



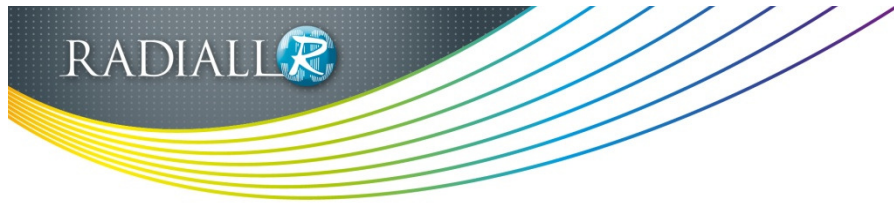
TELECOM

More Board2Board RF Coaxial Solutions

More from SMP-MAX

RADIAL





Radiall is Simply Your Best Connection

- Established in 1952 and still family owned
- Global manufacturer of quality interconnect solutions that are competitively priced
- Earned the reputation for being “the best of the best” in engineering ingenuity
- Three R&D centers in USA (CT), France (Grenoble) and China (Shanghai)
- Manufacturing facilities in China, USA, Mexico, France and India – ISO 9001 and ISO 14001 certified

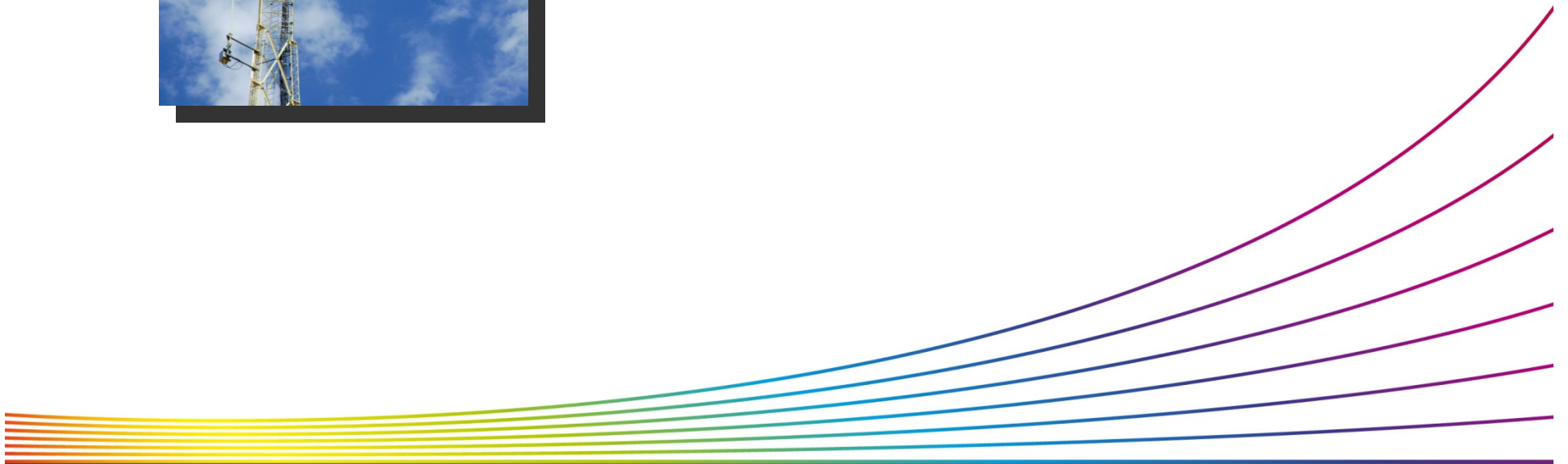
Contents

- Market trends
- Features and benefits
- Applications
- Large misalignment
cost effective
SMP-MAX solution
- Other misalignment solutions
- Promotional tools and message to market



