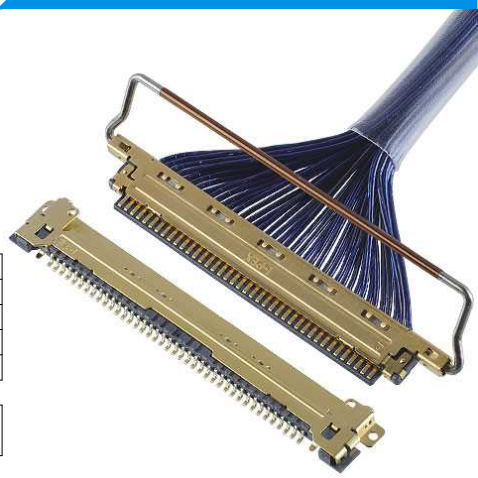
CABLINE®- VS

VESA standard connector, Suitable for high-data-rate transfer (20 Gbps/lane), Mechanical locking bar, 0.5 mm pitch, Horizontal mating type micro-coaxial connector



Product Specifications:

Mating type		Horizontal
Board Pitch (mm)		0.5
Wiping Length (mm)		0.61
Mated size (mm)	Height	1.0 +/- 0.1
	Width	Formula: 7.55 + (0.5*?p)
	Depth	5.8
Pin Counts	Range	Up to 50
	Available	20, 30, 40, 50

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

Applicable Cable Size:

Maximum O.D. (mm)	0.5
Micro-Coaxial for Signal (AWG)	45 ohm: #36 or smaller
	50 ohm: #38 or smaller
Twin Coaxial (AWG)	#40
Discrete (AWG)	#32 or smaller

Applicable Standards (Reference Only):

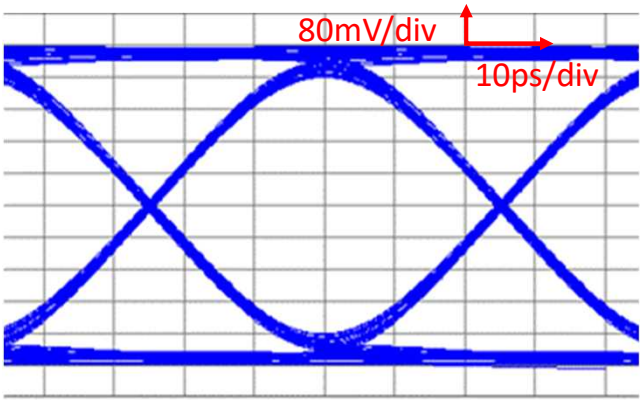
USB4/Thunderbolt 4 (20 Gbps/lane), PCIe (16 GT/s), eDP (8.1 Gbps)

High-Data-Rate Transfer, Ideal for USB4/Thunderbolt 4 (20 Gbps/lane) Applications

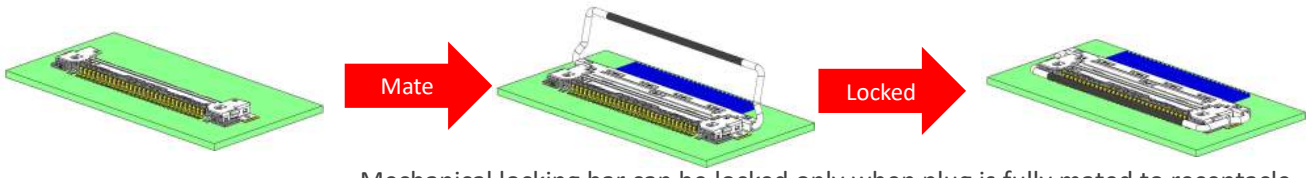
USB4/Thunderbolt 4 (20 Gbps/lane)

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

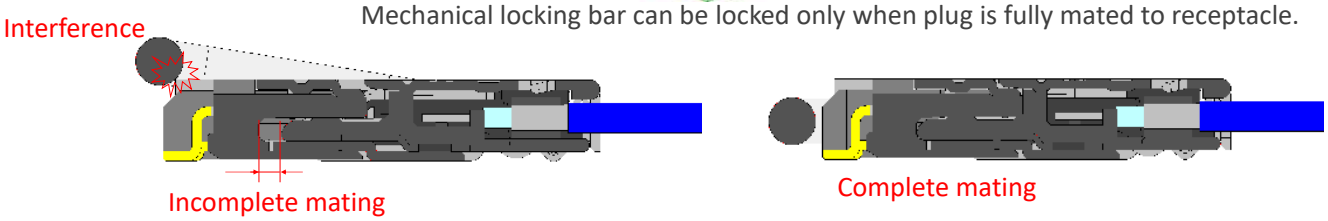
*Please contact I-PEX Connectors for more test details.



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.

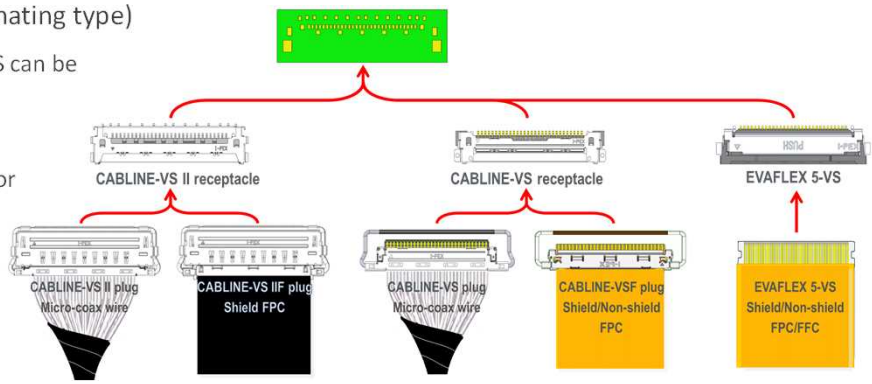


Multiple Connector Options with I-PEX VS Series

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

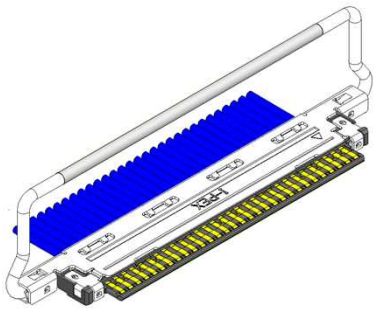
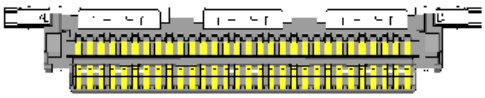
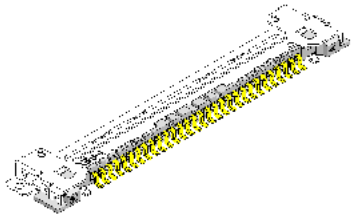
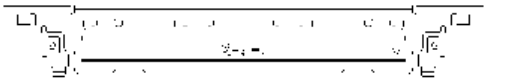
CABLINE-VS, VS II receptacles and EVAFLEX® 5-VS can be mounted to the same PCB layout.

