

## ULTRA-HIGH VACUUM MICROWAVE FEED-THROUGH, N FEMALE TO 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
- ◆ Hermetically welded to standard Conflat®

### APPLICATIONS

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



*MSSI part #854207*

This N-to-SMA feed-through represents a quantum leap in electrical performance over those previously offered to industry. The pure 50-ohm impedance provides low insertion loss with very low reflections for use at frequencies up to 20 GHz. Both connectors are laser welded into a standard 2.75-inch Conflat ensuring a leak-tight seal for vacuum environments less than  $1 \times 10^{-8}$  torr.

As with all of our connector designs, Meggitt Safety Systems Inc. (MSSI) 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.

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

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

## SPECIFICATIONS

**Impedance:** 50 ohms.

**Frequency Range:** DC to 20 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:**  $<1 \times 10^{-11}$  cc He/sec.

**Radiation:**  $>200$  megarads gamma.

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

**Materials:**

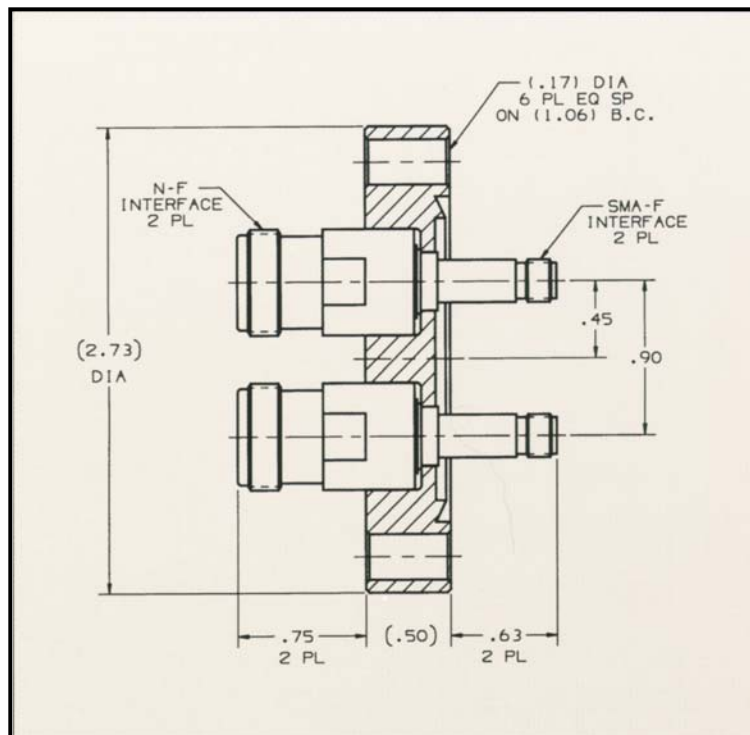
*Outer body:* 304 stainless steel, 316L stainless steel, or Inconel®.

*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:** Cupronickel, monel, and titanium.



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