USER GUIDE
for CX81B-24S*

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1. Revision History

Revision	Date	Handled by	Description of revisions
0.1	Jan., 15, 2024	S.K.JANG	Draft version release.

2. Introduction

2.1 Purpose

The guidelines are intended to provide information on product features and how to handle them.

Guidelines are intended to provide general information and do not limit your design or guarantee results in all situations.

2.2 Scope

Guidelines describe basic design information, recommended device dimensions, and regulatory requirements.

These guidelines will be revised from time to time to reflect changes in technology and production capacity.

2.3 Reference Specification

- Universal Serial Bus Type-C Cable and Connector Specification
  Revision 2.1 May 2021

3. Product Information

3.1 Product Feature

1) Vertical type USB Type-C Plug Connector
2) 5A current rating for quick charging.
3) USB4 Gen2x2 (10Gbps x2) transmission.
4) Improved peeling strength using 6 THR* mounting posts.
   * Through-Hole-Reflow
5) Reversible plug orientation ensures easy insertion.

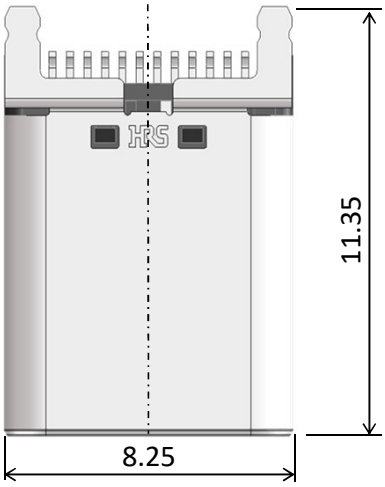
3.2 Specification

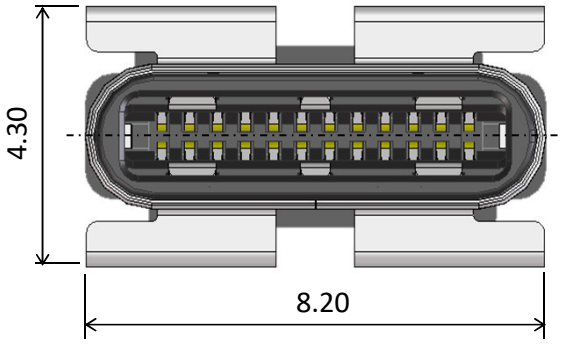
No. of Contacts	24	
P.C.B Mounting type	Vertical Top-Mount	
Soldering type	Dual row SMT	
Current rating	1.25A Max. for each power pin(A1, A4, A9, A12, B1, B4, B9, B12), 1.25A Max. Vconn(i.e. B5) 0.25A for the other pins	
Voltage rating	48V AC/DC	
Operating Temperature	-40℃ ~ +105℃ (Including Temp.rise), 95% RH MAX	
Storage Condition	-10℃ ~ +60℃ (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	With Latch Lock	Insertion: 5~20N, Extraction: 8~20N (Initial), 6~20N (After test)
	Without Latch Lock	N/A

Note

* Storage conditions apply to original packaging only, void if opened. Warranty period is 12month max. in the storage conditions above and calculated by manufacture date

