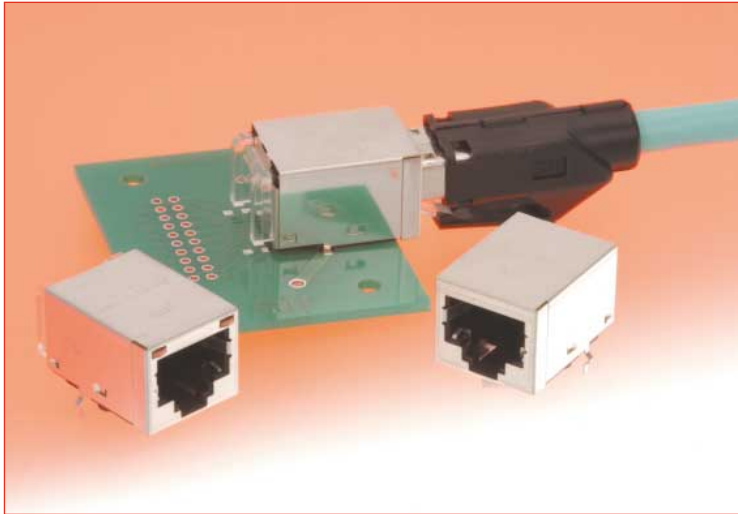
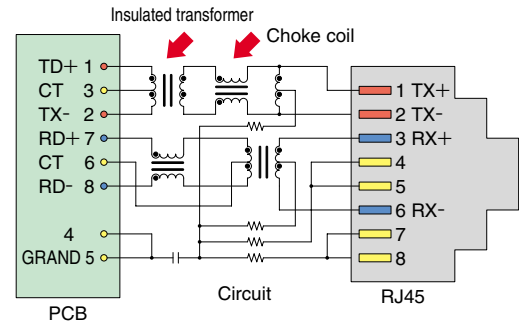


RJ45 Modular Jack Connectors with Pulse Transformers

TM11RD - 5TANA Series



Pulse Transformer Circuit Diagram



■ Features

1. Pulse Transformers Support FastEthernet

Equipped with built-in insulation transformers and common mode choke coils, withstanding voltage of 1.5 kV and supporting 100Base-Tx and 10Base-T.

2. Incorrect Plug Insertion Prevention Key

A built-in key offers protection against insertion of 6-conductor type modular plug.

3. Built-in optical indicators

Optical indicators are integral part of the connectors, saving space on the board. There is no emission of any electrical noise.

4. EMI protection

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

5. FCC standards

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

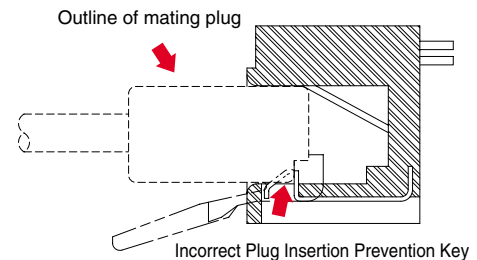
6. Environmental considerations

Plating compounds are lead-free.

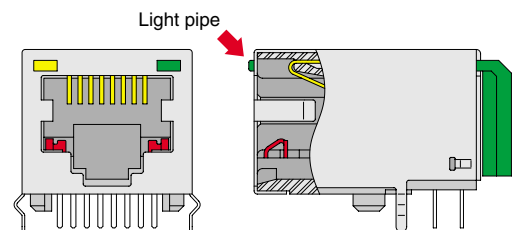
■ Applications

Notebook PC's, telecommunication hubs, routers, bridges and ATM transmission equipment, Ethernet switches and networking equipment, office equipment, test and measurement equipment.

RJ11 (6 position) plug insertion prevention



Built-in optical indicators



* Light colors are determined by the color of LED's used.

