

# MICROPROCESSOR CRYSTALS

## AT49 (HC49US) LOW PROFILE SURFACE MOUNT

### ABLS, ABL2, ABL3



RoHS Directive  
2002/95/EC Compliant



### FEATURES:

- High reliability, Low cost.
- Tight stability and extended temperature.
- Low profile. (2.5mm max.)
- Reflow capable.

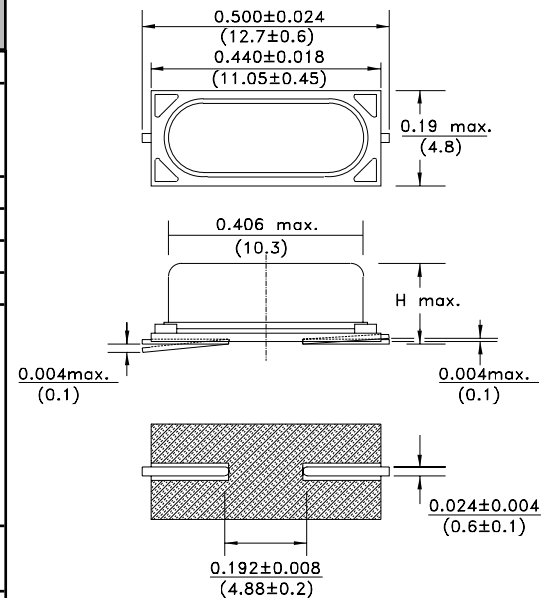
### APPLICATIONS:

- Wireless applications.
- Computers, modems, communications.
- Automotive and industrial.
- Hi-precision TCXO and clock applications.

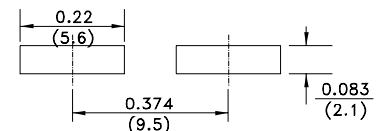
| Height Options |               |
|----------------|---------------|
| PN#            | H max.        |
| ABLS           | 0.160 ( 4.2 ) |
| ABLS2          | 0.130 ( 3.3 ) |
| ABLS3          | 0.099 ( 2.5 ) |

### STANDARD SPECIFICATIONS

|                                    |                                                                                                                                                                                                                                                                                                |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Frequency Range                    | <b>3.579545MHz - 70.00MHz</b>                                                                                                                                                                                                                                                                  |
| Operation Mode                     | 3.579545MHz ~ 24.0MHz ~ ( Fundamental )<br>24.01MHz ~ 50.00MHz ~ ( Fund. AT or BT )<br>24.01MHz ~ 70MHz ~ ( 3rd- Overtone )                                                                                                                                                                    |
| Operating Temperature              | 0°C to +70°C (See Options)                                                                                                                                                                                                                                                                     |
| Storage Temperature                | -40°C to +85°C                                                                                                                                                                                                                                                                                 |
| Frequency Tolerance @ 25°C         | ±50ppm max. (See Options)                                                                                                                                                                                                                                                                      |
| Frequency stability over temp.     | ±50ppm max. (See Options)*                                                                                                                                                                                                                                                                     |
| Equivalent Series Resistance (ESR) | 180 Ω max. for 3.579MHz ≤ F < 5.000MHz<br>120 Ω max. for 5.000MHz ≤ F < 6.000MHz<br>100 Ω max. for 6.000MHz ≤ F < 8.000MHz<br>80 Ω max. for 8.000MHz ≤ F < 9.000MHz<br>60 Ω max. for 9.000MHz ≤ F < 10.00MHz<br>50 Ω max. for 10.00MHz ≤ F < 16.00MHz<br>40 Ω max. for 16.00MHz ≤ F < 50.00MHz |
| Fundamental                        |                                                                                                                                                                                                                                                                                                |
| Third Overtone                     | 100 Ω max. for 24.01MHz ≤ F < 32.00MHz<br>80 Ω max. for 32.00MHz ≤ F < 70.00MHz                                                                                                                                                                                                                |
| Shunt Capacitance C <sub>0</sub>   | 7pF max.                                                                                                                                                                                                                                                                                       |
| Load Capacitance C <sub>L</sub>    | 18pF (See Options)                                                                                                                                                                                                                                                                             |
| Drive Level                        | 1mW max., 100μW correlation                                                                                                                                                                                                                                                                    |
| Aging @ 25°C per Year              | ±5ppm max.                                                                                                                                                                                                                                                                                     |
| Insulation Resistance;             | 500MΩ min. at 100Vdc ±15V                                                                                                                                                                                                                                                                      |



Recommended land pattern



Dimensions: Inches (mm)

Please see environmental, and mechanical specifications, see appendix C. Group 1.

Tape and Reel, see appendix H.(1,000pcs./reel)

Marking, see appendix G. Reflow profile, see appendix E.

Application notes, see appendix A.

Recommended handling, see appendix F.

### ORDERING OPTIONS

ABLSX - Frequency - CL - ESR - Temperature - Tolerance - Stability - Mode - Packaging

|                                    |                                                                                                                                |                                                                                                                              |                                                                     |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| Blank, 2 or 3                      | RXXX<br>(value in Ω)                                                                                                           | -R5 for ± 5ppm**<br>-U for ± 10ppm<br>-G for ± 15ppm<br>-X for ± 20ppm<br>-W for ± 25ppm<br>-Y for ± 30ppm<br>-H for ± 35ppm | -T for tape and reel                                                |
| XX.XXXX MHz                        | -A for -10°C to + 60°C<br>-B for -20°C to + 70°C<br>-C for -30°C to + 70°C<br>-N for -30°C to + 85°C<br>-D for -40°C to + 85°C | -1 for ± 10ppm<br>-7 for ± 15ppm<br>-2 for ± 20ppm<br>-3 for ± 25ppm<br>-4 for ± 30ppm                                       | -F for Fundamental AT> 24MHz<br>-FB for Fundamental BT> 24MHz**     |
| Load cap.in pF<br>or -S for Series |                                                                                                                                |                                                                                                                              | * BT cut ±100ppm max. -10°C to +60°C<br>** Please call for details. |

NOTE: Left blank if standard • All specifications and markings subject to change without notice

ABRACON IS  
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