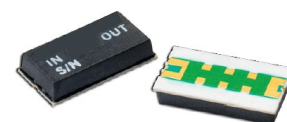


Features

- Ultra-Low Phase Noise
- Variable Input Frequency 100 - 400 MHz
- Variable Input Power from 18 - 24 dBm
- Output Harmonics to 20 GHz
- SMT680 Surface Mount Package
- SMA850 Hermetically Package
- No Bias or Tuning Required
- RoHS* Compliant


 SMA850
hermetic


SMT680

Description

The MLPNC-7100 is a low phase noise comb generator (LPNC) with a flexible range of input frequency and power. It is based on monolithic non-linear-transmission-line (NLTL) circuit technology and its banner spec is its ultra-low phase noise. The phase noise shown is at the 120th harmonic (12 GHz) and at any other harmonic it can be calculated using the analytical equation $PNN = PN120 - 20 \text{ LOG}(120 - N) N < 120$. It is available in both coaxial and surface mount packages.

Operating Parameters¹

| Parameter | Units | Recommended Input | | |
|-----------|-------|-------------------|------|------|
| | | Min. | Typ. | Max. |
| Frequency | MHz | 100 | 250 | 400 |
| Power | dBm | 18 | 22 | 24 |

1. The model MLPNC-7100 does not abruptly stop working at the recommended min and max frequencies and powers. The conversion efficiency drops outside recommended limits.

Production Test Limits²

| Input / Power | Units | Output Harmonics | | | | |
|-----------------|-------|------------------|-------|--------|--------|--------|
| | | 4 GHz | 8 GHz | 12 GHz | 16 GHz | 20 GHz |
| 100 MHz, 22 dBm | dBm | > -23 | > -26 | > -35 | > -43 | > -55 |
| 250 MHz, 20 dBm | dBm | > -11 | > -18 | > -25 | > -38 | > -43 |
| 400 MHz, 20 dBm | dBm | > -8 | > -18 | > -25 | > -35 | > -45 |

2. These are the harmonic output test limits used for production screening. Production testing is also performed at 18, 20, 22 and 24 dBm.

Ordering Information

| Part Number | Package |
|-------------------|-------------------|
| MLPNC-7100-SMA850 | ESD Box with Foam |
| MLPNC-7100-SMT680 | ESD Box with Foam |

* Restrictions on Hazardous Substances, European Union Directive 2011/65/EU.

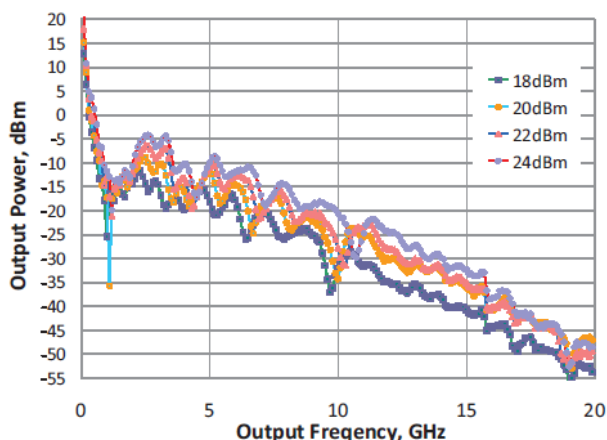
Absolute Maximum Ratings^{3,4}

| Parameter | Absolute Maximum |
|-----------------------|------------------|
| Input Power | 27 dBm |
| Operating Temperature | -45°C to +85°C |
| Storage Temperature | -55°C to +125°C |
| Temperature Cycling | -55°C to +125°C |

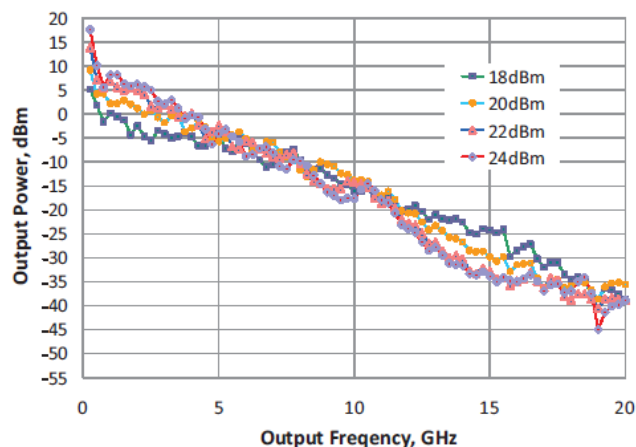
- Exceeding any one or combination of these limits may cause permanent damage to this device.
- MACOM does not recommend sustained operation near these survivability limits.

