

# MAOC-series

Phase Locked Oscillator  
Low Noise

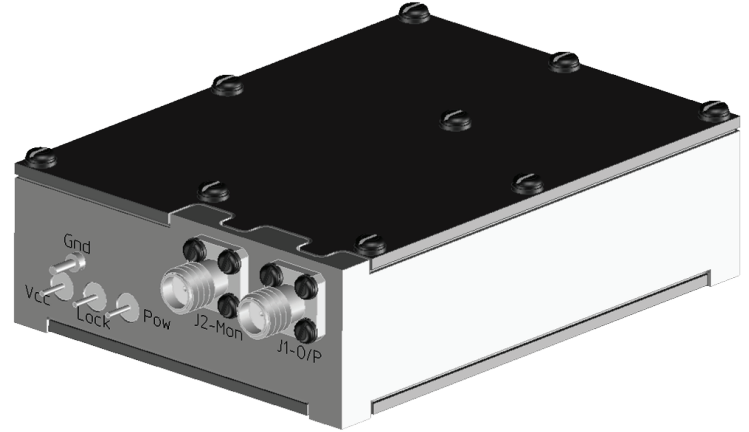
**COBHAM**

2011 Datasheet Prelim

The most important thing we build is trust

## Features

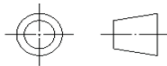
- Low Phase Noise, -120 dBc @ 100kHz Offset
- High Stability,  $\pm 15$ ppm
- Internal Reference
- High Reliability
- Sampling Phase Detector
- Low microphonics
- Hermetic package
- Derivative designs available from 1.0 GHz to 12.0 GHz



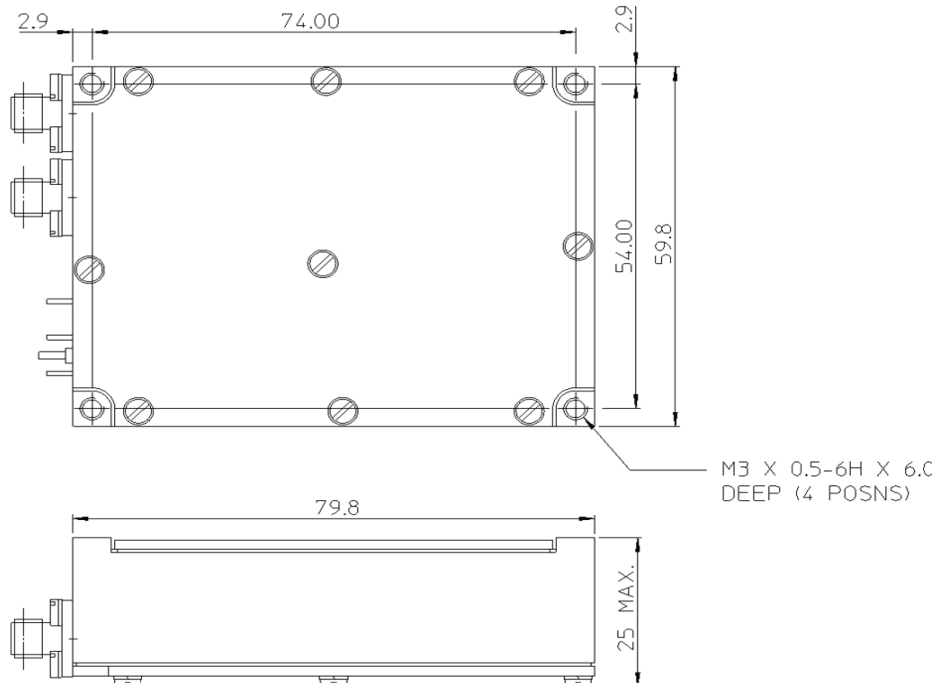
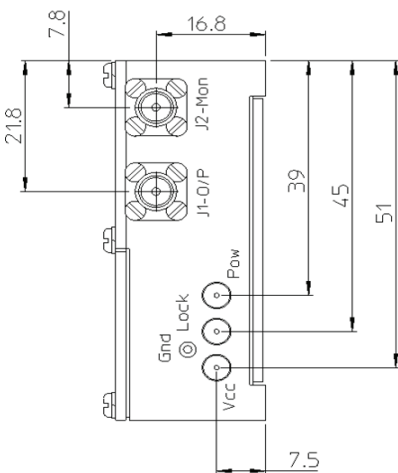
## Description

This PLO (Phase Locked Oscillator) features exceptional phase noise performance in a Hermetic housing for demanding applications. The design maximizes unit performance and enables easy derivation for different output frequencies, covering 1.0 - 12 GHz. The low noise internal reference makes for ease of use and maximum performance. Phase locking is achieved using a SPD (Sampling Phase Detector) to ensure the best possible in-loop noise. The device benefits from reverse polarity and over-voltage protection.

## Mechanical Outline



THIRD ANGLE PROJECTION



DIMENSIONS IN MM

TOL. UNLESS STATED  
X. ± 0.5 X.XXX ± 0.05  
X.X ± 0.2  
X.XX ± 0.1  
HOLES TO BS 4500 H11  
ANGLES ± 1°

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## Typical Electrical Performance

(Applies over  $T_{op}$  @  $F_o$ , output load impedance of 50 ohms. Unless otherwise stated limits & conditions are indicated values.)

