

Features

- Ultra-Low Phase Noise
- Variable Input Frequency 600 - 1500 MHz
- Variable Input Power from 18 - 24 dBm
- Output Harmonics to 15 GHz
- SMT580 Surface Mount & SMA800 Packages
- No Bias or Tuning Required
- RoHS* Compliant



SMA800
hermetic



SMT580

Description

The MLPNC-7103S1 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

| Parameter | Units | Recommended Input | | |
|-----------|-------|-------------------|------|------|
| | | Min. | Typ. | Max. |
| Frequency | MHz | 600 | 1000 | 1500 |
| Power | dBm | 18 | 22 | 24 |

1. The model 7103S 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 | | |
|------------------|-------|------------------|-----------|------------|
| | | Up to 4 GHz | 4 - 8 GHz | 8 - 15 GHz |
| 600 MHz, 22 dBm | dBm | > -10 | > -8 | > -20 |
| 1000 MHz, 22 dBm | dBm | > 0 | > -2 | > -14 |
| 1500 MHz, 22 dBm | dBm | > 6 | > 0 | > -14 |

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.

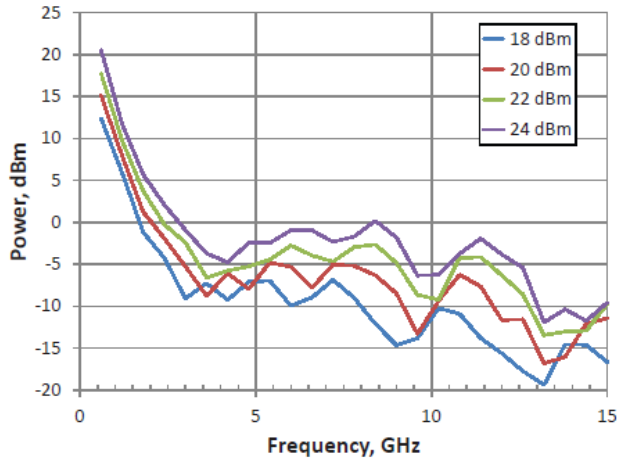
Ordering Information

| Part Number | Package |
|---------------------|-------------------|
| MLPNC-7103S1-SMA800 | ESD Box with Foam |
| MLPNC-7103S1-SMT580 | ESD Box with Foam |

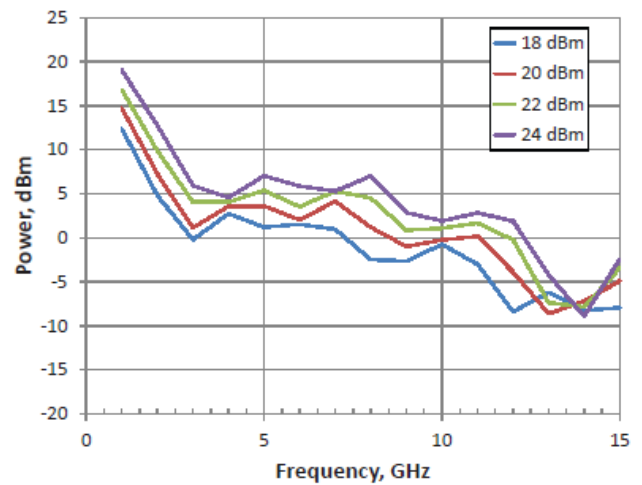
* Restrictions on Hazardous Substances, European Union Directive 2011/65/EU.

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

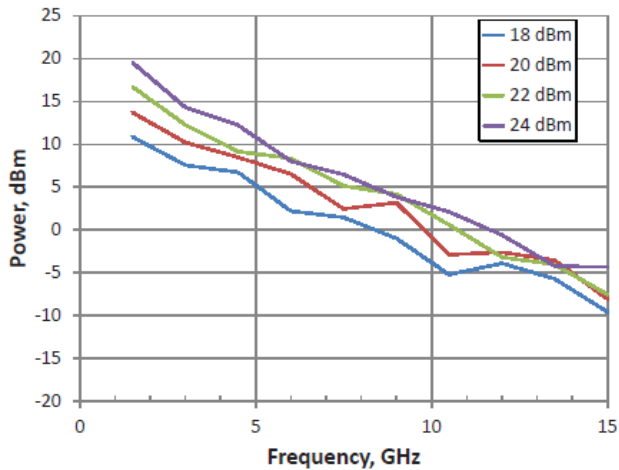
Harmonic Output, 600 MHz Input Frequency



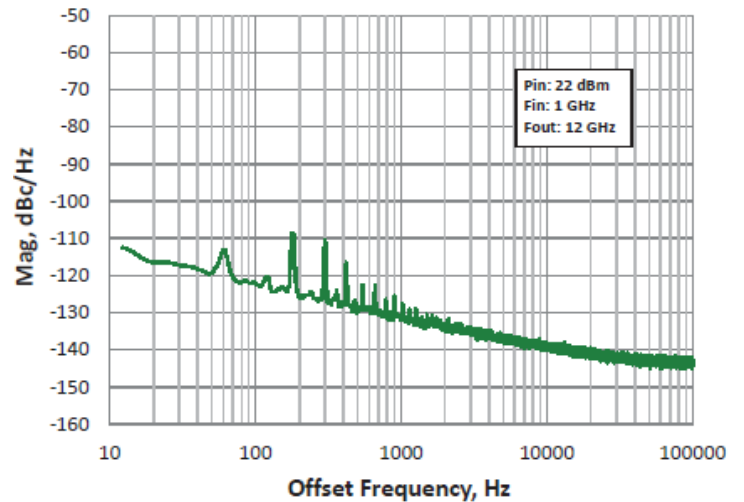
Harmonic Output, 1000 MHz Input Frequency



