

# CRYSTAL UNIT

## HC-49US DIP

### X49SD24MSD2SC



#### Applications

- Industrial Control Consumers.

#### Features

- Dimensions: 11.5 x 4.50 x 3.68 mm.
- Frequency: 24MHz
- Through hole type crystal units.
- A great number of standard frequencies.

## Specifications

Standard Frequency	24 MHz
Vibration Mode	AT Fundamental
Load Capacitance	20pF
Frequency Tolerance (at 25 °C)	±20ppm
Frequency Versus Temperature Characteristics	±20ppm
Operating Temperature	-20~+70°C
Storage Temperature	-40~+85°C
Shunt Capacitance	7 pF Max.
Level of Drive	1~500µW Max. (100uW typical)
Aging (at 25 °C)	±3ppm/year Max.

## Equivalent Series Resistance(ESR)

Fundamental			
3.2768 ~ 4MHz	180 Ω Max.	6 ~ 17 MHz	80 Ω Max.
4 ~ 5MHz	120 Ω Max.	7 ~ 10 MHz	60 Ω Max.
5 ~ 6 MHz	100 Ω Max.	10 ~ 27MHz	40 Ω Max.
3rd Overtone			
20 ~ 25 MHz	100 Ω Max.	25 ~ 64 MHz	80 Ω Max.

## Dimensions and Patterns [unit:mm]

Package Size – Dimensions (Unit: mm)
<p>Technical drawing showing dimensions for the crystal unit:</p> <ul style="list-style-type: none"> <li>Top View: 11.5 MAX (width), 4.5 MAX (height)</li> <li>Side View: 3.68 MAX (height), 6.0 ± 0.5 (total height), 0.43 ± 0.05 (lead thickness)</li> <li>Bottom View: 4.88 ± 0.25 (lead spacing)</li> <li>Lead length: 3.5 MAX</li> </ul>

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### Solder ability

Dip terminals in RMA flux for  $5 \pm 0.5$  seconds. Under room temperature. Dip terminals in a  $260 \pm 5^\circ\text{C}$  solder bath for  $5 \pm 0.5$  seconds. The solder shall leave an undipped terminal length of 2 mm at their base .

### Resistance to Soldering Heat

Dip terminals in a  $260 \pm 5^\circ\text{C}$  solder bath for  $10 \pm 0.5$  seconds. The solder shall leave an undipped terminal length of 2 mm at their base.

### Packing

Deposit 200 pieces of the quartz crystal units in a polyethylene bag, and pack enough bags in a packing case to make a 10,000 pieces package. The packing format may be subject to change by quantity.