

ULTRA MINIATURE COAXIAL CONNECTORS
for Surface Mount Technology

IMP series



ISO 9001 APPROVED





This new concept is protected worldwide by a patent and second sources are available through licences.

Tiny Connector

- High density.

IMP connector needs only 22.2 mm² on board (5.7x3.9).

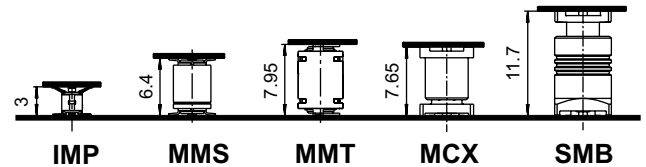
- World's lightest connector.

IMP board to board link weight is only 0.02 g.

- World's lowest profile for a board to board adapter.

IMP height is 3 mm !

- Others heights possible. Please contact us.



Scale : 1/1

Industry approval

- Design adapted to automated pick and placement machines

The footprint of the **IMP** connector allows video-positioning using the component's shadow to facilitate its placement (page 10).

The **IMP** connector is fully compatible with automated pick and place machines.

- Packaging

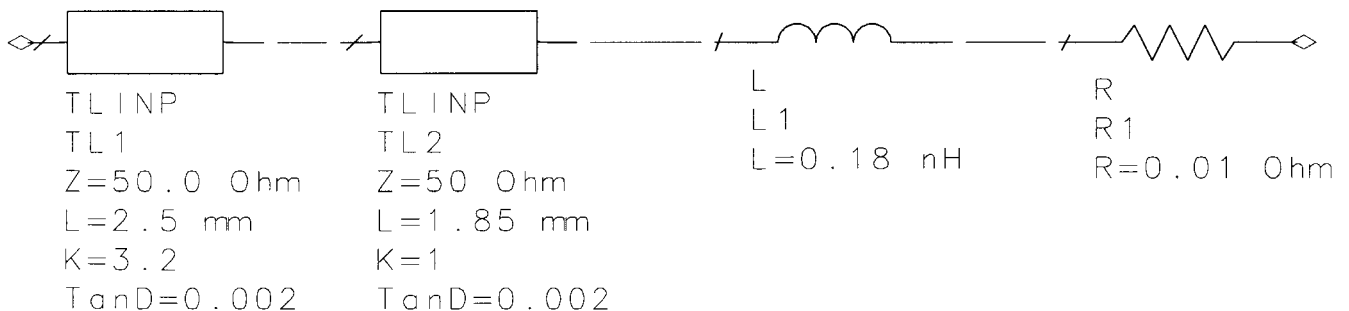
The **IMP** connector is packaged in reels of antistatic plastic embossed tape (page 8) containing either 600 or 2500 **IMP** connectors.

The cavity geometry is designed for a perfect positioning of the component.

Many applications

- Wide frequency range up to 6 Ghz.
- Custom height and custom diameter on board are possible upon request.

SPICE MODEL OF IMP SERIES





50 Ω	DC - 6 GHz
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GENERAL

- Ultra low profile coaxial connectors
- Surface mount connectors
- Press-on electrical contact
- Fully compatible with automated pick and place machines
- High RF performance
- Radial patent

APPLICATIONS

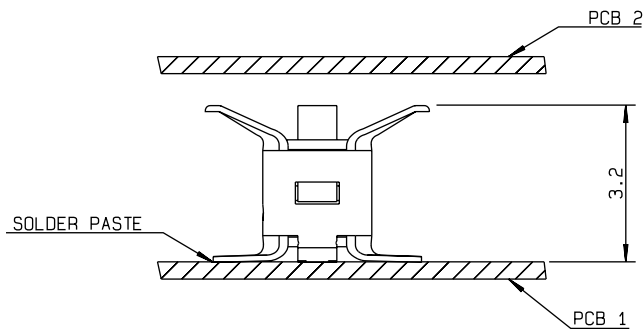
- Board to board applications

MARKETS

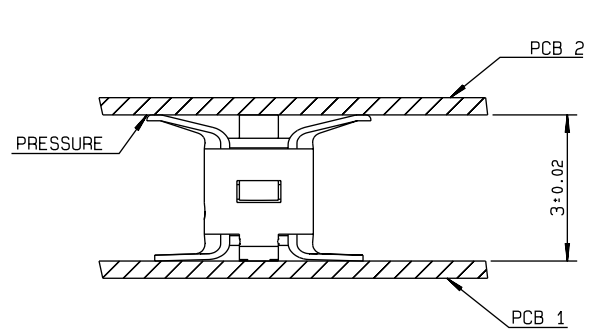
- WLAN
- Mobile phone
- Terminals
- Automotive

