

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	16.000 to 60.000MHz (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
16.000 to 19.999	150	Fundamental
20.000 to 29.999	100	
30.000 to 39.999	80	
40.000 to 60.000	60	

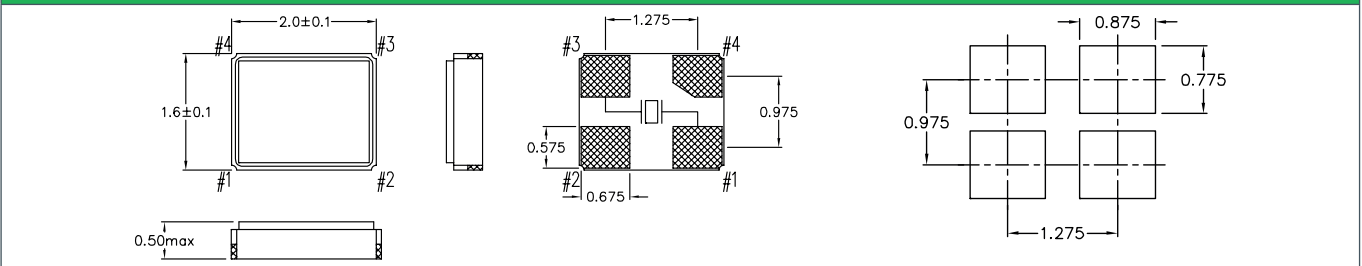
Frequency Stability vs. Temperature

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



QANTEK Technology Corporation

Phone: +1 877-227-0440 (tollfree)

Fax: +1 877-227-0440 (tollfree)

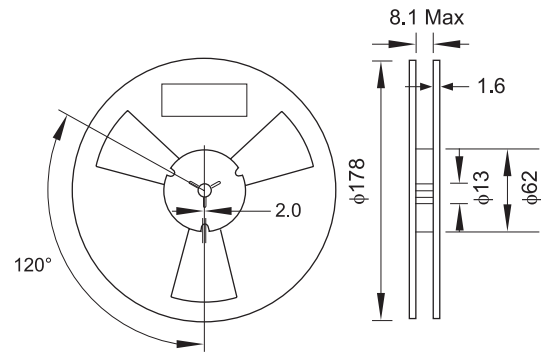
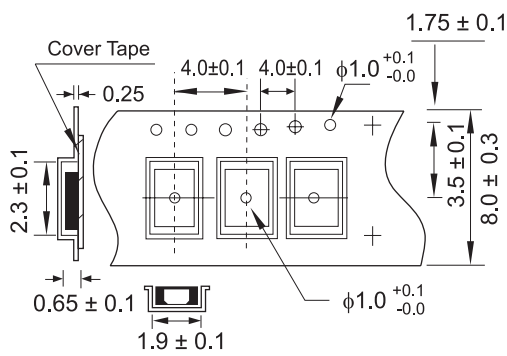
www.qantek.com

info@qantek.com

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Tape and Reel Dimensions



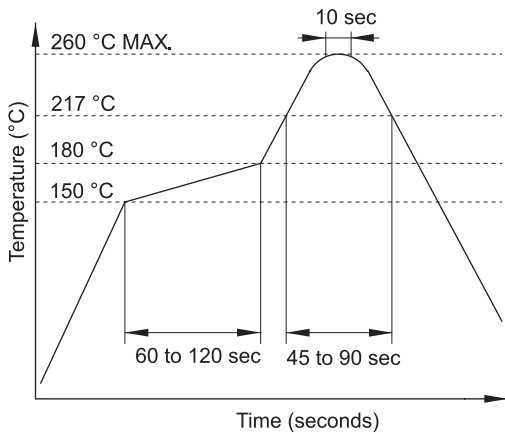
Marking Code Guide

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: QK9A (Qantek - November - 2019 - 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.



QANTEK Technology Corporation
 Phone: +1 877-227-0440 (tollfree)
 Fax: +1 877-227-0440 (tollfree)

www.qantek.com
 info@qantek.com