Datasheet

SHF 1428 A

Frequency Doubler
Description

The SHF 1428 A is a frequency doubler which converts an input clock signal in the range 12...16,5 GHz into a 24...33 GHz signal. A built-in filter ensures strong suppression of the fundamental frequency.

Specifications – SHF 1428 A

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Comment</th>
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<tbody>
<tr>
<td>Input frequency</td>
<td>GHz</td>
<td>12</td>
<td></td>
<td>16,5</td>
<td>sinusoidal signal</td>
</tr>
<tr>
<td>Output frequency</td>
<td>GHz</td>
<td>24</td>
<td></td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>Input power</td>
<td>dBm</td>
<td>-2</td>
<td>0</td>
<td>4</td>
<td>sinusoidal signal</td>
</tr>
<tr>
<td>Output power</td>
<td>dBm</td>
<td>0</td>
<td></td>
<td></td>
<td>@ P_{in} = 0 dBm; see Note1</td>
</tr>
<tr>
<td>Suppression of fundamental</td>
<td>dBC</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input return loss</td>
<td>dB</td>
<td></td>
<td>8</td>
<td></td>
<td>12...16,5 GHz</td>
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<tr>
<td>Power supply</td>
<td>V</td>
<td>5</td>
<td>70</td>
<td>90</td>
<td></td>
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<td>Power consumption</td>
<td>mA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input / output connector</td>
<td>mm</td>
<td>0,35</td>
<td>0,45</td>
<td></td>
<td>2.92mm female / 2.92mm female</td>
</tr>
<tr>
<td>Dimensions</td>
<td>mm</td>
<td>50</td>
<td>35</td>
<td>22</td>
<td>50x35x22</td>
</tr>
</tbody>
</table>

Note1: Output power depends on the input power

Signal Output Amplitude

Fig.1: Output amplitude @ P_{in} = 0 dBm
Output waveforms

Typical output waveforms measured using Agilent DCA 86100A, sampling module 86118A [70 GHz], precision timebase module 86107A, 0.5 m microwave cable assembly, 10 dB attenuator

- Input signal @ $f_{in} = 14$ GHz
- 24 GHz output signal @ $f_{out} = 12$ GHz
- 26 GHz output signal @ $f_{out} = 13$ GHz
- 28 GHz output signal @ $f_{out} = 14$ GHz
- 30 GHz output signal @ $f_{out} = 15$ GHz
32 GHz output signal @ $f_{in} = 16$ GHz

33 GHz output signal @ $f_{in} = 16.5$ GHz
Suppression of Fundamental & Harmonic

Fig. 2: Test setup of measurement

Fig. 3: Suppression of fundamental ($f_0$) & harmonic ($f_3$) frequencies
Module Outline

Module Dimensions:
- Bottom view
- Dimensions in mm
- Port Connector:
  - IN: 2.92mm-Female
  - OUT: 2.92mm-Female

Port Layout:
- IN and OUT ports
- Connector types and locations