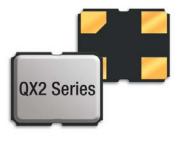
Features

- Ultra-miniature 2.0 x 2.5 x 0.9mm package
- Frequency Range 2MHz to 60MHz
- Tristate (Enable/Disable) function as standard
- Supply voltage 1.8, 2.5 or 3.3 Volts

Description

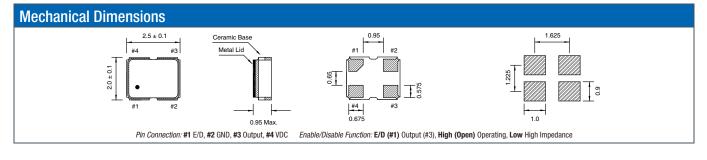
QX2 ultra-miniature oscillators consist of a TTL/ HCMOS-compatible hybrid circuit and a miniature quartz crystal packaged in a low-profile, industry-standard ceramic package.





General Specifications								
Frequency Range	2.000 to 60.000MHz							
Output Logic	HCMOS							
Temperature Stability*	±100ppm							
	±50ppm							
	±30ppm							
		±25ppm						
Phase Jitter RMS	<1ps typ.							
Aging per year	±5ppm							
Operating Temperature	Standard	-10 to +70°C						
Range	Industrial	-40 to +85°C						
	Extended	-40 to +105°C						
	-40 to +125°C							
Storage Temperature Ran	-55 to +125°C							
* Frequency stability is inclusive of calibration tolerance at 25°C, frequency change due to shock & vibration, $\pm10\%$ supply voltage variation and stability over temperature range.								

Electrical Specifications									
Supply Voltage		1.8Vdd ± 5%	2.5Vdd ± 5%	3.3Vdd ± 5%					
Input Current	2.000 to 10.000MHz	3mA	6mA	7mA					
	10.100 to 20.000MHz	5mA	8mA	7mA					
	20.100 to 32.000MHz	5mA	8mA	12mA					
	32.100 to 60.000MHz	10mA	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	Standard	40 to 60%							
Symmetry	Tight	45 to 55%							
Output Load		15pF max.							
Rise and Fall	1.000 to 10.000MHz	5ns max.	7ns max.	6ns max.					
Time	10.100 to 20.000MHz	5ns max.	7ns max.	6ns max.					
	20.100 to 32.000MHz	5ns max.	6ns max.	5ns max.					
	32.100 to 60.000MHz	5ns max. 6ns max. 5ns max.							
Enable-Disable Fu	nction	Tri-State							
Start Up Time		10 ms max.							



Part Numbering Guide										
Qantek Code	Package	Supply Voltage	Frequency Stability	Frequency	Operating Tem- perature Range	Automotive Indicator	Load Capacitance	Tight Symmetry Indicator	Packaging	
Q = Qantek	X2 = 2.5x2.0	18 = 1.8V 25 = 2.5V 33 = 3.3V	$A = \pm 25ppm$ $B = \pm 50ppm$ $C = \pm 100ppm$ $D = \pm 20ppm$	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: QX233B20.00000B15R bold letters = recommended standard specification									nded standard specification	

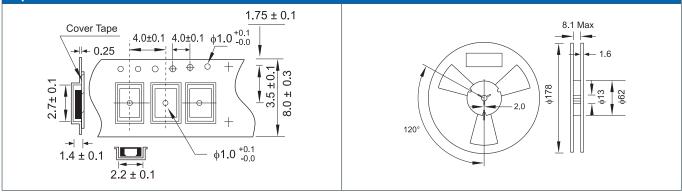


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Tape and Reel Dimensions

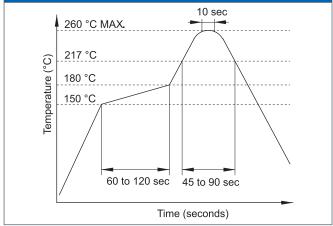


Marking Code Guide

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

Month	Co	des			Year Codes				Stability / Temperature Range						Voltage			
January	Α	July	G		2010	0	2011	1	2012	2		20ppm	25ppm	50ppm	100ppm	١	Volt	PN Code
February	В	August	Н		2013	3	2014	4	2015	5	-20 to +70°C	А	В	С	D		1.8	1
March	C	September	Ι								-40 to +85°C	E	F	G	Н		2.5	2
April	D	October	J								-40 to +105°C	-	-	I	J	:	3.3	3
Мау	E	November	К								-40 to +125°C	-	-	-	K	cu	istom	S
June F December L																		
Example: First Line: QA1G3 (Qantek – January – 2011 – ±50ppm / -40 to +85°C – 3.3V) Second Line: 20.0 (Frequency)																		

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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