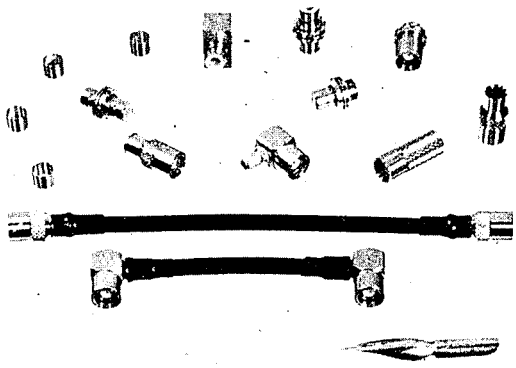
MP SERIES RF CO-AXIAL CONNECTORS

Overview

The MP (Micro Push-on) series is a series of ultra-small-size 75Ω coaxial connectors which were developed by mobilizing our company's outstanding technical abilities to meet the requirements of high-density mounting, smaller size and lighter weight, and adoption of unit structures and improved performance characteristics. These requirements have been demanded in various devices recently.
The **"push-on"** system has been adopted in the MP series, and size-wise the connectors in this series have an ultraminiaturized design which is believed to be the ultimate for any 75Ω coaxial connectors. The **"one-touch solderless"** technique is used in the outer conductors, aiming at attaining epoch-making improvements in the wiring connection, which was the biggest problem in high-frequency connectors in the past. The matching cables are 2.5C-XW (Irrax cables) and 2.5C-2W. They can be used in the frequency bands of 140MHz or lower, which are ordinarily called the intermediate-frequency bands, but they are suitable for **various types of microwave communications equipment, various types of radio equipment, satellite communications equipment, measuring instruments, etc.**



Characteristic Features

Compact in size and lightweight
They are extremely compact in size and lightweight. The plugs have a maximum outside diameter of 8.7ϕ and an overall length of 16.5mm, and the receptacles have a maximum outside diameter of 10ϕ and an overall length of 15.4mm. Thus, they are most suitable for high-density mounting. The receptacles are of the bulkhead type, which can be mounted from either the front or the rear of the panel.

Good performance characteristics, high reliability
The MP series consists of products that were developed from the beginning on the basis of cost effectiveness with low total cost. This includes good performance characteristics, high reliability and good workability. Their electrical and mechanical performance characteristics and their resistance to vibration have been confirmed, and their excellence is guaranteed. In particular, since their opening parts are covered with outer cylinders, they have a reliability against twisting which is several stages superior to that of the small size coaxial connectors of the past.

Superior connection of wiring
The one-touch solderless system has been adopted for connecting the wiring. In order to deal with the difficulties of handling (following the miniaturization of the individual parts) the units have been organized in blocks as much as possible, and case of handling has been set as a goal. Thanks to this new system, inconsistencies in the work of connecting the wiring from one operator to another are eliminated, and high reliability is ensured. In addition, thanks to the adoption of this connecting system, the connecting time has been greatly reduced to a fraction of that needed in the connectors of the past.

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Types

The part numbers in the MP series have the following configuration:

MP 2.5C P

- P — Indicates the shape of the connector. (Note)
- 2.5C — Indicates the matching cables.
- MP — Indicates the name of the type.

(Note) P indicates "plug."
R indicates "receptacle."
LP indicates "L-type plug."
LR indicates "L-type receptacle."
RP indicates "receptacle-type plug."
PA-JJ indicates a panel adapter with an opening part with jacks on both ends.
P75 indicates a plug-type 75Ω dummy load (terminator).

