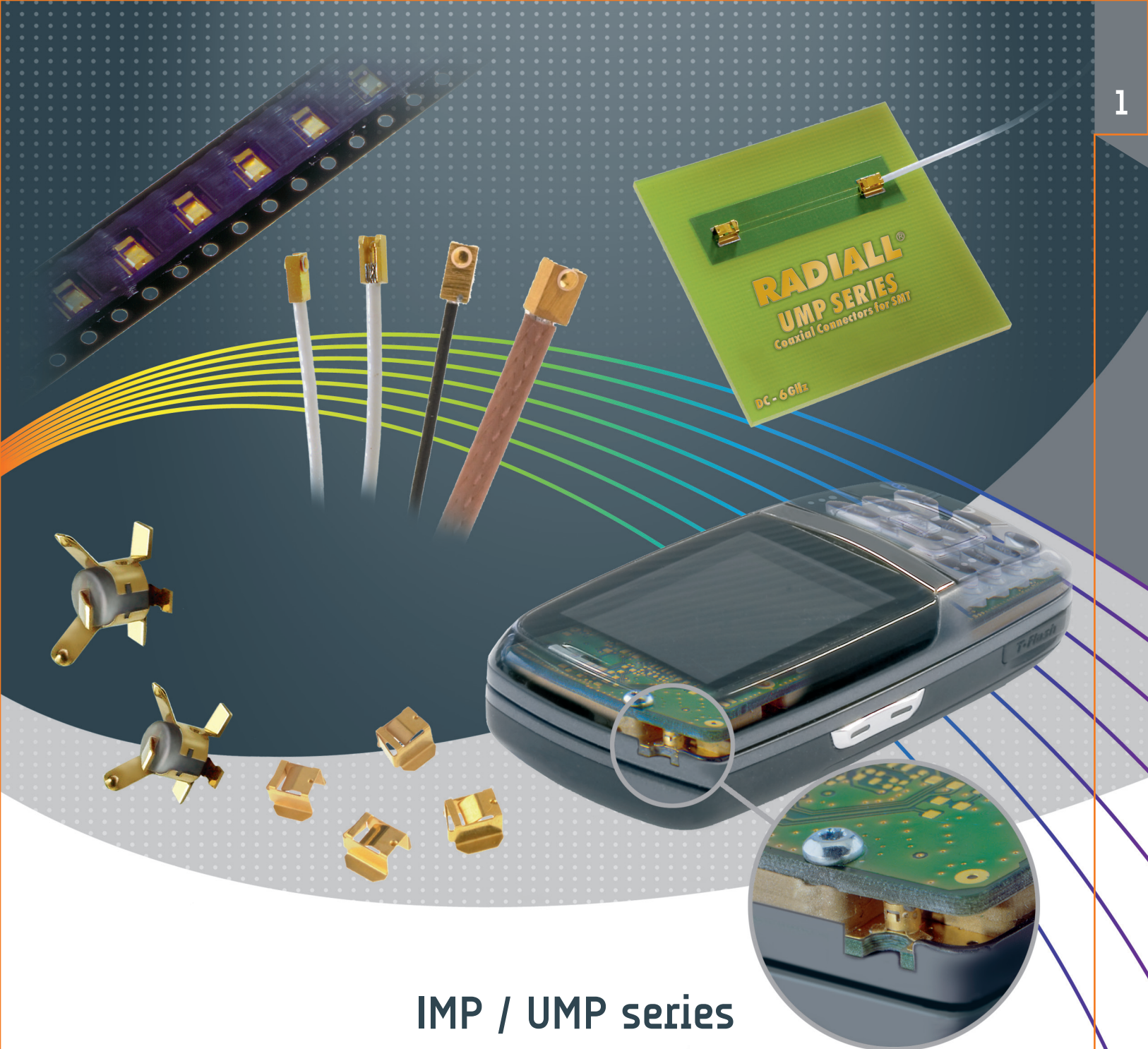




IMP / UMP series

R107

RADIALl 
The next conneXion

Pages

Introduction	1-4 to 1-6
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IMP

Characteristics	1-7
Board to board connectors	1-8
Receptacle packaging	1-9
Assembly instructions	1-9 to 1-10

UMP

Characteristics	1-11
Receptacles	1-12
Pigtails	1-12
Cable assemblies	1-12
Tools and accessories	1-13
Receptacle packaging	1-14
Assembly instructions	1-14 to 1-15
Connection and extraction	1-16

INTRODUCTION

RADIALl, the pioneer in SMT coaxial connectors with the MMS series, has become a world wide leader in this technology.

Thanks to this SMT expertise, RADIALl now announces another breakthrough: the next generation of SMT coaxial connectors called **MMP (Micro Miniature Pressure contact)**.

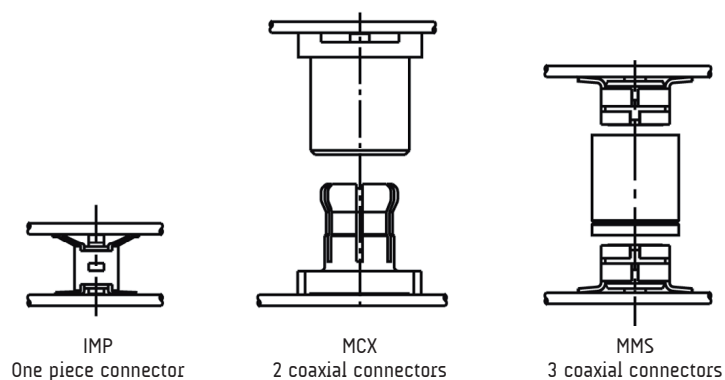
The **MMP** technological advance allows:

- cost savings
- further miniaturization
- exceptional RF performance
- reliability

The **MMP** product line includes:

- **IMP** series: board to board application
- **UMP** series: board to wire application

