

Ultra-high vacuum microwave feed-through 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
- Designed for welded installations
- Easily modified for custom designs



Overview

The SMA UHV feed-through features a 50-ohm impedance with a long center pin extension suitable for attachment to the strip line section of a beam position monitor (BPM). Meggitt Safety Systems Inc designed the outer-body material for welding directly into a chamber using laser, e-beam, or TIG methods.

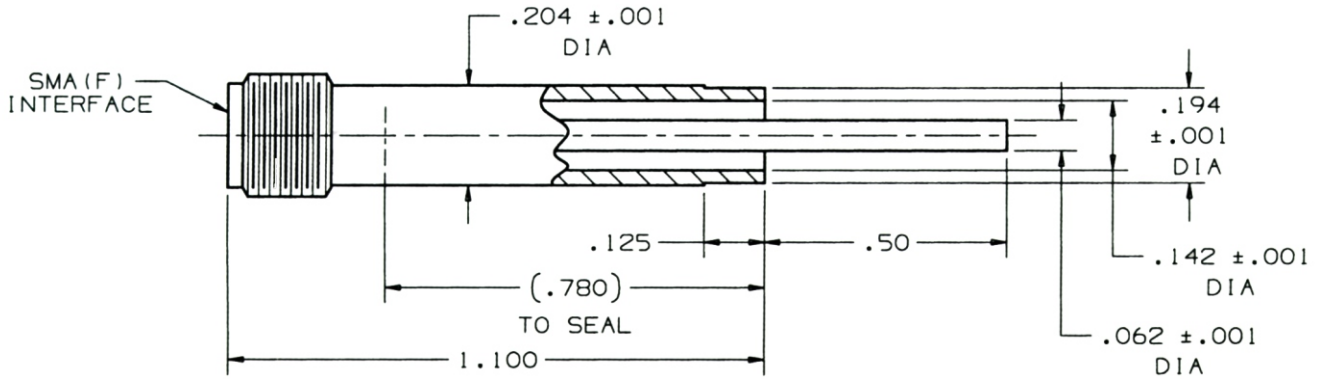
As with all of our connector designs, Meggitt Safety Systems accurately predicted electrical performance using sophisticated microwave analysis tools. We accomplished impedance matching with proven techniques for precision broadband microwave devices. Although Meggitt Safety Systems designed this part for mode-free operation up to 20 GHz, some customers have tested the characteristics to 36 GHz with satisfactory electrical performance.

We can easily modify the 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
- Strip line transitions
- Anywhere a microwave signal must be brought through a process barrier (vacuum, pressure, environment, etc.)
- Part shown - #853872

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Performance specifications

Impedance: 50 ohms

Frequency range: DC to 20 GHz

VSWR: 1.03:1 max to 3 GHz; 1.15:1 max to 20 GHz

Insertion loss: 0.10 dB max @ 3 GHz; 0.50 dB max @ 20GHz.

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: $<1 \times 10^{-11}$ cc He/sec

Radiation: >200 megarads gamma

Connector interface: SMA per MIL-C-39012

Materials

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

Center conductor: TZM molybdenum per ASTM B365.

Insulator: AL₂O₃ strengthened boro-silicate seal (130,000 psi compressive strength).

Connector contact: gold-plated BeCu.

Custom materials: cupronickel, 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.