MICROCHIP

Vectron™ Oscillators

OH-201

Harsh Environment
Ultra Low Phase Noise
Oven Controlled Crystal Oscillator



The OH-201 is an Ultra Low Phase Noise ovenized crystal oscillator in a 25 x 25 mm package with a phase noise floor as low as -175dBc/Hz. The OH-201 achieves a temperature stability of +/-10ppb over the wide temperature range of -55C to +90C and an aging rate of +/-0.2ppb/day. The OH-201 is designed to operate in harsh environment applications.

Features

- Temperature Stability to 10 ppb
- Standard Frequency: 10 MHz
- Ultra Low Phase Noise
- Excellent Shock and Vibration Performance

Applications

- Military Radar
- Instrumentation and Test Equipment
- Synthesizers
- Military Communication Equipment
- DRO reference
- Satellite Communications

Performance Specifications

Phase Noise Ordering Codes at 10 MHz				
Frequency Offset (Hz)	A (12V only)	B (5V only)	Unit	Condition
1	-105	-105	dBc/Hz	Maximum values All EFC settings
10	-135	-135		
100	-157	-157		
1000	-167	-167		
10,000	-175	-172		
100,000	-175	-172		

Frequency Stabilities at 10 MHz					
Parameter	Min	Typical	Max	Unit	Condition
vs. operating temperature range	-10		+10	ppb	-55 to +90°C (referenced to +25°C)
vs. Initial Tolerance	-100		+100	ppb	at time of shipment and 5V efc
Allan Deviation			5	E-12	0.1 to 1 second tau
vs. supply voltage change	-2		+2	ppb	±5% change
vs. load change	-2		+2	ppb	5% change in load
vs. aging / 1 day	-0.2		+0.2	ppb	after 7 days of operation
vs. aging / 1st year	-100		+100	ppb	after 7 days of operation
vs. aging / year	-30		+30	ppb	after first year of operation
Retrace (note 3)	-10		+10	ppb	
Warm up time			5	minutes	to ±10 ppb of 2-hour frequency @+25°C

Performance Specifications

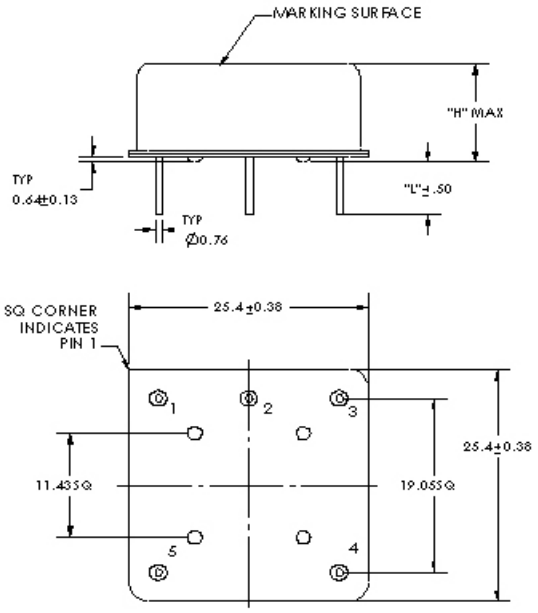
Supply Voltage (Vs)					
Parameter	Min	Typical	Max	Unit	Condition
Supply Voltage	11.4	12.0	12.6	VDC	
	4.75	5	5.25	VDC	
Power Consumption			5.0 2.0	Watts Watts	during warm-up steady state @ +25°C
Reference Voltage		10		VDC	12 V version
		4.35		VDC	5 V version
RF Output					
Signal	Sinewave				
Load		50		Ohms	
Output Power (@ Vs=12V)	+6.0		+10.0	dBm	50 Ohm load
Output Power (@ Vs=5V)	+4.0		+8.0	dBm	50 Ohm load
Harmonics			-30	dBc	50 Ohm load
Spurious			-80	dBc	50 Ohm load
Frequency Tuning (EFC)					
Tuning Range	±400		±800	ppb	enough for aging over 15 year lifetime
Linearity			15	%	
Tuning Slope	Positive				
Control Voltage Range	0 0		10 4.35	VDC VDC	Vs=12V Vs=5V
Input Impedance		100		kOhm	
Modulation Bandwidth	150			Hz	
Additional Parameters					
g-sensitivity			0.3 0.6	ppb/g ppb/g	10Hz to 1kHz 1kHz to 2kHz (linear slope 1kHz to 2kHz)
Weight			20	grams	

Absolute Maximum Ratings					
Parameter	**Min**	**Typical**	**Max**	**Unit**	**Condition**
Supply Voltage (Vs)			15 7	V V	12V version 5V version
Output Load			25	Ohms	
Operable Temperature Range	-55		+90	°C	Device will not sustain damage when operated at temperatures between the operating range and the operable range, but will not be specification compliant

Environmental and Product Classification					
Shock (Endurance)	MIL-STD-202, Method 213, Condition C, 100g 6 ms				
Sine Vibration (Endurance)	MIL-STD-202, Method 201 and 204, Condition D				
Random Vibration (Endurance)	MIL-STD-202, Method 214, Condition I-F				
Humidity	MIL-STD-202, Method 103, Condition B, 100% rh				
Seal	MIL-STD-202, Method 112, Condition D, hermetic, washable				
Altitude	MIL-STD-202, Method 105, sea level to space				
Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition A,B,C				
Terminal Strength	MIL-STD-202, Method 211, Condition C (5 bends at 45°, 2 lbs)				
Moisture Sensitive Level	1				
RoHS	6 Compliant				
Storage Temperature Range	-55		+125	°C	

Outline Drawing

Dimensions in mm



Code	Height "H"	Pin Length "L" Min
0	15.0	6.2
Pin Connections		
1	RF Output	
2	Ground (Case)	
3	Electronic Frequency Control Input (EFC)/ No Connect	
4	Reference Voltage	
5	Supply Voltage Input (VS)	

Ordering Information

OH - 201 0 - B E X - 108 0 - 10M0000000

Product Family
OH: Harsh Environment OCXO

Package
25x25mm

Height
0: 15.00 mm

Supply Voltage
B: +12V
D:+5V

RF Output Code
E: Sinewave

Temperature Range
X: -55°C to +90°C

Stability Code
108: ±10ppb

Phase Noise and Frequency Control
0: No Tuning, phase noise code A
2: No Tuning, phase noise code B
3: Frequency Tuning, phase noise code A
5: Frequency Tuning, phase noise code B

Frequency

Notes :

1. Unless otherwise stated, all values are valid after warm-up time and refer to typical conditions for supply voltage, frequency control voltage, load, and temperature (25°C).
2. Contact factory for other frequencies. Phase noise degrades for frequencies greater than 10 MHz.
3. Retrace is defined as the frequency difference between the end of two 24 hour periods with a 24 hour off period in between while at a constant temperature.

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