

# MINIATURE CERAMIC SMD CRYSTAL

## ABM12 Series

Request Samples



Check Inventory



1.6 x 1.2 x 0.45 mm  
RoHS/RoHS II Compliant  
MSL Level = N/A

### Features

- Suitable for RoHs reflow profile
- Available tight tolerance and stability
- Electron beam sealed ceramic package assures high precision and reliability

### Applications

- Bluetooth, Wireless applications
- Computers, Modems, Microprocessors
- Communication, Test equipment
- High density applications
- PCMCIA

### Key Electrical Specifications

Parameters	Minimum	Typical	Maximum	Units	Notes
Frequency Range	24.000		80.000	MHz	
Standard Frequencies	26.000, 32.000 and 36.000MHz				(Contact Abracon for other frequencies)
Operation Mode	Fundamental				
Operating Temperature	-10		+50	°C	Option “blank”; See options
Storage Temperature	-40		+85	°C	
Frequency Tolerance @+25°C	-50		+50	ppm	Option “blank”; See options
Frequency Stability over the Operating Temperature (ref. to +25°C)	-50		+50	ppm	Option “blank”; See options
Equivalent series resistance (R1)			200	Ω	24.000~39.999MHz
			100		40.000~80.000 MHz
Shunt capacitance (C0)			5	pF	
Load capacitance (CL)	8			pF	Option “blank”; See options
Drive Level		10	100	μW	
Aging	-5		+5	ppm	@ 25°C±3°C First year
Insulation Resistance	500			MΩ	@ 100Vdc ± 15V



5101 Hidden Creek Ln Spicewood TX 78669  
Phone: 512-371-6159 | Fax: 512-351-8858  
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[www.abracon.com](http://www.abracon.com)

REVISED: 02-18-22

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## Options And Part Identification (Left Blank If Standard)

ABM12-  MHz-  -R  -   -

**Frequency in MHz**  
 Please specify the Frequency in MHz.  
 e.g. 26.000MHz

Load Capacitance
Blank: 8pF
5: 5pF
6: 6pF
7: 7pF

Contact Abracon for other values

**Custom ESR if other than standard**  
 R  
: Specify a value in  $\Omega$   
 (e.g.: R40)

Operating Temp.
Blank: -10°C ~ +50°C
A: -10°C ~ +60°C
B: -20°C ~ +70°C
D: -40°C ~ +85°C

Packaging
Blank: Bulk
T: 1kpcs / reel
T3: 3kpcs / reel

Freq. Stability
Blank: $\pm 50$ ppm
U: $\pm 10$ ppm (*)
G: $\pm 15$ ppm (*)
X: $\pm 20$ ppm (*)
Y: $\pm 30$ ppm
Q: $\pm 100$ ppm

(\*) Contact ABRACON for availability

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

(\*) Contact ABRACON for availability



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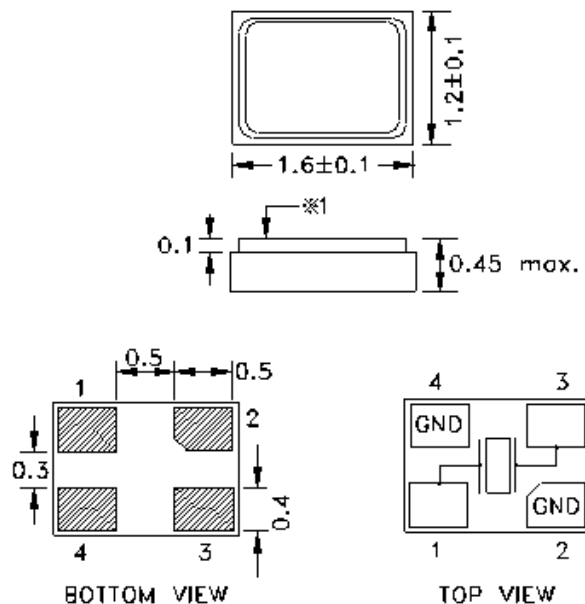
Check Inventory



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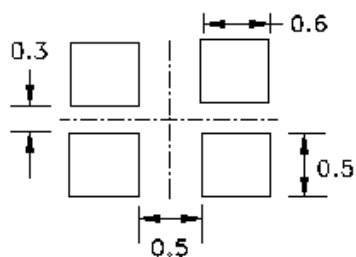


## Mechanical Dimensions



Pin 2 and pin 4 are connected to the metal lid (\*1). (Please connect to GND)

### Recommended land pattern



### Dimensions: mm

**Note 1:** Due to material availability, the outline and finish color of the component lid may vary. This variation in no way affects the electrical performance of the product.

**Note 2:** Due to material availability the Chamfer could be located on pin #1, 2 or 4. Be advised that the Chamfer location has no impact on the electrical performance of the device.