Typical Performance Curves @ +25°C using SMA package:

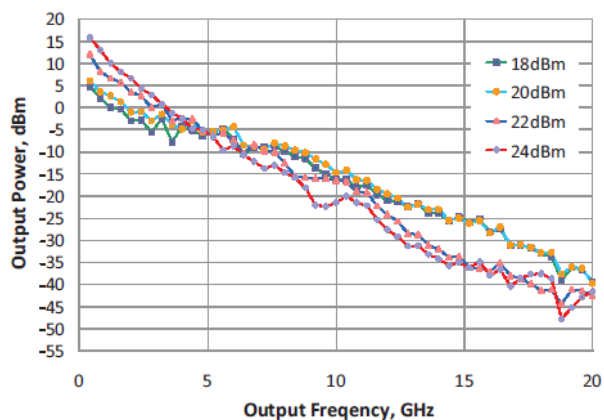
Harmonic Output, 100 MHz Input Frequency



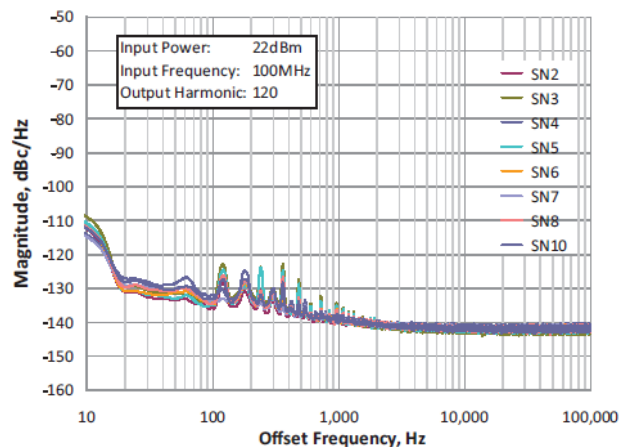
Harmonic Output, 250 MHz Input Frequency



Harmonic Output, 400 MHz Input Frequency



Phase Noise, 100 MHz Input Frequency, 22 dBm P_{IN}, 120 NLTL



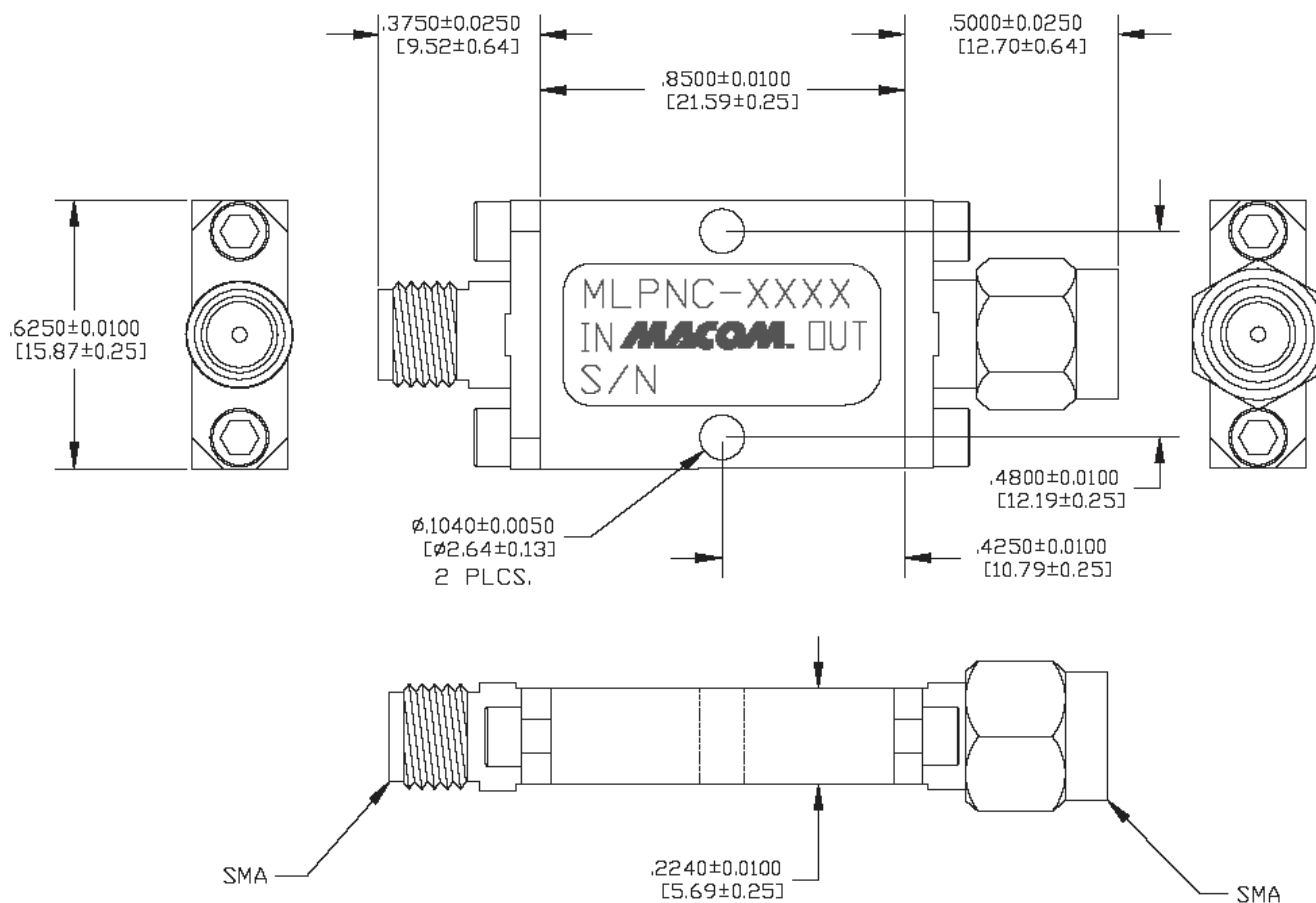
MLPNC-7100



NLTL Comb Generator

Rev. V1

Outline: SMA850, hermetic



Dimensions in inches [mm]

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