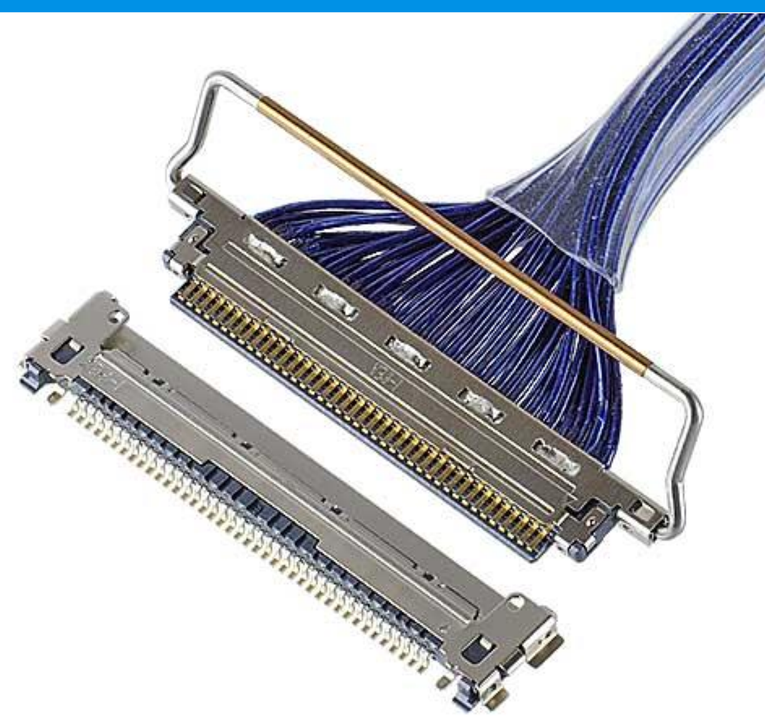
CABLINE®-CA



High-data-rate transfer, mechanical lock with shielding and multi-point ground, 0.4 mm pitch, Horizontal mating type micro-coaxial connector

*For higher data rate up to 64 Gbps PAM4, please review CABLINE-CAP harness solution that mates to current CABLINE-CA receptacle (20525-050E-02).

Product Specifications:

Mating type		Horizontal
Board Pitch (mm)		0.4
Wiping Length (mm)		0.54
Mated size (mm)	Height	1.0 +/- 0.1
	Width	Formula: 6.95 + (0.4*?p)
	Depth	5.73
Pin Counts	Range	Up to 60
	Available	10, 12, 20, 30, 40, 50, 60

Applicable Cable Size:

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

Applicable Standards (Reference Only):

USB4 Gen3/Thunderbolt 4 (20 Gbps/lane), PCIe Gen 4 (16 GT/s), USB 3.1 Gen 2 (10 Gbps), eDP HBR 3 (8.1 Gbps)

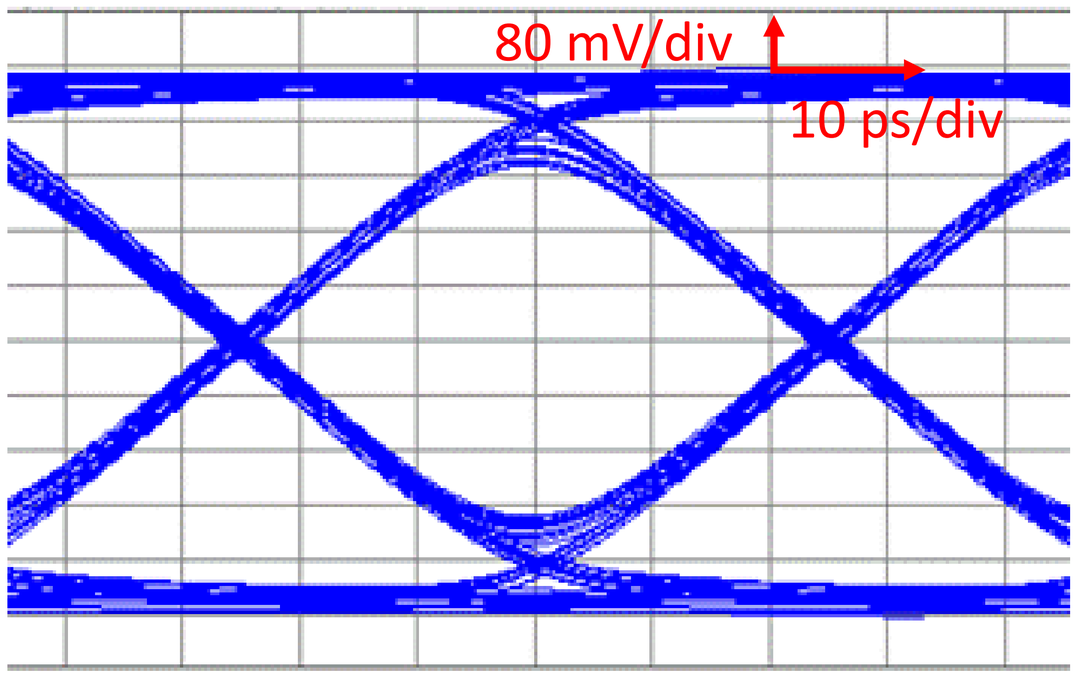
* Please inquire for pin counts not listed or outside of the pin count range.

High-data-rate transfer, ideal for USB4 Gen3/Thunderbolt 4 (20 Gbps/lane) applications

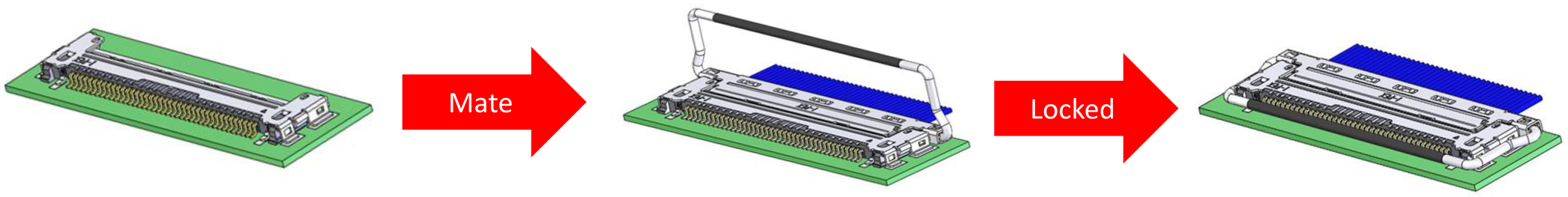
USB4 Gen3/Thunderbolt 4 (20 Gbps/lane)

Eye pattern (Differential)
Bit rate : 20 Gbps
Rise time : 30 ps (10-90%)
Input voltage : 800 mVp-p

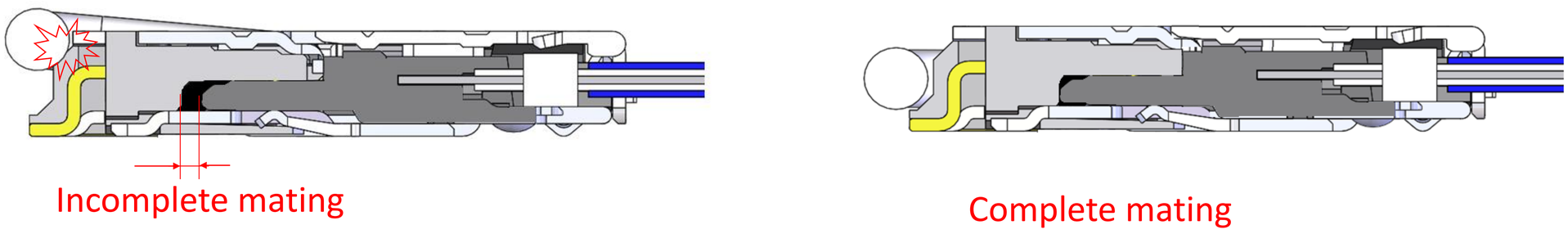
*Please contact I-PEX Connectors for more test details.



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



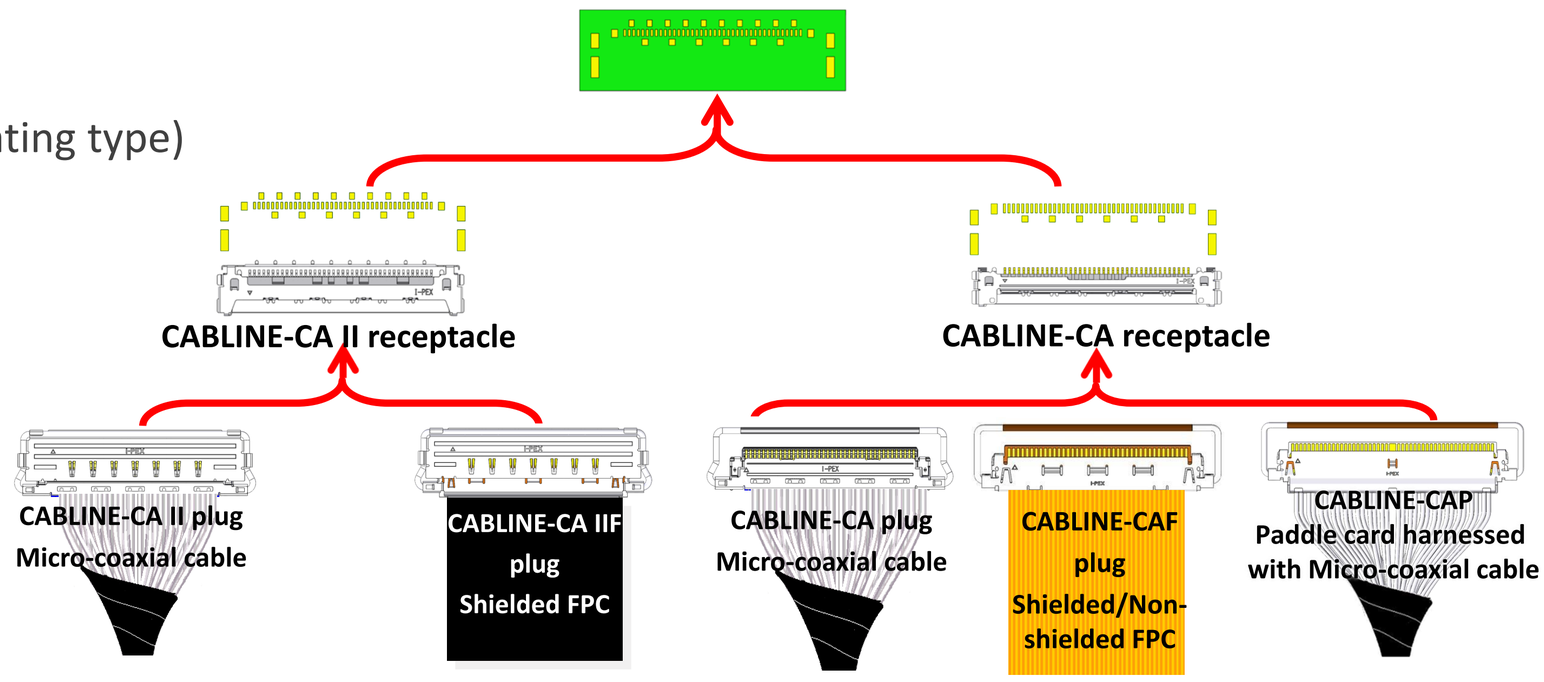
Mechanical locking bar can be locked only when plug is fully mated to receptacle.



