

# **Designing and Handling Guidline for CX60-24S-1000-CD/CS**

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## 1. Revision History

| Revision History | Date                | Handled by | Remarks       |
|------------------|---------------------|------------|---------------|
| 1.0              | Feburary. 04. 2020  | SK.JANG    | Draft version |
| 2.0              | September. 23. 2020 | SK.JANG    | Revised       |
|                  |                     |            |               |
|                  |                     |            |               |

## 2. Introduction

### 2.1 Purpose

This document defines the guidelines to design a product with CX60-24S-1000-CD and CX60-24S-1000-CS. And it is intended to provide reference information but do not limit the design of user and gurantee the result from the reference information herein.

### 2.2 Scope

This guideline is intended as a supplement to the existing the product specification.

### 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, 2016

### 3. Connector Information

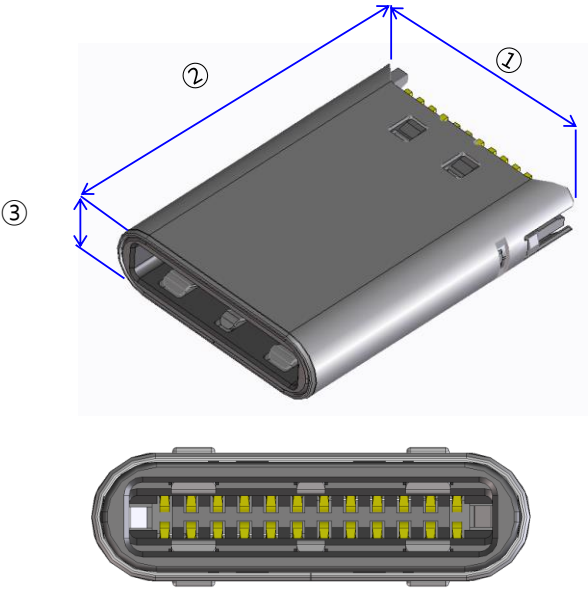
#### 3.1 Connctor Feature

|                     |             |
|---------------------|-------------|
| No. of Contacts     | 24          |
| P.C.B Mounting type | Paddle Card |
| Soldering type      | SMT         |

#### 3.2 Specification

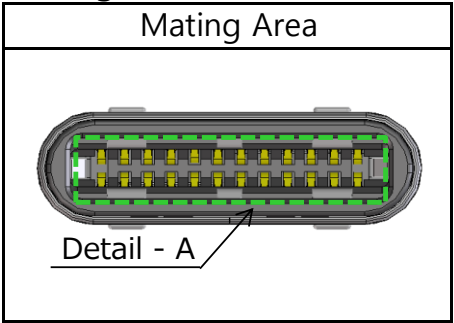
|                             |                                                                                                                 |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------|
| Current rating              | DC 1.25 A max. for each power pin<br>(i.e. A1, A4, A9, A12, B1, B4, B5, B9, B12)<br>DC 0.25A for the other pins |
| Voltage rating              | 20V AC                                                                                                          |
| Operating Temperature       | -30°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 Size

