

# Interface Coaxial Switches

## MS-145 Series



### ■ Features

#### 1. Space saving

External dimensions are 7mm x 4.6mm.  
Saves installation space.

#### 2. Low profile

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

#### 3. Light weight

Weight is only 0.18g.

#### 4. Durability

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

#### 5. Automatic mounting

Receptacle designed for placement on board with automated equipment.

#### 6. Frequency range

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

#### 7. Plugs

Wide variety of mating heights are available.

#### 8. Solder wicking

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

#### 9. Self alignment of mating parts

Inducement to floating is  $\pm 0.5$ mm.

### ■ Applications

Mobile Phone antenna switching  
Checks of microwave boards, etc.

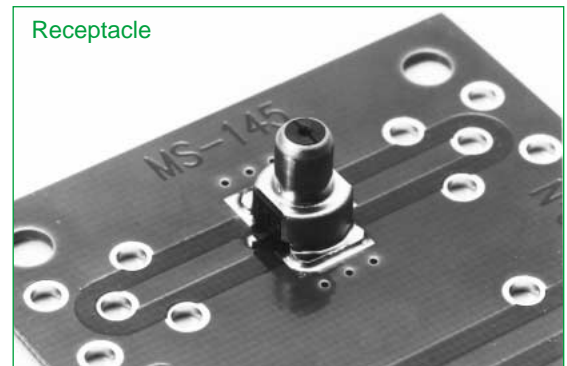
### ■ Materials

Part	Material	Finish	Remarks
Outer shell	Phosphor bronze	Gold plating	-----
Insulator	Polyamide	-----	UL94HB
Common contact	Beryllium copper	Mounting area : Solder plating	-----
		Contact area : Gold plating	-----
Board circuit side (N.C.) contact	Beryllium copper	Mounting area : Solder plating	-----
		Contact area : Gold 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.

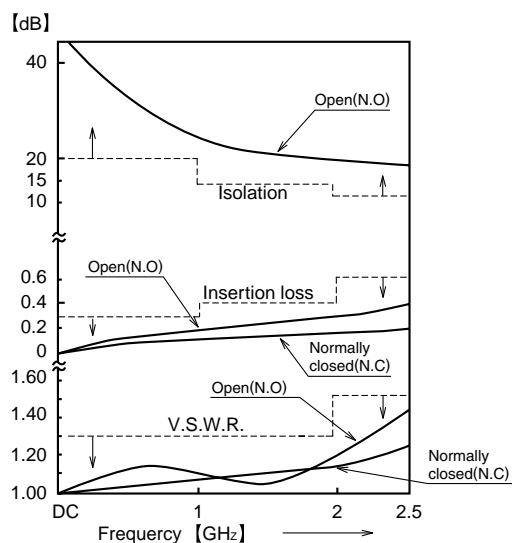


## Product Specifications

Operating temperature range	-30°C to +85°C
Power	2 W
Frequency range	DC to 2.5 GHz
Insertion loss	0.3 dB Max. (DC to 1 GHz)
	0.4 dB Max. (1 GHz to 2 GHz)
	0.6 dB Max. (2 GHz to 2.5 GHz)
Isolation	20 dB Min. (DC to 1 GHz)
	15 dB Min. (1 GHz to 2 GHz)
	12 dB Min. (2 GHz to 2.5 GHz)
V.S.W.R.	1.3 Max. (DC to 2 GHz)
	1.5 Max. (2 GHz to 2.5 GHz)

