

QC5A Series

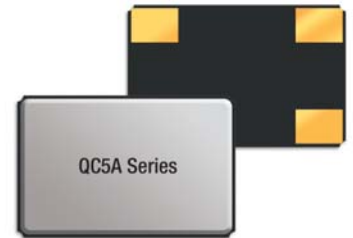
3.2x5 4-Pad SMD Quartz Crystal Unit

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		8.000 to 160.000MHz
Mode of Oscillation	Fundamental	8.000 to 52.000MHz
	Third Overtone	40.000 to 160.000MHz
Frequency Tolerance at 25°C		±10ppm to ±30ppm (±30ppm standard)
Frequency Stability over Temperature Range		See Stability vs. Temperature Table
Storage Temperature		-55°C to +125°C
Aging per Year		±3PPM max.
Load Capacitance C_L		10pF to 32pF and Series Resonance
Shunt Capacitance C_0		7.0pF max.
Equivalent Series Resistance (ESR)		See ESR Table
Drive Level		100 μ W max.
Insulation Resistance (M Ohm)		500 at 100Vdc $\pm$ 15Vdc

Equivalent Series Resistance (ESR)

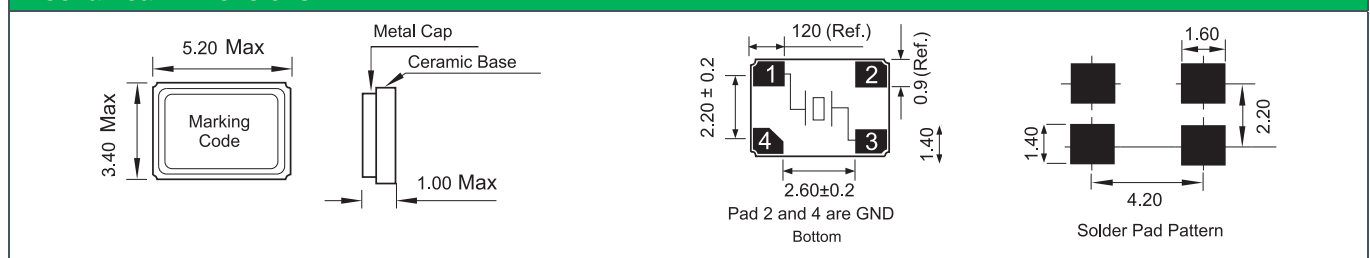
Frequency Range - MHz	Ohms max.	Mode of Operation
8.000 to 10.000	150	Fundamental
10.100 to 12.000	90	
12.100 to 15.000	70	
15.100 to 30.000	50	
30.100 to 52.000	30	
40.000 to 52.000	100	Third Overtone
52.100 to 80.000	100	
80.100 to 160.000	80	

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	C5A = 3.2x5 4-Pad 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: QC5A12.0000F12B33R

bold letters = recommended standard specification



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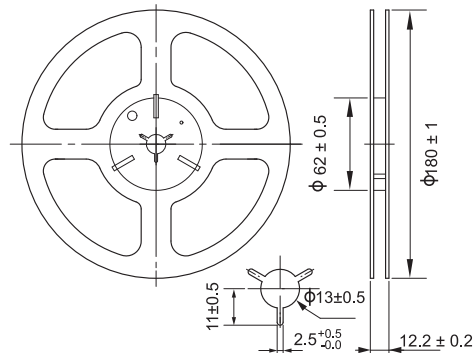
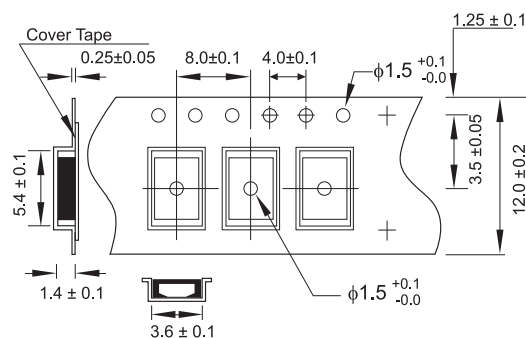
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3.2x5 4-Pad SMD Quartz Crystal Unit

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

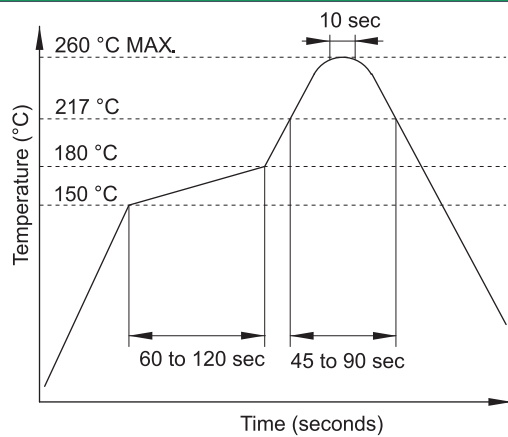
Load Capacitance Code in pF

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