

# Interface RF Connector with Switch

## MS-151 Series



### Overview

Designed for end user applications requiring re-direction 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. Ease of connection and handling

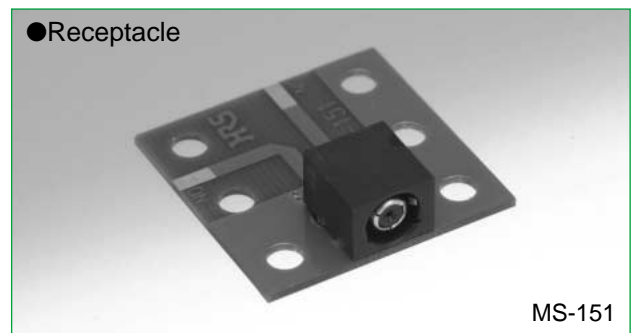
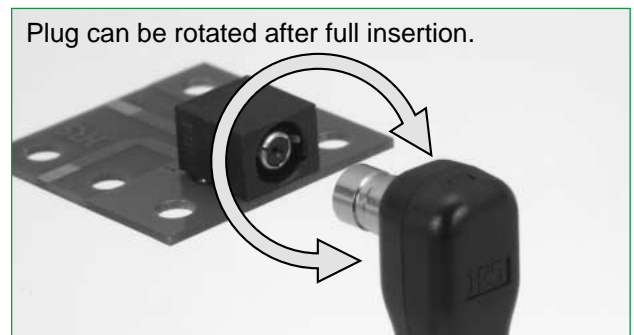
Over-molded plug, with convenient grip and built-in cable strain relief assures reliable mating/un-mating by end user.

#### 6. Designed for board placement with automatic equipment

Top surface of receptacle assembly is flat, allowing reliable hold for vacuum nozzles of automatic placement equipment.

### Applications

GPS terminals, wireless LAN modules, notebook computers, PDA, and other high frequency equipment. (Page 7 lists applications and antenna circuit switching examples.)



## ■Product Specifications

Frequency range	DC to 3GHz		
Operating temperature range	-40°C to +85°C		
Power rating	4W		
		Not mated with the plug	Mated(MS-151-C-(LP))
V.S.W.R.	DC to 1 GHz	1.2 max.	
	1 GHz to 2 GHz	1.4 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 $\mu$ s or more	Frequency: 10 to 500 Hz, single amplitude of 0.75 mm, acceleration of 98 m/s <sup>2</sup> for 2 hours in each of the 3 directions
5. Shock		Acceleration of 490 m/s <sup>2</sup> , 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 → +5°C to +35°C → +85°C → +5°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 corrosions	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

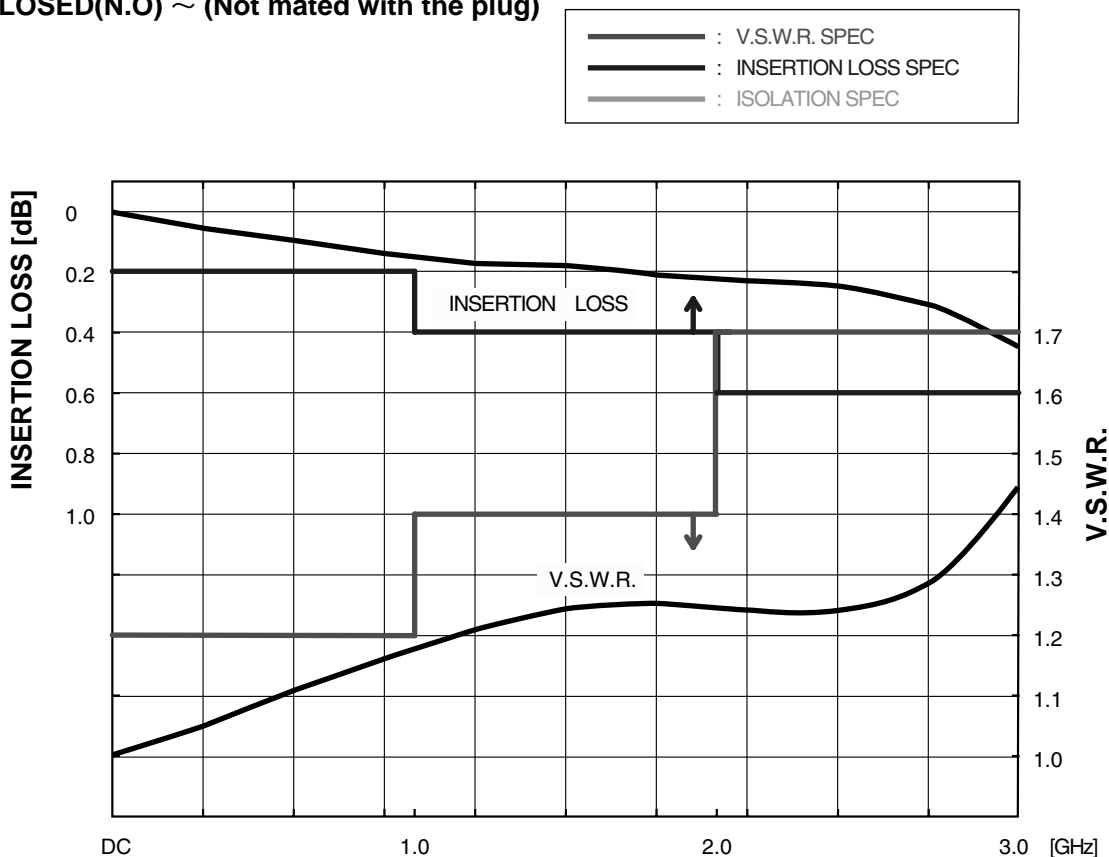
Part	Material	Finish
Insulator	Polyamide (UL 94V-0)	————
Lock mating section	Stainless steel	Nickel plating (Termination area: tin-lead plated)
Outer conductor shell	Phosphor bronze	Nickel plating (Termination area: tin-lead plated)
Contact A	Phosphor bronze	Gold plating
Contact C	Beryllium copper	Gold plating