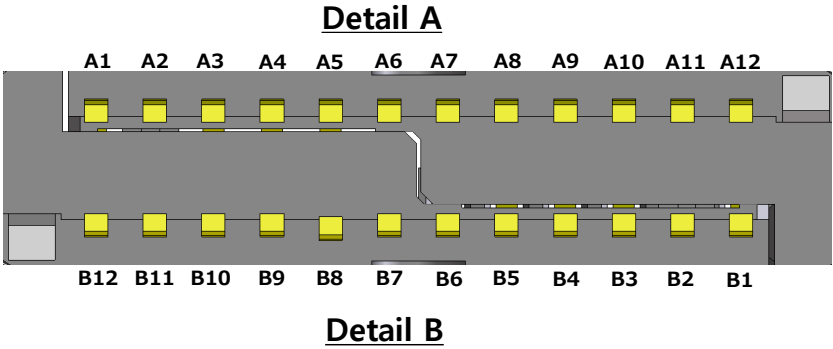
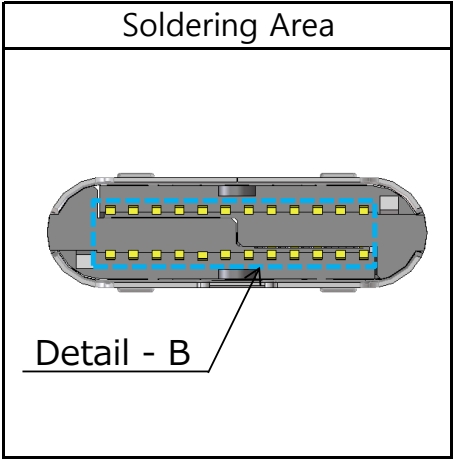
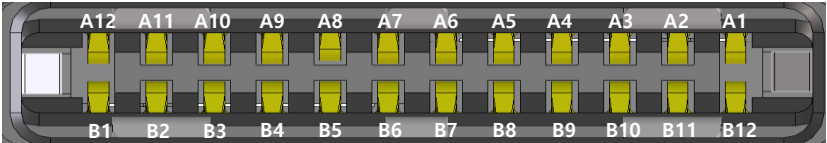


|   |        |       |
|---|--------|-------|
| ① | Width  | 8.25  |
| ② | Length | 11.10 |
| ③ | Height | 2.40  |

