

USB Type-C Connector

CX Series

USB from Hirose Electric : Standard connections, inspired solutions.



Note: Please contact HIROSE for TID acquisition status of each product.

Overview

The CX series connector conforms to the next-generation USB standard "USB Type-C™". It is expected to be widely adopted as a standard interface in various devices in the consumer, industrial machinery and automobile market.

※"USB Type-C™" is a registered trademark of USB Implementers Forum, INC

Features

1. Easy mating with reversible form factor

The symmetrical design eliminates concern for backward insertion. Simply insert the plug in either direction.

2. Conforms to the USB type-C standard

3. USB 3.1 Gen2, 10Gbps high speed transmission

USB Type-C can transfer data twice as fast compared to a conventional USB 3.0 (5Gbps), 10Gbps (Max.)

Also, if alternate mode is applied, it becomes possible to meet various video transmission standards such as MHL and Display Port.

4. Clear tactile click (Excellent Retention)

CX series has a superior "click feel" when mating and is designed to prevent incomplete mating.

5. Design for superior mechanical strength

6. Many varieties

SMT+THR Hybrid type (Mid-mount) : Fig.1

Waterproof (Mid-mount) : Fig.2

Single-row SMT (Mid-mount/16PIN) : Fig.3

Vertical (Top-mount) : Fig.4

Double-row SMT (Top-mount) : Fig.5

7. Plug harness with slim overmold Type-C (C-to-C Type)

: Fig.6

8. RoHS compliant, halogen-free product

CX series is halogen-free product.

(Maximum content of Br, Cl and Br+Cl total are 900ppm, 900ppm and 1500ppm, respectively.)

Mid-mount

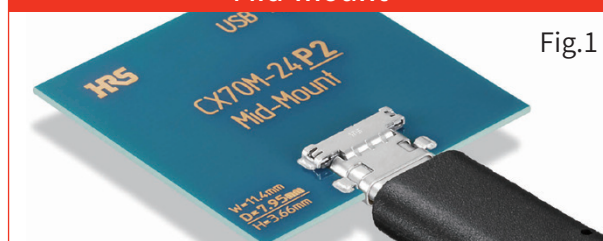


Fig.1

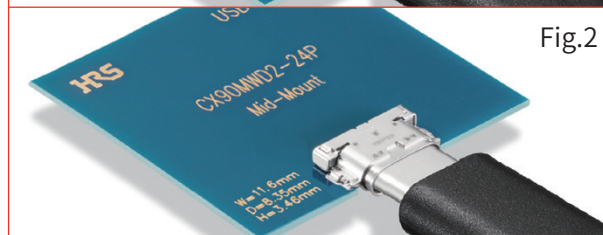


Fig.2

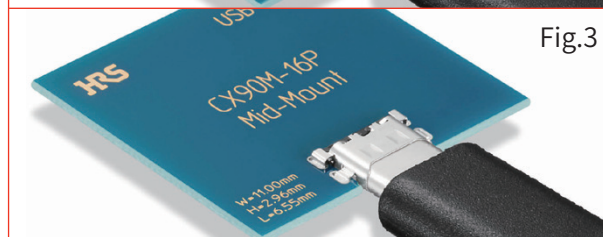


Fig.3

Top-mount



Fig.4



Fig.5

Plug Harness



Fig.6

■ Product Specifications

Ratings	Rated Current	DC 1.25A max. for each power pin (i.e. A1, A4, A9, A12, B1, B4, B5, B9, B12) DC 0.25A for the other pins	Rated Voltage	AC 20V
			Operating Temp. Range	-40°C to + 85°C (Note 1, 2)
			Storage Temp. Range	-10°C to + 60°C
Items		Specifications	Conditions	
1. Contact resistance		40mΩ max.	Measured at 100mA (DC or 1000Hz)	
2. Withstand voltage		No flashover or breakdown	100V AC / 1min.	
3. Durability		Contact resistance : Increase by 10mΩ or less from the initial value	10,000 mating cycles	
4. Overall insertion / Extraction forces		Insertion : 5~20N, Extraction : 8~20N	Measured with applicable connector	

Note 1 : Includes temperature rise caused by current flow.

