

SMS-DU Direct Digital Up-Convert Synthesizer

FEATURES

- Synthesizer with DDS Capabilities up to 26 GHz
- Up to 10% DDS Bandwidth for FM Chirp or I/Q Modulation
- Up to 25% Synthesizer Bandwidth
- Very Low Phase Noise
- Phase Adjustable Output

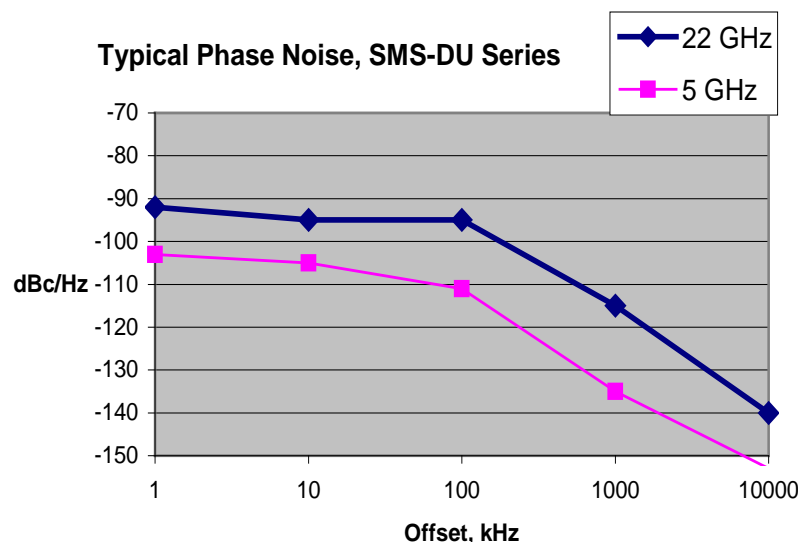
APPLICATIONS

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



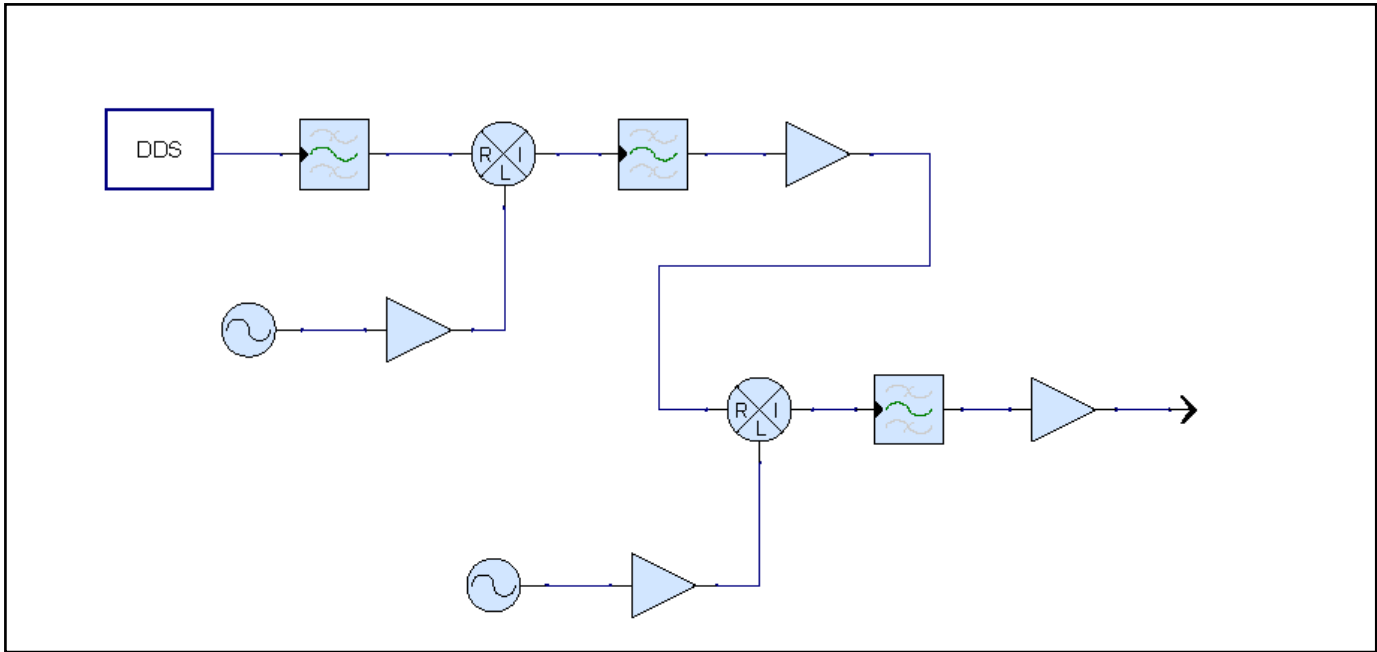
DESCRIPTION

The SMS-DU Series Frequency Synthesizer combines a Direct Digital Synthesizer (DDS), low noise integer synthesizer, and a multi-stage up-converter to yield DDS bandwidth for high speed communication or radar signal generation up to 26 GHz. For outputs up through S-band, one mix-up stage is used, while 2 or 3 stages may be used for higher frequencies. All DDS and internal LO frequencies are planned to produce the best possible spurious and bandwidth performance. Programming complexity is minimized by an internal FPGA, which performs all mathematical calculations required to set the DDS frequency, switch bands, and program the integer loop synthesizers. A lightweight aluminum housing provides a rugged enclosure and minimizes EMI susceptibility.

