



Product Description

The MEMtronics X-Band miniature waveguide filter is a high-performance, fixed-frequency bandpass filter designed for insertion into module assemblies. It will support a variety of X-band communications and radar applications.

The design utilizes dielectrically-loaded evanescent waveguide cavities built with uni-body construction for the ultimate in small size with excellent loss characteristics. The filter is constructed from quartz for low loss and ultra-stable operation over temperature.

This X-band filter provides a 4-pole filter function centered at 11.8GHz with 4.2% bandwidth, exhibiting an insertion loss of 1.1 dB at mid-band and < 2.1 dB at the band edges. Unloaded quality factor is > 400. Performance over temperature is very stable, with $\Delta f < -10$ MHz from 25°C to 125°C.

This filter performance is provided as a demonstration of capabilities. Custom filters to meet specific user requirements are possible from 2 GHz through 50 GHz, with passband bandwidths ranging from 0.5% to 10%, in implementations with 2-12 poles of filtering.

Primary Applications

- Phased array antennas
- Military radar and EW/ECM
- Military, commercial communications
- SATCOM & Space

Key Features and Performance

- Frequency range: 11.55-12.05 GHz
- Mid-band insertion loss: < 1.1 dB
- Spurious rejection: > 60 dB
- Volume: 163 mm³
- 7.42 mm x 28.85 mm x 0.762 mm (0.292 x 1.136 x 0.030 inches)
- Weight: 0.36 grams
- Wire-bondable for PCB or thin-film interconnects (CPW interfaces)

X-band Filter Performance

