

NLTL Comb Generator

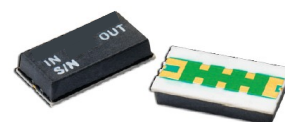
Rev. V1

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

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 $PNN = PN120 - 20 \text{ LOG}(120 - N) \text{ } N < 120$. It is available in both coaxial and surface mount packages.

SMA850
hermetic

SMT680

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.

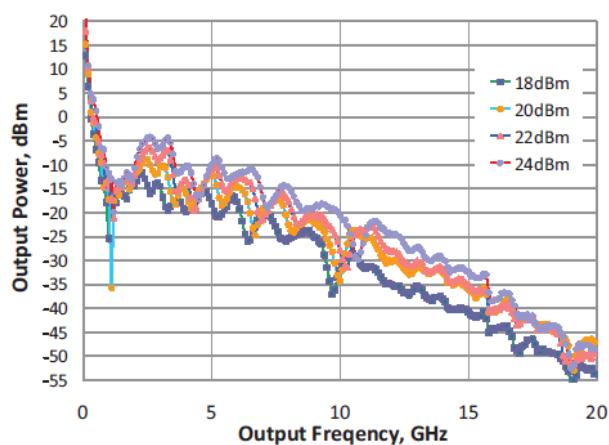
Absolute Maximum Ratings^{3,4}

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

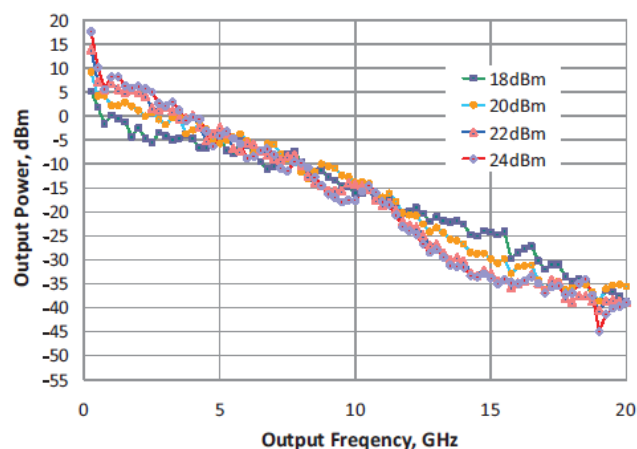
- Exceeding any one or combination of these limits may cause permanent damage to this device.
- MACOM does not recommend sustained operation near these survivability limits.

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

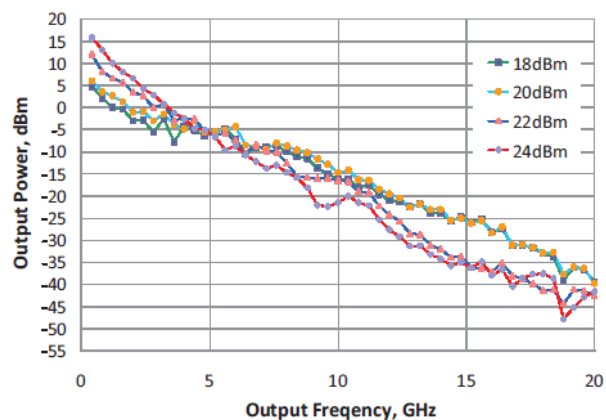
Harmonic Output, 100 MHz Input Frequency



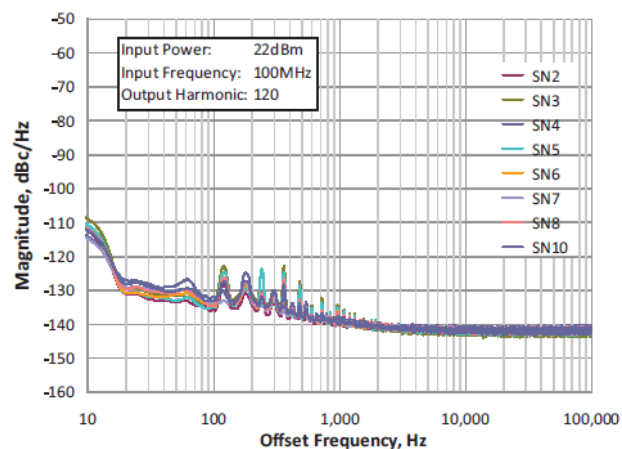
Harmonic Output, 250 MHz Input Frequency