3.4 Pin Assignment

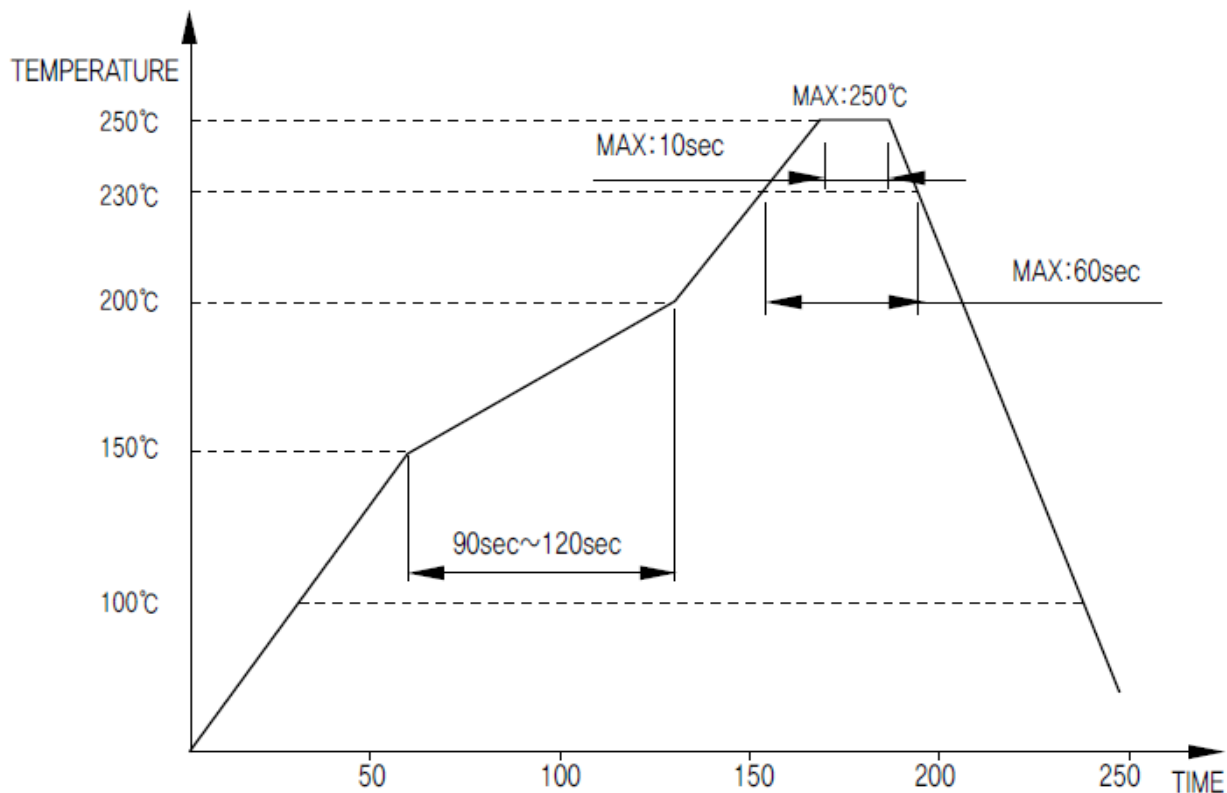


|     |      |      |      |      |    |    |      |      |      |      |     |
|-----|------|------|------|------|----|----|------|------|------|------|-----|
| A1  | A2   | A3   | A4   | A5   | A6 | A7 | A8   | A9   | A10  | A11  | A12 |
| GND | TX1+ | TX1- | Vbus | CC1  | D+ | D- | SBU1 | Vbus | RX2- | RX2+ | GND |
| GND | RX1+ | RX1- | Vbus | SBU2 | D- | D+ | CC2  | Vbus | TX2- | TX2+ | GND |
| B12 | B11  | B10  | B9   | B8   | B7 | B6 | B5   | B4   | B3   | B2   | B1  |



## 4. Notice for Soldering

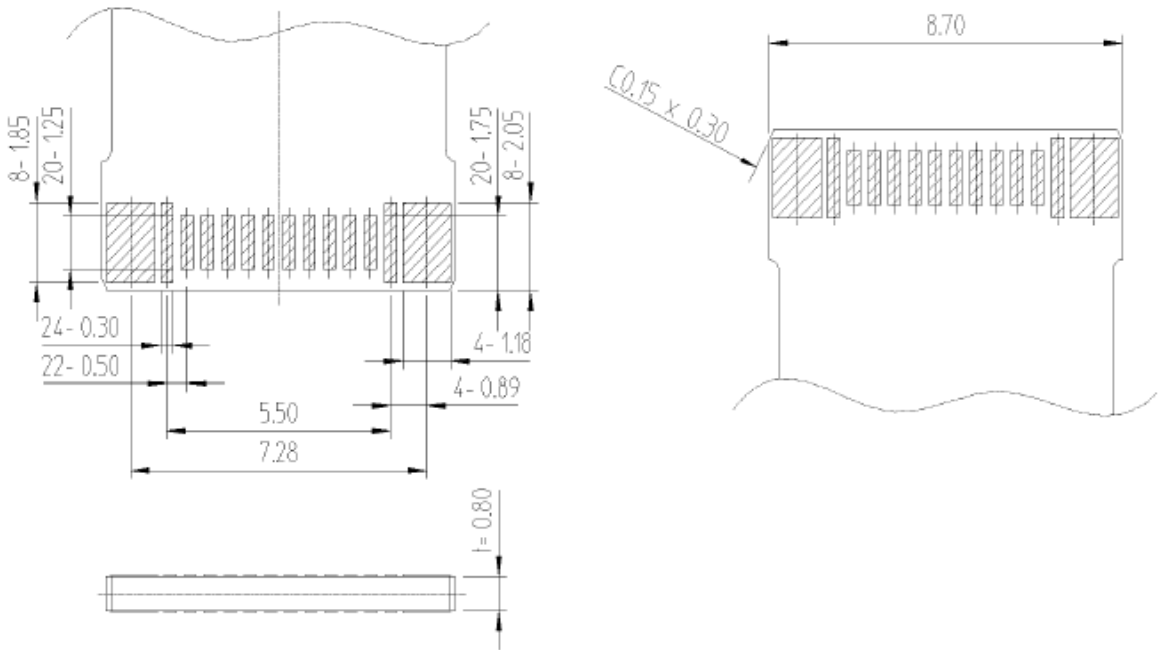
### 4.1 Recommended Reflow Temperature Profile



