

# HC/49US (AT49) MICROPROCESSOR CRYSTAL

ABL Series



Moisture Sensitivity Level (MSL) – This product is Hermetically Sealed and not Moisture Sensitive - MSL = N/A: Not Applicable

**FEATURES:**

- High reliability & Low Cost
- Tight stability & extended temperature
- Proven resistance welded metal package

**APPLICATIONS:**

- Home electronics
- Computers, modems, and communications
- High-precision TCXO and clock applications
- Microprocessors

▷ **STANDARD SPECIFICATIONS:**

| Parameters   | Minimum           | Typical | Maximum            | Units | Notes                                |
|--|-------------------|---------|--------------------|-------|--------------------------------------|
| Frequency Range  | 3.579545          |         | 70                 |       |                                      |
| Operation mode   | 3.579545          |         | 33.999             | MHz   | Fundamental AT-cut (Standard)        |
|  | 34.00             |         | 70.00              |       | 3 <sup>rd</sup> OT AT-cut (Standard) |
|  | 24.01             |         | 50.00              |       | Fundamental AT-cut (See options)     |
| Operating Temperature  | 0                 |         | +70                | °C    | See options                          |
| Storage Temperature  | -55               |         | +125               | °C    |                                      |
| Frequency Tolerance  | -50               |         | +50                | ppm   | See options                          |
| Frequency Stability over the Operating Temperature ( ref. to +25°C)      | -50               |         | +50                | ppm   | See options                          |
| Equivalent series resistance (R1)  | See table 1 below |         |                    | Ω     |                                      |
| Shunt capacitance (C0)   |                   |         | 7                  | pF    |                                      |
| Load capacitance (CL)  |                   | 18      |                    | pF    | See options                          |
| Drive Level  |                   | 100     | 1000               | μW    |                                      |
| Aging @ 25°C per year  |                   |         | ±5                 | ppm   |                                      |
| Insulation Resistance  | 500               |         |                    | MΩ    | @ 100Vdc ± 15V                       |
| Drive Level Dependency (DLD, Minimum 7 points tested: from 1μW to 500μW) |                   |         | ±10                | ppm   | Δfrequency (Max – Min)               |
|  |                   |         | 25% of Max ESR     | Ω     | ΔESR (Max – Min)                     |
|  |                   |         | Max ESR in Table 1 | Ω     | Max ESR over DLD range               |

**Table 1**

| Frequency (MHz)          | ESR(Ω) max. |
|--------------------------|-------------|
| 3.579 - 4.999 (Fund.)    | 180         |
| 5.000 - 5.999 (Fund.)    | 120         |
| 6.000 - 7.999 (Fund.)    | 100         |
| 8.000 - 8.999 (Fund.)    | 80          |
| 9.000 - 9.999 (Fund.)    | 60          |
| 10.000 - 15.999 (Fund.)  | 50          |
| 16.000 - 50.000 (Fund.)  | 40          |
| 34.000 - 70.00 (3rd O/T) | 80          |

REVISED: 03.27.2018



5101 Hidden Creek Lane Spicewood TX 78669  
 Phone: 512-371-6159 | Fax: 512-351-8858  
 For terms and conditions of sale please visit:  
[www.abracon.com](http://www.abracon.com)

ABRACON IS  
 ISO9001-2008  
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ABL Series



11.5 x 5.0 x 3.5 mm

## OPTIONS AND PART IDENTIFICATION:

(Left blank if standard)

ABL -  MHz -  -  -  -  -  -

**Frequency in MHz**  
Please specify the frequency in xx.xxxxMHz.  
e.g. 14.3181MHz

**Load Capacitance (pF)**  
Please specify CL (Minimum 10pF) in pF or S for series

**Custom ESR if other than standard**  
R  
□: Specify a value in Ω (e.g.: R40)

**Packaging**  
Blank: Bulk  
T: Tape & Reel  
TRAY: Tray

| Value Added |                  |
|-------------|------------------|
| I           | Insulator Tab    |
| L2          | Middle 3rd lead  |
| QXX         | Trimmed leads    |
| Q15         | for 0.15" length |

