

# QUARTZ CRYSTAL

## HC49SMD SERIES

### Features

- \* A great number of standard frequencies.
- \* High frequency stability and lower equivalent series resistance.
- \* Excellent aging stability
- \* RoHS Compliant / Pb Free



### Specifications

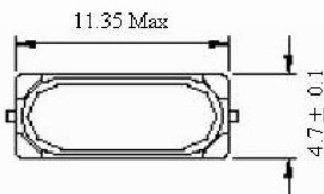
|                               |                                           |
|-------------------------------|-------------------------------------------|
| Holder Type                   | HC-49SMD                                  |
| Frequency Range               | 3.2Mhz to 100Mhz                          |
| Operating Temperature Range   | -20°C to +70°C typical or custom-designed |
| Storage Temperature Range     | - 55to +125°C typical                     |
| Frequency Tolerance (at 25°C) | ±20ppm ~ ±30ppm, or specify               |
| Frequency Stability over      | ±30ppm, or specify                        |
| Load Capacitance              | 8pF, 10pF, 12pF or specify                |
| Drive Level                   | 1 ~ 500μW (100μW typical)                 |
| Shunt Capacitance             | 7pF Max.                                  |
| Aging (at 25°C)               | ±3ppm / year or ±5ppm / year              |

### Equivalent Series Resistance (ESR) and Mode of Operation

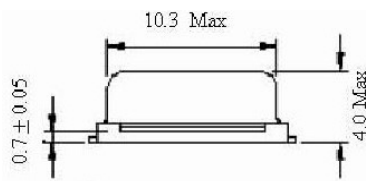
| Frequency Range | ESR(Ω)   | Mode           | Frequency Range | ESR(Ω)  | Mode           |
|-----------------|----------|----------------|-----------------|---------|----------------|
| 3.2 ~ 6 Mhz     | 150 Max. | AT/Fundamental | 16 ~ 54 Mhz     | 30 Max. | AT/Fundamental |
| 6 ~ 8 Mhz       | 60 Max.  |                | 30 ~ 50 Mhz     | 80 Max. | AT/3RD         |
| 8 ~ 16 Mhz      | 50 Max.  |                | 50 ~ 100 Mhz    | 60 Max. |                |

### Dimensions (mm)

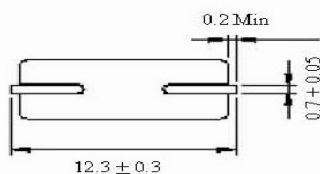
Top View



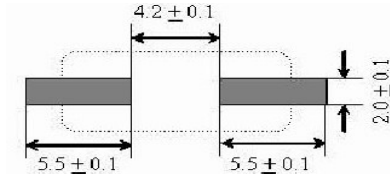
Side View



Bottom View



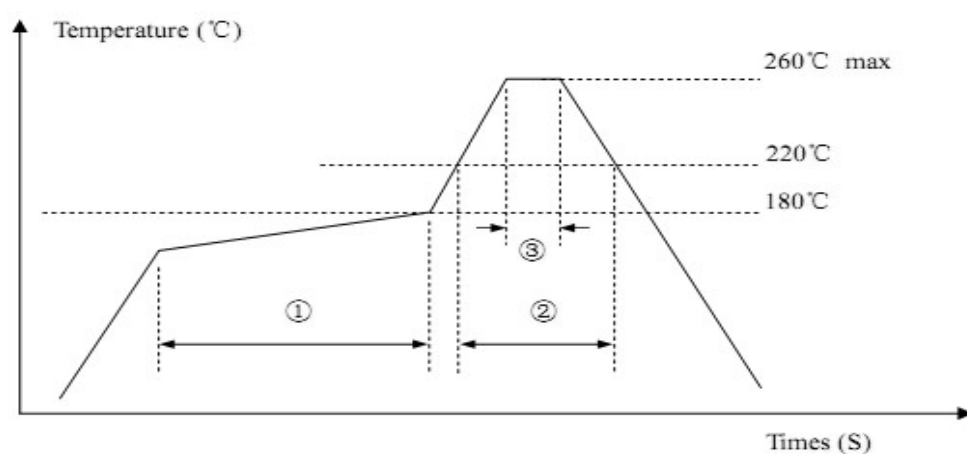
Pad Layout



## How to order

| HC49SMD                              | 12M            | 1                                                                                       | 20                                                             | D                                            | R             |
|--------------------------------------|----------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------|---------------|
| Series                               | Frequency      | Operating Temp.                                                                         | Load capacitance                                               | Frequency Tol.                               | Package       |
| HC49SMD series<br>12.7 x 4.8 x 3.8mm | 12Mhz<br>20Mhz | 1= -10°C~+60°C<br>2= -20°C~+70°C<br>3= -40°C~+85°C<br>4= -40°C~+105°C<br>5= -30°C~+85°C | 10 = 10pF<br>15 = 15pF<br>20 = 20pF<br>30 = 30pF<br>Or specify | C=±15ppm<br>D=±20ppm<br>E=±30ppm<br>F=±50ppm | R = Tape Reel |

## Reflow Condition



|                |   |              |            |             |
|----------------|---|--------------|------------|-------------|
| Pb free reflow | ① | Preheat      | 160~180 °C | 120sec. max |
|                | ② | Primary heat | 220 °C     | 60sec. max  |
|                | ③ | Peak         | 260 °C     | 10sec. max. |