



# THE DATASHEET OF ABM11AIG-32.000MHZ-4Z-T3

# Automotive & Industrial Grade Miniature Ceramic Base SMD Crystal



ABM11AIG



2.0 x 1.6 x 0.55 mm  
RoHS/RoHS II Compliant  
MSL = N/A: Not Applicable

## Features

- AEC-Q200 Qualified
- Automotive Grade 1: -40°C to +125°C
- Automotive Grade 0: -40°C to +150°C (Available Upon Request)
- TS16949 Production Line Certified
- PPAP Available Upon Request
- Hermetically Seam-sealed Ceramic Package
- RoHS/RoHS II Compliant and Pb free

## Applications

- Infotainment Systems
- Keyless Entry & Startup
- GPS & Navigation
- Comfort control
- ADAS (Advanced Driver Assistance Systems)
- Vehicle to Vehicle Communication
- LiDAR (Light Detection and Ranging)
- In-vehicle Networking
- Powertrain & Drive Control
- Power Control & Conversion
- Industrial Control & Automation

## Electrical Specifications

| Parameters                                                          | Min.        | Typ. | Max.   | Units | Notes                       |
|---------------------------------------------------------------------|-------------|------|--------|-------|-----------------------------|
| Frequency Range                                                     | 16.000      |      | 60.000 | MHz   |                             |
| Operation Mode                                                      | Fundamental |      |        |       |                             |
| Operating Temperature [Note 1]                                      | -40         |      | +125   | °C    | Option "blank"; See options |
|                                                                     | -40         |      | +150   |       | Option "V"; See options     |
| Storage Temperature [Note 1]                                        | -40         |      | +125   | °C    | Option "blank, J, D, N"     |
|                                                                     | -40         |      | +150   |       | Option "V"                  |
| Frequency Tolerance @ +25°C                                         | -50         |      | +50    | ppm   | Option "blank"; See options |
| Frequency Stability over the Operating Temperature ( ref. to +25°C) | -100        |      | +100   | ppm   | Option "blank"; See options |
|                                                                     | -150        |      | +150   |       | Option "R"; See options     |
| Equivalent series resistance (R1)                                   |             |      | 150    | Ω     | 16.000 – 19.999 MHz         |
|                                                                     |             |      | 100    |       | 20.000 – 23.999 MHz         |
|                                                                     |             |      | 80     |       | 24.000 – 25.999 MHz         |
|                                                                     |             |      | 60     |       | 26.000 – 40.999 MHz         |
|                                                                     |             |      | 50     |       | 41.000 – 60.000 MHz         |
| Shunt capacitance (C0)                                              |             |      | 2.0    | pF    |                             |
| Load capacitance (CL)                                               | 10          |      |        | pF    | Option "blank"; See options |
| Drive Level                                                         |             | 10   | 100    | μW    |                             |
| Aging                                                               | -2          |      | +2     | ppm   | @25°C ± 3°C<br>First year   |
| Insulation Resistance                                               | 500         |      |        | MΩ    | @100 Vdc ± 15V              |

Note 1: Operating temperature range option -40°C to +150°C only available in select frequencies and electrical performance options. Please contact Abracon for availability.



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## Options and Part Identification (left blank if standard)

**ABM11AIG-**  **MHz** -  -  -    -

| Frequency in MHz                                      | Load Capacitance (pF)                                                   | Custom ESR if other than standard     | Packaging                                            |
|-------------------------------------------------------|-------------------------------------------------------------------------|---------------------------------------|------------------------------------------------------|
| Please specify the frequency in MHz. (e.g. 16.384MHz) | Blank: 10pF<br>If not standard, please specify CL in pF or S for series | R □: Specify a value in Ω (e.g.: R80) | Blank: Bulk<br>T: 1k pcs / reel<br>T3: 3k pcs / reel |

| Operating Temp.        | Freq. Tolerance | Freq. Stability  |
|------------------------|-----------------|------------------|
| Blank: -40°C to +125°C | Blank: ± 50 ppm | Blank: ± 100 ppm |
| N: -30°C to +85°C      | 4: ± 30 ppm     | R: ± 150 ppm     |
| D: -40°C to +85°C      | 3: ± 25 ppm     | Z: ± 50 ppm      |
| J: -40°C to +105°C     | 2: ± 20 ppm     | P: ± 45 ppm (*)  |
| V: -40°C to +150°C (*) | 7: ± 15 ppm     | F: ± 40 ppm (*)  |
|                        | 1: ± 10 ppm     | H: ± 35 ppm (*)  |
|                        |                 | Y: ± 30 ppm (*)  |
|                        |                 | W: ± 25 ppm (*)  |
|                        |                 | X: ± 20 ppm (*)  |
|                        |                 | G: ± 15 ppm (*)  |

