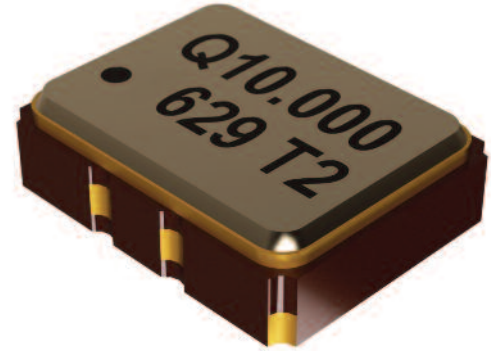


## Description

Q-Tech's surface-mount QTCT230 oscillators consist of an IC 3.3Vdc TCXO built in a low profile ceramic package with gold plated contact pads.

## Features

- ECCN: EAR99
- Frequency range from 10.000MHz to 45.000MHz
- Small footprint
- Clipped Sine logic
- 2.8, 3.0, 3.3Vdc supply
- Operating temperature -40°C to +85°C available
- Optional Free Tuning
- Hermetically sealed ceramic package
- Military screening tests per MIL-PRF-55310 available
- Tape and reel packaging
- Lead Free, RoHS Compliant
- VCTCXO Option

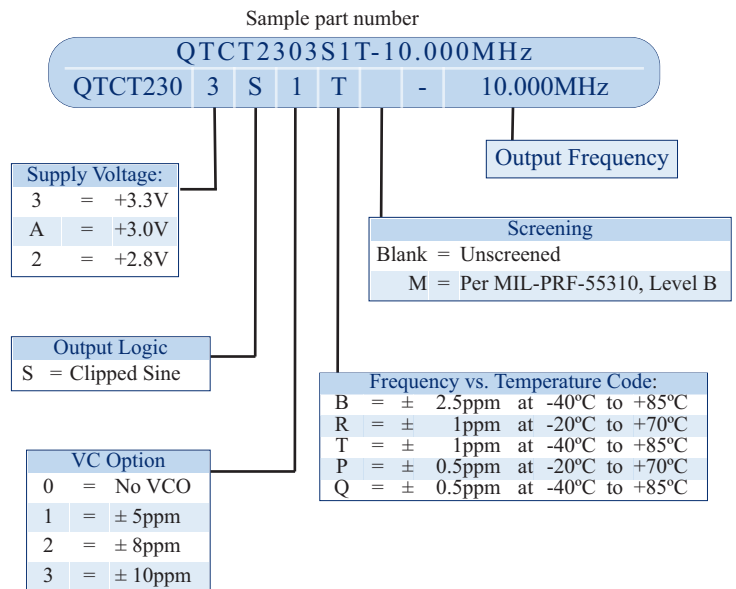


## Applications

- Designed to meet today's requirements for low voltage applications
- Instrumentation
- Navigation
- Avionics
- Ethernet/SynchE
- Base Station
- Global Positioning Systems (GPS)
- Manpack Radio
- FEMTO Cells

[See our Stock List \(Updated Monthly\)](#)

## Ordering Information



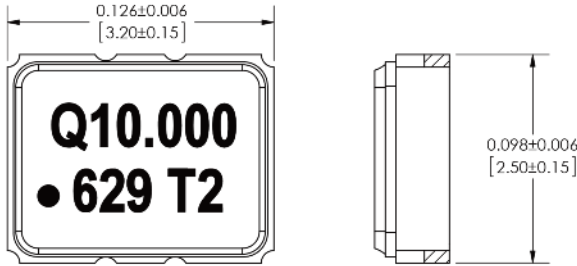
### Other Options Available For An Additional Charge

