FAST-SWITCHING SYNTHESIZER

SLS SERIES:
2.0 – 2.5 GHz

FEATURES

- **Ideal for wireless and SATCOM applications**
- **100 kHz to 10 MHz standard step size**
- **Wide bandwidth/fast requisition**
- **Guaranteed spurious performance during shock and vibration**
- **Low cost**

MITEQ's SLS Series synthesizers utilizes a fast-tuning phase-locked loop architecture to provide a balanced combination of exceptionally low phase noise and fast-tuning speed. This design incorporates traditional single-loop circuits with a rugged design to operate over harsh environmental conditions.

ELECTRICAL SPECIFICATIONS

Output frequency range Fundamental Bands	 2.000 – 2.500GHz
Step size	100 kHz – 10 MHz (Note 1)
Output power	+13 dBm minimum
Output power variation	±2 dB maximum
Input reference frequency	5 or 10 MHz, internal reference available (Note 2)
Input power level	0 ±3 dBm
Output spurious (in-band)	-70 dBc minimum (Note 3)
Phase noise	See graphs (Note 3)
Offset from carrier	(Typical phase noise at 2.5GHz, 1 MHz step size)
100 Hz 1 kHz 10 kHz 100 kHz 1 MHz	-80 dBc -90 dBc -95 dBc -105 dBc -120 dBc See Note 6
Output harmonic	-20 dBc typical
Output impedance	50 ohm nominal
Load VSWR	1.5:1 maximum, all phases
Regulation	±5%

100 Davids Drive, Hauppauge, NY 11788 • TEL: (631) 439-9220 • FAX: (631) 436-7430 • www.miteq.com

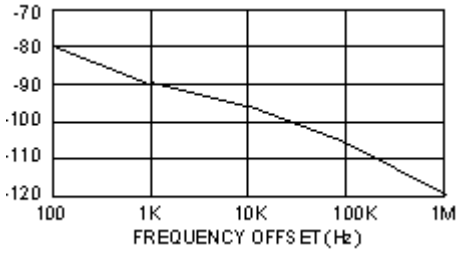
ELECTRICAL SPECIFICATIONS (CONT.)

Noise and ripple	10 mV, P-P maximum
Frequency control	BCD, TTL, parallel lines
Acquisition time (to phase lock)	500 µs (Note 4) Option to 25 µs
Summary alarm	In-lock TTL 1
VCO lock voltage	2 – 14 volts
DC power	+15 volts, 0.2 amps (Note 5) +5.2 volts, 0.5 amps typical

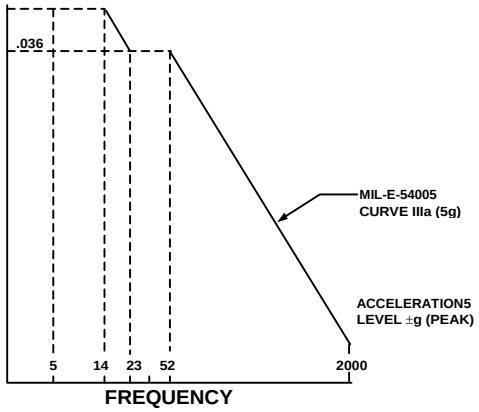
Notes:
1. Actual step size dependent upon frequency.
2. Internal reference stability ±2.5 ppm.
3. Spur and phase noise performance based upon stable platform conditions. Spur degradation to 25 dBc over operational vibration levels. Phase noise degradation is typically on the order of 10 dB/Hz within the loop bandwidth.
4. Acquisition time dependent upon step size, please contact MITEQ for complete options.
5. Actual current dependent upon specified operating frequency.
6. Phase noise dependent on step size.

TYPICAL PHASE NOISE

AT 2.5 GHz (1 MHz Step Size)



OPERATING VIBRATION PROFILE



CURVE IIIa - EQUIPMENT MOUNTED FORWARD HALF OF FUSELAGE 5
OR IN WING AREA WITH ENGINES AT REAR OF FUSELAGE

FAST-SWITCHING SYNTHESIZER

ORDERING INFORMATION

SLS – □□.□□□ – □□.□□□ □ – _ _ _ _ – _ _ _M

- Series
- Start Frequency GHz
- Stop Frequency GHz
- Step Size (from **100**K)
- Step Size Units (MHz/KHz) M for MHz, K for KHz
- Reference Frequency MHz (**5** or **10**)

MECHANICAL SPECIFICATIONS

Outline drawings
Fundamental 126507
Size..... 5.00" x 6.25" x 0.70"
Weight..... 1 pound typical
RF connectors ..... SMA female
DC power connectors..... Type D
Conrol connectors..... 20-pin header

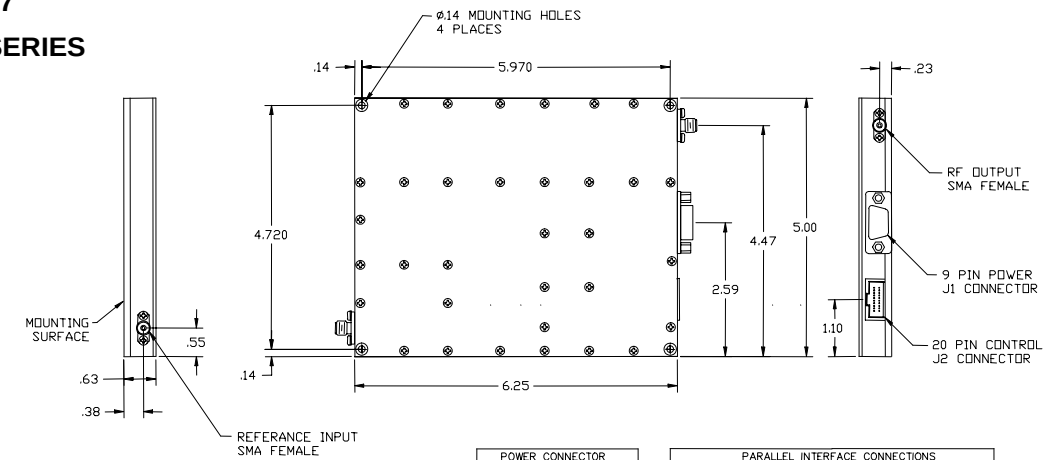
ENVIRONMENTAL SPECIFICATIONS

Temperature
Operating..... -10 to +70°C Storage
..... -55 to +95°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

OUTLINE DRAWING

126507

SLS SERIES



POWER CONNECTOR J1 POWER CONNECTIONS	
PIN 1	+15VDC
PIN 2	PHASE_ VOLT
PIN 3	ALARM
PIN 4	+5.2VDC
PIN 5	GND
PIN 6	+15VDC
PIN 7	TTL_ ALARM
PIN 8	+5.2VDC
PIN 9	GND

PARALLEL INTERFACE CONNECTIONS J2 DATA CONNECTIONS		J2 DATA CONNECTIONS	
PIN 1	125/100 KHz(1)	PIN 11	10 MHz(4)
PIN 2	125/100 KHz(2)	PIN 12	10 MHz(8)
PIN 3	125/100 KHz(4)	PIN 13	100 MHz(1)
PIN 4	125/100 KHz(8)	PIN 14	100 MHz(2)
PIN 5	1 MHz(1)	PIN 15	100 MHz(4)
PIN 6	1 MHz(2)	PIN 16	100 MHz(8)
PIN 7	1 MHz(4)	PIN 17	GND
PIN 8	1 MHz(8)	PIN 18	N/C
PIN 9	10 MHz(1)	PIN 19	N/C
PIN 10	10 MHz(2)	PIN 20	N/C