Harmonic Output, 1500 MHz Input Frequency

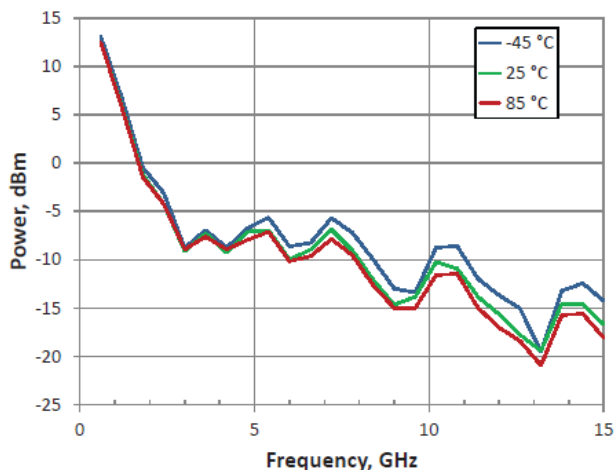


Phase Noise, 1000 MHz Input Frequency

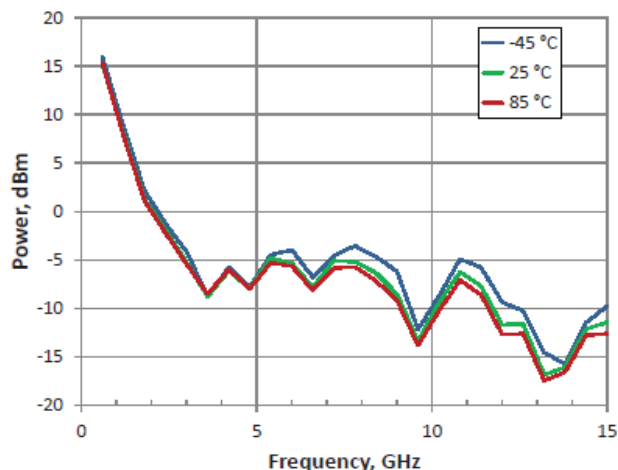


Typical Performance Curves @ 600 MHz over temperature using SMT580 package:

