



SC-Cut Ovenized Crystal Oscillators

Fundamental and Multiplied Crystal Oscillators 10-400 & 10-450 Series

These SC-Cut crystal oscillators are designed for high performance applications where temperature stability, low phase noise under vibration and rugged construction are a must. A wide range of frequencies and options are available including improved spurious and harmonic performance.

Electrical Specifications

Frequency Range:	60 to 1440 MHz
Frequency Set Accuracy (+25°C):	$\pm .05$ ppm
Frequency Stability vs Temperature:	$\pm .1$ ppm
Aging Rate:	2 ppm first year
Power Output:	See Table II & III
Phase Noise:	See Figure 1
Spurious:	-80 dBc, typical
Harmonics & Sub-harmonics: Note 1,2	
+10 dBm power output	-30 dBc, maximum
+16 dBm or more power output	-25 dBc, maximum
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

Temperature Range:	0 to +70°C
Vibrational sensitivity:	5×10^{-10} /g, typical

Mechanical Specifications

See Outlines

Options

See Table I

Note 1: "Sub-harmonics" refers to the unwanted multiples of the fundamental crystal used.

Note 2: See model number in Table III for -60 dBc harmonics & sub-harmonics.

Table I

- 010 Frequency Trim A mechanical adjustment for trimming the frequency to within $\pm .1$ ppm at room temperature.	- 002 Extended Temperature Range -54 to +85°C
-020 Electronic tuning ± 2 ppm (Both -010 & -020, option # is -090)	

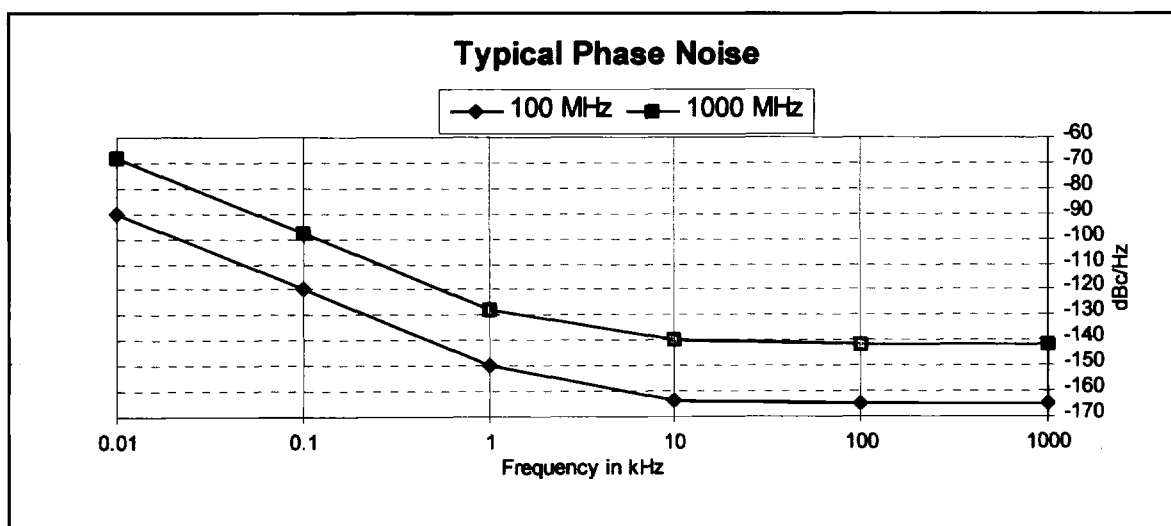


Figure 1



SC-Cut Ovenized Crystal Oscillators

Table II

Model Number	Frequency Range	Power Output (min)	Outline Drawing
10-400-9100-000	60 - 120 MHz	+10 dBm	A
10-450-9200-000	121 - 360 MHz	+10 dBm	B-1
10-450-9300-000	361 - 720 MHz	+10 dBm	B-1
10-450-9400-000	721 - 1440 MHz	+10 dBm	B-1
10-400-9500-000	60 - 120 MHz	+19 dBm	A
10-450-9600-000	121 - 360 MHz	+19 dBm	B-1
10-450-9700-000	361 - 720 MHz	+19 dBm	B-1
10-450-9800-000	721 - 1440 MHz	+18 dBm	B-1
10-400-9101-000	60 - 120 MHz	+10 dBm	C
10-450-9201-000	121 - 360 MHz	+10 dBm	D-1
10-450-9301-000	361 - 720 MHz	+10 dBm	D-1
10-450-9401-000	721 - 1440 MHz	+10 dBm	D-1
10-400-9501-000	60 - 120 MHz	+19 dBm	C
10-450-9601-000	121 - 360 MHz	+19 dBm	D-1
10-450-9701-000	361 - 720 MHz	+19 dBm	D-1
10-450-9801-000	721 - 1440 MHz	+18 dBm	D-1

