

Phase Locked Oscillators

External Reference APL - 03 Series

- 400 MHz to 14 GHz
- Fundamental Frequency (CRO or DRO)
- External Reference
- Small Size
- Low Phase Noise
- Low Microphonics
- Low Current
- Custom Design



General Specifications (also see options)

Output Frequency	400 MHz to 14.0 GHz
Reference Frequency	10 MHz for Output Frequency 0.4-3.4 GHz (see notes) 25-200 MHz for Output Frequency 3.4-14.0 GHz (see notes)
Frequency Stability	Reference dependent
Output Power	+13dBm min. (see options)
Output Power Stability	+/-2dB max
Harmonics	-20dBc max.
Ref. Related Spurious	-70dBc max.
Divided Ref. Related Spurious	-50dBc (400 MHz - 3.4 GHz)
Other Spurious	-80dBc max.
Load VSWR	2.5:1 max.
Input Voltage	+11 to +16V d.c. (see options)
Input Current	300mA max. (for +13dBm)
Operating Temperature	0+50C standard (see options)
Storage Temperature	-40+85C
Lock Alarm	TTL high for locked
RF Output Connector	SMA Female
Ref. Monitor Connector	SMA Female

The APL - 03 series of fundamental frequency phase locked oscillators utilise coaxial resonators (CRO) to 3.4 GHz and dielectric resonators (DRO) to 14 GHz in a phase locked loop for use with an external reference. Circuit design uses SMT devices including Si bipolar active devices up to 3.4 GHz and GaAs FET active devices above 3.4 GHz. The output contains a buffer amplifier for improved ruggedness, higher output power and a wider range of load VSWR. DRO types have an external tuning screw for factory set up only.

Frequencies above 14 GHz are available - please contact us for more information.

Phase Noise (dBc/Hz) typical

Offset Frequency (Hz)	Output Frequency (GHz)					
	0.6	1.5	3	4	10	14
100	Reference Dependent - See Notes					
1K	Reference Dependent - See Notes					
10K	Reference Dependent - See Notes					
100K	-135	-125	-115	-115	-110	-105
1M	-140	-140	-135	-135	-120	-115

Reference Frequency Notes:

The output frequency must be an integral multiple of the reference frequency.

Reference level required 0+/-3dBm

At offset frequencies up to 100 Hz, the output phase noise is degraded from that of the reference oscillator by approximately $20\log N + 3\text{dB}$, where N is the ratio of the output to the reference frequency.

Options:

00 - Standard

Operating Temperature

01 - -10+60C

02 - -20+70C

03 - -40+85C

Output Power

11 - +15dBm min. up to 10.0 GHz

12 - +15dBm min. up to 6.0 GHz

D.C. Supply

21 - Input Voltage +12V d.c.

22 - Regulated +11 to +16V d.c.

23 - +28V d.c.

Custom Options:

- Higher Output Frequency to 40 GHz (multiplied)
- Higher Output Power to +30dBm (amplified)
- Lower Harmonics (filtered)
- Lock Alarm - Open Collector
- Custom Sizes
- Instrument or Rack Mount Housing with Power Supply

Model Numbers:

Examples:

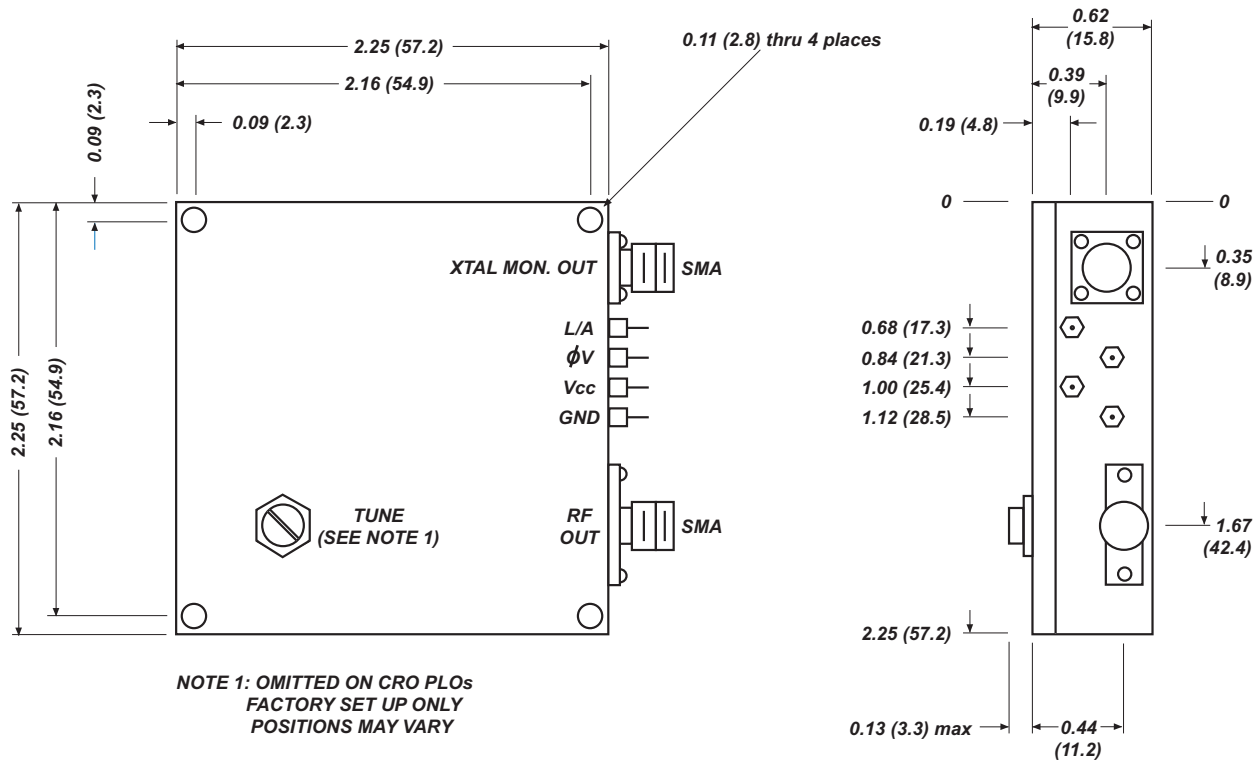
APL-03-13.050-50-00 13.05 GHz
PLO with standard specifications and 50 MHz ref.

