QX5 Series

3.2x5.0 SMD HCMOS Clock Oscillator

RoHS Compliant

Pb lead-free

Features

- Ultra-miniature 3.2 x 5.0 x 1.3mm package
- Frequency Range 1.000 to 155.520MHz
- Tristate (Enable/Disable) function as standard
- Supply voltage 1.8, 2.5 or 3.3 Volts

Description

QX5 ultra-miniature oscillators consist of a TTL/ HCMOS-compatible hybrid circuit and a miniature quartz crystal packaged in a low-profile, industry-standard ceramic package.

General Specifications

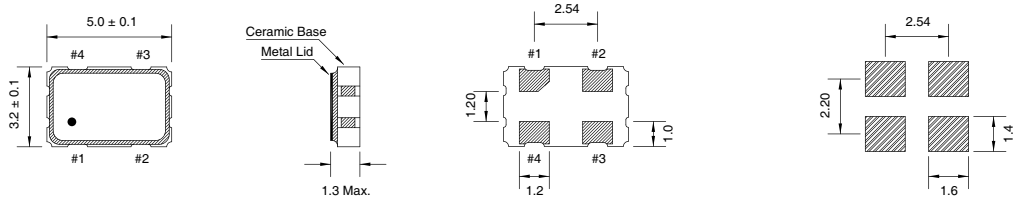
Frequency Range		1.000 to 155.520MHz
Output Logic		HCMOS
Temperature Stability*		±100ppm
		±50ppm
		±25ppm
		±20ppm
Phase Jitter RMS		<1ps typ.
Aging per year		±5ppm
Operating Temperature Range	Standard	-20 to +70°C
	Industrial	-40 to +85°C
	Extended	-40 to +105°C
	Automotive	-40 to +125°C
Storage Temperature Range		-55 to +125°C

* Frequency stability is inclusive of calibration tolerance at 25°C, frequency change due to shock & vibration, ±10% supply voltage variation and stability over temperature range.

Electrical Specifications

Supply Voltage		1.8Vdd ± 5%	2.5Vdd ± 5%	3.3Vdd ± 5%
Input Current	1.000 to 32.000MHz	7mA	10mA	15mA
	32.100 to 50.000MHz	15mA	12mA	20mA
	50.100 to 67.000MHz	-	-	25mA
	67.100 to 80.000MHz	-	-	25mA
	80.100 to 155.520MHz	-	-	40mA
Output Voltage	Logic High (Voh)	90% (80% at 1.8) Vdd min.		
	Logic Low (Vol)	10% (20% at 1.8) Vdd max.		
	Standard	40 to 60%		
	Tight	45 to 55%		
Output Current	Iol/Ioh	±2mA min.		
Output Load		15pF max.		
Rise and Fall Time	1.000 to 32.000MHz	5ns max.	5ns max.	7ns max.
	32.100 to 50.000MHz	3.5ns max.	5ns max.	7ns max.
	50.100 to 67.000MHz	-	-	7ns max.
	67.100 to 80.000MHz	-	-	7ns max.
	80.100 to 155.520MHz	-	-	7ns max.
Standby Current		10µA max.		
Enable-Disable Function		Tri-State		
Output Disable Time		300ns max.	150ns max.	
Output Enable Time		10ms max.	10ms max.	
Start Up Time		10 ms max.		

Mechanical Dimensions



Pin Connection: **#1** E/D, **#2** GND, **#3** Output, **#4** VDC *Enable/Disable Function:* **E/D (#1)** Output (#3), **High (Open)** Operating, **Low** High Impedance

Part Numbering Guide

Qantek Code	Package	Supply Voltage	Frequency Stability	Frequency	Operating Temperature Range	Automotive Indicator	Load Capacitance	Tight Symmetry Indicator	Packaging
Q = Qantek	X5 = 3.2x5.0	18 = 1.8V 25 = 2.5V 33 = 3.3V	A = ±25ppm **B = ±50ppm** C = ±100ppm D = ±20ppm	in MHz, always 8 digits including the decimal point (f.ie. 20.00000)	A = -20 to +70°C **B = -40 to +85°C** C = -40 to +105°C D = -40 to +125°C	A = AEC-Q200	15 = 15pF	T = 45/55	R = Tape&Reel M = Minireel (250pcs Tape&Reel)