### Plug MS-151-C(LP)

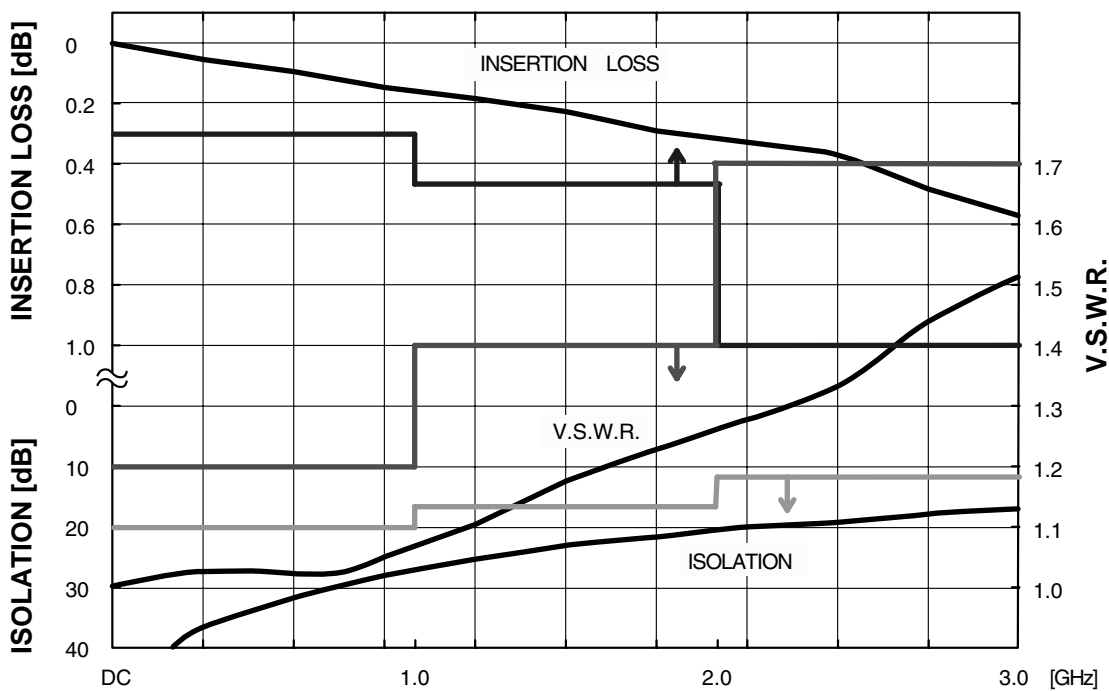
Part	Material	Finish
Cover A	PC	————
Cover B	PC	————
Ring	Stainless steel	Nickel plating
Outer conductor shell	Phosphor bronze	Nickel plating
Inner contact	Phosphor bronze	Gold plating
Insulator	Polyamide (UL 94-HB)	————
Ferrule	Stainless steel	————
Crimp metal fitting	Brass	Nickel plating
Bushing	Polyester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