(\*) Contact Abracon for Availability

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(\*) Electrically connected to lid



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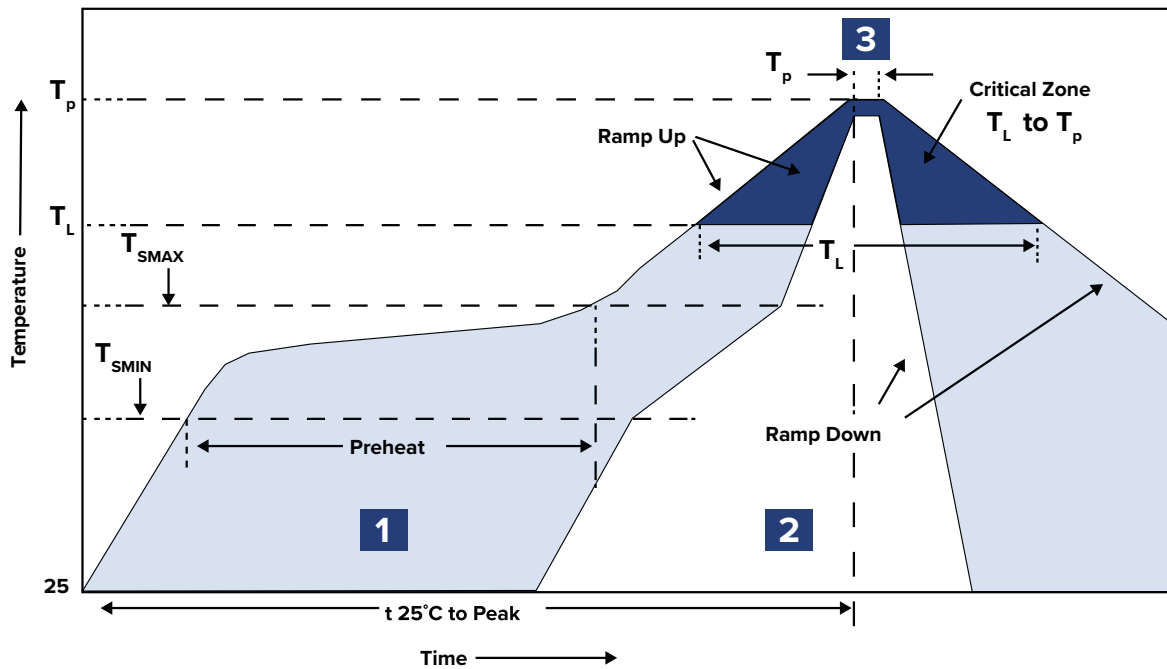
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## Reflow Profile



| Zone | Description    | Temperature                                                            | Time          |
|------|----------------|------------------------------------------------------------------------|---------------|
| 1    | Preheat / Soak | $T_{SMIN} \sim T_{SMAX}$<br>$150^\circ\text{C} \sim 180^\circ\text{C}$ | 60 ~ 120 sec. |
| 2    | Reflow         | $T_L$<br>$230^\circ\text{C}$                                           | 30 ~ 40 sec.  |
| 3    | Peak heat      | $T_P$<br>$260^\circ\text{C} \pm 5^\circ\text{C}$                       | 10 sec. MAX   |



