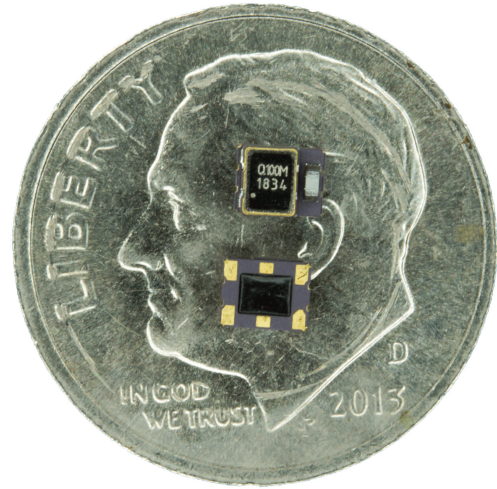


## Description

Q-Tech's surface-mount QTCT236 oscillators consist of an IC 2.5Vdc or 3.3Vdc TCXO built in a low profile ceramic package with gold plated contact pads.

## Features

- ECCN: EAR99
- CMOS Frequency range from 10.000MHz to 250.000MHz
- Differential Frequency range from 10.000MHz to 1.500GHz
- Small footprint
- CMOS, LVDS, or LVPECL logic
- 2.5 and 3.3Vdc supply
- Operating temperature -40°C to +85°C available
- Tape and Reel Packaging
- Military screening tests per MIL-PRF-55310 available
- Designed to meet MIL-STD-883, Method 2002, Condition B (1,500g's peak, 0.5ms pulse)
- Lead Free, RoHS Compliant
- Low Phase Jitter - 0.8ps RMS typical at 12kHz to 20MHz offsets



## Applications

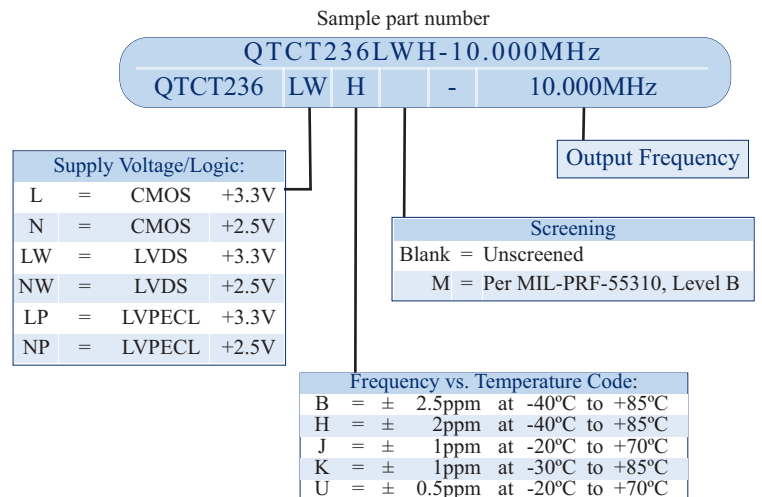
- Designed to meet today's requirements for low voltage applications
- Gigabit Ethernet
- Fiber Channel
- SONET
- Microprocessors/DSP/FPGAS
- Broadband Access
- Smart Grid

