Datasheet

SHF 442A DIV

>25GHz

1:2 Frequency Divider Module

SHF Communication Technologies AG
Wilhelm-von-Siemens-Str. 23D • 12277 Berlin • Germany
Phone ++49 30 / 772 05 10 • Fax ++49 30 / 753 10 78
E-Mail: sales@shf-communication.com • Web: http://www.shf-communication.com
**Description**

The SHF 442A DIV is a frequency divider capable of broadband operation from 500 MHz to 25 GHz using a sinusoidal input signal. A frequency of half the input frequency is produced. Driving the frequency divider with a steep edge input signal the lower frequency can be extended to the theoretical limit of DC. It offers high sensitivity and high quality output signals together with a compact size and ease of operation.

**Features**

- Broadband operation up to over 25 GHz
- High Input sensitivity
- Low power consumption
- Single-ended operation

**Applications**

- SONET OC-768 and SDH STM-256
- Broadband test and measurement equipment

**Specifications**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Unit</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Performance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input frequency</td>
<td>(f_{in})</td>
<td>GHz</td>
<td>0.5</td>
<td>25</td>
<td></td>
<td>sinusoidal input signal</td>
</tr>
<tr>
<td>Output frequency</td>
<td>(f_{out})</td>
<td>GHz</td>
<td>0.25</td>
<td>12.5</td>
<td></td>
<td>sinusoidal output signal</td>
</tr>
<tr>
<td>Single ended output swing</td>
<td></td>
<td>mVpp</td>
<td>500</td>
<td>700</td>
<td></td>
<td>into 50 (\Omega) load</td>
</tr>
<tr>
<td>Output return loss</td>
<td>(S_{22})</td>
<td>dB</td>
<td>10</td>
<td></td>
<td>&lt;12,5 Ghz</td>
<td></td>
</tr>
<tr>
<td>Input return loss</td>
<td>(S_{11})</td>
<td>dB</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Maximum ratings**

Input Power Level \(P_{in}\)

4

**Operating conditions**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>(V_{cc})</th>
<th>Unit</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>(V_{cc})</td>
<td>V</td>
<td>5</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply current</td>
<td>(I(V_{cc}))</td>
<td>mA</td>
<td>75</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power consumption</td>
<td>(T_d)</td>
<td>W</td>
<td>375</td>
<td></td>
<td>@ (V_{cc}=+5V)</td>
<td></td>
</tr>
<tr>
<td>Operating temperature</td>
<td>(T_{op})</td>
<td>°C</td>
<td>10</td>
<td>50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td></td>
<td>mm</td>
<td>50x35x22 plus connectors</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Input connector: K (2.9 mm), AC coupled
Output connectors: K (2.9 mm), DC coupled
Output Waveforms

Typical output waveforms measured using Agilent DCA 86100B, sampling module 86118A (70 GHz), precision timebase module 86107A (20, 40, 50 GHz), 0.5 m microwave cable assembly, 10 dB attenuator.

- Input Frequency = 500 MHz
- Input Frequency = 1 GHz
- Input Frequency = 10 GHz
- Input Frequency = 20 GHz
- Input Frequency = 25 GHz

SHF reserves the right to change specifications and design without notice - SHF 442A DIV Revision 2.0 – Oct 12, 2018 Page 3/5
Input Sensitivity

The following figure 1 shows the typical minimum input power level if the frequency divider is driven from a sinusoidal signal.

![Fig.1: Typical Input Sensitivity](image-url)