PROFILE

NO PRESSURE



UNDER PRESSURE





	TEST STANDARD	RESULTS
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ELECTRICAL CHARACTERISTICS

Impedance		50Ω
Frequency range		DC - 6 GHz
V.S.W.R.	CECC 22 000	1.10+0.03 F (F in GHz)
Insertion loss (dB)	CECC 22 000	0.2 √F (F in GHz)
Insulation resistance	CECC 22 000	3000 MΩ min
Contact resistance	center contact	15 mΩ
	outer contact	5 mΩ
Working voltage in VRMS	CECC 22 000	100
Dielectric withstanding voltage in VRMS	CECC 22 000	350

MECHANICAL CHARACTERISTICS

Durability	CECC 22 000	20 matings
Weight (g)	CECC 22 000	0.02

ENVIRONMENTAL CHARACTERISTICS

Temperature range	CECC 22 000	-40°C , +90°C
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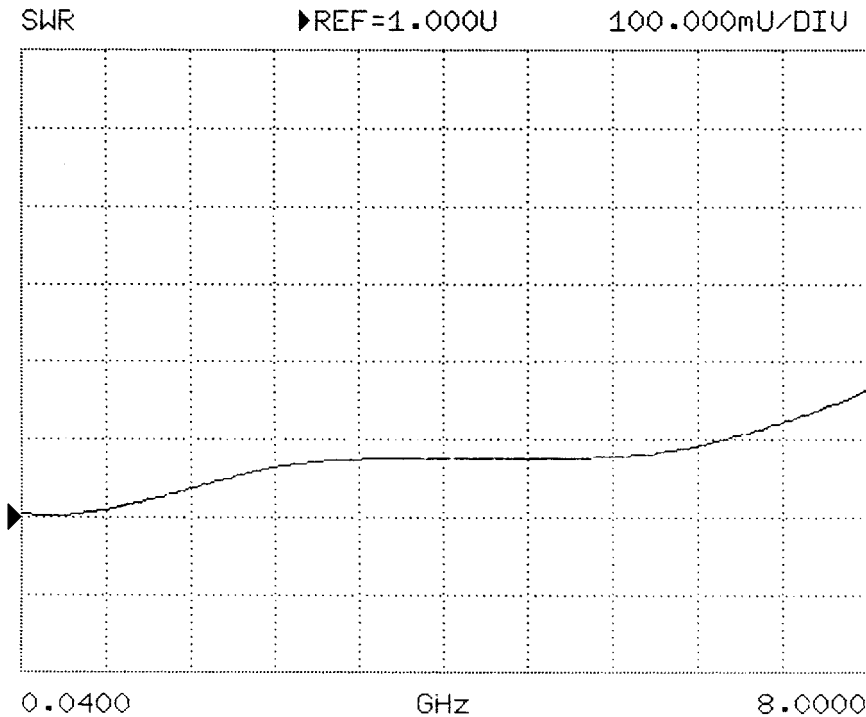
MATERIALS

Bodies		Beryllium copper
Center contact		Beryllium copper
Outer contact		Beryllium copper
Insulator		Polyether ethercetone 30% GF

PLATINGS

Bodies		Gold
Center contact		Gold
Outer contact		Gold

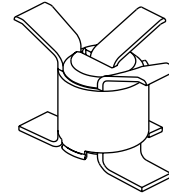
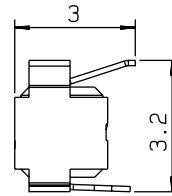
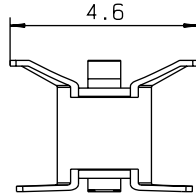
Power : at sea level, at 20°C, 3 Ghz max : 20 W



Frequency	Typical VSWR
1 GHz	1.01
2 GHz	1.04
3 GHz	1.06
4 GHz	1.08
5 GHz	1.08
6 GHz	1.08



