Planar X Series is part of an overarching initiative by Smiths Interconnect that entails the creation of best-in-class planar RF filter solutions designed and tested to support various applications markets.

Planar X Series compliments Smiths Interconnect’s broad portfolio of RF/Microwave components with bandpass, bandstop, lowpass and highpass configurations up to 18 GHz (Ku-Band) offering premium performance in a small package. The frequency of operation can be further extended with added material and process capabilities.

Planar X Series leverages Smiths Interconnect’s existing thick film process technology on various dielectric substrates which are designed for use in harsh high-reliability 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. In addition, Smiths Interconnect offers value added high-reliability test options providing assurance in mission critical defense and space applications.

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

Features and Benefits

- Small Footprint – Reduced PCB Footprint
- Light Weight – Reducing overall system mass in critical space applications
- Excellent Rejection Characteristics – Providing best in class RF performance
- Surface Mountable – Ideal solutions for Pick and Place Applications
- Robust Materials – Suitable for Harsh Environment
- Frequency Offerings up to 18 GHz – Suitable for a wide array of applications

Applications

- Transmit/Receive Modules
- Up/Down Converters
- Instrumentation
- Satellite Communications
- Radar
- Broadcast
## Technical Capability Characteristics

### Filter Design Capabilities

<table>
<thead>
<tr>
<th><strong>Electrical</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristic Impedance</td>
<td>50 ohms</td>
</tr>
<tr>
<td>Operating Frequency</td>
<td>Up to 18 GHz</td>
</tr>
<tr>
<td>Rejection Criteria</td>
<td>Up to 30 dB over 5% Bandwidth</td>
</tr>
<tr>
<td>Input Power CW</td>
<td>Up to 10 Watts</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Environmental</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temperature</td>
<td>-40°C to +85°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-65°C to +150°C</td>
</tr>
<tr>
<td>Moisture Sensitivity Level</td>
<td>1 - Unlimited</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Mechanical</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Configuration</td>
<td>Surface Mount or Wire Bondable Chip Packages</td>
</tr>
<tr>
<td>Package Size</td>
<td>Varies based on Electrical Requirements and Dielectric</td>
</tr>
<tr>
<td>Substrate Materials</td>
<td>Various Dielectrics Options Available</td>
</tr>
<tr>
<td>Conductor Material</td>
<td>Thick Film with Tin/Lead or RoHS Compliant Silver Plating</td>
</tr>
<tr>
<td>Shielding Material</td>
<td>Stainless Steel (If required)</td>
</tr>
</tbody>
</table>

### Quality Assurance

Sample visual and mechanical inspection - 1.0 AQL per mechanical drawing requirements
Periodic electrical inspection performed for commercial grade products
High reliability tested products are available

### Marking

| Unit Marking                  | Available if required                               |

### Packaging

| Standard Packaging            | Waffle Pack or Tape and Reel                         |
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 test options. Please consult factory for individual program needs.

<table>
<thead>
<tr>
<th>Per MIL-PRF-55342</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Outgassing (space level only)</td>
<td>Thermal Shock</td>
</tr>
<tr>
<td>Visual and Mechanical</td>
<td>Power Conditioning (space level only)</td>
</tr>
<tr>
<td>Precap Visual Inspection</td>
<td>Low Temperature Operation</td>
</tr>
<tr>
<td>Solderability</td>
<td>Short Time Overload</td>
</tr>
<tr>
<td>Solder Mounting Integrity</td>
<td>High Temperature Exposure</td>
</tr>
<tr>
<td>Bondable Mounting Integrity</td>
<td>Moisture Resistance</td>
</tr>
<tr>
<td>Wire Bonding Integrity</td>
<td>Life Testing</td>
</tr>
<tr>
<td>Resistance to Solvents</td>
<td>Resistance to Soldering Heat</td>
</tr>
<tr>
<td>Marking Legibility Test</td>
<td>Resistance to Bonding Exposure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Per MIL-STD-883</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Barometric Pressure, Reduced (Altitude Operation)</td>
<td>Moisture Resistance</td>
</tr>
<tr>
<td>Insulation Resistance</td>
<td>Salt At</td>
</tr>
</tbody>
</table>

How To Order

Specify Model Number: **XPFX-XXXX/XXX-M**

<table>
<thead>
<tr>
<th>1 Series Name</th>
<th>2 Frequency</th>
<th>3 Bandwidth</th>
<th>4 Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>P</td>
<td>F</td>
<td>X</td>
</tr>
</tbody>
</table>

1. **Series Name**: X - Number of Sections  PF - Printed Filter  X - Special Design if required
2. **Frequency**: XXXX - Center Frequency in MHz
3. **Bandwidth**: XXX - Bandwidth in MHz
4. **Options**: M - Surface Mount
Global Support

Americas
- Costa Mesa, CA
  +1 714 371 1100
  info.us@smithsinterconnect.com
- Milpitas, CA
  +1 408 957 9607 x-1125
  info.us@smithsinterconnect.com
- Stuart, FL
  +1 772 286 9300
  info.us@smithsinterconnect.com
- Kirkland, QC, Canada
  +1 514 842 5179
  info.us@smithsinterconnect.com
- Hudson, MA
  +1 978 568 0451
  info.us@smithsinterconnect.com
- Northampton, MA
  +1 413 582 9620
  info.northampton@smithsinterconnectinc.com
- Tampa, FL
  +1 813 901 7200
  info.tampa@smithsinterconnectinc.com
- Kansas City, KS
  +1 913 342 5544
  info.us@smithsinterconnect.com
- Salisbury, MD
  +1 800 780 2169
  info.us@smithsinterconnect.com
- Thousand Oaks, CA
  +1 805 267 0100
  info.thousandoaks@smithsinterconnectinc.com

Europe
- Deggendorf, Germany
  +49 991 250 120
  info.de@smithsinterconnect.com
- Genova, Italy
  +39 0 10 60361
  info.it@smithsinterconnect.com
- Dundee, UK
  +44 1382 427 200
  info.dundee@smithsinterconnect.com
- Rouen, France
  +33 2 32 96 91 76
  info.fr@smithsinterconnect.com
- Elstree, UK
  +44 20 8236 2400
  info.uk@smithsinterconnect.com

Asia
- Bangalore, India
  +91 080 4241 0529
  info.in@smithsinterconnect.com
- Singapore
  +65 6846 1655
  info.asia@smithsinterconnect.com
- Mianyang, China
  +86 816 231 5566
  HSICSR@hf-smiths.com
- Suzhou, China
  +86 512 6273 1188
  info.asia@smithsinterconnect.com
- Shanghai, China
  +86 21 2283 8008
  info.asia@smithsinterconnect.com