MULTI-OCTAVE FREQUENCY SYNTHESIZER

MOS SERIES: .1–20 GHz

FEATURES

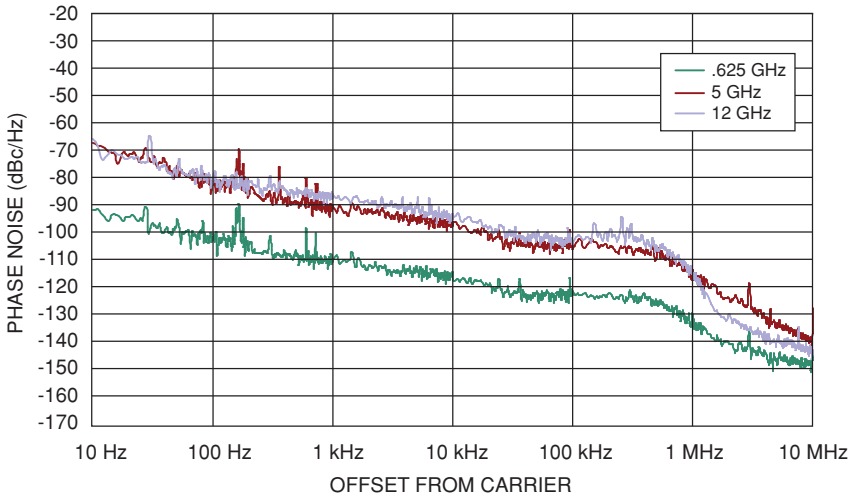
- Low cost
- 1/3 rack space
- Multi-octave
- Standard step size: 1 kHz
- INTELSAT phase noise compliant
- Field-tested reliability
- Low power dissipation
- MIL-STD-188-164A microphonic compliant
- ETSI 300019-1-4 compliant

OPTIONS

- Fast switching
- Custom frequency bands
- Fixed LO frequencies
- Custom step sizes
- Custom packaging
- Low phase noise option
- Available in modular form (MOSM)

MITEQ's MOS Series of multi-octave wide, low phase noise synthesizers offer an economical solution for lab and communication test applications. Band coverage is from 100 MHz to 20 GHz. The MOS Series has a standard 1 kHz step size, with optional full-band fast switching available. The field-tested design and low power dissipation proves to demonstrate higher MTBF and higher reliability. These synthesizers are available in either one third-rack mounted chassis with front panel control, or a modular 5" x 8" x 1.25" package with either serial or parallel control.

TYPICAL PHASE NOISE



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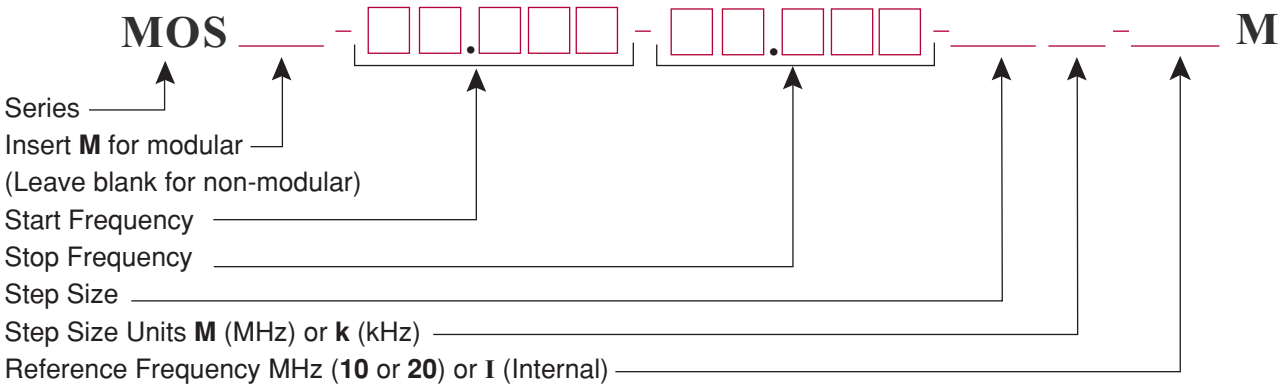
MULTI-OCTAVE FREQUENCY SYNTHESIZER