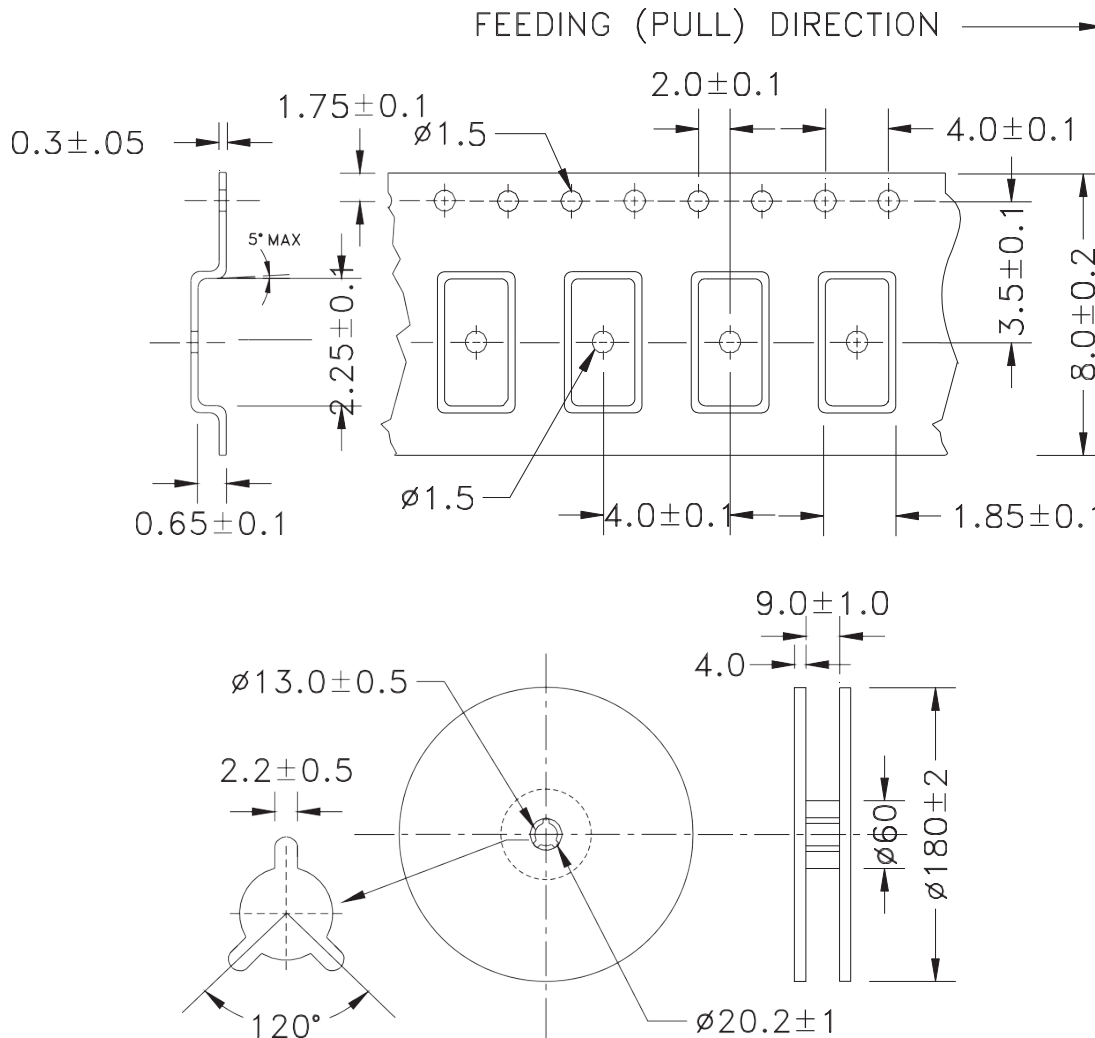
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## Packaging

Tape and Reel:  
T: 1,000pcs/reel  
T3: 3,000pcs/reel



Dimensions: mm

**ATTENTION:** Abracon LLC's products are COTS – Commercial-Off-The-Shelf products; suitable for Commercial, Industrial and, where designated, Automotive Applications. Abracon's products are not specifically designed for Military, Aviation, Aerospace, Life-dependent Medical applications or any application requiring high reliability where component failure could result in loss of life and/or property. For applications requiring high reliability and/or presenting an extreme operating environment, written consent and authorization from Abracon LLC is required. Please contact Abracon LLC for more information.



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