

# Ultra Miniature Snap-on Coaxial Connector (PC Card Type II Mountable)

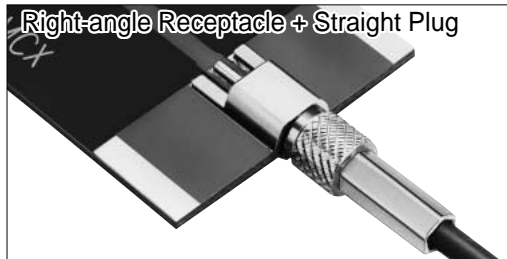
## MMCX Series



Right-angle Receptacle



Right-angle Receptacle + Straight Plug



Right-angle Receptacle + Right-angle Plug



### ■ Features

#### 1. Snap-on coupling mechanism makes it easy to engage and disengage.

The rugged snap-on interface which uses no slotting in the outer conductor maintains mechanical stability by allowing constant mating force and rotation without degradation of electrical performance.

#### 2. Low Profile accommodates PCMCIA type II cards

The MMCX-LR-SMT with a height of only 3.51mm can be mounted on the bottom of the type II card. For installation on the PCB surface, the connector has a 0.36mm offset from the card centerline, which allows the card center axis to coincide with the connector center axis.

#### 3. Designed for ultra thin cable

Industry Standard RG-type coaxial cable

... RG-178B/U ( $\phi 1.8$ )

... RG-316/U ( $\phi 2.59$  max.)

$\phi 1.48$  single shielded cable (one of the smallest available)

... DFSS111-U1979 ( $\phi 1.48$ ) made by Junkosha Inc.

... CO-6F·FH-SB ( $\phi 1.48$ ) made by Hitachi Cable Ltd.

... RF-MF507 ( $\phi 1.48$ ) made by Nissei Electric Co., Ltd.

#### 4. Cable Assemblies with multiple design options

By using  $\phi 1.48$  single shielded cable, the opposite end of the assembly can be connected with N, BNC, HRM (SMA type), TNC and H.FL series.

#### 5. Matched Excellent Impedance

The interface is slotless to minimize RF leakage. High frequency characteristics achieve a maximum voltage standing-wave ratio (VSWR) of 1.2 at DC-6GHz (typical value, that is not applicable to all products).

#### 6. Compatibility

Mates will all industry standard MMCX connectors.

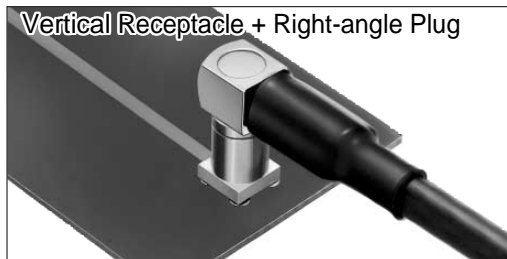
Vertical Receptacle



Vertical Receptacle + Straight Plug



Vertical Receptacle + Right-angle Plug



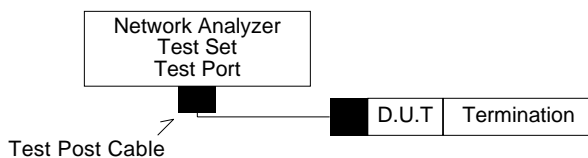
## Product Specifications

Rating	Nominal characteristic impedance	50 ohms	Operating Temperature Range	-55°C to +85°C
	Rated frequency	DC-6GHz	Operating Relative Humidity	90% max.