Main materials used

Parts	Materials	Finish
Shell	Brass	Nickel plating
Insulation	Tetrafluoride resin	
Male contact	Brass	Gold plating
Female contact	Beryllium copper	Gold plating
Cord pipe	Brass	Nickel plating
Nut	Brass	Nickel plating
Solderless sleeve (ferrule)	Copper	Nickel plating
Screw ring	Beryllium copper	Nickel plating
Tooth washer	Phosphor bronze	Nickel plating
Cord covering	Heat-shrinkable tubing	

Main performance characteristics

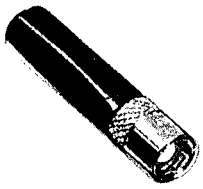
Item	Standard value
Contact resistance	5mΩ or less at 1A DC
Insulation resistance	1000MΩ or less at 500V DC
Withstand voltage	1000V AC (rms) for 1 minute
Characteristic impedance	75Ω
Voltage standing wave ratio	1.05 or less at DC ~ 140MHz
Contact life	500 times
Temperature-resistance cycles	Checked at –55 to 85°C according to to NDS XC 0152C-102, condition D.
Corrosion resistance	Checked according to NDS XC 0152C-101B, condition B.
Vibration resistance	Checked at an amplitude of 1.5mm and an acceleration of 10G according to NDS XC 0152C-204B, condition A.
Impact resistance	Checked at 50G according to NDS XC 0152C-202B.

Cable connectors

A large number of cables are conceivable as the matching cables for the connectors, but connectors which can be used with 2.5C-XW (Irrax cables) and 2.5C-2W are manufactured as the standard products, taking into consideration the double braiding of their outer conductors, which results in little high-frequency leakage.

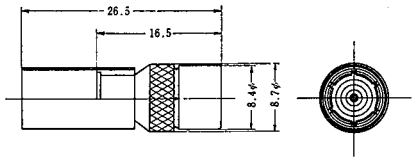
Type of cable	Outer diameter of center conductor	Outer diameter of insulation	Outer diameter of outer conductor	Maximum outer diameter	Insulation material	Characteristic impedance
2.5C-XW (Irrax cable)	$0.40\phi^{\pm 0.01}$	2.5φ	3.5φ (Double)	4.5φ	Irrax (Irradiated polyethylene)	75Ω
2.5C-2W	$0.40\phi^{\pm 0.01}$	2.4φ	3.6φ (Double)	4.6φ	Polyethylene	75Ω

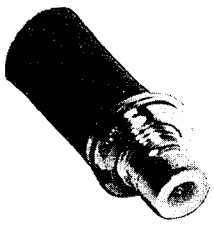
Use cables having the dimensions in the table above.



MP2.5CP

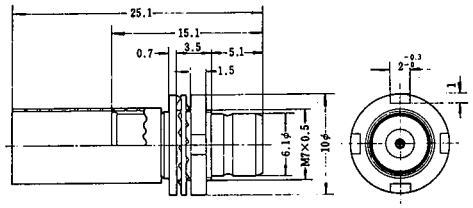
	HRS No.	Part No.	Applicable cables	Remarks
*	CL325-0001-4	MP2.5CP	2.5- -XW(Irrax),2.5C-2W	Plug

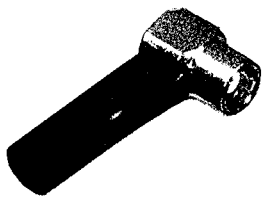




MP2.5CPJ

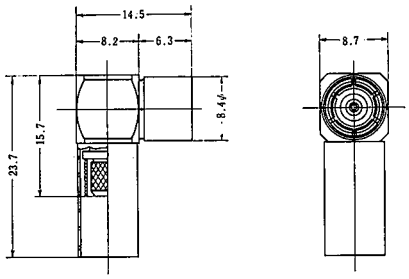
	HRS No.	Part No.	Applicable cables	Panel thickness	Remarks
*	CL325-0005-5	MP2.5CPJ	2.5C-XW(Irrax),2.5C-2W	0.5~1mm	Panel jack



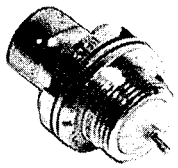


MP2.5CLP

	HRS No.	Part No.	Applicable cables	Remarks
*	CL325-0003-0	MP2.5CLP	2.5C-XW(Irrax),2.5C-2W	L-type plug

