

## Helping Customers Innovate, Improve & Grow



Vectron offers a High Temperature Crystal Oscillator (PX-570) product platform for extreme environment applications. In addition to its wide operating temperature range, PX-570 HTXO is also ideal for high shock & vibration applications. PX-570's unique package design offers small ceramic package footprint, as well as providing both through-hole mounting and surface mount options.

Vectron's vertical integration in the following technical areas ensures the ability to design and manufacture state of the art high temperature frequency control products:

- BAW & SAW Design & Fabrication to produce high quality resonators.
- RF Oscillator Circuit Design.
- Established 250°C High Temperature Electronics Packaging Expertise.
- Established 250°C High Temperature Electronics Assembly & Test Expertise.
- Environmental Screening.

Vectron's manufacturing processes, from quartz resonator fabrication to oscillator electronics assembly and test, are painstakingly controlled via ISO and SPC procedures. Vectron fabricates high temperature quartz resonators using proprietary manufacturing processes designed specifically for high temperature and harsh environment applications. In order to ensure high reliability in the field, critical electrode metallization and testing processes are conducted inside state-of-the-art Class 1K cleanrooms, while oscillator assembly is conducted in Class 10K cleanrooms. All high temperature oscillators are 100% tested before delivery.

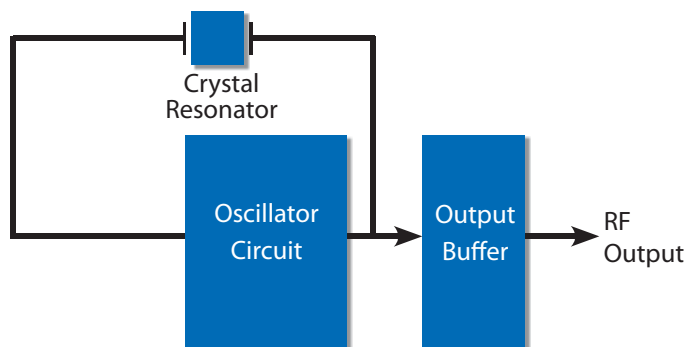
### Features

- **Continuous operating temperature range -55°C to 230°C**
- **Low jitter and phase noise**
- **1.8Vdc, 2.5Vdc, 3.3Vdc or 5Vdc operation**
- **Compliant crystal mount for high shock & vibration**
- **Output frequency 32kHz to 40MHz standard**
- **8.0mm x 8.5mm x 2.9mm ceramic leaded package**
- **RoHS Compliant**

### Applications

- Oil / Gas downhole tool
- Geophysical services
- High temperature industrial process control
- Extended temperature Military/Aerospace
- Avionics
- Engine control

### Block Diagram



# Performance Specifications

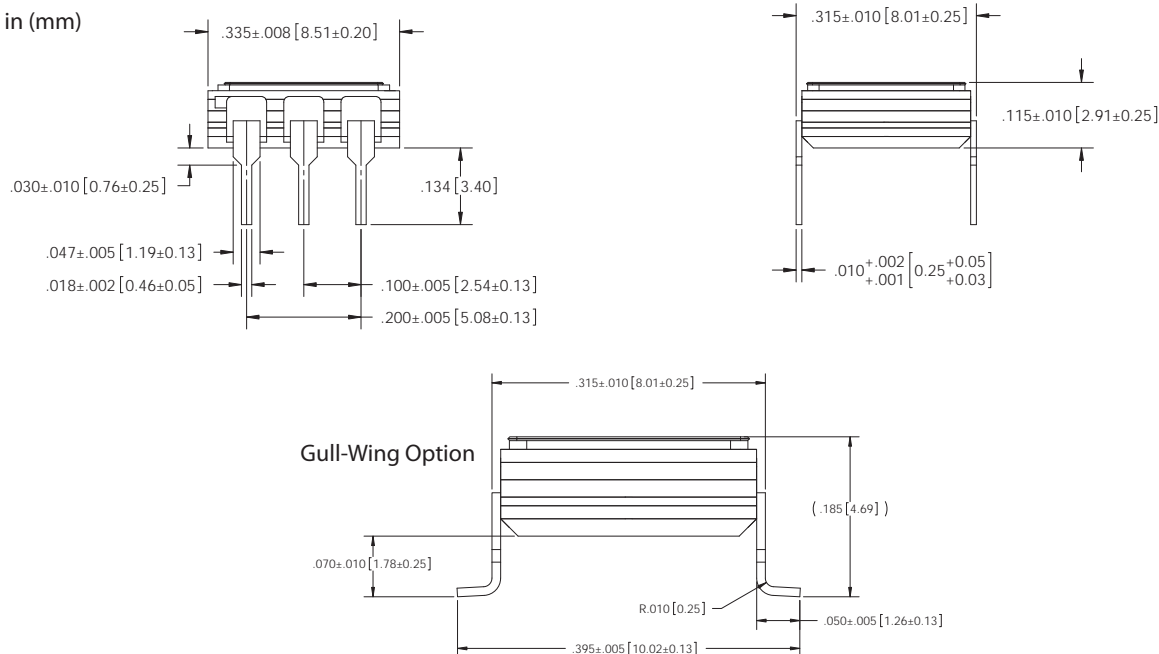
Specification Parameters	Values	
Frequency Range	32kHz to 40MHz	
Supply (Vdd)	+5.0Vdc ±5% (D) +3.3Vdc ±5% (E)	+2.5Vdc ±5% (H) +1.8Vdc ±5% (J)
Current	5mA typical @ 20MHz, 3.3V (low current option is available, consult factory)	
Level "0" & "1"	<0.4V / >Vdd - 0.5V	
Output	HCMOS compatibility (A)	
Rise & Fall Time	1ns typical / 3ns Max	
Symmetry	40/60%	
Operating Temperature	0°C to +150°C (1) -20°C to +180°C (Z) -55°C to +180°C (Y)	0°C to +200°C (2) 0°C to +230°C (3) (other custom temperature ranges are available, consult factory)
Jitter (12kHz - 20MHz)	<0.5ps	
Phase Noise (Typical @40MHz, HCMOS, 3.3V)	10Hz -70 dBc/Hz 100Hz -100 dBc/Hz 1kHz -128 dBc/Hz	10kHz -143 dBc/Hz 100kHz -150 dBc/Hz 1MHz -150 dBc/Hz
Temperature Stability	±40ppm (J) ±100ppm (S) ±150ppm (U)	±250ppm (W) ±300ppm (Y)
Package Size (mm)	8.0 x 8.5 x 2.9 (Thru-Hole and Gull-Wing options)	
Storage Temperature	-55°C to +125°C	