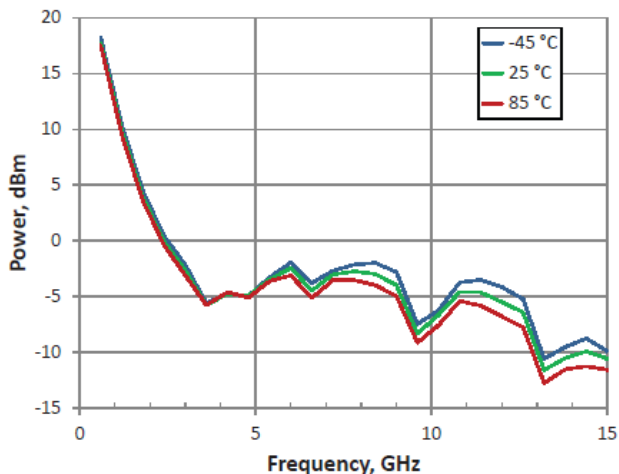
Harmonic Output, 18 dBm Input Power



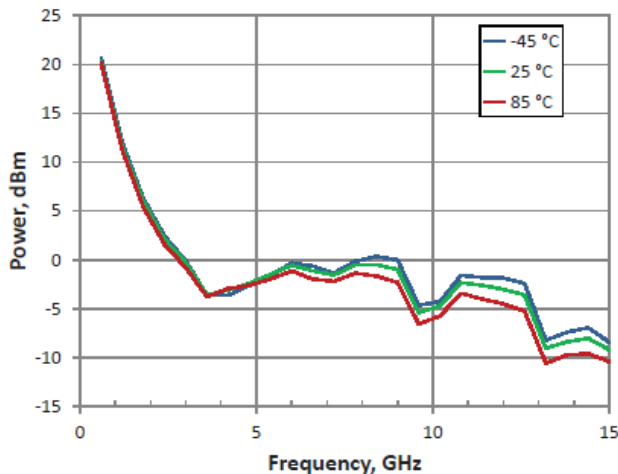
Harmonic Output, 20 dBm Input Power



Harmonic Output, 22 dBm Input Power

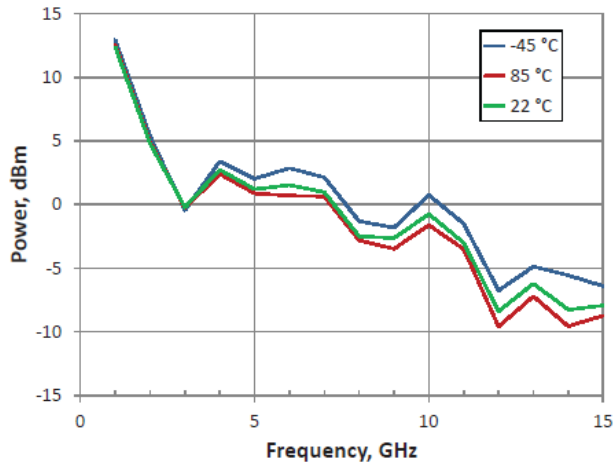


Harmonic Output, 24 dBm Input Power

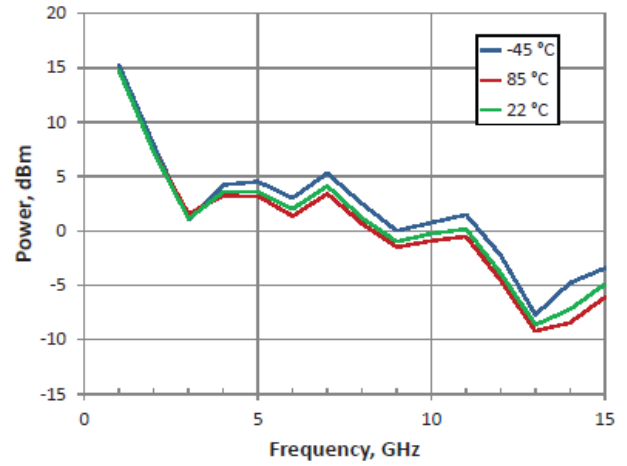


Typical Performance Curves @ 1000 MHz over temperature using SMT580 package:

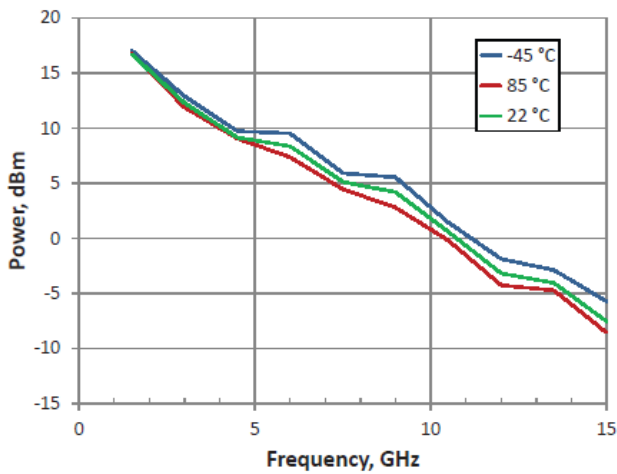
Harmonic Output, 18 dBm Input Power



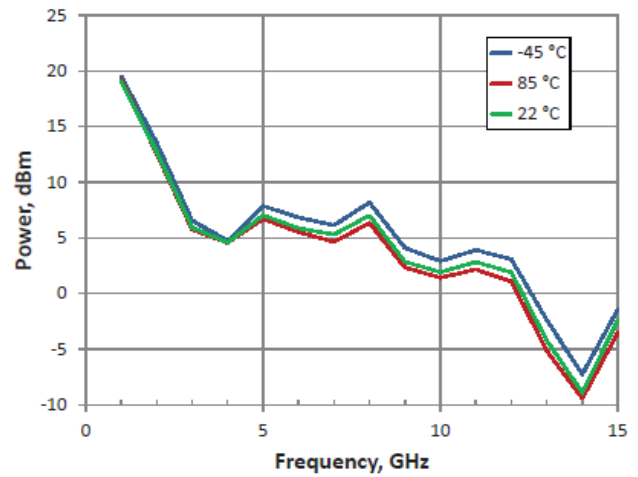
Harmonic Output, 20 dBm Input Power



Harmonic Output, 22 dBm Input Power

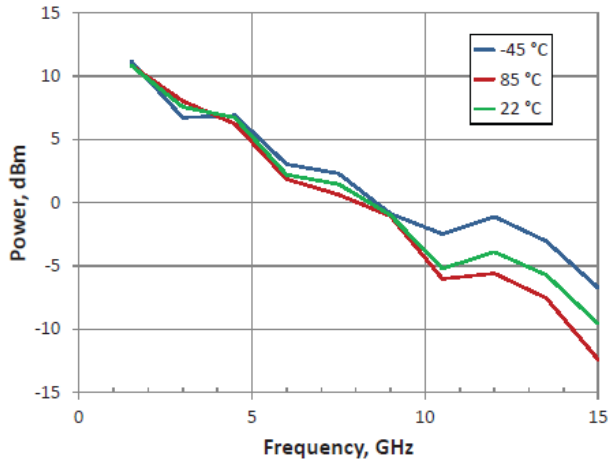


Harmonic Output, 24 dBm Input Power

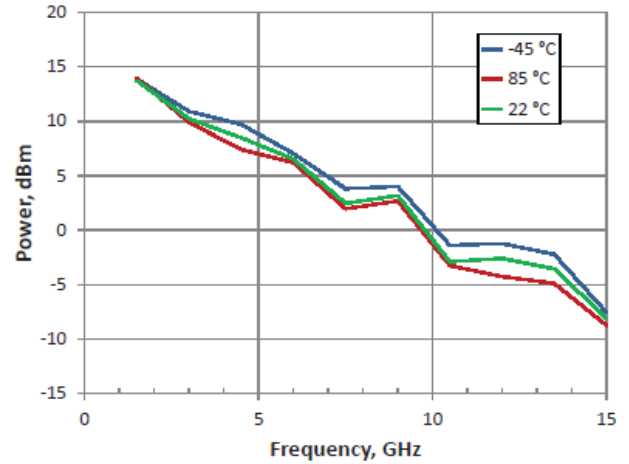


Typical Performance Curves @ 1500 MHz over temperature using SMT580 package:

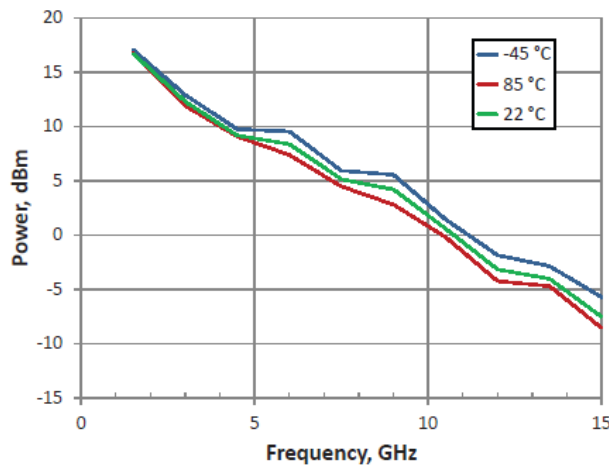
Harmonic Output, 18 dBm Input Power



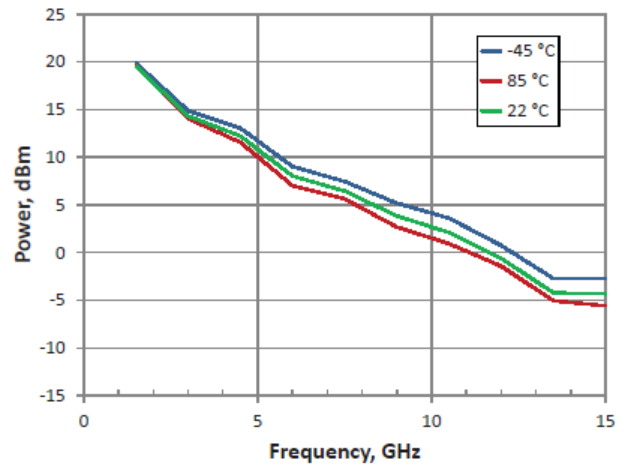
Harmonic Output, 20 dBm Input Power



Harmonic Output, 22 dBm Input Power

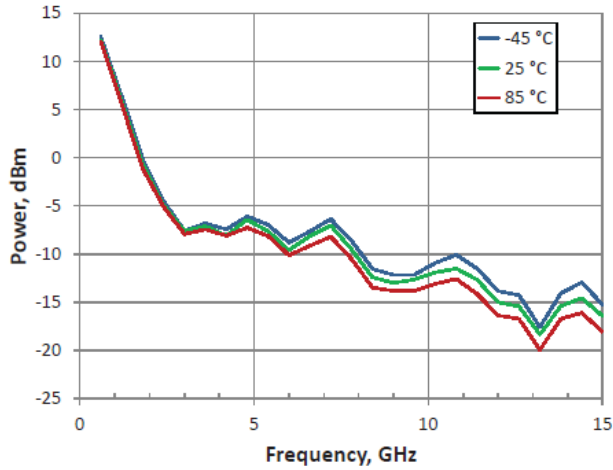


Harmonic Output, 24 dBm SMT580 Input Power

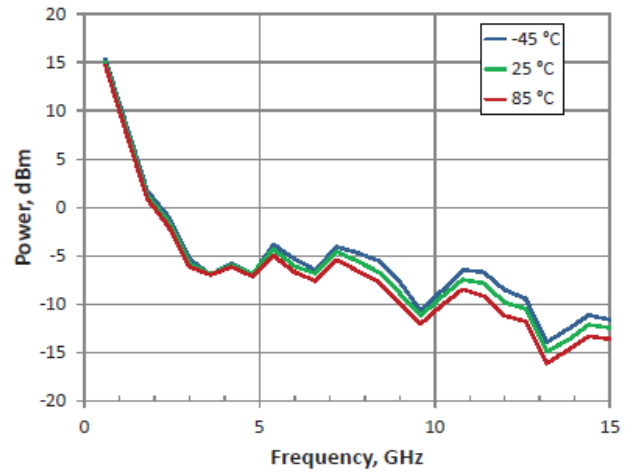


Typical Performance Curves @ +25°C using SMA800 package:

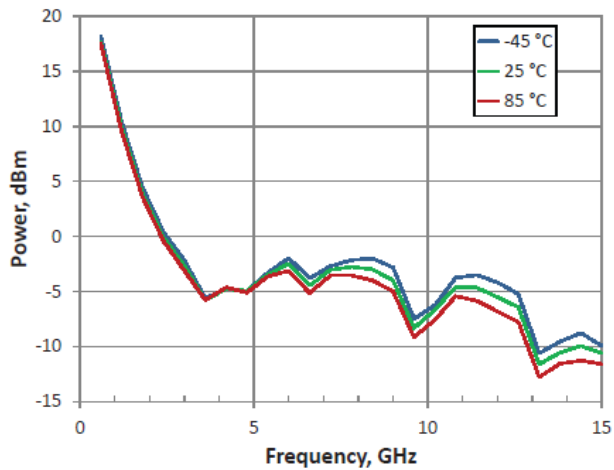
Harmonic Output, 600 MHz Input Frequency



