

EVAFLEX® 5-VS

Auto-locking, high temperature option (105°C), high-speed, horizontal mate, 0.5 mm pitch shielded FFC/FPC connector



Product Specifications:

Board Pitch (mm)	0.5	
Wiping Length (mm)	1.1	
Size (mm)	Height	1.90 +/- 0.10
	Width	Formula: 6.25 + (0.5*?p)
	Depth	4.95 +/- 0.20
Pin counts	Range	10 – 50
	Available	10, 15, 20, 24, 30, 40, 50

Applicable FPC/FFC:

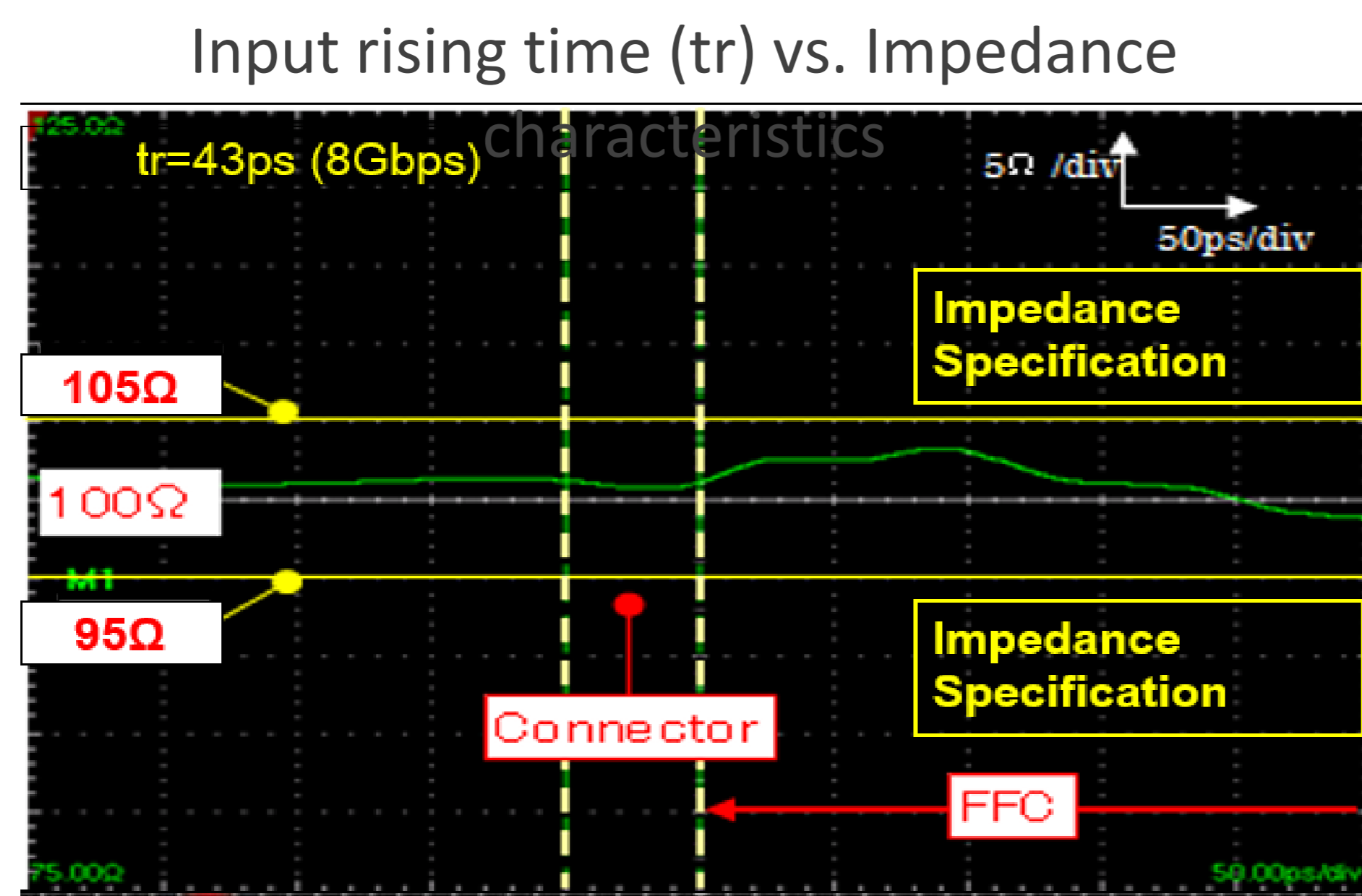
FPC/FFC Type	Shielded FFC, Non-shielded FFC/FPC
FPC/FFC Contact Point	Top
FPC/FFC Thickness (mm)	0.33 +/- 0.03

Applicable Standards (Reference Only):

USB 3.1 Gen 1 (5 Gbps) eDP HBR 3 (8.1 Gbps) eDP HBR 2 (5.4 Gbps) eDP (2.7 Gbps) HDMI 2.0 (6 Gbps) V-By-One HS 1.4 (4 Gbps) MiPi standards
USCAR II Vibration & Shock V1

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

► **Supports 8+ Gbps high-speed signal**

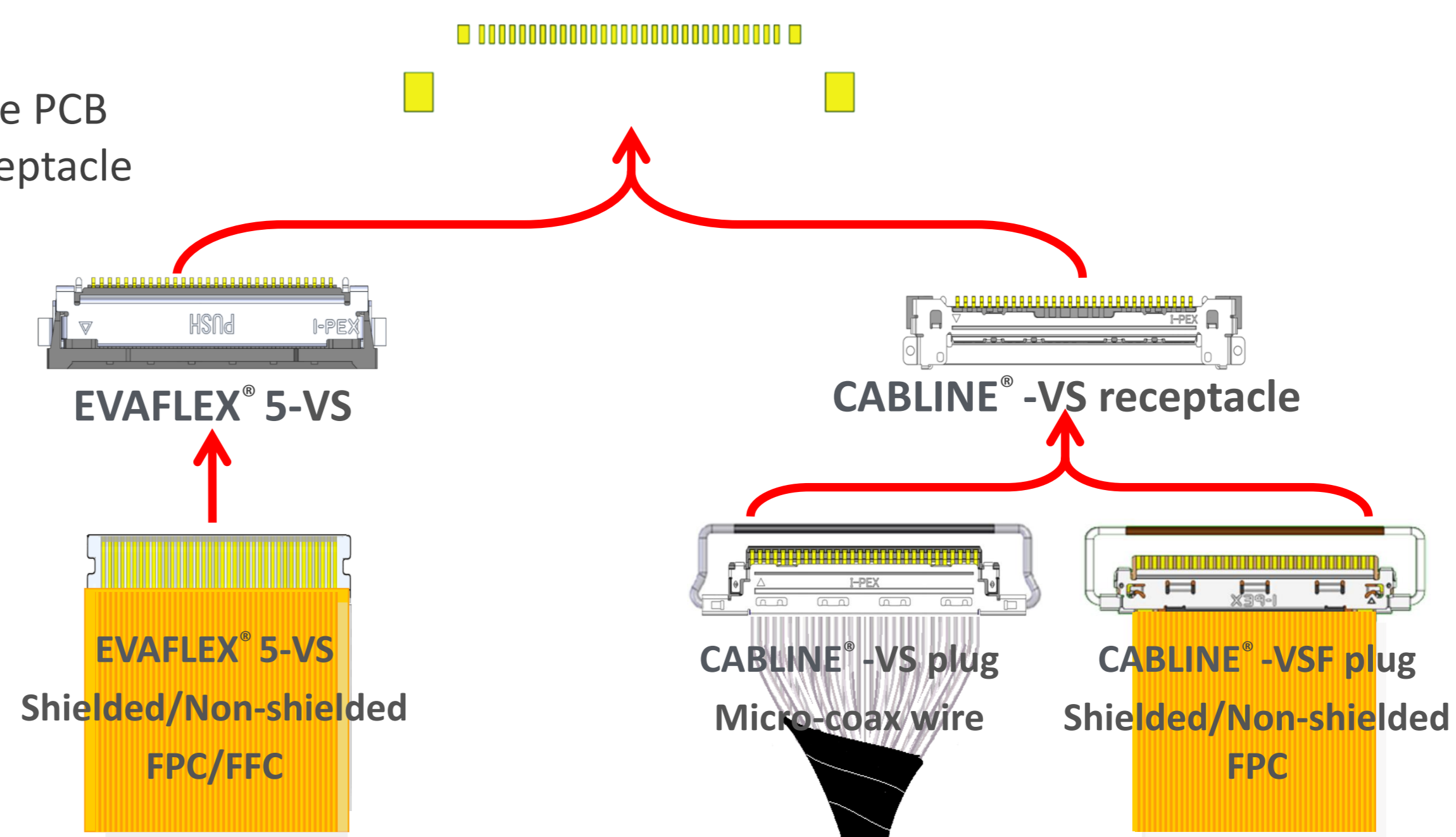


Test condition:
Double-sided shielded FFC
(100 ohm matching)

PCI Express® 3.0 (8 Gbps)

► **Low height design and foot pattern compatible with CABLINE®-VS/VESA standard notebook PC LCD connector**

EVAFLEX® 5-VS can be mounted to the same PCB layout with VESA standard CABLINE-VS receptacle



► **Scalable EVAFLEX® family : Auto-lock connector with many other options available**

