



HIROSE ELECTRIC CO.,LTD.

TITLE: GT50 Series Guideline		REVISION DATE:
OBJECT PRODUCT: GT50 SERIES	Figure number ETAD-T0931-00	PAGE: 1 OF 14

GT50 Series Guideline for Designing and Handling

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COUNT	DESCRIPTION OF REVISIONS	DESIGNED	CHECKED	DATE
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TECHICAL SPECIFICATION		ETAD-T0931-00		



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1. Introduction

1.1 Purpose of this Guideline

The GT50 series guidelines are intended to provide information on precautions regarding equipment design and work regarding the product features and handling methods of GT50.

These guidelines are intended to provide general information and do not limit your design or guarantee results under all circumstances.

If you do not meet these guidelines, please contact us individually.

In addition, the photos and illustrations shown are those of our representative products, so they may differ depending on the product.

The guideline information is subject to change without notice.

2. Safety Precautions and Environmental Conditions

2.1 Safety Precautions

Before using (operation / maintenance / inspection), please read all the precautions and operation guideline to ensure correct use.

In this GT50 series guideline, the rank of safety precautions is classified as "WARNING"/"CAUTION".

■ Meaning of "WARNING" and "CAUTION"

 WARNING	Indicates a dangerous situation such as a fire, or the contents that may cause death or serious injury if mishandled.
 CAUTION	Indicates the contents that may cause minor injury or property damage if mishandled.

WARNING

- Be sure to turn off the power before connecting or disconnecting the connector, as there is a risk of electric shock or damage.
- Do not touch the conductive parts. There is a risk of electric shock.
- Do not use with a voltage or current that exceeds the rating. It may cause fire or electric shock.
- Do not use contacts other than those specified. There is a risk of poor contact and ignition.
- If the contact is deformed or has a large scratch, stop using it. It may cause poor contact and ignition.

Please carry out the wiring work according to our wiring procedure manual. If the wiring method is incorrect, there is a risk of poor continuity, ignition or damage.



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 **CAUTION**

- Do not use in situations where vibration or impact that exceeds the product specifications of our products is applied.
- Do not use a damaged or missing connector.
- Do not ride on the connector or place heavy objects on it. There is a risk of damage.
- Follow this guideline when inserting and removing the plug. Incorrect operation may damage the connector.
Please check if the lock is completed before use. If the lock is not completed, there is a risk of poor continuity, disconnection of the plug, and damage.
- When removing the plug, make sure that the lock is completely unlocked.
- When routing the cable, bend it gently so that the connector and cable are not overloaded.
- When using the cable in a long harness state, fix it so that the vibration load of the cable is not applied to the connector.
Do not store or use this product under conditions that contain corrosive substances that may cause deterioration of plastic properties or metal rust.
If it is unavoidable to apply a solvent to this product to strengthen insulation or protect it, make sure that the physical properties of the plastic do not deteriorate before using it.
- Do not use in an environment where it is constantly exposed to oil mist, oil water, corrosive gas, flammable gas and dust.
- This product is designed for indoor use and should not be used outdoors.
- This product does not take any measures against salt damage.
Use the specified crimp contact, and check in advance that there is no deformation, oil, etc., and that there is no abnormality in contact resistance before use.
Do not store or use this product near the sea or under conditions that contain a lot of salt.
If the metal is significantly rusted or discolored, replace it with a new one.
- Store and use this product under conditions that do not freeze or condense.
- This product is designed for use in the internal connection of equipment, so please do not use it for any other purpose.

※Please check the product specifications and product variations of this product from our website.
Homepage address : <https://www.hirose.com/>



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2.2 Environmental Condition

Operating temperature: -40 ° C to + 125 ° C (Include the temperature rising by current)

Storage temperature: -40 ° C to + 125 ° C (storage conditions after mounting)

Operating humidity: 95% RH or less

Atmosphere: Indoors (not exposed to direct sunlight),oil mist,corrosive gas,flammable gas,no dust

Storage period: Within 6 months from the date of shipment

Storage temperature: 15 to 30 ° C (storage conditions before unpacking)

Storage humidity: 40-60% RH (storage conditions before unpacking)



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3. Product Number Structure and Name

3.1 Product Number Structure

Please use it when you judge the product specifications from the product name.

