

**Features:**

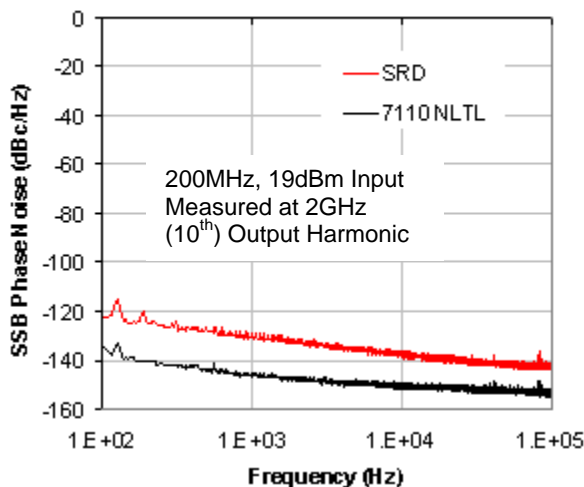
- Ultra-Low Phase Noise, **Measures 15-20 dBc/Hz Better than SRD Based Comb Generators**
- Variable Input Frequency from 100 MHz to 400 MHz
- Variable Input Power from 20 dBm to 24 dBm
- Output Harmonics to 20 GHz
- Surface Mount and Coaxial Packaging



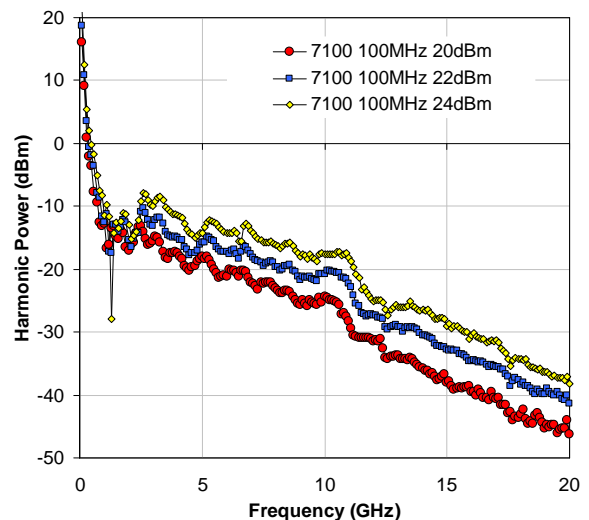
Picosecond Pulse Labs' **Low Phase Noise (LPN) Model 7100** is a high performance, flexible comb generator that works over a range of input frequency and power. **The LPN 7100 is based on monolithic Non-Linear-Transmission-Line (NLTL) circuit technology.** The Model 7100's banner spec is its outstanding phase noise performance, and it is available in coaxial and surface mount packages.

Operating Parameters				
Parameter	Recommended Input			Comments:
	Min	Typical	Max	
Frequency	100 MHz	250 MHz	400 MHz	The Model 7100 does not abruptly stop working at the recommended min and max frequencies. The conversion efficiency drops outside of this recommended range and near the edges of the ranges.
Power (dBm)	20 dBm	22 dBm	24 dBm	

