

ISSUE 16; November 2024

### Description

- Industry standard leaded package  
Resistance welded, hermetically sealed in an inert atmosphere, glass to metal seals on leads  
Variants available include but are not limited to:-  
3L = an additional centre mounted leg grounds the can  
TW = an additional top mounted leg grounds the can  
T = a truncated height of 11.1mm  
Please see our HC49 Gull-Wing for a SMD alternative  
Please contact our sales offices for more options

### Frequency Parameters

- Frequency 1.8432MHz to 120.7MHz
- Frequency Tolerance  $\pm 10.00\text{ppm}$  to  $\pm 100.00\text{ppm}$
- Frequency Stability  $\pm 10.00\text{ppm}$  to  $\pm 200.00\text{ppm}$
- Ageing  $\pm 5\text{ppm}$  max per year

### Electrical Parameters

- Load Capacitance 10.0pF to 75.0pF
- Shunt Capacitance 7pF max
- Drive Level 1mW max

### 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
- 55 to 125°C

### Environmental Parameters

- Shock: MIL-STD-202 Method 213, Condition C, Half sine shock pulse peak acceleration of 100g, pulse duration 6ms.
- Vibration: MIL-STD-202 Method 204, 5g for 20 minutes, 12 cycles in each of the 3 orientations, 10~2000Hz.
- Storage Temperature Range: -55 to 125°C

### Manufacturing Details

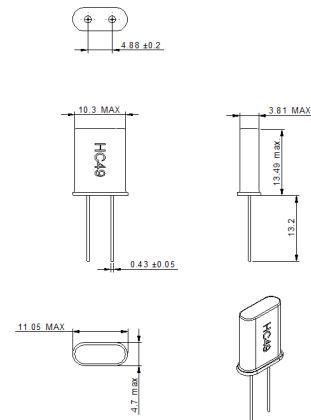
- RoHS Terminations Sn, Ag & Cu
- RoHS Reflow 260°C max over 10 seconds

### Ordering Information

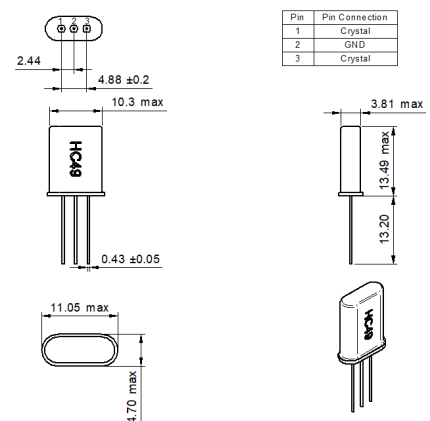
- Frequency\*
- Model\*
- Frequency Tolerance (@25°C)\*
- Frequency Stability (over operating temperature range)\*
- Operating Temperature Range\*
- Load Capacitance\*
- Overtone\*
- Example:  
10.0MHz HC49  
50/50/-40 to 85C/10 FUND



Outline (mm) Standard 2 leg HC49 package



Outline (mm) -3L = 3 Lead



### Sales Office Contact Details:

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### Compliance

- RoHS Status (2015/863/EU) Compliant
- REACH Status Compliant
- MSL Rating (JDEC-STD-033): Not Applicable

### Packaging Details

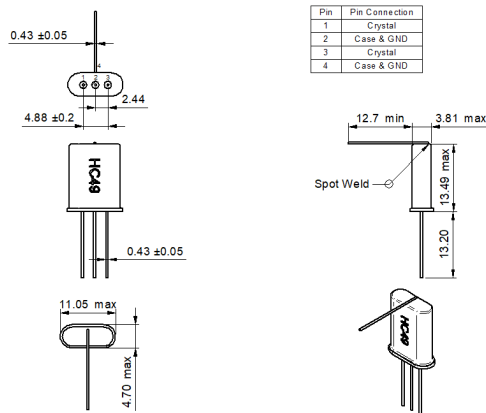
- Tape & reel in accordance with EIA-481

Standard Pack Quantity: 1,000

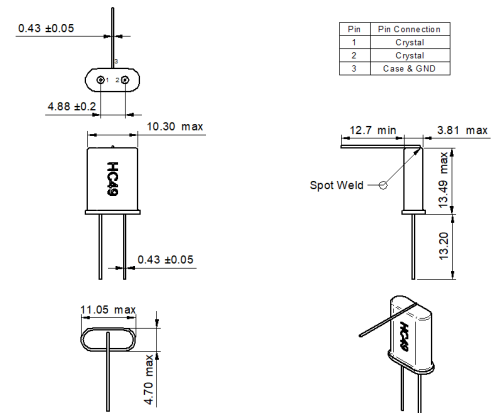
- Bulk pack

Standard Pack Quantity: 100

### Outline (mm) -3L/TW = 3 Lead and Top Wire



### Outline (mm) -TW = Top Wire



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### Electrical Specification - maximum limiting values

