32.768kHz SMD Crystal

ABS07

Request Samples ⊘   Check Inventory ⊘

3.2 x 1.5 x 0.9 mm
RoHS/RoHS II Compliant
MSL Level = N/A

Features

- Low frequency in small size SMD
- 0.9mm height ideal for high density circuit boards
- Seam sealed ceramic package offers excellent environmental & heat resistance
- Extended temperature -55°C to +125°C for industrial applications

Applications

- Wide range in communication & measuring equipment
- Commercial & Industrial applications
- Wireless communications

Key Electrical Specifications

Parameters	Min.	Typ.	Max.	Units	Notes
Frequency		32.768		kHz	
Operation Mode		Flexural Mode (Tuning Fork)			
Operating Temperature	-40		+85	ºC	Option "blank"; See options
Storage Temperature	-55		+125	ºC	
Frequency Tolerance @+25°C	-20		+20	ppm	Option "blank"; See options
Temperature Coefficient:	-0.040	-0.036		ppm/T²	
Turn-over temperature:	+20	+25	+30	ºC	
Equivalent series resistance (R1)			70	kΩ	-40 ~ +85°C
			95		-40 ~ +125°C
			95		-55 ~ +125°C
Shunt capacitance (C0)		0.9 ~ 1.2	2.0	pF	
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	@ 100Vdc ± 15V

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Frequency vs. Temperature Characteristics
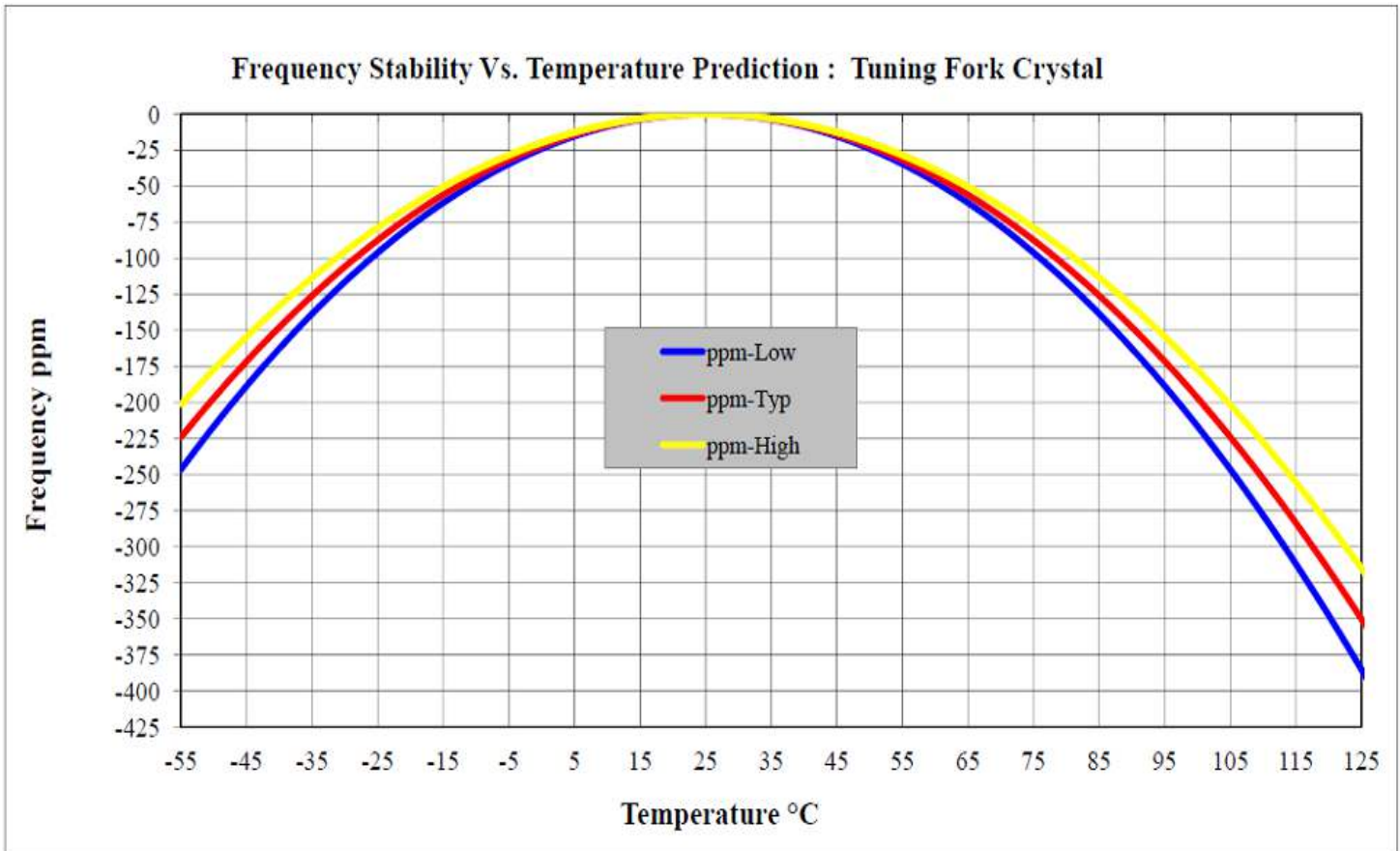
Frequency Stability Vs. Temperature Prediction : Tuning Fork Crystal