Table III

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

Model Number	Frequency Range	Power Output (min)	Outline Drawing
10-400-9110-000	60 - 120 MHz	+8 dBm	B-1
10-450-9210-000	121 - 360 MHz	+8 dBm	B-2
10-450-9310-000	361 - 720 MHz	+8 dBm	B-2
10-450-9410-000	721 - 1440 MHz	+8 dBm	B-2
10-400-9510-000	60 - 120 MHz	+17 dBm	B-1
10-450-9610-000	121 - 360 MHz	+17 dBm	B-2
10-450-9710-000	361 - 720 MHz	+17 dBm	B-2
10-450-9810-000	721 - 1440 MHz	+16 dBm	B-2
10-400-9111-000	60 - 120 MHz	+8 dBm	D-1
10-450-9211-000	121 - 360 MHz	+8 dBm	D-2
10-450-9311-000	361 - 720 MHz	+8 dBm	D-2
10-450-9411-000	721 - 1440 MHz	+8 dBm	D-2
10-400-9511-000	60 - 120 MHz	+17 dBm	D-1
10-450-9611-000	121 - 360 MHz	+17 dBm	D-2
10-450-9711-000	361 - 720 MHz	+17 dBm	D-2
10-450-9811-000	721 - 1440 MHz	+16 dBm	D-2

Ordering Information

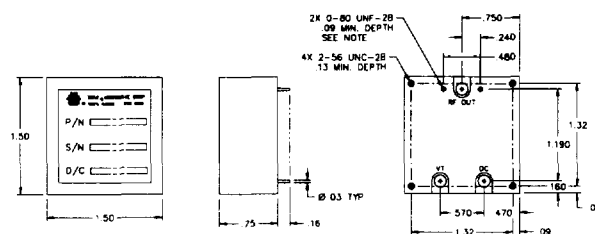
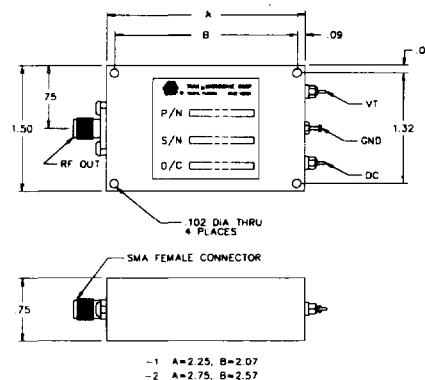
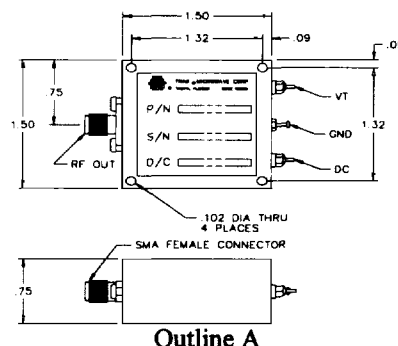
Specify the model number and the exact operating frequency in MHz to the sixth decimal place. Example:
10-450-9111-000, 61.238967 MHz.

Options

Several options are offered with these oscillators which are designated by the last three digits of the model number, with -000 indicating no options.

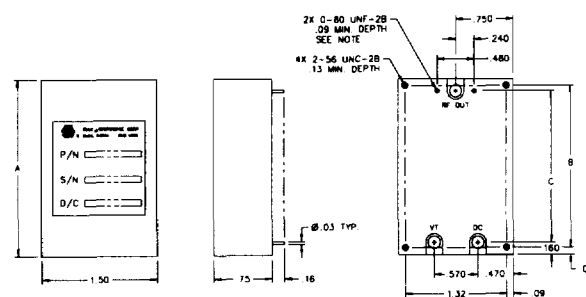
Example:

A 100 MHz oscillator with frequency trim and extended temperature would have the following model number:
10-400-9100-012, 100.000000 MHz



NOTE: FOR PROPER RF GROUNDING, A GROUND PLANE SHOULD BE PROVIDED UNDER THE COMPONENT AND SECURED USING THE 2 MOUNTING HOLES PROVIDED.

Outline C



NOTE: FOR PROPER RF GROUNDING, A GROUND PLANE SHOULD BE PROVIDED UNDER THE COMPONENT AND SECURED USING THE 2 MOUNTING HOLES PROVIDED.

Outline D