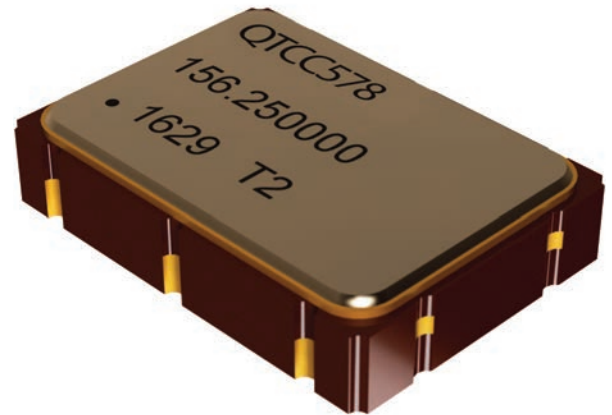


Description

Q-Tech's low phase noise surface-mount QTCC578 oscillators are offered in 3.3Vdc or 2.5Vdc and are built using a miniature strip AT quartz crystal in a low profile ceramic package with gold plated contact pads.

Features

- ECCN: EAR99
- Broad frequency range from 100.000MHz to 250.000MHz
- Small footprint
- LVDS logic
- 2.5Vdc, 3.3Vdc supply
- Operating temperature -55°C to +125°C available
- Differential Output
- Hermetically sealed ceramic package
- 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

QTCC578LWD12-156.250MHz
 QTCC578 LW D 12 - 156.250 - SNPB

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

Output Frequency

Optional Solder Dip
 Blank = No Solder
 SNPB = Sn60Pb40
 SAC305 = Lead Free

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

Screening

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

Frequency vs. Temperature Code:		
10	= ± 100ppm	at -55°C to +125°C
17	= ± 100ppm	at -40°C to +125°C
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

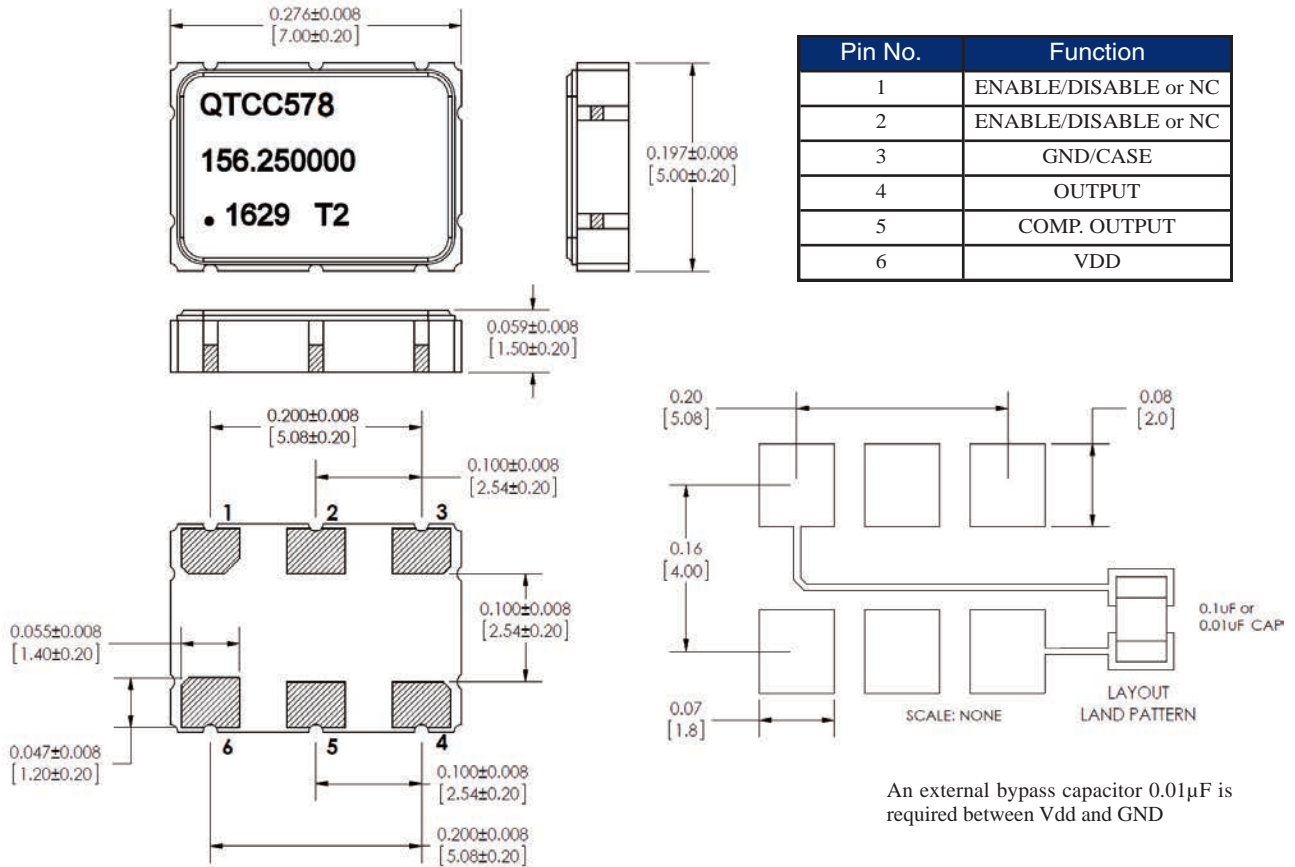
Other Options Available For An Additional Charge

