

Automotive & Industrial Grade 32.768kHz Ceramic Base SMD Crystal

ABS07AIG

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3.2 x 1.5 x 0.9 mm
RoHS/RoHS II Compliant
MSL = N/A: Not Applicable

Features

- AEC-Q200 Qualified
- Automotive Grade 1: -40°C to +125°C
- 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	32.768			kHz	
Operation Mode	Flexural Mode (Tuning Fork)				
Operating Temperature	-40		+125	°C	Option "blank"; See options
Storage Temperature	-55		+125	°C	
Frequency Tolerance @ +25°C	-10		+10	ppm	Option "1"; See options
	-20		+20		Option "blank"; See options
Temperature Coefficient	-0.040	-0.036		ppm/T ²	
Turn-over Temperature	+20	+25	+30	°C	
Frequency stability over operating temperature, relative to in-circuit measured frequency post-reflow	-160		-100	ppm	Over -40°C to +85°C
	-250		-100		Over -40°C to +105°C
	-450		-100		Over -40°C to +125°C
Equivalent series resistance (R1)			45	kΩ	@ +25±3°C
			50		Over -40°C to +85°C
			60		Over -40°C to +105°C
			70		Over -40°C to +125°C
Shunt capacitance (C0)		<1.4		pF	
Motional capacitance (C1)		4.7		fF	
Load capacitance (CL)	12.5			pF	Option "blank"; See options
Drive Level		0.1	0.5	μW	
Q value	10000	30000			
Aging	-3		+3	ppm	@25°C± 3°C First year
Insulation Resistance	500			MΩ	@100 Vdc

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Options and Part Identification (left blank if standard)

ABS07AIG-32.768 kHz - ○ - ○ - ○ - ○

Load Capacitance
Blank: 12.5pF
9: 9pF
7: 7pF
6: 6pF
5: 5pF

Operating Temp.Range
Blank: -40 ~ +125°C
D: -40 ~ +85°C
J: -40°C to +105°C

Freq. Tolerance
Blank: ±20ppm
1: ±10ppm
4: ±30ppm

Packaging
Blank: Bulk
T: 3k pcs / reel
T9: 9k pcs / reel

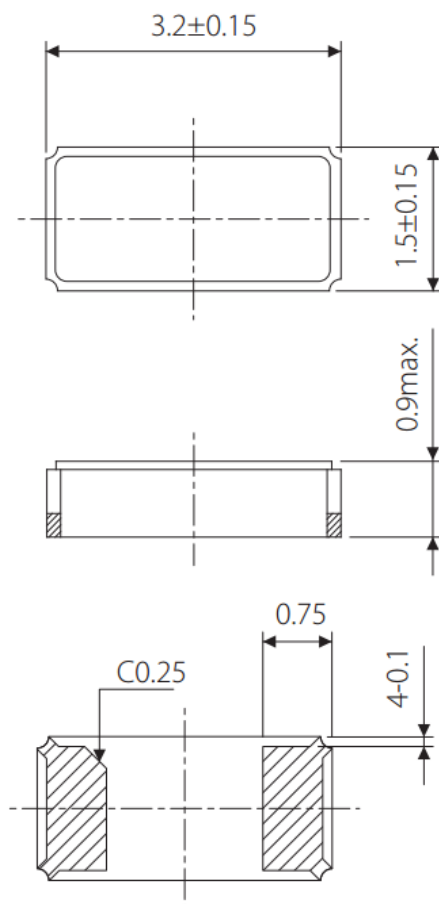


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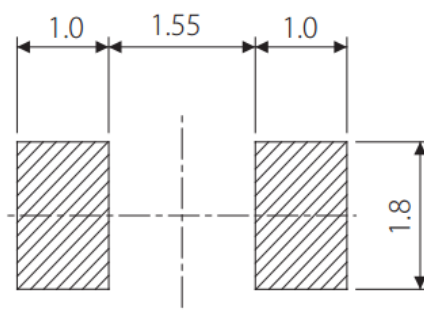


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Mechanical Dimensions



Recommended Land Pattern



Dimensions: mm

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Reflow Profile [JEDEC J-STD-020]

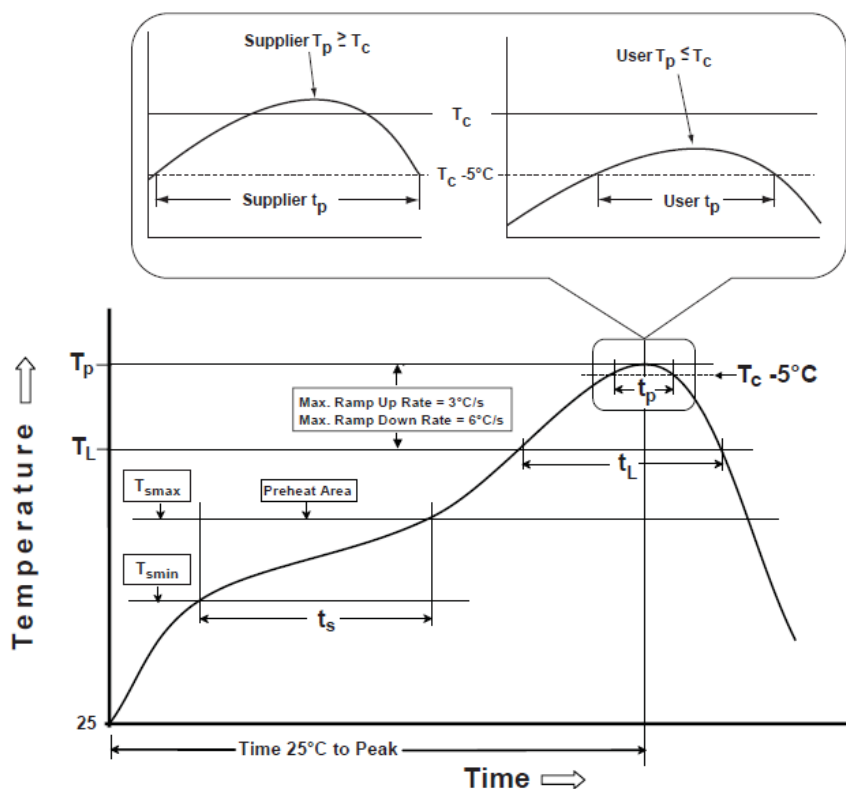


Table 1

SnPb Eutectic Process
Classification Temperatures (T_c)