Product Specifications

| | | |
|---------|------------------------|--|
| Ratings | Voltage rating 125V AC | Operating temperature range: -25°C to +80°C (Note) |
|---------|------------------------|--|

| | Item | Specification | Conditions |
|--|-------------------------|---------------------------------------|---|
| Connector | 1.Insertion resistance | -2dB min. | 1 to 65MHz |
| | 2.Insulation resistance | 100M ohms min. | 100V DC |
| | 3.Withstanding voltage | No flashover or insulation breakdown. | Basic terminal between 123-45-768 500V AC / one minute Primary (RJ45 side) to secondary (PCB side) 1500V AC / one minute Terminal to shield 1500V AC / one minute |
| Pulse transformer | 4.Insertion resistance | -1dB min. | 1 to 65MHz |
| | 5.Return loss | -20 dB max. | 1 to 10 MHz |
| | | -16 dB max. | 10 to 30 MHz |
| | | -12 dB max. | 30 to 60 MHz |
| | | -10 dB max. | 60 to 80 MHz |
| | 6.Inductance | 350μH min. | 0.1V, 100KHz, 8mADC |
| 7.Cross talk (Reference) | -40 dB max. | 1 to 30 MHz | |
| | -35 dB max. | 30 to 60 MHz | |
| | -30 dB max. | 60 to 100 MHz | |
| 8.Common mode rejection ratio (Reference) | -30 dB max. | 1 to 50 MHz | |
| | -20 dB max. | 50 to 150 MHz | |

Note: Includes temperature rise caused by current flow.

Materials

| Component | Material | Finish/Color | Remarks |
|------------------------------------|---------------|--|---------|
| Insulator | PBT | Black | UL94V-0 |
| Contacts | Copper alloy | Contact area : Gold plated Termination area: Tin plated | |
| Shield | Copper alloy | Tin plated | |
| Incorrect insertion prevention key | Stainless | | |
| Pulse transformer | — | — | |
| Optical pipe | Polycarbonate | Clear | UL94V-0 |

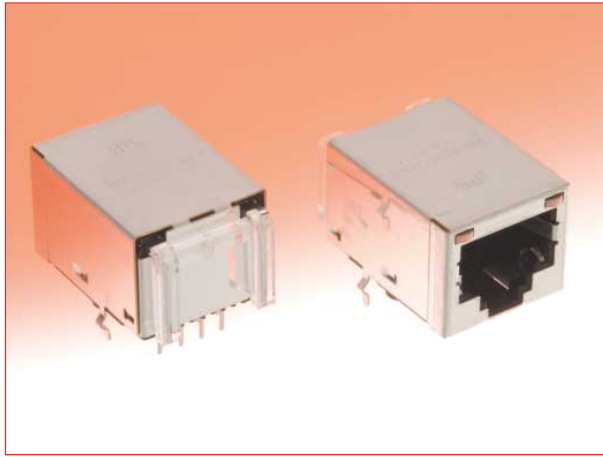
Ordering information

TM11 R D - 5 T A NA - A - 8 8 - LP

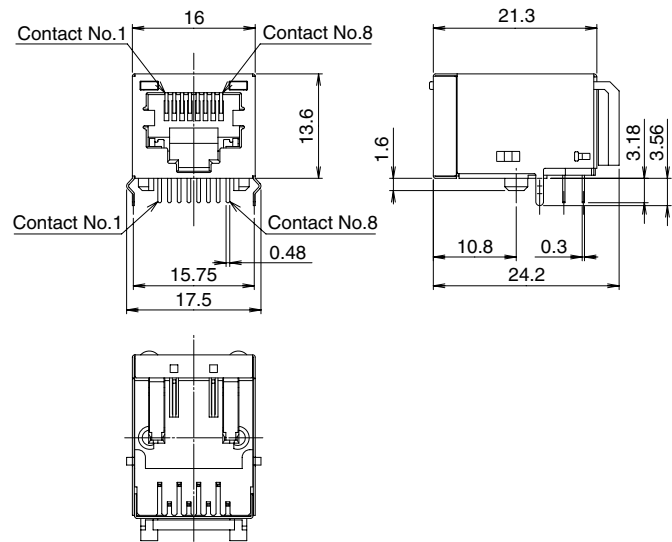
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