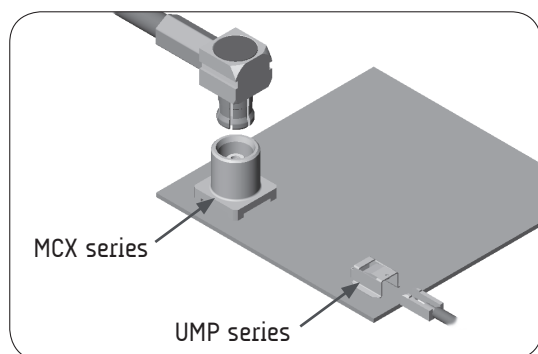
The **IMP** series (Interconnect Micro miniature Pressure contact) innovation consists of 1 coaxial connector when usually the same application requires either 2 coaxial connectors (a male SMT receptacle and a female SMT receptacle), or 3 coaxial connectors (2 SMT receptacles and an in-series adapter).



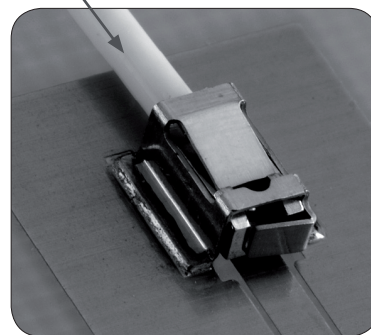
BOARD TO BOARD APPLICATION



The **UMP** series (Ultra Miniature Pressure contact) consists of 1 coaxial connector when 2 coaxial connectors (coaxial plug and SMT coaxial receptacle) are usually used.



BOARD TO WIRE APPLICATION



UMP

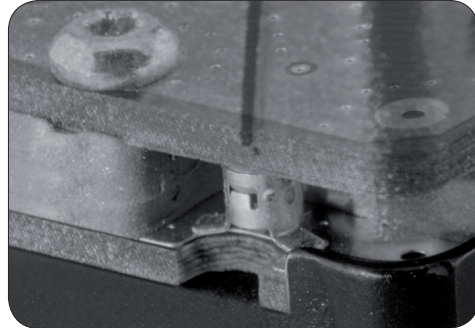
The IMP series is a press-on electrical contact, and so member of the MMP family. It allows a board to board application through the use of only one coaxial connector with high RF electrical performance.

IMP PRODUCT FEATURES

- Cost effective solution: one piece connector only
- High density (example: only 22.2 mm² on board (5.7 x 3.9) for the IMP 3 mm)
- World lightest connector: (example 0.02 g for the IMP 3 mm)
- World lowest profile for a board to board coaxial connexion (2 mm)

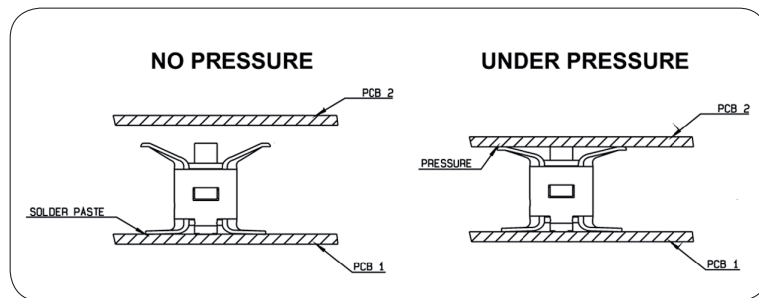
NEW IMP-SPRING DESIGN

- High frequency DC-18 GHz
- High axial and radial tolerances
- Robust design, for high reliability applications



IMP INSTALLATION

The distance between the 2 boards should be precisely ensured by a mechanical device (such as spacers). Contact Radiall for support regarding the spacers layout in your particular application. Application notes are available upon request.

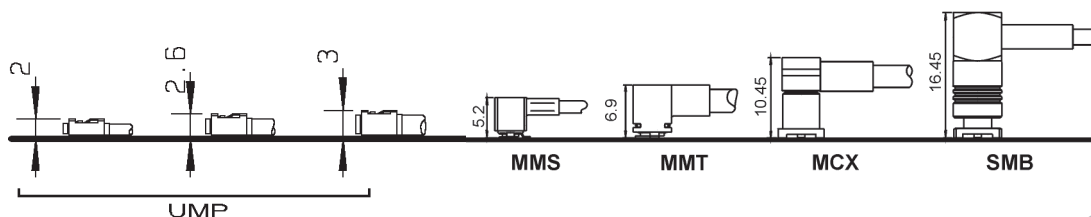
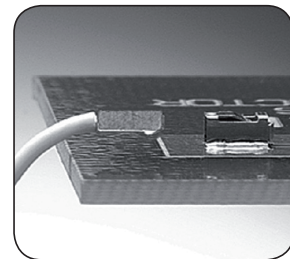


IMP PRODUCT RANGE

IMP is available in 3 mm and 2 mm board to board distance. Other heights can be developed upon request.

IMP-Spring is available in 8 mm and 16 mm board to board distance.

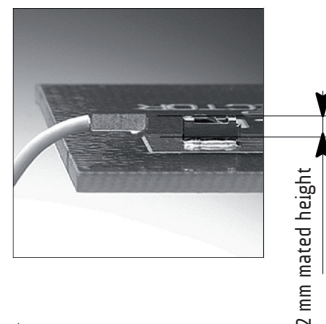
The **Ultra Miniature Pressure** contact (UMP) from Radiall features high RF performance in low profile (2 mm mated height). Packaged in tape & reel, the UMP is ideal for high volume applications. The UMP can be used on board or edge applications and can be used in conjunction with external or embedded antennas. There are 3 different heights (2, 2.6 and 3 mm) available in the 3 types of connection (lock, snap-on and slide-on).



