QTC5A 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
- PMCIA, 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
Frenquency Tolerance at 25°C		±10 to ±30ppm (±30ppm standard)
Frequency Stability over Temperature Range		See Stability vs. Temperature Table
Storage Temperature		-55 to +125°C
Aging per Year		±3ppm 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 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
10.100 to 15.000	80	
15.100 to 25.000	50	
25.100 to 30.000	40	
30.100 to 52.000	35	
40.000 to 52.000	100	Third Overtone
52.100 to 80.000	100	
80.100 to 160.000	80	

custom values available upon request

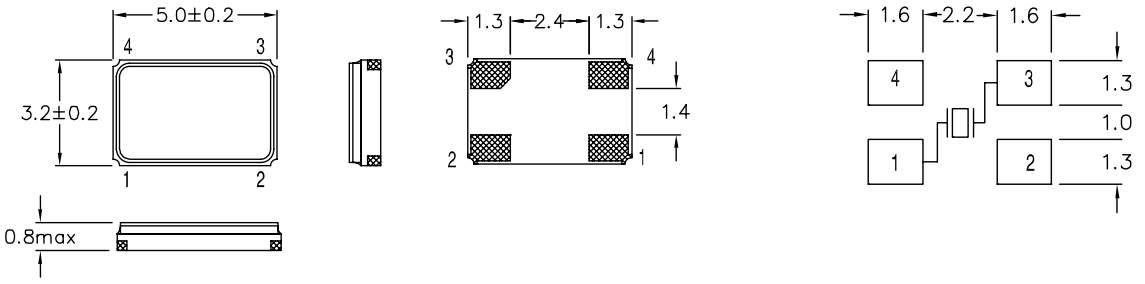
Frequency Stability vs. Temperature

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

*Operating Temperature -30 to +85°C

● standard ○ available

Mechanical Dimensions



Part Numbering Guide

Quarz-technik Code	Package	Nominal Frequency (in MHz)	Vibration Mode	Load Capa-citance	Frequency Tolerance	Operating Temperature Range	Frequency Stability	Automotive Indicator	Packaging
QT = Quarz-technik	C5A = 3.2x5 4-Pad SMD	7 digits including the decimal point (f.ie. 12.0000)	F = AT-Fund	S = Series A = 8pF **B = 12pF** C = 16pF D = 18pF E = 20 pF	T1 = ±10ppm T2 = ±20ppm **T3 = ±30ppm** T5 = ±50ppm T0 = ±100ppm	C = -20 - +70°C **I = -40 - +85°C** E = -20 - +105°C A = -40 - +125°C	10 = ±10ppm 15 = ±15ppm 20 = ±20ppm **30 = ±30ppm** 50 = ±50ppm 00 = ±100ppm	A = AEC-Q200	M = 250pcs Tape&Reel R = 1000pcs Tape&Reel B = Bulk

Example: QTC5A12.0000FBT3I30R

bold letters = recommended standard specification

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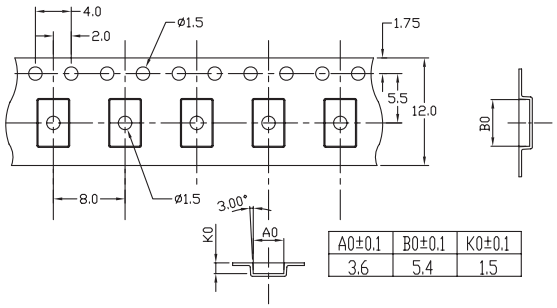
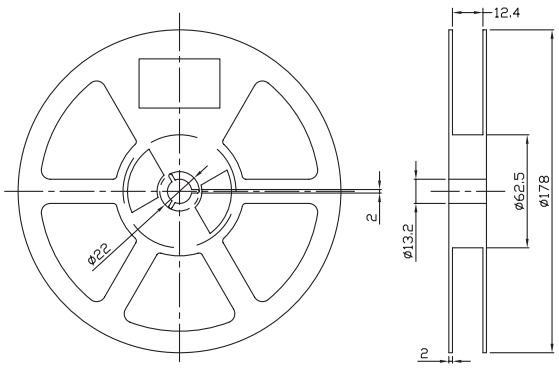
Tape and Reel Dimensions



A0±0.1	B0±0.1	K0±0.1
3.6	5.4	1.5



Marking Code Guide

Contains frequency, Quarztechnik 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

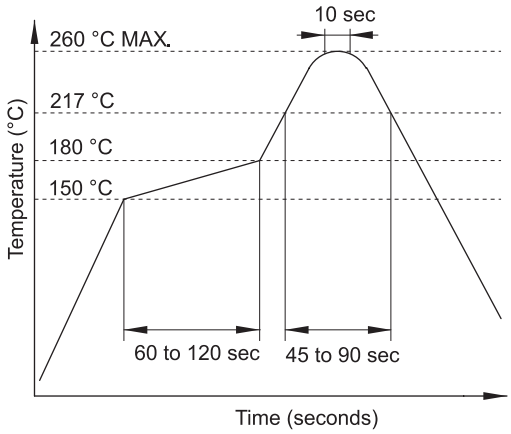
2010	0	2011	1	2012	2
2013	3	2014	4	2015	5
2016	6	2017	7	2018	8
2019	9	2020	0	2021	1

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: QA4A *(Quarztechnik - January - 2014 - 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

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