- 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

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: QTCC578 (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

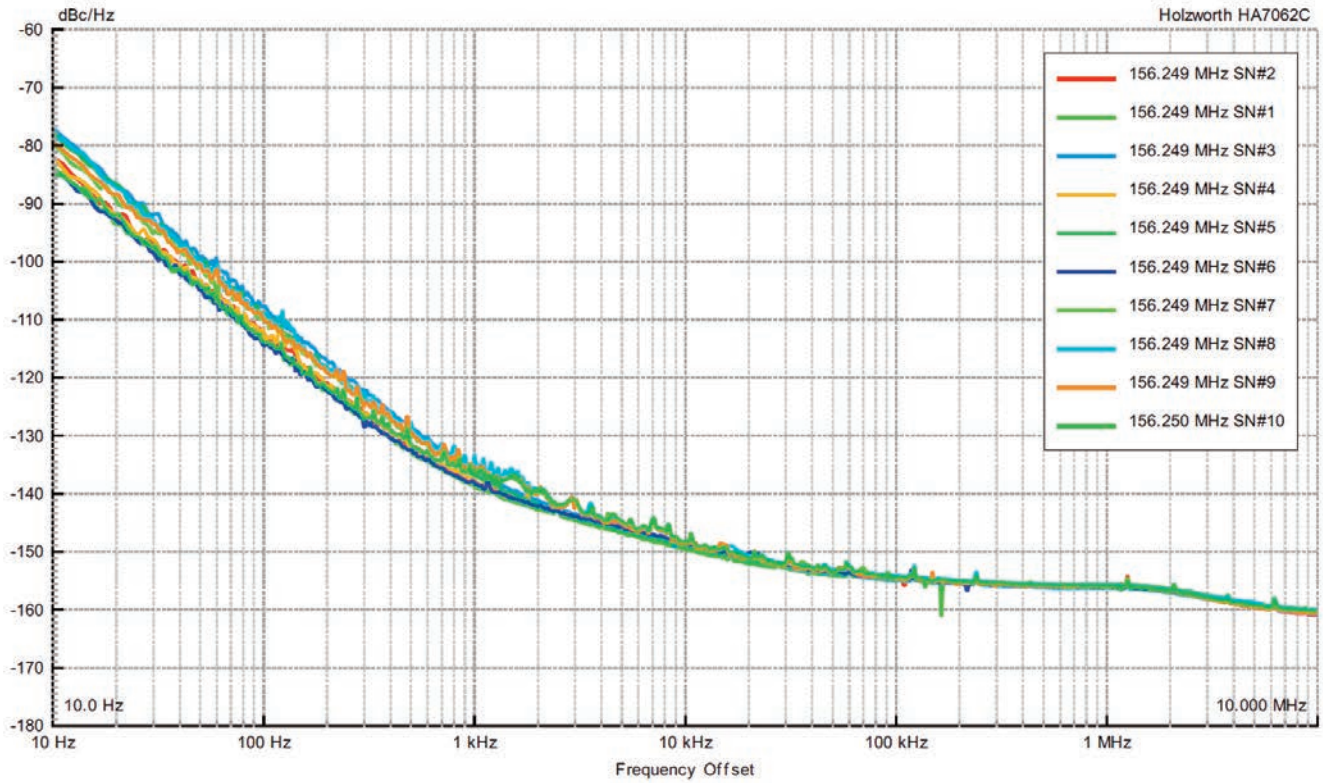
Package Information

- 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.