INTRODUCTION

UMP MAIN PRODUCT INTEREST

- Low profile: 2 mm, 2.6 mm and 3 mm
- Small space for connection: needs only 2 mm of height
- Cost effective solution: 1 coax connector only
- Coupling mechanism choice (lock, snap-on, slide-on)
- Large cable range from 0.8 to 2.6 mm



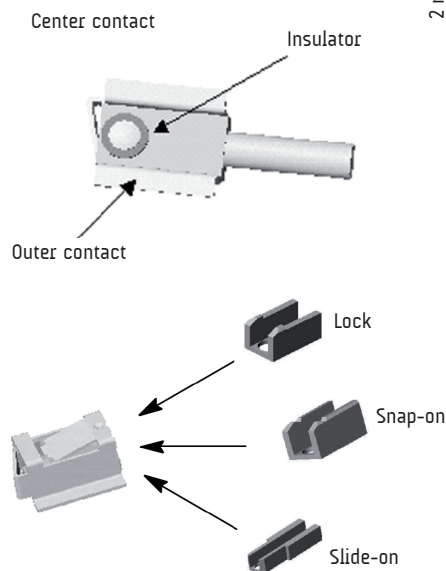
UMP TYPE OF MATING:

Only 1 coaxial connector

With 3 mating types:

- lock: - can only be disconnected using a tool
- number of matings 100
- withstands severe vibrations
- snap-on: - number of matings 3000
- slide-on: - number of matings 10000
- for test applications

Plugs exist in the 3 types of mating (lock, snap-on and slide-on).



APPLICATIONS:

IMP and UMP series can be used on board-to-board (or board-to-antenna) applications:

- WLAN
- Mobile phone
- GPS receivers
- Automotive
- Handheld radios
- RFID



PICK AND PLACE & PACKAGING

- Design adapted to automated pick and place machines. The footprint of IMP or UMP allows video positioning by using the component's shadow to facilitate its placement.
- Packaging: tape and reels of 100, 600, 2500 or 3500 pieces.
IMP-Spring is bulk packaged.



Values/remarks

ELECTRICAL CHARACTERISTICS (see note)

	IMP	IMP-SPRING	
Impedance	50Ω	50Ω	50Ω
Frequency range	DC-6 GHz	DC-6 GHz	DC-18 GHz
V.S.W.R.	1.3 Max	1.3 Max	1.5 Max
Insertion Loss (dB)	0.2 √F (GHz)	0.15 up to 3 GHz	0.2 √F (GHz)
Insulation resistance	3000 MΩ	3000 MΩ	
Contact resistance (depending on PC board) Center contact Outer contact	60 mΩ 10 mΩ	(gold plated target board) 20 mΩ 10 mΩ	(gold plated target board) 15 mΩ 2 mΩ
Working voltage in VRMS	100	100	
Dielectric withstanding voltage in VRMS	350	350	
Power at sea level, at 20°C, 3 GHz	20 W	20 W	

MECHANICAL CHARACTERISTICS (see note)

Durability	> 20	> 50	> 50
Weight (g)	0.02	2.6	1.4
Axial misalignment from nominal board to board distance in mm (inch)	± 0.2 (.008)	± 1 (.04)	± 0.5 (.02)
Radial misalignment in mm (inch)	0.2 (.008)	1 (.04)	0.7 (.027)
Tilt tolerance (angle between boards)	Not specified	1°	Not specified

ENVIRONMENTAL CHARACTERISTICS

Temperature range	-40 / +90°C	-50 / +125°C	-50 / +125°C
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MATERIALS

Body	Beryllium copper	Beryllium copper, brass
Contact		
Insulator	Polyethercetone	PTFE, Peek

PLATING

Body	Gold	Gold	Gold
Contact		NPGR	

Note: tested per CECC 22000

V.S.W.R

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

Frequency	Typical VSWR IMP-SPRING 18 GHz	
	Nominal position	Max radial misalignment
6 GHz	1.02	1.02
12 GHz	1.08	1.10
18 GHz	1.12	1.40

All dimensions are given in mm.

BOARD TO BOARD CONNECTORS

SMT CONNECTORS

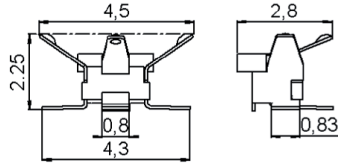


Fig. 1

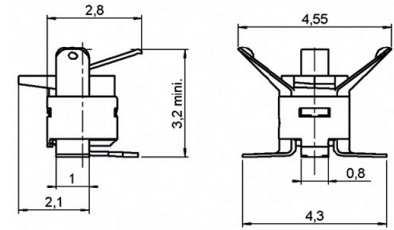


Fig. 2

Part number	Height (mm)	Fig	Packaging	Reel dimensions A (mm)	Assembly instructions
R107 064 070	2	1	Reel of 100	180	M01
R107 064 080			Reel of 3500	330	
R107 064 900	3	2	Reel of 2500	330	
R107 064 910			Reel of 600	180	
R107 064 920			Reel of 100		

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

SPRING LOADED CONNECTORS

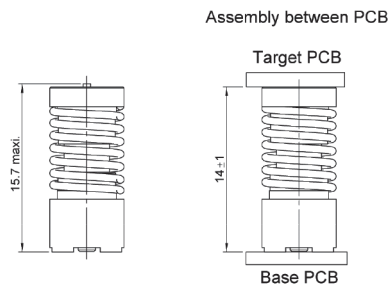


Fig. 1

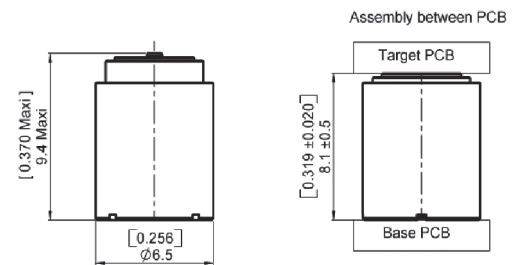


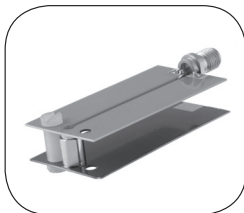
Fig. 2

These surface mount (SMT) coaxial connectors are designed to handle large mechanical misalignment between two printed circuit boards. A single connector achieves the board to board coaxial interconnection. The connector is soldered to the main PCB and the top board acts like the counterpart with its dedicated "target" pad.