Item	Specification	Condition
1. Insulation Resistance	500M ohms min.	500V DC
2. Withstanding Voltage	Neither short nor breakdown	500V AC / 1 minute
3. Contact Resistance	10m ohms max. (center), 5m ohms max. (outer)	100mA (DC or 1000Hz)
4. Female Contact Retention	0.2N to 2N	Measured with the $\phi 0.37$ pin gauge.
5. Insertion and withdrawal force (plug)	Insertion force: 15N max. withdrawal force: 6 to 15N	Measured with an appropriate connector.
6. Voltage standing wave ratio	1.2 max. 1.2 max. (MMCX-LR-SMT only) 1.4 max. (MMCX-LR-SMT only)	DC to 6GHz DC to 4GHz 4GHz to 6GHz Measured at 0.45GHz to 6GHz
7. Vibration	No electrical discontinuity of 1 $\mu$ s or more No damage, cracks, or parts looseness.	Frequency: 10 to 500 Hz, single amplitude of 0.75 mm or acceleration of 98 m/s <sup>2</sup> (peak), 2 hours in each of the 3 directions.
8. Shock	No electrical discontinuity of 1 $\mu$ s or more No damage, cracks, or parts looseness.	Acceleration of 735 m/s <sup>2</sup> , 6 ms duration, sine half-wave waveform, 3 cycles in each of the 3 axis
9. Humidity	No damage, cracks, or parts looseness. Insulation resistance: 10M ohms min(High temperature) Insulation resistance: 500M ohms min(Dry)	96 hours at temperature of 40°C and humidity of 90% to 95%
10. Temperature Cycle	Contact resistance: 20m ohms max. (center) 10m ohms max. (outer) No damage, cracks, or parts looseness.	Temperature of: -55°C →+20 to 35°C →+85°C →+20 to 35°C Time: 30 minutes →5 minutes max. →30 minutes →5 minutes min. 5 cycles
11. Operating Life	Contact resistance: 20m ohms max. (center) 10m ohms max. (outer)	500 cycles
12. Resistance to Corrosion	No marked corrosion	Exposed to density 5% salt water for 48 hours

\*Voltage standing wave ratio (V.S.W.R.) measuring system.

The above voltage standing wave ratio (V.S.W.R.) standard value is measured in the measuring system as shown below.



NOTE 1 : The cable connector is measured with double ended 15cm cable assembly.

NOTE 2 : The PCB connector is mounted on the 50 ohms printed circuit board, to which Hirose's adaptor is connected.

## Material

Parts	Material	Finish
Body	Brass Stainless steel (conversion adaptor)	Gold plating
Male center contact	Phosphor bronze	Gold plating
Female center contact	Beryllium bronze	Gold plating
Male/female in-line contact	Beryllium copper (conversion adaptor)	Gold plating
Insulator	PTFE	—
Fixing ring	Beryllium copper (plug)	Gold plating
Crimp sleeve	Copper	Gold plating
Cover	Brass (plug)	Gold plating

## ■ Ordering Information

### MMCX – [\*\*\*] – [\*\*\*]

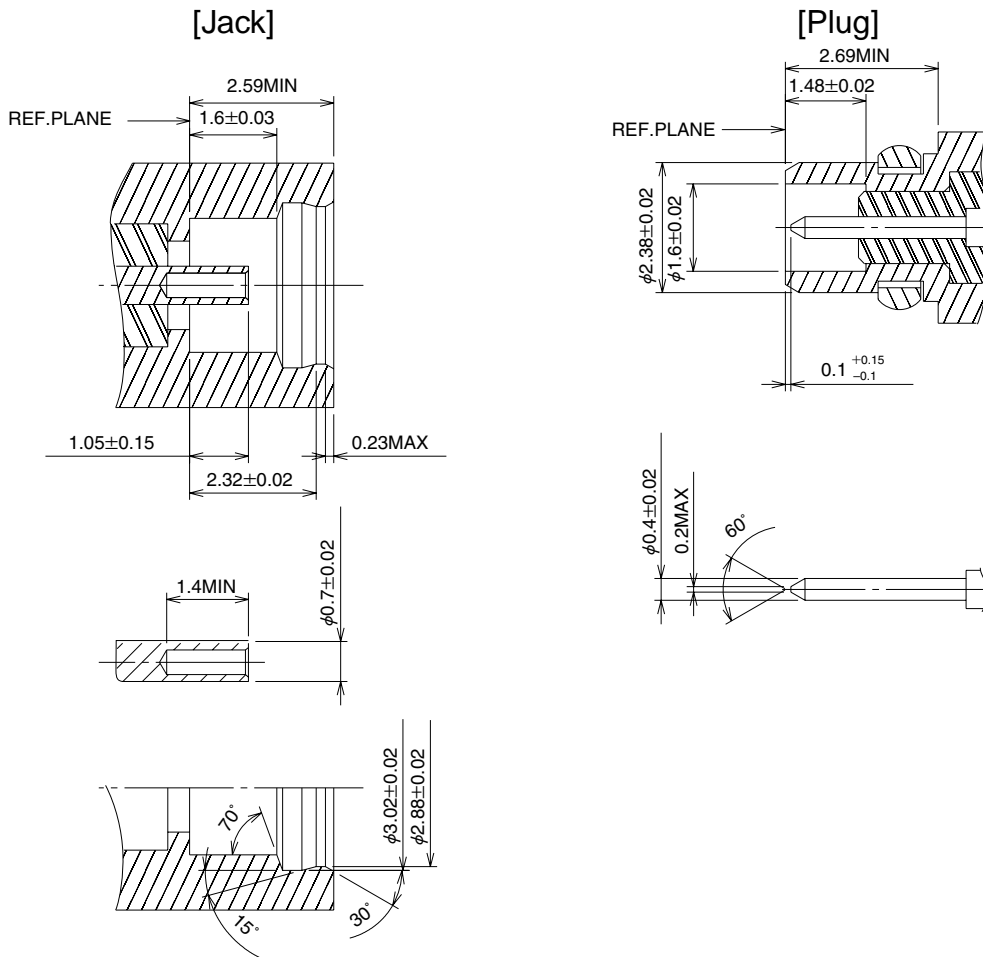
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②

