HT RTCXO

High Temperature

Low Power Real Time Clock Crystal Oscillators

Vectron offers a High Temperature Low Power Real Time Clock Crystal Oscillator (HT RTC XO) product platform for extreme environment applications. Comparing with traditional RTC solution with 32.768KHz tuning folk resonator design, Vectron HT RTC XO solution provides unsurpassed reliability with long lifetime at elevated temperature and exceptional temperature stability performance for high temperature, high shock & vibration applications.

Vectron HT RTC XO product portfolio includes three industrial standard package footprints 5x7mm SMD, 8x8.5mm leaded and ½ DIL, for satisfying both through-hole mount and surface mount requirements.

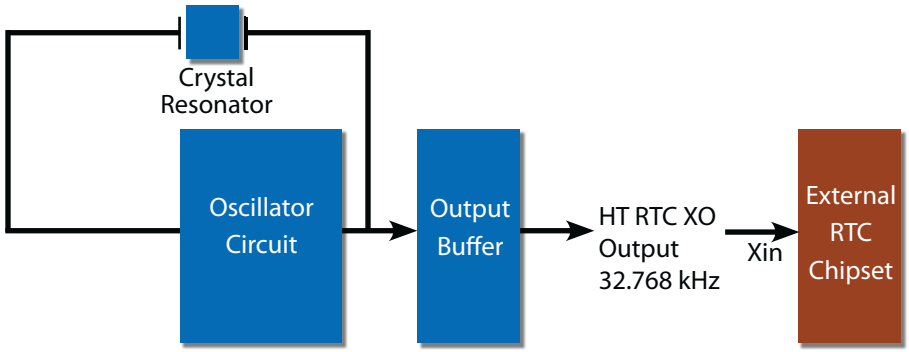
Features

- Continuous operating temperature range -55°C to 200°C
- 1.8, 2.5, 3.3 or 5.0 Vdc operation
- Output frequency 32.768 KHz
- 4-point crystal mount for Harsh Environment Applications
- High Shock and Vibration Survival
- Offer three standard product footprints
- Product is free of lead and compliant to EC RoHS directive
- Low current consumption option available
- Made in USA

Applications

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

Block Diagram



Performance Specifications

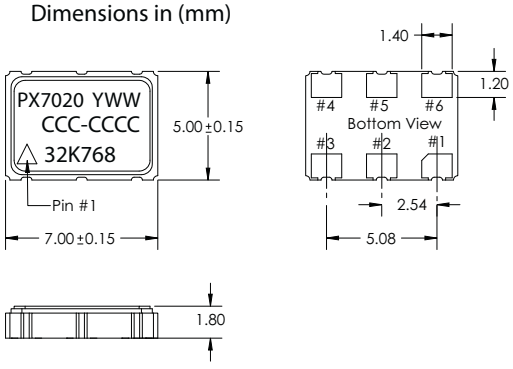
	PX-702	PX-570	PX-420
Specification Parameters	*Values*		
Frequency	32.768 kHz		
Supply (Vdd)	+1.8V to +5.0V		
Current (standard)	0.45mA typical @ 3.3V 0.25mA typical @ 2.5V 0.25mA typical @ 1.8V		
Current (low)	0.090mA typical @ 3.3V 0.085mA typical @ 2.5V 0.070mA typical @ 1.8V		
Output	HCMOS Compatible		
Symmetry	45/55%		
Operating Temperature	-55°C to +200°C *Please refer to ordering information for additional temperature ranges		
Temperature Stability	±250ppm *Please refer to ordering information for additional temperature stability specifications		
Package Size	5 x 7mm SMD HTCC	8 x 8.5mm Leaded HTCC	0.5" x 0.5" x 0.2" 1/2 DIL Metal
Storage Temperature	-55°C to +125°C		
Shock	3000g, 0.3ms	1000g, 0.5ms	1000g, 0.5ms
Vibration, Sine	30g, 10 to 2kHz	20g, 10 to 2kHz	20g, 10 to 2kHz
Vibration, Random	30grms, 10 to 2kHz	20grms, 10 to 2kHz	20grms, 10 to 2kHz

Environmental Compliance		
Vibration-Sine	See specification table	MIL-STD-202 Method 204
Vibration-Random	See specification table	MIL-STD-202 Method 214
Shock	See specification table	MIL-STD-202 Method 213
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

