PRODUCT CATALOG

HIROSE ELECTRIC CO.,LTD.

CX Series

USB Type-C Connector

CX™ series

Wide Variation

Click Feeling

USB4



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May. 2022

USB from Hirose Electric : Standard connections, inspired solutions.

Overview

The CX Series connectors conform to the next-generation USB standard USB Type-C®.
Its use as a standard interface is expected to spread to a wide variety of devices in the consumer, industrial machinery and automotive markets.
USB Type-C® is a registered trademark of USB Implementers Forum, Inc.

Features

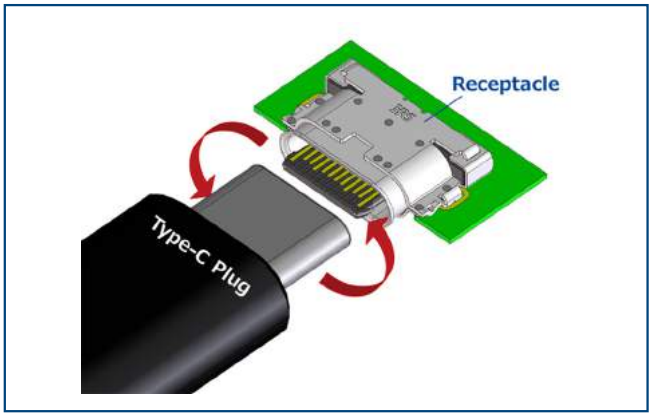
1. USB Type-C compliant interface connector

- High speed transmission：20Gbps / USB4 Gen.2x2
  5Gbps / USB3.2 Gen.1
  480Mbps / USB2.0

- Supports 5A, 48V, 240W
  (Products supporting 6A are also available.)



2. Reversible plug orientation ensures easy insertion



3. Clear Tactile Click (Excellent Lock Design)

The CX Series has a superior click feel when mating and is designed to prevent incomplete mating.

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4. Wide Product Variation

Receptacle

・PCB Mounting Type
- Mid-Mount
- Top-Mount

・Mounting Methods
- Right Angle Hybrid (SMT+THR)
  *THR：Through Hole Reflow
- Right Angle SMT (Double-row / Single-row)
- Vertical SMT

・Waterproof Type
- IPX8
  (Test Conditions, unmated :
  Immersed in 1.5 meters water depth for 30 minutes)
- IPX4

・ Available in a variety of options including space-saving, low profile and robust types



Receptacle Variations



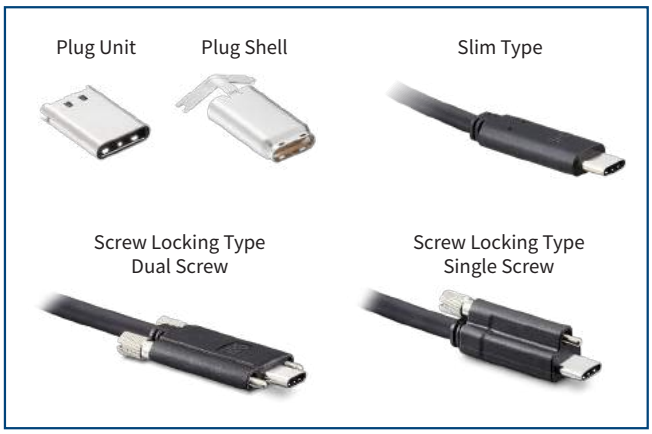
Waterproof Design

Plug

・Plug Unit, Plug Shell

・Slim Type

・Screw Locking Types
- Dual screw
- Single screw



Plug Variations

5. Halogen-free

No chlorine or bromine exceeding the standard value is used in the connector.
* As defined by IEC 61249-2-21
  Br : 900ppm max., Cl : 900ppm max.,
  Br+Cl : 1500ppm max.

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Product Specifications

Rated Current	5A	Power : 1.25A Max.(i.e. A1, A4, A9, A12, B1, B4, B9, B12) 1.25A Max. VCON(i.e. B5) Other : 0.25A	Operating Temperature (Note 1)	-40 to +105°C
	6A	Power : 1.5A Max.(i.e. A1, A4, A9, A12, B1, B4, B9, B12) 1.25A Max. VCON(i.e. B5) Other : 0.25A	Operating Humidity Range	95% RH Max.
Rated Voltage	48V AC/DC		Storage Temperature Range (Note 2)	-10 to +60°C
			Storage Humidity Range (Note 2)	15 to 70% RH

Items	Specifications	Conditions
Contact Resistance	40mΩ Max. (Initial)	Measured at 100mA (DC or 1000Hz)
Withstanding Voltage	No flashover or dielectric breakdown	100V AC for 1 min.
Mating Durability	Contact resistance : Increase by 10mΩ or less from the initial value.	10000 insertion / extraction cycles
Overall Insertion / Extraction Force	Insertion : 5-20N Extraction : 8-20N (Initial), 6-20N (After Testing)	Measured with applicable connector

Note 1：Includes the temperature rise due to current flow.
Note 2：The term "storage" refers to products stored for long period of time prior to mounting and use.
Operating Temperature and Humidity Range are applicable when non-powered after PCB mounting and when temporarily stored during transportation.
Note 3：Information contained in this catalog represents general requirements for this Series. Please refer to product specifications sheet for detail each of products.
Note 4：Hirose does not guarantee specified performance when mating with other manufacturers' parts.

Materials / Finish

Receptacle

Component	Materials	Color / Finish	Remarks
Insulator	Thermal Plastic	Black	UL94V-0
Contact	Copper Alloy	Gold Plating	-
Ground Plate	Stainless Steel	-	-
Mid Plate	Stainless Steel	Nickel Plating	-
Shell	Stainless Steel	Nickel Plating	-

Plug

Component	Materials	Color / Finish	Remarks
Insulator	Thermal Plastic	Black	UL94V-0
Contact	Copper Alloy	Gold Plating	-
Lock Spring	Stainless Steel	Nickel Plating	-
Ground Spring	Stainless Steel	Nickel Plating	-
Shell	Stainless Steel	Nickel Plating	

Note：Information contained in this catalog represents general requirements for this Series. Please refer to product drawing for details on each of the products.

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Product Number Structure

Refer to the chart below when determining the product specifications from the product number.
Please select from the product numbers listed in this catalog when placing orders.

Receptacle

CX	90	M	W	#	#	D	2	G	-	24	P	#
❶	❷	❸	❹	❺	❻	❼	❽	❾		❿	⓫	⓬

Plug

CX	60	-	24	S	-	UNIT
❶	❷		❿	⓫		⓭

CX	60	-	SLDA
❶	❷		⓭

CX	60	-	24	S	-	1000	C1
❶	❷		❿	⓫		⓮	⓯

❶ Series Name	CX	CX Series
❷ Mounting Type	60 70 80 90	Paddle Card (PCB Wire Soldering) Right Angle Hybrid (SMT+THR) *THR：Through Hole Reflow Vertical SMT Right Angle SMT
❸ Receptacle PCB Mounting Type	B M	Top-Mount Mid-Mount
❹ Special Specification Ⅰ	Blank W	Standard Waterproof
❺ Serial No. Ⅰ	-	None or 1, 2, 3, …
❻ Serial No. Ⅱ	-	None or A, B, C, …
❼ Special Specification Ⅱ	Blank P D	Standard Plastic Shell Deep Drawing Shell
❽ Serial No. Ⅲ	-	None or 1, 2, 3, …
❾ Special Specification Ⅲ	Blank G	Standard With Gasket
❿ No. of Pos.	-	16, 24
⓫ Contact Type	P S	Male Contacts Female Contacts
⓬ Serial No. Ⅳ	-	None or 1, 2, 3, …
⓭ Plug Components	UNIT SLDA	Plug Unit Plug Shell
⓮ Cable Length	1000	1000mm
⓯ Cable Assembly Type	C1 CD CS	Standard, Double-Ended, Slim Type Double-Ended, Screw Locking Type [Dual Screw] Double-Ended, Screw Locking Type [Single Screw]

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Product Variation

Receptacle

PCB Mounting Type	Mounting Method	Part No.	Product Image	No. of Pos.	Transmission Speed	Rated Current	Features
Mid-mount	Right Angle Hybrid (SMT＋THR)	CX70M-24P1		24pos.	5Gbps	5A	Space-Saving 8.35mm Depth TID No. 5,200,000,077
		CX70M-24P2					Space-Saving 7.95mm Depth
	Right Angle SMT Double-row	CX90MWD2-24P					IPX8 Waterproof (Note) Without Gasket
		CX90MWD2G-24P					IPX8 Waterproof (Note) With Gasket
		CX90MWP1-24P				6A	IPX4 Waterproof Plastic Shell Screw Mounting Design
	Right Angle SMT Single-row	CX90M-16P		16pos.	480Mbps		Space-Saving
		CX90MW6-16P					IPX8 Waterproof (Note) With Gasket Screw Mounting Design
Top-Mount	Vertical SMT	CX80B1-24P		24pos.	20Gbps USB4 Gen.2x2	5A	Low Profile TID No.5,200,000,701
	Right Angle SMT Double-row	CX90B1-24P					Robust Shell Through-Hole Height：0.6mm TID No. 5,200,000,499
		CX90B1B-24P					Robust Shell Through-Hole Height：1.2mm TID No. 4626
		CX90B2-24P					Enhanced THR Design TID No. 7365
	Right Angle SMT Single-row	CX90B-16P		16pos.	480Mbps		Space-Saving
		CX90BW-16P				6A	IPX4 Waterproof With Gasket

