

# Automotive & Industrial Grade Ceramic SMD Crystal

**ABM3BAIG**

Request Samples



Check Inventory



5.0 x 3.2 x 0.9 mm

RoHS/RoHS II Compliant

MSL Level = N/A



## 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

## Key Electrical Specifications

## 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

Parameters	Minimum	Typical	Maximum	Units	Notes
Frequency Range	8.000		54.000	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	Options “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	8.000 – 9.999MHz
			80		10.000 – 11.999MHz
			70		12.000 – 15.999MHz
			50		16.000 – 19.999MHz
			40		20.000 – 23.999MHz
			30		24.000 – 54.000MHz
Shunt capacitance (C0)			3.0	pF	
Load capacitance (CL)		18		pF	Option “blank”; See options
Drive Level		10	100	μW	
Aging	-2		+2	ppm	@25°C±3°C First year
Insulation Resistance	500			MΩ	@ 100Vdc ± 15V

**Note 1:** Operating temperature range option -40°C ~ +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)

ABM3BAIG -  MHz -  -  -  -  -  -

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

**Load Capacitance (pF)**  
 Blank: 18pF  
 If not standard, please specify CL in pF or S for series

**Custom ESR if other than standard**  
 R  
: Specify a value in  $\Omega$   
 (e.g.: R80)

**Operating Temp.**  
 Blank: -40°C ~ +125°C  
 N: -30°C ~ +85°C  
 D: -40°C ~ +85°C  
 J: -40°C ~ +105°C  
 V: -40°C ~ +150°C (\*)  
 (\*) Contact Abracon for Availability

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

**Freq. Stability**  
 Blank:  $\pm 100$  ppm  
 R:  $\pm 150$  ppm  
 Z:  $\pm 50$  ppm  
 P:  $\pm 45$  ppm (\*\*)  
 F:  $\pm 40$  ppm (\*\*)  
 H:  $\pm 35$  ppm (\*\*)  
 Y:  $\pm 30$  ppm (\*\*)  
 W:  $\pm 25$  ppm (\*\*)  
 X:  $\pm 20$  ppm (\*\*)  
 G:  $\pm 15$  ppm (\*\*)  
 (\*\*) Contact Abracon for Availability

**Packaging**  
 Blank: Bulk  
 T: 1k pcs / reel



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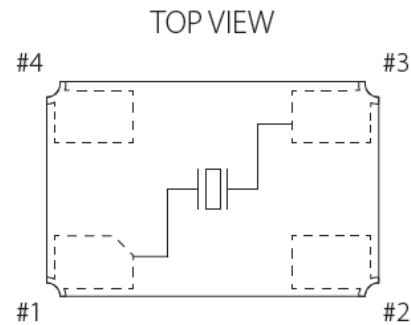
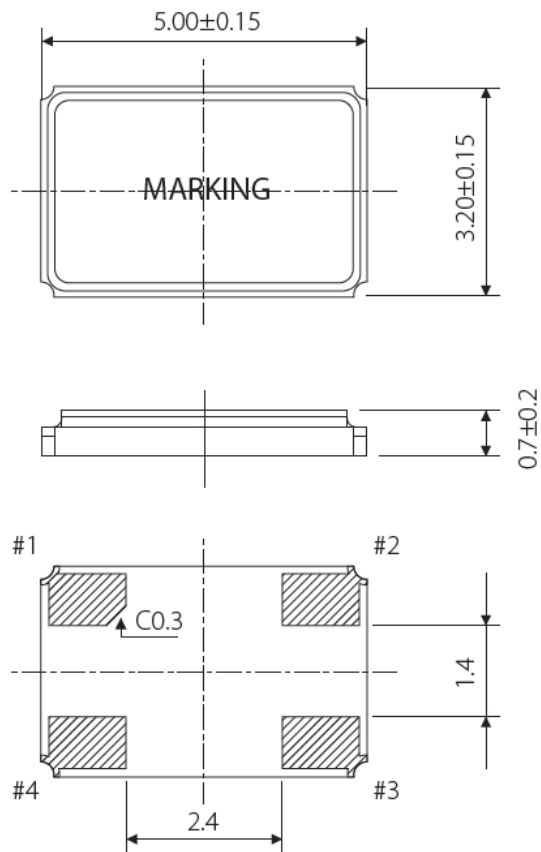
Check Inventory



