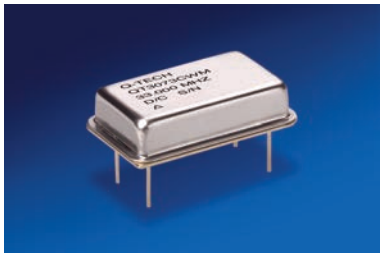
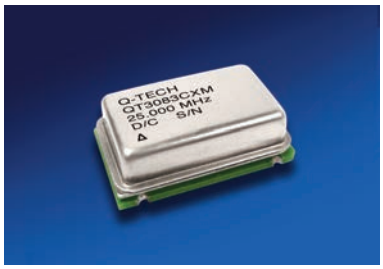
Q-TECH
CORPORATION

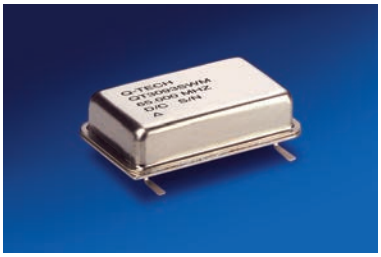
DUAL-IN-LINE TCXO

TEMPERATURE COMPENSATED CRYSTAL OSCILLATOR

3.3Vdc and 5Vdc - 1MHz to 100MHz







Description

The Q-Tech Analog TCXO encompasses state-of-the-art oscillators with low phase noise, jitter, and tight temperature stability. The TCXO is available in a DIP (QT307x), SMD (QT308x), or Gull Wing (QT309x) package and as a square or sine wave oscillator.

Features

- AT-Cut crystal
- Low Total Harmonic Distortion
- Low phase noise and Jitter
- All metal and hermetically sealed packages
- Q-Tech does not use pure lead or pure tin in its products
- RoHS compliant

Applications

- Designed to meet today's requirements for communication systems.
- Wide military clock applications
- Control and measurement
- Signal processing

Ordering Information

Sample part number

QT3075SXM-53.000MHz

Q	T	3	0	7	5	S	X	M	-	53.000MHz

Lead Finish:
T = Standard
S = Solder Dip (**)

Package Type:
7 = DIP-14
8 = SMD
9 = Gull Wing

Supply Voltage:
3 = +3.3V
5 = +5.0V

Logic:
C = HCMOS
S = Sine Wave

Output Frequency

Screening Option:
Blank = No Screening
M = Screening similar to MIL-PRF-55310, Level B (*)

Frequency vs. Temperature Code:

P	=	± 1ppm	at	-40ºC	to	+70ºC
R	=	± 1ppm	at	-20ºC	to	+70ºC
W	=	± 3ppm	at	-25ºC	to	+71ºC
X	=	± 3ppm	at	-40ºC	to	+85ºC

(*) See Table II for Screening and Testing flow
(**) Hot Solder Dip Sn60/Pb40 per MIL-PRF-55310 (additional cost)

Packaging Options

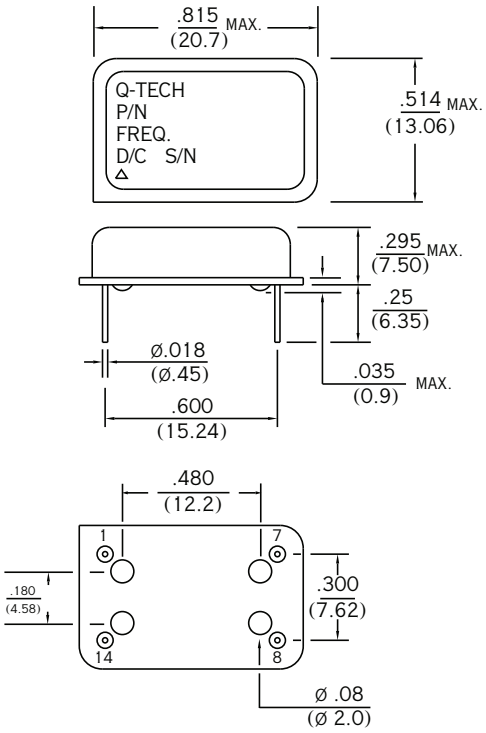
- Standard packaging in black foam
- Optional anti-static plastic tube

Specifications subject to change without prior notice.

