

SOP-14325013-SF-EB-2

Phase Locked Oscillator, 13.825 GHz, +13 dBm, 25 MHz Externally Referenced

SOP-14325013-SF-EB-2 is a phase locked oscillator with high performance DRVCO (Dielectric Resonator Voltage Controller Oscillator) technology to generate a clean and high-quality microwave signal. The oscillator is designed and fabricated to be phase locked to the high quality 25 MHz external reference oscillator so that the superior phase noise performance can be achieved. The oscillator delivers a typical output power of +13 dBm to +15 dBm and has nominal harmonic and spurious levels of -25 dBc and -75 dBc, respectively. The oscillator has a built-in voltage regulator to further improve the signal quality and prevent possible damage due to the over voltage operation. The oscillator is hermetically sealed to offer the maximum environmental performance.



Electrical Specifications:

| Parameter | Minimum | Typical | Maximum |
|---------------------------------------|--|--------------------------|---------------------|
| Frequency | | 13.825 GHz | |
| Output Power (Over Temperature) | | +13 dBm to +15 dBm | |
| Phase Noise (External Reference) | Reference Source +20 LOG (N) +3 dB | | |
| | -97 dBc/Hz @ 10 kHz | | |
| | -104 dBc/Hz @ 100 kHz | | |
| Integrated Phase Jitter | -130 dBc/Hz @ 1 MHz | | |
| | 0.175° (Calculated from 10K~10M Phase Noise) | | |
| Externally Referenced Frequency | | 25 MHz | |
| Externally Referenced Input Power | | 10±3 dBm | |
| Sub-Harmonics | | | -60 dBc |
| Harmonic | | | -25 dBc |
| Spurious | | | -75 dBc |
| Phase Locked Indicator (Lock) | | TLL "High" | |
| Phase Error Voltage (V _r) | | 0 to +12 V _{DC} | |
| DC Voltage | | +12 V _{DC} | +15 V _{DC} |
| DC Supply Current | | 500 mA | |
| Frequency Stability | | ±5 ppm | |
| Specification Temperature | | +25°C | |
| Operating Temperature | -40°C | | +75°C |

ECCN

EAR99

FEATURES

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

APPLICATIONS

- Radar Systems
- Communication Links
- Transmitters/Receivers

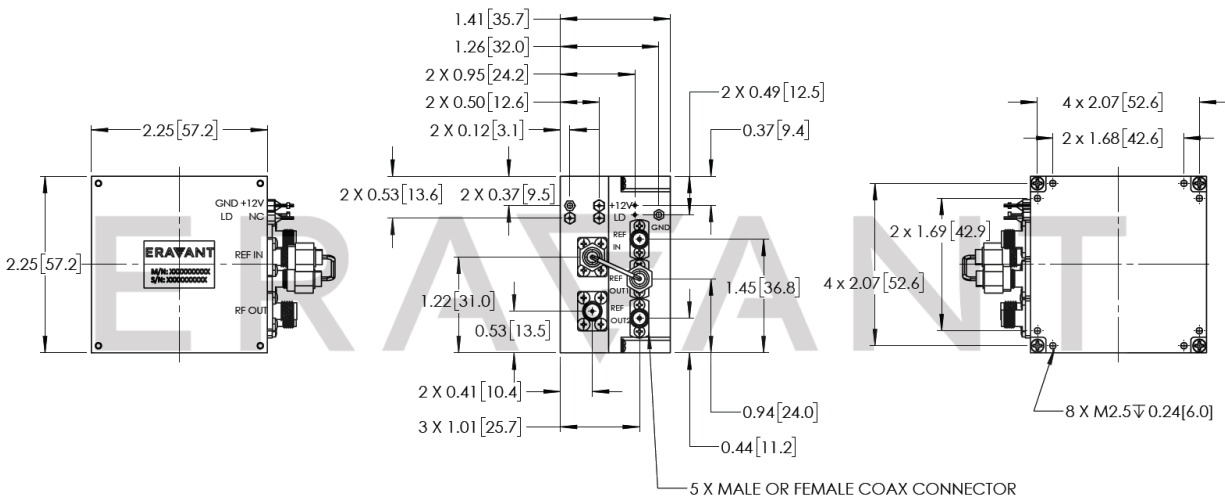


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Mechanical Specifications:

| Item | Specification |
|--------------------------------|---------------------|
| RF Output | SMA (F) Connector |
| REF Input | SMA (F) Connector |
| REF Output | SMA (F) Connector |
| DC Bias Port (V_{CC}) | Feedthru Pin |
| Phase Lock Indicator Port (LD) | Feedthru Pin |
| Phase Error Voltage (V_T) | Feedthru Pin |
| Case Material | Aluminum |
| Finish | Nickel Plated |
| Package | Hermetically Sealed |
| Weight | 4.0 Oz |
| Outline | OP-EC-SM1 |

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



NOTE:

- Test data provided is collected from a sample lot. Actual data may vary slightly from unit to unit. Phase noise testing is performed under +25 °C room temperature.
- Eravant reserves the right to change the information presented without notice.

