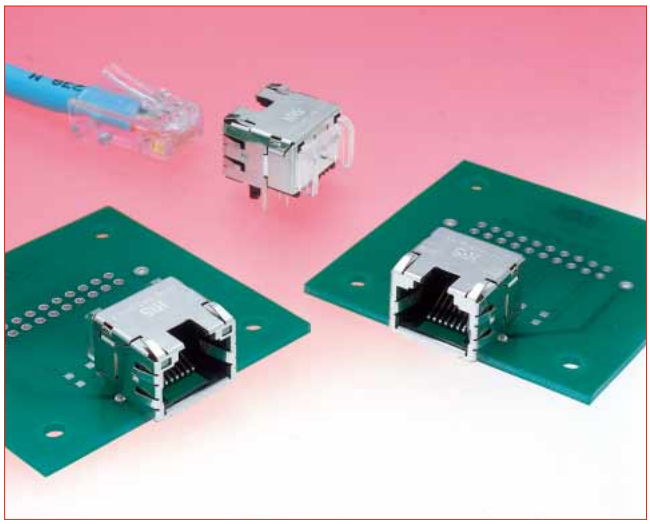
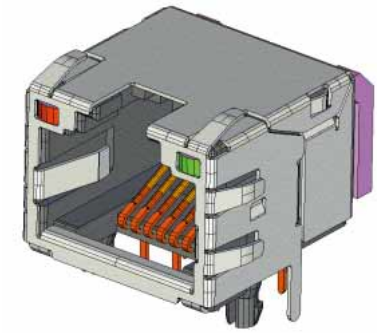
Subminiature, LAN Modular Jack Connectors

TM11R-5M2 Series





Features

1. Fast Ethernet Support

Complies with TIA/EIA-568-B data wiring requirements, guaranteeing Cat.5 transmission for 1,2-3,6 conductor pairs. As such, these products fully support Fast Ethernet (100BASE-TX) transmission.

2. Subminiature Design Contributes to Saving Space in the Equipment

Having built-in light indicators, with height of only 11.5mm, width of 15mm and depth of 17.5mm the connectors can be used in extremely limited spaces.

3. Built-in Light Indicators

There is no need to design a separate space for the light indicators as they are built-in the connector, enabling space-saving. (Fig. 2)
Compared with LED type indicators, they do not emit any electrical noise. (Fig. 3)

4. EMI Protection

Metal shield covers the outer surfaces of the connectors assuring complete protection against electromagnetic interference.

5. Environmental Considerations

Plating is lead-free in order to protect environment.

6. FCC Standards

Meets requirements of FCC Title 47, Part 68, Subpart F.

7. THR (Through-Hole Mounting) Type

THR (Through-Hole Mounting) compatible type is available.

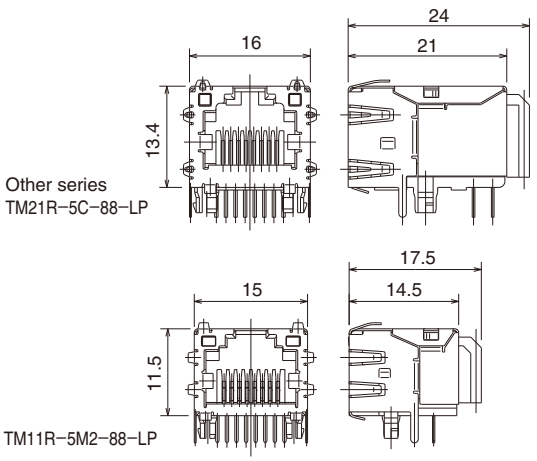


Fig.1 : Comparison with Existing (Actual Size).

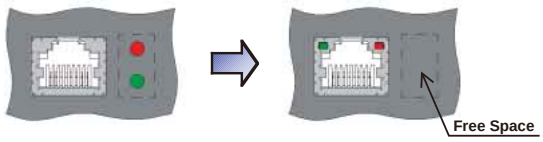


Fig.2 : Space saving of Light Indicator Area

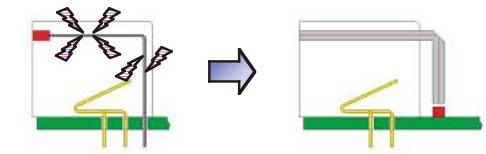


Fig.3 : EMI Protection

Applications

LAN Equipment, Office Equipment and Measuring Devices

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■Product Specifications

Rating	Rated Current 1A	Operating Temperature : -55 to +85℃ (Note)
	Rated Voltage 125V AC	Storage Temperature Range : -25 to +60℃

