SOP-17410105-06-B1

Phase Locked Oscillator, 170.004 GHz, +2 dBm, Combined Internal and External Reference

SOP-17410105-06-B1 is a phase locked oscillator with a typical output frequency of 170.004 GHz and a nominal output power of +2 dBm. The oscillator utilizes the-state-of-art technologies including a voltage controlled dielectric resonator oscillator, active multipliers, filters, and power amplifiers to generate high-quality millimeterwave signals. The phase locked oscillator has a built-in 100 MHz internal reference crystal oscillator as a backup reference if the 10 MHz external reference is absent. The oscillator delivers signal with a nominal harmonic and spurious levels of -15 dBc and -60 dBc, respectively.

Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Frequency		170.004 GHz	
Output Power		+2 dBm	
Phase Noise (Internal Reference)*		-70 dBc/Hz @ 10 kHz	
		-80 dBc/Hz @ 100 kHz	
		-103 dBc/Hz @ 1 MHz	
Internal Reference Frequency		100 MHz	
External Reference Frequency		10 MHz	
External Reference Input Power	-2 dBm	0 dBm	+3 dBm
Harmonic		-15 dBc	
Spurious		-60 dBc	
Phase Locked Indicator (Lock)		TLL “High”	
DC Voltage		+12 V_{DC}	+15 V_{DC}
DC Supply Current		1150 mA	
Frequency Stability		±5 ppm	
Specification Temperature		+25°C	
Operating Temperature	0 °C		+50 °C

*Phase noise specified is based on the measured at microwave frequency and calculated based on adding 20log(N) + 3 dBc/Hz at millimeterwave frequency. In this case, N=12 is used for the estimation.

