

MCX & MMCX Series Connectors

Aptiv's MCX (Micro Coaxial) and MMCX (Micro-Miniature Coaxial) series are families of miniature and micro-miniature RF connectors, designed for applications where space is limited. Both series utilize a snap-on coupling mechanism, allowing for quick mating & un-mating. Although small, they provide excellent electrical performance operating up to 6 GHz making them essential in wireless communication, GPS, automotive, and various portable electronic devices. Similarly, MMCX series offers an even smaller footprint than the MCX, enabling further miniaturization.



KEY FEATURES & BENEFITS

MCX

- Frequency Range: Typically DC to 6 GHz.
- Size: Light & compact choice for general miniature RF interconnect needs.
- Applications: GPS receivers, wireless LAN (WLAN), automotive, telecom equipment, test & measurement.

MMCX

- Frequency Range: Typically DC to 6 GHz.
- Size: Light & compact choice for general miniature RF interconnect needs.
- Small Footprint: Offers maximum space savings and a very low profile.
- Frequency Range: Typically DC to 6 GHz.
- Applications: Compact devices, PCMCIA cards, wireless modules, embedded antennas, GPS, and digital cellular applications.
- Enhanced Mating: Allow for 360-degree rotation once mated

PRODUCT SPECIFICATIONS

Electrical Properties*	
Impedance	50 Ohms
Frequency Range	DC to 6 GHz
Voltage Rating	MCX: Typically 335 VRMS (max.) MMCX: Typically 170 VRMS (max.)
Dielectric Withstanding Voltage	MCX: Typically 750 VRMS (min.) MMCX: Typically 500 VRMS (min.)
Contact Resistance	Center Contact: $\leq 10 \text{ m}\Omega$ (MCX); $\leq 20 \text{ m}\Omega$ (MMCX) Outer Contact: $\leq 5 \text{ m}\Omega$ (MCX); $\leq 5 \text{ m}\Omega$ (MMCX)
Insulation Resistance	$\geq 1000 \text{ M}\Omega$
VSWR (Voltage Standing Wave Ratio)	MCX: Typical ≤ 1.30 @ 6 GHz MMCX: Typical ≤ 1.30 @ 6 GHz
Insertion Loss	MCX: $\leq 0.15 \text{ dB}$ @ 3 GHz (typical) MMCX: $\leq 0.15 \text{ dB}$ @ 3 GHz (typical)
RF Leakage	$\geq -30 \text{ dB}$ @ 6 GHz (typical)

*reference website for specific part number specifications

PRODUCT SPECIFICATIONS CONTD.

Environmental Properties*	
Temperature Range	-55°C to +85°C (standard)
Thermal Shock	MIL-STD-202, Method 107, Test Condition B
Vibration	MIL-STD-202, Method 204, Test Condition B
Shock	MIL-STD-202, Method 213, Test Condition I
Moisture Resistance	MIL-STD-202, Method 106
Corrosion (Salt Fog)	MIL-STD-202, Method 101, Test Condition B (48 hours)
Durability	Engineered for reliable performance in common commercial and industrial electronic applications.

*reference website for specific part number specifications

PRODUCT SPECIFICATIONS CONTD.

Mechanical Properties*	
Coupling Mechanism	Snap-on
Mating Cycles	≥ 500 cycles (MCX); ≥ 500 cycles (MMCX)
Mating Force	Low insertion and withdrawal forces, ideal for repeated connections.
Cable Retention	Varies by cable type & termination (crimp, or solder)
Body Material	Brass (typically gold or nickel plated)
Center Contact Material	Beryllium Copper or Brass (gold plated)
Dielectric/Insulator Material	PTFE (Polytetrafluoroethylene) or other suitable plastics
Interface Dimensions	MCX: Conforms to CECC 22220 MMCX: Conforms to CECC 22000
Key Distinction:	MMCX is approximately 30% smaller than MCX, and its design typically allows for 360-degree rotation of the mated connector.

*reference website for specific part number specifications