Multiple connector options with CABLINE®-CA series

CABLINE-CA series (0.4 mm pitch, horizontal mating type)

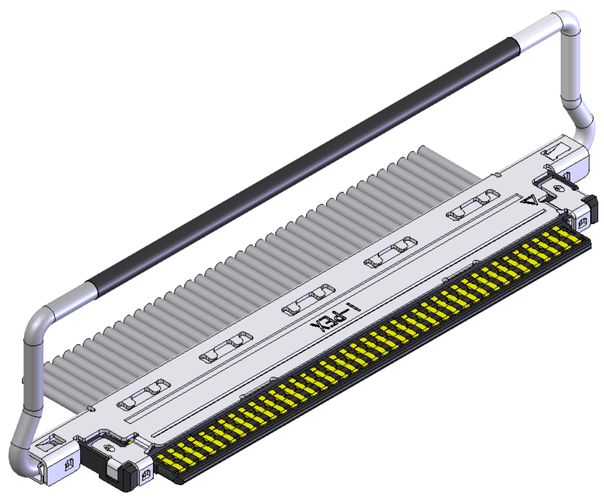
CABLINE-CA and CA II receptacles
can be mounted to the same PCB layout.



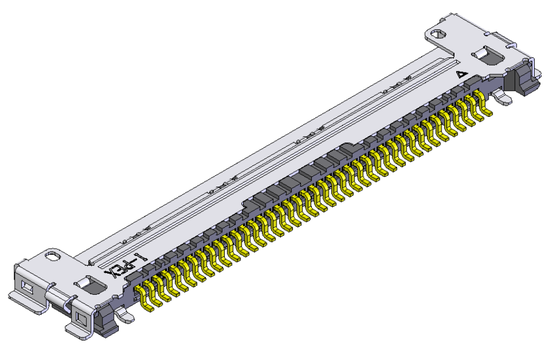
Component Parts Details

Component Parts

Connector parts

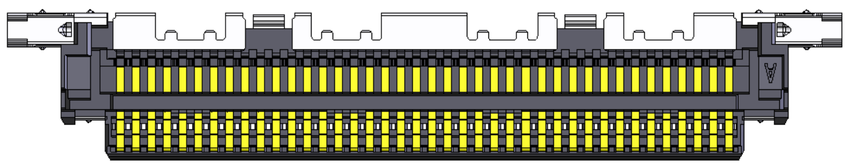


PLUG

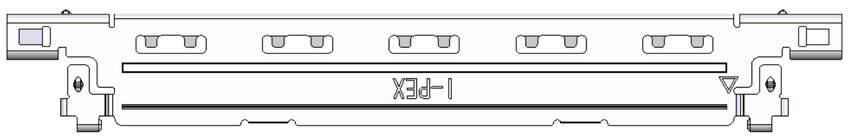


RECEPTACLE

Plug parts



PLUG HOUSING ASSEMBLY



PLUG SHELL-A

PULL BAR

Plug for Cable Assembly

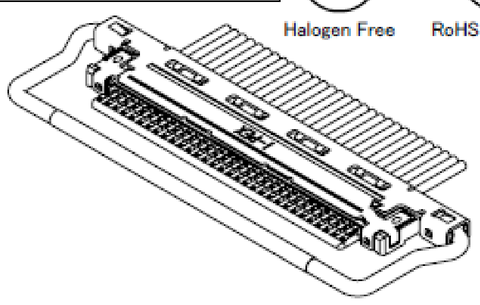
Recommended P/N	20633-2**T-01S(12～60P)							20633-310T-01S(10P)
PART NO.	POS.	A	B	C	D	E	F	G
20633-#10T-01S	10	3.60	4.40	6.66	9.40	4.65	9.75	10.95
20633-#12T-01S	12	4.40	5.20	7.46	10.20	5.45	10.55	11.75
20633-#20T-01S	20	7.60	8.40	10.66	13.40	8.65	13.75	14.95
20633-#30T-01S	30	11.60	12.40	14.66	17.40	12.65	17.75	18.95
20633-#40T-01S	40	15.60	16.40	18.66	21.40	16.65	21.75	22.95
20633-#50T-01S	50	19.60	20.40	22.66	25.40	20.65	25.75	26.95
20633-#60T-01S	60	23.60	24.40	26.66	29.40	24.65	29.75	30.95

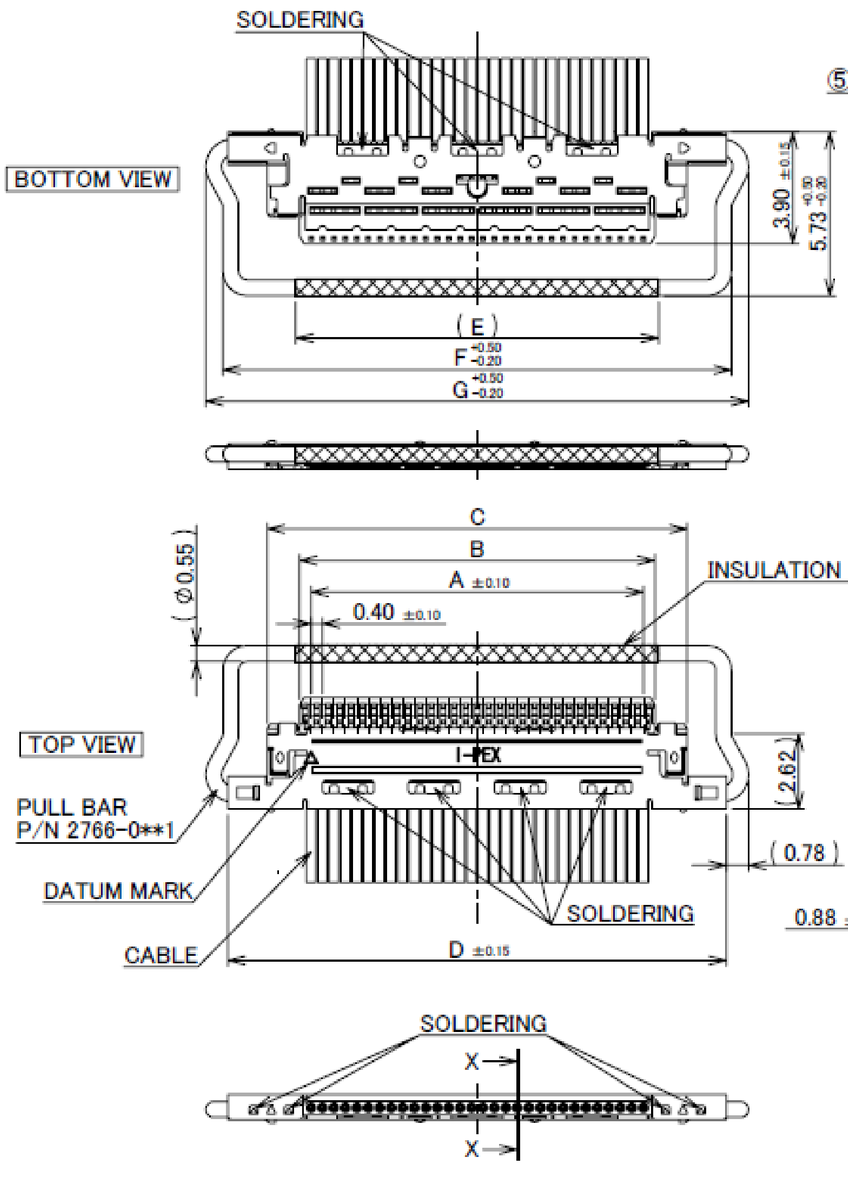
P/N : 20633- # ** T-0 # S
- 1 : WITH PULL BAR
- 2 : WITHOUT PULL BAR
- Pos.
- SEE TABLE.1

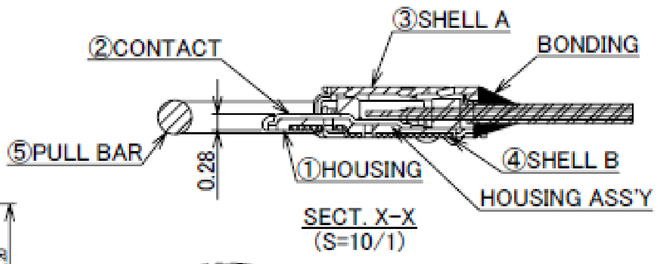
WITH PULL BAR

HF Halogen Free

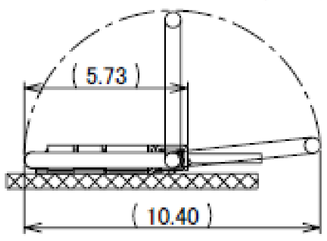
RoHS Compliant

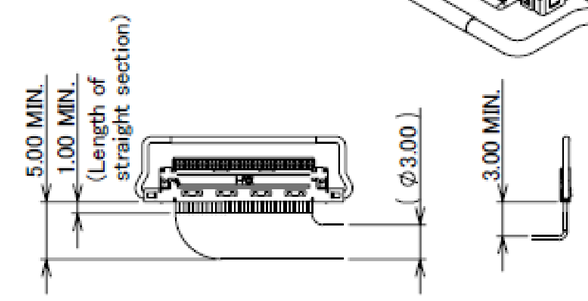






SECT. X-X
(S=10/1)





RECOMMENDED CABLE BENDING DIMENSIONS

PULL BAR MOVEMENTS

PART NO.

