



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	10.000 to 60.000MHz (Fundamental)
Frequency Tolerance at 25°C	±10ppm to ±100ppm (±30ppm standard)
Frequency Stability over Temperature Range	See Stability vs. Temperature Table
Storage Temperature	-55°C to +125°C
Load Capacitance C_L	7pF to 32pF and Series Resonance
Shunt Capacitance C_1	5.0pF max.
Equivalent Series Resistance (ESR)	See ESR Table
Drive Level	100 μ W max.
Aging per Year	±3PPM max.
Insulation Resistance (M Ohm)	500 at 100Vdc ±15Vdc

Equivalent Series Resistance (ESR)

Frequency Range - MHz	Ohms max.	Mode of Operation
10.000 to 16.000	120	Fundamental
16.100 to 20.000	90	
20.100 to 60.000	50	

custom values available upon request

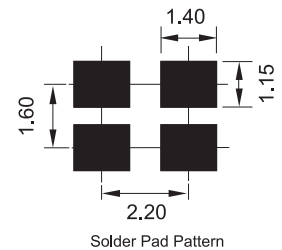
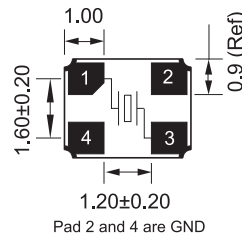
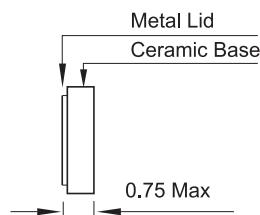
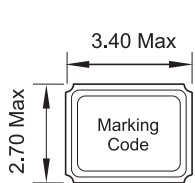
Frequency Stability vs. Temperature

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

other specifications available upon request

● standard ○ available

Mechanical Dimensions



Part Numbering Guide

Quartz-technik Code	Package	Nominal Frequency (in MHz)	Vibration Mode	Load Capacitance	Frequency Tolerance	Operating Temperature Range	Frequency Stability	Automotive Indicator	Packaging
QT = Quartz-technik	C32 = 2.5x3.2 SMD	7 digits including the decimal point (f.i.e. 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: QTC3212.0000FBT3I3OR

bold letters = recommended standard specification



QT Quartztechnik GmbH
Quartz Crystals • Oscillators • Sensor Technology

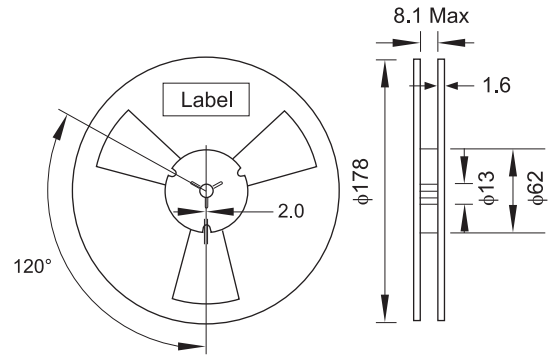
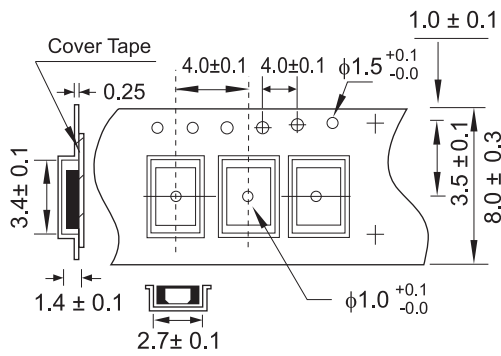
Alte Darscheider Strasse 15
54550 Daun • Germany

Phone: +49 0 6592-92070
Fax: +49 0 6592-7670

info@quartztechnik.com
www.quartztechnik.com



Tape and Reel Dimensions



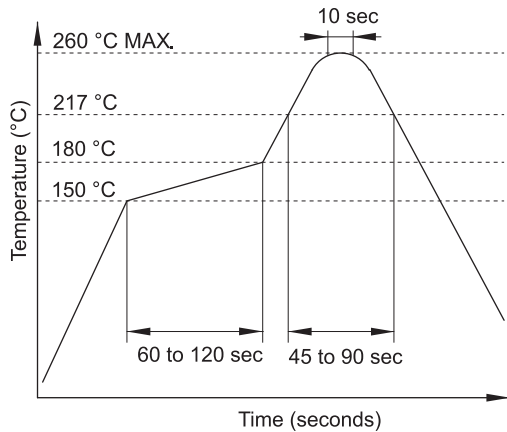
Marking Code Guide

Contains frequency, Quartztechnik 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	16	F
March	C	September	I	2016	6	2017	7	2018	8	18	B	20	G
April	D	October	J							6	C	22	H
May	E	November	K							8	D	30	I
June	F	December	L							10	E	S	S

Example: First Line: 12.000 (Frequency) Second Line: QA1A (Quartztechnik - 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



QT Quartztechnik GmbH
Quartz Crystals • Oscillators • Sensor Technology

Alte Darscheider Strasse 15
54550 Daun • Germany

Phone: +49 0 6592-92070
Fax: +49 0 6592-7670

info@quartztechnik.com
www.quartztechnik.com

