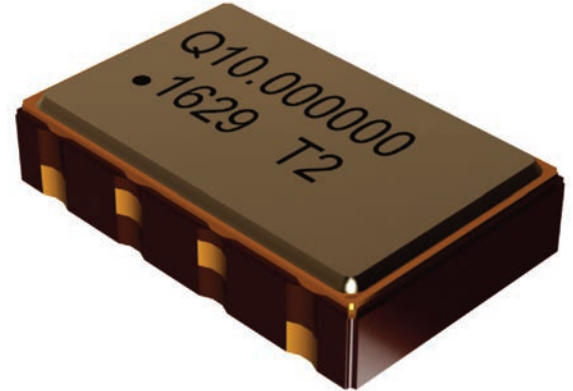


Description

Q-Tech's surface-mount QTCT350 oscillators consist of an IC 3.3Vdc, 5.0Vdc TCXO built in a low profile ceramic package with gold plated contact pads.

Features

- ECCN: EAR99
- Frequency range from 10.000000MHz to 52.000000MHz
- Small footprint
- Clipped Sine, CMOS logic
- 5.0Vdc, 3.3Vdc supply
- Operating temperature -40°C to +85°C available
- Optional Free Tuning
- Hermetically sealed ceramic package
- Military screening tests per MIL-PRF-55310 available
- Tape and reel packaging
- Lead Free, RoHS Compliant
- VCTCXO Option



Applications

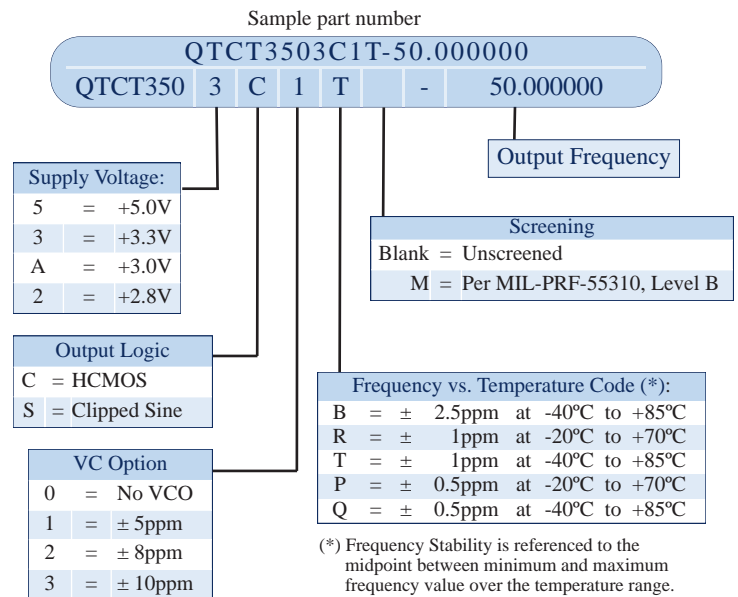
- Designed to meet today's requirements for low voltage applications
- Instrumentation
- Navigation
- Avionics
- Ethernet/SynchE
- Base Stations
- Global Positioning Systems (GPS)
- Manpack Radio
- FEMTO Cells

Stock List

See all QTCT products [IN STOCK](#)

