ABS06N series

32.768kHz SMD Crystal

Description

The ABS06N series is a tuning fork 32.768kHz quartz crystal offered in a 2.0mm x 1.2mm x 0.6mm two-pad SMD package. The ABS06N series offers industry standard frequency accuracy @ +25°C±3°C (±20ppm), operating temperature range (-40°C to +85°C), load capacitance (CL), and Equivalent Series Resistance (ESR) electrical performance options that are commonly integrated into commercial and industrial end applications such as communication equipment, measuring equipment, and wireless devices.

Features

- Ceramic package offers excellent environmental & heat resistance
- REACH/RoHS II Compliant | MSL Level N/A

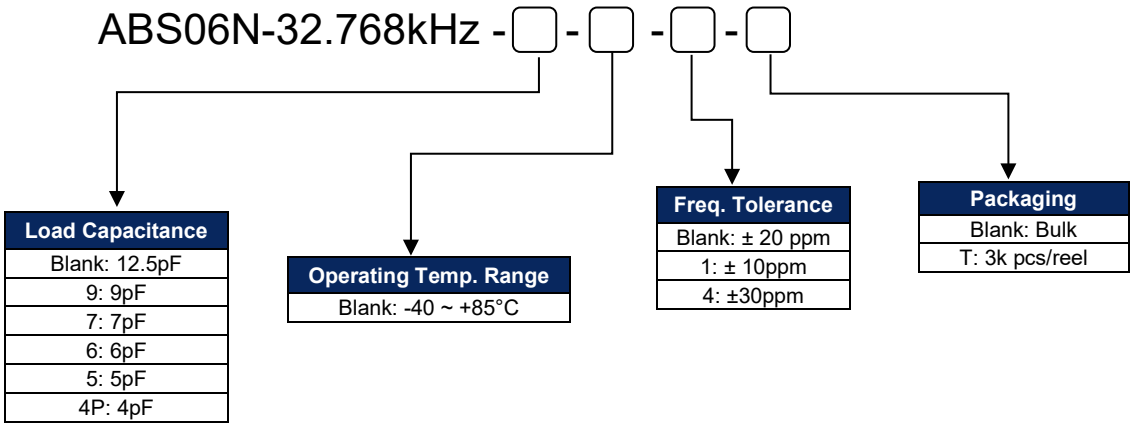
Typical Applications

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