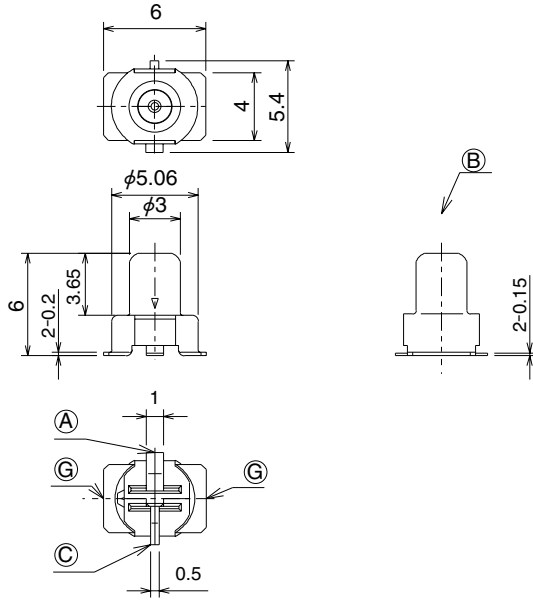
Item	Standard	Test Condition
1. Insulation resistance	1000M ohms Min.	100 V DC
2. Withstanding voltage	No flashover or insulation breakdown	100 V AC/one minute
3. Contact resistance	Center: 75 m ohms Max. Outside: 50 m ohms Max.	at 100 mA Max.
4. Vibration	No electrical discontinuity of 10 $\mu$ s or more Contact resistance Center: 100 m ohms Max. Outer : 75 m ohms Max.	Frequency of 10 to 55 Hz, overall amplitude of 1.5 mm for 2 hours in each of 3 directions
5. Shock		Acceleration of 490 m/s <sup>2</sup> , sine half-wave waveform, 3 cycles in each of the 3 axis
6. Thermal shock	Contact resistance Center: 100 m ohms Max. Outer : 75 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) 5 cycles
7. Salt spray	Contact resistance Center: 100 m ohms Max. Outer : 75 m ohms Max. No excessive corrosion	Exposed to 5% salt water solution for 48 hours
8. Durability (Insertion/withdrawal)	Contact resistance Center: 100 m ohms Max. Outer : 75 m ohms Max.	10000 cycles

## Typical Data

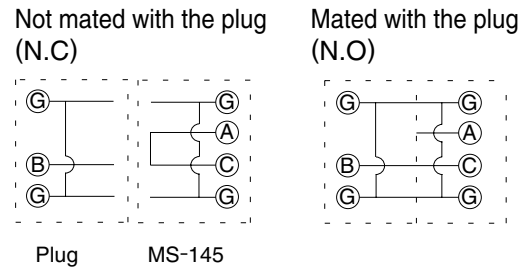


## ■ Receptacle dimensions

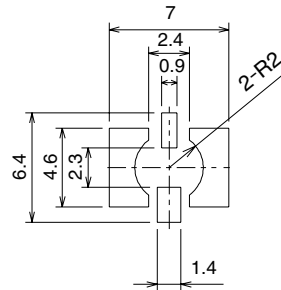
Parts No : MS-145(06)  
 1,000 pieces per reel  
 All dimensions in mm.