CABLE ASS'Y PART NO.	HOUSING ASS'Y PART NO.	SHELL A PART NO.	PULL BAR PART NO.
20633-2**T-01S	20634-1**T-02	2764-0**1-002	2766-0**1
20633-3**T-01S	20634-2**T-02	2764-0**1-003	

TABLE.1

PART NO.	CONTACT FINISH	SHELL A FINISH	SHELL B FINISH
20633-2**T-0#S	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.	TOP SIDE Au 0.03 μm MIN. OVER Ni 1.00 μm MIN. BOTTOM SIDE Ni 1.00 μm MIN.(THERE IS THE POSSIBILITY THAT Au ATTACHES RANDOMLY)	TOP SIDE Ni 1.00 μm MIN.(THERE IS THE POSSIBILITY THAT Au ATTACHES RANDOMLY) BOTTOM SIDE Au 0.03 μm MIN. OVER Ni 1.00 μm MIN.
20633-3**T-0#S	CONTACT AREA Au 0.03 μm MIN. OVER Ni 1.00 μm MIN. SOLDERING AREA Au 0.03 μm MIN. OVER Ni 1.00 μm MIN.	PARTIAL Au 0.003 μm MIN. OVER Ni 1.00 μm MIN.	PARTIAL Au 0.003 μm MIN. OVER Ni 1.00 μm MIN.

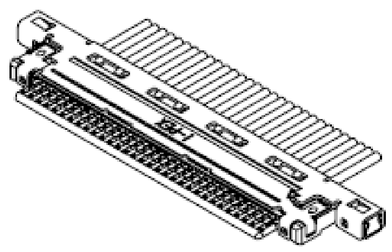
NO.	DISCRIPTION	MATERIAL	FINISH , REMARKS
5	PULL BAR	SUS	
4	SHELL B	PHOSPHOR BRONZE	SEE ABOVE TABLE.1
3	SHELL A	PHOSPHOR BRONZE	SEE ABOVE TABLE.1
2	CONTACT	PHOSPHOR BRONZE	SEE ABOVE TABLE.1
1	HOUSING	LCP	UL94V-0, BLACK

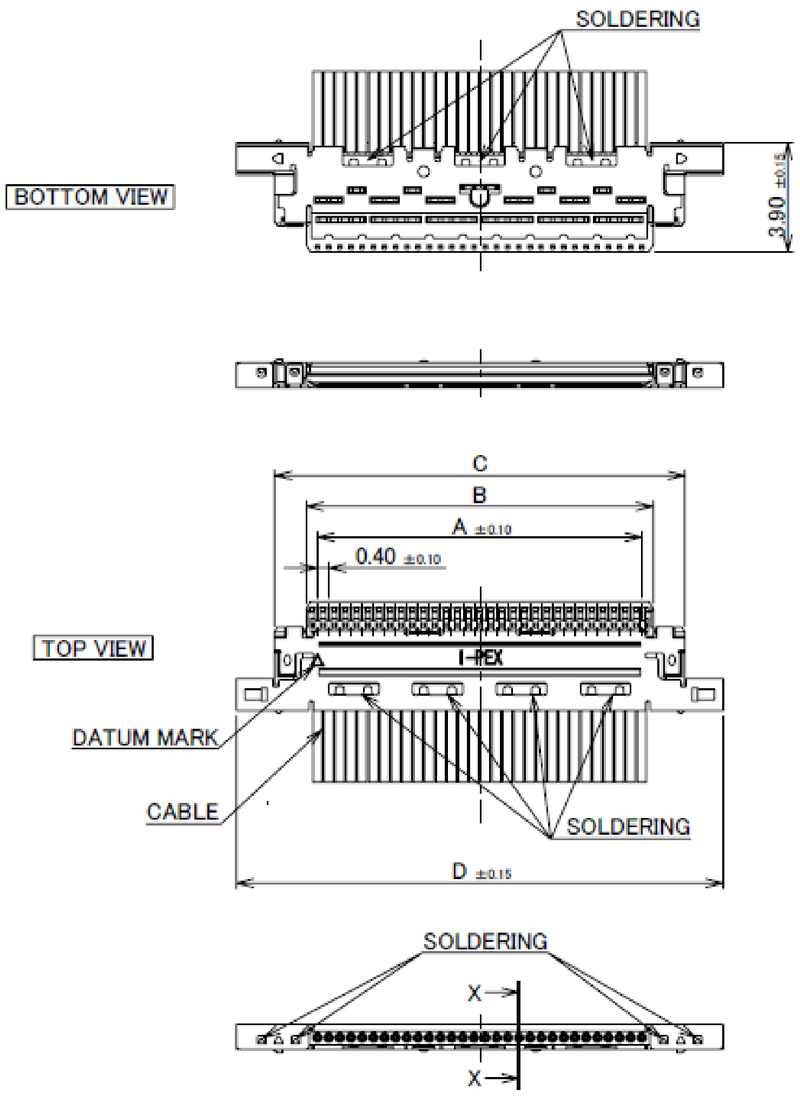
Rev.12

Recommended P/N	20633-2**T-01S(12～60P)					20633-310T-01S(10P)
PART NO.	POS.	A	B	C	D	
20633-#10T-02S	10	3.60	4.40	6.66	9.40	
20633-#12T-02S	12	4.40	5.20	7.46	10.20	
20633-#20T-02S	20	7.60	8.40	10.66	13.40	
20633-#30T-02S	30	11.60	12.40	14.66	17.40	
20633-#40T-02S	40	15.60	16.40	18.66	21.40	
20633-#50T-02S	50	19.60	20.40	22.66	25.40	
20633-#60T-02S	60	23.60	24.40	26.66	29.40	

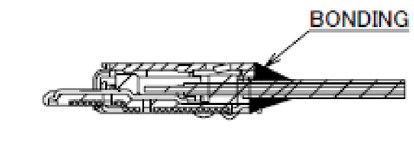
P/N : 20633- # ** T-0 # S
- 1 : WITH PULL BAR
- 2 : WITHOUT PULL BAR
- Pos.
- SEE TABLE.1 (SHEET1/5)

WITHOUT PULL BAR

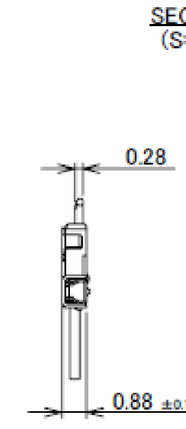


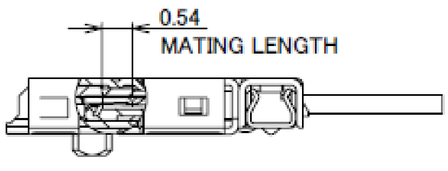


RECOMMENDED CABLE BENDING DIMENSIONS

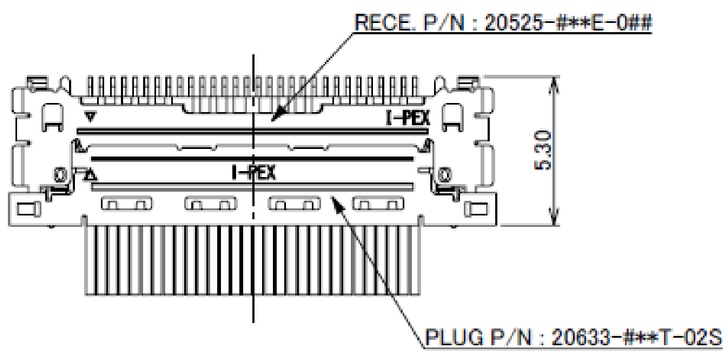


SECT. X-X
(S=10/1)





MATING CONDITION



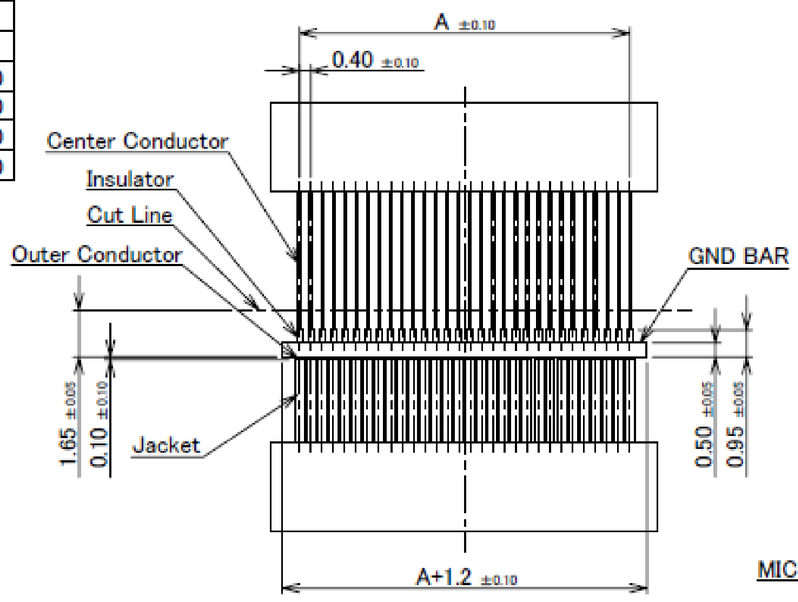
PART NO.

