Q-TECH CORPORATION

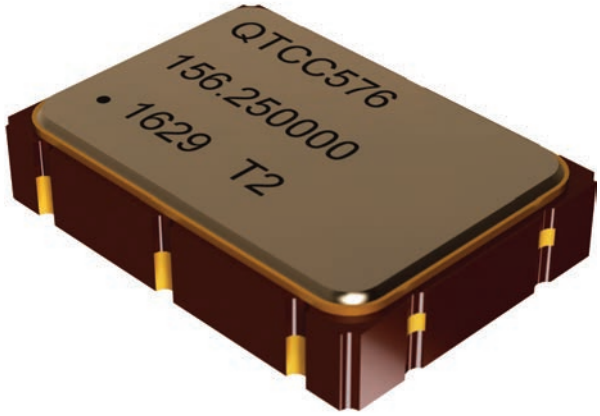
QTCC576 SERIES

LOW PROFILE 5 x 7mm MINIATURE SMD LVDS/PECL CRYSTAL OSCILLATORS

2.5 and 3.3Vdc - 25.000MHz to 250.000MHz

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 -55ºC to +125ºC 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

Stock List

See all Miniature Oscillator products IN STOCK

Ordering is NOT limited to the IN STOCK list. Please consult with our sales managers to order custom frequencies.

Ordering Information

Sample part number

QTCC576LPD12-156.250MHz

QTCC576	LP	D	12		-	156.250	- SNPB

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

Optional Solder Dip

Blank	=	No Solder
SNPB	=	Sn60Pb40
SAC305	=	Lead Free

Screening

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

Frequency vs. Temperature Code:

10	=	±	100ppm	at	-55ºC	to +125ºC
17	=	±	100ppm	at	-40ºC	to +125ºC
16	=	±	100ppm	at	-20ºC	to +70ºC
12	=	±	100ppm	at	-40ºC	to +85ºC
18	=	±	50ppm	at	-20ºC	to +70ºC
11	=	±	50ppm	at	-40ºC	to +85ºC
9	=	±	50ppm	at	-55ºC	to +125ºC
5	=	±	25ppm	at	-20ºC	to +70ºC
15	=	±	25ppm	at	-40ºC	to +85ºC

Other Options Available For An Additional Charge

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

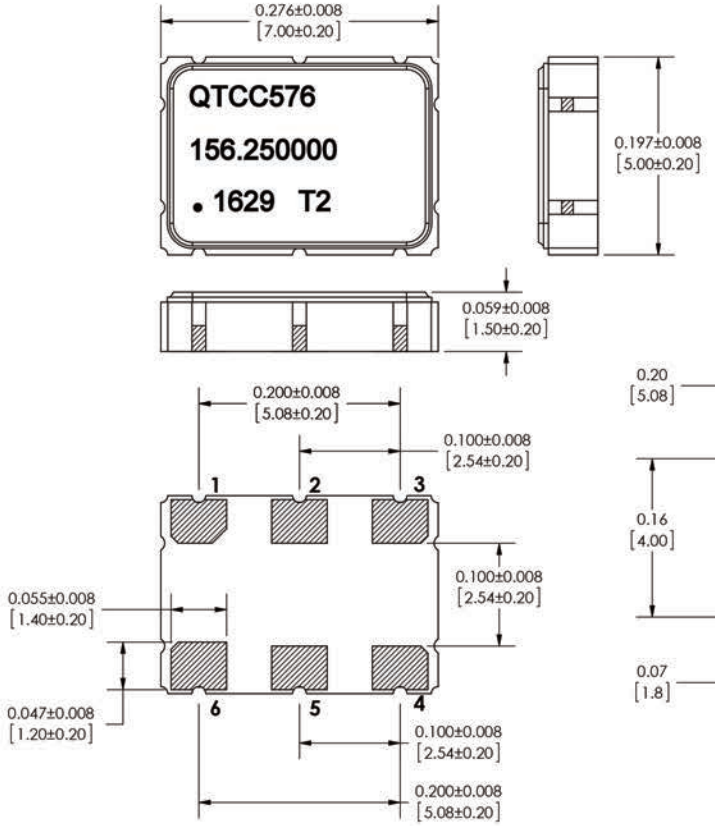
Specifications subject to change without prior notice.

Frequency stability vs. temperature codes may not be available in all frequencies.

