

VCXO

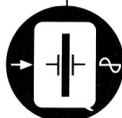
VOLTAGE CONTROLLED

Dual In-Line,
Crystal
Oscillators

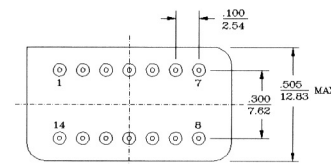
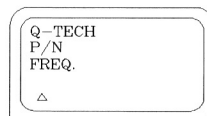
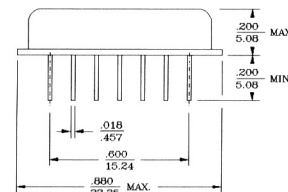
Please contact us
for variations
on these
specifications

Q-Tech
Corporation

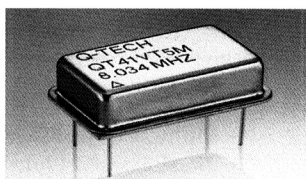
tel (310) 836-7900
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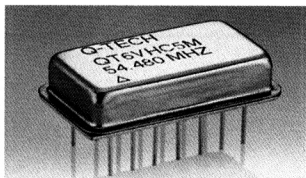
Upper dimensions in inches -
lower dimensions in millimeters.
Unless otherwise specified,
tolerances are .005" (.127mm).
Detailed mechanical drawings
available by request.
Part Marking: Please note that
the ESD Symbol marked on
all of our packages identifies
Pin 1.



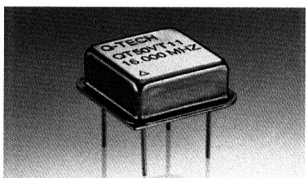
QT6V



QT41V



QT6V



QT50V

Voltage Controlled Crystal Oscillators provide electronic control/shifting of the output frequency through the application of a voltage at the control terminal of the device. VCXOs are used for frequency synthesis, clock recovery, phase-lock loop applications, or any application requiring frequency modulation or electronic control of the oscillator frequency.

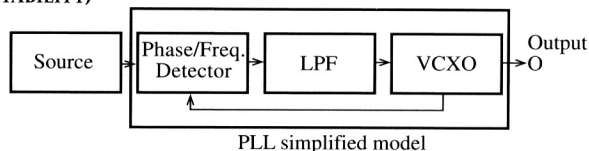
The following parameters need to be specified when selecting a VCXO:

- **Control Voltage:** The available voltage range at the input of the VCXO to vary the frequency (i.e., 0 - 5 V, ± 4 V, etc.).
- **Deviation (pull range):** The change in the output frequency as a function of control voltage.
- **Transfer Function (sense):** Direction of change in frequency as a function of control voltage.
- **Temperature Range:** Operating temperature range.
- **Stability vs. Temperature:** Percentage, or ppm, change of output frequency with respect to the temperature range at a constant control voltage.
- **Input Impedance:** A measure of isolation between the VCXO internal frequency control network and the control voltage source.
- **Linearity:** The deviation from the best straight line slope of the frequency vs. control voltage plot.
- **Modulation Bandwidth (rate):** The maximum allowable rate of change of the control voltage.

If the VCXO is intended for phase-lock applications, the required deviation of the VCXO can be determined by the following equation (see figure below):

$$\text{DEVIATION} > (\text{VCXO STABILITY}) + (\text{SOURCE STABILITY})$$

In this equation, source stability is a system parameter while VCXO stability would be a function of temperature, time, load, and power supply variations.



