

Features:

- Fundamental and Multiplied
- Wide Frequency Range
- Good Temperature Stability
- Excellent Vibration Performance
- Frequency Trim Available
- Electronic Tuning Available
- High Performance Applications
- Rugged Construction
- Improved Spurious & Harmonic Performance



Electrical Specifications

Frequency Range:	60 to 1440 MHz
Frequency Set Accuracy (+ 25 °C):	± .05 ppm
Frequency Stability vs Temperature:	± .25 ppm
Aging Rate:	2 ppm first year
Power Output:	See Tables
Phase Noise:	See Figure 1
Spurious:	- 80 dBc, typical
Harmonics & Sub-harmonics: <small>Note 1</small>	
+ 8 to +10 dBm output: <small>Note 2</small>	- 30 dBc, max
+ 16 to 19 dBm output: <small>Note 2</small>	- 25 dBc, max
Output VSWR:	1.5:1, typical
Supply Voltage:	+ 12 to 18 volts
DC Current:	
60 to 120 MHz (less heater):	60 mA, typical
120 to 1440 MHz (less heater):	90 mA, typical
Heater turn-on current:	350 mA, typical
Heater current, steady state:	150 mA, typical

Environmental Specifications

Standard Operating Temp.:	0 to + 70 °C
	See Options
Vibrational Sensitivity:	5 x 10 ⁻¹⁰ /g, typical

Mechanical Specifications See Packages

Options

- **002 Extended Operating Temperature:**
- 54 to + 85 °C (± 1 ppm frequency stability)
- **010 Frequency Trim:**
A mechanical adjustment for trimming the frequency to within ± .05 ppm at room temperature.
- **020 Electronic Tuning:**
± 2 ppm, minimum
- **090 Combines Options - 010 and - 020**
- **300 Phase Noise Test with Guaranteed Phase Noise Performance** Note 3

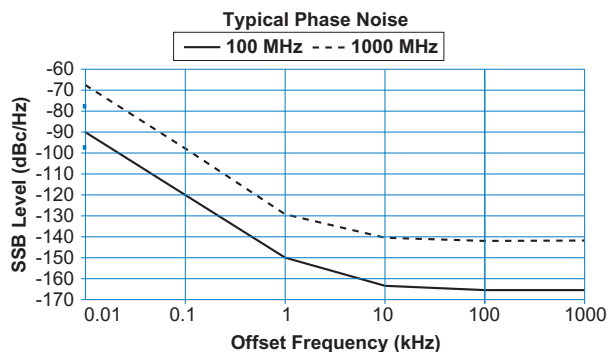


Figure 1

Note 1: "Sub-harmonics" refers to the unwanted multiples of the fundamental crystal used.
 Note 2: See Tables III and IV for models with - 60 dBc harmonics and sub-harmonics.
 Note 3: Option - 300 is only available on orders for two or more identical oscillators that incorporate option - 090.

Oscillators

Catalog, SC-Cut Ovenized Crystal Oscillators

Model: OSC 10-400 & 10-450 Series



Table I Connector Versions

Frequency Range (MHz)	Model Number	Output Power (dBm, min.)	Package
60-120	10-400-9100-000	+ 10	A
121 - 360	10-450-9200-000	+ 10	B-1
361 - 720	10-450-9300-000	+ 10	B-1
721 - 1440	10-450-9400-000	+ 10	B-1
60 - 120	10-400-9500-000	+ 19	A
121 - 360	10-450-9600-000	+ 19	B-1
361 - 720	10-450-9700-000	+ 19	B-1
721 - 1440	10-450-9800-000	+ 18	B-1

Table II PCB Versions

Frequency Range (MHz)	Model Number	Output Power (dBm, min.)	Package
60-120	10-400-9101-000	+ 10	C
121 - 360	10-450-9201-000	+ 10	D-1
361 - 720	10-450-9301-000	+ 10	D-1
721 - 1440	10-450-9401-000	+ 10	D-1
60 - 120	10-400-9501-000	+ 19	C
121 - 360	10-450-9601-000	+ 19	D-1
361 - 720	10-450-9701-000	+ 19	D-1
721 - 1440	10-450-9801-000	+ 18	D-1

