Designing and Handling Guideline for AU1-Series

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TECHNICAL-SPECIFICATION	SIGN	WRITTEN	DESIGNED	CHECKED	APPROVED	RELEASED
		M.Y.HAN 23.03.08	M.Y.HAN 23.03.08	S.M.LIM 23.03.08	S.M.LIM 23.03.08	ENG 25.10.24 DEPT

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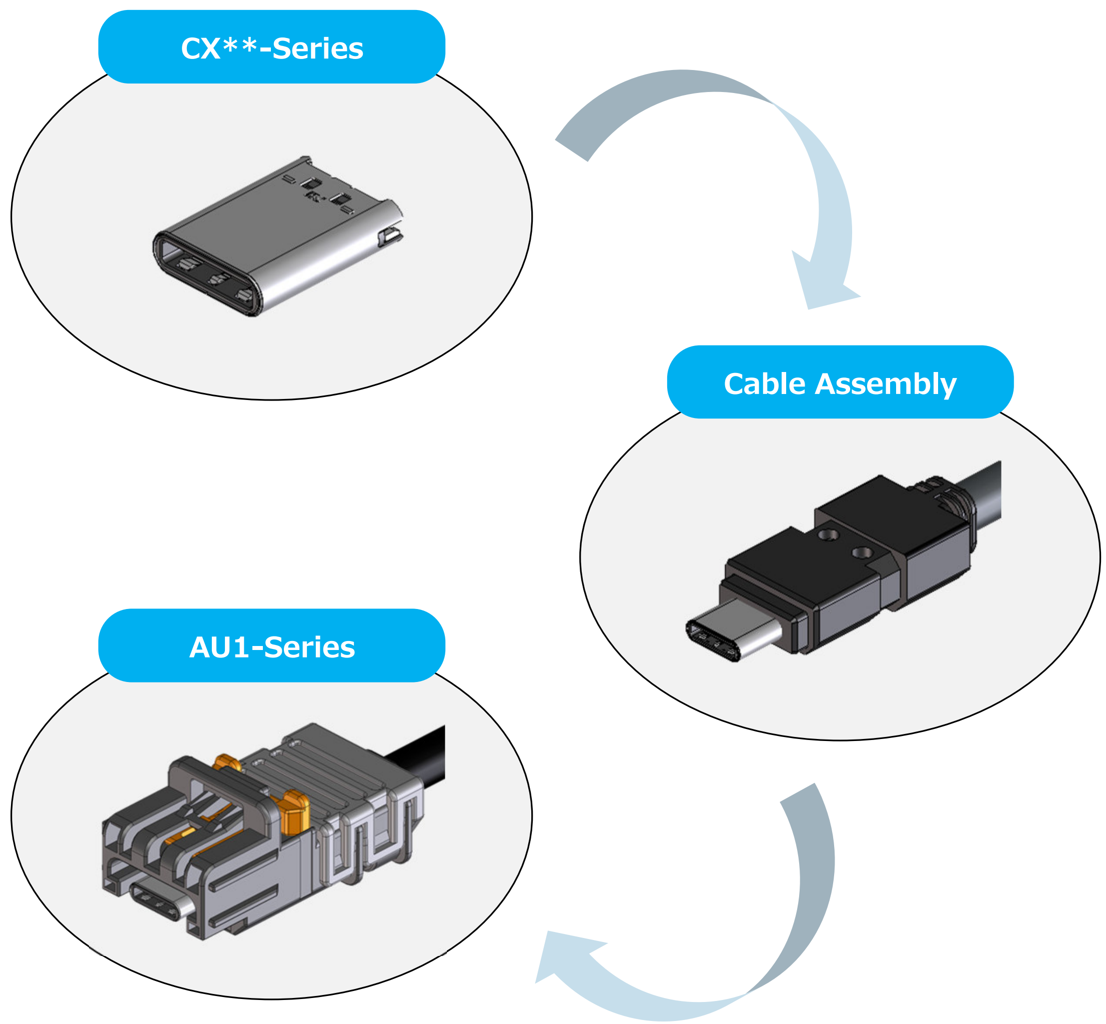
TITLE	NO.	COUNT	DESCRIPTION OF REVISIONS	DESIGNED	CHECKED	DATE
AU1-Series Plug Cable Assembly Instruction	1	4	RE-6-4023	I.K.PARK	S.M.LIM	25.04.01
	2	1	RE-6-4364	M.Y.HAN	S.M.LIM	25.10.24