## Environmental Compliance

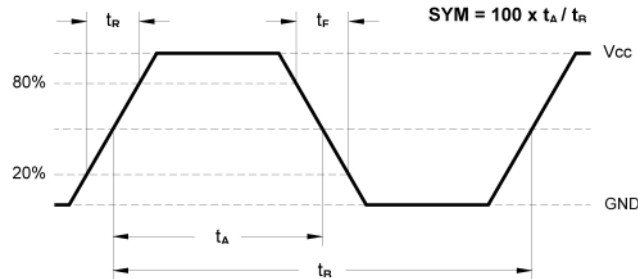
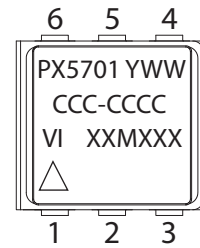
Vibration-Sine	20g, 10Hz to 2kHz Sine	MIL-STD-202 Method 204 Condition D
Vibration-Random	20grms, 10Hz to 2kHz Random	MIL-STD-202 Method 214 Condition I-F
Shock	1000g, 0.5ms	MIL-STD-202 Method 213 Condition E
Seal Test	Fine	MIL-STD-883 Method 1014 Condition A2
Seal Test	Gross	MIL-STD-202 Method 112 Condition D
Temperature Cycling	10 Cycles minimum	MIL-STD-883 Method 1010 Condition B
Acceleration	5000g Y1 axis	MIL-STD-883 Method 2001 Condition A