PX-702

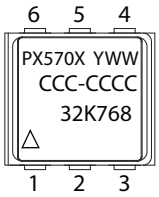
Dimensions in (mm)



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

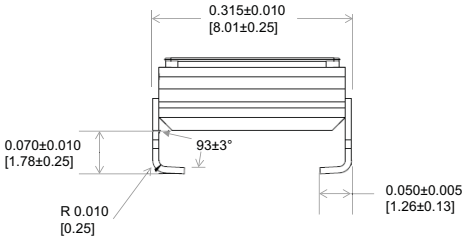
PX-570

Dimensions in (mm)

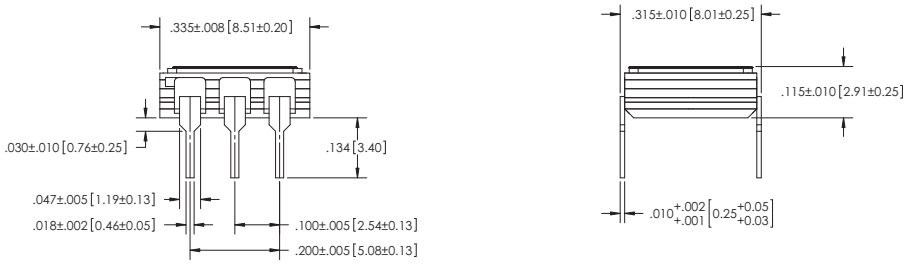


Pin	Function
1	Enable/Disable option
2	No Connection
3	Case & Electrical Ground
4	RF Output
5	No Connection
6	V_{CC} Power Supply Voltage

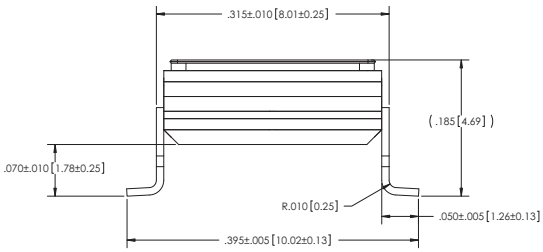
Inward L-Wing Option



Thru-Hole Option

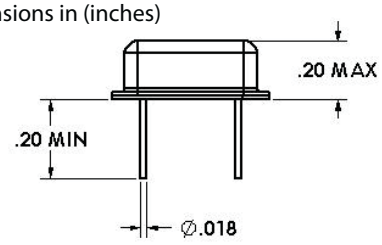


Gull-Wing Option

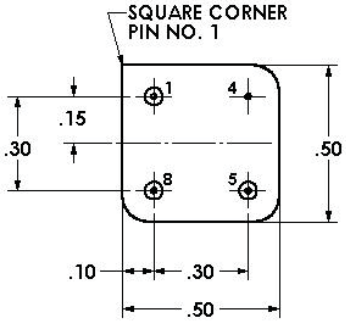


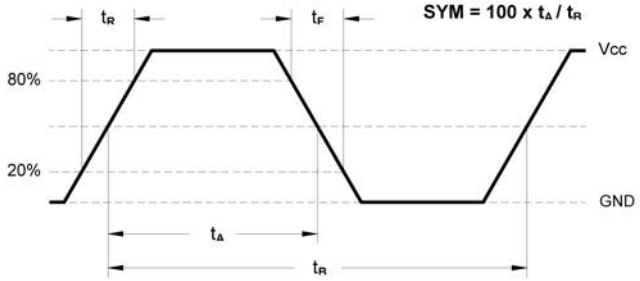
PX-420

Dimensions in (inches)