- 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 covered by solder depending on reflow condition

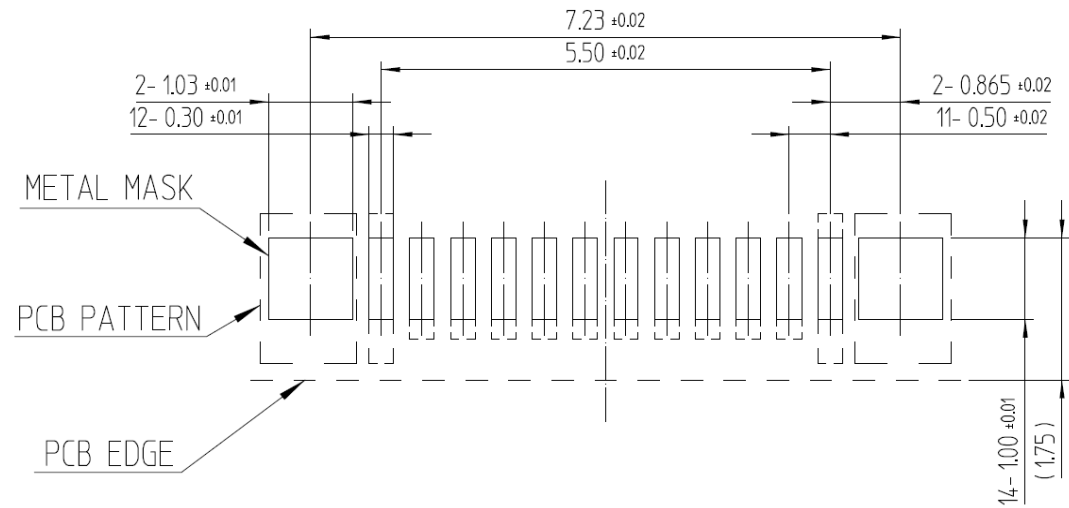
4.2 PCB Designing

RECOMMENDED PCB LAYOUT  
(General Tolerance :  $\pm 0.05$ )



