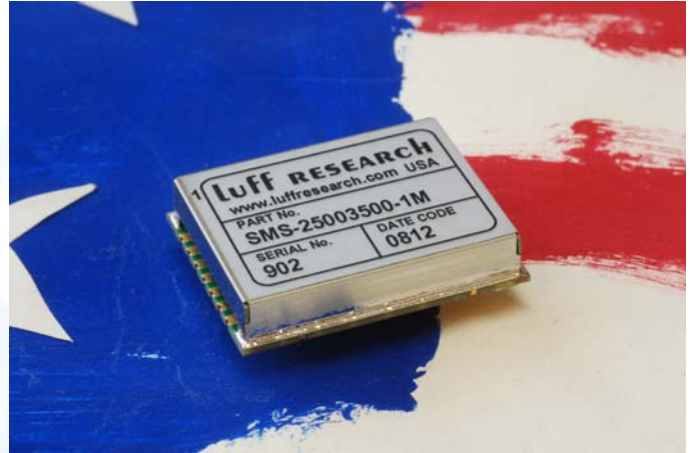


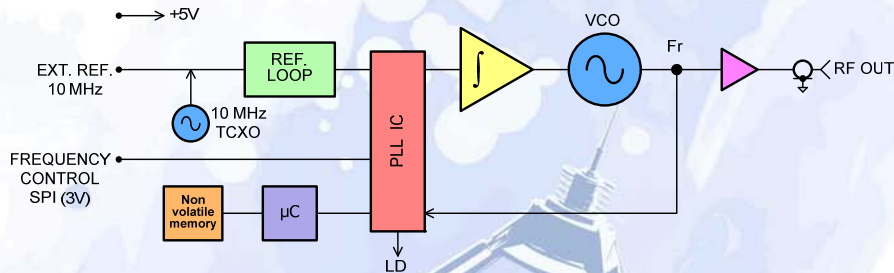
# NEW! SURFACE MOUNT FREQUENCY SYNTHESIZERS and FIXED FREQUENCY SOURCES TO 8 GHz

## Model SMS Features

- Frequency synthesizers up to 8 GHz (up to octave bands)
- Fixed frequency sources up to 8 GHz (no programming needed)
- Frequency reference
  - External 10 MHz or
  - Internal TCXO
- Single 5.0V operation
- Low phase noise & spurious
- Customized configurations



## Block Diagram



## Description

The new SMS surface mount frequency sources are aimed at integrated RF and microwave applications. The SMS design is a single PLL design that can be configured to be either programmable to step across a frequency range or as a fixed frequency source requiring no programming.

These units are very user friendly. They operate on either an external 10 MHz reference or on a high

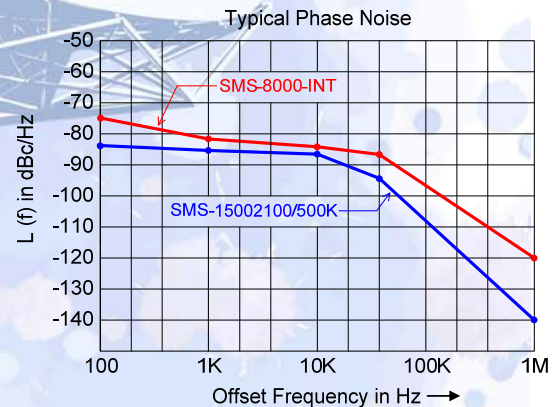
performance internal TCXO. In addition these units operate on only one single +5V supply.

The phase noise and spurious performance is excellent and with the output being buffered and filtered these units are a great addition to any system requiring a miniature frequency source.

The design is robust and in quantity is configured for reflow applications.

