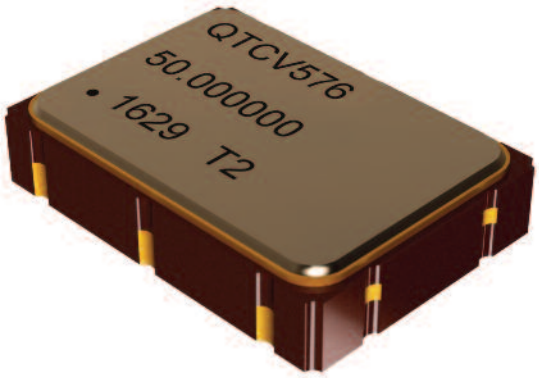
Description

Q-Tech's surface-mount QTCV576 VCXOs consist of an IC 5Vdc, 3.3Vdc clock square wave generator and a miniature strip AT quartz crystal built in a low profile ceramic package with gold plated contact pads.



Features

- Broad frequency range from 1.000MHz to 156.250MHz
- Small footprint
- HCMOS, LVHCMOS, LVPECL logic
- 5.0Vdc, 3.3Vdc supply
- Operating temperature -40ºC to +85ºC available
- Tri-State Output Standard
- Hermetically sealed ceramic package
- Fundamental and 3rd Overtone designs
- Military screening tests per MIL-PRF-55310 available
- Tape and reel packaging
- Lead Free, RoHS Compliant

Applications

- Designed to meet today's requirements for low voltage applications
- Gun launched munitions and systems
- Smart munitions
- Instrumentation
- Ethernet/SynchE
- SONET
- Microprocessor clock

See our Stock List (Updated Monthly)

Ordering Information

Sample part number

QTCV576LDK2-50.000MHz

QTCV576	L	D	K2		-	50.000MHz

Logic & Supply Voltage:

HC	=	HCMOS	+5V
L	=	LVHCMOS	+3.3V
P	=	LVPECL	+3.3V

Tristate

D = Tristate

Absolute Pull Range vs. Temperature Code:

L2	=	±	100ppm APR	at	-10ºC	to +70ºC
L7	=	±	100ppm APR	at	-40ºC	to +85ºC
K2	=	±	50ppm APR	at	-10ºC	to +70ºC
K7	=	±	50ppm APR	at	-40ºC	to +85ºC
J2	=	±	30ppm APR	at	-10ºC	to +70ºC
J7	=	±	30ppm APR	at	-40ºC	to +85ºC

Screening

Blank	=	Unscreened
M	=	Per MIL-PRF-55310, Level B

Output Frequency

Other Options Available For An Additional Charge

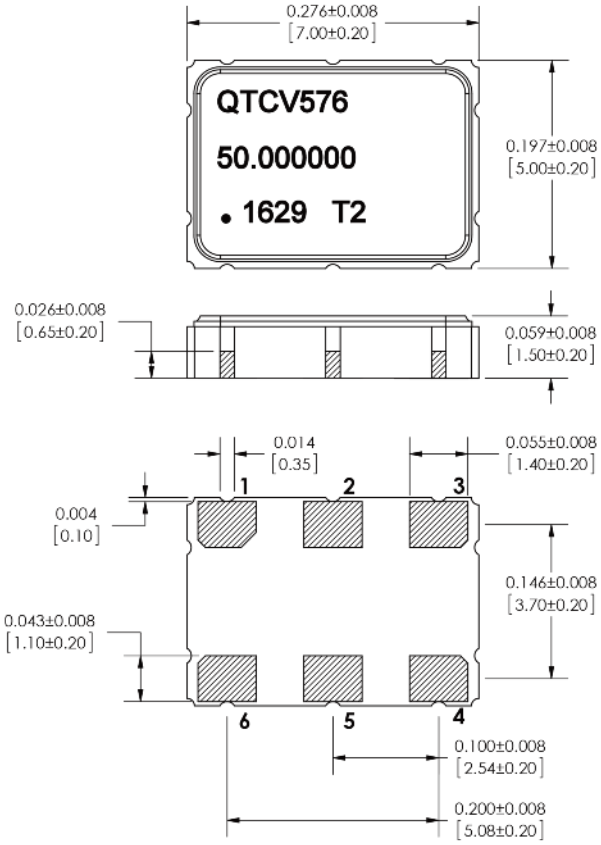
- Hot Solder Dip Sn60/Pb40 per MIL-PRF 55310

Specifications subject to change without prior notice.

