Automotive & Industrial Grade Ceramic Base SMD Crystal

ABM10AIG

2.5 x 2.0 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

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Units</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range</td>
<td>12.000</td>
<td></td>
<td>62.500</td>
<td>MHz</td>
<td></td>
</tr>
<tr>
<td>Operation Mode</td>
<td>Fundamental</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Temperature [Note 1]</td>
<td>-40</td>
<td></td>
<td>+125</td>
<td>°C</td>
<td>Option “blank”; See options</td>
</tr>
<tr>
<td></td>
<td>-40</td>
<td></td>
<td>+150</td>
<td>°C</td>
<td>Option “V”; See options</td>
</tr>
<tr>
<td>Storage Temperature [Note 1]</td>
<td>-40</td>
<td></td>
<td>+125</td>
<td>°C</td>
<td>Option “blank, J, D, N”</td>
</tr>
<tr>
<td></td>
<td>-40</td>
<td></td>
<td>+150</td>
<td>°C</td>
<td>Option “V”</td>
</tr>
<tr>
<td>Frequency Tolerance @ +25°C</td>
<td>-50</td>
<td></td>
<td>50</td>
<td>ppm</td>
<td>Option “blank”; See options</td>
</tr>
<tr>
<td>Frequency Stability over the Operating Temperature (ref. to +25°C)</td>
<td>-100</td>
<td></td>
<td>100</td>
<td>ppm</td>
<td>Option “blank”; See options</td>
</tr>
<tr>
<td></td>
<td>-150</td>
<td></td>
<td>150</td>
<td>ppm</td>
<td>Option “R”; See options</td>
</tr>
<tr>
<td>Equivalent series resistance (R1)</td>
<td></td>
<td></td>
<td>150</td>
<td>Ω</td>
<td>12.000-15.999 MHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>80</td>
<td></td>
<td>16.000-19.999 MHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td></td>
<td>20.000-29.999 MHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td></td>
<td>30.000-34.999 MHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>40</td>
<td></td>
<td>35.000-62.500 MHz</td>
</tr>
<tr>
<td>Shunt capacitance (C0)</td>
<td></td>
<td></td>
<td>2.0</td>
<td>pF</td>
<td></td>
</tr>
<tr>
<td>Load capacitance (CL)</td>
<td></td>
<td>10</td>
<td></td>
<td>pF</td>
<td>Option “blank”; See options</td>
</tr>
<tr>
<td>Drive Level</td>
<td>10</td>
<td>100</td>
<td></td>
<td>μW</td>
<td></td>
</tr>
<tr>
<td>Aging</td>
<td>-2</td>
<td></td>
<td>+2</td>
<td>ppm</td>
<td>@25°C± 3°C First year</td>
</tr>
<tr>
<td>Insulation Resistance</td>
<td>500</td>
<td></td>
<td></td>
<td>MΩ</td>
<td>@100 Vdc ± 15V</td>
</tr>
</tbody>
</table>

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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**ABM10AIG**

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

- **ABM10AIG-**
- **MHz** -
- **-** -
- **-** -
- **-** -

**Frequency in MHz**
Please specify the frequency in MHz. (e.g. 14.31818MHz)

**Load Capacitance (pF)**
Blank: 10pF
If not standard, please specify CL in pF or S for series

**Custom ESR if other than standard**
R □: Specify a value in Ω (e.g.: R80)

**Operating Temp.**
Blank: -40°C to +125°C
N: -30°C to +85°C
D: -40°C to +85°C
J: -40°C to +105°C
V: -40°C to +150°C (*)

**Freq. Tolerance**
Blank: ± 50 ppm
4: ± 30 ppm
3: ± 25 ppm
2: ± 20 ppm
7: ± 15 ppm
1: ± 10 ppm

**Freq. Stability**
Blank: ± 100 ppm
R: ± 150 ppm
Z: ± 50 ppm
P: ± 45 ppm (*)
F: ± 40 ppm (*)
H: ± 35 ppm (*)
Y: ± 30 ppm (*)
W: ± 25 ppm (*)
X: ± 20 ppm (*)
G: ± 15 ppm (*)

(*) Contact Abracon for Availability

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2.5 x 2.0 x 0.55 mm
RoHS/RoHS II Compliant
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Mechanical Dimensions

Top View

Side View

Pin #1: Crystal
Pin #2: GND (*)
Pin #3: Crystal
Pin #4: GND (*)

(*) Electrically connected to lid

Bottom View

Recommended Land Pattern

Note: Due to availability of raw materials, this part may be manufactured with the chamfer on pin 1 or pin 4. Be advised that this does not affect the electrical characteristics of the crystal in any way.

Dimensions: mm
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**ABM10AIG**

### Reflow Profile

![Reflow Profile Diagram](image)

<table>
<thead>
<tr>
<th>Zone</th>
<th>Description</th>
<th>Temperature</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Preheat / Soak</td>
<td>$T_{\text{SMIN}} \sim T_{\text{SMAX}}$ $150^\circ C \sim 180^\circ C$</td>
<td>60 ~ 120 sec.</td>
</tr>
<tr>
<td>2</td>
<td>Reflow</td>
<td>$T_p$ $230^\circ C$</td>
<td>30 ~ 40 sec.</td>
</tr>
<tr>
<td>3</td>
<td>Peak heat</td>
<td>$T_p$ $260^\circ C\pm 5^\circ C$</td>
<td>10 sec. MAX</td>
</tr>
</tbody>
</table>

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Packaging

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

Dimensions: mm

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