

## SOP-13325013-SF-EB

### Phase Locked Oscillator, 13.275 GHz, +13 dBm, 25 MHz Externally Referenced

**SOP-13325013-SF-EB** is a phase locked oscillator with high performance DRVCO (Dielectric Resonator Voltage Controller Oscillator) technology to generate a clean and high-quality microwave signals. 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 in a range 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                             |         | 13.275 GHz                                   |                     |
| Output Power                          |         | +13 dBm to +15 dBm                           |                     |
| Phase Noise (External Reference)      |         | -97 dBc/Hz @ 10 kHz                          |                     |
|                                       |         | -104 dBc/Hz @ 100 kHz                        |                     |
|                                       |         | -130 dBc/Hz @ 1 MHz                          |                     |
| Integrated Phase Jitter               |         | 0.175° (Calculated from 10K~10M Phase Noise) |                     |
| External Reference Frequency          |         | 25 MHz                                       |                     |
| External Reference 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 <sub>τ</sub> ) |         | 0 to +12 V <sub>DC</sub>                     |                     |
| DC Voltage                            |         | +12 V <sub>DC</sub>                          | +15 V <sub>DC</sub> |
| DC Supply Current                     |         | 500 mA                                       |                     |
| Frequency Stability                   |         | ±5 ppm                                       |                     |
| Specification Temperature             |         | +25°C  |                     |
| Operating Temperature                 | -40°C   |  | +75°C               |

#### ECCN

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#### FEATURES

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

#### APPLICATIONS

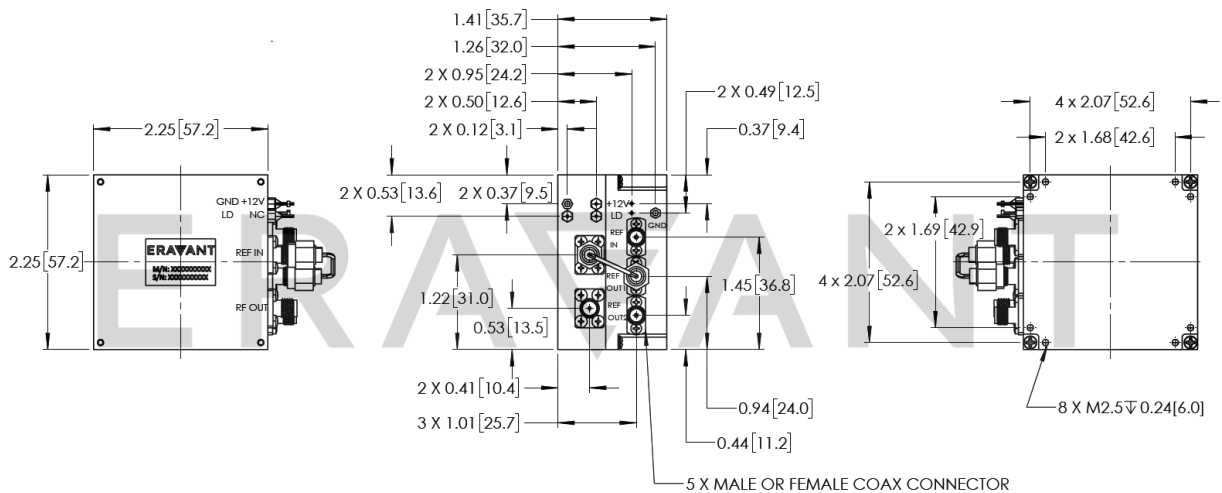
- Radar Systems
- Communication Links
- Transmitters/Receivers



### Mechanical Specifications:

| Item                                  | Specification       |
|---------------------------------------|---------------------|
| RF Output                             | SMA (F) Connector   |
| REF Input                             | SMA (F) Connector   |
| REF Output                            | SMA (F) Connector   |
| DC Bias Port (V <sub>CC</sub> )       | Feedthru Pin        |
| Phase Lock Indicator Port (LD)        | Feedthru Pin        |
| Phase Error Voltage (V <sub>T</sub> ) | 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:

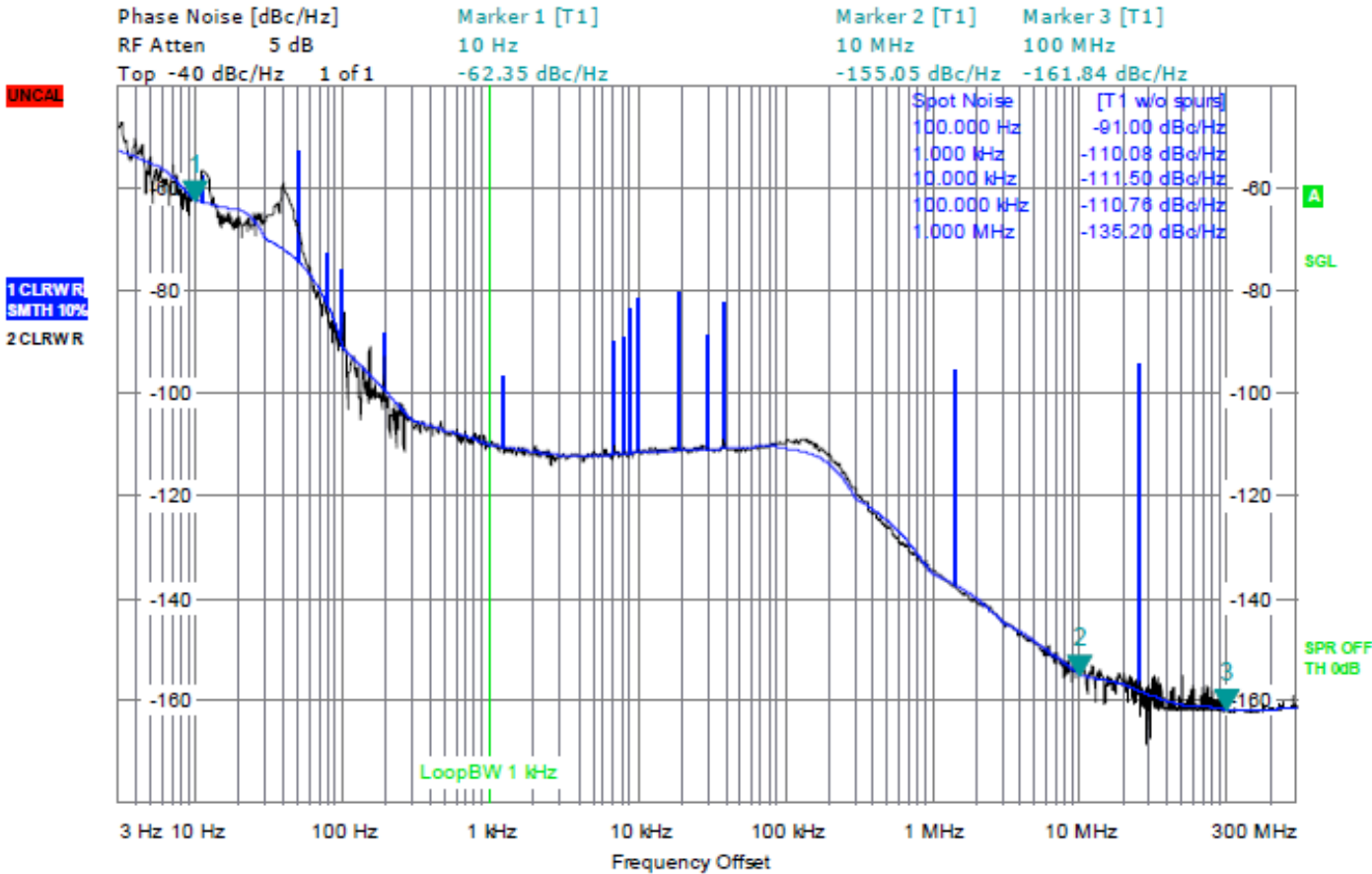
- For 1.35 mm, 1.85 mm, 2.4 mm, 2.92 mm, and SMA connectors proper torque should be applied: 8.0  $\pm$  0.15 inch-pounds (0.90  $\pm$  0.02 Nm). Torque wrench model [SCH-08008-S1](#) is highly recommended.

## SOP-13325013-SF-EB

### Measured Data:

| Parameter        | Operating Temperature |            |            |
|------------------|-----------------------|------------|------------|
|                  | -40°C                 | +25°C      | +75°C      |
| Output Frequency | 13.275 GHz            | 13.275 GHz | 13.275 GHz |
| Output Power     | 14.9 dBm              | 14.4 dBm   | 13.5 dBm   |
| Spurious         | -79 dBc               | -80 dBc    | -78 dBc    |
| Harmonics        | -27 dBc               | -30 dBc    | -29 dBc    |
| Voltage (V)      | 12                    | 12         | 12         |
| Current (mA)     | /                     | 420        | 360        |

### Measured Phase Noise:



MAKING MILLIMETERWAVE ACCESSIBLE