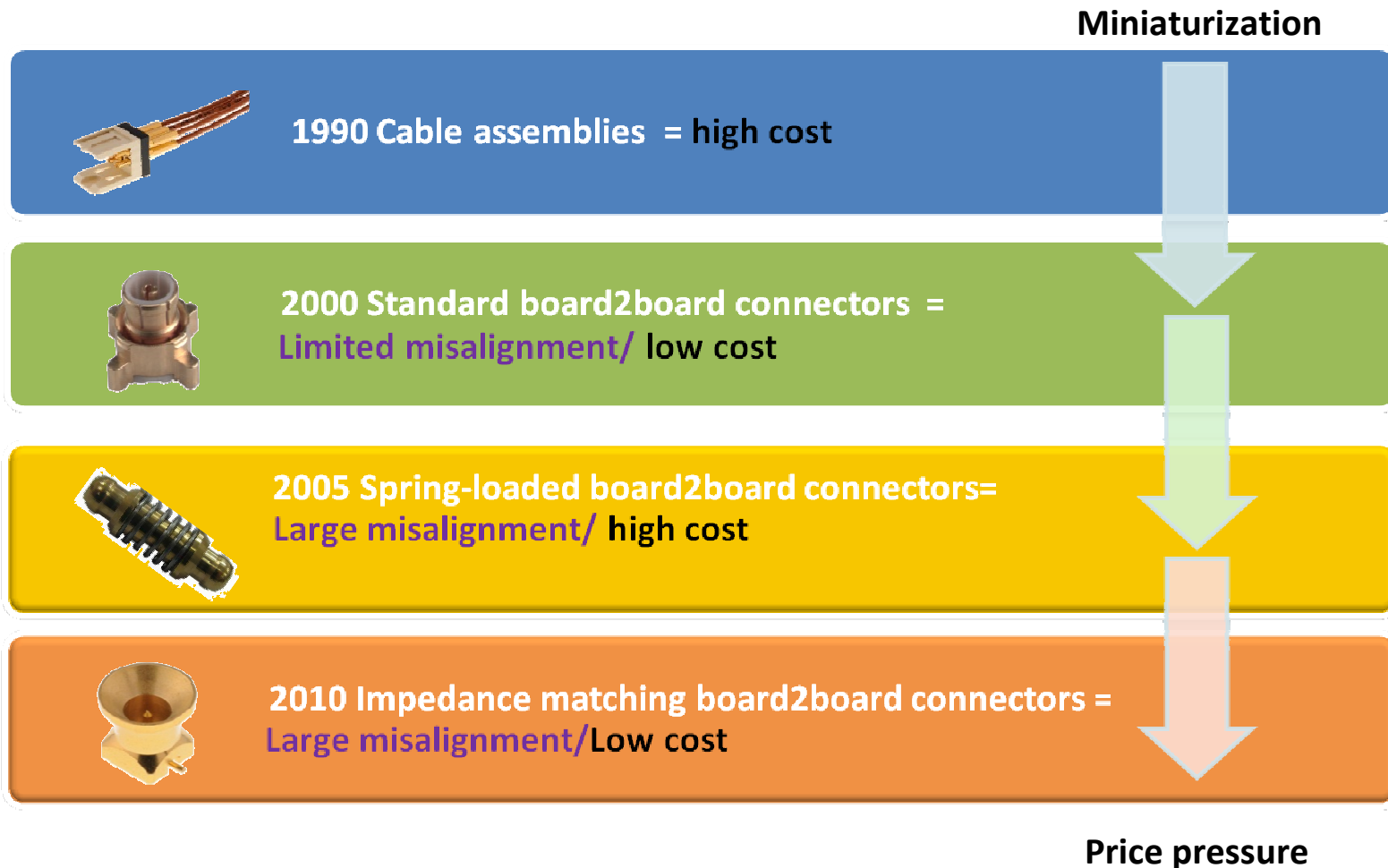


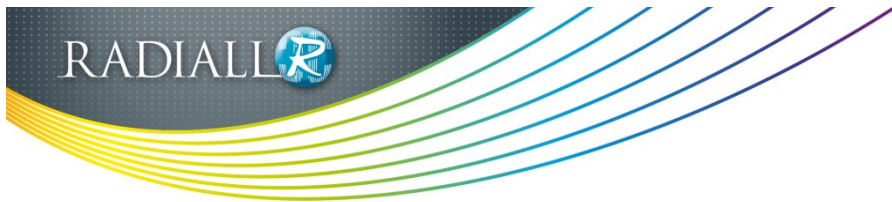
Market Trends



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Board2Board Trends





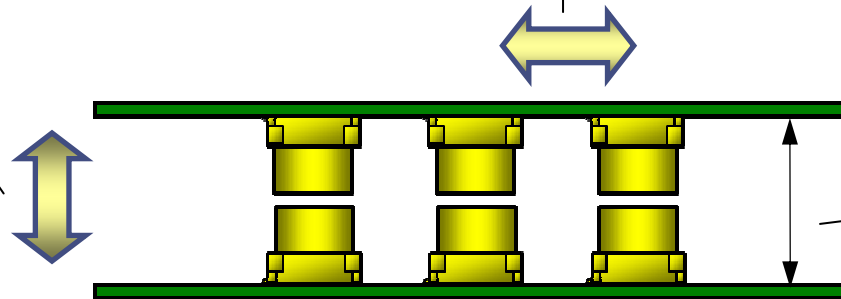
Board2Board

3 Choice Criteria

Misalignment tolerances

*Board2Board Distance
(axial) Tolerance*

*Angle / Tilt
(radial) Tolerance*



Dimensions

*Board2board minimum
distance*

*Density (PCB minimum
surface)*

Maximum frequency

Maximum power

VSWR consistency

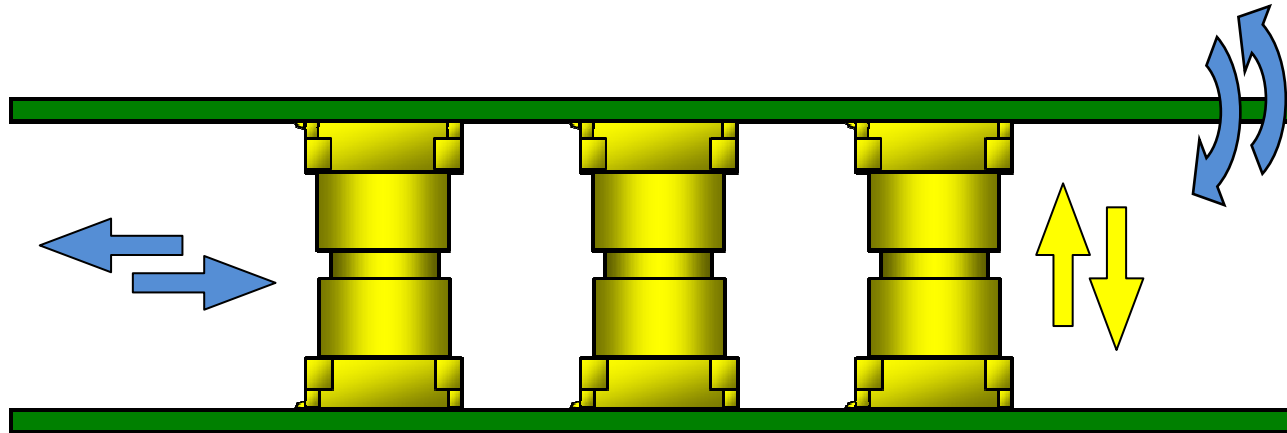
RF leakage consistency

RF performances

Misalignment 101

Angle /Tilt tolerances

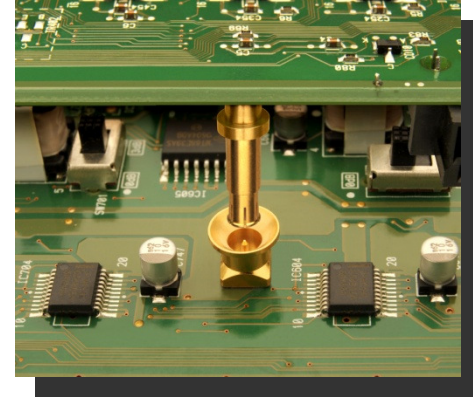
Angle /Tilt tolerances



Board2Board distance tolerance

