VECTRON INTERNATIONAL
A DOVER COMPANY

OX-042

Oven Controlled Crystal Oscillator

Features

- Low G-Sensitivity
- Low Phase Noise
- High Stability
- SC-Cut Crystal Standard
- Vectron's Patented (US Patent 6,984,925) QRM Crystal Technology
- Frequency Range: 3 MHZ to 20 MHZ

Applications

- Military
- Radar
- Test Equipment
- Frequency Synthesizers
- Position Location
- Satellite Communications

Performance Specifications

Parameter	Min	Typ	Max	Units	Condition
Available Frequencies					
With Standard Crystals	3		20	MHz	
With QRM Crystals	8		15	MHz	
G-Sensitivity Performance					
G Sensitivity w\QRM crystal ≥ 10 MHz			0.2	ppb/g	Degrades to 0.4 ppb/g @ 8 MHz
G Sensitivity w\std. crystal ≥ 10 MHz			2.0	ppb/g	Degrades to 4.0 ppb/g @ 3 MHz
(No mechanical resonances out to 2KHz)					G sensitivity specified as Total Gamma
Frequency Stabilities[1]					
vs. operating temperature range (referenced to +25°C)	-30		+30	ppb	-40… +85°C
	-25		+25	ppb	-40… +70°C
	-20		+20	ppb	-20… +70°C
	-10		+10	ppb	0… +70°C
Initial Tolerance	-100		+100	ppb	at time of shipment, nominal EFC
vs. supply voltage change	-2.0		+2.0	ppb	Vs ± 5%
vs. load change	-2.0		+2.0	ppb	Load ± 5%
vs. aging / daily	-0.3		+0.3	ppb	after 72 hours of operation
vs. aging / 1 year	-50		+50	ppb	after 72 hours of operation
vs. aging / year (following years)	-30		+30	ppb	
Warm-up Time			5	minutes	to ± 10ppb of final frequency (1 hour reading) @ +25°C

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Performance Specifications

Parameter	Min	Typ	Max	Units	Condition
Supply Voltage (Vs)					
Supply voltage (Standard-Opt A)	14.25	15.0	15.75	VDC	18 & 24 VDC options available
Supply voltage (Standard-Opt B)	11.4	12.0	12.6	VDC	18 & 24 VDC options available
Oven Power Consumption			6.0 3.0	Watts Watts	during warm-up steady state @ +25°C
RF Output					
Signal	Sinewave				
Load		50		ohm	
Output Power	+7.0			dBm	50 ohm load
Harmonics			-30	dBc	50 ohm load
Frequency Tuning (Internal Mechanical)					
Tuning Range	±0.75	±1.0	±2.0	ppm	Internal mechanical
Frequency Tuning (EFC - optional)					
Tuning Range	±0.2	±0.5	±1.0	ppm	Electronic frequency control
Linearity			20	%	
Tuning Slope	Positive				
Control Voltage Range	0.0	2.5	5.0	VDC	
Additional Parameters[1]					
Phase Noise[3] (@5 MHZ) (under static conditions - no vibration)		-115 -140 -155 -166 -168	-105 -137 -152 -163 -165	dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz	1 Hz 10 Hz 100 Hz 1 KHz 10 KHz
Phase Noise[3] (@ 10 MHZ) (under static conditions - no vibration)		-100 -133 -155 -166 -168	-95 -127 -152 -163 -165	dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz	1 Hz 10 Hz 100 Hz 1 KHz 10 KHz
Weight			100	g	
Absolute Maximum Ratings					
Supply voltage (Vs)			28	VDC	
Output Load	short		open	ohm	
Operable temperature range	-55		+85	°C	
Storage temperature range	-55		+125	°C	
Environmental Specifications					
Shock - operating	Mil-STD-202, Method 213, Condition J, 30G, 11 ms half-sine impulse				
Shock - endurance	Mil-STD-202, Method 213, Condition C, 100G, 11 ms half-sine impulse				
Sine Vibration - operating	Mil-STD-202, Method 204, Condition C, 10 G to 2 kHz				
Sine Vibration - endurance	Mil-STD-202, Method 204, Condition D, 20 G to 2 kHz				
Random Vibration - operating	Mil-STD-202, Method 214, Condition C, 10.7 Grms to 2 kHz				
Random Vibration - endurance	Mil-STD-202, Method 214, Condition H, 34 Grms to 2 kHz				
Seal	Mil-STD-202, Method 112, Condition D (not applicable to units with SMA connector)				

