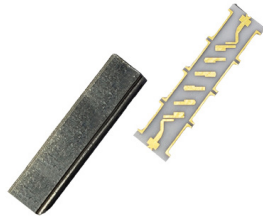
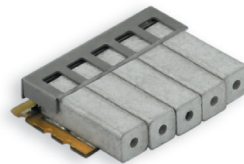


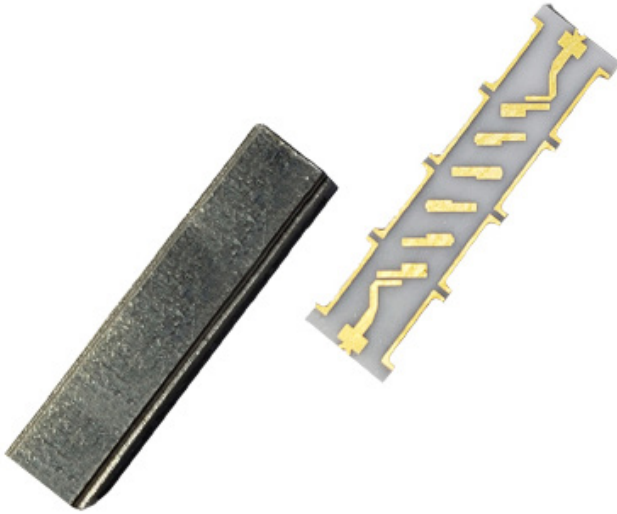
# MICROWAVE & RF FILTERS

RF Filter Solutions - US



# Planar X Series

THIN FILM BANDPASS AND LOWPASS RF FILTERS



Planar X Series of standard filters provide system engineers with high performance, compact, light-weight solutions for critical RF filtering in X, Ku, and Ka bands. Planar X Series compliments Smiths Interconnect's broad portfolio of RF/Microwave components with an off-the-shelf product reducing the lead times of custom designs.

Planar X Standard Bandpass and Lowpass filters leverage thin film process technology on various dielectric substrates which are designed for use in harsh environments. The small footprint, light weight and surface mountable configuration allow for high volume pick and place applications and are ideal for SATCOM, Radar and Broadcasting industries. Smiths Interconnect can also offer value added, high-reliability test options providing assurance in mission critical defense and space applications.

In addition to the standard products, Smiths Interconnect can provide custom Planar X filter designs that are specific to the requirements of the application. Regardless of the application, our internal processes and procedures ensure that all filters are fully compliant to customers' specifications.

Best-in-class RF Filter solutions in the X, Ku and Ka Bands designed and tested to support various applications and markets.

## Features and Benefits

- Compact size – reduced PCB footprint
- Light weight – reducing overall system mass in critical space and defense applications
- Excellent rejection characteristics - best-in-class RF performance
- Low insertion loss – enhanced system performance
- Surface mountable – ideal for pick-and-place applications
- Robust materials – suitable for harsh environments
- Standard frequency bands – X band, Ku band and Ka band

## Applications

- Radar
- EW/SIGINT
- SATCOM
- Communications
- LEO constellation

# Cavity Filters

Very low insertion loss and high selectivity



Smiths Interconnect's cavity filters offer the user very low insertion loss, steep skirt selectivity, and narrower bandwidths compared to discrete component filters. Designs are available in the frequency range of 30 MHz to 40 GHz and with bandwidth options from less than 0.5% to over 66%.

High "Q" standard and custom designed models offer the lowest insertion loss and best selectivity available for military and commercial applications.

Standard cavity filters generally are designed using aluminium as the base metal. As most raw metals are inherently lossy, filter housings are silver plated for improved electrical characteristics and current flow. Brass, copper, aluminium or bi-metal resonators are used to minimize frequency drift over temperature.

Each filter is semi custom-designed to your exact specification so that you will receive the optimum performance at the lowest cost. Filter performance is easily predicted using our proprietary software, while CAD files are generated for our CNC machine and fabrication center. Complex designs and working drawings can be generated in a matter of a few hours...not weeks.

