

QC32 Series

2.5x3.2 SMD Quartz Crystal Unit



Features

- Low in height, suitable for thin equipment
- Ceramic package and metal lid assures high reliability
- Tight tolerance and stability available

Applications

- High density applications
- Modem, communication and test equipment
- PCMCIA, wireless applications
- Automotive applications

General Specifications

Frequency Range	10.000 to 60.000MHz (Fundamental)
Frequency Tolerance at 25°C	±10ppm to ±100ppm (±30ppm standard)
Frequency Stability over Temperature Range	See Stability vs. Temperature Table
Storage Temperature	-55°C to +125°C
Load Capacitance C_L	7pF to 32pF and Series Resonance
Shunt Capacitance C_0	5.0pF max.
Equivalent Series Resistance (ESR)	See ESR Table
Drive Level	100 μ W max.
Aging per Year	±3PPM max.
Insulation Resistance (M Ohm)	500 at 100Vdc ±15Vdc

Equivalent Series Resistance (ESR)

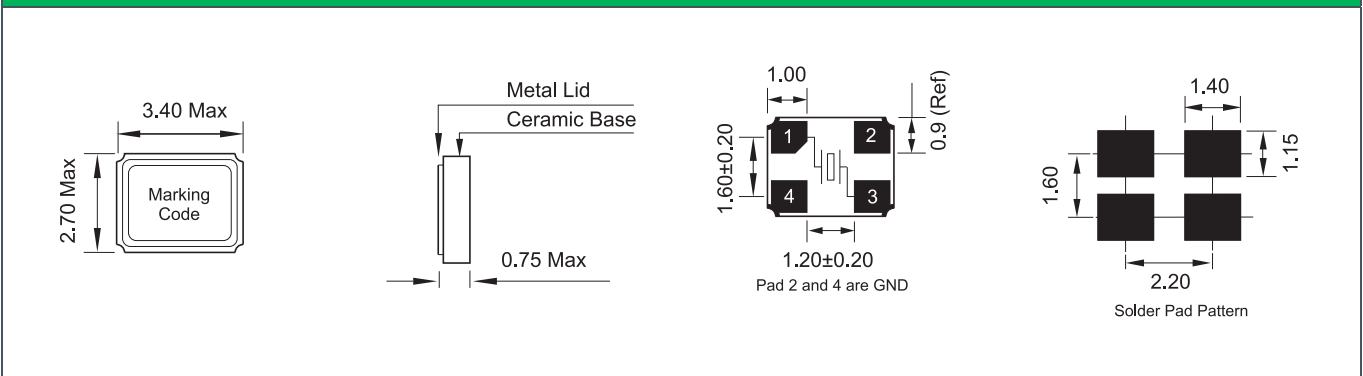
Frequency Range - MHz	Ohms max.	Mode of Operation
10.000 to 16.000	120	Fundamental
16.100 to 20.000	90	
20.100 to 60.000	50	

Frequency Stability vs. Temperature

Operating Temperature	±10ppm	±20ppm	±30ppm	±50ppm	±100ppm
-20°C - +70°C	○	○	○	○	○
-40°C - +85°C	○	○	●	○	○
-40°C - +105°C	-	-	-	○	○
-40°C - +125°C	-	-	-	-	○

● standard ○ available

Mechanical Dimensions



Part Numbering Guide

Qantek Code	Package	Nominal Frequency (in MHz)	Vibration Mode	Load Capacitance	Operating Temperature Range	Frequency Tolerance	Frequency Stability	Automotive Indicator	Packaging
Q = Qantek	C32 = 2.5x3.2 SMD	7 digits including the decimal point (f.i.e. 12.0000)	F = AT-Fund	S = Series 08 = 8pF 12 = 12pF 18 = 18pF 20 = 20pF	A = -20 - +70°C B = -40 - +85°C C = -40 - +105°C D = -40 - +125°C	1 = ±10ppm 2 = ±20ppm 3 = ±30ppm 5 = ±50ppm 0 = ±100ppm	1 = ±10ppm 2 = ±20ppm 3 = ±30ppm 5 = ±50ppm 0 = ±100ppm	A = AEC-Q200	M = 250pcs Tape&Reel R = 1000pcs Tape&Reel

Example: QC3212.0000F12B33R

bold letters = recommended standard specification



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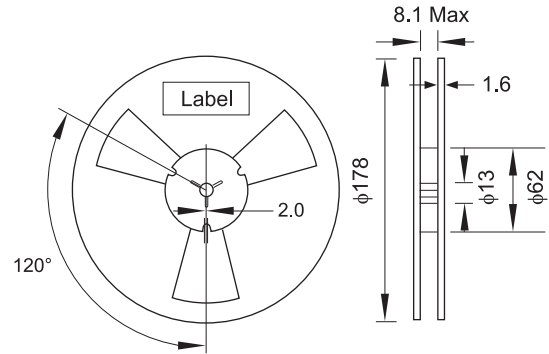
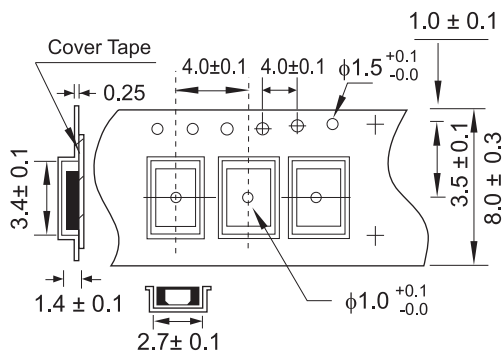
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Tape and Reel Dimensions



Marking Code Guide

Contains frequency, Qantek manufacturing Code, production code (month and year) and load capacitance.

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

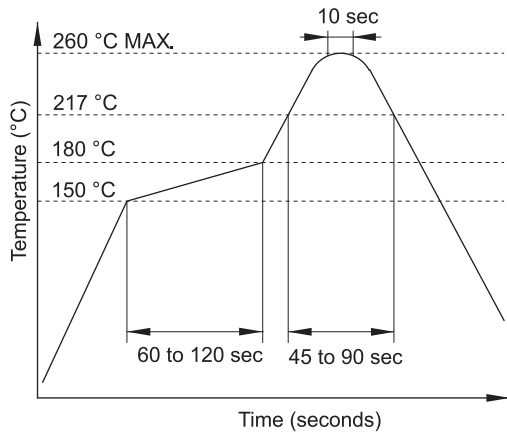
2010	0	2011	1	2012	2
2013	3	2014	4	2015	5

Load Capacitance Code in pF

pF	PN Code	pF	PN Code
12	A	16	F
18	B	20	G
6	C	22	H
8	D	30	I
10	E	S	S

Example: First Line: 12.000 (Frequency) Second Line: QA1A (Qantek - January - 2010 - 12 pF)

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