CABLE ASS'Y PART NO.	HOUSING ASS'Y PART NO.	SHELL-A PART NO.	PULL BAR PART NO.
20633-2**T-02S	20634-1**T-02	2764-0**1-002	-
20633-3**T-02S	20634-2**T-02	2764-0**1-003	

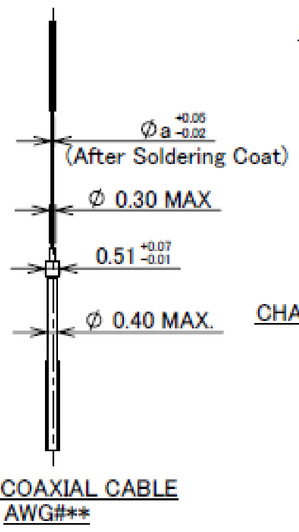
Rev.12

Plug for Cable Assembly

PART NO.	POS.	A
20633-#10T-0#S	10	3.60
20633-#12T-0#S	12	4.40
20633-#20T-0#S	20	7.60
20633-#30T-0#S	30	11.60
20633-#40T-0#S	40	15.60
20633-#50T-0#S	50	19.60
20633-#60T-0#S	60	23.60



RECOMMENDED MICRO-COAXIAL CABLE DIM.



MICRO-COAXIAL CABLE
AWG#**

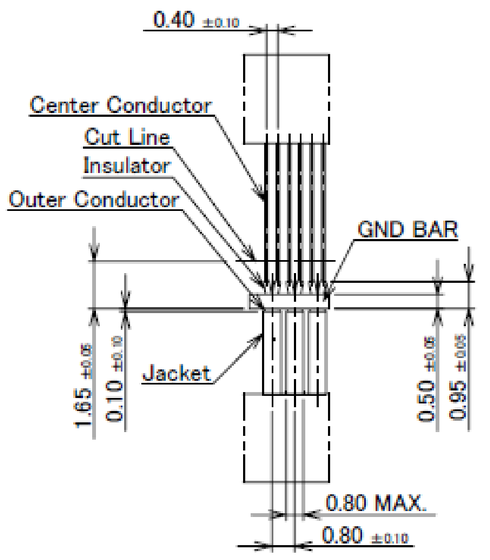
CHARACTERISTIC IMPEDANCE MATCHING MICRO-COAXIAL CABLE

	a
#38	0.12
#40	0.09
#42	0.075
#44	0.063

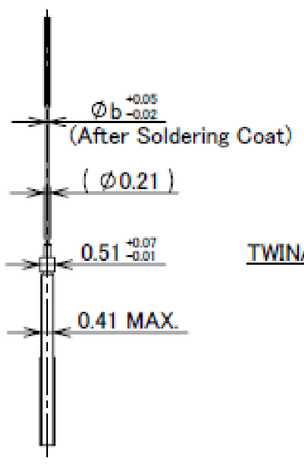
CHARACTERISTIC IMPEDANCE UN-MATCHING MICRO-COAXIAL CABLE

	a
#36	0.15

MICRO-COAXIAL CABLE #36 : NOT RECOMMENDED FOR
HIGH SPEED SIGNAL TRANSFER



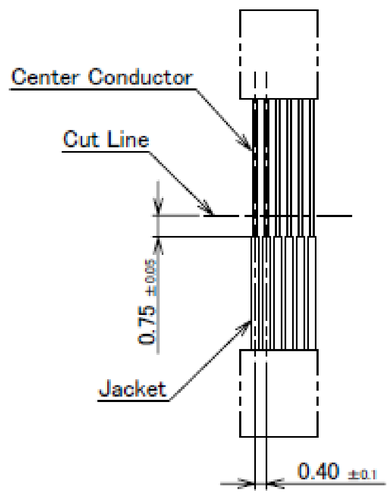
RECOMMENDED TWINAX CABLE DIM.



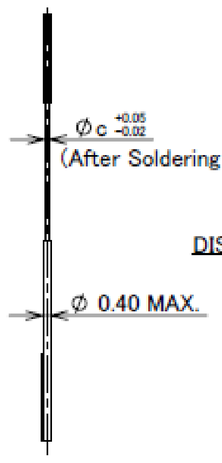
TWINAX CABLE
AWG#**

TWINAX CABLE DIMENSION

	b
#40	0.09
#42	0.075



RECOMMENDED DISCRETE WIRE DIM.