Note : IPX8 waterproof (unmated) Test Conditions : Immersed in 1.5 meter water depth for 30 minutes

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Plug

Type	Style	Part No.	Product Image	No. of Pos.	Transmission Speed	Rated Current	Features
Plug Unit	Paddle Card SMT Double-row (PCB Wire Soldering)	CX60-24S-UNIT		24pos.	20Gbps USB4 Gen.2x2	5A	Slim Type TID No. 5,200,000,291
Plug Shell	-	CX60-SLDA		-			Slim Type
Cable Assembly	-	CX60-24S-1000-C1		24pos.	20Gbps USB4 Gen.2x2	5A	Double-Ended, Cable Length：1m Slim Type TID No. 5648
		CX60-24S-1000-CD					Double-Ended, Cable Length：1m Screw Locking Type [Dual Screw]
		CX60-24S-1000-CS					Double-Ended, Cable Length：1m Screw Locking Type [Single Screw]

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Receptacle

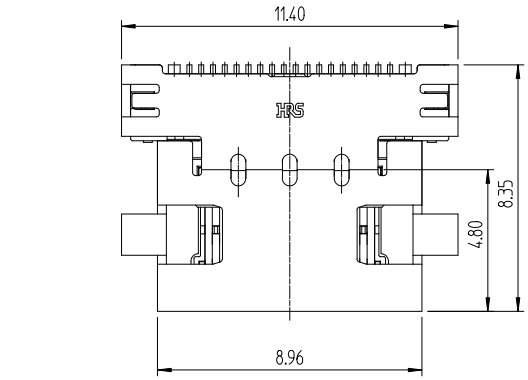
Mid-Mount, Right Angle Hybrid (SMT+THR), 24pos., Supports 5Gbps & 5A, 8.35mm Depth

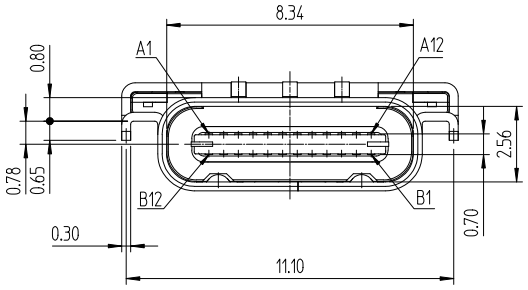


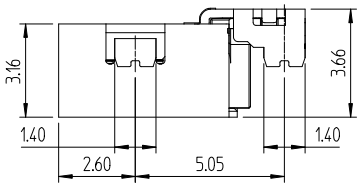
Unit : mm

Part No.	HRS No.	Purchase Unit
CX70M-24P1	CL 0480-0304-0-00	1500pcs per reel

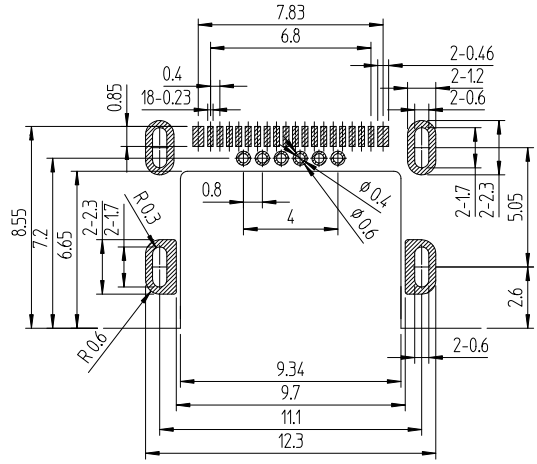
- TID No. 5,200,000,077
  *THR : Through Hole Reflow







Recommended PCB Layout



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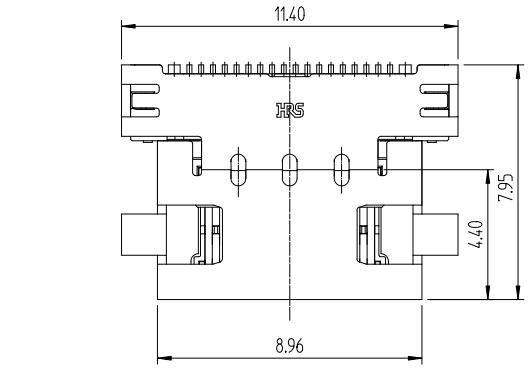
Mid-Mount, Right Angle Hybrid (SMT+THR), 24pos., Supports 5Gbps & 5A, 7.95mm Depth

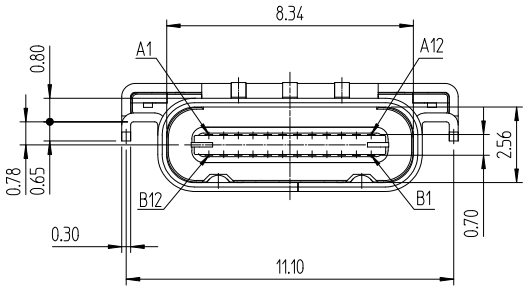


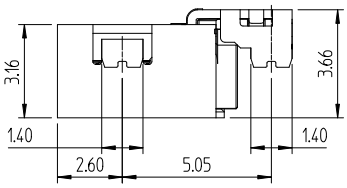
Unit : mm

Part No.	HRS No.	Purchase Unit
CX70M-24P2	CL 0480-0329-0-00	1500pcs per reel

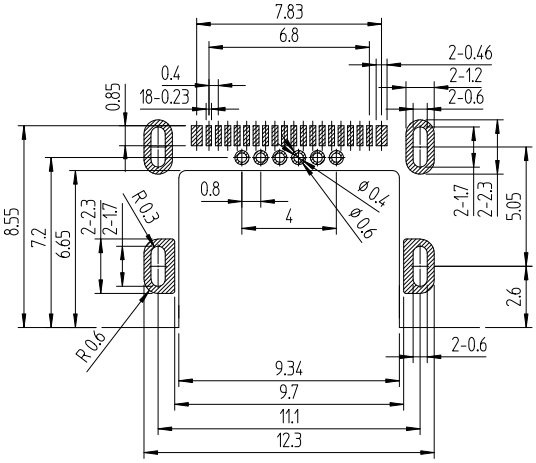
*THR : Through Hole Reflow







Recommended PCB Layout



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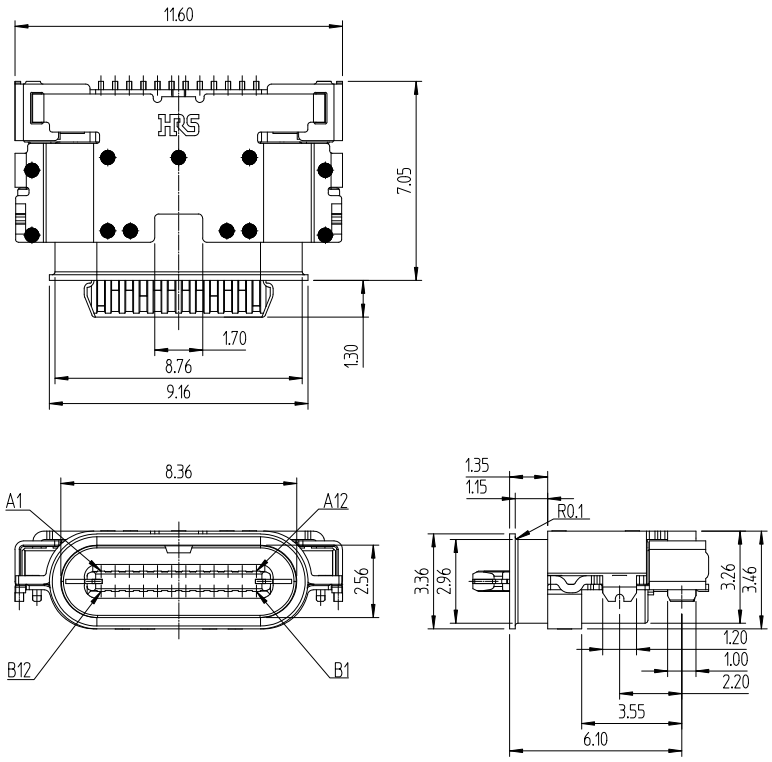
Mid-Mount, Right Angle (SMT Double-row), 24pos., Supports 5Gbps & 5A, IPX8 Waterproof, Without Gasket