Features and Benefits

- Misalignment tolerances as high as .078" (2 mm) and 4.5° tilt
- Reduced risk (temperature/assembling) compared to a cable solution
- Lower cost compared to cable assemblies
- More choices with four different product groups and ten connector series
 - Large misalignment featuring new SMP-MAX ... the most cost effective solution on the market today
 - Large misalignment, with new spring-loaded solutions
 - Limited misalignment solutions
 - No misalignment solutions



The Best and Broadest Selection of Solutions

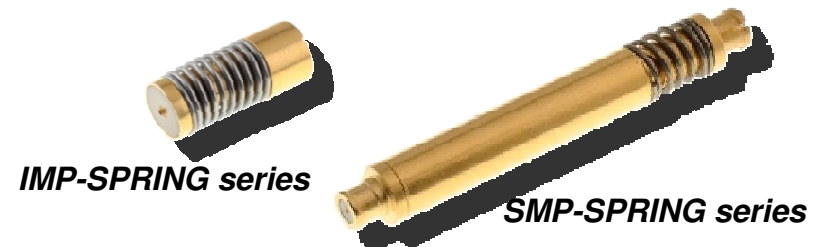
Large Misalignment

- New SMP-MAX
 - The most cost effective for maximum mechanical misalignment



Spring-loaded Connectors

- IMP-Spring, SMP-Spring, MMBX-Spring
 - The best solution for low and consistent VSWR

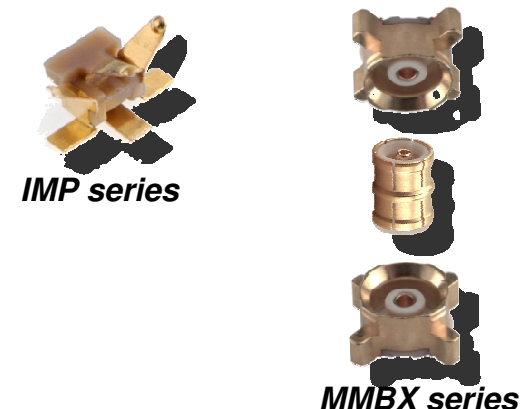


Limited Misalignment

- SMP, MMBX, IMP
 - Require relatively precise mechanical alignment

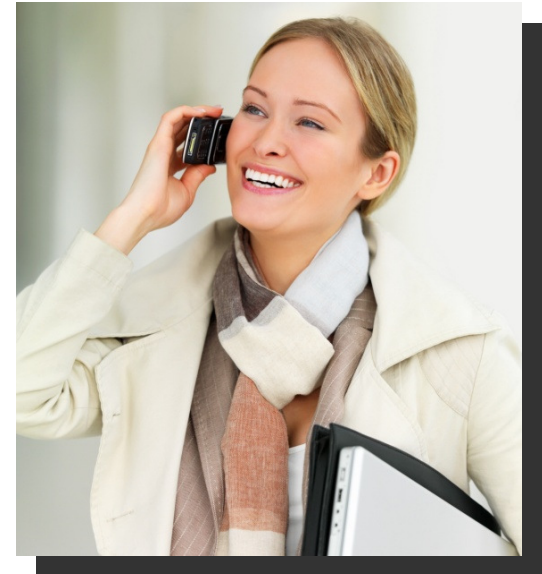
No Misalignment

- MMS, MMT, MCX
 - Little or no distance tolerance between boards



Applications

- Addresses the most demanding wireless telecom applications required for the new generation of infrastructure compact equipment:
 - Base stations
 - Handheld devices
 - Repeaters
 - GPS devices and more!
- Can be used in several configurations:
 - Board2board
 - Module2module
 - Panel2panel





