FPB series I/Q mixers are offered in seven waveguide bands to cover frequency spectrums from 18 to 110 GHz with 5% minimum bandwidth. These mixers employ high performance GaAs Schottky beamlead diodes and balanced configuration to produce superior performance with moderate LO pumping level. The mixers are constructed with fully integrated 2 balanced mixers, 2 3-dB power splitters and phase shifters. These mixers offer high port to port isolation for most application without the requirement of additional filtering. These mixers are ideal candidates for critical distance measurement and specific modulation scheme in certain communication systems where phase information is required.

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Waveguide Band</th>
<th>K</th>
<th>Ka</th>
<th>Q</th>
<th>U</th>
<th>V</th>
<th>E</th>
<th>W</th>
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</thead>
<tbody>
<tr>
<td>RF &amp; LO Bandwidth (Min.)</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
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<td>Waveguide Size</td>
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<td>WR-28</td>
<td>WR-22</td>
<td>WR-19</td>
<td>WR-15</td>
<td>WR-12</td>
<td>WR-10</td>
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<td>RF &amp; LO Frequency Range (GHz)</td>
<td>18 to 26.5</td>
<td>26.5 to 40</td>
<td>33 to 50</td>
<td>40 to 60</td>
<td>50 to 75</td>
<td>60 to 90</td>
<td>75 to 110</td>
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<td>RF &amp; LO Bandwidth</td>
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<tr>
<td>IF Frequency Range (GHz)</td>
<td>DC to 1.0</td>
<td>DC to 1.0</td>
<td>DC to 1.0</td>
<td>DC to 1.0</td>
<td>DC to 1.0</td>
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<td>LO Pumping Level (dBm)</td>
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<td>16</td>
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<tr>
<td>Conversion Loss (dB, Typical)</td>
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<td>11.0</td>
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<tr>
<td>IF I/Q Phase Error (Degree)</td>
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<td>± 10</td>
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<td>± 10</td>
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<td>Outline Drawing</td>
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<td>Consult Factory</td>
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<td>Maximum Input Signal Level</td>
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<td>Temperature Range</td>
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</table>

**HOW TO ORDER**

Specify Model Number: FPB – CO RF IF CL - XX

Example: To order a V band, 60 GHz I/Q mixer with 1 GHz IF frequency and 11.0 dB conversion loss, specify FPB-15600111-XX.
**TO ORDER**

**SPECIFICATIONS**

Single sideband modulators are ideal candidates for test equipment, communication and Radar systems where the single sideband is required. The modulators are internally phase matched and often be used as single sideband up-converters without adding external filter. The modulators are constructed with fully integrated two balanced mixers, two 3-dB power splitters and phase shifters. The modulators and balanced configuration to produce superior performance with moderate LO pumping level. The modulators are 110 GHz with 5% minimum bandwidth. These modulators employ high performance GaAs Schottky beamlead diodes. The modulators have a compact size, LO/RF in-line configuration, separate I/Q IF inputs, high image rejection, and low conversion loss.

**APPLICATIONS**

- Radar system
- Communication system
- Single sideband modulation
- Compact size
- LO/RF in-line configuration
- Separate I/Q IF inputs
- High image rejection
- Low conversion loss

**DESCRIPTION**

The FSS series single sideband modulators are offered in seven waveguide bands to cover frequency spectra from 18 to 75 GHz. The specifications for each band include waveguide size, RF bandwidth (Min), LO pumping level (dBm), LO frequency range (GHz), image rejection (dB, Min), conversion loss (dB, Typical), outline drawing, port isolation (dB, Typical), RF bandwidth (Min), temperature range, maximum input signal level, and RF port connector type. The outline drawings shown are standard versions. Contact factory for your specific package requirements. The flange pattern shown is for illustration purpose. Refer to Technical Reference Section for flange pattern details. The outline drawings shown are standard versions. Contact factory for your specific package requirements.

**FEATURES**

- RF Bandwidth (Min): 5%
- LO Pumping Level (dBm): 15, 16, 16, 16, 16, 16, 16
- LO Frequency Range (GHz): 18 to 26.5, 26.5 to 40, 33 to 50, 40 to 60, 50 to 75, 60 to 90, 75 to 110
- Image Rejection (dB, Min): 20
- Conversion Loss (dB, Typical): 9.5, 10.0, 11.0, 11.0, 11.0, 12.0, 12.0
- Outline Drawing: WT-F-10, WT-F-10, WT-F-4, WT-F-4, WT-F-4, WT-F-4, WT-F-4
- Port Isolation (dB, Typical): 30
- RF Bandwidth (Min): 5%
- Temperature Range: 0 to +50°C
- Maximum Input Signal Level: + 23 dBm, + 20 dBm
- RF Port Connector Type: SMA(F) Connector
- LO Center Frequency in GHz: 4-34
- Conversion Loss in dB: 4-35
- IF Bandwidth in 1/10 GHz: 4-35

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The flange pattern shown is for illustration purpose. Refer to Technical Reference Section for flange pattern details. The outline drawings shown are standard versions. Contact factory for your specific package requirements.
Frequency Converter Outline Drawings #2

The flange pattern shown is for illustration purpose. Refer to Technical Reference Section for flange pattern details. The outline drawings shown are standard versions. Contact factory for your specific package requirements.