



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.

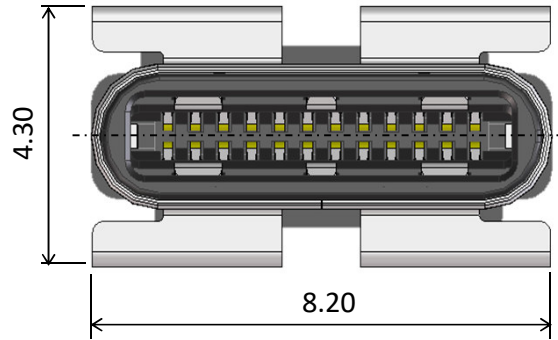
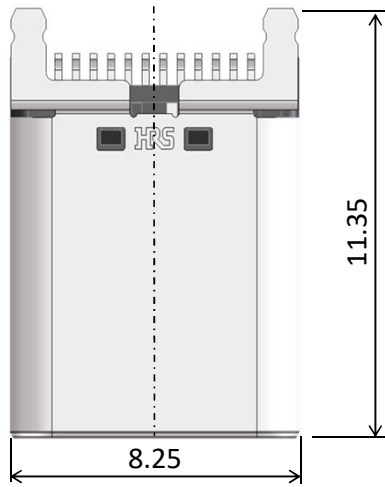
3.2 Specification

| | | |
|-----------------------------|--|---|
| 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°C ~ +105°C (Including Temp.rise), 95% RH MAX | |
| 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 | With Latch Lock | Insertion: 5~20N, Extraction: 8~20N (Initial), 6~20N (After tact) |
| | Without Latch Lock | N/A |

Note

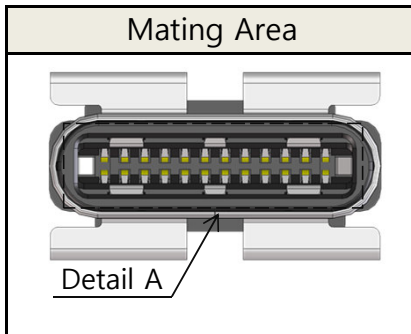
- * Storage conditions apply to original packaging only, void if opened. Warranty period is 12month max. in the storage conditions above and calculated by manufacture date

3.3 Product Size

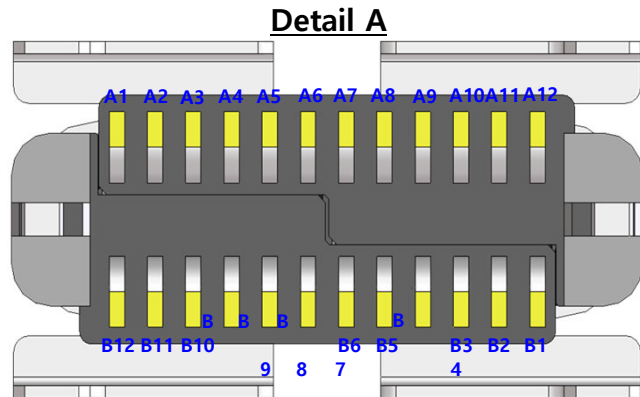
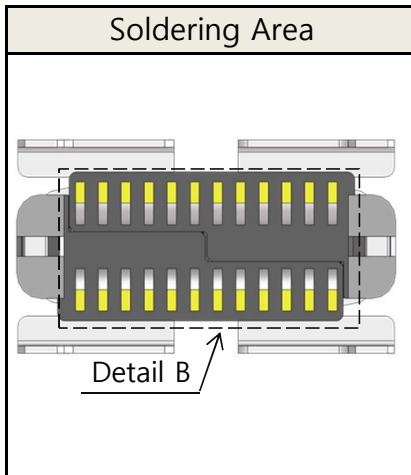
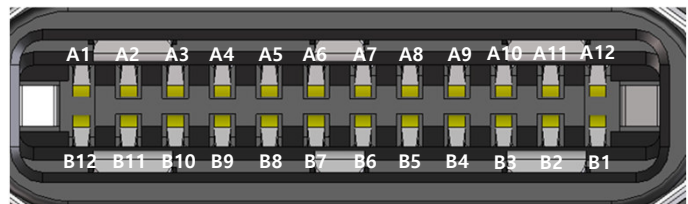