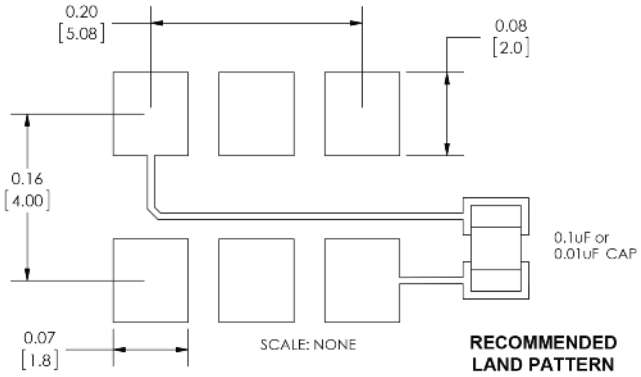
Frequency stability vs. temperature codes may not be available in all frequencies.
For Non-Standard requirements, contact Q-Tech Corporation at Sales@Q-Tech.com

Package Outline and Pin Connections

Dimensions are in inches (mm)



Pin No.	Function
1	VOLTAGE CONTROL
2	ENABLE/DISABLE
3	GND/CASE
4	OUTPUT
5	COMP. OUTPUT, OR NC
6	VDD



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

Marking

Line 1: QTCV576 (First 7 Characters of Description)
Line 2: XXX.XXXXXX (9 or 10 Characters of Frequency in MHz including decimal)
Line 3: Dot (Pin 1 Indicator) + Date code (YY/WW), Internal Traceability Code

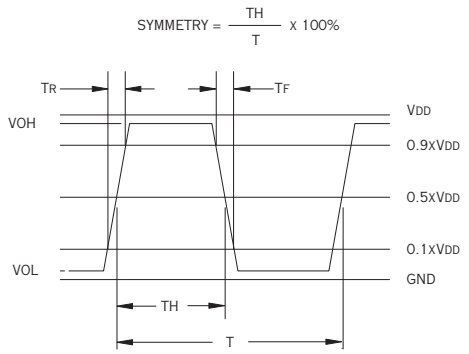
Package Information

- Termination pads (4x), Electro nickel plating 1.27µm ~ 8.89µm typ., with gold 0.3µm ~ 1.0µm flash plate
- Weight: 0.15g typ., 2.0g max.

