

# 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.

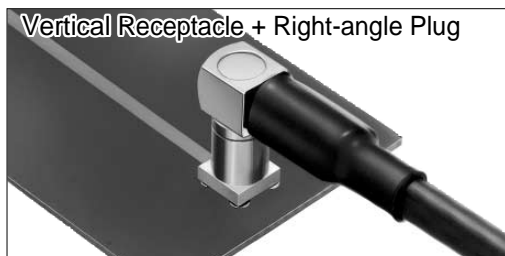
Vertical Receptacle



Vertical Receptacle + Straight Plug



Vertical Receptacle + Right-angle Plug



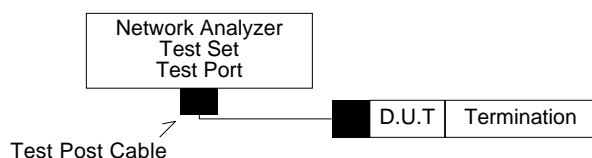
## ■Product Specifications

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	500MΩ min.	500V DC
2. Withstanding Voltage	Neither short nor breakdown	500V AC / 1 minute
3. Contact Resistance	10mΩ max. (center), 5mΩ max. (outer)	100mA (DC or 1000Hz)
4. Female Contact Retention	0.2N to 2N	Measured with the φ0.37 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 1μs 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 1μs 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: 10MΩ min(High temperature) Insulation resistance: 500MΩ min(Dry)	96 hours at temperature of 40°C and humidity of 90% to 95%
10. Temperature Cycle	Contact resistance: 20mΩ max. (center) 10mΩ 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: 20mΩ max. (center) 10mΩ 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 – [\*\*\*] – [\*\*\*]

①

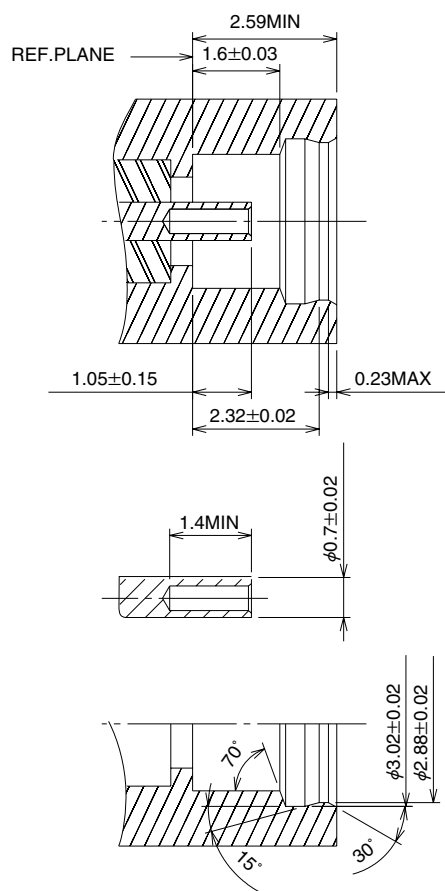
②

③

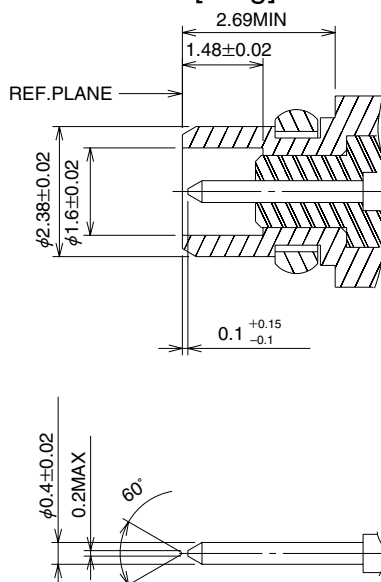
① Series name : MMCX	③ Applicable cable, PCB mounting style
② Connector type	178B/U : RG-178B/U ( $\phi 1.8$ )
P : Straight plug	316/U : R/G-316/U ( $\phi 2.59$ max)
LP : Right Angle plug	FHSB : $\phi 1.48$ single shielded cable
J : Straight jack	PC : PCB Through Hole type
R : Receptacle	SMT : PCB Surface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

## ◆ Interface Dimensions

[Jack]