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

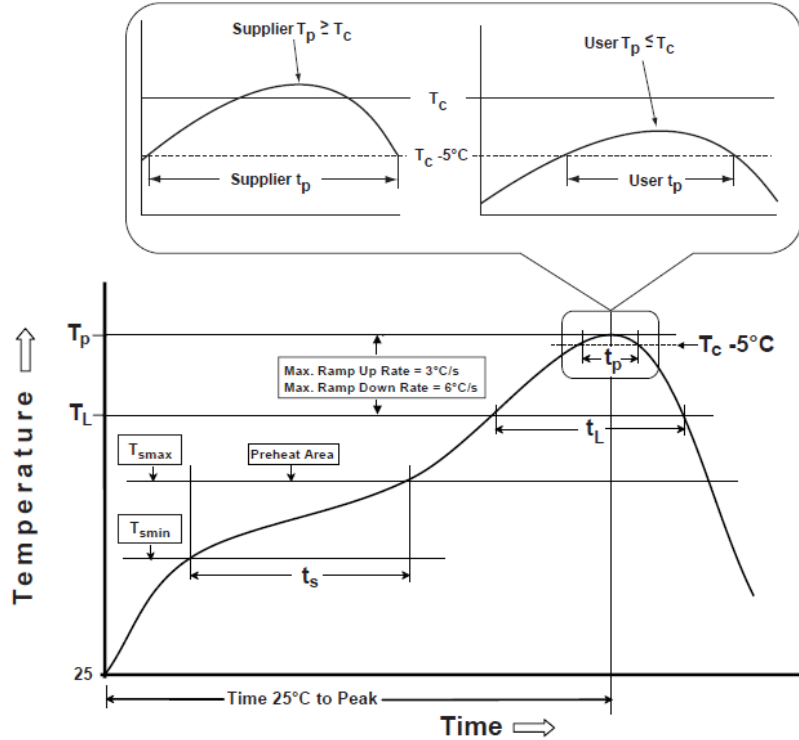


Table 1

### SnPb Eutectic Process Classification Temperatures ( $T_c$ )

Package Thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> $\geq$ 350
<2.5 mm	235 °C	220 °C
$\geq$ 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
$\geq$ 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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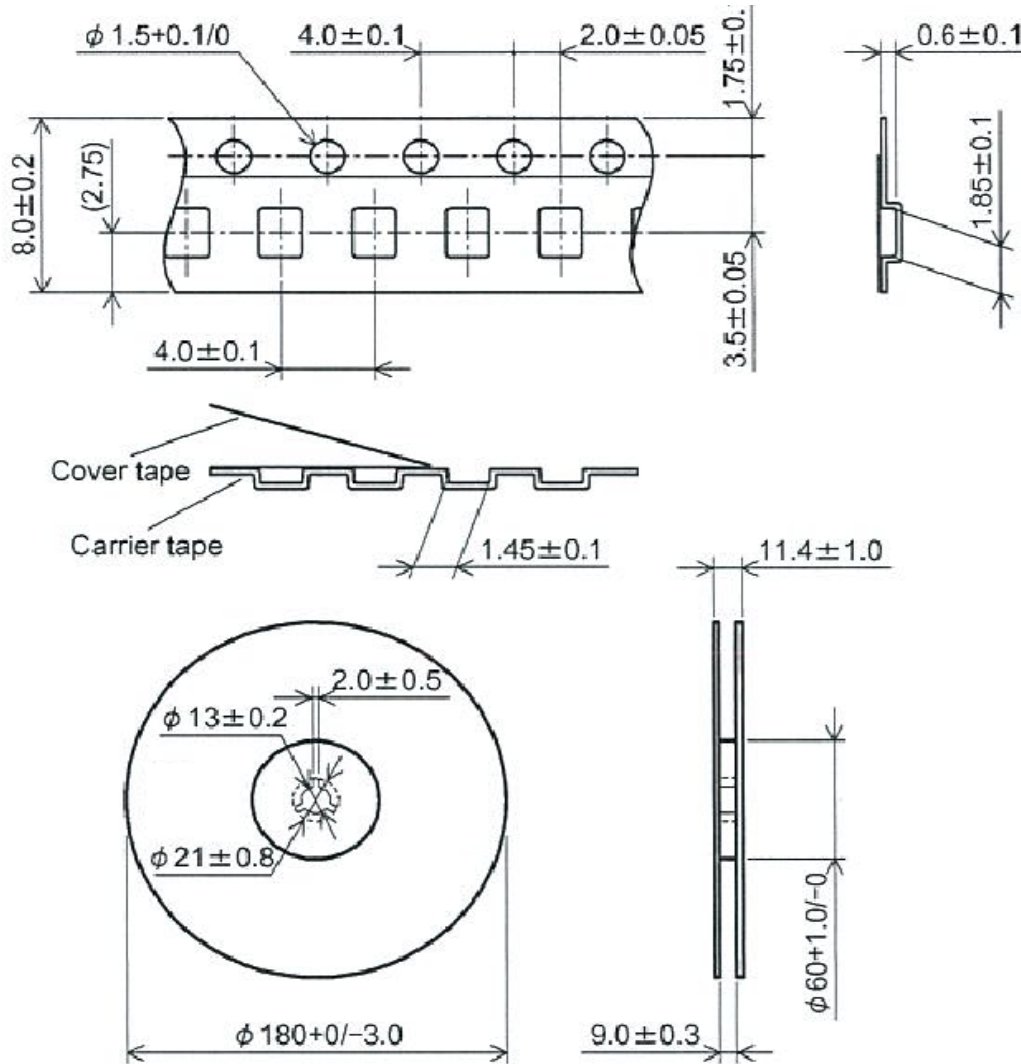
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## Packaging

Option "-T": Tape and reel (1,000pcs/reel)

Option "-T3": Tape and reel (3,000pcs/reel)



Dimension s: m m

**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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