

NLTL Comb Generator

Rev. V1

Features

- Ultra-Low Phase Noise
- Variable Input Frequency 300 - 700 MHz
- Variable Input Power from 18 - 24 dBm
- Output Harmonics to 12 GHz
- SMT580 Surface Mount & SMA800 Packages
- No Bias or Tuning Required
- RoHS* Compliant

Description

The MLPNC-7102S1 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.

SMA800
hermetic

SMT580

Operating Parameters¹

Parameter	Units	Recommended Input		
		Min.	Typ.	Max.
Frequency	MHz	300	500	700
Power	dBm	18	22	24

1. The model 7102S 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	Units	Output Harmonics		
		0 - 4 GHz	4 - 8 GHz	8 - 12 GHz
300 MHz, 22 dBm	dBm	> -10	> -15	> -22
500 MHz, 22 dBm	dBm	> -2	> -5	> -15
700 MHz, 22 dBm	dBm	> 0	> -6	> -15

2. These are the harmonic output test limits used for production screening.

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

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.

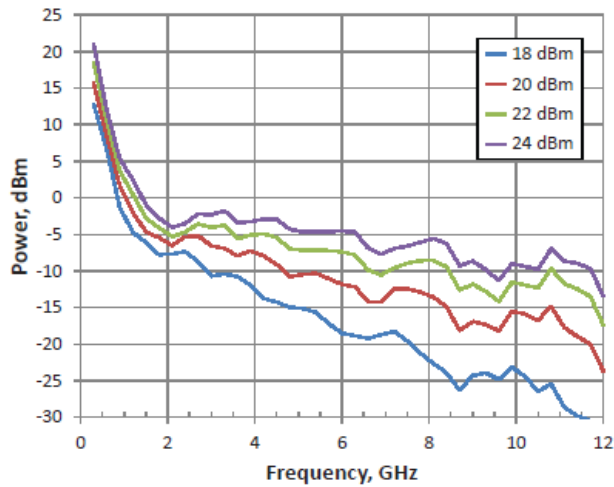
Ordering Information

Part Number	Package
MLPNC-7102S1-SMA800	ESD Box with Foam
MLPNC-7102S1-SMT580	ESD Box with Foam

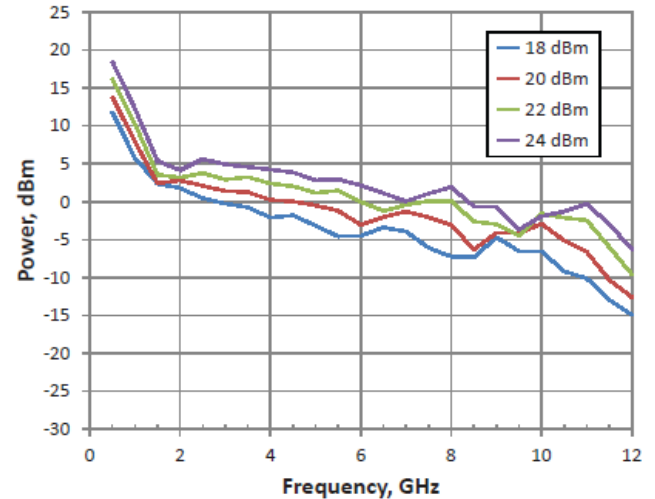
* Restrictions on Hazardous Substances,
European Union Directive 2011/65/EU.

Typical Performance Curves @ +25°C using SMT580 package:

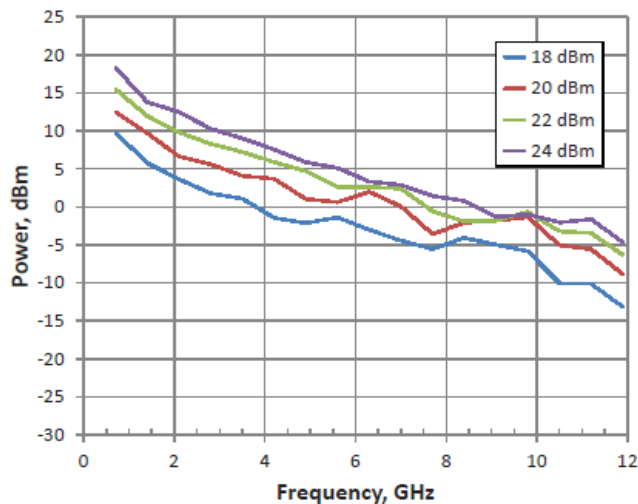
Harmonic Output, 300 MHz Input Frequency



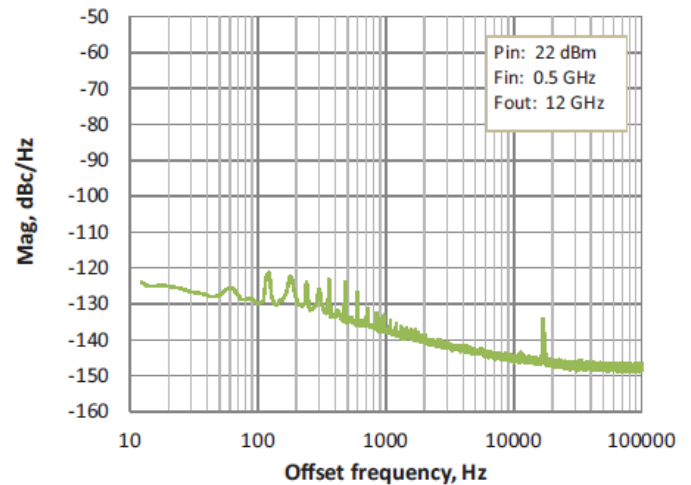
Harmonic Output, 500 MHz Input Frequency