High-speed and full EMI shield : EVAFLEX® 5-HD

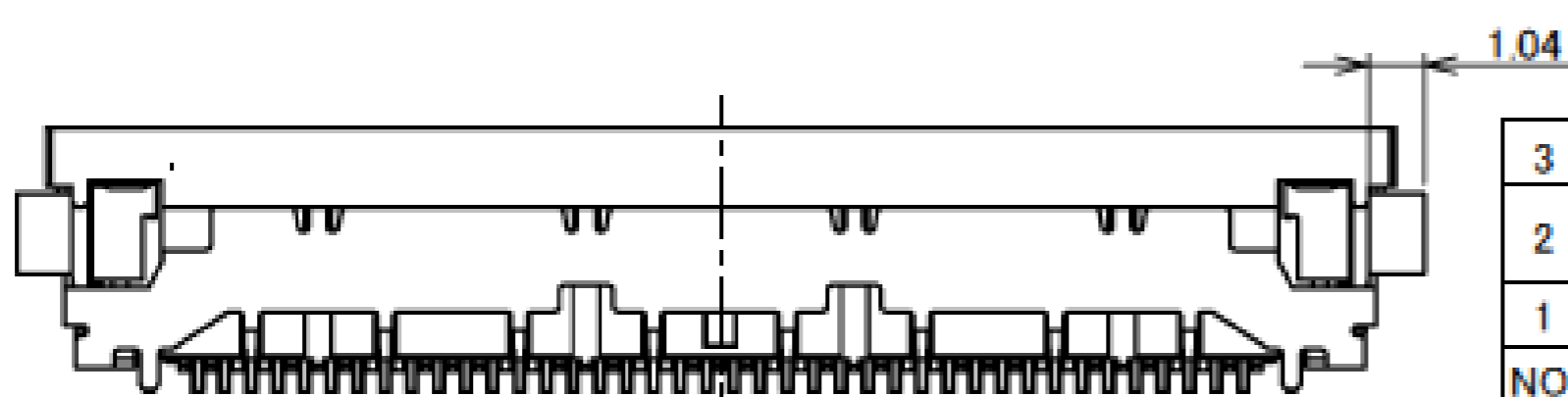
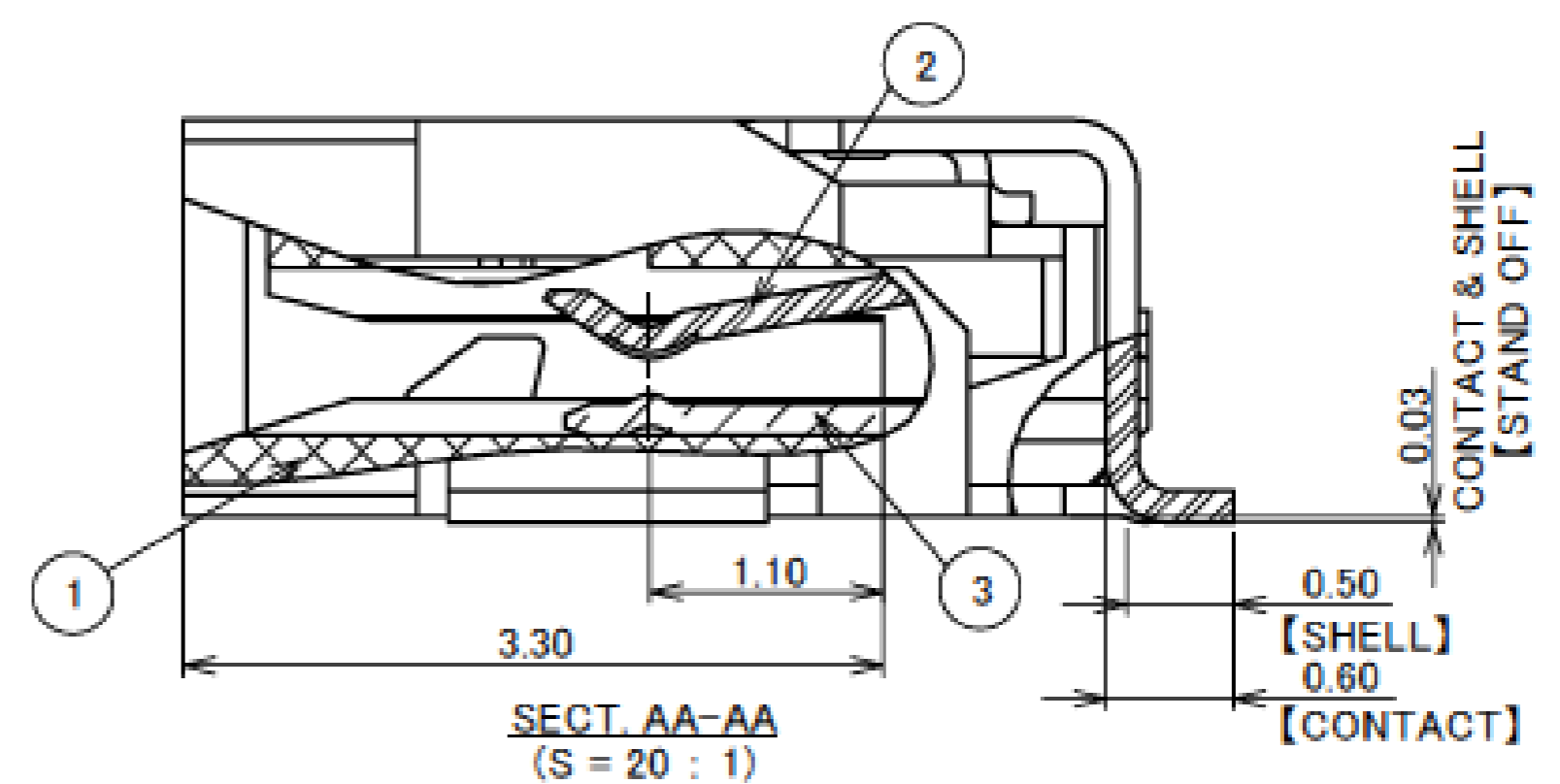
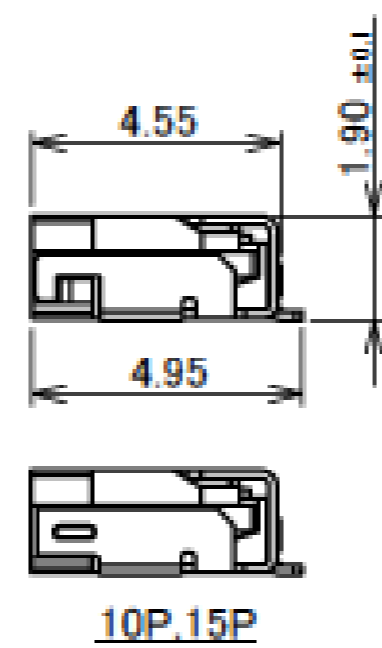
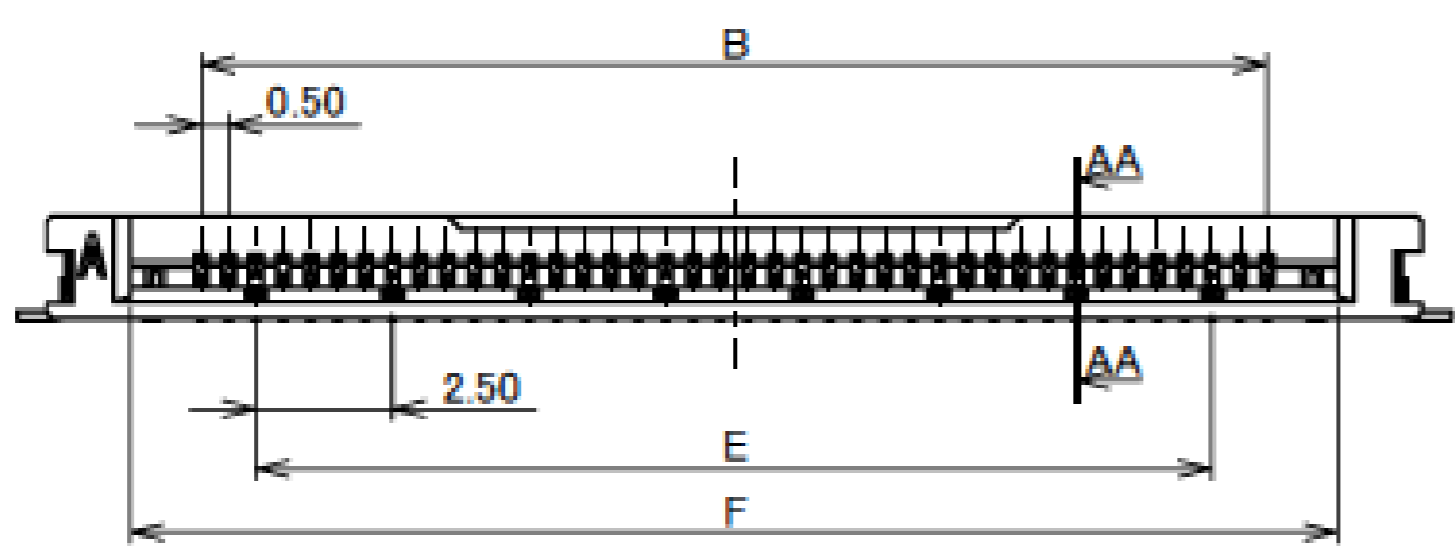
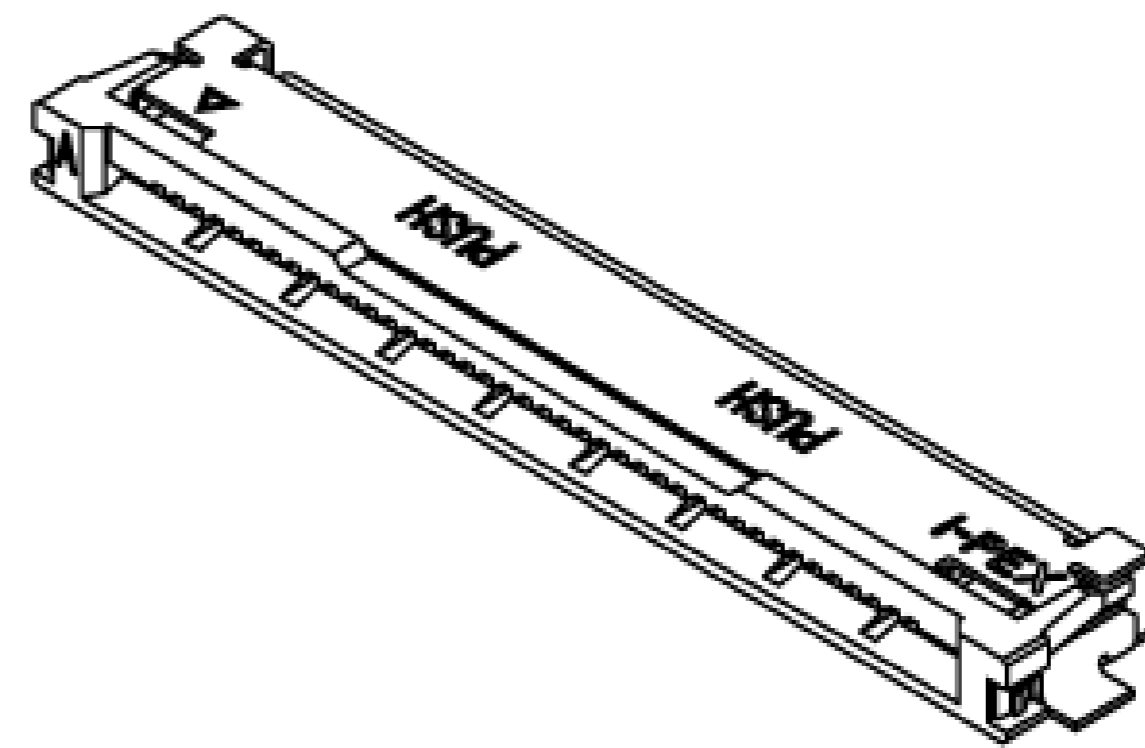
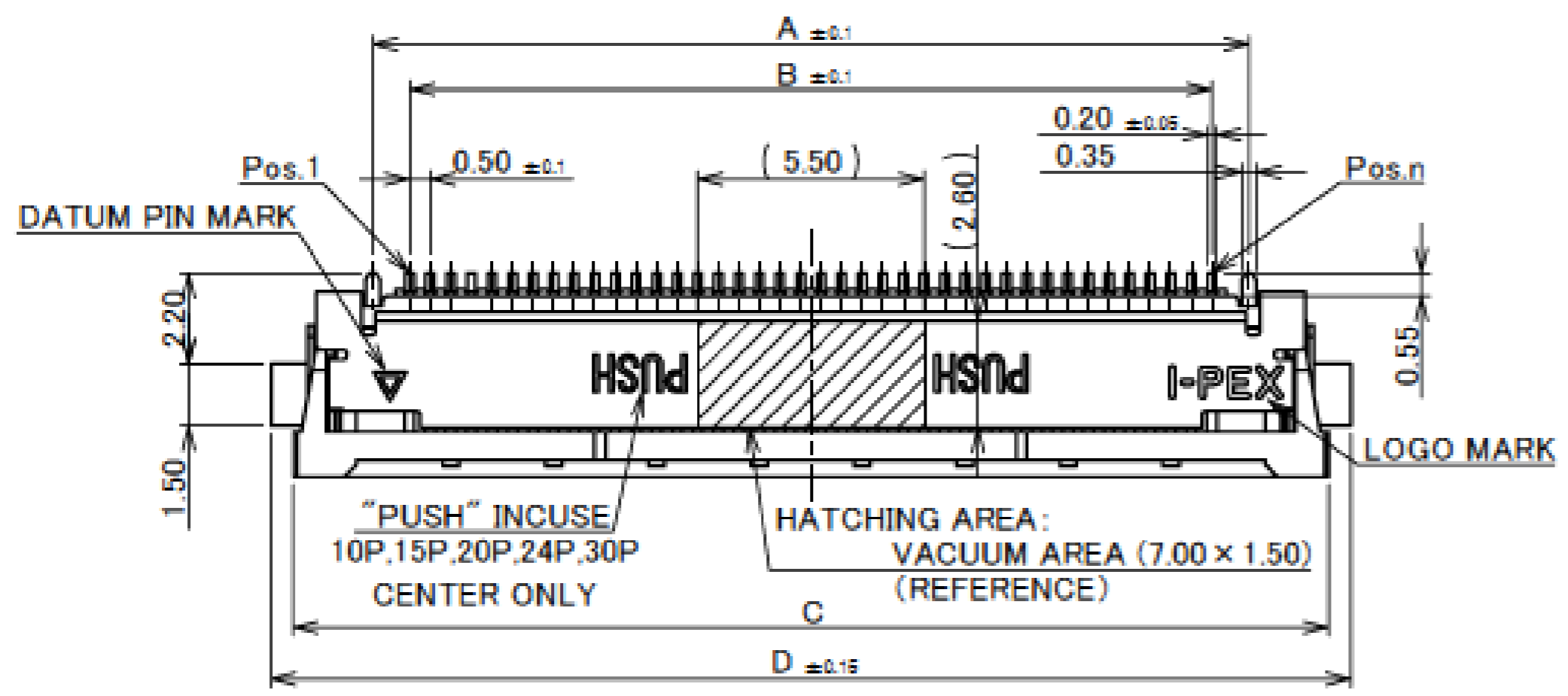
	EVAFLEX® 5-HD
Height (mm)	2.00 +/- 0.2
Reference Performance	USB4 (20 Gbps)
Special Feature	360-degree fully-shielded with multi-point grounds to prevent EMI leakage



Component Parts Detail

Connector Assembly

Recommended P/N		20535-0**E-02					
PART No.	POS.	A	B	C	D	E	F
20535-010E-02	10P	6.30	4.50	10.17	11.25	2.50	7.10
20535-015E-02	15P	8.80	7.00	12.67	13.75	5.00	9.60
20535-020E-02	20P	11.30	9.50	15.17	16.25	7.50	12.10
20535-024E-02	24P	13.30	11.50	17.17	18.25	7.50	14.10
20535-030E-02	30P	16.30	14.50	20.17	21.25	12.50	17.10
20535-040E-02	40P	21.30	19.50	25.17	26.25	17.50	22.10

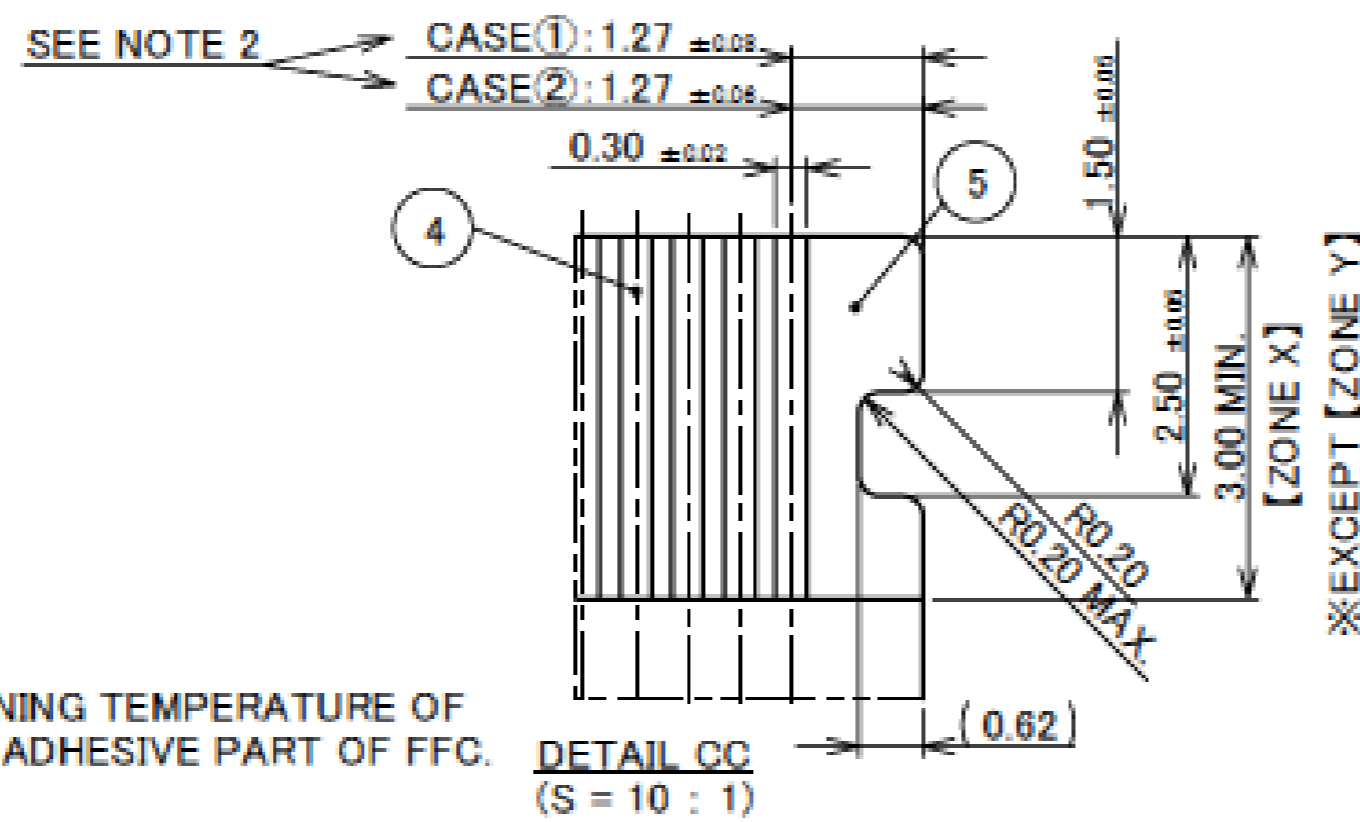
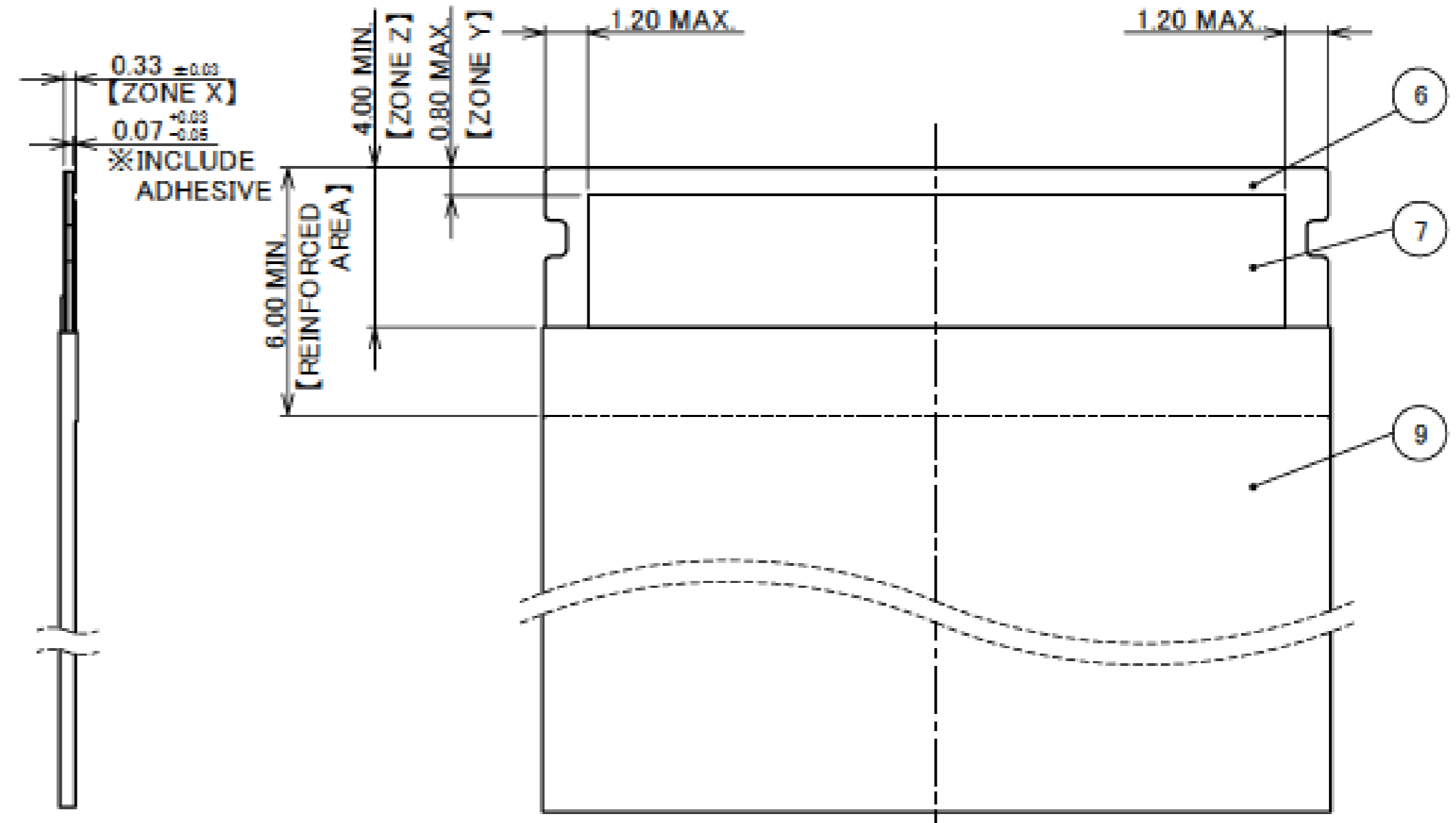
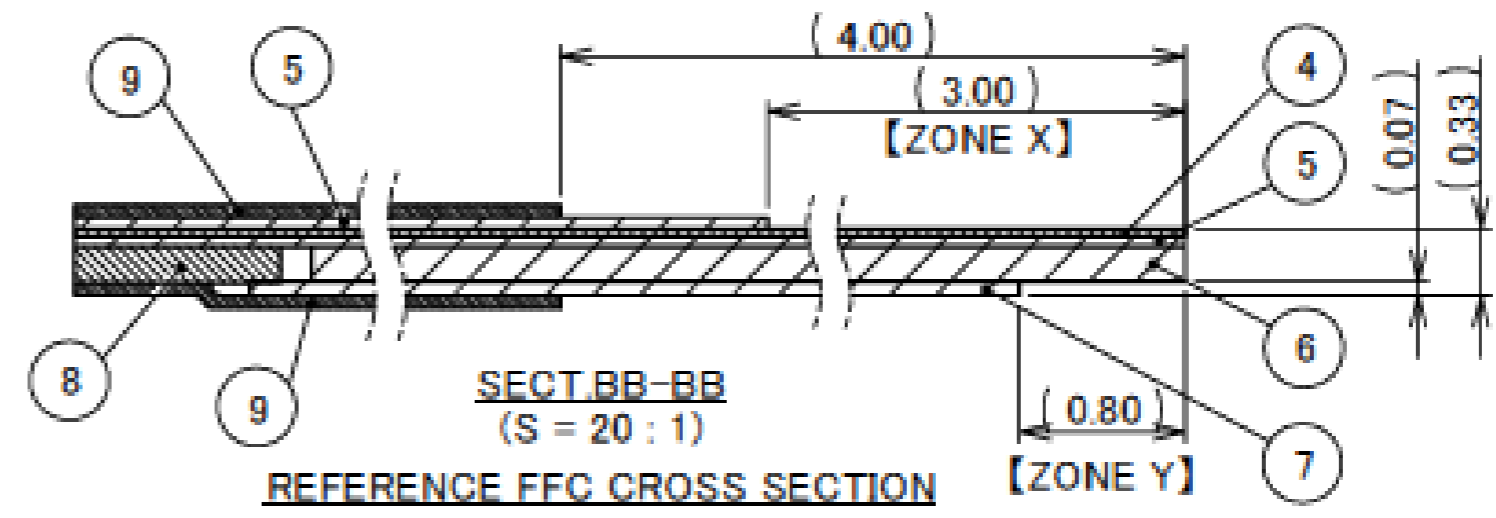
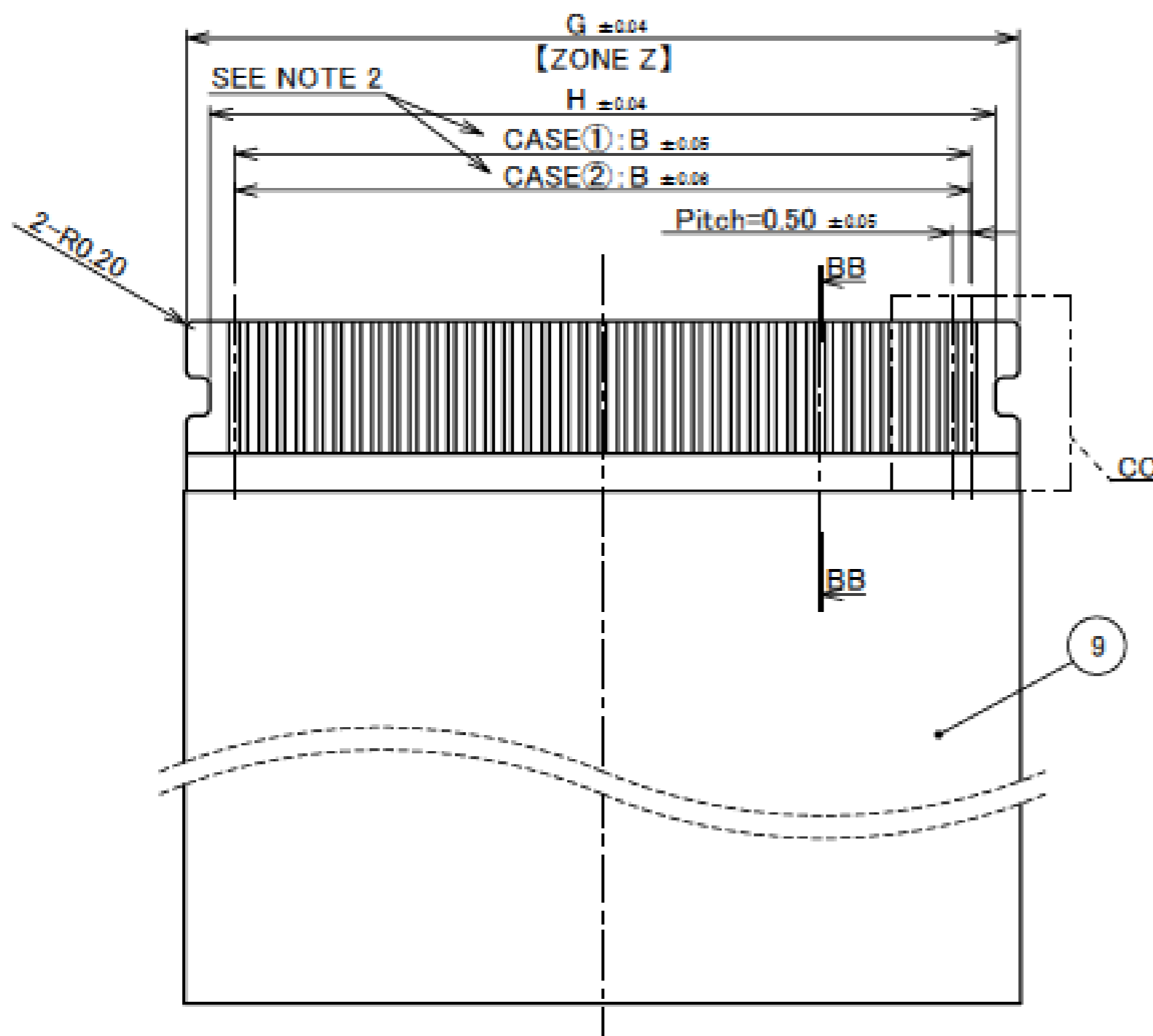