| | |
|---|---|
| ① Series name | : TM11 |
| ② Connector type | R: Jack |
| ③ Direction of locking lever (mating plug) | D: Down |
| ④ Jack suffix number | : 5 |
| ⑤ Transformer | T: With transformer |
| ⑥ Transformer type | A: Transformer circuit type |
| ⑦ Incorrect insertion prevention key | NA-A: With built-in key |
| ⑧ Jack opening code | 8: 8 contacts |
| ⑨ Number of inserted contacts | 8: 8 contacts |
| ⑩ Optical pipe | LP: With optical pipe inserted Blank: Without optical pipe |

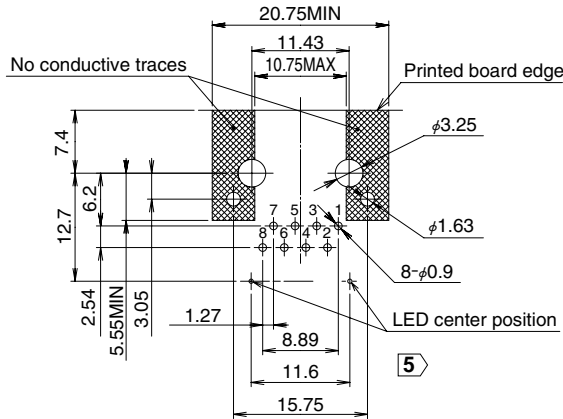
■ Modular Jack Connectors (With built-in optical pipe)



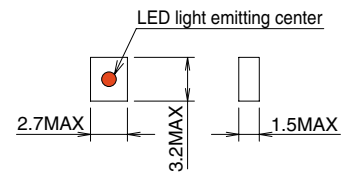
| Part Number | CL No. | RoHS |
|----------------------|--------------|------|
| TM11RD-5TANA-A-88-LP | CL222-2936-3 | YES |



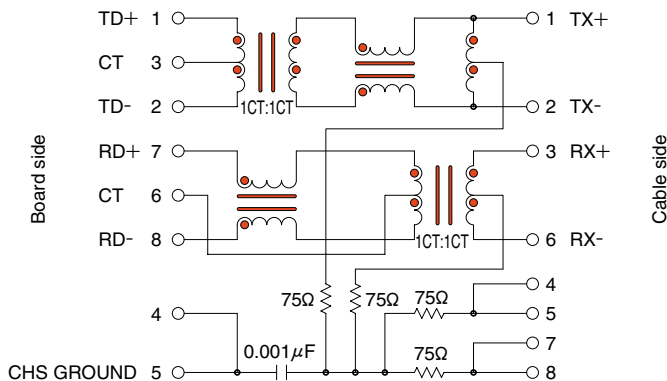
◆ Recommended PCB mounting pattern



4 Suggested dimensions of LEDs



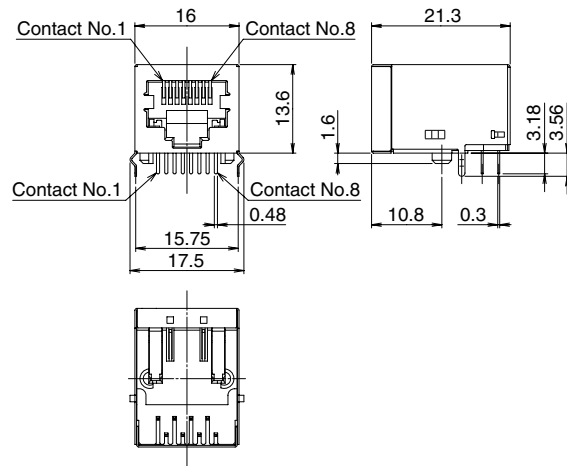
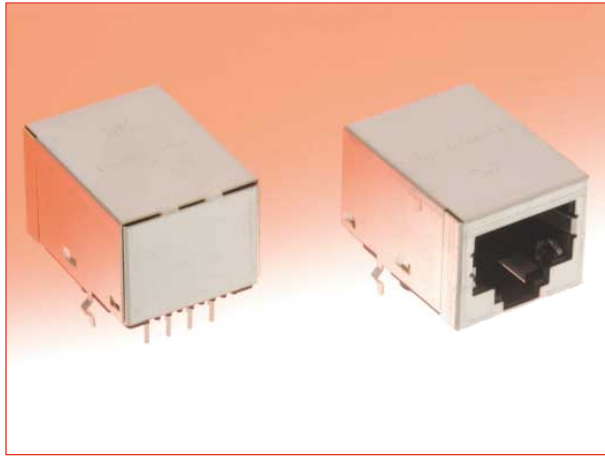
◆ Pulse Transformer Circuit Diagram