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



Component Parts Details

Component Parts

Connector parts	Plug parts
 PLUG	 PLUG HOUSING ASSEMBLY
 RECEPTACLE	 PLUG SHELL-A
	 PLUG PULL BAR

Plug for Cable Assembly

Recommended P/N	20453-2**T-03(20P/30P/40P)								20453-250T-03S(50P)
PART NO.	Pos.	A	B	C	D	E	F	G	H
20453-#20T-*1	20	9.50	10.30	12.56	16.00	16.15	13.00	17.55	14.45
20453-#30T-*1	30	14.50	15.30	17.56	21.00	21.15	18.00	22.55	19.45
20453-#40T-*1	40	19.50	20.30	22.56	26.00	26.15	23.00	27.55	24.45
20453-#50T-*1S	50	24.50	25.30	27.56	31.00	31.15	28.00	32.55	29.45

WITH PULL-BAR & PULL-TAPE

P/N:20453-##**T-***

NOTHING : HOUSING ASS'Y P/N 20454-#**T
S : HOUSING ASS'Y P/N 20454-#**T-01

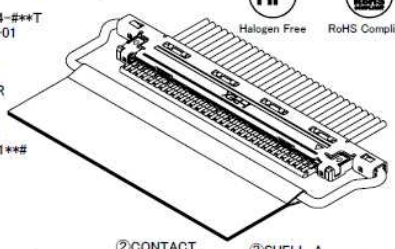
1 : WITH PULL-BAR P/N 2576-0**-**
2 : WITHOUT PULL-BAR
3 : WITH INSULATION COAT PULL-BAR P/N 2576-1**-**

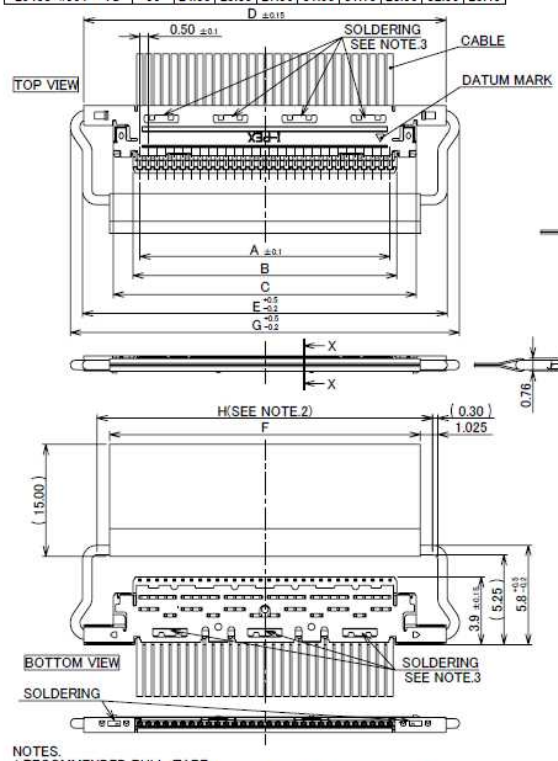
0 : WITH DATUM MARK P/N 2574-0**#
1 : WITHOUT DATUM MARK P/N 2574-1**#

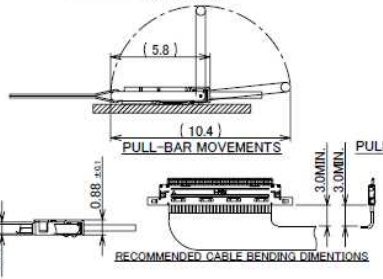
SEE TABLE.1

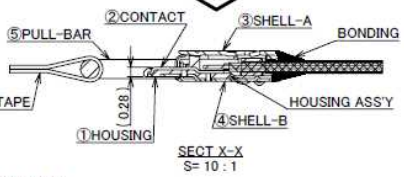
HF Halogen Free

RoHS Compliant









PART NO.

CABLE ASS'Y PART NO.	HOUSING ASS'Y PART NO.	SHELL-A PART NO.	PULL-BAR PART NO.
20453-0**T-*1*	20454-0**T-**	2574-***	2576-0**-**
20453-2**T-*1*	20454-2**T-**	2574-***2	2576-0**-**

TABLE.1

PART NO.	CONTACT FINISH	SHELL-A FINISH	SHELL-B FINISH
20453-0**T-***	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 0.05 μm MIN. OVER Ni 1.00 μm MIN. BOTTOM SIDE : Au 0.015 μm MIN. OVER Ni 1.00 μm MIN.	TOP SIDE : Au 0.015 μm MIN. OVER Ni 1.00 μm MIN. BOTTOM SIDE : Au 0.05 μm MIN. OVER Ni 1.00 μm MIN.
20453-2**T-***	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.

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

NOTES.
1.RECOMMENDED PULL-TAPE
PULL-TAPE : TERAOKA's INSULATION TAPE No.650S(#50) t=0.08
2.PULL-TAPE CAN BE PUT WITHIN THE RANGE OF "H"(STRAIGHT AREA)
3.SOLDERING IS ONLY A CASE WITH GND-BAR

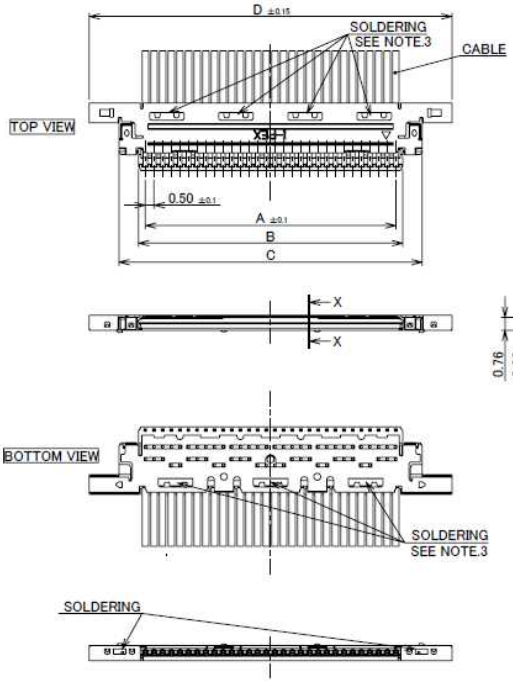
Rev.33

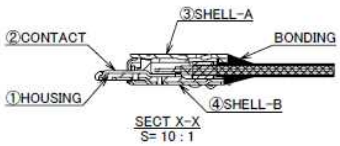
Recommended P/N	20453-2**T-03(20P/30P/40P)	20453-250T-03S(50P)