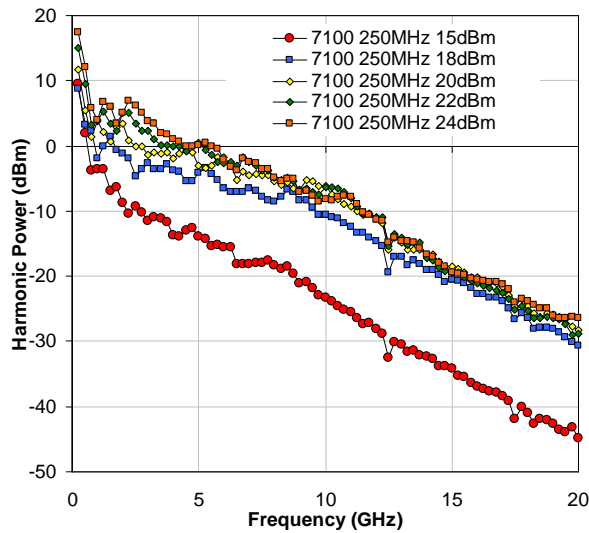
**Typical Performance Data**



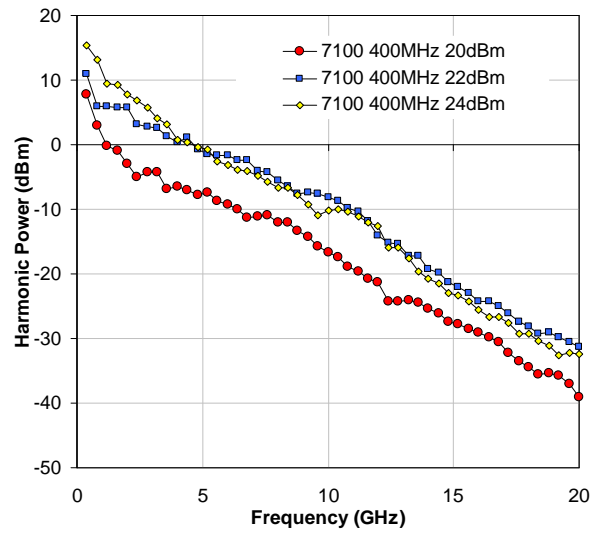
**Figure 1.** Model 7110 NLTL and commercial SRD comb generator residual phase noise comparison. The NLTL comb generator shows 15-20 dBc/Hz lower residual phase noise.



**Figure 2.** Typical Model 7100 comb generator harmonic output at various input powers with 100 MHz input



**Figure 3.** LPN Model 7100 comb generator typical harmonic output at various input powers with 250 MHz input.  
**Note:** Data is also shown at 15 dBm and 18 dBm for 250 MHz input since 250 MHz is near the center of operating frequency range.



**Figure 4.** LPN Model 7100 comb generator typical harmonic output at various input powers with 400 MHz input

Tested Performance Limits						
Input	Output Harmonics					Comments:
	@ 4 GHz	@ 8 GHz	@ 12 GHz	@ 16 GHz	@ 20 GHz	
250 MHz 22 dBm	> -8 dBm	> -13 dBm	> -18 dBm	> -28 dBm	> -35 dBm	These are the harmonic output test limits used for production screening. Testing is at room temperature.
Environmental Specifications						
Package Type	Operating and Storage Temperature		Comments:			
	Min	Max				
Coaxial Package	0°C	+70°C	A higher temperature range coaxial part is under investigation and being considered.			
SMT Package	-40°C*	+85°C*	*These are preliminary limits subject to verification.			

**Note:** LPN Comb Generator Parts are AC coupled and self-biased (applies to all package types).

### Ordering Information

Model Number	Connector Configuration *
7100-110	Input: SMA jack; Output: SMA plug
7100-SMT	Surface Mount Technology (SMT) package

Other connector configurations and package types may be available on request.

**Warranty:** One year. See Terms and Conditions of Sale for details.

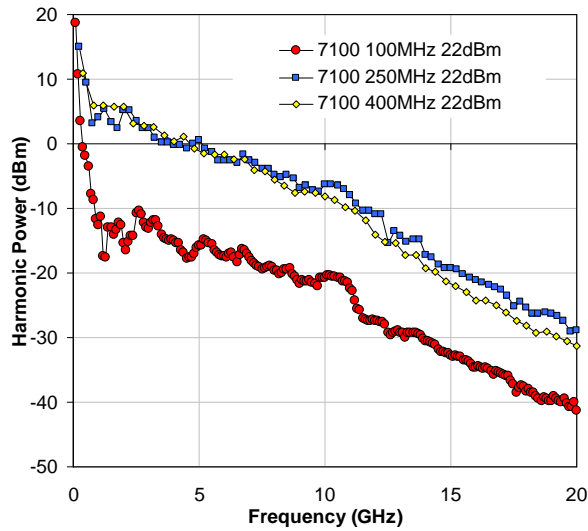


Figure 5. Typical Model 7100 comb generator harmonic output at various input frequencies with 22dBm input