■ Receptacle

GT50 - 2 P - 1 H
 ① ②③ ④⑤

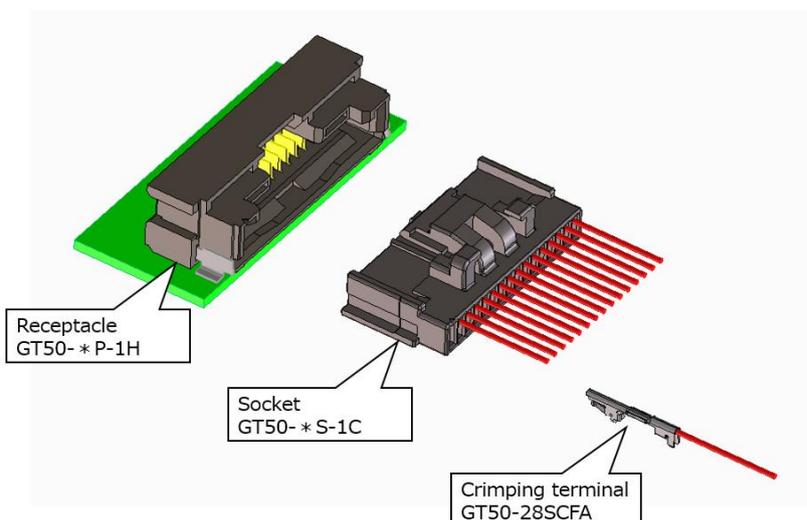
■ Plug

Socket

GT50 - 2 S - 1 C
 ① ②③ ④⑤

GT50 - 28 SCFA
 ① ⑥ ⑦

① Series Name	GT50
② Number of Pins	2
③ Connector Type	S: Female Side Connector P: Male Side Connector
④ Pitch	1.0mm
⑤ Part Type	C: Socket H: Right Angle SMT Type
⑥ Applicable Wire Size	28:AWG# 28 (sq 0.08 mm ²)
⑦ Form Type / Packaging Type	SCF: Female Connector Crimp Contact / Reel Packaged Product