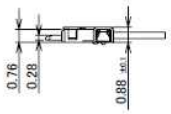
WITHOUT PULL-BAR

HF Halogen Free

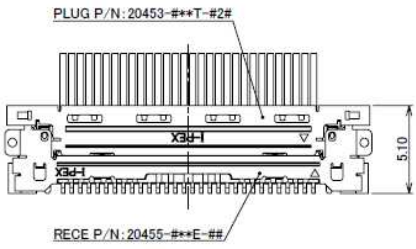
RoHS Compliant







MATING CONDITION



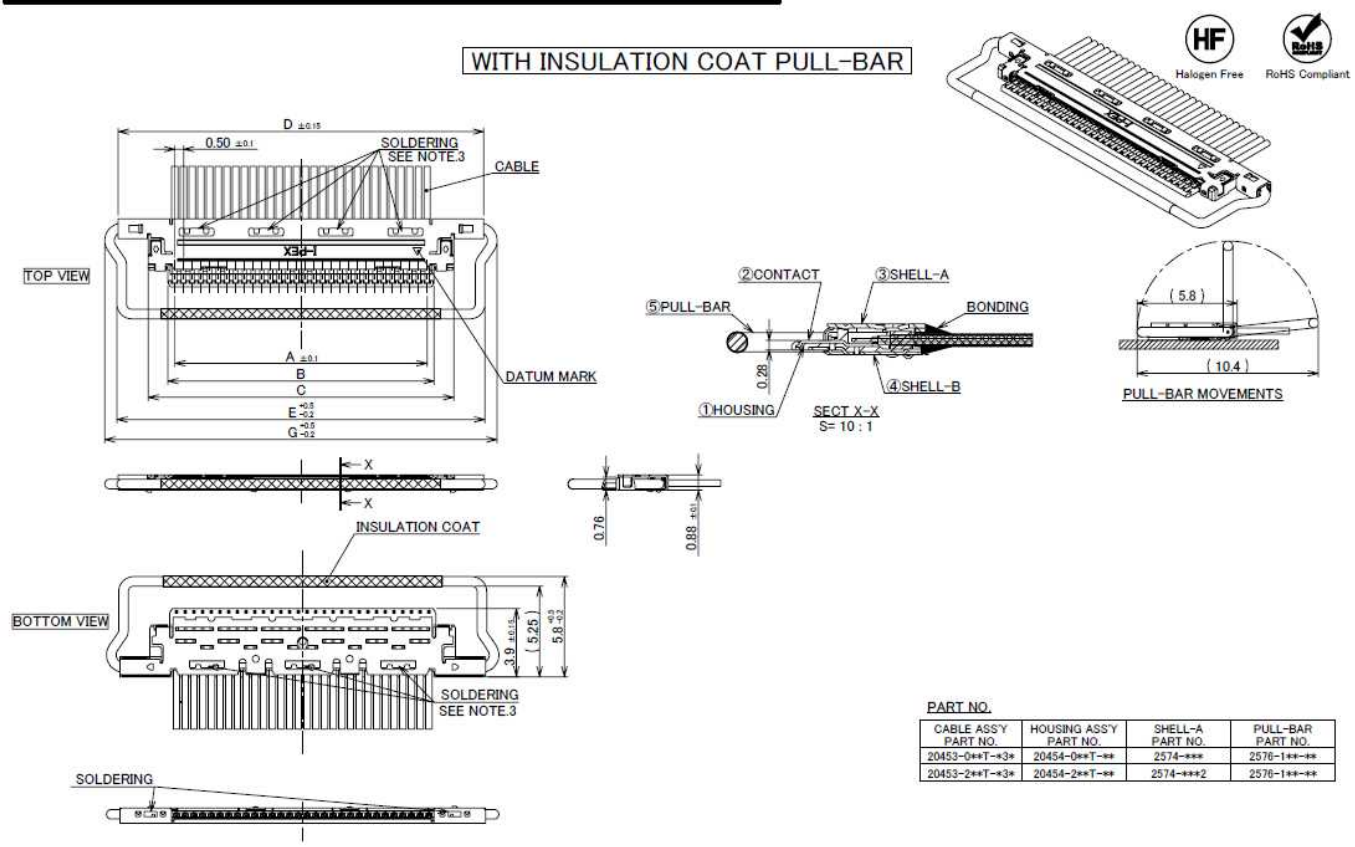
PART NO.

CABLE ASS'Y PART NO.	HOUSING ASS'Y PART NO.	SHELL-A PART NO.	PULL-BAR PART NO.
20453-0**T-*2*	20454-0**T-**	2574-***	-
20453-2**T-*2*	20454-2**T-**	2574-***2	-

Rev.33

Plug for Cable Assembly

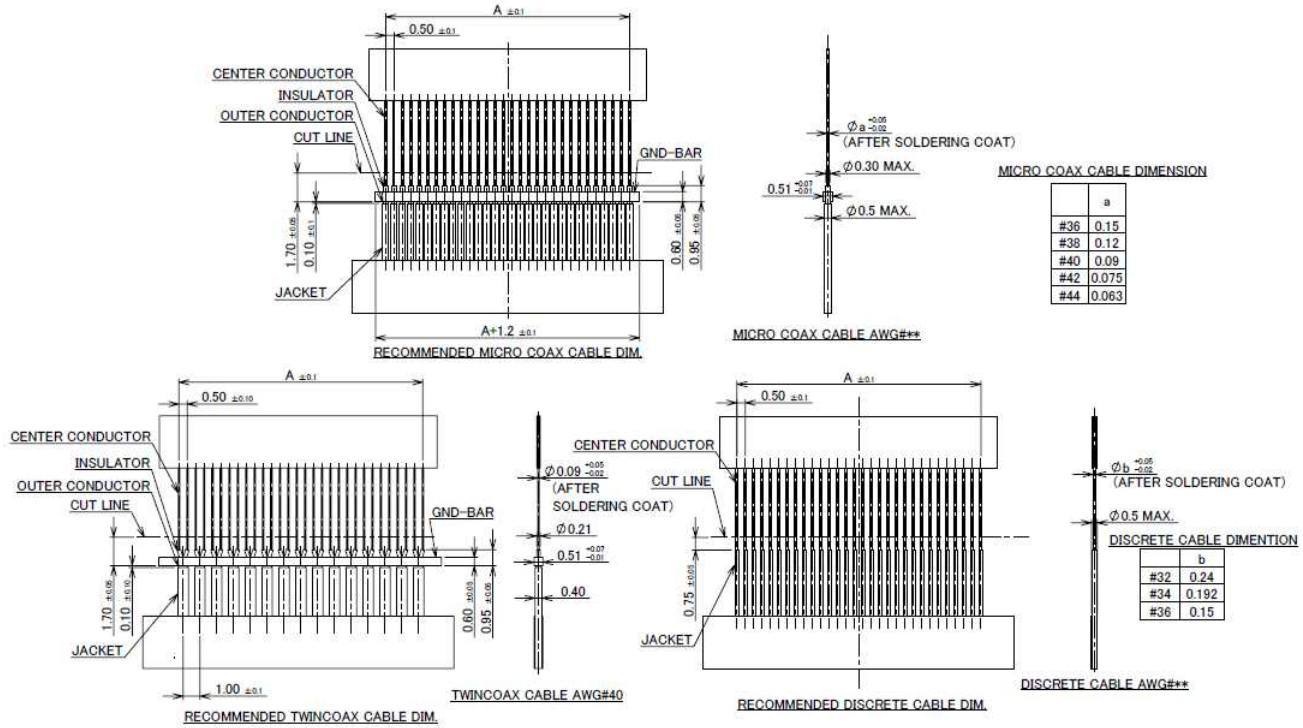
Recommended P/N	20453-2**T-03(20P/30P/40P)	20453-250T-03S(50P)