Part number	Fig	Frequency range	Axial tolerance in mm (inch)	Nominal board to board distance in mm (inch)	Packaging
R107 194 000	1	DC-6 GHz	± 1 (.04)	14 (.551)	Bulk 100
R107 184 000	2	DC-18 GHz	± 0.5 (.02)	8.1 (.319)	

Other heights and packaging options can be designed upon request.

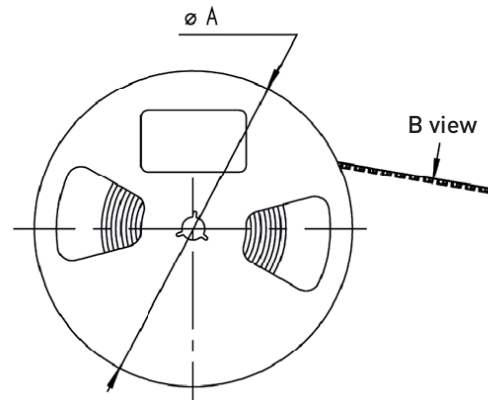
TEST BOARDS



Available upon request, please contact us.



RECEPTACLE PACKAGING



ACCORDING TO IEC 286-3 STANDARD

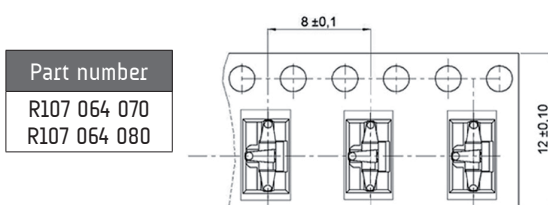
MATERIALS

Reel: polyester

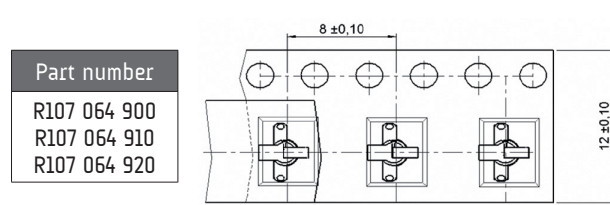
Carrier tape: antistatic PETG (polyester)

Cover tape: polyester

B VIEW



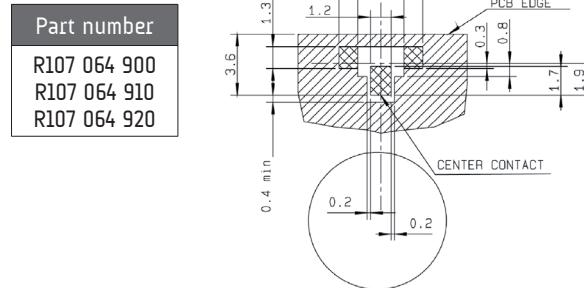
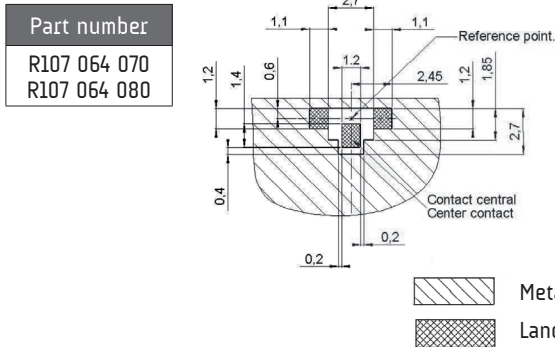
B VIEW



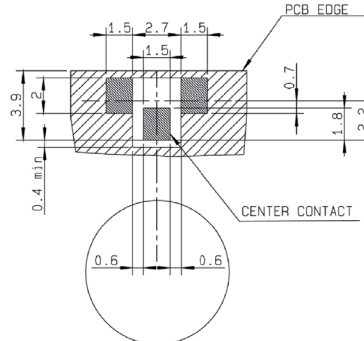
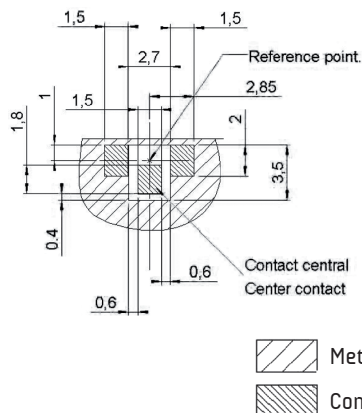
ASSEMBLY INSTRUCTIONS

M01

SOLDERING PATTERN



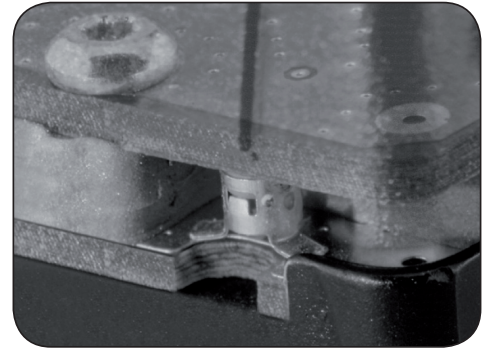
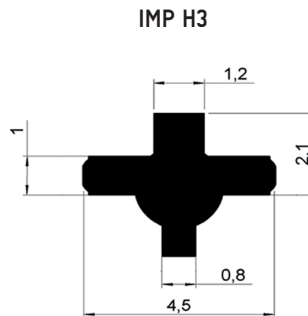
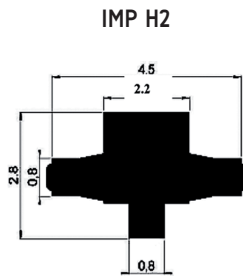
CONTACT PATTERN