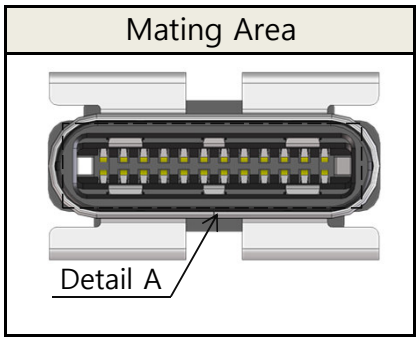
3.3 Product Size

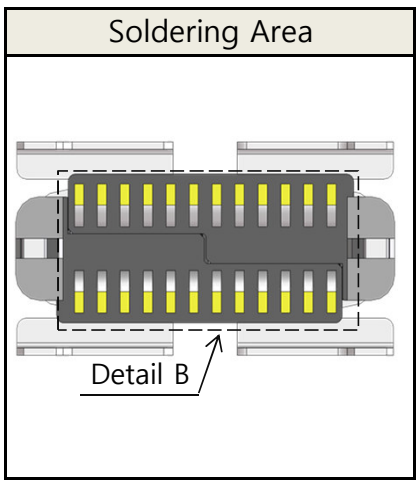


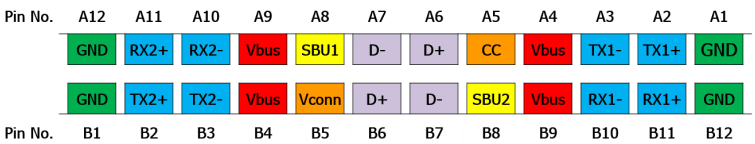


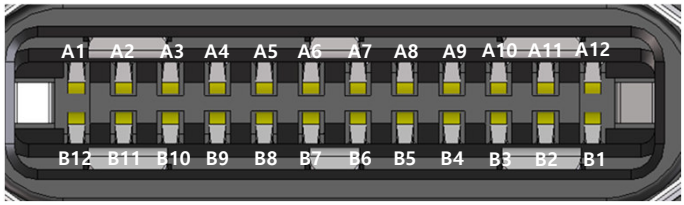
Width	8.25
Depth	4.30
Height	11.35

3.4 Pin Assignment

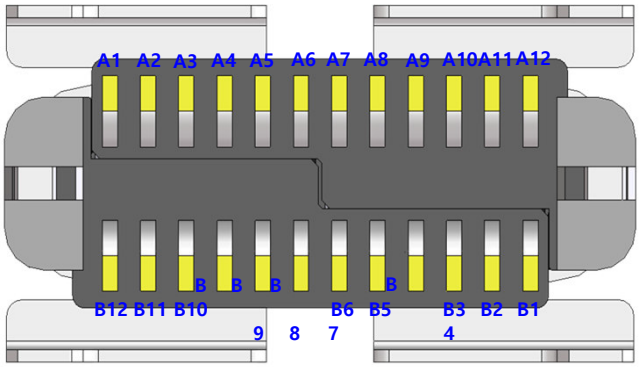






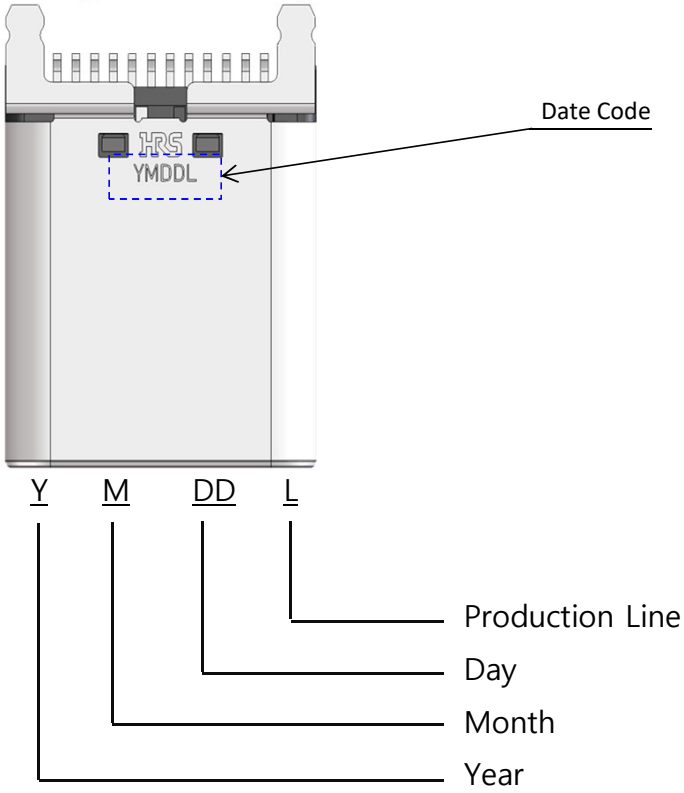


Detail A



Detail B

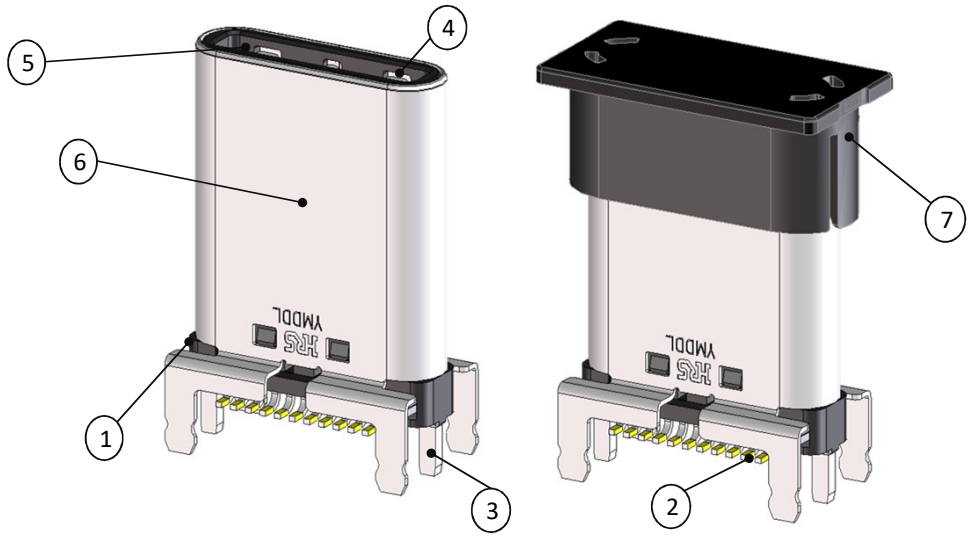
3.5 Manufacturing Date Code System



Year		Month		Day		Production Line	
Ex.	Mark	Ex.	Mark	Ex.	Mark	Ex.	Mark
2020	0	Jan.	1	1st	01	SAMPLE	S
2021	1	Feb.	2	2nd	02	Manual #1	1
2022	2	Mar.	3	3rd	03	Manual #2	2
2023	3	Apr.	4	4th	04	Manual #3	3
2024	4	May	5	5th	05	Manual #4	4
2025	5	Jun.	6	6th	06	...	...
2026	6	Jul.	7	7th	07	Auto #1	A
2027	7	Aug.	8	8th	08	Auto #2	B
2028	8	Sep.	9	9th	09	Auto #3	C
2029	9	Oct.	A	10th	10	Auto #4	D
2030	0	Nov.	B	11th	11	Auto #5	E
...	...	Dec.	C	...	...	...	...

3.6 Part List

No	Part	Materials	Finish / Color
1	INSERT CASE	Thermoplastic	UL94V-0, Black Color
2	CONTACT	Copper Alloy	Contact, Lead Area : Gold over Nickel plated Non-Contact Area : Nickel plated
3	LOCK SPRING	Stainless Steel	Nickel plated
4	GND SPRING	Stainless Steel	Nickel plated
5	HOUSING	Thermoplastic	Nickel plated
6	METAL SHELL	Stainless Steel	Nickel plated
7	CAP	Thermoplastic	Black Color

