

Interface RF Connector with Switch, built-in interlock, DC to 3GHz

MS-151NB Series



■Overview

Designed for end user applications requiring redirection of transmission from internal built-in antenna to the external antenna. Small size, lightweight and high reliability makes it ideal for use in 2.4 GHz band wireless LAN applications.

■Features

1. Confirmation of complete connection

Built-in interlock feature confirms fully mated condition with a "click" sensation.

2. Non-directional connection

The connector can be mated in any position on a 360° axis and can rotate within the same when in use, allowing routing of the connected cable in any direction.

3. High durability

Guaranteed 5000 insertion/removal cycles.

4. Space-saving

The external dimensions of the board-mounted receptacle (5.0 mm high, 6.5 mm wide, 7.0 mm deep) makes it ideal for use in small devices.

5. Board placement with automatic equipment

Packaged on tape-and-reel. Also available with a vacuum pick-up cap over each switch.

6. RoHS compliant

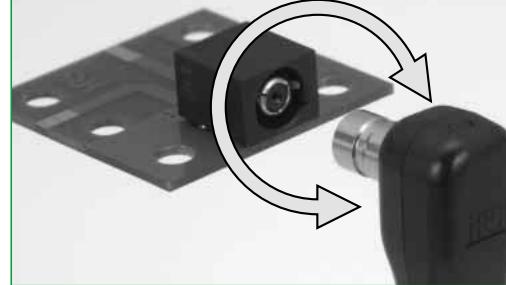
All components and materials comply with the requirements of the EU Directive 2002/95/EC.

■Applications

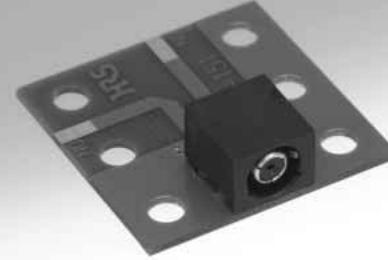
GPS terminals, wireless LAN modules, notebook computers, PDA, and other high frequency equipment.

(Page 7 lists applications and antenna circuit switching examples.)

Plug can be rotated after full insertion.



●Receptacle



MS-151

●Plug



MS-151-C(LP)

●SMA Conversion Adapter
For Receptacle: MS-151NB



MS151P-HRMJ

●SMA Conversion Adapter
For Plug: MS-151-C(LP)



MS151J-HRMJ

■Product Specifications

| | | | |
|-----------------------------|----------------|------------|------------|
| Frequency range | DC to 3GHz | | |
| Operating temperature range | -40°C to +85°C | | |
| Power rating | 4W | | |
| V.S.W.R. | DC to 1 GHz | N.C | N.O |
| | 1 GHz to 2 GHz | 1.2 max. | |
| | 2 GHz to 3 GHz | 1.7 max. | |
| Insertion loss | DC to 1 GHz | 0.2dB max. | 0.3dB max. |
| | 1 GHz to 2 GHz | 0.4dB max. | 0.5dB max. |
| | 2 GHz to 3 GHz | 0.6dB max. | 1.0dB max. |
| Isolation loss | DC to 1 GHz | — | 20dB min. |
| | 1 GHz to 2 GHz | — | 18dB min. |
| | 2 GHz to 3 GHz | — | 12dB min. |

| Item | Specification | Conditions |
|--|--|---|
| 1. Contact resistance | 50 m ohms max. | 100 mA |
| 2. Insulation resistance | 1000 M ohms min. | 100 V DC |
| 3. Withstanding voltage | No flashover or insulation breakdown | 100 V AC / 1 minute |
| 4. Vibration | No electrical discontinuity of 10 μ s or more | Frequency: 10 to 500 Hz, single amplitude of 0.75 mm, acceleration of 98 m/s ² for 2 hours in each of the 3 directions |
| 5. Shock | | Acceleration of 490 m/s ² , 11 ms duration, sine half-wave waveform, 3 cycles in each of the 3 axis |
| 6. Temperature cycle | Contact resistance: 100 m ohms max. Insulation resistance: 10 M ohms min. | Temperature: -55°C → +15°C to +35°C → +85°C → +15°C to +35°C Time: 30 → 5 max. → 30 → 5 max.(Minutes) 100 cycles |
| 7. Humidity (Steady state) | | 96 hours at temperature of 40°C and humidity of 90% |
| 8. Salt spray | Contact resistance: 100 m ohms max. No corosions | 5% salt water solution, 48 hours (at 35°C) |
| 9. Insertion/Withdrawal forces | Insertion force: 1~10N Withdrawal force: 3~15N | With corresponding connector |
| 10. Durability (insertion/ withdrawal) | Contact resistance: 100 m ohms max. | 5000 cycles |

