

# QC5CB Series

## 3.2x5.0 2-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

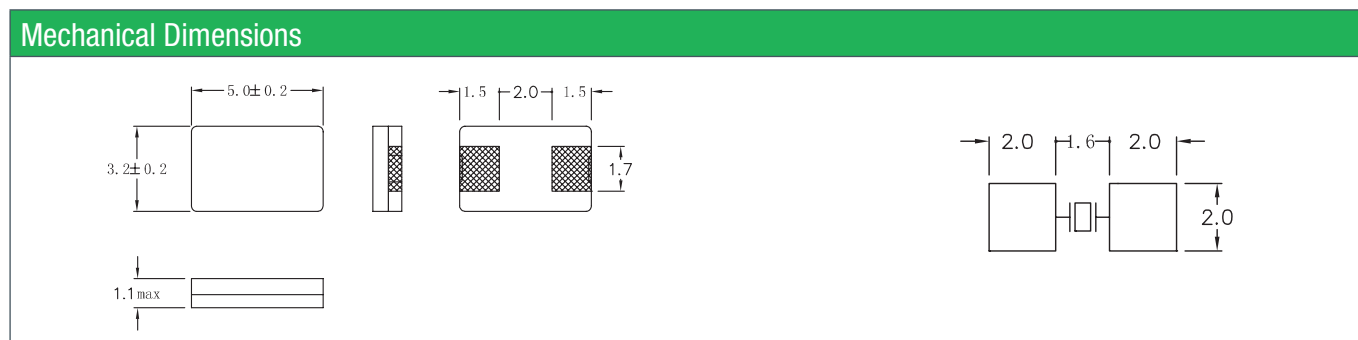
- High density applications
- Modem, communication and test equipment

| General Specifications                     |                                     |
|--|-------------------------------------|
| Frequency Range                            | 8.000 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 |
| 8.000 to 10.000                    | 100    | Fundamental       |
| 10.000 to 12.000                   | 80     | Fundamental       |
| 12.000 to 16.000                   | 60     | Fundamental       |
| 16.000 to 48.000                   | 30     | Fundamental       |

| Frequency Stability vs. Temperature |        |        |        |
|-------------------------------------|--------|--------|--------|
| Operating Temperature               | ±20ppm | ±30ppm | ±50ppm |
| -20 to +70°C                        | ○      | ○      | ○      |
| -40 to +85°C                        | ○      | ●      | ○      |

● standard    ○ available



### Part Numbering Guide

| Qantek Code | Package                  | Nominal Frequency (in MHz)                            | Vibration Mode | Load Capacitance  | Operating Temperature Range                 | Frequency Tolerance                           | Frequency Stability                           | Packaging                                     |
|-------------|--------------------------|---|----------------|---|---|---|---|---|
| Q = Qantek  | C5CB = 3.2x5.0 2-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: QC5CB12.0000F12B33R bold letters = recommended standard specification



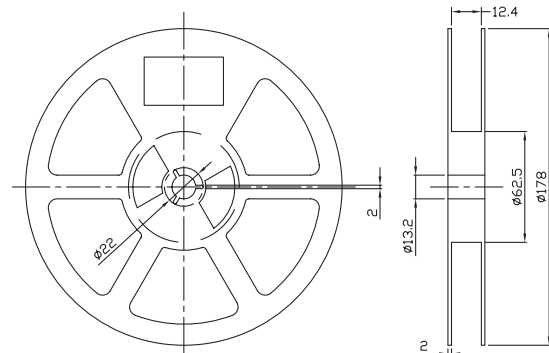
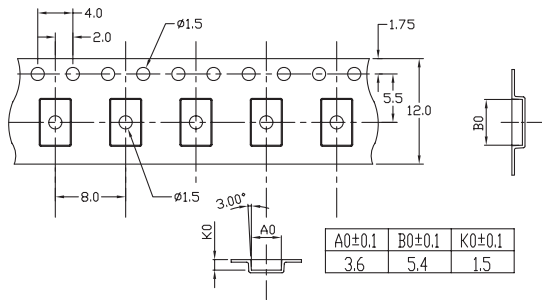
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## Tape and Reel Dimensions



## 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

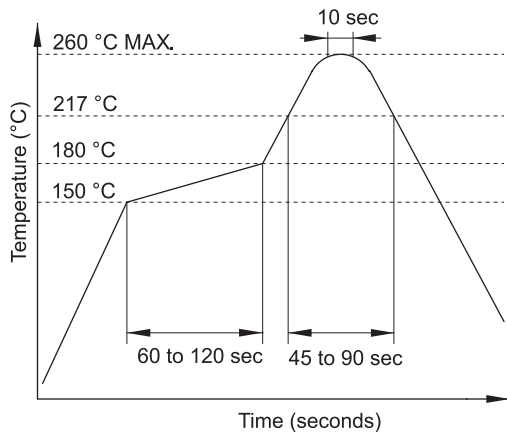
|      |   |      |   |      |   |
|------|---|------|---|------|---|
| 2010 | 0 | 2011 | 1 | 2012 | 2 |
| 2013 | 3 | 2014 | 4 | 2015 | 5 |

### Load Capacitance Code in pF

| pF | PN Code | pF | PN Code |
|----|---------|----|---------|
| 12 | A       | 20 | F       |
| 18 | B       | 22 | G       |
| 8  | C       | 30 | H       |
| 10 | D       | 32 | I       |
| 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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[QCS24.5760F18B23M](#) [QCS10.0000F18B23M](#) [QX8T50B8.000000B50TT](#) [QC3CA29.4912F18B23M](#) [QX8T50B20.00000B50TT](#)  
[QCS3.68640F18B23M](#) [QX8T50B4.915200B50TT](#) [QX318A24.00000B15M](#) [QCS4.00000F18B23M](#) [QC6A8.00000F18B23M](#)  
[QC5CA8.00000F12B23M](#) [QCS32.0000F18B23M](#) [QC1627.1200F08B12M](#) [QC5CA8.00000F18B23M](#) [QC7A32.0000F12B12M](#)  
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