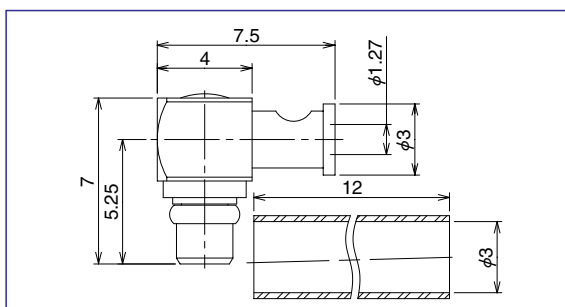


[Plug]



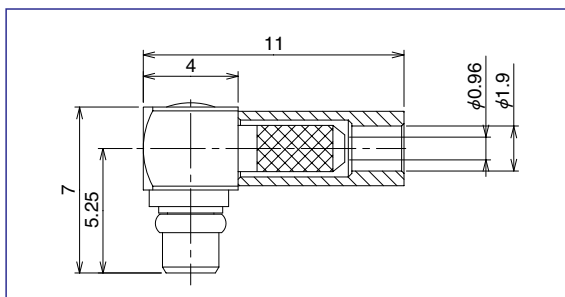
## ■Right Angle Plug

### ● $\phi 1.32$ Double Shield Cable $\phi 1.13$ Single Shield Cable



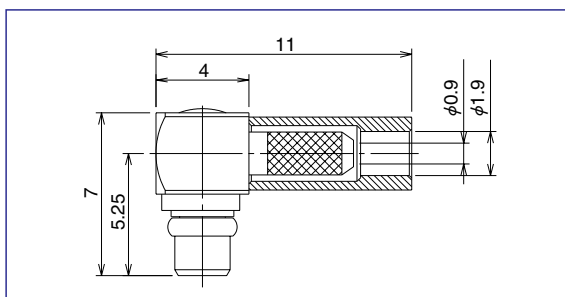
Part Number	CL No.
MMCX-LP-066	339-0019-2

### ● $\phi 1.37$ Single Shielded Cable



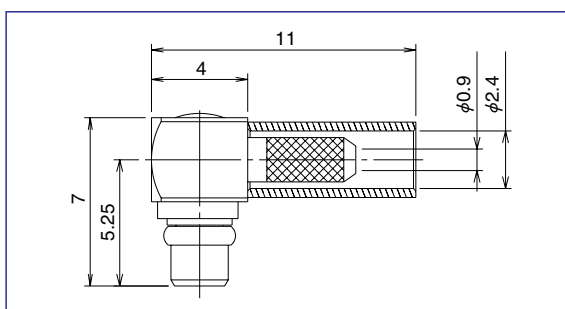
Part Number	CL No.
MMCX-LP-088	339-0020-1

### ● $\phi 1.48$ Double Shield Cable



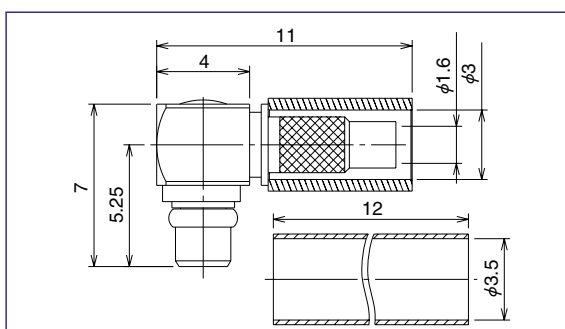
Part Number	CL No.
MMCX-LP-FHSB	339-0007-3