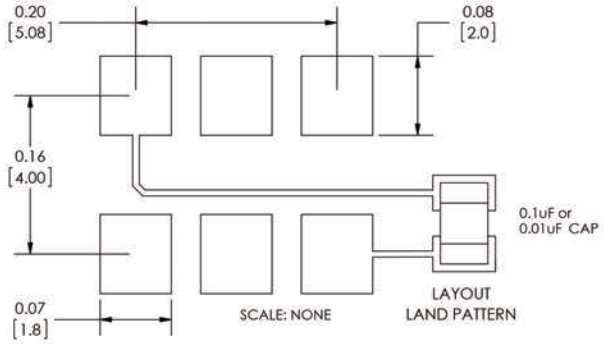
For Non-Standard requirements, contact Q-Tech Corporation at Sales@Q-Tech.com

Package Outline and Pin Connections

Dimensions are in inches (mm)



Pin No.	Function
1	ENABLE/DISABLE or NC
2	ENABLE/DISABLE or NC
3	GND/CASE
4	OUTPUT
5	COMP. OUTPUT
6	VDD



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

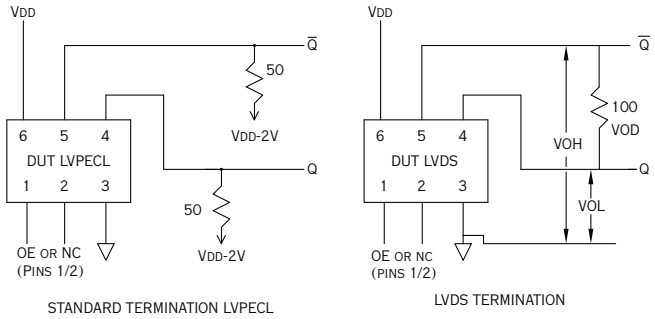
Package Information

- Termination pads (6x), Electro nickel plating 1.27µm min. ~ 8.89µm max, with gold flash plate 0.3µm ~ 1.0µm.
- Weight: 0.15g typ., 2.0g max.

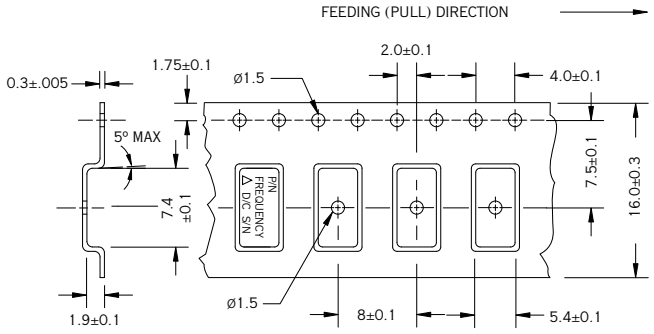
Electrical Characteristics

Parameters	QTCC576LP	QTCC576NP	QTCC576LW	QTCC576NW
Output frequency range (Fo)	**25.000MHz — 250.000MHz**		**80.000MHz — 250.000MHz**	
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)	-62ºC to + 125ºC			
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			

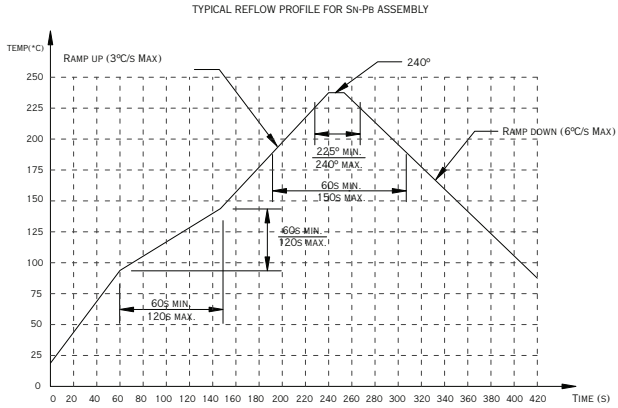
Test Circuit

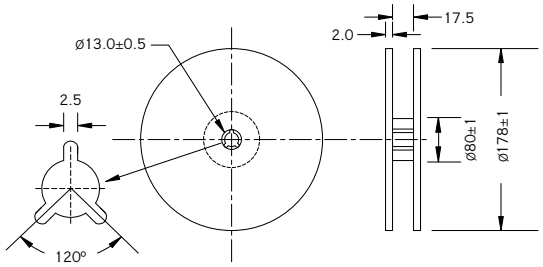


Embossed Tape and Reel Information



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

DCO	REV	REVISION SUMMARY	PAGE	DATE
6163	A	Storage temp changed -55C to -62C Load changed to 50Ohm to Vdd-2V Revise jitter information	3	2/3/17
7793	B	Raise maximum frequency to 250MHz (was 212.500MHz)	All	02/05/2018
8215	C	Add Frequency vs. Temperature code 17	1	04/24/2019
		Add 'Stock List' link	1	
		Revise test circuit images to match pinout table of page 2	4	
10273	D	Add Temperature Stability Code '10' to Ordering Options	1	07/25/2019
		Fix termination pad count under 'Package Information' to x6 (was x4)	2	
		Change electro nickel plating thickness under 'Package Information' WAS: 1.27µm ~ 8.89µm typ. IS: 1.27µm ~ 8.89µm max	2	
10751	E	Add solder dip nomenclature in Ordering Information.	1	10/23/2019