

# Interface Coaxial Switches

## MS-145 Series



### ■ Features

#### 1. Frequency range

Can be used from DC to 2.5 GHz and with GSM, PCS, cdma-One, W-CDMA, etc.

#### 2. Low profile

Low protrusion of only 6mm above the mounting surface (receptacle).

#### 3. Durability

High durability (mating/unmating) of 10 000 cycles.

#### 4. Self alignment of mating parts

Inducement to floating is  $\pm 0.5$ mm.

#### 5. Light weight

Weight is only 0.18g.

#### 6. Small board surface solder area

The area is  $7 \times 4.6$ mm (excluding leads).

#### 7. Automatic mounting

Receptacle designed for placement on board with automated equipment.

#### 8. Solder wicking

Receptacle terminations are designed to prevent solder wicking into the critical contact areas.

#### 9. Plugs

Wide variety of mating heights are available.

#### 10. Adaptors

Different adaptors are available.

### ■ Applications

Mobile Phone antenna switching  
Checks of microwave boards, etc.

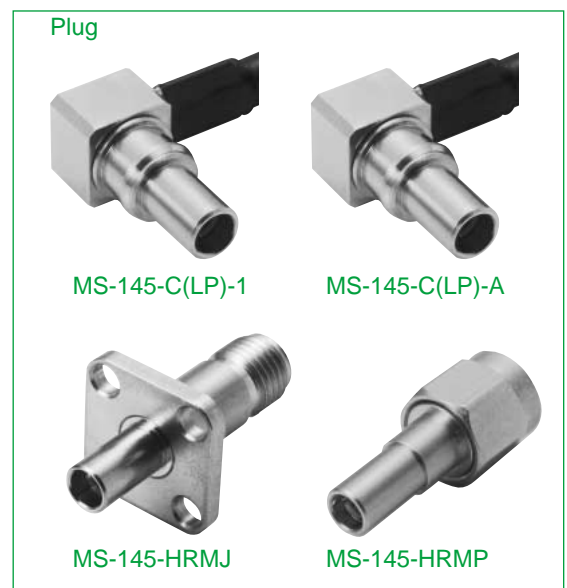
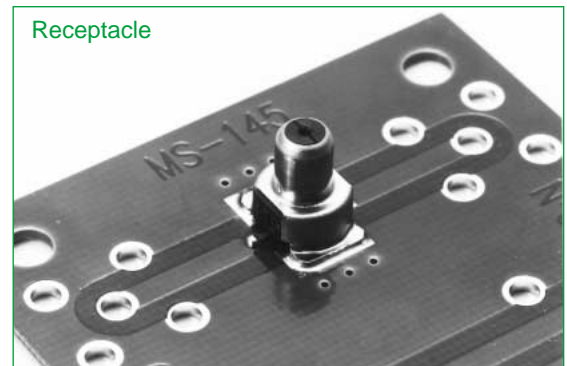
### ■ Materials

Part	Material	Color/Finish	UL standard
Outer shell	Phosphor bronze	Gold plating	—
Insulator	Polyamide resin	—	UL94HB
Common contact	Beryllium copper	Mounting area : Solder over Nickel plating	—
		Contact area : Gold over Nickel plating	—
		Others : Nickel Plating	—
Board circuit side (N.C.) contact	Beryllium copper	Mounting area : Solder over Nickel plating	—
		Contact area : Gold over Nickel plating	—
		Others : Nickel Plating	—

### ■ Overview and applications

Designed primarily as interface coaxial switch for a mobile phones, they are also used in variety of other applications requiring redirecting of signals when mating with corresponding plug.

The mating action redirects the signals from the receptacle side to the plug side.

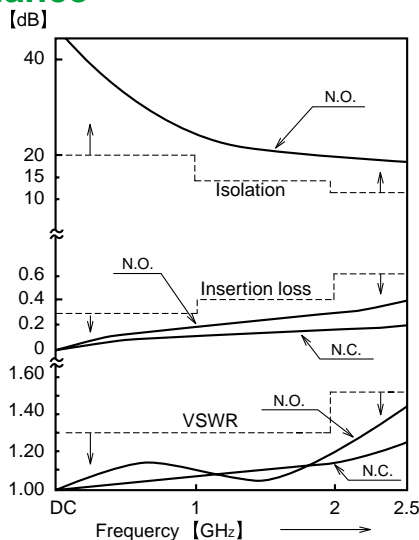


## ■ Performance

	Specification
Operating temperature range	-30°C to +85°C
Power	2 W (4W : at 1/8 duty ratio)
Frequency range	DC to 2.5 GHz
Insertion loss	0.3 dB or less (DC to 1 GHz)
	0.4 dB or less (1 GHz to 2 GHz)
	0.6 dB or less (2 GHz to 2.5 GHz)
Isolation	20 dB or greater (DC to 1 GHz)
	15 dB or greater (1 GHz to 2 GHz)
	12 dB or greater (2 GHz to 2.5 GHz)
V.S.W.R.	1.3 or less (DC to 2 GHz)
	1.5 or less (2 GHz to 2.5 GHz)