| | |
|--------|-------|
| Width | 8.25 |
| Depth | 4.30 |
| Height | 11.35 |

3.4 Pin Assignment

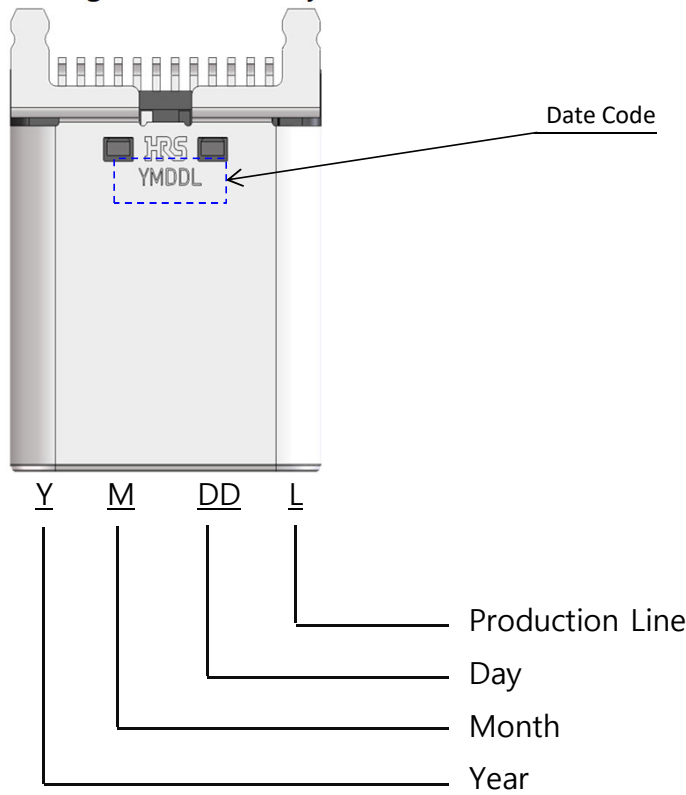


| | | | | | | | | | | | | |
|---------|-----|------|------|------|-------|----|----|------|------|------|------|-----|
| Pin No. | A12 | A11 | A10 | A9 | A8 | A7 | A6 | A5 | A4 | A3 | A2 | A1 |
| | GND | RX2+ | RX2- | Vbus | SBU1 | D- | D+ | CC | Vbus | TX1- | TX1+ | GND |
| | GND | TX2+ | TX2- | Vbus | Vconn | D+ | D- | SBU2 | Vbus | RX1- | RX1+ | GND |
| Pin No. | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 |