■Materials

Receptacle MS-151

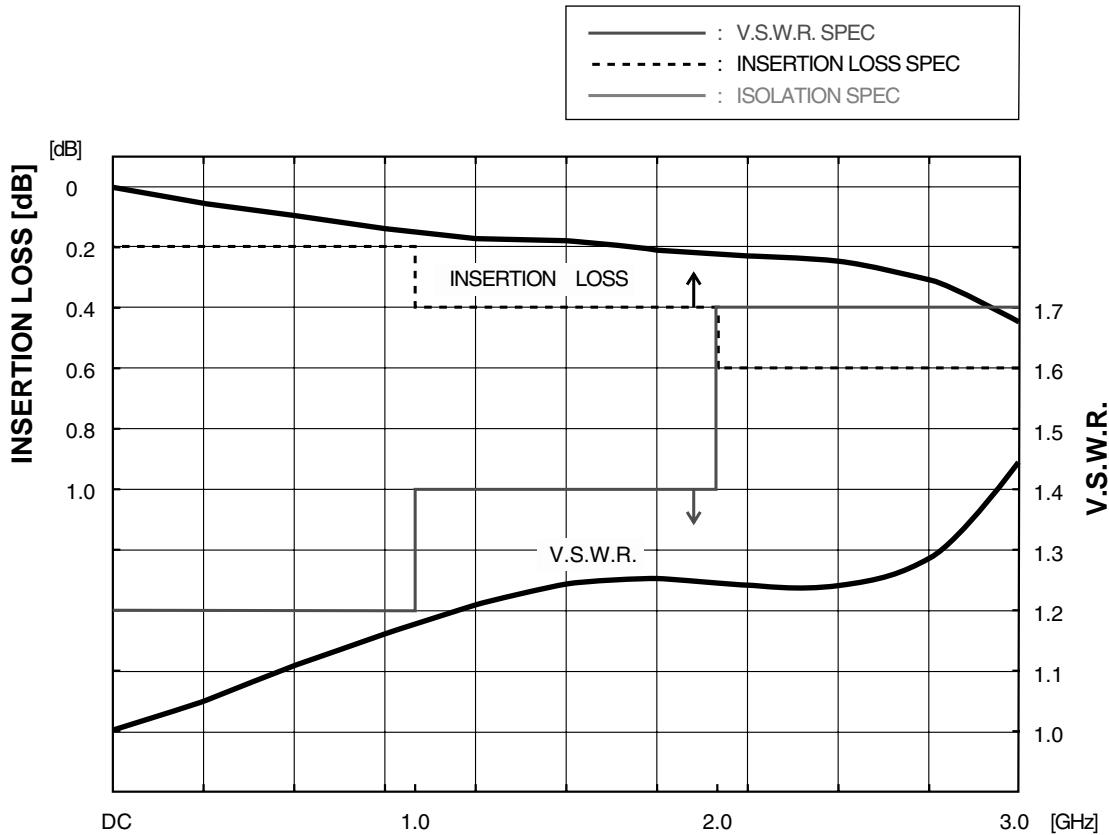
| Part | Material | Finish |
|-----------------------|--------------------|--|
| Insulator | Polyamide (UL94V0) | — |
| Lock mating section | Stainless steel | Nickel plating (Termination area: tin-lead plated) |
| Outer conductor shell | Phosphor bronze | Nickel plating (Termination area: tin-lead plated) |
| Contact A | Phosphor bronze | Gold plating |
| Contact C | Beryllium copper | Gold plating |

Plug MS-151-C(LP)

