Q-TECH CORPORATION

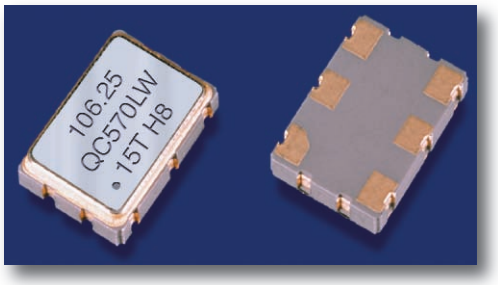
QCC570 LVPECL and LVDS

LOW PROFILE 5 x 7mm MINIATURE SMD CRYSTAL OSCILLATORS

2.5 to 3.3Vdc - 38.88MHz to 350MHz

Description

Q-Tech's surface-mount QCC570 LVPECL and LVDS oscillators consist of a 2.5Vdc and 3.3Vdc differential PECL or LVDS output oscillator IC and a miniature strip AT quartz crystal built in a low profile ceramic package with gold plated contact pads.



Features

- Broad frequency range from 38.88MHz to 350MHz
- Small footprint
- 2.5Vdc or 3.3Vdc supply voltage
- Differential LVPECL or LVDS outputs
- Complimentary output
- Able to meet 36000G shock per ITOP 1-2-601
- Excellent jitter performance
- LVDS offers low-power, low noise coupling, low emissions
- Tri-State Output when OE is low
- Hermetically sealed ceramic package
- Fundamental and 3rd Overtone designs
- Full or partial military screening tests available
- Tape and reel packaging
- RoHS compliant

Applications

- SONET/SDH
- Fibre channel
- Gun launched munitions and systems
- Applications required high data transmission throughputs
- Clock generation and distribution

Ordering Information

QCC570XX — XX — X — 100.00MHz

XX:
- LW = 3.3Vdc LVDS
- NW = 2.5Vdc LVDS
- LP = 3.3Vdc LVPECL
- NP = 2.5Vdc LVPECL

100.00MHz: Output frequency

X:
- T = 45/55% max. duty cycle option

5	= ±	25ppm	at	-20ºC	to	+70ºC
11	= ±	50ppm	at	-40ºC	to	+85ºC
14	= ±	20ppm	at	-20ºC	to	+70ºC
15	= ±	25ppm	at	-40ºC	to	+85ºC
16	= ±	50ppm	at	-20ºC	to	+70ºC

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

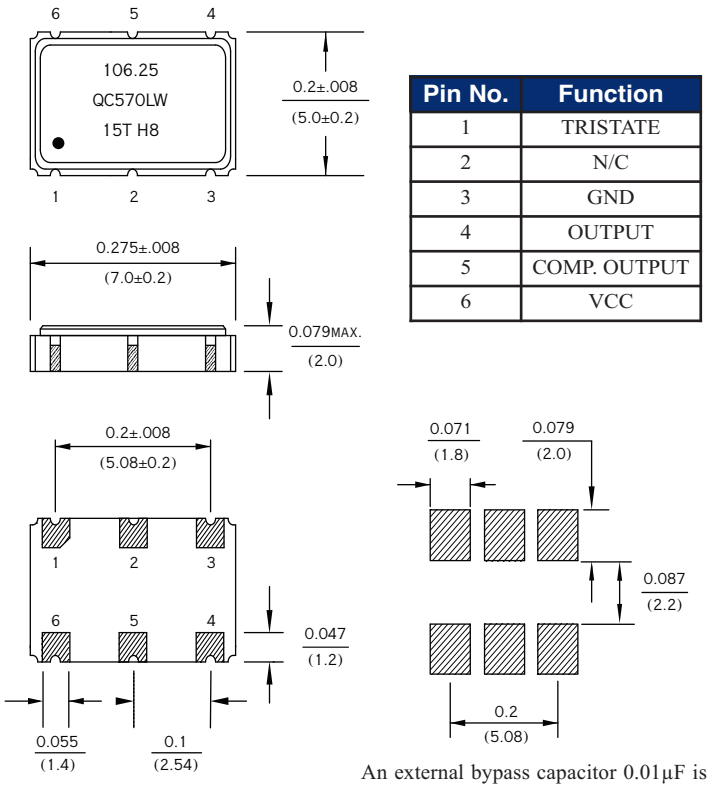
For Non-Standard requirements, contact Q-Tech Corporation at Sales@Q-Tech.com

Other Options Available For An Additional Charge

- Solder Dip Sn/Pb 60/40%

Specifications subject to change without prior notice.

Package Specifications and Outline



Pin No.	Function
1	TRISTATE
2	N/C
3	GND
4	OUTPUT
5	COMP. OUTPUT
6	VCC

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

Dimensions are in inches (mm)

Marking Information:
Line 1: XX.XXXX or XXX.XXX (Frequency in MHz)
Line 2: P/N (QC570LW or QC570LP)
Line 3: Dot + Stability code + Symmetry code + Date code(Month Year)

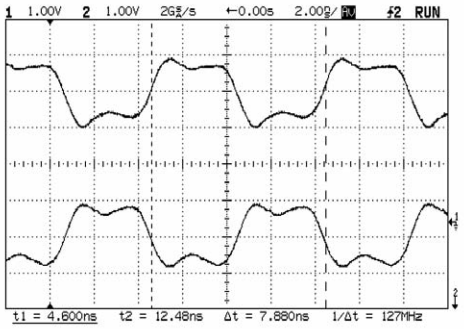
Date Code Format:
A - L : Month Jan-Dec
8 : 2008
9 : 2009

Package material: AL_2O_3
Termination pads (4x), Electro nickel plating 1.27µm ~ 8.89µm typ., with gold 0.3µm ~ 1.0µm flash plate