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

Ordering Information



Other Options Available For An Additional Charge

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

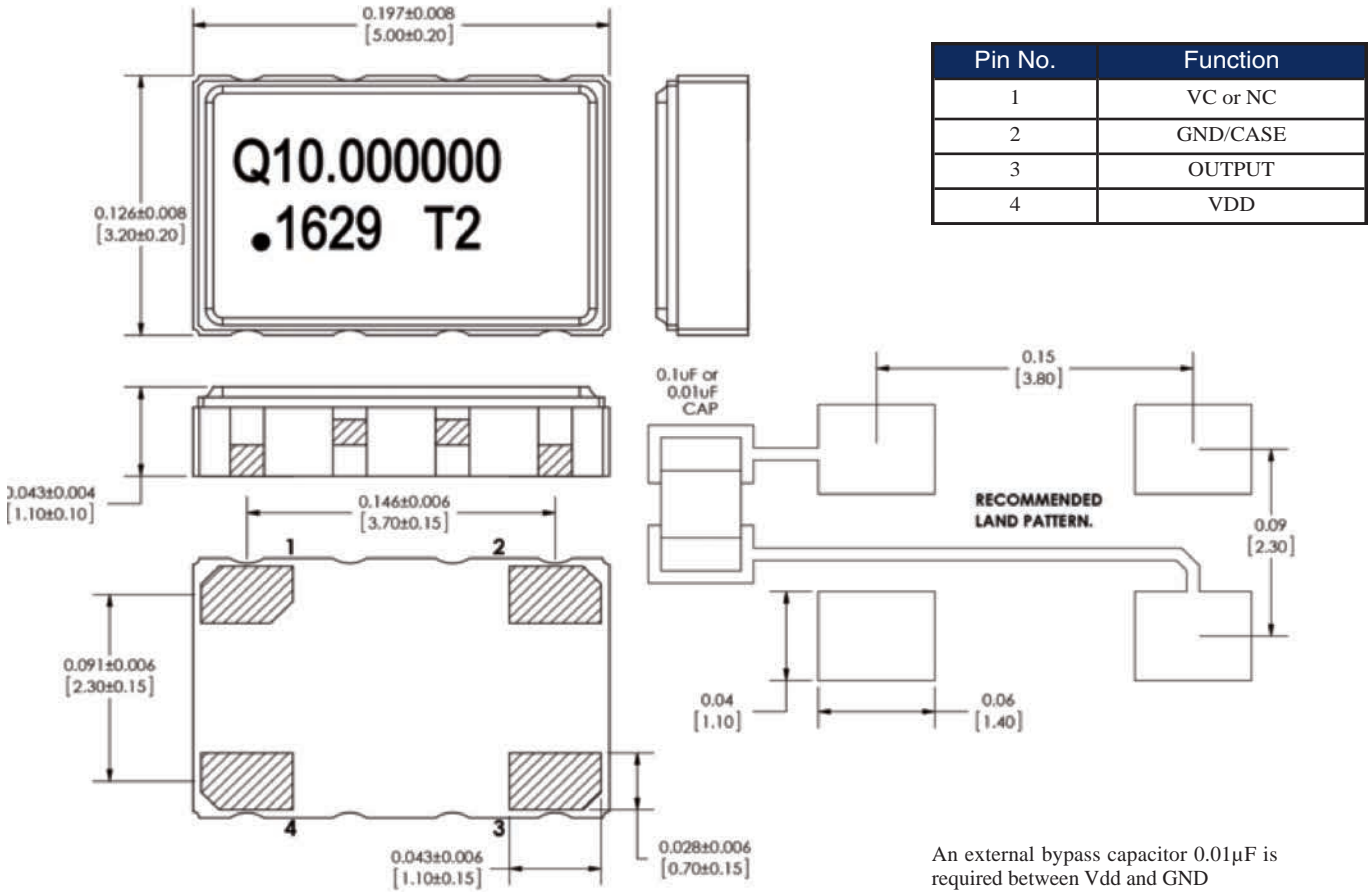
Frequency stability vs. temperature codes may not be available in all frequencies.
 For Non-Standard requirements, contact Q-Tech Corporation at Sales@Q-Tech.com



Q-TECH
CORPORATION

QTCT350 SERIES
3.2 x 5mm MINIATURE SMD TEMPERATURE CONTROLLED CRYSTAL OSCILLATORS
2.8 to 5.0Vdc - 10.000000MHz to 52.000000MHz

Package Outline and Pin Connections
Dimensions are in inches (mm)



Marking

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

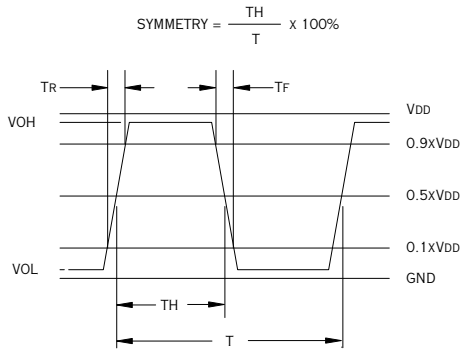
Package Information

- Termination pads (4x), Electro nickel plating 1.27µm ~ 8.89µm typ., with gold 0.3µm ~ 1.0µm flash plate
- Weight: 0.057g typ.