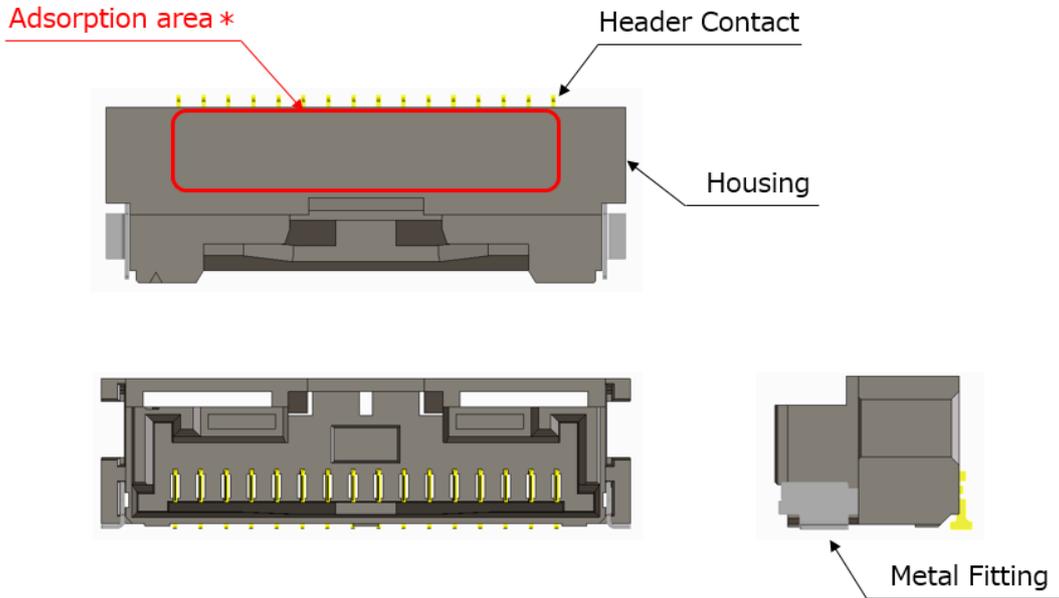


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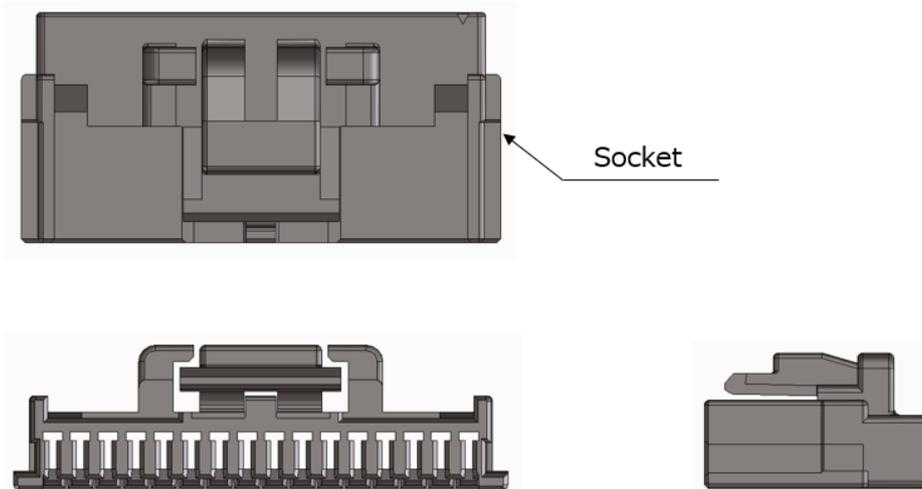
3.2 Product Name

[Receptacle]

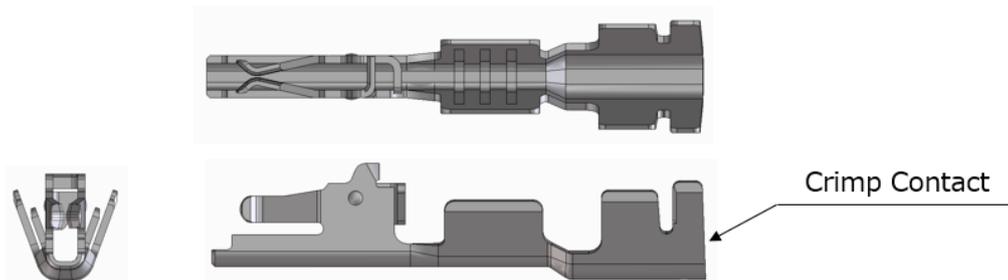


* Since the lot number is engraved on the edge of the upper surface, please set the adsorption area to avoid that part.

[Socket]



[Crimp Contact]





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4. Product Specifications and Characteristics

4.1 Series Specifications

■ Material and Finish

	Component	Material	Color / Finish
Receptacle	Housing	LCP	Black
	Header Contact	Brass	Gold plated (Contact and SMT Lead Area Only)
	Metal Fitting	Brass	Tin Plated
Plug	Socket	PBT	Black
	Crimp Contact	Corson Alloy	Gold Plated (Contact and SMT Lead Area Only)

■ Performance Characteristics

Rated Voltage		60V AC/DC
Rated Current		2,4 pos : 2 A 6,8,12,16 pos : 1.5A
Operating Temperature *		-40°C ~ +125°C
Contact Resistance	Initial	30mΩ Max. (20mV, 0.1mA)
	After Environmental Test	50mΩ Max. (20mV, 0.1mA)
Insulation Resistance		500MΩ Min. (100V DC)
Withstanding Voltage		300V AC (for 1 minute)
Applicable Cable	Wire size	0.08sq.
	Insulation Diameter	φ 0.7~φ 0.8mm
Durability		10 cycles (Insertion / Withdrawal)
Lock Strength		25N Min.

* : Includes the temperature rise due to current flow.

The temperature rise value (derating curve) varies depending on the number of cores, so please contact our sales staff for details.

The above characteristics are typical values. Please check each product specification sheet for details.