## ◆ Typical data

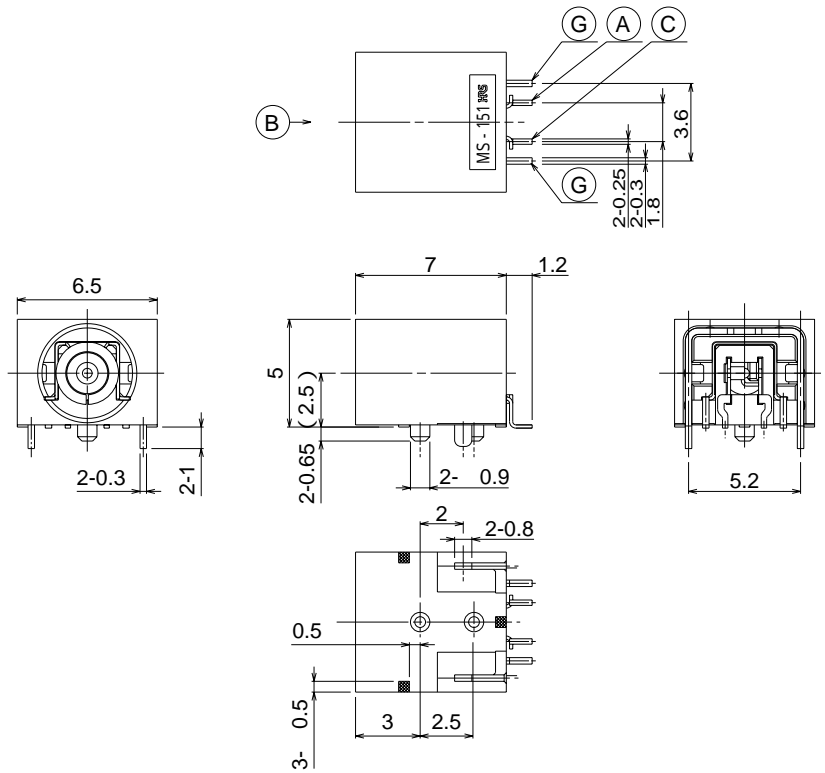
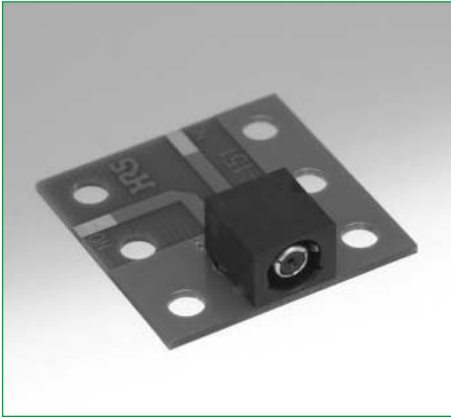
### ● NORMALLY CLOSED(N.O) ~ (Not mated with the plug)



### ● OPEN(N.O) ~ (Mated with the plug)

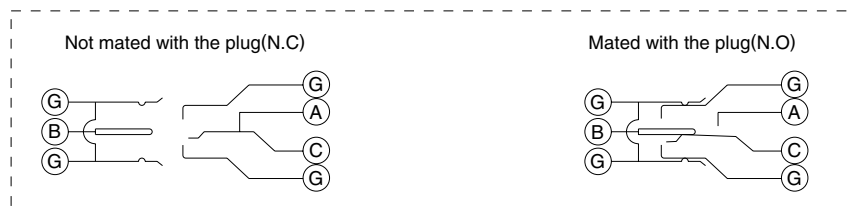


## ■ Receptacle

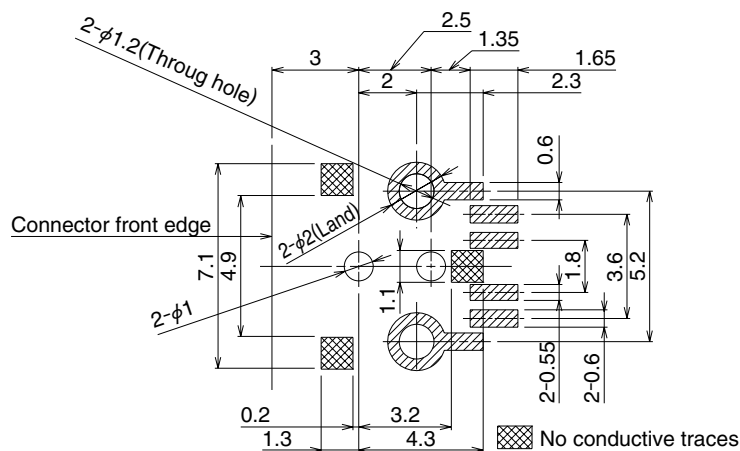


Part Number	CL No.	Packaging
MS-151	358-0158-7	1,000 pieces per reel
MS-151(01)	358-0158-7-01	100 pieces

