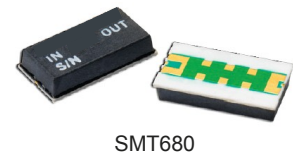


Features

- 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 $PNN = PN120 - 20 \text{ LOG} (120 - N) N < 120$. 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 Limits

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

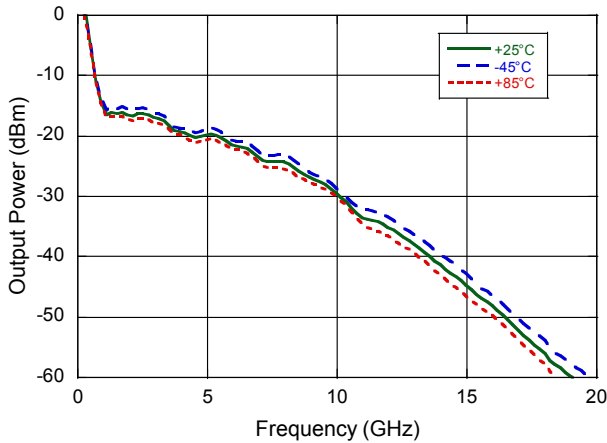
Ordering Information

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

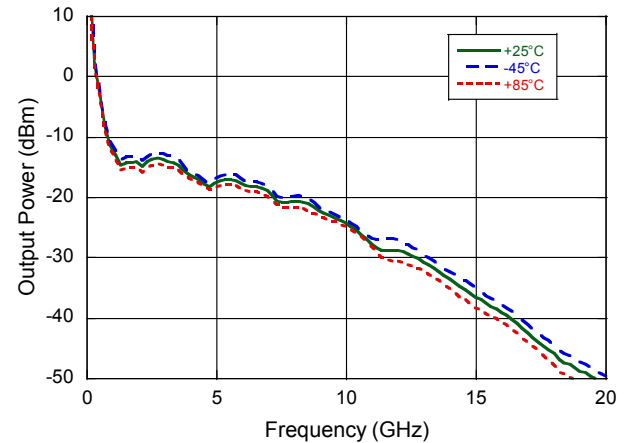
1 * Restrictions on Hazardous Substances, compliant to current RoHS EU directive.

Typical Performance Curves using SMA package @ 100 MHz Input:

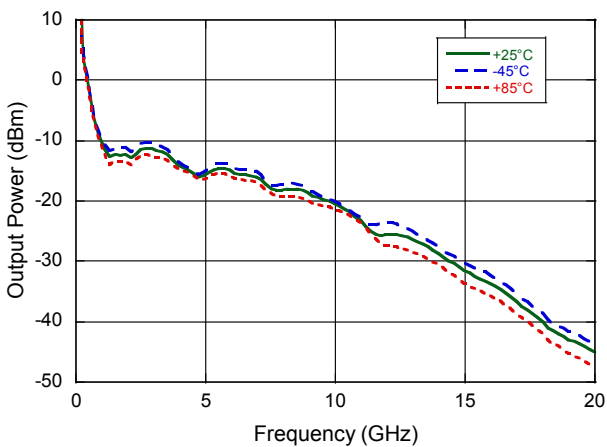
Harmonic Output, @ $P_{IN} = 18$ dBm



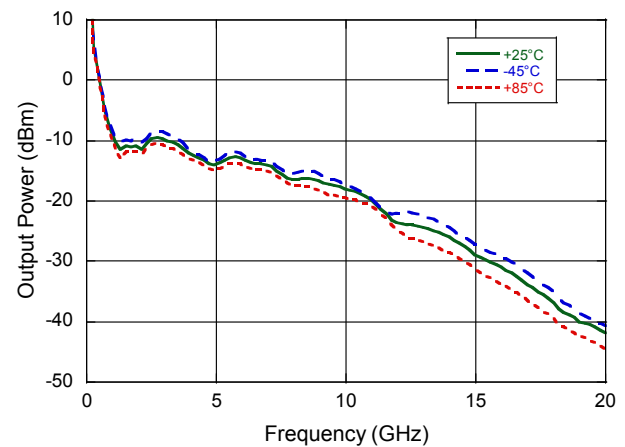
Harmonic Output, @ $P_{IN} = 20$ dBm



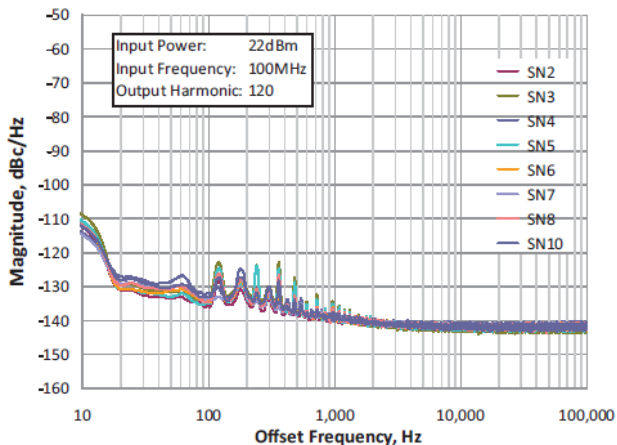
Harmonic Output, @ $P_{IN} = 22$ dBm



Harmonic Output, @ $P_{IN} = 24$ dBm



Phase Noise, 22 dBm P_{IN} , 12 GHz Output



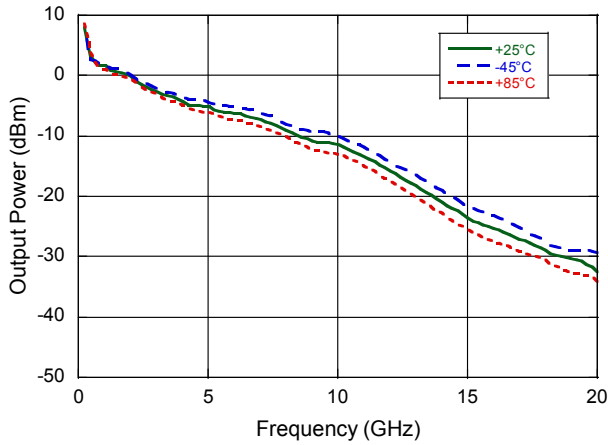
Absolute Maximum Ratings^{2,3}

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

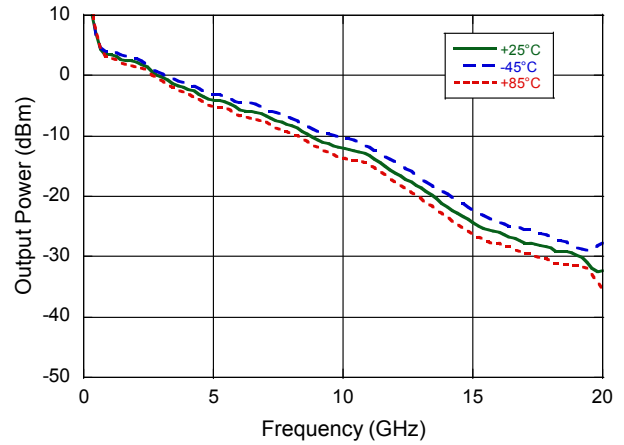
- Exceeding any one or combination of these limits may cause permanent damage to this device.
- MACOM does not recommend sustained operation near these survivability limits.

Typical Performance Curves using SMA package @ 250 MHz Input:

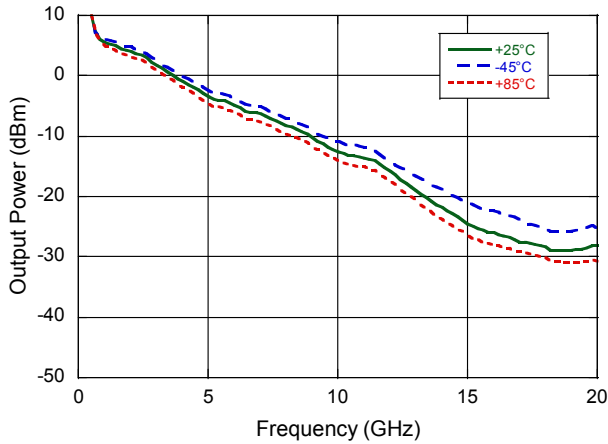
Harmonic Output, @ $P_{IN} = 18$ dBm



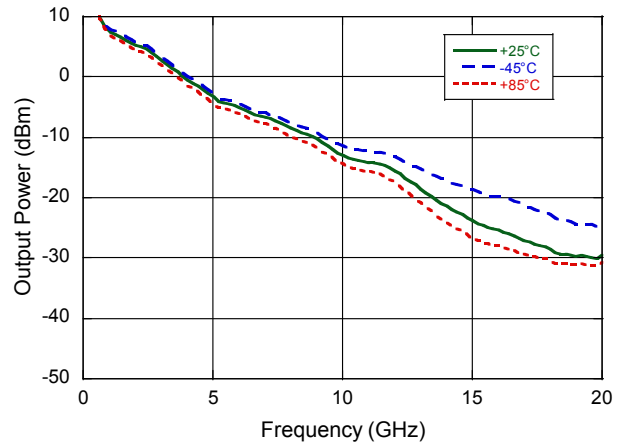
Harmonic Output, @ $P_{IN} = 20$ dBm



Harmonic Output, @ $P_{IN} = 22$ dBm

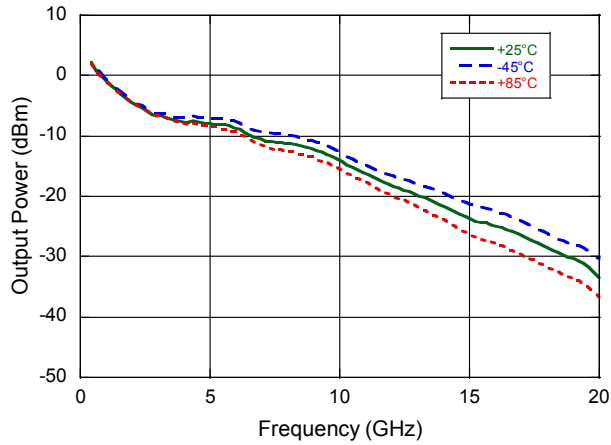


Harmonic Output, @ $P_{IN} = 24$ dBm

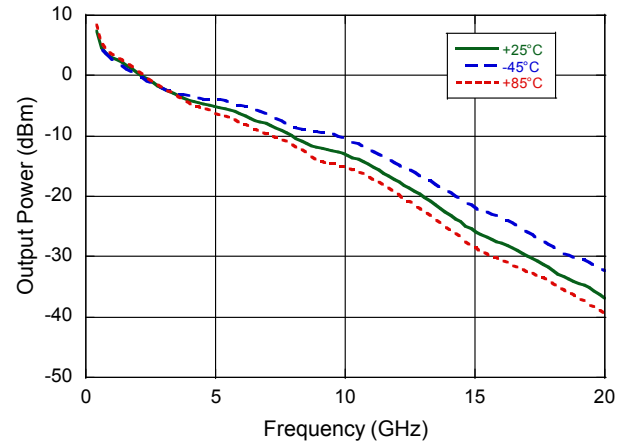


Typical Performance Curves using SMA package @ 400 MHz Input:

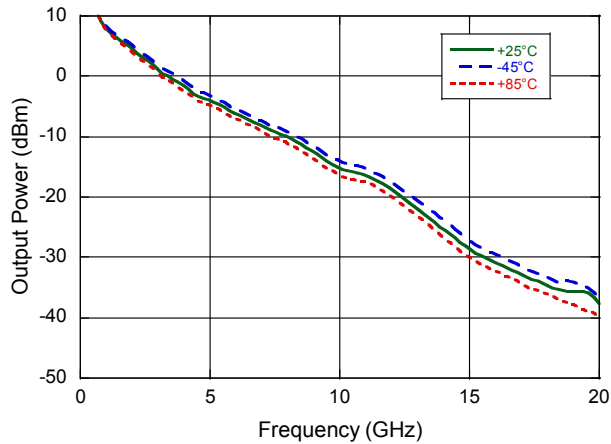
Harmonic Output, @ $P_{IN} = 18$ dBm



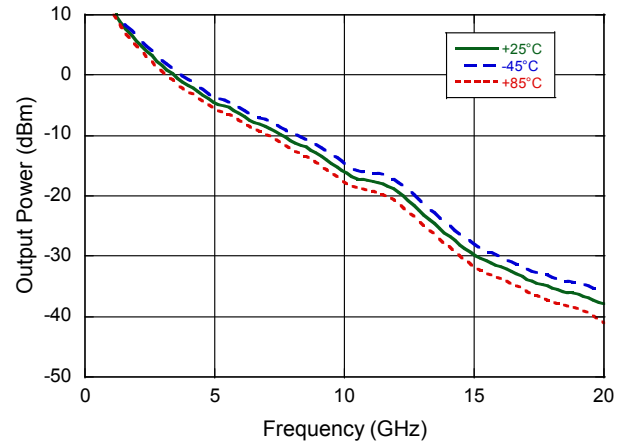
Harmonic Output, @ $P_{IN} = 20$ dBm



Harmonic Output, @ $P_{IN} = 22$ dBm



Harmonic Output, @ $P_{IN} = 24$ dBm



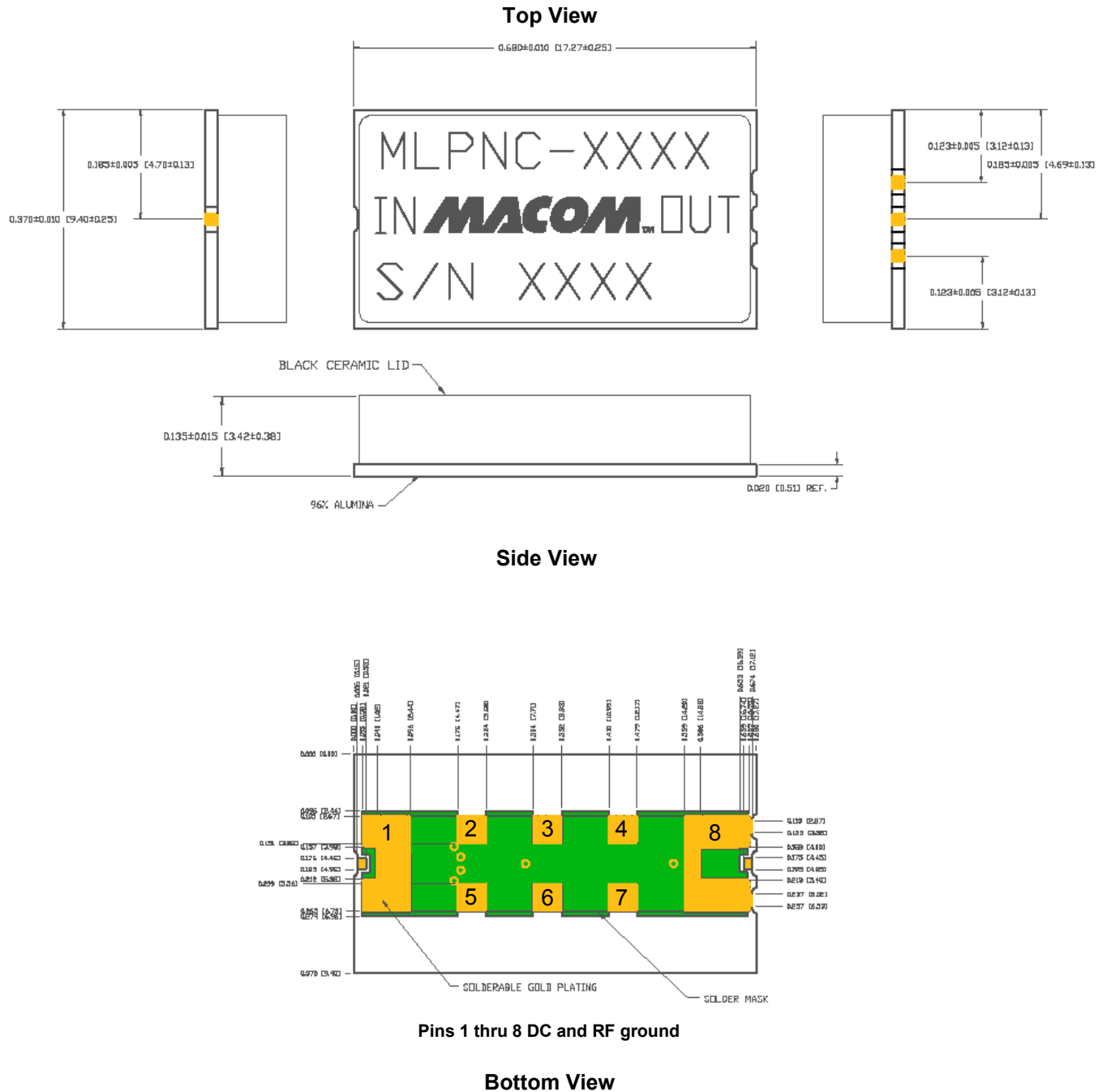