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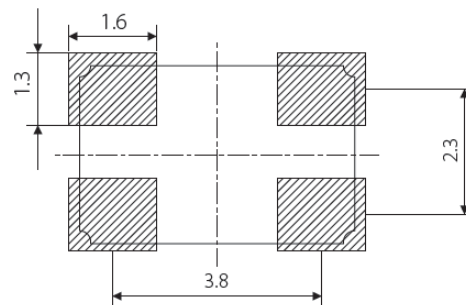
## Mechanical Dimensions



- #1,#3 : Crystal terminal
- #2,#4 : Connected to cover  
(Please connect it with GND.)

Pin #1: Crystal Pin #2: GND (\*)  
Pin #3: Crystal Pin #4: GND (\*)  
(\* Electrically connected to lid)

### 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**

**Sealing Method = Seam Sealing**

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## Reflow Profile [JEDEC J-STD-020]

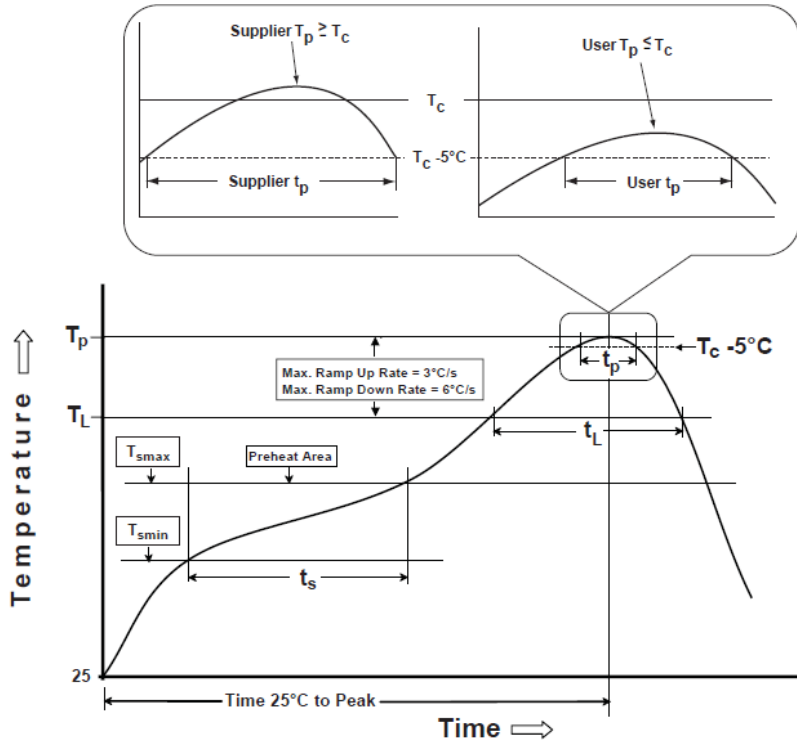


Table 1

SnPb Eutectic Process  
Classification Temperatures ( $T_c$ )

Package Thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> ≥350
<2.5 mm	235 °C	220 °C
≥2.5 mm	220 °C	220 °C

Table 2

Pb-Free Process

Classification Temperatures ( $T_c$ )

Package Thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> 350-2000	Volume mm <sup>3</sup> >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 mm - 2.5 mm	260 °C	250 °C	245 °C
>2.5 mm	250 °C	245 °C	245 °C

