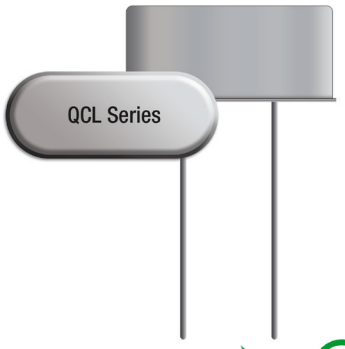
QCL Series

HC-49/U-S (Short)



RoHS Compliant

Pb lead-free

Features

- High reliability and Low Cost
- Tight stability and extended temperature
- Proven resistance welded metal package

Applications

- Computers, modems and communications
- Microprocessors

General Specifications

Frequency Range		3.200 to 70.000MHz
Mode of Oscillation	Fundamental	3.200 to 32.768MHz
	Third Overtone	24.576 to 70.000MHz
Frequency Tolerance at 25°C		±10 to ±30ppm (±30ppm standard)
Frequency Stability over Temperature Range		See Stability vs. Temperature Table
Storage Temperature		-55 to +125°C
Aging per Year		±3ppm max.
Load Capacitance C_L		10 to 32pF and Series Resonance
Shunt Capacitance C_0		7.0pF
Equivalent Series Resistance (ESR)		See ESR Table
Drive Level		100µW typ. / 500µW max.
Insulation Resistance (MΩ)		500 at 100Vdc ±15Vdc

Equivalent Series Resistance (ESR)

Frequency Range - MHz	Ω max.	Mode of Operation
3.200 to 3.499	150	Fundamental / AT
3.500 to 3.999	120	
4.000 to 5.999	100	
6.000 to 6.999	70	
7.000 to 8.999	60	
9.000 to 9.999	50	
10.000 to 12.999	40	
13.000 to 19.999	30	
20.000 to 30.999	20	
30.000 to 66.999	80	Third Overtone

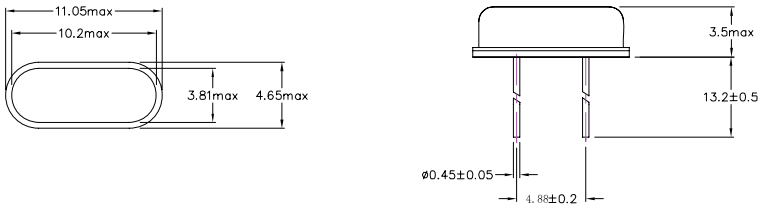
Frequency Stability vs. Temperature

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

*Operating Temperature -30 to +85°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	CL = HC-49/U-S (Short)	7 digits including the decimal point (f.ie. 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**	1 = ±10ppm 2 = ±20ppm **3 = ±30ppm** 5 = ±50ppm 0 = ±100ppm	1 = ±10ppm 2 = ±20ppm 3 = ±30ppm **5 = ±50ppm** 0 = ±100ppm	not available	B = bulk R = 1000pcs Tape&Reel

Example: QCL12.0000F18B35B

bold letters = recommended standard specification

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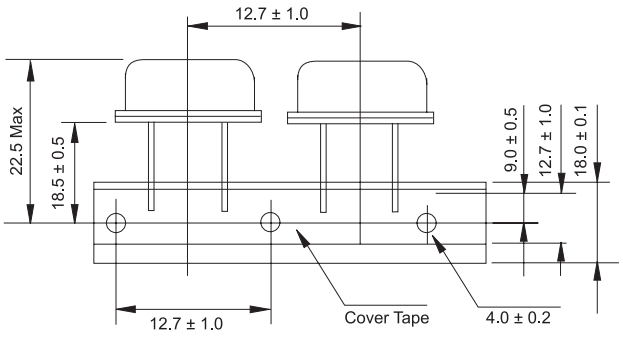
Tape Dimensions



Marking Code Guide

Contains frequency, Qantek 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

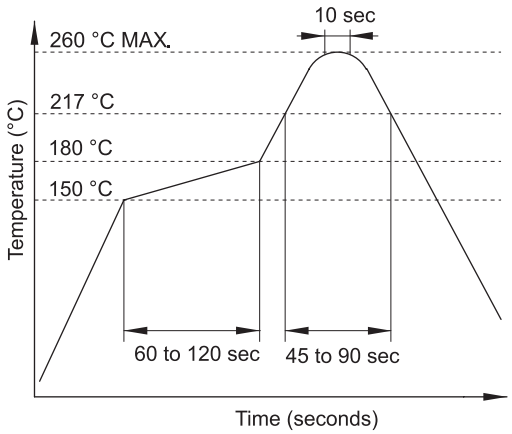
2017	7	2018	8	2019	9
2020	0	2021	1	2022	2
2023	3	2024	4	2025	5

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: 12.000 *(Frequency)* Second Line: QA8A *(Qantek - January - 2018 - 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.

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