4.3 Metal Mask Designing

t=0.10 / Aperture Ratio 80%



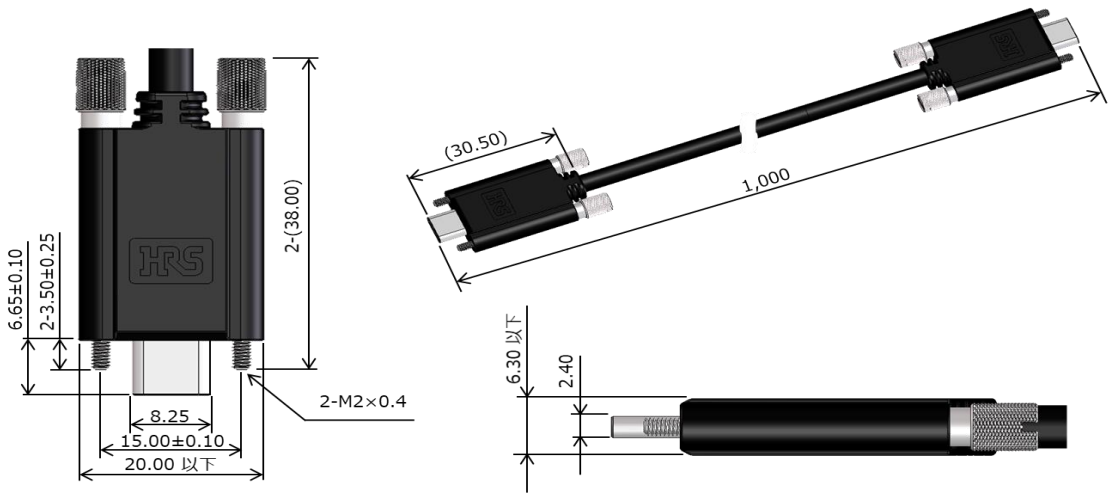
5. Cable Assembly Information

5.1 Specification

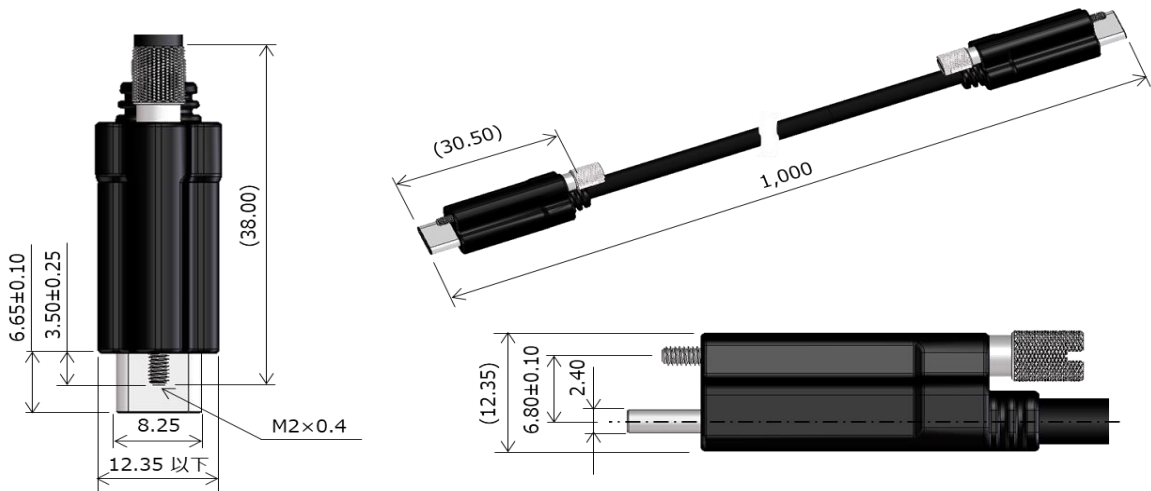
|                             |                                                                                                                 |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------|
| Current rating              | DC 1.25 A max. for each power pin<br>(i.e. A1, A4, A9, A12, B1, B4, B5, B9, B12)<br>DC 0.25A for the other pins |
| Voltage rating              | 20V AC                                                                                                          |
| Operating Temperature       | -20°C to +80°C                                                                                                  |
| Storage Condition           | -30°C ~ +80°C (With Packing), 15% ~ 70% RH                                                                      |
| Mating Cycles               | 10,000 times                                                                                                    |
| Insertion/ Extraction Force | Insertion: 5~20N, Extraction: 8~20N                                                                             |

5.2 Size

① CX60-24S-1000-CD



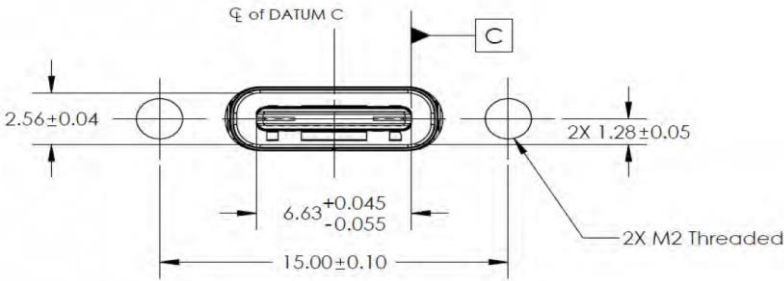
② CX60-24S-1000-CS



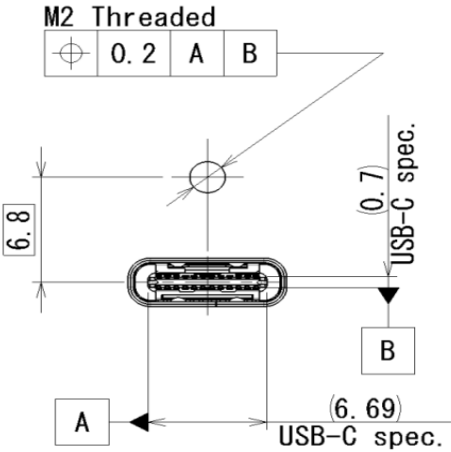


5.3 Mating Object Information

- ① Threaded Hole Location Relative Information  
(from USB Type-C Locking Connector Revision 1.0)

