

Helping Customers Innovate, Improve & Grow



PX-702



PX-570



PX-420

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

Vectron's HT RTCXO product portfolio includes three industrial standard package footprints 5x7mm SMD, 8x8.5mm leaded and 1/2 DIL, for satisfying both through-hole and surface mount requirements.

Features

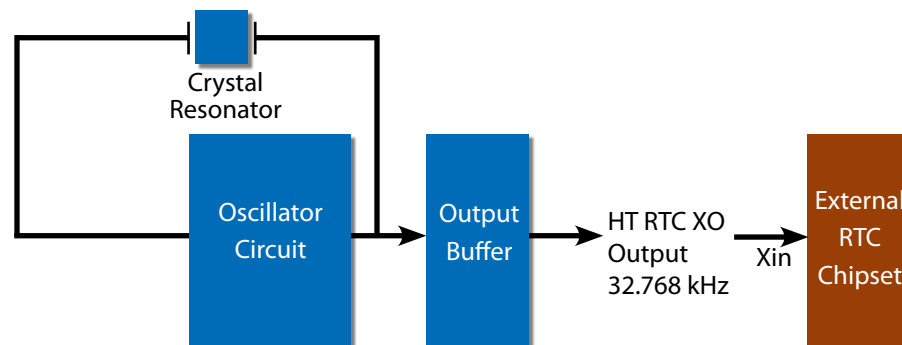
- Continuous operating temperature range of -55°C to 200°C
- Tight temperature stability to +/- 40ppm
- 1.8V, 2.5V, 3.3V and 5.0 V operation
- Output frequency 32.768 kHz
- Low and Ultra Low current consumption option available
- 4-point crystal mount for Harsh Environment Applications
- High Shock and Vibration Survival
- Three standard product footprints available
- Product is free of lead and compliant to EC RoHS directive
- Made in USA
- EAR99

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)	450uA typical @ 3.3V 250uA typical @ 2.5V 250uA typical @ 1.8V		
Current (Low)	90uA typical @ 3.3V 85uA typical @ 2.5V 70uA typical @ 1.8V		
Current (Ultra Low)	8.00uA typical @ 3.3V 7.50uA typical @ 2.5V 7.00uA 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

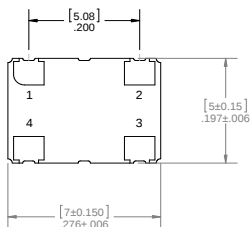
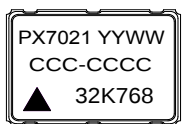
Environmental Compliance

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

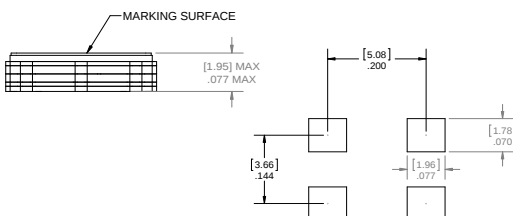
PX-7021

Dimensions in [mm]
inches



PX-7021 Pin Connections (4-Leads)

1	Enable/Disable option
2	Case & Electrical Ground
3	RF Output
4	Vcc Power Supply Voltage

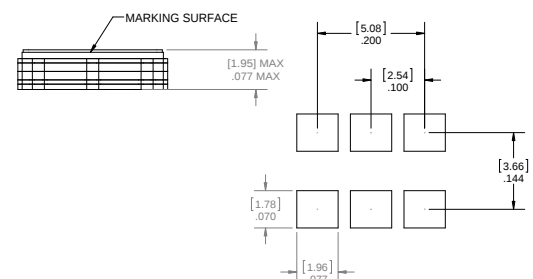
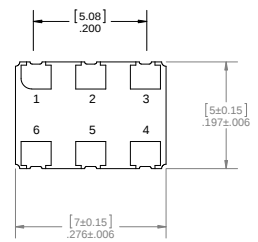
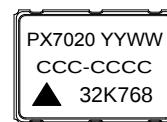


