

# INTELLIGENT INTERACTIVE SYNTHESIZER

## SURFACE MOUNT MODEL: LFSFN200400-100

**WIDE BANDWIDTH**

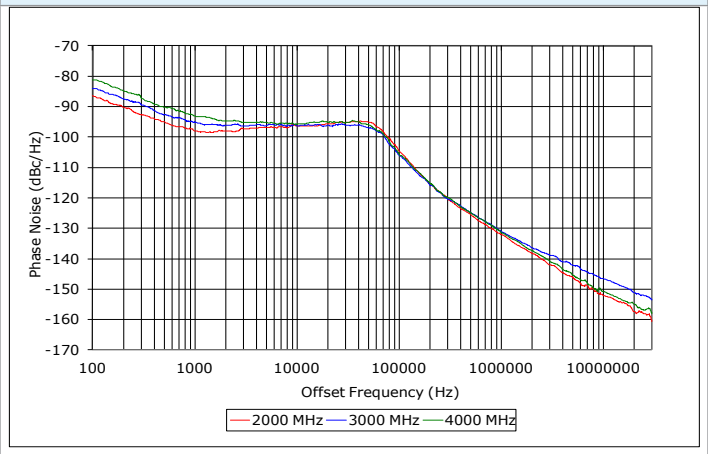
**2000 - 4000 MHz**

**FEATURES:**

- ▶ Exceptionally Low Phase Noise
- ▶ Interactive Communication
- ▶ Standard Programming Interface
- ▶ Ultra Wide Tuning Range
- ▶ Lead Free - RoHS Compliant
- ▶ Patented REL-PRO® Technology
- ▶ Small Size, Surface Mount
- ▶ Buffered Output



**Phase Noise**

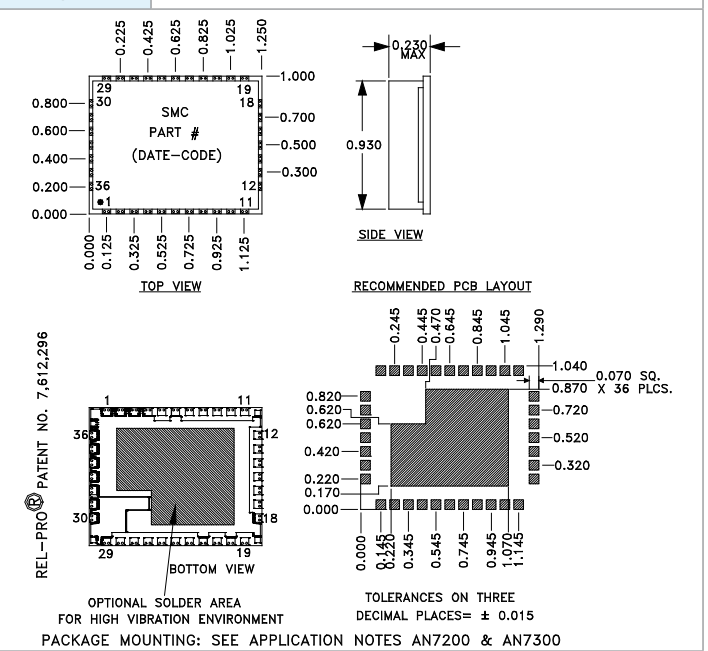


**SPECIFICATIONS**

Frequency	2000 - 4000 MHz		
Step Size	1000 kHz		
Reference Input Frequency	10 MHz <sup>1</sup>		
Reference Input Voltage	1.0 V p-p to 3.3 V p-p		
Bias Voltage	<b>Vcc</b>	<b>V (Vdc)</b>	<b>I (mA Max.)</b>
	Digital	+5	65
	VCO	+5	50
	Tune	+5	25
Output Power	+7 dBm (Min.)		
Spurious Suppression	70 dB (Min.)		
Harmonic Suppression	10 dB (Typ.)		
Settling Time	1 mSec (Typ.) <sup>2</sup>		
Output Impedance	50 Ohms (Nom.)		
Lock Detect Indicator	CMOS 3.3 V		
Typical Phase Noise	<b>Offset</b>	<b>Phase Noise</b>	
	@ 1 kHz	-95 dBc/Hz	
	@ 10 kHz	-95 dBc/Hz	
	@ 100 kHz	-105 dBc/Hz	
Operating Temperature Range	-40 to +85 °C		
Programming	See Application Note: AN7100		

<sup>1</sup> Contact factory for other reference frequency options  
<sup>2</sup> From the rising edge of LE to stable lock detect

