

Description

Q-Tech's surface-mount QTCC353 oscillators consist of an IC 3.3Vdc, 2.5Vdc, 1.8Vdc and a 3-point mount 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
- 3-Point Mount Crystal
- LVPECL, LVDS logic
- 1.8Vdc, 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

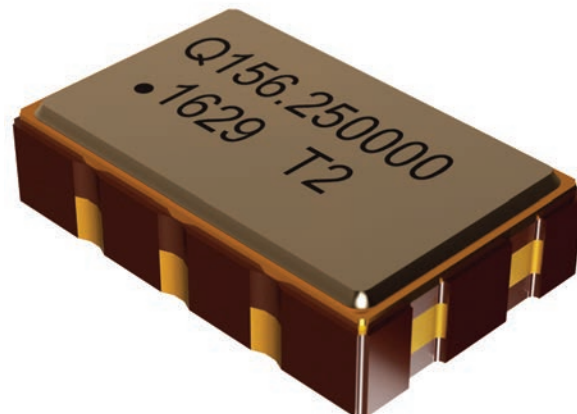
Stock List

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.

Other Options Available For An Additional Charge

- Hot Solder Dip Sn60/Pb40 per MIL-PRF 55310
- Specifications subject to change without prior notice.**



Ordering Information

Sample part number

QTCC353LPD12-156.250MHz
 QTCC353 LP D 12 - 156.250MHz

Logic & Supply Voltage:	
LW = LVDS	+3.3V
NW = LVDS	+2.5V
RW = LVDS	+1.8V
LP = LVPECL	+3.3V
NP = LVPECL	+2.5V

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

Output Frequency

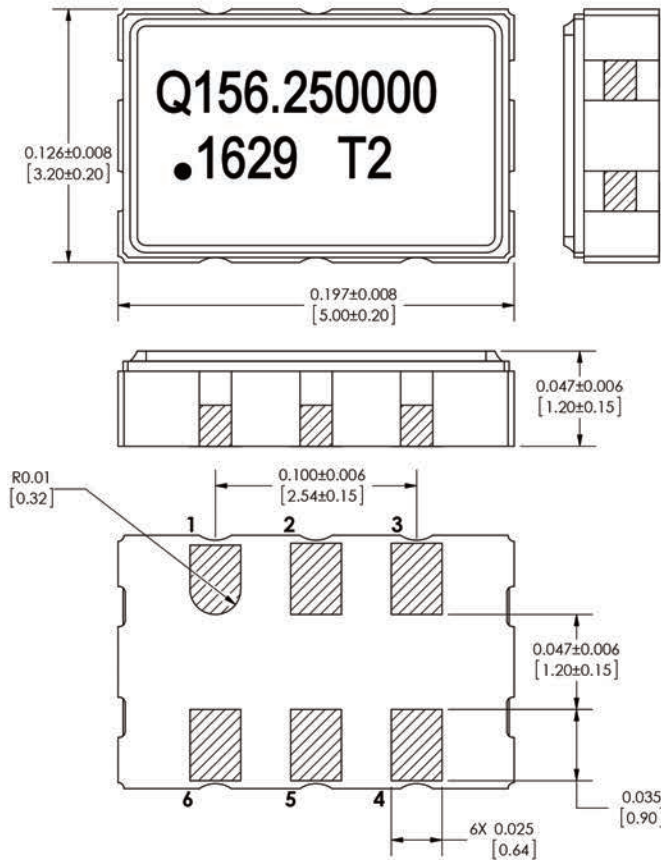
Screening	
Blank	= Unscreened
M	= Per MIL-PRF-55310, Level B

Frequency vs. Temperature Code:	
16 = ± 100ppm	at -20°C to +70°C
12 = ± 100ppm	at -40°C to +85°C
17 = ± 100ppm	at -40°C to +125°C
10 = ± 100ppm	at -55°C to +125°C
18 = ± 50ppm	at -20°C to +70°C
11 = ± 50ppm	at -40°C to +85°C
20 = ± 50ppm	at -40°C to +125°C
6 = ± 50ppm	at -55°C to +105°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

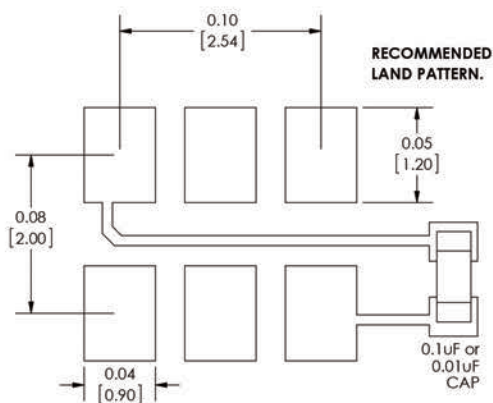
Not all codes are available for all frequencies. Please refer to Table II for frequency vs temperature stability availability.

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: QXXX.XXXXXX (Q for Q-Tech, no space 9 or 10 Characters of Frequency including decimal)
 Line 2: Dot (Pin 1 Indicator) + Date code (YY/WW), Internal Traceability Code

Package Information

- Termination pads (4x)
 Electro nickel underplate 1.27μm ~ 8.89μm
 Gold 0.3μm ~ 1.0μm flash plate
- Weight: 0.057g typ.

