

**SMS-DA**  
**Direct Analog Synthesizer**  
Rev. A

**FEATURES**

- Direct Synthesizer with DDS Baseband
- 250 MHz to 4 GHz Output Bandwidth
- 0.1 Hz Resolution
- Small Package: 6.5"x9.5"x2.3"
- Fast Switching Speed < 300 nS
- Very Low Phase Noise

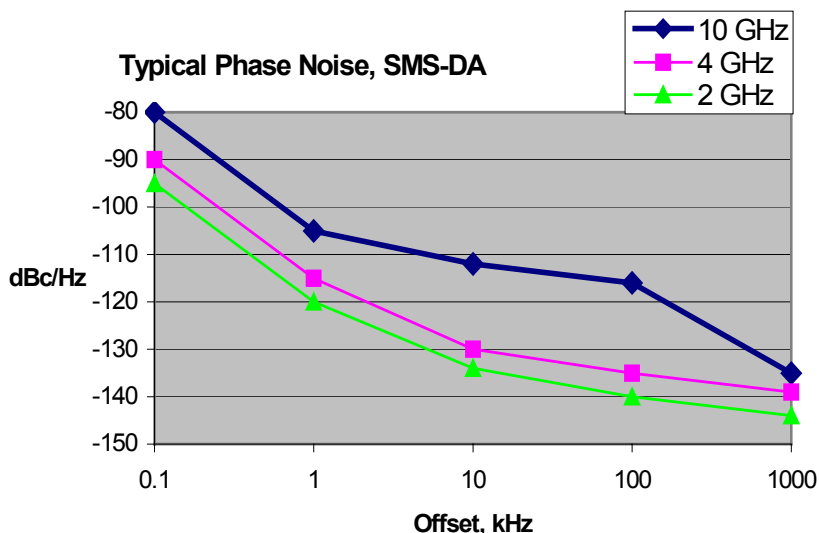
**APPLICATIONS**

- EW / SIGINT
- Radar Test Equipment
- Microwave Radio
- Instrumentation Module



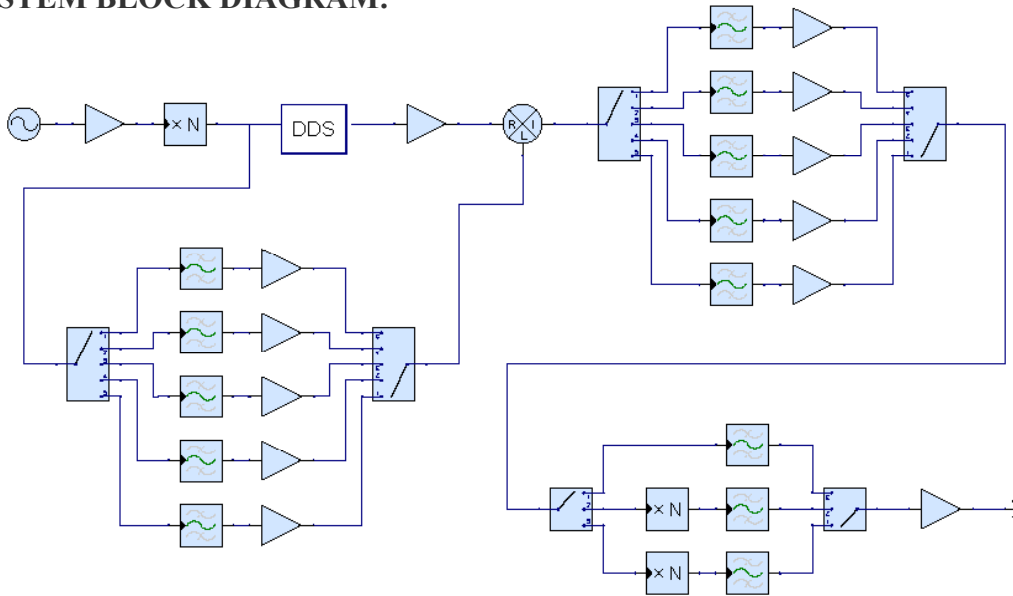
**DESCRIPTION**

The SMS-DA Direct Analog Frequency Synthesizer offers the best phase noise, spectral purity and switching speed for the most demanding applications. It utilizes the classic 'mix-up and divide' approach to generate a base-band signal with 100 MHz of bandwidth. Frequency translators and multipliers then expand the base signal to cover the spectrum required by the customer. A Direct Digital Synthesizer (DDS) provides fine frequency resolution, and can be 'phase corrected' to provide phase coherent operation. Programming complexity is minimized by an internal FPGA, which performs all mathematical calculations required to set the DDS frequency, update phase, and switch bands. A lightweight aluminum housing provides a rugged enclosure and minimizes EMI susceptibility.

