Frequency Doubler

Features

- INPUT: 2 TO 9 GHz
- OUTPUT: 4 TO 18 GHz
- INPUT DRIVE LEVEL: +19 dBm (NOMINAL)
- HERMETICALLY-SEALED PACKAGE

Description

The FD93H is a passive bridge diode frequency doubler, designed for use in the high volume commercial and test equipment applications. The design utilizes Schottky bridge quad diodes and broadband baluns to attain excellent performance. The use of high temperature solder and welded assembly processes used internally makes it ideal for use in semi-automated and automated assembly. 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>FD93H</td>
<td>Versapac</td>
</tr>
<tr>
<td>FD93HC</td>
<td>SMA Connectorized</td>
</tr>
</tbody>
</table>

Electrical Specifications: $Z_0 = 50\Omega$, $P_{in} = +19$ dBm

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Test Conditions</th>
<th>Units</th>
<th>Typical $+25^\circ C$</th>
<th>Guaranteed $-54^\circ$ to $+85^\circ C$</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSB Conversion Loss (max)</td>
<td>$f_n = 2$ to $4$ GHz</td>
<td>dB</td>
<td>10.0</td>
<td>13.0</td>
</tr>
<tr>
<td></td>
<td>$f_n = 4$ to $9$ GHz</td>
<td>dB</td>
<td>12.0</td>
<td>14.0</td>
</tr>
<tr>
<td>Fundamental Suppression (min)</td>
<td>$f_n = 2$ to $9$ GHz</td>
<td>dBc</td>
<td>25</td>
<td>18</td>
</tr>
<tr>
<td>Third Harmonic Suppression</td>
<td>$f_n = 2$ to $6$ GHz</td>
<td>dBc</td>
<td>25</td>
<td>16</td>
</tr>
<tr>
<td>Input VSWR</td>
<td>$f_n = 2$ to $9$ GHz</td>
<td></td>
<td></td>
<td>1.5:1</td>
</tr>
</tbody>
</table>
Typical Performance Curves

**Conversion Loss Vs. LO Drive Power**

- LO Input: 0.0 GHz
- +12 to +22 dBm

**Isolation vs. Frequency**

- INPUT = +21 dBm
- INPUT = +19 dBm
- INPUT = +17 dBm
- INPUT = +15 dBm

**Suppression vs. Input Frequency**

- INPUT = +21 dBm
- INPUT = +19 dBm
- INPUT = +17 dBm
- INPUT = +15 dBm

**VSWR vs. Frequency**

- INPUT = +21 dBm
- INPUT = +19 dBm
- INPUT = +17 dBm
- INPUT = +15 dBm

**Conversion Loss vs. Input Frequency**

- INPUT = +19 dBm
- INPUT = +21 dBm
- INPUT = +17 dBm
- INPUT = +15 dBm
FD93H / FD93HC

Frequency Doubler

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>+26 dBm max @ +25°C</td>
</tr>
<tr>
<td></td>
<td>+23 dBm max @ +100°C</td>
</tr>
</tbody>
</table>

Outline Drawing: Versapac *

Weight: 8 grams (0.28 oz.) max

Outline Drawing: SMA Connectorized *

Weight: 29 grams (1.02 oz.) max

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

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- North America Tel: 800.366.2266
- Europe Tel: +353.21.244.6400
- India Tel: +91.80.4155721
- China Tel: +86.21.2407.1588

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