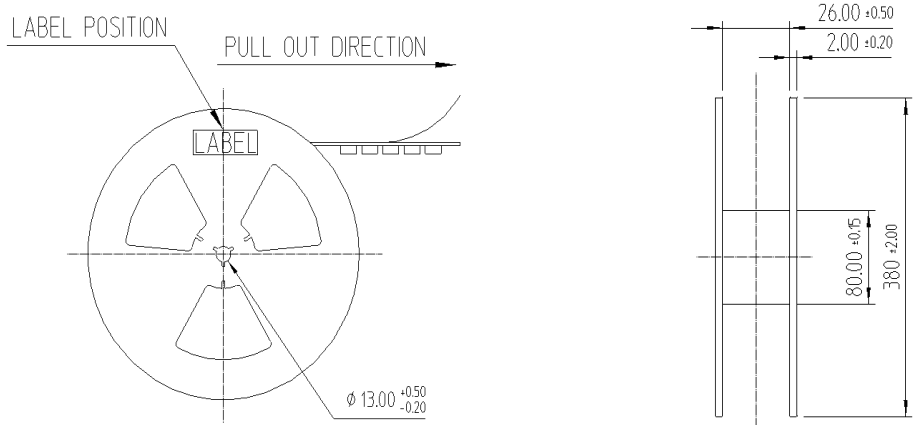


3.7 Configuration of Product Name

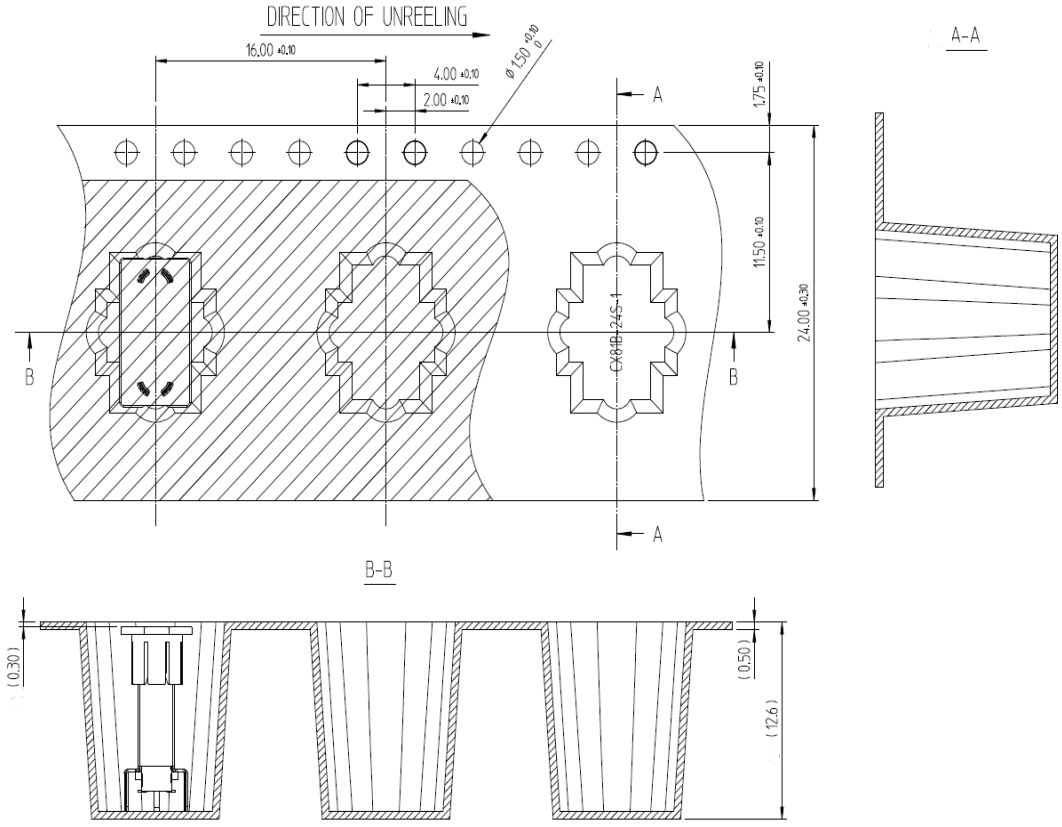
CX ① 81 ② B ③ - 24 ④ S ⑤ * ⑥

①	Series Name	CX	CX Series
②	Soldering Type	81	Vertical SMT
③	Mounting Type	M	Top-mount
④	Contact No	24	24 position
⑤	Contact Type	S	Female contacts
⑥	Serial No.	Blank	With Latch Lock structure
		1	Without Latch Lock structure