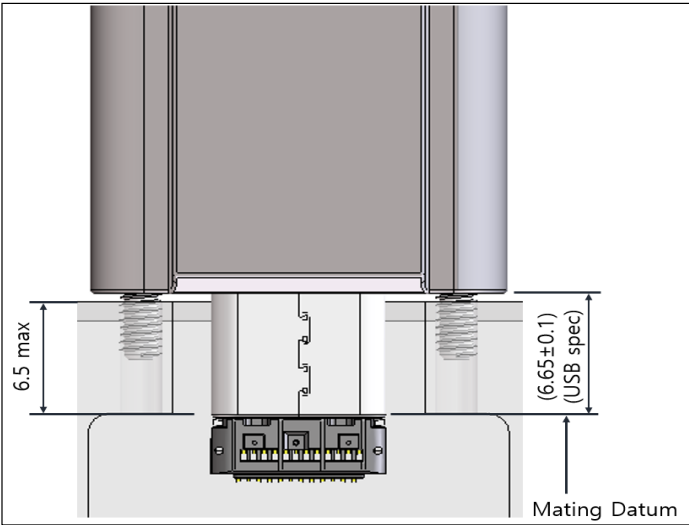


Dual Screw Specification  
(For CX60-24S-1000-CD)

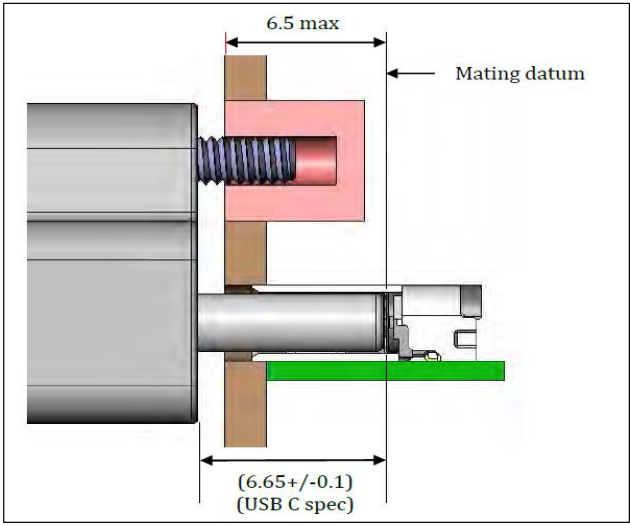


Single Screw Specification  
(For CX60-24S-1000-CD)