## SMS Key Specifications

Frequency range:	to 8 GHz
Frequency band:	up to an octave
Frequency Steps (typ.):	1 MHz
Spurious (max.):	-60 dBc
Harmonics (max.):	-20 dBc
Output Power (typ.):	+13 dBm
Frequency Control	
Synthesizer:	SPI (3V)
Fixed Freq. source:	None needed
Switching speed (typ.):	1 msec.
Frequency reference:	
External:	10 MHz
Internal:	±0.5 PPM (-10°C to +70°C)
Power Requirements:	+5.0 Vdc @ 200 mA
Size:	1.25" x 1.00" x 0.25"



## Luff Research

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# **NEW!** SURFACE MOUNT FREQUENCY SYNTHESIZERS and FIXED FREQUENCY SOURCES TO 8 GHz

## ● **SMS Ordering Information**

1. Frequency synthesizer defined by a part number structured as the follows:

SMSxxxxyyyy-zzz

xxxx = start frequency in MHz

yyyy = end frequency in MHz

zzz = 10 for 10 MHz external input ref. freq. or

zzz = INT for internal ref. freq.

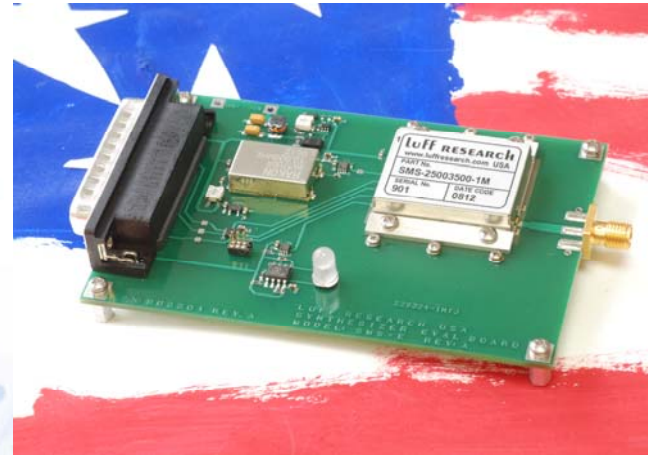
2. Fixed frequency source defined by a part number structured as the follows:

SMSxxxx-zzz

xxxx = output frequency in MHz

zzz = 10 for 10 MHz external input ref. freq. or

zzz = INT for internal ref. freq.



## ● **Model SMS-E Evaluation Board**

The evaluation board comes with the desired SMS module mechanically attached so that it can be easily removed after it has been evaluated or tested. This evaluation board is intended to be used as a test fixture for the SMS modules.

For frequency control, the evaluation board has a SPI (5V) input to control the SMS synthesizer module. The SMS fixed frequency sources do not need programming.

For test purposes the evaluation board can be driven from the parallel printer port of a PC or a USB port. For the USB interface a USB to parallel convert module is required. This converter module is available from Analog Devices (p/n: EVAL-ADF4XXXZ-USB) and can be ordered from Digi-Key or Avnet Express. We can also supply this converter as an integral part of the evaluation board.

To order, please specify the evaluation board needed and the desired SMS module required.

For SPI or Parallel printer port input – P/N: SMS-E and SMSxxxxyyyy-zzz or

For USB input – P/N: SMS-E-USB and SMSxxxxyyyy-zzz.

## **luff RESEARCH**

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## FREQUENCY SYNTHESIZER SPECIFICATIONS

### Output Frequency

Output Frequency Range:	5.4 - 6.2 GHz		
Frequency step size:	2.5 MHz		
Frequency stability and accuracy			
<input checked="" type="checkbox"/> External reference unit	Same as input		
<input type="checkbox"/> Internal reference unit	±1 PPM (over temp range)		
Aging (After 2 months):	±1 PPM max per year @ 25°C		
Adjustability (typ.): (Option 1)	10 years		
Phase noise in dBc/Hz:			
	Typ.	Max.	
L(100 Hz)	-75		
L(1 kHz)	-85		
L(10 kHz)	-90		
L(100 kHz)	-100		
L(1 MHz)	-130		
L(10 MHz)	-150		
Spurious (max.):	-60 dBc		
Harmonics (typ.):	-20 dBc		
Power out (min.) @ 25°C:	+13 dBm		
Power variation (freq. & temp.) (max.):	±3 dB		
Load VSWR (max.):	2:1		