1. Scope

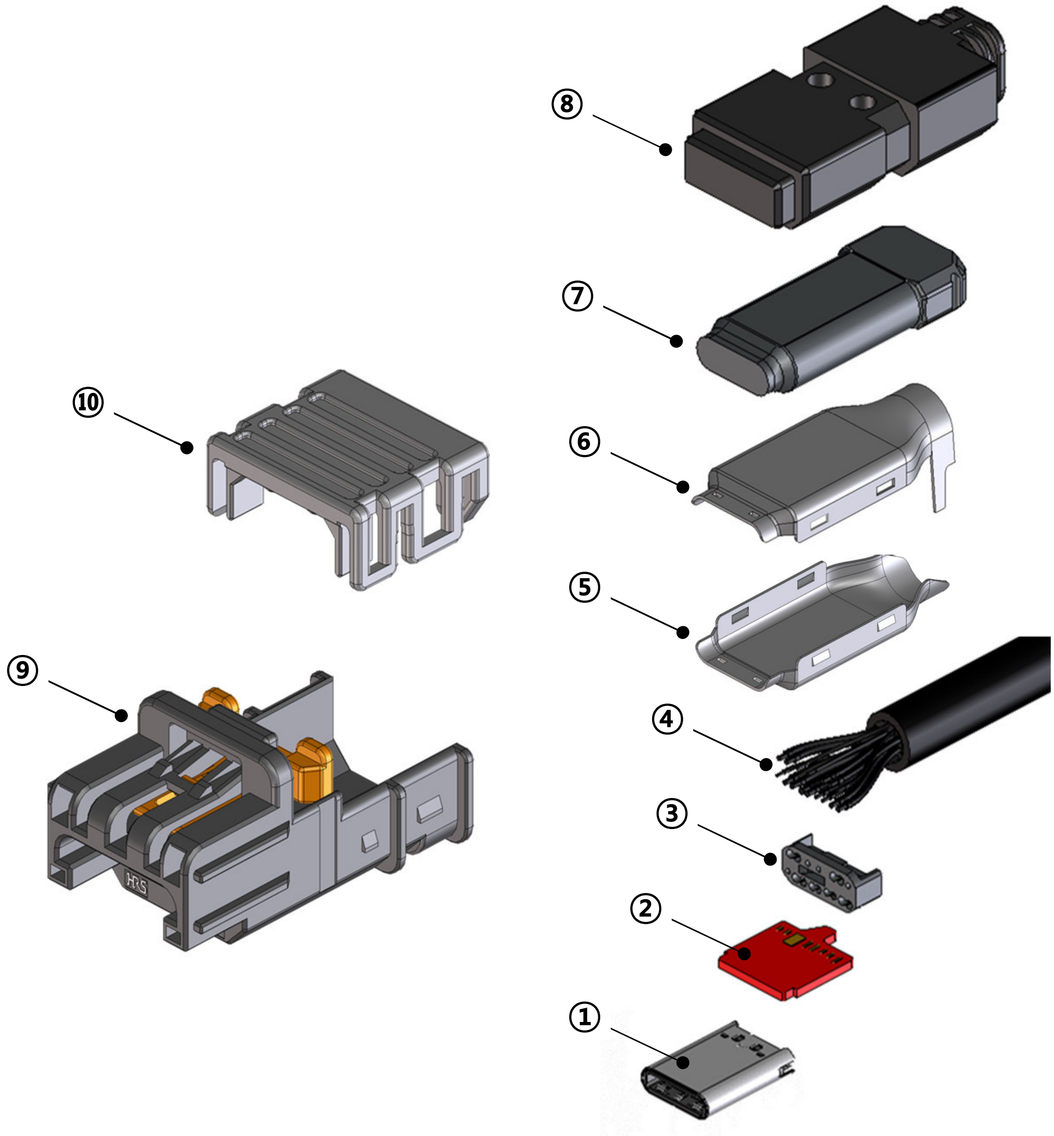
This document specifies the procedure for assembling the Automotive USB-C connector AU1-Seires.
Refer to the aseembly process for USB-C plug cable and assembly for Housing, Retainer, CPA.