Detail B

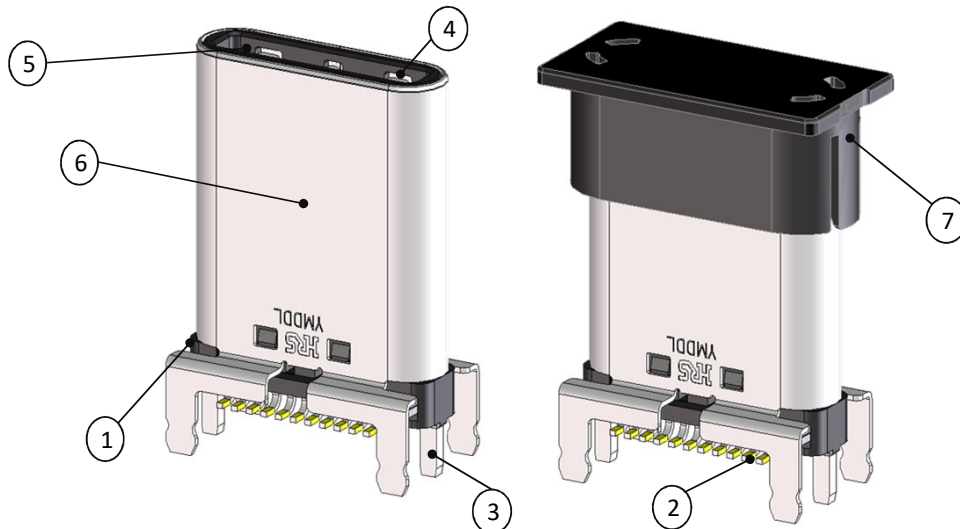
3.5 Manufacturing Date Code System



| 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 |

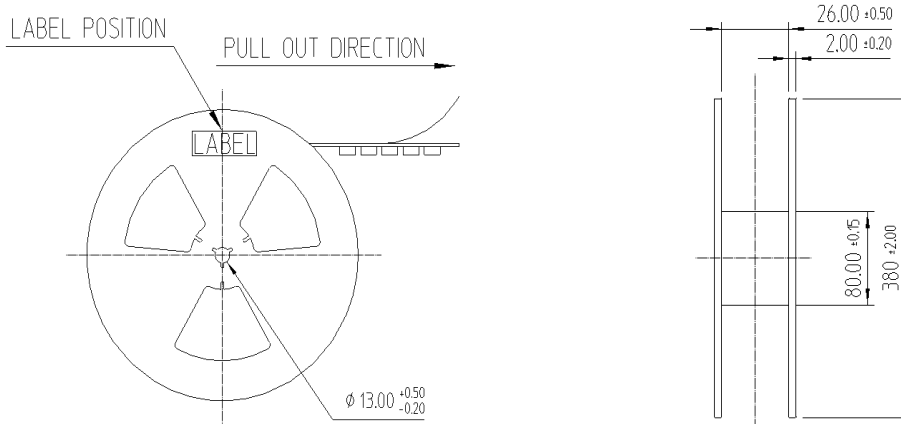


3.7 Configuration of Product Name

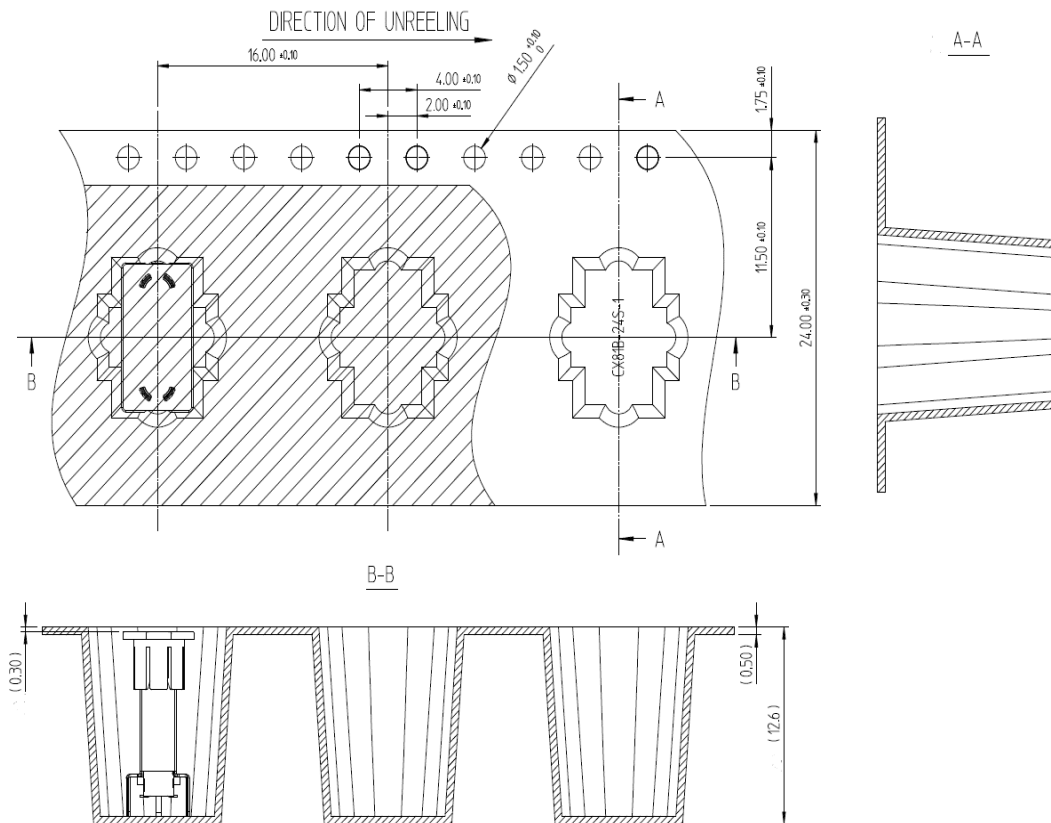
CX 81 B - 24 S *
 (1) (2) (3) (4) (5) (6)

