

Ku- AND L-BAND DUAL OUTPUT SYNTHESIZER

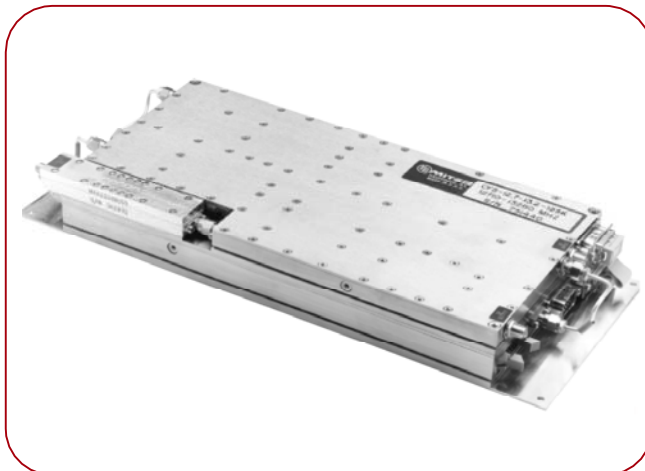
CFS SERIES: 12.97 – 13.75 GHz

FEATURES

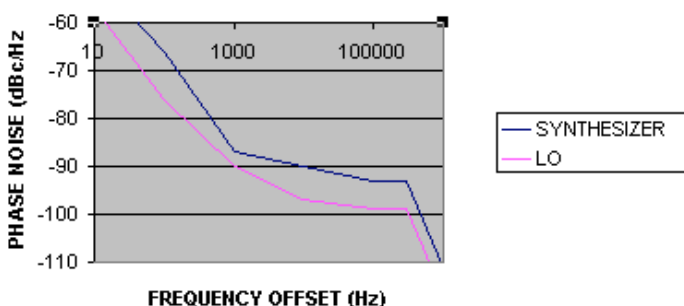
- For use in dual conversion
Up and Downconverters
Tunable Ku-band
Fixed frequency L-band
- 125 kHz step size
- Low-profile construction
- Better than INTELSAT phase noise
- High reliability design
- Serial frequency control
- Lock alarm/tuning voltage test point
- Synthesized RF signal output test point level

OPTIONS

- Optional fixed LO frequencies
- Higher output power
- Custom step sizes
- Custom packaging



TYPICAL PHASE NOISE



MITEQ's CFS series of low phase noise synthesizers offer a low price alternative for Ku-band INTELSAT satellite communications applications. In addition to the 125 kHz step size output at Ku band, the CFS series provides a standard second output at L-band, used as the second conversion LO for dual conversion up and down converters. With +13 dBm output power and 70 dBc spurious suppression, the CFS series will support the most stringent system applications.

MECHANICAL SPECIFICATIONS

Outline drawing	136283
Size	5.50" x 12.35" x 1.44"
Weight.....	3.25 pounds typical
RF connectors	SMA female
DC power Connectors.....	DEM 9P
Control Connectors	20-pin header

ENVIRONMENTAL SPECIFICATIONS

Temperature	
Operating	0 to +60°C
Storage.....	-55 to +95°C
Humidity	Up to 95% at 40°C noncondensing
Shock (nonoperational).....	30 Gs, 10 ms pulse
Vibration (survival).....	20 to 2000 Hz random to .04 G ² /Hz
Altitude.....	Up to 13,500 feet
100% testing	Frequency range Output power Discrete power Spectral purity Phase bursts Alarm and monitors
100% screening	Temperature cycle/monitor

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ELECTRICAL SPECIFICATIONS

Output frequency range (Note 1)	Tunable	Fixed LO
	12.97-13.75 GHz	1150 MHz 1080 MHz
Step size	125 kHz	
Output power	+13 dBm minimum	+13 ±2 dBm
Output power variation	±1.5 dB maximum	
Input reference frequency	5 or 10 MHz	
Input power level	0 ±3 dBm	
Spurious outputs		
In-band	-70 dBc minimum	-80 dBc minimum
Out-of-band	-60 dBc minimum	-60 dBc minimum
Phase noise	See graph	
Offset from carrier		
10 Hz	-62 dBc	-68 dBc
100 Hz	-75 dBc	-87 dBc
1 kHz	-85 dBc	-95 dBc
10 kHz	-89 dBc	-95 dBc
100 kHz	-97 dBc	-105 dBc
300 kHz	-93 dBc	-99 dBc
1 MHz	-110 dBc	-125 dBc
10 MHz	-130 dBc	-130 dBc
Harmonic output	-20 dBc typical	-20 dBc typical
Output impedance	50 ohm nominal	
Load VSWR	1.5:1 maximum, all phases	
Regulation	±5%	
Noise and ripple	10 mV p-p maximum	
Frequency control	RS 485 (4 WIRE) or Serial RS422	
Acquisition time (to phase lock)	10 ms typical 100 ms maximum	
Summary alarm	In-lock TTL 1	
VCO lock voltage	2 – 14 volts	
DC power requirements	+15 volts, 0.8 amps typical +5.2 volts, 1.4 amps typical	

1. Optional fixed LO frequencies available from 1000 to 3200 MHz in 10 MHz integers.
2. Wider operating temperature available, please contact MITEQ.
3. Close in phase noise dependent on reference

ORDERING INFORMATION

CFS - . - . - - - **M**

Start Frequency GHz	Stop Frequency GHz	Step Size kHz (from 1kHz)	M or K MHz or KHz	LO Frequency MHz (1000 – 2200)	Reference Freq. MHz (5 or 10)
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EXAMPLE: Part Number CFS-12.97-13.75-1K-1150-10M for frequency synthesizer covering 12.97 GHz to 13.75 GHz with 1kHz step size, 1150 MHz LO and 10 MHz reference.



OUTLINE DRAWINGS

136283 CFS SERIES

