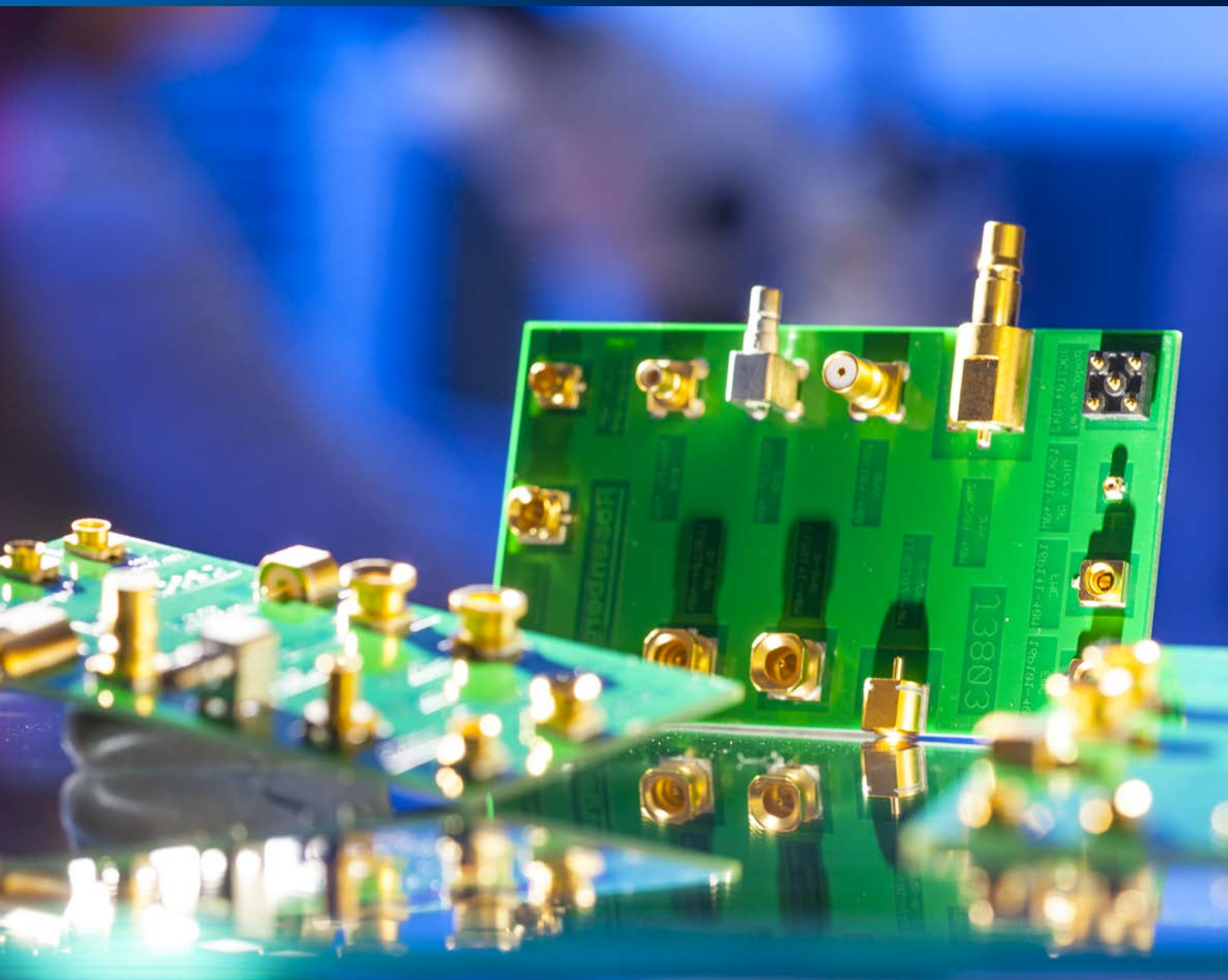
Rosenberger

Surface Mount Technology

RF Board-to-Board and Board-to-Cable Connectors

PCB CONNECTORS



Company Profile

About Rosenberger

Rosenberger, a family owned company, is one of the world's leading manufacturers of impedance-controlled connectivity solutions in high-frequency, high-voltage and fiberoptic technology. Renowned companies in high-tech industries trust the precision and quality of Rosenberger products, e.g. mobile communication networks, data centers, test & measurement industries, automotive electronics, industrial and medical electronics, or spaceflight engineering.

