ULTRA MINIATURE CERAMIC SMD CRYSTAL

ABM13

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

FEATURES:
- Suitable for RoHS reflow profile
- Available tight tolerance and stability
- Electron beam sealed ceramic package assures high precision and reliability
- Smallest package size in industry 1.2x1.0x0.28mm

APPLICATIONS:
- Mobile phone, W-LAN, Bluetooth, Tuner Module
- Computers, Modems, Microprocessors
- Communication, Test equipment
- High density applications
- PCMCIA
- Portable radios and MP3 players

STANDARD SPECIFICATIONS:

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Minimum</th>
<th>Typical</th>
<th>Maximum</th>
<th>Units</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range</td>
<td>36.000</td>
<td></td>
<td>80.000</td>
<td>MHz</td>
<td></td>
</tr>
<tr>
<td>Standard Frequency</td>
<td>37.400MHz, 38.000MHz, 40.000MHz, 48.000MHz, 52.000MHz, 58.400MHz, 64.000MHz and 80.000MHz</td>
<td>MHz</td>
<td></td>
<td></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</td>
<td>0</td>
<td></td>
<td>+50</td>
<td>°C</td>
<td>See options</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-40</td>
<td></td>
<td>+85</td>
<td>°C</td>
<td></td>
</tr>
<tr>
<td>Frequency Tolerance @+25°C</td>
<td>-50</td>
<td></td>
<td>+50</td>
<td>ppm</td>
<td>See options</td>
</tr>
<tr>
<td>Frequency Stability over the Operating Temperature (ref. to +25°C)</td>
<td>-50</td>
<td></td>
<td>+50</td>
<td>ppm</td>
<td>See options</td>
</tr>
<tr>
<td>Equivalent Series Resistance</td>
<td>200</td>
<td></td>
<td></td>
<td>Ω</td>
<td></td>
</tr>
<tr>
<td>Load capacitance (CL)</td>
<td>7</td>
<td></td>
<td></td>
<td>pF</td>
<td>Standard (See options if other than STD)</td>
</tr>
<tr>
<td>Drive Level</td>
<td>10</td>
<td>100</td>
<td></td>
<td>µW</td>
<td></td>
</tr>
</tbody>
</table>
OPTIONS & PART IDENTIFICATION: (Left blank if standard)

ABM13 - [ ] MHz - [ ] R [ ] [ ] [ ]

**Frequency in MHz**
Please specify the frequency in MHz. e.g. 40.000MHz

**Load Capacitance**
Blank: 7pF
5: 5pF
6: 6pF
Contact Abracon for other values

**Custom ESR if other than standard**
R□
□: Specify a value in Ω (e.g.: R40)

**Packaging**
Blank: Bulk
T: 3000pcs/Reel
T5: 5000pcs/Reel

**Freq. Stability**
Blank: ± 50 ppm
U: ± 10 ppm
G: ± 15 ppm
X: ± 20 ppm
Y: ± 30 ppm

**Freq. Tolerance**
(See Table 1 for details)
Blank: ± 50 ppm
1: ± 10 ppm
2: ± 20 ppm
4: ± 30 ppm

Note: See Table 1 for the availability of Operating Temp. and Freq. Stability combinations.

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

<table>
<thead>
<tr>
<th>Operating Temp.</th>
<th>Freq. Stability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Std: 0°C ~ +50°C</td>
<td>U:±10ppm Y:±30ppm</td>
</tr>
<tr>
<td>A: -10°C ~ +60°C</td>
<td>U:±10ppm Y:±30ppm</td>
</tr>
<tr>
<td>B: -20°C ~ +70°C</td>
<td>U:±10ppm Y:±30ppm</td>
</tr>
<tr>
<td>D: -40°C ~ +85°C</td>
<td>U:±10ppm Y:±30ppm</td>
</tr>
</tbody>
</table>

**OUTLINE DRAWING:**

Recommended Land Pattern

Note:
Pin 2 is connected to the metal lid.
(Please connect to GND)
Pin 4: No connection

Dimensions: mm
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TAPES & REEL:

T: 3000 pcs/reel
T5: 5000 pcs/reel

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Need a test socket for the ABM12 Series? To view compatible PRECISION TEST & BURN-IN SOCKETS for these parts, click here. P/N AXS-1612-04-01C

Dimensions: mm

ATTENTION: ABM13 RoHS/RoHS II compliant

1.2 x 1.0 x 0.28mm

REFLOW PROFILE:

5s max. 1 time at +260°C±5°C

260°C
230°C
180°C
150°C
25°C

Pre-Heat
Reflow
Cool

60~120s
60~90s
30~40s

Time (seconds)