| | | | |
|---|----------------|-------|------------------------------|
| 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



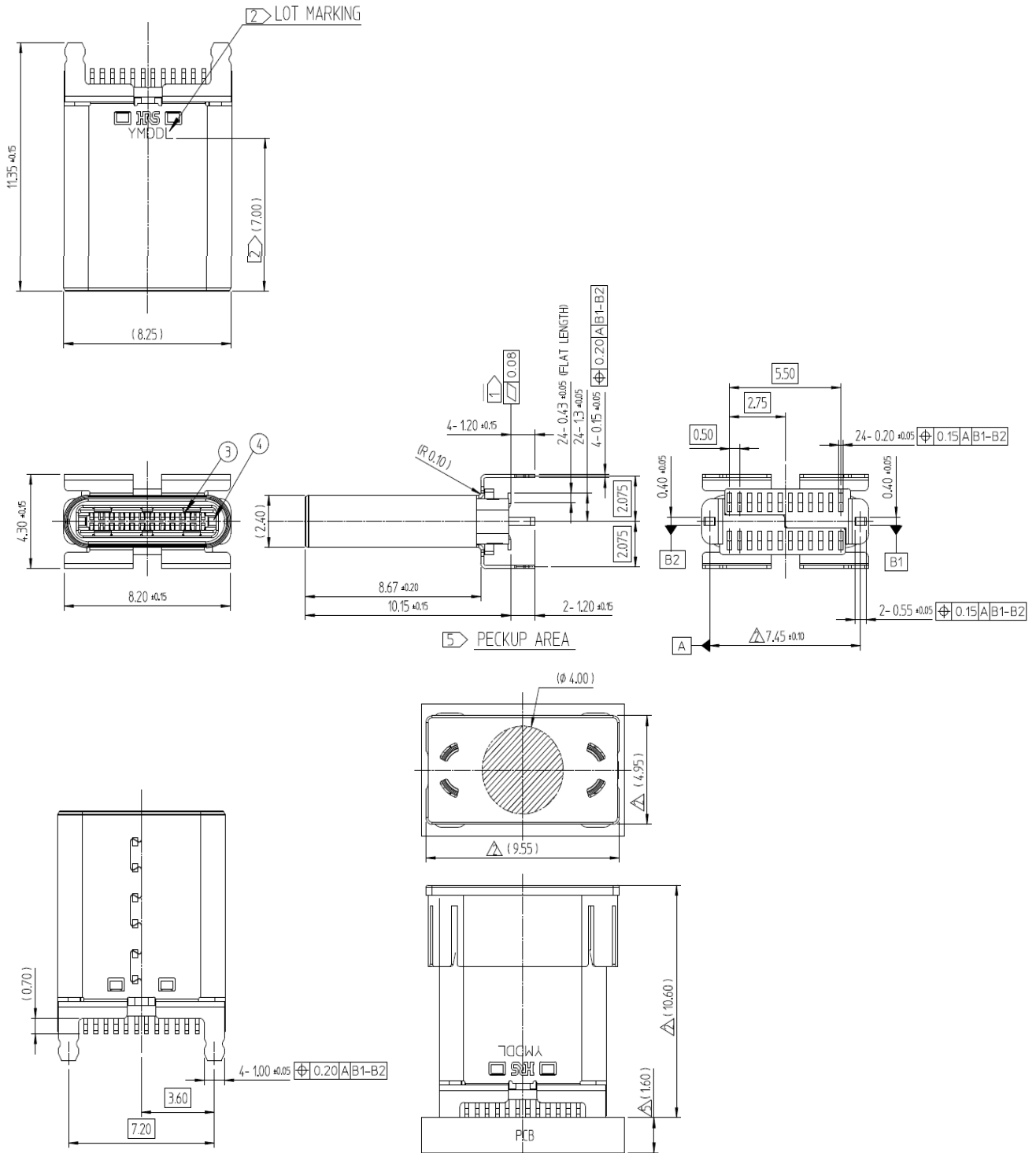
※ Emboss Tape was designed in accordance with EIA-481