PART NO.

CABLE ASS'Y PART NO.	HOUSING ASS'Y PART NO.	SHELL-A PART NO.	PULL-BAR PART NO.
20453-0**T-*3*	20454-0**T-**	2574-***	2576-1**-**
20453-2**T-*3*	20454-2**T-**	2574-***2	2576-1**-**

Rev.33

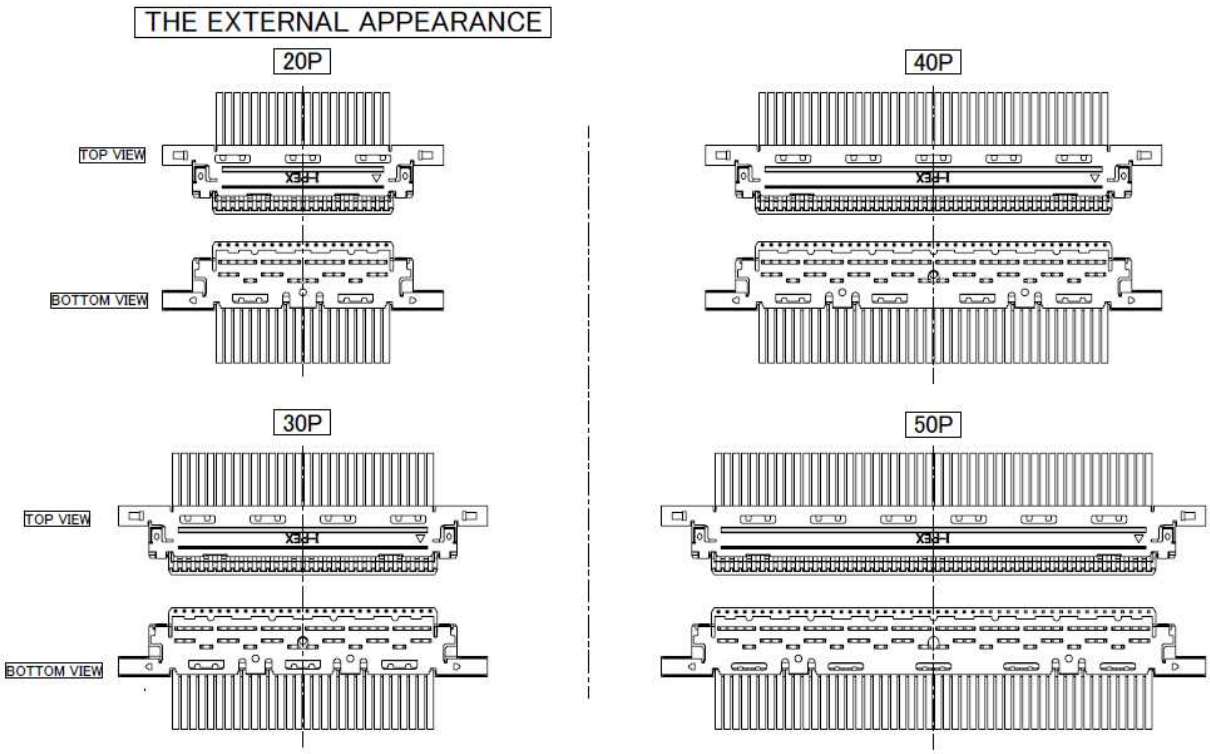


	a
#36	0.15
#38	0.12
#40	0.09
#42	0.075
#44	0.063

	b
#32	0.24
#34	0.192
#36	0.15

Rev.33

Plug for Cable Assembly



Rev.33

Plug Housing Assembly

Recommended P/N	20454-2**T								
PART NO.	Pos.	A	B	C	D	E	F	G	H
20454-#20T	20	9.50	10.30	12.56	10.20	10.55	11.00	16.00	-
20454-#30T	30	14.50	15.30	17.56	15.20	15.55	16.00	21.00	5.40
20454-#40T	40	19.50	20.30	22.56	20.20	20.55	21.00	26.00	10.40