Note 2 : The above specifications are representative of this series.
Please refer to product specsheet for detail each of products.

Note 3 : The above specifications are representative of this series.
Hirose does not guarantee specified performance when mating with other manufacturers' parts.

■ Materials / Finish

● Receptacle

Parts	Materials	Color/Finish
Insulator	LCP or Polyamide	Black/UL94V-0
Contact	Copper alloy	Mating part : Gold flash plating over Nickel-palladium plating Mounting part : Gold flash plating
Ground-plate	Stainless steel	-
Mid plate	Stainless steel	Nickel plating
Shell	Stainless steel	Nickel plating

● Plug

Parts	Materials	Color/Finish
Insulator	LCP or Polyamide	Black/UL94V-0
Contact	Copper alloy	Mating part : Gold flash plating over Nickel-palladium plating Mounting part : Gold flash plating
Lock spring	Stainless steel	Nickel plating
Ground spring	Stainless steel	Nickel plating
Shield	Stainless steel	Nickel plating

※ This is a halogen-free product.

(Maximum content of Br, Cl and Br+Cl total are 900ppm and 1500ppm, respectively.)

Note : The above data is representative of this series. Data may vary according to specifications.

Product Number Configurator

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 * ** * - ** * *
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

● Plug

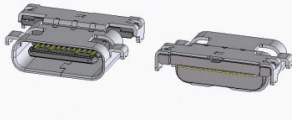
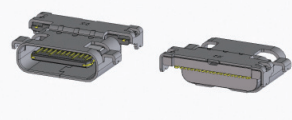



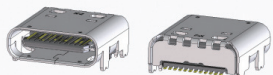


CX 60 - ** * - UNIT
① ② ⑥ ⑦ ⑨

CX 60 - SLDA
① ② ⑨

CX 60 - ** * - 1000 C
① ② ⑥ ⑦ ⑩ ⑪

① Series name		CX
② Mounting type	60	Paddle Card (PCB wire soldering)
	70	Right angle Hybrid (SMT+THR)
	80	Straight SMT (Vertical)
	90	Right angle SMT
③ Board mounting	B	Top-mount
Style (Receptacle)	M	Mid-mount
④ Special	WD	Waterproof
	Blank	Standard
⑤ No. of serial		None or 1, 2, 3, ... (CX80, CX90 Series)
⑥ No. of contact		16, 24
⑦ Contact type	P	Receptacle (Male contacts)
	S	Plug (Female contacts)
⑧ No. of serial		None or 1, 2, 3, ... (CX70 Series only)
⑨ Plug components	UNIT	Plug unit
	SLDA	Plug shell
⑩ Cable length		1000mm
⑪ Harness Type	C	Type C-to-Type-C

Product Variation

	PCB Mounting Type	Mounting Method	Product Name	3D Image	Size W x H x D (mm)	Page
Receptacle	Mid-mount	Right angle Hybrid (SMT+THR)	CX70M-24P1		11.40x3.66x8.35	5 page
			CX70M-24P2		11.40x3.66x7.95	5 page
		Right angle (Double-row SMT)	CX90MWD2-24P		11.60x3.46x8.35	6 page
		Right angle (Single-row SMT)	CX90M-16P		11.00x2.96x6.55	6 page
	Top-mount	Vertical (SMT)	CX80B1-24P		8.94x3.14x6.50	7 page
		Right angle (Double-row SMT)	CX90B1-24P		8.94x3.14x8.15	7 page
Plug Unit	Paddle Card	Double-row SMT	CX60-24S-UNIT		8.25x2.40x11.10	8 page
Plug Shell	-		CX60-SLDA		10.25x4.40x23.35	8 page
Plug harness	-		CX60-24S-1000-C		12.35x6.50x1000	9 page

