M80 / M80C

Double-Balanced Mixer

Features
- LO 4 TO 18 GHz
- RF 6 TO 18 GHz
- IF DC TO 3000 MHz
- LO DRIVE +7 dBm (nominal)
- WIDE BANDWIDTH
- LOW NOISE FIGURE

Description
The M80 is a double balanced mixer, designed for use in military, commercial and test equipment applications. The design utilizes Schottky ring quad diodes and broadband soft dielectric and 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. The use of high temperature solder and welded assembly processes used internally makes it ideal for use in manual, semi-automated assembly. Environmental screening available to MIL-STD-883, MIL-STD-202, or

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>M80</td>
<td>Minpac</td>
</tr>
<tr>
<td>M80C</td>
<td>SMA Connectorized</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Test Conditions</th>
<th>Units</th>
<th>Typical</th>
<th>Guaranteed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$f_R = 6$ to 16 GHz, $f_L = 5$ to 17 GHz, $f_I = 30$ to 1000 MHz</td>
<td>dB</td>
<td>6.0</td>
<td>8.0</td>
</tr>
<tr>
<td></td>
<td>$f_R = 6$ to 18 GHz, $f_L = 4$ to 18 GHz, $f_I = 1000$ to 3000 MHz</td>
<td>dB</td>
<td>7.0</td>
<td>9.0</td>
</tr>
<tr>
<td>SSB Conversion Loss (max) &amp; SSB Noise Figure (max)</td>
<td>$f_L = 4$ to 14 GHz, $f_L = 14$ to 18 GHz</td>
<td>dB</td>
<td>36</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>$f_L = 4$ to 9 GHz, $f_L = 9$ to 18 GHz</td>
<td>dB</td>
<td>32</td>
<td>18</td>
</tr>
<tr>
<td>Isolation, L to R (min)</td>
<td>$f_L = 14$ to 18 GHz</td>
<td>dB</td>
<td>28</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>$f_L = 4$ to 9 GHz, $f_L = 9$ to 18 GHz</td>
<td>dB</td>
<td>38</td>
<td>23</td>
</tr>
<tr>
<td>1 dB Conversion Comp.</td>
<td>$f_R = +7$ dBm</td>
<td>dBm</td>
<td>+3</td>
<td></td>
</tr>
<tr>
<td>Input IP3</td>
<td>$f_R1=13$ GHz at $-10$ dBm, $f_R2=13.01$ GHz at $-10$ dBm, $f_L = 14$ GHz at $+7$ dBm</td>
<td>dBm</td>
<td>+10</td>
<td></td>
</tr>
</tbody>
</table>

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Typical Performance Curves

Conversion Loss vs. LO Drive Power

Typical Performance Curves for M80 / M80C Double-Balanced Mixer

Conversion Loss vs. RF Frequency

Conversion Loss vs. LO Frequency

VSWR vs. RF Frequency

Adjust for further information and support please visit:
https://www.macom.com/support
# 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>+20 dBm max @ +100°C</td>
</tr>
<tr>
<td>Peak Input Current</td>
<td>100 mA DC</td>
</tr>
</tbody>
</table>

## VSWR

![VSWR Plot](image)

- **LO Frequency**
- **IF Frequency**

## Peak Input Power

- **Operating Temperature**
  - +23 dBm max @ +25°C
  - +20 dBm max @ +100°C

## Peak Input Current

- 100 mA DC

## Dimensions

- **Minpac**
  - Weight: 4 grams (0.14 oz.) max

- **SMA Connectorized**
  - Weight: 21 grams (0.74 oz.) max

*Dimensions are inches (millimeters) ±0.015 (0.38) unless otherwise specified.*

## Isolation

![Isolation Graph](image)

- **Lo Frequency**
- **IF Frequency**

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Double-Balanced Mixer

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