### Package Outlines and Dimensions

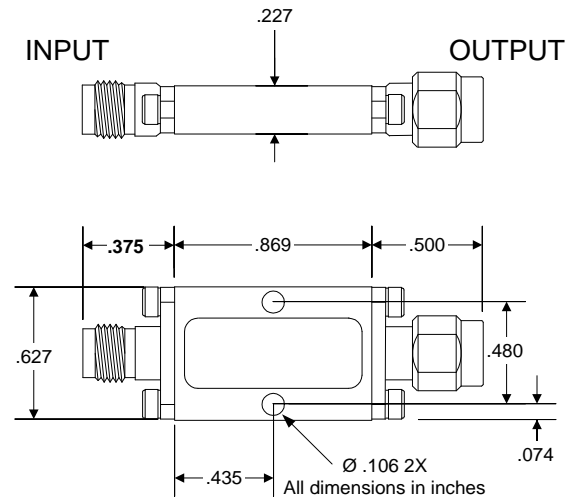


Figure 6. Coaxial package mechanical dimensions. Input and output are labeled on the coaxial package.

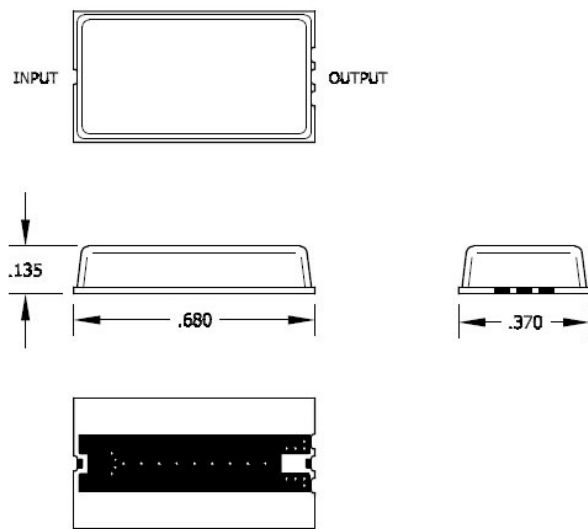


Figure 7. SMT package mechanical dimensions.

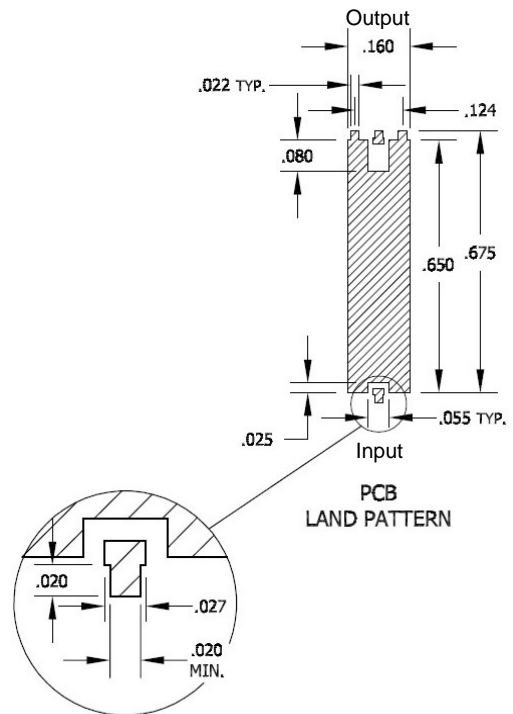


Figure 8. Recommended PCB Land Pattern for SMT Part.

**SMT Package Note:** Internal construction of the 7100-SMT comb generator utilizes high temperature solder. Lead/tin solder is recommended for PCB attachment with a maximum solder re-flow temperature of 210°C.