NO.	DISCRPTION	MATERIAL	FINISH . REMARKS
3	SHELL	PHOSPHOR BRONZE	Sn 1.00 μ m MIN. OVER Ni 1.00 μ m MIN. PLATING
2	CONTACT	PHOSPHOR BRONZE	Au OVER Ni PLATING CONTACT AREA: Au 0.03 μ m MIN. OVER Ni 1.00 μ m MIN.
1	HOUSING	LCP	UL94V-0, BLACK

Connector Assembly

Recommended P/N		20535-0**E-02		
PART No.	POS.	B	G	H
20535-010E-02	10P	4.50	7.04	5.80
20535-015E-02	15P	7.00	9.54	8.30
20535-020E-02	20P	9.50	12.04	10.80
20535-024E-02	24P	11.50	14.04	12.80
20535-030E-02	30P	14.50	17.04	15.80
20535-040E-02	40P	19.50	22.04	20.80

RECOMMENDED FFC DIMENSION



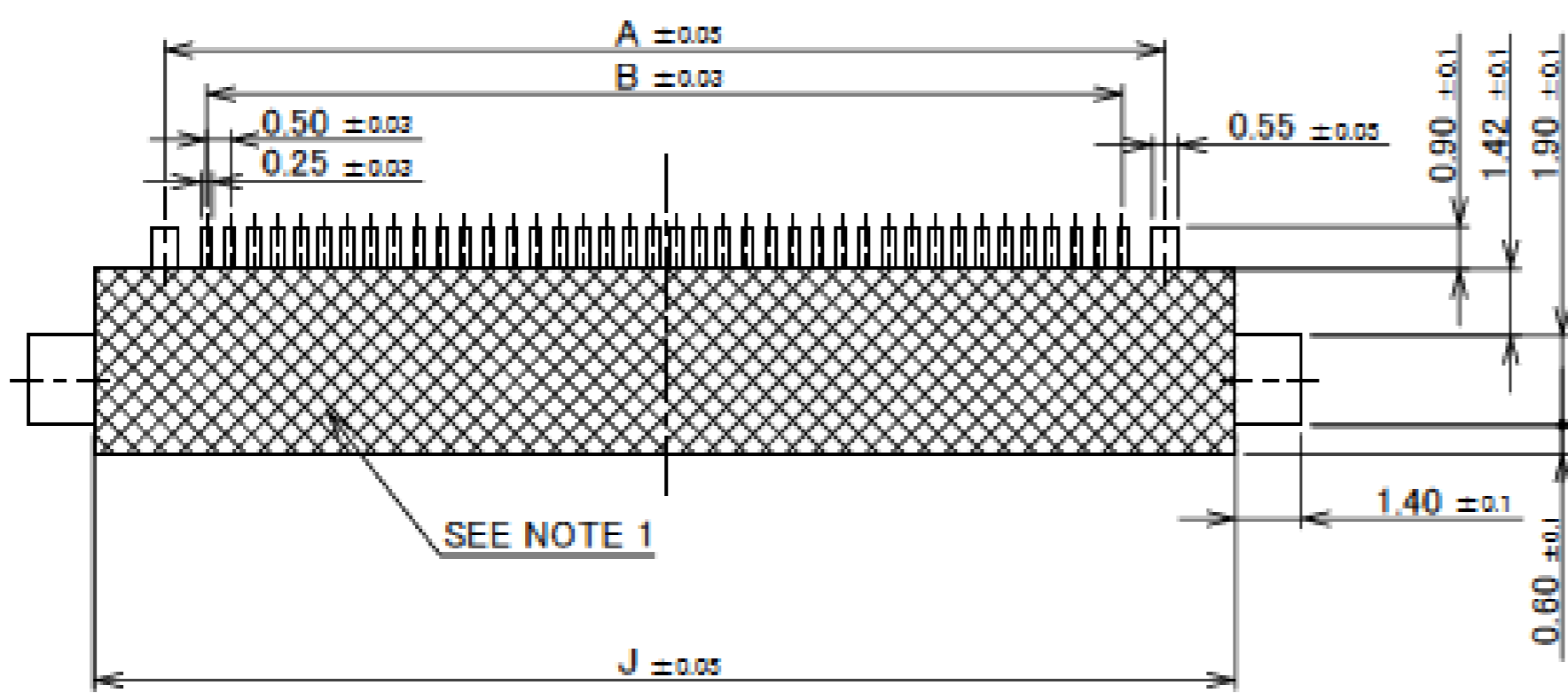
NO.	DISCRIPTION	MATERIAL	FINISH, REMARKS
9	SHIELD TAPE	METALIC FILM	-
8	INTERLAYER	ARBITRARY	-
7	GROUND PLATE	METARIC FILM	POLISH or HALF POLISH Sn PLATING
6	REINFORCED TAPE	ARBITRARY	-
5	INSULATION FILM	ARBITRARY	-
4	CONDUCTOR	COPPER ALLOY	CONTACT AREA: Au 0.05 μm MIN. OVER Ni 0.5 μm MIN.

NOTES

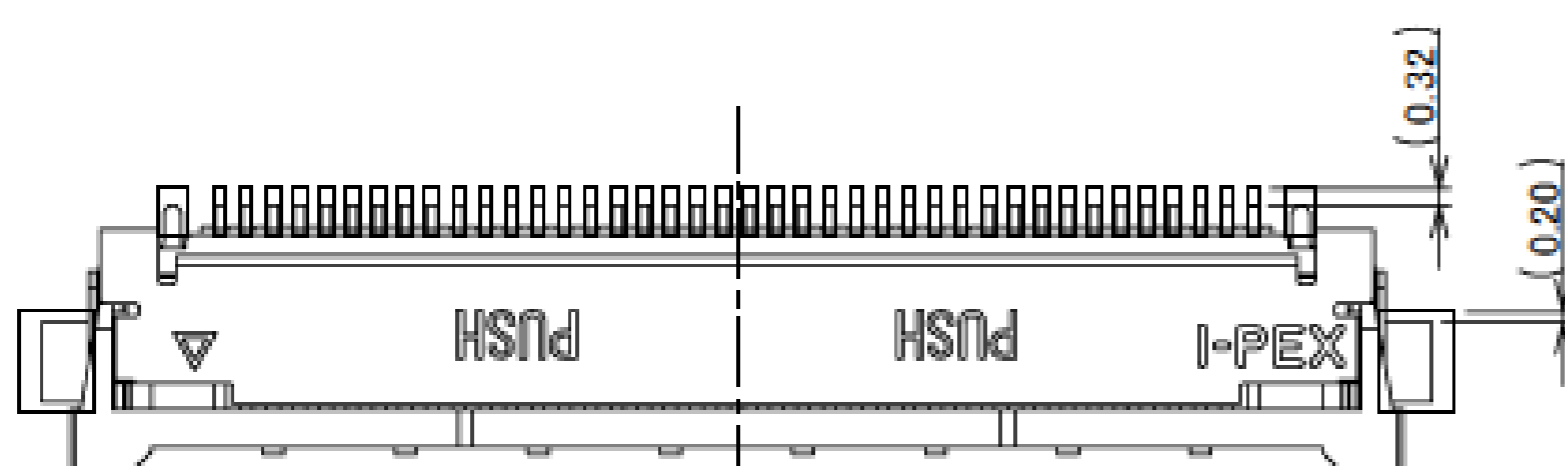
1. DIFFERENTIAL IMPEDANCE : 100Ω
2. MANUFACTURE CASE(1) or CASE(2)
3. SELECT A MATERIAL WITH A SOFTENING TEMPERATURE OF 85°C OR HIGHER FOR THE PATTERN ADHESIVE PART OF FFC.

