

Designing and Handling Guideline for CX90M-16P

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1. Revision History

Revision History	Date	Handled by	Remarks
1.0	December. 20. 2017	SY.PARK	Draft version
2.0	June. 18, 2018	MY.HAN	Release
3.0	September. 10, 2018	MY.HAN	Release

2. Introduction

2.1 Purpose

The documents is intended to provide information on product features and how to handle them. And it is are intended to provide general information and do not limit your design or guarantee results in all situations.

2.2 Scope

This Guideline describe basic design information, recommended device dimensions, and regulatory requirements. This guideline will be revised from time to time to reflect changes in technology and production capacity.

2.3 Reference Specification

- Universal Serial Bus Type-C Connectors and Cable Assemblies Compliance Document
Revision 1.1 May 28, 2016
- Universal Serial Bus Type-C Cable and Connector Specification
Revision 1.3 July 14, 2017

3. Product Information

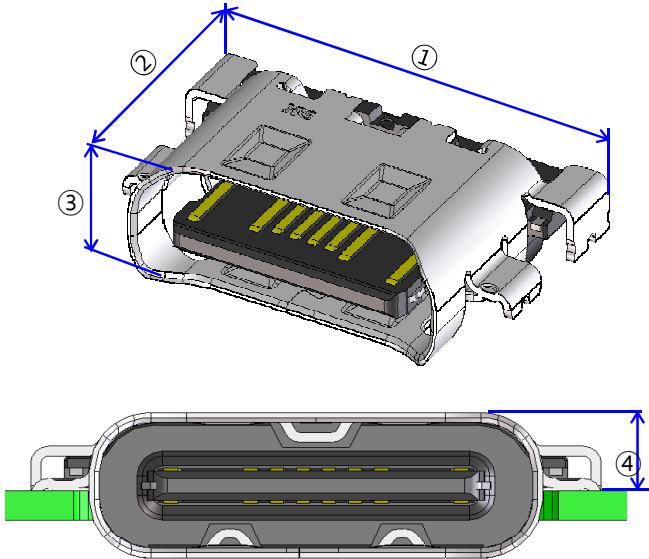
3.1 Product Feature

No. of Contacts	16
P.C.B Mounting type	Mid Mount
Soldering type	Single row SMT

3.2 Specification

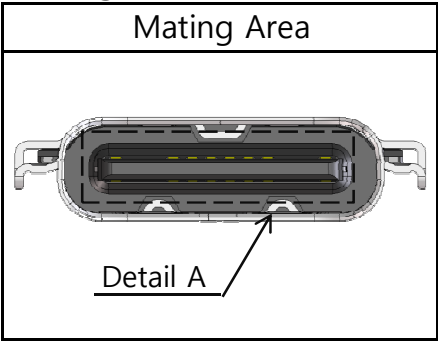
Current rating	DC 1.5A max. for Vbus & GND (i.e. A1, A4, A9, A12, B1, B4, B5, B9, B12) DC 0.25A for the other pins
Voltage rating	20V AC
Operating Temperature	-40 °C to +85 °C
Storage Condition	-10°C ~ +60°C (With Packing), 15% ~ 70% RH
Contact Resistance	40mΩ Max. (Initial)
Withstanding Voltage	100V AC for 1 minute
Insulation Resistance	100MΩ Min. (500V DC)
Mating Cycles	10,000 times
Insertion/ Extraction Force	Insertion: 5~20N, Extraction: 8~20N