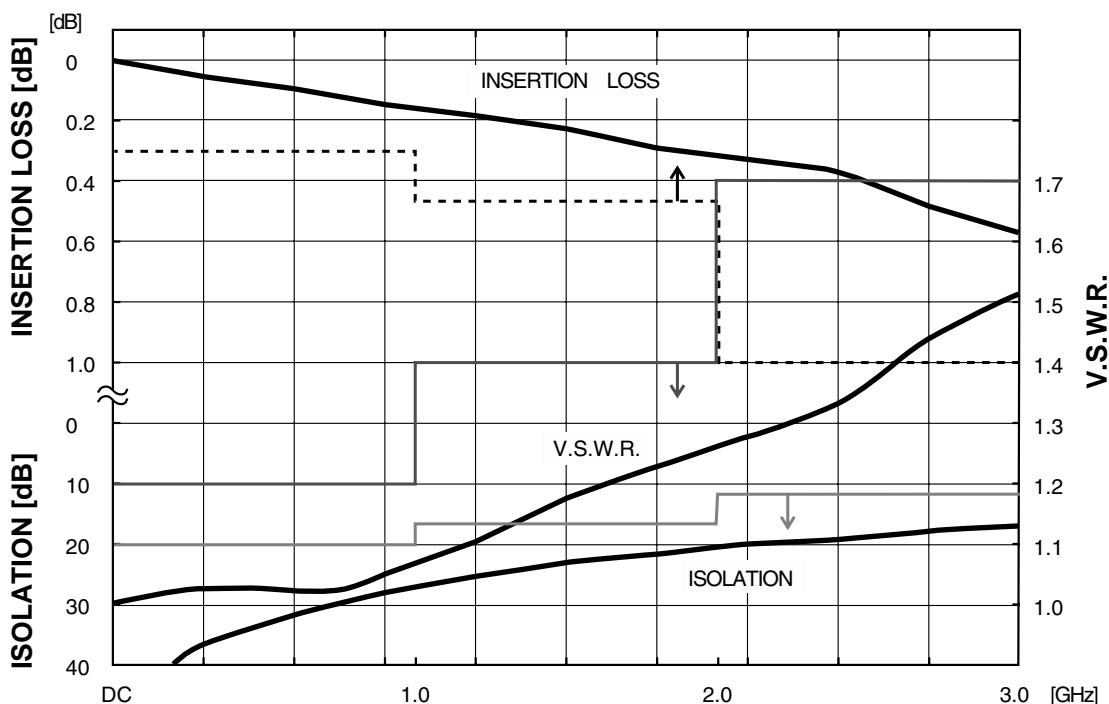
| Part | Material | Finish |
|-----------------------|----------------------|----------------|
| Cover A | PC | — |
| Cover B | PC | — |
| Ring | Stainless steel | Nickel plating |
| Outer conductor shell | Phosphor bronze | Nickel plating |
| Inner contact | Phosphor bronze | Gold plating |
| Insulator | Polyamide (UL 94-HB) | — |
| Ferrule | Stainless steel | — |
| Crimp metal fitting | Brass | Nickel plating |
| Bushing | Polyester | — |

◆Typical data

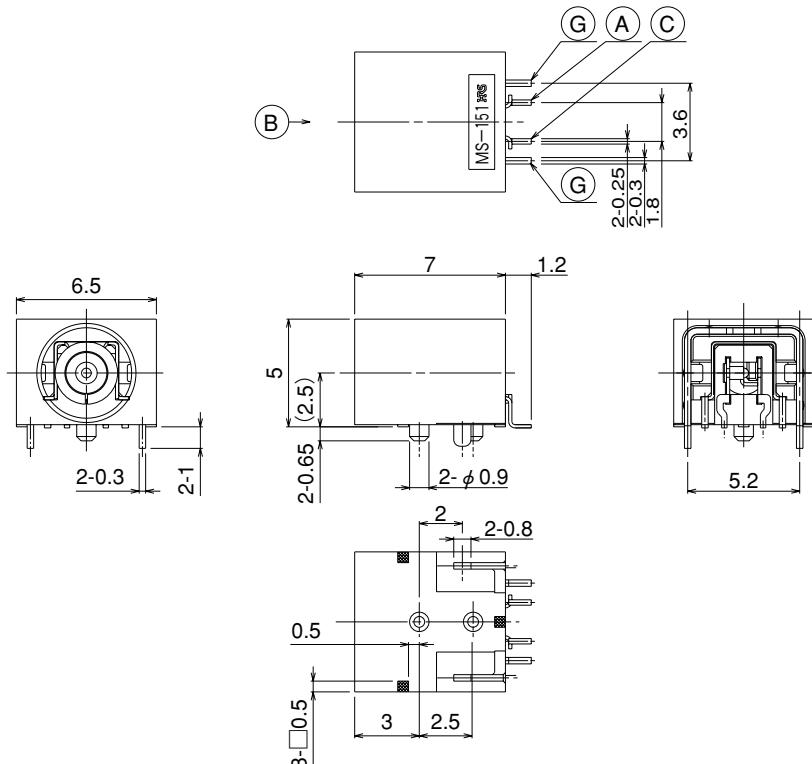
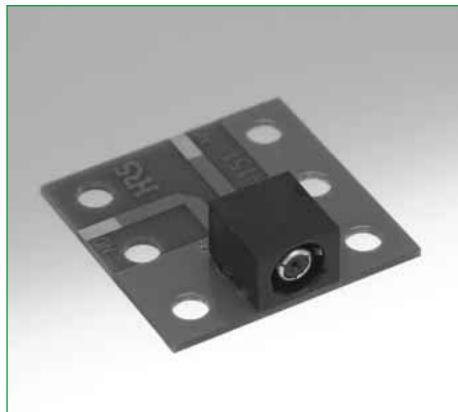
●NORMALLY CLOSED(N.O) ~ (Not mated with the plug)