Legend:
- ppm-Low
- ppm-Typ
- ppm-High

Y-axis: Frequency ppm (0 to -425)
X-axis: Temperature °C (-55 to 125)

ABRACON

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For terms and conditions of sales, please visit:
www.abracon.com

REVISED: 08-10-22

ABRACON IS
ISO9001-2015
CERTIFIED

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🚫Pb

Options and Part Identification (Left blank if standard)

ABS07☐- 32. 768 kHz - ☐ - ☐ - ☐ - ☐

Height
Blank: 0.9mm max.
1: 0.65mm max.

Load Capacitance
Blank: 12.5pF
9: 9pF
7: 7pF
6: 6pF
4P: 4pF **(*)**

Operating Temp. Range
Blank: -40 ~ +85°C
H: -40 ~ +125°C
W: -55 ~ +125°C

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

Packaging
Blank: Bulk
T: 3k pcs / reel

(*) Only available with standard height=0.9mm max
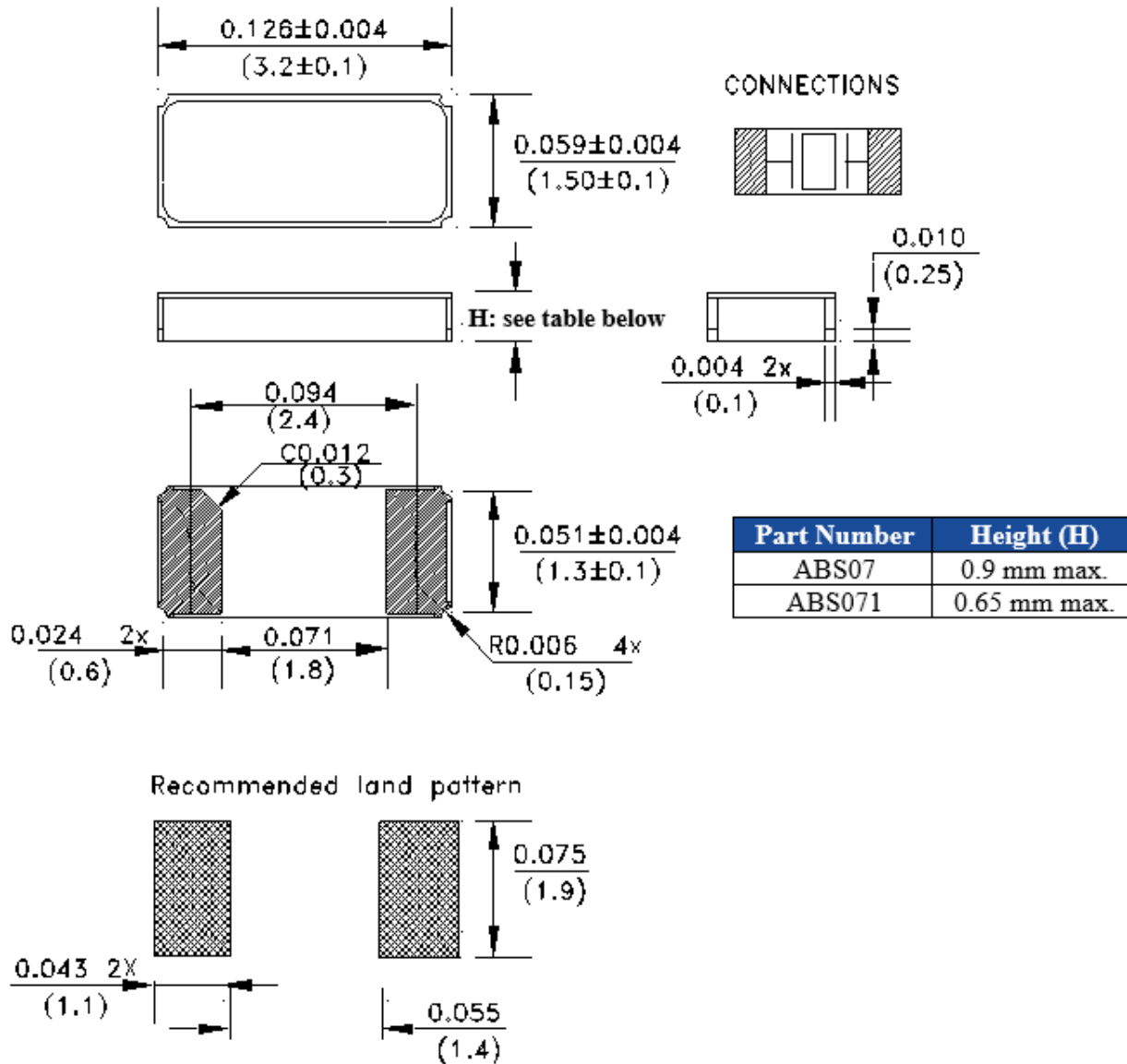
32.768kHz SMD Crystal