4.2 Crimp Applicator

- Please use a original HRS crimping applicator to crimp the crimp contact.
- Perform regular maintenance on the crimping tools to ensure crimping quality.

Crimping Applicator (for Mounting Automatic Crimping Machine (CM-105C))

Product Name	HRS No.	Applicator Product Number	Applicator HRS No.
GT50-28SCFA	760-1001-0-00	AP105-GT50-28S	901-5257-0-00

Note1:The crimp height of the contact is set for each cable type. In addition, regarding the quality of the crimping state, we have prepared a crimping quality standard for each contact.

Please contact our sales staff for details.

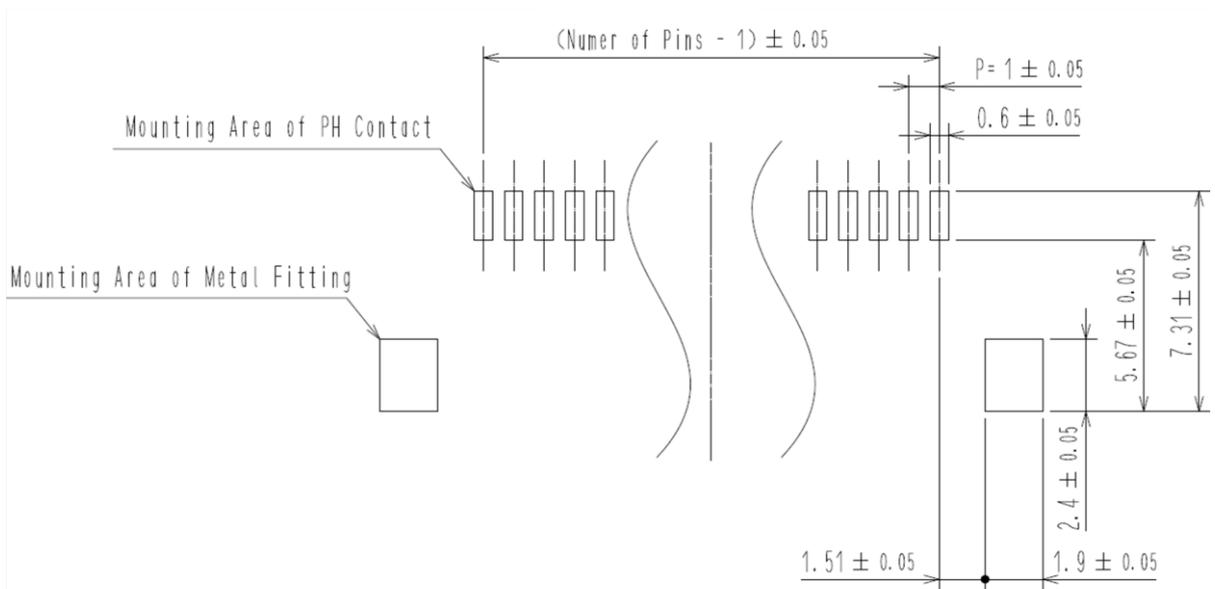
Note2:Please note that it may take some days for the new cable to have a new crimp height setting.

When purchasing original HRS equipment, please contact our sales staff to see if the cable you plan to use for the target contact has been evaluated.

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4.3 Recommended PCB Pattern, Reflow Profile

■ Recommended PCB Pattern



Unit : mm

■ Recommended Reflow Profile

This temperature profile is for reference under the following setting conditions. It may vary depending on the type of cream solder, manufacturer, board size, and other conditions such as mounting materials, therefore please check the mounting condition carefully before use.

1. RECOMMENDED TEMPERATURE PROFILE FOR REFLOW

(REFER TO RIGHT FIG.)