●OPEN(N.O) ~ (Mated with the plug)

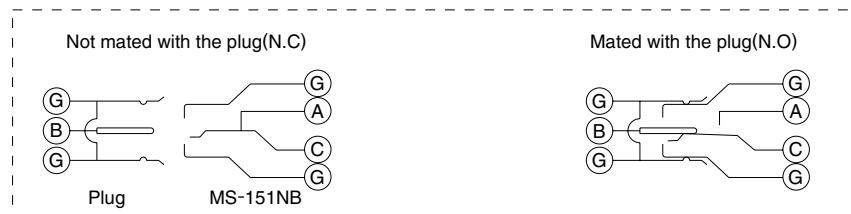


■ Receptacle

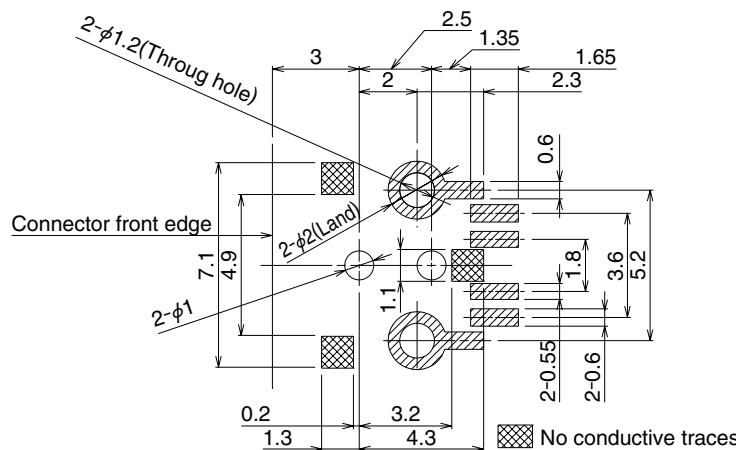


| Part Number | HRS No. | Packaging | RoHS |
|--------------|---------------|-----------------------|------|
| MS-151NB | 358-0215-9 | 1,000 pieces per reel | YES |
| MS-151NB(01) | 358-0215-9-01 | 100 pieces | |

