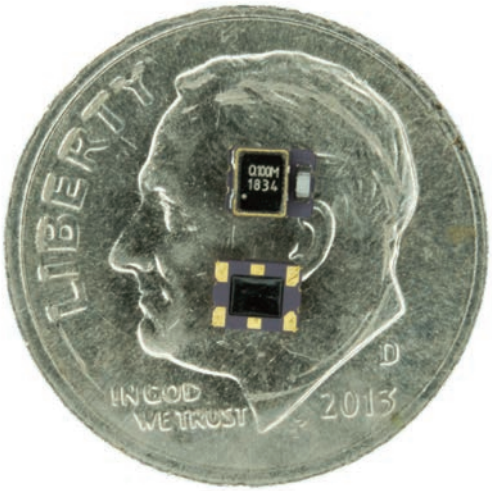
Description

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 10.000000MHz to 250.000000MHz
- Differential Frequency range from 10.000000MHz to 1.500000GHz
- Small footprint
- CMOS, LVDS, or LVPECL logic
- 2.5 and 3.3Vdc supply
- Operating temperature -40ºC to +85ºC available
- Tape and Reel Packaging
- Military screening tests per MIL-PRF-55310 for Class 3 devices 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

Sample part number

QTCT236LWH-10.000000					
QTCT236	LW	H		-	10.000000

Output Frequency

Supply Voltage/Logic:			
L	=	CMOS	+3.3V
N	=	CMOS	+2.5V
LW	=	LVDS	+3.3V
NW	=	LVDS	+2.5V
LP	=	LVPECL	+3.3V
NP	=	LVPECL	+2.5V

Screening		
Blank	=	Unscreened
M	=	Per MIL-PRF-55310, Class 3, Level B

Frequency vs. Temperature Code (*):							
B	=	±	2.5ppm	at	-40ºC	to	+85ºC
H	=	±	2ppm	at	-40ºC	to	+85ºC
J	=	±	1ppm	at	-20ºC	to	+70ºC
K	=	±	1ppm	at	-30ºC	to	+85ºC
U	=	±	0.5ppm	at	-20ºC	to	+70ºC

(*) Frequency Stability is referenced to the midpoint between minimum and maximum frequency value over the temperature range.

Other Options Available For An Additional Charge

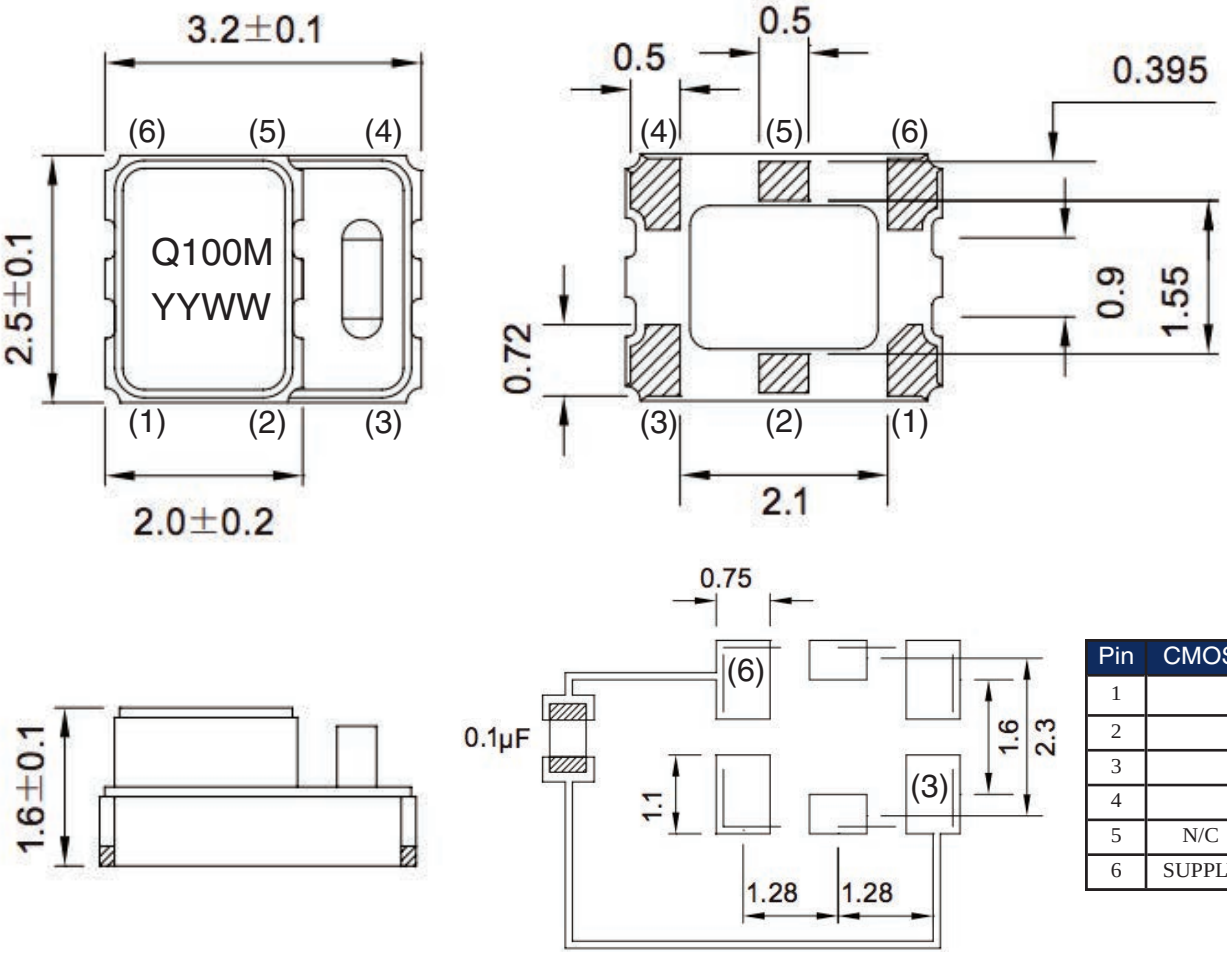
- Hot Solder Dip Sn60/Pb40 per MIL-PRF 55310

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 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.