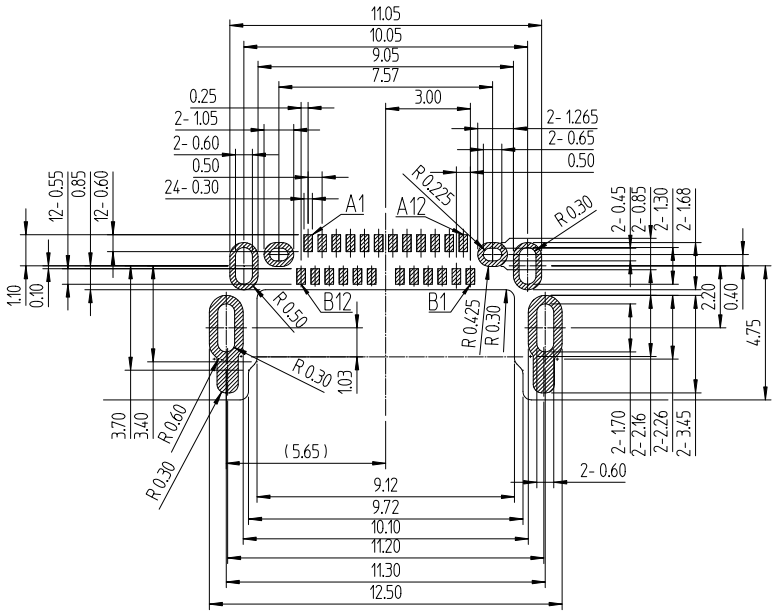
Unit : mm

Part No.	HRS No.	Purchase Unit
CX90MWD2-24P	CL 0480-0609-0-00	1500pcs per reel

- IPX8 waterproof (unmated) test conditions :
  Immersed in 1.5 meter water depth for 30 minutes

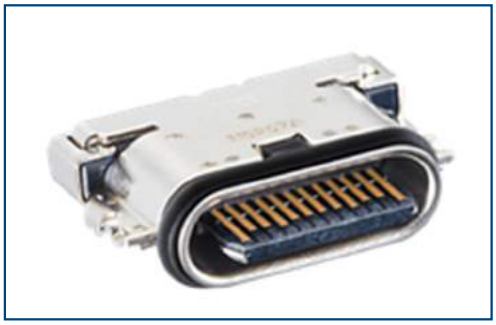


Recommended PCB Layout



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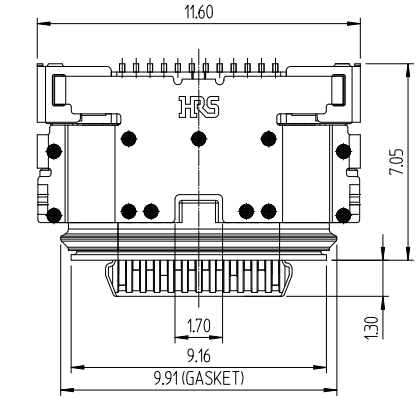
Mid-Mount, Right Angle (SMT Double-row), 24pos., Supports 5Gbps & 5A, IPX8 Waterproof, With Gasket

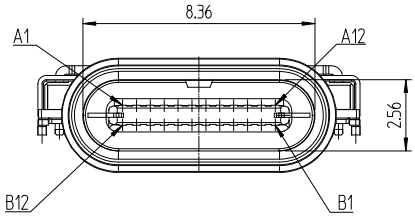


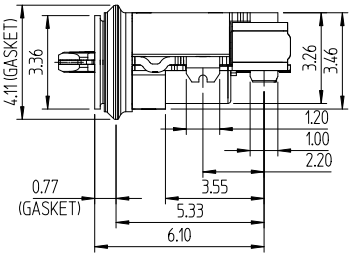
Unit : mm

Part No.	HRS No.	Purchase Unit
CX90MWD2G-24P	CL 0480-0700-0-00	1500pcs per reel

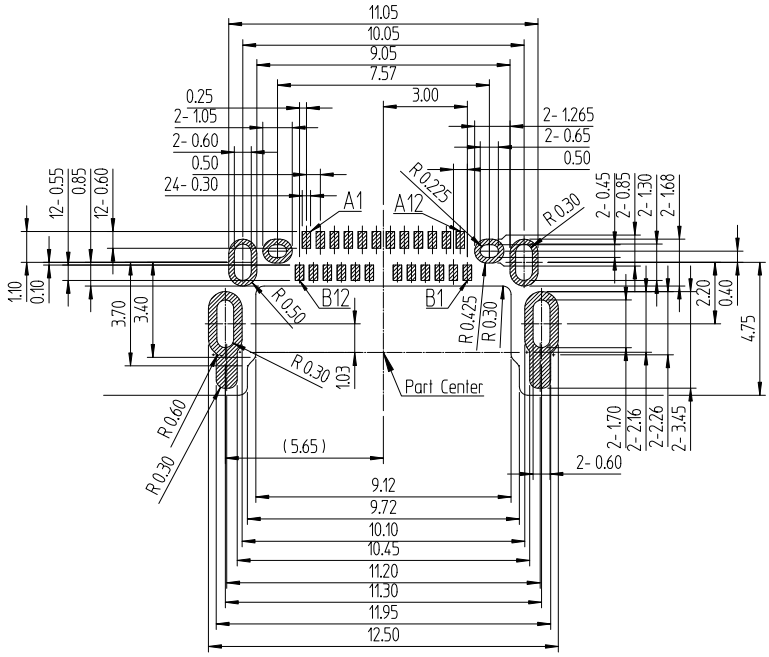
- IPX8 waterproof (unmated) test conditions :
  Immersed in 1.5 meter water depth for 30 minutes







Recommended PCB Layout



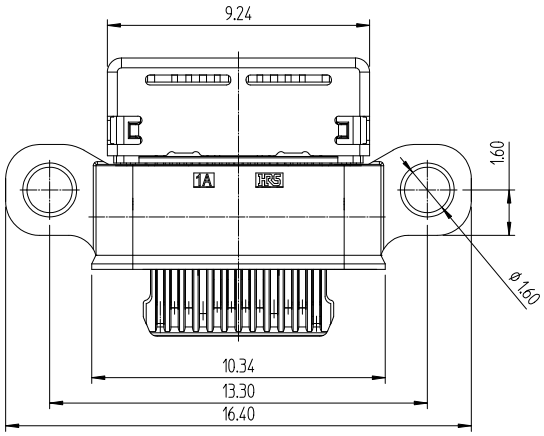
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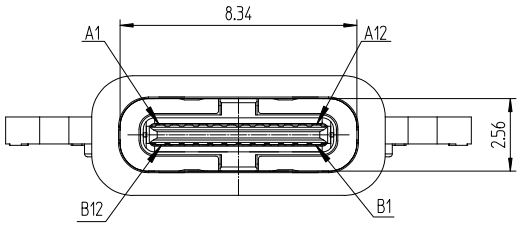
Mid-Mount, Right Angle (SMT Double-row), 24pos., Supports 5Gbps & 6A, IPX4 Waterproof, Plastic Shell, Screw Mounting Design

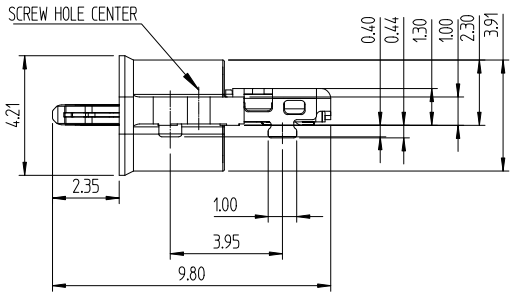


Unit : mm

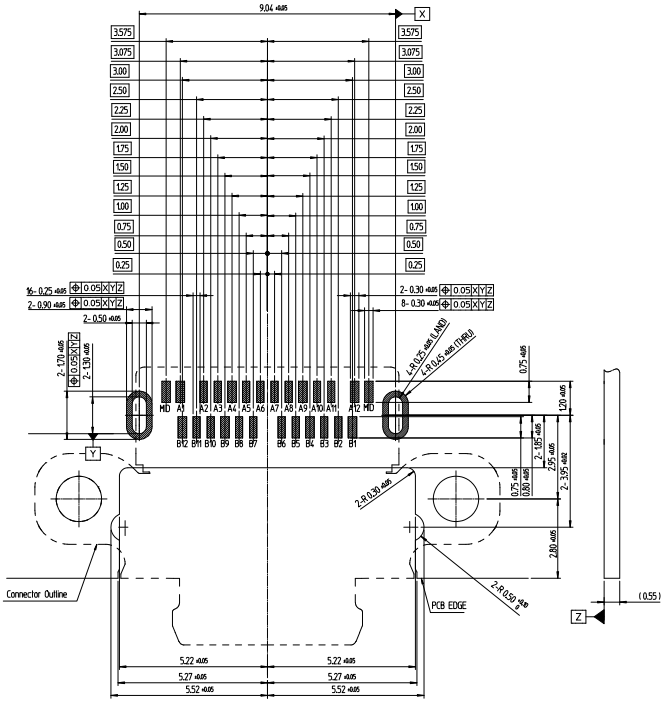
Part No.	HRS No.	Purchase Unit
CX90MWP1-24P	CL 0480-0535-0-00	1000pcs per reel