PX-7020 Pin Connections (6-Leads)

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

PX-7020

Dimensions in [mm]
inches

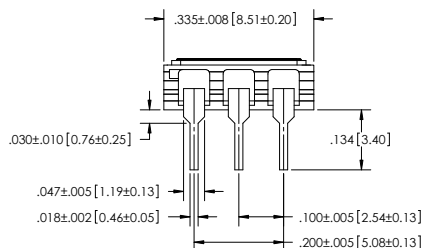


Dimensions in (mm)

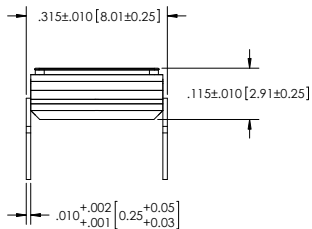


Pin	Function
1	Enable/Disable option
2	No Connection
3	Case & Electrical Ground
4	RF Output
5	No Connection
6	V _{CC} Power Supply Voltage

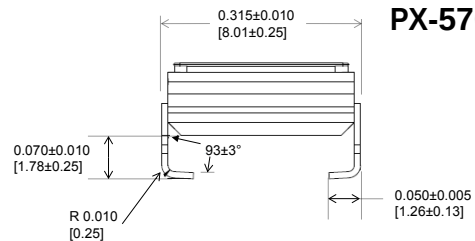
PX-5701



Thru-Hole Option

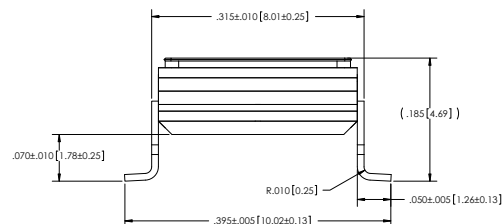


Inward L-Wing Option



PX-5703

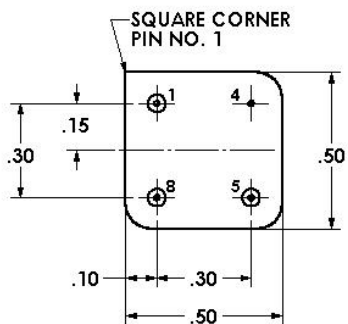
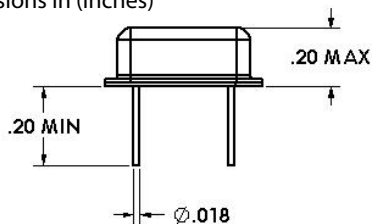
Gull-Wing Option



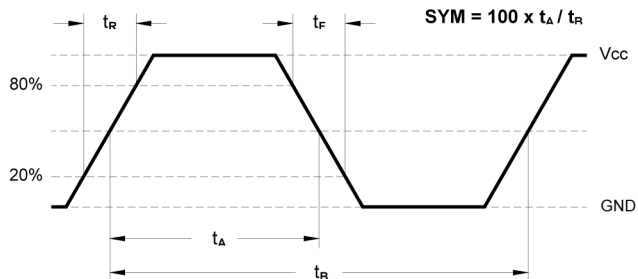
PX-5702

Dimensions in (inches)