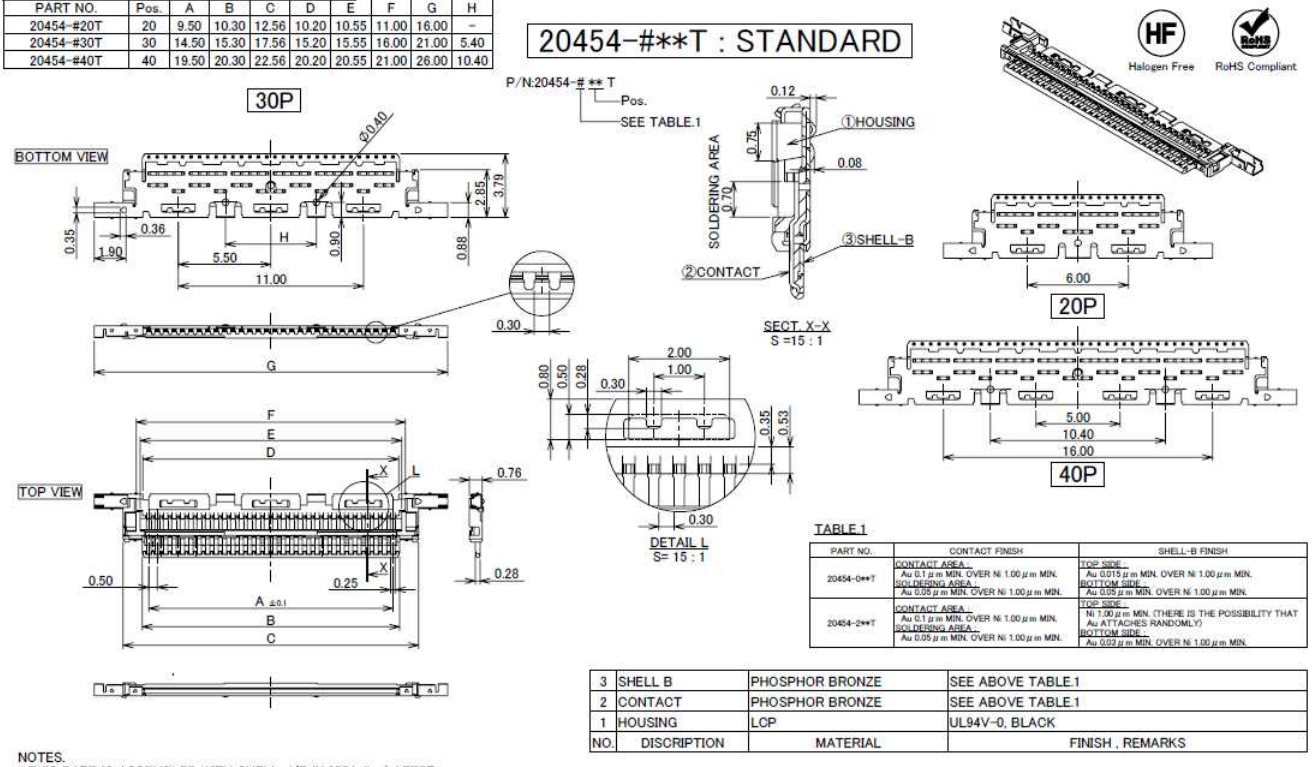


TABLE.1

PART NO.	CONTACT FINISH	SHELL-B FINISH
20454-0**T	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 0.015 μm MIN. OVER Ni 1.00 μm MIN. BOTTOM SIDE : Au 0.05 μm MIN. OVER Ni 1.00 μm MIN.
20454-2**T	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.

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

NOTES.
1.THIS PART IS ASSEMBLED WITH SHELL-A(P/N:2574-#**) AFTER SOLDERED THE CABLE, AND IT BECOMES P/N:20453-#**T-#**.
THIS PART IS ASSEMBLED WITH SHELL-A type-H(P/N:2699-#40) AFTER SOLDERED THE CABLE, AND IT BECOMES P/N:20508-040T-#*.
THIS PART IS ASSEMBLED WITH SHELL-A(P/N:2574-#**) AND ALIGNMENT COVER(P/N:2658-0**) AFTER SOLDERED THE CABLE, AND IT BECOMES P/N:20492-1**T.