**Package # 197LF**



**Absolute Maximum Ratings**

Storage Temp. Range	-55 to +125 °C
Bias Voltage (Digital)	+5.25 V
Bias Voltage (VCO)	+5.5 V
Bias Voltage (Tune)	+8.0 V
DC Voltage Applied to RF Out	±25 V

**Patent :** <http://www.synergymwave.com/patents>

**Port Configuration**

Pin 5 - RF out	Pin 21 - Ref. In	Pin 8,12,14,15,16,17 - NC
Pin 7 - Lock Detect Out *	Pin 23 - Vcc (Digital)	All Others - Ground
Pin 9 - Data In	Pin 24 - Vtune (Output)	
Pin 10 - Error Flag	Pin 25 - Vcc (VCO)	NC - No Connection
Pin 11 - Clock In	Pin 26 - Vout (Converter) ***	
Pin 13 - VCO (On/Off)****	Pin 27 - Vcc (Tune) ***	
Pin 19 - Latch Enable In	Pin 28 - Vcc (Converter)	

\* High when locked (source/sink 500 uA)  
 \*\*\* Connect externally. Bypassed with a 10uF 35V tantalum capacitor.  
 \*\*\*\* NC if unused.

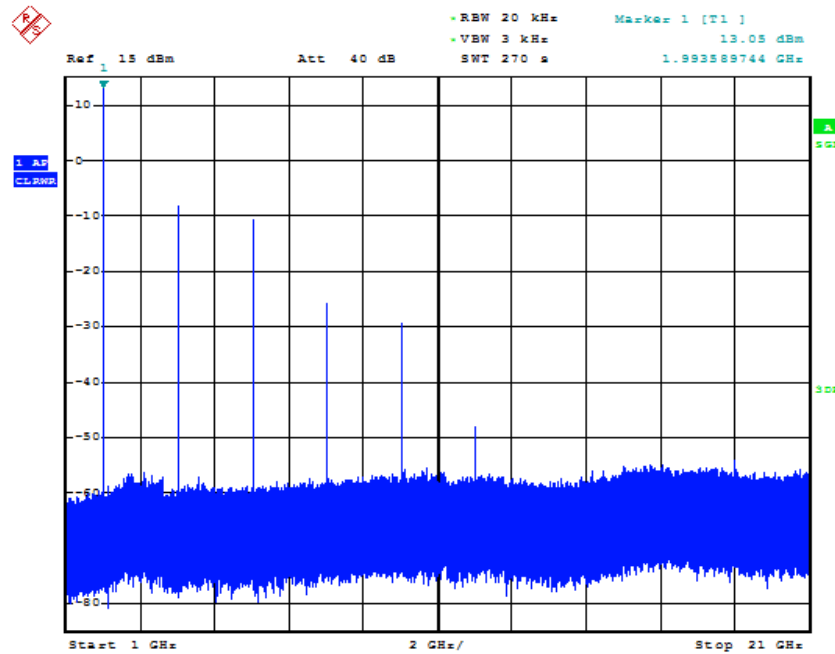
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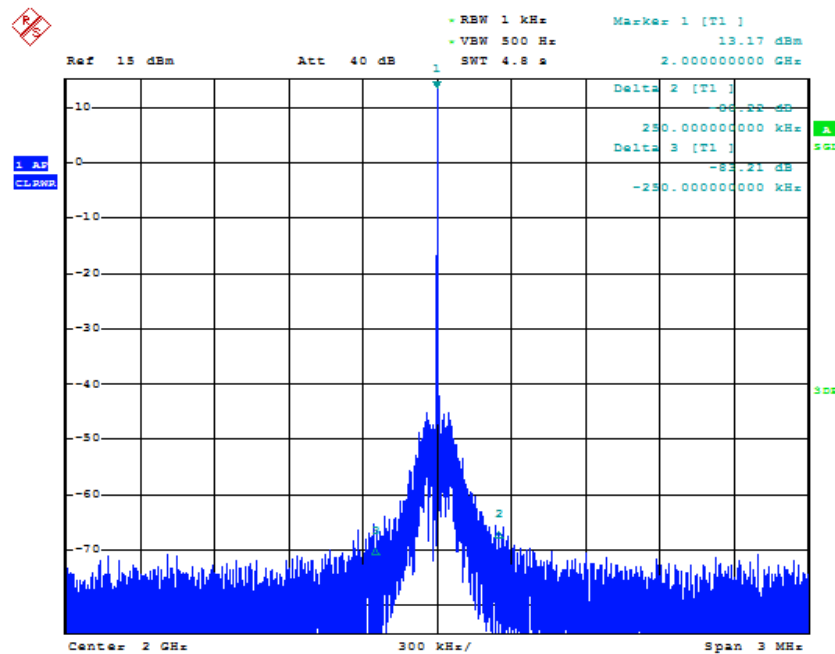
WIDE BANDWIDTH