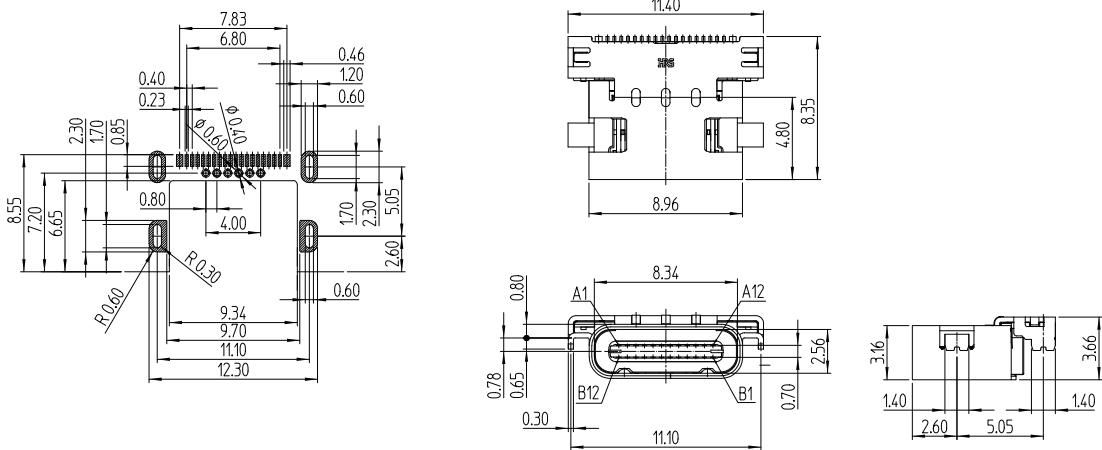
■ Receptacle

● Mid-mount Type (Right angle Hybrid) - Length 8.35mm

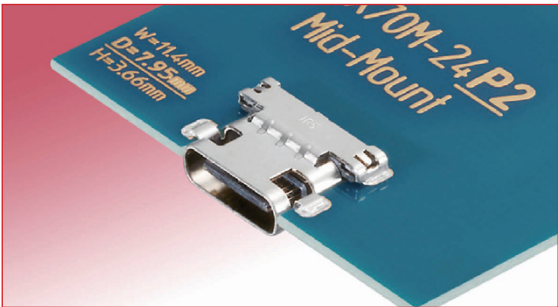


Part No.	HRS No.	Packaging
CX70M-24P1	480-0304-0 00	1,500pcs/Reel

◆ Recommended PCB layout (Component side)

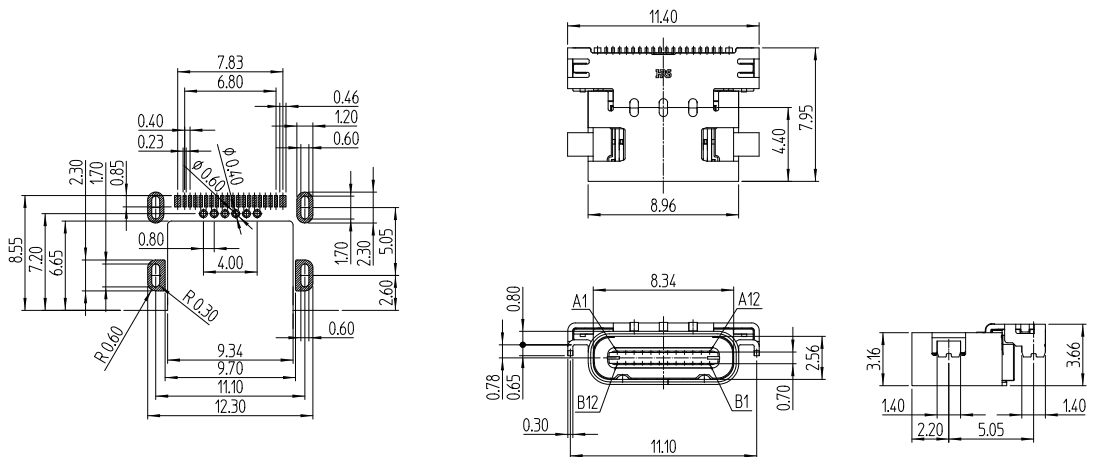


● Mid-mount Type (Right angle Hybrid) - Length 7.95mm



Part No.	HRS No.	Packaging
CX70M-24P2	480-0329-0 00	1,500pcs/Reel

◆ Recommended PCB layout (Component side)



