

SOP-28310115-KF-BB

Phase Locked Oscillator, 28 GHz, +15 dBm, Combined Internal and External Reference

SOP-28310115-KF-BB is a 28 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 +15 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		28 GHz	
Output Power		+15 dBm	
Phase Noise (Internal Reference)		-100 dBc/Hz @ 10 kHz	
		-100 dBc/Hz @ 100 kHz	
		-120 dBc/Hz @ 1 MHz	
Phase Noise (External Reference)	Reference Source + 20 Log (N) + 3 dB		
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		TTL "High"	
Phase Error Voltage (V_T)		0 to +10 V _{DC}	
DC Voltage		+12 V _{DC}	+15 V _{DC}
Bias Current		600 mA	
Frequency Stability		±5 ppm	
Specification Temperature		+25°C	
Operating Temperature	-40°C		+70°C

ECCN

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FEATURES

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

APPLICATIONS

- Radar Systems
- Communication Links
- Transmitters/Receivers

SUPPLEMENTAL DETAILS



Item	Specification
RF Output	2.92 mm 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 _T)	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

The figure shows three views of the ERAVANT module:

- Top View:** Shows the overall footprint with dimensions 2.25 [57.2] mm by 2.25 [57.2] mm. A label is present with the part number M/N: X0000000X.
- Side View:** Shows the profile of the module with various mounting and connector dimensions. Key dimensions include:
 - Overall height: 1.41 [35.7] mm
 - Mounting hole offset: 1.26 [32.0] mm
 - Connector pin pitch: 2 x 0.95 [24.2] mm, 2 x 0.50 [12.6] mm, 2 x 0.12 [3.1] mm
 - RF OUT pin offset: 2 x 0.53 [13.6] mm
 - LD2 LV pin offset: 2 x 0.37 [9.5] mm
 - VCC2 GND pin offset: 0.37 [9.4] mm
 - GND pin offset: 0.37 [9.4] mm
 - REF IN pin offset: 1.45 [36.8] mm
 - REF OUT pin offset: 0.41 [10.4] mm
 - Coax connector offset: 2 x 1.01 [25.7] mm
 - Coax connector pitch: 0.44 [11.2] mm
 - Coax connector length: 0.53 [13.5] mm
- Front View:** Shows the connector array with dimensions:
 - Overall width: 4 x 2.07 [52.6] mm
 - Pin pitch: 2 x 1.69 [42.9] mm
 - Coax connector pitch: 8 x M2.5 ± 0.24 [6.0] mm

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 ± 0.15 inch-pounds (0.90 ± 0.02 Nm). Torque wrench model SCH-08008-S1 is highly recommended.

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