### Reference Frequency

Input reference frequency:	10 MHz
Input level:	0 dBm ±3 dB

### Frequency Tuning / Alarm

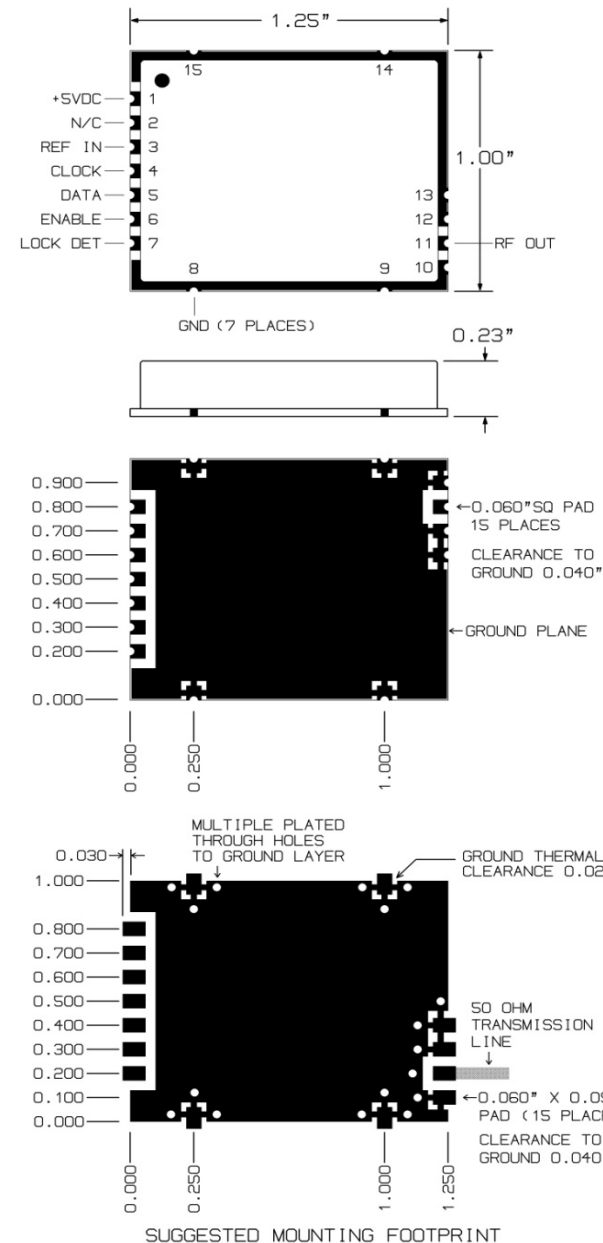
Frequency control:	SPI (3V)		
Acquisition time (max.):	0.5 msec		
Phase-lock indicator (LD), High = lock:	<input checked="" type="checkbox"/> CMOS 3V	<input type="checkbox"/> TTL	

### DC Power

+5.0 Vdc (min.) +5.2 Vdc (max.)	200 mA
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### Environment

Operating temperature range (surface):	-10°C to 70°C
Storage temperature range:	-40°C to 85°C
Relative humidity (non-condensing):	90%RH @ 40°
Shock:	30 G / 10msec
Vibration:	4 G / 20 Hz - 20 kHz



<b>luff RESEARCH, INC.</b>	
FLORAL PARK, NY	
PHONE: (516) 358-2880 FAX: (516) 358-2757	
PRODUCT DATA SHEET	
SURFACE MOUNT FIXED FREQUENCY SOURCE	
Model: SMS-54006200-2.5M	07/08/15