# QTC32 Series

## 2.5x3.2 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

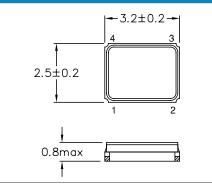
General Specifications	
Frequency Range	10.000 to 60.000MHz (Fundamental)
Frenquency Tolerance at 25°C	±10 to ±100ppm (±30ppm standard)
Frequency Stability over Temperature Range	See Stability vs. Temperature Table
Storage Temperature	-55 to +125°C
Load Capacitance C <sub>L</sub>	7 to 32pF and Series Resonance
Shunt Capacitance $C_0$	5.0pF max.
Equivalent Series Resistance (ESR)	See ESR Table
Drive Level	100µW max.
Aging per Year	±3ppm max.
Insulation Resistance (MΩ)	500 at 100Vdc ±15Vdc

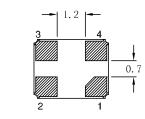
Equivalent Series Resistance (ESR)										
Frequency Range - MHz	Ω max.	Mode of Operation								
10.000 to 20.000	100	Fundamental								
20.100 to 25.000	80									
25.100 to 60.000	60									

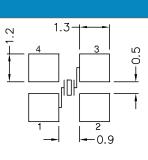
custom values available upon request

Frequency Stability vs. Temperature												
Operating Temperature	±10ppm	±20ppm	±30ppm	±50ppm	±100ppm							
-20 to +70°C	0	0	0	0	0							
-40 to +85°C	0*	0	•	0	0							
-40 to +105°C	-	-	-	0	0							
-40 to +125°C	-	-	-	-	0							
*Operating Temperature -30 to +85°C • available												

#### **Mechanical Dimensions**







Part Numbering Guide												
Quarz- technik Code	nnik Package Frequency		Vibration Mode	Load Capa- citance	Frequency Tolerance	Operating Temperature Range	Frequency Stability	Automotive Indicator	Packaging			
QT = Quarz- technik	C32 = 2.5x3.2 SMD	7 digits including the decimal point (f.ie. 12.0000)	F = AT-Fund	S = Series A = 8pF <b>B = 12pF</b> C = 16pF D = 18pF E = 20 pF	T1 = ±10ppm T2 = ±20ppm <b>T3 = ±30ppm</b> 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 <b>30 = ±30ppm</b> 50 = ±50ppm 00 = ±100ppm	A = AEC-Q200	M = 250pcs Tape&Reel R = 1000pcs Tape&Reel B = Bulk			

Example: QTC3212.0000FBT3I30R

bold letters = recommended standard specification

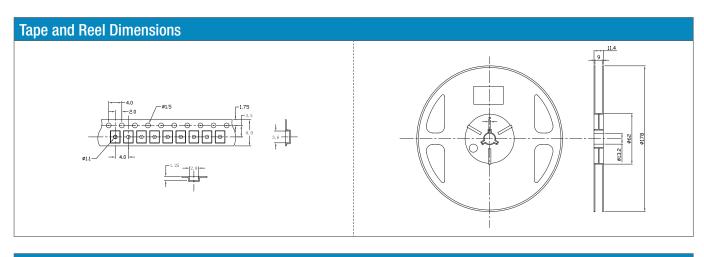


Quarztechnik Daun GmbH Quartz Crystals • Oscillators • Sensor Technology

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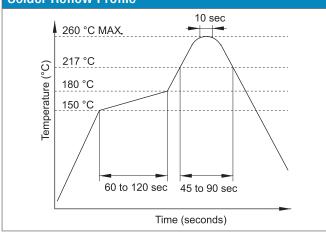
#### **Marking Code Guide**

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

Month Codes					Year Codes							Load Capacitance Code in pF				
January	А	July	G		2010	0	2011	1	2012	2		pF	PN Co	ode	рF	PN Code
February	В	August	н		2013	3	2014	4	2015	5		12	А		20	F
March	С	September	1		2016	6	2017	7	2018	8		18	В		22	G
April	D	October	J		2019	9	2020	0	2021	1		8	C		30	н
May	E	November	К									10	D		32	I
June	F	December	L									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 MIL-STD, Method 1010, B Thermal Cycle Gross Leak MIL-STD-202, Method 112 MIL-STD-202, Method 112 Fine Leak

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