## Physical Specifications and Marking

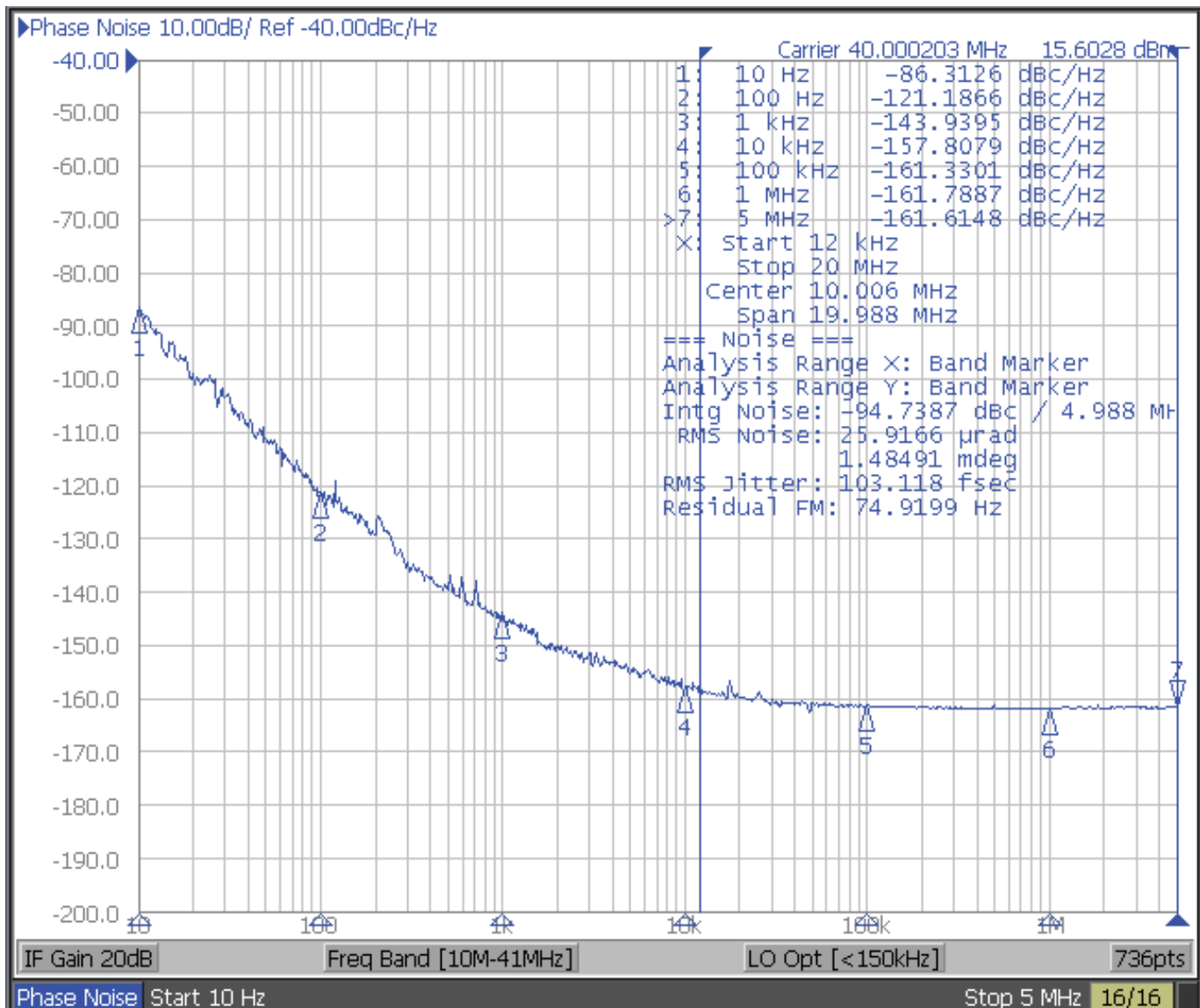
Dimensions in (mm)



Pin	Function
1	Enable/Disable option
2	No Connection
3	Case & Electrical Ground
4	RF Output
5	No Connection
6	Vdd Power Supply Voltage



## Typical Phase Noise Performance



Standard Frequency List							
32.768kHz	512.000kHz	1.000MHz	1.024MHz	2.000MHz	2.048MHz	3.686MHz	4.000MHz
4.096MHz	5.000MHz	7.3728MHz	8.000MHz	8.192MHz	10.000MHz	12.000MHz	16.000MHz
16.384MHz	20.000MHz	24.000MHz	32.000MHz	32.768MHz	40.000MHz		

## Ordering Information

**PX - 570 1 - D A Y - W X X X - 10M0000000**

**Product Family**  
High Temp Products

**Package Type**  
570: 8 x 9 mm

**Lead Options**  
1: Thru Hole  
2: Gull Wing

**Supply Voltage**  
D: 5.0V ±5%  
E: 3.3V ±5%  
H: 2.5V ±5%  
J: 1.8V ±5%

**Output**  
A: HCMOS/ACMOS

**Frequency**

**Factory Use**

**Factory Use**

**Enable**

A: Enable Hi, Tristate  
X: No Enable

**Temp Stability (PX)**

J: ± 40ppm  
S: ± 100ppm  
U: ± 150ppm  
W: ± 250ppm  
Y: ± 300ppm

**Temperature Range**

1: 0°C to 150°C  
Z: -20°C to 180°C  
Y: -55°C to 180°C  
2: 0°C to 200°C  
3: 0°C to 230°C

*\*Note: not all combination of options are available.  
Other specifications may be available upon request.*

## For Additional Information, Please Contact

### USA:

Vectron International  
267 Lowell Road  
Hudson, NH 03051  
Tel: 1.888.328.7661  
Fax: 1.888.329.8328

### Europe:

Vectron International  
Landstrasse, D-74924  
Neckarbischofsheim, Germany  
Tel: +49 (0) 3328.4784.17  
Fax: +49 (0) 3328.4784.30

### Asia:

Vectron International  
1589 Century Avenue, the 19th Floor  
Chamtime International Financial Center  
Shanghai, China  
Tel: 86.21.60812888  
Fax: 86.21.61633598

### Disclaimer

Vectron International reserves the right to make changes to the product(s) and or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.

Rev: 11/2008