Harmonic Output, 1000 MHz Input Frequency

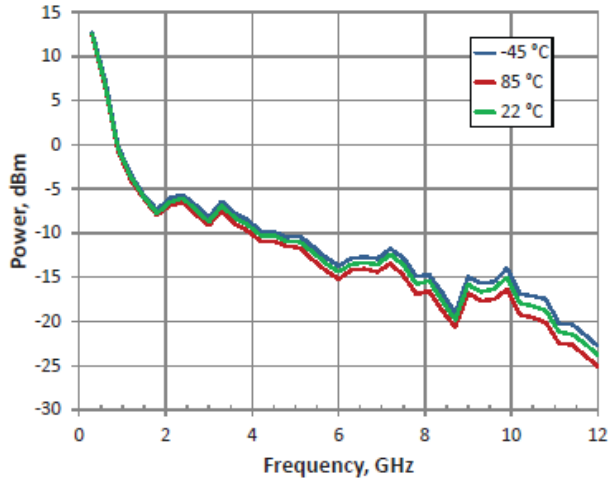


Harmonic Output, 1500 MHz Input Frequency

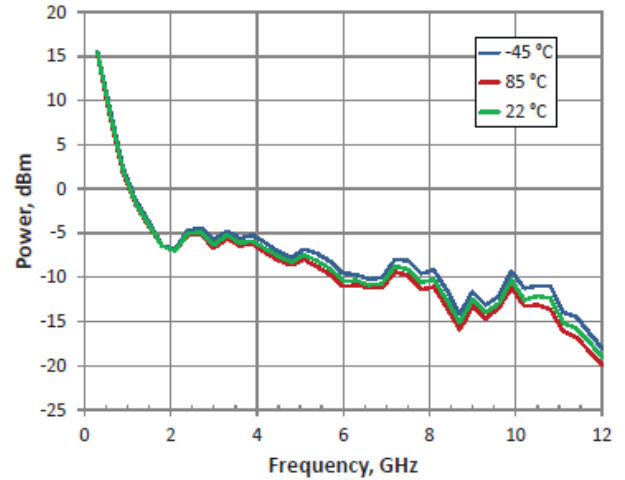


Typical Performance Curves @ 600 MHz over temperature using SMA800 package:

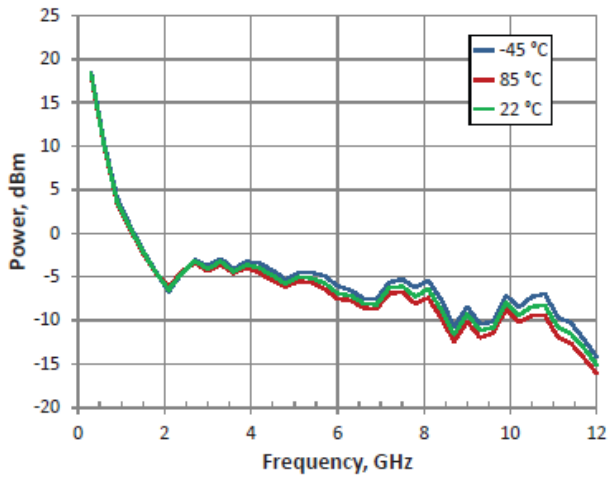
Harmonic Output, 18 dBm Input Power



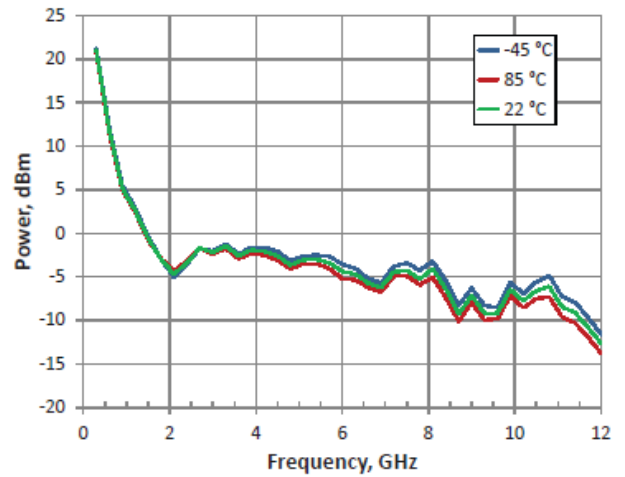
Harmonic Output, 20 dBm Input Power



Harmonic Output, 22 dBm Input Power

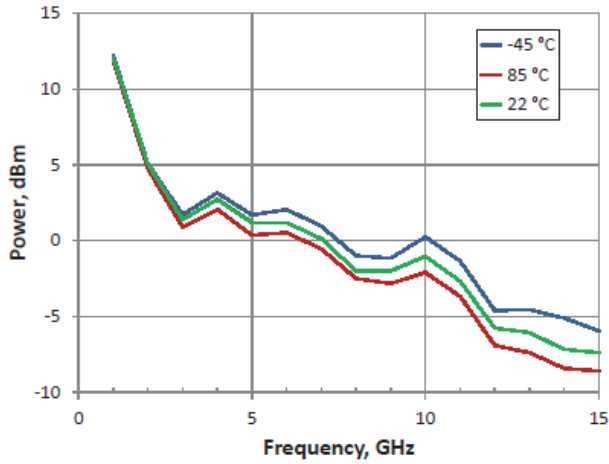


Harmonic Output, 24 dBm Input Power

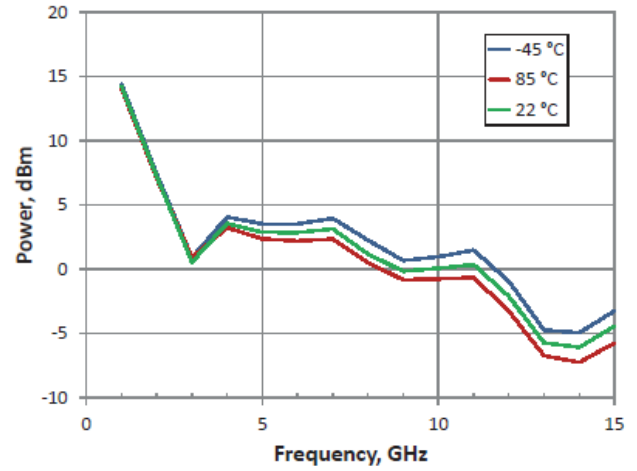


Typical Performance Curves @ 1000 MHz over temperature using SMA800 package:

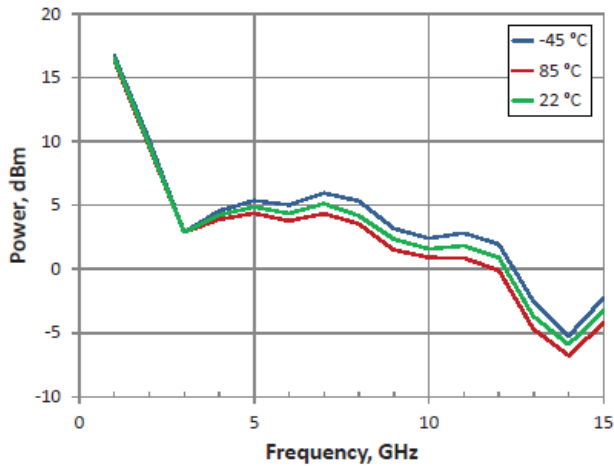
Harmonic Output, 18 dBm Input Power



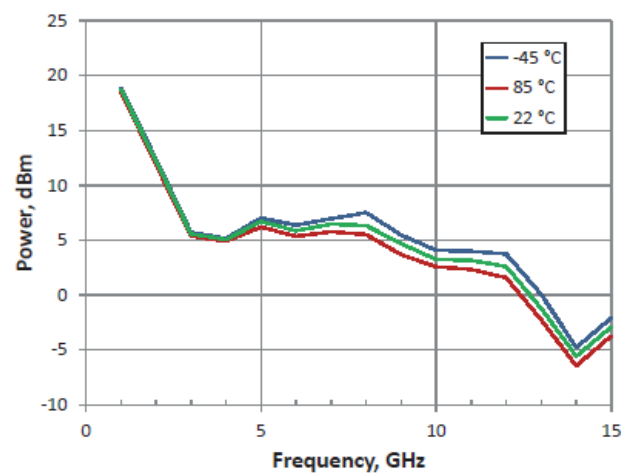
Harmonic Output, 20 dBm Input Power



Harmonic Output, 22 dBm Input Power

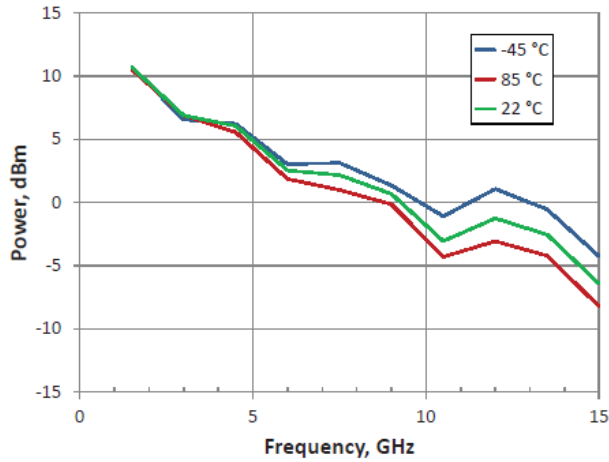


Harmonic Output, 24 dBm Input Power

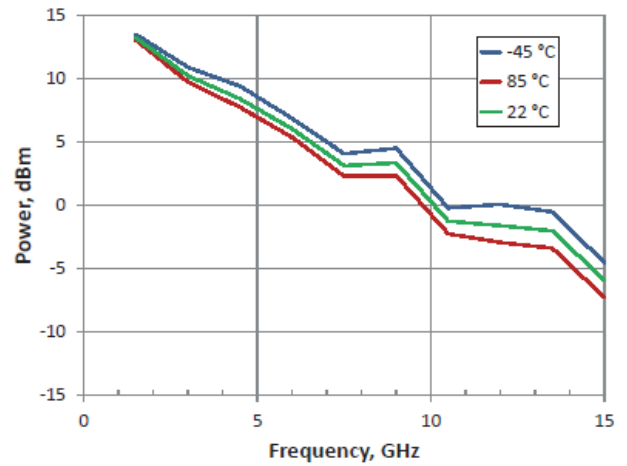


Typical Performance Curves @ 1500 MHz over temperature using SMA800 package:

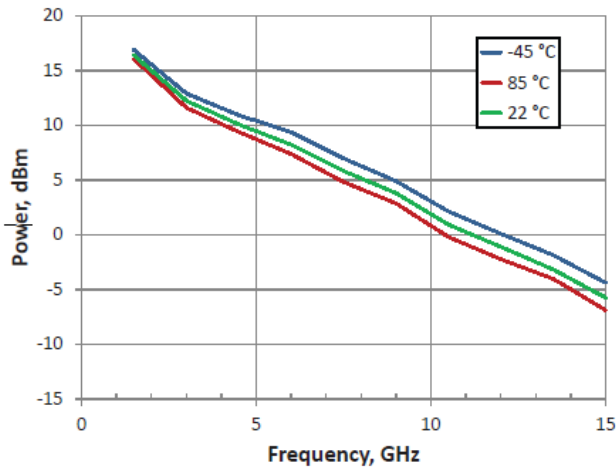
Harmonic Output, 18 dBm Input Power



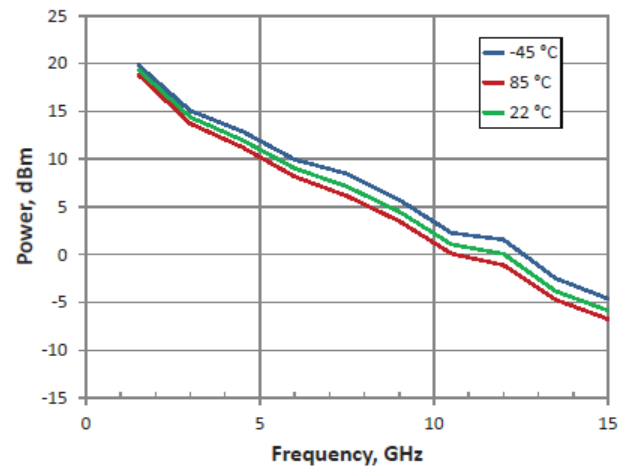
Harmonic Output, 20 dBm Input Power



Harmonic Output, 22 dBm Input Power



Harmonic Output, 24 dBm Input Power



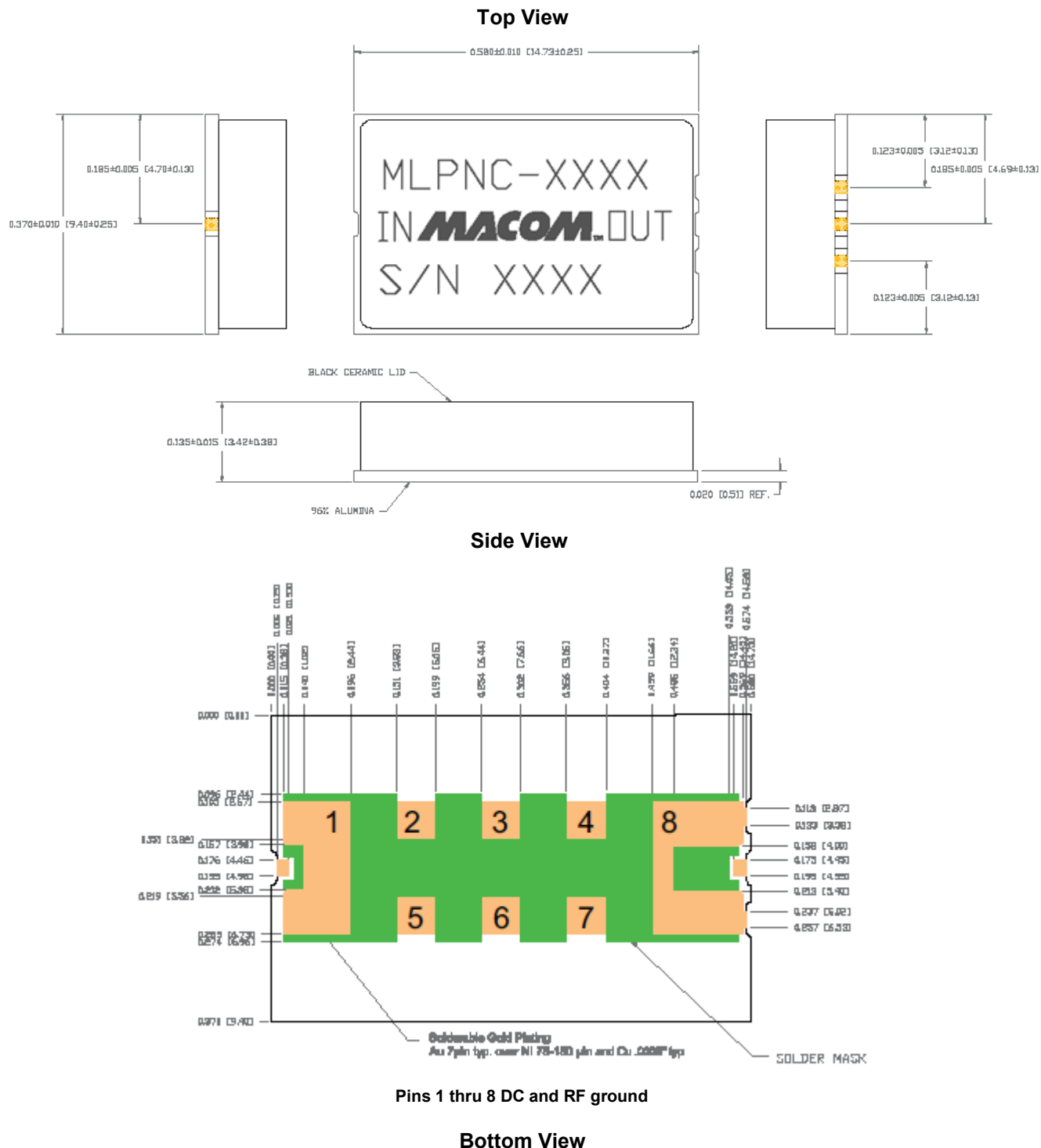