2. Assembly Flow Summary



3. Part List

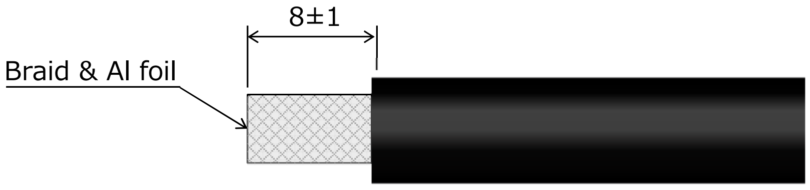
3.1. AU1MS-24S



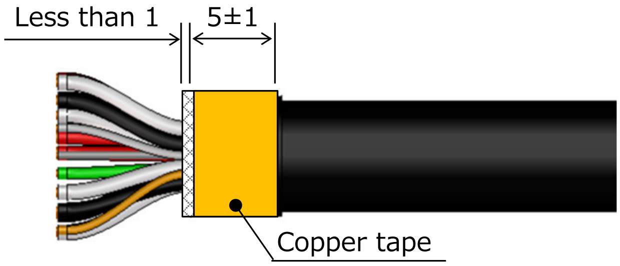
No.	Part List	HRS P/N	Production Site	Recommended Dimensions
①	USB-C Plug	CX60-24S1-UNIT	HRS KR	-
②	PCB	-	Produced by supplier	Refer to page 9
③	Wire holder	-	Produced by supplier	Refer to page 3
④	Cable	-	Produced by supplier	-
⑤	Shield 1	AU1MS-24S-SLDA	HRS KR	-
⑥	Shield 2	AU1MS-24S-SLDB	HRS KR	-
⑦	Inner mold	-	Produced by supplier	-
⑧	Over mold	-	Produced by supplier	Refer to page 5
⑨	Housing&CPA	AU1MS-24S-HU/C	HRS KR	-
		AU1MSA-24S-HU/C	HRS KR	-
⑩	Retainer	AU1MS-24RS	HRS KR	-

4. Cable Assembly Method

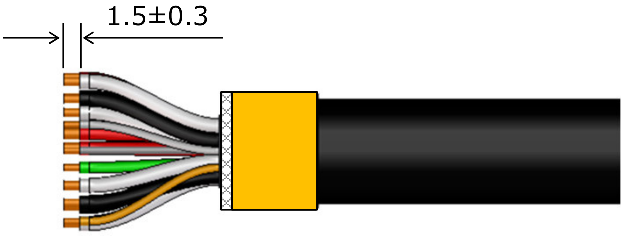
① Strip the cable sheath



② Fold the shield wires(Braid) and wrap with copper tape.

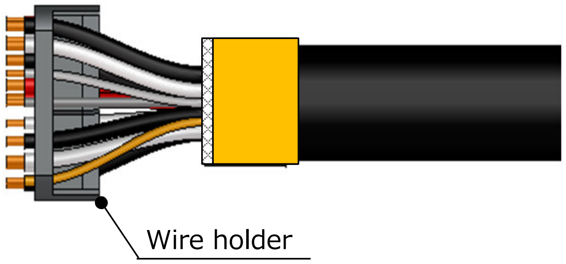


③ Strip the core wire

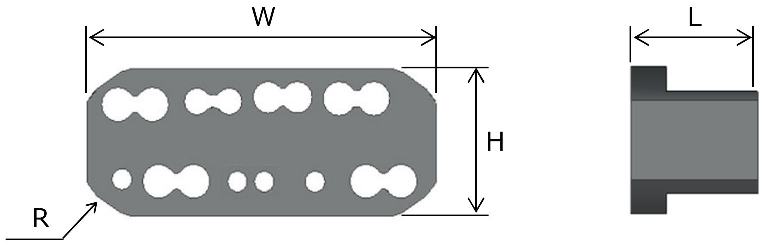


- Cut the wire skin to prevent damage to the core conductors.
  After cutting, the core conductors is tinned at 260±20°C for 1-2 seconds.

④ Wire holder attachment

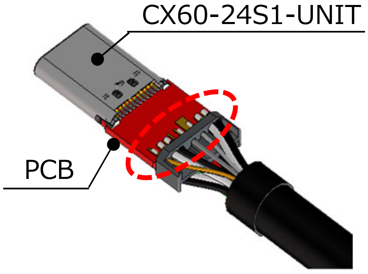


- The reference size of wire holder is W9.0 x H3.6 x L3.3 and R1.8
- The Wire holder is not provided separately.