Rev.14

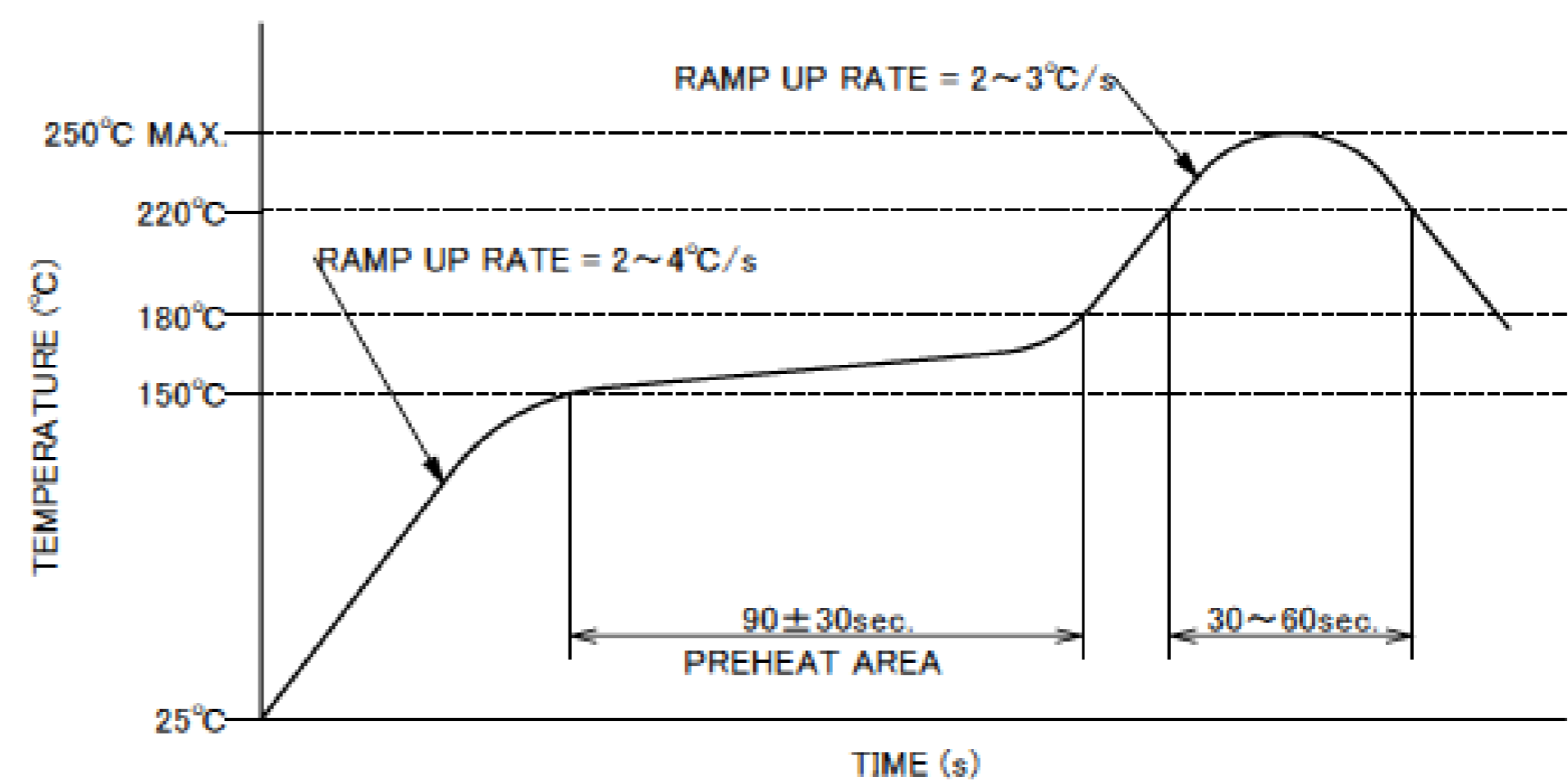
Recommended P/N		20535-0**E-02		
PART No.	POS.	A	B	J
20535-010E-02	10P	6.30	4.50	9.30
20535-015E-02	15P	8.80	7.00	11.80
20535-020E-02	20P	11.30	9.50	14.30
20535-024E-02	24P	13.30	11.50	16.30
20535-030E-02	30P	16.30	14.50	19.30
20535-040E-02	40P	21.30	19.50	24.30



RECOMMENDED PCB & METALMASK LAYOUT
METALMASK THICKNESS: t=0.12



CONNECTOR ON RECOMMENDED FOOTPRINT PATTERN



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

NOTE

1. SOLDER RESIST MUST BE APPLIED TO THIS AREA.

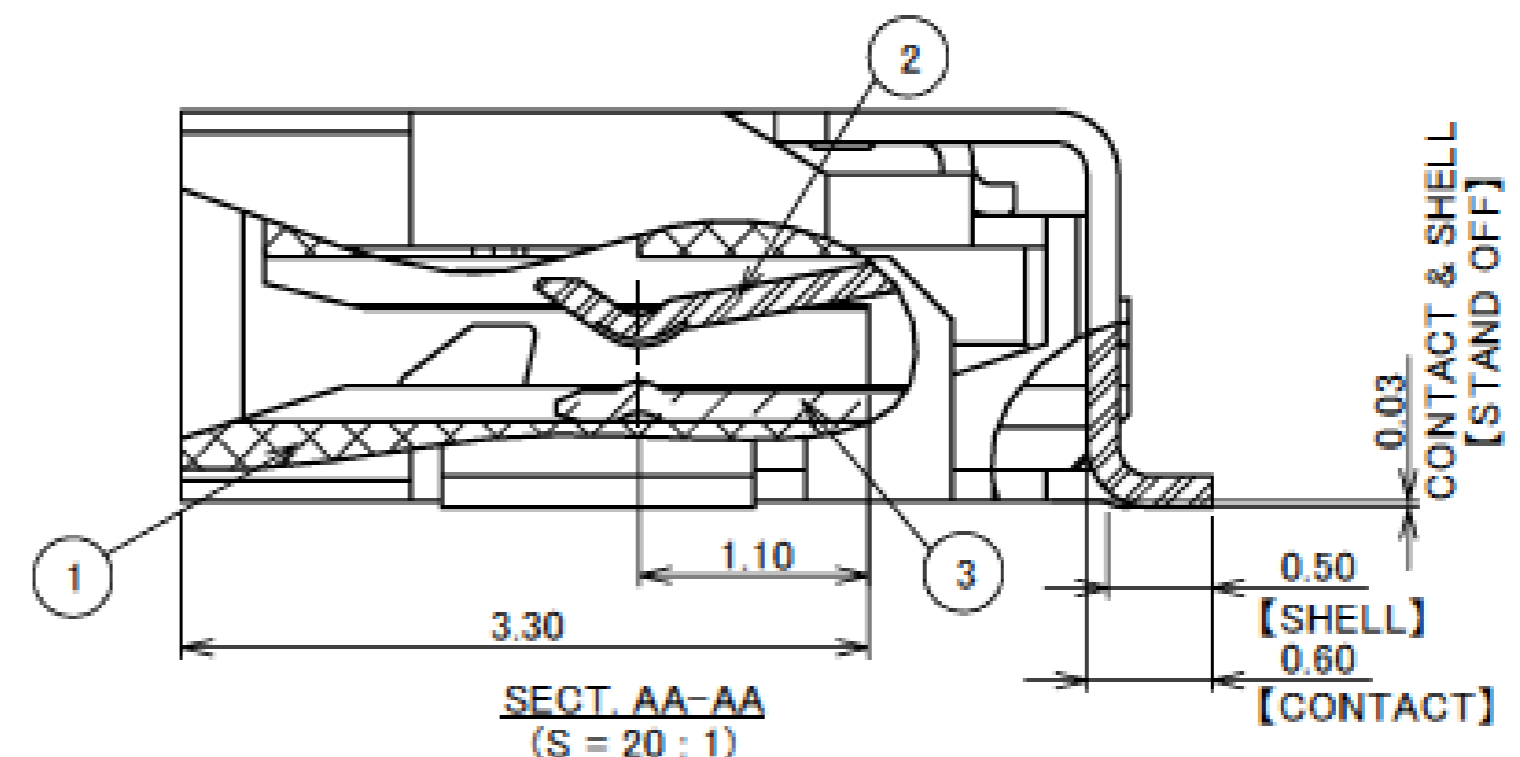
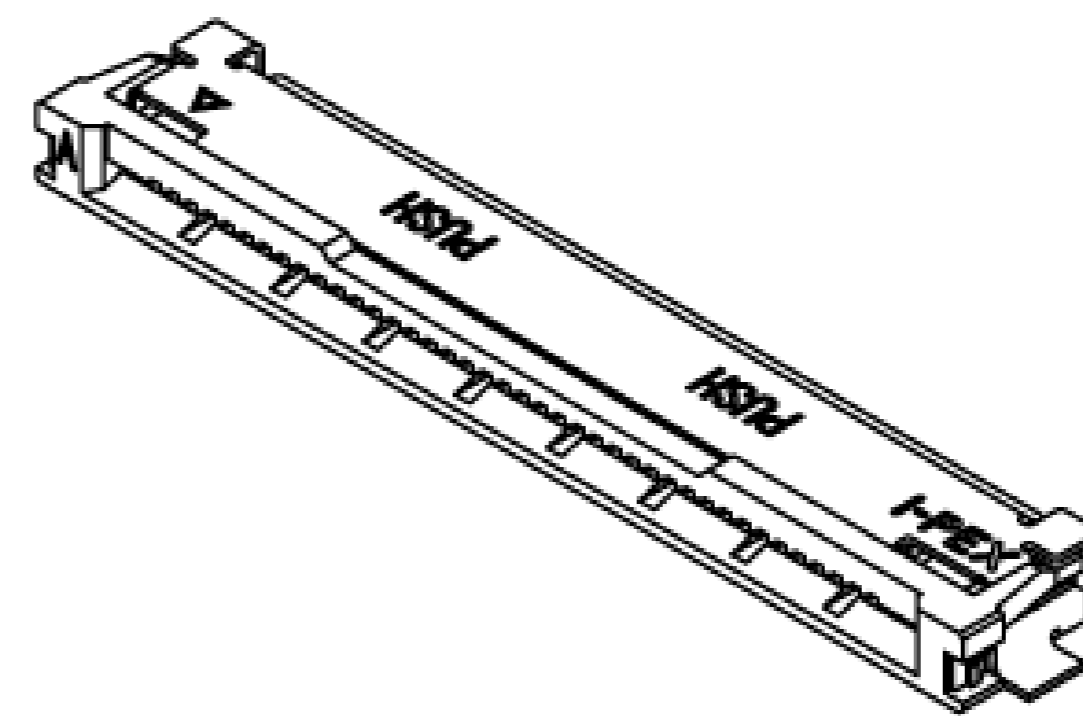
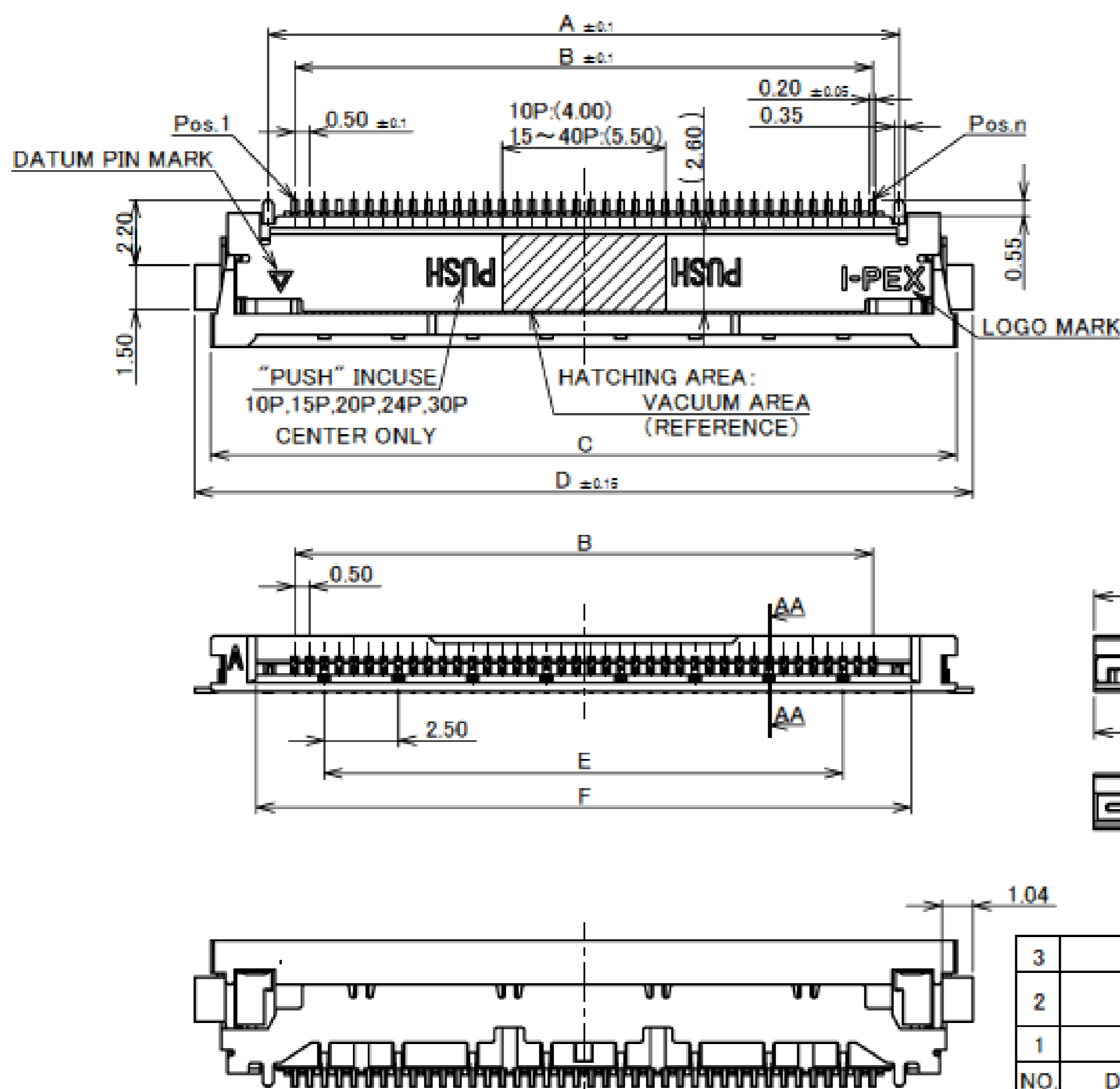
Rev.14

Connector Assembly

ITEMS	SPECIFICATION
RATING VOLTAGE	200V AC/DC (PER CONTACT PIN)
RATING AMPERAGE (FOR CONTACT)	0.3A AC/DC (PER CONTACT PIN) IN CASE OF APPLYING 0.5A PER CONTACT PIN, THE TOTAL CURRENT OF THE WHOLE CONNECTOR SHALL BE 15.0A OR LOWER.
OPERATING TEMPERATURE	233~358K(-40°C~+85°C)
OPERATING HUMIDITY	85% MAX.(NON-CONDENSING)
CONTACT RESISTANCE (FOR SIGNAL CONTACT)	INITIAL : 60mohm MAX. / AFTER TEST : \triangle 40mohm MAX.
INSULATION RESISTANCE	INITIAL : 100Mohm MIN. / AFTER TEST : 100Mohm MIN.
DIELECTRIC WITHSTANDING VOLTAGE	AC250V 1min
DURABILITY	30 CYCLES
MATING FORCE (INITIAL / AFTER TEST)	10P : 6.0N MAX. 15P : 9.0N MAX. 20P : 12.0N MAX. 24P : 14.4N MAX. 30P : 18.0N MAX. 40P : 24.0N MAX.
UNMATING FORCE (INITIAL / AFTER TEST)	10P : 1.0N MIN. 15P : 1.5N MIN. 20P : 2.0N MIN. 24P : 2.4N MIN. 30P : 3.0N MIN. 40P : 4.0N MIN.
COPLANARITY	0.10 MAX.
PRODUCT SPECIFICATION	PRS-1670
TEST REPORT	TR-12108
PACKING STANDARD	300-997
INSTRUCTION MANUAL	HIM-12003
APPEARANCE CRITERIA No.	QLS-A***

Rev.14

Recommended P/N	20720-0**E-02						
PART NO.	POS.	A	B	C	D	E	F
20720-010E-02	10P	6.30	4.50	10.17	11.25	2.50	7.10
20720-015E-02	15P	8.80	7.00	12.67	13.75	5.00	9.60
20720-020E-02	20P	11.30	9.50	15.17	16.25	7.50	12.10
20720-024E-02	24P	13.30	11.50	17.17	18.25	7.50	14.10
20720-030E-02	30P	16.30	14.50	20.17	21.25	12.50	17.10
20720-040E-02	40P	21.30	19.50	25.17	26.25	17.50	22.10



