

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.

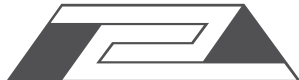
** Option A, B, and 0 to +70° C only.

*** 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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11.5 x 4.7 x 4.2 mm



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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 recommended land pattern.

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)
- Height of the central feature: 0.16 max. (4.2)
- Height of the base: 0.004 max. (0.1 max.)
- Height of the base (minimum): 0.000 min. (0.0 min.)
- Note: both sides

Recommended Land Pattern Dimensions:

- Width of the land: 0.22 (5.6)
- Distance between lands: 0.374 (9.5)
- Height of the land: 0.083 (2.1)

Bottom View Dimensions:

- Overall width: 0.192 ± 0.008 (4.88 $\pm$ 0.2)
- Width of the central hole: $0.024 + 0.008 / -0.004$ (0.6 $\pm$ 0.2 / -0.1)

Dimensions: Inches (mm)

Dimensions: Inches (mm)

FEEDING (PULL) DIRECTION →

0.3±0.005

1.75±0.1

2.0±0.1

4.0±0.1

1.5±0.1

24.0±0.3

13.0±0.1

5° MAX

4.5±0.1

12±0.1

5.1±0.1

Ø1.5

Ø1.5

Ø13.0±0.5

2.5

120°

Ø21.0±1

25.5+2/-0

2.0

Ø100

Ø330±1

Dimensions: mm

Dimensions: mm

The graph illustrates the temperature profile for the reflow soldering process. The Y-axis represents Temperature (°C) with markings at 25°C, 150°C, 180°C, 230°C, and 260°C. The X-axis represents Time (seconds) with markings for Pre-Heat, Reflow, and Cool. The profile starts at 25°C, rises to 150°C (Pre-Heat), then to 260°C (Reflow), and finally cools down. Key time intervals are indicated: 60~120s for Pre-Heat, 30~40s for Reflow, and 60~90s for Cool. A note specifies '10s max. 1 time at +260°C±5°C' during the Reflow phase.

Temperature (°C)

Figure 1 is a line graph showing a typical temperature profile for reflow soldering. The vertical axis represents temperature (T) in degrees Celsius (°C), with marked values at 25°C, 150°C, 180°C, 230°C, and 260°C. The horizontal axis represents time in seconds (s), divided into three main phases: Pre-Heat, Reflow, and Cool. The profile starts at 25°C, rises to 150°C during the Pre-Heat phase (labeled 60~120s), then continues to rise to 180°C. The Reflow phase is characterized by a temperature plateau at 260°C (labeled 30~40s), with a maximum of 1 time at 260°C ± 5°C. The temperature then decreases during the Cool phase (labeled 60~90s).



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