DISCRETE WIRE
AWG#**

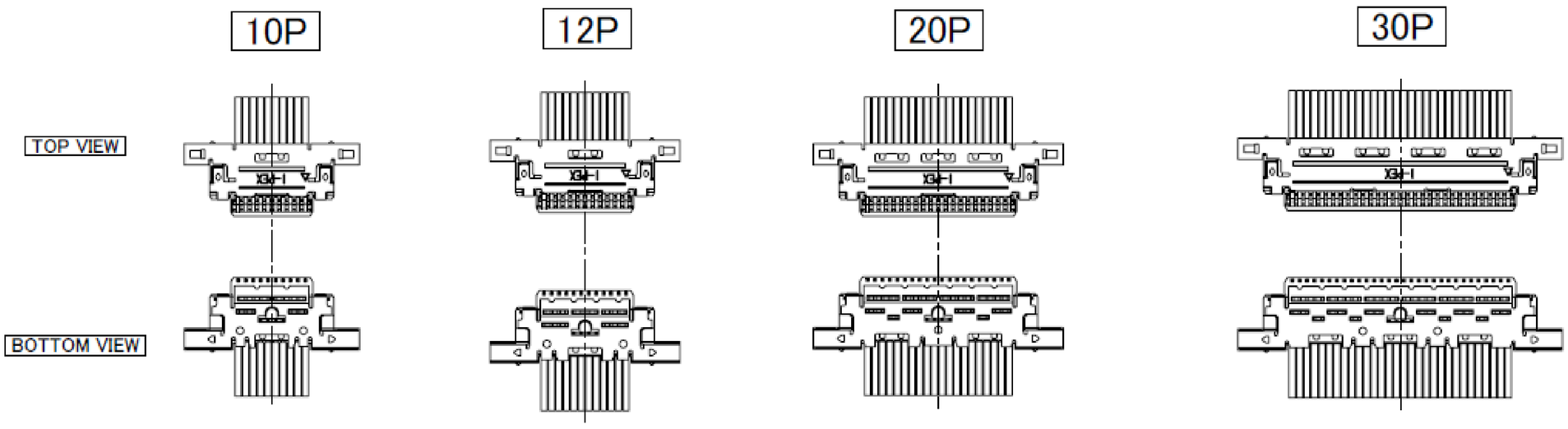
DISCRETE WIRE DIMENSION

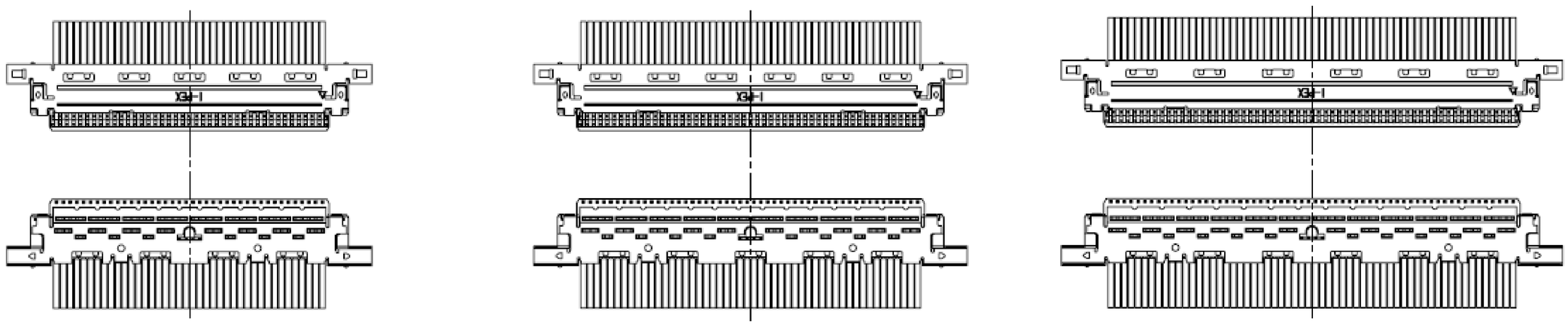
	c
#34	0.192
#36	0.15

Rev.12

PART NO.
20633-#**T-0#S

THE EXTERNAL APPEARANCE



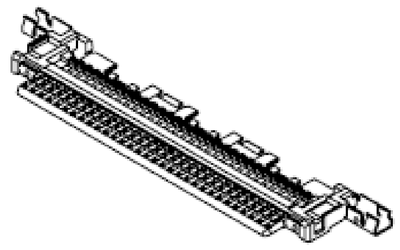


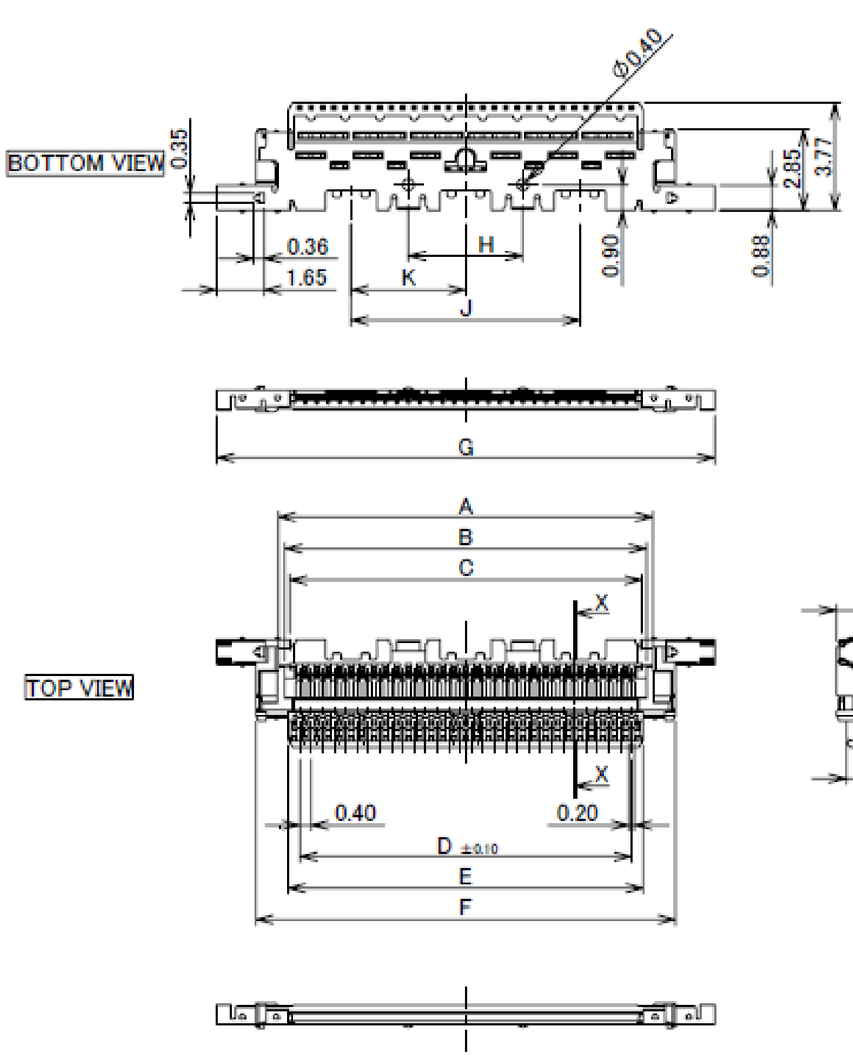
Rev.12

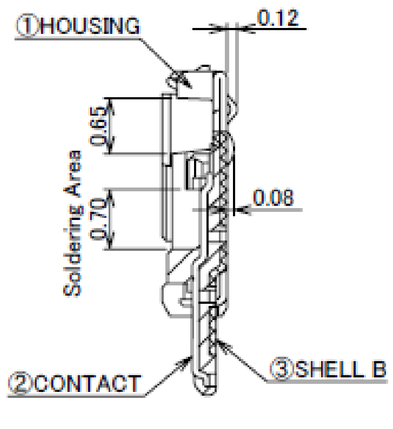
Plug Housing Assembly

Recommended P/N	20634-1**T-02(12～60P)						20634-210T-02(10P)			
PART NO.	Pos.	A	B	C	D	E	F	G	H	J	K
20634-#10T-02	10	5.10	4.65	4.30	3.60	4.40	6.66	9.40	3.40	–	–
20634-#12T-02	12	5.90	5.45	5.10	4.40	5.20	7.46	10.20	4.10	–	–
20634-#20T-02	20	9.10	8.65	8.30	7.60	8.40	10.66	13.40	–	5.00	–
20634-#30T-02	30	13.10	12.65	12.30	11.60	12.40	14.66	17.40	4.00	8.00	4.00
20634-#40T-02	40	17.10	16.65	16.30	15.60	16.40	18.66	21.40	8.00	12.00	4.00
20634-#50T-02	50	21.10	20.65	20.30	19.60	20.40	22.66	25.40	12.00	16.00	4.00
20634-#60T-02	60	25.10	24.65	24.30	23.60	24.40	26.66	29.40	16.00	20.00	4.00

P/N : 20634- # ** T-02
- POS.
- SEE TABLE.1







SECT. X-X
(S=15/1)

NOTES
1. THIS PART IS ASSEMBLED WITH SHELL A(P/N 2764-0**1-00#) AND PULL BAR(P/N 2766-0**1) AFTER SOLDERED THE CABLE, AND IT BECOMES P/N 20633-#**T-0#S

TABLE.1

PART NO.	CONTACT FINISH	SHELL B FINISH
20634-1**T-02	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.	TOP SIDE Ni 1.00 μm MIN.(THERE IS THE POSSIBILITY THAT Au ATTACHES RANDOMLY) BOTTOM SIDE Au 0.03 μm MIN. OVER Ni 1.00 μm MIN.
20634-2**T-02	CONTACT AREA Au 0.03 μm MIN. OVER Ni 1.00 μm MIN. SOLDERING AREA Au 0.03 μm MIN. OVER Ni 1.00 μm MIN.	PARTIAL Au 0.003 μm MIN. OVER Ni 1.00 μm MIN.

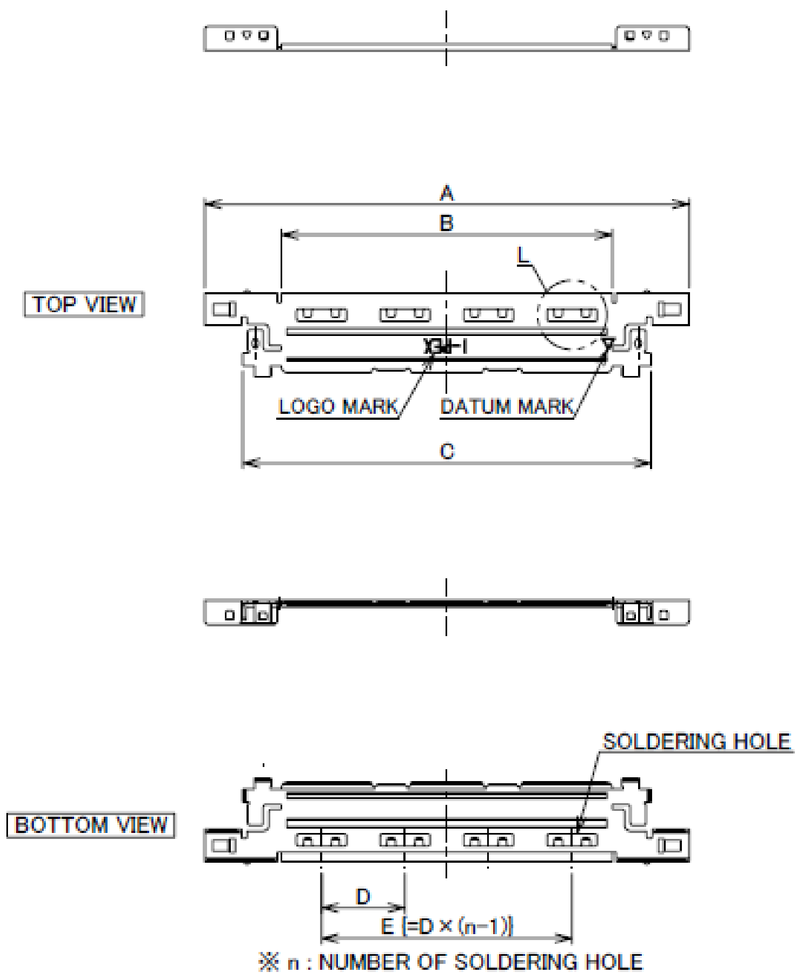
NO.	DISCRIPTION	MATERIAL	FINISH , REMARKS
3	SHELL-B	PHOSPHOR BRONZE	SEE ABOVE TABLE.1
2	CONTACT	PHOSPHOR BRONZE	SEE ABOVE TABLE.1
1	HOUSING	LCP	UL94V-0, BLACK

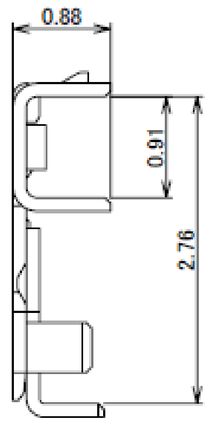
Rev.11

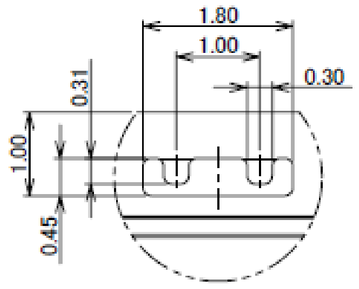
Plug Shell-A

Recommended P/N	2764-0**1-002(12～60P)				2764-0101-003(10P)
PART NO.	A	B	C	D	E
2764-0101-00#	9.40	3.88	6.66	–	–
2764-0121-00#	10.20	4.68	7.46	–	–
2764-0201-00#	13.40	7.88	10.66	2.50	5.00 [= 2.50 × (3 – 1)]
2764-0301-00#	17.40	11.88	14.66	3.00	9.00 [= 3.00 × (4 – 1)]
2764-0401-00#	21.40	15.88	18.66	3.25	13.00 [= 3.25 × (5 – 1)]
2764-0501-00#	25.40	19.88	22.66	3.40	17.00 [= 3.40 × (6 – 1)]
2764-0601-00#	29.40	23.88	26.66	4.00	20.00 [= 4.00 × (6 – 1)]

P/N: 2764-0 ** 1 – 00 #
- Pos.
- SEE TABLE.1







DETAIL L
(S=15/1)

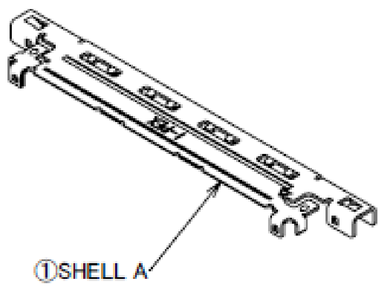


TABLE.1

PART NO.	SHELL A FINISH
2764-0**1-002	TOP SIDE Au 0.03 μm MIN. OVER Ni 1.00 μm MIN. BOTTOM SIDE Ni 1.00 μm MIN.(THERE IS THE POSSIBILITY THAT Au ATTACHES RANDOMLY)
2764-0**1-003	PARTIAL Au 0.003 μm MIN. OVER Ni 1.00 μm MIN.