3.3 Product Size

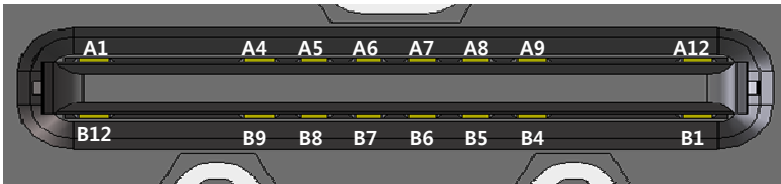


①	Width	11.00
②	Length	6.55
③	Height	2.96
④	Mounting Height	1.60

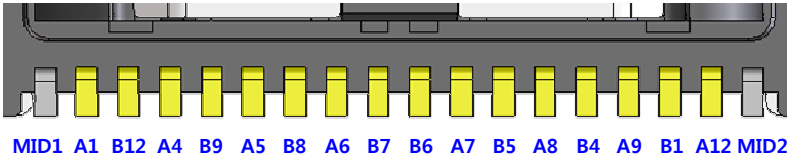
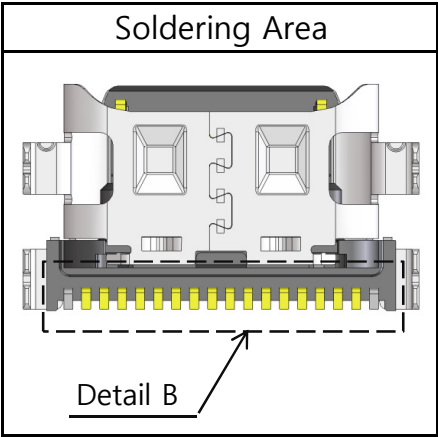
3.4 Pin Assignment



A1			A4	A5	A6	A7	A8	A9			A12
GND			Vbus	CC1	D+	D-	SBU1	Vbus			GND
GND			Vbus	SBU2	D-	D+	CC2	Vbus			GND
B12			B9	B8	B7	B6	B5	B4			B1