USED REFLOW SYSTEM

: IR IN THE AIR OR NITROGEN

NO. OF CYCLES : 2 MAX

PEAK : 250°C

OVER 230°C : 20~40s

PREHEAT : 150~180°C

90~120s

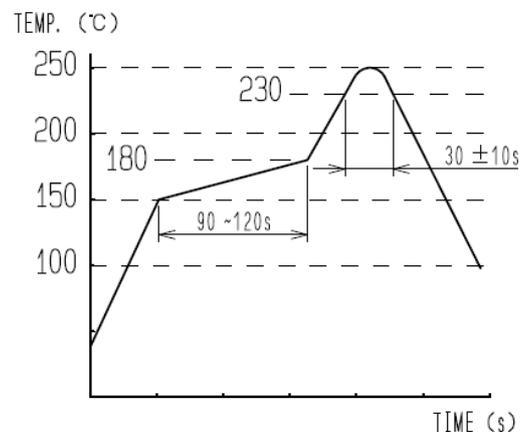


2. TEMPERATURE FOR SOLDERING IRON

: 350~380°C WITHIN 5s

3. CO-PLANARITY : 0.1mm MAX

4. RECOMMENDED SOLDER THICKNESS : 0.10mm





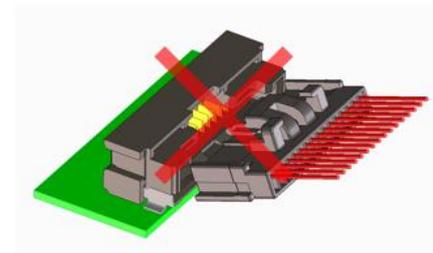
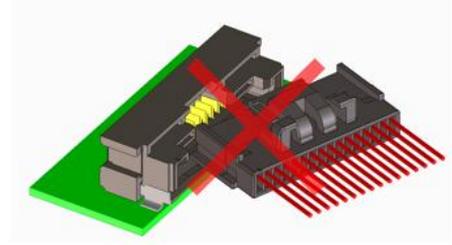
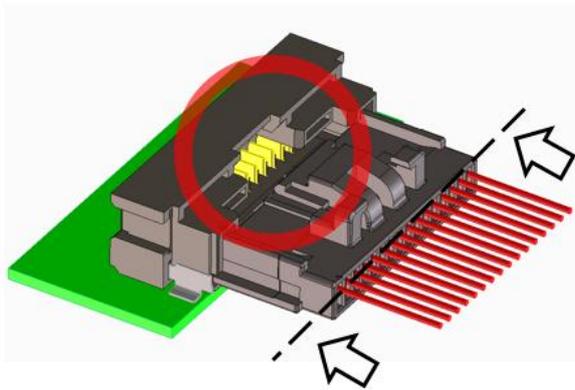
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5. Handling and Precautions

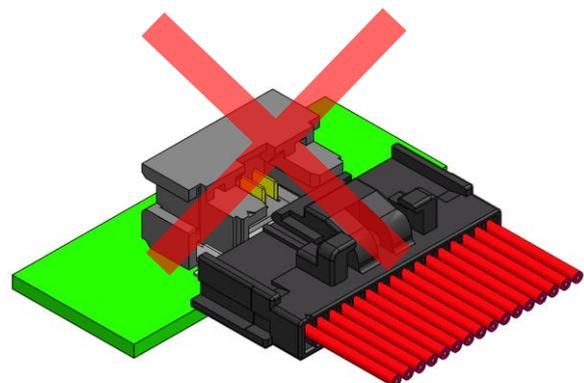
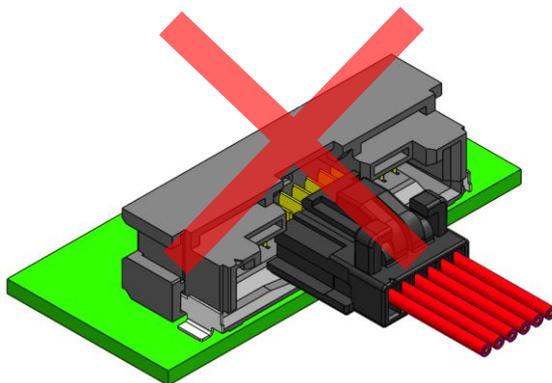
5.1 Connecting Method

When connecting the plug to the receptacle, insert the plug perpendicular to the mating face. If you accidentally hit the corner of the plug against the center of the receptacle, or if it fits diagonally to the fitting portion, the housing and s may be deformed.



1 When connecting, make sure that the receptacle and plug are combined correctly.

If you accidentally mating different pos. together, the terminals may be disconnected or the housing and terminals may be deformed.