Item	Specification	Conditions
1. Insulation Resistance	100MΩ min.	100V DC
2. Withstanding Voltage (Between Adjacent Ccontacts)	No flashover or insulation breakdown	500V AC for 1 min.
3. Withstanding Voltage (Between Contact and Shield)	No flashover or insulation breakdown	1500V AC for 1 min.
4. Contact Resistance	50mΩ max.	100mA
5. Vibration	No electrical discontinuity of 5μ sec. or more. Contact resistance : 70mΩ max	Frequency : 10 to 55 to 10Hz, single amplitude 0.75mm, 1 octabe / min, 10 cycles / 3 axis
6. Shock	No electrical discontinuity of 5μ sec. or more. Contact resistance : 70mΩ max.	Acceleration of 490m/s², 11ms duration, sine half-wave waveform, 3 cycles / 6 axis.
7. Mating Durability	Contact resistance : 70mΩ max.	200 cycles
8. Temperature Cycle	Contact resistance : 70mΩ max. Insulation resistance : 100MΩ min.	Temperature : -55℃→+15℃ to +35℃→+85℃→+15℃ to +35℃ Duration : 30→2 to 3→30→2 to 3 (Minutes) 5 cycles
9. Humidity	Contact resistance : 70mΩ max. Insulation resistance : 1MΩ min. (High humidity) Insulation resistance : 10MΩ min. (Dry state)	500 hours at temperature of 40℃ and humidity of 90% to 95%
10. Salt Spray	Contact resistance : 250mΩ max.	Exposed to density 5% salt water for 48 hours

Note : Includes temperature rise caused by current flow.

■Materials / Finish

Part	Material	Finish	Remarks
Insulator	Synthetic Resin	Color : Black	UL94V-0
Contact	Copper Alloy	Contact Area : Gold Plating 1.27μ Termination Area : Tin Plating	——
Light Pipe	Polycarbonate	Color : Clear	UL94V-0
Shield	Copper Alloy	Tin Plating	——

■Product Number Structure

Refer to the chart below when determining the product specifications from the product number.
Please select from the product numbers listed in this catalog when placing orders.

●Jacks

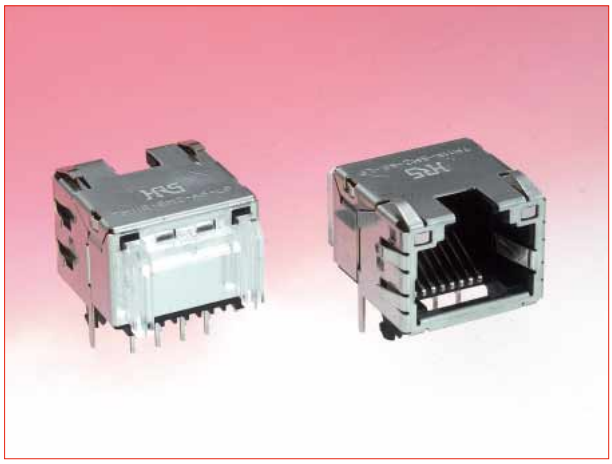
TM11 R - 5M2 - 8 8 - LP
❶ ❷ ❸ ❹ ❺ ❻

❶ Series name	TM11 Series
❷ Connector Type	R : Jack
❸ Jack Type	5M2 : PCB Right-angle through hole type
❹ Jack Mating Port Size	8 : 8 Contacts
❺ Number of Contacts	8 : 8 Contacts
❻ Option	LP : With light pipe inserted Blank : Without light pipe DIR : THR (Through-Hole Mounting)

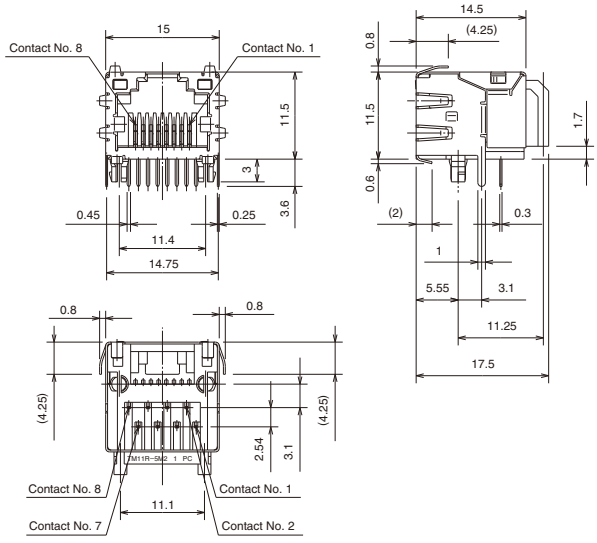
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■Modular Jack Connectors Supporting Cat.5 (for 1,2-3,6 pair)

