Low Cost High IP3 Mixer for PCS/WLL Applications

Features
- LO & RF 10 TO 2800 MHz
- IF 10 TO 2000 MHz
- LO DRIVE +10 dBm (NOMINAL)
- SURFACE MOUNT
- HIGH INTERCEPT +20 dBm (TYP.)
- +260°C REFLOW COMPATIBLE

Description
The CSM2-10 is a double balanced mixer, designed for use in the high volume wireless applications. The design utilizes Schottky ring quad diodes and broadband baluns to attain excellent performance.

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSM2-10</td>
<td>Surface Mount</td>
</tr>
</tbody>
</table>

Electrical Specifications: \( Z_0 = 50\Omega \) Lo = +10 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(max)</td>
<td>( f_R = 10 ) to 1200 MHz, ( f_L = 10 ) to 1200 MHz, ( f_I = 10 ) to 1000 MHz ( f_R = 1200 ) to 2800 MHz, ( f_L = 1200 ) to 2800 MHz, ( f_I = 10 ) to 2000 MHz</td>
<td>dB</td>
<td>8.0</td>
<td>8.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>dB</td>
<td>9.0</td>
<td>10.0</td>
</tr>
<tr>
<td>SSB Noise Figure</td>
<td></td>
<td>dB</td>
<td>8.5</td>
<td>10.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>dB</td>
<td>9.0</td>
<td>10.5</td>
</tr>
<tr>
<td>L - R Isolation (min)</td>
<td>( f_L = 10 ) to 1200 MHz ( f_L = 1200 ) to 2800 MHz</td>
<td>dB</td>
<td>35</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td></td>
<td>dB</td>
<td>30</td>
<td>28</td>
</tr>
<tr>
<td>L - I Isolation (min)</td>
<td>( f_L = 10 ) to 2800 MHz</td>
<td>dB</td>
<td>27</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td></td>
<td>dB</td>
<td>23</td>
<td>21</td>
</tr>
<tr>
<td>R - I Isolation (min)</td>
<td>( f_R = 10 ) to 2800 MHz</td>
<td>dB</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>1 dB Conversion Comp.</td>
<td>( f_L = +10 ) dBm</td>
<td>dBm</td>
<td>+7</td>
<td></td>
</tr>
<tr>
<td>Input IP3</td>
<td>( f_L = 10 ) to 2800 MHz ( f_I = 10 ) to 1000 MHz ( f_R = 10 ) to 2800 MHz ( f_L = 2000 ) to 2800 MHz, ( f_I = 10 ) to 2000 MHz, ( f_R = 2000 ) to 2800 MHz</td>
<td>dBm</td>
<td>+20</td>
<td>+17</td>
</tr>
<tr>
<td>R-Port VSWR</td>
<td>( f_R = 10 ) to 2800 MHz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.80:1</td>
</tr>
<tr>
<td>L-Port VSWR</td>
<td>( f_L = 10 ) to 2000 MHz ( f_I = 2000 ) to 2800 MHz</td>
<td></td>
<td></td>
<td>1.90:1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.50:1</td>
</tr>
<tr>
<td>I-Port VSWR</td>
<td>( f_I = 10 ) to 2200 MHz</td>
<td></td>
<td></td>
<td>1.80:1</td>
</tr>
</tbody>
</table>
Typical Performance Curves

- **Isolation vs. Frequency**
  - Frequency (MHz) vs. Isolation (dB)
  - Lines represent different isolation levels

- **IF-Port VSWR vs. Frequency**
  - Frequency (MHz) vs. VSWR

- **Conversion Loss vs. RF Frequency**
  - Conversion Loss (dB) vs. RF Frequency (MHz)
  - Lines represent different conversion loss levels

- **LO-Port VSWR vs. Frequency**
  - Frequency (MHz) vs. VSWR

- **RF-Port VSWR vs. Frequency**
  - Frequency (MHz) vs. VSWR
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Outline Drawing: Surface Mount

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 +85°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-65°C to +100°C</td>
</tr>
<tr>
<td>Peak Input Power</td>
<td>+20 dBm max @ -25°C</td>
</tr>
<tr>
<td></td>
<td>+17 dBm max @ +85°C</td>
</tr>
<tr>
<td>Peak Input Current</td>
<td>50 mA DC</td>
</tr>
</tbody>
</table>

Weight: 2 grams (0.07 oz.) max

* Dimensions are inches (millimeters) ±0.015 (0.38) unless otherwise specified.
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PCS/WLL Applications

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