**Oscillation Mode**  
F: Fund. AT>24MHz

| Operating Temp.    |
|--------------------|
| A: -10°C ~ +60°C   |
| B: -20°C ~ +70°C   |
| C: -30°C ~ +70°C   |
| N: -30°C ~ +85°C   |
| D: -40°C ~ +85°C   |
| J*: -40°C ~ +105°C |
| K*: -40°C ~ +125°C |
| L*: -55°C ~ +125°C |

| Freq. Tolerance |
|-----------------|
| H5: ± 5 ppm     |
| 1: ± 10 ppm     |
| 7: ± 15 ppm     |
| 2: ± 20 ppm     |
| 3: ± 25 ppm     |
| 4: ± 30 ppm     |

| Freq. Stability |
|-----------------|
| U**: ± 10 ppm   |
| G: ± 15 ppm     |
| X: ± 20 ppm     |
| W: ± 25 ppm     |
| Y: ± 30 ppm     |
| H: ± 35 ppm     |
| Q: ± 100 ppm    |
| R: ± 150 ppm    |

NOTE:

\* Frequency stability ±50ppm, ±100ppm, ±150ppm only. Contact ABRACON for tighter frequency stability.

\*\* Contact ABRACON for availability of ±10ppm with other operating temperature options.



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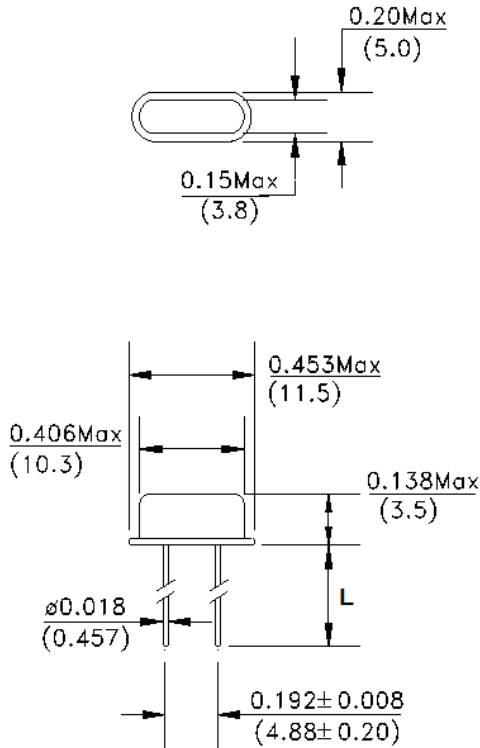
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ABL Series

 RoHS/RoHS II



## OUTLINE DRAWING:

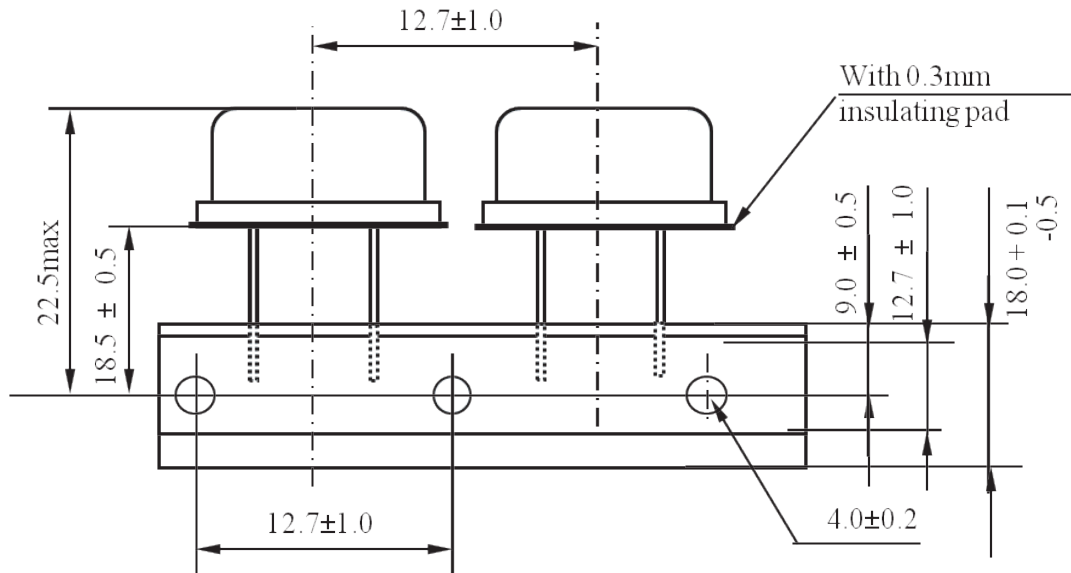


| L            | Packaging   |
|--------------|-------------|
| 5.5mm Min    | Bulk        |
| 20.0 ± 0.5mm | Tape & Reel |

Dimensions: inch (mm)

## TAPE & REEL:

T= Tape and reel (1,000pcs/reel)



Dimensions: mm

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