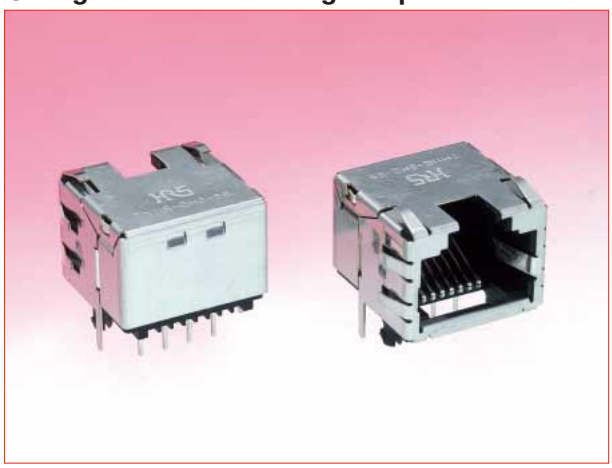
●Single Port With Built-in Light Pipe



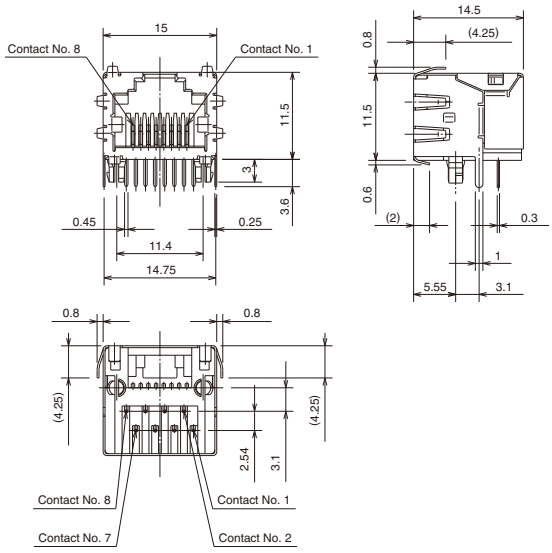
Part No.	HRS No.	RoHS
TM11R-5M2-88-LP(70)	222-2905-0 70	YES



●Single Port Without Light Pipe



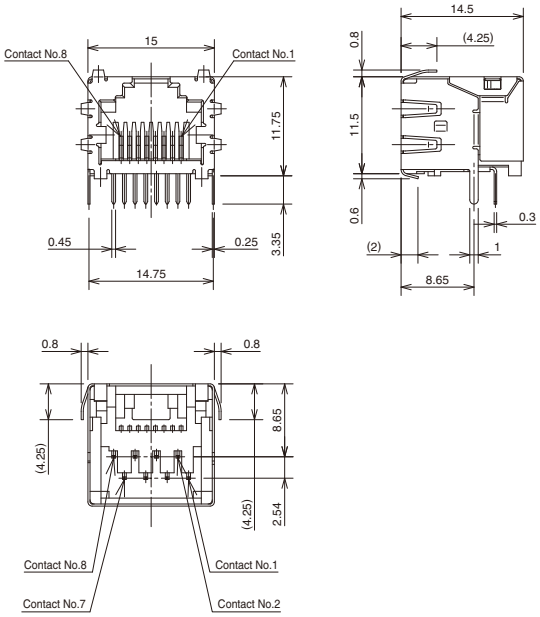
Part No.	HRS No.	RoHS
TM11R-5M2-88(70)	222-2906-2 70	YES



●Single Port (Through-Hole Mounting Type)