Worldwide, the Rosenberger group operates a global network of R&D, manufacturing and assembly locations as well as Rosenberger sales offices in Europe, Asia and North and South America where more than 11,300 employees develop, produce and sell our products.

The Rosenberger online catalog contains the current product range with specific details, including data sheets, assembly instructions and panel piercings.

www.rosenberger.com/ok/pcb

PCB Connectors

Surface Mount Technology

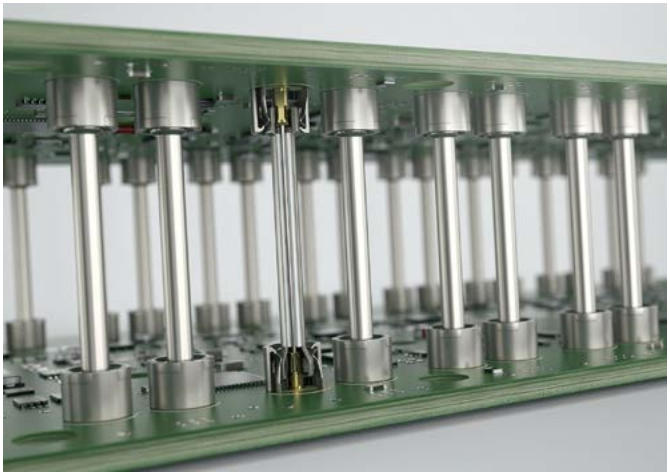
The requirements of many today's and future fields of application – 5G networks, Internet of Things, high-speed data transmission, autonomous driving and many more – need an increasing number of best-class electrical components at simultaneously less space. The priority to meet these huge demands is miniaturization of high-performance devices – in surface mount technology.

Rosenberger develops and manufactures a wide range of RF coaxial connectors for PCB applications – for board-to-board and board-to-cable connections. Board-to-board solutions from Rosenberger offer designers a high degree or flexibility with regard to alignment tolerances, simplifying the entire production process. A key feature is the adaptor (bullet) maintaining transmission performance in case of slight axial or radial misalignment.

Benefits

The huge spectrum of PCB connectors from Rosenberger opens up innovative application opportunities and customer benefits – and combines a lot of advantages:

- Excellent transmission characteristics
- Very small dimensions
- Fast and cost-effective assembly design
- Minimum board-to-board distances
- Radial and axial tolerance equalization by using bullets
- Automated assembly due to tape & reel packaging



Board-to-Cable Connectors

For board-to-cable applications Rosenberger provides a variety of connector types. A wide range of installation variants in many common coaxial series are available – for board-to-cable connections in telecommunication, automotive, test & measurement, industrial and spaceflight applications.

Classification of Rosenberger Backend Types

Cable Connector Right Angle

Cable Connector Straight

SMT

Edge Mount

Pin-in-Paste

Automotive Pin-in-Paste

Solder Pin

Automotive Solder Pin

Solderless

Bulkhead

Flange

RF Coaxial Standard Series

							Panel Mount		
Series*	**Cable Connectors**	**SMT Connectors**	**Edge Mount Connectors**	**Solder Pin Connectors**	**Pin-in-Paste Connectors**	**Solderless Connectors**	**Bulkhead**	**Flange**	**Frequency Range**
SMA	√	√	√	√	√		√	√	DC to 18 GHz
QMA	√	√	√	√	√		√	√	DC to 18 GHz
MCX	√	√	√	√			√	√	DC to 6 GHz
SMB	√	√		√			√		DC to 4 GHz
SMC	√			√					DC to 6 GHz
Insert Coax 1.0-2.3 DIN 41626	√			√					DC to 2 GHz
BNC	√			√					DC to 10 GHz
TNC	√			√					DC to 10 GHz
SMP	√	√	√	√	√		√	√	DC to 40 GHz
Mini-SMP	√	√	√				√		DC to 65 GHz
P-SMP	√	√	√	√	√		√		DC to 10 GHz
Longwipe-SMP	√	√	√	√	√				DC to 6 GHz
WSMP	√	√	√						DC to 100 GHz
SMP Infinity	√	√	√	√	√		√		DC to 40 GHz
EBC®	√	√							DC to 8 GHz
VIA®	√	√					√		DC to 6 GHz