2000 - 4000 MHz

HARMONIC SUPPRESSION



REFERENCE SIDEBAND SUPPRESSION



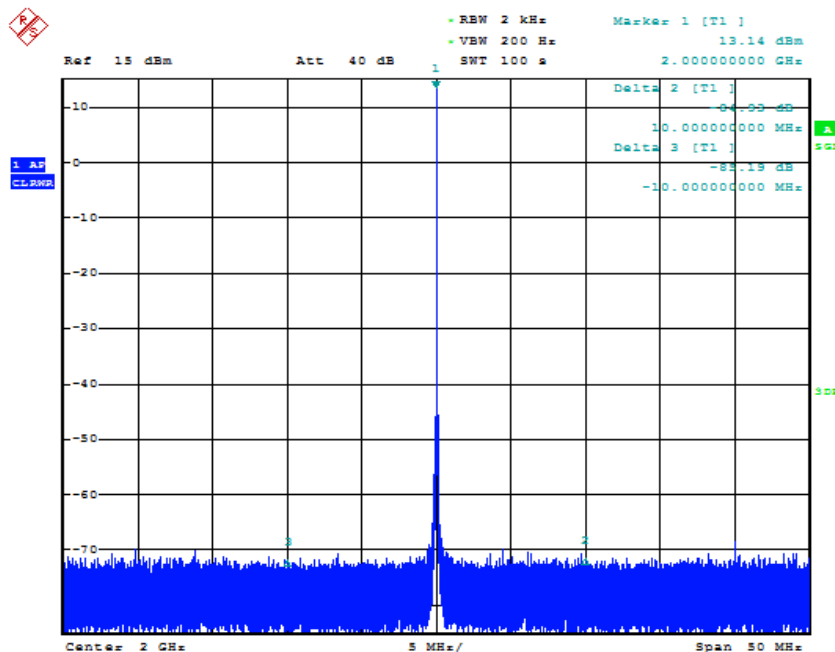
PERFORMANCE PLOTS

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WIDE BANDWIDTH

2000 - 4000 MHz

REFERENCE SIDEBAND SUPPRESSION



PERFORMANCE PLOTS

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201 McLean Boulevard • Paterson, New Jersey 07504 USA  
Tel: (973) 881-8800 • Fax: (973) 881-8361  
E-Mail: sales@synergymwave.com • Website: <http://www.synergymwave.com>



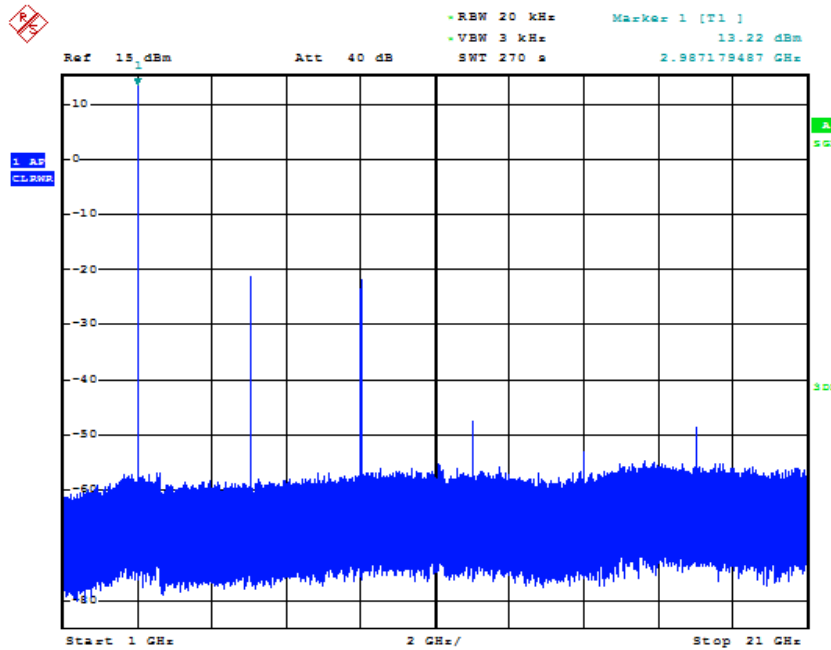
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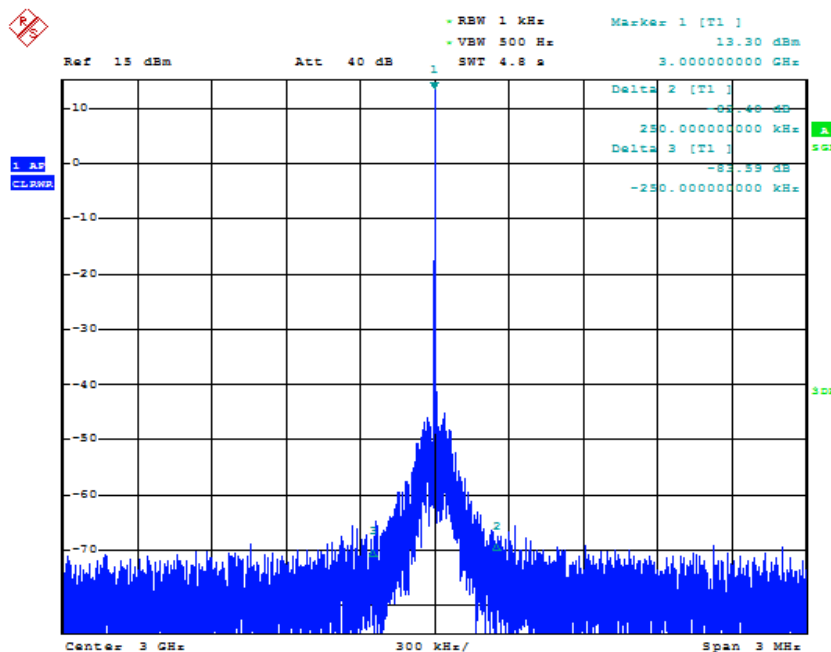
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HARMONIC SUPPRESSION