3.8 Reel Dimensions



3.9 Emboss Carrier Tape Dimensions



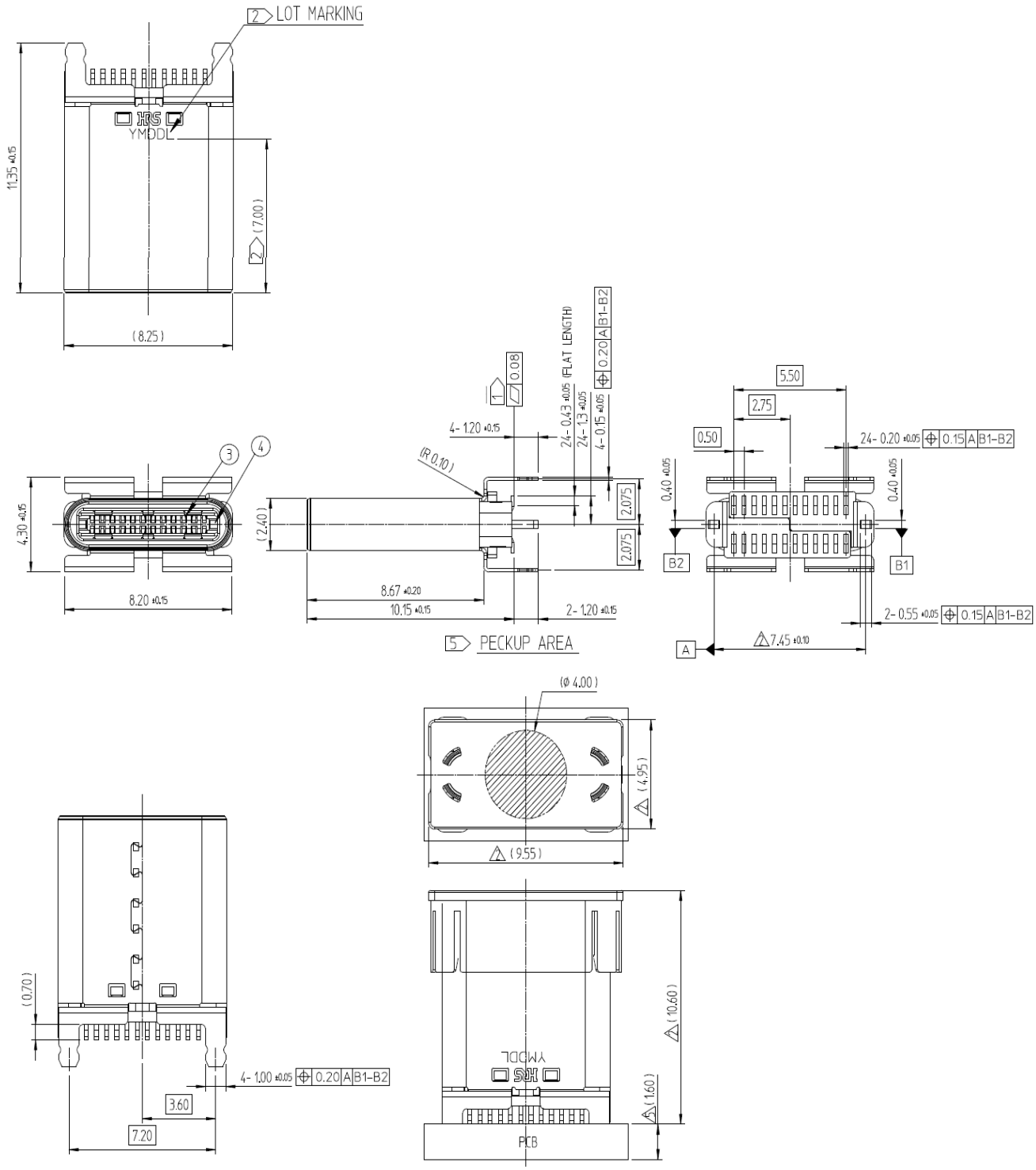
※ Emboss Tape was designed in accordance with EIA-481