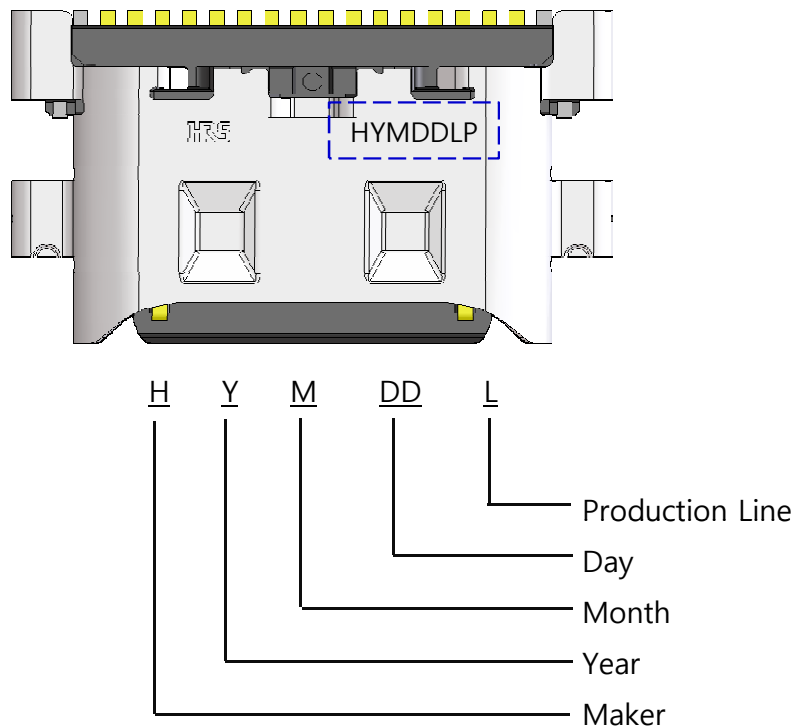


Detail A



Detail B

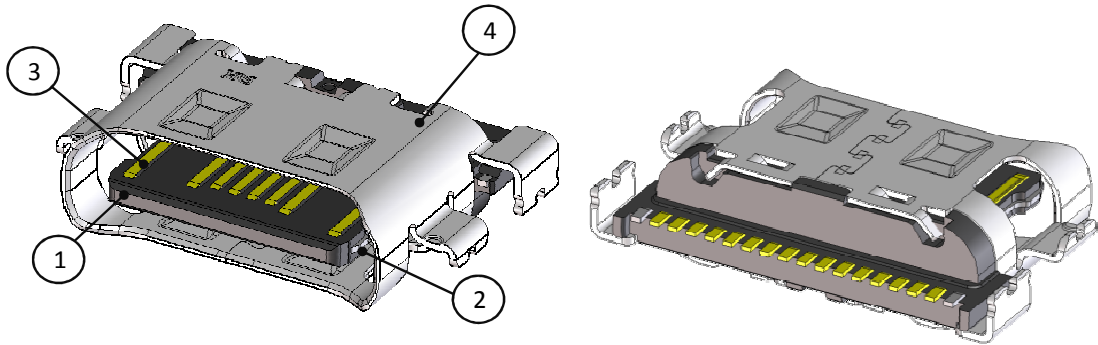
3.5 Manufacturing Date Code System



Maker		Year		Month		Day		Production Line	
Ex.	Mark	Ex.	Mark	Ex.	Mark	Ex.	Mark	Ex.	Mark
Hirose Korea	H	2017	7	Jan.	1	1st	01	SAMPLE	M
		2018	8	Feb.	2	2nd	02	MP Auto #1	1
		2019	9	Mar.	3	3rd	03	MP Auto #2	2
		2020	0	Apr.	4	4th	04	MP Auto #3	3
		2021	1	May	5	5th	05	...	...
		2022	2	Jun.	6	6th	06		
		2023	3	Jul.	7	7th	07		
		2024	4	Aug.	8	8th	08		
		2025	5	Sep.	9	9th	09		
		2026	6	Oct.	A	10th	10		
		...	...	Nov.	B	11th	11		
		...	...	Dec.	C	...	...		

3.6 Part List

No	Part	Materials	Color / Finish
1	Insulator	Thermal Plastic	UL94V-0, Black Color
2	Mid Plate	Stainless Steel (0.15t)	Nickel Plating
3	Contact	Copper Alloy (0.12t)	Contact Area: Gold Flash over Palladium-Nickel over Nickel Solder Tail: Gold Flash over Nickel
4	Main Shell	Stainless Steel (0.2t)	Nickel Plating