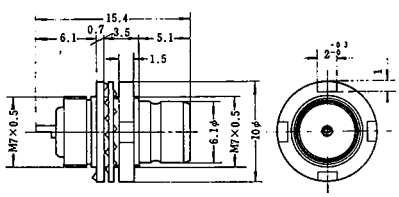


Receptacles

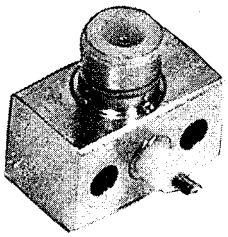


MP2.5CR

	HRS No.	Part No.	Panel thickness		Remarks
*	CL325-0002-7	MP2.5CR	On fitting part side:0.5~1mm	On connecting part side:0.5~0.8mm	Receptacle

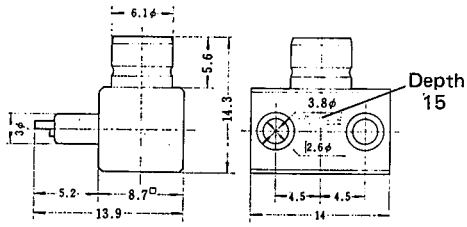


*Standard product

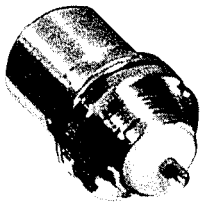


MP2.5CLR

	HRS No.	Part No.	Remarks
*	CL325-0004-2	MP2.5CLR	L-type receptacle

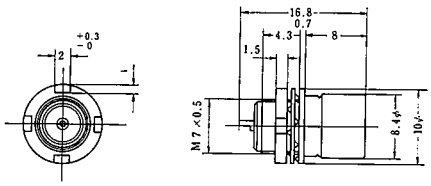


Receptacle plug

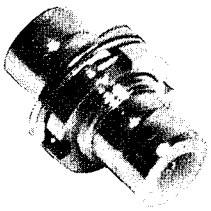


MP2.5CRP

HRS No.	Part No.	Panel thickness	Remarks
CL325-0006-8	MP2.5CRP	0.5~1.8mm	Receptacle plug

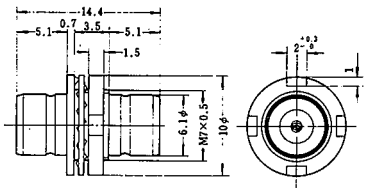


Adapter



MP2.5CPA-JJ

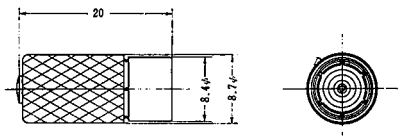
HRS No.	Part No.	Panel thickness	Remarks
CL325-0007-0	MP2.5CPA-JJ	0.5~1mm	Panel adapter



Accessories

MP2.5CP75

HRS No.	Part No.	Rated power	Remarks
CL325-0008-3	MP2.5CP75	1/8W	75Ω resistive terminator (plug-type opening)



*Standard product

Connecting Methods

Circuit diagrams of MP2.5CP, MP2.5CPJ

Fig. 1

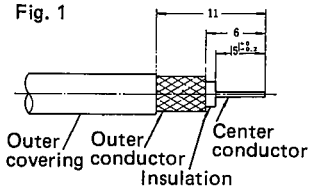


Fig. 2

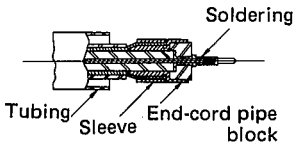


Fig. 3

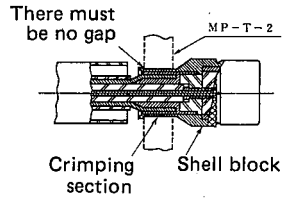
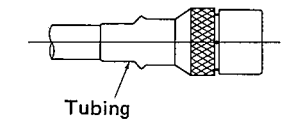


Fig. 4



1. End processing . . . . . Fig. 1

1) Process the ends of the matching cables as shown in Fig. 1.