Table I - Electrical Characteristics

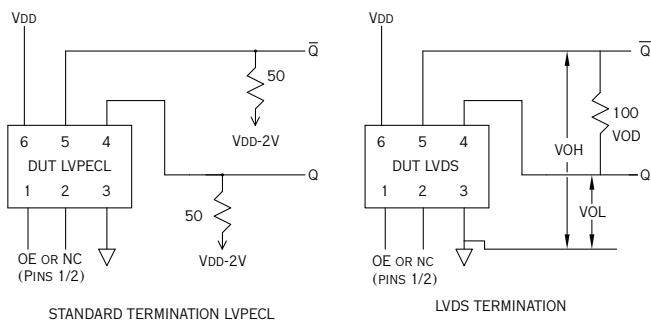
Parameters	QTCC353LP	QTCC353NP	QTCC353LW	QTCC353NW	QTCC353RW
Output frequency range (Fo)	25.000MHz — 250.000MHz		80.000MHz — 250.000MHz		100.000MHz — 175.000MHz
Supply voltage (Vdd)	3.3Vdc ± 5%	2.5Vdc ± 5%	3.3Vdc ± 5%	2.5Vdc ± 5%	1.8Vdc ± 5%
Maximum Applied Voltage (Vdd max.)	-0.5 to +5.0Vdc		-0.5 to +5.0Vdc		-0.3 to +4.0Vdc
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		
Differential Output Voltage (VOD)	N/A	N/A	330mV typ.		
Offset Voltage (VOS)	N/A	N/A	1.25V typ.		
Duty Cycle	45/55%				
Rise and Fall times	600ps max.				500ps max.
Load	50Ω into Vdd-2V		100Ω Differential		
Start-up time (Tstup)	10ms max.				
Current (No Load)	50mA typ. 75mA max.		60mA max.		50mA max.
Enable/Disable function Pin 1	VIH ≥ 0.7*Vdd Active VIL ≤ 0.3*Vdd High Z				
Phase Jitter (12kHz - 20MHz BW)	0.3ps nom. 0.7ps max.		0.35ps nom. 0.8ps max.		0.5ps max.
Period Jitter Typical RMS Pk-Pk	2.6ps nom. 23ps nom.		2.9ps nom. 25.1ps nom.		Not Available
Random Jitter Typical	2.6ps nom.				Not Available
Deterministic Jitter	<0.2ps				Not Available
Aging	± 5ppm/year				

Table II - Frequency vs. Temperature Stability Availability

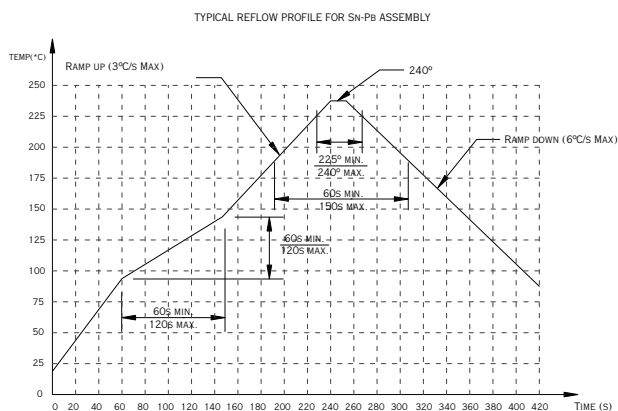
Voltage	Temp Range	Frequency	Stability		
			±25ppm	±50ppm	±100ppm
1.8V LVDS Only	-40 to +85C	100MHz to 170MHz	X	X	X
	-55 to +125C	100MHz to 125MHz		X	X
		126MHz to 170MHz			X
2.5V/3.3V	-40 to +85C	50MHz to 225MHz	X	X	X
	-55 to +125C	50MHz to 125MHz		X	X
		126MHz to 220MHz			X

Contact factory if desired frequency is not listed within the ranges above.

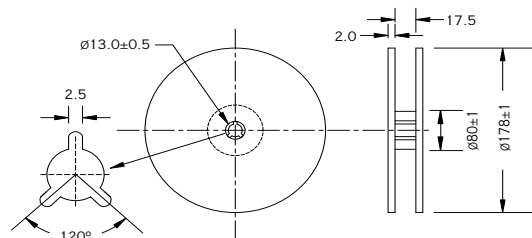
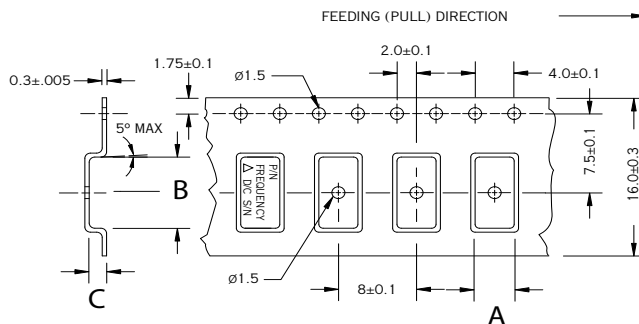
Test Circuit



Reflow Profile



Embossed Tape and Reel Information



Dimensions are in mm. Tape is compliant to EIA-481-A.

Package	A	B	C
QTCC 353	3.70 ±0.1	5.50 ±0.1	1.40 ±0.1
Reel size (Diameter in mm)	178		
Qty per reel (pcs)	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



QTCC353 SERIES
3-POINT MOUNT LOW PROFILE 3.2 x 5mm
MINIATURE SMD LVDS/PECL CRYSTAL OSCILLATORS
1.8, 2.5 and 3.3Vdc - 25.000MHz to 250.000MHz

DCO	REV	REVISION SUMMARY	PAGE	DATE
14266	-	Initial Release	-	12/17/2021