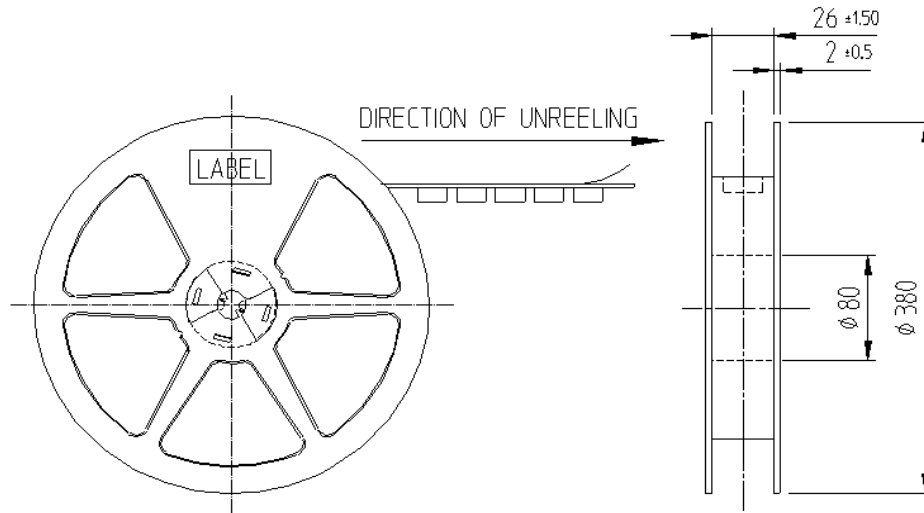


3.7 Configuration of Product Name

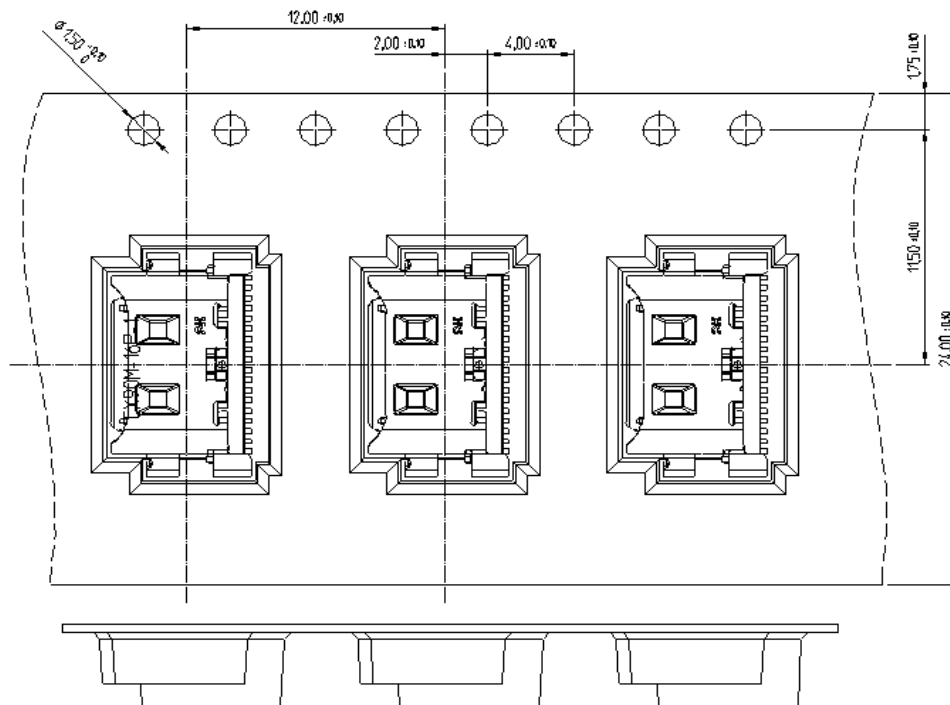
CX 90 M - 16 P
① ② ③ ④ ⑤

① Series Name		CX
② Soldering Type	60	Paddle Card
	70	Right angle Hybird (SMT+Dip)
	90	Right angle SMT
③ Mounting Type	B	Top-mount
	M	Mid-Mount
④ Contact No		16
⑤ Contact Type	P	Receptacle (Male contacts)
	S	Plug (Female contacts)