Recommended PCB Layout



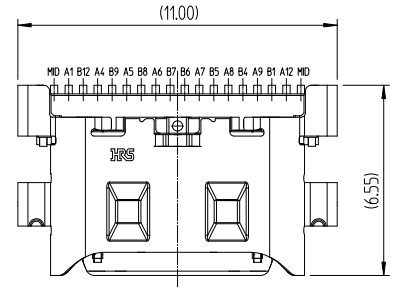
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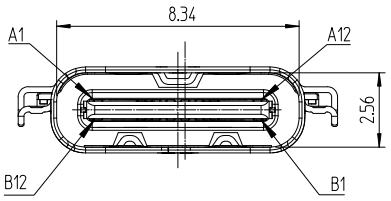
Mid-Mount, Right Angle (SMT Double-row), 16pos., Supports 480Mbps & 6A

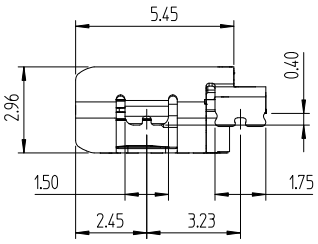


Unit : mm

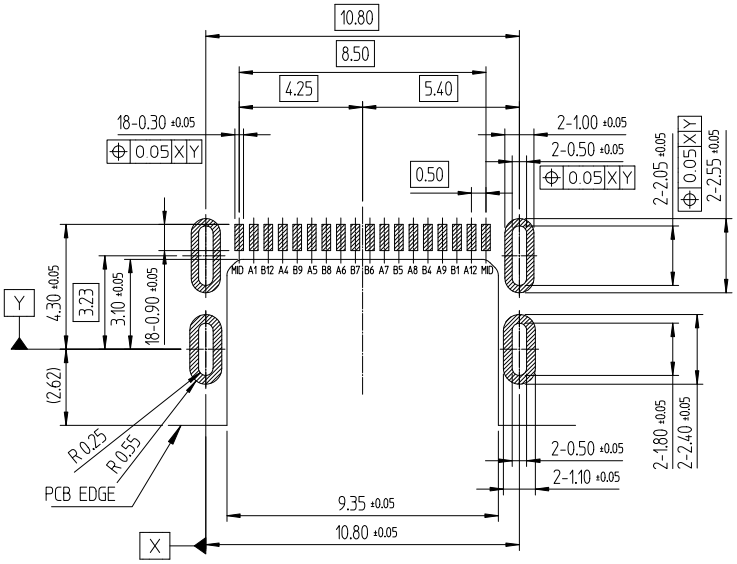
Part No.	HRS No.	Purchase Unit
CX90M-16P	CL 0480-0513-0-00	1600pcs per reel





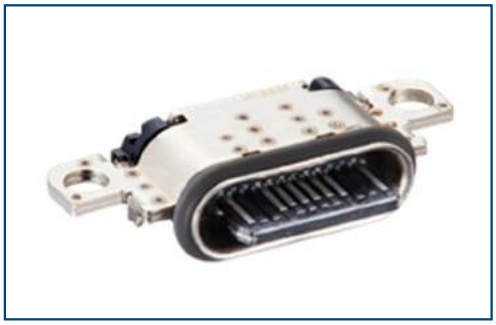


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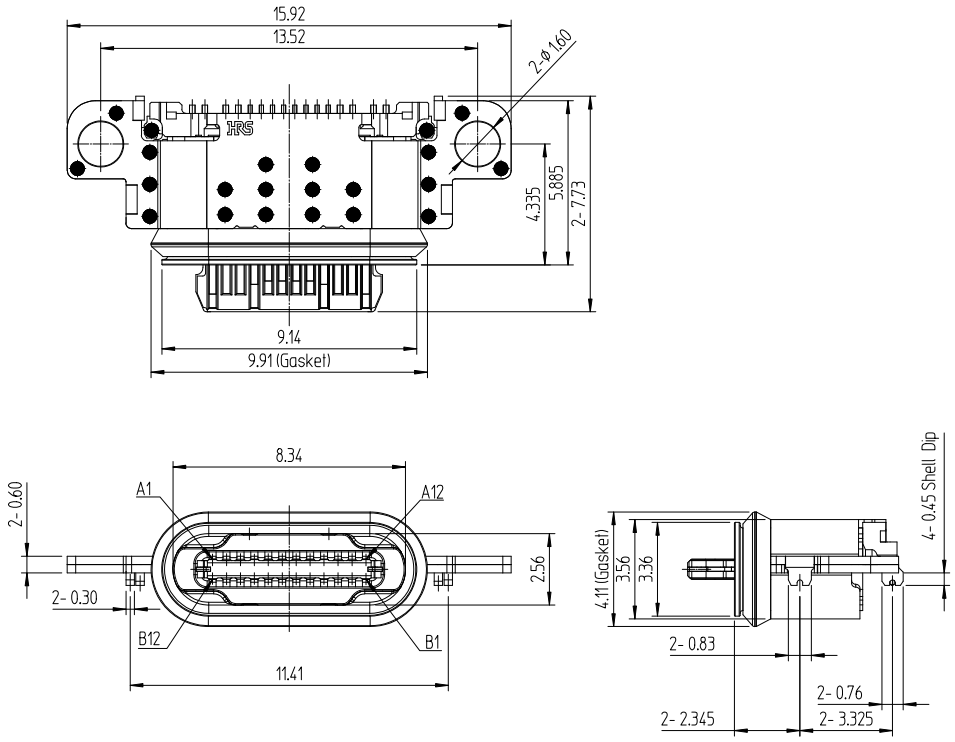
Mid-Mount, Right Angle (SMT Single-row), 16pos., Supports 480Mbps & 6A, IPX8 Waterproof, With Gasket, Screw Mounting Design



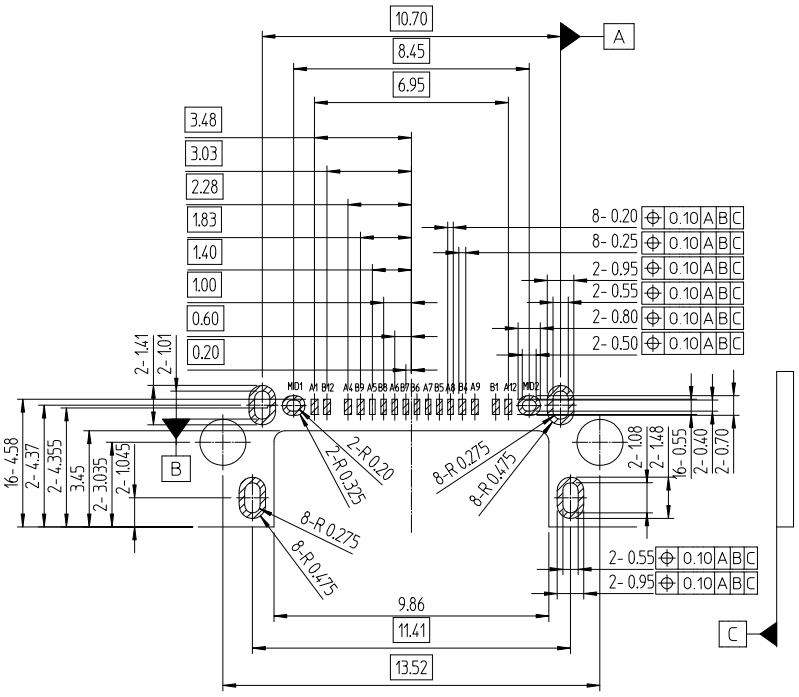
Unit : mm

Part No.	HRS No.	Purchase Unit
CX90MW6-16P	CL 0480-0857-0-00	1500pcs per reel

- IPX8 waterproof (unmated) test conditions :
  Immersed in 1.5 meter water depth for 30 minutes