ASSEMBLY INSTRUCTIONS

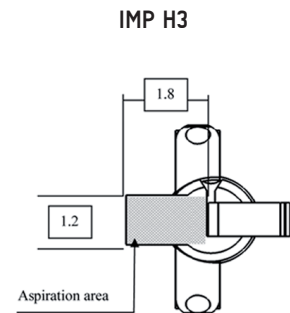
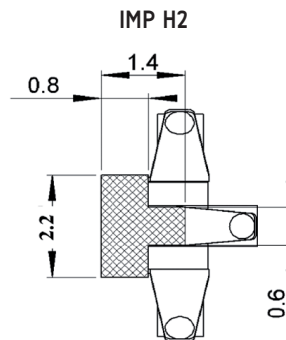
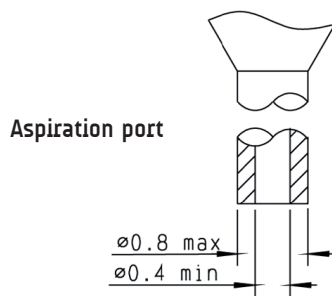
M01 (Flg)

VIDEO SHADOW



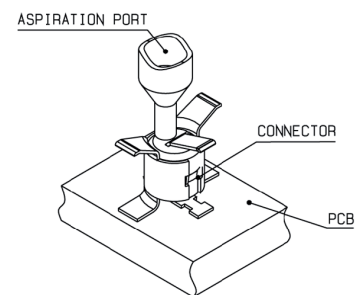
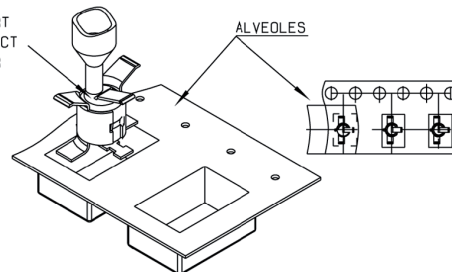
The distance between the 2 boards should be precisely ensured by a mechanical device (such as spacers). Contact Radiall for support regarding the spacers layout in your particular application. Application notes are available upon request.

SUCTION PROCEDURE



ASPIRATION AREA

THE ASPIRATION PORT
SHOULD BE IN CONTACT
WITH THE INSULATOR



The following pick and place equipment and associated nozzles were successfully tested for the IMP:

- A) FUJI: QP-242/MODULE TYPE
QP-242 IMP MOUNT MODULE NAME: TYPE BI-612
IMP NOZZLE PART N°: I-S12B-013-100 (NOZZLE PIE 1.3)
- B) PANASONIC: MSF type machine
NOZZLE PART N°: 10 807 GH 810

For other equipment, please contact your supplier to define equivalent nozzles.

	Test standard	Values/remarks
ELECTRICAL CHARACTERISTICS		
Impedance	CECC 22 000	50Ω
Frequency range		DC - 6 GHz
Max V.S.W.R. (mated connectors)		1.05 + 0.03 F
Max Insertion loss (dB) (mated connectors)		0.2 √F
RF leakage		-40 dB min at 2 GHz
Insulation resistance		1000 MΩ min
Contact resistance • center contact • outer contact		60 MΩ 10 MΩ
Working voltage		100 VRMS
Dielectric withstanding voltage		350 VRMS
Power, at sea level, 1.8 GHz, VSWR=1.1		50 W

MECHANICAL CHARACTERISTICS

Durability • lock • snap-on • slide-on	CECC 22 000	100 matings 3000 matings 10000 matings
Force to engage		5 N
Cable retention force		20 N - 100 N
Sine vibrations	IEC 68-2-6	passed
Random vibrations	IEC 68-2-36	passed
Shocks	IEC 68-2-29	passed
Retention on test board		20 N min
Damp heat	IEC 68-2-56	passed
Weight • receptacle • plug		0.03 g 0.08 g

ENVIRONMENTAL CHARACTERISTICS

Operating Temperature	CECC 22 000	-40°C/+90°C
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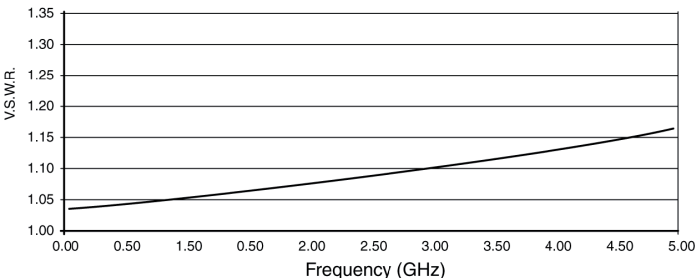
MATERIALS

Bodies • plug • receptacle	Brass Beryllium copper
Center contact	Brass
Outer contact • plug • receptacle	Brass Beryllium copper
Insulator	PTFE

PLATING

Bodies	Gold
Center contact	
Outer contact	

V.S.W.R

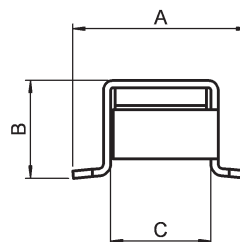
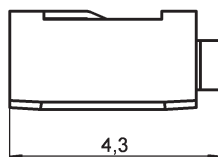
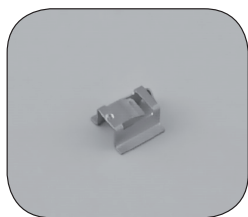


Frequency	Typical VSWR
1 GHz	1.05
2 GHz	1.07
3 GHz	1.09
4 GHz	1.12
5 GHz	1.16
6 GHz	1.20

All dimensions are given in mm.

