

# QC3CA Series

## 2.5x3.2 4-Pad SMD All Ceramic Crystal Unit



### Features

- All ceramic epoxy sealed SMD package
- Low in height, suitable for thin equipment
- Tight tolerance and stability available

### Applications

- High density applications
- Modem, communication and test equipment

### General Specifications

Frequency Range	12.000 to 48.000MHz (Fundamental)
Frequency Tolerance at 25°C	±20 to ±50ppm (±30ppm standard)
Frequency Stability over Temperature Range	See Stability vs. Temperature Table
Storage Temperature	-55 to +125°C
Aging per Year	±5ppm max.
Load Capacitance $C_L$	10 to 32pF and Series Resonance
Shunt Capacitance $C_0$	7.0pF max.
Equivalent Series Resistance (ESR)	See ESR Table
Drive Level	100µW typ. (500µW max)
Insulation Resistance (MΩ)	500 at 100Vdc ±15Vdc

### Equivalent Series Resistance (ESR)

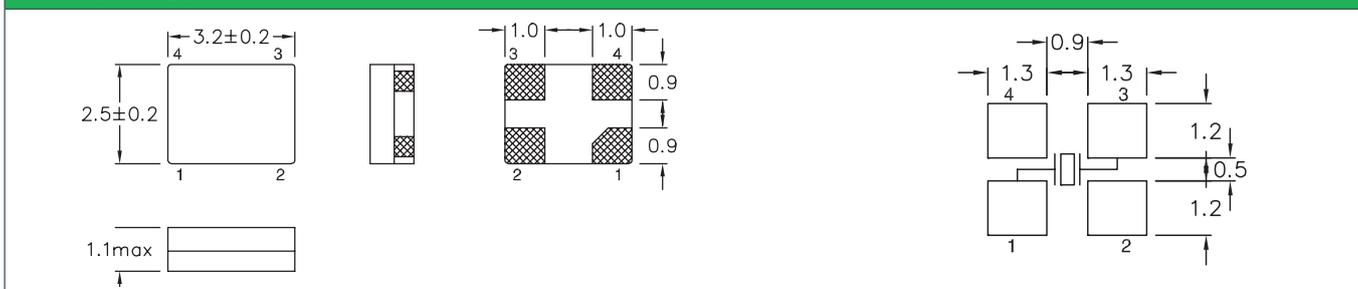
Frequency Range - MHz	Ω max.	Mode of Operation
12.000 to 16.000	120	Fundamental
16.000 to 25.000	60	Fundamental
25.000 to 30.000	50	Fundamental
30.000 to 48.000	35	Fundamental

### Frequency Stability vs. Temperature

Operating Temperature	±20ppm	±30ppm	±50ppm
-20 to +70°C	○	○	○
-40 to +85°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	Packaging
Q = Qantek	C3CA = 2.5x3.2 4-Pad SMD	7 digits including the decimal point (f.i.e. 12.0000)	F = AT-Fund	S = Series <b>12 = 12pF</b> 18 = 18pF 20 = 20pF etc.	A = -20 to +70°C <b>B = -40 to +85°C</b>	2 = ±20ppm <b>3 = ±30ppm</b> 5 = ±50ppm	2 = ±20ppm <b>3 = ±30ppm</b> 5 = ±50ppm	M = 250pcs Tape&Reel R = 1000pcs Tape&Reel R3 = 3000pcs Tape&Reel

Example: QC3CA12.0000F12B33R

bold letters = recommended standard specification



**QANTEK Technology Corporation**

Phone: +1 877-227-0440 (tollfree)

Fax: +1 877-227-0440 (tollfree)

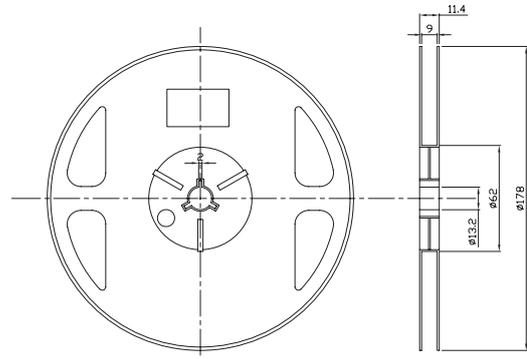
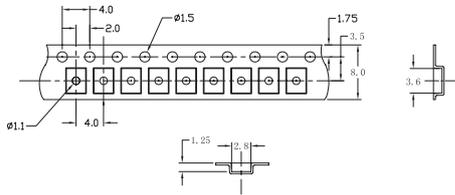
www.qantek.com

info@qantek.com

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### Tape and Reel Dimensions



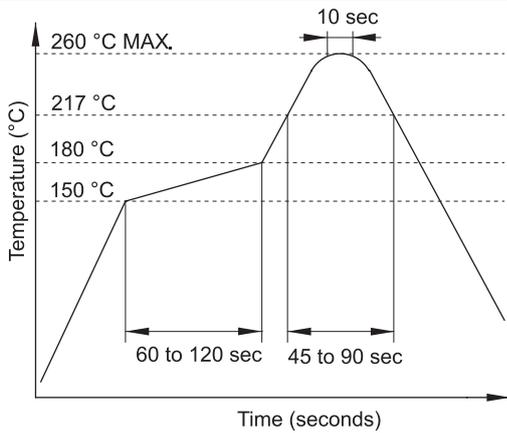
### Marking Code Guide

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

Month Codes				Year Codes						Load Capacitance Code in pF			
January	A	July	G	2019	9	2020	0	2021	1	pF	PN Code	pF	PN Code
February	B	August	H	2022	2	2023	3	2024	4	12	A	20	F
March	C	September	I							18	B	22	G
April	D	October	J							8	C	30	H
May	E	November	K							10	D	32	I
June	F	December	L							16	E	S	S

*Example: First Line: 12.000 (Frequency) Second Line: QK9A (Qantek - November - 2019 - 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

All specifications are subject to change without notice.



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