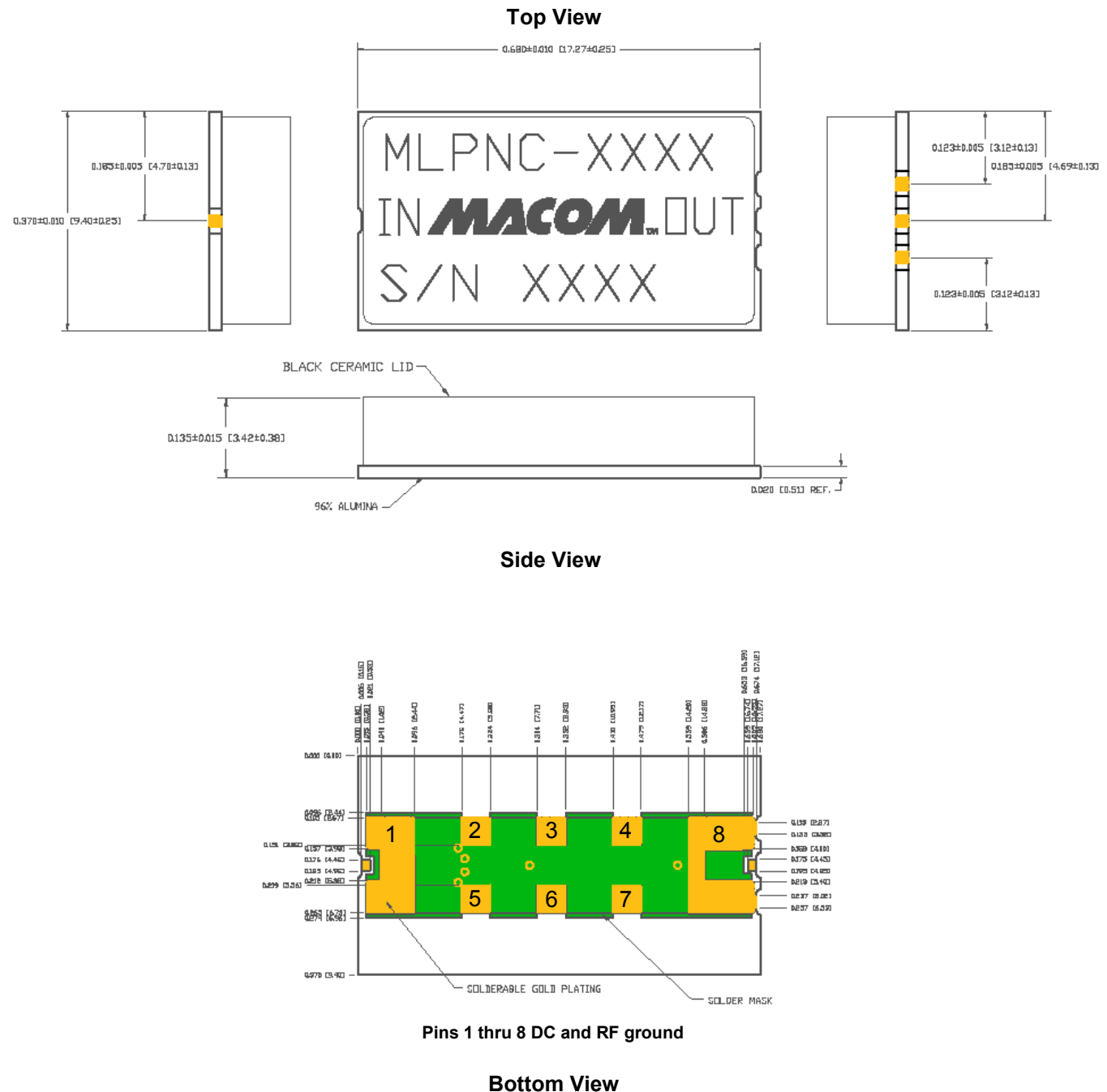
Harmonic Output, 400 MHz Input Frequency