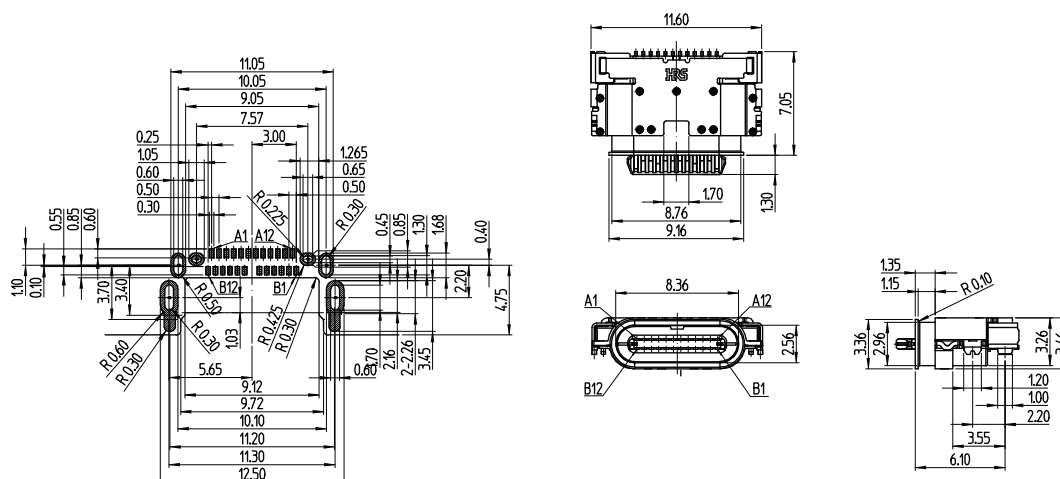
● **Mid-mount type (Right angle Double-row SMT) - Waterproof (IPX8)**



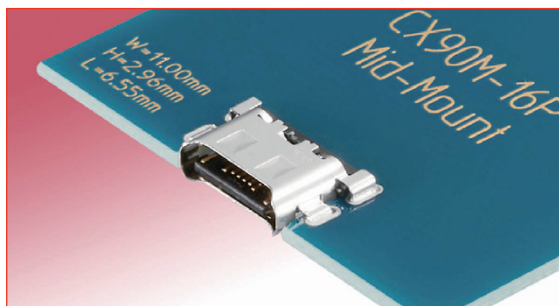
Part No.	HRS No.	Packaging
CX90MWD2-24P	480-0609-0 00	1,500pcs/Reel

※ IPX8 waterproof (unmated) test condition :
Immersed in 1.5meter of water for 30 minutes

Recommended PCB layout (Component side)

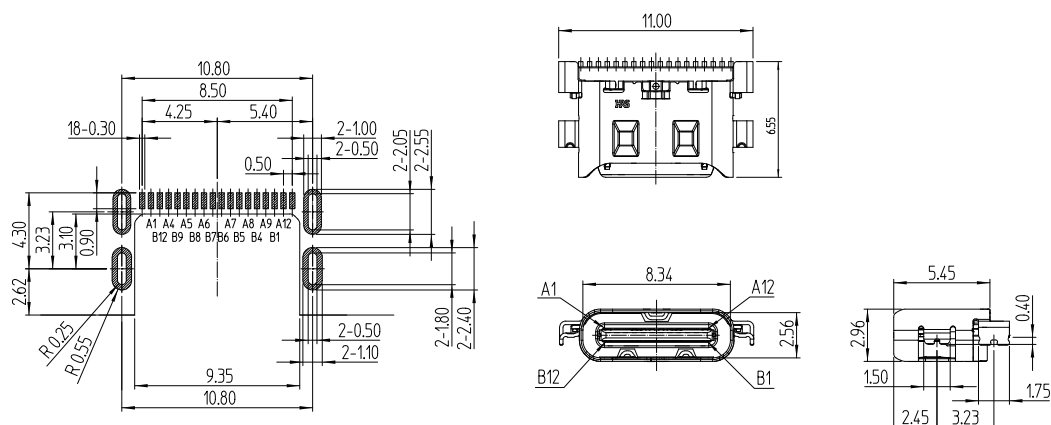


● **Mid-mount type (Right angle Single-row SMT) - 16 Pin**



Part No.	HRS No.	Packaging
CX90M-16P	480-0513-0 00	1,600pcs/Reel

◆ Recommended PCB layout (Component side)

