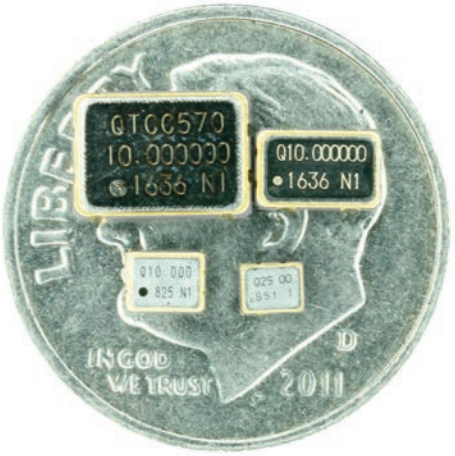
Q-Tech now offers ultra-miniature high reliability crystal oscillators, TCXOs and VCXOs in packages as small as 2.5 x 3.2 mm. These oscillators are fully qualified, configuration controlled, and thoroughly tested to meet the same high standards as our older, bigger products. Capable of covering the full temperature range of -55 ºC to +125 ºC with tight stability and low aging, the products also offer low phase noise and jitter. Furthermore, Q-Tech offers short lead times, with 8 weeks max and in many cases only 2 weeks lead time for standard parts.



Package sizes with dime for reference (US Dime is 17.9mm in diameter)

Highlights

- Packages as small as 2.5 x 3.2 mm.
- Gold plated standard lead finish.
- Sn60/Pb40 hot solder dip or SAC305 lead free solder available for additional cost.
- Full military temperature range of -55 ºC to +125 ºC.
- Low phase noise, low jitter.
- Qualified to MIL-PRF-55310, Level B.
- TCXO stabilities as tight as ±0.5 PPM.
- Quick lead times, 8 weeks guaranteed worst case, 2 weeks typical for repeat orders.
- Shock data available upon request.

Image	Q-Tech Package	Dimensions (mm)	Product Type	Logic	Voltage	Frequency Range	Stability	Typical Phase Noise (100kHz)
	QTCC230	2.50x3.20x1.15 4 Pad	XO	CMOS	1.8 to 3.3Vdc	625kHz to 133MHz	50ppm to 100ppm	-156 dBc/Hz @80MHz
	QTCC350	3.20x5.00x1.20 4 Pad	XO	CMOS	1.8 to 5.0Vdc	32.768kHz to 125MHz	20ppm to 100ppm	-158 dBc/Hz @80MHz
	QTCC570	5.00x7.00x1.40 4 Pad	XO	CMOS	1.8 to 5.0Vdc	1.544MHz to 190MHz	20ppm to 100ppm	-156 dBc/Hz @100MHz
	QTCC356	3.20x5.00x1.20 6 Pad	XO	LVDS LVPECL	2.5 to 3.3Vdc	25MHz to 250MHz	25ppm to 100ppm	-146 dBc/Hz @100MHz
	QTCC576	5.00x7.00x1.50 6 Pad	XO	LVDS LVPECL	2.5 to 3.3Vdc	25MHz to 250MHz	25ppm to 100ppm	-150 dBc/Hz @100MHz
	QTCC578	5.00x7.00x1.50 6 Pad	XO	LVDS	2.5 to 3.3Vdc	100MHz to 250MHz	25ppm to 100ppm	-155 dBc/Hz @156.250MHz
	QTCT220	2.00x2.50x0.70 4 Pad	TCXO	Clipped Sine	2.8 to 3.3Vdc	10MHz to 52MHz	0.5ppm to 2.5ppm	-150dBc/Hz @ 19.2 MHz
	QTCT230	2.50x3.20x0.90 4 Pad	TCXO	Clipped Sine	2.8 to 3.3Vdc	10MHz to 45MHz	1ppm to 2.5ppm	-150 dBc/Hz @19.2MHz
	QTCT236	2.50x3.20x1.60 6 Pad	TCXO	CMOS LVDS LVPECL	2.5 or 3.3Vdc	10MHz to 1.5GHz	0.5ppm to 2.5ppm	-114dBc/Hz @ 250MHz
	QTCT350	3.20x5.00x1.10 4 Pad	TCXO	CMOS Clipped Sine	3.3 to 5.0Vdc	10MHz to 52MHz	0.5ppm to 2.5ppm	-156 dBc/Hz -158 dBc/Hz @12.8MHz
	QTCT570	5.00x7.00x1.90 4 Pad	TCXO	CMOS Clipped Sine	2.8 to 3.3Vdc	5MHz to 52MHz	0.5ppm to 2.5ppm	-156 dBc/Hz -153 dBc/Hz @12.8MHz
	QTCV356	3.20x5.00x1.20 6 Pad	VCXO	CMOS PECL	3.3 to 5.0Vdc	1MHz to 156.25MHz	25ppm APR to 100ppm APR	-157 dBc/Hz @122.88MHz
	QTCV576	5.00x7.00x1.50 6 Pad	VCXO	CMOS PECL	3.3 to 5.0Vdc	1MHz to 156.25MHz	30ppm APR to 100ppm APR	-155 dBc/Hz -145 dBc/Hz @61.44MHz