ECCN

EAR99

FEATURES

- High Output Power
- Low Phase Noise
- Low Harmonic Components

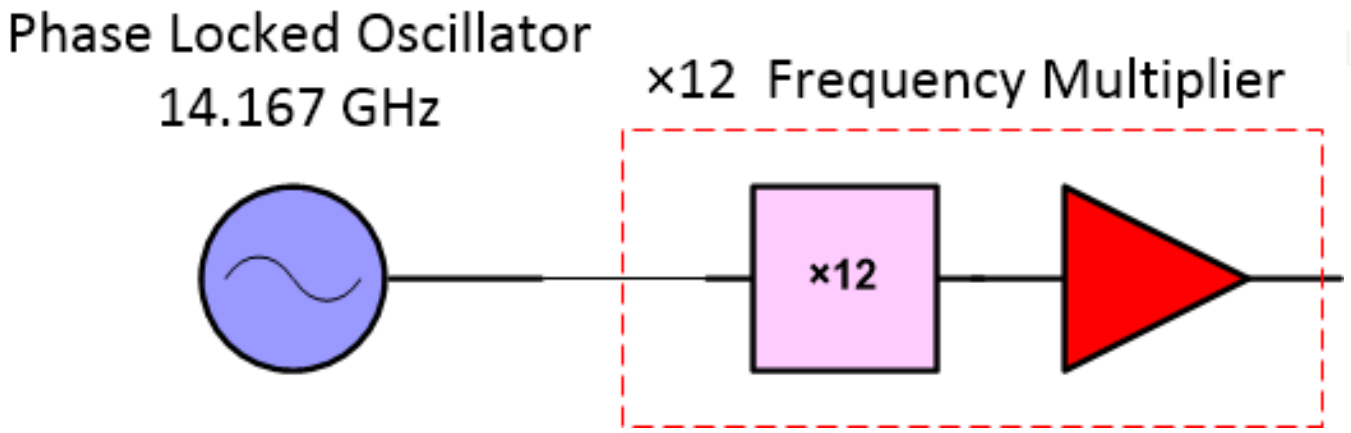
APPLICATIONS

- Radar Systems
- Communication Links
- Transmitters/Receivers

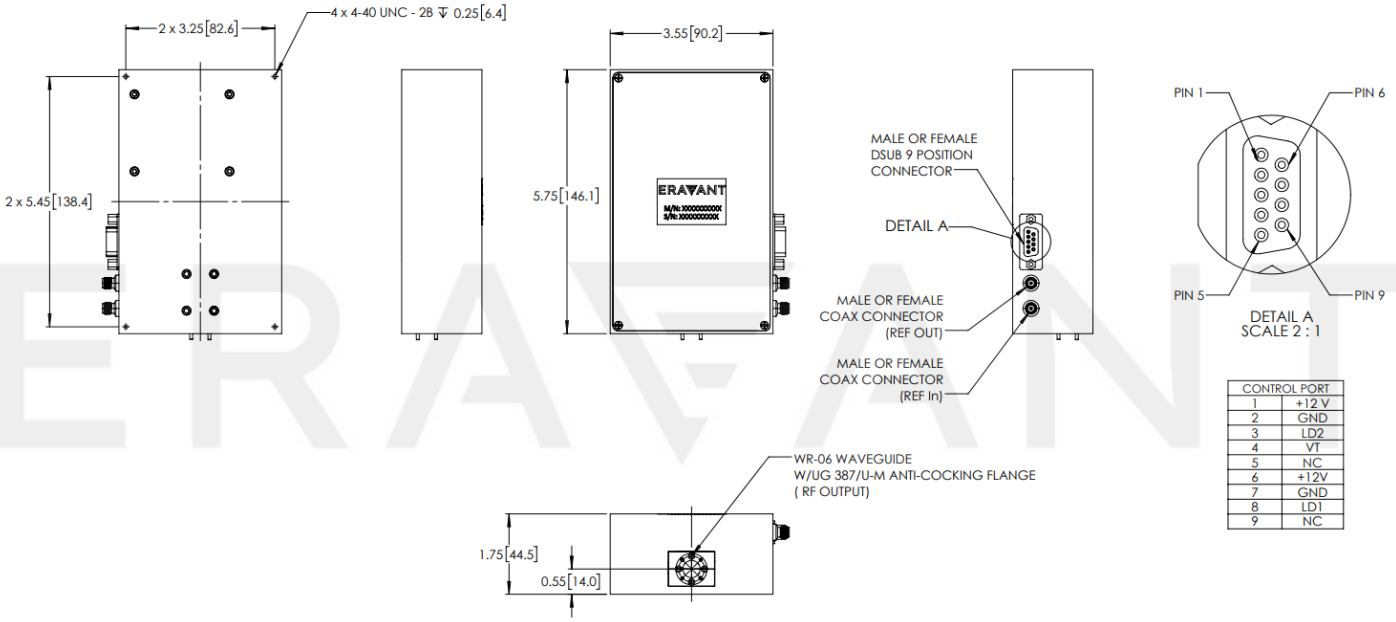
Mechanical Specifications:

Item	Specification
RF Output	WR-06 Waveguide with UG-387/U-M Anti-Cocking Flange
REF Input	SMA (F) Connector
Power & IO Connector	D-SUB (F) 9 Position Connector
Case Material	Aluminum
Finish	Black Anodized
Weight	26 Oz
Outline	OP-BD-A-FM

System Block Diagram:



Mechanical Outline: Unless otherwise specified, all dimensions are in inches [millimeters])



CONTROL PORT	
1	+12 V
2	GND
3	LD2
4	VT
5	NC
6	+12V
7	GND
8	LD1
9	NC

NOTE:

- Test data provided is collected from a sample lot. Actual data may vary slightly from unit to unit.
- All testing is performed under +25 °C room temperature.
- Eravant reserves the right to change the information presented without notice.
- **The phase locked oscillators are single frequency signal generators. Many models are available with custom frequencies. The models published online are representative or selective. Contact factory for the models with specific frequency requirements.**
- Pin 3 (Alarm 1) indicates the oscillator is locked to the 100 MHz internal reference. Pin 4 (Alarm 2) will indicate if the oscillator is locked to the external 10 MHz reference. PIN 3 and PIN 4 both will output TTL "High" if locked to a particular reference. In the case when external reference is not connected, Pin 4 output will be TTL Low.

CAUTION:

- Exceeding absolute maximum ratings shown will damage the device.
- The device is static sensitive. Always follow ESD rules when working with the device.
- The case temperature of the device shall never exceed +50 ˚C. Use additional heatsink or fan if necessary.
- Any foreign objects in the waveguide will cause performance degradation and possible device damage.
- For 1.35 mm, 1.85 mm, 2.4 mm, 2.92 mm, and SMA connectors proper torque should be applied: 8.0 ± 0.15 inch-pounds (0.90 ± 0.02 Nm). **Torque wrench model SCH-08008-S1 is highly recommended.**