| Frequency Min | Frequency Max | Temperature Range | Stability* | Over Tone Order | ESR |
|---------------|---------------|-------------------|------------|-----------------|-----|
|               |               | °C                | ppm        |                 | Ω   |
| 1.8432MHz     | 1.999999MHz   | 0 to 50           | ±10        | Fundamental     | 800 |
|               |               | -10 to 60         | ±20        |                 | 800 |
|               |               | -20 to 70         | ±20        |                 | 800 |
|               |               | -30 to 80         | ±25        |                 | 800 |
|               |               | -40 to 85         | ±30        |                 | 800 |
|               |               | -55 to 105        | ±50        |                 | 800 |
|               |               | -55 to 125        | ±100       |                 | 800 |
|               |               |                   |            |                 |     |
| 2.0MHz        | 2.999999MHz   | 0 to 50           | ±10        | Fundamental     | 600 |
|               |               | -10 to 60         | ±20        |                 | 600 |
|               |               | -20 to 70         | ±20        |                 | 600 |
|               |               | -30 to 80         | ±25        |                 | 600 |
|               |               | -40 to 85         | ±30        |                 | 600 |
|               |               | -55 to 105        | ±50        |                 | 600 |
|               |               | -55 to 125        | ±100       |                 | 600 |
|               |               |                   |            |                 |     |
| 3.0MHz        | 3.999999MHz   | 0 to 50           | ±10        | Fundamental     | 150 |
|               |               | -10 to 60         | ±20        |                 | 150 |
|               |               | -20 to 70         | ±20        |                 | 150 |
|               |               | -30 to 80         | ±25        |                 | 150 |
|               |               | -40 to 85         | ±30        |                 | 150 |
|               |               | -55 to 105        | ±50        |                 | 150 |
|               |               | -55 to 125        | ±100       |                 | 150 |
|               |               |                   |            |                 |     |
| 4.0MHz        | 6.999999MHz   | 0 to 50           | ±10        | Fundamental     | 100 |
|               |               | -10 to 60         | ±20        |                 | 100 |
|               |               | -20 to 70         | ±20        |                 | 100 |
|               |               | -30 to 80         | ±25        |                 | 100 |
|               |               | -40 to 85         | ±30        |                 | 100 |
|               |               | -55 to 105        | ±50        |                 | 100 |
|               |               | -55 to 125        | ±100       |                 | 100 |
|               |               |                   |            |                 |     |
| 7.0MHz        | 9.999999MHz   | 0 to 50           | ±10        | Fundamental     | 50  |
|               |               | -10 to 60         | ±20        |                 | 50  |
|               |               | -20 to 70         | ±20        |                 | 50  |
|               |               | -30 to 80         | ±25        |                 | 50  |
|               |               | -40 to 85         | ±30        |                 | 50  |
|               |               | -55 to 105        | ±50        |                 | 50  |
|               |               | -55 to 125        | ±100       |                 | 50  |
|               |               |                   |            |                 |     |
| 10.0MHz       | 36.0MHz       | 0 to 50           | ±10        | Fundamental     | 35  |
|               |               | -10 to 60         | ±20        |                 | 35  |
|               |               | -20 to 70         | ±20        |                 | 35  |
|               |               | -30 to 80         | ±25        |                 | 35  |
|               |               | -40 to 85         | ±30        |                 | 35  |
|               |               | -55 to 105        | ±50        |                 | 35  |
|               |               | -55 to 125        | ±100       |                 | 35  |
|               |               |                   |            |                 |     |
| 21.0MHz       | 120.7MHz      | 0 to 50           | ±10        | 3rd Overtone    | 100 |
|               |               | -10 to 60         | ±20        |                 | 100 |
|               |               | -20 to 70         | ±20        |                 | 100 |

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## Quartz Crystal Specification **HC49**

| Frequency Min | Frequency Max | Temperature Range | Stability* | Over Tone Order | ESR |
|---------------|---------------|-------------------|------------|-----------------|-----|
|               |               | °C                | ppm        |                 | Ω   |
|               |               | -30 to 80         | ±25        |                 | 100 |
|               |               | -40 to 85         | ±30        |                 | 100 |
|               |               | -55 to 105        | ±50        |                 | 100 |
|               |               | -55 to 125        | ±100       |                 | 100 |

\*Stability Maximum values ±200ppm

*This document was correct at the time of printing; please contact your local sales office for the latest version.*

[Click to view latest version on our website.](#)

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