## 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](mailto:Sales@Q-Tech.com)



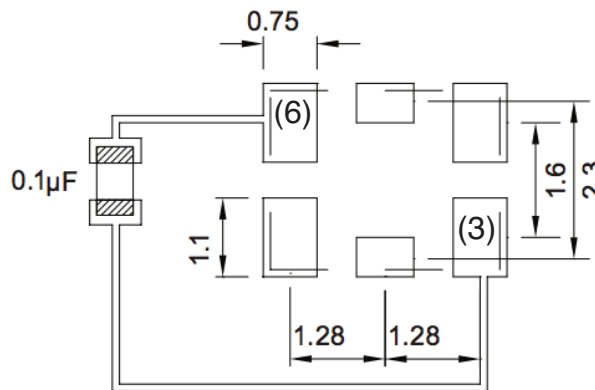
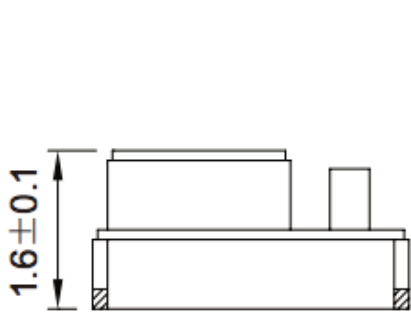
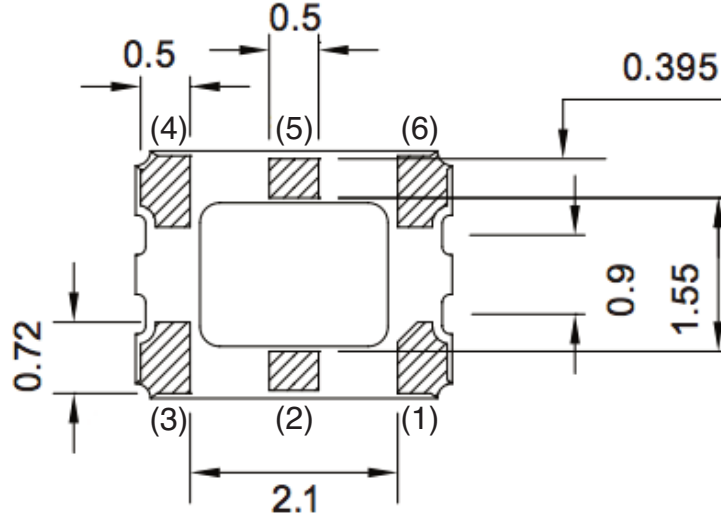
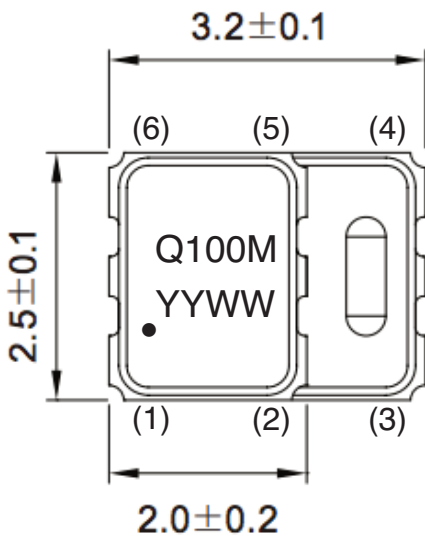
**Q-TECH**  
CORPORATION



**QTCT236 SERIES**  
2.5 x 3.2mm MINIATURE SMD TEMPERATURE CONTROLLED CRYSTAL OSCILLATORS  
2.5 or 3.3Vdc - 10.000MHz to 1.500GHz

### Package Outline and Pin Connections

Dimensions are in mm



Pin	CMOS	Differential
1		N/C
2		TRISTATE
3		GND
4		OUTPUT
5	N/C	COMP. OUTPUT
6		SUPPLY VOLTAGE (VDD)

For the best performance, place an external bypass capacitor (0.1µF) between Vdd and GND.

### Marking Information

Line 1: Q (Q-Tech), 100M (4 characters of frequency, letter used as decimal point. M used for MHz and G for GHz.)

Line 2: YYWW (Date Code in Year/Week format)

Dot indicates corner for Pin 1

Frequency Marking Examples:

- Q100M = 100MHz
- Q10M0 = 10.0MHz
- Q1G50 = 1.50GHz
- Q1G00 = 1.00GHz

### Package Information

- Termination pads (6x), Electro nickel plating 1.27µm ~ 8.89µm typ., with gold 0.3µm ~ 1.0µm flash plate
- Weight: 0.025g typ.