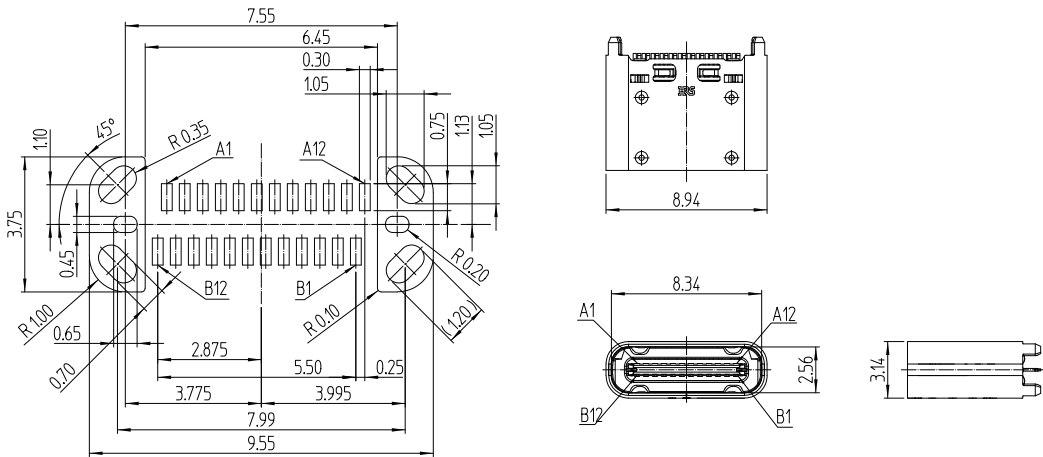


● Top-mount type (Vertical SMT)



Part No.	HRS No.	Packaging
CX80B1-24P	480-0625-0 00	600pcs/Reel

◆ Recommended PCB layout (Component side)

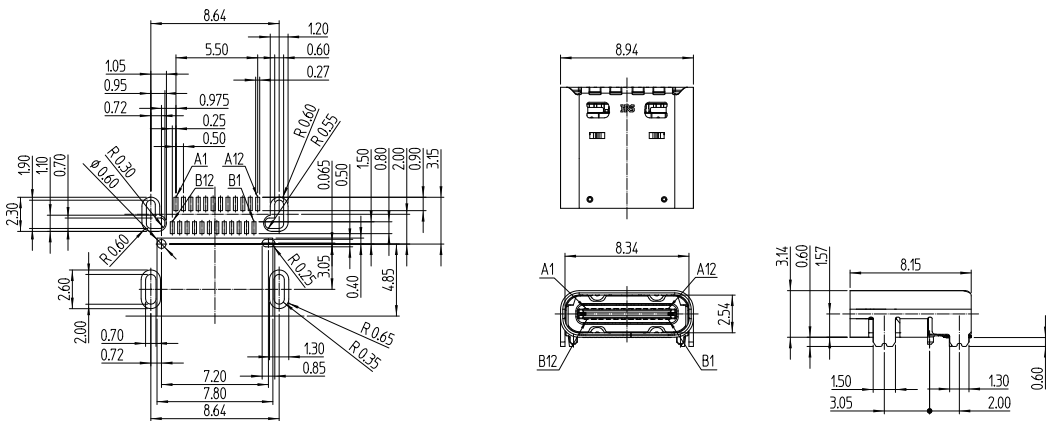


● Top-mount type (Right angle Double-row SMT)



Part No.	HRS No.	Packaging
CX90B1-24P	480-0497-0 00	1,500pcs/Reel

◆ Recommended PCB layout (Component side)