ELECTRICAL SPECIFICATIONS

	Tunable
Output frequency range (Note 1, 2)	.1 – 20 GHz
Step size (Note 3, 4)	1 kHz
Output power	+13 dBm minimum
Output power variation	±2 dB maximum
Input reference frequency (Note 5)	10 MHz
Input power level	0 ±3 dBm
Output spurious	
In-band	-60 dBc minimum
Out-of-band	-60 dBc minimum
Phase noise	See graph
Offset from carrier	At 20 GHz
10 Hz	-55 dBc
100 Hz	-65 dBc
1 kHz	-75 dBc
10 kHz	-85 dBc
100 kHz	-90 dBc
1 MHz	-100 dBc
10 MHz	-120 dBc
Output harmonic	-15 dBc typical
Output impedance	50 ohm nominal
Load VSWR	2.0:1 maximum, all phases
Acquisition time (to phase lock)	300 us typical, 750 us maximum
Summary alarm	In lock TTL 1
DC power requirements	
MOS	+90 volts to +250 VAC, 12 W Typical
MOSM	+5.2 @ 2 amps, 15.2 @ 900 mA, -15.0 @ 50 mA
Outline drawing	
Third rack	175415
Module	185134
User interface (Note 6)	Front panel

Notes:
1. Custom frequency bands available, please contact MITEQ.
2. Frequency accuracy ±2.95x10^{-9}.
3. Custom step size available, please contact MITEQ.
4. Other reference frequency option available, please contact MITEQ.
5. Close in Phase Noise dependent on reference.
6. Rear panel ethernet interface option available, please contact MITEQ.
7. MOSM available with RS485 9700 or parallel interface.
8. For serial interface, 9700 serial protocol, visit www.miteq.com

ORDERING INFORMATION



Note: Consult factory for additional rear parallel interface.

EXAMPLE: Part Number MOS-0.1-13.0-1k-10M for frequency synthesizer covering 0.1 to 13 GHz with a step size of 1 kHz and a reference frequency of 10 MHz.

MULTI-OCTAVE FREQUENCY SYNTHESIZER

MECHANICAL SPECIFICATIONS

Outline drawing
- Third rack 175415
- Module 185132

Size ..... 1.34" x 5.71" x 20"
Weight ..... 8 pounds typical in third rack
RF connectors ..... SMA female
Control connector ..... Modular 34-pin header for parallel operation. Third rack, Ethernet, through RJ45 or 9-pin D for RS485.

ENVIRONMENTAL SPECIFICATIONS

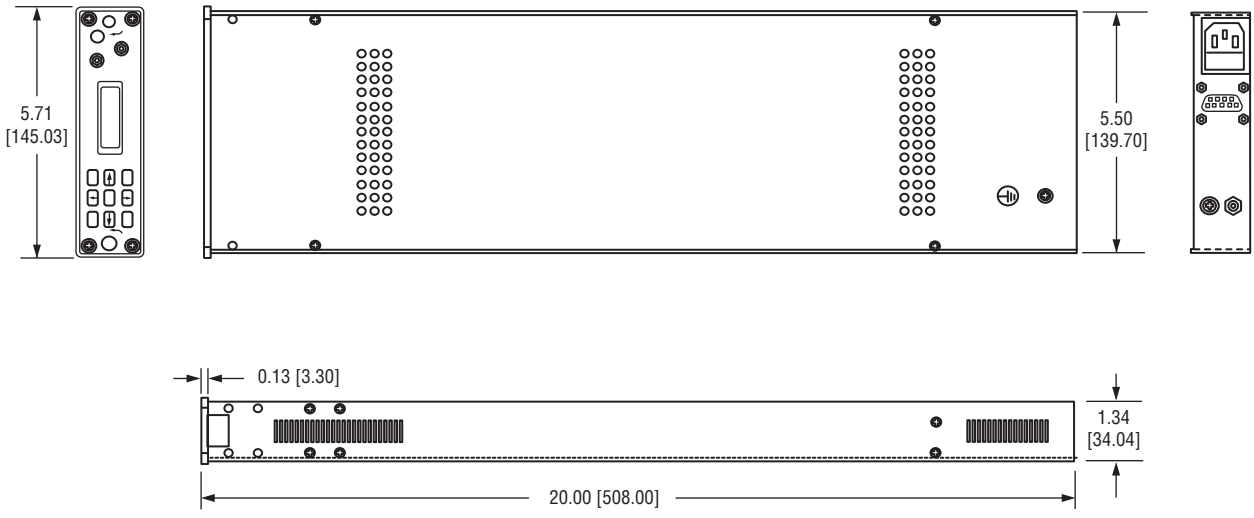
Temperature
- Operating ..... 0 to 60°C
- Storage ..... -50 to +100°C

Humidity ..... Up to 95% at 40°C noncondensing
Shock (nonoperating) ..... 30 g's, 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

Note: Wider operating temperatures are available, please contact MITEQ.

