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# HC-49US



## Features

- External dimensions: 11.5 x 4.5 x 3.68mm.
- Frequency range: 3.579545MHz ~ 64MHz.
- Surface mount type crystal units.
- A great number of standard frequencies.
- High frequency pullability and low equivalent series resistance.
- Highly mass production capability.
- Applications: PC, STB, LCDM and Cable Modem.

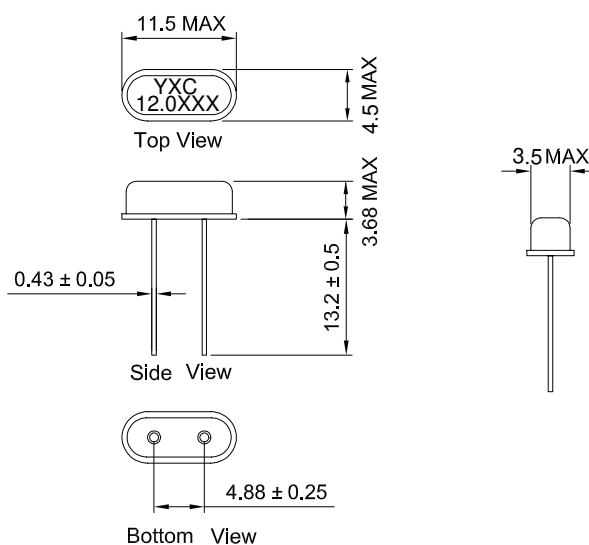
## Electrical Specifications

| Item / Type                                  | HC-49US                                      |
|----------------------------------------------|----------------------------------------------|
| Nominal Frequency Range                      | 3.579545 ~ 64MHz                             |
| Vibration Mode                               | AT Fundamental                               |
| Load Capacitance                             | 12pF, 20pF, or specify                       |
| Frequency Tolerance (at 25 °C)               | ±10 ppm, ± 20 ppm, or specify                |
| Frequency Versus Temperature Characteristics | ± 20 ppm, or specify                         |
| Operating Temperature                        | - 20 ~ + 70 °C , - 40 ~ + 85 °C , or specify |
| Storage Temperature                          | -40 ~ +85 °C , or specify                    |
| Shunt Capacitance                            | 7 pF Max.                                    |
| Level Of Drive                               | 1 ~ 500 μW (100μW typical)                   |
| Frequency Aging (at 25 °C)                   | ± 3 ppm / year Max.                          |

## Equivalent Series Resistance(ESR)

| Fundamental      |            | 3rd Overtone |            |
|------------------|------------|--------------|------------|
| 3.579545 ~ 4 MHz | 150 Ω Max. | 20 ~ 25 MHz  | 100 Ω Max. |
| 4 ~ 5 MHz        | 120 Ω Max. | 25 ~ 64 MHz  | 80 Ω Max.  |
| 5 ~ 6 MHz        | 100 Ω Max. |              |            |
| 6 ~ 7 MHz        | 80 Ω Max.  |              |            |
| 7 ~10MHz         | 60 Ω Max.  |              |            |
| 10 ~ 27MHz       | 40 Ω Max.  |              |            |

## Dimensions



Units: mm

# HC-49US

★ PART NUMBER GUIDE 部件号示例 *e.g. X49SD12MSD2SC* *HC-49US=11.5 × 4.5 DIP SEAM TYPE*

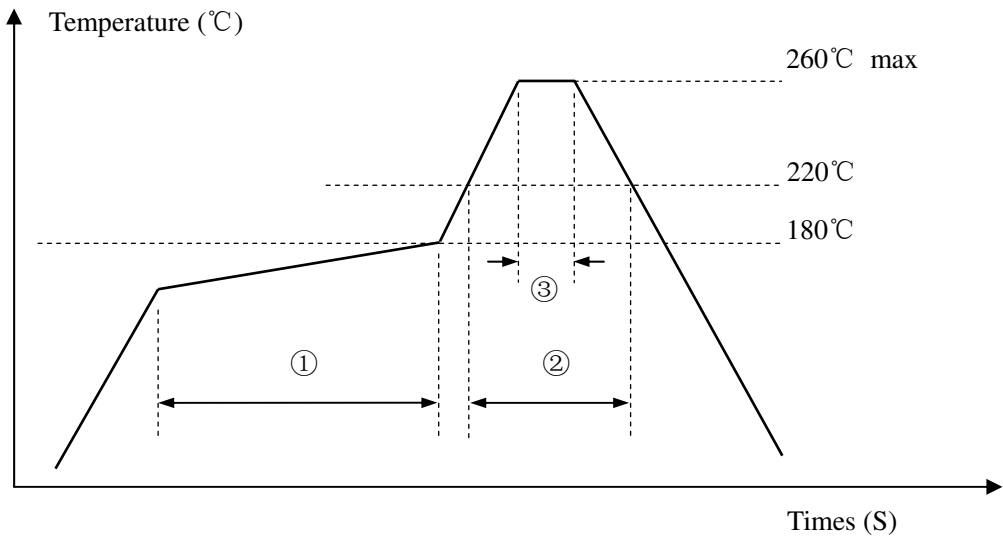
| Quartz Crystal Resonator | Dimensions | Frequency (Hz) | Load Capacitance (Pf) | Frequency Stability Overall (ppm) | Pin | Material | Operating Temp. Range |
|--------------------------|------------|----------------|-----------------------|-----------------------------------|-----|----------|-----------------------|
| X                        | 49SD       | 12M            | S                     | D                                 | 2   | S        | C                     |

| Load Capacitance (Pf) |        |
|-----------------------|--------|
| X                     | 7.4pF  |
| G                     | 12.5pF |
| L                     | 9pF    |
| M                     | 10pF   |
| O                     | 12pF   |
| P                     | 15pF   |

| Frequency tolerance |        |
|---------------------|--------|
| B                   | ±10PPM |
| D                   | ±20PPM |

| Operating temperature |            |
|-----------------------|------------|
| C                     | -20~ +70℃  |
| I                     | -40~ +85℃  |
| A                     | -40~ +125℃ |
| F                     | -40~ +105℃ |

★ WAVE SOLDERING PROFILE 波峰焊特性



|                     |   |              |          |             |
|---------------------|---|--------------|----------|-------------|
| Pb free reflow<br>A | ① | Preheat      | 160~180℃ | 120sec. max |
|                     | ② | Primary heat | 220℃     | 60sec. max  |
|                     | ③ | Peak         | 260℃     | 10sec. max. |