See Back Side for Ordering Information

XO (CMOS)

QTCC570LD12-50.000

QTCC570	L	D	12		-	50.000

Package

QTCC570	=	5x7mm
QTCC350	=	3.2x5mm
QTCC230	=	2.5x3.2mm

Logic & Supply Voltage:

AC	=	HCMOS	+5.0V at	50pF
HC	=	HCMOS	+5.0V at	15pF
LA	=	LVHCMOS	+3.3V at	50pF
L	=	LVHCMOS	+3.3V at	15pF
N	=	LVHCMOS	+2.5V at	15pF
R	=	LVHCMOS	+1.8V at	15pF

Tristate

D	=	Tristate

Frequency vs. Temperature Code:

16	=	±	100ppm	at	-20ºC	to	+70ºC
12	=	±	100ppm	at	-40ºC	to	+85ºC
17	=	±	100ppm	at	-40ºC	to	+125ºC
10	=	±	100ppm	at	-55ºC	to	+125ºC
18	=	±	50ppm	at	-20ºC	to	+70ºC
11	=	±	50ppm	at	-40ºC	to	+85ºC
20	=	±	50ppm	at	-40ºC	to	+125ºC
6	=	±	50ppm	at	-55ºC	to	+105ºC
9	=	±	50ppm	at	-55ºC	to	+125ºC
5	=	±	25ppm	at	-20ºC	to	+70ºC
15	=	±	25ppm	at	-40ºC	to	+85ºC
14	=	±	20ppm	at	-20ºC	to	+70ºC

Screening

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

Output Frequency

Note:
Supply options AC, HC, and LA are not available for QTCC230.
Stability Code 14 is not available for QTCC230.

XO (PECL, LVDS)

QTCC576LPD12-156.250

QTCC576	LP	D	12		-	156.250

Package

QTCC576	=	5x7mm
QTCC578	=	5x7mm
QTCC356	=	3.2x5mm

Logic & Supply Voltage:

LW	=	LVDS +3.3V
NW	=	LVDS +2.5V
LP	=	LVPECL +3.3V
NP	=	LVPECL +2.5V

Option

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

Frequency vs. Temperature Code:

16	=	±	100ppm	at	-20ºC	to	+70ºC
12	=	±	100ppm	at	-40ºC	to	+85ºC
18	=	±	50ppm	at	-20ºC	to	+70ºC
11	=	±	50ppm	at	-40ºC	to	+85ºC
9	=	±	50ppm	at	-55ºC	to	+125ºC
5	=	±	25ppm	at	-20ºC	to	+70ºC
15	=	±	25ppm	at	-40ºC	to	+85ºC

Screening

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

Output Frequency

Note: Stability code 9 is not available for QTCC356

TCXOs

QTCT3503C1T-50.000000

QTCT350	3	C	1	T		-	10.000000

Package

QTCT570	=	5x7mm
QTCT350	=	3.2x5mm
QTCT230	=	2.5x3.2mm
QTCT220	=	2x2.5mm

Supply Voltage:

5	=	+5.0V*
3	=	+3.3V
A	=	+3.0V
2	=	+2.8V

Output Logic

C	=	HCMOS*
S	=	Clipped Sine

VC Option

0	=	No VCO
1	=	± 5ppm
2	=	± 8ppm*
3	=	± 10ppm*

Frequency vs. Temperature Code:

B	=	±	2.5ppm	at	-40ºC	to	+85ºC
R	=	±	1ppm	at	-20ºC	to	+70ºC
T	=	±	1ppm	at	-40ºC	to	+85ºC
P	=	±	0.5ppm	at	-20ºC	to	+70ºC
Q	=	±	0.5ppm	at	-40ºC	to	+85ºC

Screening

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

Output Frequency

VCXOs

QTCV576LDK2-50.000

QTCV576	L	D	K2		-	50.000

Package

QTCV576	=	5x7mm
QTCV356	=	3.2x5mm

Logic & Supply Voltage:

HC	=	HCMOS +5V
L	=	LVHCMOS +3.3V
P	=	LVPECL +3.3V

Tristate

D	=	Tristate

Absolute Pull Range vs. Temperature Code:

L2	=	±	100ppm APR	at	-10ºC	to	+70ºC
L7	=	±	100ppm APR	at	-40ºC	to	+85ºC
K2	=	±	50ppm APR	at	-10ºC	to	+70ºC
K7	=	±	50ppm APR	at	-40ºC	to	+85ºC
J2	=	±	30ppm APR	at	-10ºC	to	+70ºC
J7	=	±	30ppm APR	at	-40ºC	to	+85ºC

Screening

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

Output Frequency

Notes:
- Voltage option 5 is not available for QTCT230 or QTCT220.
- Ordering options marked with an asterisk (*) are not available for QTCT220.
- QTCT236 offers a wide frequency range 10MHz to 1.5GHz in CMOS, LVDS or LVPECL outputs. See data sheet for ordering options.