### ●R/G-178B/U and equivalent



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

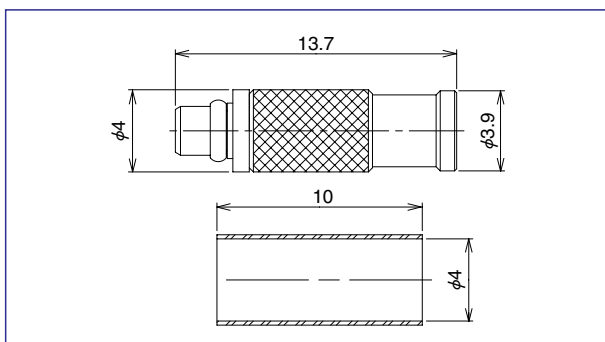
### ●R/G-316/U and equivalent



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

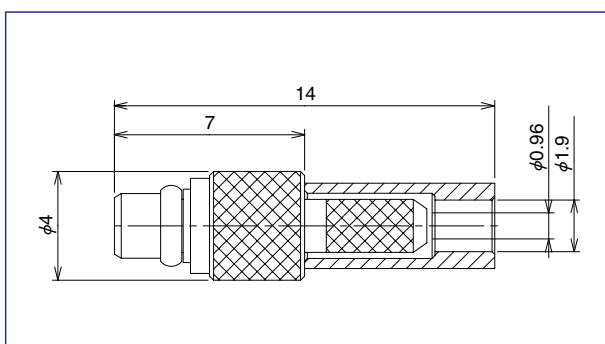
## ■Straight Plug

### ● $\phi 1.32$ Double Shield Cable $\phi 1.13$ Single Shield Cable



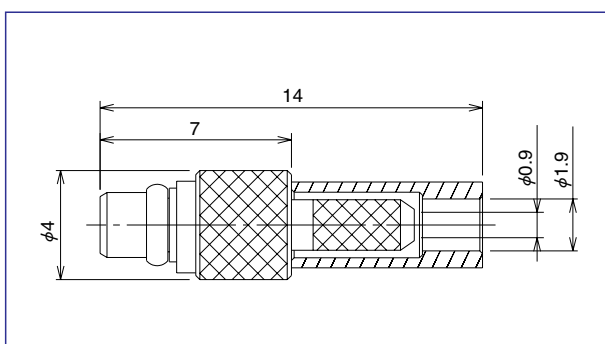
Part Number	CL No.
MMCX-P-066	339-0023-0

### ● $\phi 1.37$ Single Shielded Cable



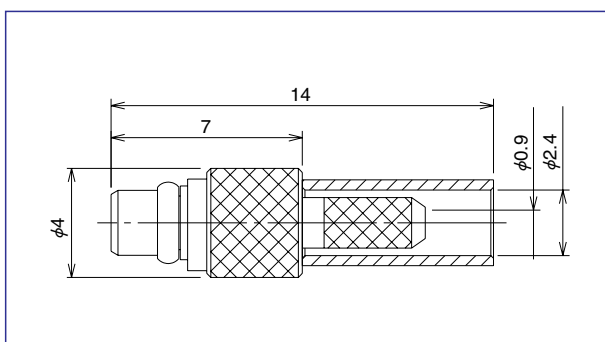
Part Number	CL No.
MMCX-P-088	339-0021-4

### ● $\phi 1.48$ Single Shield Cable



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

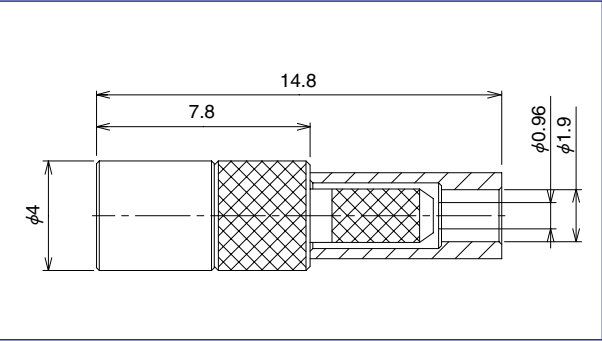
### ● R/G-178B/U and equivalent



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MMCX-P-178B/U	339-0010-8

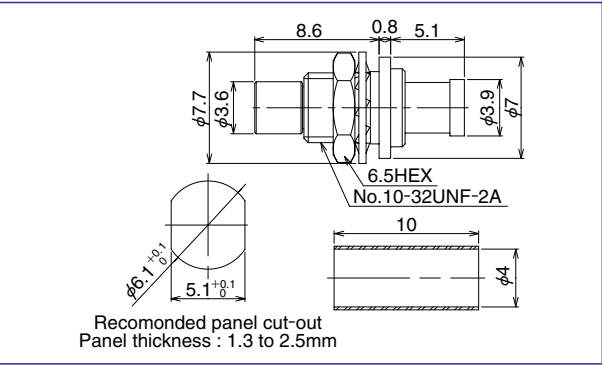
■Straight Jack

●φ1.37 Single Shield Cable



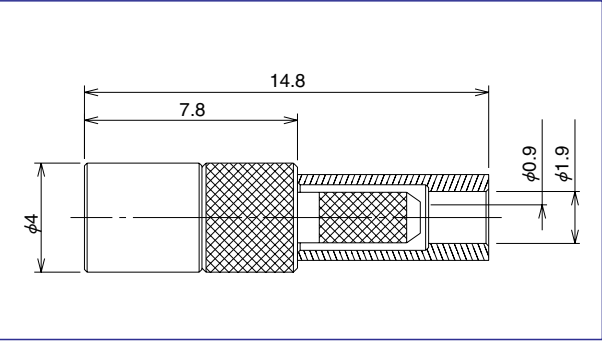
Part Number	CL No.
MMCX-J-088	339-0022-7