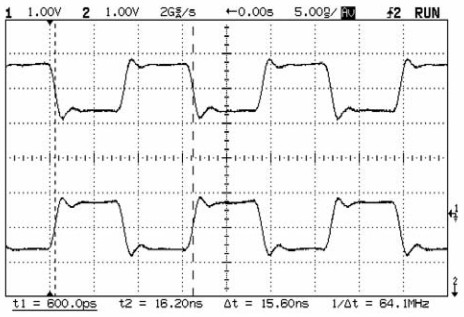
Electrical Characteristics

Parameters	QCC570LW	QCC570NW	QCC570LP	QCC570NP
	(LVDS Output)		(LVPECL Output)	
Output frequency range (Fo)	**38.880MHz — 350.00MHz**			
Supply voltage (Vcc)	3.3Vdc ± 5%	2.5Vdc ± 5%	3.3Vdc ± 5%	2.5Vdc ± 5%
Frequency stability (ΔF/ΔT)	± 100ppm max. (see options)			
Operating temperature (Topr)	-40ºC to +85ºC			
Storage temperature (Tsto)	-55ºC to + 125ºC			
Operating supply current (Icc)	65mA max.	60mA max.	100mA max.	80mA max.
Symmetry (measured at 50% output level)	40/60% max. (45/55% optional)			
Rise and Fall times (measured between 20% to 80% Vcc)	600ps max.		1.5ns max. (600ps typ.)	
Output Load	100Ω (Connected between Out and Comp. Out)		50Ω to Vcc -2Vdc (or Thevenin equivalent) (Connected between each Output and Vcc -2Vdc)	
Start-up time (Tstup)	10ms max.			
Output voltage (Voh/Vol)	VOH = 1.45V typ., 1.65V max. VOL = 1.10V typ., 0.90V min.		VOH = 2.275V min. VOL = 1.68V max.	VOH = 1.365V min. VOL = 0.94 max.
Enable/Disable Tristate function	Pin 1: Open or VIH ≥ 0.7Vcc Oscillation VIL ≤ 0.3Vcc High Z			
Jitter (integrated 12kHz to 20MHz)	1ps typ. RMS; 20ps max. peak to peak			

Output Waveform (Typical)

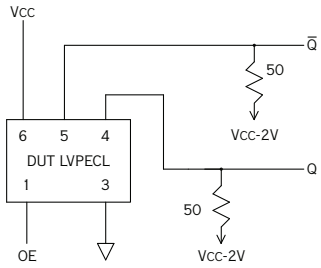


Complimentary output of an LVPECL 3.3Vdc 127MHz

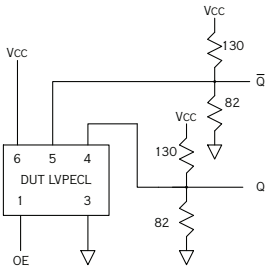


Complimentary output of an LVPECL 3.3Vdc 64MHz

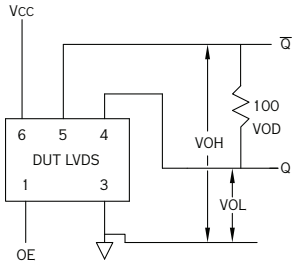
Test Circuit



STANDARD TERMINATION LVPECL



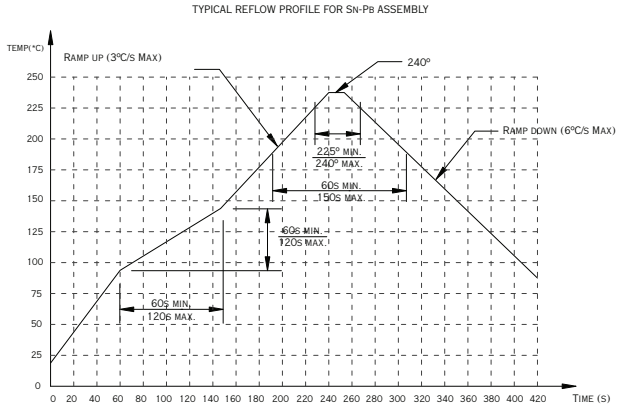
THEVENIN EQUIVALENT 3.3V LVPECL



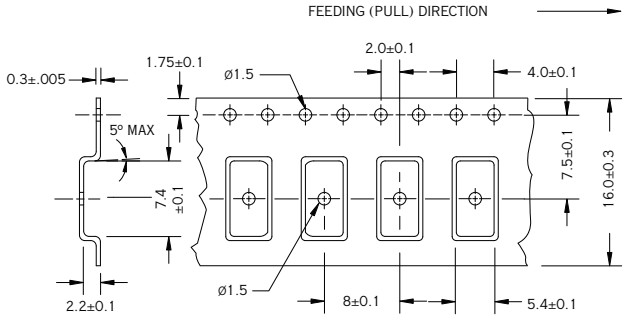
LVDS TERMINATION

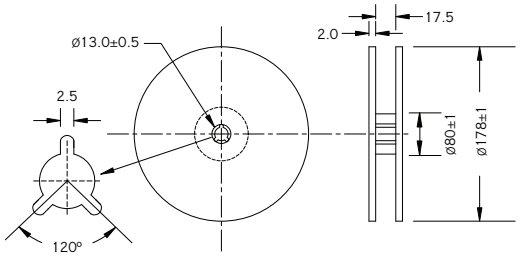
The Tristate function on pin 1 has a built-in pull-up resistor so it can be left floating or tied to Vcc without deteriorating the electrical performance.

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 Gross Leak	MIL-STD-883, Method 1014, Cond. 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