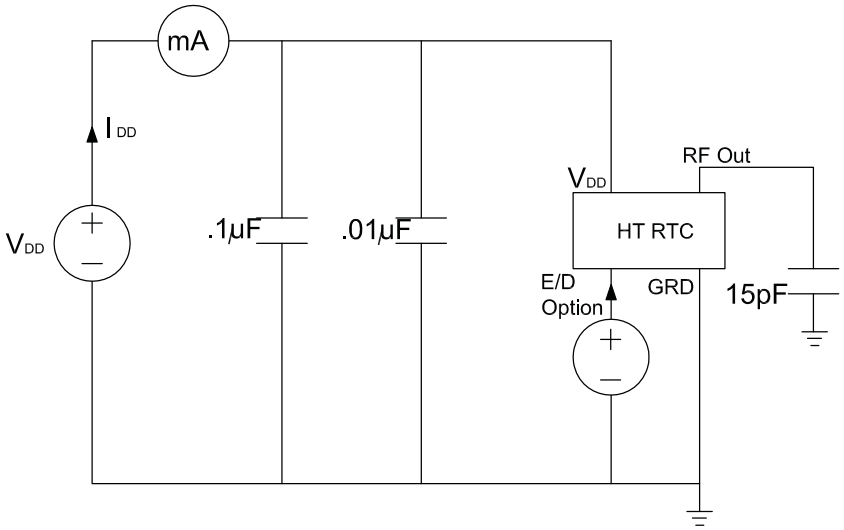


Pin	Function
1	Enable/Disable option
2	Case & Electrical Ground
3	RF Output
4	V_{CC} Power Supply Voltage