**Get the Best for
Less from
SMP-MAX**

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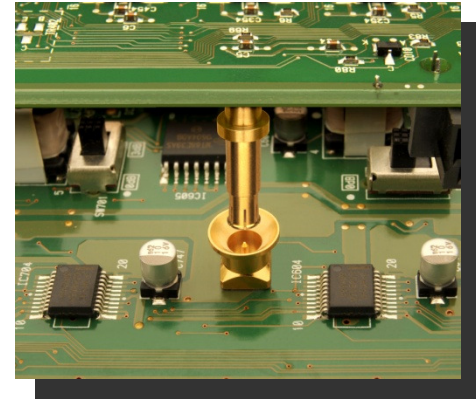


SMP-MAX

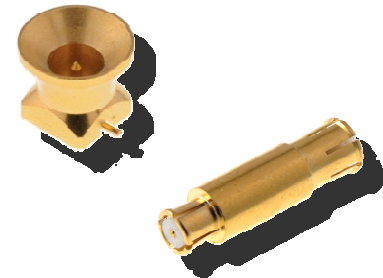
Get the Best for Less

New SMP-MAX has a patented impedance matching insulator that is optimized for a larger operating gap between connectors making it easier for engineers to handle any project

- A maximum board2board distance misalignment tolerance of up to a .078" (2 mm) gap without a spring, which is 300 percent more than the standard SMP!
- Features a 3° tilt (radial travel)
- Operating frequency range of DC-6 GHz
- VSWR 1.2 max guaranteed up to 3 GHz
- Handles up to 165 Watts of power at 3 GHz



**SMP-MAX
receptacle**



SMP-MAX adapter

SMP-MAX

Product Range

SCREW-ON STRAIGHT MALE JACK CRIMP TYPE FOR FLEXIBLE CABLE



Cable group	Cable group dia.	Part number
RG174/RG316	2.6/50S	R222 M20 710

SCREW-ON STRAIGHT MALE JACK SOLDER TYPE FOR SEMI-RIGID CABLE



Cable group	Part number
.085"	R222 M20 700

SCREW-ON MALE RECEPTACLE WITH CYLINDRICAL CONTACT



Part number
R222 M10 700

STRAIGHT MALE RECEPTACLE FOR PCB



Part number
R222 M00 700

STRAIGHT MALE RECEPTACLE FOR PCB SOLDER LEGS



Part number
R222 M00 710

ADAPTERS



Part number	Length
R222 M30 000	15 mm
R222 M30 010	12.6 mm
R222 M30 020	8.92 mm



Best and Broadest Selection of Board2Board Solutions

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Spring-loaded Solutions

One connector IMP-Spring and three connector SMP-Spring and MMBX-Spring large misalignment series are the best for increased maximum distance tolerances

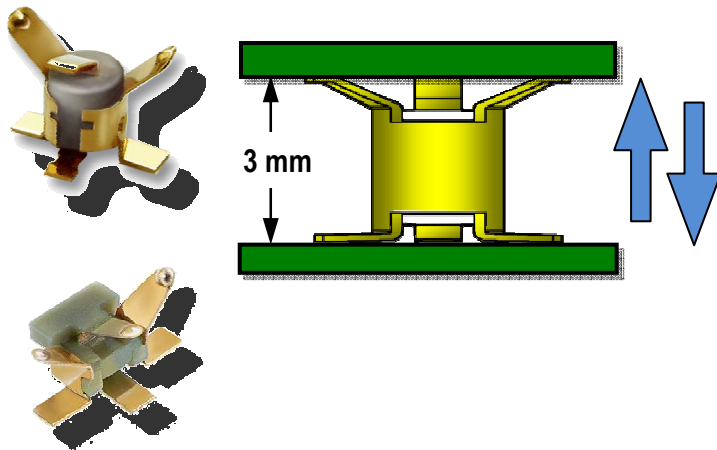
- Board2board distance misalignment tolerance of up to .078" (2 mm) and a tilt (radial travel) of up to 4.5°
- Consistent low VSWR, down to 1.15 at 3 GHz, and low RF leakage
- IMP-Spring, 6 GHz, 1° tilt (radial travel), .078" (2mm) distance misalignment
- SMP-Spring, 12.4 GHz, 3.5° tilt (radial travel), .078" (2mm) distance misalignment
- MMBX-Spring, 6 GHz, 4.5 ° tilt (radial travel), .062" (1.6mm) distance misalignment