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3.2 x 1.5 x 0.9 mm
RoHS/RoHS II Compliant
🚫 Pb
MSL Level = N/A

Mechanical Dimensions

CONNECTIONS

0.126±0.004
(3.2±0.1)

0.059±0.004
(1.50±0.1)

H: see table below

0.010
(0.25)

0.004 2x
(0.1)

0.094
(2.4)

C0.012
(0.3)

0.051±0.004
(1.3±0.1)

0.024 2x
(0.6)

0.071
(1.8)

R0.006 4x
(0.15)

Part Number	Height (H)
ABS07	0.9 mm max.
ABS071	0.65 mm max.

Recommended land pattern

0.075
(1.9)

0.043 2X
(1.1)

0.055
(1.4)

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

Sealing Method = Seam Sealing

Dimensions: inches (mm)

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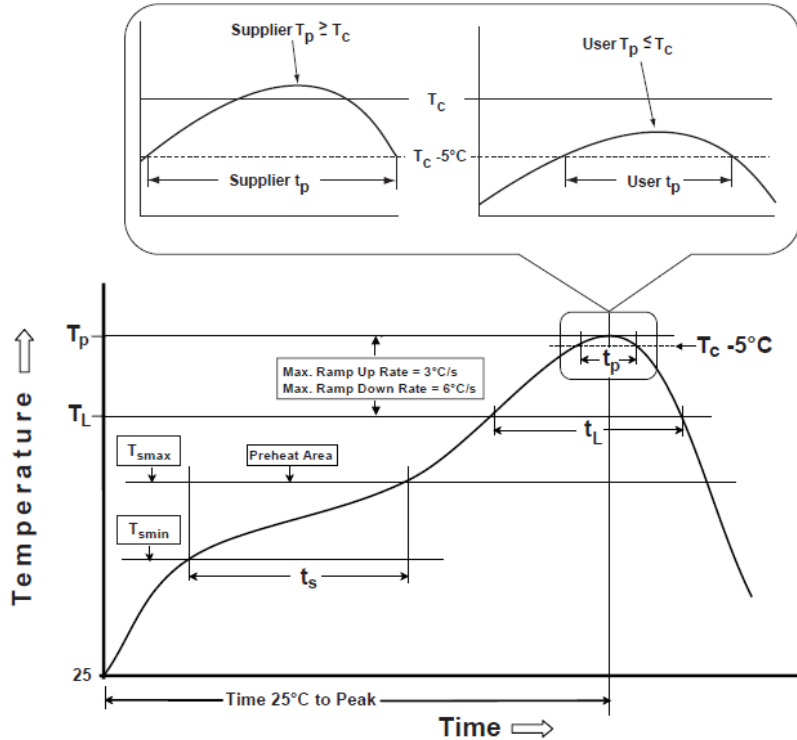MSL Level = N/A