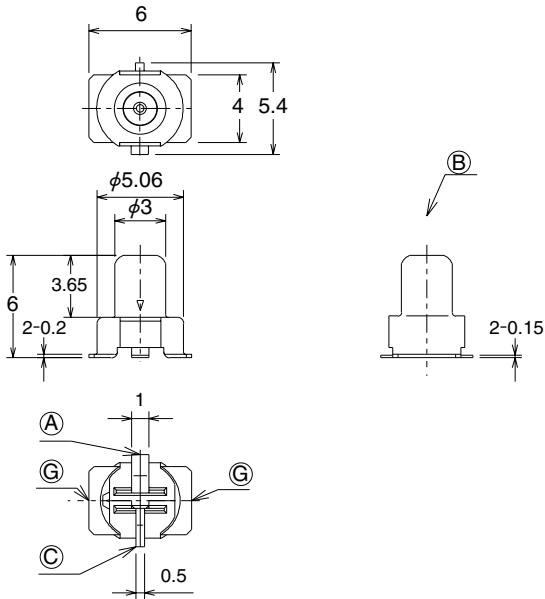
Item	Requirement	Test Condition
1. Insulation resistance	1 GΩ or more	Measured at 100 V DC
2. Voltage proof	No arcing or insulation breakdown	100 V AC applied for one minute
3. Contact resistance	Center: 75 mΩ or less Outside: 50 mΩ or less	Measured at 100 mA or less
4. Vibration	No momentary disconnections of 10 μs or more Contact resistance Center: 100 mΩ or less Outside: 75 mΩ or less	Frequency 10 to 50 Hz, amplitude 1.5 mm, at 2 h, for 3 directions
5. Shock	No momentary disconnections of 10 μs or more Contact resistance Center: 100 mΩ or less Outside: 75 mΩ or less	490 m/s <sup>2</sup> , half-sine waveform, at 3 times for 3 directions
6. Thermal shock	Contact resistance Center: 100 mΩ or less Outside: 75 mΩ or less Insulation resistance 10 MΩ or more	Temperature : -55°C → 5 to 35°C → to 85°C → 5 to 35°C Time : 30 min → Within 5 min → 30 min → Within 5 min 100 cycles
7. Corrosion salt spray	Contact resistance Center: 100 mΩ or less Outside: 75 mΩ or less No excessive corrosion	Exposed in 5% salt water spray for 48 h, at 35°C
8. Durability (Mating/Unmating)	Contact resistance Center: 100 mΩ or less Outside: 75 mΩ or less	10000 Mating/Unmating cycles

## ■ Typical performance

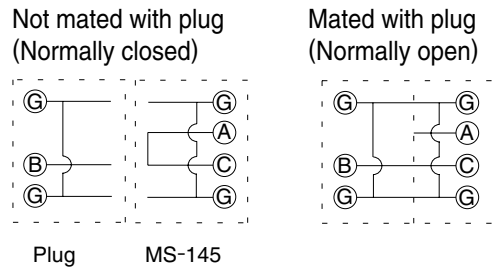


## ■ Receptacle dimensions

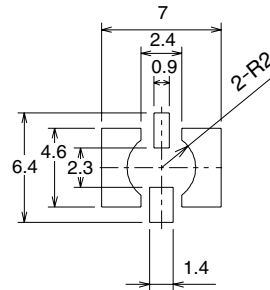
Parts No : MS-145(06)  
 Package condition (1,000 pieces per reel)  
 All dimensions in mm.



## ◆ Circuit configuration

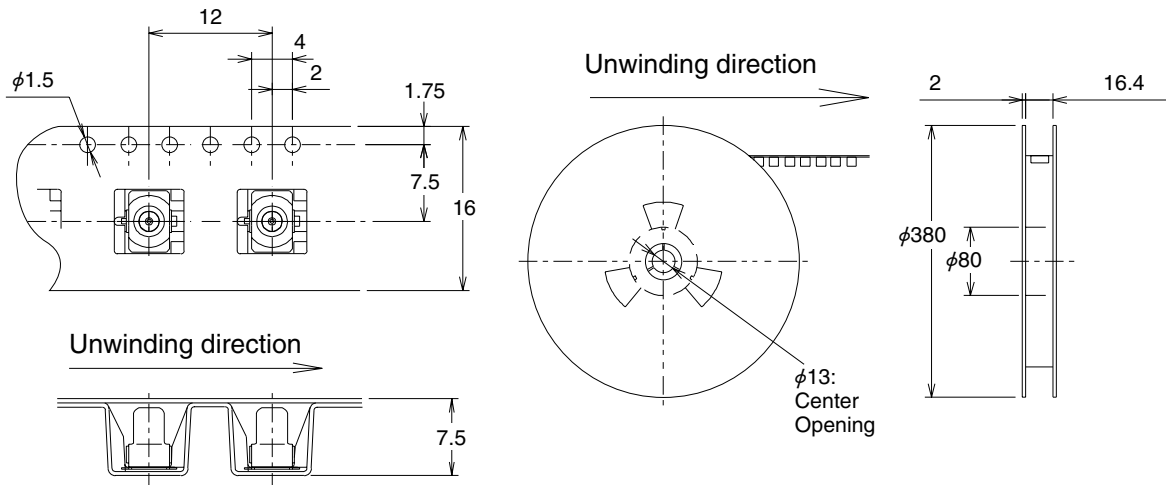


## ◆ Recommended solder board mounting pattern



## ◆ Tape and reel dimensions

(1,000 pieces per reel)