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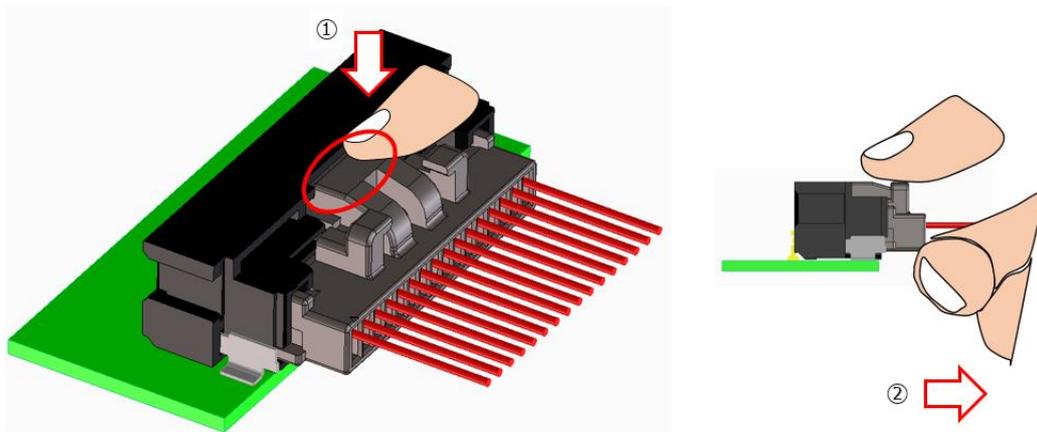
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5.2 Removal Method

When removing the plug from the receptacle, push down the lock on the plug side in the figure below with your finger, and then pull the plug side to remove it.

If you push the lock part while pulling the plug side, unexpected force will apply to the connector, and the cable may come off or the housing may be deformed.

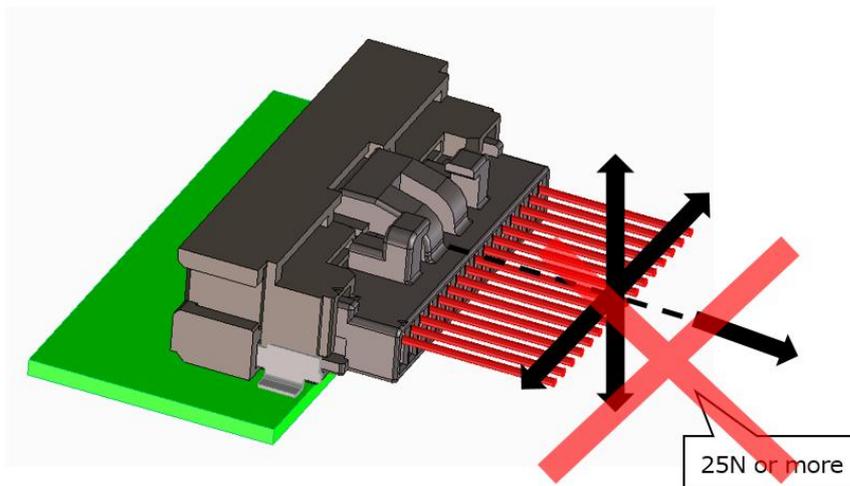
Also, when pulling the plug side, pull it out while grasping the socket so that no force is applied to the cable.



5.3 Precautions when Mated

When mating, make sure that the receptacle is not subject to a strong load of 25N or more. (Prying, pulling, etc.)

The receptacle may peel off from the board or the plug may come off.