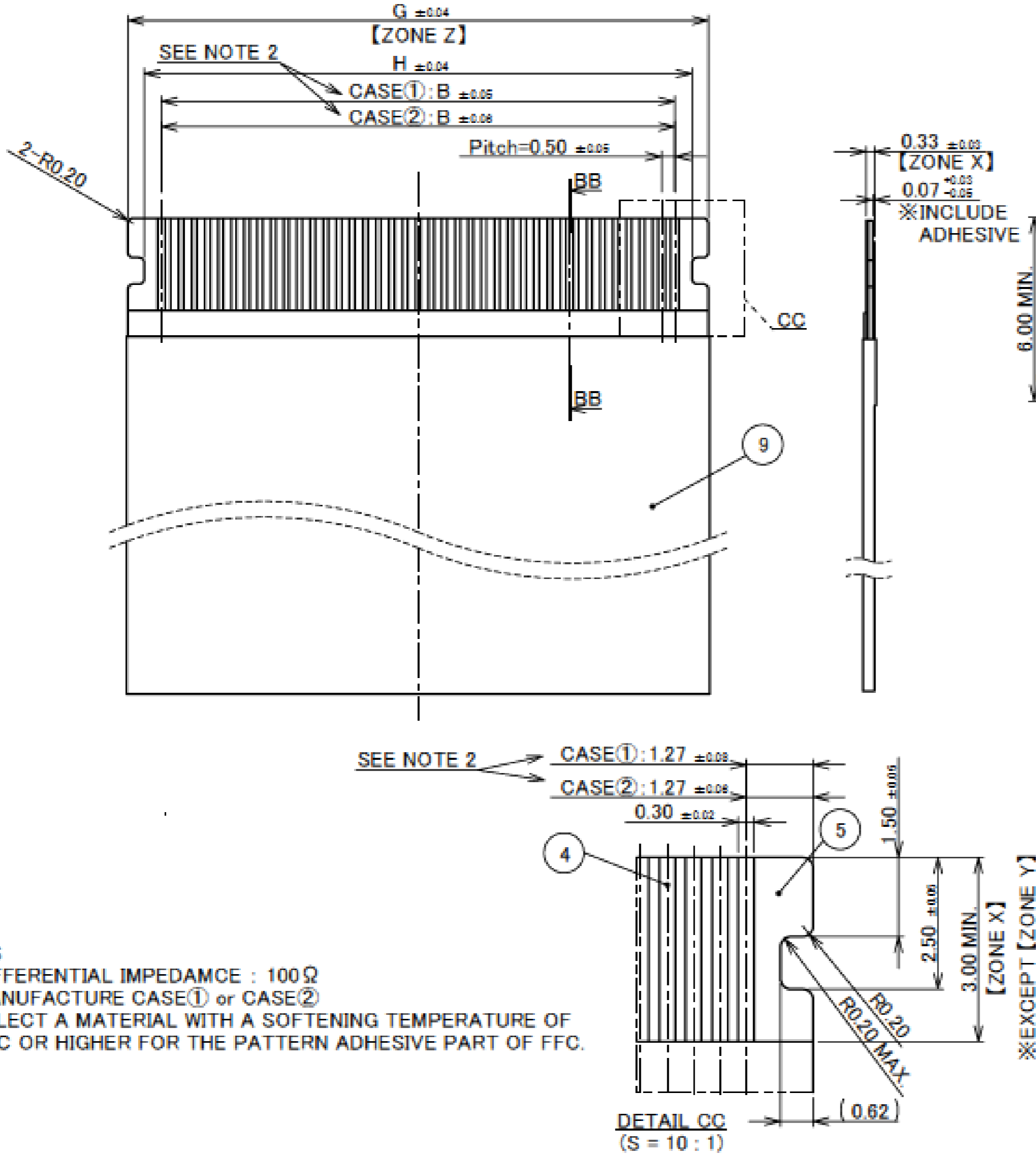
NO.	DISCRIPTION	MATERIAL	FINISH . REMARKS
3	SHELL	PHOSPHOR BRONZE	Sn OVER Ni PLATING
2	CONTACT	CORSON ALLOY	Au OVER Ni PLATING CONTACT AREA: Au 0.03 μm MIN. OVER Ni 1.00 μm MIN.
1	HOUSING	LCP	UL94V-0, BLACK

Rev.7

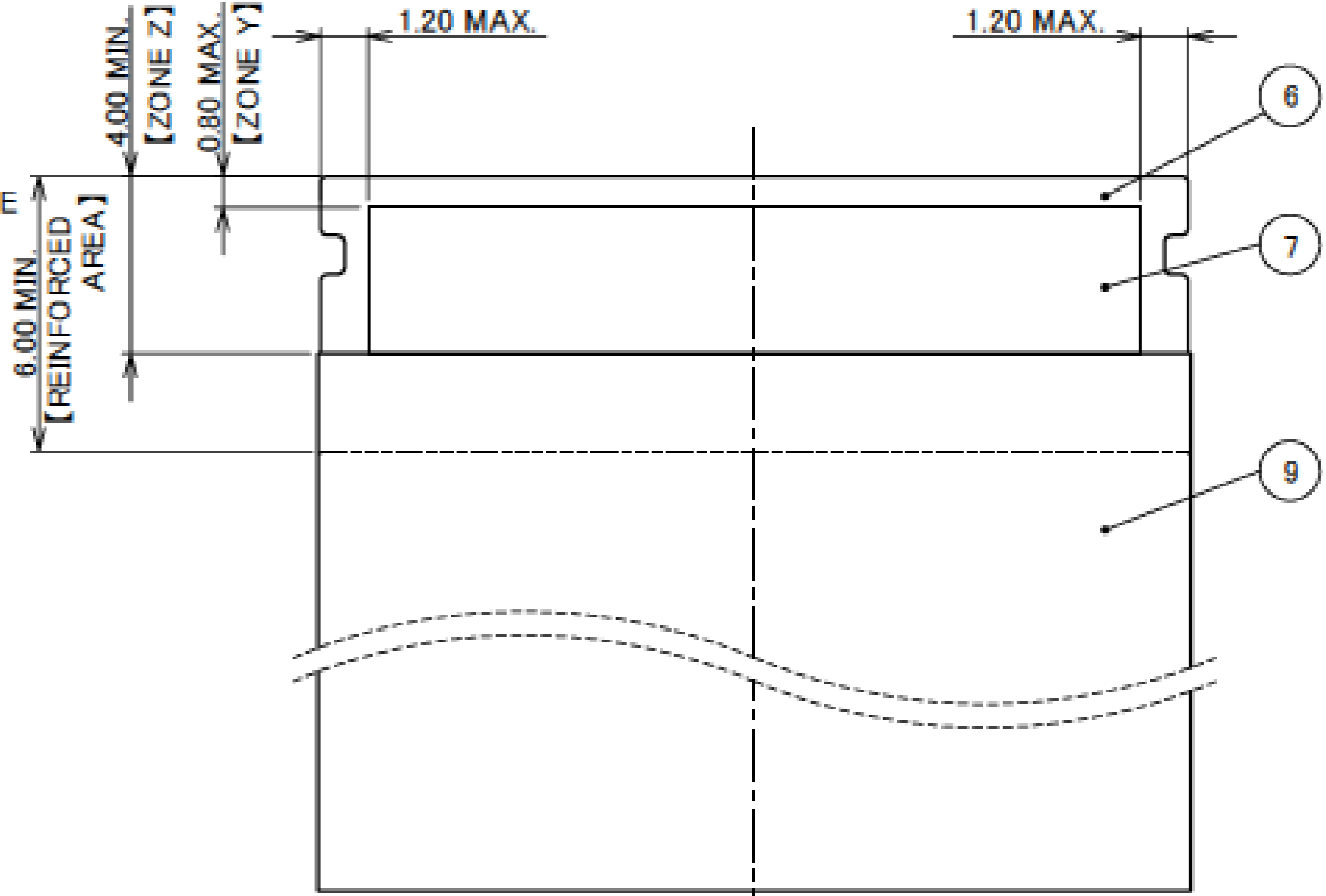
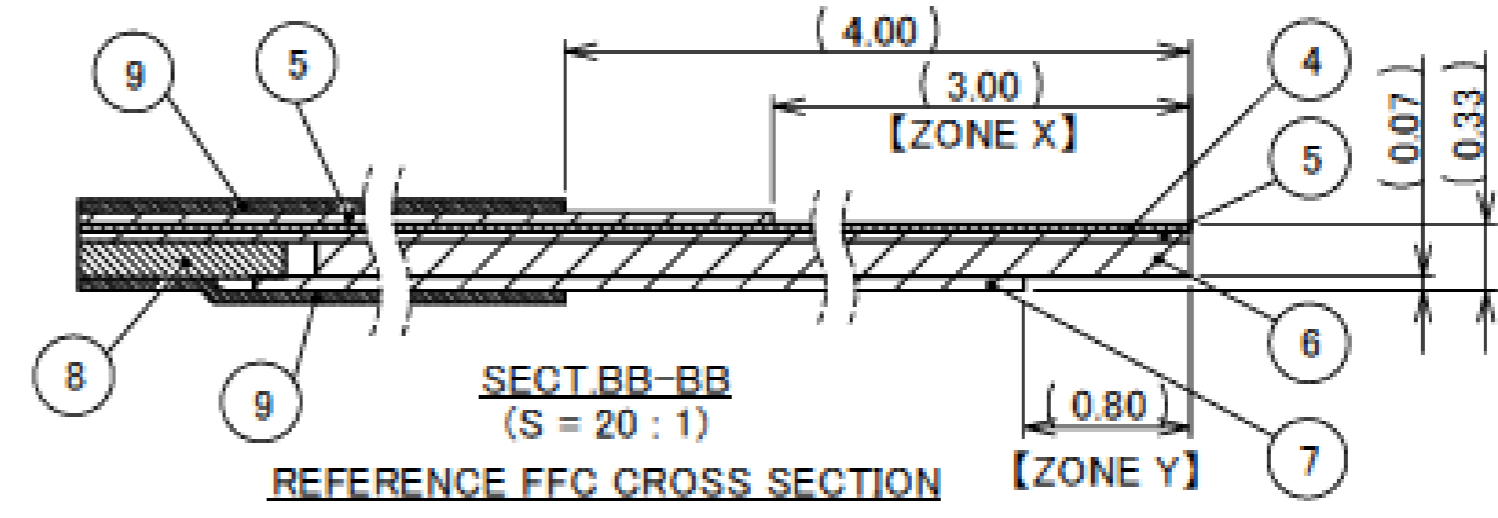
Connector Assembly

Recommended P/N		20720-0**E-02		
FOR	POS.	B	G	H
20720-010E-02	10P	4.50	7.04	5.80
20720-015E-02	15P	7.00	9.54	8.30
20720-020E-02	20P	9.50	12.04	10.80
20720-024E-02	24P	11.50	14.04	12.80
20720-030E-02	30P	14.50	17.04	15.80
20720-040E-02	40P	19.50	22.04	20.80

RECOMMENDED FFC DIMENSION



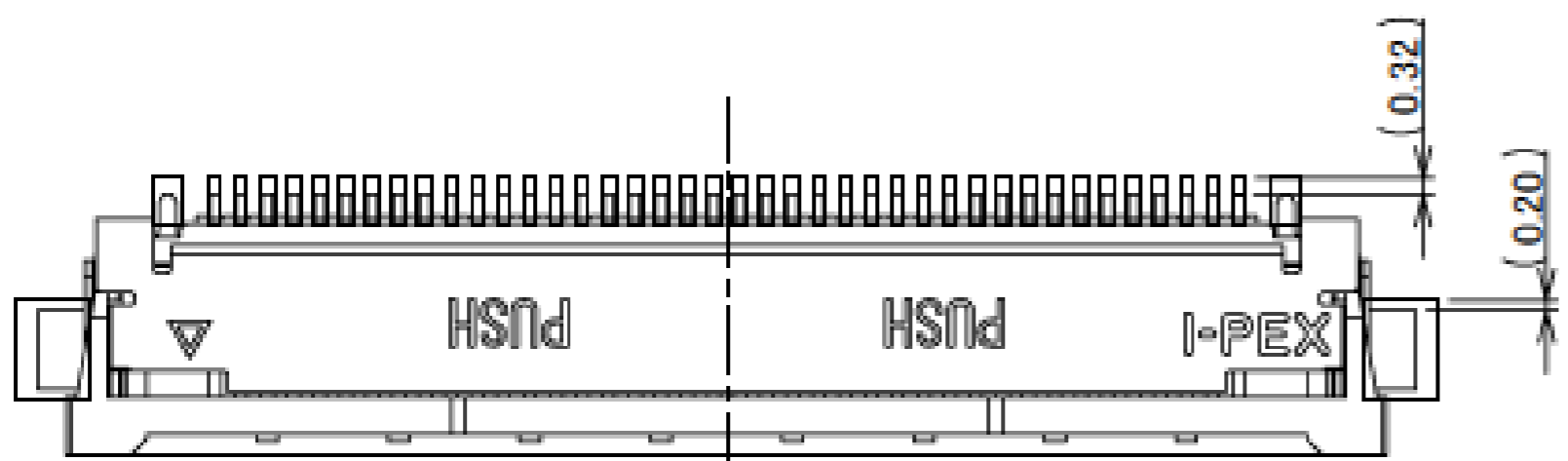
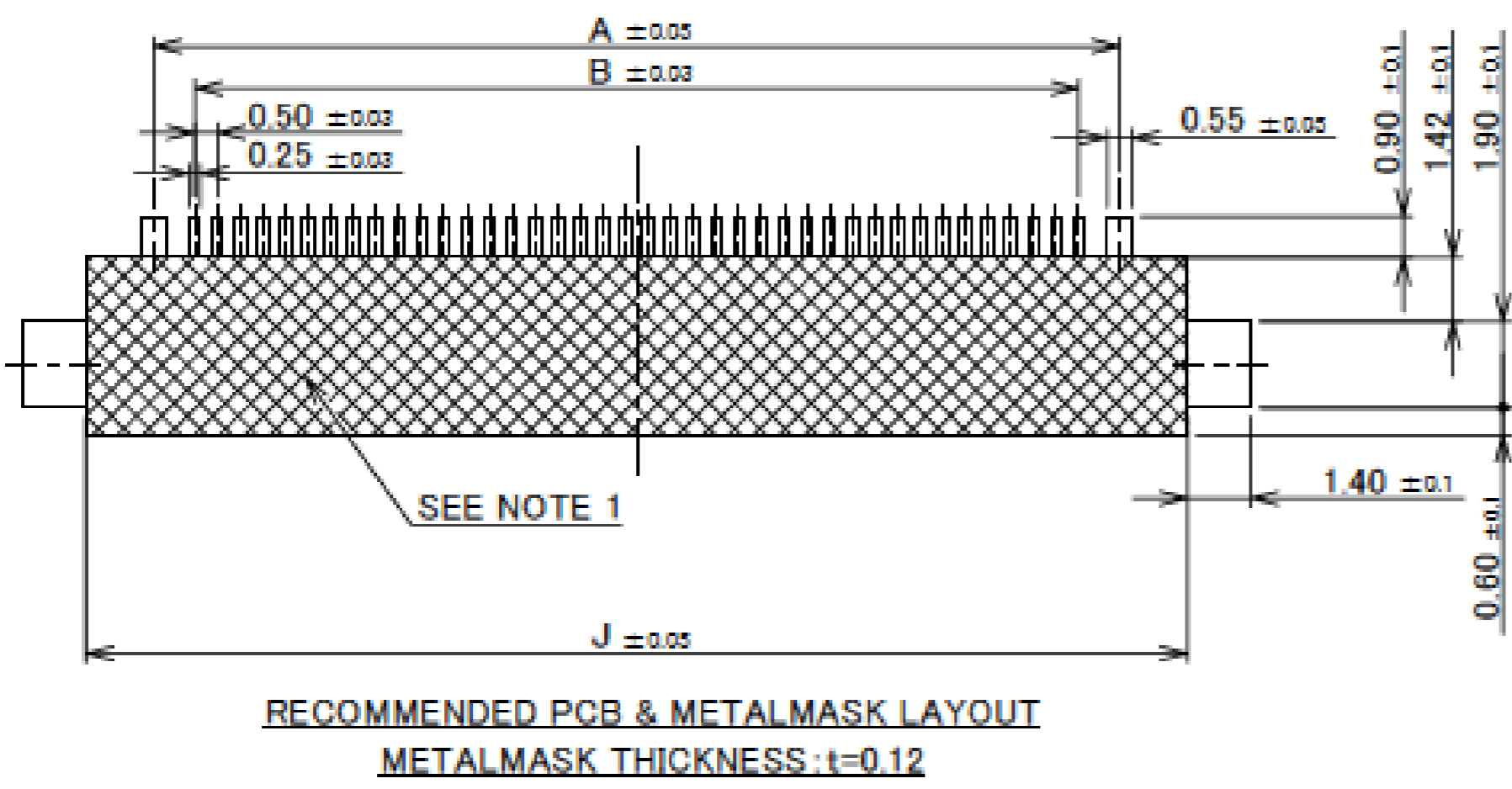
- NOTES
1. DIFFERENTIAL IMPEDANCE : 100Ω
 2. MANUFACTURE CASE① or CASE②
 3. SELECT A MATERIAL WITH A SOFTENING TEMPERATURE OF 85°C OR HIGHER FOR THE PATTERN ADHESIVE PART OF FFC.