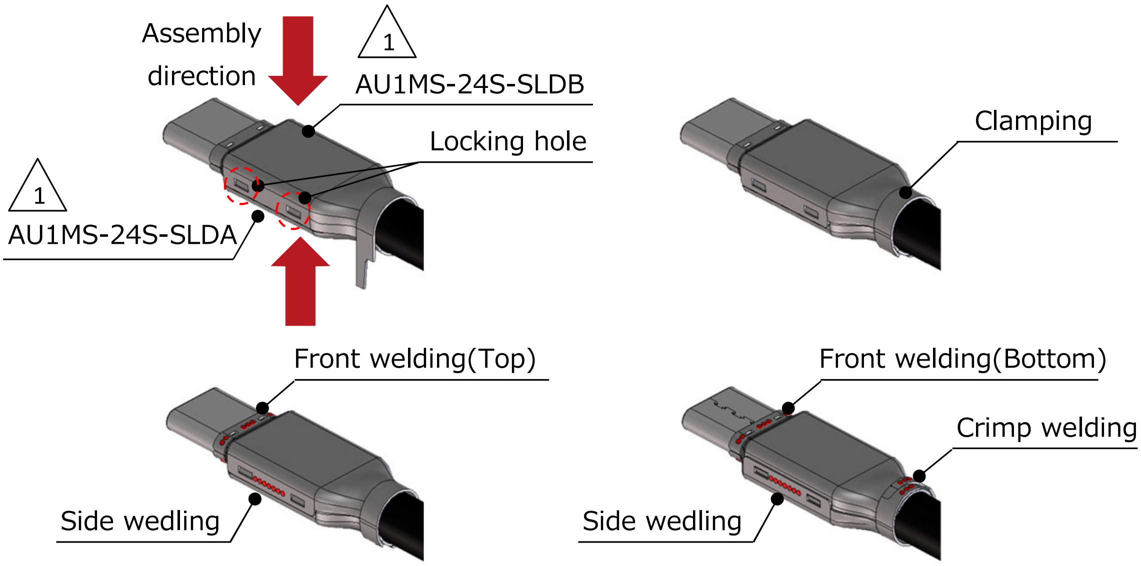
4. Cable Assembly Method

⑤ PCBA & Cable welding



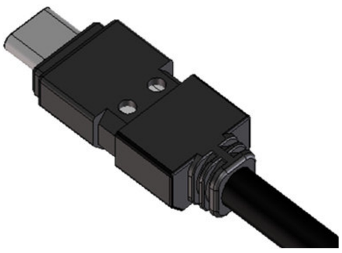
- HB welding of core wires on both sides of the PCBA.
- Please refer to page 10 for pin assignment.
- The cable and paddle card are not provided separately.

⑥ Shield case assembly



- It is recommended to apply the inner molding before assembling SLDA/SLDB.
- Check both locking holes to ensure that the two shells are assembled correctly.
- The cable external braid should be physically connected to the metal shell as close to 360° as possible to control EMC.
- There must be no electrical damage caused by welding.