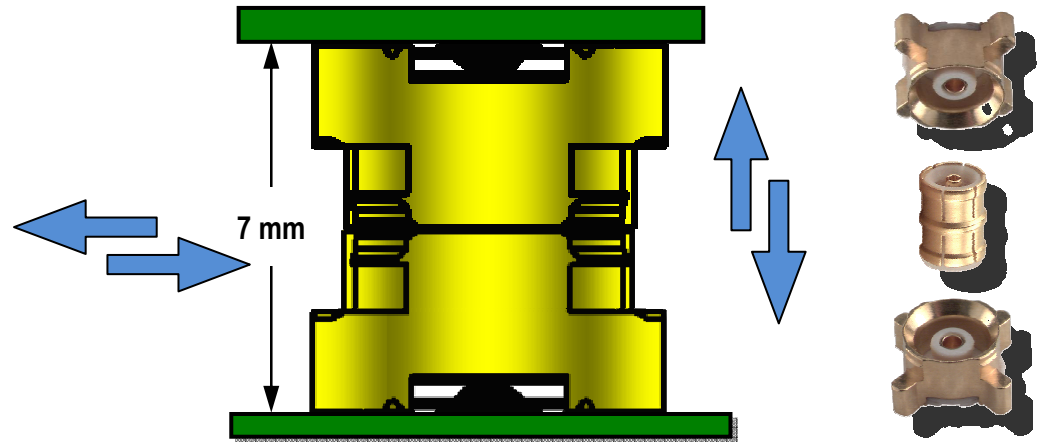
IMP-Spring and SMP-Spring

Limited Misalignment solutions

1 Connector Solution IMP



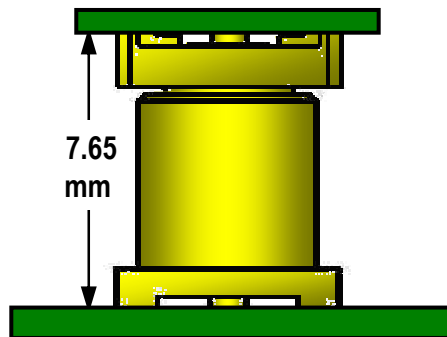
3 Connector Solution SMP / MMBX



- IMP, 6 GHz, .015" (.4 mm) distance misalignment
- SMP, 12.4 GHz, 3.5° tilt (radial travel), .019" (.5 mm) distance misalignment
- MMBX, 6 GHz, 4.5° tilt (radial travel), .023" (.6 mm) distance misalignment

No Misalignment Solutions

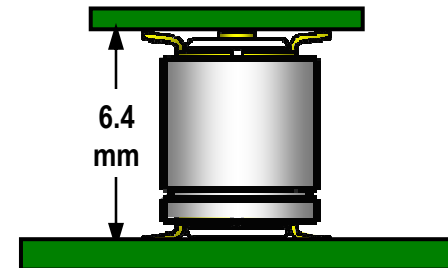
2 Connector Solution :



MCX

2 receptacles

3 Connector Solution :



MMS / MMT

2 receptacles
+ 1 adapter

Two connector MCX and three connector MMS and MMT series are designed for applications requiring little or no distance tolerance between boards



More RF
Board2Board
Coaxial Solutions

Get more from SMP-MAX



Get the best for less...
with misalignment tolerances
as high as .078" (2 mm) and
up to 3° tilt! For all your most
demanding wireless telecom
applications, Radiall has the
largest board2board product selection for you; including
the new cost effective SMP-MAX, SMP-Spring, IMP-Spring
and other misalignment solutions.