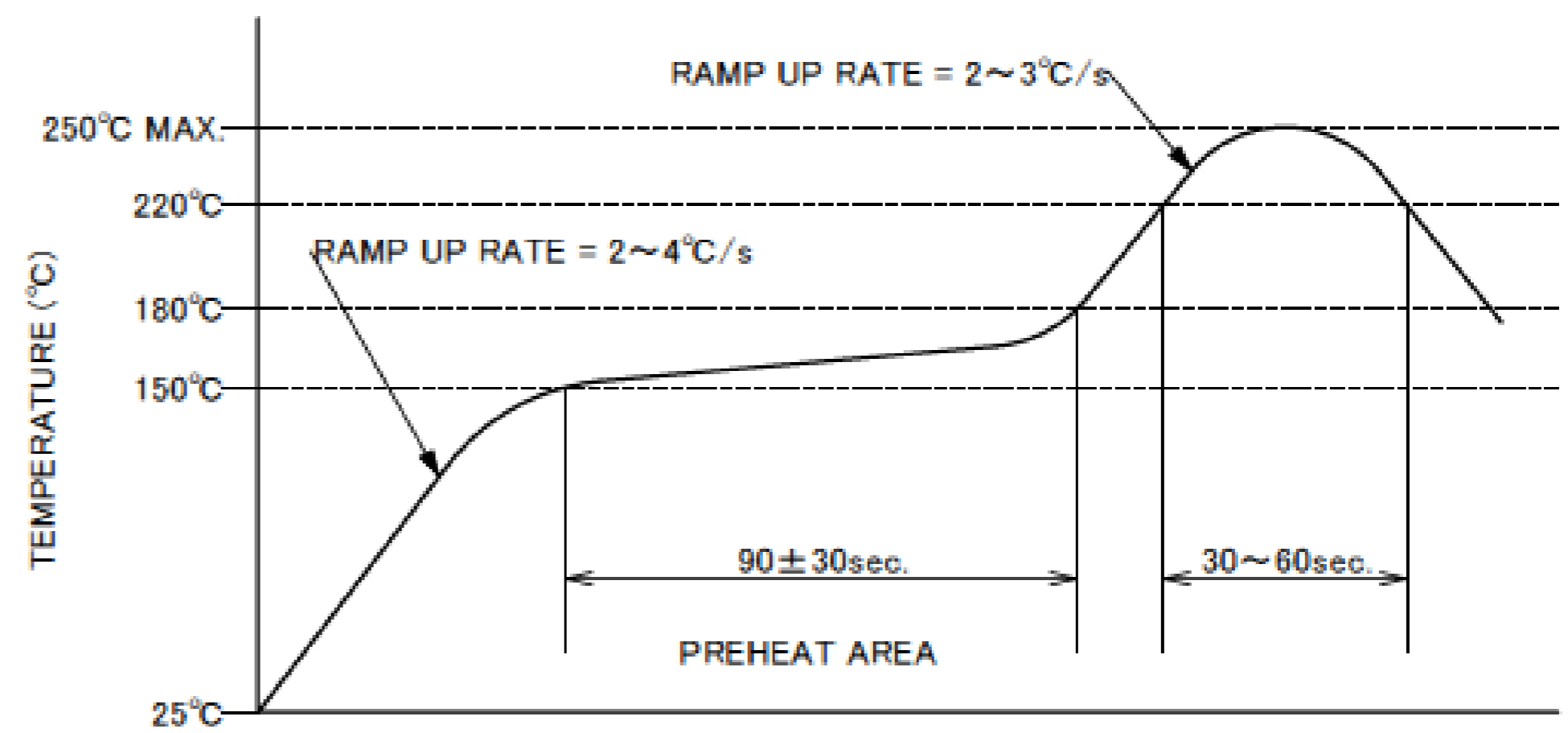
NO.	DISCRIPTION	MATERIAL	FINISH, REMARKS
9	SHIELD TAPE	METALIC FILM	-
8	INTERLAYER	ARBITRARY	-
7	GROUND PLATE	METARIC FILM	POLISH or HALF POLISH Sn PLATING
6	REINFORCED TAPE	ARBITRARY	-
5	INSULATION FILM	ARBITRARY	-
4	CONDUCTOR	COPPER ALLOY	CONTACT AREA: Au 0.05 μm MIN. OVER Ni 0.5 μm MIN.

Rev.7

Recommended P/N		20720-0**E-02		
PART NO.	POS.	A	B	J
20720-010E-02	10P	6.30	4.50	9.30
20720-015E-02	15P	8.80	7.00	11.80
20720-020E-02	20P	11.30	9.50	14.30
20720-024E-02	24P	13.30	11.50	16.30
20720-030E-02	30P	16.30	14.50	19.30
20720-040E-02	40P	21.30	19.50	24.30



CONNECTOR ON RECOMMENDED FOOTPRINT PATTERN



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

NOTE
1. SOLDER RESIST MUST BE APPLIED TO THIS AREA.

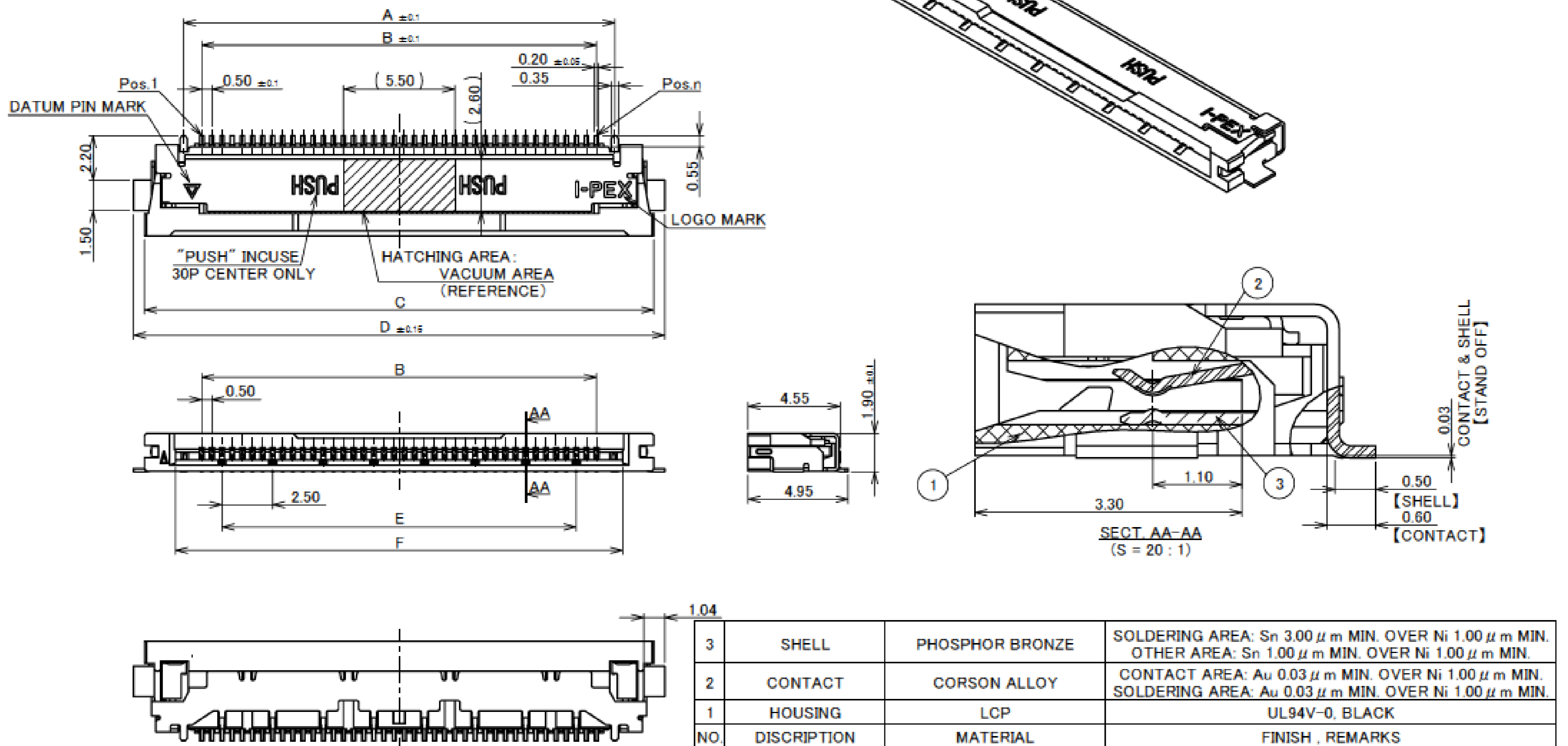
Rev.7

Connector Assembly

ITEMS	SPECIFICATION
RATING VOLTAGE	200V AC/DC (PER CONTACT PIN)
RATING AMPERAGE (FOR CONTACT)	0.3A AC/DC (PER CONTACT PIN) IN CASE OF APPLYING 0.5A PER CONTACT PIN, THE TOTAL CURRENT OF THE WHOLE CONNECTOR SHALL BE 15.0A OR LOWER.
OPERATING TEMPERATURE	233~378K(-40°C~+105°C)
OPERATING HUMIDITY	85% MAX.(NON-CONDENSING)
CONTACT RESISTANCE (FOR SIGNAL CONTACT)	INITIAL : 60mohm MAX. / AFTER TEST : \triangle 40mohm MAX.
INSULATION RESISTANCE	INITIAL : 100Mohm MIN. / AFTER TEST : 100Mohm MIN.
DIELECTRIC WITHSTANDING VOLTAGE	AC250V 1min
DURABILITY	30 CYCLES
MATING FORCE (INITIAL / AFTER TEST)	10P : 6.0N MAX. 15P : 9.0N MAX. 20P : 12.0N MAX. 24P : 14.4N MAX. 30P : 18.0N MAX. 40P : 24.0N MAX.
UNMATING FORCE (INITIAL / AFTER TEST)	10P : 1.0N MIN. 15P : 1.5N MIN. 20P : 2.0N MIN. 24P : 2.4N MIN. 30P : 3.0N MIN. 40P : 4.0N MIN.
COPLANARITY	0.10 MAX.
PRODUCT SPECIFICATION	PRS-2224
TEST REPORT	TR-16039
PACKING STANDARD	300-997
INSTRUCTION MANUAL	HIM-12003
APPEARANCE CRITERIA No.	QLS-A***

Rev.7

Recommended P/N		20893-0**E-02					
PART NO.	POS.	A	B	C	D	E	F
20893-030E-02	30P	16.30	14.50	20.17	21.25	12.50	17.10
20893-040E-02	40P	21.30	19.50	25.17	26.25	17.50	22.10
20893-050E-02	50P	26.30	24.50	30.17	31.25	22.50	27.10

