Double-Balanced Mixer

Features
- LO 0.4 TO 500 MHz
- RF 0.4 TO 500 MHz
- IF DC TO 500 MHz
- LO DRIVE +7 dBm (nominal)
- HIGH ISOLATION 50 dB (TYP.)

Description
The M6V is a double balanced mixer, designed for use in military, commercial, and test equipment applications. The design utilizes Schottky ring quad diodes and broadband ferrite baluns to attain excellent performance. This mixer can also be used as a phase detector and/or bi-phase modulator since the IF port is DC coupled to the diodes. Environmental screening is available to MIL-STD-883, MIL-STD-202, or MIL-DTL-28837, consult factory.

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>M6V</td>
<td>TO-5</td>
</tr>
<tr>
<td>SM6V</td>
<td>Surface Mount</td>
</tr>
</tbody>
</table>

Electrical Specifications:  $Z_0 = 50\Omega$  Lo = +7 dBm (Downconverter Application only)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Test Conditions</th>
<th>Units</th>
<th>Typical</th>
<th>Guaranteed</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSB Conversion Loss &amp; SSB Noise Figure (max)</td>
<td>$f_R=0.001$ to 0.2 GHz, $f_L=0.001$ to 0.2 GHz, $f_l=0.001$ to 0.2 GHz, $f_R=0.0004$ to 0.5 GHz, $f_L=0.0004$ to 0.5 GHz, $f_l=0.0004$ to 0.5 GHz</td>
<td>dB</td>
<td>6.0</td>
<td>6.5</td>
</tr>
<tr>
<td>Isolation, L to R (min)</td>
<td>$f_L = 0.0004$ to 0.06 GHz, $f_l = 0.06$ GHz</td>
<td>dB</td>
<td>55</td>
<td>40</td>
</tr>
<tr>
<td>Isolation, L to I (min)</td>
<td>$f_L = 0.0004$ to 0.06 GHz, $f_l = 0.06$ GHz</td>
<td>dB</td>
<td>45</td>
<td>30</td>
</tr>
<tr>
<td>1 dB Conversion Compression</td>
<td>$f_L @ +7$ dBm</td>
<td>dBm</td>
<td>+0</td>
<td>—</td>
</tr>
</tbody>
</table>

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M6V / SM6V

Double-Balanced Mixer

Typical Performance Curves

Conversion Loss

Conversion Loss vs. Input Frequency

Isolation

VSWR
### Absolute Maximum Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Absolute Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temperature</td>
<td>-54°C to +100°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-65°C to +100°C</td>
</tr>
<tr>
<td>Peak Input Power</td>
<td>23 dBm max @ +25°C</td>
</tr>
<tr>
<td></td>
<td>17 dBm max @ +100°C</td>
</tr>
<tr>
<td>Peak Input Current</td>
<td>50 mA DC</td>
</tr>
</tbody>
</table>

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