* hermetically sealed connectors available, e.g. SMP, P-SMP or WSMP

RF Precision Connectors

							Panel Mount		
Series	**Cable Connectors**	**SMT Connectors**	**Edge Mount Connectors**	**Solder Pin Connectors**	**Pin-in-Paste Connectors**	**Solderless Connectors**	**Bulk-head**	**Flange**	**Frequency Range**
Multiport Mini-Coax, 20 GHz	√	√		√	√				DC to 20 GHz
Multiport Mini-Coax, 40 GHz	√	√			√				DC to 40 GHz
Modular Connector System*	√	√							DC to 18 GHz/26.5 GHz/ 40 GHz/50 GHz
RPC-1.00	√	√	√			√			DC to 110 GHz
RPC-1.35	√	√	√			√			DC to 90 GHz
RPC-1.85	√	√	√			√		√	DC to 70 GHz
RPC-2.40	√	√	√			√		√	DC to 50 GHz
RPC-2.92	√	√	√			√		√	DC to 40 GHz
RPC-3.50	√	√	√			√			DC to 26.5 GHz

* for female connector heads (SMA, RPC-3.50, RPC-2.92, RPC-2.40)




Connectors Automotive Graded

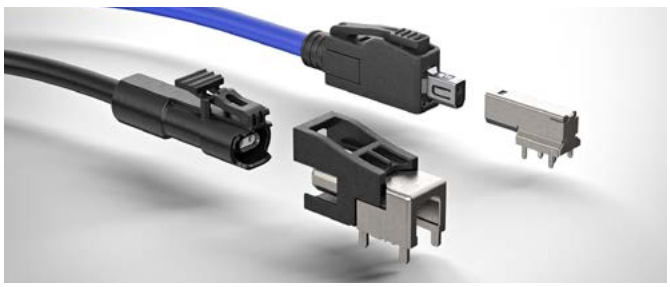
							Panel Mount		
Series	**Cable Connectors**	**SMT Connectors**	**Edge Mount Connectors**	**Solder Pin Connectors**	**Pin-in-Paste Connectors**	**Solderless Connectors**	**Bulk-head**	**Flange**	**Frequency Range**
AMEC	√	√			√				DC to 66 MHz/100 Mbps
AMEC+	√	√			√				DC to 600 MHz/1 Gbps
MTD®	√	√			√				DC to 1 GHz/100 Mbps
H-MTD®	√	√			√				DC to 20 GHz/20 Gbps
RosenbergerHPD®	√	√			√				DC to 10 GHz
RosenbergerHSD®	√	√		√	√				DC to 6 GHz
HFM®	√	√	√		√				DC to 20 GHz
FAKRA	√	√	√	√	√		√	√	DC to 6 GHz
RMC®	√	√		√					DC to 12 GHz





Application Specific Connectors

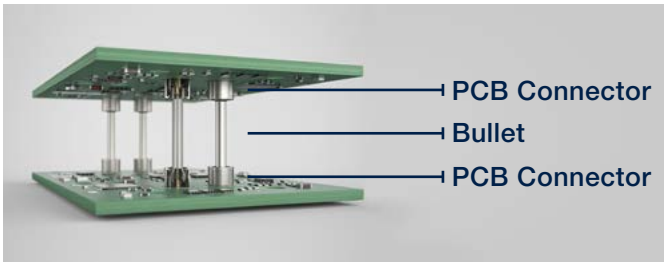
Additionally to the standard portfolio Rosenberger also develops and provides a variety of connectors for specific requirements and applications, e.g. multipin connectors, FAKRA PCB SMD connectors or RoSPE-HMTD and RoSPE-Industrial Single Pair Ethernet connectors.