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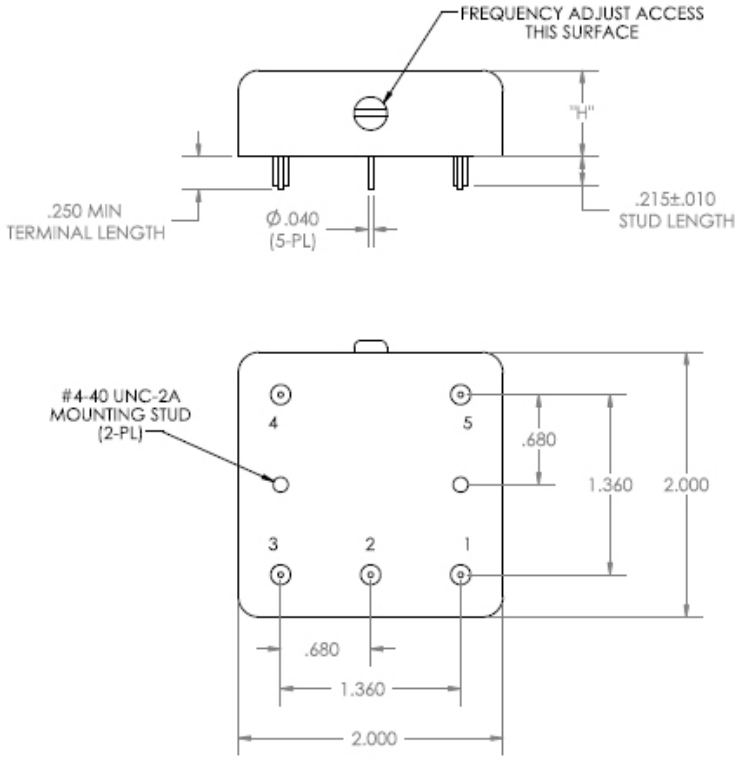
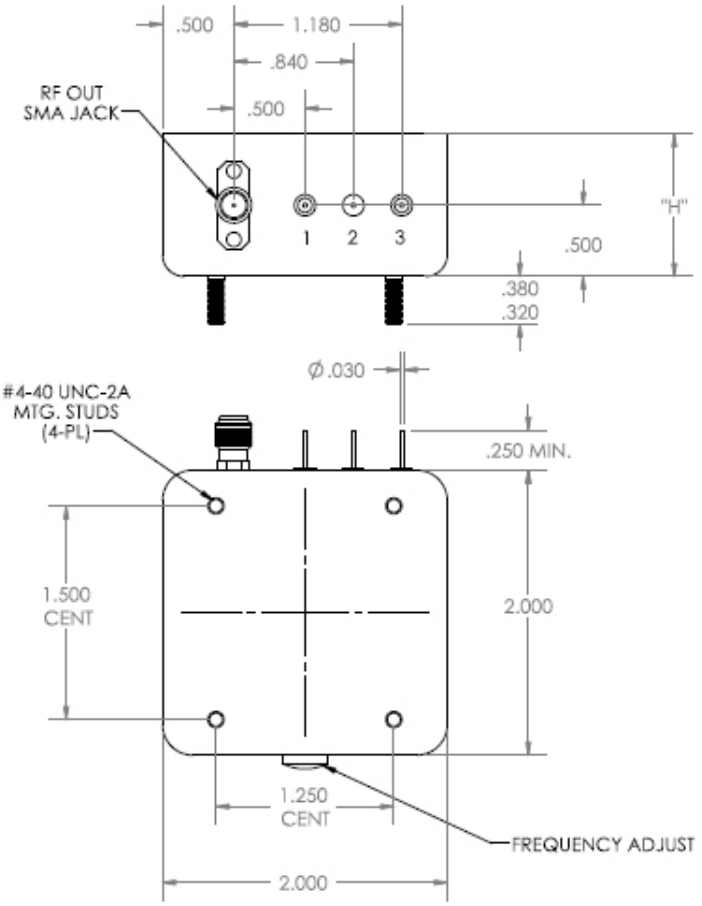
Outline Drawing / Enclosure



Dimensions in inches

Type A		
Code	Height "H" max	
0	1.04	
1	0.80	

Pin Connections	
1	Electronic Frequency Control (EFC) (optional)
2	No Connection
3	RF Output
4	Ground (Case)
5	Supply Voltage Input (Vs)



Dimensions in inches

Type B		
Code	Height "H" max	
2	1.04	

Pin Connections	
1	Supply Voltage Input (Vs)
2	Ground (Case)
3	Electronic Frequency Control (EFC) (optional)

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Ordering Information

OX - 042 0 - A E T-108 0 - 10M0000000

Product Family
OX: OCXO

Package
50 x 50 mm

Configuration\Height
0: A1.04 inches
1: A0.80 inches
2: B1.04 inches

Supply Voltage
A: 15 Vdc
B: 12 Vdc

RF Output Code
E: Sinewave

Temperature Range / Stability Code
E-308: -40°C to +85°C, ±30ppb
D-258: -40°C to +70°C, ±25ppb
J-208: -20°C to +70°C, ±20ppb
T-108: 0°C to +70°C, ±10ppb

Platform Code
Low G, EFC option
0: Std Crystal, No EFC
1: Low G-QRM Crystal, No EFC
2: Std Crystal, w\EFC
3: Low G-QRM Crystal, w\EFC

Frequency

Notes:

1. Contact factory for improved stabilities or additional product options. Not all options and codes are available at all frequencies.
2. Unless other stated all values are valid after warm-up time and refer to typical conditions for supply voltage, frequency control voltage, load, temperature (25°C).
3. Phase noise degrades with increasing output frequency.
4. Subject to technical modification.
5. Contact factory for availability.

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Rev: 8/18/2009 daf

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