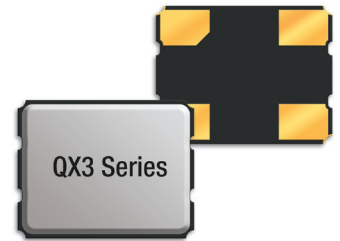# QX3 Series
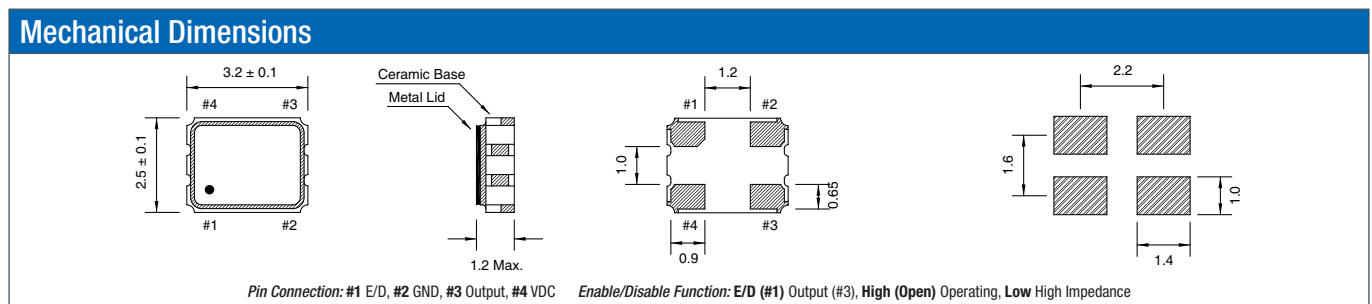## 2.5x3.2 SMD HCMOS Clock Oscillator

QX3 Series

Features
- Ultra-miniature 2.5 x 3.2 x 1.2mm package
- Frequency Range 1.000 to 75.000MHz
- Tristate (Enable/Disable) function as standard
- Supply voltage 1.8, 2.5 or 3.3 Volts
- FlexiVolt 1.8 to 3.3V

Description
QX3 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.

RoHS Compliant

Pb lead-free

General Specifications

Frequency Range		1.000 to 75.000MHz
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		1.8 Vdd ± 5%	2.5 Vdd ± 5%	3.3 Vdd ± 5%
Input Current	1.000 to 32.000MHz	8mA	8mA	8mA
	32.100 to 50.000MHz	10mA	10mA	10mA
	50.100 to 60.000MHz	20mA	20mA	20mA
	60.100 to 75.000MHz	20mA	20mA	20mA
Output Voltage	Logic High (Voh)	90% (80% at 1.8) Vdd min.		
	Logic Low (Vol)	10% (20% at 1.8) Vdd max.		
Output Symmetry	Standard	40 to 60%		
	Tight	45 to 55%		
Output Current	Lol/Loh	±2mA min.		
Output Load		15pF max.		
Rise and Fall Time	1.000 to 32.000MHz	5ns max.	6ns max.	6ns max.
	32.100 to 50.000MHz	3.5ns max.	6ns max.	6ns max.
	50.100 to 60.000MHz	3.5ns max.	10ns max.	10ns max.
	60.100 to 75.000MHz	3.5ns max.	10ns max.	10ns max.
Standby Current		10µA max.		
Enable-Disable Function		Tri-State		
Output Disable Time		300ns max.	150ns max.	
Output Enable Time		10ms max.	5ms max.	
Start Up Time		5 (10 at 1.8Vdd) 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	X3 = 2.5x3.2	18 = 1.8V 25 = 2.5V 33 = 3.3V FV = 1.8 to 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	M = 250pcs Tape&Reek R = 1000pcs Tape&Reel R3 = 3000pcs Tape&Reel

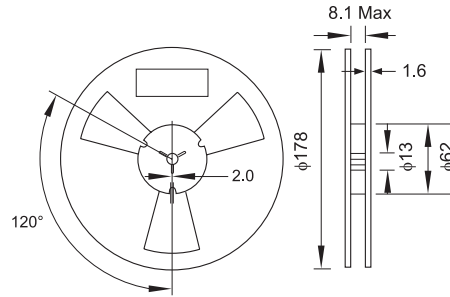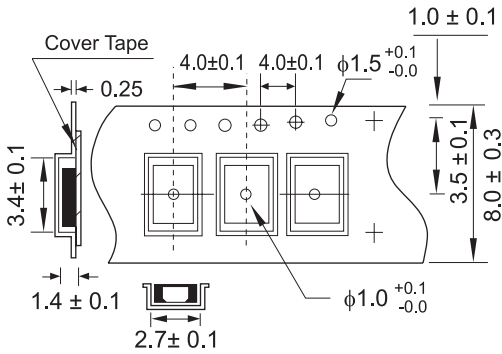Example: QX333B20.00000B15R   bold letters = recommended standard specification

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QX3 Series
2.5x3.2 SMD HCMOS Clock Oscillator

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

Month	Code	Month	Code
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

Year	Code	Year	Code	Year	Code
2019	9	2020	0	2021	1
2022	2	2023	3	2024	4
2025	5	2026	6	2027	7

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
1.8 to 3.3	F
custom	S

Example: First Line: 20.000 *(Frequency)*   Second Line: QA9BB3 *(Qantek – January – 2019 – ±50ppm – -40 to +85°C – 3.3V)*

Solder Reflow Profile
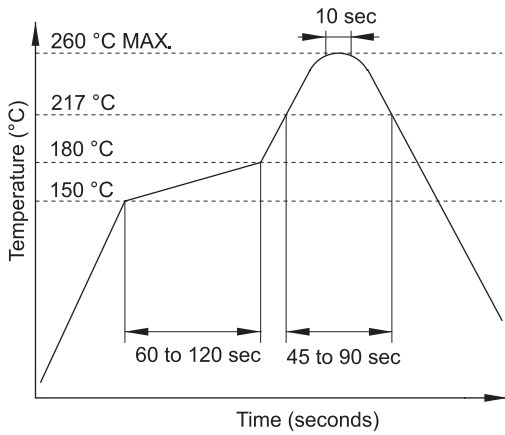
Environmental Specifications

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.