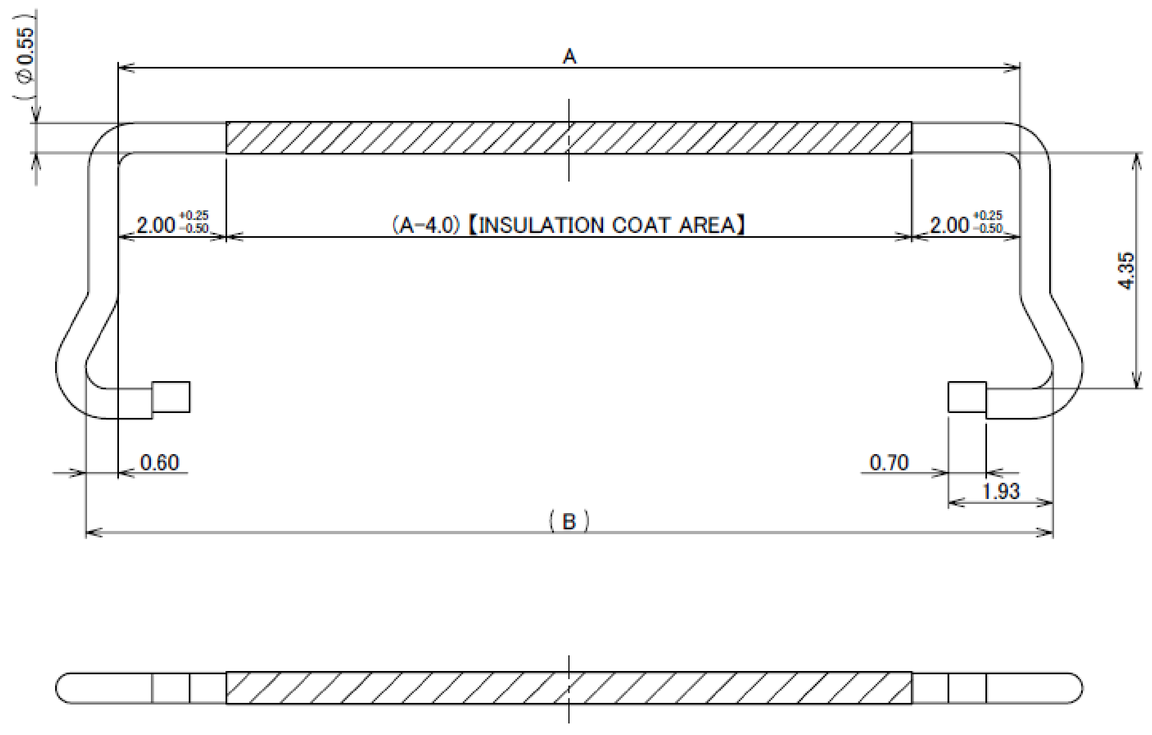
NO.	DISCRIPTION	MATERIAL	FINISH , REMARKS
1	SHELL A	PHOSPHOR BRONZE	SEE ABOVE TABLE.1

Rev.11

Plug Pull Bar

Recommended P/N	2766-0**1	
PART NO.	A	B
2766-0101	8.65	9.85
2766-0121	9.45	10.65
2766-0201	12.65	13.85
2766-0301	16.65	17.85
2766-0401	20.65	21.85
2766-0501	24.65	25.85
2766-0601	28.65	29.85

P/N: 2766-0 ** 1
POS.



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

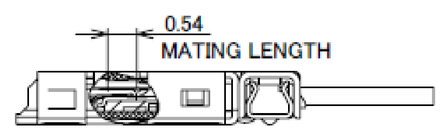
Rev.14

Receptacle Assembly

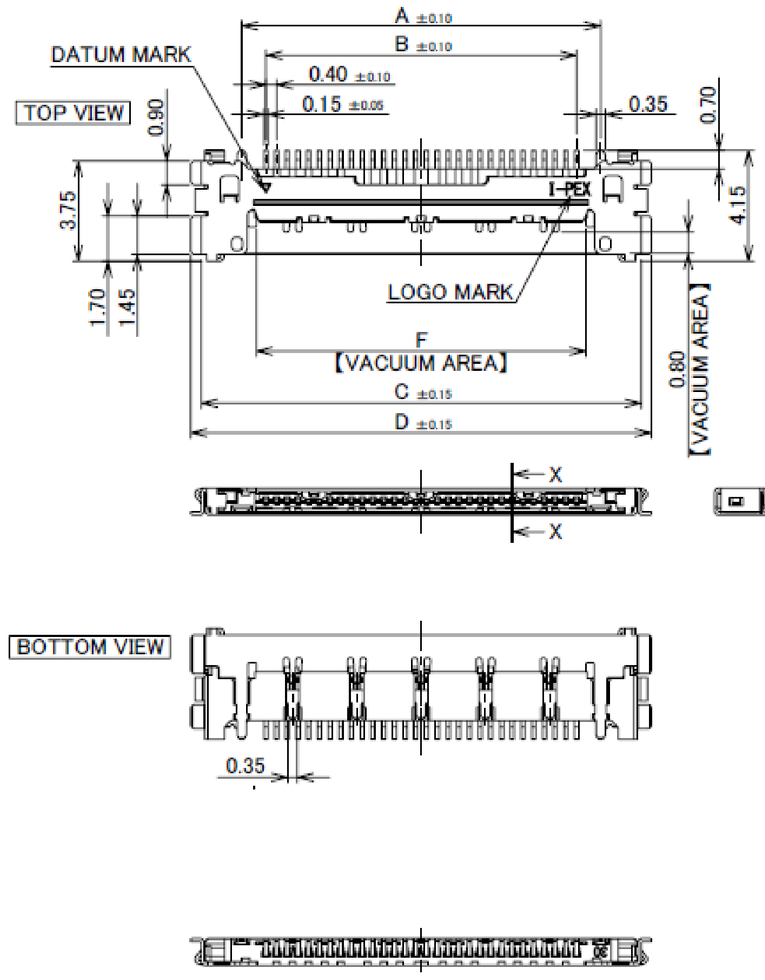
Recommended P/N	20525-0**E-02(12～60P)					20525-210E-02(10P)
PART NO.	POS.	A	B	C	D	F
20525-#10E-02	10	5.40	3.60	8.43	9.20	4.30
20525-#12E-02	12	6.20	4.40	9.23	10.00	5.10
20525-#20E-02	20	9.40	7.60	12.43	13.20	8.30
20525-#30E-02	30	13.40	11.60	16.43	17.20	12.30
20525-#40E-02	40	17.40	15.60	20.43	21.20	16.30
20525-#50E-02	50	21.40	19.60	24.43	25.20	20.30
20525-#60E-02	60	25.40	23.60	28.43	29.20	24.30

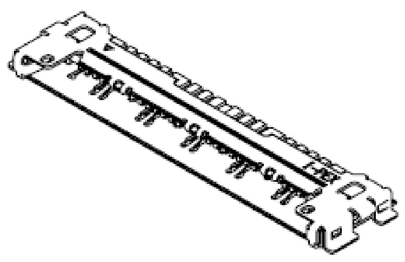
P/N : 20525- # ** E- 0 2
POS.
SEE TABLE 1

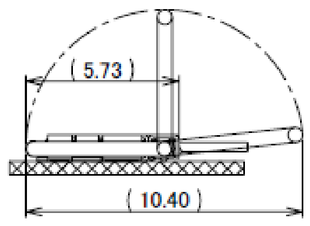
Halogen Free
RoHS Compliant



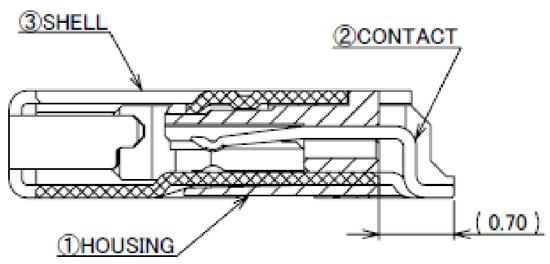
MATING CONDITION







PULL BAR MOVEMENTS



SECT. X-X
(S=20/1)

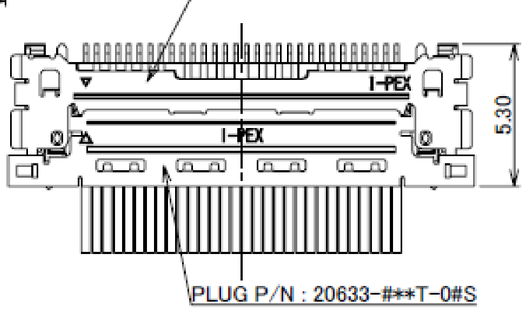


TABLE.1

PART NO.	CONTACT FINISH	SHELL FINISH
20525-0**E-02	CONTACT AREA : Au 0.1 μm MIN. OVER Ni 1.00 μm MIN. SOLDERING AREA : Au 0.03 μm MIN. OVER Ni 1.00 μm MIN.	ALL OVER Au 0.02 μm MIN. OVER Ni 1.00 μm MIN. CONTACT AREA : Au 0.02 μm MIN. OVER Ni 0.80 μm MIN.
20525-2**E-02	CONTACT AREA : Au 0.03 μm MIN. OVER Ni 1.00 μm MIN. SOLDERING AREA : Au 0.03 μm MIN. OVER Ni 1.00 μm MIN.	ALL OVER Ni 1.00 μm MIN. SOLDERING AREA : Au 0.02 μm MIN.

