CRYOGENIC RF FILTERS

SMA Cryogenic Infrared Filter

SMA Male-to-Female | DC–18 GHz | 50 Ω

30 dB	10 mK
INSERTION LOSS @ 4 GHz	MINIMUM OPERATING TEMPERATURE



PRODUCT DESCRIPTION

The VST-PF-SMA3002-18G is a 50 Ω cryogenic infrared filter for millikelvin RF and microwave signal chains. Cryogenic IR filtering attenuates unwanted high-frequency radiation and photon flux propagating from warmer stages toward sensitive low-temperature devices, helping reduce high-frequency loading and support signal-line thermalization in dilution-refrigerator systems. Its inline SMA male-to-female architecture enables straightforward integration into cryogenic coaxial paths.

KEY FEATURES

- **Photon & Noise Suppression**

  Reduces unwanted high-frequency radiation and photon flux reaching sensitive cryogenic devices.

- **Millikelvin System Integration**

  Designed for dilution refrigerators and other millikelvin RF and microwave environments.

- **Inline Filtering & Thermalization**

  SMA male-to-female architecture enables direct integration and supports signal-line thermalization at cryogenic stages.

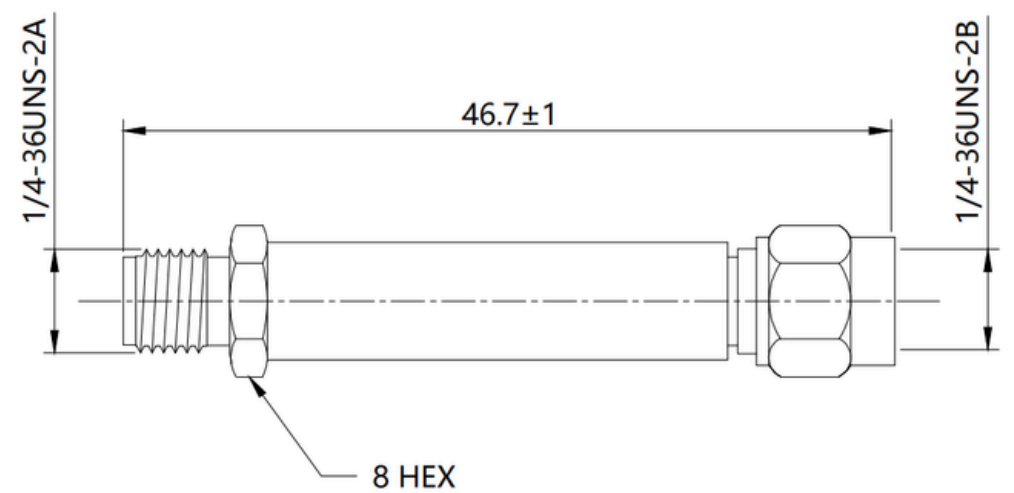
ELECTRICAL SPECIFICATIONS

Product Type	**Cryogenic Infrared Filter**
Impedance	**50 Ω**
Specified Frequency Range	**DC–18 GHz**
Insertion Loss @ 4 GHz	**30 dB**
VSWR (Max)	**1.85 : 1**
RF Interface	**SMA Male to SMA Female**
Minimum Operating Temperature	**10 mK**

ENGINEERING INFORMATION

Mechanical Outline

Dimensions in mm



CONSTRUCTION & MATERIALS

Body	**Brass, gold-plated**
Center Conductor	**Brass, gold-plated**
Outer Conductor	**Brass, gold-plated**
Dielectric / Insulator	**PTFE**
Interface	**SMA Male to SMA Female**
Compliance	**RoHS**

TYPICAL APPLICATIONS

- **Superconducting Quantum Computing**
  Cryogenic RF filtering in microwave signal paths for superconducting qubits and quantum processors.
- **Dilution Refrigerator RF Systems**
  High-frequency energy suppression and thermalization within millikelvin coaxial wiring.
- **Cryogenic Device Characterization**
  Low-temperature RF and microwave measurement of superconducting and quantum devices.

INTEGRATION NOTE

Use as part of the overall cryogenic attenuation, thermalization, shielding, and signal-conditioning architecture. Select placement according to the required signal band and cryogenic stage configuration.

ORDERING INFORMATION

PART NUMBER

VST-PF-SMA3002-18G

SMA Cryogenic Infrared Filter