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Preheat / soak		
Temperature minimum ( $T_{smin}$ )	100°C	150°C
Temperature maximum ( $T_{smax}$ )	150°C	200°C
Time ( $T_{smin}$ to $T_{smax}$ ) ( $t_s$ )	60 - 120 sec.	60 - 120 sec.
Average ramp-up rate ( $T_{smax}$ to $T_p$ )	3°C/sec. max	3°C/sec. max
Liquidous temperature ( $T_L$ )	183°C	217°C
Time at liquidous ( $t_L$ )	60 - 150 sec.	60 - 150 sec.
Peak package body temperature ( $T_p$ )*	see Table 1	see Table 2
Time ( $t_p$ )** within 5°C of the specified classification temperature ( $T_c$ )	20 sec.	30 sec.
Ramp-down rate ( $T_p$ to $T_{smax}$ )	6°C/sec. max	6°C/sec. max
Time 25°C to peak temperature	6 min. max	8 min. max
Reflow cycles	2 max	2 max

\*Tolerance for peak profile temperature ( $T_p$ ) is defined as a supplier minimum and a user maximum.

\*\*Tolerance for time at peak profile temperature ( $t_p$ ) is defined as supplier minimum and a user maximum.

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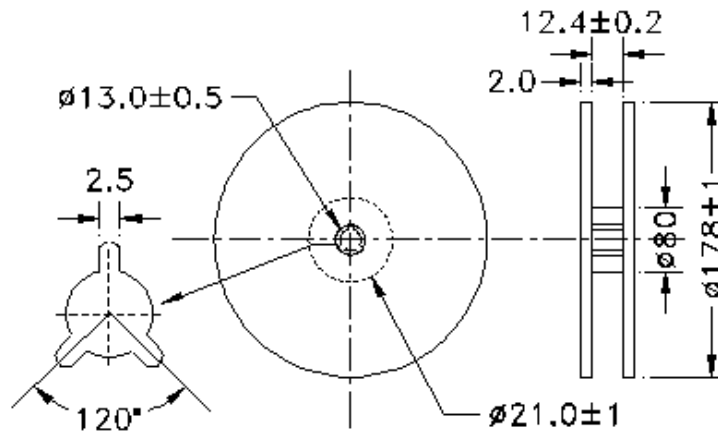
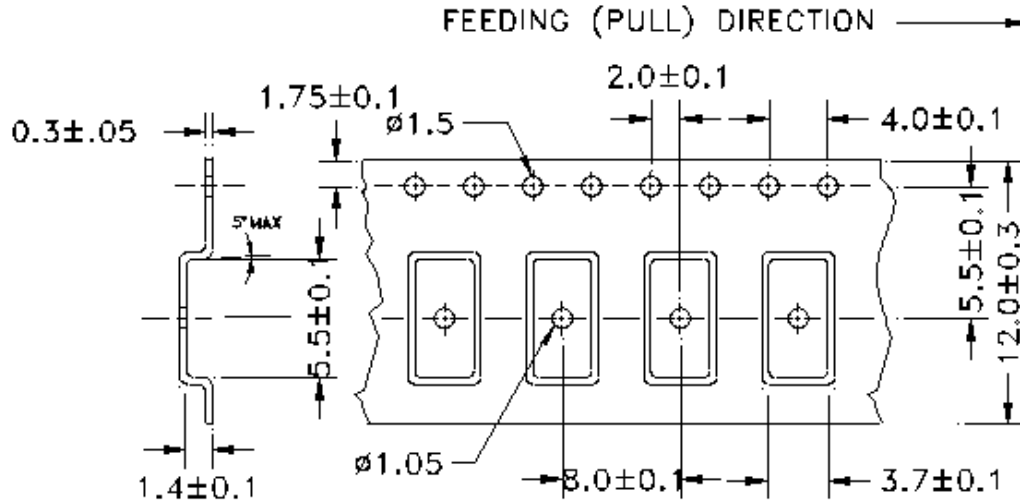


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MSL Level = N/A



## Packaging:

T: 1000pcs/reel



Dimensions: mm

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