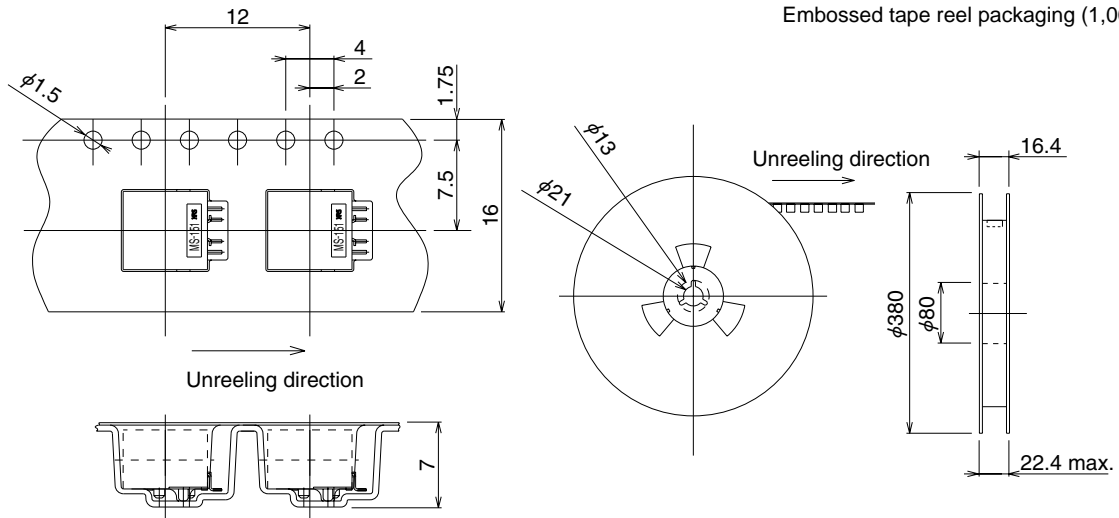
## ◆ Circuit diagram



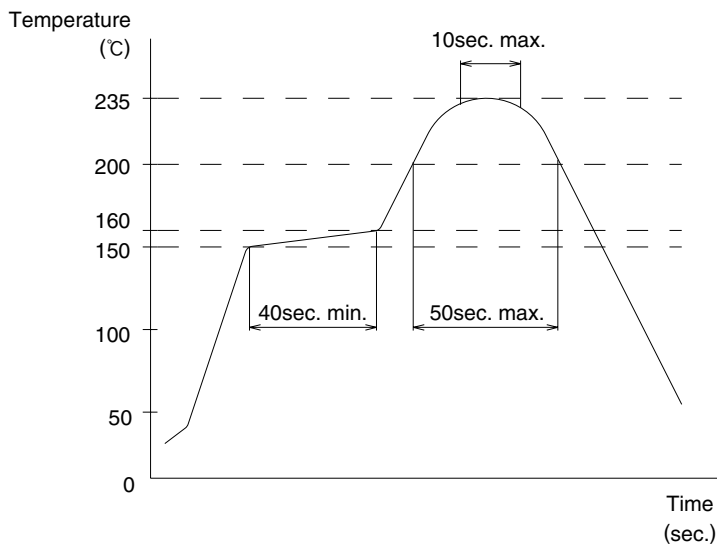
## ◆ PCB mounting pattern



## ◆ Packaging Specifications

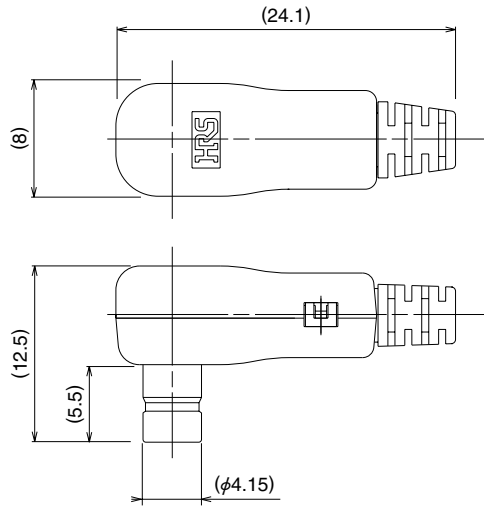


## ◆ Recommended Temperature Profile



Maximum temperature	: 240°C
Peak temperature duration	: 10 sec. Max.
Peak temperature	: 220°C to 235°C
200°C min.	: 50 sec. Max.
150°C to 160°C	: 40 sec. Min.

