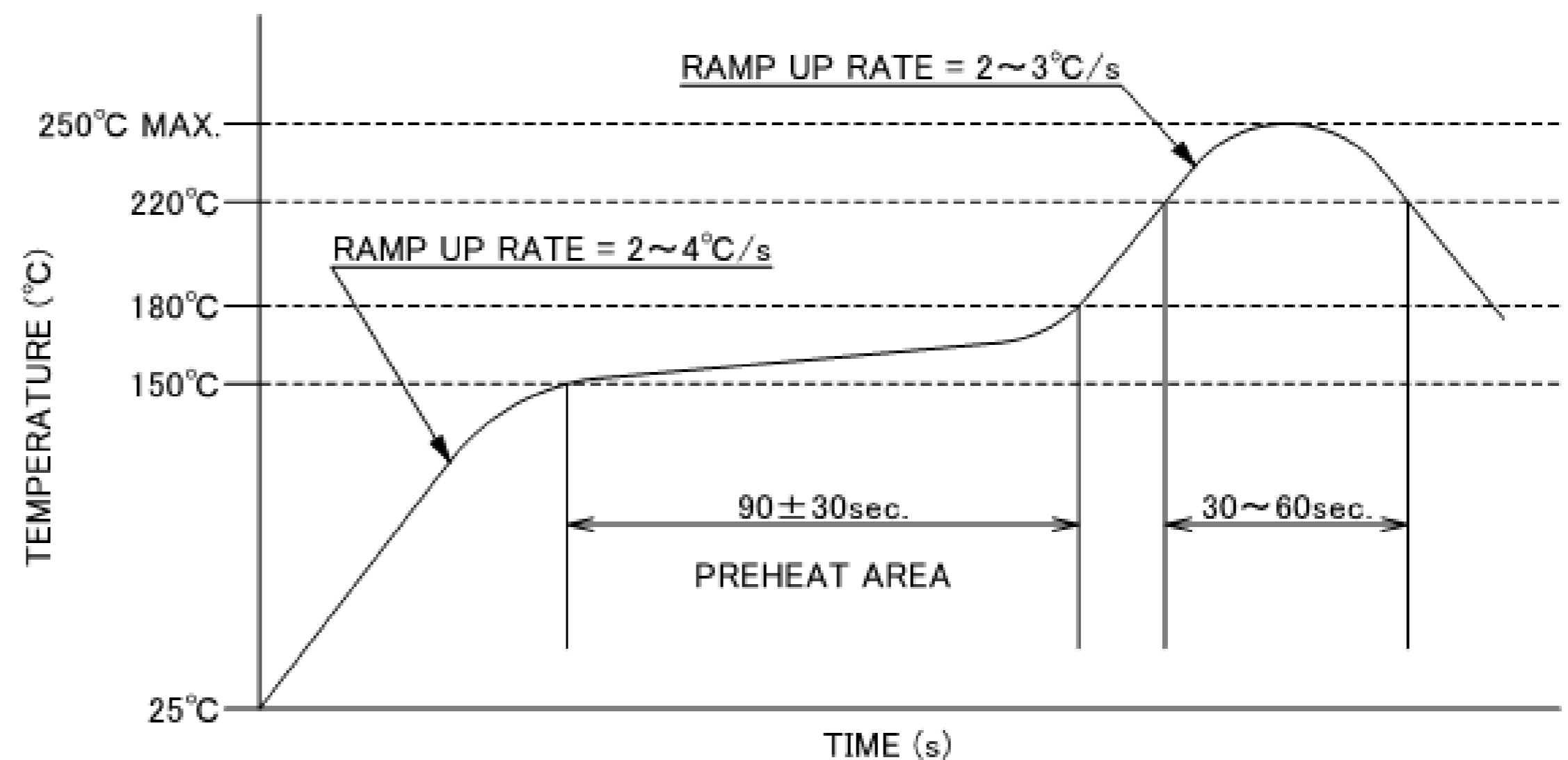
NOTES.  
1. DO NOT MOUNT ANOTHER COMPONENTS IN THIS AREA.  
2. SOLDER RESIST MUST BE APPLIED TO THIS AREA.