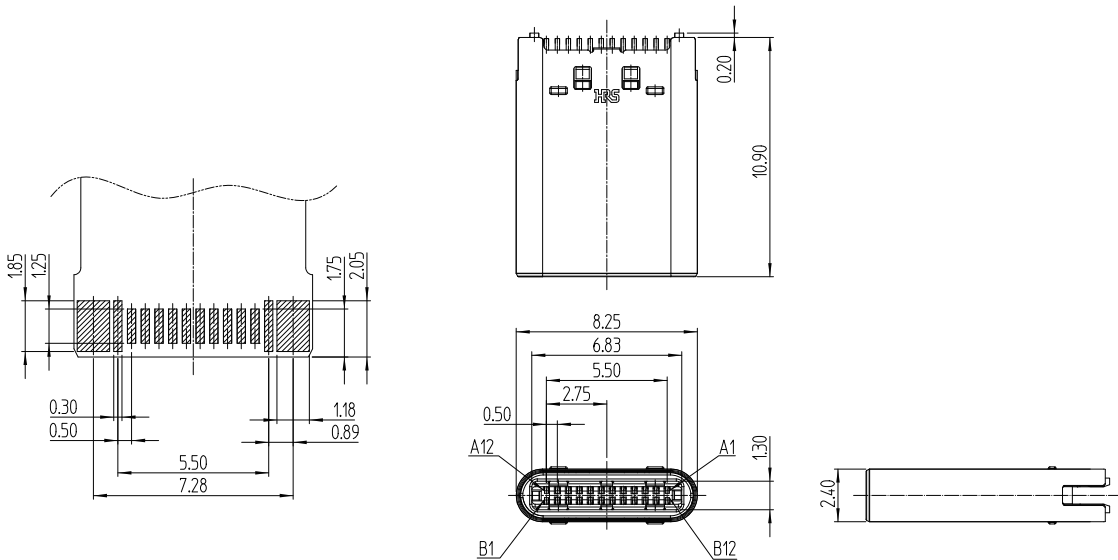
■ Plug

● Plug unit



Part No.	HRS No.	Packaging
CX60-24S-UNIT	480-0465-0 00	150pcs/Tray

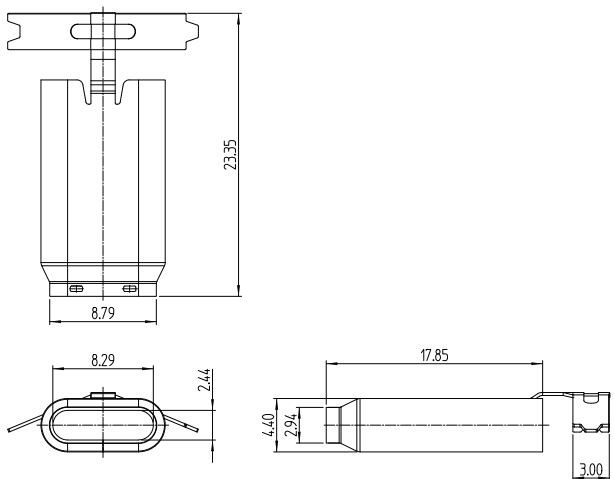
◆ Recommended PCB layout (Component side)



● Plug Shell



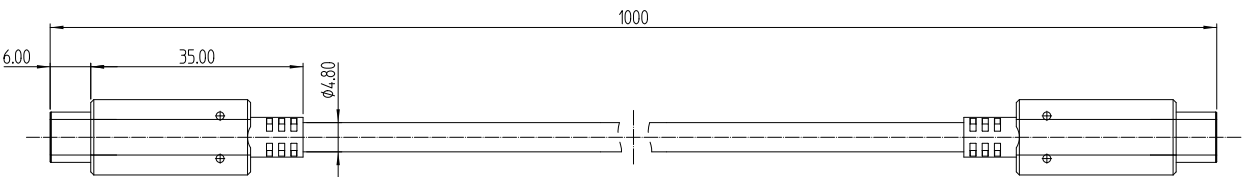
Part No.	HRS No.	Packaging	Cable diameter
CX60-SLDA	480-0522-0 00	3,000pcs/Reel	Φ4.8



