

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

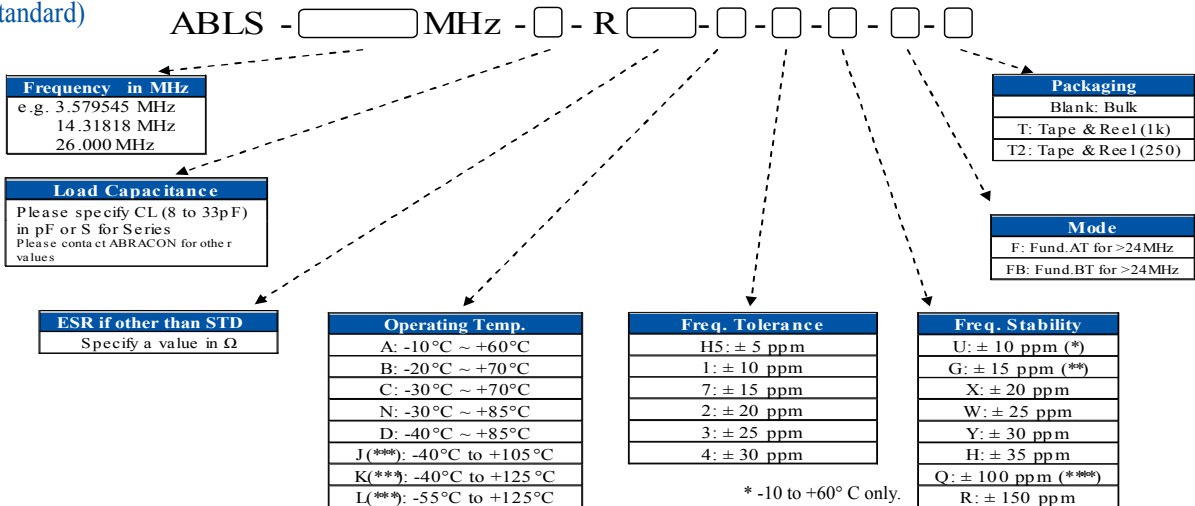
ABRACON P/N	ABLS Series
Frequency	3.579545 MHz to 75 MHz
Operation Mode	AT cut (Fundamental or 3rd OT) or BT cut (See options) 3.579545MHz - 24.0MHz (Fundamental: Standard) 24.01MHz - 75.00MHz (3rd- Overtone: Standard) 24.01MHz - 50.00MHz (Fund. AT or BT: See options)
Operating Temperature	0°C to + 70°C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

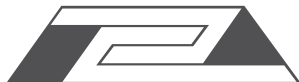
** Option A, B, and 0 to +70° C only.

*** 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.

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Technical drawing of a rectangular component with a central hole. The drawing includes three views: a top view, a side view, and a cross-sectional view.

Top View Dimensions:

- Overall width: 0.500 ± 0.024 (12.7 $\pm$ 0.6)
- Inner width: 0.45 ± 0.006 (11.4 $\pm$ 0.15)
- Overall height: 0.19 ± 0.006 (4.7 $\pm$ 0.15)

Side View Dimensions:

- Overall height: 0.406 max. (10.3)
- Base thickness: 0.16 max. (4.2)

Cross-sectional View Dimensions:

- Top surface flatness: 0.004 max. / 0.000 min. (0.1 max.) / (0.0 min.)
- Both sides
- Central hole diameter: 0.192 ± 0.008 (4.88 $\pm$ 0.2)
- Bottom surface flatness: $0.024 + .008 / -.004$ (0.6 + 0.2 / -0.1)

Recommended land pattern:

The recommended land pattern shows three rectangular blocks with the following dimensions:

- Block 1: Width 0.22 (5.6), Height 0.083 (2.1)
- Block 2: Width 0.374 (9.5), Height 0.083 (2.1)
- Block 3: Width 0.22 (5.6), Height 0.083 (2.1)

Technical drawing of a mechanical part, showing dimensions in mm.

Top View:

- Overall width: 24.0 ± 0.3
- Overall length: 4.5 ± 0.1
- Feeding (PULL) DIRECTION: Indicated by an arrow pointing right.
- Top edge features:
 - Leftmost feature: 0.3 ± 0.005
 - Distance to first hole: 1.75 ± 0.1
 - Distance between holes: 2.0 ± 0.1
 - Distance to last hole: 4.0 ± 0.1
- Bottom edge features:
 - Distance from left edge to first hole: 13.0 ± 0.1
 - Distance between holes: 12 ± 0.1
 - Distance to last hole: 5.1 ± 0.1
- Hole diameters: $\phi 1.5$
- Internal rectangular features: Four, each with a width of 1.5 ± 0.1 and a height of 1.5 ± 0.1 .

Side View:

- Overall height: $\phi 21.0 \pm 1$
- Top flange thickness: 2.0
- Top flange outer diameter: $25.5 + 2/-0$
- Internal hole diameter: $\phi 100$
- Internal hole length: $\phi 330 \pm 1$

Detail View (120°):

- Overall width: 2.5
- Angle: 120°
- Center hole diameter: $\phi 13.0 \pm 0.5$

The graph illustrates the temperature profile for a reflow soldering process. The Y-axis represents Temperature in degrees Celsius (°C), with marked values at 25°C, 150°C, 180°C, 230°C, and 260°C. The X-axis represents Time in seconds (s), divided into three main phases: Pre-Heat, Reflow, and Cool.

- Pre-Heat:** The temperature rises from 25°C to 150°C. This phase is labeled with a duration of 60~120s.
- Reflow:** The temperature rises from 150°C to 260°C. This phase is labeled with a duration of 30~40s. A note specifies "10s max. 1 time at +260°C±5°C", indicating a maximum dwell time at the peak temperature.
- Cool:** The temperature decreases from 260°C back to 25°C. This phase is labeled with a duration of 60~90s.



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