Models with Improved Harmonics & Sub-Harmonics
 (- 60 dBc from DC to three times the output frequency)

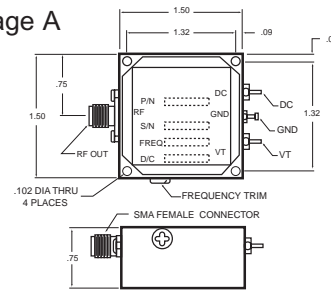
Table III Connector Versions

Frequency Range (MHz)	Model Number	Output Power (dBm, min.)	Package
60-120	10-400-9110-000	+ 8	B-1
121 - 360	10-450-9210-000	+ 8	B-2
361 - 720	10-450-9310-000	+ 8	B-2
721 - 1440	10-450-9410-000	+ 8	B-2
60 - 120	10-400-9510-000	+ 17	B-1
121 - 360	10-450-9610-000	+ 17	B-2
361 - 720	10-450-9710-000	+ 17	B-2
721 - 1440	10-450-9810-000	+ 16	B-2

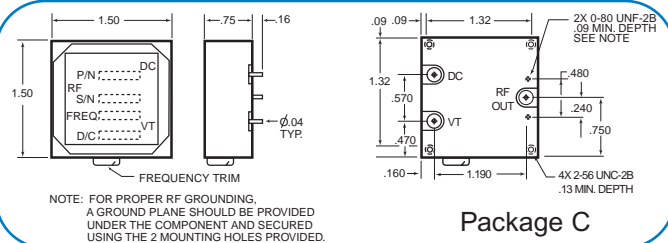
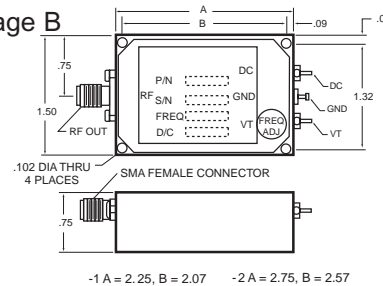
Table IV PCB Versions

Frequency Range (MHz)	Model Number	Output Power (dBm, min.)	Package
60-120	10-400-9111-000	+ 8	D-1
121 - 360	10-450-9211-000	+ 8	D-2
361 - 720	10-450-9311-000	+ 8	D-2
721 - 1440	10-450-9411-000	+ 8	D-2
60 - 120	10-400-9511-000	+ 17	D-1
121 - 360	10-450-9611-000	+ 17	D-2
361 - 720	10-450-9711-000	+ 17	D-2
721 - 1440	10-450-9811-000	+ 16	D-2

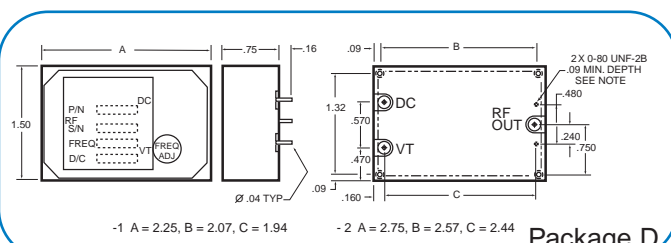
Package A



Package B



Package C



Package D

Example:

Model Number 10-400-9100-012, 100.000000 MHz is a standard 100 MHz oscillator with connector, frequency trim, and extended operating temperature options.
 Model Number 10-400-9110-012, 100.000000 MHz is the same as the above example except that it also has improved harmonics and sub-harmonics.

Options:

Options are designated by the last three digits of the model number, with - 000 indicating no options.

Ordering Information:

Specify the model number, options (if any), and the exact operating frequency in MHz to the sixth decimal place. Specifications subject to change without notice.

TRAK Microwave Corporation

E-Mail: sales@trak.com • www.trak.com

Ph: 813-901-7200 • US Toll Free: 1-888-283-8444

4726 Eisenhower Boulevard • Tampa, Florida 33634-6391 USA