APL-03-9.750-50-02-11-23 9.75 GHz
PLO with 50 MHz ref.,
-20+70C, +15dBm and +28V

Oscillators

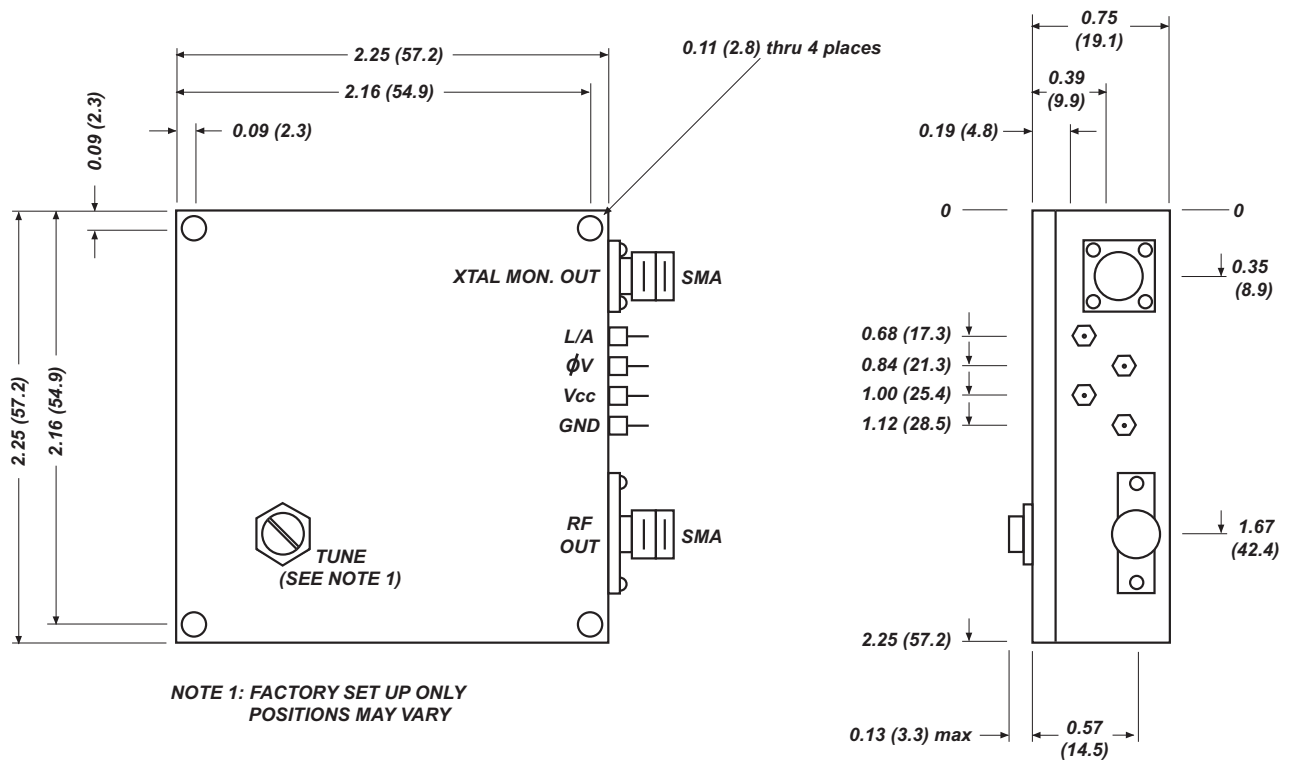
OUTLINE A

USED ON: CRO - PLOs: 0.4 TO 3.4 GHz
DRO - PLOs: 6.0 TO 14.0 GHz



OUTLINE B

USED ON: DRO - PLOs: 3.4 TO 6.0 GHz



All dimensions are inches (mm)

We reserve the right to change standard product specifications without notice but will be pleased to consider control drawings for quotation.

Oscillators

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