Frequency Doubler

Features
- Input 5 - 2400 MHz
- Output 10 - 4800 MHz
- Input Drive Level = 23 dBm (nominal)
- Hermetically-Sealed Package

Description
The FD25H 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.

Electrical Specifications: \( Z_0 = 50 \, \Omega \), \( P_{IN} = 23 \, \text{dBm} \)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Test Conditions Input Frequency (MHz)</th>
<th>Units</th>
<th>Typical (+25^\circ \text{C})</th>
<th>Guaranteed (-54^\circ \text{C} \to +85^\circ \text{C})</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSB Conversion Loss (max.)</td>
<td>5 - 2400</td>
<td>dB</td>
<td>12.0</td>
<td>13.5</td>
</tr>
<tr>
<td>Fundmental Suppression (min.)</td>
<td>5 - 1000 1000 - 2000 2000 - 2400</td>
<td>dBC</td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td>Third Harmonic Suppression</td>
<td>5 - 500 500 - 2400</td>
<td>dBC</td>
<td>40</td>
<td>30</td>
</tr>
<tr>
<td>Input VSWR</td>
<td>5 - 2400</td>
<td>ratio</td>
<td>1.5:1</td>
<td>━</td>
</tr>
</tbody>
</table>

1. The FD25HC specification limits apply at 0ºC to +50ºC.

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Package</th>
<th>Package</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>FD25H</td>
<td>TO-8</td>
<td>FD25HC</td>
<td>SMA Connectorized</td>
</tr>
<tr>
<td>SFD25H</td>
<td>Surface Mount</td>
<td>MAUC-010499-SFD25H</td>
<td>Surface Mount Screened</td>
</tr>
</tbody>
</table>

Absolute Maximum Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Absolute Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Input Power</td>
<td>27.6 dBm @ +25ºC</td>
</tr>
<tr>
<td></td>
<td>25.0 dBm @ +100ºC</td>
</tr>
<tr>
<td>Peak Input Current</td>
<td>50 mA DC</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-54ºC to +100ºC</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-65ºC to +100ºC</td>
</tr>
</tbody>
</table>

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Typical Performance Curves

**Conversion Loss vs. Input Frequency (P\text{in} = 23 \text{ dBm})**

**Conversion Loss vs. Input Power**

**Input VSWR vs. Input Frequency (P\text{in} = 23 \text{ dBm})**

**Suppression vs. Input Frequency**

Frequency Doubler

Rev. V4

Outline Drawing*: TO-8

Outline Drawing+: SMA Connectorized

Weight: 2 grams (0.07 oz.) max.

Weight: 21 grams (0.74 oz.) max.

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

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DC-0007716
Frequency Doubler

Outline Drawing*: Flatpack

Outline Drawing*: Surface Mount

Weight: 1 gram (0.04 oz.) max.

Weight: 2 grams (0.07 oz.) max.

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