

QC20 Series

1.6x2.0 4-Pad SMD Quartz Crystal Unit



Features

- 1.6 x 2.0 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
- PCMCIA, wireless applications
- Automotive applications

General Specifications

Frequency Range	20.000 to 52.000MHz (Fundamental)
Frequency 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 Capacitance C_L	7 to 32pF and Series Resonance
Shunt Capacitance 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	

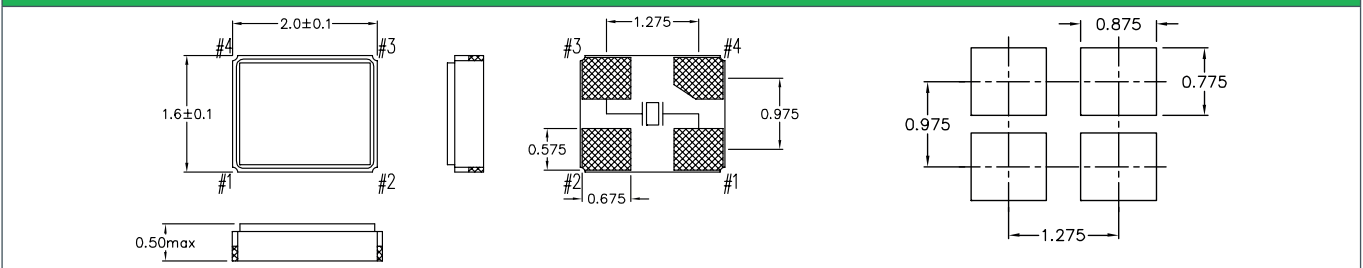
Frequency Stability vs. Temperature

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 +80°C

● standard ○ available

Mechanical Dimensions



Part Numbering Guide

Qantek Code	Package	Nominal Frequency (in MHz)	Vibration Mode	Load Capacitance	Operating Temperature Range	Frequency Tolerance	Frequency Stability	Automotive Indicator	Packaging
Q = Qantek	C20 = 1.6x2.0 4-Pad SMD	7 digits including the decimal point (f.i.e. 12.0000)	F = AT-Fund	S = Series 08 = 8pF 12 = 12pF 18 = 18pF 20 = 20pF etc.	A = -20 to +70°C B = -40 to +85°C C = -40 to +105°C D = -40 to +125°C	1 = ±10ppm 2 = ±20ppm 3 = ±30ppm 5 = ±50ppm 0 = ±100ppm	1 = ±10ppm 2 = ±20ppm 3 = ±30ppm 5 = ±50ppm 0 = ±100ppm	not available	M = 250pcs Tape&Reel R = 1000pcs Tape&Reel R3 = 3000pcs Tape&Reel

Example: QC2024.0000F12B33R

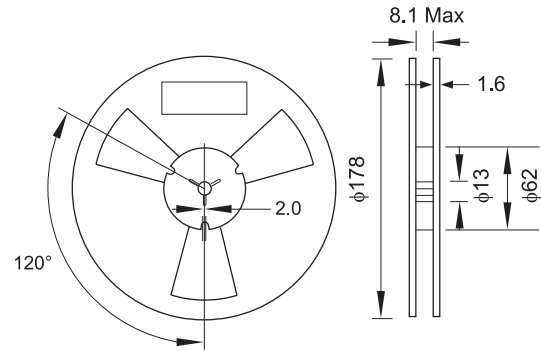
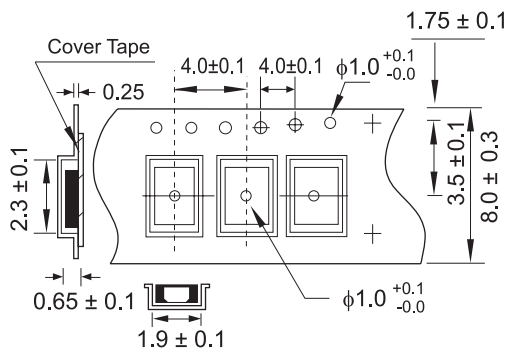
bold letters = recommended standard specification



QC20 Series

1.6x2.0 4-Pad SMD Quartz Crystal Unit

Tape and Reel Dimensions



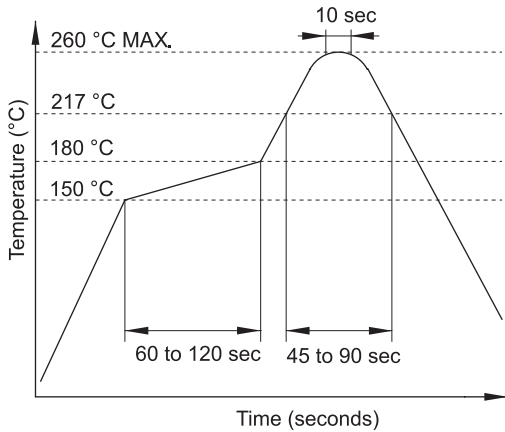
Marking Code Guide

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

Month Codes				Year Codes						Load Capacitance Code in pF			
January	A	July	G	2016	6	2017	7	2018	8	pF	PN Code	pF	PN Code
February	B	August	H	2019	9	2020	0	2021	1	12	A	20	F
March	C	September	I	2022	2	2023	3	2024	4	18	B	22	G
April	D	October	J	2025	5	2026	6	2027	7	8	C	30	H
May	E	November	K							10	D	32	I
June	F	December	L							16	E	S	S

Example: First Line: 12.0 (Frequency) Second Line: QA5A (Qantek - January - 2015 - 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

All specifications are subject to change without notice.