Rev.10

# Receptacle Assembly



CONNECTOR ON RECOMMENDED FOOTPRINT PATTERN



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

Rev.10

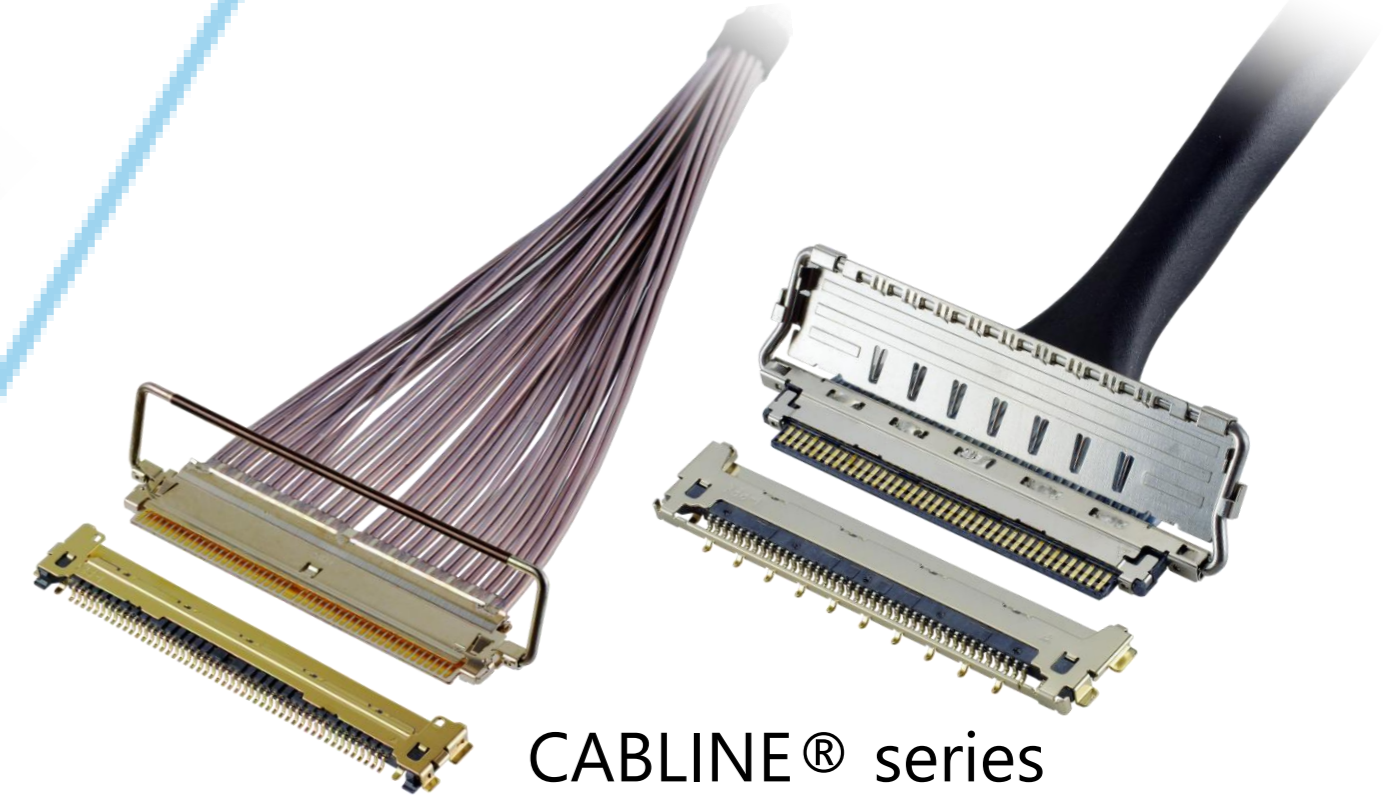
ITEMS	SPECIFICATION
APPLICABLE CABLE	MICRO-COAXIAL CABLE: AWG# 38,40,42,44 DISCRETE WIRE : AWG# 34,36
RATING VOLTAGE	100V AC (PER CONTACT PIN)
RATING AMPERAGE (FOR CONTACT)	0.15A AC/DC [AWG#44] PER CONTACT PIN/UP TO 40 CONTACTS 0.24A AC/DC [AWG#42] PER CONTACT PIN/UP TO 40 CONTACTS 0.30A AC/DC [AWG#40] PER CONTACT PIN/UP TO 32 CONTACTS 0.50A AC/DC [AWG#38] PER CONTACT PIN, FOR POWER/UP TO 14 CONTACTS 0.80A AC/DC [AWG#36] PER CONTACT PIN, FOR POWER/UP TO 5 CONTACTS 1.00A AC/DC [AWG#34] PER CONTACT PIN, FOR POWER/UP TO 4 CONTACTS  ※ 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% MAX.(NON-CONDENSING)
CONTACT RESISTANCE	INITIAL : 180mohm MAX.(AWG#34) / AFTER TEST : $\triangleleft$ 40mohm MAX. 275mohm MAX.(AWG#36) 600mohm MAX.(AWG#40) 700mohm MAX.(AWG#42) 1080mohm MAX.(AWG#44)
GROUND SHELL RESISTANCE	INITIAL : 50mohm MAX. / AFTER TEST : $\triangleleft$ 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 : 12.0N MAX. 40P : 16.0N MAX.
UNMATING FORCE (INITIAL / AFTER TEST)	30P : 1.80N MIN. 40P : 2.40N MIN.
CABLE RETENTION FORCE	30P : 11.8N MIN. 40P : 12.4N MIN.
COPLANARITY	0.10 MAX.
PRODUCT SPECIFICATION	PRS-2371
TEST REPORT	TR-17036
PACKING STANDARD	PST-17058
INSTRUCTION MANUAL	HIM-17010
APPEARANCE CRITERIA No.	QLS-A***