Parameter	Min	Typ	Max	Unit	Notes
Frequency		6.4		GHz	$\pm 10\text{ppm}$ @ 25 °C Deivative designs available from 1.0 Ghz to 12 GHz
Frequency Temperature Variation	-15		+15	ppm	Over $T_{op}$ - See Note 1 Relative to ambient frequency
RF Ouput power (Main Output)	+11.5	+13	+14.5	dBm	Over $T_{op}$ - See Note 1
Coupled Port output Power	-2	0	+2	dBm	
Output Load VSWR			2.0 : 1	Ratio	All phases
Harmonic			-30	dBc	
Sub-Harmonics			-70	dBc	Multiple of 1600 MHz not including main output frequency.
Spurious			-65	dBc	
Phase Noise (see Note 2)		-45	-40	dBc/Hz	10Hz offset
		-80	-75	dBc/Hz	100Hz offset
		-110	-100	dBc/Hz	1kHz offset
		-120	-115	dBc/Hz	100kHz offset
		-140	-136	dBc/Hz	1MHz offset
Lock Monitor (in lock)	2.4		5.0	Volt	
Lock Monitor (not locked)	0		0.8	Volt	
DC Supply voltage	+9.7	+10	+10.3	Volt	See Notes 3 & 4
DC Supply current			450	mA	
Case Operating Temperature ( $T_{op}$ )	-40		+75	°C	
Storage Temperature	-40		+85	°C	

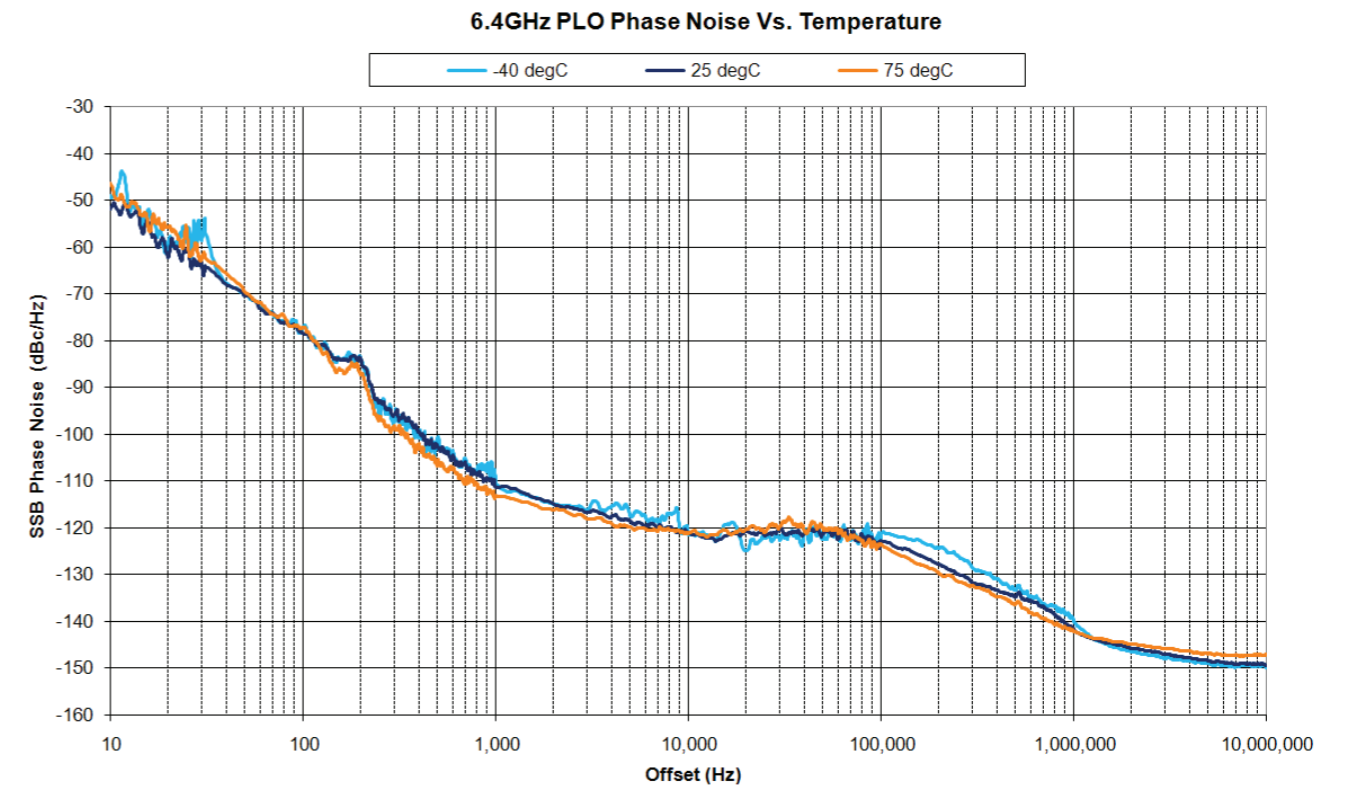
**Note 1:**  $T_{op} = -40\text{ °C} \sim +75\text{ °C}$

**Note 2:** Static conditions inly, over  $T_{op}$

**Note 3:** Device protected from overvoltage upto +18V

**Note 4:** pk-pk ripple, 50Hz ~ 2MHz, 100mV

## Typical Phase Noise



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**COBHAM**



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