

# HC/49US (AT49) SMD LOW PROFILE CRYSTAL



11.5 x 4.7 x 4.2 mm

ABLS



RoHS  
Compliant

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

## FEATURES:

- Suitable for RoHS reflow
- Available for tight stability & extended temperature range

## APPLICATIONS:

- Computers, Modems, Microprocessors
- Wireless Applications

## STANDARD SPECIFICATIONS:

### PARAMETERS

|                                                             |                                                                                                                                                                                                               |
|-------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ABRACON P/N                                                 | ABLS Series                                                                                                                                                                                                   |
| Frequency                                                   | 3.579545 MHz to 75 MHz                                                                                                                                                                                        |
| Operation Mode                                              | AT cut (Fundamental or 3rd OT) or BT cut (See options)<br>3.579545MHz - 24.0MHz (Fundamental: Standard)<br>24.01MHz - 75.00MHz (3rd- Overtone: Standard)<br>24.01MHz - 50.00MHz (Fund. AT or BT: See options) |
| Operating Temperature                                       | 0°C to + 70°C (see options)                                                                                                                                                                                   |
| Storage Temperature                                         | - 55°C to + 125° C                                                                                                                                                                                            |
| Frequency Tolerance at +25°C                                | ± 50 ppm max. (see options)                                                                                                                                                                                   |
| Frequency Stability over the Operating Temp. (Ref to +25°C) | ± 50 ppm max. (see options)                                                                                                                                                                                   |
| Equivalent Series Resistance                                | See Table 1                                                                                                                                                                                                   |
| Shunt Capacitance C <sub>0</sub>                            | 7pF max.                                                                                                                                                                                                      |
| Load Capacitance C <sub>L</sub>                             | 18pF (see options)                                                                                                                                                                                            |
| Drive Level                                                 | 1 mW max., 100 µW typical                                                                                                                                                                                     |
| Aging at 25°C (first year)                                  | ± 5ppm max.                                                                                                                                                                                                   |
| Insulation Resistance                                       | 500 MΩ min at 100Vdc ± 15V                                                                                                                                                                                    |
| Spurious Responses                                          | -3dB max.                                                                                                                                                                                                     |
| Drive level dependency (DLD)                                | from 1 µW to 500 µW (minimum 7 points tested)                                                                                                                                                                 |

TABLE 1: STANDARD ESR

| 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          |
| 24.01 - 31.999 (3rd O/T) | 100         |
| 32.000 - 75.00 (3rd O/T) | 80          |

## OPTIONS & PART IDENTIFICATION:

(Left blank if standard)



\* -10 to +60° C only.

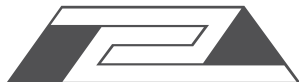
\*\* Option A, B, and 0 to +70° C only.

\*\*\* Frequency stability ±50ppm, ±100ppm, or ±150ppm only.

Contact ABRACON for tighter frequency stability.

\*\*\*\* For Fundamental BT, frequency stability  
± 100ppm max. at -10° C to +60° C only.

ABRACON IS  
ISO9001:2008  
CERTIFIED



ABRACON  
CORPORATION

Visit [www.abracon.com](http://www.abracon.com) for Terms & Conditions of Sale

30332 Esperanza, Rancho Santa Margarita, California 92688

tel 949-546-8000 | fax 949-546-8001 | [www.abracon.com](http://www.abracon.com)

Revised: 04.07.11

## 11.5 x 4.7 x 4.2 mm



0.500±0.024  
(12.7±0.6)

0.45±0.006  
(11.4±0.15)

0.19±0.006  
(4.7±0.15)

Figure 10 illustrates dimensioning a part with a hole. The drawing shows a rectangular part with a central hole. Dimension lines indicate the distance from the hole center to the right edge and the hole diameter. Tolerances are given in both fractional and decimal forms.

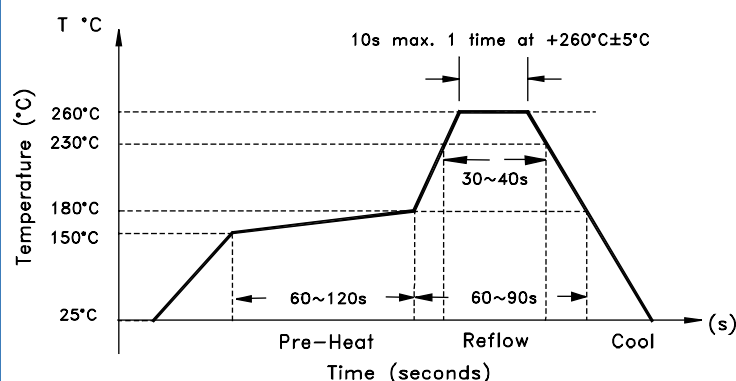
Dimension 1 (Distance from hole center to right edge):

$$\frac{0.192 \pm 0.008}{(4.88 \pm 0.2)}$$

Dimension 2 (Hole diameter):

$$\frac{0.024 + 0.008 / -0.004}{(0.6 + 0.2 / -0.1)}$$

FEEDING (PULL) DIRECTION



# ABRACON CORPORATION

Visit [www.abracon.com](http://www.abracon.com) for Terms & Conditions of Sale

Revised: 04.07.11

30332 Esperanza, Rancho Santa Margarita, California 92688

tel 949-546-8000 | fax 949-546-8001 | [www.abracon.com](http://www.abracon.com)