Rev.10

# Custom Connectors Available

## RF Connectors

MHF® series



CABLINE® series

## Micro-Coaxial/Twinaxial Connectors

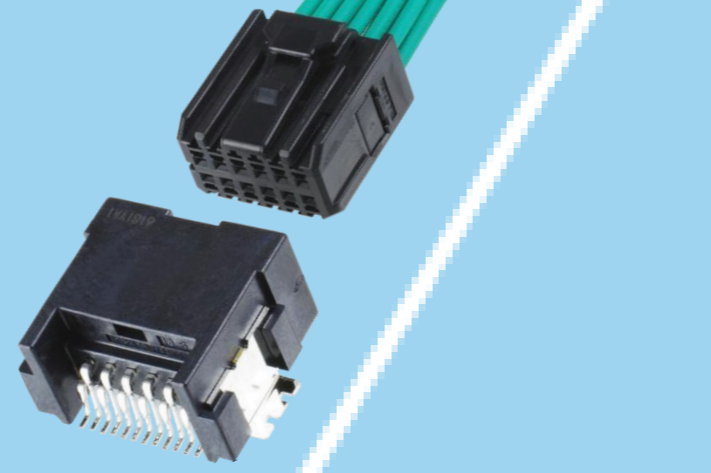


## Wire-to-Board Connectors/Terminals

AP series



ISH® series



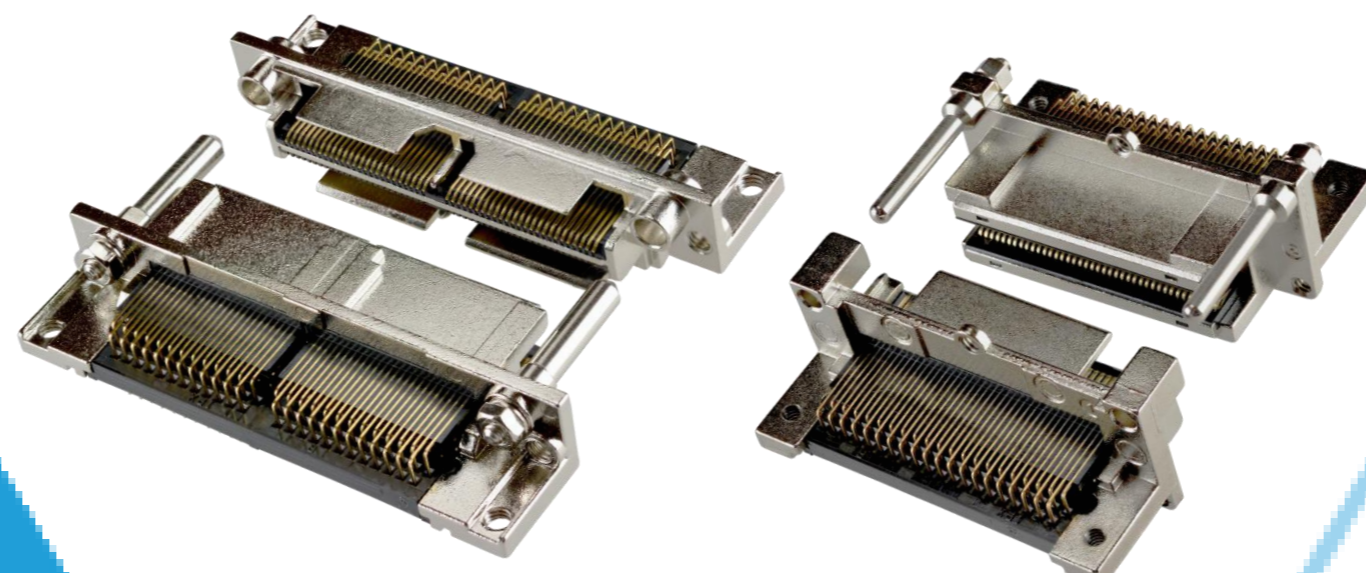
NOVASTACK® series



## Board-to-Board Connectors



## I/O Connectors



MINIDOCK™ series

MINIFLEX® series EVAFLEX® series



## FPC/FFC Connectors



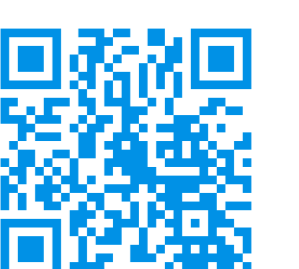
Inquiry



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Contact your sales representative or more detailed information.

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