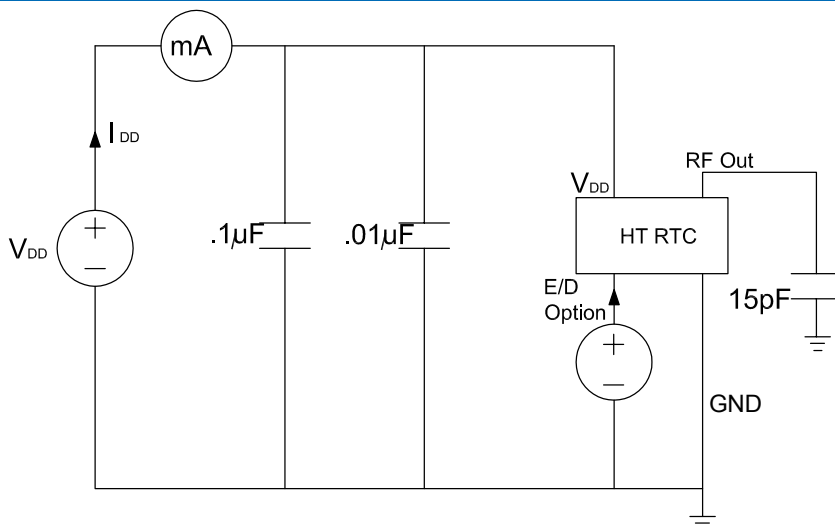
PX-420



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

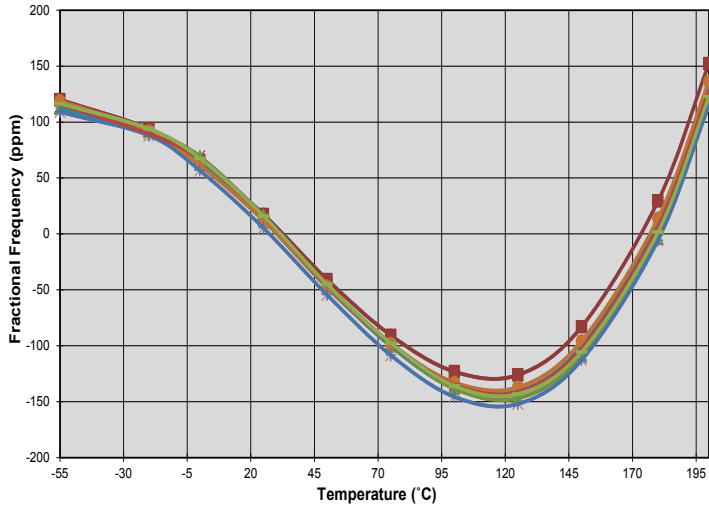


Test Circuit

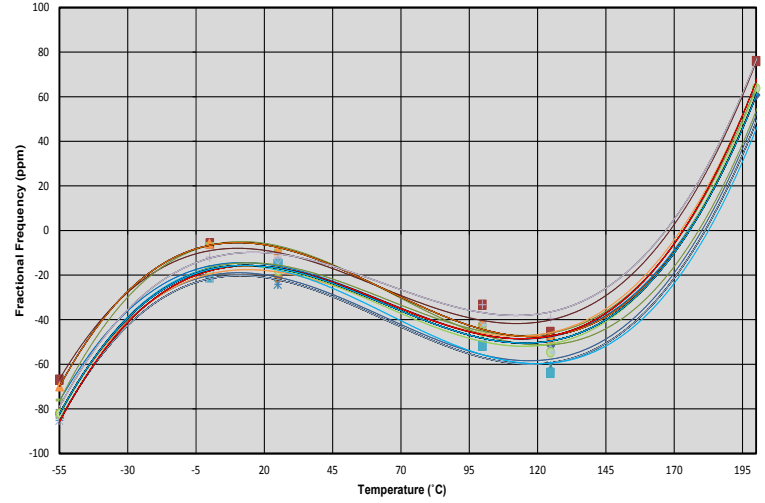


Temperature Stability Performance

Typical Temperature Performance Using Standard Stability Crystal

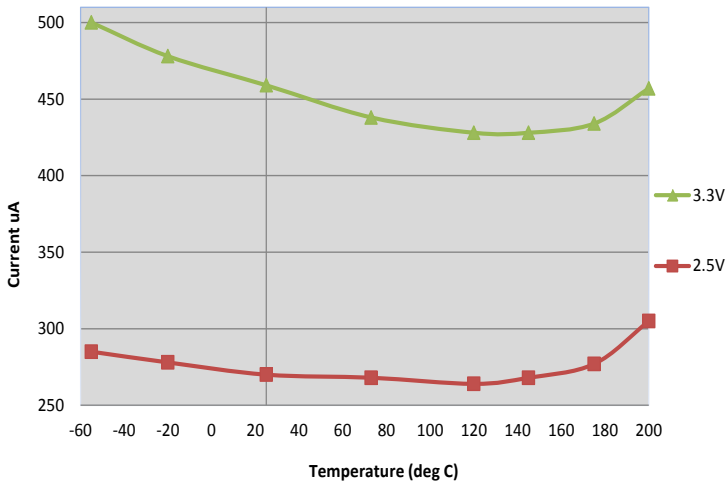


Typical Temperature Performance Using Tight Stability Crystal

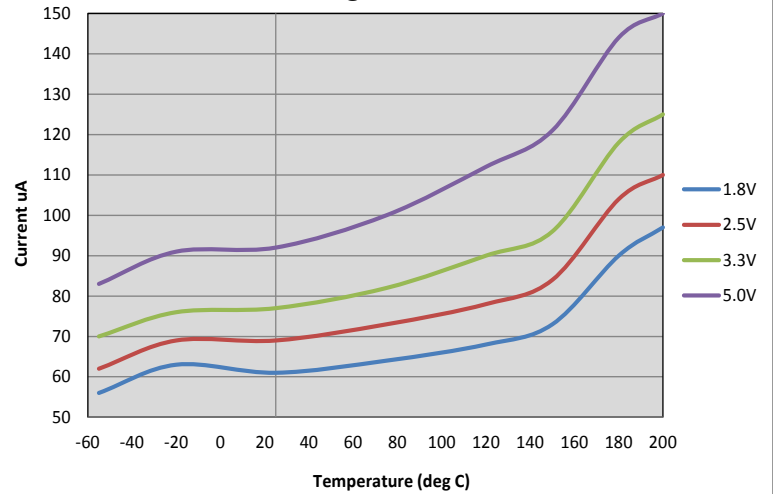


Current Stability Performance

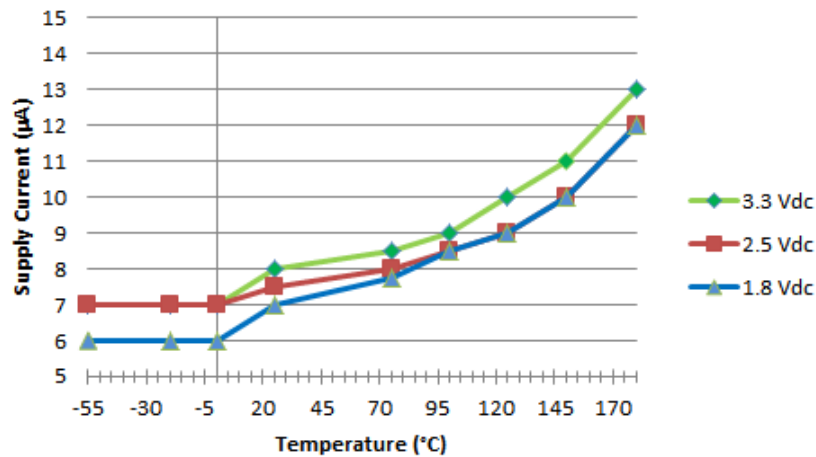
Typical Current Consumption Vectron Standard Current
RTC @ 32.768KHz



Typical Current Consumption Vectron's Low Current
RTC @ 32.768KHz



Typical Current Consumption Vectron's Ultra Low Current
RTC @ 32.768KHz



Ordering Information

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

Product Family

Crystal Oscillator

PackageType

7020: 5x7 mm SMD (6-pads)
7021: 5x7 mm SMD (4-pads)
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
U: Ultra Low Current

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 & Ultra Low current option available)	J: ± 40ppm	Tight Stability
	S: ± 100ppm	Standard
	U: ± 150ppm	Standard
	W: ± 250ppm	Standard
Z: -20°C to 180°C * (Low & Ultra 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 & Ultra 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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