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

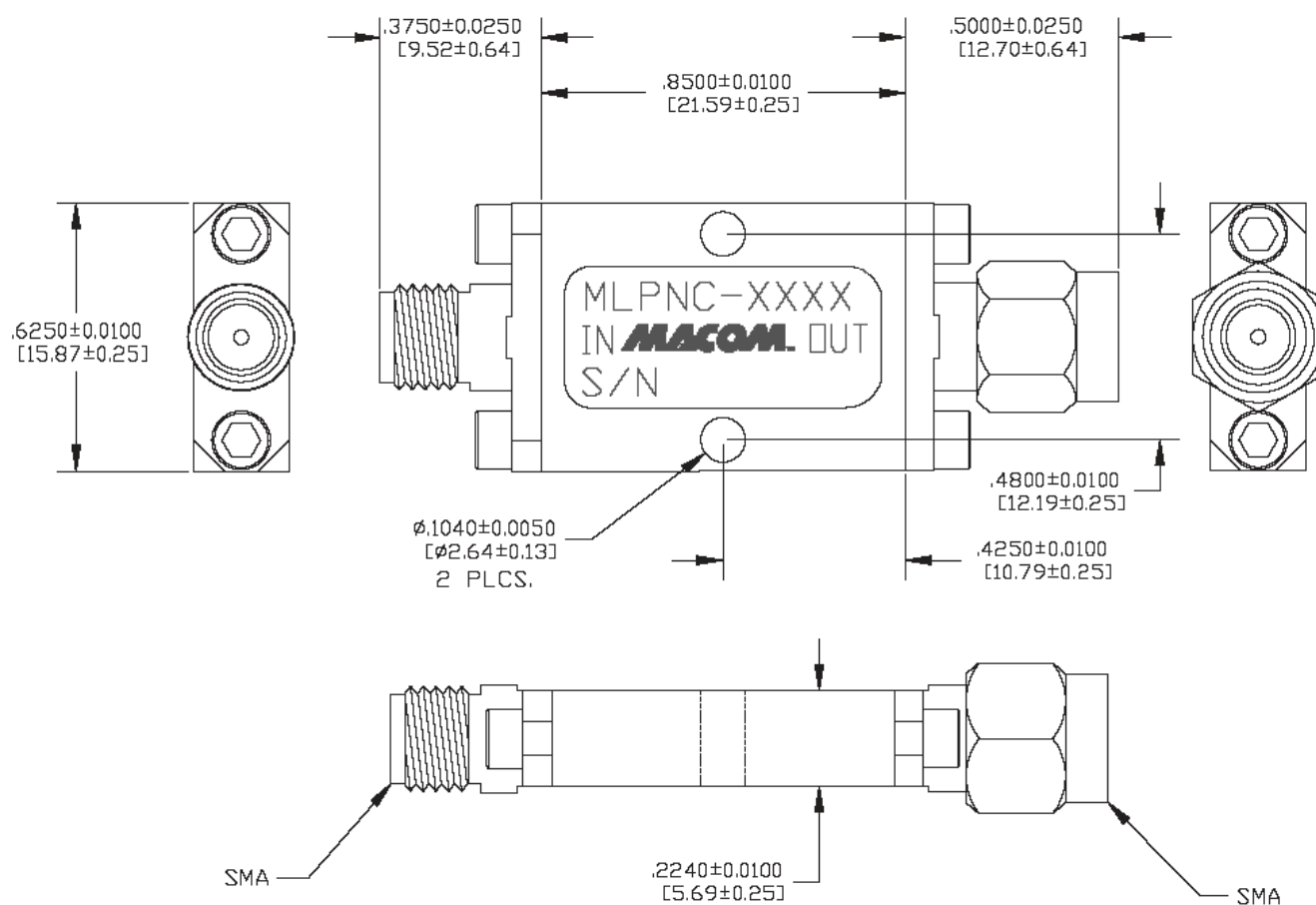


Outline: SMT680



Dimensions in inches [mm]

Outline: SMA850, hermetic



Dimensions in inches [mm]

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