



Features

- Ultra-miniature 3.2 x 2.5 x 1.2mm package
- Frequency Range 1MHz to 75MHz
- Tristate (Enable/Disable) function as standard
- Supply voltage 1.8, 2.5 or 3.3 Volts

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.

General Specifications

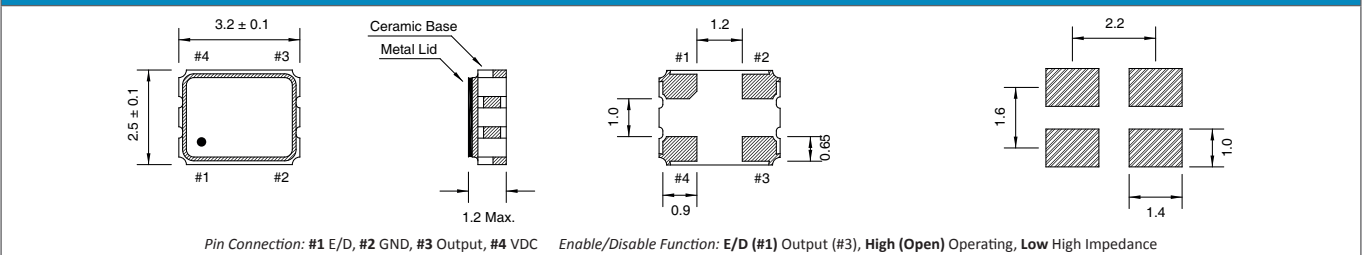
Frequency Range	1.000 to 75.000MHz	
Output Logic	HCMOS	
Temperature Stability*	±100ppm	
	±50ppm	
	±25ppm	
	±20ppm	
Phase Jitter RMS	<1ps typ.	
Aging per year	±5ppm	
Operating Temperature Range	Standard	-20 to +70°C
	Industrial	-40 to +85°C
	Extended	-40 to +105°C
	Automotive	-40 to +125°C
Storage Temperature 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	7mA	20mA	20mA
	32.100 to 50.000MHz	15mA	20mA	25mA
	50.100 to 60.000MHz	15mA	20mA	25mA
	60.100 to 75.000MHz	15mA	20mA	25mA
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	Lo/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



Part Numbering Guide

QT Code	Package	Supply Voltage	Frequency Stability	Frequency	Operating Temperature Range	Automotive Indicator	Load Capacitance	Tight Symmetry Indicator	Packaging
QT = Quartz-technik	X3 = 2.5x3.2	18 = 1.8V 25 = 2.5V 33 = 3.3V	A = ±25ppm B = ±50ppm C = ±100ppm D = ±20ppm	in MHz, always 7 digits including the decimal point (f.ie. 20.0000)	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 30 = 30pF 50 = 50pF	T = 45/55	R = Tape&Reel M = Minireel (250pcs Tape&Reel) B = Bulk

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



Quarztechnik Daun GmbH

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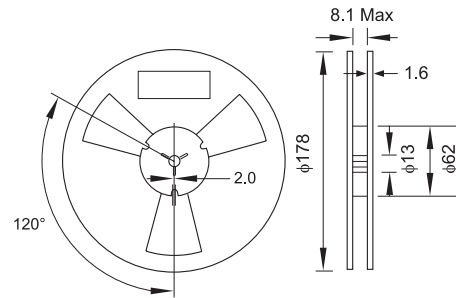
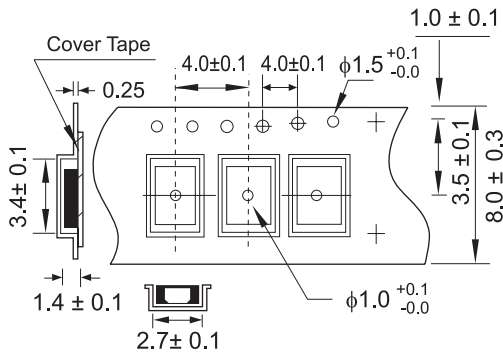
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Tape and Reel Dimensions



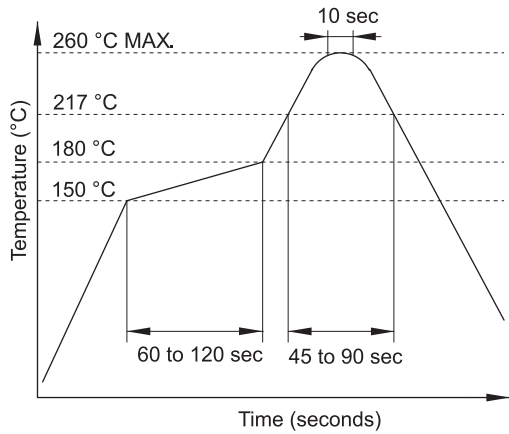
Marking Code Guide

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

Month Codes				Year Codes				Stability		Temperature Range		Voltage	
Month	Code	Month	Code	Year	Code	Year	Code	ppm	PN Code	°C	PN Code	Volt	PN Code
January	A	July	G	2010	0	2011	1	20	D	-20 to +70°C	A	1.8	1
February	B	August	H	2013	3	2014	4	25	A	-40 to +85°C	B	2.5	2
March	C	September	I	2016	6	2017	7	50	B	-40 to +105°C	C	3.3	3
April	D	October	J	2019	9	2020	0	100	C	-40 to +125°C	D	5.0	5
May	E	November	K			2021	1	custom	S	custom	S	custom	S
June	F	December	L										

Example: First Line: 20.000 (Frequency) Second Line: QA4BB3 (Quarztechnik – January – 2014 – ±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



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