Recommended PCB Layout



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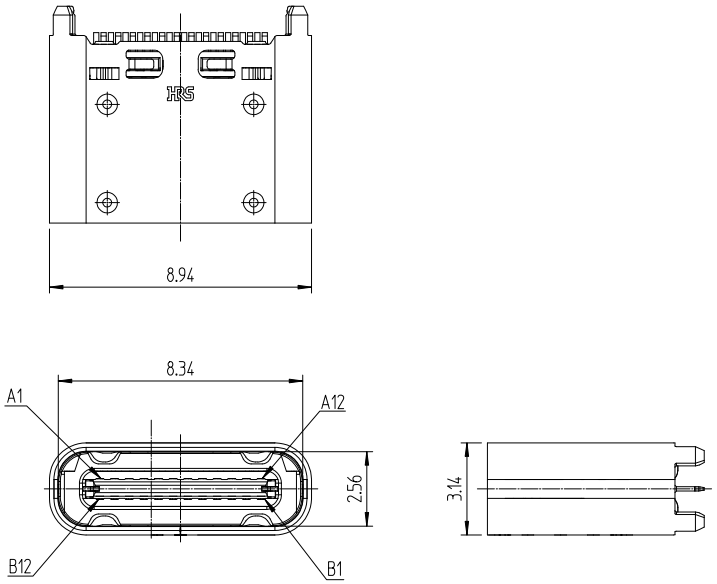
Top-Mount, Vertical (SMT), 24pos., Supports 20Gbps / USB4 Gen. 2x2 & 5A



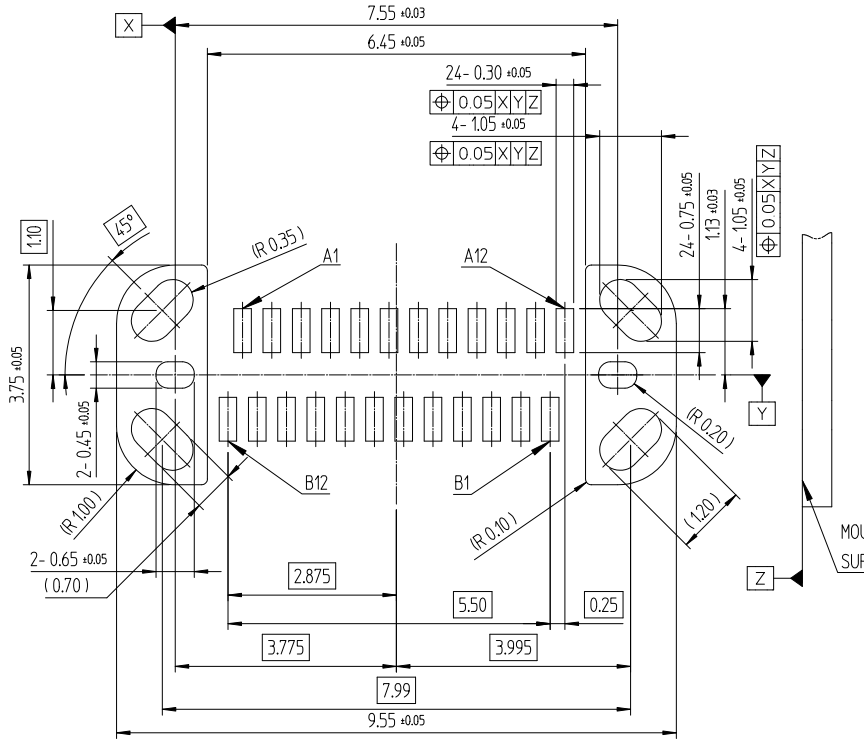
Unit : mm

Part No.	HRS No.	Purchase Unit
CX80B1-24P	CL 0480-0625-0-00	600pcs per reel

- TID No. 5,200,000,701



Recommended PCB Layout



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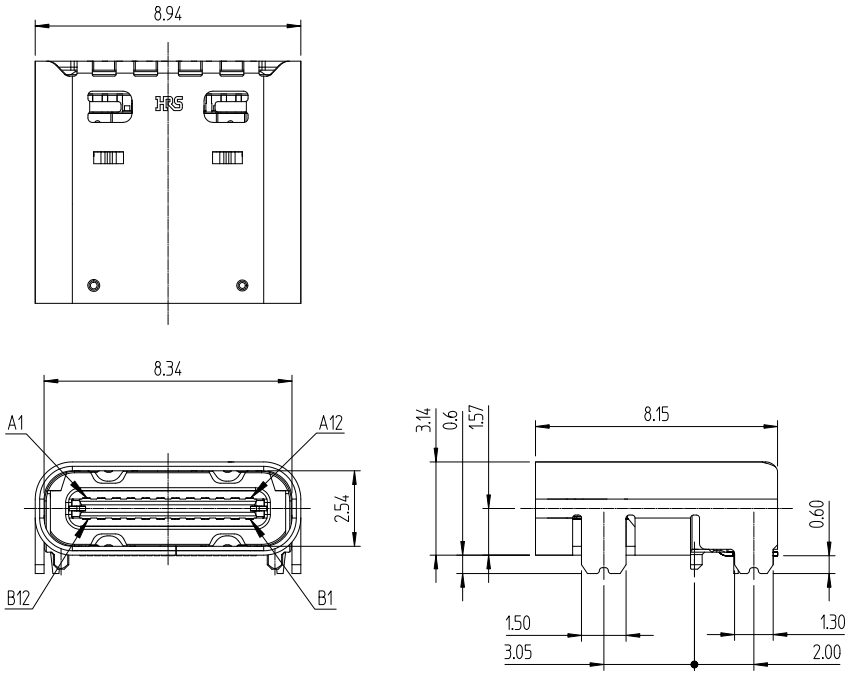
Top-Mount, Right Angle (SMT Double-row), 24pos., Supports 20Gbps / USB4 Gen. 2x2 & 5A, Shell Through-Hole Height：0.6mm



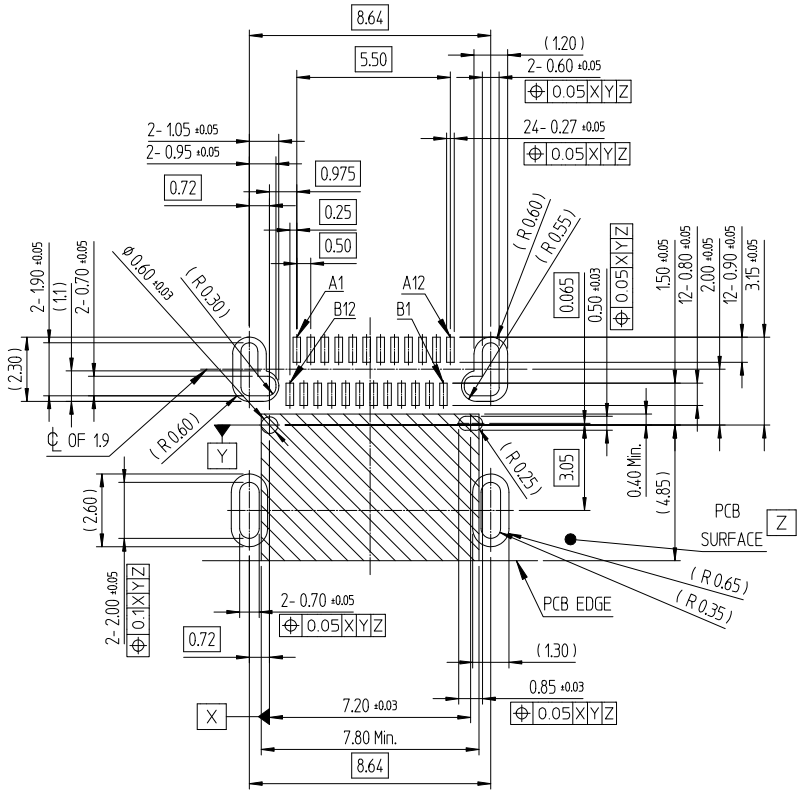
Unit : mm

Part No.	HRS No.	Purchase Unit
CX90B1-24P	CL 0480-0497-0-00	1500pcs per reel

- TID No. 5,200,000,499

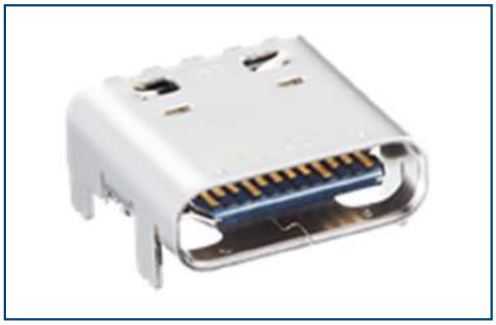


Recommended PCB Layout



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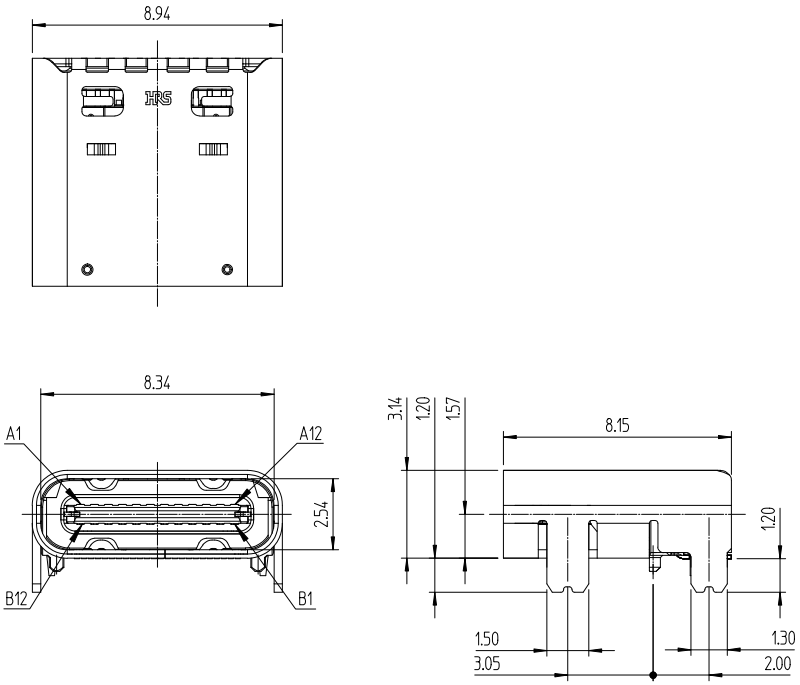
Top-Mount, Right Angle (SMT Double-row), 24pos., Supports 20Gbps / USB4 Gen. 2x2 & 5A, Shell Through-Hole Height：1.2mm



