# **QTC6A Series**



#### **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

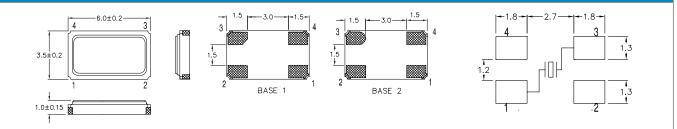
General Specifications							
Frequency Range		8.000 to 160.000MHz					
Mode of Oscillation	Fundamental	8.000 to 40.000MHz					
	Third Overtone	40.100 to 160.000MHz					
Frenquency Tolerance at 25°C		±10 to ±30ppm (±30ppm standard)					
Frequency Stability over Tempe	rature Range	See Stability vs. Temperature Table					
Storage Temperature		-55 to +125°C					
Aging per Year		±3ppm max.					
Load Capacitance C <sub>L</sub>		10 to 32pF and Series Resonance					
Shunt Capacitance C <sub>0</sub>		7.0pF max.					
Equivalent Series Resistance (ES	SR)	See ESR Table					
Drive Level		500µW max.					
Insulation Resistance (MΩ)		500 at 100Vdc ±15Vdc					

Equivalent Series Resistance (ESR)								
Frequency Range - MHz	Ω max.	Mode of Operation						
8.000 to 12.000	80	Fundamental						
12.100 to 16.000	60							
16.100 to 40.000	40							
40.100 to 160.000	70	Third Overtone						

# 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 • • standard • available						

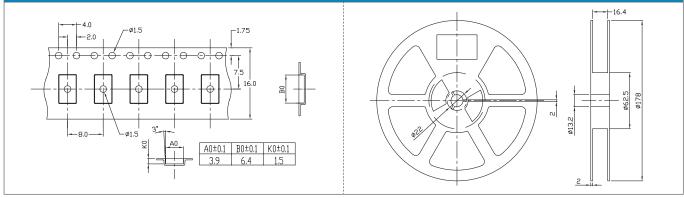
## **Mechanical Dimensions**



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	C6A = 3.5x6 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 <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: 0	Example: QTC6A12.0000FBT3I30R bold letters = recommended standard specification								d standard specification

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## **Tape and Reel Dimensions**

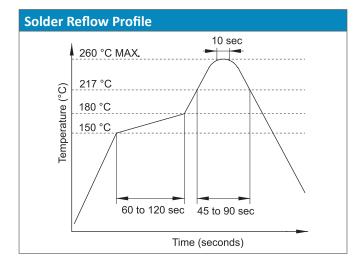


### **Marking Code Guide**

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

Codes				Year Codes					Load Capacitance Code in pF					
А	July	G		2010	0	2011	1	2012	2		pF	PN Code	рF	PN Code
В	August	н		2013	3	2014	4	2015	5		12	А	20	F
С	September	1		2016	6	2017	7	2018	8		18	В	22	G
D	October	J		2019	9	2020	0	2021	1		8	C	30	н
E	November	К	1								10	D	32	I
F	December	L									16	E	S	S
	A B C	AJulyBAugustCSeptemberDOctoberENovember	AJulyGBAugustHCSeptemberIDOctoberJENovemberK	AJulyGBAugustHCSeptemberIDOctoberJENovemberK	AJulyG2010BAugustH2013CSeptemberI2016DOctoberJ2019ENovemberK	AJulyG20100BAugustH20133CSeptemberI20166DOctoberJ20199ENovemberK5	A   July   G   2010   0   2011     B   August   H   2013   3   2014     C   September   I   2016   6   2017     D   October   J   2019   9   2020     E   November   K	A   July   G   2010   0   2011   1     B   August   H   2013   3   2014   4     C   September   I   2016   6   2017   7     D   October   J   2019   9   2020   0     E   November   K	A   July   G   2010   0   2011   1   2012     B   August   H   2013   3   2014   4   2015     C   September   I   2016   6   2017   7   2018     D   October   J   2019   9   2020   0   2021	A   July   G   2010   0   2011   1   2012   2     B   August   H   2013   3   2014   4   2015   5     C   September   I   2016   6   2017   7   2018   8     D   October   J   2019   9   2020   0   2021   1	A   July   G   2010   0   2011   1   2012   2     B   August   H   2013   3   2014   4   2015   5     C   September   I   2016   6   2017   7   2018   8     D   October   J   2019   9   2020   0   2021   1	A July G 2010 0 2011 1 2012 2 pF   B August H 2013 3 2014 4 2015 5 12   C September I 2016 6 2017 7 2018 8 18   D October J 2019 9 2020 0 2021 1 8   E November K K K K 10 10	A   July   G   2010   0   2011   1   2012   2   pF   PN Code     B   August   H   2013   3   2014   4   2015   5   12   A     C   September   I   2016   6   2017   7   2018   8   18   B     D   October   J   2019   9   2020   0   2021   1   1   8   C   10   D	A July G 2010 0 2011 1 2012 2 pF PN Code pF   B August H 2013 3 2014 4 2015 5 12 A 20   C September I 2016 6 2017 7 2018 8 18 B 22   D October J 2019 9 2020 0 2021 1 1 10 0 30 30 30 30 30 30 30 30 30 30 30 2017 7 2018 8 18 B 22   D October J 9 2020 0 2021 1 1 30 </td

Example: First Line: 12.000 (Frequency) Second Line: QA4A (Quarztechnik - January - 2014 - 12 pF)



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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