3.8 Reel Dimensions



3.9 Emboss Carrier Tape Dimensions

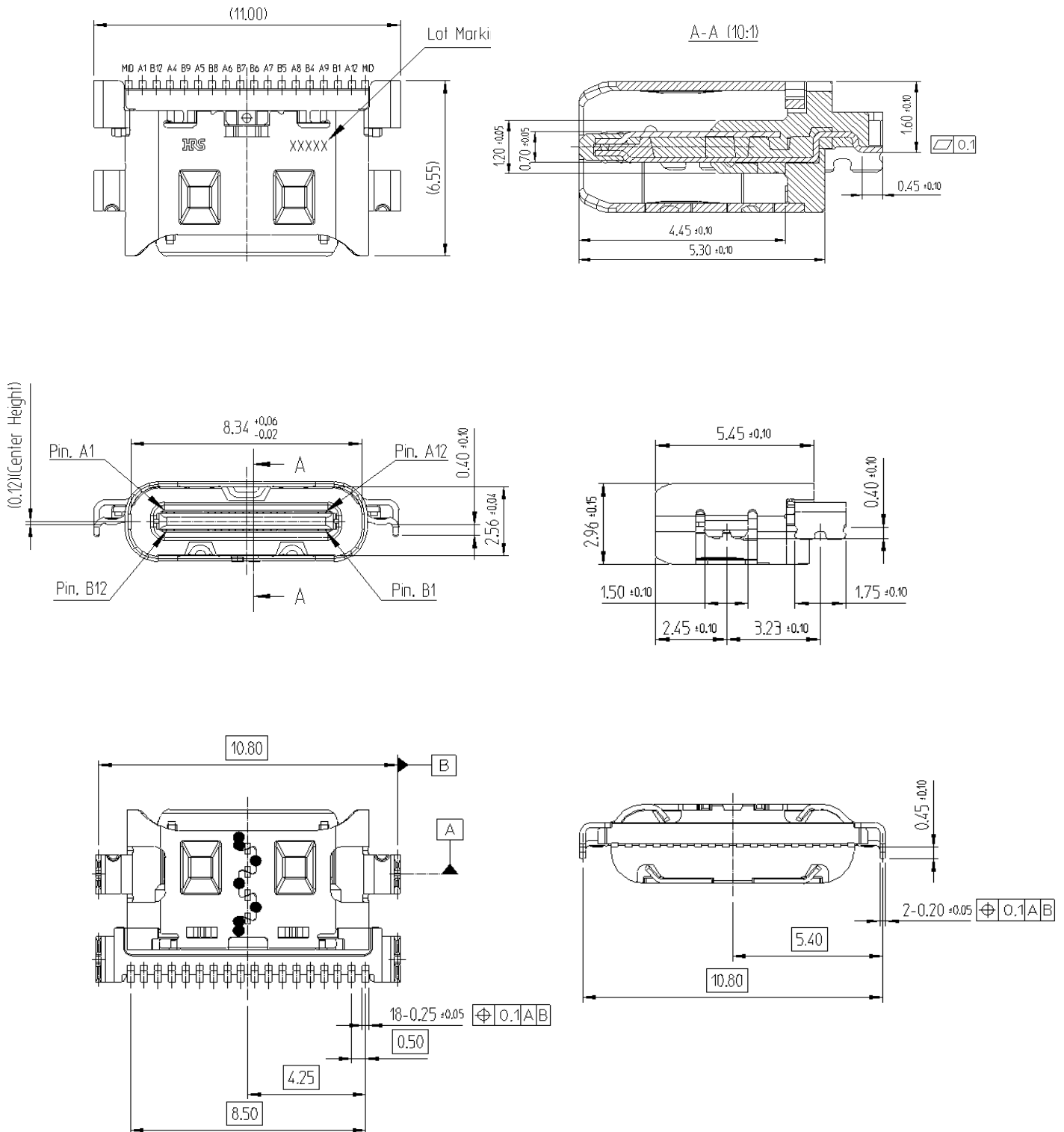


※ Emboss Tape was designed in accordance with EIA-481

3.10 Packing Quantity Per Reel: 1,600PCS

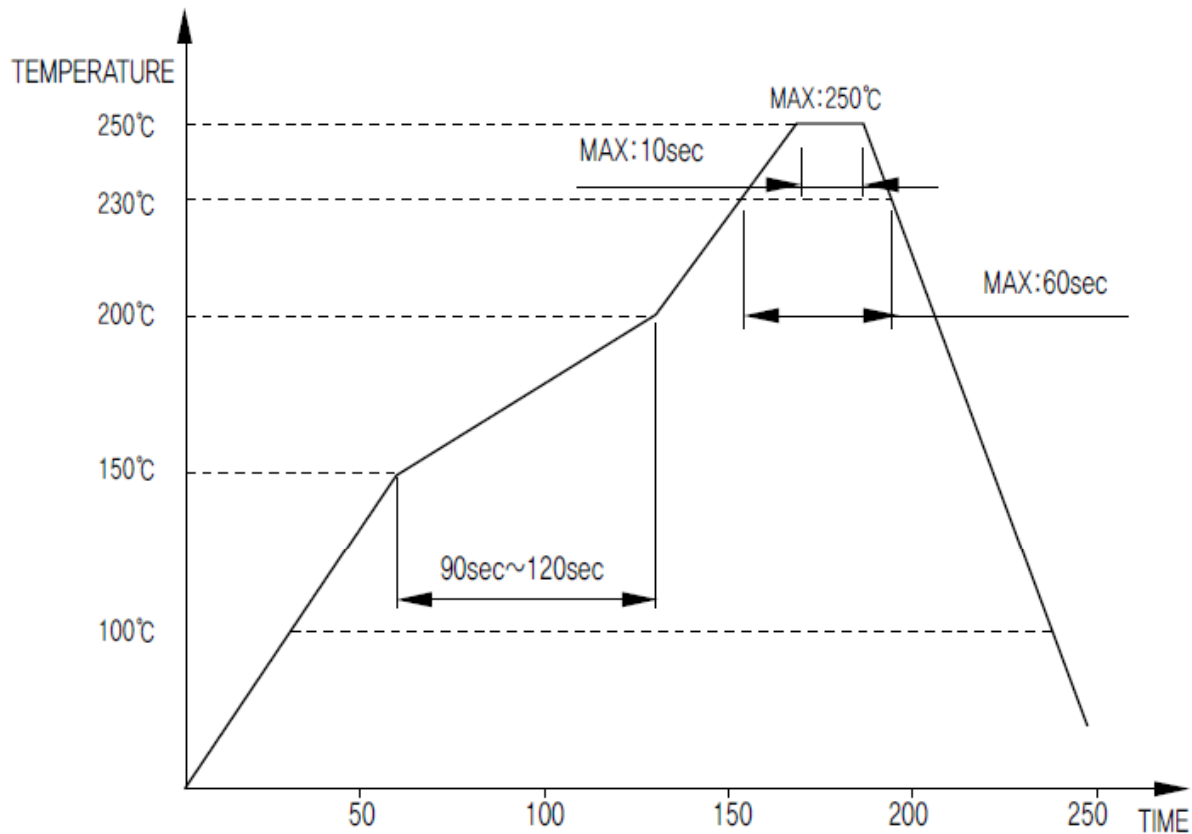
3.11 Peeling Strength:

3.12 Product Dimensions



4. Notice for Soldering

4.1 Recommended Reflow Temperature Profile

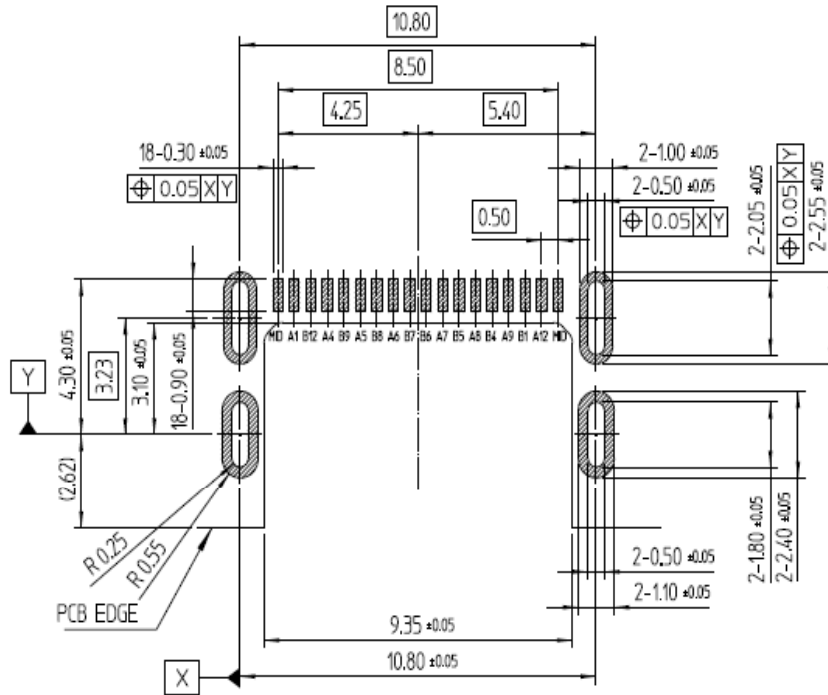


- Profile measuring point
The temperature profile indicates the board surface temperature at the point of contacts with the connector terminals.
- Reflow cycles
Up to 2 cycles of reflow soldering are possible under the same conditions.
* Temperature between 1st and 2nd reflow must be cooled down to room temperature
- Reflow heating method and condition
Far-infrared heater and hot convective blowers used in combination, normal atmosphere, or nitrogen atmosphere..
- Top surface of the contact leads may not be covered by solder depending on reflow condition

4.2 PCB Designing

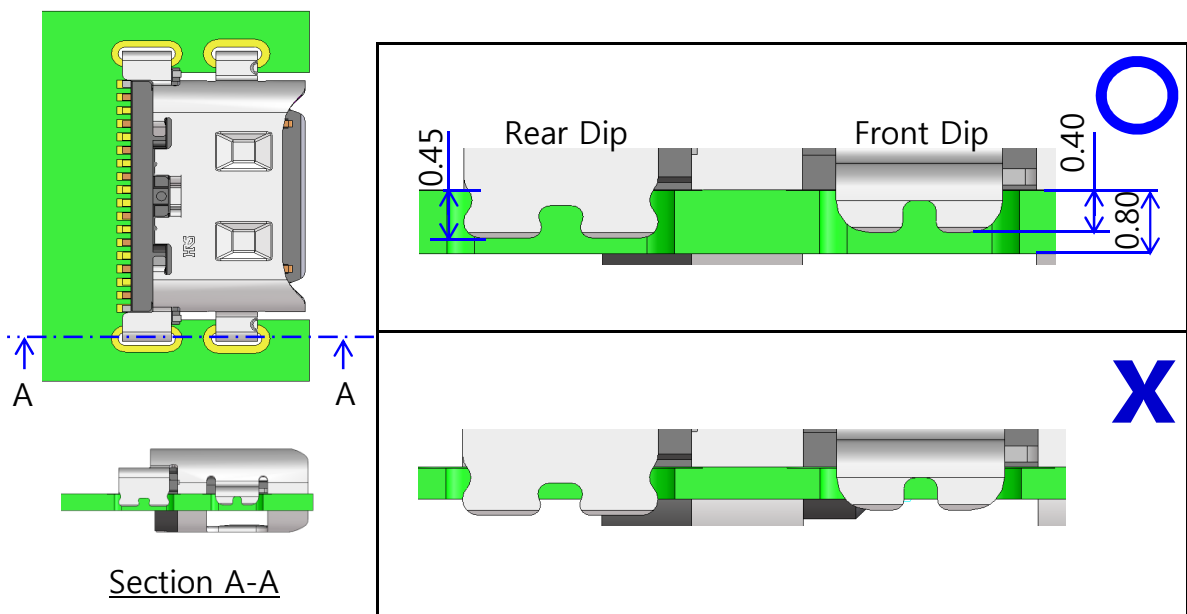
RECOMMENDED PCB LAYOUT (TOP-VIEW)

