

## ULTRA-HIGH VACUUM MICROWAVE FEED-THROUGH, SMA FEMALE

### FEATURES

- 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

### 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.)



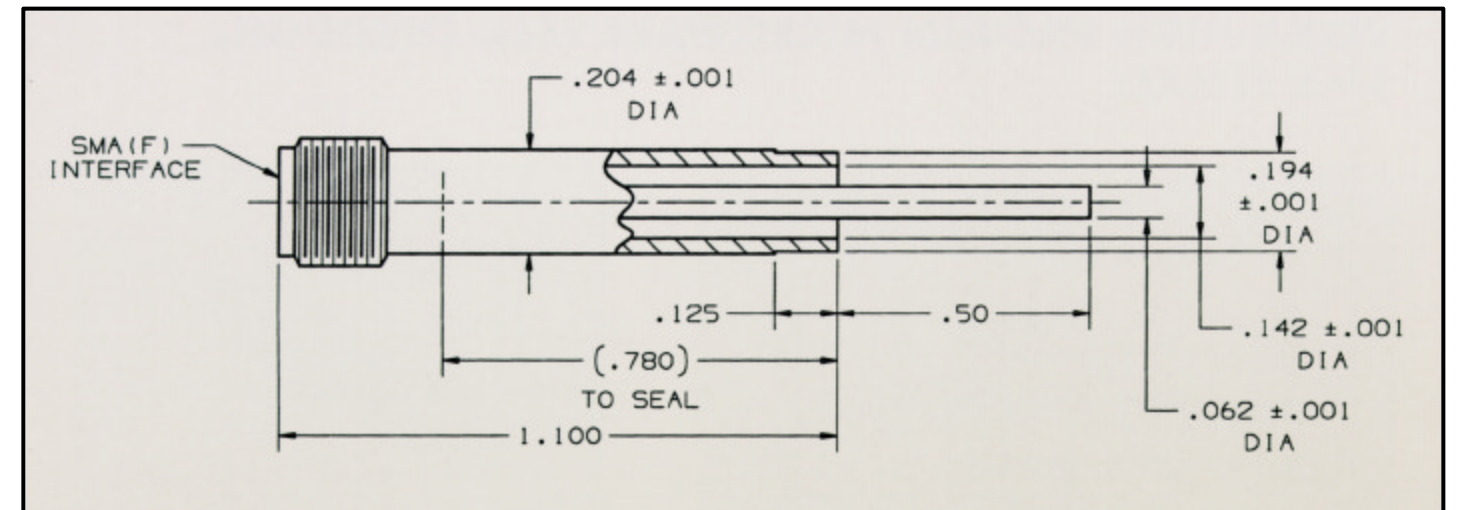
MSSI part #853872

The SMA UHV feed-through features a pure 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. (MSSI) 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, MSSI accurately predicted electrical performance using sophisticated microwave analysis tools. We accomplished impedance matching with proven techniques for precision broadband microwave devices. Although we designed this part for mode-free operation up to 20 GHz, some customers have tested the characteristics to 36 GHz with satisfactory electrical performance.

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

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### 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 @ 20 GHz.

**Insulation resistance:** >10<sup>12</sup> 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:** <1x10<sup>-11</sup> 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:* AL<sub>2</sub>O<sub>3</sub> strengthened boro-silicate seal (130,000 psi compressive strength).

*Connector contact:* Gold-plated BeCu.

**Custom materials:** Cupronickel, monel, and titanium.



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