③

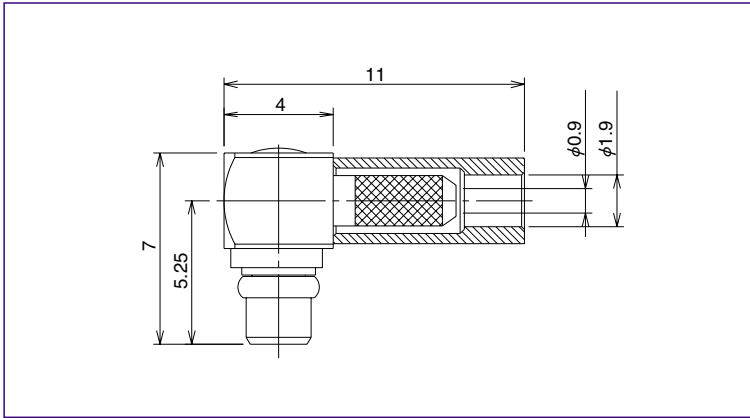
① Series name : MMCX	③ Applicable cable, PCB mounting style
② Connector type	178B/U : RG-178B/U ( $\phi 1.8$ )
P : Straight plug	316/U : R/G-316/U ( $\phi 2.59$ max)
LP : Right Angle plug	FHSB : $\phi 1.48$ single shielded cable
J : Straight jack	PC : PCB Through Hole type
R : Receptacle	SMT : PCB Surface Mount type
LR : Right Angle receptacle	