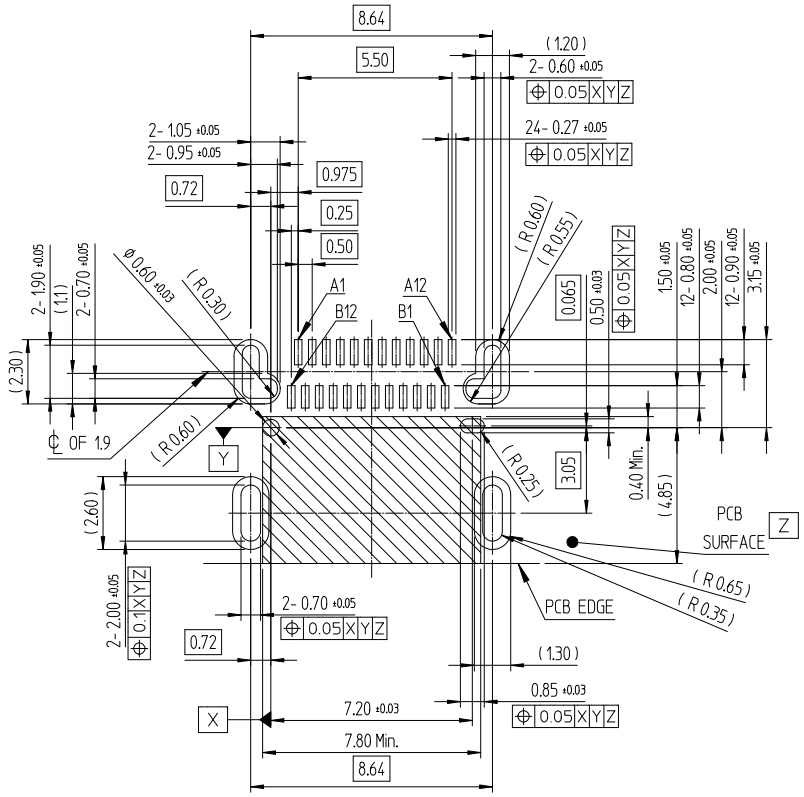
Unit : mm

Part No.	HRS No.	Purchase Unit
CX90B1B-24P	CL 0480-0809-0-00	1500pcs per reel

- TID No. 4626



Recommended PCB Layout



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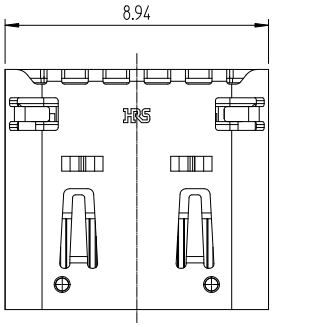
Top-Mount, Right Angle (SMT Double-row), 24pos., Supports 20Gbps / USB4 Gen. 2x2 & 5A, Enhanced THR Design



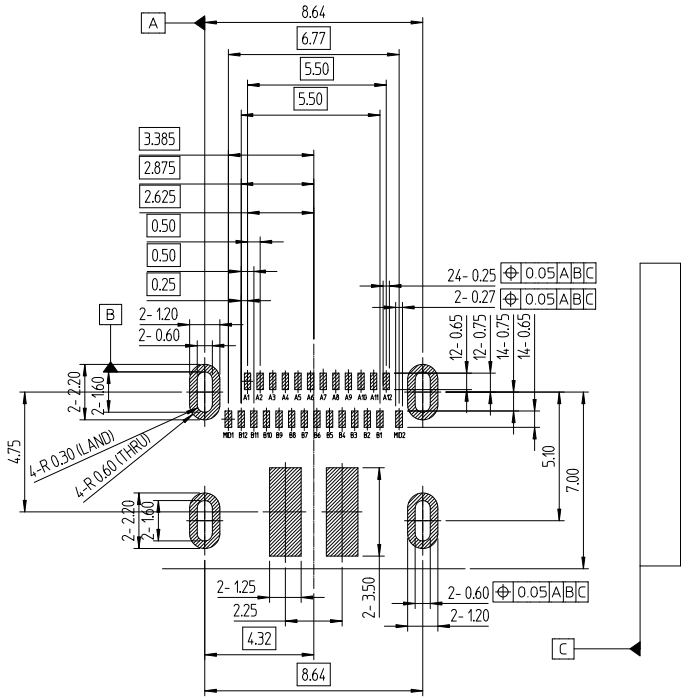
Unit : mm

Part No.	HRS No.	Purchase Unit
CX90B2-24P	CL 0480-0809-0-00	1500pcs per reel

- TID No. 7365
  *THR : Through Hole Reflow



Recommended PCB Layout



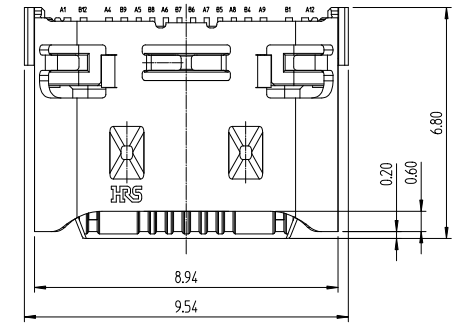
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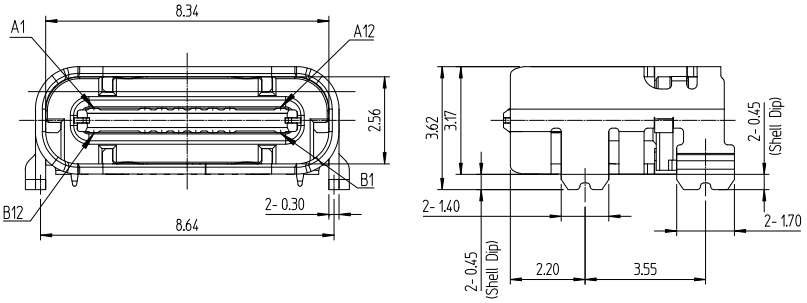
Top-Mount, Right Angle (SMT Single-row), 16pos., Supports 480Mbps & 5A



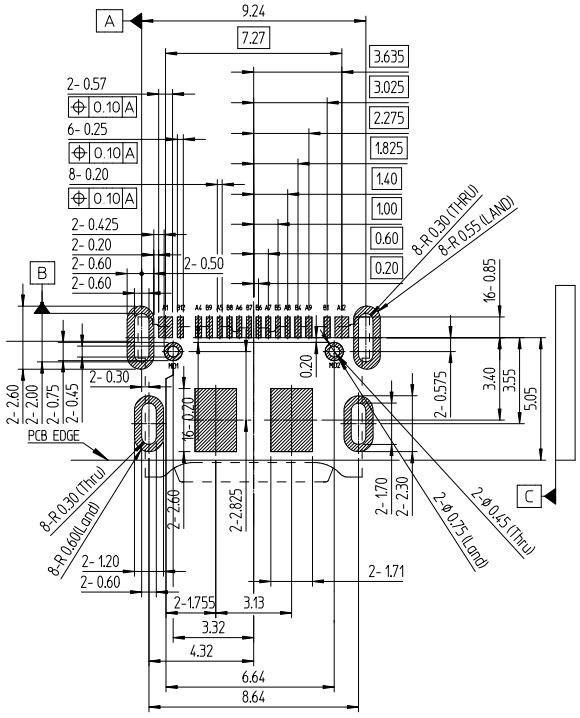
Unit : mm

Part No.	HRS No.	Purchase Unit
CX90B-16P	CL 0480-0733-0-00	1500pcs per reel





Recommended PCB Layout



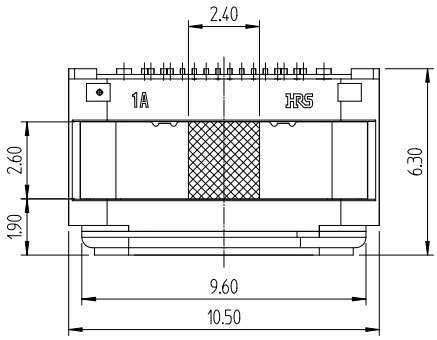
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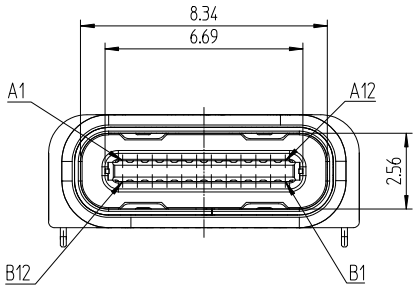
Top-Mount, Right Angle (SMT Single-row), 16pos., Supports 480Mbps & 6A, IPX4 Waterproof, With Gasket