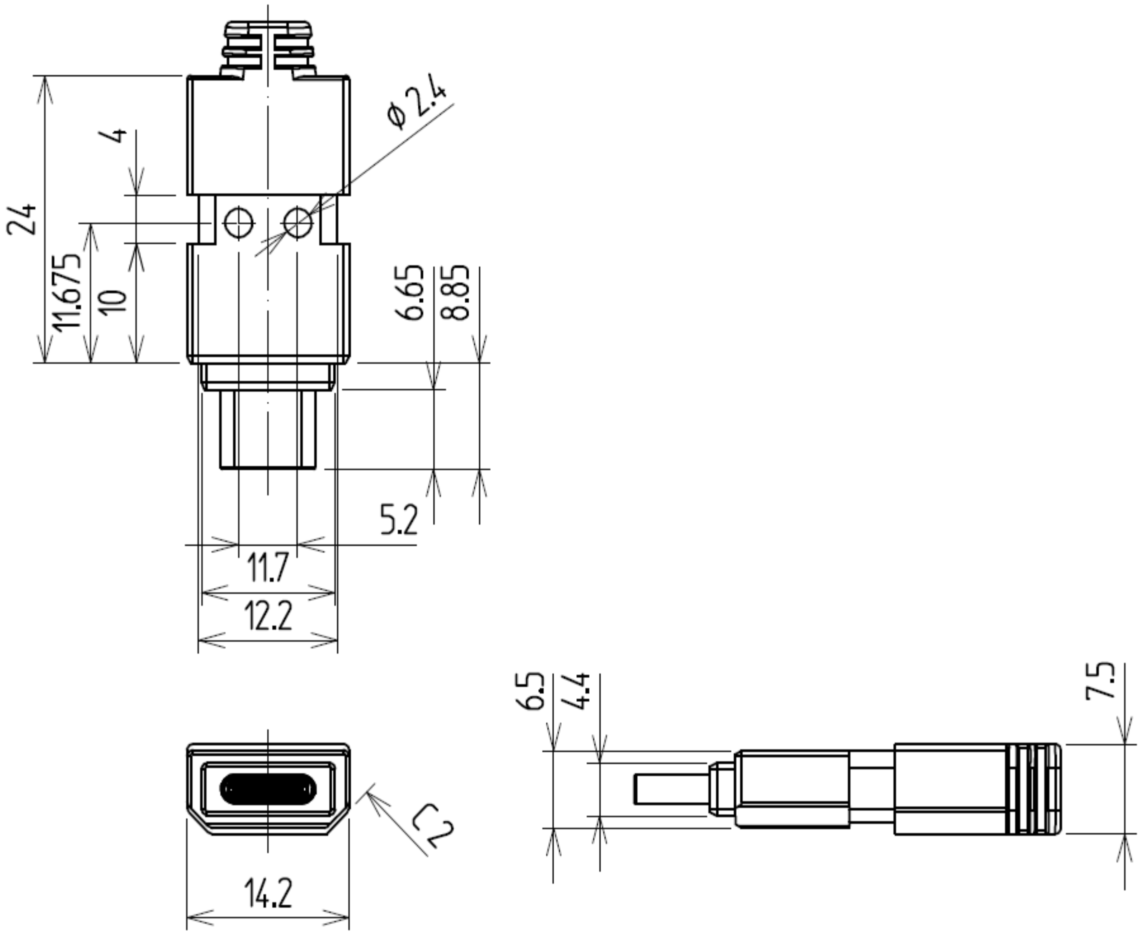
⑦ Over molding



- Cable tensile strength follows the USB Compliance.

