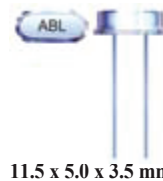


# HC/49US (AT49) MICROPROCESSOR CRYSTAL

## ABL Series



RoHS/RoHS II



11.5 x 5.0 x 3.5 mm

**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**

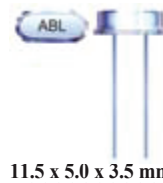
| Frequency (MHz)          | ESR(Ω) max. |
|--------------------------|-------------|
| 3.579 - 4.999 (Fund.)    | 180         |
| 5.000 - 5.999 (Fund.)    | 120         |
| 6.000 - 7.999 (Fund.)    | 100         |
| 8.000 - 8.999 (Fund.)    | 80          |
| 9.000 - 9.999 (Fund.)    | 60          |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

# HC/49US (AT49) MICROPROCESSOR CRYSTAL

ABL Series



RoHS/RoHS II



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  $\Omega$  (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:  $\pm 5$  ppm

1:  $\pm 10$  ppm

7:  $\pm 15$  ppm

2:  $\pm 20$  ppm

3:  $\pm 25$  ppm

4:  $\pm 30$  ppm

### Freq. Stability

U\*:  $\pm 10$  ppm

G:  $\pm 15$  ppm

X:  $\pm 20$  ppm

W:  $\pm 25$  ppm

Y:  $\pm 30$  ppm

H:  $\pm 35$  ppm

Q:  $\pm 100$  ppm

R:  $\pm 150$  ppm

### NOTE:

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

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

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ABL Series

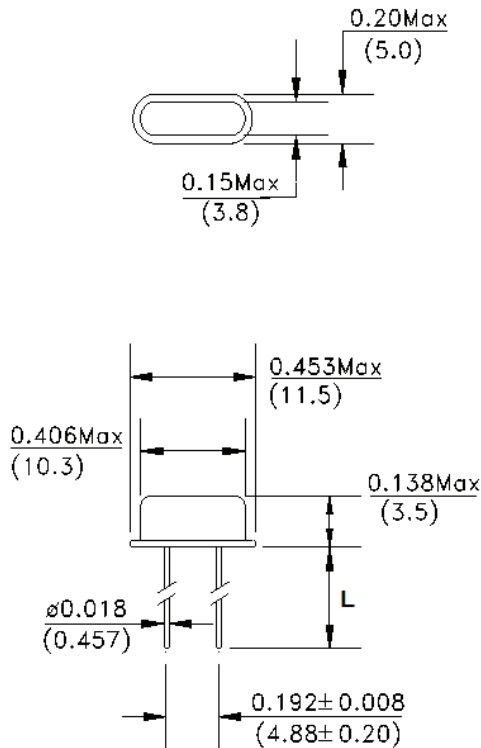


RoHS/RoHS II



11.5 x 5.0 x 3.5 mm

## OUTLINE DRAWING:

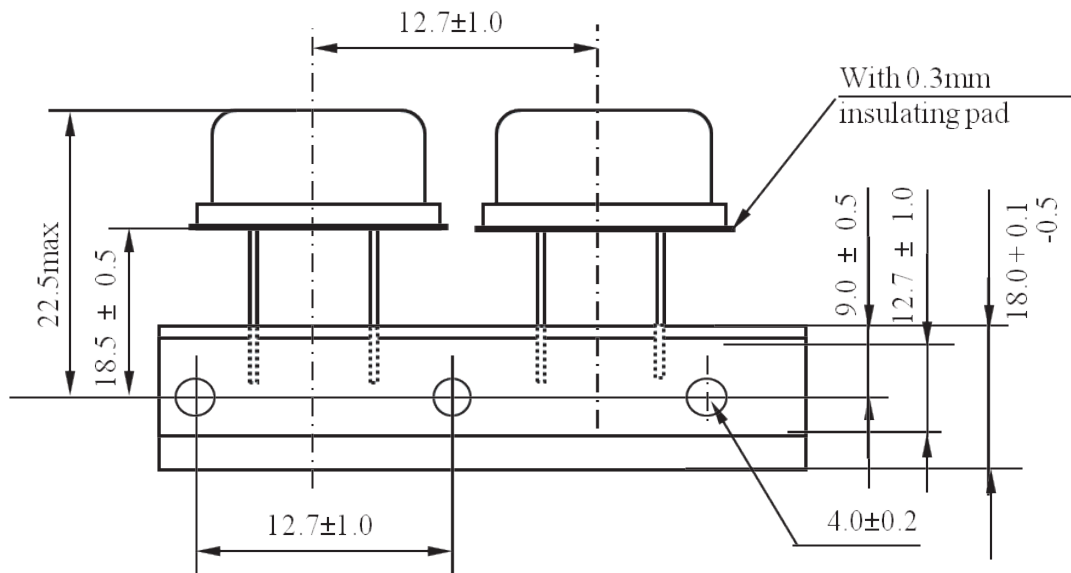


| L                 | Packaging   |
|-------------------|-------------|
| 5.5mm Min         | Bulk        |
| $20.0 \pm 0.5$ mm | Tape & Reel |

Dimensions: inch (mm)

## TAPE & REEL:

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



Dimensions: mm