RECEPTACLES, PIGTAILS AND CABLE ASSEMBLIES

SMT RECEPTACLES



UMP type	Part number	Dimensions (mm)			Finish	Packaging	Reel dimensions (mm)	Assembly instructions
		A	B	C				
H2	R107 003 010	3.6	2	2.05	gold	100 pieces	180	M02
H2.6	R107 103 030	5	2.6	2.45		3300 pieces	330	
	R107 103 040					100 pieces	180	
H3	R107 303 040	5.5	3	2.95		100 pieces	180	

PIGTAILS



Lock

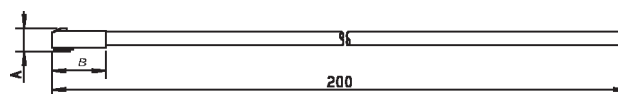


Fig. 1

Snap-on

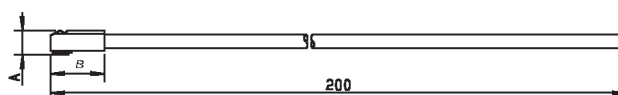


Fig. 2

Cable	Cable group	UMP type	Mating type	Part number	Fig	Dimensions (mm)		Packaging
						A	B	
C291 050 066	1/50/S	H2	lock	R285 020 202	1	1.74	4	100 pieces
			snap-on	R285 020 212	2	1.65		
C291 140 087	2/50/S	H2.6	lock	R285 020 301	1	2.34		
			snap-on	R285 020 311	2			
C291 180 072	2/75/S		lock	R285 020 302	1			
C291 170 017	2.6/50/S	H3	lock	R285 020 401	1	2.84		

BETWEEN SERIES CABLE ASSEMBLIES



Lock

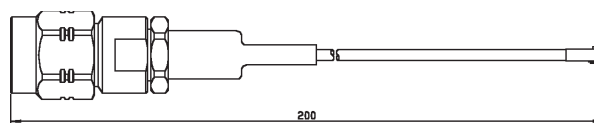


Fig. 1

Snap-on

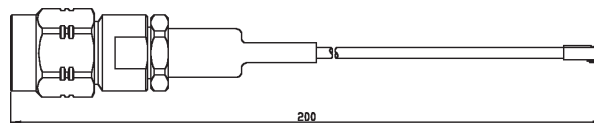
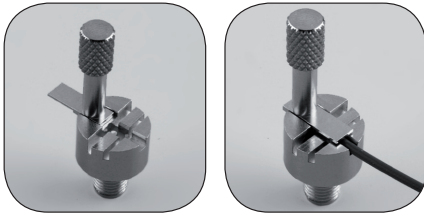


Fig. 2

Cable	Cable group	UMP type	Mating type	Part number	Fig	Series	Packaging
C291 050 066	1/50/S	H2	lock	R285 025 202	1	UMP/SMA	20 pieces
			snap-on	R285 025 212	2		
C291 140 087	2/50/S	H2.6	lock	R285 025 301	1		
			snap-on	R285 025 311	2		
C291 170 017	2.6/50/S	H3	lock	R285 025 401	1		

PRODUCTION LINE TEST ADAPTER: UMP - SMA FEMALE

(to be used with lock and snap pigtails only)



Part number	Connector height (mm)	Packaging
R107 009 901	H 2	unit
R107 009 902	H 2.6	
R107 009 903	H 3	

For measurement and test purposes. Packaging: unit.

TEST AND DEMOBOARD

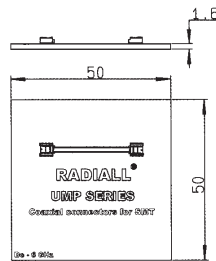
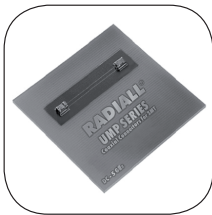


Fig. 1

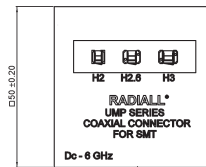


Fig. 2

Part number	Receptacle height (mm)	Fig	Note	Packaging
R107 009 500	H 2	1		unit
R107 009 501	H 2.6			
R107 009 502	H 3			
R107 009 503		2	demo board H 2, H 2.6, H 3	

Connected to a network analyser by 2 cable assemblies, this board allows to measure the VSWR of the complete link.

EXTRACTION TOOL (for lock version only)



Photo 1



Photo 2

Part number	Photo	Note	To disconnect	Packaging
R282 867 020	1	axial disconnection	H 2	10 pieces
R282 867 030	2	lateral disconnection	H 2.6 and H 3	

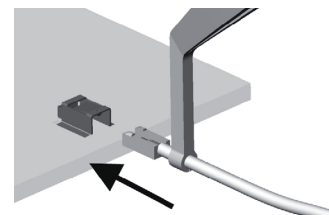
The 2 disconnection tools allows axial and lateral disconnections depending on the occupied space on the PCB. Please see extraction procedure on page 1-16.

INSERTION TOOL (optional)



Part number
R282 203 020

This optional tool allows you a more precise connection in a limited space. Please see manual connection on page 1-16.



Packaging: unit.

To download data sheets and assembly instructions, visit www.radiall.com & enter the part number in the Search box.
Bold part numbers represent products typically in stock & available for immediate shipment.
See page 8 and 9 for packaging information.