(REFERENCE ONLY)



4.3 PIP (Place In Paste)

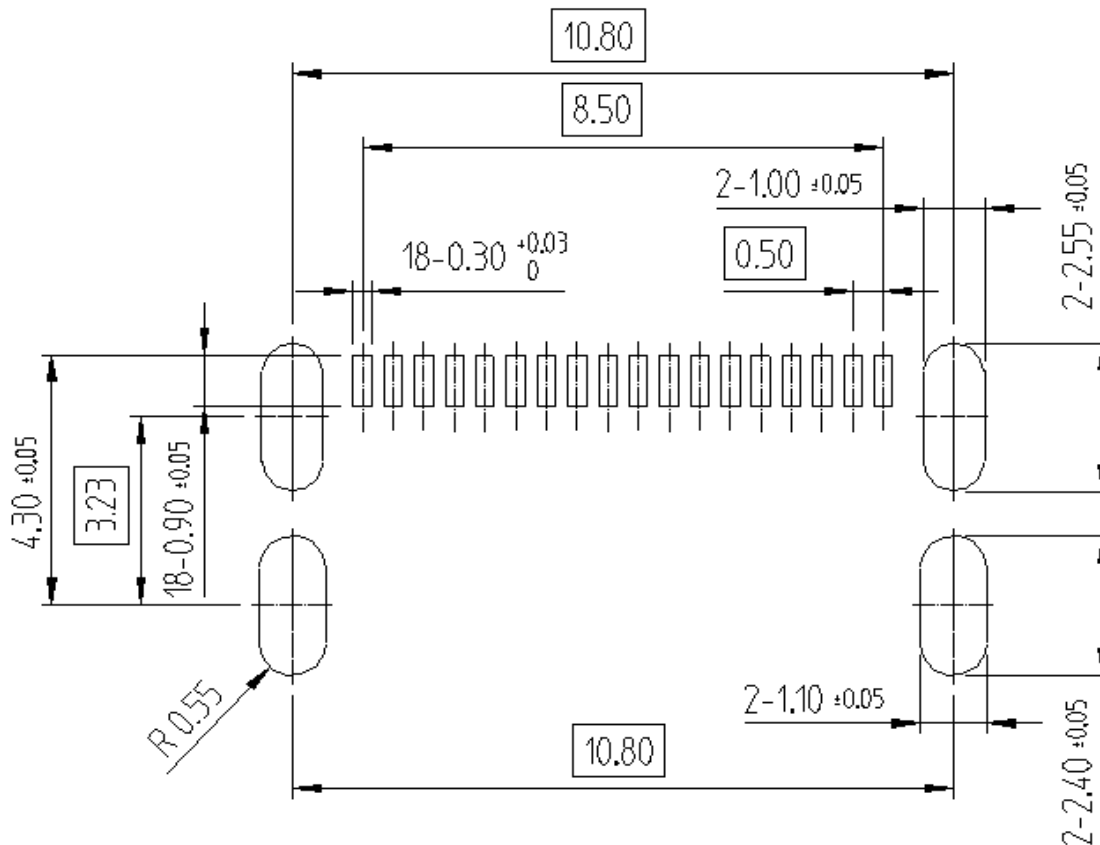
Recommended PCB thickness is 0.8mm or over considering 0.45mm PIP leg length



4.4 Metal Mask Designing

RECOMMENDED METAL MASK LAYOUT (TOP-VIEW)

(REFERENCE ONLY)



- **Metal mask thickness: 0.10mm**
- Open rate: 100%

$$\text{Open rate(\%)} = \frac{\text{Opening size of mask}}{\text{Land size of PCB}}$$