OUTLINE DRAWINGS

175415
MOS SERIES



NOTE: DIMENSIONS SHOWN IN BRACKETS [ ] ARE IN MILLIMETERS.

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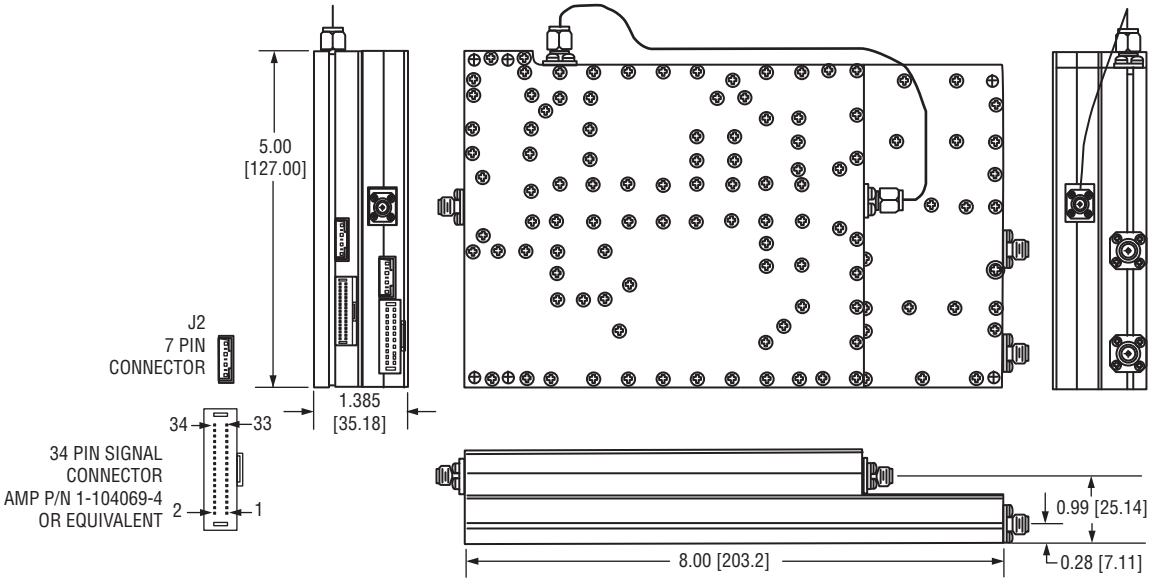
185132
MOSM SERIES



DATA CONNECTIONS - BCD INTERFACE

PIN 1	10 GHz (8)	PIN 2	10 GHz (4)
PIN 3	10 GHz (2)	PIN 4	10 GHz (1)
PIN 5	1 GHz (8)	PIN 6	1 GHz (4)
PIN 7	1 GHz (2)	PIN 8	1 GHz (1)
PIN 9	100 MHz (8)	PIN 10	100 MHz (4)
PIN 11	100 MHz (2)	PIN 12	100 MHz (1)
PIN 13	10 MHz (8)	PIN 14	10 MHz (4)
PIN 15	10 MHz (2)	PIN 16	10 MHz (1)
PIN 17	1 MHz (8)	PIN 18	1 MHz (4)
PIN 19	1 MHz (2)	PIN 20	1 MHz (1)
PIN 21	100 kHz (8)	PIN 22	100 kHz (4)
PIN 23	100 kHz (2)	PIN 24	100 kHz (1)
PIN 25	10 kHz (8)	PIN 26	10 kHz (4)
PIN 27	10 kHz (2)	PIN 28	10 kHz (1)
PIN 29	1 kHz (8)	PIN 30	1 kHz (4)
PIN 31	1 kHz (2)	PIN 32	1 kHz (1)
PIN 33	STROBE	PIN 34	GND

POWER CONNECTIONS

PIN 1	+5.2 VDC
PIN 2	GND
PIN 3	+15 VDC
PIN 4	GND
PIN 5	PHASE VOLTAGE
PIN 6	GND
PIN 7	-15 VDC

DATA CONNECTIONS BINARY INTERFACE

PIN 1	NOT USED
PIN 2	NOT USED
PIN 4	NOT USED
PIN 5	NOT USED
PIN 8	NOT USED
PIN 9	MSB
THRU	
PIN 32	LSB
PIN 33	STROBE
PIN 34	GND

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