## ◆ Interface Dimensions



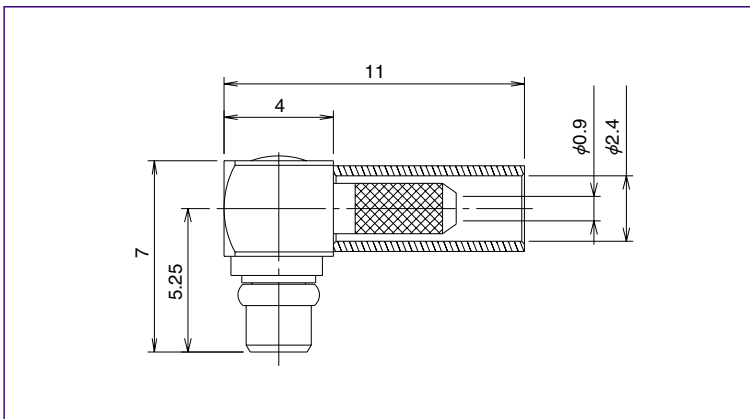
## ■ Right Angle Plug

### ● $\phi 1.48$ Single Shield Cable



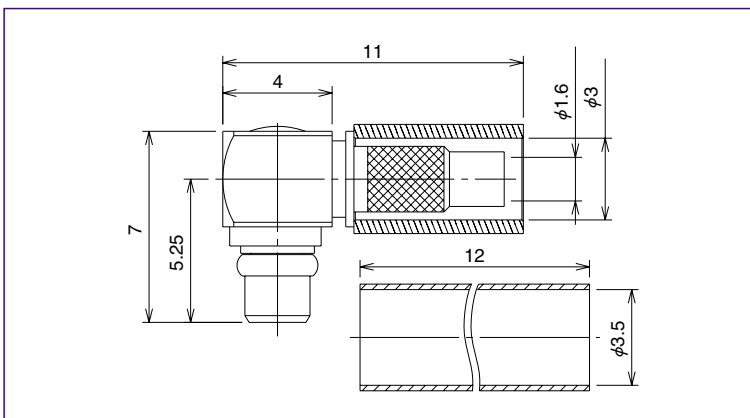
Part Number	CL No.
MMCX-LP-FHSB	339-0007-3