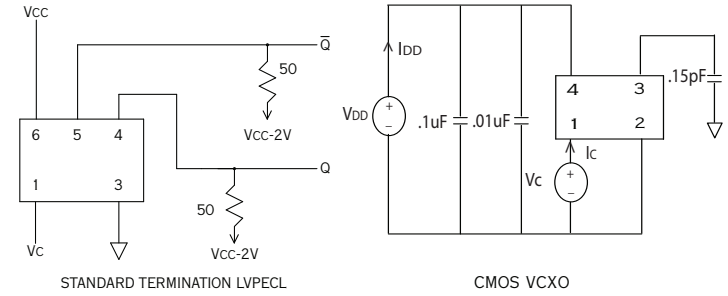
Electrical Characteristics

Parameters	QTCV576HC	QTCV576L	QTCV576P
Output frequency range (Fo)	**1.544MHz — 125.000MHz**	**1.000MHz — 150.000MHz**	**78.000MHz — 156.250MHz**
Logic	HCMOS	LVCMOS	LVPECL
Supply voltage (Vdd)	5.0Vdc ± 10%	3.3Vdc ± 5%	
Absolute Pull Range (APR)	See Part Number on Page 1		
Linearity	5% typical		
Operating temperature (Topr)	See Part Number on Page 1		
Storage temperature (Tsto)	-62ºC to + 125ºC		
Operating supply current (No Load)	18mA typ. | 50mA max.	15mA typ. | 40mA max.	50mA typ. | 90mA max.
Symmetry (50% of ouput waveform)	45/55%		
Rise and Fall times	5ns max.		0.5ns typ. | 1ns max.
Output Load	15pF max.		50Ω into Vdd-2V
Start-up time (Tstup)	10ms max.		
Output Enable/Disable (Vih/Vil)	0.9*Vdd min. / 0.1*Vdd max.		
Control Voltage Range for Pull Range (Vc)	0.5V min. | 4.5V max.	0.3V min. | 3.0V max.	
Control Voltage Input Impedance (Zin)	1MΩ min.		
Control Voltage Modulation BW	10 kHz min.		
Period Jitter Typical Pk-Pk (61.44MHz) RMS (61.44MHz)	 23ps 3.0ps		N/A
Jitter, 12kHz - 20MHz (61.44MHz)	90fs typ.		N/A
Jitter, RMS (12kHz - 20MHz)	N/A		0.3ps typ. | 1.0ps max.
Jitter, RMS (10kHz - 1MHz)	N/A		0.2ps typ. | 0.3ps max.
Phase Noise Typical 10 Hz 100 Hz 1 kHz 10 kHz 100 kHz 1 MHz 10 MHz	 -63 dBc/Hz -97 dBc/Hz -125 dBc/Hz -140 dBc/Hz -155 dBc/Hz -158 dBc/Hz -164 dBc/Hz		 -60 dBc/Hz -88 dBc/Hz -120 dBc/Hz -130 dBc/Hz -145 dBc/Hz -153 dBc/Hz -156 dBc/Hz
Aging	10 years aging included in Frequency Stability		

CMOS Output Waveform (Typical)

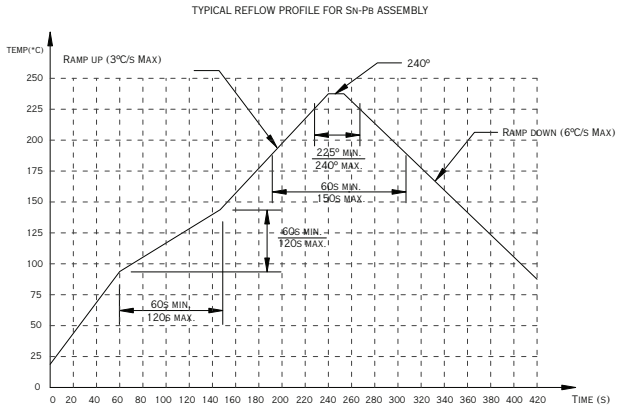


Test Circuit

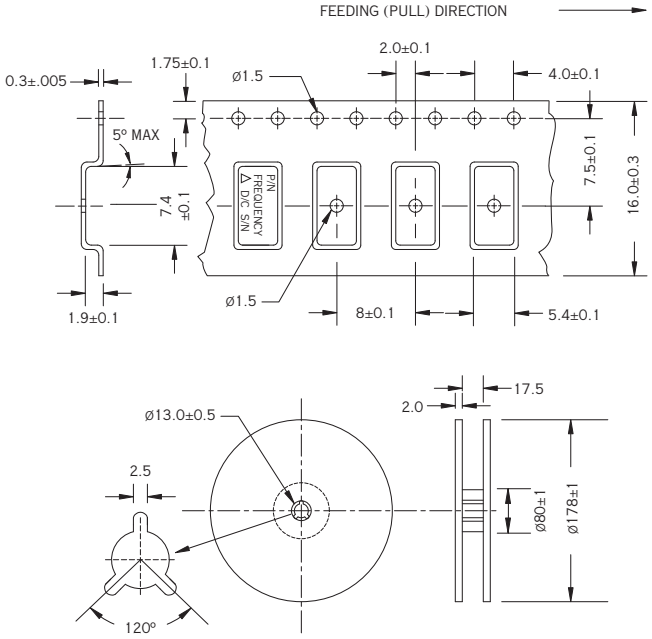


The Tristate function on pin 2 has a built-in pull-up resistor so it can be left floating or tied to Vdd without deteriorating the electrical performance.

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)
178	1,000

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

DCO	REV	REVISION SUMMARY	PAGE	DATE
	A	Replace LVDS test circuit with CMOS test circuit (LVDS not offered)	4	2/3/17
		Add Linearirty to table	3	
		Supply current changed to 18/50 | 15/40 | 50/90 from 50/90 for all 3		
		Rise/fall time changed to 5ns from 1ns		
		Add jitter and phase noise information		