Example: QX533B20.00000B15R bold letters = recommended standard specification

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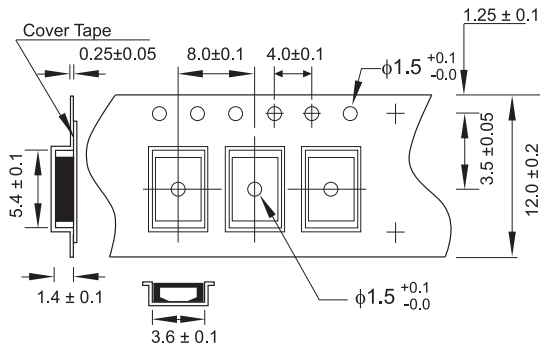
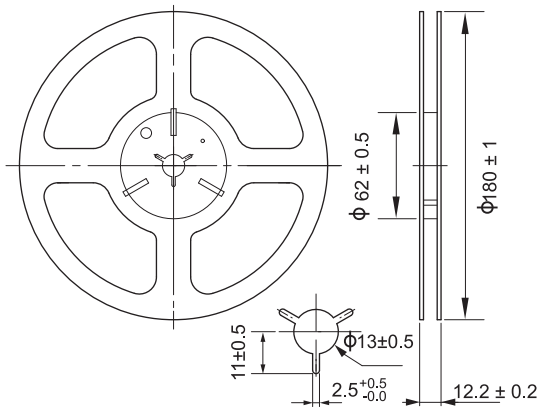
Tape and Reel Dimensions





Marking Code Guide

Contains frequency, Qantek manufacturing Code, production code (month and year), stability, temperature range and voltage indicator.

Month Codes

January	A	July	G
February	B	August	H
March	C	September	I
April	D	October	J
May	E	November	K
June	F	December	L

Year Codes

2010	0	2011	1	2012	2
2013	3	2014	4	2015	5

Stability

ppm	PN Code
20	D
25	A
50	B
100	C
custom	S

Temperature Range

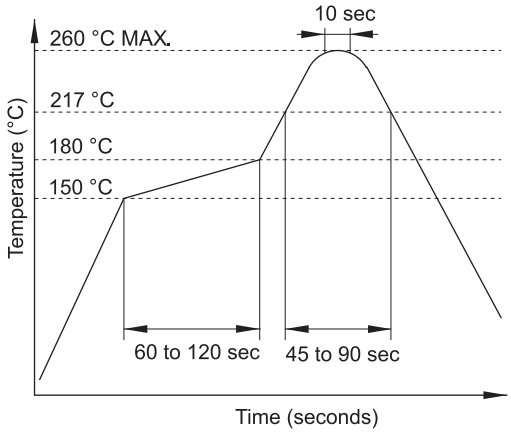
°C	PN Code
-20 to +70°C	A
-40 to +85°C	B
-40 to +105°C	C
-40 to +125°C	D
custom	S

Voltage

Volt	PN Code
1.8	1
2.5	2
3.3	3
5.0	5
custom	S

Example: First Line: 20.000 *(Frequency)* Second Line: QA1BB3 *(Qantek – January – 2011 –* ±50ppm – -40 to +85°C – 3.3V*)*

Solder Reflow Profile



Environmental Specifications

Mechanical Shock	MIL-STD-202, Method 213, C
Vibration	MIL-STD-202, Method 201 & 204
Thermal Cycle	MIL-STD, Method 1010, B
Gross Leak	MIL-STD-202, Method 112
Fine Leak	MIL-STD-202, Method 112

All specifications are subject to change without notice.

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