MLPNC-7100



NLTL Comb Generator

Rev. V3

Outline: SMT680



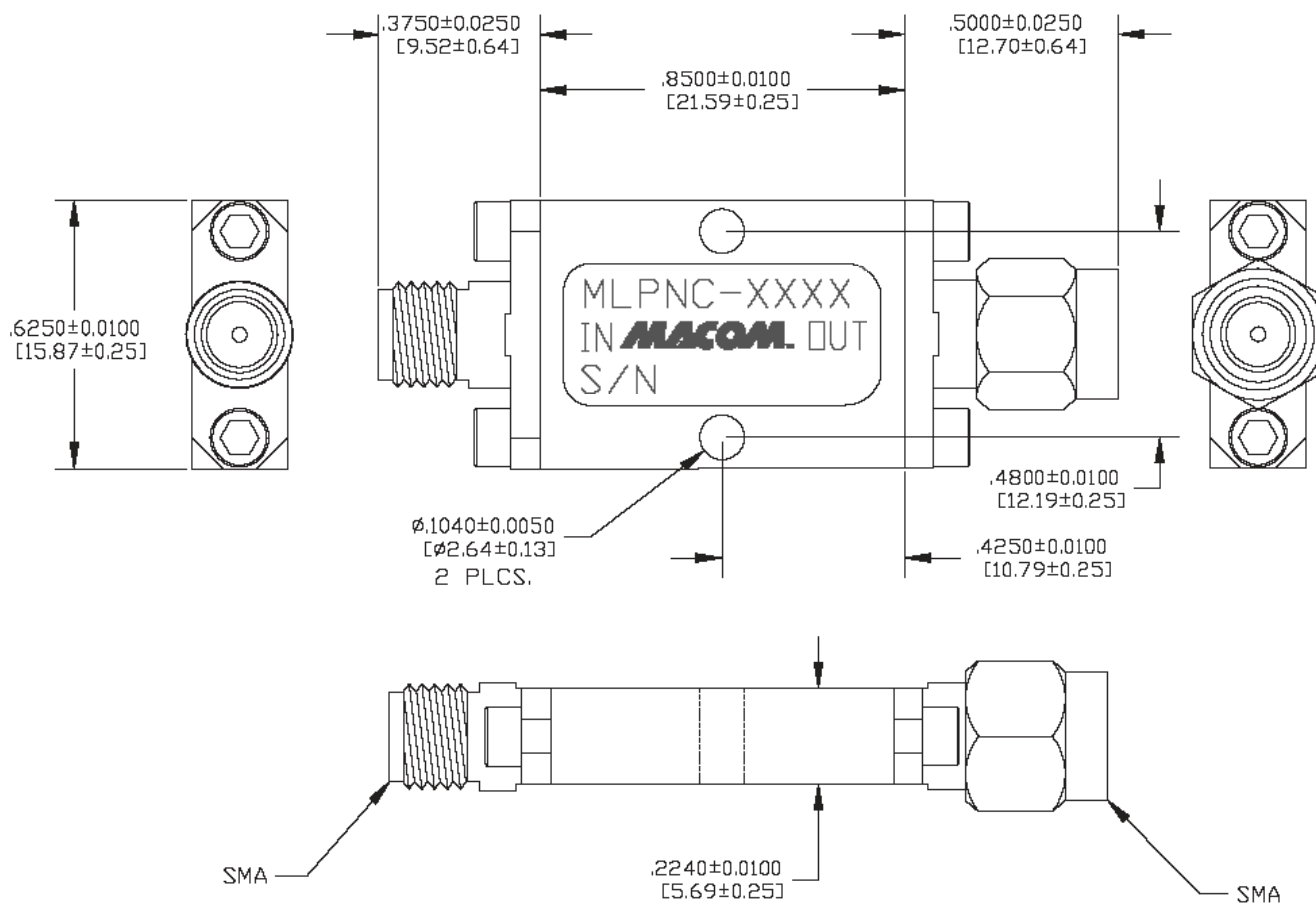
MLPNC-7100



NLTL Comb Generator

Rev. V3

Outline: SMA850, hermetic



Dimensions in inches [mm]

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