

BMA Series RF Connector

Aptiv's BMA Series RF connector is a high-performance, slide-on/blind-mate coaxial connector designed for rack-and-panel applications where quick, easy, and reliable connections are essential without the need for threading or visual alignment. Operating typically up to 18 GHz, the BMA connector provides excellent electrical performance with low VSWR and insertion loss. Its unique spring-loaded outer conductor compensates for axial and radial misalignment, ensuring consistent contact pressure and performance even when components are not perfectly aligned. This makes the BMA series ideal for modular systems, test fixtures, and high-density packaging in various telecommunications, military, aerospace, and test & measurement applications.



KEY FEATURES & BENEFITS

- **Blind-Mate/Slide-On Design:** Eliminates the need for threading or visual alignment, enabling quick and easy connections in dense or hard-to-reach areas.
- **High Performance:** Operates reliably up to 18 GHz with excellent electrical characteristics, making it suitable for a wide range of microwave applications.
- **Axial and Radial Misalignment Compensation:** The floating outer contact design accommodates significant mating tolerances, ensuring reliable performance even with imperfect alignment.
- **High Density Capability:** Its compact design and blind-mate functionality are ideal for modular systems, rack-and-panel configurations, and high-density packaging.
- **Durable Construction:** Typically made from robust materials like stainless steel with gold plating, ensuring long-term reliability and many mating cycles.
- **Low Insertion Force:** Requires minimal force to mate and unmate, reducing stress on PCBs and other components.

PRODUCT SPECIFICATIONS

Electrical Properties	
Impedance	50 Ohms
Frequency Range	DC to 18 GHz (some designs up to 26.5 GHz)
Voltage Rating	Typically 335 VRMS (max.)
Dielectric Withstanding Voltage	1000 VRMS (min.)
Contact Resistance (Center)	$\leq 3.0 \text{ m}\Omega$ (typical)
Contact Resistance (Outer)	$\leq 2.0 \text{ m}\Omega$ (typical)
Insulation Resistance	$\geq 5000 \text{ M}\Omega$
VSWR (Typical)	≤ 1.30 @ 18 GHz (performance can vary by specific design)
Insertion Loss	$\leq 0.15 \text{ dB} \times f(\text{GHz})$ (typical)
RF Leakage	$\geq -90 \text{ dB}$ @ 10 GHz (typical)

PRODUCT SPECIFICATIONS CONTD.

Mechanical Properties	
Coupling Mechanism	Slide-on / Blind-mate
Mating Cycles	≥ 500 cycles (for standard connectors; higher for test-grade)
Axial Mating Tolerance	Typically ± 0.040 inches (± 1.0 mm)
Radial Mating Tolerance	Typically ± 0.020 inches (± 0.5 mm)
Mating Force	Typically 1-5 lbs (0.45-2.25 kg) per connector
Unmating Force	Typically 1-5 lbs (0.45-2.25 kg) per connector
Body Material	Stainless Steel or Brass (typically gold plated or passivated)
Center Contact Material	Beryllium Copper or Phosphor Bronze (typically gold plated)
Insulator Material	PTFE (Polytetrafluoroethylene)
Interface Dimensions	Conforms to MIL-STD-348, Interface 320 for BMA

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Environmental Properties	
Temperature Range	-65°C to +165°C (standard operating range)
Thermal Shock	MIL-STD-202, Method 107, Test Condition B (from -65°C to +165°C)
Vibration	MIL-STD-202, Method 204, Test Condition D (20 G's)
Shock	MIL-STD-202, Method 213, Test Condition I (100 G's)
Moisture Resistance	MIL-STD-202, Method 106
Corrosion (Salt Fog)	MIL-STD-202, Method 101, Test Condition B (48 hours)
Durability	Designed to meet the stringent environmental and mechanical requirements of military and industrial applications.