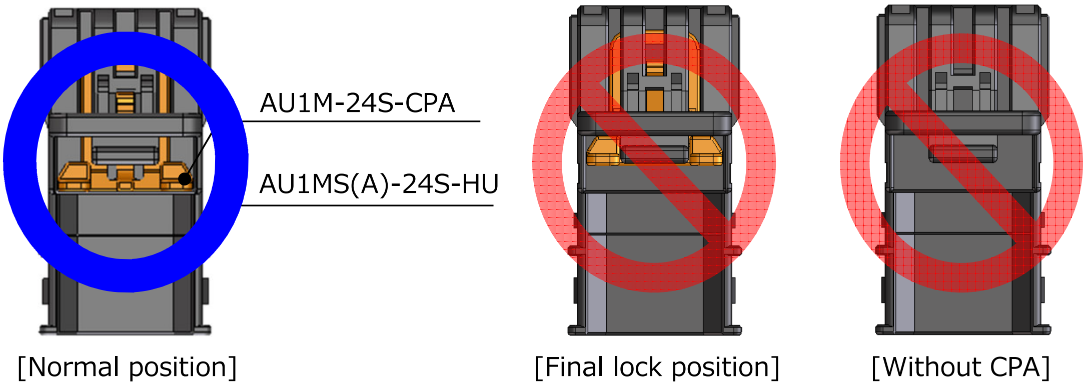
4. Cable Assembly Method

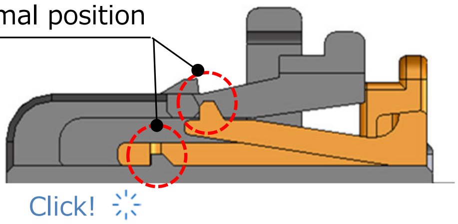
⑦ Size 1



5. Assembly of HU/C (Housing & CPA)

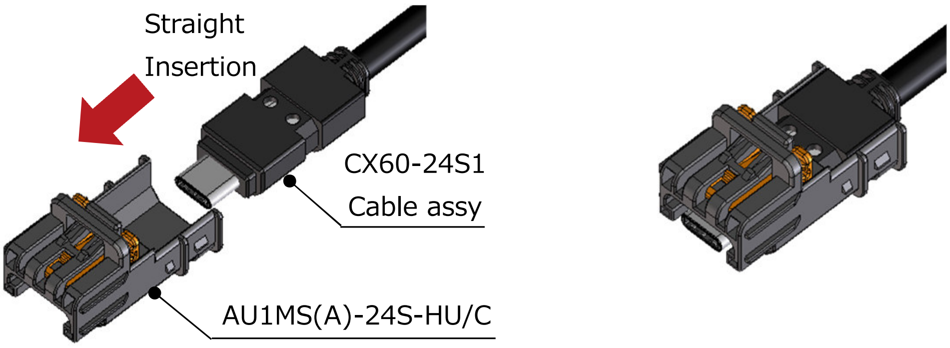
- Check the noraml position of the CPA after assembly.



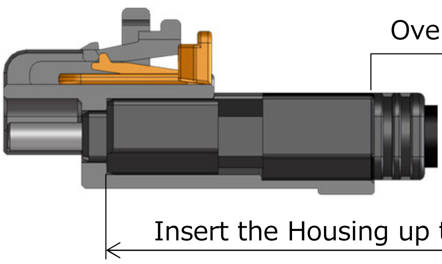


6. Assembly of HU/C & Cable Assy

Insert the Cable Assy straight into the Housing to maintain performance reliability.

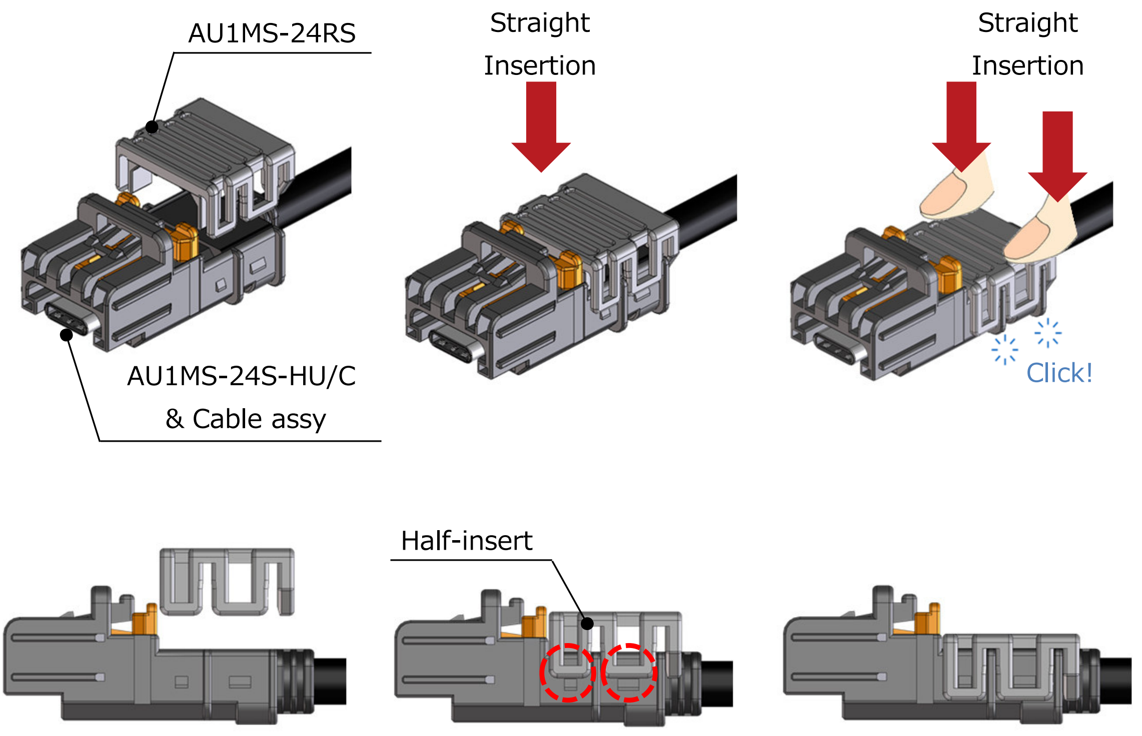


- Check the noraml position of the Cable Assy after assembly.