RECEPTACLE PACKAGING



ACCORDING TO IEC 286-3 STANDARD

MATERIALS

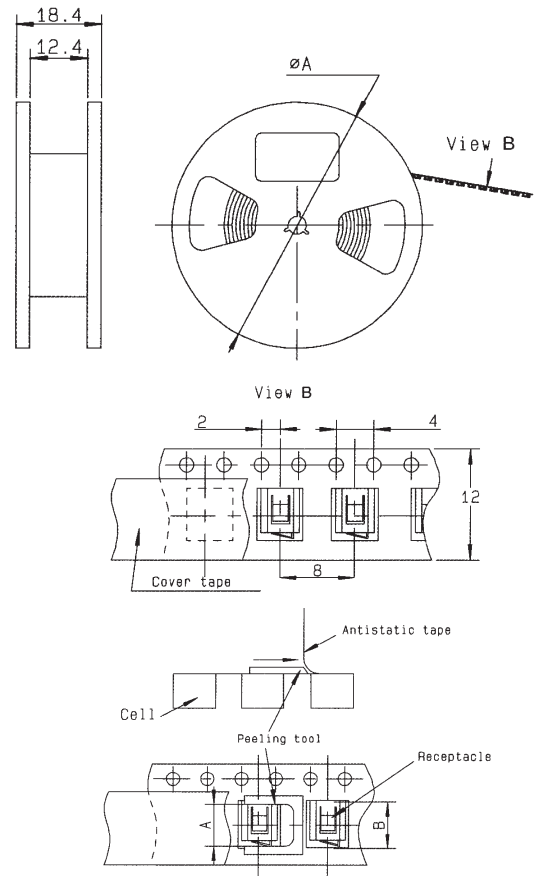
Reel: polyester

Carrier tape: antistatic PETG (polyester)

Cover tape: polyester

PRECAUTION FOR USE

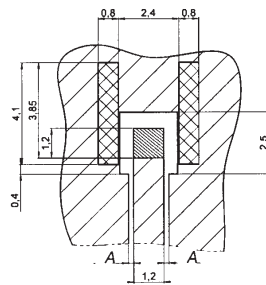
Automated pick and place machines use standard tooling to peel the antistatic film off. Sometimes the "A" dimension of this tool is shorter than the overall "B" width between the two legs of the receptacle. There is thus a risk for the two legs being deformed while they pass through the tool during the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



ASSEMBLY INSTRUCTIONS

M02

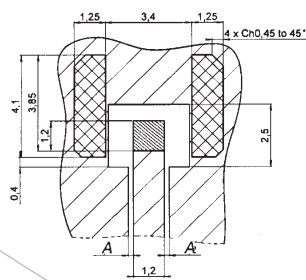
RECEPTACLE SOLDERING PATTERNS FOR COPLANAR LINE



H2 type receptacle

Part number

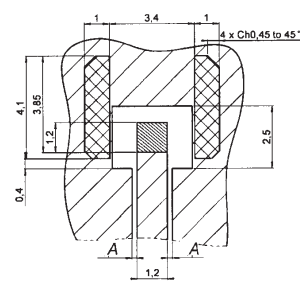
R107 003 010



H3 type receptacle

Part number

R107 303 040



H2.6 type receptacle

Part number

R107 103 030

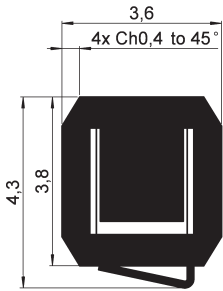
R107 103 040

PCB thickness (mm)	Coplanar ligne A (mm)
0.8	0.183
1.0	0.190
1.2	0.195
1.6	0.20

-  Gold over Nickel preferred for solder paste
Gold can be replaced by tin lead (see test report SC2000.02.6587)
-  Gold over Nickel contact area free of any surface contaminant
-  Ground + varnish

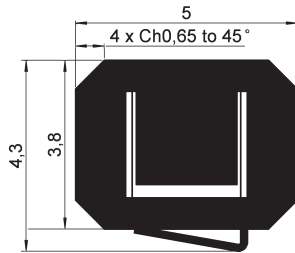
M02 (Flg)

VIDEO SHADOWS



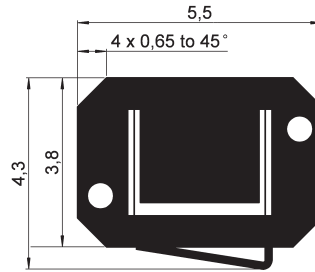
H2 type receptacle

Part number
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H2.6 type receptacle