Rev.20

Plug Housing Assembly

Recommended P/N	20454-250T-01
PART NO.	Pos.
20454-#50T-01	50

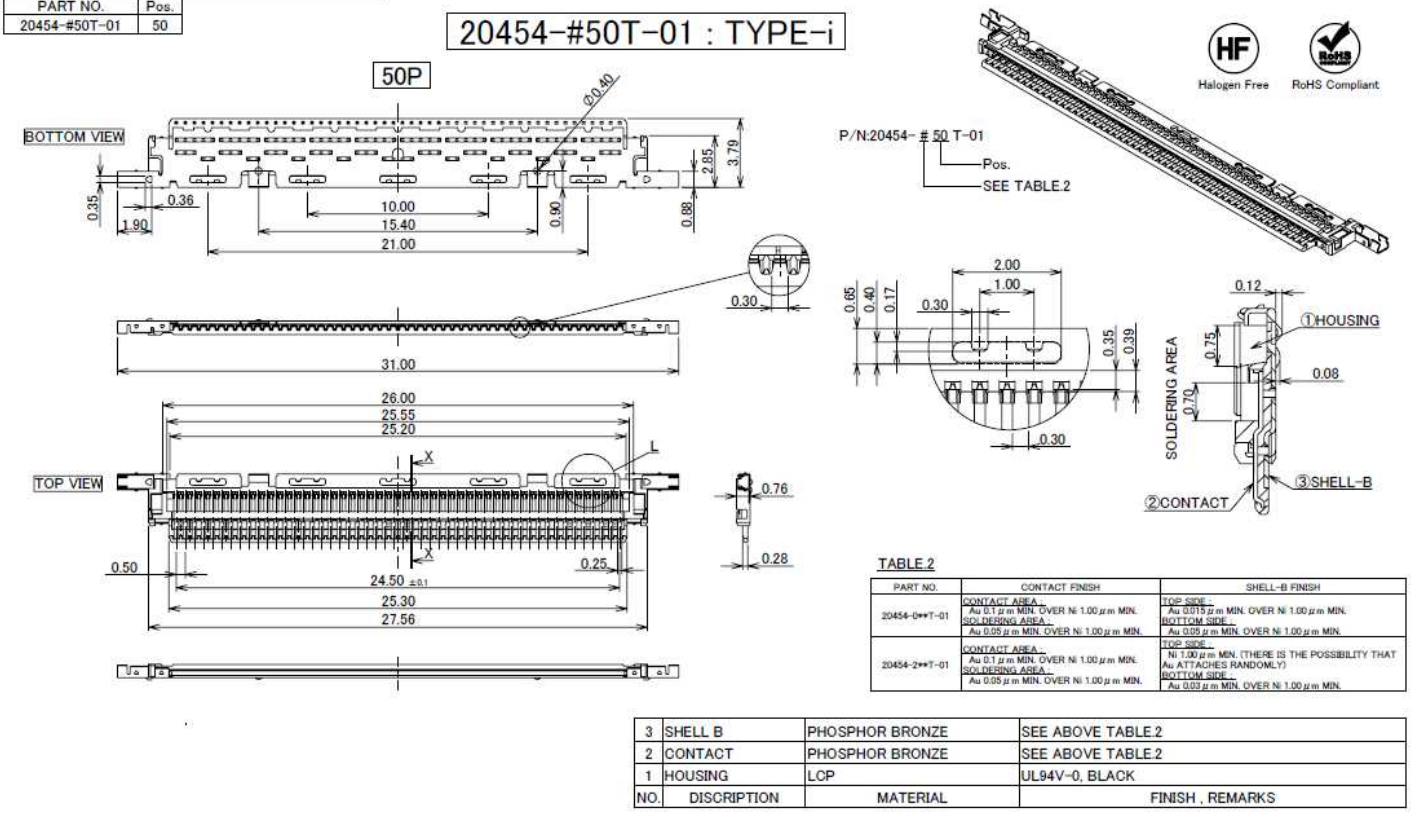


TABLE.2

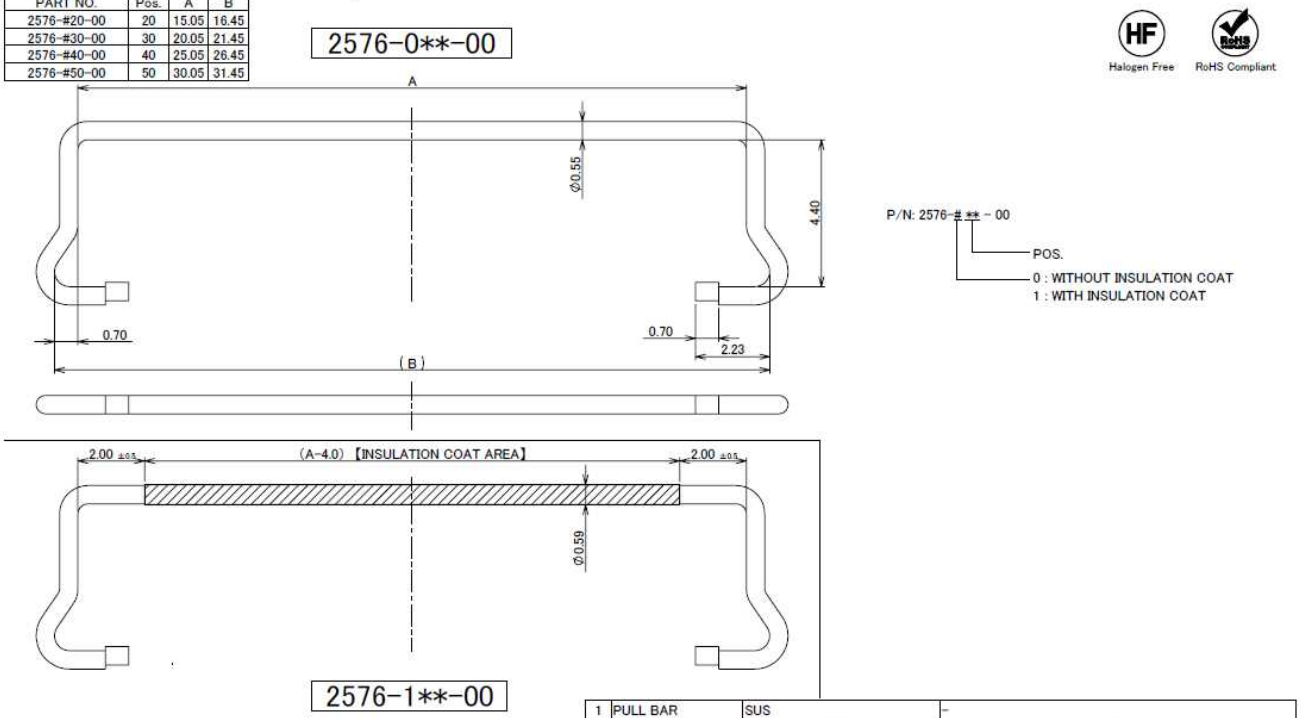
PART NO.	CONTACT FINISH	SHELL-B FINISH
20454-0**T-01	CONTACT AREA : Au 0.1 μm MIN. OVER Ni 1.00 μm MIN. SOLDERING AREA : Au 0.05 μm MIN. OVER Ni 1.00 μm MIN.	TOP SIDE : Au 0.015 μm MIN. OVER Ni 1.00 μm MIN. BOTTOM SIDE : Au 0.05 μm MIN. OVER Ni 1.00 μm MIN.
20454-2**T-01	CONTACT AREA : Au 0.1 μm MIN. 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.

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

Rev.20

Pull Bar

Recommended P/N	2576-1**-00		
PART NO.	Pos.	A	B
2576-#20-00	20	15.05	16.45
2576-#30-00	30	20.05	21.45
2576-#40-00	40	25.05	26.45
2576-#50-00	50	30.05	31.45



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

Rev.15

Shell-A

Recommended P/N		2574-0**2			
PART NO.	Pos.	A	B	C	D
2574-#20#	20	9.78	12.56	16.00	8.00 [= 4.0 × (3−1)]
2574-#30#	30	14.78	17.56	21.00	12.00 [= 4.0 × (4−1)]
2574-#40#	40	19.78	22.56	26.00	16.00 [= 4.0 × (5−1)]
2574-#50#	50	24.78	27.56	31.00	20.00 [= 4.0 × (6−1)]