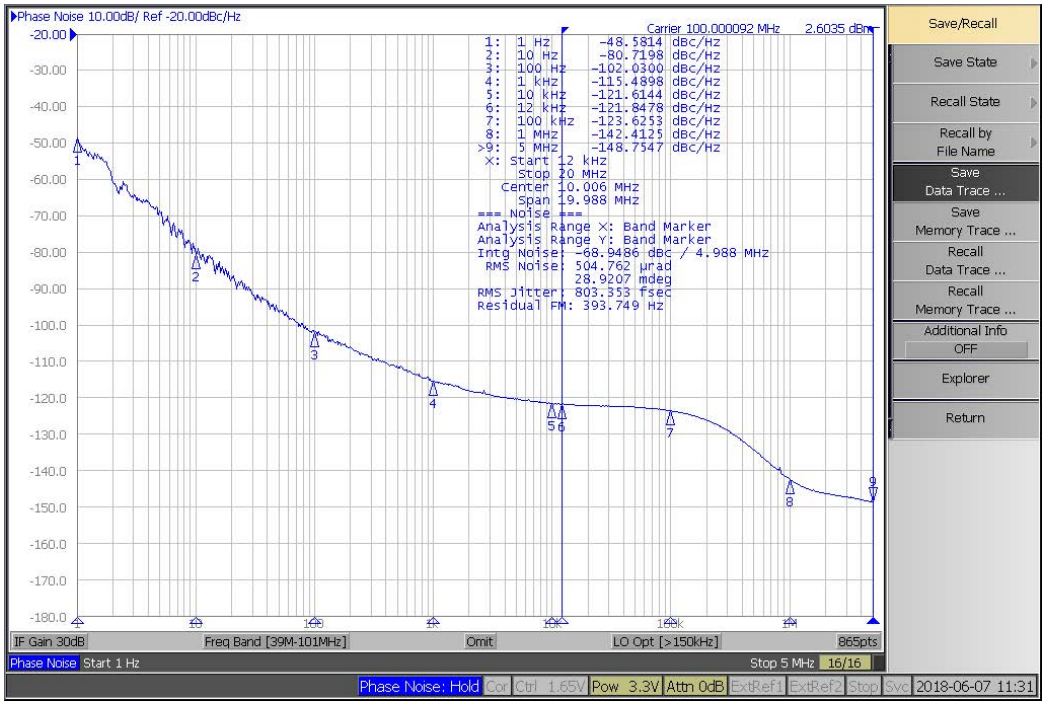
Maximum Ratings

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

Electrical Characteristics

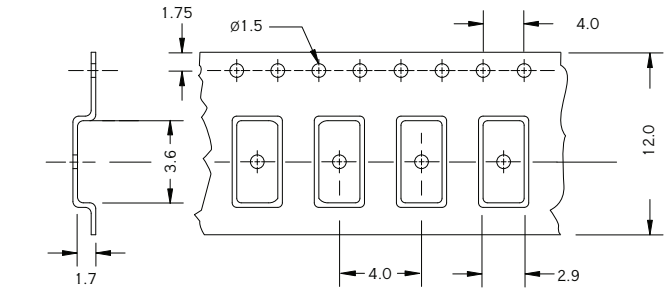
Parameters	LVPECL		LVDS		CMOS		Unit
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	
Supply Voltage (Vdd)	3.3V or 2.5V		3.3V or 2.5V		3.3V or 2.5V		V
Supply Voltage Variation	Vdd ± 5%		Vdd ± 5%		Vdd ± 5%		V
Frequency Range	10	1500	10	1500	10	250	MHz
Supply Current	-	54	-	45	-	40	mA
Output Level - High	Vdd - 1.03	Vdd - 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%)	-	1.0 (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	-	20	-	20	-	20	mA
Load	50Ω into Vdd - 2V		100Ω		-	15pF	
Aging	±1ppm first year, ±5ppm after 10 years						
Phase Noise (@ 250MHz, 3.3V)	TYP.		TYP.		TYP.		Unit
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

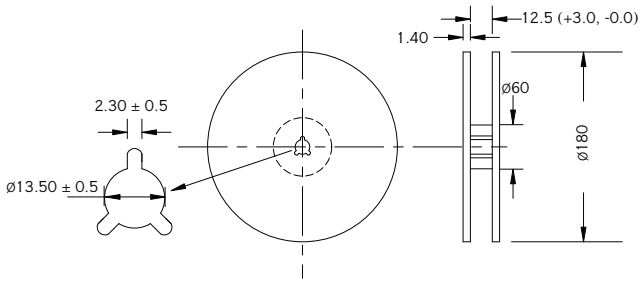
Phase Noise - 3.3V CMOS at 100MHz



Tape and Reel Dimensions

(Dimensions are in mm)





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	
9600	B	Change Standby Current to 20mA (was 18mA)	3	09/04/2020
		Update LVDS Transition time to 1 ns	3	
		Revise Frequency format to six digits after decimal (for ordering info)	All	
		Add Note (*) for frequency temperature stability	1	
13937	C	Change Storage Temperature	3	10/26/2021
		Add 'Class 3' to MIL-PRF-55310 screening for clarification of requirements	1	