Electrical Specifications

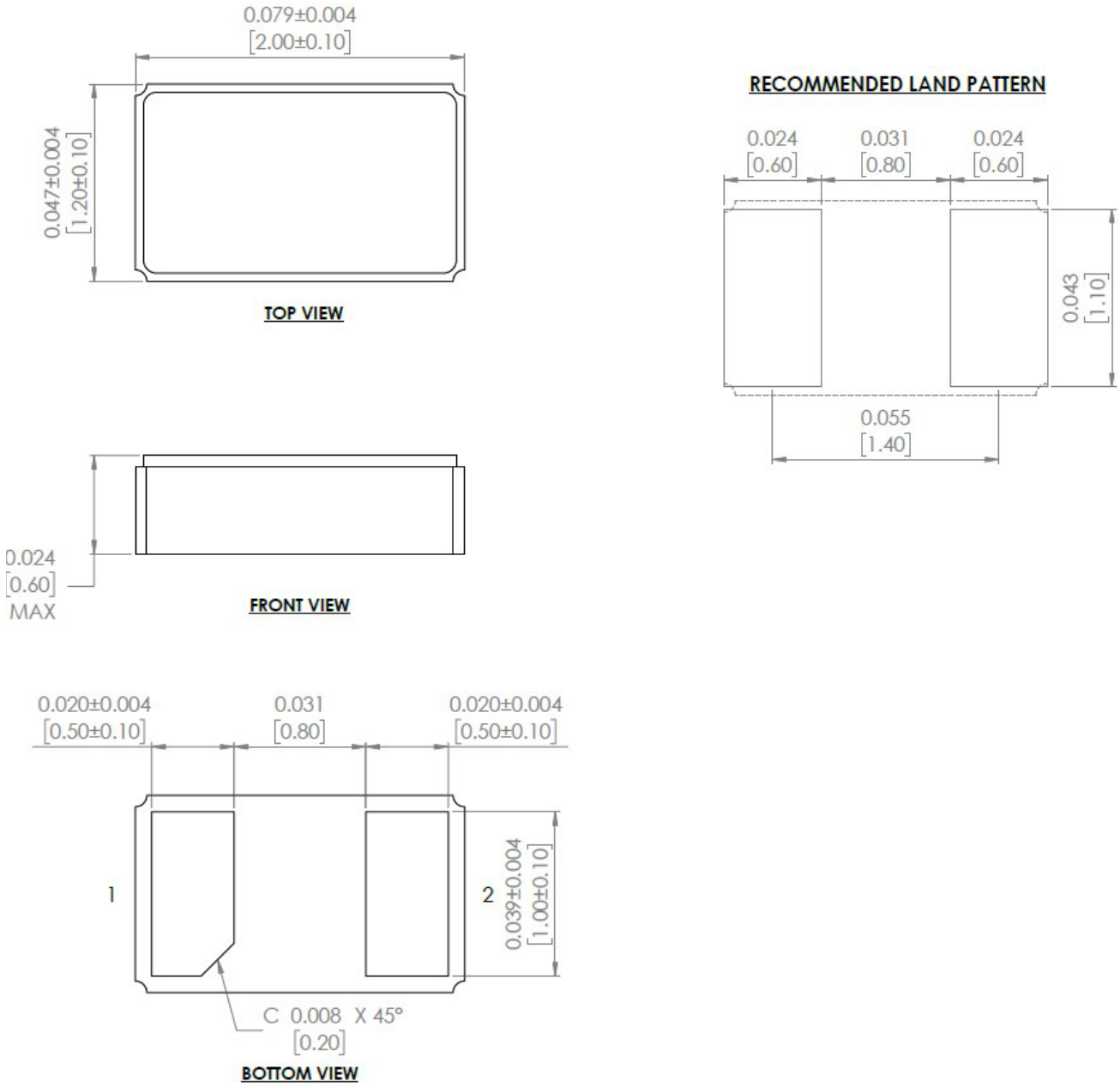
Parameters	Min.	Typ.	Max.	Units	Notes
Frequency		32.768		kHz	
Operation Mode		Flexural Mode (Tuning Fork)			
Operating Temperature Range	-40		+85	ºC	
Storage Temperature Range	-55		+125	ºC	
Frequency Tolerance @ +25°C±3°C	-20		+20	ppm	*See options*
Temperature Coefficient	-0.040		-0.020	ppm/C^2	
Turn-over Temperature	+20	+25	+30	ºC	
Equivalent Series Resistance (R1)			50	kΩ	
Shunt capacitance (C0)		1.8		pF	
Load Capacitance (CL)		12.5		pF	*See options*
Drive Level		0.1	0.5	µW	
Aging (First year) @ +25°C	-3		+3	ppm	
Insulation Resistance	500			MΩ	@ 100Vdc ± 15V

Part Identification



\

Mechanical Dimensions



Dimensions: inches (mm)

Reflow Profile [JEDEC J-STD-020]

