VECTRON INTERNATIONAL
A DOVER COMPANY

OX-170

Oven Controlled Crystal Oscillator

Features

- Reflow Process Compatible
- AT-CUT and SC_CUT Crystal Options
- Low Profile Compact Package

Applications

- Base stations
- Test equipment
- Synthesizers
- Military communication equipment
- Digital Switching

Performance Specifications

Frequency Stabilities[1] (AT-Cut Crystal-Standard -)						
Parameter	Min	Typical	Max	Units	Condition	
vs. operating temperature range (referenced to +25°C)	-30 -80 -100 -200		+30 +80 +100 +200	ppb ppb ppb ppb	0 to +70°C -20 to +70°C -20 to +70°C -40 to +85°C	Options[5]
Initial tolerance vs. supply voltage change vs. load change vs. aging / day vs. aging / year vs. aging / year (followig year)	-0.3 -5 -5 -2 -500 -250		+0.3 +5 +5 +2 +500 +250	ppm ppb ppb ppb ppb ppb	at time of shipment, nominal EFC V_S ±5% static Load ±5% static after 30 days of operation after 30 days of operation after 30 days of operation	
Warm-up time			5	minutes	to ±100ppb of final frequency (1 hour reading) @ +25°C	
Frequency Stabilities[1] (SC-Cut Crystal-Option)						
vs. operating temperature range (referenced to +25°C)	-10 -10 -20 -30		+10 +10 +20 +30	ppb ppb ppb ppb	0 to +70°C -20 to +70°C -20 to +70°C -40 to +85°C	
Initial tolerance vs. supply voltage change vs. load change vs. aging / day vs. aging / year vs. aging / year (following year)	-0.1 -5 -5 -1 -100 -50		+0.1 +5 +5 +1 +100 +50	ppm ppb ppb ppb ppb	at time of shipment, nominal EFC V_S ±5% static Load ±5% static after 30 days of operation after 30 days of operation after 30 days of operation	
Warm-up time			5	minutes	to ±100ppb of final frequency (1 hour reading) @ +25°C	

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Performance Specifications

Supply Voltage (Vs)						
Parameter	Min	Typical	Max	Units	Condition	
Supply voltage (standard)	3.135	3.3	3.465	VDC		
	4.75	5.0	5.25	VDC		
	11.4	12.0	12.6	VDC		
Power consumption			3.5	Watts	during warm-up	
			1.0	Watts	steady state @ +25°C	
RF Output						
Signal [standard]	HCMOS					
Load		15		pF		
Signal Level (Vol)			0.4	VDC	with Vs=3.3V and 15pF Load	
Signal Level (Vol)			0.5		with Vs=5.0V & 12V and 15pF Load	
Signal Level (Voh)	2.4			VDC	with Vs=3.3V and 15pF Load	
Signal Level (Voh)	3.5				with Vs=5.0V & 12V and 15pF Load	
Duty Cycle	45		55	%	@ (Voh-Vol)/2	
Signal	Sine Wave					
Load		50		Ω		
Output Power @3,3V	2	5	8	dBm	50 Ω load	
Putput Power @ 5.0V	5	8	11	dBm	50 Ω load	
Harmonics			-30	dBm	50 Ω load	
Frequency Tuning (EFC)						
Tuning Range	Fixed OCXO; No adjust					Option[5]
Tuning Range	±3.0		±8	ppm	with AT cut crystal	
	±0.75		±2.0	ppm	with SC cut crystal	
Linearity	10%					
Tuning Slope	Positive					
Control Voltage Range	0.0	1.4	2.8	VDC	with Vs=3.3V	
	0.0	2.0	4.0		with Vs=5.0V	
	0.0	2.0	4.0	VDC	with Vs=12.0V	
Reference Voltage Output (Vref)						
Reference Voltage	2.75	2.8	2.85	VDC	with Vs = 3.3 VDC	
	3.92	4.0	4.08	VDC	with Vs = 5.0 VDC	
	4.9	5.0	5.1	VDC	with Vs =12 VDC	
Additional Parameters						
Phase Noise[3]			-90 -120 -140 -145 -150	dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz	1 Hz 10 Hz 100 Hz 1 kHz 10 kHz	@ 10MHz with SC Cut
Phase Noise[3]			-75 -105 -130 -140 -150	dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz	1 Hz 10 Hz 100 Hz 1 kHz 10 kHz	@ 10MHz with AT Cut
Weight			14	g		
Processing & Packing	Handling & Processing Note					