3.10 Packing Quantity Peer Reel: 400 PCS

3.11 Peeling Strength:

Cover tape shall have a total peel strength of from 0.1N to 1.3N

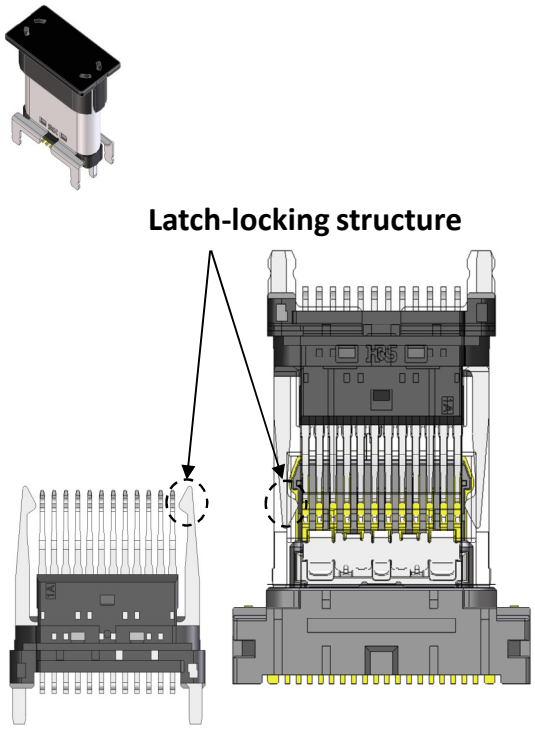
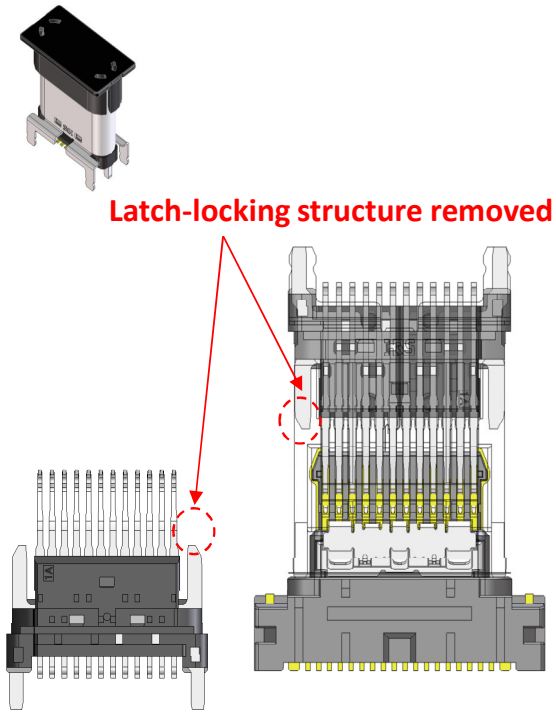
3.12 Product Dimensions



Note

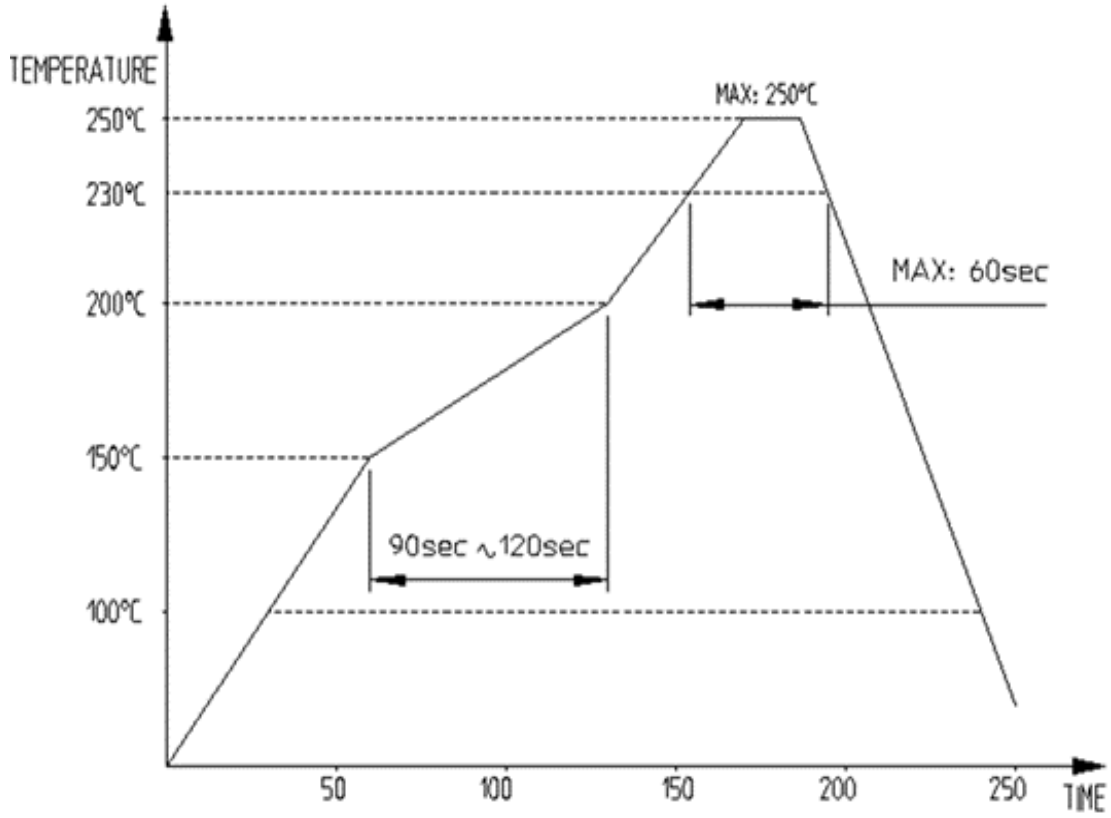
* Specifications herein are subjected to change without notice. Please see the latest drawing to confirm the detail.
* General tolerance : ±0.2