MLPNC-7103S1



NLTL Comb Generator

Rev. V1

Outline: SMT580



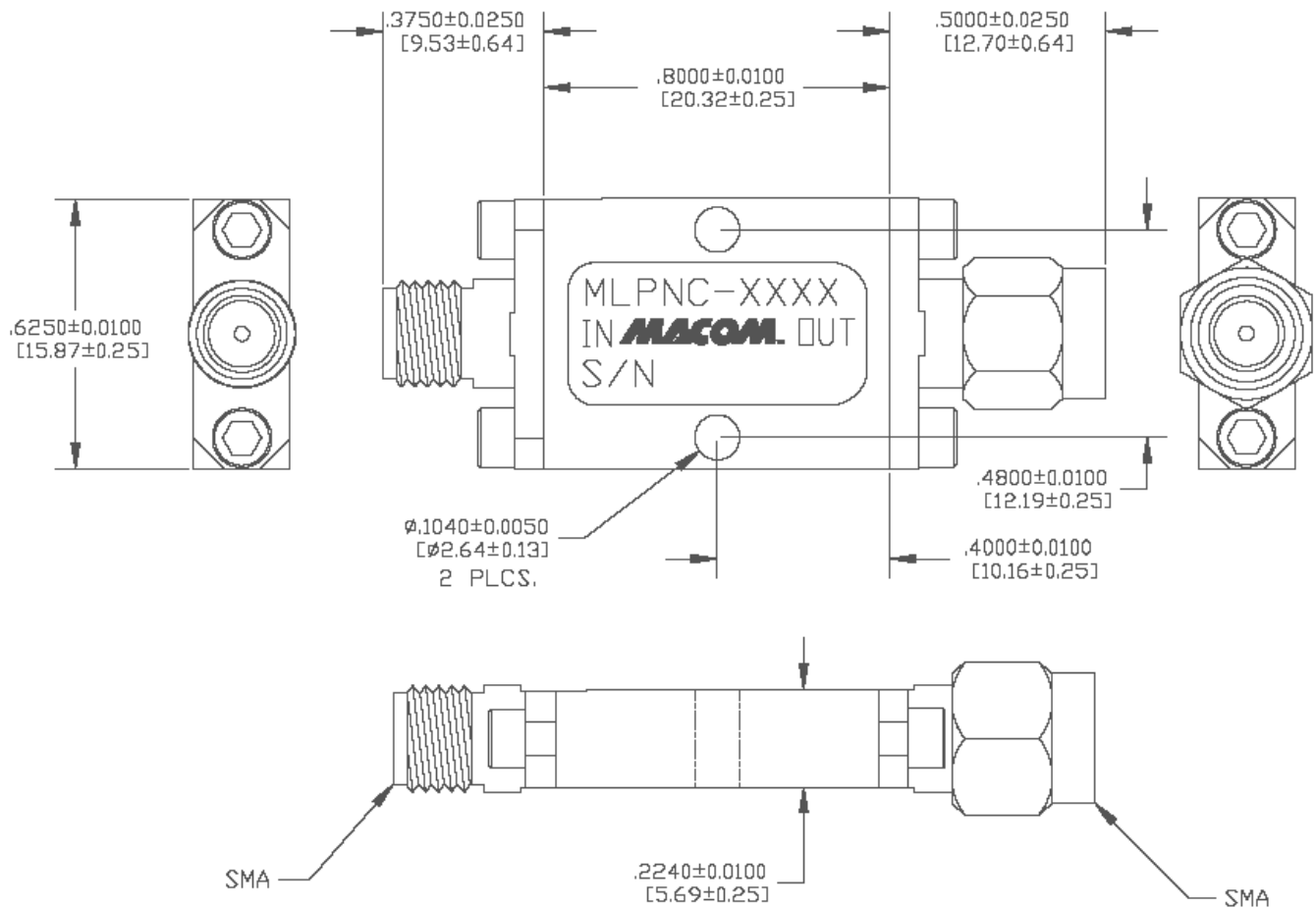
MLPNC-7103S1



NLTL Comb Generator

Rev. V1

Outline: SMA800, hermetic



Dimensions in inches [mm]

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