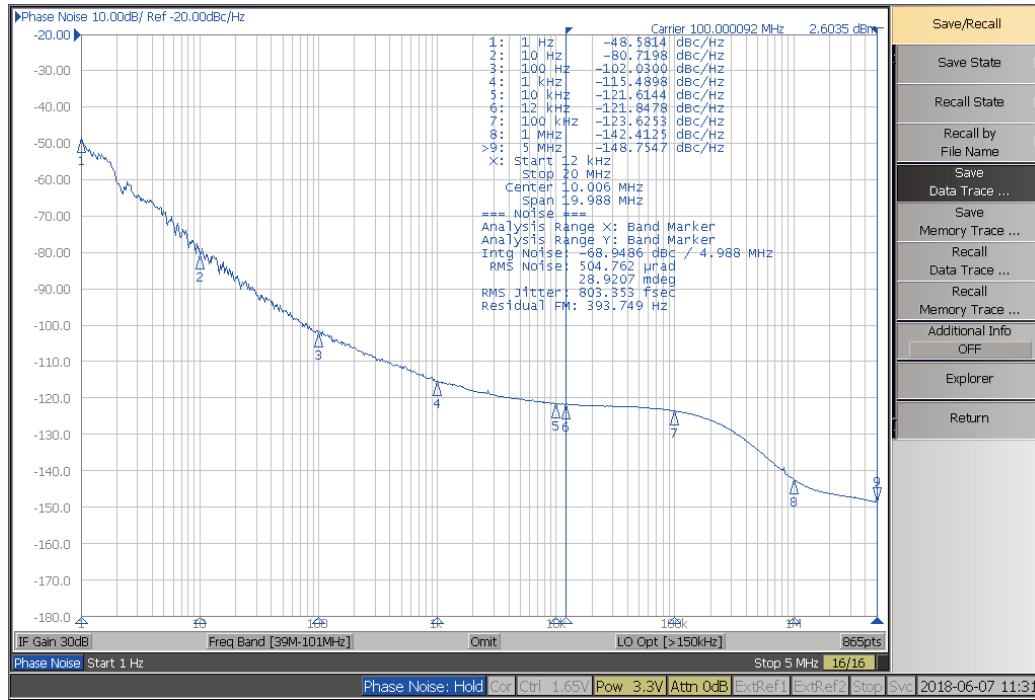
### Maximum Ratings

Parameters	Symbol	Minimum	Maximum	Unit
Supply Voltage	Vdd	0	3.63	V
Operating Temperature	Top	-40	+85	°C
Storage Temperature	Tstg	-62	+125	°C

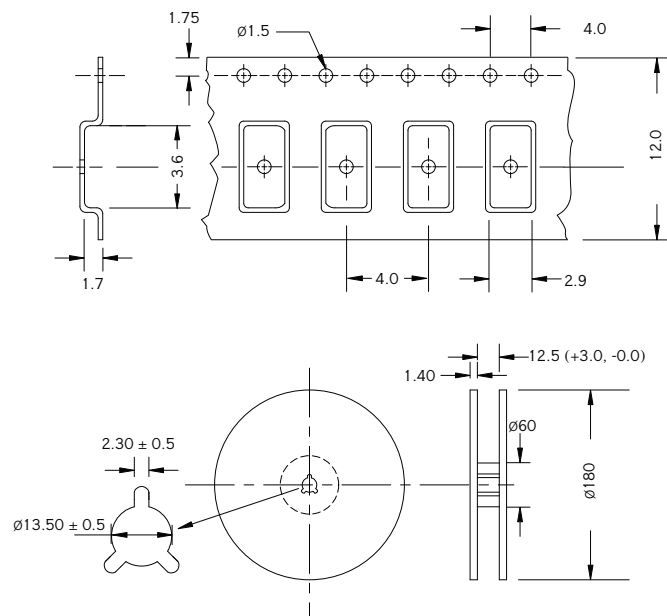
### Electrical Characteristics

Parameters	LVPECL		LVDS		CMOS		Unit
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	
Supply Voltage (Vdd)	3.3V or 2.5V		3.3V or 2.5V		3.3V or 2.5V		V
Supply Voltage Variation	Vdd ± 5%		Vdd ± 5%		Vdd ± 5%		V
Frequency Range	10	1500	10	1500	10	250	MHz
Supply Current	-	54	-	45	-	40	mA
Output Level - High	Vdd - 1.03	Vdd - 0.6	-	1.6	Vdd x 0.9	-	V
Output Level - Low	Vdd - 1.85	Vdd - 1.6	0.9	-	-	Vdd x 0.1	V
Transition Time	-	0.5 (20% - 80%)	-	0.5 (20% - 80%)	-	3.0 (10% - 90%)	ns
Duty Cycle	45	55	45	55	45	55	%
Startup Time	-	5	-	5	-	5	ms
Tristate - Enable	Vdd x 0.7	-	Vdd x 0.7	-	Vdd x 0.7	-	V
Tristate - Disable	-	Vdd x 0.3	-	Vdd x 0.3	-	Vdd x 0.3	V
Standby Current	-	18	-	18	-	18	mA
Load	50Ω into Vdd - 2V		100Ω		-	15pF	
Aging	±1ppm first year, ±5ppm after 10 years						
Phase Noise (@ 250MHz, 3.3V)	<b>TYP.</b>		<b>TYP.</b>		<b>TYP.</b>		<b>Unit</b>
1 kHz offset	-107		-107		-107		dBc/Hz
10 kHz offset	-111		-111		-111		dBc/Hz
100 kHz offset	-114		-114		-114		dBc/Hz
1 MHz offset	-125		-125		-125		dBc/Hz
20 MHz offset	-147		-147		-147		dBc/Hz
RMS Phase Jitter (12kHz to 20MHz)	0.8 (typ.)	1.5 (max.)	0.8 (typ.)	1.5 (max.)	0.8 (typ.)	1.5 (max.)	ps

### Phase Noise - 3.3V CMOS at 100MHz



### Tape and Reel Dimensions (Dimensions are in mm)





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CORPORATION



**QTCT236 SERIES**  
**2.5 x 3.2mm MINIATURE SMD TEMPERATURE CONTROLLED CRYSTAL OSCILLATORS**  
**2.5 or 3.3Vdc - 10.000MHz to 1.500GHz**

DCO	REV	REVISION SUMMARY	PAGE	DATE
8554	-	Initial Release		09/14/2018
8994	A	Add link for IN STOCK list	1	10/19/2018
		Revise Phase Noise for CMOS logic	3	