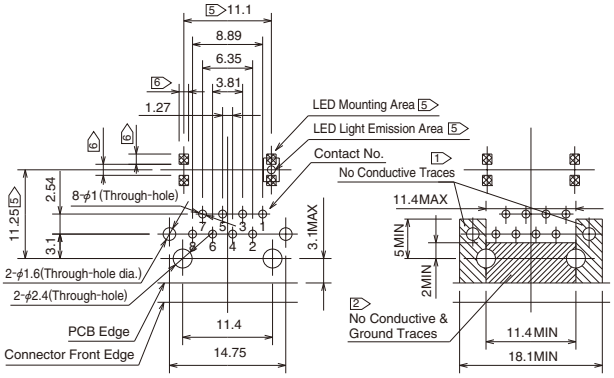
Part No.	HRS No.	RoHS
TM11R-5M2-88-DIR(70)	222-2984-6 70	YES



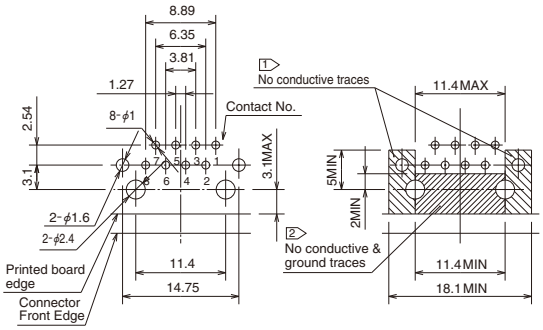
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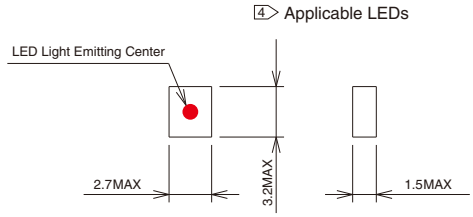
◆Recommended PCB Mounting Patterns

●With Built-in Light Pipe



●Without Light Pipe
●Through-Hole Mounting Type



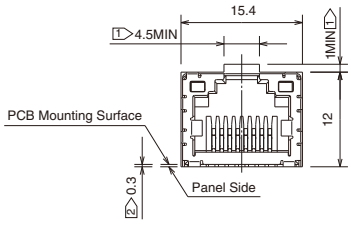


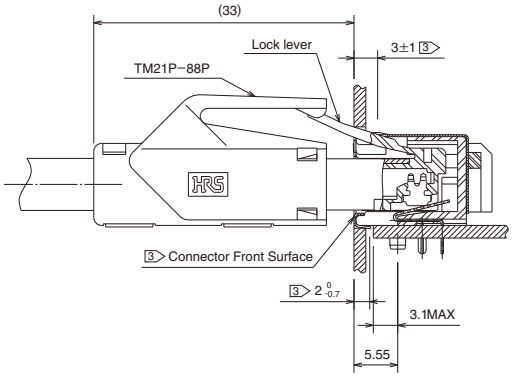
✻Recommendations for PCB Design

1 Areas indicated should be free of conductive traces.
2 Area indicated should be free of conductive & ground traces.
3 Recommended board thickness : 1.6mm.
4 The LED for the jack connector with built-in light pipe is mounted on the PCB.
Please use an LED within the specified dimensions.
For LED specifications, contact the LED manufacturer.
5 Mount so that the center of the light emitting part of the LED is at the center of the dimensions indicated in the diagram.
6 Please check the latest dimension of LED pad with the corresponding LED manufacturer before designing.

◆Recommended Panel Cutout Diagram

●Same Recommended Cutout for Built-in Light Indicator Type, Type Without Light Indicator and Through-Hole Mounting Type





✻Recommendations for Panel Design

1 When making the panel, make a notch according to the dimensions shown as a relief for the plug lock lever.
2 Set the panel mounting position so that the bottom surface of the panel is 0.3mm below the PCB mounting surface.
3 The contact position of the contact spring is 3±1 (top and sides) and $2^{0}_{-0.7}$ (back side) from the front surface of the connector. Please be careful when setting the panel position.