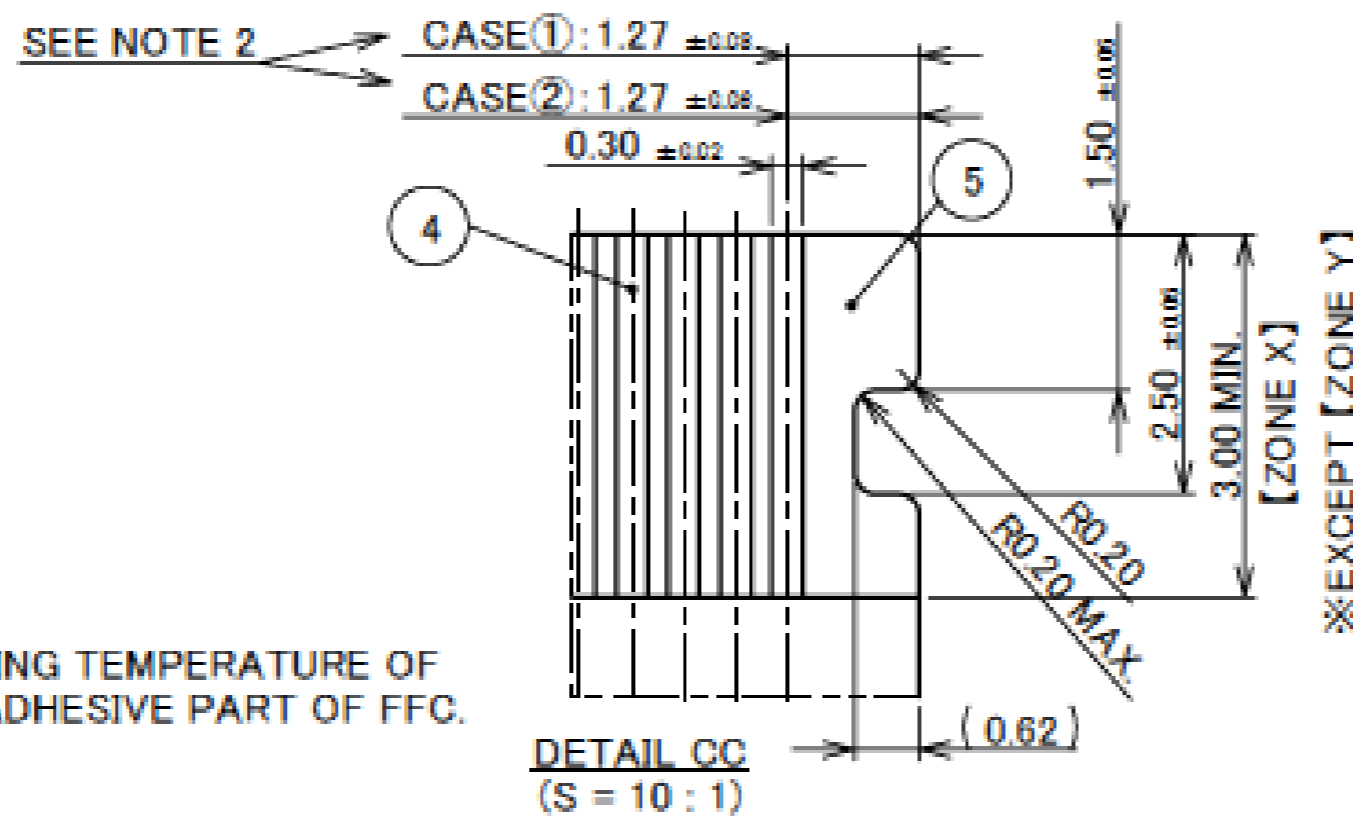
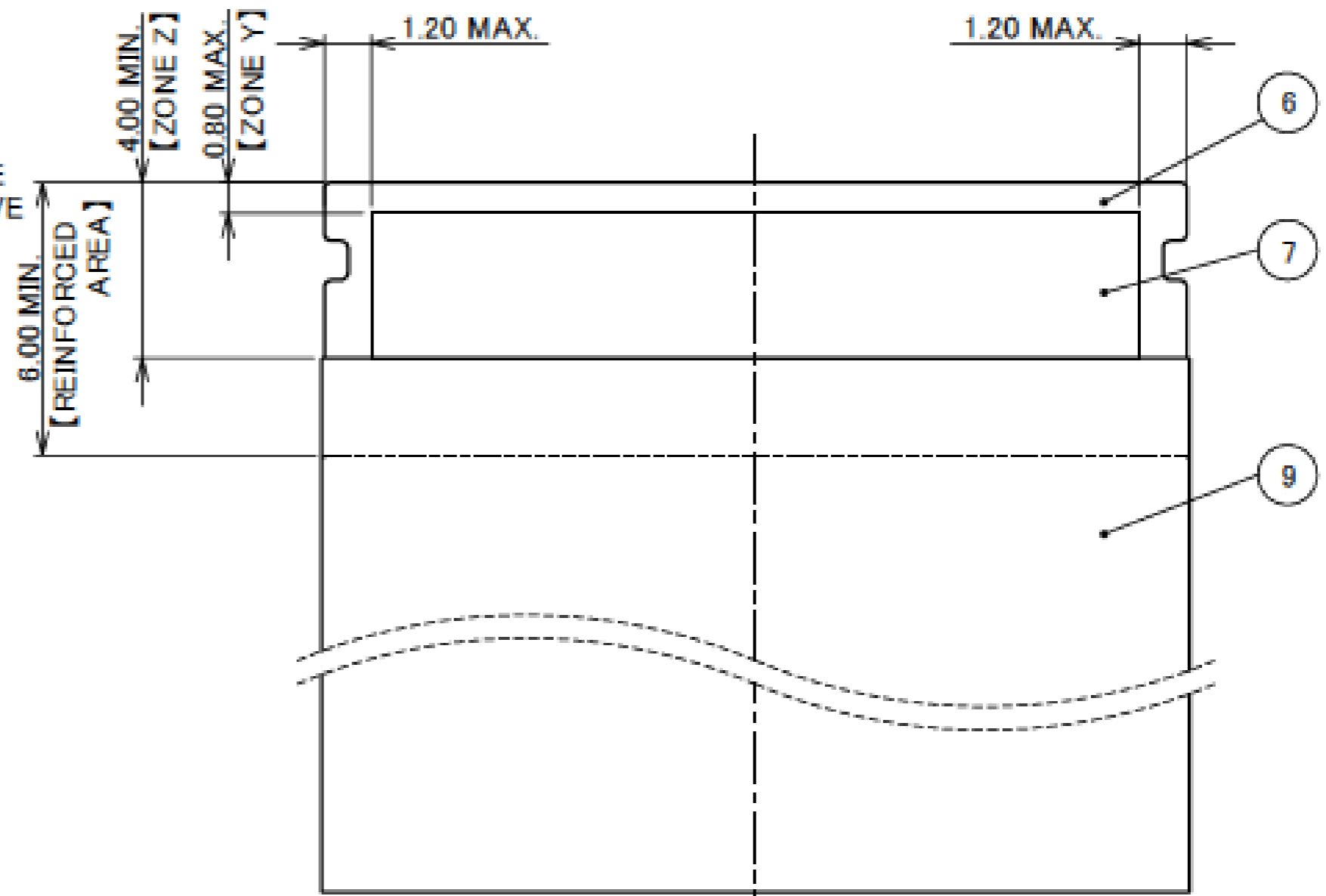
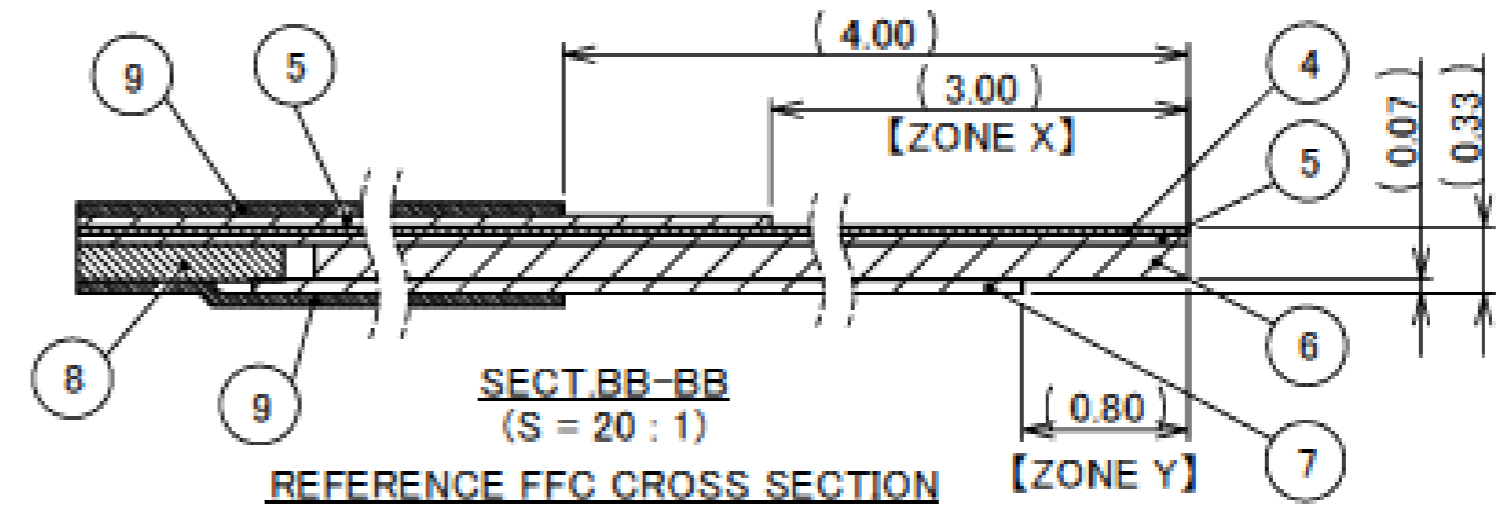
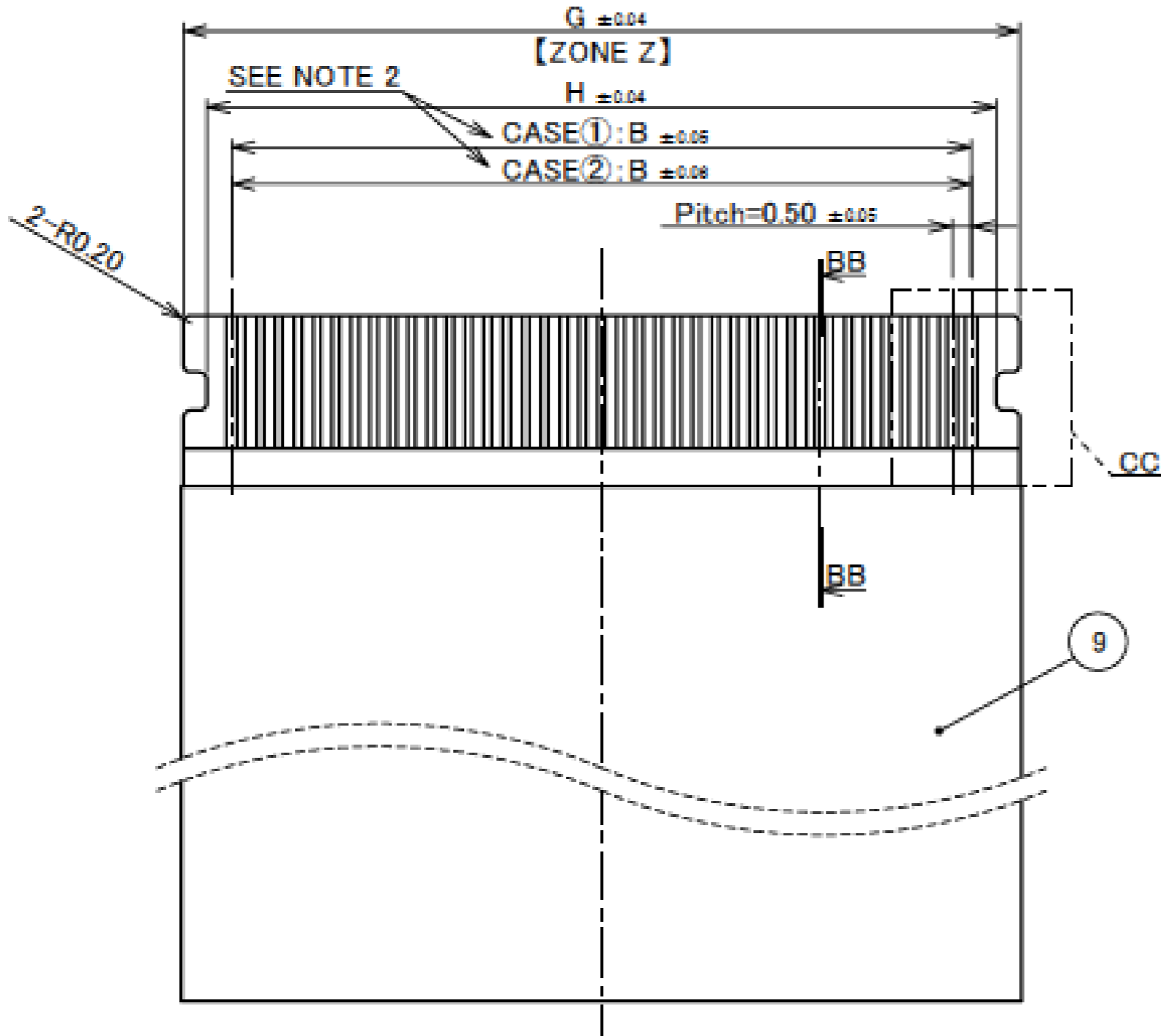


Rev.3

Connector Assembly

Recommended P/N		20893-0**E-02			
FOR	POS.	B	G	H	
20893-030E-02	30P	14.50	17.04	15.80	
20893-040E-02	40P	19.50	22.04	20.80	
20893-050E-02	50P	24.50	27.04	25.80	

RECOMMENDED FFC DIMENSION



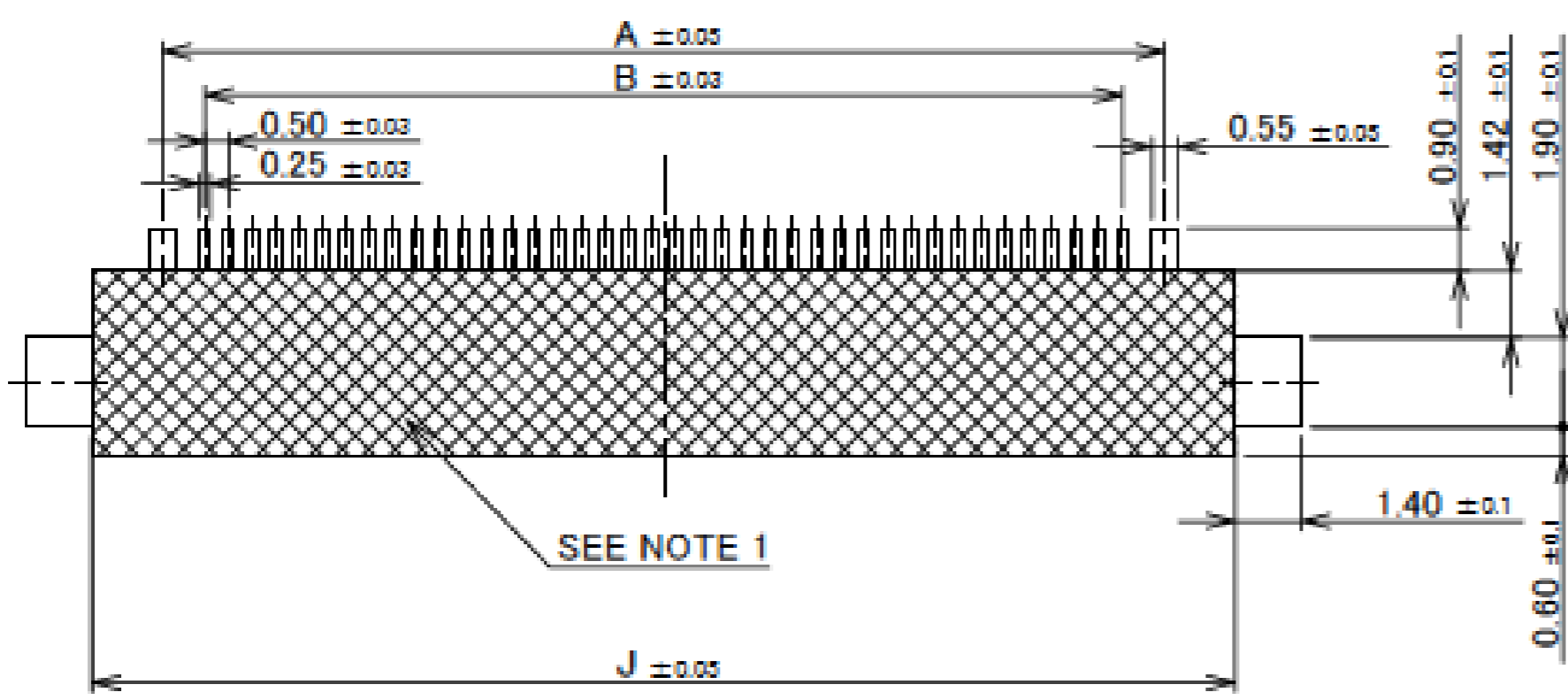
NO.	DISCRIPTION	MATERIAL	FINISH, REMARKS
9	SHIELD TAPE	METALIC FILM	-
8	INTERLAYER	ARBITRARY	-
7	GROUND PLATE	METARIC FILM	POLISH or HALF POLISH Sn PLATING
6	REINFORCED TAPE	ARBITRARY	-
5	INSULATION FILM	ARBITRARY	-
4	CONDUCTOR	COPPER ALLOY	CONTACT AREA: Au 0.05 μm MIN. OVER Ni 0.5 μm MIN.

NOTES

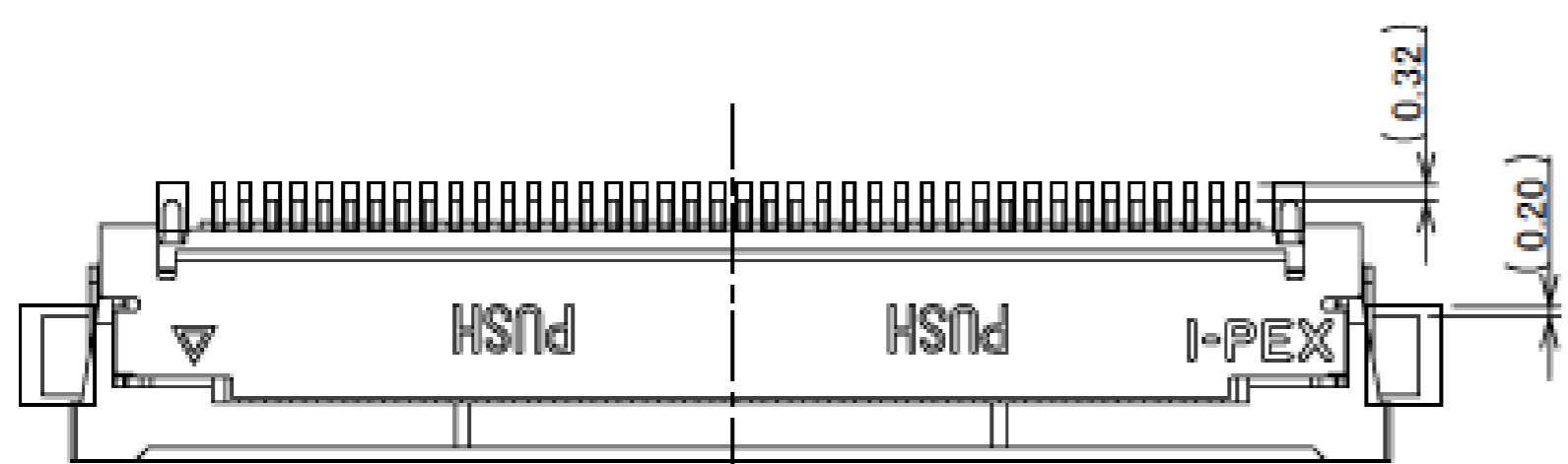
1. DIFFERENTIAL IMPEDANCE : 100 Ω
2. MANUFACTURE CASE(1) or CASE(2)
3. SELECT A MATERIAL WITH A SOFTENING TEMPERATURE OF 85°C OR HIGHER FOR THE PATTERN ADHESIVE PART OF FFC.