● Plug Harness

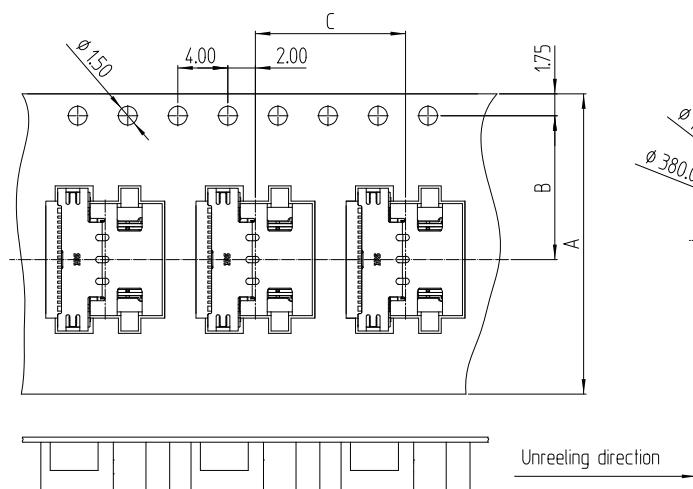


Part No.	HRS No.	Packaging
CX60-24S-1000-C	480-0618-0 00	1pcs/Vinyl bag

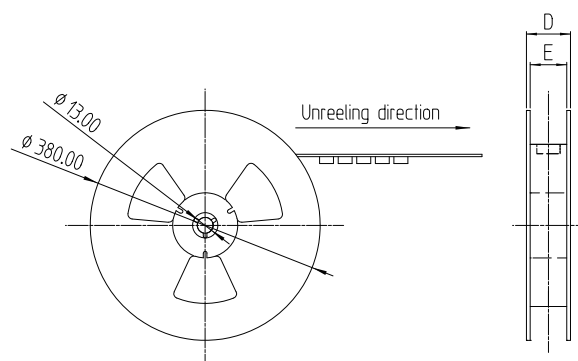


◆ Receptacle Packaging Specification (JIS C 0806-3 compliant)

● Emboss Carrier Tape Dimensions



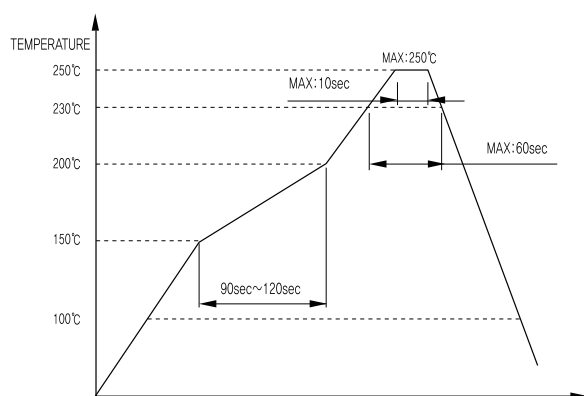
● Reel Dimensions



Part No.	A	B	C
CX70M-24P1	24	11.5	12
CX70M-24P2	24	11.5	12
CX80B1-24P	24	11.5	16
CX90B1-24P	24	11.5	12
CX90MWD2-24P	24	11.5	12
CX90M-16P	24	11.5	12

Part No.	D	E
CX70M-24P1	30	26
CX70M-24P2	30	26
CX80B1-24P	30	26
CX90B1-24P	30	26
CX90MWD2-24P	30	26
CX90M-16P	30	26

◆ Receptacle Recommended Solder Temperature Profile



The temperature profile is based on demonstrated conditions. In individual applications the actual temperature may vary, depending on solder paste type, volume/thickness and board size/thickness. Contact your solder paste and equipment manufacturer for specific recommendations.

Note 1 : Reflow is allowed up to 2times 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.

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.
This will not have a negative impact on the performance of the product.
4. Due to external variances, the plating appearance on the surface of the receptacles may differ from lot to lot.
This difference will not affect the performance of this product.

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