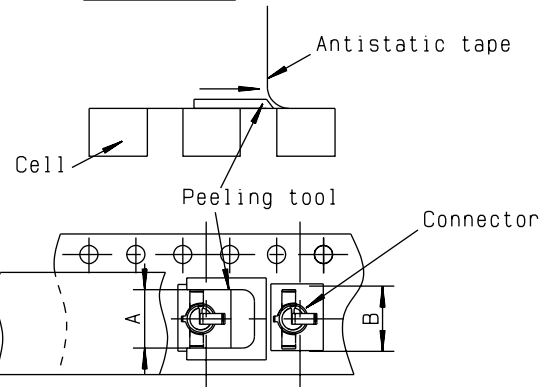
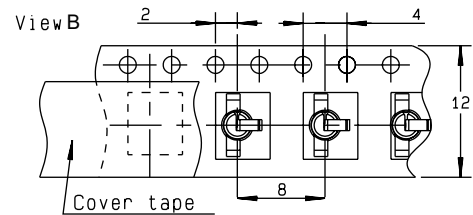
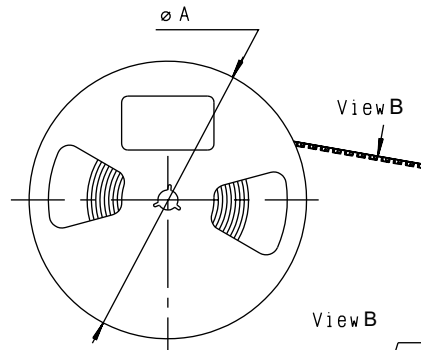
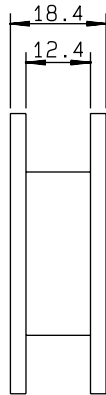
SMT CONNECTOR



Part Number	Finish	Packaging	Reel dimensions (A)
R107 064 000	Gold	Reel of 2500	330 mm
R107 064 010	Gold	Reel of 600	180 mm
R107 064 020	Gold	Reel of 100	180 mm
R107 064 020W	Gold	Unit	-

This connector can also be developed upon request with other heights, in order to adjust space between PCB. Please consult us.

CONNECTOR PACKAGING



All dimensions are given in mm.

ACCORDING TO IEC 286-3 STANDARD MATERIALS

Reel : polyester

Carrier tape : antistatic PETG (polyester)

Cover tape : polyester

PRECAUTION FOR USE

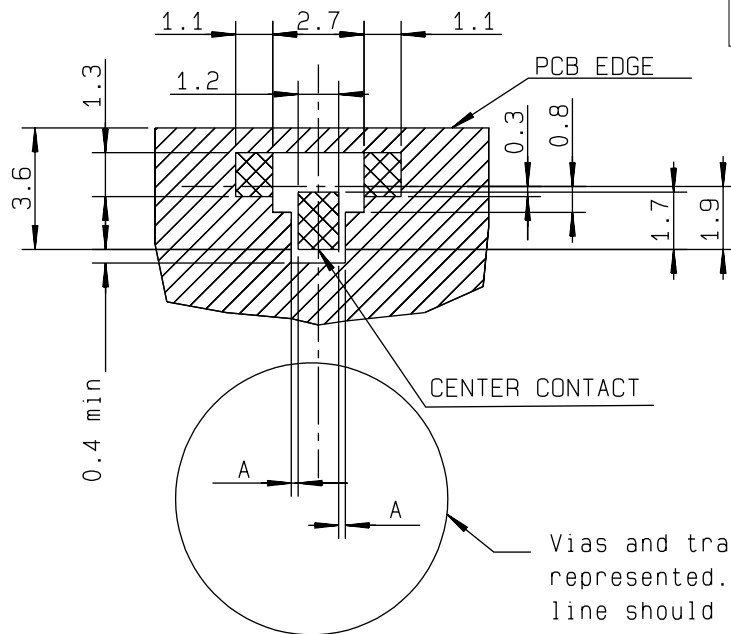
Automated pick and place machines use standard tooling to peel the antistatic film off. Sometimes the "A" dimension of this tool is shorter than the overall "B" width between the two legs of the receptacle. There is thus a risk for the two legs being deformed while they pass through the tool during the suction operation. The user must then widen the "A" dimension of the peeling tool.