## ■ Plug

MS-145-C(LP)-1	MS-145-C(LP)-A	MS-145-C(LP)-MI

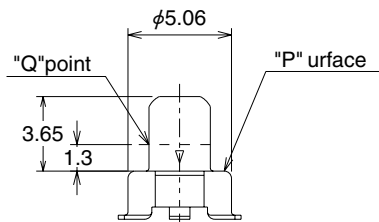
## ■ MS-145 to SMA adaptor

MS-145 to SMA Male	MS-145 to SMA Female	
Straight type	Panel mount type	Straight type
MS-145-HRMP-A	MS-145-HRMJ	MS-145-HRMJ-A-D

## ◆ Usage precautions

### 1. Please select plugs according to the following applications.

Part No.	Engagement position	Effective engagement length (Nominal)
MS-145-C(LP)-1	Engages up to a position (Q point) of 1.3 mm from the 5.06 mm diameter shoulder of the MS-145	0.82mm
MS-145-C(LP)-A MS-145-C(LP)-MI MS-145-HRMJ-A-D MS-145-HRMP-A	Engages by pushing up to the 5.06 mm diameter shoulder (P surface) of the MS-145	1.32mm
MS-145-HRMJ	Engages by pushing up to the 5.06 mm diameter shoulder (P surface) of the MS-145	0.82mm



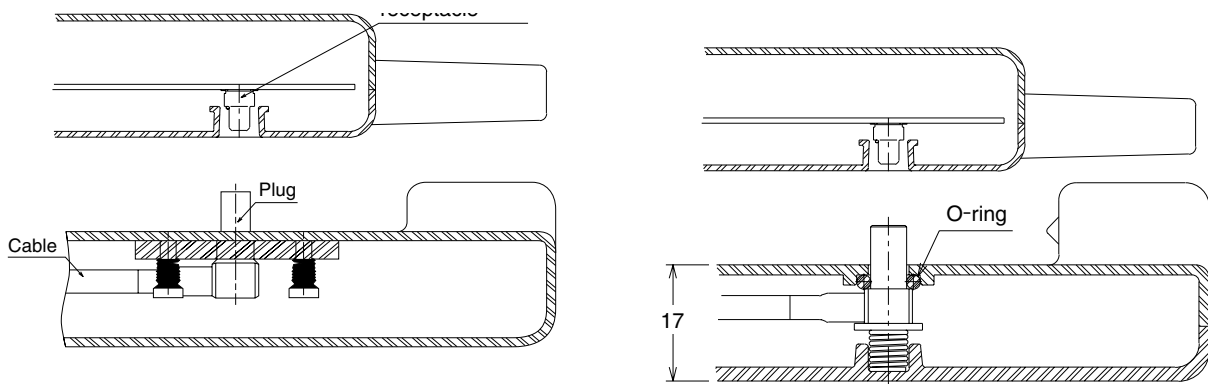
2. Applicable cable for plugs: 1.5D-HQEW or 1.5D-QEW (manufactured by Fujikura Ltd.).

3. No cleaning is needed after soldering or cable termination.

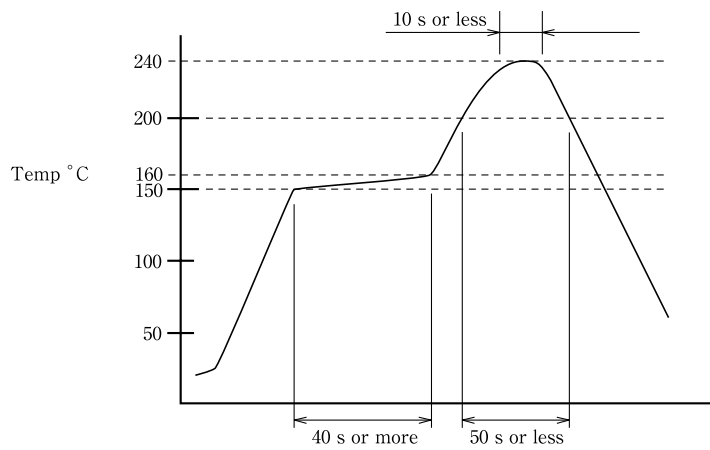
4. Please design avoiding holes so that force is not applied to this product from the case when dropped in the board mounted condition.

5. When mounted as the RF interface of a Mobile Phone, please consider using a rubber cap when the plug is not engaged to prevent dust from entering.

## ◆ Application examples



## ◆ Recommended solder temperature profile



## ◆ Recommended nozzle configuration (For receptacle board placement with automatic equipment)

