VECTRON INTERNATIONAL
A DOVER COMPANY

TX-402

Temperature Compensated Crystal Oscillator
High Precision

Features

- High Precision TCXO
- OCXO Replacement
- OCXO Temperature Performance
- Low power consumption
- Low cost
- Tight Tolerances

Applications

- Base Station
- Test Equipment
- Femto Base Station
- Communication Equipment
- Digital Switching

Performance Specifications

Frequency Stabilities[1] (Standard - 6.4 to 26 MHz)						
Parameter	Min	Typical	Max	Units	Condition	
vs. operating temperature range (referenced to +25°C)	-280 -140 -100 -100 -70 -50		+280 +140 +100 -100 +70 +50	ppb ppb ppb ppb ppb ppb	-40 to +85°C -40 to +85°C -40 to + 85°C for some frequencies[1] -20 to +70°C -20 to +70°C -20 to + 70°C for some frequencies[1]	Options[3]
Initial tolerance	-0.5		+0.5	ppm	at time of shipment, nominal EFC	
vs. supply voltage change	-10		+10	ppb	V_S ±5% static	
vs. load change	-10		+10	ppb	Load ±5% static	
vs. aging / day	-10		+10	ppb	after 30 days of operation	
vs. aging / year	-1.0		+1.0	ppm	after 30 days of operation	
vs. aging / 10 years	-3.0		+3.0	ppm	after 30 days of operation	

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Performance Specifications

Supply Voltage (Vs)						
Parameter	Min	Typical	Max	Units	Condition	
Supply voltage (standard) Current consumption	3.135	3.3	3.465 12	VDC mA	@HCMOS	
Supply voltage Current consumption	4.75	5.0	5.25 12	VDC mA	@HCMOS	
RF Output						
Signal [standard]	HCMOS					
Load	13.5	15	16.5	pF		
Signal Level (Vol)			0.3	VDC	with Vs=3.3V and 15pF Load	
Signal Level (Voh)	2.6				with Vs=3.3V and 15pF Load	
Signal Level (Vol)			0.5	VDC	with Vs=5.0V and 15pF Load	
Signal Level (Voh)	4.5				with Vs=5.0V and 15pF Load	
Duty Cycle	40		60	%	@ (Voh-Vol)/2	
Rise and Fall time			5	ns	@15 pF 10 to 90 %	
Frequency Tuning (EFC) 6.4 to 26 MHz						
Tuning Range	Fixed TCXO; No adjust					Option[3]
Tuning Range	±5.0			ppm		
Linearity	<10%					
Tuning Slope	Positive					
Control Input Impedance	80	100	120	kOhm		
Control Voltage Range	0.3	1.65	3.0	VDC	with Vs=3.3V	
Control Voltage Range	0.5	2.5	4.5	VDC	with Vs=5 V	
Additional Parameters						
Phase Noise[2]		-92 -117 -139 -150 -152	-80 -110 -130 -145 -150	dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz	10 Hz 100 Hz 1 kHz 10 kHz 100 kHz	@ 10 MHz HCMOS 5 V
Jitter		0.2		ps RMS	@ 12 kHz to 20 MHz	
Weight			8.0	g		
Processing & Packing	Handling & Processing Note					
Absolute Maximum Ratings						
supply voltage (Vs)			6.0	V	with Vs=3.3 & 5.0 VDC	
Output Load			50	pF		
Operable Temperature Range	-40		+85	°C		
Storage Temperature Range	-40		+90	°C		

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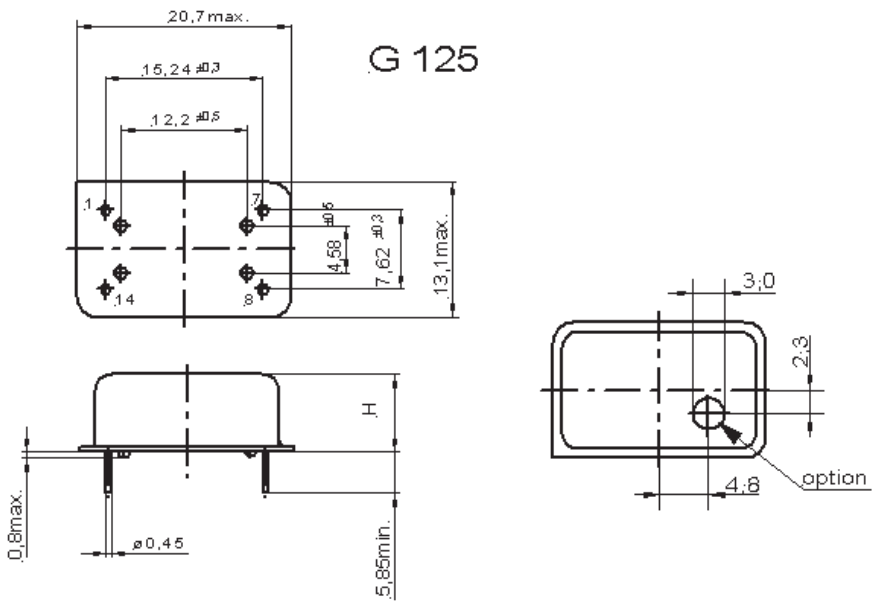
Outline Drawing / Enclosure



Dimensions in mm

TX-402	
Height "H"	Pin Length "L"
8.5 max	NA

Pin Connections	
1	Control Voltage Input (Vc)
7	Ground (Case)
8	RF-Output
14	Supply Voltage Input (Vs)

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Ordering Information

TX - 402 0 - E A J - 107 0 - 10M0000000

- **Product Family**
  TX: TCXO
- **Package**
  High PrecisionTCXO
  THT version: 402
- **Height**
  0: 9.3 mm
  including Standoffs
- **Supply Voltage**
  E: 3.3V
  D: 5.0V
- **RF Output Code**
  A: HCMOS
- **Temperature Range**
  J: -20°C to +70°C
  E: -40°C to +85°C
- **Stability Code**
  287: ±280 ppb
  147: ±140 ppb
  107: ±100 ppb
  708: ±70 ppb
  508: ±50 ppb
- **Frequency Control**
  0: No Tuning
  1: > ±5.0 ppm
- **Frequency**

Notes:

1. Contact factory for improved stabilities or additional product options. Not all options and codes are available at all frequencies.
2. Phase noise degrades with increasing output frequency.
3. Contact factory for availability.

Unless other stated all values are valid at typical conditions for supply voltage, frequency control voltage, load, temperature (25°C).

Subject to technical modification.

For Additional Information, Please Contact

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Rev: 5/2010