● Precautions

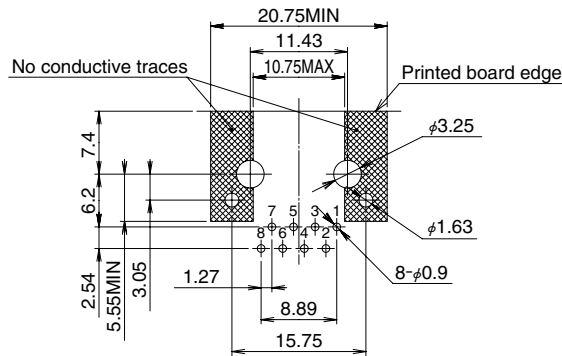
- Hirose Electric did not check the compatibility with the PHY chip. When replacing other manufacturers jack it is recommended to verify the compatibility with the actual equipment.
- This connector is mounted on the board using wave or manual soldering. Do not use reflow soldering.
- Recommended board thickness: 1.6mm
- To assure correct operation of the indicator light pipes LED's must be installed directly on the PCB, within recommended dimensions and with light emitting center in upward direction.
- Mount the LED so that the center of the light emitting center aligns with the center point as dimensioned on the Recommended PCB mounting pattern above.
- Verify the actual LED's mounting pattern with it's manufacturer, then add it to the PCB mounting pattern, assuring the correct placement of the center point.
- 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.

■ Modular Jack Connectors (Without built-in optical pipe)

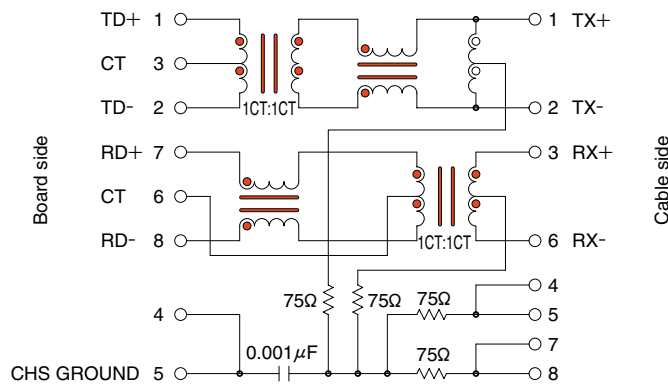


| Part Number | CL No. | RoHS |
|--------------------|--------------|------|
| TM111RD-5TANA-A-88 | CL222-2932-2 | YES |

◆ Recommended PCB mounting pattern



◆ Pulse Transformer Circuit Diagram



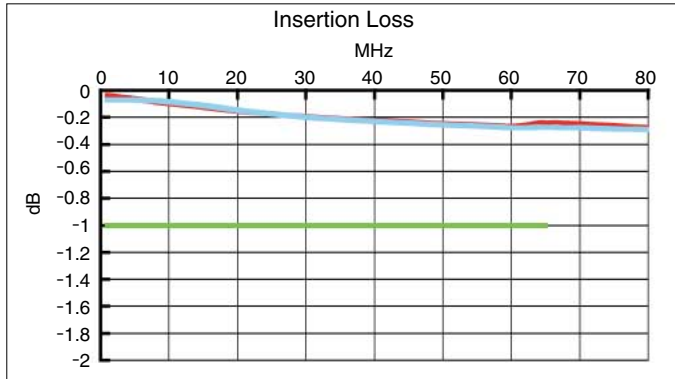
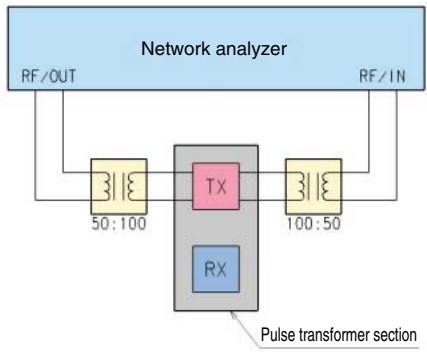
● Precautions