- ② Type-C Receptacle Positioning



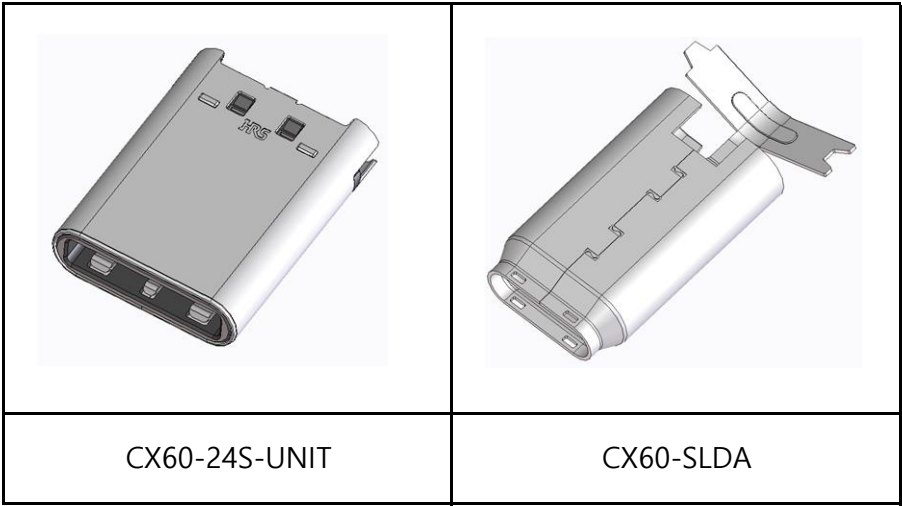
CX60-24S-1000-CD



CX60-24S-1000-CD

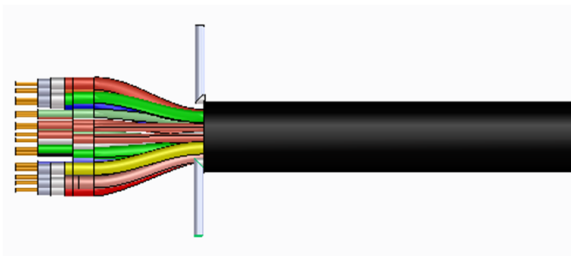
5.4 Applicable Connector

| HRS CODE      | Connector     | Use Cable |
|---------------|---------------|-----------|
| CL6240-0001-9 | CX60-24S-UNIT | -         |
| CL6240-0007-5 | CX60-SLDA     | Φ4.8      |

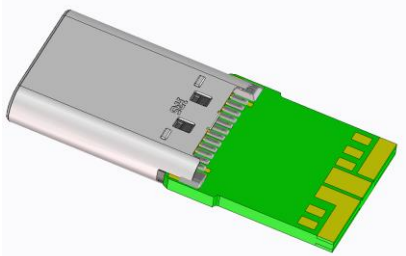


5.5 Cable Assembly Method

- ① Cable strip processing/Connector pcb mount



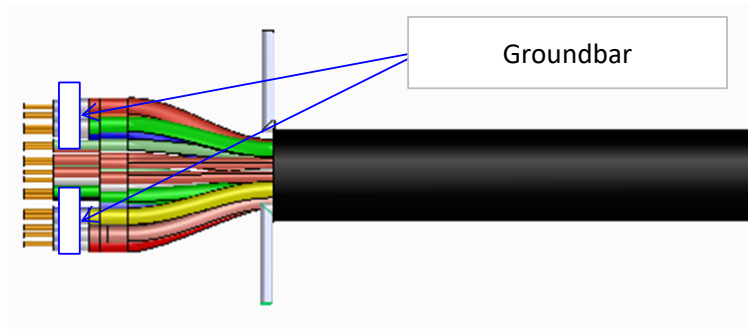
Cable



Paddle Card+Connector SMT

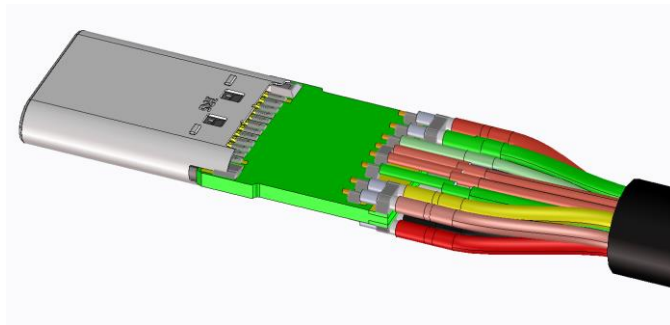
※The cable and paddle card are not provided separately.