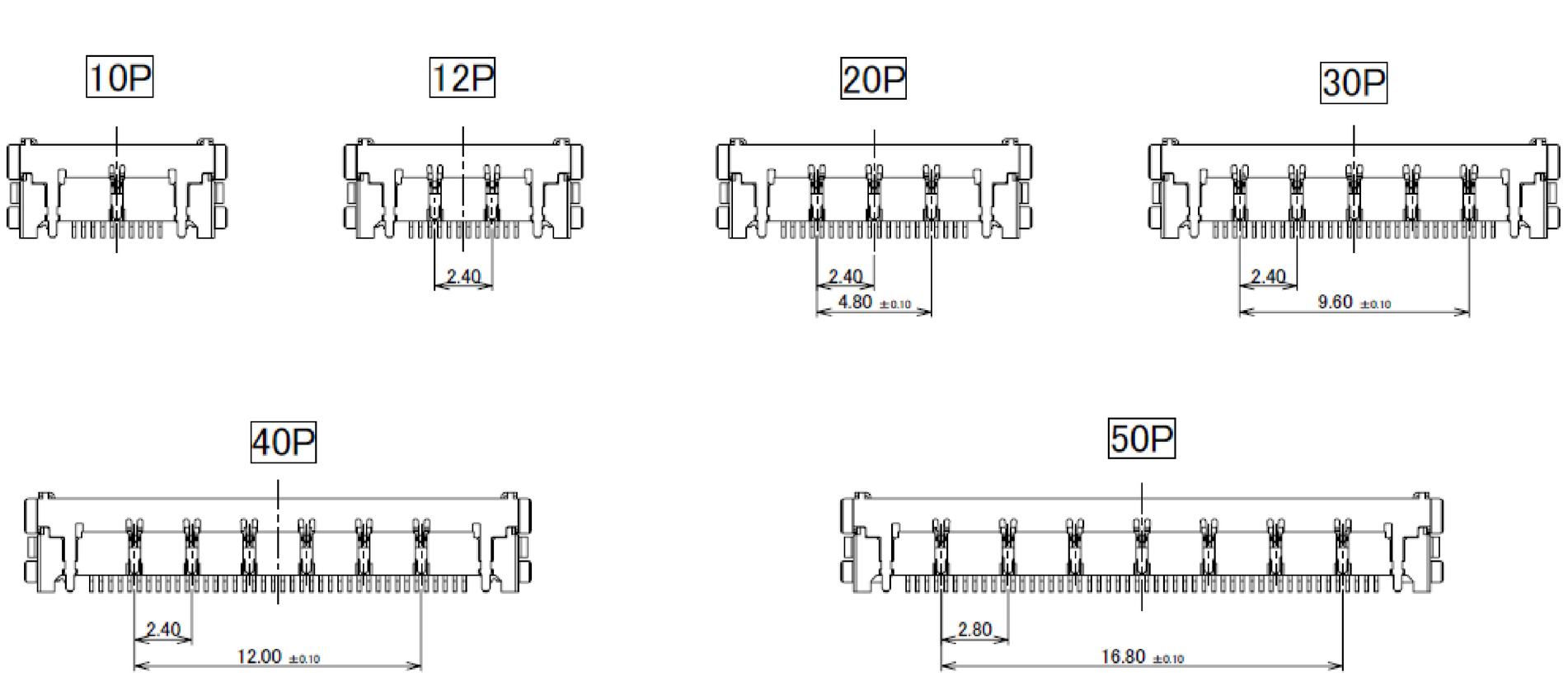
3	SHELL	PHOSPHOR BRONZE	SEE TABLE 1
2	CONTACT	PHOSPHOR BRONZE	SEE TABLE 1
1	HOUSING	LCP	UL94V-0, BLACK
NO.	DISCRIPTION	MATERIAL	FINISH , REMARKS

Rev.28

Receptacle Assembly

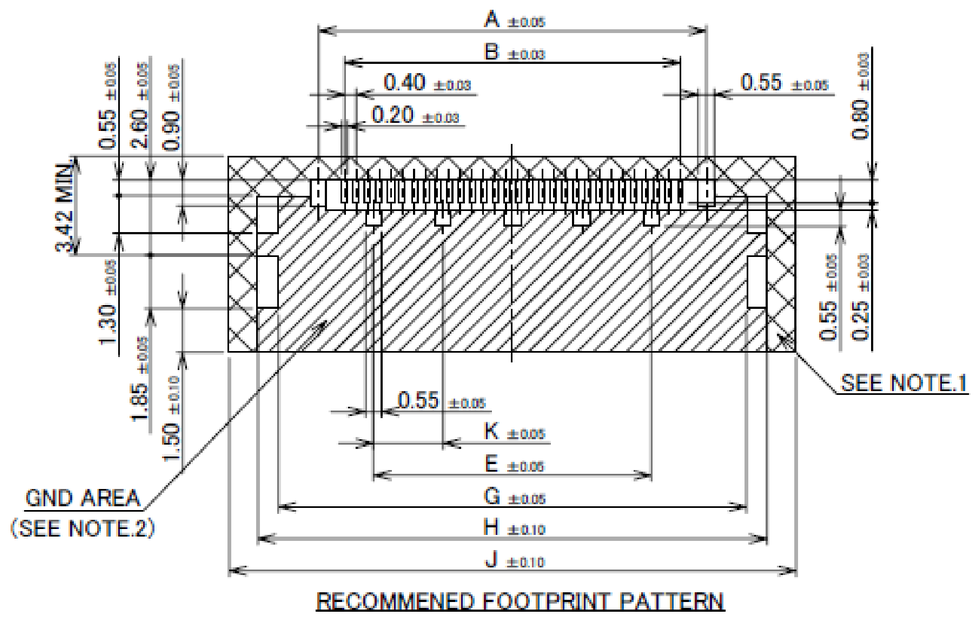
PART NO.
20525-#**E-02

BOTTOM VIEW

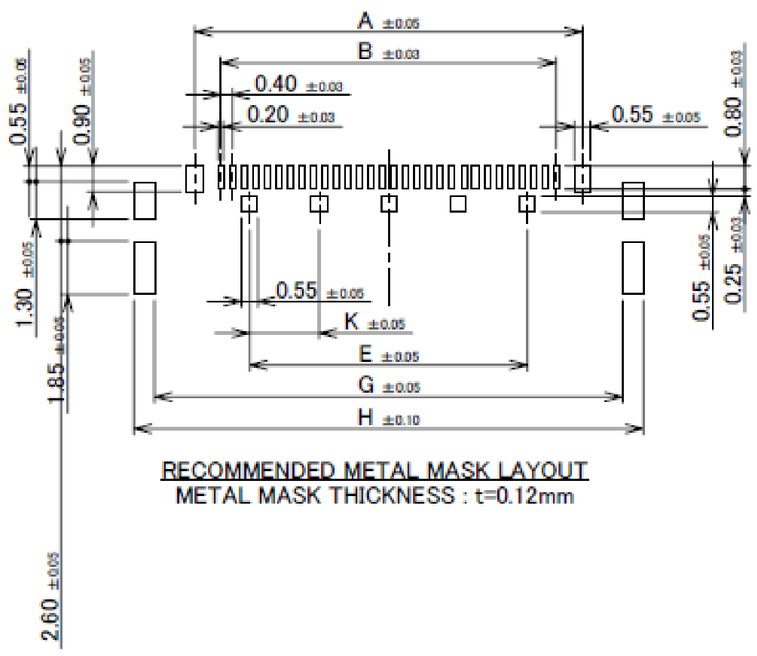


Rev.28

PART NO.	POS.	A	B	E	G	H	J	K
20525-#10E-02	10	5.40	3.60	–	8.18	9.60	11.60	–
20525-#12E-02	12	6.20	4.40	2.40	8.98	10.40	12.40	–
20525-#20E-02	20	9.40	7.60	4.80	12.18	13.60	15.60	2.40
20525-#30E-02	30	13.40	11.60	9.60	16.18	17.60	19.60	2.40
20525-#40E-02	40	17.40	15.60	12.00	20.18	21.60	23.60	2.40
20525-#50E-02	50	21.40	19.60	16.80	24.18	25.60	27.60	2.80
20525-#60E-02	60	25.40	23.60	19.20	28.18	29.60	31.60	3.20



RECOMMENED FOOTPRINT PATTERN

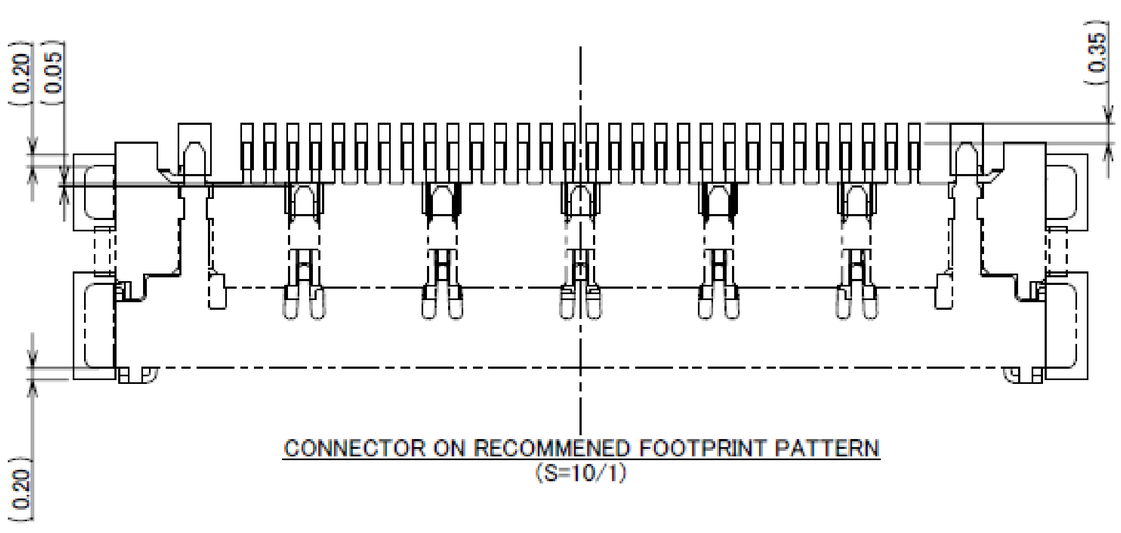


RECOMMENDED METAL MASK LAYOUT
METAL MASK THICKNESS : t=0.12mm

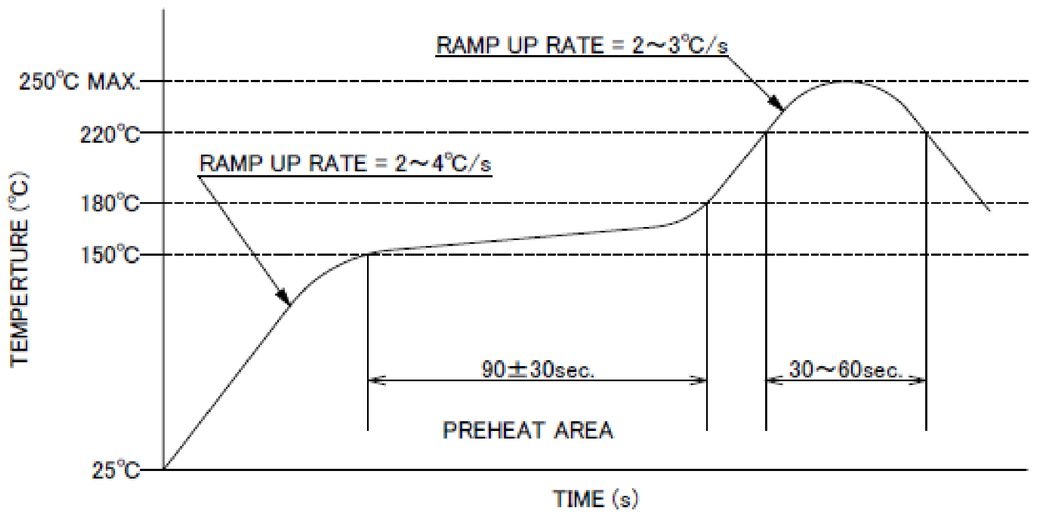
NOTES.
1. IN CASE OF PLUG WITH PULL BAR(20633-#**T-01S), DO NOT MOUNT ANOTHER COMPONENT IN THIS AREA.
2. SOLDER RESIST MUST BE APPLIED TO THIS AREA.