## ■ Plug



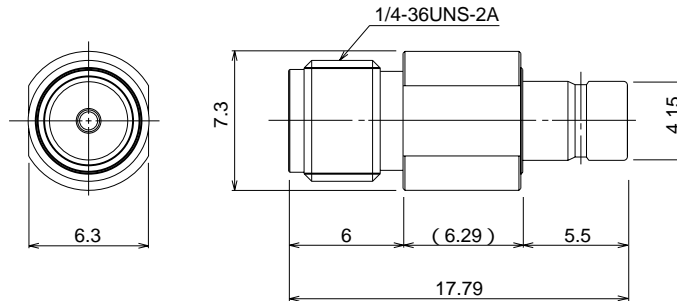
\* Dedicated termination tools required.  
\* Can be supplied terminated with cable.

Part Number	CL No.	Packaging	Applicable cable
MS-151-C(LP)	358-0160-9	1	1.5DS-QEHV(TA) or UL1.5DL1.5DS-QEHV(TA)

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.

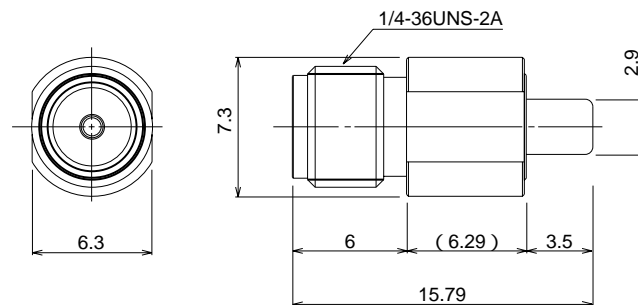
## ■ SMA Conversion adaptors

### ● For Receptacle: MS-151



Part Number	CL No.	Packaging
MS151P-HRMJ	355-0089-7	1

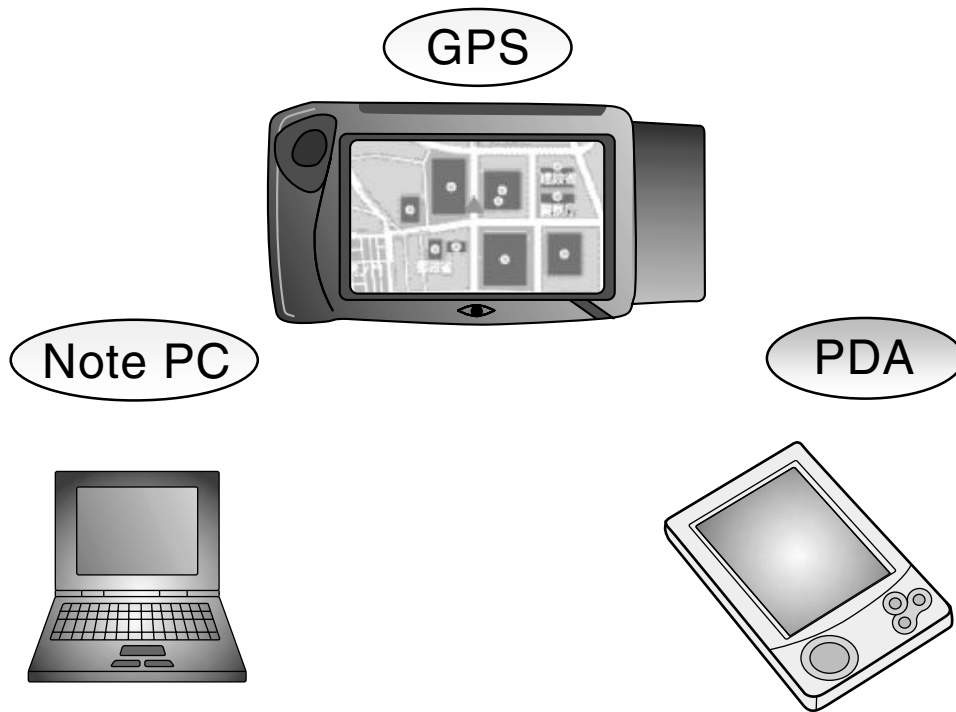
### ● For Plug: MS-151-C(LP)



Part Number	CL No.	Packaging
MS151J-HRMJ	355-0088-4	1

## ■ Applications

- Notebook PC's, PDA's, GPS terminals, wireless communications equipments.



## ◆ Antenna Circuit Re-directing