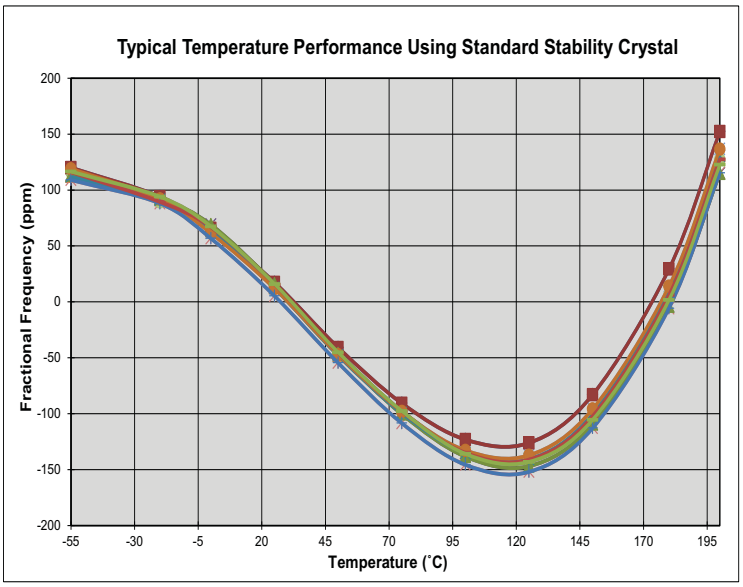


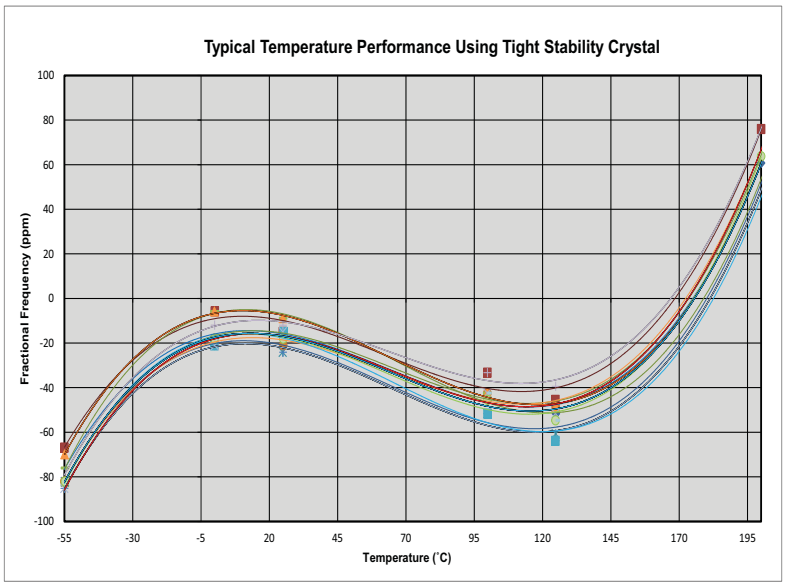


Test Circuit

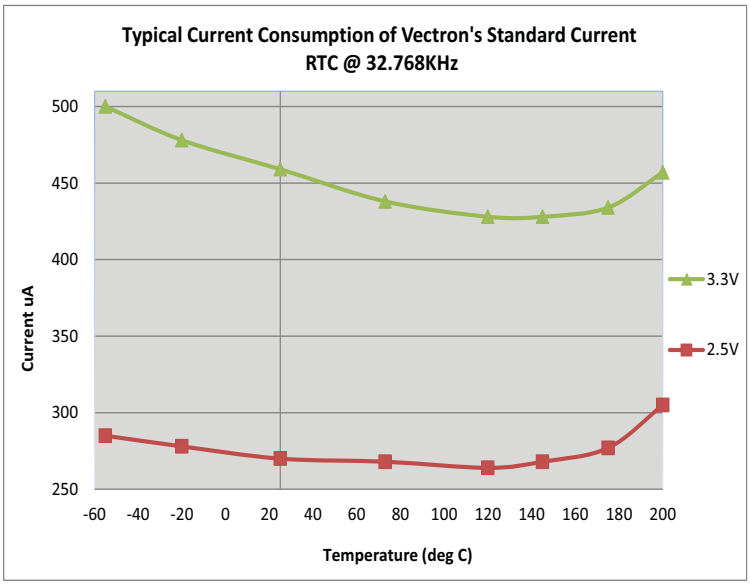


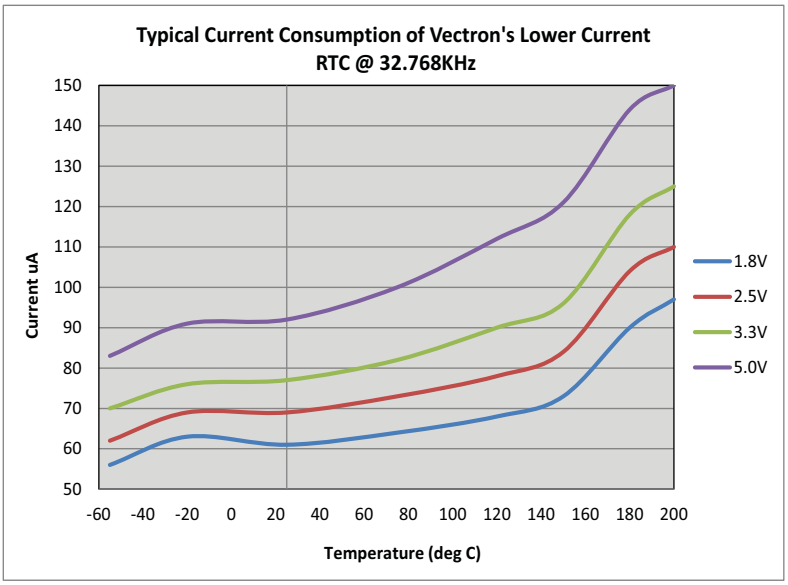
Temperature Stability Performance





Current Stability Performance





Ordering Information

PX - 7020 - E A 2 - W X X X - 32K7680000

Product Family
Crystal Oscillator

Package Type
7020: 5x7 mm SMD
5701: 8x9 mm Thru-Hole
5702: 8x9 mm Gull-Wing
5703: 8x9 mm L-Wing
4200: 4 Pin 1/2 DIP

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

Output
A: HCMOS/ACMOS

Frequency

Screening Option
B: "B" Level Screening
X: No Screening

Current Option
X: Standard
L: Low Current Option

Enable
A: Enable Hi, Tristate
X: No Enable

Temp Stability (PX)
J: ± 40ppm
S: ± 100ppm
U: ± 150ppm
V: ± 200ppm
W: ± 250ppm
Y: ± 350ppm

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
5: -55°C to 200°C

*Contact factory for custom requirements

*Contact factory for 5.0V requirements

Temperature Range and Stability Table		
Temp Range	**Temp Stability**	**PX-702 , PX-570 , PX- 420, HT RTC XO**
1: 0°C to 150°C * (Low current option available)	J: ± 40ppm	Tight Stability
	S: ± 100ppm	Standard
	U: ± 150ppm	Standard
	W: ± 250ppm	Standard
Z: -20°C to 180°C * (Low current option available)	J: ± 40ppm	Tight Stability
	S: ± 100ppm	Tight Stability
	U: ± 150ppm	Standard
	W: ± 250ppm	Standard
Y: -55°C to 180°C * (Low current option available)	S: ± 100ppm	Tight Stability
	U: ± 150ppm	Standard
	W: ± 250ppm	Standard
2: 0°C to 200°C	S: ± 100ppm	Tight Stability
	U: ± 150ppm	Tight Stability
	V: ± 200ppm	Standard
	W: ± 250ppm	Standard
5: -55°C to 200°C	S: ± 100ppm	Tight Stability
	U: ± 150ppm	Tight Stability
	V: ± 200ppm	Standard
	W: ± 250ppm	Standard

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