- Hirose Electric did not check the compatibility with the PHY chip. When replacing other manufacturers jacks it is recommended to verify the compatibility with the actual equipment.
- This connector is mounted on the board using wave or manual soldering. Do not use reflow soldering.
- Recommended board thickness: 1.6mm
- 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.

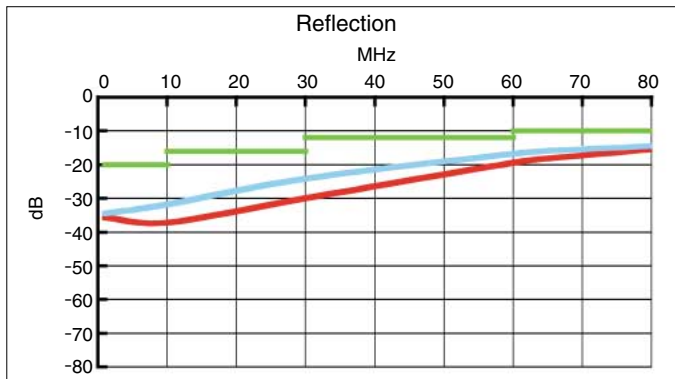
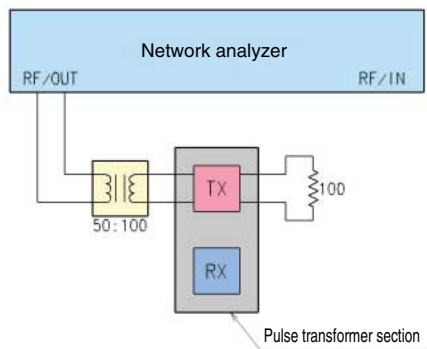
■ Technical Data

Measurement results of electrical characteristics

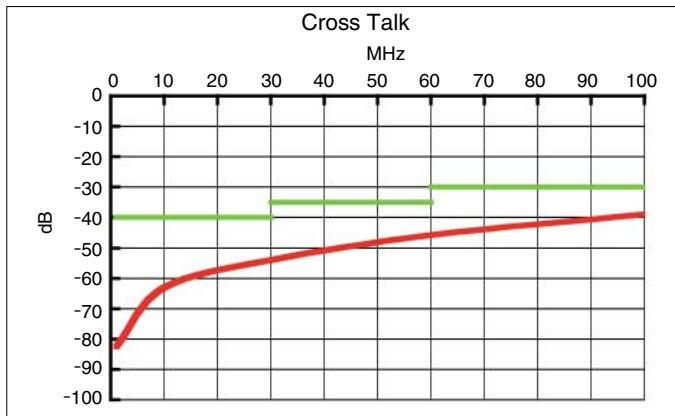
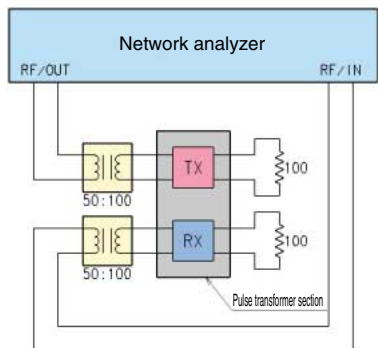
● Insertion Loss



● Reflection Loss



● Crosstalk (Reference)



● Common Mode Rejection Ratio (Reference Value)

