NLTL Comb Generator

Features
- Ultra-Low Phase Noise
- Variable Input Frequency 300 - 700 MHz
- Variable Input Power from 19 - 24 dBm
- Output Harmonics to 20 GHz
- SMT680 Surface Mount Package
- SMA800 Hermetically Package
- No Bias or Tuning Required
- RoHS* Compliant

Description
The MLPNC-7102 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>Frequency</td>
<td>MHz</td>
<td>Min.</td>
</tr>
<tr>
<td>Power</td>
<td>dBm</td>
<td>19</td>
</tr>
</tbody>
</table>

1. The model MLPNC-7102 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 / Power</th>
<th>Units</th>
<th>Output Harmonics</th>
</tr>
</thead>
<tbody>
<tr>
<td>MHz, dBm</td>
<td></td>
<td>4 GHz</td>
</tr>
<tr>
<td>500 MHz, 22 dBm</td>
<td>dBm</td>
<td>&gt; -8</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>
<tr>
<td>Temperature Cycling</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-7102-SMA800</td>
<td>ESD Box with Foam</td>
</tr>
<tr>
<td>MLPNC-7102-SMT680</td>
<td>ESD Box with Foam</td>
</tr>
</tbody>
</table>

* Restrictions on Hazardous Substances, compliant to current RoHS EU directive.
Typical Performance Curves @ 300 MHz

**Harmonic Output, 18 dBm Input**

-30 -20 -10 0 10
Frequency (GHz)

**Harmonic Output, 20 dBm Input**

-30 -20 -10 0 10
Frequency (GHz)

**Harmonic Output, 22 dBm Input**

-30 -20 -10 0 10
Frequency (GHz)

**Harmonic Output, 24 dBm Input**

-30 -20 -10 0 10
Frequency (GHz)
MLPNC-7102

NLTL Comb Generator

Typical Performance Curves @ 500 MHz

Harmonic Output, 18 dBm Input

Harmonic Output, 20 dBm Input

Harmonic Output, 22 dBm Input

Harmonic Output, 24 dBm Input

Phase Noise, 500 MHz Input, 12 GHz Output

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DC-0010997
Typical Performance Curves @ 700 MHz

Harmonic Output, 18 dBm Input

Harmonic Output, 20 dBm Input

Harmonic Output, 22 dBm Input

Harmonic Output, 24 dBm Input
Outline: SMT680

Dimensions in inches [mm]
Outline: SMA800, hermetic

Dimensions in inches [mm]
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