3.13 Product Comparison

Part Name	CX81B-24S	CX81B-24S1
Status	Latch Locking structure	Latch Locking structure removed
Image		

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
* Temperature between 1st and 2nd reflow must be cooled down to room temperature

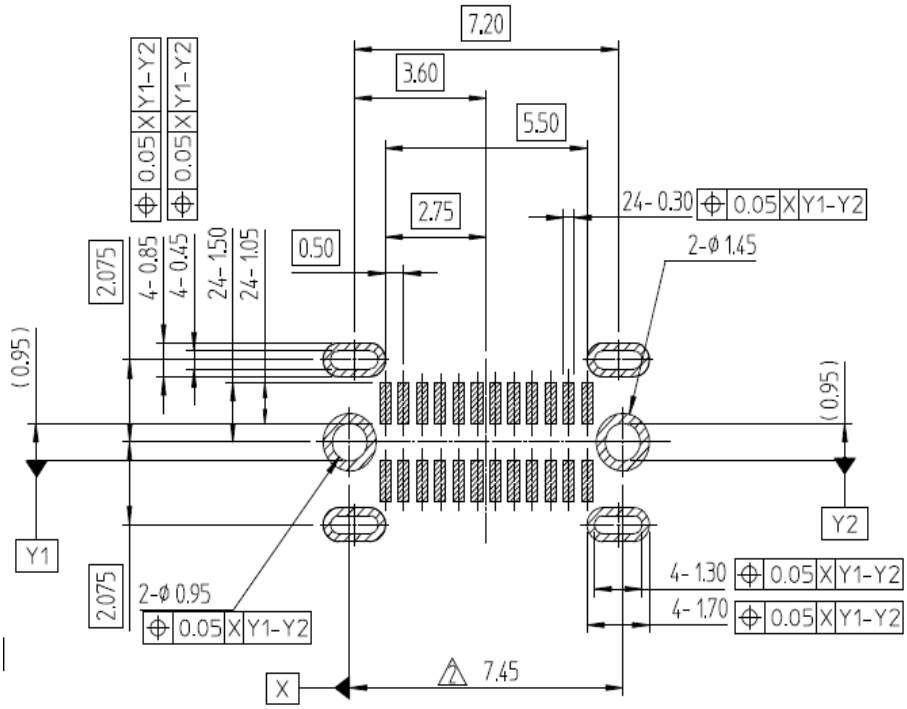
• Reflow heating method and condition
Far-infrared heater and hot convective blowers used in combination,
normal atmosphere, or nitrogen atmosphere.

• Top surface of the contact leads may not covered by solder depending on reflow condition

4.2 PCB Designing

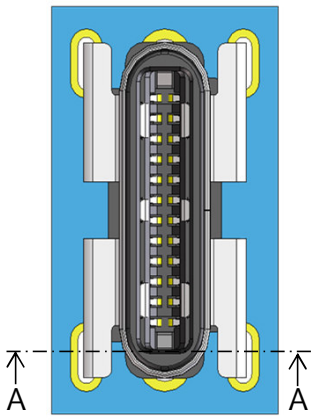
RECOMMENDED PCB LAYOUT (TOP-VIEW)

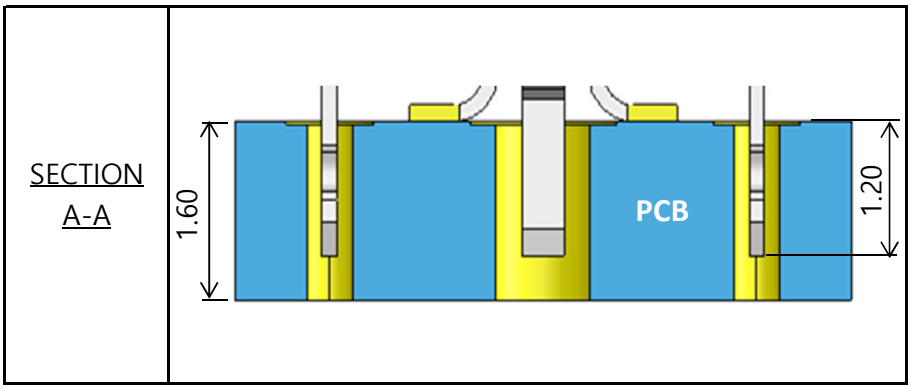
(REFERENCE ONLY)



4.3 PCB Thickness

Recommended PCB thickness is 1.60±0.05mm considering 1.20±0.15mm of THR leg length.