Harmonic Output, 700 MHz Input Frequency

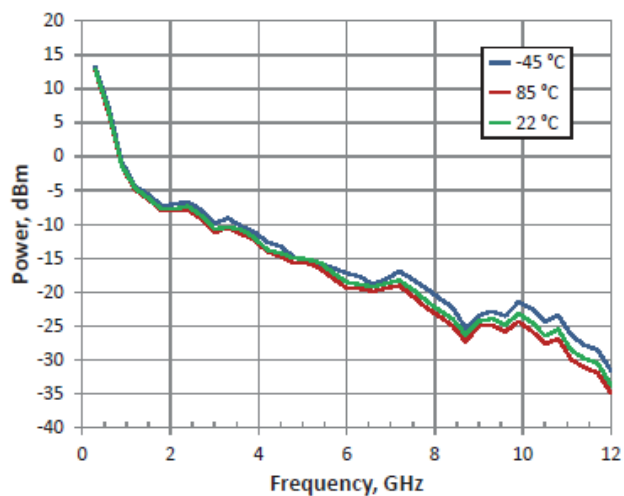


Phase Noise, 500 MHz Input Frequency, SMT580 Package

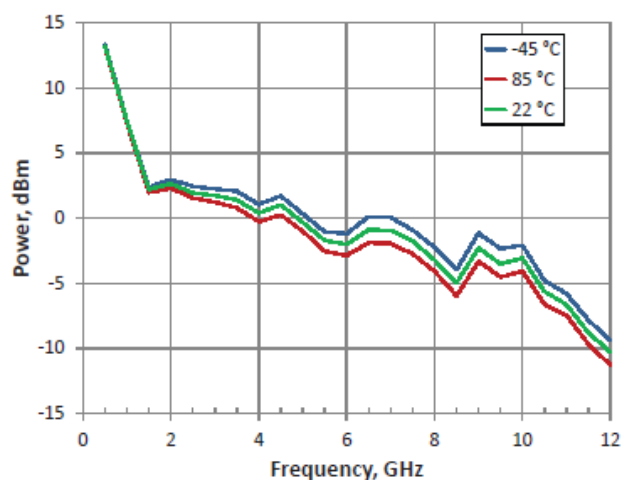


Typical Performance Curves @ 300 MHz over temperature using SMT580 package:

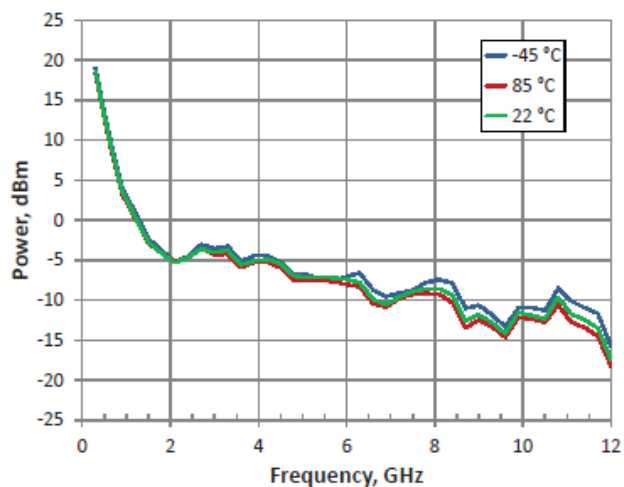
Harmonic Output, 18 dBm Input Power



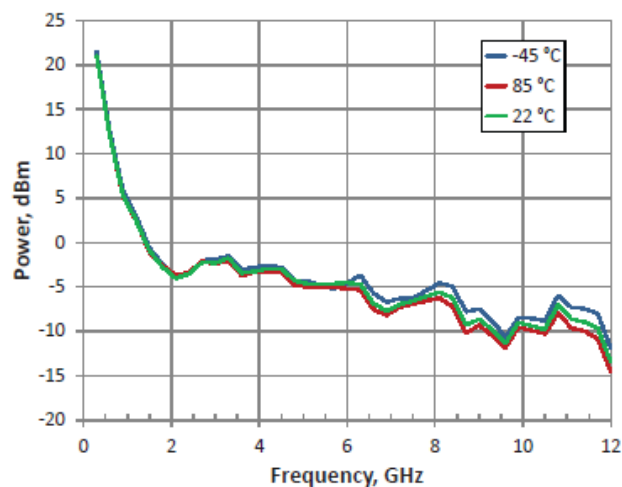
Harmonic Output, 20 dBm Input Power



Harmonic Output, 22 dBm Input Power

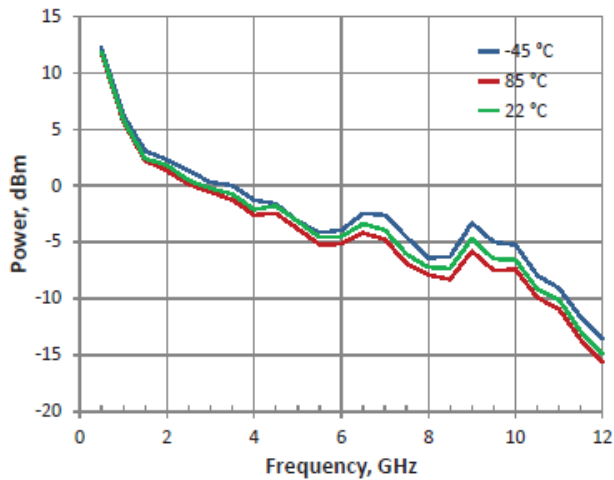


Harmonic Output, 24 dBm Input Power

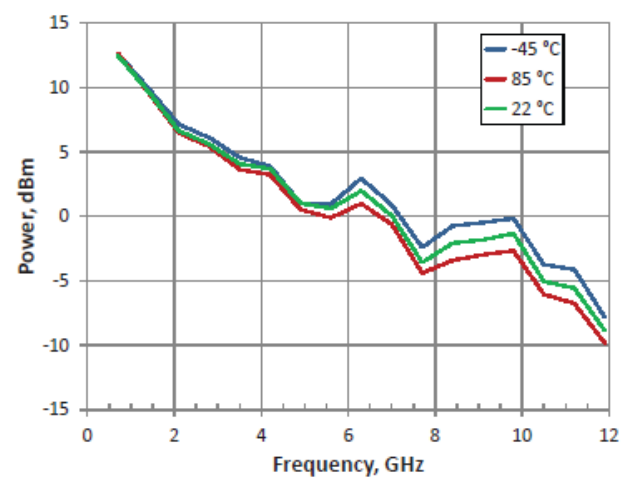


Typical Performance Curves @ 500 MHz over temperature using SMT580 package:

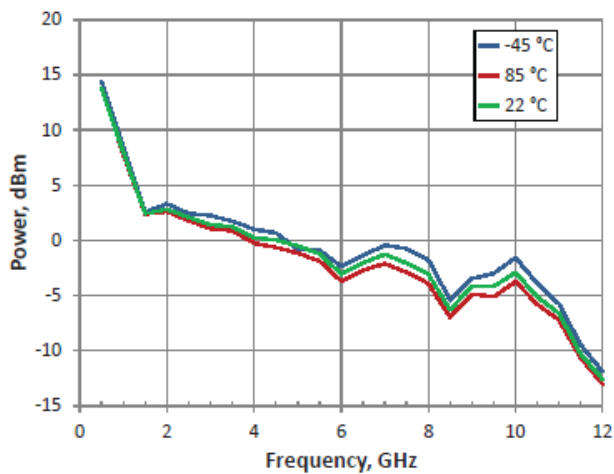
Harmonic Output, 18 dBm Input Power



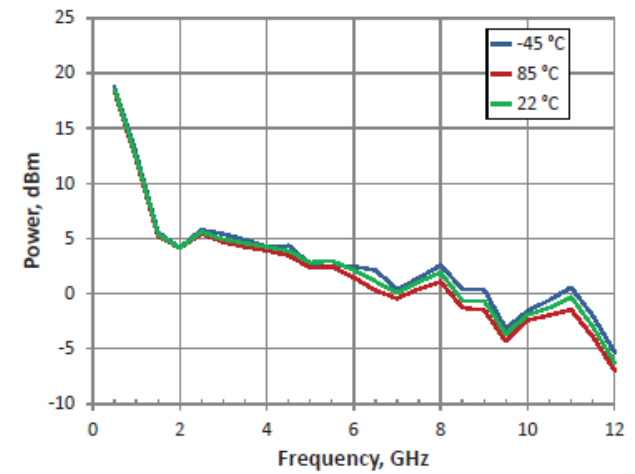
Harmonic Output, 20 dBm Input Power



Harmonic Output, 22 dBm Input Power

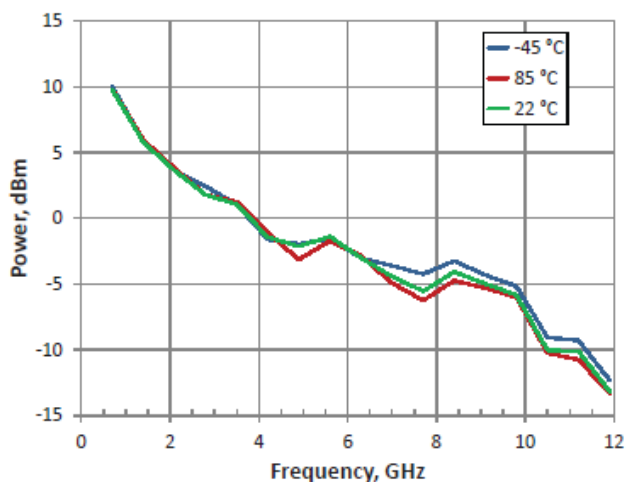


Harmonic Output, 24 dBm Input Power

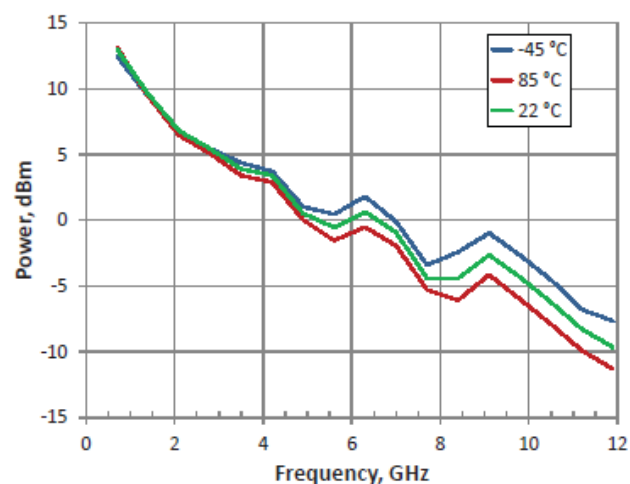


Typical Performance Curves @ 700 MHz over temperature using SMT580 package:

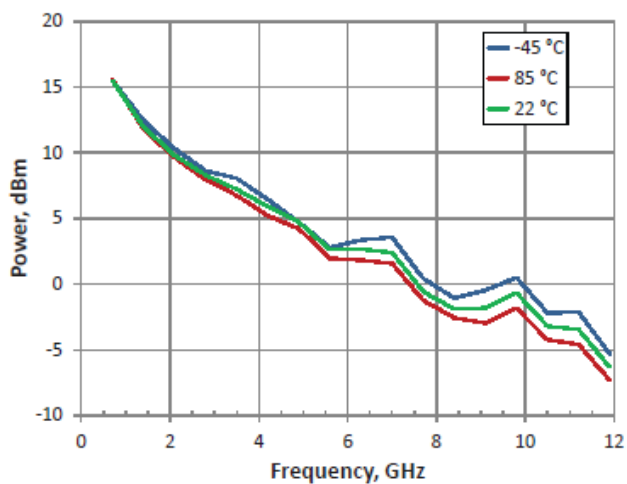
Harmonic Output, 18 dBm Input Power



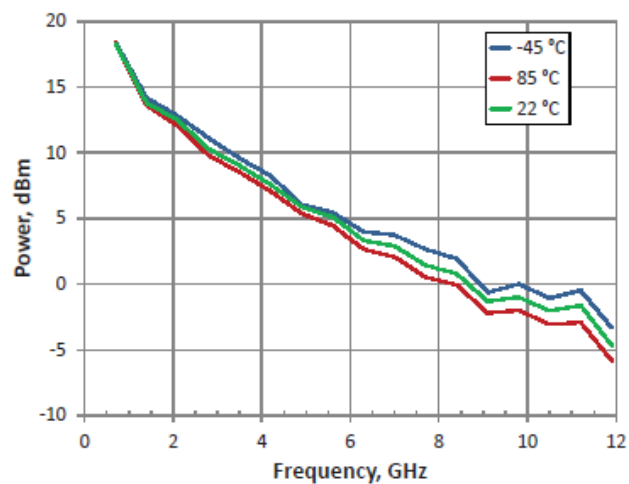
Harmonic Output, 20 dBm Input Power



Harmonic Output, 22 dBm Input Power

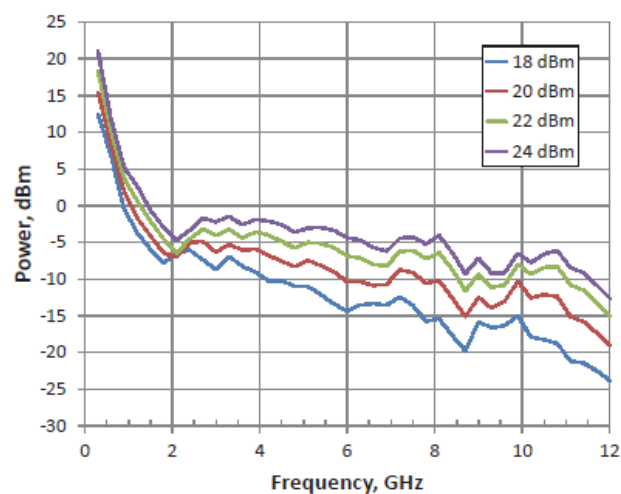


Harmonic Output, 24 dBm Input Power

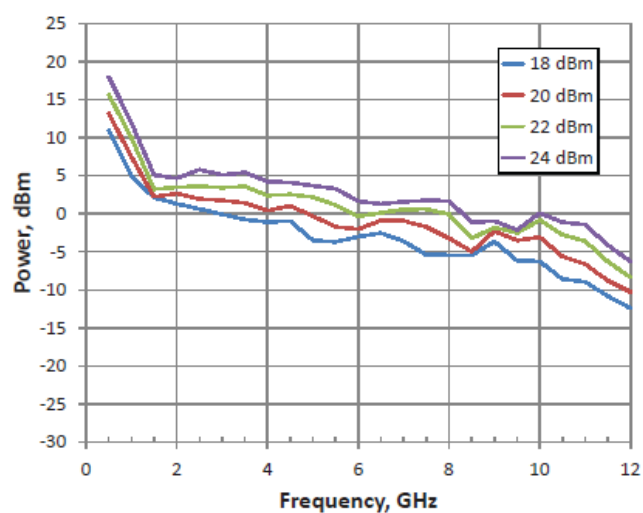


Typical Performance Curves @ +25°C using SMA800 package:

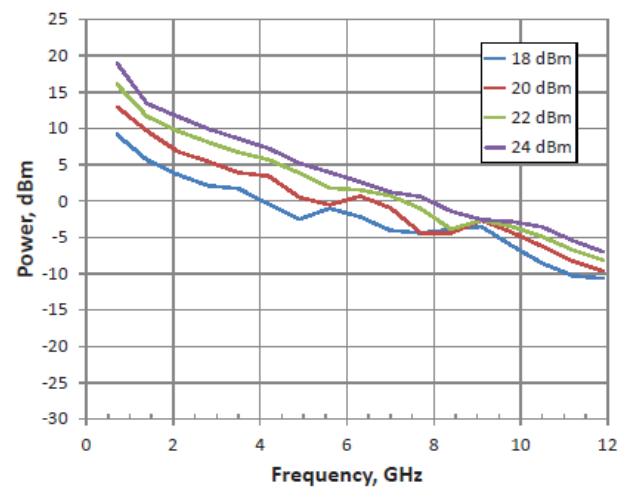
Harmonic Output, 300 MHz Input Frequency



Harmonic Output, 500 MHz Input Frequency

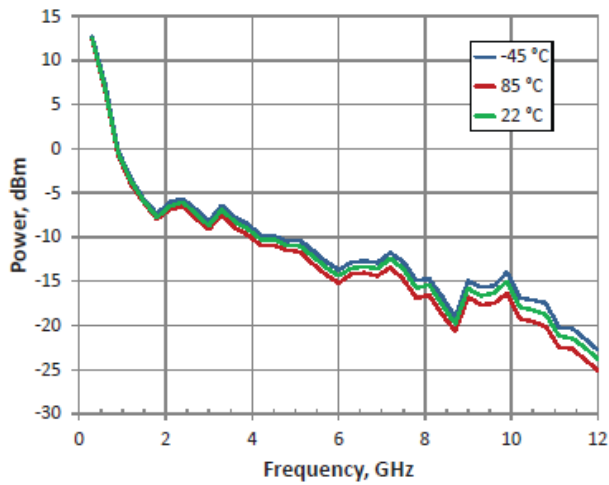


Harmonic Output, 700 MHz Input Frequency

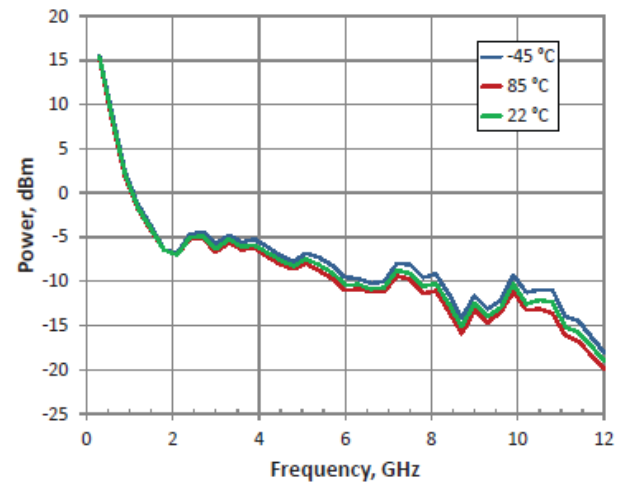


Typical Performance Curves @ 300 MHz over temperature using SMA800 package:

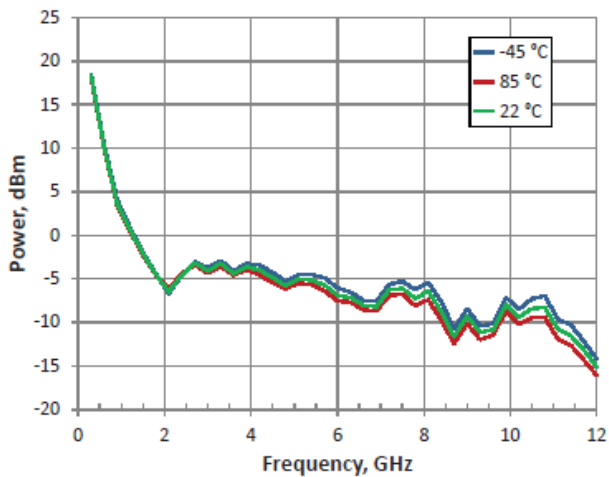
Harmonic Output, 18 dBm Input Power



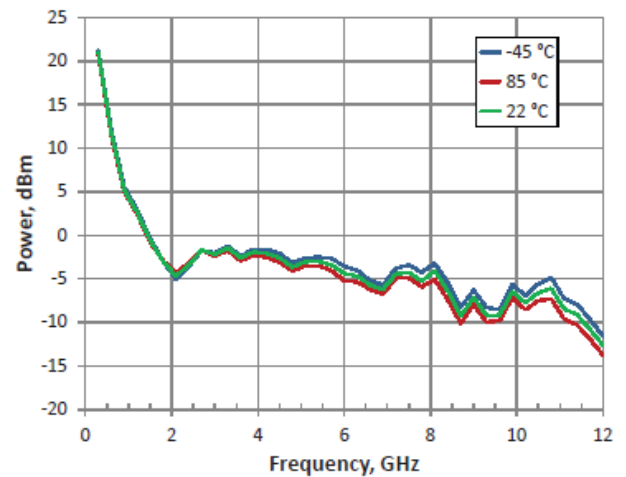
Harmonic Output, 20 dBm Input Power



Harmonic Output, 22 dBm Input Power

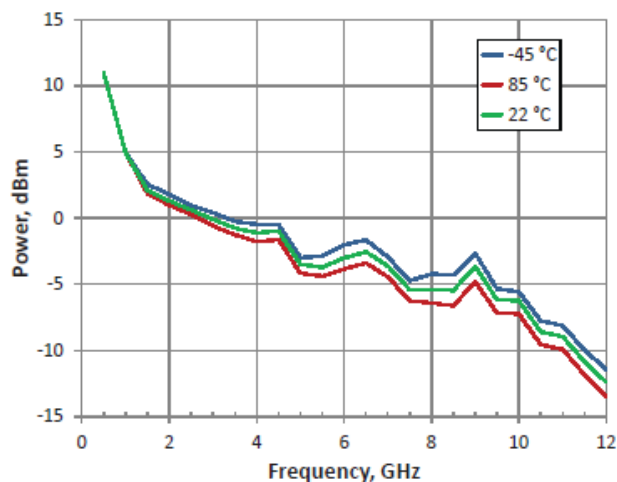


Harmonic Output, 24 dBm Input Power

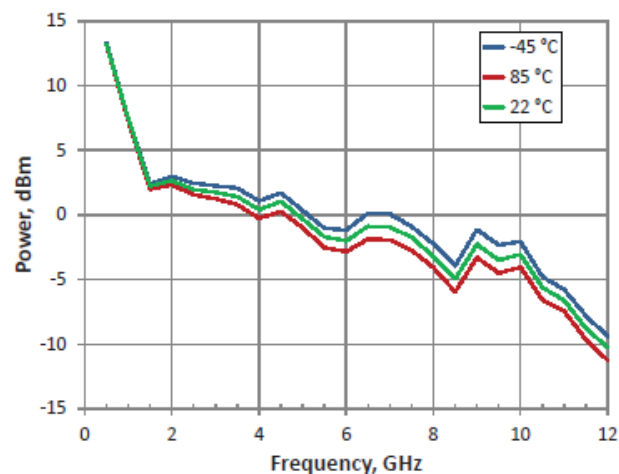


Typical Performance Curves @ 500 MHz over temperature using SMA800 package:

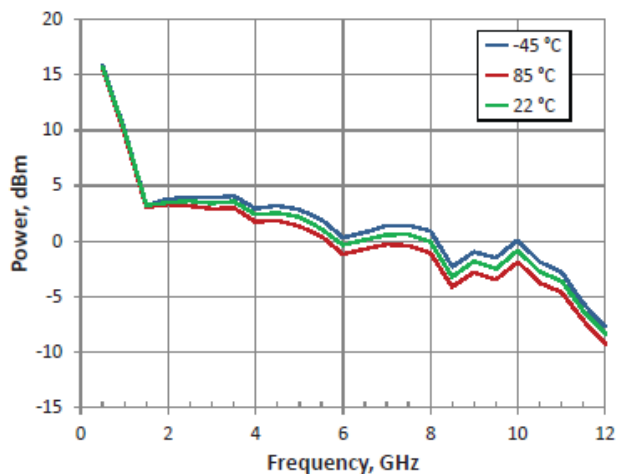
Harmonic Output, 18 dBm Input Power



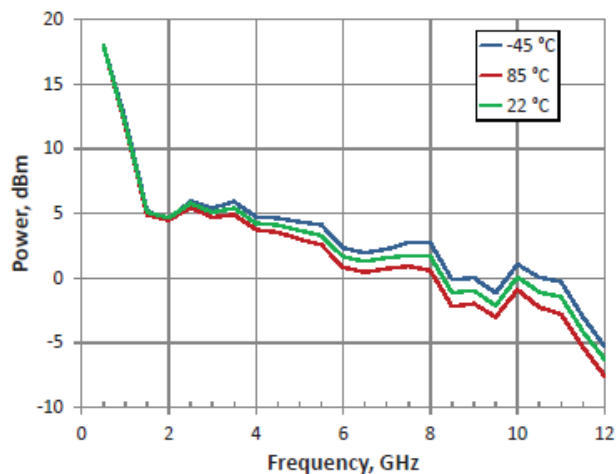
Harmonic Output, 20 dBm Input Power



Harmonic Output, 22 dBm Input Power

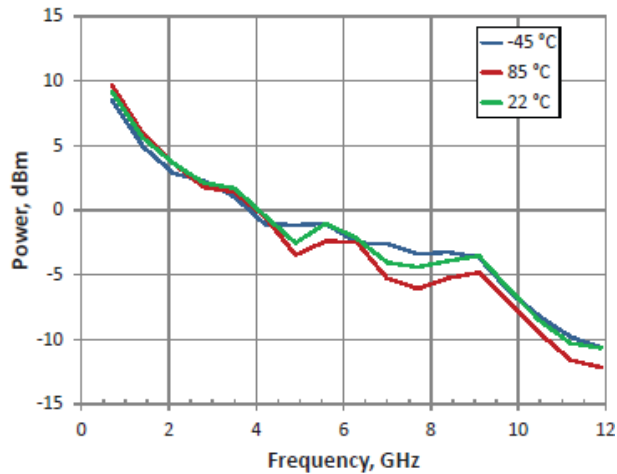


Harmonic Output, 24 dBm Input Power

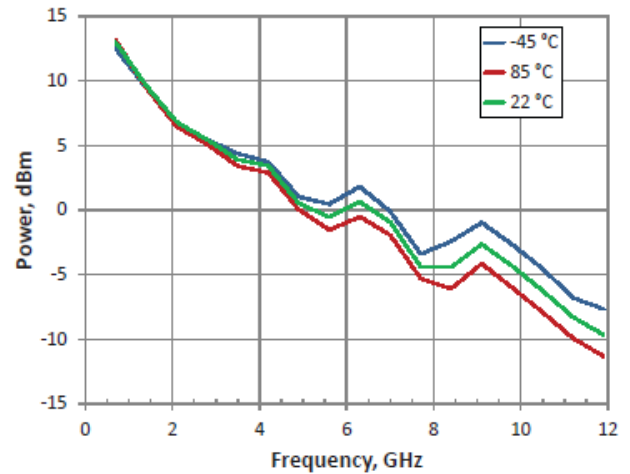


Typical Performance Curves @ 700 MHz over temperature using SMA800 package:

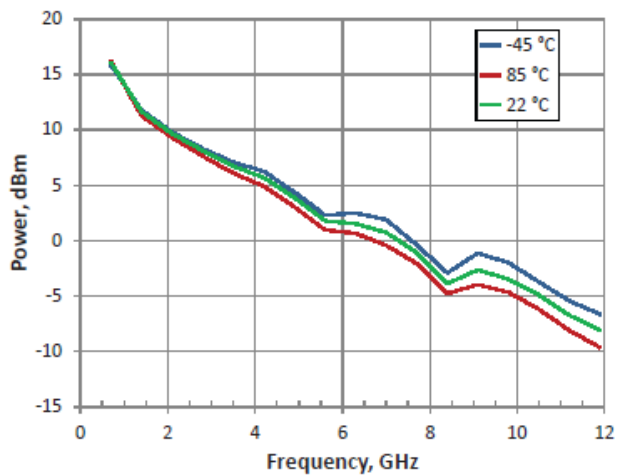
Harmonic Output, 18 dBm Input Power



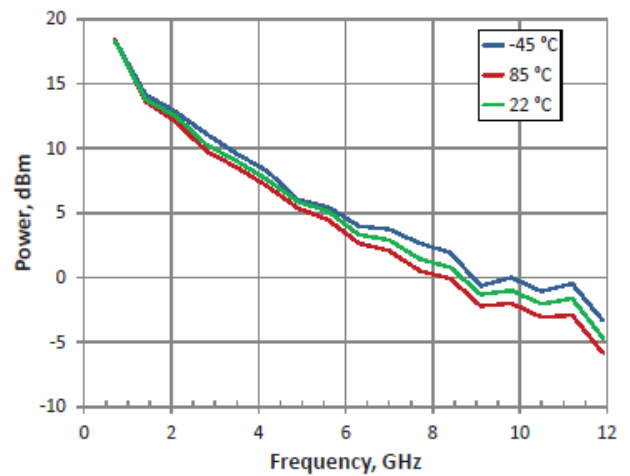
Harmonic Output, 20 dBm Input Power



Harmonic Output, 22 dBm Input Power



Harmonic Output, 24 dBm Input Power