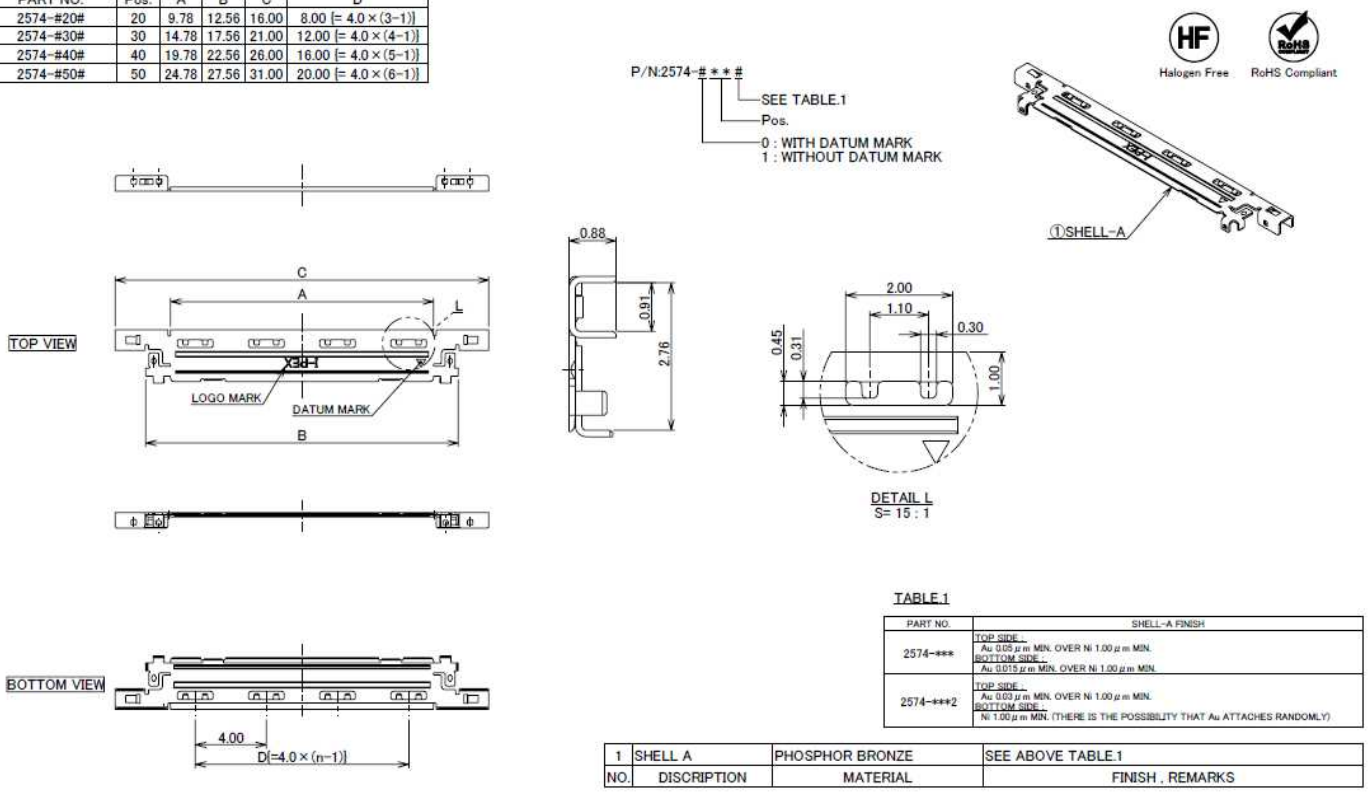


TABLE.1

PART NO.	SHELL-A FINISH
2574-***	TOP SIDE : Au 0.05 μm MIN. OVER Ni 1.00 μm MIN. BOTTOM SIDE : Au 0.015 μm MIN. OVER Ni 1.00 μm MIN.
2574-***2	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)

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

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	
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	

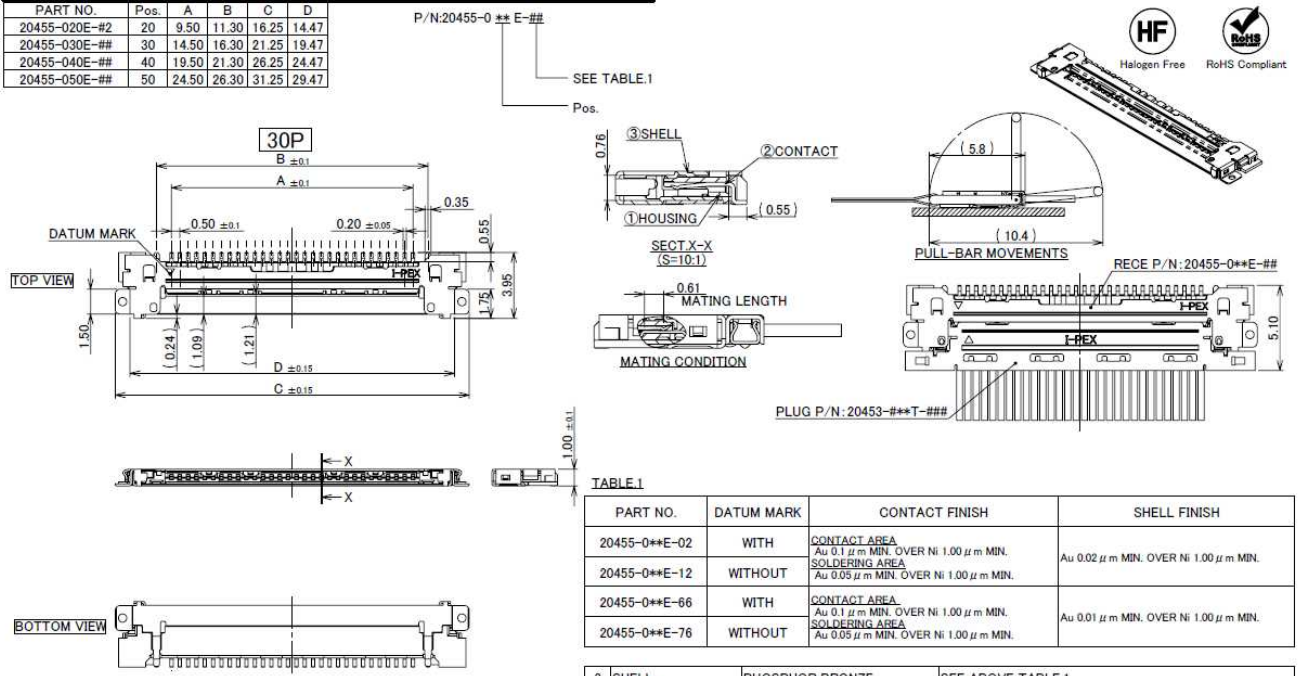


TABLE.1

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

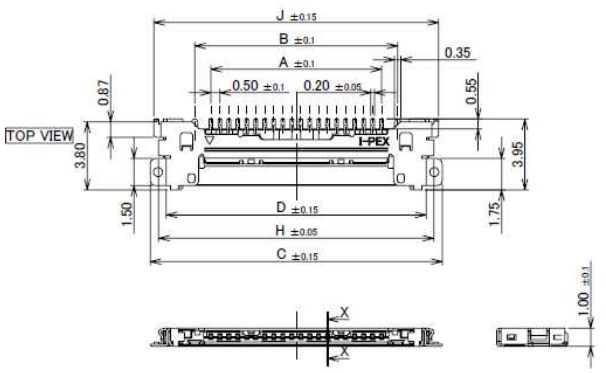
Rev.30

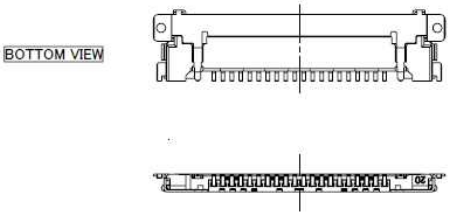
Receptacle Assembly

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

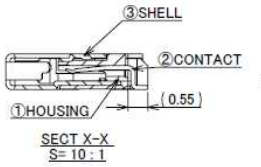
PART NO.	Pos.	A	B	C	D	H	J
20455-A20E-##	20	9.50	11.30	16.25	14.47	15.32	15.84

