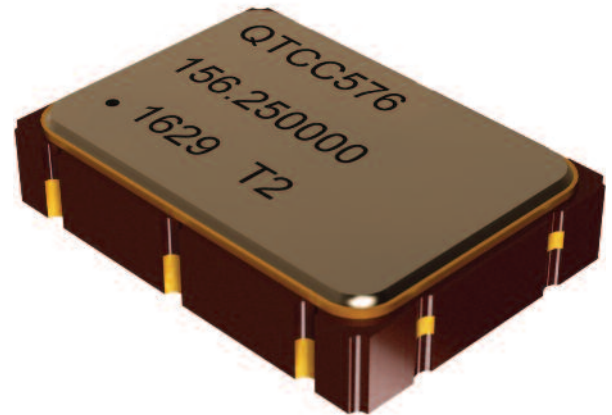


## Description

Q-Tech's surface-mount QTCC576 oscillators consist of an IC 3.3Vdc, 2.5Vdc and a miniature strip AT quartz crystal built in a low profile ceramic package with gold plated contact pads.

## Features

- ECCN: EAR99
- Broad frequency range from 25.000MHz to 250.000MHz
- Small footprint
- LVPECL, LVDS logic
- 2.5Vdc, 3.3Vdc supply
- Operating temperature -55°C to +125°C available
- Differential Output
- 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
- Fiber Channel
- TELECOM
- Instrumentation
- Navigation
- Avionics
- Ethernet/SynchE
- SONET
- Microprocessor clock
- COTS

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

## Ordering Information

Sample part number

QTCC576LPD12-156.250MHz  
 QTCC576 LP D 12 - 156.250MHz

Logic & Supply Voltage:	
LW = LVDS	+3.3V
NW = LVDS	+2.5V
LP = LVPECL	+3.3V
NP = LVPECL	+2.5V

Option	
D	= E/D on Pin 1
E	= E/D on Pin 2

Output Frequency

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

Frequency vs. Temperature Code:	
16	= ± 100ppm at -20°C to +70°C
12	= ± 100ppm at -40°C to +85°C
18	= ± 50ppm at -20°C to +70°C
11	= ± 50ppm at -40°C to +85°C
9	= ± 50ppm at -55°C to +125°C
5	= ± 25ppm at -20°C to +70°C
15	= ± 25ppm at -40°C to +85°C

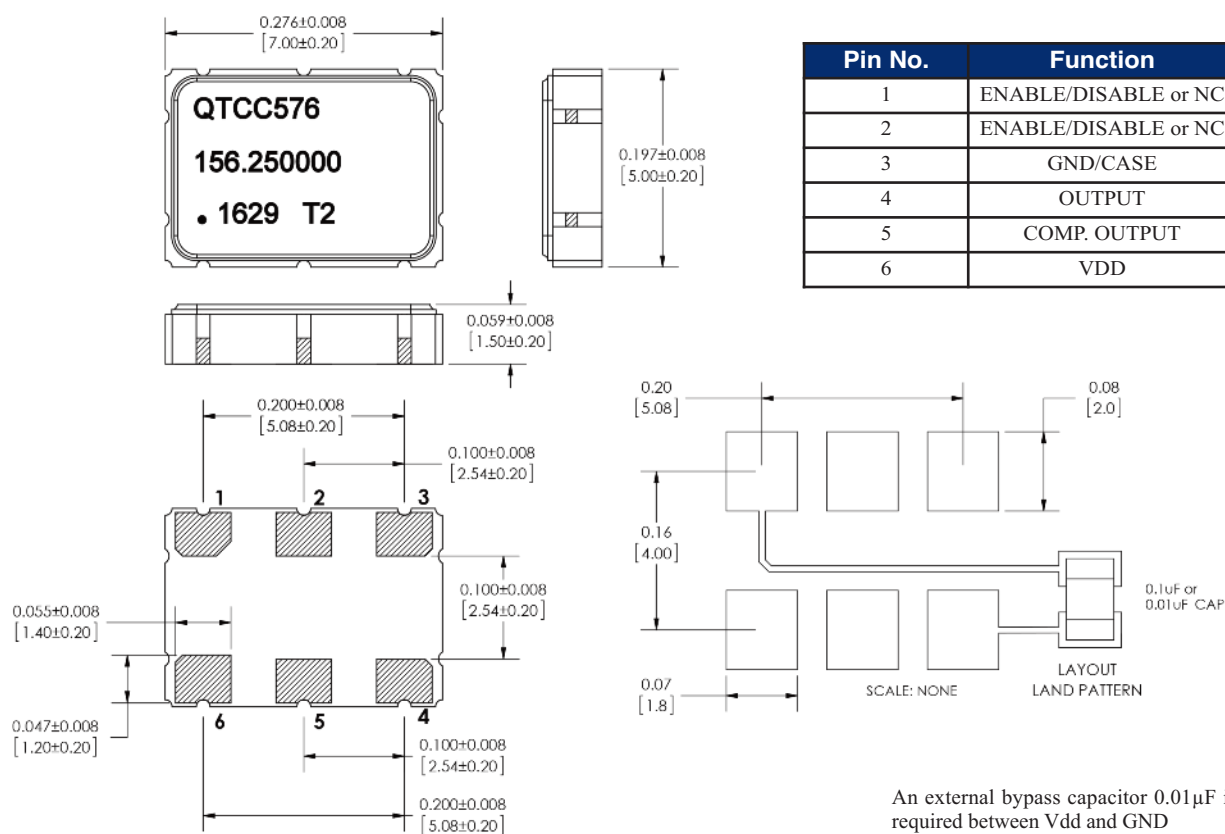
### Other Options Available For An Additional Charge