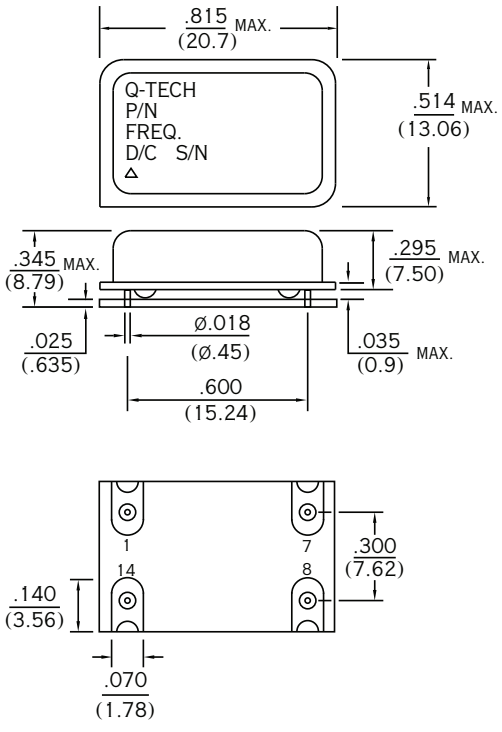
Package Outlines and Pin Connections

Dimensions are in inches (mm)

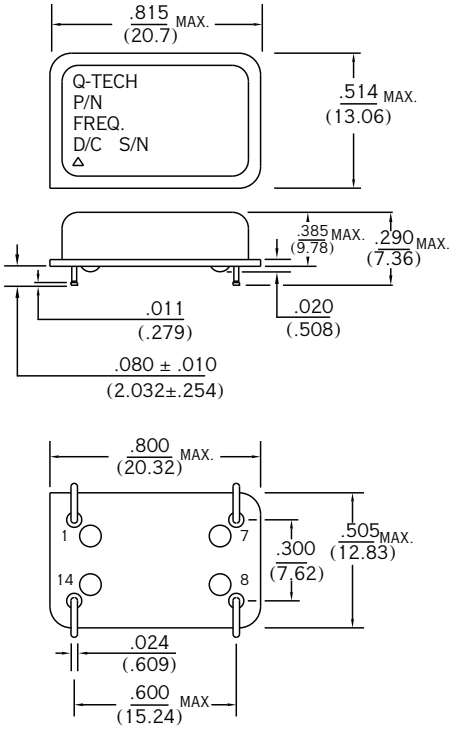
QT307x



QT308x



QT309x



Pin	Function
1	N/C
7	GND/Case
8	Output
14	Vcc

Package Information

- Package Material: Kovar, Nickel Plated
- PCB: FR4 (QT308x)
- Package to PCB attachment: Solder Sn60
- Package to Lid Attachment: Resistance Weld
- Weight: 4.0g typ., 14.2g max.

Table I - Electrical Characteristics

Parameters	SINE WAVE	HCMOS
Output frequency (Fo)	**1MHz to 100MHz**	
Supply voltage (Vdd)	+3.3Vdc ± 5% or +5Vdc ± 5%	
Maximum Applied Voltage (Vdd max.)	+6.5Vdc	
Frequency stability (ΔF/ΔT)	See Option Codes	
Operating temp. (Topr)	See Option Codes	
Storage temp. (Tsto)	-62ºC to +85ºC	
Operating supply current (Idd)	30mA (No Load) at 3.3Vdc 40mA (No Load) at 5.0Vdc	
Output power/Output amplitude	3dBm ± 3dBm	High (min.): Vcc - 10% Low (max.): GND + 10%
Output Load	50Ω	10kΩ // 15pF
Harmonics	-20dBc max.	N/A
Sub-harmonics	-40dBc max.	N/A
Start-up time	10ms max.	
Phase Noise at 25ºC (typ.) at 80MHz	10Hz	-70 dBc/Hz
	100Hz	-100 dBc/Hz
	1kHz	-130 dBc/Hz
	10kHz	-150 dBc/Hz
	100kHz	-155 dBc/Hz
Integrated Phase Jitter RMS (12kHz to 20MHz) typ.	1ps	
Aging (at 70ºC)	± 5ppm max. 10 years	

Table II - Screening and Testing

STEP	TEST (100% Unless Otherwise Specified)	CONDITION
1	Internal Visual	IPC-A-610/J-001 CLASS 1
2	Pre Burn-In Electrical Test	See Table I (optional)
3	Burn-In	MIL-PRF-55310 160 Hours minimum @ 85ºC
4	Post Burn-In Electrical Test	See Table Parameters I
5	Aging	30 Days @70ºC (Note: Can be reduced to 15 Days for units that are two times (2X) better than the specified aging tolerance and the aging curve is monolithic)
6	Thermal Shock	MIL-STD-202, Method 107, Condition A1
7	Post Thermal Shock Electrical Test	See Table I
8	Seal; Fine Leak	MIL-STD-883, Method 1014, Condition A1
9	Seal; Gross Leak	MIL-STD-883, Method 1014, Condition C
10	Final Electrical Test (Includes Phase Noise)	See Table I
11	Group A Inspection (Subgroup 1 Only)	MIL-PRF-55310
12	External Visual Inspection	MIL-STD-883, Method 2009

DCO	REV	REVISION SUMMARY	PAGE	DATE
12514	-	Initial Release	-	12/30/2020