- Hot Solder Dip Sn60/Pb40 per MIL-PRF 55310

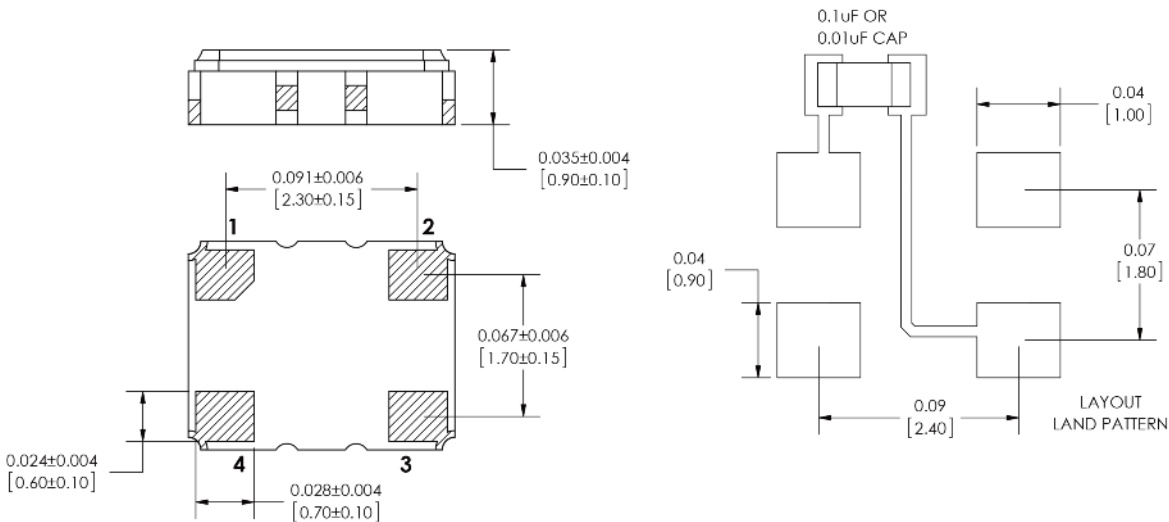
**Specifications subject to change without prior notice.**

Frequency stability vs. temperature codes may not be available in all frequencies.  
**For Non-Standard requirements, contact Q-Tech Corporation at Sales@Q-Tech.com**

**Package Outline and Pin Connections**  
Dimensions are in inches (mm)



Pin No.	Function
1	VC or NC
2	GND/CASE
3	OUTPUT
4	VDD



An external bypass capacitor 0.01μF is required between Vdd and GND

**Marking**

Line 1: QXX.XXX (Q for Q-Tech, no space 7 Characters of Frequency including decimal)  
Line 2: Dot (Pin 1 Indicator) + Date code (Y/WW), Internal Traceability Code

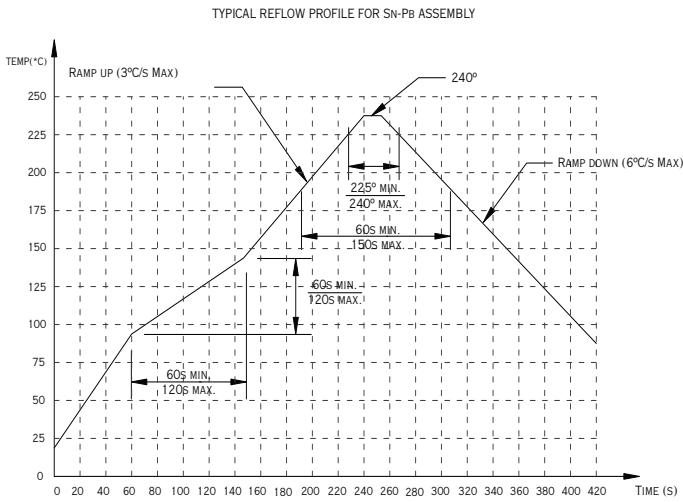
**Package Information**

- Termination pads (4x), Electro nickel plating 1.27μm ~ 8.89μm typ., with gold 0.3μm ~ 1.0μm flash plate
- Weight: 0.025g typ.

