

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



11.5 x 4.7 x 4.2 mm

ABLS

**Pb** **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:

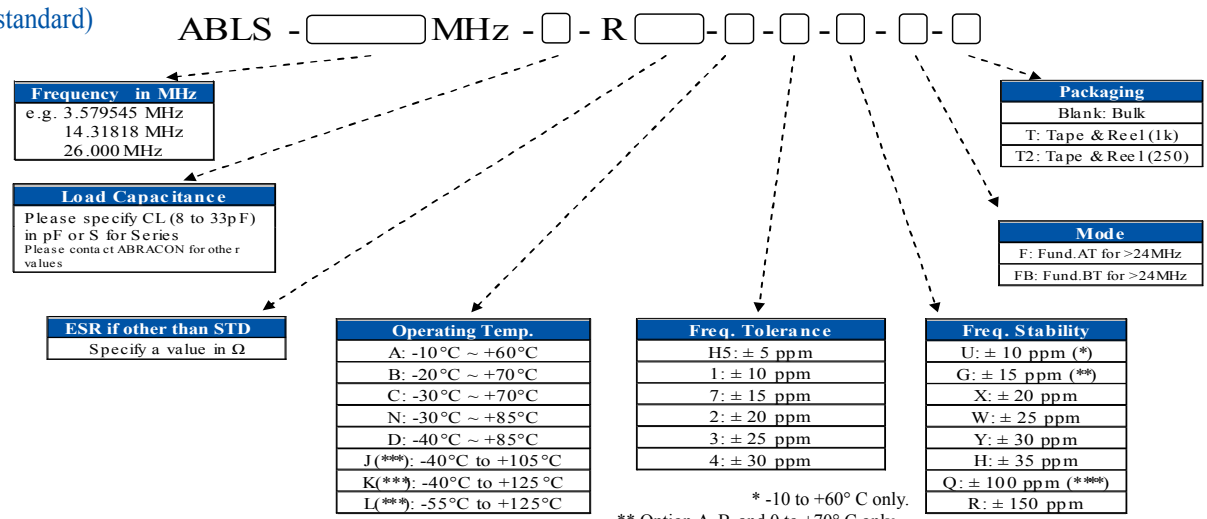
| PARAMETERS                                                  |                                                                                                                                                                                                               |
|-------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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)



ABRACON IS  
ISO9001:2008  
CERTIFIED



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CORPORATION

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11.5 x 4.7 x 4.2 mm

Figure 10 shows a cross-section of a rectangular part with a central hole. The dimension from the left face to the center of the hole is  $0.192 \pm 0.008$  (4.88  $\pm$  0.2). The diameter of the hole is  $0.024 + 0.008 / -0.004$  (0.6 + 0.2 / -0.1).

Technical drawing of a mechanical part, showing three views: front view, top view, and side view. The drawing includes dimensions and a feeding direction indicator.

**Front View Dimensions:**

- Overall length:  $24.0 \pm 0.3$
- Overall width:  $4.5 \pm 0.1$
- Top edge thickness:  $0.3 \pm 0.005$
- Distance from top edge to first hole center:  $1.75 \pm 0.1$
- Hole diameter:  $\phi 1.5$
- Distance between hole centers:  $2.0 \pm 0.1$
- Distance from last hole center to right edge:  $4.0 \pm 0.1$
- Distance from top edge to hole center line:  $1.5 \pm 0.1$
- Distance from left edge to hole center line:  $13.0 \pm 0.1$
- Distance from left edge to first hole center:  $4.5 \pm 0.1$
- Distance between hole centers (bottom):  $12 \pm 0.1$
- Distance from last hole center to right edge (bottom):  $5.1 \pm 0.1$
- Angle:  $5^\circ \text{ MAX}$

**Top View Dimensions:**

- Overall diameter:  $\phi 13.0 \pm 0.5$
- Distance from center to hole center:  $2.5$
- Angle:  $120^\circ$
- Central hole diameter:  $\phi 21.0 \pm 1$

**Side View Dimensions:**

- Overall height:  $25.5 + 2 / - 0$
- Distance from top edge to hole center:  $2.0$
- Hole diameter:  $\phi 10$
- Distance from hole center to bottom edge:  $\phi 330 \pm 1$

**Feeding Direction:** Indicated by an arrow pointing right, labeled "FEEDING (PULL) DIRECTION".



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