

Ultra-high vacuum microwave feed-through N female to SMA female

- High-performance microwave design
- Extreme environment capability
- High-reliability precision connector interfaces
- MTBF >10,000,000 hours per MIL-HDBK-217
- UHV materials
- Hermetically welded to standard conflat®



Overview

This N-to-SMA feed-through represents a quantum leap in electrical performance over those previously offered to industry. The 50-ohm impedance system provides very low reflections at frequencies up to 12 GHz. Both connectors are laser welded into a standard 2.75-inch Conflat ensuring a leak-tight seal for vacuum environments less than 1×10^{-8} torr.

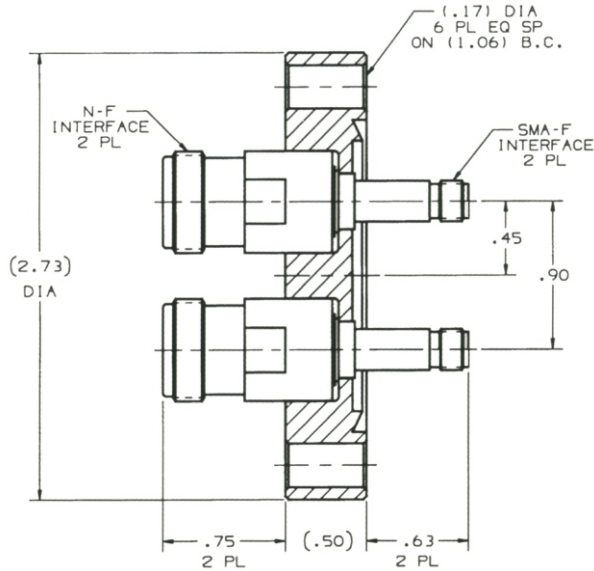
As with all of our connector designs, Meggitt Safety Systems accurately predicted electrical performance using sophisticated microwave analysis tools. We accomplished impedance matching with proven techniques for precision microwave devices. We designed and manufactured interface contacts to assure highly reliable connections through hundreds of mate/demate cycles.

We can easily modify this basic design for a variety of customer applications and environments. Please give us a call for your custom requirements.

Applications

- Beam position monitors for particle accelerators
- Anywhere a microwave signal must be brought through a process barrier (vacuum, pressure, environment, etc.)
- Part shown – #854207

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Performance specifications

Impedance: 50 ohms

Frequency Range: DC to 12 GHz

VSWR: 1.05:1 max to 3 GHz; 1.25:1 max to 12 GHz

Insertion loss: 0.10 dB max @ 3 GHz; 0.35 dB max @ 12 GHz

Insulation resistance: $>10^{12}$ ohms

Voltage: 1,500 VRMS

Operating temperature range: based on outer body material

304 stainless steel: 77°K to 573°K (-196°C to +300°C)

316 stainless steel 4°K to 573°K (-269°C to +300°C)

Inconel®: 77°K to 773°K (-196°C to +500°C)

Hermeticity: $<2 \times 10^{-10}$ cc He/sec

Radiation: >200 megarads gamma

Connector interface: SMA/N per MIL-C-39012

Materials

Outer body: 304 stainless steel, 316L stainless steel, or Inconel®

Center conductor: TZM molybdenum per ASTM B365

Insulator: AL_2O_3 strengthened boro-silicate seal (130,000 psi compressive strength)

Connector contact: gold-plated BeCu

Custom materials: Monel and titanium

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Meggitt Safety Systems is a Meggitt group company. Headquartered in the United Kingdom, Meggitt PLC is an international group operating in North America, Europe and Asia. Known for its specialized extreme environment engineering, Meggitt is a world leader in the aerospace, defense and electronics industries.