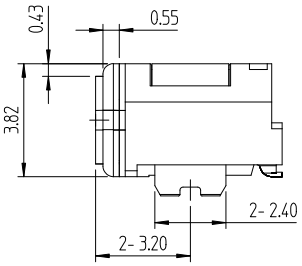


Unit : mm

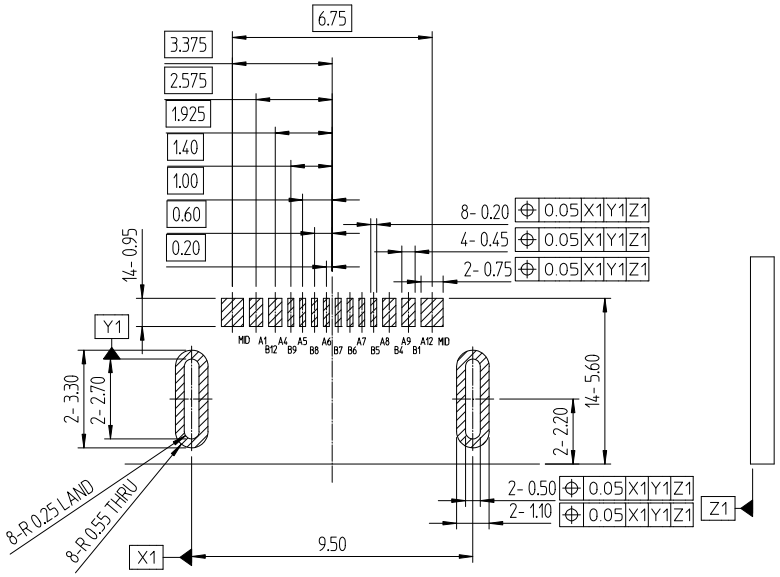
Part No.	HRS No.	Purchase Unit
CX90BW-16P	CL 0480-0891-0-00	1400pcs per reel







Recommended PCB Layout



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Plug

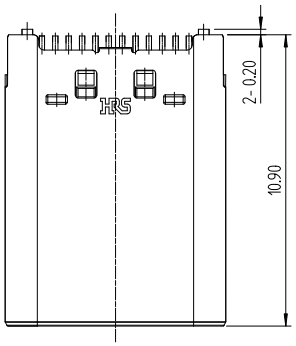
Plug Unit, Paddle Card (SMT Double-row), 24pos., Supports 20Gbps / USB4 Gen.2x2 & 5A

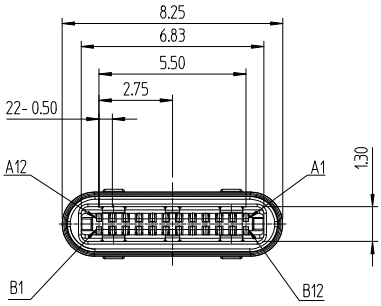


Unit : mm

Part No.	HRS No.	Purchase Unit
CX60-24S-UNIT	CL 0480-0465-0-00	150pcs per tray

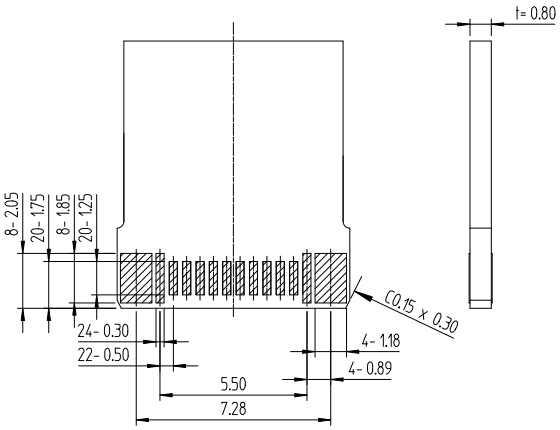
- TID No. 5,200,000,291
- PCB Wire Soldering Type







Recommended PCB Layout



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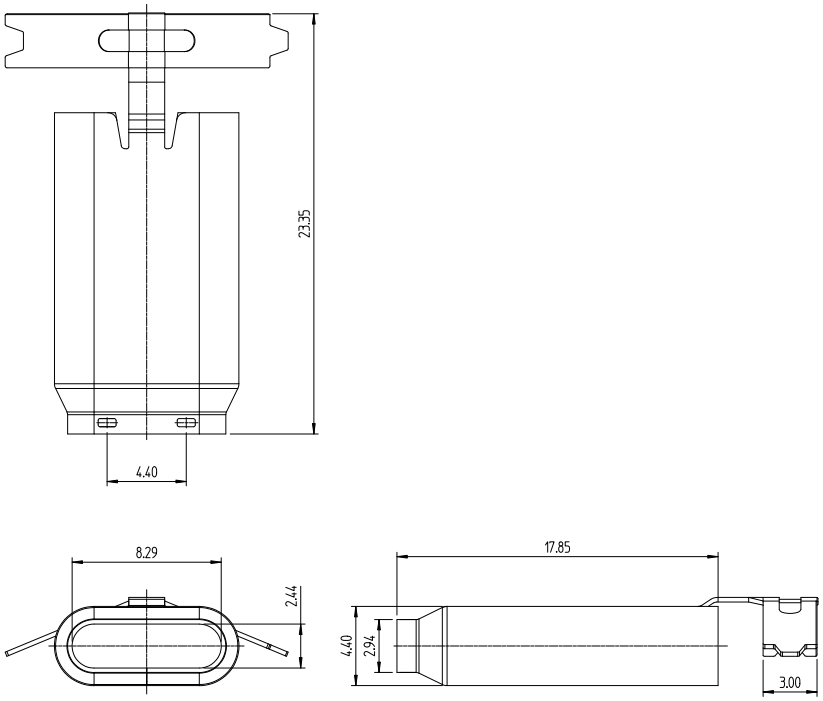
Plug Shell



Unit : mm

Part No.	HRS No.	Purchase Unit
CX60-24S-SLDA	CL 0480-0522-0-00	3000pcs per reel

- Cable Diameter : ø4.8



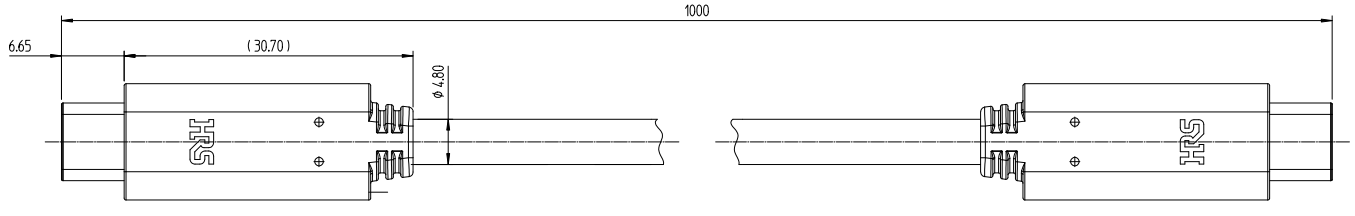
Cable Assembly, Slim Type, Cable Length 1m, 24pos., Supports 20Gbps / USB4 Gen.2x2 & 5A



Unit : mm

Part No.	HRS No.	Purchase Unit
CX60-24S-1000-C1	CL 0480-0823-0-00	1pc per bag

- TID No. 5648



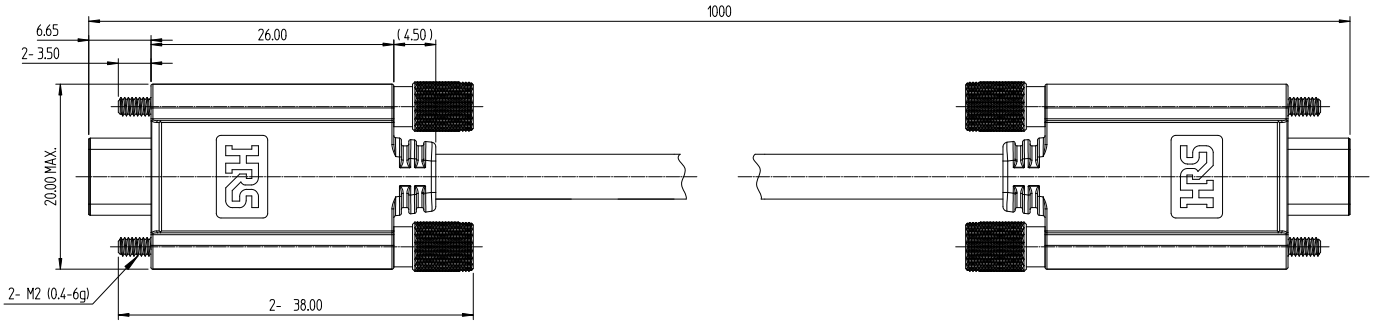
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Cable Assembly, Screw Locking Type [Dual Screw], Cable Length 1m, 24pos., Supports 20Gbps / USB4 Gen.2x2 & 5A