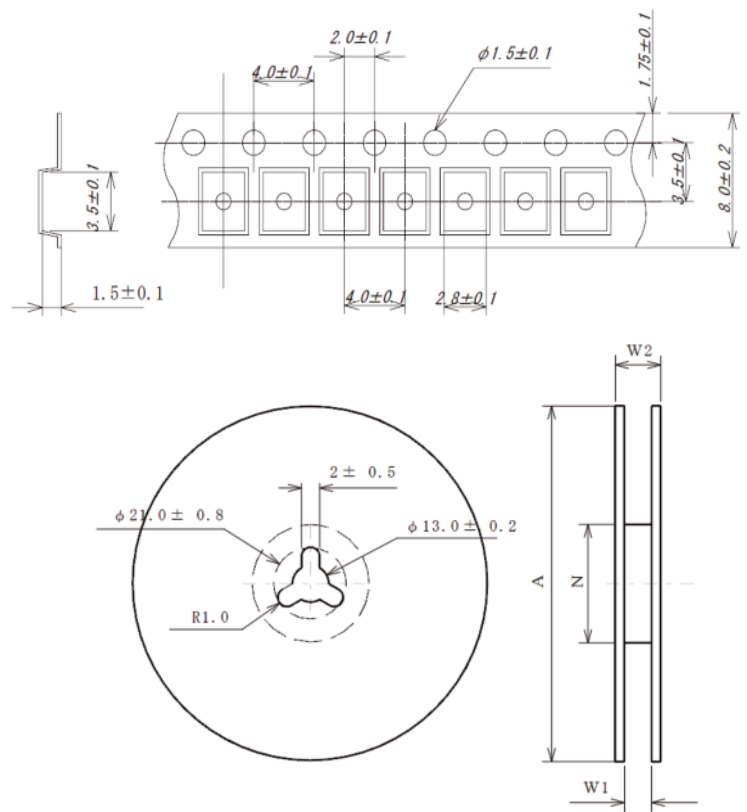
## Electrical Characteristics

Parameters	QTCT230XS
Output frequency range (Fo)	<b>10.000MHz — 45.000MHz</b>
Logic	<b>Clipped Sine</b>
Supply voltage (Vdd)	2.8, 3.0, 3.3Vdc ± 5%
Supply current (Idd)	1.5 mA max. - < 20MHz 2.0 mA max. - 20MHz ~ < 32MHz 2.5 mA max. - 32MHz ~ ≤ 45MHz
VCO Option (Tuning Range)	See Part Number on Page 1
Operating temperature (Topr)	See Part Number on Page 1
Storage temperature (Tsto)	-62°C to + 125°C
Start-up time (Tstup)	2ms max.
Output voltage (Voh/Vol)	Vop-p = 0.8V
Output Load	10k    10pF
Control Voltage to reach Pull Range	0.5V min. 2.5V max.
Control Voltage Impedance	500kΩ min.
Phase Noise typ. at 19.2MHz	
10Hz	-91 dBc/Hz
100Hz	-116 dBc/Hz
1kHz	-137 dBc/Hz
10kHz	-149 dBc/Hz
100kHz	-150 dBc/Hz
Frequency Tolerance (Ftol) at 25°C	±2.0ppm
Power Supply Stability ±5% (Fpwr)	±0.2ppm
Load Stability ±10% (Fload)	±0.2ppm
Aging	±1.0ppm 1st year

### Reflow Profile



### Embossed Tape and Reel Information



Dimensions are in mm. Tape is compliant to EIA-481-A.

Reel size (Diameter in mm)	Qty per reel (pcs)
180	1,000

Symbol	A	N	W1	W2
Dimension in mm	180	60	9.0±1.0	11.4±1.5

### Environmental and Mechanical Specifications

Environmental Test	Test Conditions
Temperature cycling	MIL-STD-883, Method 1010, Cond. B
Constant acceleration	MIL-STD-883, Method 2001, Cond. A, Y1
Seal: Fine and Gross Leak	MIL-STD-883, Method 1014, Cond. A and C
Vibration sinusoidal	MIL-STD-202, Method 204, Cond. D
Shock, non operating	MIL-STD-202, Method 213, Cond. I
Resistance to solder heat	MIL-STD-202, Method 210, Cond. B
Resistance to solvents	MIL-STD-202, Method 215
Solderability	MIL-STD-202, Method 208
ESD Classification	MIL-STD-883, Method 3015, Class 1
Moisture Sensitivity Level	J-STD-020, MSL=1



**QTCT230 SERIES**  
**2.5 x 3.2mm MINIATURE SMD TEMPERATURE CONTROLLED CRYSTAL OSCILLATORS**  
**2.8 to 3.3Vdc - 10.000MHz to 45.000MHz**

DCO	REV	REVISION SUMMARY	PAGE	DATE
6169	A	Add 'VCTCXO Option' in description	1	2/3/17
		Storage temp changed -55C to -62C	3	
		'Phase noise' changed to 'Phase noise typ. at 12.8MHz'		
		Frequency tolerance changed from 1.5ppm to 2.0ppm		
6654	B	Changed date code on package markings from YYWW to YWW	2	4/10/17
		Add correct tape/reel dimensions	4	
		Add temperature code B, P, and Q	1	
		Revised 'Applications'	1	