QTC20 Series

1.6x2.0 4-Pad SMD Quartz Crystal Unit

Features

- 2.0 x 1.6 x 0.5mm ultra miniature package
- Seam sealed ceramic package with metal lid assures high precision and reliability

Applications

- High density applications
- Modem, communication and test equipment
- PMCIA, wireless applications
- Automotive applications

General Specifications

Frequency Range	20.000 to 52.000MHz (Fundamental)
Frenquency Tolerance at 25°C	±10 to ±30ppm (±30ppm standard)
Frequency Stability over Temperature Range	See Stability vs. Temperature Table
Storage Temperature	-40 to +85°C
Aging per Year	±3ppm max.
Load Capacticance C_L	7 to 32pF and Series Resonance
Shunt Capacticance C_0	7.0pF
Equivalent Series Resistance (ESR)	See ESR Table
Drive Level	50µW max.
Insulation Resistance (MΩ)	500 at 100Vdc ±15Vdc

Equivalent Series Resistance (ESR)

Frequency Range - MHz	Ω max.	Mode of Operation
20.000 to 40.000	100	Fundamental
40.100 to 52.000	60	

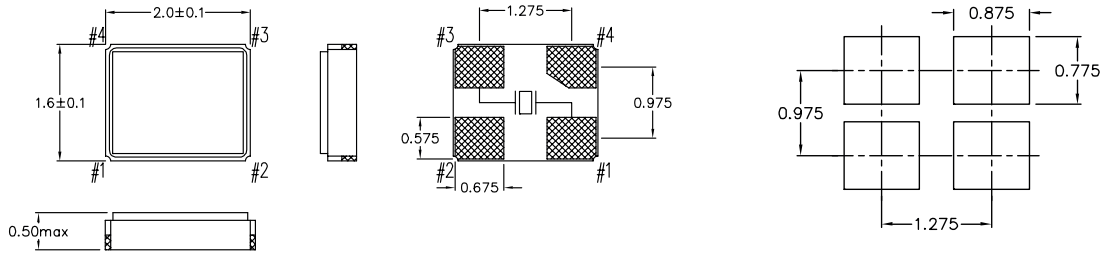
custom values available upon request

Frequency Stability vs. Temperature

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

● standard ○ available

Mechanical Dimensions



Part Numbering Guide

Quarztechnik Code	Package	Nominal Frequency (in MHz)	Vibration Mode	Load Capacitance	Frequency Tolerance	Operating Temperature Range	Frequency Stability	Automotive Indicator	Packaging
QT = Quarztechnik	C20 = 1.6x2.0 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**	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: QTC2012.0000FBT3I30R

bold letters = recommended standard specification

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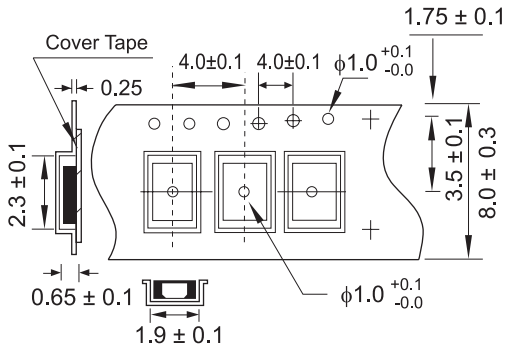
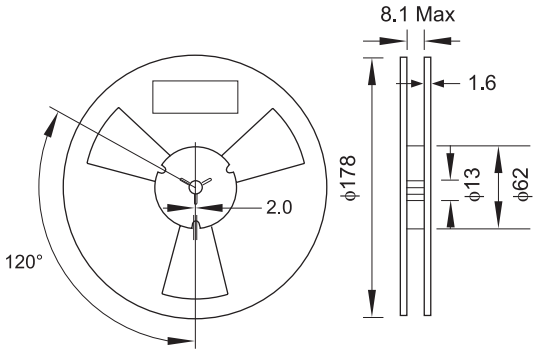
1.6x2.0 4-Pad SMD Quartz Crystal Unit

Tape and Reel Dimensions





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

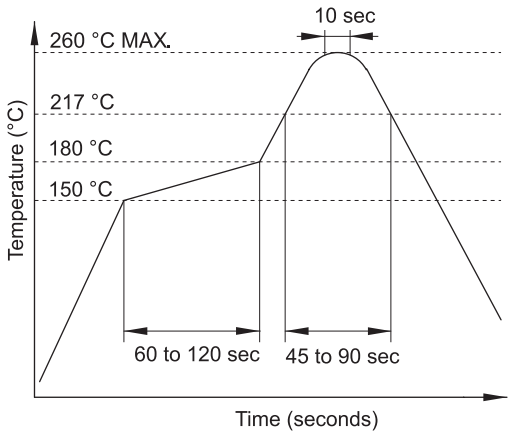
2016	6	2017	7	2018	8
2019	9	2020	0	2021	1
2022	2	2023	3	2024	4
2025	5	2026	6	2027	7

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: 12.0 *(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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