Unit : mm

Part No.	HRS No.	Purchase Unit
CX60-24S-1000-CD	CL 0480-0777-0-00	1pc per bag

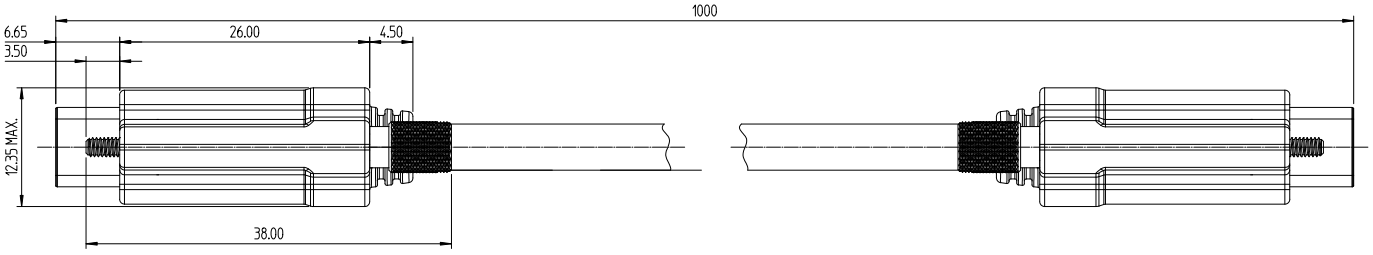


Cable Assembly, Screw Locking Type [Single Screw], Cable Length 1m, 24pos., Supports 20Gbps / USB4 Gen.2x2 & 5A



Unit : mm

Part No.	HRS No.	Purchase Unit
CX60-24S-1000-CS	CL 0480-0778-0-00	1pc per bag

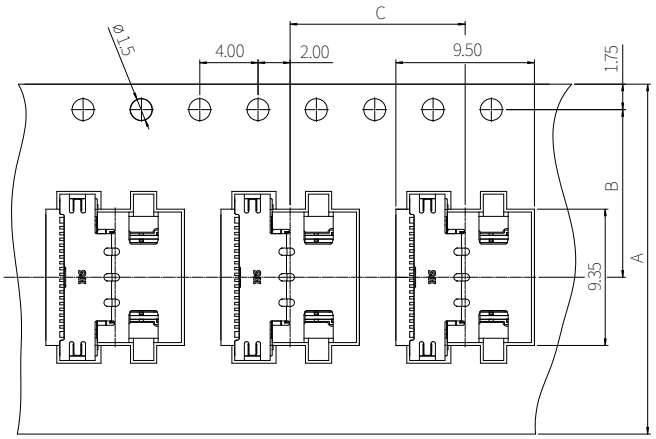


*Screw locking type products comply with the "Universal Serial Bus Type-C Locking Connector Specification Revision 1.0".
Please refer to the standard for details.
https://www.usb.org/sites/default/files/documents/usb_type-c_locking_connector_specification_rev_1_0_20160309_0.pdf

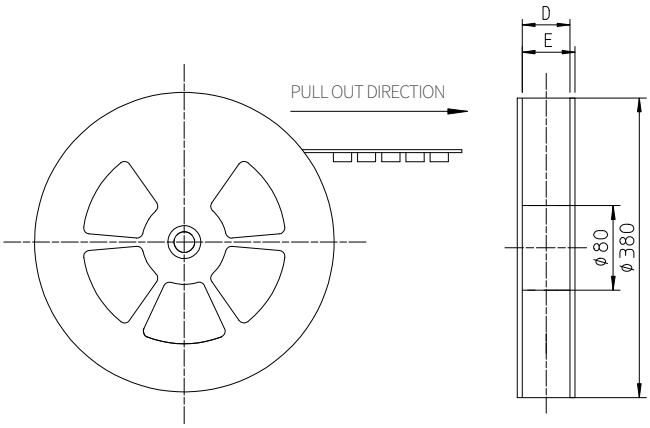
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Receptacle Packaging Specifications Diagram

Embossed Tape Dimensions



Reel Dimensions

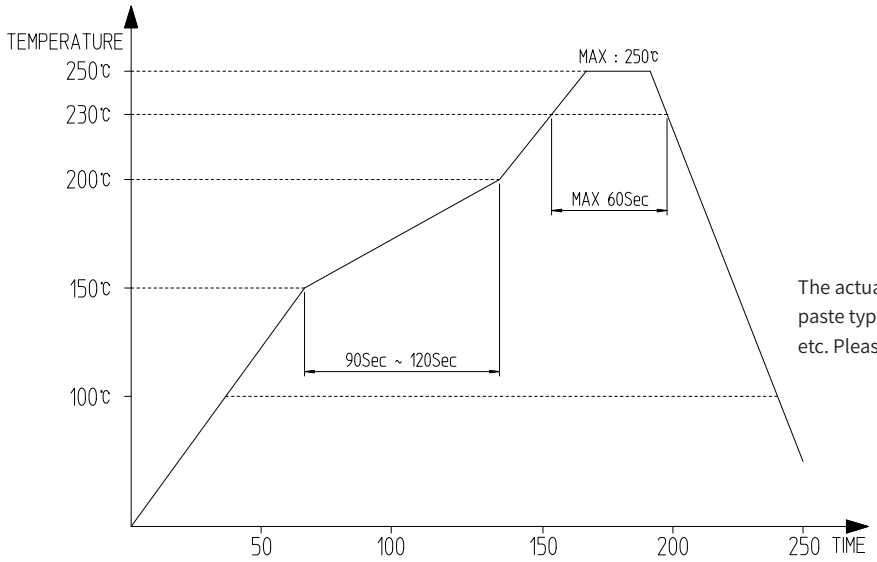


Unit : mm

Part No.	A	B	C	D	E
CX70M-24P1	24.0	11.5	12.0	30.0	26.0
CX70M-24P2	24.0	11.5	12.0	30.0	26.0
CX90MWD2-24P	24.0	11.5	12.0	30.0	26.0
CX90MWD2G-24P	24.0	11.5	12.0	30.0	26.0
CX90MWP1-24P	32.0	14.2	16.0	34.0	30.0
CX90M-16P	24.0	11.5	12.0	30.0	26.0
CX90MW6-16P	32.0	14.2	12.0	34.0	30.0
CX80B1-24P	24.0	11.5	16.0	30.0	26.0
CX90B1-24P	24.0	11.5	12.0	30.0	26.0
CX90B1B-24P	24.0	11.5	12.0	30.0	26.0
CX90B2-24P	24.0	11.5	12.0	30.0	26.0
CX90B-16P	24.0	11.5	12.0	30.0	26.0
CX90BW-16P	24.0	11.5	12.0	30.0	26.0

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Receptacle Recommended Temperature Profile



The actual temperature profile may vary depending on solder paste type, board size, whether other components are present, etc. Please check the mounting conditions before use.

Note 1：Reflow is allowed up to 2 times with the same conditions.
Please allow the parts to return to the ambient temperature before the second run is started.
Note 2：The measured temperature is the temperature of the PCB surface around the connector leads.

Usage Precautions

1. Please handle connectors with care. Excessive external force may damage the connectors.
2. To extract the plug, hold the plug body itself and remove straight from the receptacle.
   Do not pull on the cable to extract the plug as this may damage the connector.
3. Due to the assembly process there may be some abrasions on the surface of the receptacle or plug.
   This does not have a negative impact on the performance of the product.
4. Since the surface of the receptacle is plated, the appearance may differ from lot to lot but this does not affect the product performance.

While Taking into Consideration

Specifications mentioned in this catalog are reference values.
When considering to order or use this product, please confirm the Drawing and Product Specifications sheets.
Use an appropriate cable when using the connector in combination with cables.
If considering usage of a non- specified cable, please contact your sales representative.
If assembly process is done by jigs & tools which are not identified by Hirose, assurance will not be given.
If considering usage for below mentioned applications, please contact your sales representative.
In cases where the application will demand a high level of reliability, such as automotive, medical instruments, public infrastructure, aerospace/ defense etc. Hirose must review before assurance of reliability can be given.

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