

# SMD MICROPROCESSOR CRYSTAL

ABLS7M2



RoHS / RoHS II Compliant



7.0 x 4.1 x 2.0mm

Moisture Sensitivity Level (MSL) – This product is Hermetically Sealed and not Moisture Sensitive - MSL = N/A: Not Applicable

## FEATURES:

- **Reduced footprint from ABLS (standard HC/49US package) by 50%**
- Low profile: 2.0mm max. height
- Suitable for RoHS compliant reflow
- Tight stability & extended temperature options
- High reliability & Cost effective
- Resistance welded metal package

## APPLICATIONS:

- Wireless Applications
- Home electronics
- Computers, modems, and communications
- Microprocessors

## STANDARD SPECIFICATIONS:

| Parameters                                                          | Minimum                                                                                                | Typical | Maximum | Units | Notes                                    |
|---------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|---------|---------|-------|------------------------------------------|
| Frequency Range*                                                    | 12.0                                                                                                   |         | 40.0    | MHz   |                                          |
| Standard Frequencies                                                | 12.0, 12.288, 13.5, 13.56, 14.31818, 14.7456, 16.0, 18.432, 20.0, 20.5, 24.0, 24.576, 25.0, 26.0, 27.0 |         |         | MHz   |                                          |
| Operation Mode                                                      | Fundamental (AT-cut)                                                                                   |         |         |       |                                          |
| Operating Temperature                                               | 0                                                                                                      |         | +70     | °C    | See options                              |
| Storage Temperature                                                 | -40                                                                                                    |         | +125    | °C    |                                          |
| Frequency Tolerance @+25°C                                          | -50                                                                                                    |         | +50     | ppm   | See options                              |
| Frequency Stability over the Operating Temperature ( ref. to +25°C) | -50                                                                                                    |         | +50     | ppm   | See options                              |
| Equivalent series resistance (R1) @+25°C                            |                                                                                                        |         | 60      | Ω     | 12.000 ~ 16.000MHz                       |
|                                                                     |                                                                                                        |         | 40      |       | 16.001 ~ 30.000MHz                       |
|                                                                     |                                                                                                        |         | 25      |       | 30.001 ~ 40.000MHz                       |
| Shunt capacitance (C0)                                              |                                                                                                        |         | 5       | pF    |                                          |
| Load capacitance (CL)                                               | 18                                                                                                     |         |         | pF    | Standard (See options if other than STD) |
| Drive Level                                                         |                                                                                                        | 50      | 100     | μW    |                                          |
| Aging                                                               | -5                                                                                                     |         | +5      | ppm   | @25°C±3°C<br>First year                  |
| Insulation Resistance                                               | 500                                                                                                    |         |         | MΩ    | @ 100Vdc ± 15V                           |
| Drive level dependency (DLD)                                        | 10nw ~ 100uw, 12 points<br>Change in ESR (Maximum - Minimum) over DLD range < 30% ESR max.             |         |         |       |                                          |

\* Please contact Abracon for other frequencies.



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## PART IDENTIFICATIONS: (left blank if standard)

ABLS7M2 -  MHz -  -  -  -  -  -

### Frequency in MHz

Please specify the frequency in MHz. e.g.  
12.000MHz  
14.31818MHz

### Load Capacitance (pF)

Please specify CL (Minimum 8pF) in pF or S for series

### Custom ESR if other than standard

R□  
□: Specify a value in Ω (e.g.: R40)

### Operating Temp.

Blank: 0°C ~ +70°C  
A: -10°C ~ +60°C  
B: -20°C ~ +70°C  
C: -30°C ~ +70°C  
N: -30°C ~ +85°C  
D: -40°C ~ +85°C  
J: -40°C ~ +105°C  
K: -40°C ~ +125°C

### Freq. Tolerance

Blank: ± 50 ppm  
1: ± 10 ppm  
7: ± 15 ppm  
2: ± 20 ppm  
3: ± 25 ppm  
4: ± 30 ppm

### Packaging

Blank: Bulk  
T: Tape & Reel

### Freq. Stability (See Table 1 for details)

Blank: ± 50 ppm  
U: ± 10 ppm  
G: ± 15 ppm  
X: ± 20 ppm  
W: ± 25 ppm  
Y: ± 30 ppm  
H: ± 35 ppm  
Q: ± 100 ppm