### ● RG-178B/U and equivalent



Part Number	CL No.
MMCX-LP-178B/U	339-0001-7

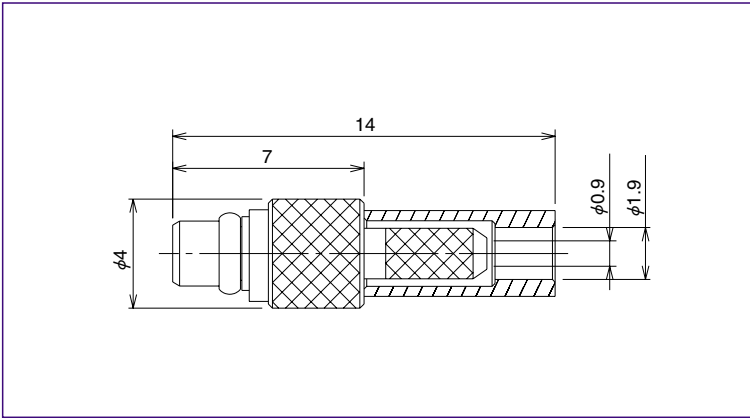
### ● R/G-316/U and equivalent



Part Number	CL NO.
MMCX-LP-316/U	339-0006-0

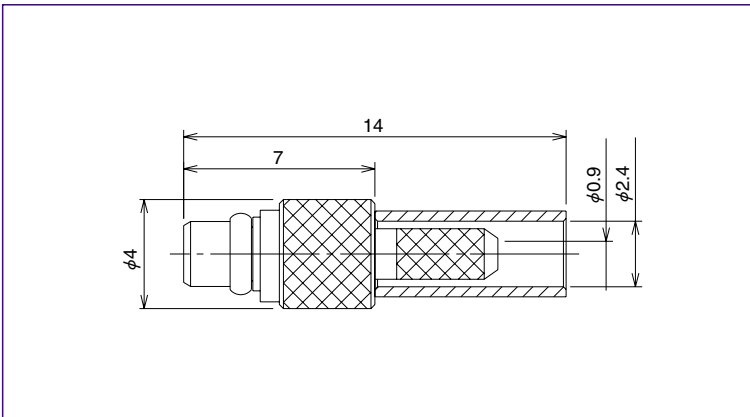
## ■Straight Plug

### ● $\phi 1.48$ Single Shielded Cable



Part Number	CL No.
MMCX-P-FHSB	339-0008-6

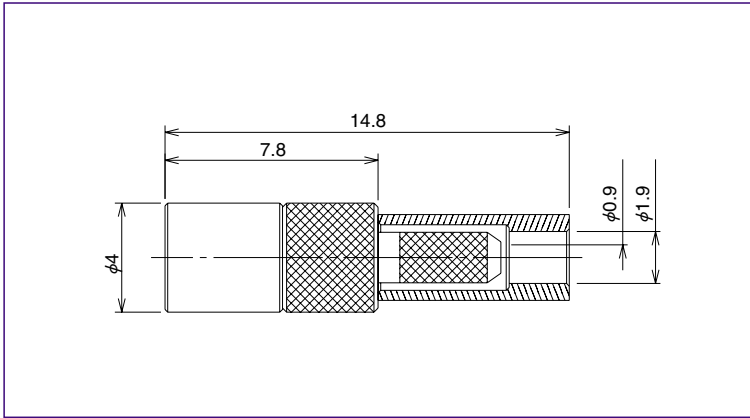
### ●RG-178B/U and equivalent



Part Number	CL No.
MMCX-P-178B/U	339-0010-8

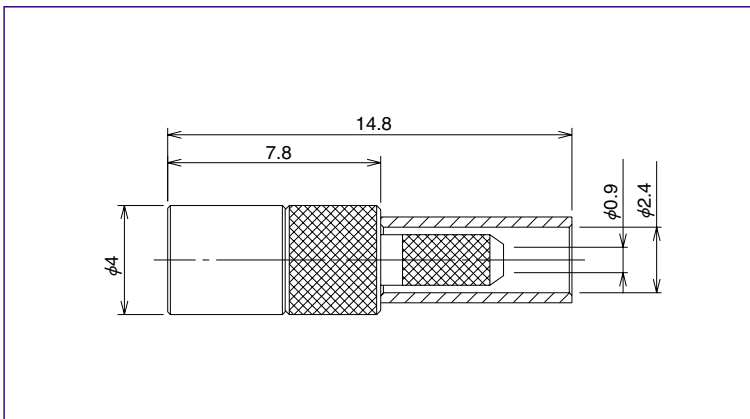
## ■Straight Jack

### ● $\phi$ 1.48 Single Shielded Cable



Part Number	CL No.
MMCX-J-FHSB	339-0009-9

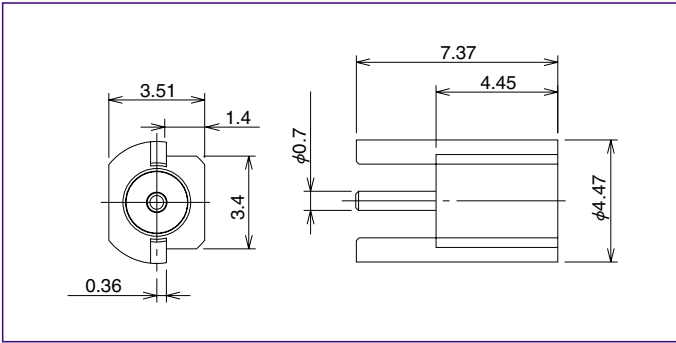
### ●RG-178B/U and equivalent



Part Number	CL No.
MMCX-J-178B/U	339-0011-0

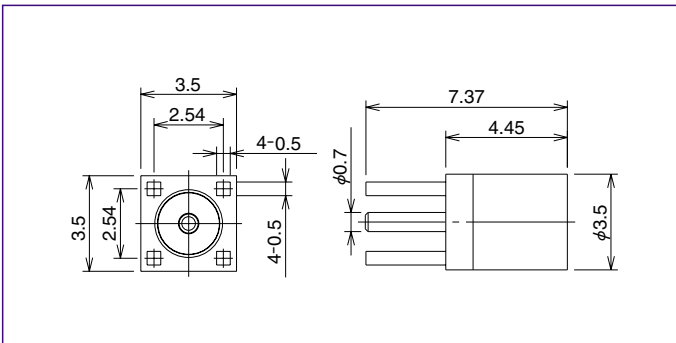
# ■ Receptacle

## ● Right Angle, PCB Surface Mount



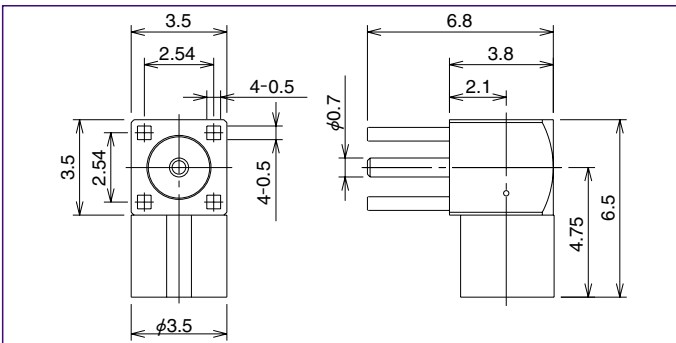
Part Number	CL No.	Packaging
MMCX-LR-SMT	339-0003-2	50 pcs PER case