Rev.3

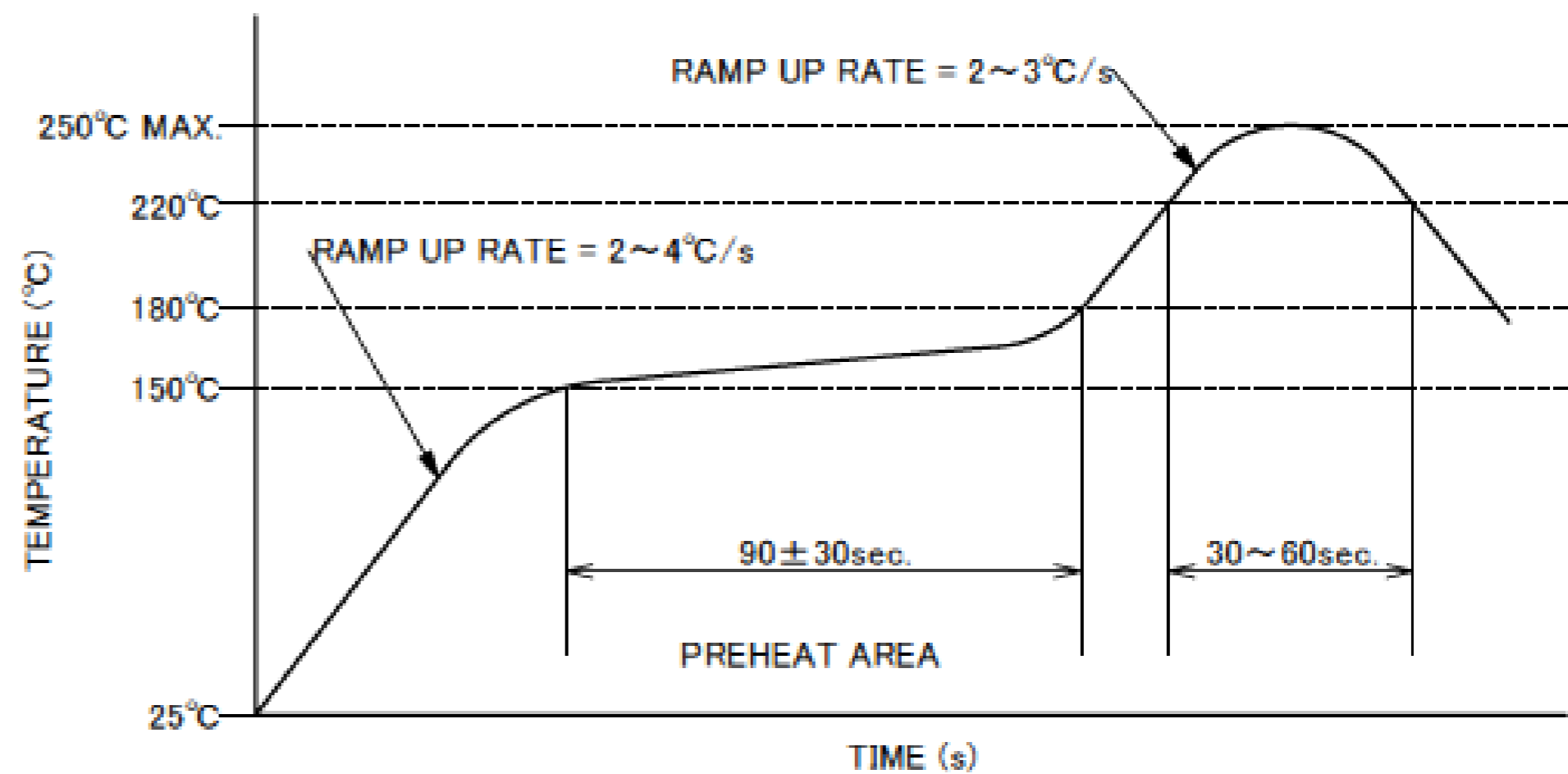
Recommended P/N		20893-0**E-02			
PART NO.	POS.	A	B	J	
20893-030E-02	30P	16.30	14.50	19.30	
20893-040E-02	40P	21.30	19.50	24.30	
20893-050E-02	50P	26.30	24.50	29.30	



RECOMMENDED PCB & METALMASK LAYOUT
METALMASK THICKNESS: t=0.12



CONNECTOR ON RECOMMENDED FOOTPRINT PATTERN



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

NOTE

1. SOLDER RESIST MUST BE APPLIED TO THIS AREA.

Rev.3

Connector Assembly

ITEMS	SPECIFICATION
RATING VOLTAGE	200V AC/DC (PER CONTACT PIN)
RATING AMPERAGE (FOR CONTACT)	0.3A AC/DC (PER CONTACT PIN) IN CASE OF APPLYING 0.5A PER CONTACT PIN, THE TOTAL CURRENT OF THE WHOLE CONNECTOR SHALL BE 15.0A OR LOWER.
OPERATING TEMPERATURE	233~378K(-40°C~+105°C)
OPERATING HUMIDITY	85% MAX.(NON-CONDENSING)
CONTACT RESISTANCE (FOR SIGNAL CONTACT)	INITIAL : 60mohm MAX. / AFTER TEST : \triangle 40mohm MAX.
INSULATION RESISTANCE	INITIAL : 100Mohm MIN. / AFTER TEST : 100Mohm MIN.
DIELECTRIC WITHSTANDING VOLTAGE	AC250V 1min
DURABILITY	30 CYCLES
MATING FORCE (INITIAL / AFTER TEST)	30P : 18.0N MAX. 40P : 24.0N MAX. 50P : 30.0N MAX.
UNMATING FORCE (INITIAL / AFTER TEST)	30P : 3.0N MIN. 40P : 4.0N MIN. 50P : 5.0N MIN.
COPLANARITY	0.10 MAX.
PRODUCT SPECIFICATION	PRS-2527
TEST REPORT	TR-18083
PACKING STANDARD	300-997
INSTRUCTION MANUAL	HIM-12003
APPEARANCE CRITERIA No.	QLS-A***


Rev.3

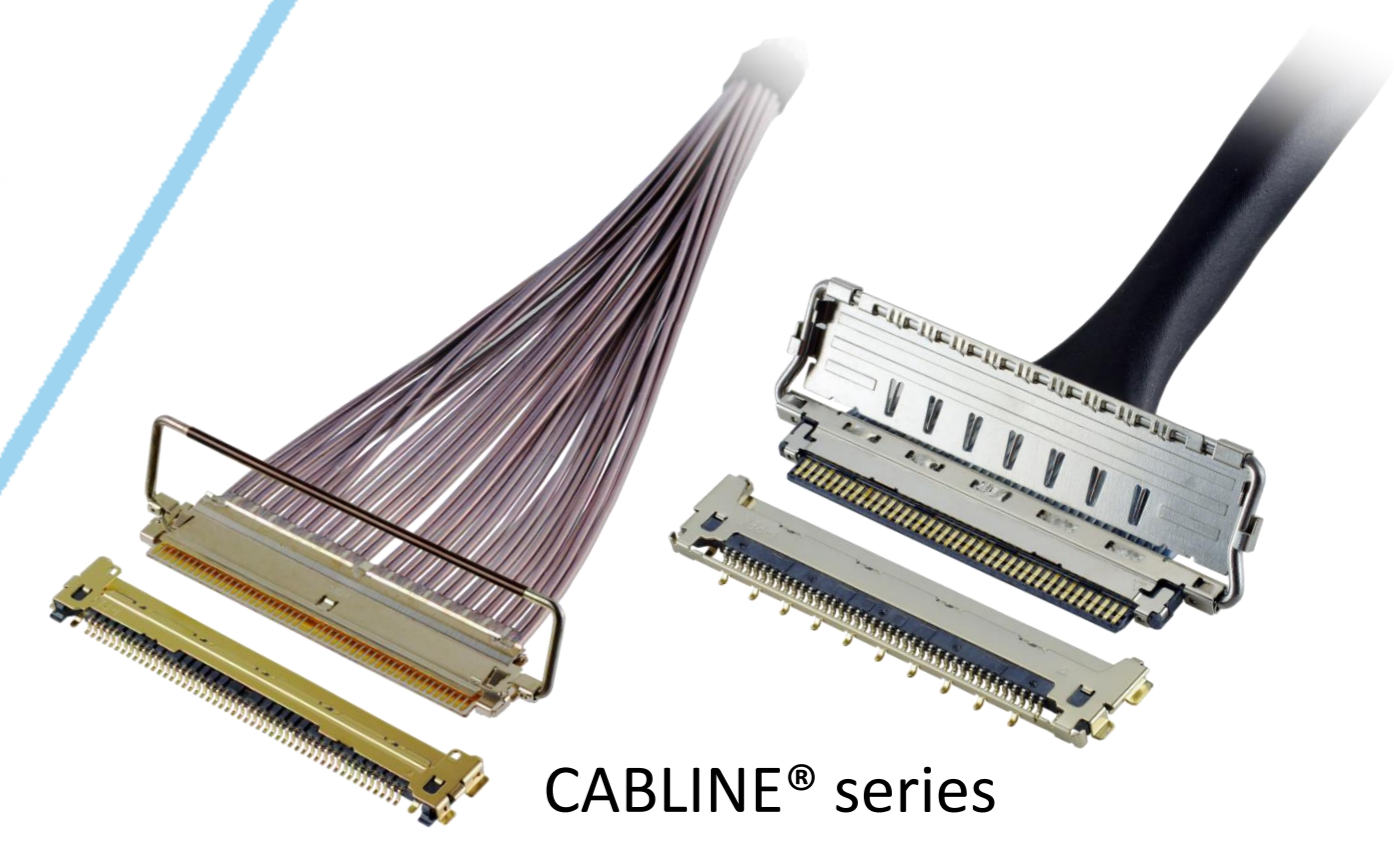
Custom Connectors Available

 RF Connector

MHF® series



 CABLINE® series
Micro-coaxial/Twinax/
Discrete Wire Connector



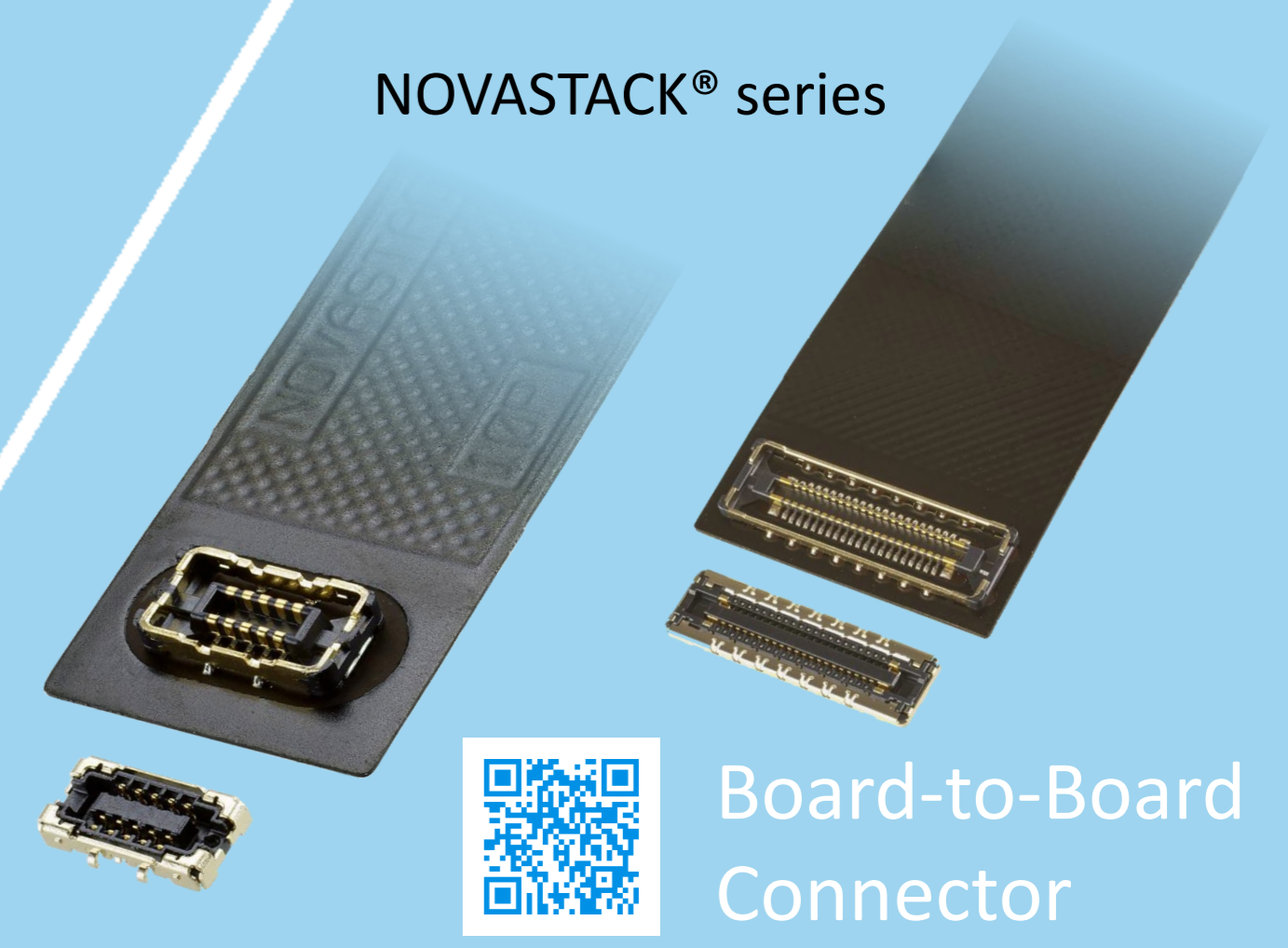
 Optical Module

LIGHTPASS® series



NOVASTACK® series

 Board-to-Board Connector



 Power Connector/
Terminal

AP series

ISH® series



MINIFLEX® series

EVAFLEX® series

 FPC FFC Connector

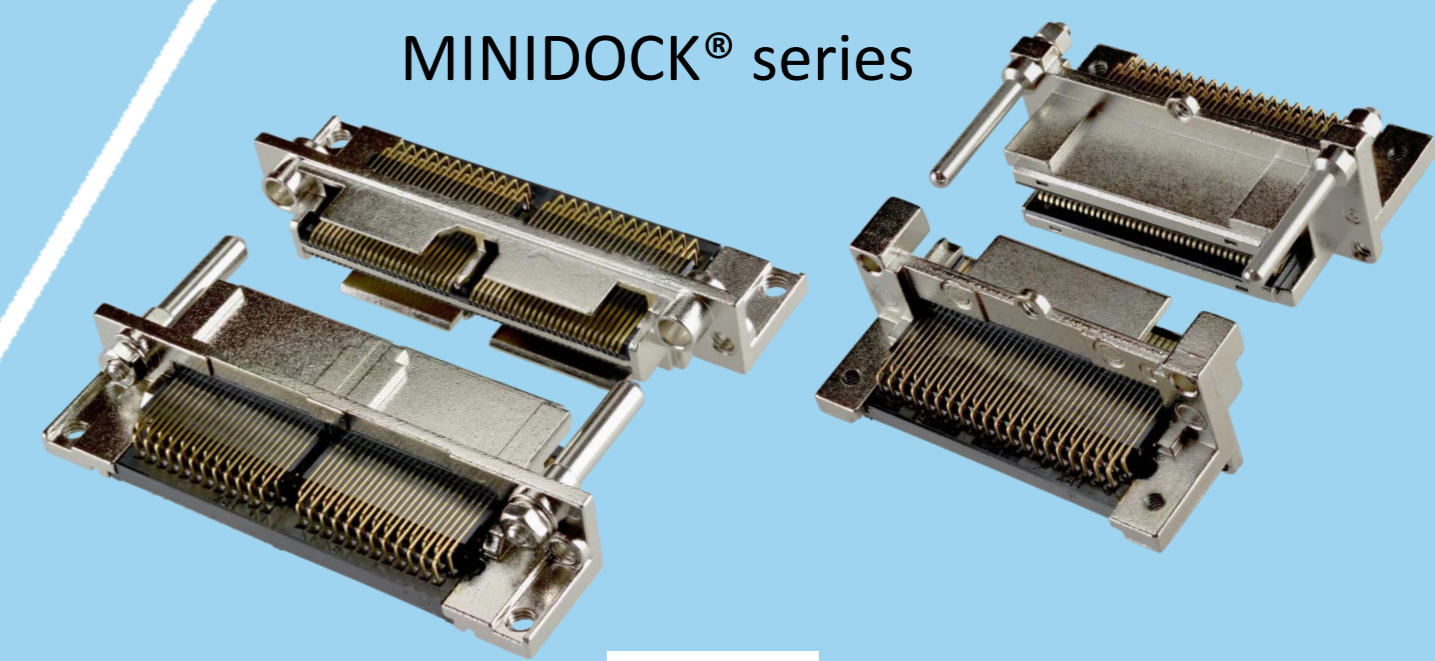


Inquiry



MINIDOCK® series

 I/O Connector



I-PEX, MHF, CABLINE, LIGHTPASS, NOVASTACK, ISH, IARPB, MINIFLEX, EVAFLEX, MINIDOCKS and ZenShield are registered trademarks of I-PEX Inc. Please note that the contents in the catalog might be changed without prior notification. I-PEX Inc. assumes no responsibility for any inaccuracies or obligation to update information on these documents. Please be sure to read and understand the latest "Precautions for Use" and "Instruction Manual" before you use our products. We shall not be responsible for any defects, damages or troubles in case you use our products without following the precautions for use. Please feel free to contact our sales representatives when you use our products for any applications that require very high reliability and safety, or that relate to human life (ex. nuclear power control, aerospace, transportation, medical equipment, safety equipment etc.).

Contact your sales representative or more detailed information.

www.i-pex.com



I-PEX

© I-PEX Inc. 2024
All rights reserved