●φ1.32 Double Shield Cable  
φ1.13 Single Shield Cable



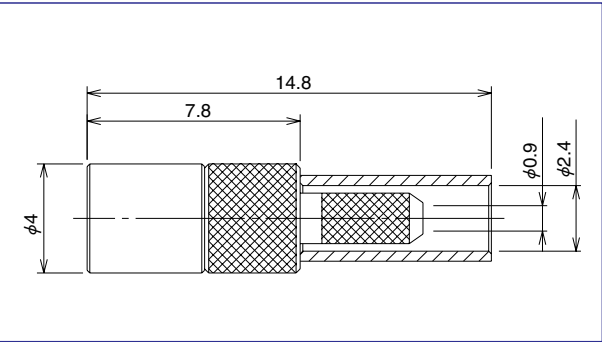
Part Number	CL No.
MMCX-PBJ-066	339-0016-4

●φ1.48 Single Shielded Cable



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

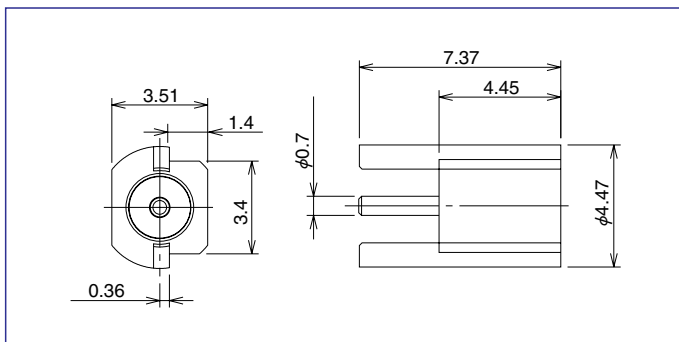
●RG-178B/U and equivalent



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

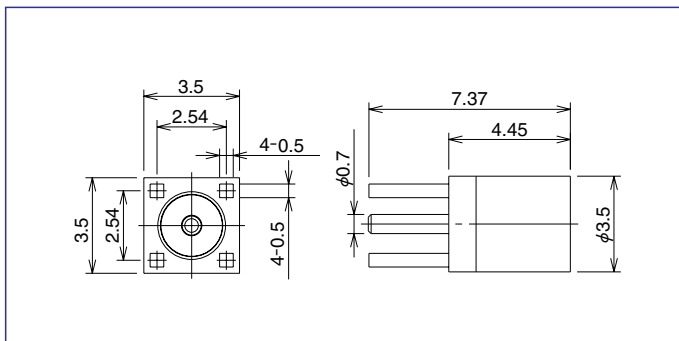
## ■Receptacle

### ●Right Angle, PCB Surface Mount



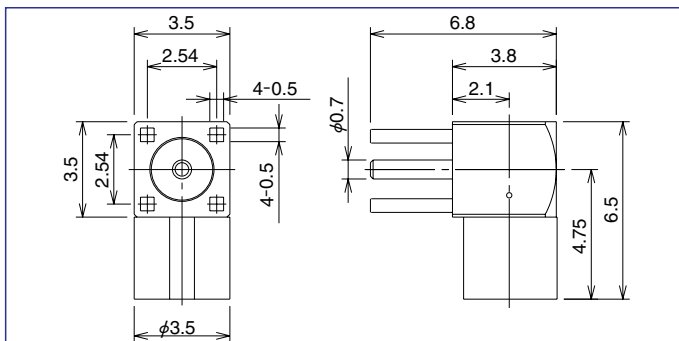
Part Number	CL No.	Packaging
MMCX-LR-SMT	339-0003-2	50 pcs PER case