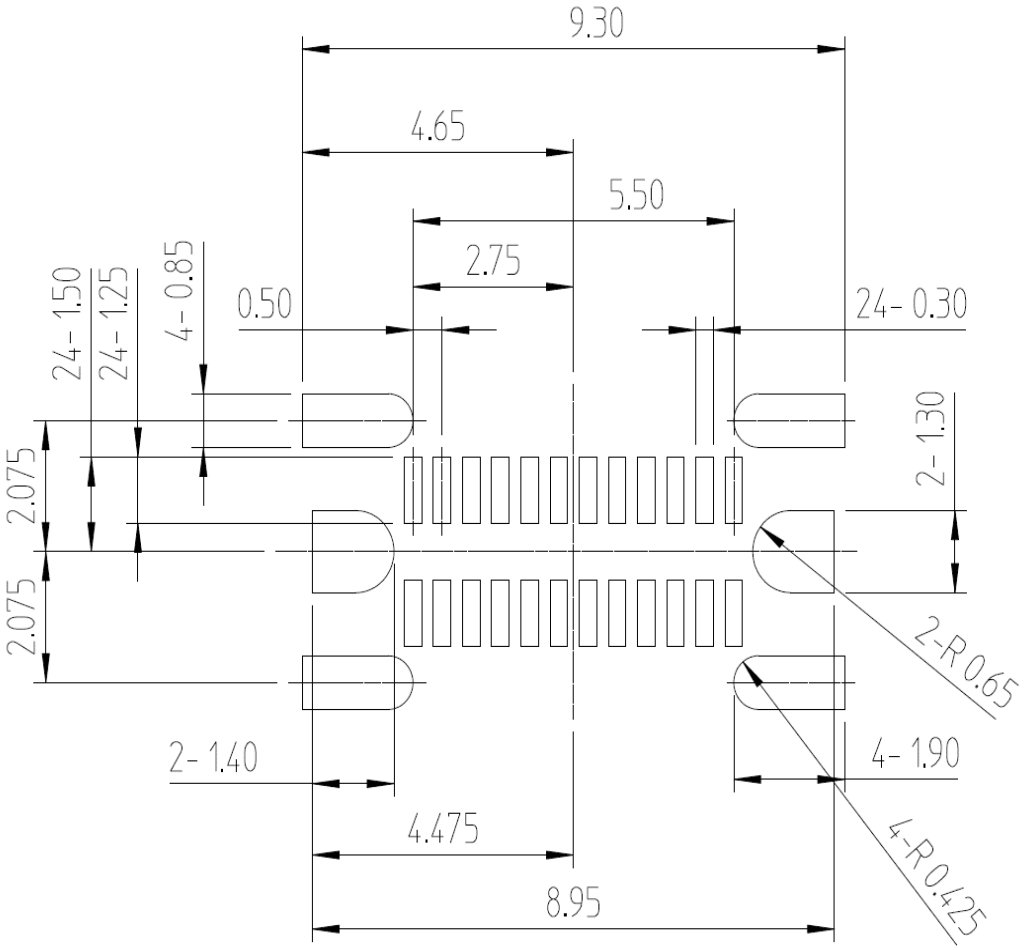




The THR legs can be protruded to the bottom side of PCB in case the
PCB thickness is less than the THR leg length.

4.4 Metal Mask Designing

RECOMMENDED METAL MASK LAYOUT (TOP-VIEW)



Note

* Recommended metal mask thickness is 0.12mm. Above metal mask dimensions are suggested based on 1.60mm of PCB thickness. Please adjust the metal mask opening size in case of thicker PCB than recommended because the lack of solder amount at the PIP holes can be happened.

4.5 Solder Paste

Lead-free solder paste