MLPNC-7103S1

NLTL Comb Generator

Features
- Ultra-Low Phase Noise
- Variable Input Frequency 600 - 1500 MHz
- Variable Input Power from 18 - 24 dBm
- Output Harmonics to 16 GHz
- SMT580 Surface Mount & SMA800 Packages
- No Bias or Tuning Required
- RoHS* Compliant

Description
The MLPNC-7103S1 is a monolithic non-linear-transmission-line (NLTL) comb generator which offers outstanding phase noise performance. This high performance comb generator operates over specified ranges of input frequency/power.

Operating Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Recommended Input</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Min.</td>
</tr>
<tr>
<td>Frequency</td>
<td>MHz</td>
<td>600</td>
</tr>
<tr>
<td>Power</td>
<td>dBM</td>
<td>18</td>
</tr>
</tbody>
</table>

1. The model 7103S does not abruptly stop working at the recommended min. and max. frequencies and powers. The conversion efficiency drops outside recommended limits.

Production Test Limits

<table>
<thead>
<tr>
<th>Input</th>
<th>Units</th>
<th>Output Harmonics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Up to 4 GHz</td>
</tr>
<tr>
<td>600 MHz, 22 dBM</td>
<td>dBM</td>
<td>&gt; -10</td>
</tr>
<tr>
<td>1000 MHz, 22 dBM</td>
<td>dBM</td>
<td>&gt; -2</td>
</tr>
<tr>
<td>1500 MHz, 22 dBM</td>
<td>dBM</td>
<td>&gt; 6</td>
</tr>
</tbody>
</table>

2. These are the harmonic output test limits used for production screening.

Absolute Maximum Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Absolute Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Power</td>
<td>27 dBM</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-45°C to +85°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-55°C to +125°C</td>
</tr>
</tbody>
</table>

3. Exceeding any one or combination of these limits may cause permanent damage to this device.
4. MACOM does not recommend sustained operation near these survivability limits.

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>MLPNC-7103S1SMA800</td>
<td>ESD Box with Foam</td>
</tr>
<tr>
<td>MLPNC-7103S1SMT580</td>
<td>ESD Box with Foam</td>
</tr>
</tbody>
</table>

* Restrictions on Hazardous Substances, compliant to current RoHS EU directive.
Typical Performance Curves @ 600 MHz over Temperature:

- **Harmonic Output, 18 dBm Input Power**
- **Harmonic Output, 20 dBm Input Power**
- **Harmonic Output, 22 dBm Input Power**
- **Harmonic Output, 24 dBm Input Power**

For further information and support please visit: [https://www.macom.com/support](https://www.macom.com/support)
Typical Performance Curves @ 1000 MHz over Temperature:

Harmonic Output, 18 dBm Input Power

Harmonic Output, 20 dBm Input Power

Harmonic Output, 22 dBm Input Power

Harmonic Output, 24 dBm Input Power

Phase Noise, 12 GHz Output Frequency
Typical Performance Curves @ 1500 MHz over Temperature:

**Harmonic Output, 18 dBm Input Power**

-20 dBm Output Power over Temperature

**Harmonic Output, 20 dBm Input Power**

-20 dBm Output Power over Temperature

**Harmonic Output, 22 dBm Input Power**

-20 dBm Output Power over Temperature

**Harmonic Output, 24 dBm Input Power**

-20 dBm Output Power over Temperature
Outline: SMT580

Dimensions in inches [mm]

MACOM Technology Solutions Inc. (MACOM) and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice. Visit www.macom.com for additional data sheets and product information.
Outline: SMA800, hermetic

Dimensions in inches [mm]