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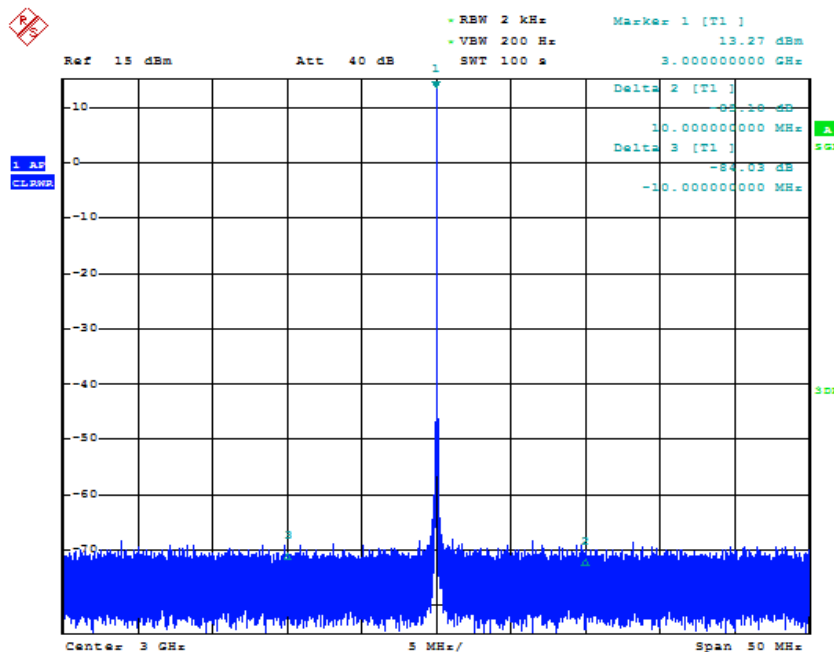
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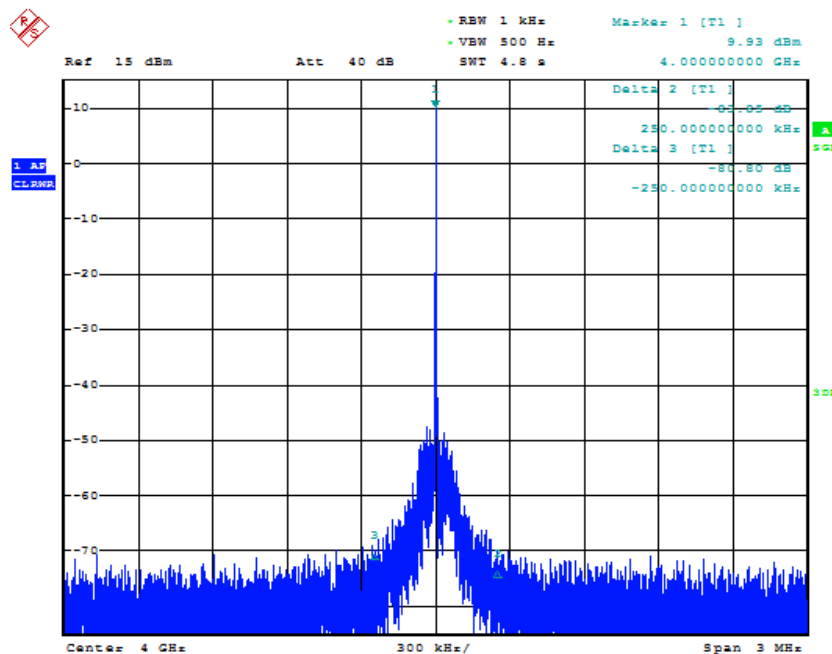
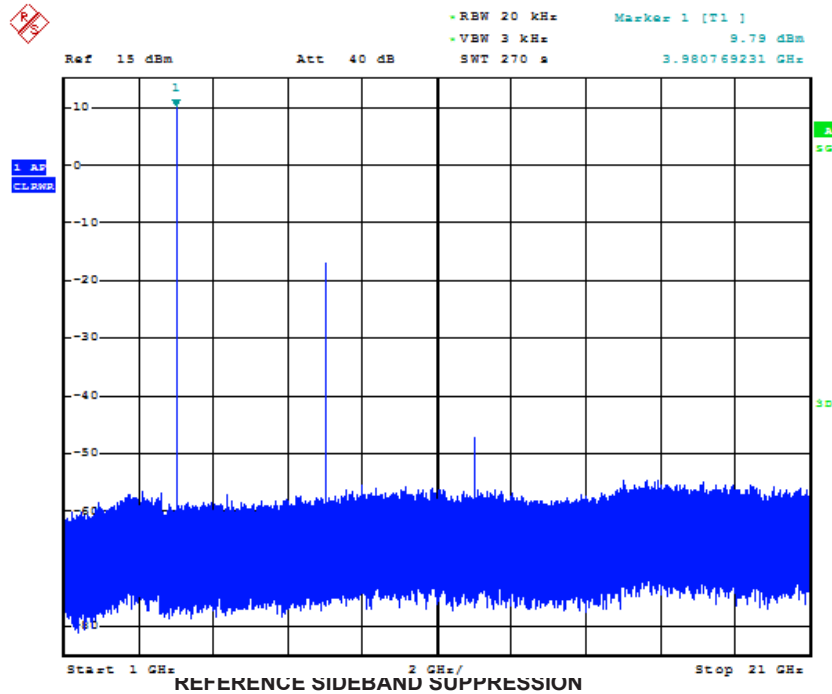
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### HARMONIC SUPPRESSION