Package Thickness	Volume mm ³ <350	Volume mm ³ >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 ³ <350	Volume mm ³ 350-2000	Volume mm ³ >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 a supplier minimum and a user maximum.

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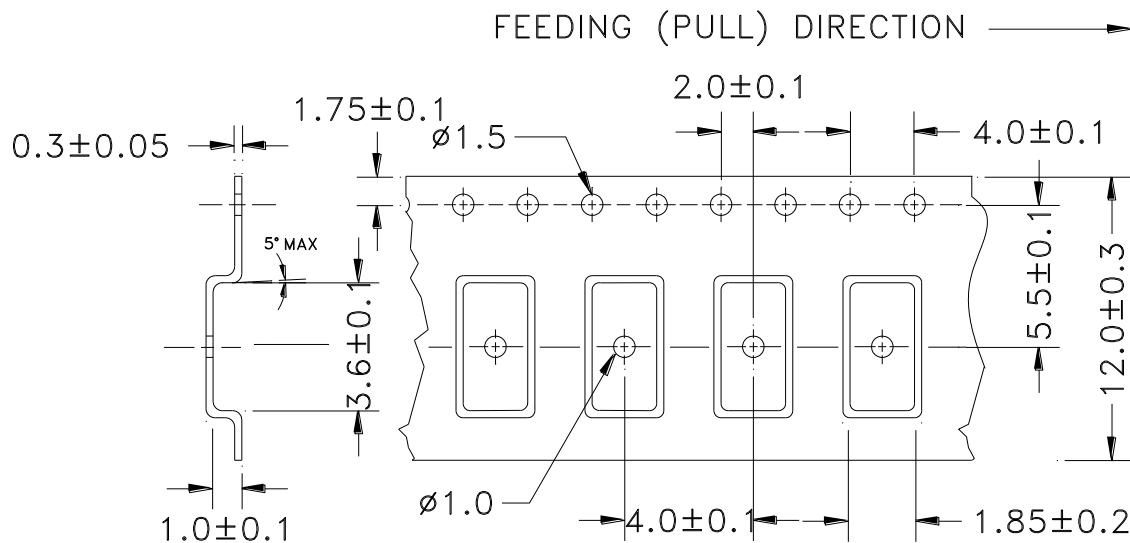


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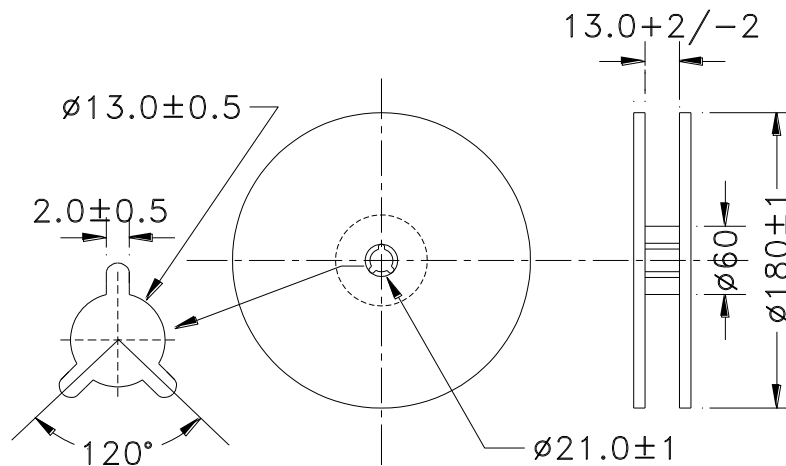
Packaging

T=Tape and reel (3,000pcs/reel)

T9=Tape and reel (9,000pcs/reel)



Reel=3,000pcs



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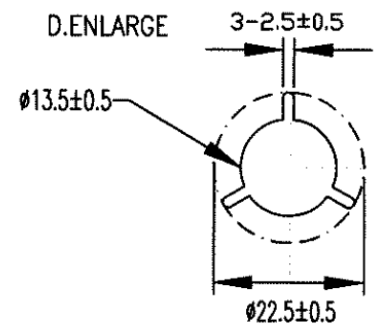
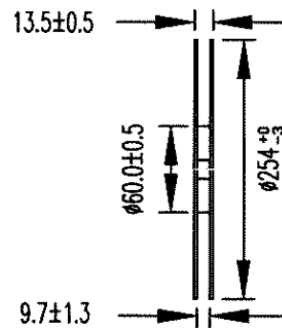
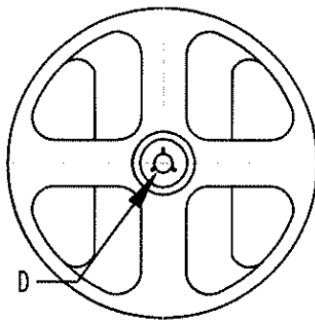
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Packaging

Reel=9,000pcs



Dimensions: mm

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