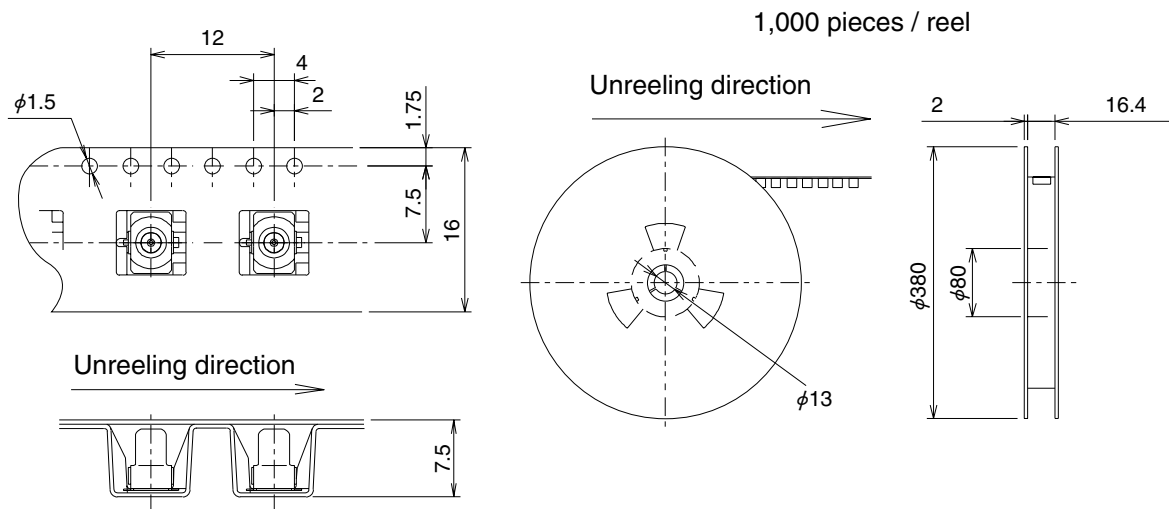
## ◆ Circuit Diagram



## ◆ PCB Mounting Pattern



## ◆ Packaging Specifications



## ■ Plug

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

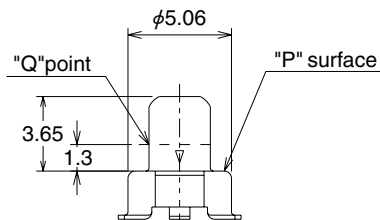
## ■ MS-145 to SMA adaptor

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

## ◆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



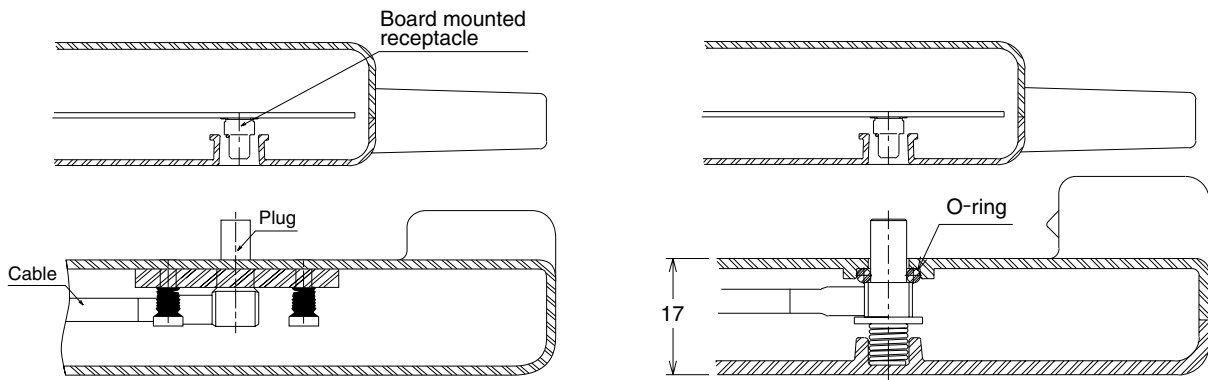
### 2. Applicable cable for plugs: 1.5D-HQEW or 1.5D-QEW (manufactured by Fujikura Ltd.).

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

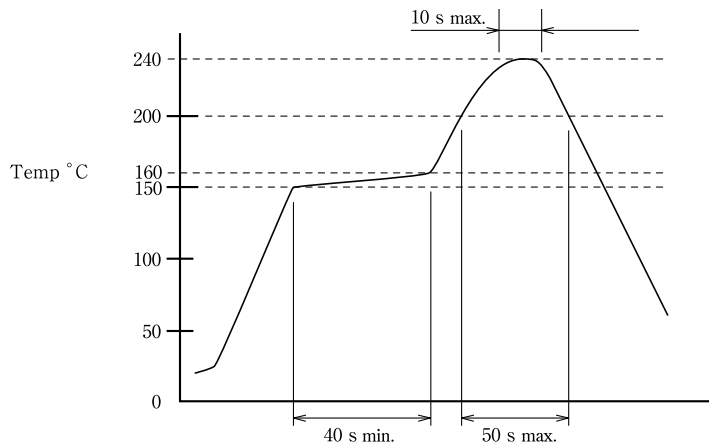
### 4. Please design avoiding holes so that force is not applied to this product from the case when dropped in the board mounted condition.

### 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 Temperature Profile



● Maximum temperature	: 240°C
● Duration of peak temperature	: 10sec Max.
● Base peak temperature	: 220°C - 235°C
● 200°C or over	: 50sec Max.
● 150°C - 160°C	: 40sec Min.

## ◆ Recommended Nozzle Dimensions