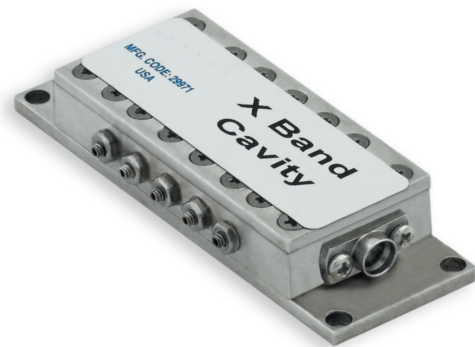
RF & microwave filters for commercial and military applications

## Features & Benefits

- 30 MHz to 40 GHz
- Bandwidth: 3 dB from 0.5% to 66%
- High "Q", low loss
- High power
- Helical, combline, inter digital, and waveguide

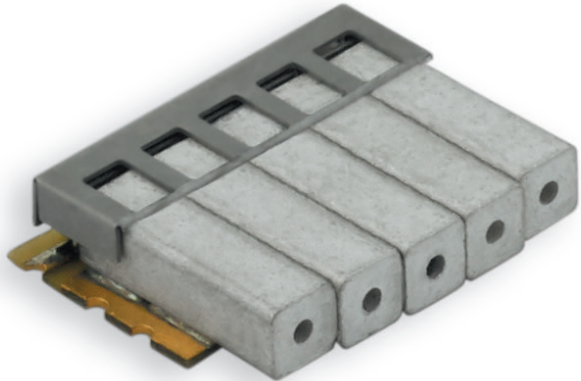
## Application

- Military
- Commercial Aerospace
- Satellite Communications
- Test and Measurement



# Ceramic Filters

High volume and various mounting configurations



Ceramic Filters are manufactured in two basic styles for both commercial and military applications. The high volume, cost effective units in open frame, non-hermetic packages are most often used in commercial applications. The lower volume, custom designed hermetic packages find wide usages in military applications. Both styles are available in various mounting configurations. In both instances the same high "Q" coaxial resonators are used which yield low insertion loss and excellent stability over temperature. A low ripple Chebyshev transfer function is standard with bandpass filters, notch filters and diplexer available.

Our rigorous design, manufacturing & inspection criteria processes and procedures ensure RF filter products that are fully compliant to customer application's unique specifications.

Regardless of the application, our internal processes and procedures help ensure that all filters are fully compliant to customers' specifications.

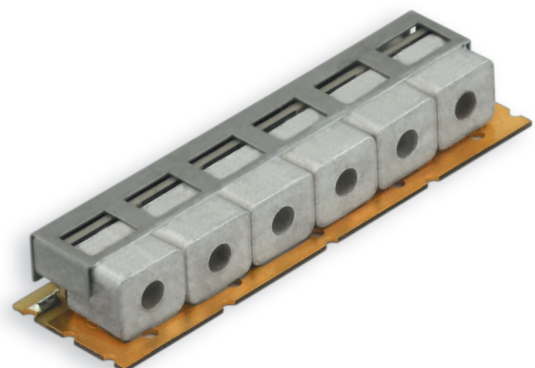
Cost effective and ease of use RF & Microwave Filters

## Features & Benefits

- 400 MHz to 6,000 MHz
- Bandwidth: 0.5% to 10%
- Surface mount, PC mount, connectorized options
- Stand-alone or diplexed
- Cost effective and easy to use

## Application

- Military
- Commercial Aerospace
- Wireless Area Network
- UAV



# Discrete Filters

Bandpass, lowpass, hipass, or notch



Miniature discrete component filters are designed to give optimal performance where small size is critical. Electrical and mechanical requirements for each design are computer-generated, taking into consideration realizable "Q" and environmental conditions, then analyzed using our unique software, thereby reducing the amount of trial and error alignment.

Filter designs are available to satisfy bandpass, lowpass, highpass, or bandreject applications. We have found through our years of service that one design does not fit all needs. In order to achieve today's required electrical performance, Smiths Interconnect's engineers use a variety of electrical circuits ranging from coupled tank, mesh, resonant ladder, highpass/lowpass, or helical to achieve the desired performance. In some cases, a combination of circuit designs is used. This enables our engineers to provide you with the highest performance filters available.

Smiths Interconnect has developed a series of package types to satisfy the majority of industry needs. These range from small TO8 packages to 1/4-wave designs. Actual package selection will depend upon your specific performance needs. All machining is done on computer-controlled machines, thereby reducing error and assuring repeatability of critical processes. Our designs incorporate high "Q" air wound or toroidal inductors and monolithic ceramic capacitors.

Regardless of the application, our internal processes and procedures help ensure that all filters are fully compliant to customers' specifications.