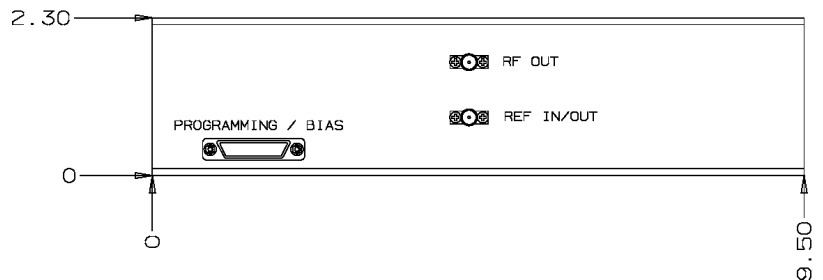
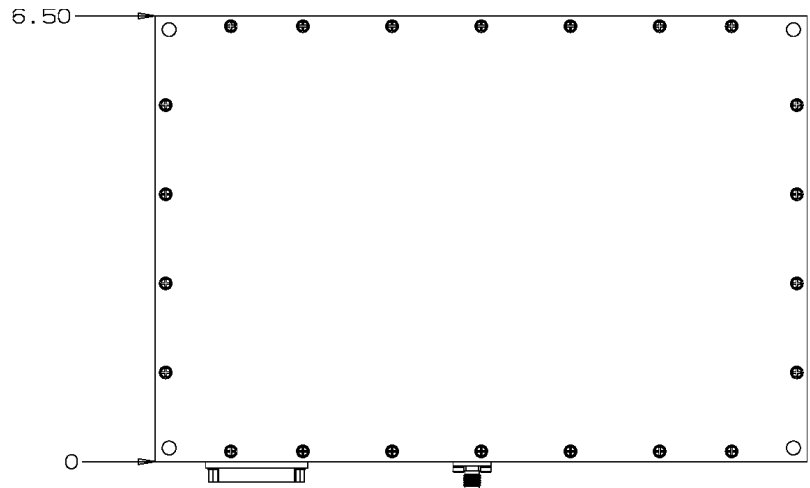


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**SYSTEM BLOCK DIAGRAM:**



**PACKAGE OUTLINE:**



## PERFORMANCE SPECIFICATIONS \*

PARAMETER	VALUE	OPTIONS
Frequency Range	250 MHz - 4 GHz	Up to 26 GHz
Bandwidth	Up to 25% for higher frequency up-conversion	
Step Size	0.1 Hz	
Tuning Speed	< 300 nS, all bands	
Output Power	+ 10 dBm	+ 20 dBm
Power Variation	+/- 2 dB	
Harmonics	-20 dBc	-40 dBc
Spurious	-60 dBc	-70 dBc
Phase Noise (typical @ 10 GHz)	(see plot)	
1 kHz	-95 dBc/Hz	
10 kHz	-100 dBc/Hz	
100 kHz	-100 dBc/Hz	
1 MHz	-125 dBc/Hz	
Frequency Accuracy	0.1 PPM, Internal	
Reference Frequency	100 MHz Internal / External	
Input Reference Power	-3 to +3 dBm	
Programming (LVTTTL)	Parallel N-bit, w/ Lock Det	Serial, RS-232
Supply Voltage	+5 VDC, 1000 mA +15 VDC, 500 mA - 5 VDC, 250 mA	
Environmental		
Vibration	(as required)	
Shock	(as required)	
Operating Temp	-20 to +75 deg. C	-40 to +85 deg. C
Physical	6.5" x 9.5" x 2.3", SMA(F) Micro-D 37 pin connector	Custom Package

\* Other configurations available, consult factory



Certificate # A2498US