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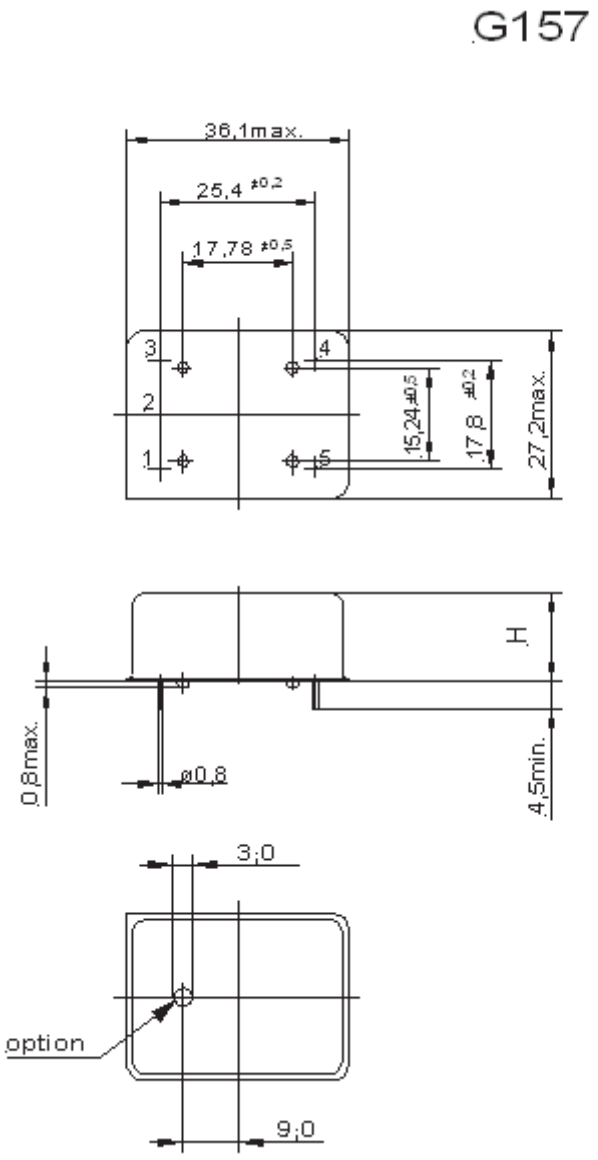
Absolute Maximum Ratings					
supply voltage (Vs)			6.5	V	with Vs=3.3 & 5.0 VDC
			15.0	V	with Vs= 12 VDC
Output Load			50	pF	
Operable Temperature Range	-55		+85	°C	
Storage Temperature Range	-55		+125	°C	

Outline Drawing / Enclosure



OX-170	
Height "H"	Pin Length "L"
12.2	4.5 mm min
13.5	4.5 mm min
15.2	4.5 mm min
18.2	4.5 mm min

Pin Connections	
1	Electronic Frequency Control Input (EFC)
2	Reference Voltage Option
3	Supply Voltage Input (VS)
4	RF Output
5	Ground (Case)

Dimensions in mm

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Ordering Information

OX - 170 0 - D A E - 258 0 - 10M0000000

- **Product Family**
  OX: OCXO
- **Package**
  THT version: 170
- **Height**
  0: 12.2mm
  1: 13.5 mm
  2: 15.2 mm
  2: 18.2 mm
- **Supply Voltage**
  B: 12V
  D: 5V
  E: 3.3V
- **RF Output Code**
  A: HCMOS
  E: Sinewave
- **Temperature Range**
  E: -40°C to +85°C
  J: -20°C to +70°C
- **Stability Code**
  108: ±10ppb
  208: ±20ppb
  258: ±25ppb
  508: ±50ppb
  107: ±100ppb
- **Frequency Control**
  0: No Tuning
  1: ±1.0 to ±2.5ppm
  2: ±3.0 to ±8.0ppm
- **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.

For Additional Information, Please Contact

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