Table 1 Available Combinations of Operating Temp. and Freq. Stability

| Operating Temp.   | Freq. Stability |          |          |          |          |          |             |           |
|-------------------|-----------------|----------|----------|----------|----------|----------|-------------|-----------|
|                   | U:±10ppm        | G:±15ppm | X:±20ppm | W:±25ppm | Y:±30ppm | H:±35ppm | Std.:±50ppm | Q:±100ppm |
| A: -10°C ~ +60°C  | √               | √        | √        | √        | √        | √        | √           | √         |
| Std.: 0°C ~ +70°C | √               | √        | √        | √        | √        | √        | √           | √         |
| B: -20°C ~ +70°C  |                 | √        | √        | √        | √        | √        | √           | √         |
| C: -30°C ~ +70°C  |                 |          | √        | √        | √        | √        | √           | √         |
| N: -30°C ~ +85°C  |                 |          |          |          | √        | √        | √           | √         |
| D: -40°C ~ +85°C  |                 |          |          |          | √        | √        | √           | √         |
| J: -40°C ~ +105°C |                 |          |          |          |          |          | √           | √         |
| K: -40°C ~ +125°C |                 |          |          |          |          |          |             | √         |

Note: Please contact Abracon for other frequency stability and operating temperature range options.



# SMD MICROPROCESSOR CRYSTAL

ABLS7M2

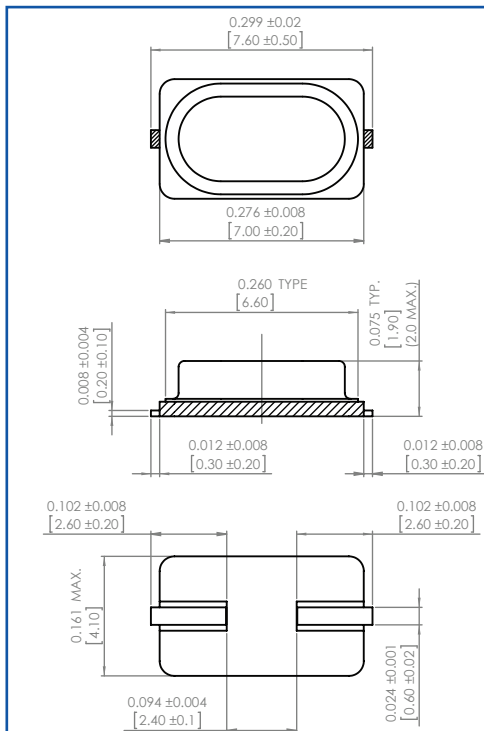


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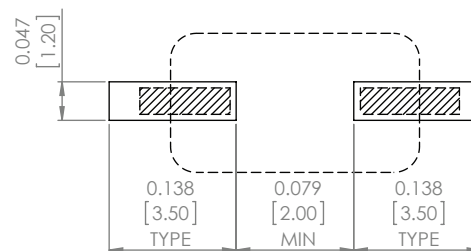


7.0 x 4.1 x 2.0mm

## OUTLINE DIMENSION:



## Recommended Land Pattern

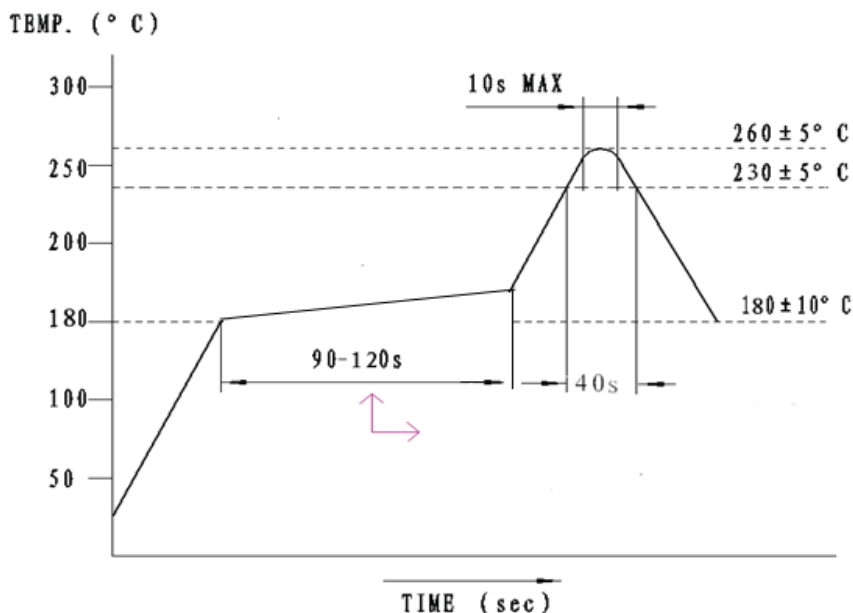


## Actual Size Comparison

| ABLS                | ABLS7M2            |
|---------------------|--------------------|
|                     |                    |
| 11.4 x 4.7 x 4.2 mm | 7.0 x 4.1 x 2.0 mm |