Board-to-Board Connectors

For board-to-board and board-to-module (e.g. board-to-panel connections) applications Rosenberger has developed a variety of innovative connectivity solutions and series: SMP, Mini-SMP, Longwipe-SMP, P-SMP, WSMP, SMP Infinity, EBC® or VIA®, PCB connectors in these series are designed in different retention variants – smooth bore, limited detent and full detent.

Board-to-board connections are designed with PCB connectors on each of the two boards. The connection of the boards is realized by special adaptors – so-called bullets. The construction of the bullets allows misalignment in board-to-board connections, bullets in various lengths are available in each connector series.



Retention Variants of PCB Connectors

Smooth bore
Sliding contact
For modular systems, backplane applications

Limited detent
Medium-tight retention
For applications with low to medium mechanical loads: telecommunications and test and measurement applications

Full detent
Fixed retention, vibration resistant
For high mechanical loads, e.g. in spaceflight applications

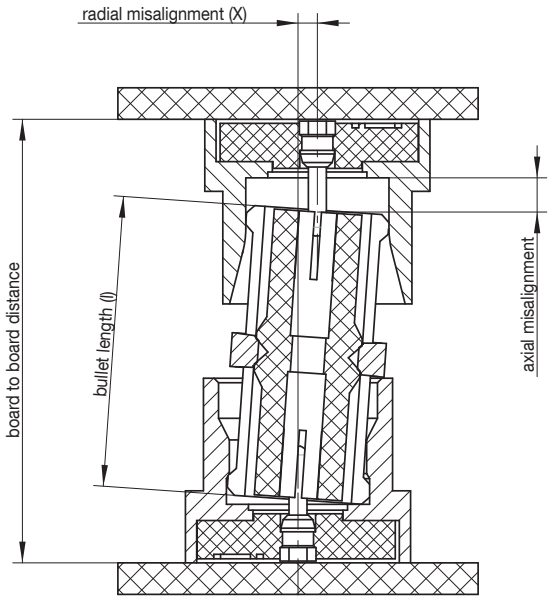
Equalization of Misalignments with Board-to-Board Connectors

A three-part board-to-board connection consists of a PCB connector with limited or full detent retention on one side and a smooth bore type on the other side, with a bullet in between. This design allows mechanical misalignment and guarantees excellent electrical performance. Parallel or perpendicular to each other arranged PCBs can be connected. The innovative mechanical design of VIA® and EBC® types features both limited detent and smooth bore interfaces integrated into the adaptor

Axial Misalignment

When using a smooth bore type on one side, the connection allows axial misalignment.

It is limited by the sliding surface of the outer contact. Depending on the used connector series, different tolerance ranges are covered. With simultaneous radial misalignment applied to the connection, the maximum axial misalignment is reduced accordingly.



Radial Misalignment

The maximum radial misalignment of the three-part board-to-board connection is dependent on the length of the bullet. It can be easily calculated by using following formula:

$X = l \times \sin \alpha$
X = maximum radial tolerance [mm]
α = maximum angle 4°
l = bullet length [mm]

Board-to-Board Connectors (Bullets)

	Radial Misalignment	Axial Misalignment	Board-to-Board-Distance	Max. Frequency	Power Handling
SMP	4°	±0.3 mm	9.05 mm	DC to 40 GHz	65 W @ 2.2 GHz
Mini-SMP	4°	±0.1 mm	7.94 mm	DC to 65 GHz	50 W @ 2.2 GHz
P-SMP	4°	±1.0 mm	12.60 mm	DC to 10 GHz	200 W @ 2.2 GHz
Longwipe-SMP	4°	±0.7 mm	9.25 mm	DC to 6 GHz	100 W @ 2.2 GHz
WSMP	2.9°	±0.25 mm	min. 3.00 mm to 5.00 mm	DC to 100 GHz	10 W @ 2.2 GHz
EBC®	4°	±0.8 mm	12.00 mm	DC to 8 GHz	100 W @ 2.2 GHz
VIA®	4°	±1.0 mm	12.00 mm	DC to 6 GHz	260 W @ 2.2 GHz
SLC	according to customers requirements		min. 3.00 mm to 15.00 mm	DC to 6 GHz	100 W @ 2.0 GHz

Website

For more information refer to our website:
www.rosenberger.com/pcb

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