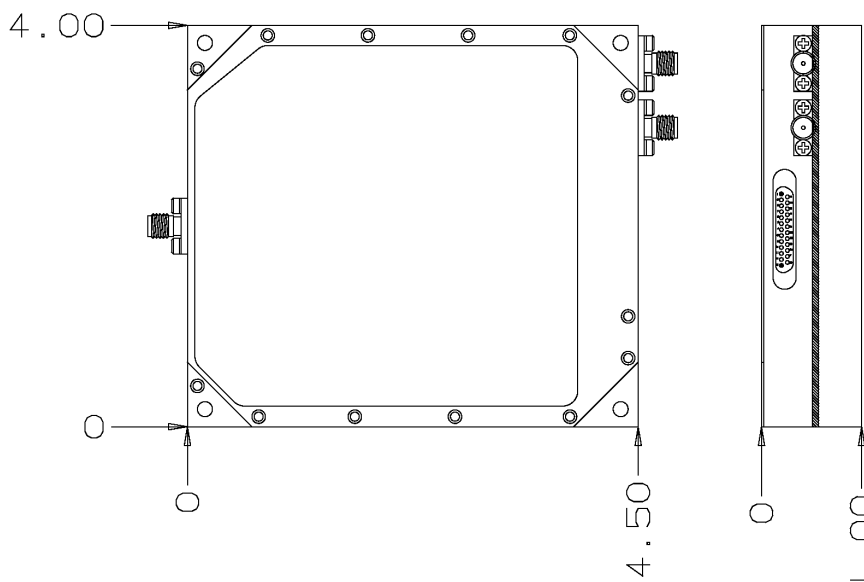


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SYSTEM BLOCK DIAGRAM:



PACKAGE OUTLINE:



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PERFORMANCE SPECIFICATIONS *

PARAMETER	VALUE	OPTIONS
Frequency Range	1 – 26 GHz	
Bandwidth	Up to 10% DDS Up to 25% Synthesizer	
Step Size	1 Hz	
Tuning Speed	< 200 ns DDS, < 100 uS Synthesizer	< 50 uS
Output Power	+ 10 dBm	+ 20 dBm
Power Variation	+/- 2 dB	
Harmonics	-20 dBc	-40 dBc
Spurious	-55 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	Same as Reference	
Input Reference Frequency	50 MHz - 2 GHz	Internal Reference
Input Reference Power	-3 to +3 dBm	
Programming (LVTTTL)	Parallel N-bit, w/ Lock Det	Serial, RS-232
Supply Voltage	+5 VDC, 800 mA +15 VDC, 250 mA -5 VDC, 150 mA	
Environmental		
Vibration	(as required)	
Shock	(as required)	
Operating Temp	-40 to +85 deg. C	
Physical	4.0" x 4.5" x 1.0", SMA(F) Micro-D 25/50 pin connector	Custom Package

* Other configurations available, consult factory



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Certificate # A2498US