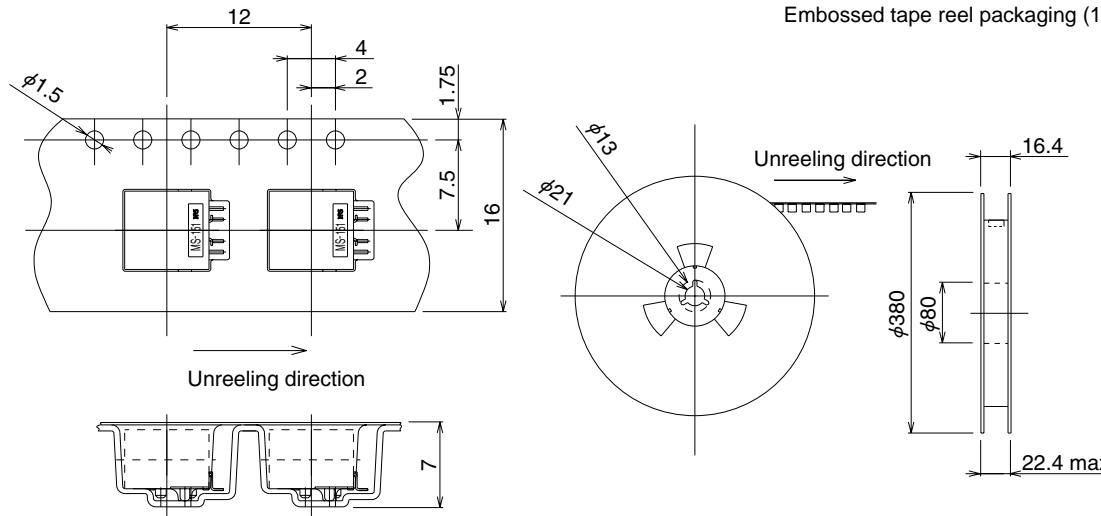
◆ Circuit diagram



◆ PCB mounting pattern

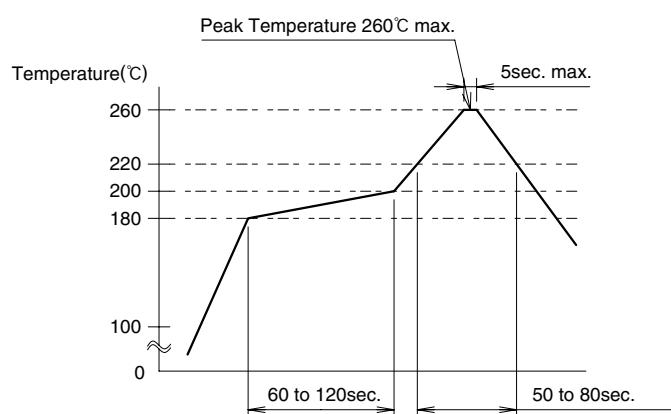


◆Packaging Specifications



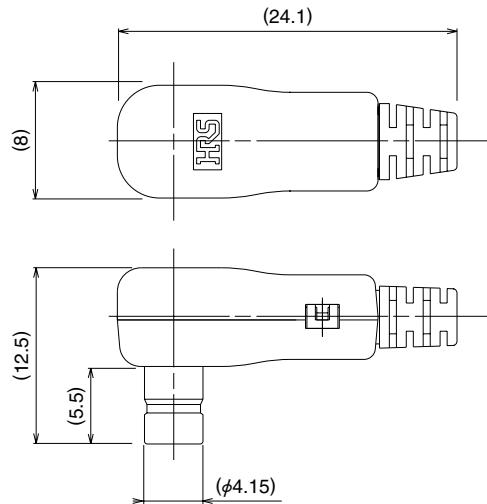
◆Recommended Temperature Profile

Using Lead-free solder paste



| | |
|---------------------------|------------------|
| Maximum temperature | : 260°C |
| Peak temperature | : 240°C to 255°C |
| Peak temperature duration | : 5 sec. Max. |
| 200°C min. | : 50 to 80 sec. |
| 150°C to 160°C | : 60 to 120sec. |

■Plug

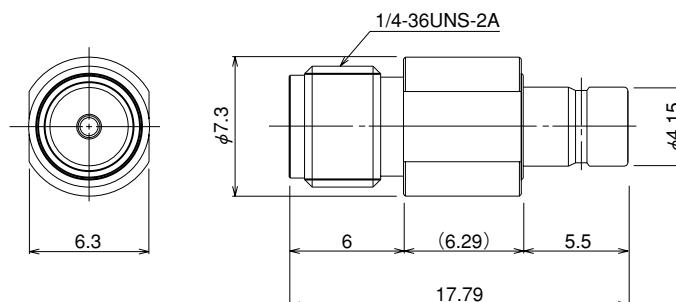


| Part Number | HRS No. | Packaging | Applicable cable | RoHS |
|--------------|------------|-----------|------------------|------|
| MS-151-C(LP) | 358-0160-9 | 1 | 1.5DS-QEHV(TA) | YES |

Termination fixture: MS-151/CF-MD, MS-151/SO-MD, MS-151/BE-MP and MS-151/CK-MP
Please contact your Hirose Electric representative for information.

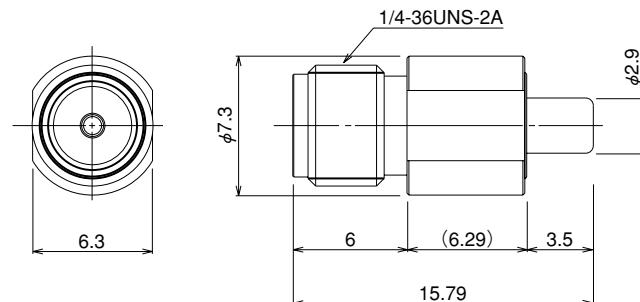
■SMA Conversion adaptors

●For Receptacle: MS-151



| Part Number | HRS No. | Packaging | RoHS |
|-------------|------------|-----------|------|
| MS151P-HRMJ | 355-0089-7 | 1 | YES |

●For Plug: MS-151-C(LP)



| Part Number | HRS No. | Packaging | RoHS |
|-------------|------------|-----------|------|
| MS151J-HRMJ | 355-0088-4 | 1 | YES |