Optimal performance and small in size RF & microwave filters

## Features & Benefits

- 5 MHz to 10 GHz
- Bandwidth: <0.5% to >100%
- Bandpass, lowpass, hipass, or notch
- Surface mounts, pins or connectors
- Monotonic and elliptic responses

## Application

- Transmit/Receive Modules
- Up/Down Converters
- Instrumentation
- Satellite Communications
- Radar
- Broadcast



# RF Tunable Filters

Bandpass and bandreject



Tunable filter products are designed to provide high performance in a single package. While typically used in test and measurement applications, these products can also be ruggedized for mobile and remote applications.

We offers several standard Bandpass and Bandreject Tuners covering the frequency range of 24 MHz to 3000 MHz in octave bands. Cellular and PCS units cover less than full octaves, however offer greater dial resolution. All standard units offer direct frequency read-out, high power, and narrow bandwidth.

Smiths Interconnect's standard products may be customized to meet specific requirements; including diplexed, and ruggedized options. Contact the factory for your specific requirements.

Single package and high performance RF & microwave filters

## Features & Benefits

- 24 MHz to 3,000 MHz
- Direct readout
- Octave tuning
- High power

## Application

- Military
- Test and Measurement

# Additional Test Capabilities

Smiths Interconnect can provide a wide array of add-on test services to suit market and program needs. Below is a list of standard available RF Filter test options. Please consult factory for individual program needs.

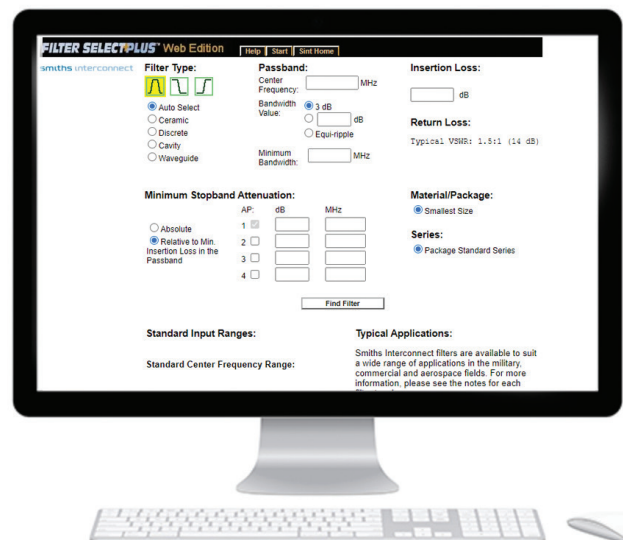
Per MIL-PRF-55342	
Outgassing (space level only)	Thermal Shock
Visual and Mechanical	Power Conditioning (space level only)
Precap Visual Inspection	Low Temperature Operation
Solderability	Short Time Overload
Solder Mounting Integrity	High Temperature Exposure
Bondable Mounting Integrity	Moisture Resistance
Wire Bonding Integrity	Life Testing
Resistance to Solvents	Resistance to Soldering Heat
Marking Legibility Test	Resistance to Bonding Exposure
Per MIL-STD-883	
Barometric Pressure, Reduced (Altitude Operation)	Moisture Resistance
Insulation Resistance	Salt Fog

# Smiths Interconnect Filter Select Tool

Smiths Interconnect filters are available to suit a wide range of applications in the military, commercial and aerospace fields. Superior performance is achieved through the use of high "Q" components and computer modeling.

Please visit our [Filter Select Plus Tool](#) for additional support or to find your next filter application.

For bandreject filters or custom filters, please contact your local sales representative



# Worldwide Support

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## Connectors

### Americas

#### Sales

connectors.uscsr@smithsinterconnect.com

#### Technical Support

connectors.ustechsupport@smithsinterconnect.com

### Europe

#### Sales

connectors.emeacsr@smithsinterconnect.com

#### Technical Support

connectors.emeatechsupport@smithsinterconnect.com

### Asia

#### Sales

asiacsr@smithsinterconnect.com

#### Technical Support

asiatechsupport@smithsinterconnect.com

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## Fibre Optics & RF Components

### Americas

#### Sales

focom.uscsr@smithsinterconnect.com

#### Technical Support

focom.techsupport@smithsinterconnect.com

### Europe

#### Sales

focom.emeacsr@smithsinterconnect.com

#### Technical Support

focom.techsupport@smithsinterconnect.com

### Asia

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#### Technical Support

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## Semiconductor Test

### Americas

#### Sales

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#### Technical Support

semi.techsupport@smithsinterconnect.com

### Europe

#### Sales

semi.emeacsr@smithsinterconnect.com

#### Technical Support

semi.techsupport@smithsinterconnect.com

### Asia

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#### Technical Support

semi.techsupport@smithsinterconnect.com

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## Connecting Global Markets

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