- 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](mailto:Sales@Q-Tech.com)

## Package Outline and Pin Connections

Dimensions are in inches (mm)



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

## Marking

- Line 1: QTCC576 (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

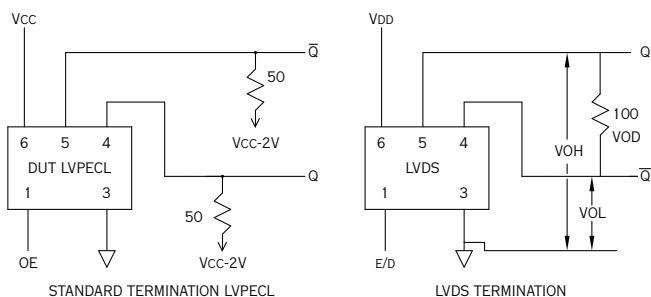
- Termination pads (4x), Electro nickel plating 1.27μm ~ 8.89μm typ., with gold 0.3μm ~ 1.0μm flash plate
- Weight: 0.15g typ., 2.0g max.



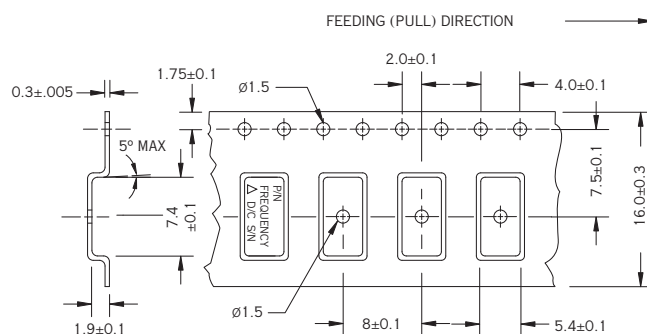
## Electrical Characteristics

Parameters	QTCC576LP	QTCC576NP	QTCC576LW	QTCC576NW
Output frequency range (Fo)	<b>25.000MHz — 250.000MHz</b>		<b>80.000MHz — 250.000MHz</b>	
Supply voltage (Vdd)	3.3Vdc ± 5%	2.5Vdc ± 5%	3.3Vdc ± 5%	2.5Vdc ± 5%
Maximum Applied Voltage (Vdd max.)	-0.5 to +5.0Vdc		-0.5 to +5.0Vdc	
Logic	LVPECL		LVDS	
Frequency stability (ΔF/ΔT)	See Part Number on Page 1			
Operating temperature (Topr)	See Part Number on Page 1			
Storage temperature (Tsto)	-62°C to + 125°C			
Output Logic Levels Output Logic High (Voh) Output Logic Low (Vol)	Vdd-1.025 < Voh < Vdd-0.880 Vdd-1.810 < Voh < Vdd-1.620		Voh < 1.6 V Vol > 0.9 V	
Duty Cycle	45/55%			
Rise and Fall times	600ps			
Load	50Ω to Vdd-2V		100Ω Differential	
Start-up time (Tstup)	10ms max.			
Current (No Load)	50mA typ.   98mA max.		60mA max.	
Enable/Disable function Pin 1	VIH ≥ 0.7*Vdd Active			
	VIL ≤ 0.3*Vdd High Z			
Phase Jitter (12kHz - 20MHz BW) 155.52MHz	0.3ps nom.   0.7ps max.			
Period Jitter Typical RMS Pk-Pk Random Jitter	2.5ps nom. 22ps nom. 2.6ps nom.			
Aging	10 years aging included in Frequency Stability			

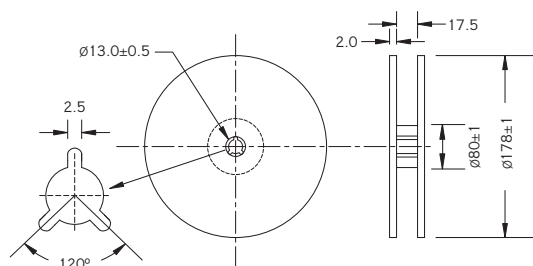
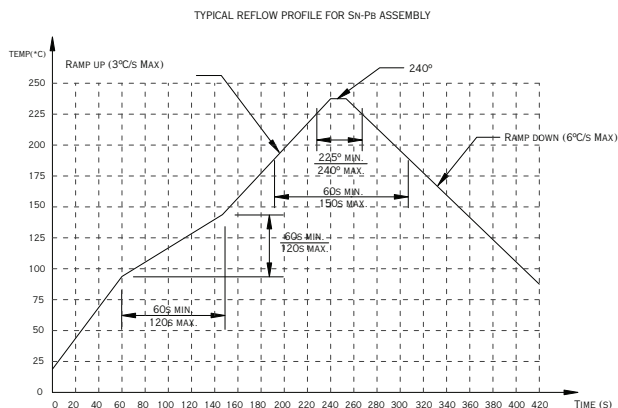
### Test Circuit



### Embossed Tape and Reel Information



### Reflow Profile



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



**QTCC576 SERIES**  
**LOW PROFILE 5 x 7mm MINIATURE SMD LVDS/PECL CRYSTAL OSCILLATORS**  
**2.5 and 3.3Vdc - 25.000MHz to 250.000MHz**

DCO	REV	REVISION SUMMARY	PAGE	DATE
6163	A	Storage temp changed -55C to -62C	3	2/3/17
		Load changed to 50Ohm to Vdd-2V		
		Revise jitter information		
7793	B	Raise maximum frequency to 250MHz (was 212.500MHz)	All	02/05/2018