3.10 Packing Quantity Per 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

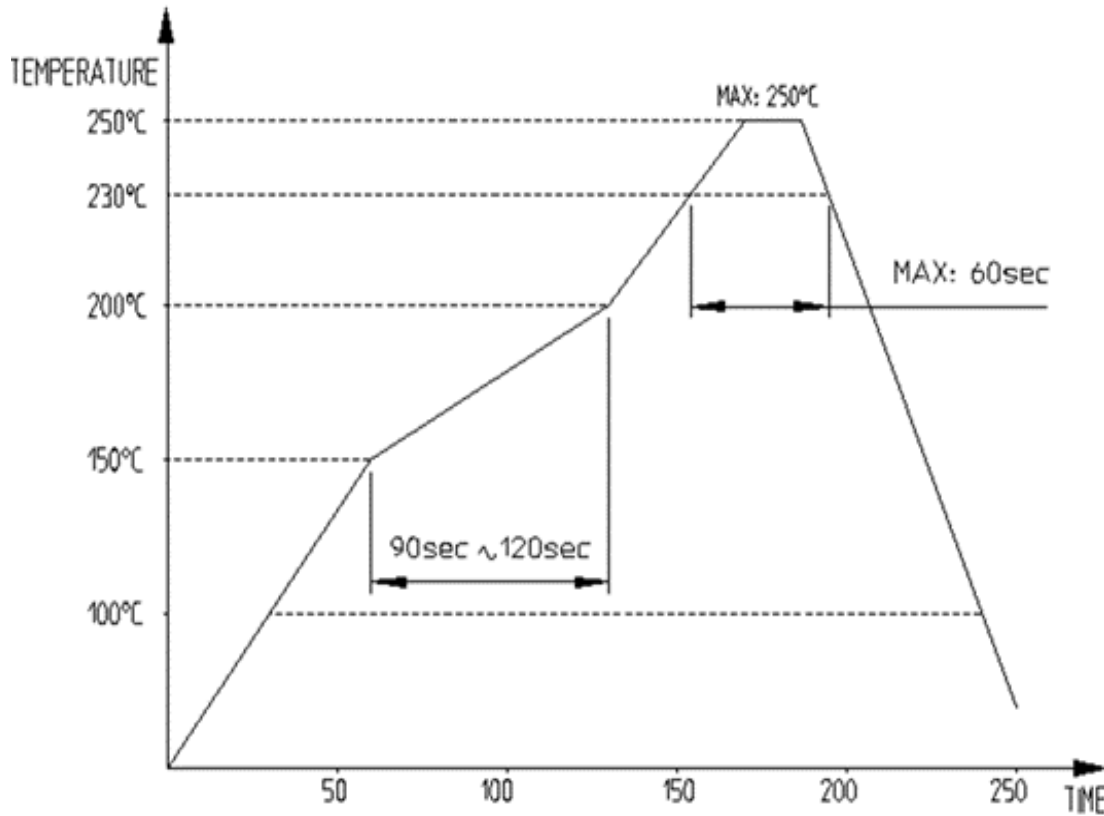
- * Specifications herein are subjected to change without notice. Please see the latest drawing to confirm the detail.
- * General tolerance : ± 0.2