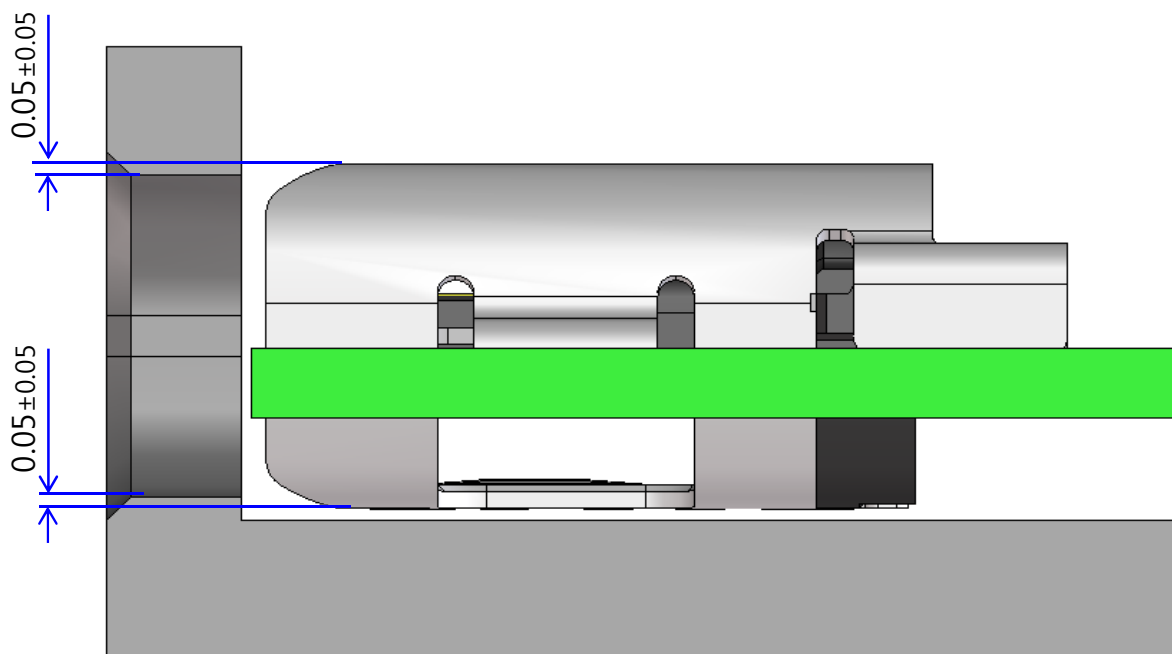
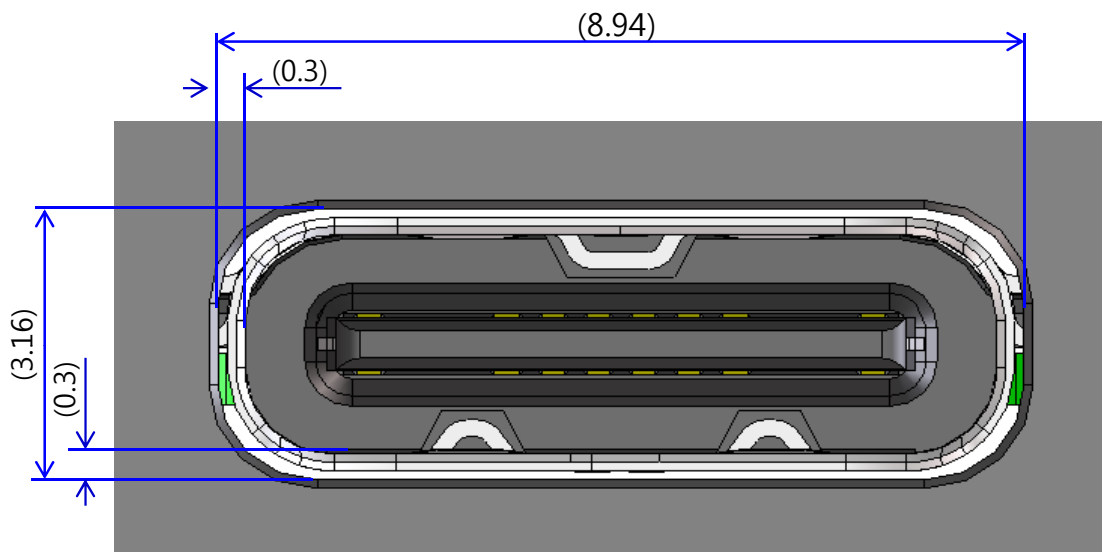
4.5 Solder Paste

Lead-free solder paste

5. Notice For Device Design

5.1 Device Guideline for Designing

This dimensions are the USB Type-C standard dimensions that must be adhered to in device design.



6. Notice for Connector Handling

6.1 Mating Plug

Please use USB Type-C Plug only