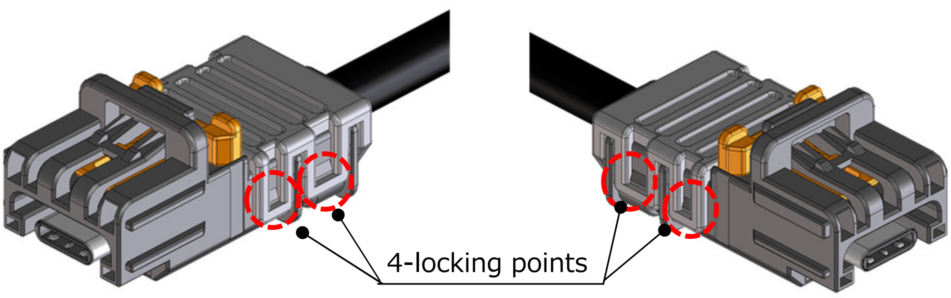


7. Assembly of Retainer

Insert the Retainer straight into the Housing.



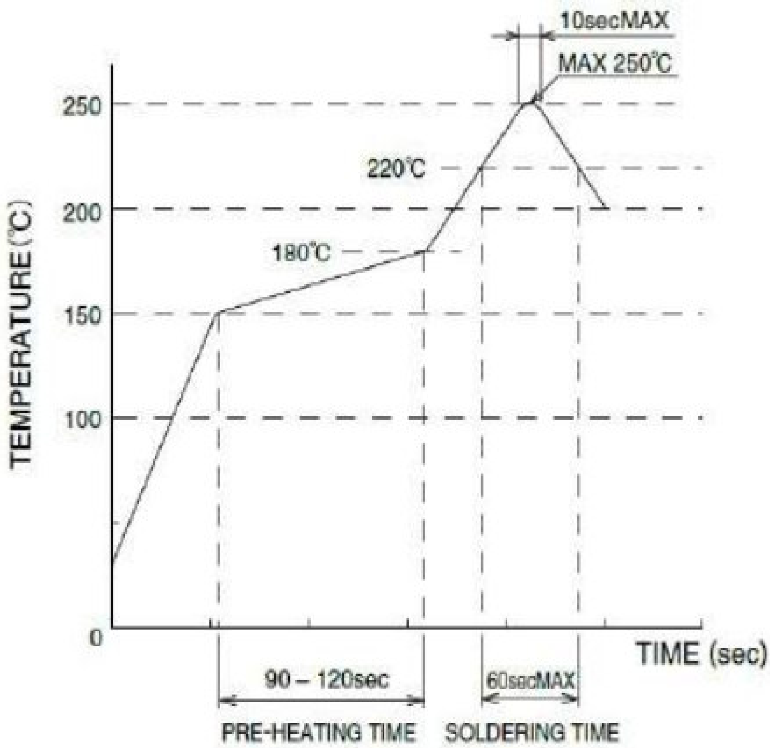
- Insert the Retainer halfway before fastening the Housing lock.
- Complete insertion with equal force on both sides to prevent the retainer from tilting.



- Ensure that the retainer is properly engaged in the Lock of the housing.

8. Notice for Soldering

8.1. 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.

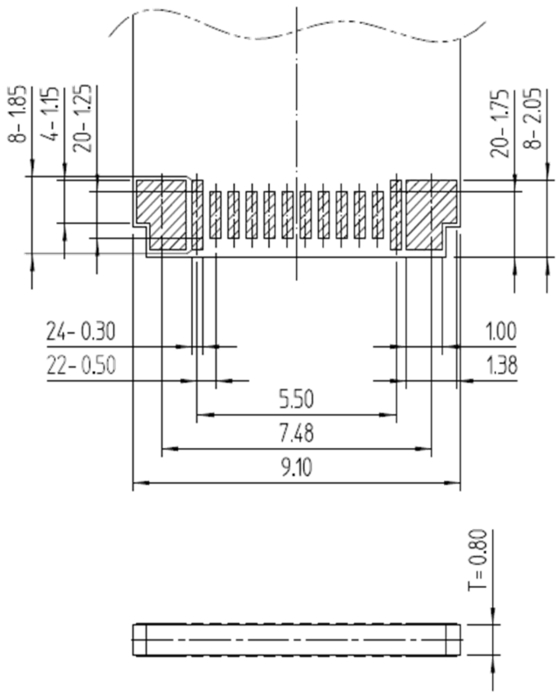
- Reflow heating method and condition

  Far-infrared heater and hot convective blowers used in combination,
  normal atmosphere, ornitrogen atmosphere..

