

# HC49/4H SMX Crystals

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## Delivery Options

- Please contact our sales office for current leadtimes

## Holder Style

- HC49/4H SMX crystals are resistance welded, hermetically sealed in an inert atmosphere with glass to metal seals securing the lead wires. The lead wires are formed into a gull wing and mounted on a plastic former

- Lower profiles available, please contact our sales office

## General Specifications

- Load Capacitance (CL): 10pF to 75pF or Series
- Drive Level: 0.5mW max
- Static Capacitance (C<sub>0</sub>): 9pF max
- Ageing: ±3ppm typical per year

## Standard Frequency Tolerances and Stabilities

- ±50ppm, ±100ppm

## Operating Temperature Ranges

- 0 to 50°C      -20 to 70°C
- 10 to 60°C    -30 to 80°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 minute in each of three mutually perpendicular planes

## Solder Condition

- For typical soldering conditions, please see the relevant page in Application Notes

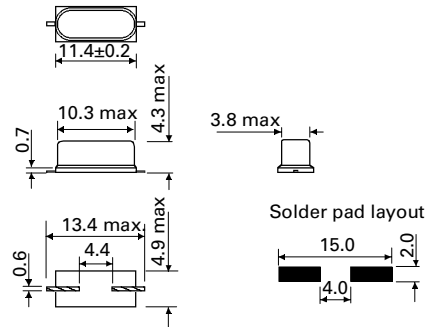
## Marking

- Frequency only

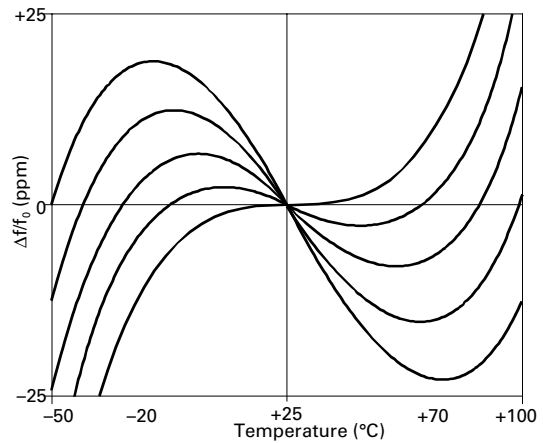
## Minimum Order Information Required

- Frequency + Holder + Frequency Tolerance @ 25°C  
+ Frequency Stability + Operating Temperature Range +  
Circuit Condition + Overtone Order

## Outline in mm



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

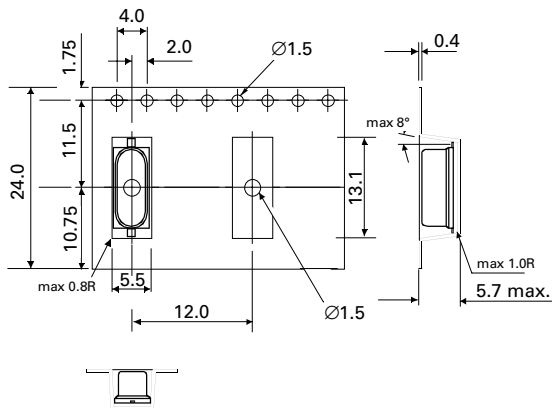


**Electrical Specification – maximum limiting values**

Frequency Range	Frequency Tolerance @ 25°C ±2°C	Operating Temperature Range	Frequency Stability Available Over Operating Temperature		ESR max.	Vibration Mode
			Minimum	Maximum		
3.2 to < 5.0MHz	±10ppm to ±100ppm	0 to 50°C	±15ppm	±100ppm	200Ω	Fundamental AT cut
		-10 to 60°C	±20ppm	±100ppm		
		-20 to 70°C	±20ppm	±100ppm		
		-30 to 80°C	±25ppm	±100ppm		
5.0 to < 8.0MHz	±10ppm to ±100ppm	0 to 50°C	±15ppm	±100ppm	120Ω	Fundamental AT cut
		-10 to 60°C	±20ppm	±100ppm		
		-20 to 70°C	±20ppm	±100ppm		
		-30 to 80°C	±25ppm	±100ppm		
8.0 to < 12.0MHz	±10ppm to ±100ppm	0 to 50°C	±10ppm	±100ppm	70Ω	Fundamental AT cut
		-10 to 60°C	±15ppm	±100ppm		
		-20 to 70°C	±15ppm	±100ppm		
		-30 to 80°C	±20ppm	±100ppm		
12.0 to < 25.0MHz	±10ppm to ±100ppm	0 to 50°C	±5ppm	±100ppm	50Ω	Fundamental AT cut
		-10 to 60°C	±15ppm	±100ppm		
		-20 to 70°C	±15ppm	±100ppm		
		-30 to 80°C	±20ppm	±100ppm		
25.0 to < 32.0MHz	±10ppm to ±100ppm	0 to 50°C	±10ppm	±100ppm	40Ω	Fundamental AT cut
		-10 to 60°C	±15ppm	±100ppm		
		-20 to 70°C	±15ppm	±100ppm		
		-30 to 80°C	±20ppm	±100ppm		
25.0 to < 40.0MHz	Inclusive with Frequency Stability	0 to 50°C	±50ppm	±100ppm	50Ω	Fundamental BT cut
		-10 to 60°C	±70ppm	±100ppm		
		-20 to 70°C	±100ppm	±100ppm		
28.0 to < 86.0MHz	±15ppm to ±100ppm	0 to 50°C	±15ppm	±100ppm	100Ω	3rd Overtone AT cut
		-10 to 60°C	±20ppm	±100ppm		
		-20 to 70°C	±20ppm	±100ppm		
		-30 to 80°C	±25ppm	±100ppm		

**Note. For any other frequencies / specification please contact our sales office.**

**Outline in mm - Tape**



**Outline in mm - Reel**

