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 Parameters¹

<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>300</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 Limits²

<table>
<thead>
<tr>
<th>Input / Power</th>
<th>Units</th>
<th>Output Harmonics</th>
</tr>
</thead>
<tbody>
<tr>
<td></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 Ratings³,⁴

<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
0  5  10  15  20
Output Power (dBm) vs Frequency (GHz)

**Harmonic Output, 20 dBm Input**

-30  -20  -10   0   10
0  5  10  15  20
Output Power (dBm) vs Frequency (GHz)

**Harmonic Output, 22 dBm Input**

-30  -20  -10   0   10
0  5  10  15  20
Output Power (dBm) vs Frequency (GHz)

**Harmonic Output, 24 dBm Input**

-30  -20  -10   0   10
0  5  10  15  20
Output Power (dBm) vs Frequency (GHz)
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**
Typical Performance Curves @ 700 MHz

**Harmonic Output, 18 dBm Input**

![Graph](image1)

**Harmonic Output, 20 dBm Input**

![Graph](image2)

**Harmonic Output, 22 dBm Input**

![Graph](image3)

**Harmonic Output, 24 dBm Input**

![Graph](image4)
Outline: SMT680

Outline: SMT680

Top View

MLPNC-XXXXX
IN
MACOM
OUT
S/N XXXX

Side View

Bottom View

Dimensions in inches [mm]
Outline: SMA800, hermetic
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