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201 McLean Boulevard • Paterson, New Jersey 07504 USA

Tel: (973) 881-8800 • Fax: (973) 881-8361

E-Mail: sales@synergymicrowave.com • Website: <http://www.synergymicrowave.com>



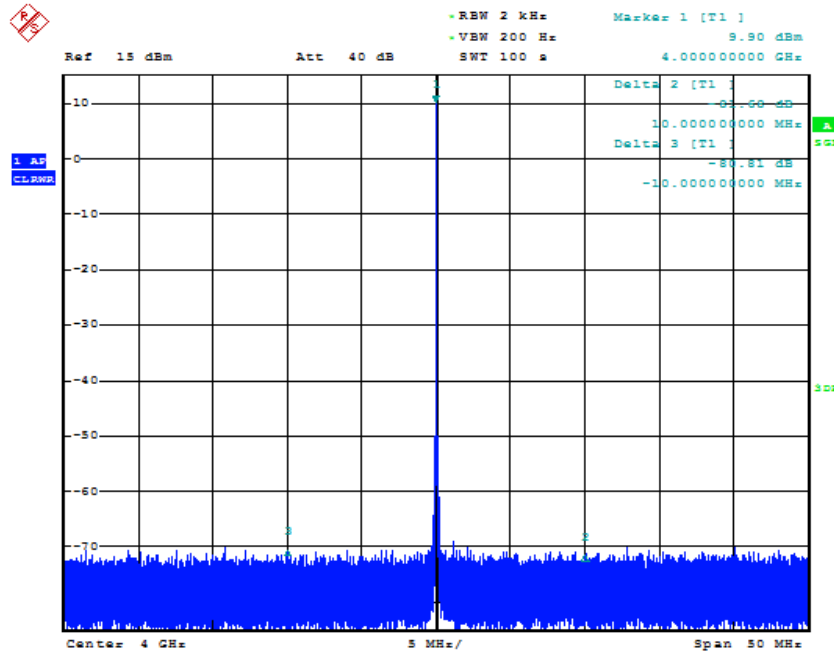
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