

Description

Q-Tech's surface-mount QCC325 oscillators consist of an IC 5Vdc, 3.3Vdc, 2.5Vdc, 1.8Vdc 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 1MHz to 220.000MHz
- Small footprint
- LVHCMOS, HCMOS, and TTL compatible
- 5.0Vdc, 3.3Vdc, 2.5Vdc, 1.8Vdc supply
- Able to meet 36000G shock per ITOP 1-2-601
- Operating temperature -40°C to +85°C
- Tri-State Output Standard
- Hermetically sealed ceramic package
- Fundamental and 3rd Overtone designs
- Full or partial military screening tests available
- Tape and reel packaging
- RoHS compliant



Applications

- Designed to meet today's requirements for low voltage applications
- Gun launched munitions and systems
- Smart munitions
- Instrumentation
- Navigation
- Avionics
- Microprocessor clock

Ordering Information

QCC325X		— XX —	50.00MHz
Blank = 5.0Vdc			Output frequency
L = 3.3Vdc			
N = 2.5Vdc			
R = 1.8Vdc			
N/A	= ±	50ppm	at -40°C to +85°C
5	= ±	25ppm	at -20°C to +70°C
12	= ±	100ppm	at -40°C to +85°C
14	= ±	20ppm	at -20°C to +70°C
15	= ±	25ppm	at -40°C to +85°C

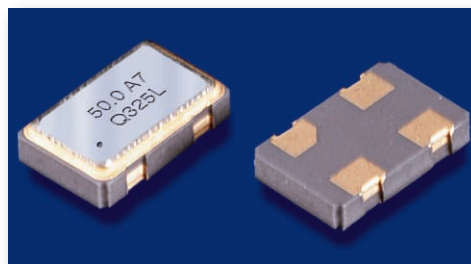
Frequency stability vs. temperature codes may not be available in all frequencies.

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

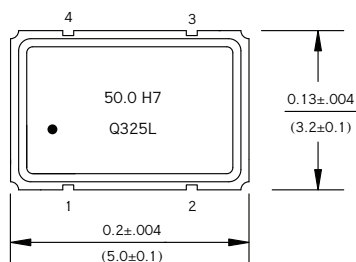
Other Options Available For An Additional Charge

- Solder Dip Sn/Pb 60/40%

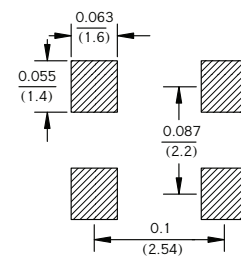
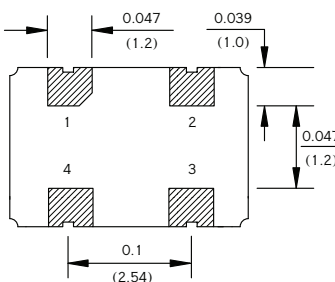
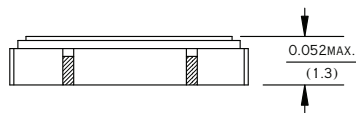
Specifications subject to change without prior notice.



Package Specifications and Outline



Pin No.	Function
1	TRISTATE
2	GND/CASE
3	OUTPUT
4	VDD



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

Dimensions are in inches (mm)

Marking Information:

Line 1: XX.XX + Date code
(Frequency in MHz + Date code Month Year)
Line 2: Dot + P/N + Stability code
(Dot + 6 characters max.)

Date Code Format:

A - L : Month Jan-Dec
8 : 2008
9 : 2009

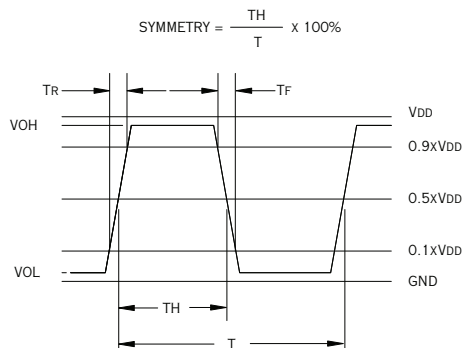
Package material: AL₂O₃

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

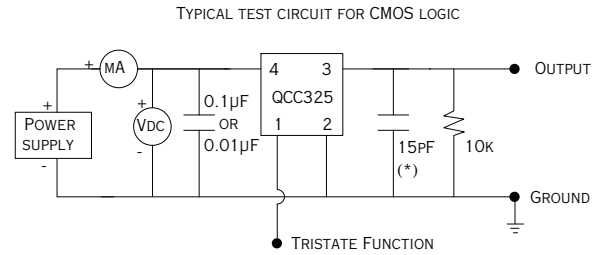
Electrical Characteristics

Parameters	QCC325	QCC325L	QCC325N	QCC325R
Output frequency range (Fo)	1MHz — 106.250MHz	1MHz — 220.000MHz	1MHz — 220.000MHz	1MHz — 165.000MHz
Supply voltage (Vdd)	5.0Vdc ± 10%	3.3Vdc ± 10%	2.5Vdc ± 10%	1.8Vdc ± 10%
Frequency stability (ΔF/ΔT)	± 50ppm max.			
Operating temperature (Topr)	-40°C to +85°C			
Storage temperature (Tsto)	-55°C to + 125°C			
Operating supply current (No Load)	35 mA max. - 1MHz ~ < 32MHz 70 mA max. - 32MHz ~ < 70MHz 90 mA max. - 70MHz ~ 106.250MHz	20 mA max. - 1MHz ~ < 32MHz 45 mA max. - 32MHz ~ < 70MHz 100 mA max. - 70MHz ~ 220.000MHz	8 mA max. - 1MHz ~ < 30MHz 22 mA max. - 30MHz ~ < 60MHz 70 mA max. - 60MHz ~ 220.000MHz	7 mA max. - 1MHz ~ < 30MHz 18 mA max. - 30MHz ~ < 70MHz 61 mA max. - 70MHz ~ 165MHz
Symmetry (50% of output waveform)	45/55%			
Rise and Fall times	10ns max. - 1MHz ~ < 20MHz 7ns max. - 20MHz ~ 106.250MHz (between 10% to 90%)	8ns max. - 1MHz ~ < 20MHz 5ns max. - 20MHz ~ 220.000MHz (between 10% to 90%)	6ns max. (between 20% to 80%)	
Output Load	30pF max. 1MHz ~ < 50MHz 15pF max. (50MHz ~ 106.250MHz)	15pF max.	15pF max.	
Start-up time (Tstup)	10ms max.			
Output voltage (Voh/Vol)	0.9Vdd min. / 0.1Vdd max.			
Output Current (Ioh/Iol)	± 16mA max.	± 8mA max.	± 6mA max.	
Enable/Disable function Pin 1	VIH ≥ 2.2V Active	VIH ≥ 2.2V Active (< 30MHz) VIH ≥ 0.7Vdd Active (≥ 30MHz)	VIH ≥ 0.7Vdd Active	
	VIL ≤ 0.8V High Z	VIL ≤ 0.8V High Z (< 30MHz) VIL ≤ 0.3Vdd High Z (≥ 30MHz)	VIL ≤ 0.3Vdd High Z	
Aging	± 5ppm/year max.			

Output Waveform (Typical)



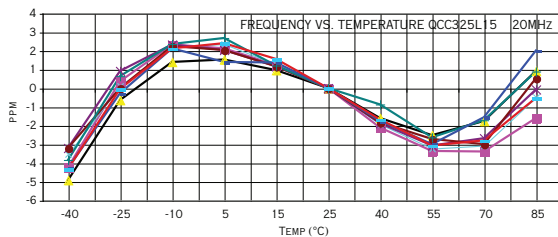
Test Circuit



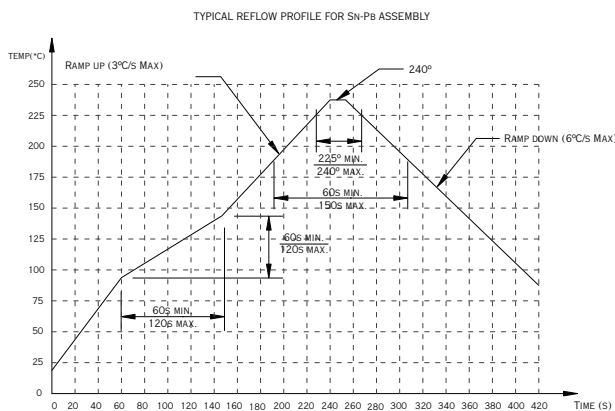
(* CL INCLUDES PROBE AND JIG CAPACITANCE)

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

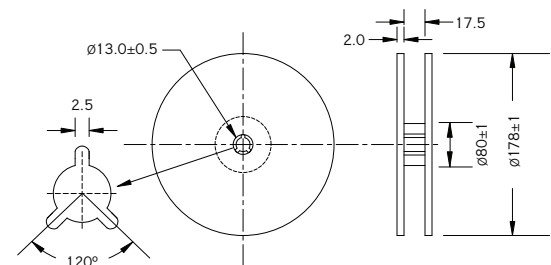
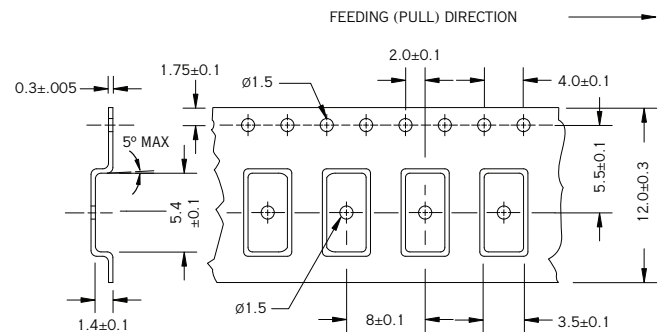
Frequency vs. Temperature Curve



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