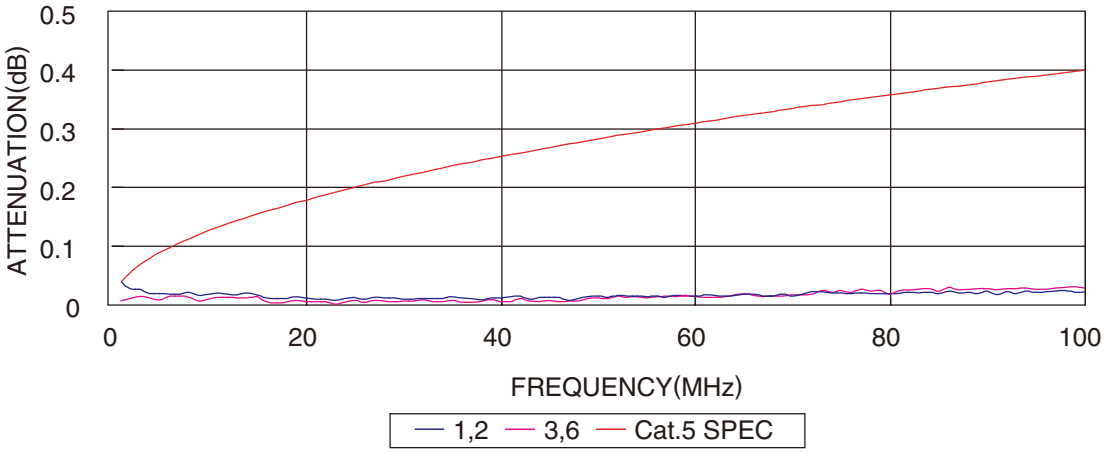
Note : IPA cleaning at room temperature is recommended for the cleaning of this product.
When an aqueous cleaning agent is to be used, there is a concern that the light pipe (made of polycarbonate resin) may change color; therefore, please make a selection based on a table showing the effects on the resin. These tables are issued by the various manufacturers of cleaning agents.

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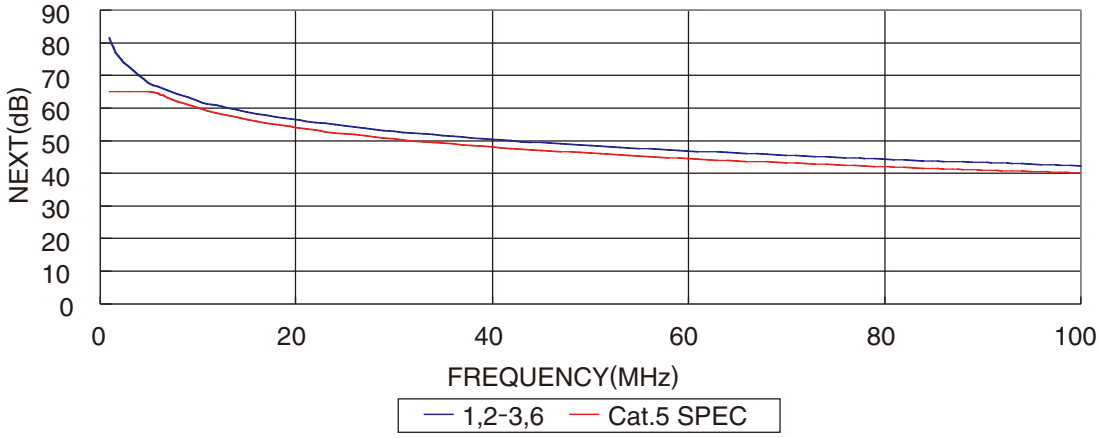
◆Cat.5 Transmission Characteristics Data

For fully mated receptacle (TM11R-5M2-88-LP) and plug (TM21P-88P).

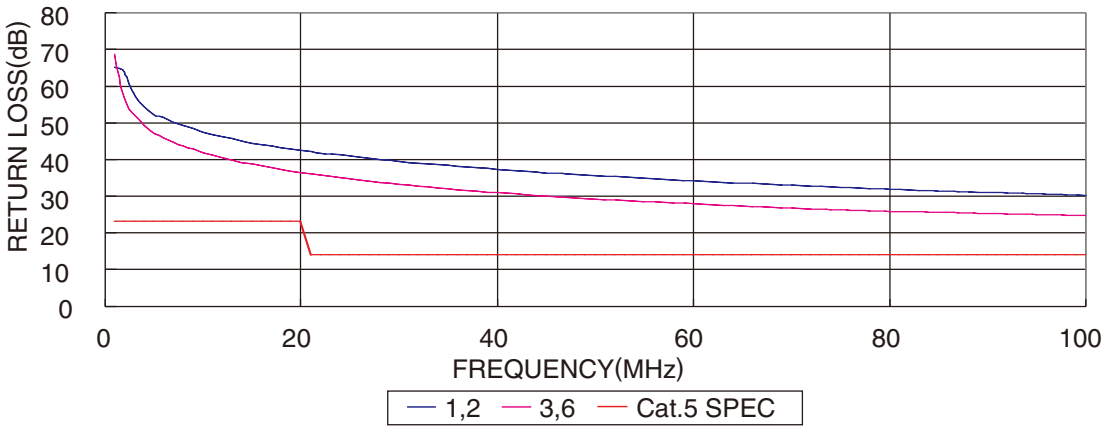
●Signal Attenuation



●Near-End Crosstalk (NEXT)