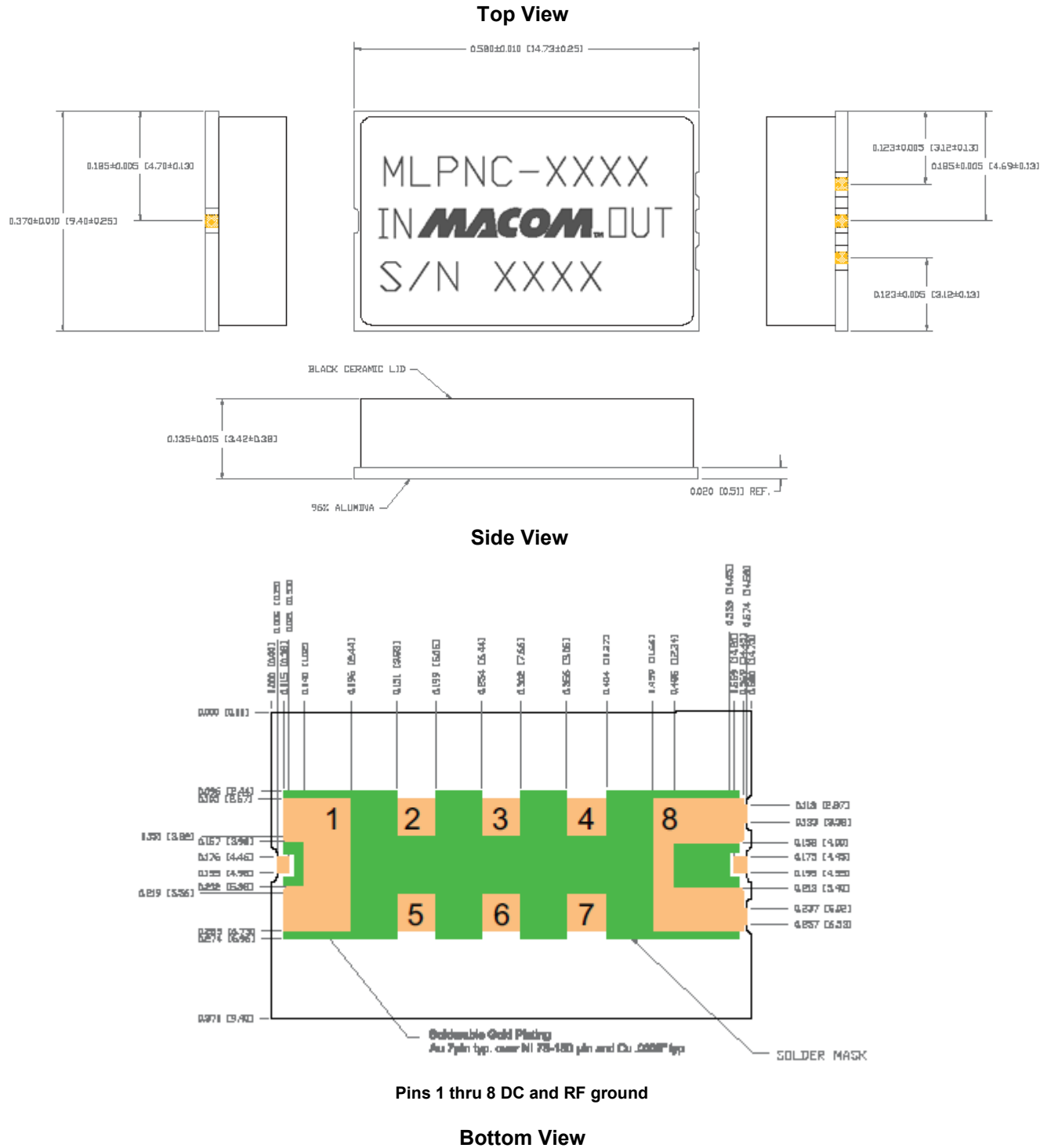
MLPNC-7102S1



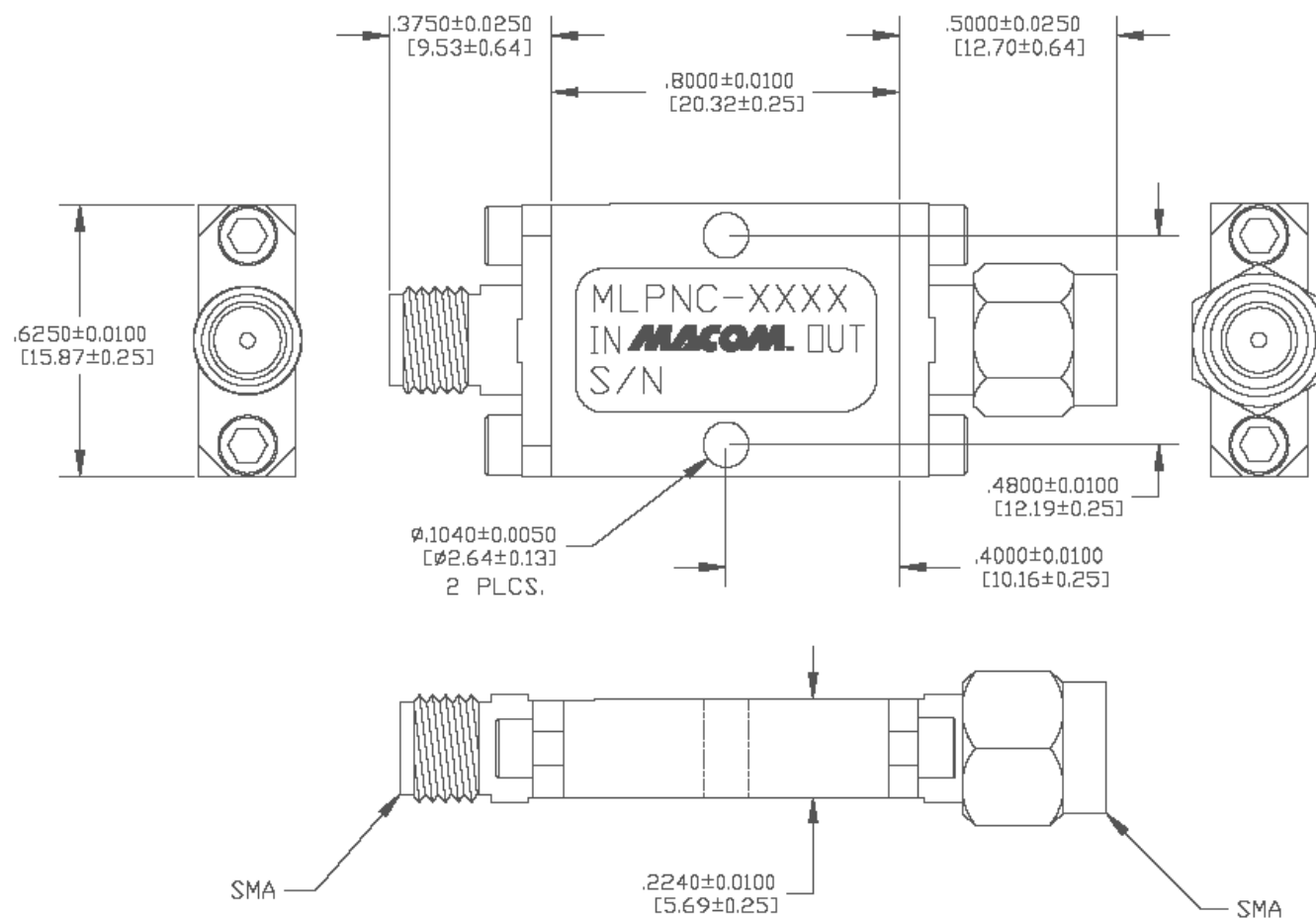
NLTL Comb Generator

Rev. V1

Outline: SMT580



Outline: SMA800, hermetic



Dimensions in inches [mm]

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