### ●Vertical, PCB Through Hole

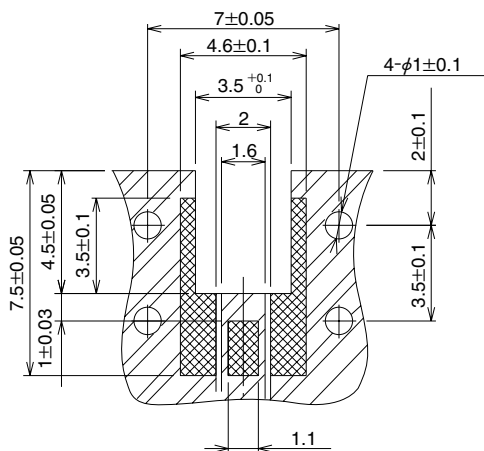


Part Number	CL No.	Packaging
MMCX-R-PC	339-0005-8	50 pcs PER case

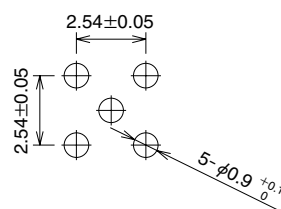
### ●Right Angle, PCB Through Hole



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



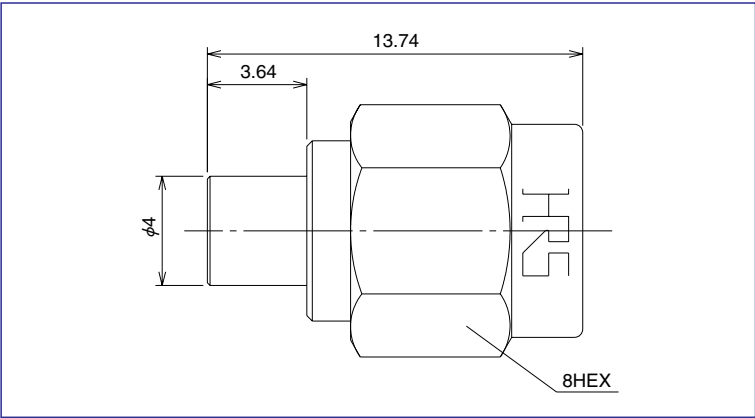
PCB mounting pattern (MMCX-LR-SMT)  
 (Reference) Glass epoxy FR-4 t=0.8 (■=4.6)



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

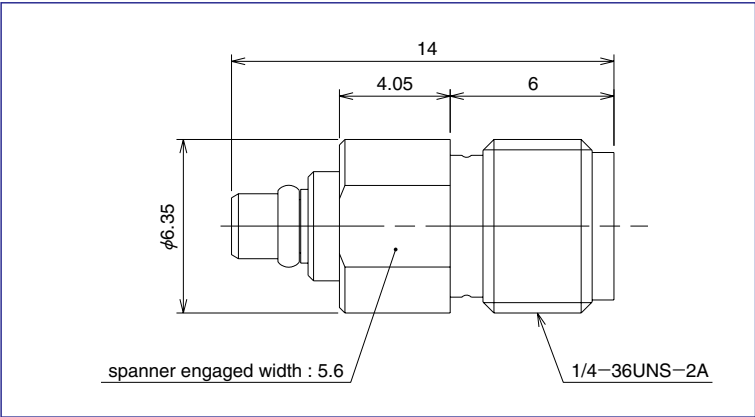
■Conversion Adaptor

●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



# Mouser Electronics

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## Hirose Electric:

[MMCX-LP-178B/U\(40\)](#) [MMCX-LR-SMT\(40\)](#) [MMCX-R-PC\(40\)](#) [MMCX-LP-316/U\(40\)](#) [MMCX-LP-FHSB\(40\)](#) [MMCX-P-FHSB\(40\)](#) [MMCX-J-FHSB\(40\)](#) [MMCX-P-178B/U\(40\)](#) [MMCX-J-178B/U\(40\)](#) [MMCX-LR-PC-1\(40\)](#) [MMCX-P-FCCAF2\(40\)](#) [MMCX-BPJ-066\(40\)](#) [MMCX-R-PC-1\(40\)](#) [MMCX-LP-066\(40\)](#) [MMCX-LP-066\(41\)](#) [MMCX-LP-088\(40\)](#) [MMCX-J-088\(40\)](#) [MMCX-P-066\(40\)](#) [MMCX-P-066\(41\)](#) [MMCX-R-PC-7](#)