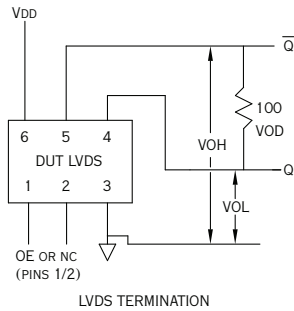
Electrical Characteristics

Parameters	QTCC578LW	QTCC578NW
Output frequency range (Fo)	100.000MHz — 250.000MHz	
Supply voltage (Vdd)	3.3Vdc ± 5%	2.5Vdc ± 5%
Maximum Applied Voltage (Vdd max.)	-0.5 to +5.0Vdc	
Logic	LVDS	
Frequency stability ($\Delta F/\Delta T$)	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)	Voh < 1.6 V Vol > 0.9 V	
Duty Cycle	45/55%	
Rise and Fall times	600ps	
Load	100Ω Differential	
Start-up time (Tstup)	10ms max.	
Current (No Load)	60mA max.	
Enable/Disable	VIH ≥ 0.7*Vdd Active	
	VIL ≤ 0.3*Vdd High Z	
Phase Jitter (12kHz - 20MHz BW) 156.250MHz	0.05ps nom. 0.2ps 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	

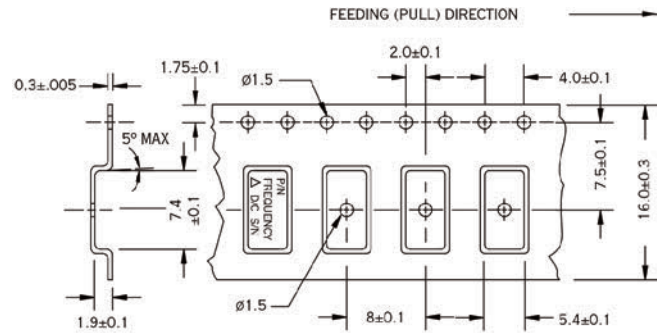
Typical Phase Noise - QTCC578LWD-156.250MHz



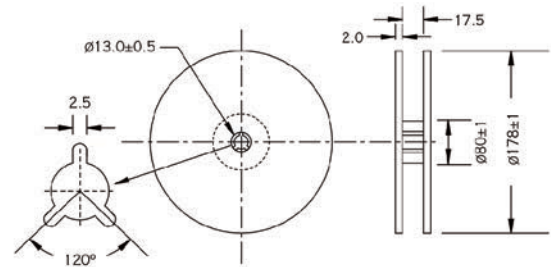
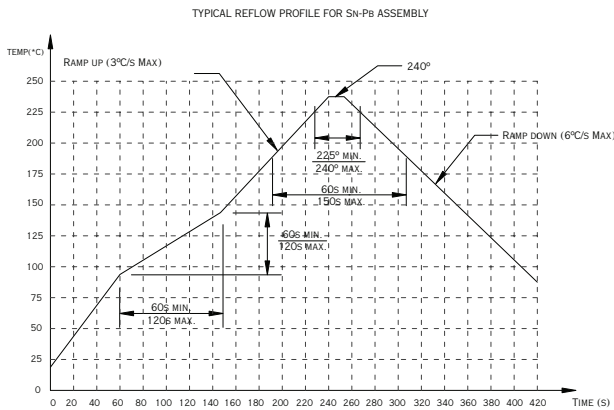
Test Circuit



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



Q-TECH
CORPORATION



QTCC578 SERIES
LOW PHASE NOISE 5 x 7mm MINIATURE SMD LVDS CRYSTAL OSCILLATORS
2.5 and 3.3Vdc - 100.000MHz to 250.000MHz

DCO	REV	REVISION SUMMARY	PAGE	DATE
12599	-	Initial Release		12/03/2020