TYPE-A

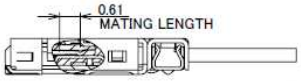




P/N:20455-A20E-##
A : TYPE-A
SEE TABLE.2

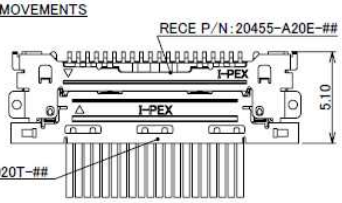


SECT X-X
S= 10 : 1



MATING CONDITION TABLE.2

PULL-BAR MOVEMENTS



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

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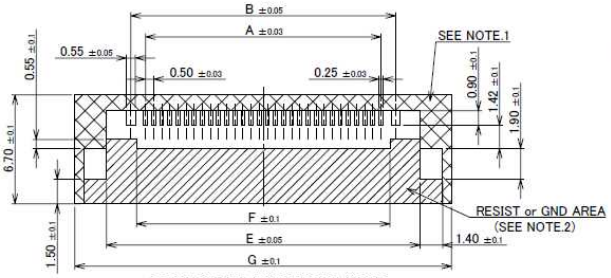
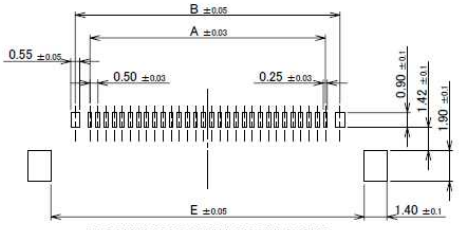
PART NO.	Pos.	A	B	E	F	G	H	J	K
20455-#20E-##	20	9.50	11.30	14.30	10.60	18.20	15.32	15.84	14.84
20455-030E-##	30	14.50	16.30	19.30	15.60	23.20	–	–	–
20455-040E-##	40	19.50	21.30	24.30	20.60	28.20	–	–	–
20455-050E-##	50	24.50	26.30	29.30	25.60	33.20	–	–	–

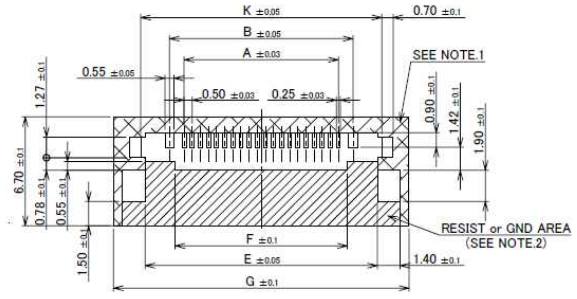


RECOMMENDED FOOTPRONT LAYOUT
P/N : 20455-0**E-##

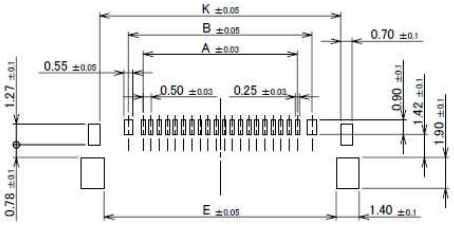


RECOMMENDED METAL MASK LAYOUT
METAL MASK THICKNESS : t = 0.12mm
P/N : 20455-0**E-##

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.

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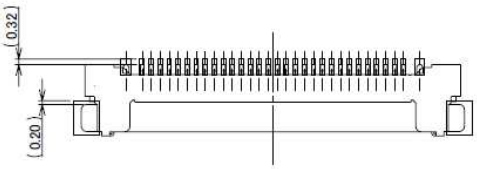
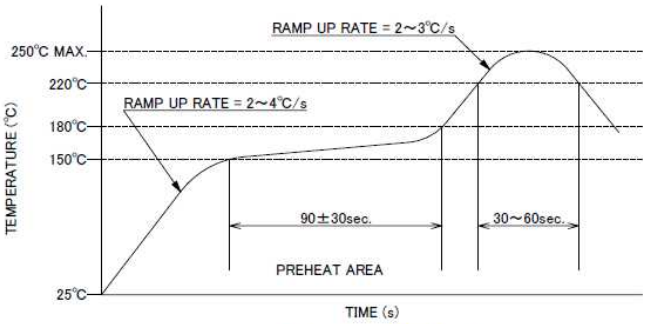
Receptacle Assembly

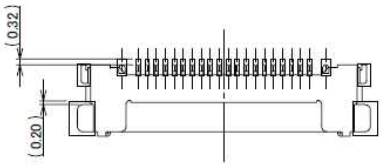


CONNECTOR ON RECOMMENDED FOOTPRINT PATTERN
P/N : 20455-0**E-##



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-##

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ITEMS	SPECIFICATION
APPLICABLE CABLE	MICRO COAX : AWG# 44, 42, 40, 38, 36 DISCRETE : AWG# 36, 34, 32 TWINCOAX : AWG# 40
RATING VOLTAGE	100V AC (PER CONTACT PIN)
RATING AMPERAGE (FOR CONTACT)	0.1A AC/DC [AWG#44] PER CONTACT PIN/UP TO 50 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 50 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 10 CONTACTS 1.0A AC/DC [AWG#34] PER CONTACT PIN/UP TO 6 CONTACTS 1.0A AC/DC [AWG#32] PER CONTACT PIN/UP TO 6 CONTACTS TESTING BY A REAL MACHINE IS RECOMMENDED BECAUSE TEMPURECHER RISE MAY AFECTED BY ACTUAL SITUATION.
OPERATING TEMPERATURE	233~358K(-40℃~+85℃)
OPERATING HUMIDITY	85% R.H. MAX.(NON-CONDENSING)
CONTACT RESISTANCE	INITIAL : 140mohm MAX.(AWG#32) / AFTER TEST : ⊿40mohm MAX. 180mohm MAX.(AWG#34) 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 TEST)	20P : 9.45N MAX. 30P : 12.15N MAX. 40P : 16.20N MAX. 50P : 20.25N MAX.
UNMATING FORCE (INITIAL / AFTER TEST)	20P : 2.0N MIN. 30P : 3.0N MIN. 40P : 4.0N MIN. 50P : 5.0N MIN.
CABLE RETENTION FORCE	20P : 9.80N MIN. 30P : 14.70N MIN. 40P : 19.60N MIN. 50P : 24.50N MIN.
COPLANARITY	0.10 MAX.
PRODUCT SPECIFICATION	PRS-1427
TEST REPORT	TR-08047 (20455-#**E-#2) TR-13084 (20455-#**E-#6, 20455-0**E-#8)
PACKING STANDARD	300-643
INSTRUCTION MANUAL	HIM-08004
APPEARANCE CRITERIA NO.	QLS-A***

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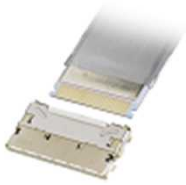
Board to Board

High-Density

Autolocking FPC/FFC



High-Density

FPC/FFC

Micro-Coaxial / Discrete Cable

High-Speed

RF

High-Frequency

Optical Module

High-Speed

Power

High-Power

I/O (Input/Output)

Quick charge

Effector

Custom Connectors Available

Inquiry

Contact your sales representative or more detailed information.

www.i-pex.com

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