Part number
R107 103 030
R107 103 040

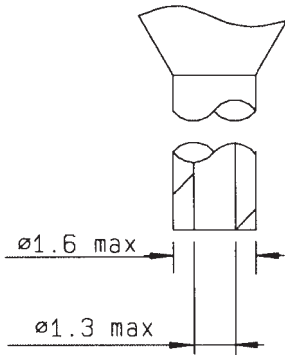


H3 type receptacle

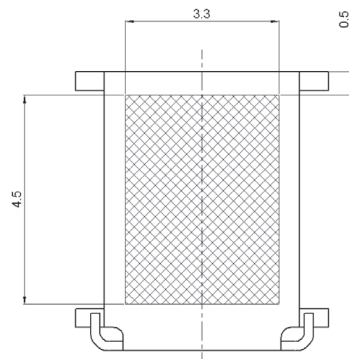
Part number
R107 303 040

SUCTION PROCEDURE

Aspiration port

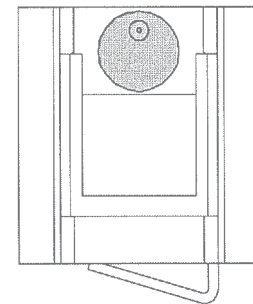


OTM Cover

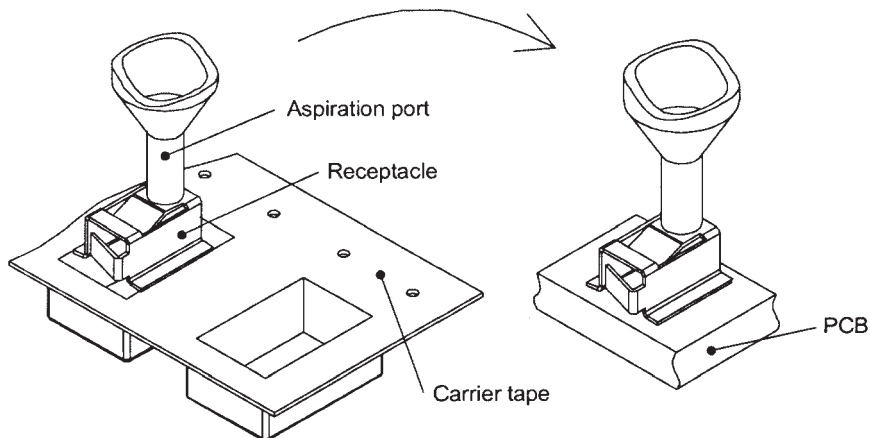


ASPIRATION AREA

Receptacle

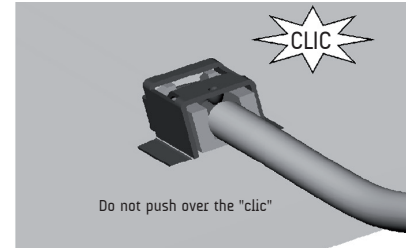
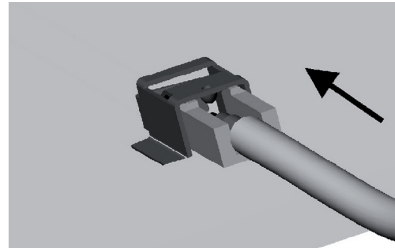
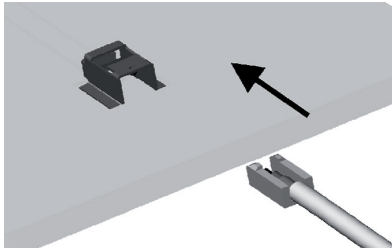


Aspiration area



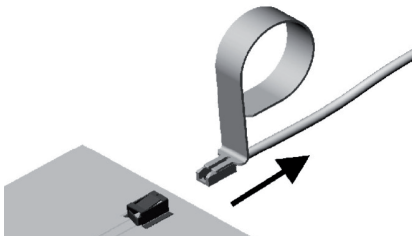
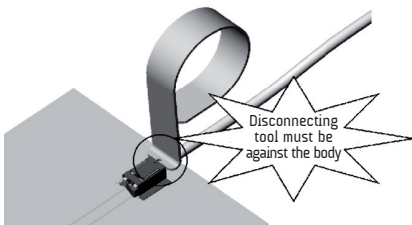
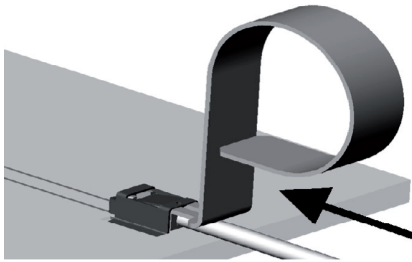
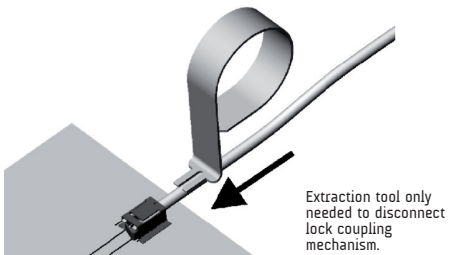
CONNECTION AND EXTRACTION

Manual connection



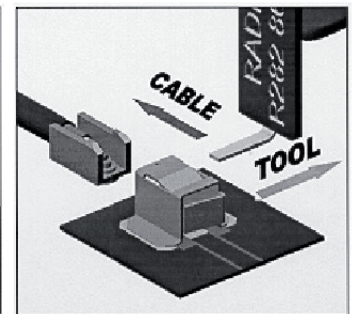
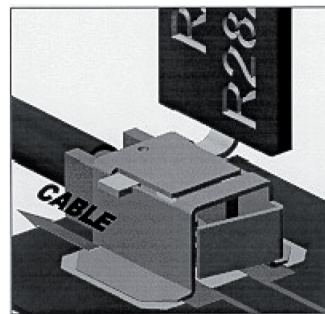
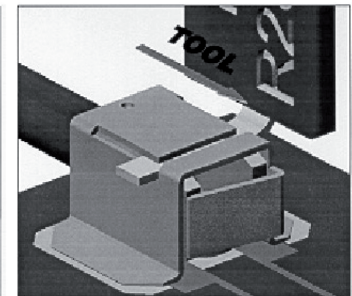
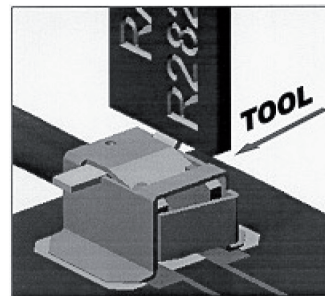
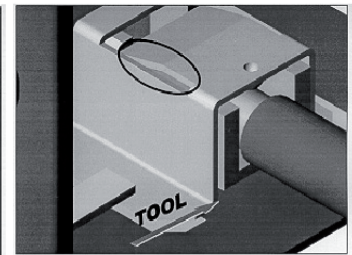
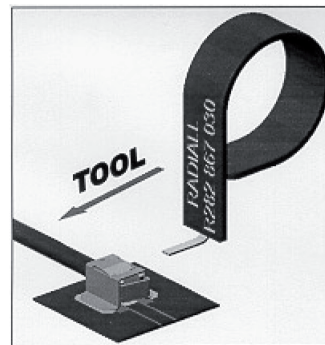
Axial disconnection

Tool R282 867 020 (see page 1-13).



Lateral disconnection

Tool R282 867 030 (see page 1-13).





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