Dimension: inches [mm]

## REFLOW PROFILE:



# SMD MICROPROCESSOR CRYSTAL

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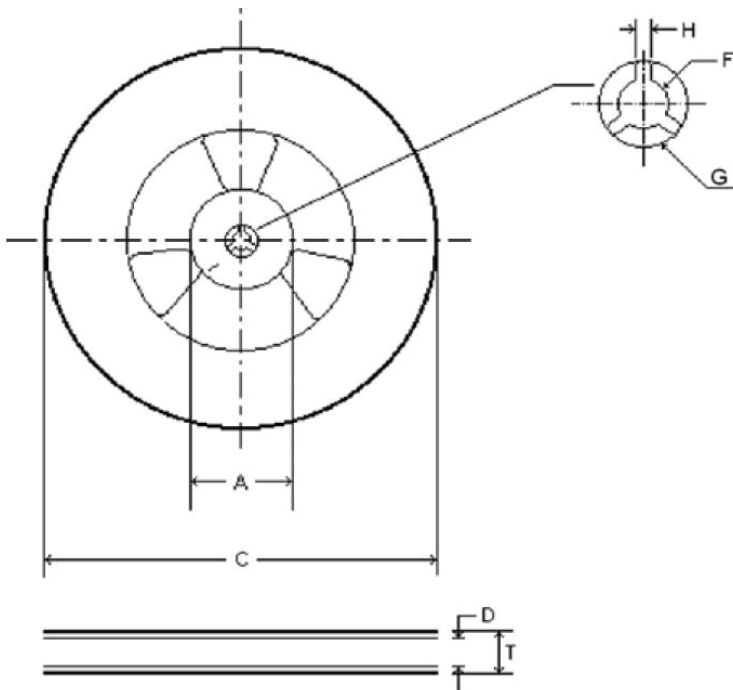
RoHS / RoHS II Compliant



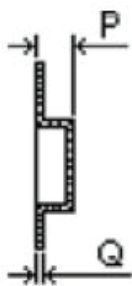
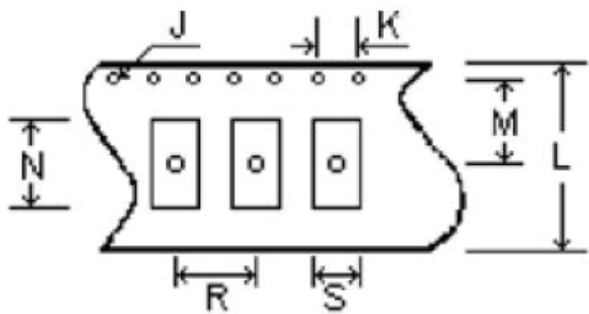
7.0 x 4.1 x 2.0mm

## TAPE & REEL:

T = tape and reel (3000pcs/reel)



| No. | Dimensions (mm) |
|-----|-----------------|
| A   | 100 ± 1.0       |
| C   | 330 ± 2.0       |
| D   | 16.4 ± 1.0      |
| T   | 20.4 ± 0.5      |
| F   | 13.0 ± 0.2      |
| G   | 20.2 min.       |
| H   | 1.5 min.        |

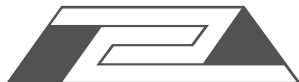


| No. | Dimensions (mm) |
|-----|-----------------|
| J   | Ø1.5            |
| K   | 4.0 ± 0.1       |
| L   | 16.0 ± 0.3      |
| M   | 7.5 ± 0.1       |
| N   | 9.4 ± 0.1       |
| P   | 2.5 ± 0.1       |
| Q   | 0.3 ± 0.05      |
| R   | 8.0 ± 0.1       |
| S   | 4.4 ± 0.1       |

Dimensions: mm

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