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

8. Notice for Soldering

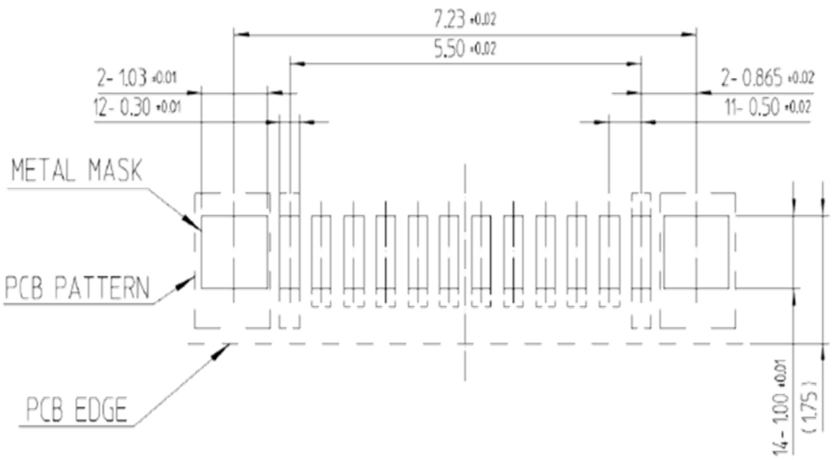
8.2. PCB Design 2



Recommended PCB Size

L9.8 x W9.1 x D0.8

8.3. Metal Mask Design

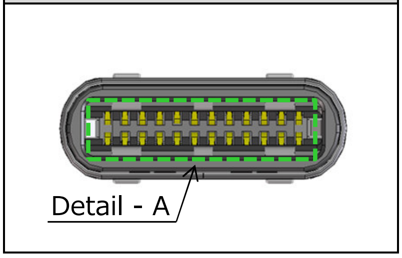


Recommended Metal Mask Sepc.

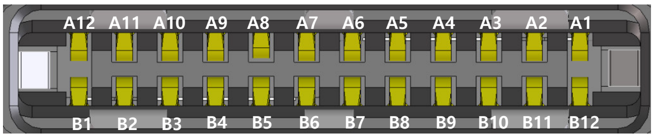
Thickness : 0.10, Aperture Ratio : 80%

9. Pin Assignment 1

Mating Area

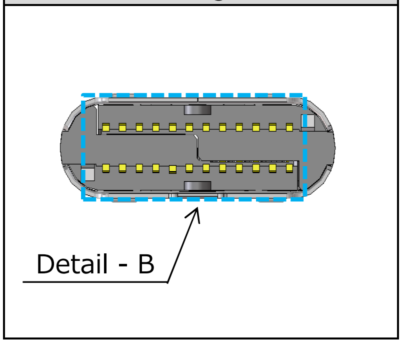


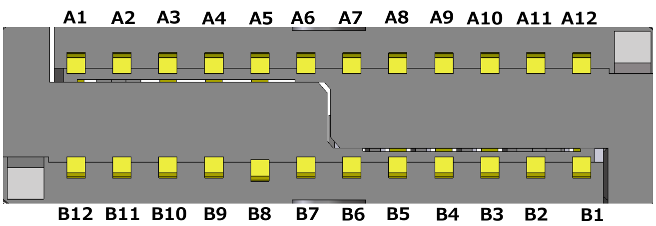
A12	A11	A10	A9	A8	A7	A6	A5	A4	A3	A2	A1
GND	RX2+	RX2-	Vbus	SUB1	D-	D+	CC	Vbus	TX1-	TX1+	GND
GND	TX2+	TX2-	Vbus	Vconn	-	-	SBU2	Vbus	RX1-	RX1+	GND
B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12



Detail A

Soldering Area





Detail

- This pin assignment is for the USB Type-C signals.
  If used as a different sinals, please set it up seperately from the customer.

10. Functional check

Please confirm that there are no problems with the mechanical and electrical characteristics under the condition of use.