

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

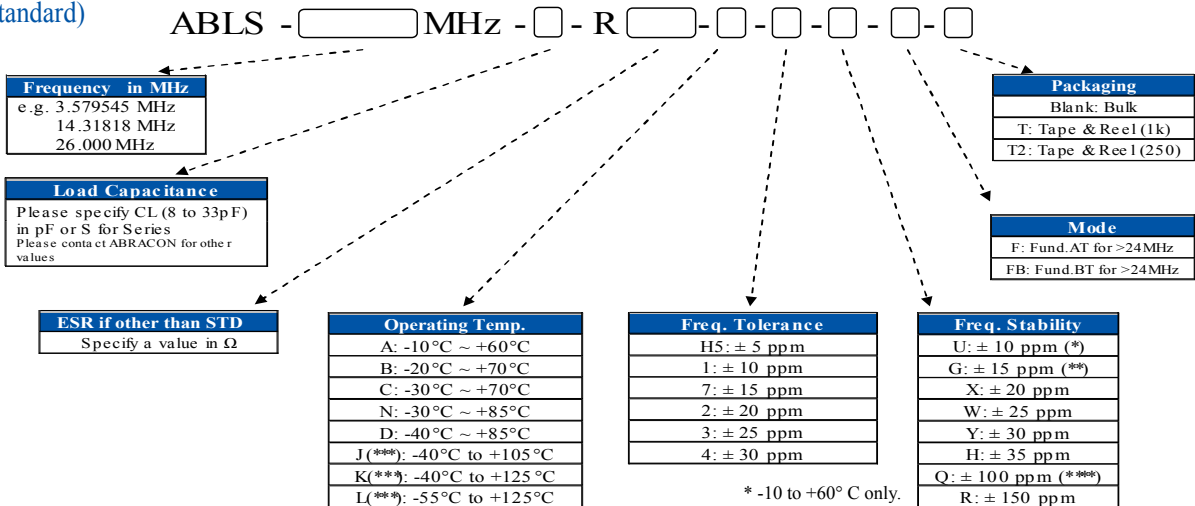
ABRACON P/N	ABLS Series
Frequency	3.579545 MHz to 75 MHz
Operation Mode	AT cut (Fundamental or 3rd OT) or BT cut (See options) 3.579545MHz - 24.0MHz (Fundamental: Standard) 24.01MHz - 75.00MHz (3rd- Overtone: Standard) 24.01MHz - 50.00MHz (Fund. AT or BT: See options)
Operating Temperature	0°C to + 70°C (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 ₀	7pF max.
Load Capacitance C _L	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.

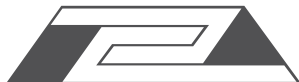
** Option A, B, and 0 to +70° C only.

*** 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

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11.5 x 4.7 x 4.2 mm



0.406 max.
(10.3)

0.16 max.
(4.2)

0.004 max.
0.000 min.
(0.1 max.)
(0.0 min.)

both sides

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):

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

Dimension 2 (Hole diameter):

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

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

Front View Dimensions:

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

Top View Dimensions:

- Overall diameter: $\phi 13.0 \pm 0.5$
- Distance from center to hole center: 2.5
- Angle: 120°
- 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".

The graph illustrates the temperature profile for a reflow soldering process. The Y-axis represents Temperature in degrees Celsius (°C), ranging from 25°C to 260°C. The X-axis represents Time in seconds, divided into three main stages: Pre-Heat, Reflow, and Cool.

- Pre-Heat:** The temperature rises from 25°C to 150°C. This stage is labeled "Pre-Heat" and has a time interval of 60~120s.
- Reflow:** The temperature continues to rise from 150°C to 180°C, then to 260°C. This stage is labeled "Reflow" and has a time interval of 30~40s. The peak temperature is 260°C, which is maintained for a maximum of 10s (10s max, 1 time at +260°C ± 5°C).
- Cool:** The temperature decreases from 260°C back to 25°C. This stage is labeled "Cool" and has a time interval of 60~90s.



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