② Groundbar attachment

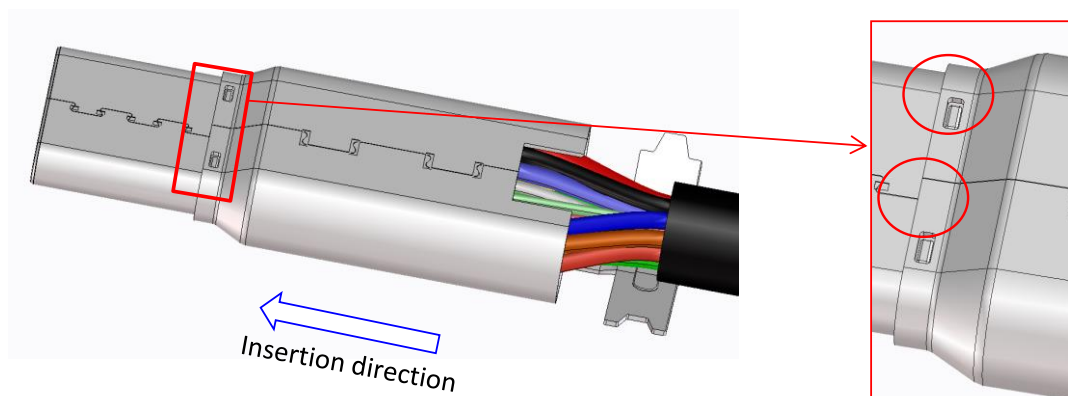


※The ground bar is not provided separately.

③ Paddle card+cable

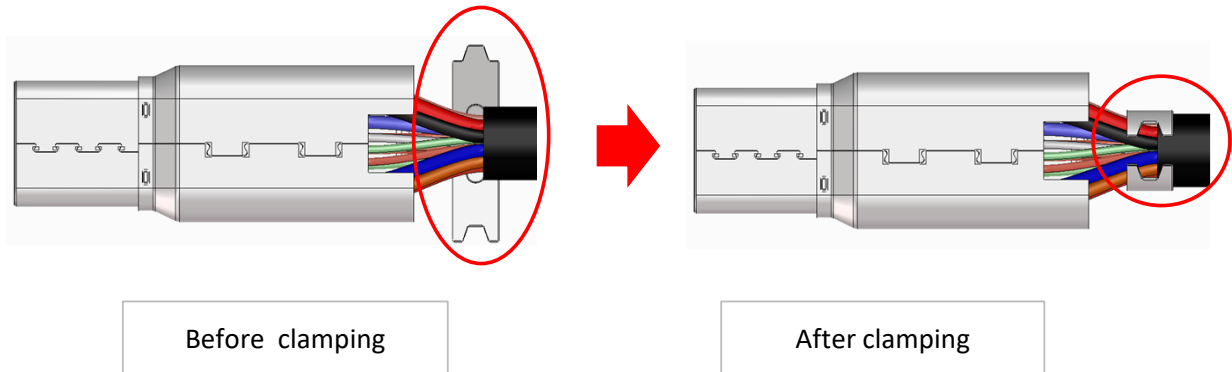


④ Back shell assembly

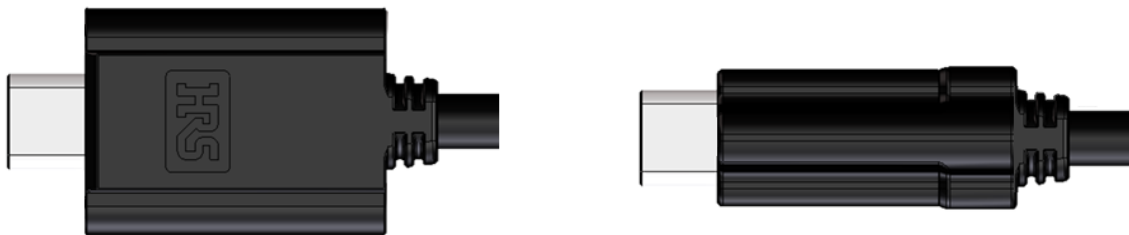


※The back shell should be locked securely after inserted.

⑤ Back shell clamping



⑥ Over molding



⑦ Assembly Screw



CX60-24S-1000-CD



CX60-24S-1000-CS