Reflow Profile [JEDEC J-STD-020]

Table 1

SnPb Eutectic Process Classification Temperatures (T$_c$)		
Package Thickness	**Volume mm³ <350**	**Volume mm³ ≥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 mm³ <350**	**Volume mm³ 350-2000**	**Volume mm³ >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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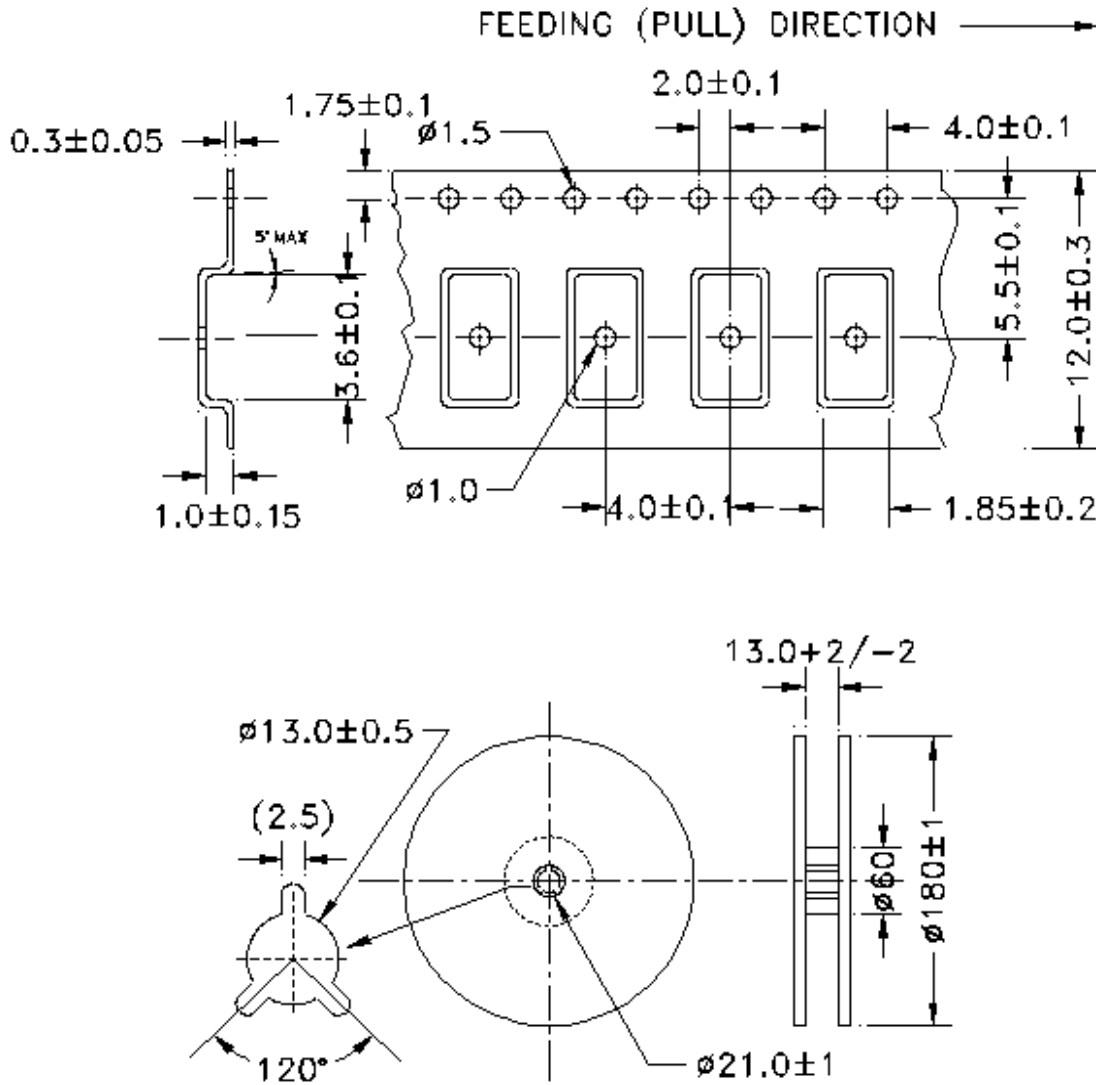
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Packaging

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

Dimensions: mm