COPLANAR CIRCUIT ON PCB

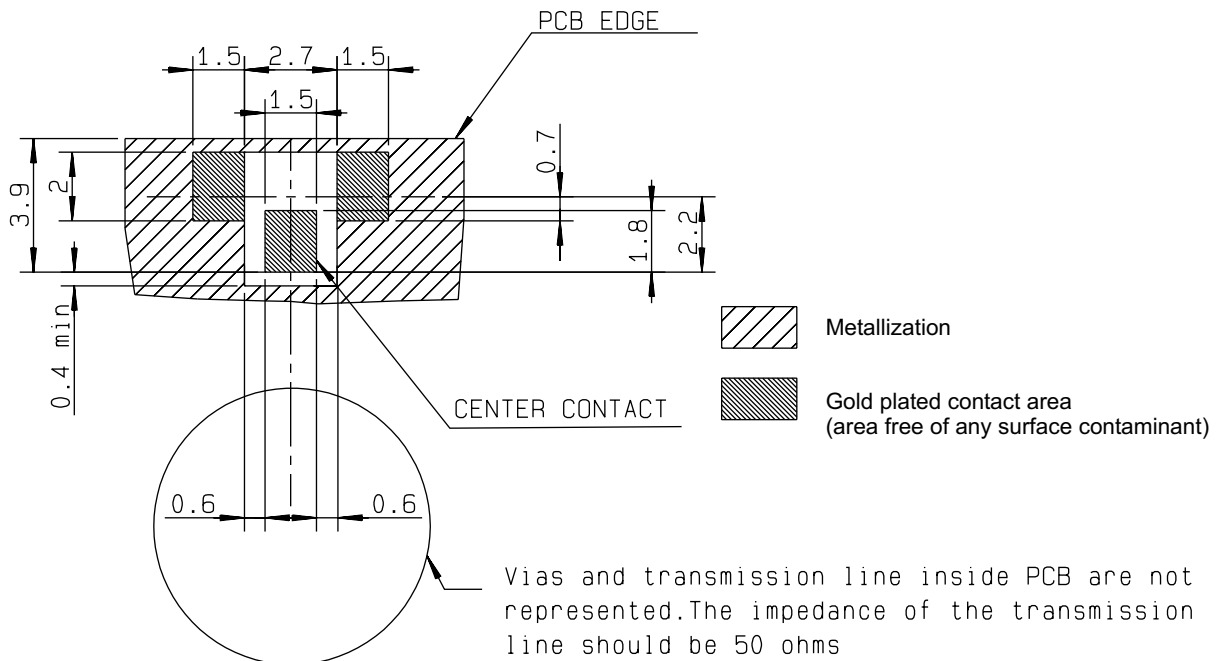
PCB 1 SOLDERING PATTERN

PCB thickness (mm)	Coplanar line A (mm)
0.8	0.183
1.0	0.190
1.2	0.195
1.6	0.200



Vias and transmission line inside PCB are not represented. The impedance of the transmission line should be 50 ohms

PCB 2 CONTACT PATTERN

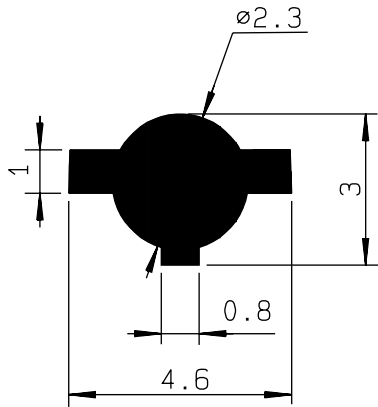


Vias and transmission line inside PCB are not represented. The impedance of the transmission line should be 50 ohms

All dimensions are given in mm.

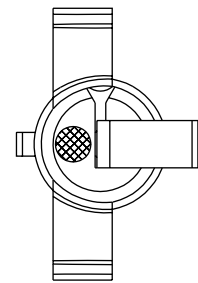
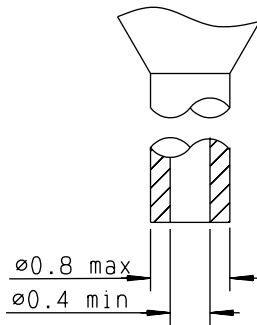