For more information
and a FREE SMP-MAX
go to www.radiall.com
or call 1 480 682 9400

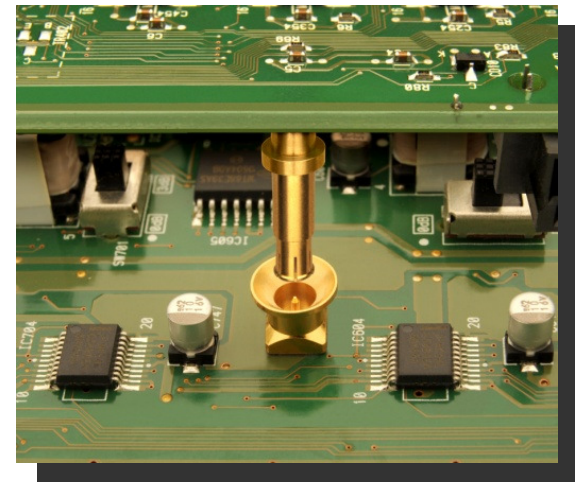
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Conclusion and selection guide

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Why Radial Board2Board Solutions?

Radial offers the largest product range of RF board2board solutions featuring the most cost effective large misalignment SMP-MAX which no other competitor in the market has .



Selection Guide

Family	Series	Misalignment tolerances		Dimensions		Performance		
		Angle tolerance (example with a 10mm distance between boards)	Board to board distance tolerance	Board to board minimum distance	PCB surface / size	Maximum frequency	Typical VSWR (min/ max) at 3 GHz	Power at 3 GHz
No misalignment	MMT	0	0	6.4 mm	4.2 X 4.9 / 25mm ²	8 GHz	1.5	80W
	MMS	0	0	7.65 mm	4.2 X 5.1 / 21mm ²	6 GHz	1.5	80W
	MCX	0	0	7.95 mm	6 X 6 / 36 mm ²	6 GHz	1.25	120W
Limited misalignment	IMP	0	0.4 mm	2 mm	4.5 X 4.5 / 20mm ²	6 GHz	1.25	50 W
	SMP	3.5°/0.3mm Max	0.5 mm	9.5 mm	5 X 5 / 25mm ²	12.4 GHz	1.12	120 W
	MMBX	4.5°/0.7mm Max	0.6 mm	6.7 mm	6 X 6 / 36mm ²	6 GHz	1.15	150 W
Large misalignment Spring loaded	IMP-Spring	Not specified	1.2 mm	8.1 mm	Ø 7 / 38mm ²	18 GHz	1.2	150 W
	IMP-Spring	1 ° / 1 mm Max	2.0 mm	16 mm	Ø 7 / 38 mm ²	6 GHz	1.15	150 W
	SMP-Spring	3.5°/0.3mm Max	1.2 mm	15.6 mm	5 X 5 / 25mm ²	12.4 GHz	1.15	150 W
	MMBX-Spring	4.5°/0.7mm Max	1.6 mm	18 mm	6 X 6 / 36mm ²	6 GHz	1.18	150 W
Large misalignment cost effective	SMP-Max	3°/1mm Max	2.0 mm	13 mm	5.6 X 5.6 / 31 mm ²	6 GHz	1.2	165 W

Thank You

A series of approximately 10 curved lines originate from the left side of the slide, just above the dark blue footer. The lines are colored in a gradient from yellow and orange on the left to blue and purple on the right, curving upwards as they move towards the right edge of the slide.

RADIALL 

The logo consists of a blue sphere with a white 'R' inside, set against a dark blue background with a fine white dot pattern.