

## SOP-39310113-KF-BB

### Phase Locked Oscillator, 39 GHz, +13 dBm, Combined Internal and External Reference

**SOP-39310113-KF-BB** is a 39 GHz phase locked oscillator with high performance DRVCO (Dielectric Resonator Voltage Controller Oscillator) technology to generate a clean and high-quality microwave signal. The oscillator has a built-in 100 MHz internal reference crystal oscillator. The oscillator is designed and fabricated to be phase locked to the internal reference oscillator automatically if the 10 MHz external reference is absent. The oscillator delivers a typical output power of +13 dBm and has a nominal harmonic of -25 dBc and spurious of -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                            |         | 39 GHz                   |                     |
| Output Power                         |         | +13 dBm                  |                     |
| Phase Noise (Internal Reference)     |         | -100 dBc/Hz @ 10 kHz     |                     |
|                                      |         | -100 dBc/Hz @ 100 kHz    |                     |
|                                      |         | -120 dBc/Hz @ 1 MHz      |                     |
| Internal Reference Frequency         |         | 100 MHz                  |                     |
| External Reference Frequency         |         | 10 MHz                   |                     |
| External Reference Input Power       | -3 dBm  | 0 dBm                    | +3 dBm              |
| Sub-Harmonics                        |         |                          | -60 dBc             |
| Harmonic                             |         | -25 dBc                  | -20 dBc             |
| Spurious                             |         | -75 dBc                  | -70 dBc             |
| Phase Locked Indicator (LOCK)        |         | TTL "High"               |                     |
| Phase Error Voltage ( $V_T$ )        |         | 0 to +10 V <sub>DC</sub> |                     |
| Frequency Stability (Internally Ref) |         | ±5 ppm                   |                     |
| DC Bias                              |         | +12 V <sub>DC</sub>      | +15 V <sub>DC</sub> |
| Bias Current                         |         | 650 mA                   |                     |
| Specification Temperature            |         | +25°C                    |                     |
| Operating Temperature                | -40°C   |                          | +70°C               |

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#### FEATURES

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

#### APPLICATIONS

- Radar Systems
- Communication Links
- Transmitters/Receivers

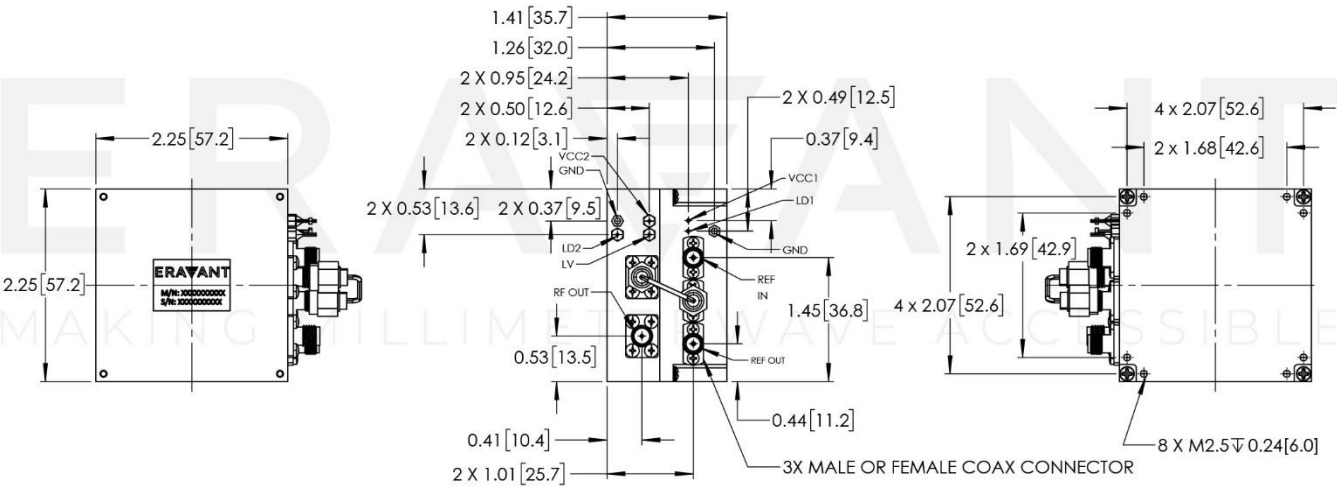
#### SUPPLEMENTAL DETAILS



### Mechanical Specifications:

| Item                                  | Specification                     |
|---------------------------------------|-----------------------------------|
| RF Output                             | 2.92 mm (K) Female Connector      |
| REF Input                             | SMA Female Connector              |
| REF Output                            | SMA Female Connector              |
| DC Bias Port (Vcc)                    | Feedthru Pin                      |
| Phase Lock Indicator Port (LD)        | Feedthru Pin                      |
| Phase Error Voltage (V <sub>r</sub> ) | Feedthru Pin                      |
| Case Material                         | Aluminum                          |
| Finish                                | Nickel Plated and Bare Aluminum   |
| Package                               | Hermetically Sealed               |
| Weight                                | 4.0 Oz                            |
| Size                                  | 2.25" (L) x 2.25" (W) x 1.41" (H) |
| Outline                               | OP-EC-SM1                         |

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



**NOTE:**

- Eravant reserves the right to change the information presented without notice.
- Other mechanical configurations are available under different model numbers.

**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 should never exceed **+70 °C**. Use proper heatsink or fan if necessary.
- 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.

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