## ● Vertical, PCB Through Hole

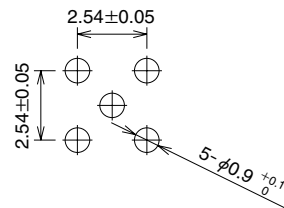
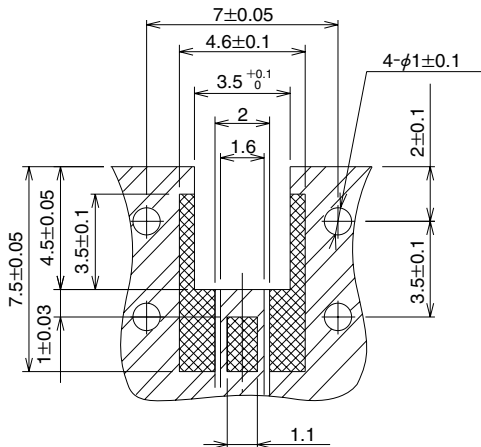


Part Number	CL No.	Packaging
MMCX-R-PC	339-0005-8	50 pcs PER case

## ● Right Angle, PCB Through Hole



Part Number	CL No.	Packaging
MMCX-LR-PC-1	339-0013-6	50 pcs PER case

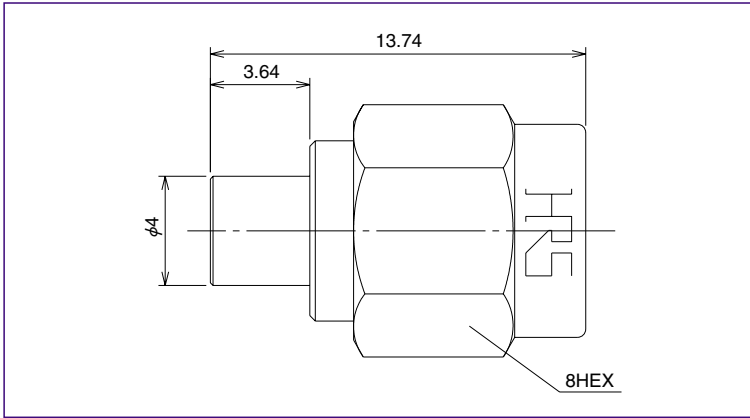


PCB mounting pattern (MMCX-LR-SMT)  
(Reference) Glass epoxy FR-4 t=0.8 (■=4.6)

PCB mounting pattern (MMCX-R-PC)  
(MMCX-LR-PC-1)

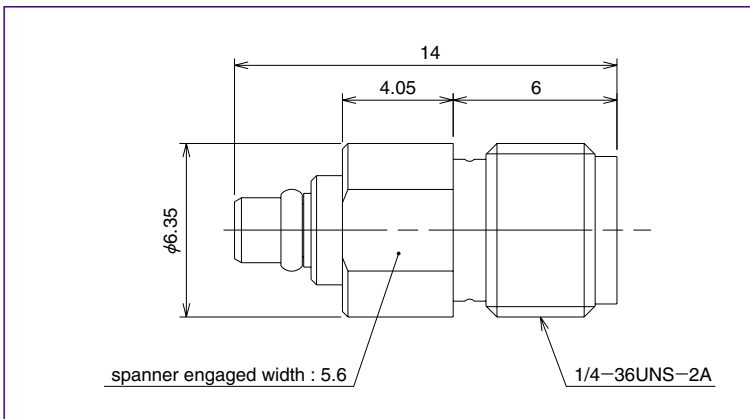
## ■ Conversion Adaptor

### ● SMA Conversion Adaptor (Mating area: SMA side plug – MMCX side jack)



Part Number	CL No.
HRMP-MMCXJ	311-0312-1

### ● SMA Conversion Adaptor (Mating area: SMA side jack – MMCX side plug)



Part Number	CL NO.
HRMJ-MMCXP	311-0313-4