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

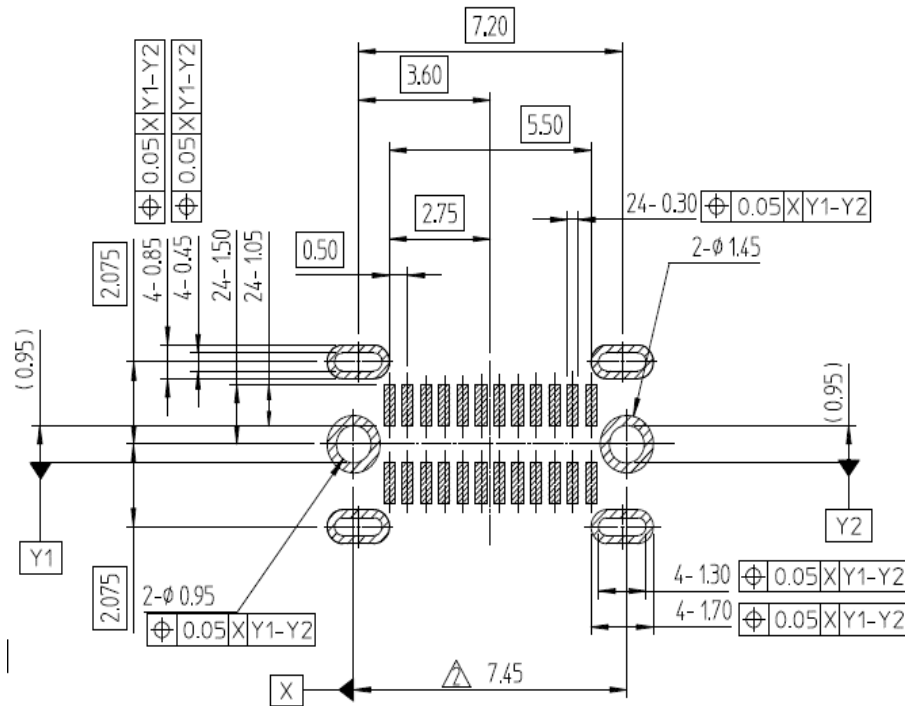


- Profile measuring point
The temperature profile indicates the board surface temperature at the point of contacts with the connector terminals.
- Reflow cycles
Up to 2 cycles of reflow soldering are possible under the same
* Temperature between 1st and 2nd reflow must be cooled down to room temperature
- 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

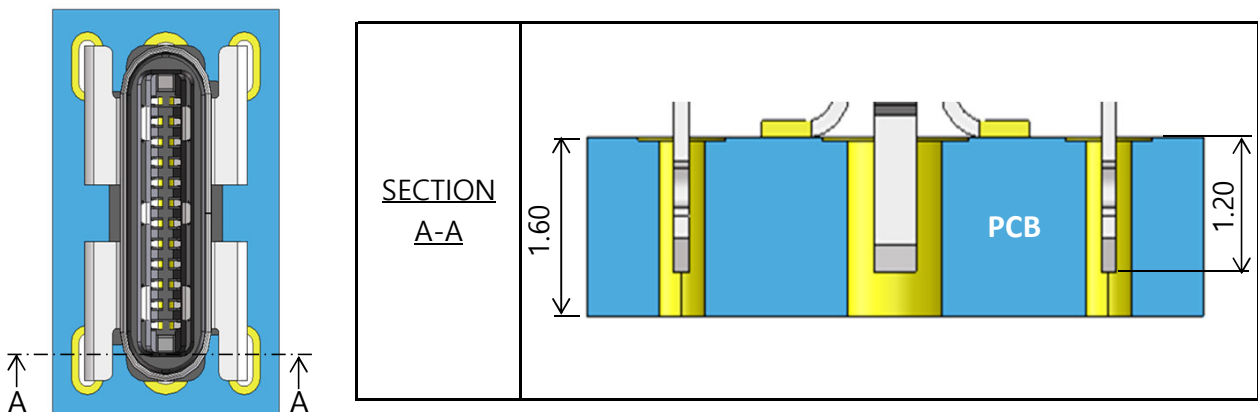
RECOMMENDED PCB LAYOUT (TOP-VIEW)

(REFERENCE ONLY)



4.3 PCB Thickness

Recommended PCB thickness is 1.60 ± 0.05 mm considering 1.20 ± 0.15 mm 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.