Rev.28

Receptacle Assembly



CONNECTOR ON RECOMMENED FOOTPRINT PATTERN
(S=10/1)



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

ITEMS	SPECIFICATION
APPLICABLE CABLE	MICRO-COAXIAL CABLE : AWG# 44 , 42 , 40 , 38 , 36 DISCRETE WIRE : AWG# 36, 34 TWINAX CABLE : AWG# 40 , 42
RATING VOLTAGE	100V AC (PER CONTACT PIN)
RATING AMPERAGE (FOR CONTACT)	0.1A AC/DC [AWG#44] PER CONTACT PIN/UP TO 60 CONTACTS 0.24A AC/DC [AWG#42] PER CONTACT PIN/UP TO 50 CONTACTS 0.3A AC/DC [AWG#40] PER CONTACT PIN/UP TO 40 CONTACTS 0.5A AC/DC [AWG#38] PER CONTACT PIN/UP TO 14 CONTACTS 0.8A AC/DC [AWG#36] PER CONTACT PIN/UP TO 6 CONTACTS 1.0A AC/DC [AWG#34] PER CONTACT PIN/UP TO 4 CONTACTS TESTING BY A REAL MACHINE IS RECOMMENDED BECAUSE TEMPERATURE RISE MAY AFFECTED BY ACTUAL SITUATION.
OPERATING TEMPERATURE	233～358K (-40℃～85℃)
OPERATING HUMIDITY	85% MAX. (NON-CONDENDING)
CONTACT RESISTANCE	INITIAL : 180mohm MAX. (AWG#34) / AFTER TEST : ⊿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 : ⊿40mohm MAX.
INSULATION RESISTANCE	INITIAL : 1000Mohm MIN. / AFTER TEST : 500Mohm MIN.
DIELECTRIC WITHSTANDING VOLTAGE	AC250V 1min
DURABILITY	30 CYCLES
MATING FORCE (INITIAL / AFTER 30 CYCLES)	10P : 7.80N MAX. 40P : 19.40N MAX. 12P : 8.20N MAX. 50P : 24.25N MAX. 20P : 9.70N MAX. 60P : 29.10N MAX. 30P : 14.55N MAX.
UNMATING FORCE (INITIAL / AFTER 30 CYCLES)	10P : 1.00N MIN. 40P : 4.00N MIN. 12P : 1.20N MIN. 50P : 5.00N MIN. 20P : 2.00N MIN. 60P : 6.00N MIN. 30P : 3.00N MIN.
CABLE RETENTION FORCE	10P : 4.90N MIN. 40P : 19.60N MIN. 12P : 5.88N MIN. 50P : 24.50N MIN. 20P : 9.80N MIN. 60P : 29.40N MIN. 30P : 14.70N MIN.
PRODUCT SPECIFICATION	PRS-1968
TEST REPORT	TR-14122 (20525-0**E-0##) / TR-16023 (20525-2**E-0##)
INSTRUCTION MANUAL	HIM-09008
ASSEMBLY MANUAL	ASM-09005
APPEARANCE CRITERIA No.	QLS-A***

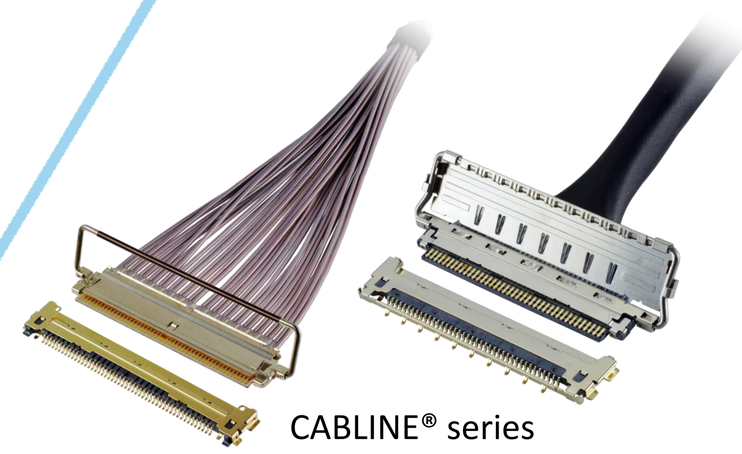
Contact your sales representative for more detailed information. www.i-pex.com

Custom Connectors Available

RF Connector

MHF® series

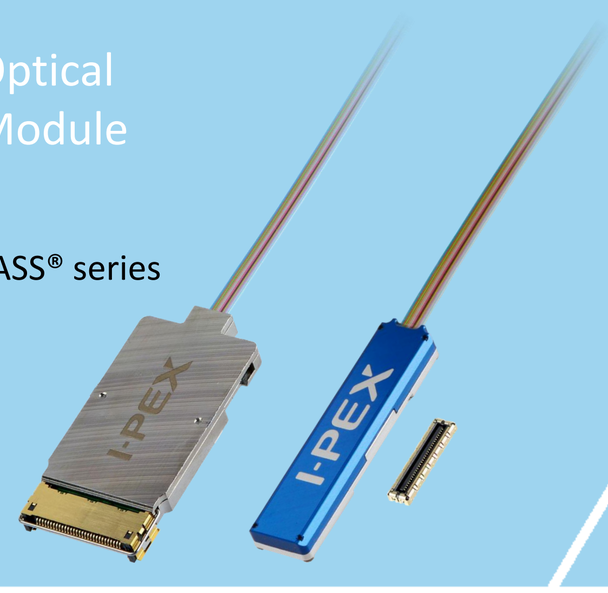
Micro-coaxial/Twinax/ Discrete Wire Connector



CABLINE® series

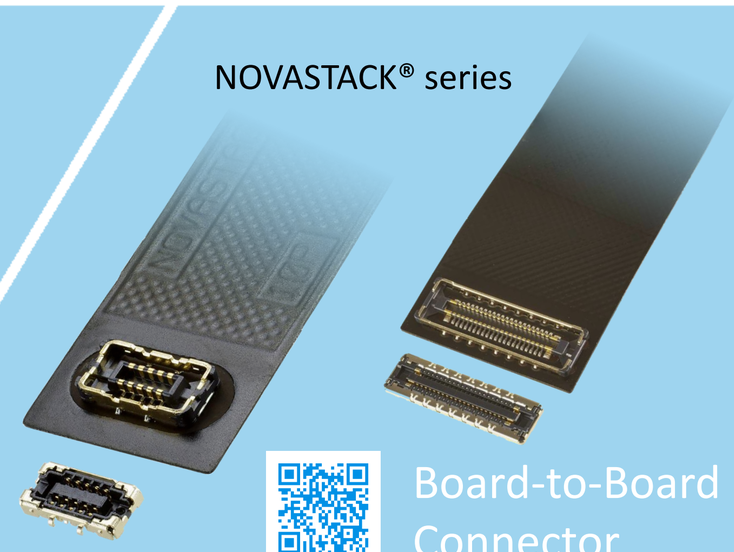
Optical Module

LIGHTPASS® series



Board-to-Board Connector

NOVASTACK® series



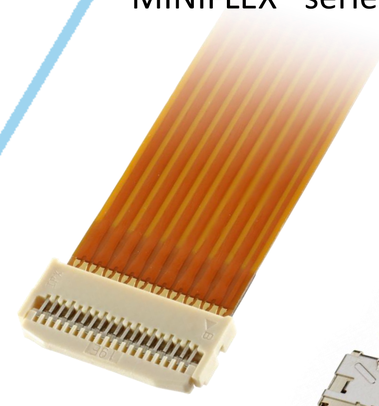
Power Connector/ Terminal

AP series

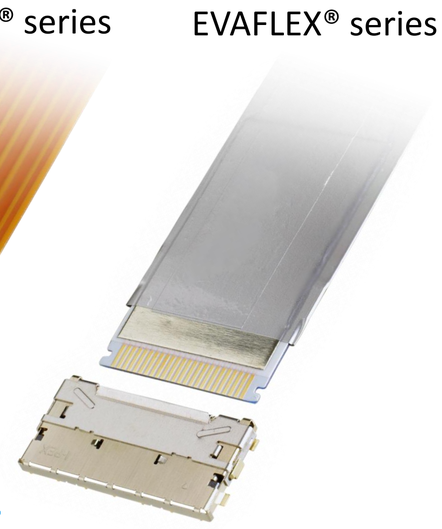
ISH® series

FPC FFC Connector

MINIFLEX® series



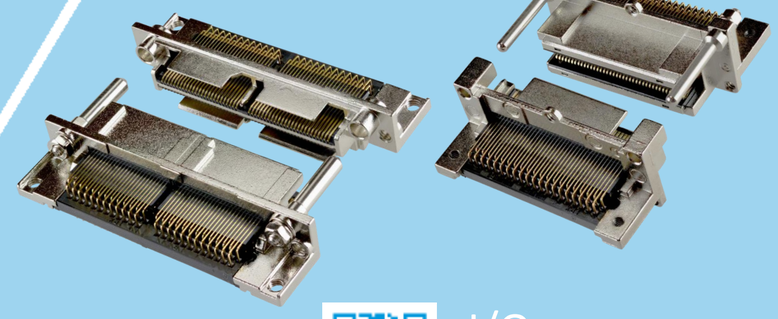
EVAFLEX® series



Inquiry

I/O Connector

MINIDOCK® series



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