

# 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)

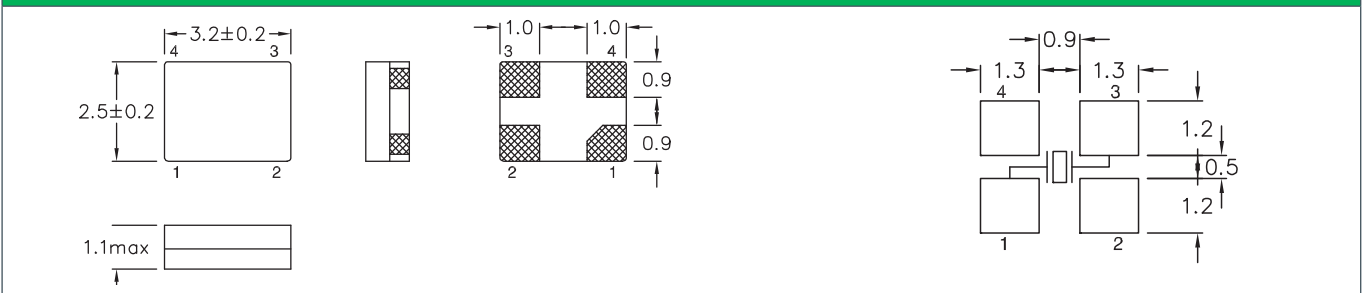
| Frequency Range - MHz | Ω max. | Mode of Operation |
|-----------------------|--------|-------------------|
| 12.000 to 16.000      | 120    | Fundamental       |
| 16.000 to 25.000      | 60     | Fundamental       |
| 25.000 to 30.000      | 50     | Fundamental       |
| 30.000 to 48.000      | 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<br><b>12 = 12pF</b><br>18 = 18pF<br>20 = 20pF etc. | A = -20 to +70°C<br><b>B = -40 to +85°C</b> | 2 = ±20ppm<br><b>3 = ±30ppm</b><br>5 = ±50ppm | 2 = ±20ppm<br><b>3 = ±30ppm</b><br>5 = ±50ppm | M = 250pcs Tape&Reel<br>R = 1000pcs Tape&Reel |

Example: QC3CA12.0000F12B33R

bold letters = recommended standard specification



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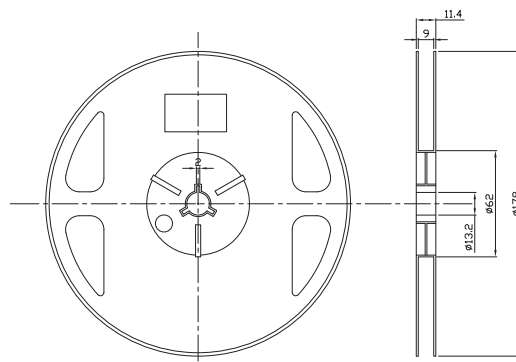
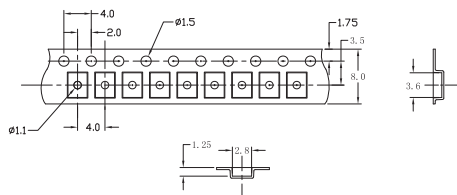
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### Tape and Reel Dimensions



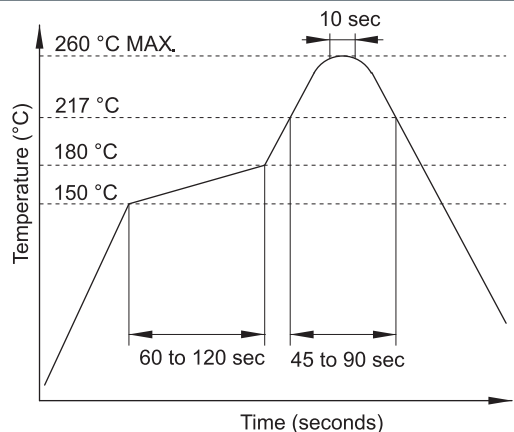
### Marking Code Guide

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

| Month Codes |   |           |   | Year Codes |   |      |   |      |   | Load Capacitance Code in pF |         |    |         |
|-------------|---|-----------|---|------------|---|------|---|------|---|-----------------------------|---------|----|---------|
| January     | A | July      | G | 2010       | 0 | 2011 | 1 | 2012 | 2 | pF                          | PN Code | pF | PN Code |
| February    | B | August    | H | 2013       | 3 | 2014 | 4 | 2015 | 5 | 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: QA1A (Qantek - January - 2011 - 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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