(ORDERING INFORMATION)

sample part number

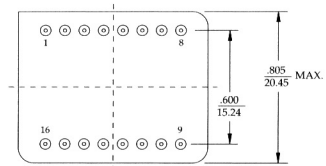
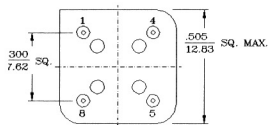
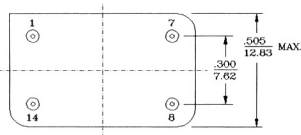
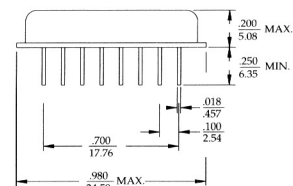
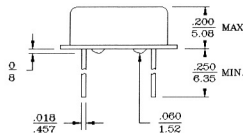
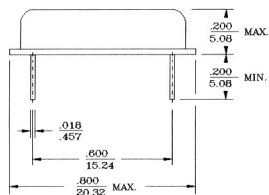
QT6VHC9M - 20.000 MHz

MODEL#	OUTPUT LOGIC OPTIONS	STABILITY	SCREENING	FREQUENCY
QT6V, QT41V, QT50V, QT57V*	T=TTL HC= High Speed CMOS AC=Advanced CMOS E=10K ECL EH=10KH ECL PE=+5 V ECL (PECL)	Please refer to stability table on opposite page.	Designate M for Product Level B M55310 environmental screening. For more information, see page 45.	From: 1 kHz to 200 MHz ** See Standard Electrical Specifications on page 25.

Please contact our factory or visit our website, www.q-tech.com, for technical updates.

* QT57V offers a broader range of capabilities. Consult the factory for details.

** Frequency range for QT50V is 50.000 kHz to 60.000 MHz for TTL, HC/ACMOS.



QT41V

QT50V

QT57V

PIN CONNECTIONS

QT#	GND	OUT	Supply V	CONTROL V
QT6V	7	8	14	1
QT41V	7	8	14	1
QT50V	4	5	8	1
QT57V	8	9	16	1

FEATURES

- Wide Frequency Range
- Hermetically Sealed Packages
- Wide Pull Range (optional)
- Control Voltage and Polarity
- Special Linearity (optional)
- Product Level B M55310 Screening available upon request

FREQUENCY STABILITY VS TEMPERATURE*

CODE	±%	±PPM	TEMP
1	.01	100	0°C to + 70°C
3	.0005	5	0°C to + 50°C
4	.005	50	0°C to + 70°C
5	.0025	25	-20°C to + 70°C
6	.005	50	-55°C to +105°C
9	.005	50	-55°C to +125°C
10	.01	100	-55°C to +125°C

*All units operate from -55°C to + 125°C. Tolerance is not specified outside the temperature ranges shown above. For frequency stability vs. temperature options not listed herein, request a custom part number.

The Q-TECH double DIP VCXO, QT57V, offers a broader range of capabilities. Consult the factory for details.

ELECTRICAL

SPECIFICATIONS

STANDARD

Frequency Range:
 QT41V, QT6V, QT57V: up to 200 MHz
 QT50V: 5 MHz to 60 MHz
 Output: TTL, HC/ACMOS, ECL, PECL
 Supply Voltage: 5 V ±10% (-5.2 V for 10K ECL)
 (-4.5 V for 100K ECL)
 (+5 V for PECL)
 Deviation: ±100 ppm (min)
 Control Voltage (Vc): 0 to 5 Volts
 Transfer Function: Positive
 Modulation BW: Up to 10 kHz
 Linearity: 10%
 Input Impedance: >10 kohm
 Temperature Range: See frequency stability table
 Stability vs. Temp.: See frequency stability table
 Stability vs. Supply and Load changes: ± 4 ppm
 Package: 14 pin/4 pin DIP/Half DIP/Double DIP

OPTIONAL

Sinewave Output
 10K, 100K ECL, or PECL
 Frequency: >200 MHz (not available in QT50)
 Deviation: ≥±100 ppm (Vc=0 to 5 V)
 Modulation BW: 0 up to 100 kHz
 Transfer Function: Negative
 Linearity: <10%
 Control Voltage: Bipolar
 Supply Voltage: 3 to 15 V
 Package: 16 and 18 pin DIP, Flat Pack, & LCC

Q-TECH Corporation has developed various types of VCXOs, VCOs, and complete phase-locked loops in hermetically sealed as well as solder sealed packages.

The Non-Hybrid versions of these VCXOs are available in industry standard solder sealed packages.