Note 1) Be sure not to disentangle the outer conductor.

2. Connecting the wiring of the center conductor . . . Fig. 2

1) Pass the tubing and sleeve through the cable, in that order.
2) Insert the cable into the end-cord pipe block.
3) Insert the sleeve until it strikes against the end-cord pipe block, as shown in Fig. 2.
4) Solder the center conductor to the end as shown in Fig. 2.

Note 1) Pull the cable slightly (about 50g) in order to check the connections of the wiring.

3. Connecting the wiring of the outer conductor . . . . . Fig. 3

1) Insert the aforesaid block into the shell block as far as the prescribed position.
2) Perform hexagonal crimping on the connector shell with the dedicated fixture (MP-T-2), as shown in Fig. 3.

4. Setting the tubing . . . . Fig. 4

1) Pass the tubing through the connector, as shown in Fig. 4.
2) Apply heat by means of a hair dryer or the like in order to cause the tubing to shrink.

Note 1) In the case of MP2.5CPJ, bring the tubing into contact with the collar and apply heat.

Circuit diagrams of MP2.5CLP

Fig. 1

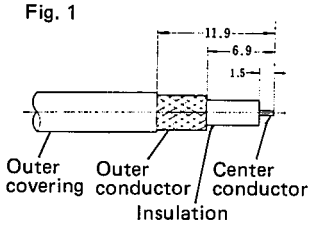


Fig. 2

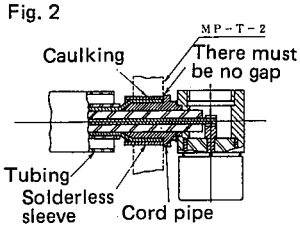
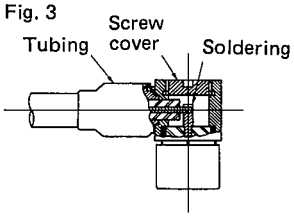


Fig. 3



1. End processing . . . . . Fig. 1

1) Process the ends of the matching cables as shown in Fig. 1.

Note 1) Be sure not to disentangle the outer conductor.

2. Connecting the wiring of the outer conductor . . . . . Fig. 2

1) Pass the tubing and solderless sleeve through the cable, in that order.
2) Insert the cable into the shell proper.
3) Insert the solderless sleeve until it strikes against the shell proper, as shown in Fig. 2.
4) Perform hexagonal caulking on the solderless sleeve with the dedicated fixture (MP-T-2), as shown in Fig. 2.

3. Connecting the wiring of the center conductor . . . . . Fig. 3

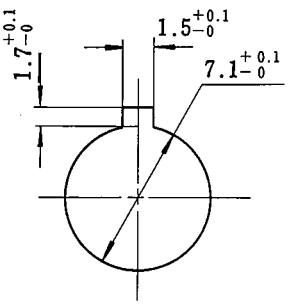
1) Solder the center conductor to the contact.
2) Screw the screw cover into the shell proper.

4. Setting the tubing . . . . Fig. 3

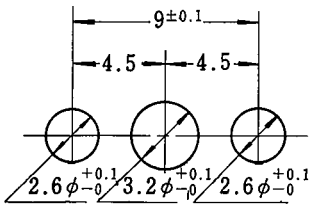
1) Pass the tubing over the connector, as shown in Fig. 3.
2) Apply heat by means of a hair dryer or the like in order to cause the tubing to shrink.

Drawings of holes drilled to mount on panel

MP2.5CR·MP2.5CPJ·MP2.5CRP·MP2.5CPA-JJ



MP2.5CLR



Crimp Tool

MP-T-3
(for outer conductor)
New type with ratchet mechanism