VIDEO SHADOW OF THE CONNECTOR



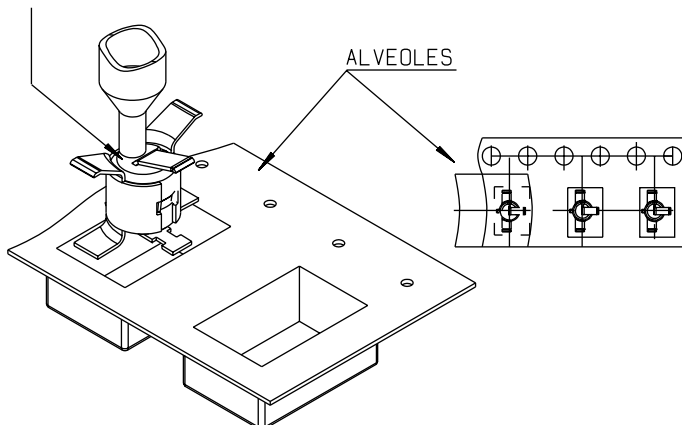
SUCTION PROCEDURE FOR IMP CONNECTOR

Aspiration port

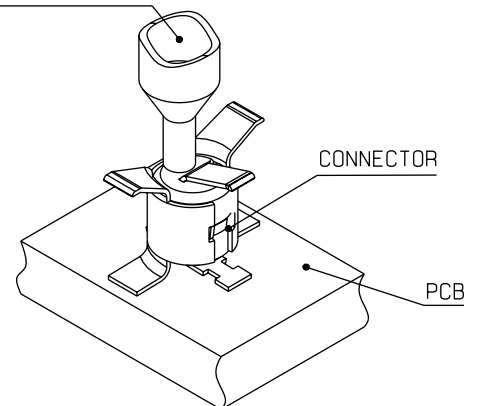


 ASPIRATION AREA

THE ASPIRATION PORT SHOULD BE IN CONTACT WITH THE INSULATOR



ASPIRATION PORT



All dimensions are given in mm.



To ensure the correct adhesion of the IMP connector to the PCB, the following procedures are recommended.

A - Soldering procedure using automatic pick and place equipment

1) Solder paste :

- RADIALL recommends using a **solder paste Sn62-RP11AGS90 type "no clean - low residue"** (5% solid residue of flux quantity) that will permit the **elimination of the cleaning operation step** after soldering.

- When using a conventional solder paste with high level (50%) of flux solid residue, it is important to incorporate a good cleaning operation step, similar to what is described below in paragraph 5.

- Note : when choosing a solder paste for gold-plated PCB pattern, it is important to use a paste made with silver. This will help in avoiding formation of intermetallics as part of the solder joint.

2) Solder paste deposition :

- The solder paste should be deposited on the designated zone areas (see pattern page 9) by a screen printing process. RADIALL advises a thickness of .006" (0.15 mm).

- If using a thickness of less than .006" (0.15 mm) the zone area must be specifically designed for this thickness (please consult RADIALL)

- Please optically verify that the edges of the zone are clean and without contaminates.

3) Placement of the component :

- Place the connector onto the PCB with automatic pick and place equipment. Please verify that the PCB areas have not oxydated.

- RADIALL does not recommend using adhesive agents on the connector or on the PCB

- The use of a video camera is preferred for checking the positioning of the components (see video shadow page 10)

4) Soldering : infra-red reflow process :

- Please follow RADIALL's recommended profile as illustrated.

- When using a "no clean - low residue" type of solder paste, RADIALL recommends a linear pre-heat profile not to exceed 160°C with a 1 to 2°C/s. Rise.

5) Cleaning of the PCB :

IMP connector meets standard requirements like MIL STD 202 F and IEC 68-2-45 concerning connector resistance to solvents. Indeed, the material of IMP connector-beryllium copper-withstands all current solvents such as azeotropic solutions, alcohols, alkaline saponifiers, halogenated hydrocarbons, high temperature water cleaner, CFC substitutes...

- When using a conventional solder paste with high level of residue, please clean the PCB with a substitute product, similar to CFC, that complies to the International Environmental Agency rules.

- RADIALL recommends using a vapor phase process (ultrasonic waves are allowable).

6) Quality Check :

- Verify by visual inspection that contact area of the connector has not been contaminated by solder or flux.

- Solder joints : verify by visual inspection that the formation of meniscus on the sides of the connector leads are proper

B - Soldering procedure by manual operation :

1) Solder paste :

- (Refer to procedure A - 1)

2) Flux deposition :

- Deposite a thin layer of flux on mounting zone.

- Allow the flux to evaporate a few seconds before applying the solder paste (in order to avoid dilution of the paste).

3) Solder paste deposition :

- Deposite a small quantity of solder paste on mounting zone area by syringe.

- Be careful, do not apply solder paste outside of the zone area.

4) Placement of the component :

- Lift the connector by tweezers.

- Place the component on the mounting zone by pressing lightly on the top of the connector with tweezers. The connector leads will stick into the solder paste.

5) Soldering :

- Pre-heat stage : use a heat gun (soldering iron is not recommended) at a distance of .800" (20 mm) from the connector, applying the jet of air in a continuous circular motion, until the solder paste starts to look dull. This stage avoids any thermal shock since both areas to be soldered are brought up to the same temperature.

- Final re-melting step is carried out by moving the heat gun to a closer distance of .200" (5 mm) from the connector legs while guiding the jet of air onto each connector lead, at a 45° angle.

6) Cleaning of the PCB :

- (Refer to procedure A - 5)

7) Quality check :

- (Refer to procedure A - 6)

TEMPERATURE PROFILE

