Open Carrier Frequency Doubler
For Microwave Telecommunications

Features
- Input Frequency 1.5 to 8.0 GHz
- Output Frequency 3.0 to 16.0 GHz
- Input Drive Level +10 dBm (nominal)
- Microstrip Interface

Description
The FDC2310 is a passive bridge diode frequency doubler, designed for use in military, commercial and test equipment applications. The design utilizes Schottky bridge quad diodes and broadband soft dielectric baluns to attain excellent performance. Environmental screening 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>FDC2310</td>
<td>Open Carrier</td>
</tr>
</tbody>
</table>

Electrical Specifications: $Z_0 = 50\Omega$  $P_{in} = +10$ dBm

<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></td>
<td></td>
<td>+25°C</td>
<td>-40° to +85°C</td>
</tr>
<tr>
<td>SSB Conversion Loss (max)</td>
<td>$f_{in} = 1.5$ to 8.0 GHz</td>
<td>dB</td>
<td>11</td>
<td>14.0</td>
</tr>
<tr>
<td>Fundamental Suppression (min)</td>
<td>$f_{in} = 1.5$ to 8.0 GHz</td>
<td>dBc</td>
<td>35</td>
<td>19.5</td>
</tr>
<tr>
<td>Third Harmonic Suppression (min)</td>
<td>$f_{in} = 1.5$ to 8.0 GHz</td>
<td>dBc</td>
<td>40</td>
<td>20</td>
</tr>
<tr>
<td>Input VSWR</td>
<td>$f_{in} = 1.5$ to 8.0 GHz</td>
<td></td>
<td>2.0:1</td>
<td></td>
</tr>
</tbody>
</table>
Typical Performance Curves

**Conversion Loss**

- **Frequency (GHz):** 2, 3, 4, 5, 6, 7, 8
- **Conversion Loss (dB):** 9, 10, 11, 12, 13, 14
- PIN = +6 dBm
- PIN = +8 dBm
- PIN = +10 dBm
- PIN = +12 dBm
- PIN = +14 dBm
- PIN = +16 dBm

**Input VSWR**

- **Frequency (GHz):** 2, 3, 4, 5, 6, 7, 8
- **Input VSWR:** 1.0, 2.0, 3.0, 4.0
- PIN = +6 dBm
- PIN = +8 dBm
- PIN = +10 dBm
- PIN = +12 dBm
- PIN = +14 dBm
- PIN = +16 dBm

**Fundamental Suppression**

- **Frequency (GHz):** 2, 3, 4, 5, 6, 7, 8
- **Fundamental Suppression (dBc):** 20, 30, 40, 50
- PIN = +6 dBm
- PIN = +8 dBm
- PIN = +10 dBm
- PIN = +12 dBm
- PIN = +14 dBm
- PIN = +16 dBm

Visit [www.macom.com](http://www.macom.com) for additional data sheets and product information.

For further information and support please visit:
[https://www.macom.com/support](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>50 mA DC</td>
</tr>
</tbody>
</table>

Outeline Drawing: Open Carrier

Third Harmonic Suppression

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