

# HC49/4H CRYSTALS

ISSUE 14; 1 NOVEMBER 2008 - RoHS 2002/95/EC

## Holder Style

- Resistance welded, hermetically sealed in an inert atmosphere with glass to metal seals securing the lead wires
- Holders suffixed '-3L' have a centre third wire which grounds the case

## General Specifications

- Load Capacitance (CL): 10pF to 75pF or Series
- Drive Level: 500µW max.
- Static Capacitance (CO): 7pF max.
- Ageing: ±5ppm typical per year, ±1ppm available on request

## Packaging

- Loose in bulk pack or tape and reel

## Standard Frequency Tolerances and Stabilities

- ±10ppm, ±20ppm, ±30ppm, ±50ppm, ±100ppm, tighter tolerances and stabilities may be available on request

## Operating Temperature Ranges

- 0 to 50°C
- 10 to 60°C
- 20 to 70°C
- 30 to 80°C
- 40 to 85°C
- 55 to 105°C

## Storage Temperature Range

- 55 to 125°C

## Environmental Specification

- Shock: 981m/s<sup>2</sup> for 6ms, three shocks in each direction along three mutually perpendicular planes
- Vibration: 10 to 60Hz 0.75mm displacement, 60 to 500Hz 98.1m/s<sup>2</sup> acceleration, 30 minutes in each of three mutually perpendicular planes

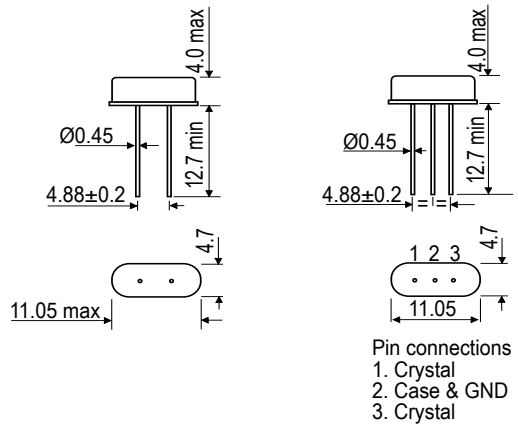
## Marking Includes

- Frequency

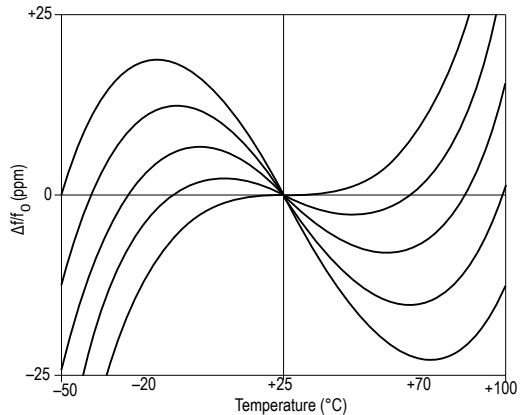
## Minimum Order Information Required

- Frequency + Holder + Frequency Tolerance @ 25°C + Frequency Stability + Operating Temperature Range + Circuit Condition + Overtone Order + Tape & Reel Packaging Available

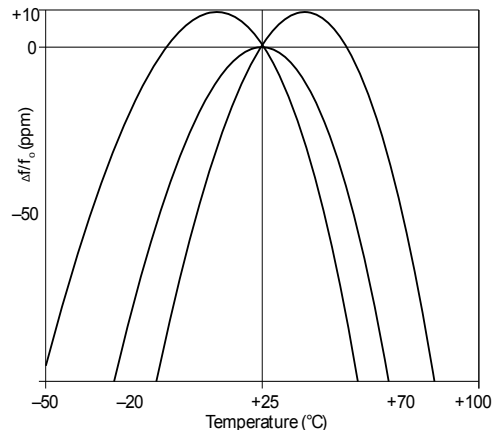
## Outline in mm - HC49/4H & HC49/4H-3L



## Typical Frequency vs Temperature Curves for various angles of AT-cut crystals



## Typical Frequency vs Temperature Curves for various angles of BT-cut crystals



**Electrical Specifications - maximum limiting values**

Frequency Range	Frequency Tolerance @25°C ±2°C	Operating Temperature Range	Frequency Stability Available Over Operating Temperature Range		ESR Max	Vibration Mode
			Minimum	Maximum		
3.2 to <4.0MHz	±10ppm to ±100ppm	0 to 50°C	±15ppm	±100ppm	300Ω	Fundamental AT cut
		-10 to 60°C	±20ppm			
		-20 to 70°C	±20ppm			
		-30 to 80°C	±25ppm			
		-40 to 85°C	±30ppm			
-55 to 105°C	±100ppm	±500ppm				
4.0 to <5.5MHz	±10ppm to ±100ppm	0 to 50°C	±15ppm	±100ppm	130Ω	Fundamental AT cut
		-10 to 60°C	±20ppm			
		-20 to 70°C	±20ppm			
		-30 to 80°C	±25ppm			
		-40 to 85°C	±30ppm			
-55 to 105°C	±100ppm	±500ppm				
5.5 to <8.0MHz	±10ppm to ±100ppm	0 to 50°C	±15ppm	±100ppm	60Ω	Fundamental AT cut
		-10 to 60°C	±20ppm			
		-20 to 70°C	±20ppm			
		-30 to 80°C	±25ppm			
		-40 to 85°C	±30ppm			
-55 to 105°C	±100ppm	±500ppm				
8.0 to <40.0MHz	±10ppm to ±100ppm	0 to 50°C	±15ppm	±100ppm	40Ω	Fundamental AT cut
		-10 to 60°C	±20ppm			
		-20 to 70°C	±20ppm			
		-30 to 80°C	±25ppm			
		-40 to 85°C	±30ppm			
-55 to 105°C	±100ppm	±500ppm				
27.0 to 50.0MHz	Inclusive with Frequency Stability	0 to 50°C	±50ppm	±100ppm	40Ω	Fundamental BT cut
		-10 to 60°C	±70ppm			
		-20 to 70°C	±100ppm			
26.0 to 100.0MHz	±10ppm to 100ppm	0 to 50°C	±15ppm	±100ppm	100Ω	3rd Overtone AT cut
		-10 to 60°C	±20ppm			
		-20 to 70°C	±20ppm			
		-30 to 80°C	±25ppm			
		-40 to 85°C	±30ppm			
-55 to 105°C	±100ppm	±500ppm				

Note. For other frequencies & specifications please contact our sales office