●Return Loss

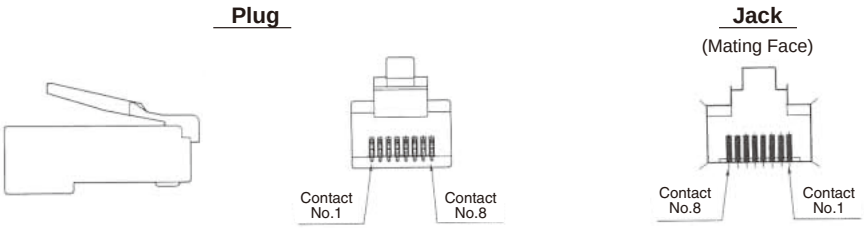


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Modular Connector Guide

■Modular Connector Contact Numbers (8pos.)

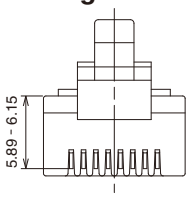
The numbers below comply with FCC standards. Please be aware of how contact numbers are decided during design.



■Plug Mating Cautions

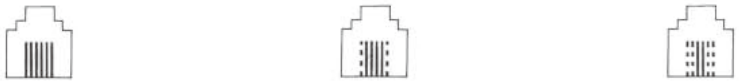
Use only plugs that conform to FCC standards. Pay particular attention to the contact height shown to the right.

FCC Plug Dimensions



■Mating Port Size and Number of Contacts (6pos.)

The relationship between the mating port size of the jack connector and number of contacts is shown below.



Models 64 and 62 are obtained by removing 1 pin and 2 pins, respectively, from both sides of model 66.
For details, please contact us for drawings because only standard models are shown in the catalogs.

■Recommended Soldering for Modular Through-Hole Connectors

●Same for Types With/Without Built-in Light Pipe

●Flow solder (automatic soldering machine)

Pre-heat	: 90 - 130℃
Pre-heat time	: 120 seconds maximum
Solder temperature	: 240 - 260℃
Soldering time	: 10 seconds maximum

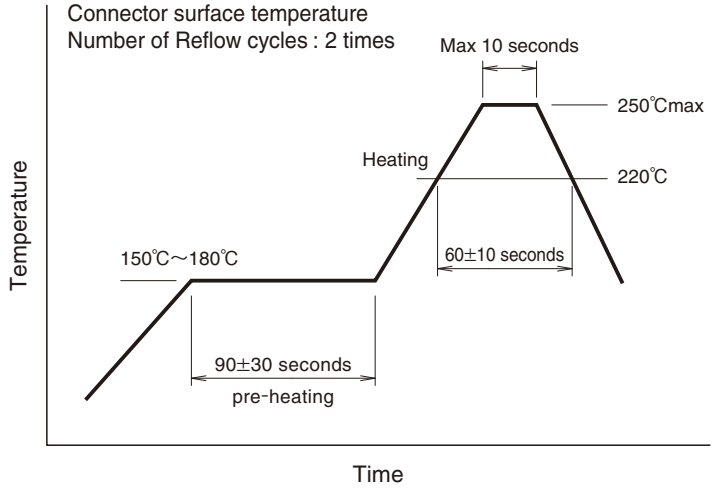
●Hand soldering

Soldering iron tip temperature	: 350℃
Soldering temperature	: 5 seconds maximum
Soldering iron output	: 30 - 40W

Note : When soldering, use care not to apply excessive force to the connector terminals.

●Recommended Solder composition : Paste, 96.5%Sn/3.0%Ag/0.5%Cu

●Through-Hole Mounting Type



The temperature profile may vary due to external conditions such as the type of cream solder, manufacturer, and board size. Please contact the solder manufacturer for their specifications.

HIROSE ELECTRIC CO.,LTD.
2-6-3,Nakagawa Chuoh,Tsuzuki-Ku,Yokohama-Shi 224-8540,JAPAN
https://www.hirose.com/

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The characteristics and the specifications contained herein are for reference purpose. Please refer to the latest customer drawings prior to use.
The contents of this catalog are current as of date of 10/2021. Contents are subject to change without notice for the purpose of improvements.