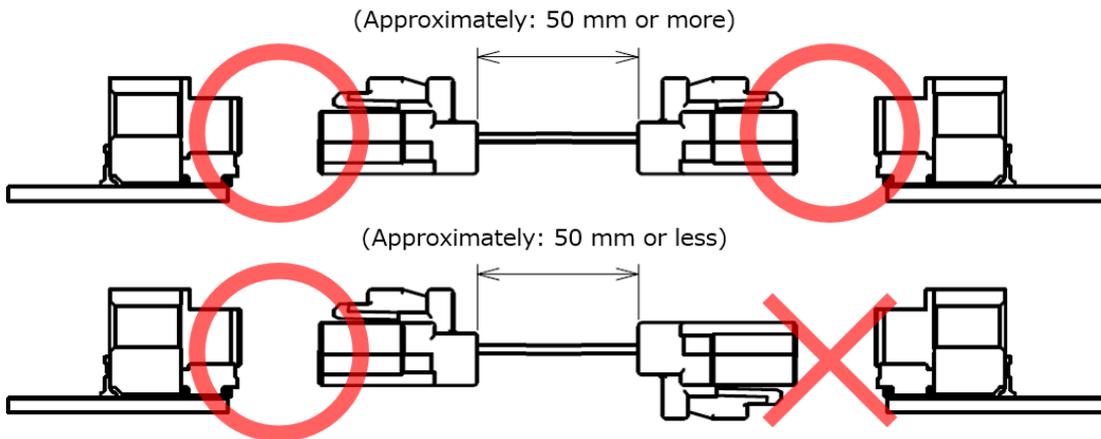


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5.4 Harness Condition

■ When the harness length is short

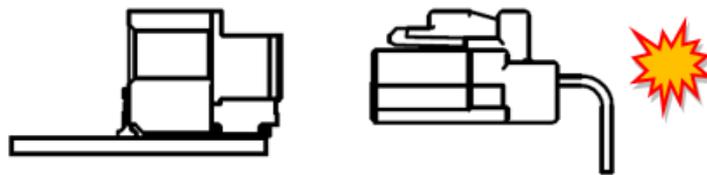
If the harness length is too short(Less than 50mm) as (shown) figure below, there is a risk that a load will be applied to the connector due to twisting of the cable, therefore confirm the orientation of the connectors at both ends. (Please consider the mounting direction and manufacture the harness.)



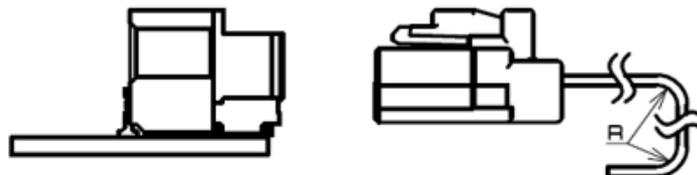
Make sure that the orientation is different from that of the board and that it is not twisted and fitted.

■ Harness Routing

Please refrain from using the cable in a state where it is always bent from the end of the housing.



Check the cable specifications and set the minimum bending radius (R) of the cable.





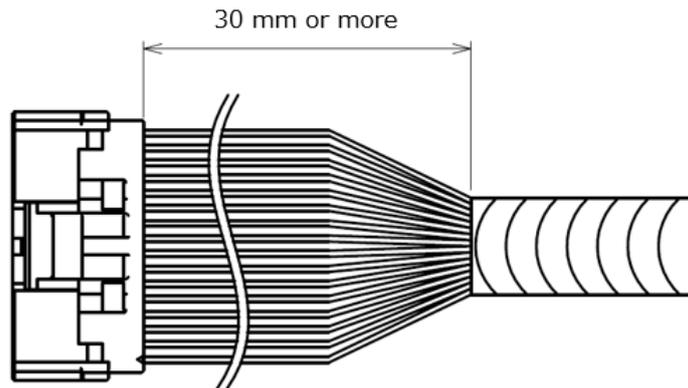
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■ Cable Tape Winding

When wrapping the cable with tape, wrap it with tape at least 30 mm away from the bottom of the crimp socket neck. Please wrap at least 30mm away.

If you bundle the cables close to the root, the wires at the ends may be pulled and the cables may come off.



5.5 Crimping Quality Standard, Harness Procedure

- GT50-28SCFA Crimping Quality Standard (Document No.ATAD-T0925-00)
- GT50 series Harness Operation Manual (Document No.ETAD-T0930-00)



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【Revision History】

Revision	Date	Designed	Checked	Comment
0	20220210	YT.TAKANASHI	HK.UMEHARA	First edition
1	20240326	RS.TAKAGI	HH.TSUKUMO	P.9 Changed soldering iron condition P.10 Added caution about mating with different pos.