CAUTION:

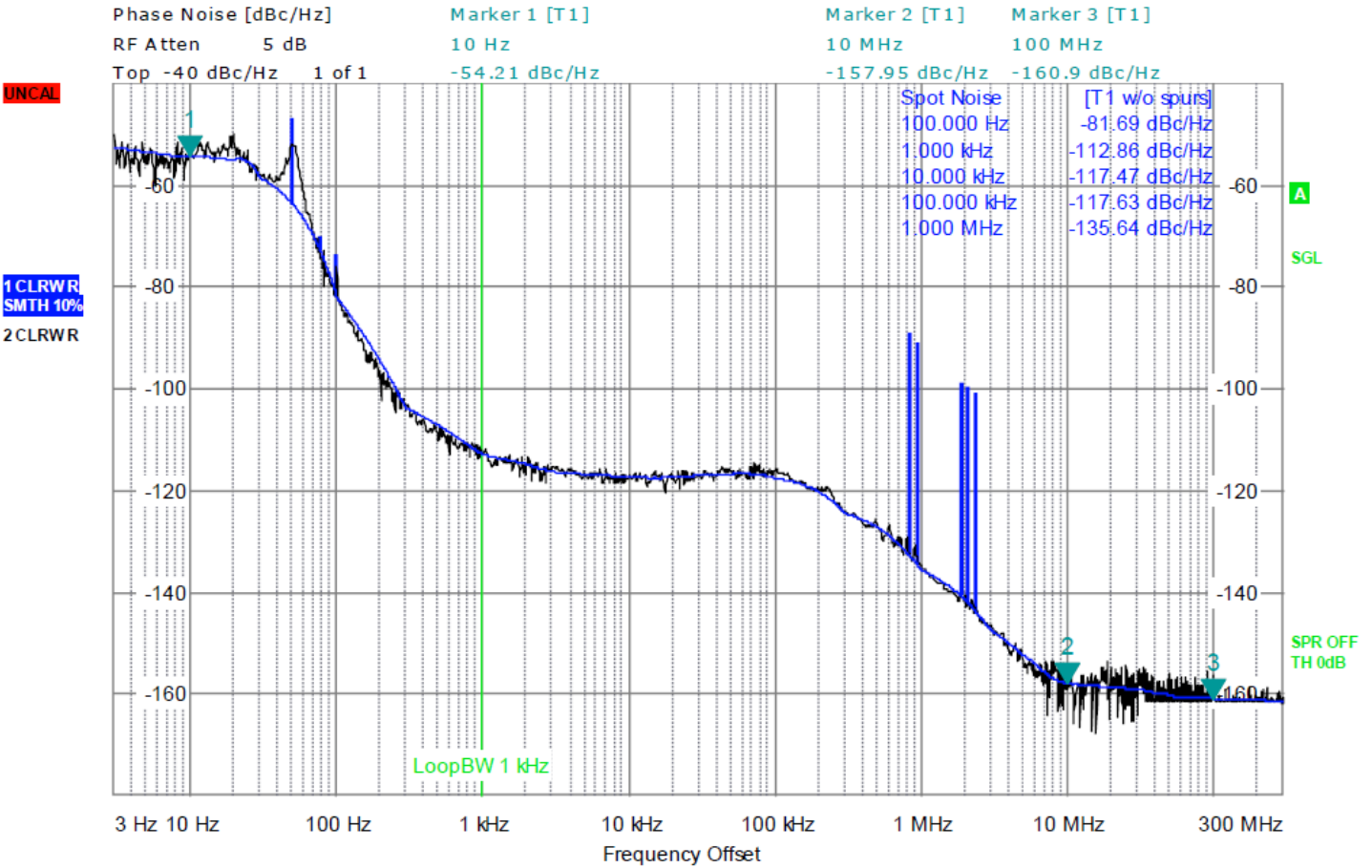
- For 1.35 mm, 1.85 mm, 2.4 mm, 2.92 mm, and SMA connectors proper torque should be applied: 8.0 ± 0.15 inch-pounds (0.90 ± 0.02 Nm). Torque wrench model [SCH-08008-S1](#) is highly recommended.

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Measured Data:

| Parameter | Operating Temperature | | |
|------------------|-----------------------|------------|------------|
| | -40°C | +25°C | +75°C |
| Output Frequency | 13.825 GHz | 13.825 GHz | 13.825 GHz |
| Output Power | 13 dBm | 13.8 dBm | 13.9 dBm |
| Spurious | -76 dBc | -77 dBc | -77 dBc |
| Harmonics | -28 dBc | -27 dBc | -27 dBc |
| Voltage (V) | 12 | 12 | 12 |
| Current (mA) | / | 370 | 320 |

Measured Phase Noise:



MAKING MILLIMETERWAVE ACCESSIBLE