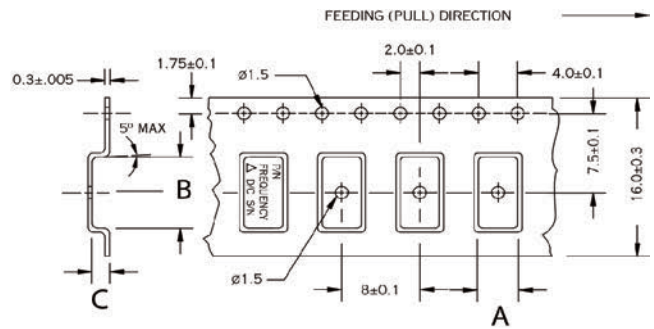
Electrical Characteristics

| Parameters | QTCT350XC | QTCT350XS |
|-------------------------------------|--|--|
| Output frequency range (Fo) | 10.000000MHz — 40.000000MHz | 10.000000MHz — 52.000000MHz |
| Logic | HCMOS | Clipped Sine |
| Supply voltage (Vdd) | 5.0Vdc, 3.3Vdc ± 5% | |
| Supply current (Idd) | 3.5 mA max. - < 26MHz 8.0 mA max. - 26MHz ~ ≤ 40MHz | 2.0 mA max. - < 26MHz 3.5 mA max. - 26MHz ~ ≤ 52MHz |
| VCO Option (Tuning Range) | See Part Number on Page 1 | |
| Operating temperature (Topr) | See Part Number on Page 1 | |
| Storage temperature (Tsto) | -62°C to + 125°C | |
| Duty Cycle | 45/55% | N/A |
| Rise and Fall times | 5ns max. | N/A |
| Start-up time (Tstup) | 2ms max. | |
| Output voltage (Voh/Vol) | 0.9Vdd min. / 0.1Vdd max. | Vop-p = 0.8V |
| Output Load | 15pF max. | 10k 10pF |
| Control Voltage to reach Pull Range | 0.5V min. 1.5V typ. 2.5V max. | |
| Control Voltage Impedance | 100kΩ min. | |
| Phase Noise typ. at 12.8MHz | | |
| 10Hz | -90 dBc/Hz | -96 dBc/Hz |
| 100Hz | -112 dBc/Hz | -115 dBc/Hz |
| 1kHz | -134 dBc/Hz | -133 dBc/Hz |
| 10kHz | -150 dBc/Hz | -146 dBc/Hz |
| 100kHz | -156 dBc/Hz | -158 dBc/Hz |
| Frequency Tolerance (Ftol) at 25°C | ±2.0ppm | |
| Power Supply Stability ±5% (Fpwr) | ±0.3ppm | ±0.2ppm |
| Load Stability ±10% (Fload) | ±0.2ppm | |
| Aging | ±1.0ppm 1st year | |

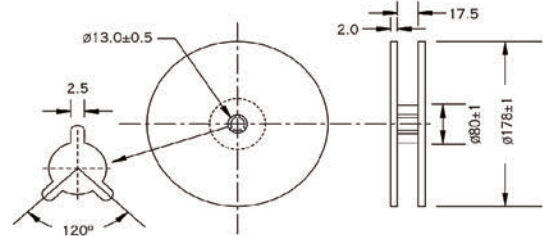
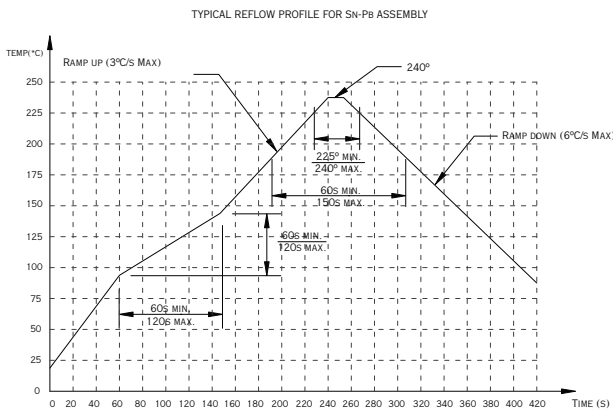
CMOS Output Waveform (Typical)



Embossed Tape and Reel Information



Reflow Profile



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

| Package | A | B | C |
|----------------------------|-----------|-----------|-----------|
| QTCT 350 | 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 |



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QTCT350 SERIES
3.2 x 5mm MINIATURE SMD TEMPERATURE CONTROLLED CRYSTAL OSCILLATORS
2.8 to 5.0Vdc - 10.000000MHz to 52.000000MHz

| DCO | REV | REVISION SUMMARY | PAGE | DATE |
|-------|-----|---|------|------------|
| 6168 | A | Add 'VCTCXO Option' in description | 1 | 2/3/17 |
| | | Fixed clipped picture | 2 | |
| | | Storage temp changed -55C to -62C | 3 | |
| | | 'Phase noise' changed to 'Phase noise typ. at 12.8MHz' | | |
| | | Frequency tolerance changed 1.5ppm to 2.0ppm | | |
| | | Fload changed 0.1ppm to 0.2ppm | | |
| | | Fpwr changed 0.1ppm to 0.2ppm | | |
| | | Idd changed 6mA to 8mA and 2.6mA to 3.5mA | | |
| 6653 | B | Add temperature code B. | 1 | 4/10/17 |
| | | Corrected lower limit of voltage in header from 3.3V to 2.8V | All | |
| | | Revised 'Applications' | 1 | |
| | | Corrected lower limit of frequency in 'Features' from 5.000MHz to 10.000MHz | 1 | |
| 10037 | C | Revise Frequency format to six digits after decimal | All | 06/14/2019 |
| 11948 | D | Add Note (*) for frequency temperature stability | 1 | 12/30/2020 |