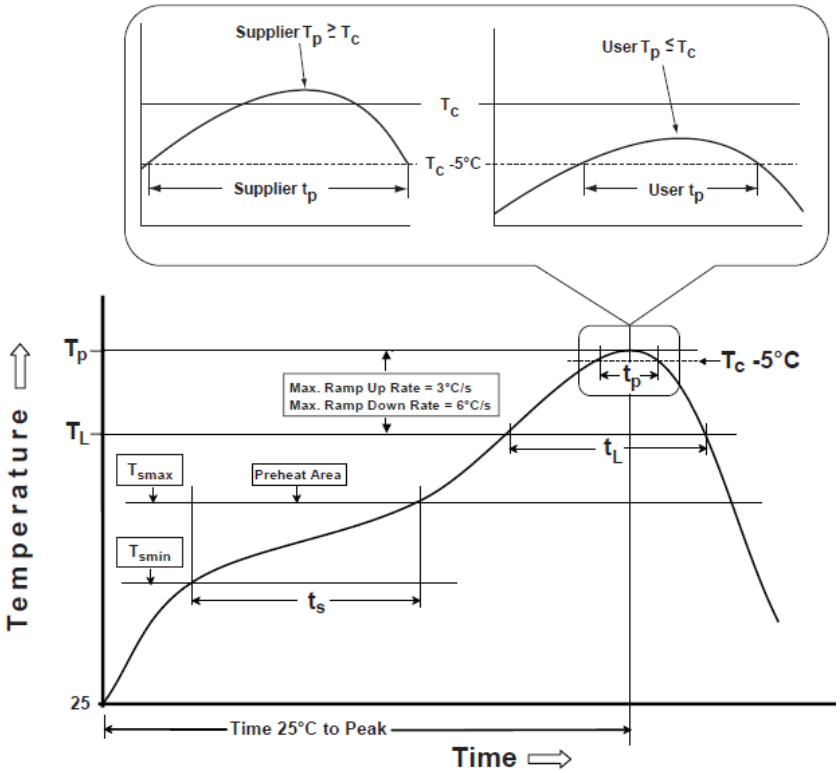


Table 1

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

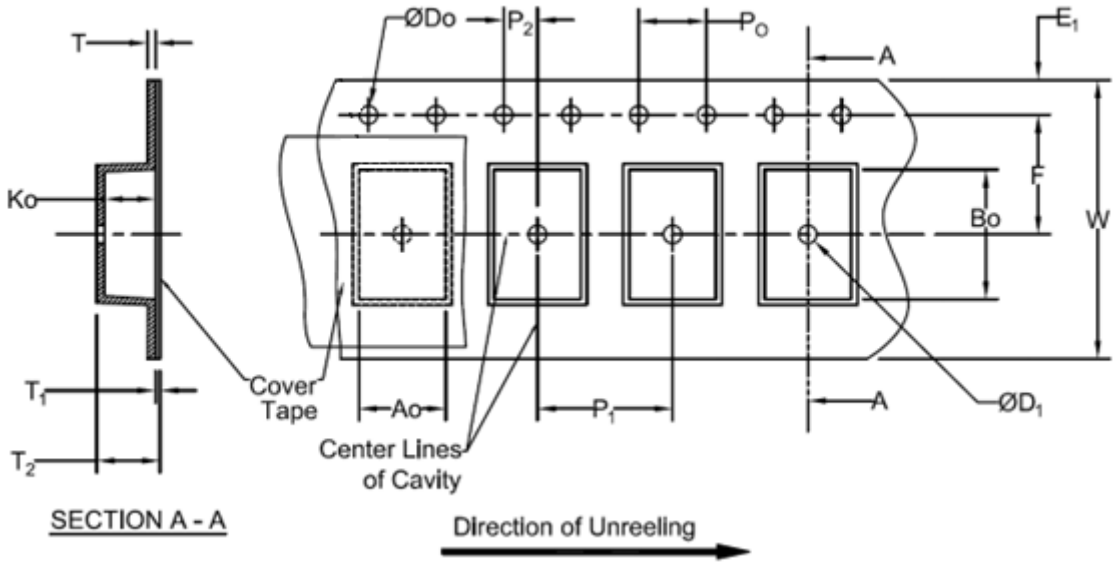
Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Preheat / soak		
Temperature minimum (T_{smin})	100°C	150°C
Temperature maximum (T_{smax})	150°C	200°C
Time (T_{smin} to T_{smax}) (t_s)	60 - 120 sec.	60 - 120 sec.
Average ramp-up rate (T_{smax} to T_P)	3°C/sec. max	3°C/sec. max
Liquidous temperature (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.

Packaging

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

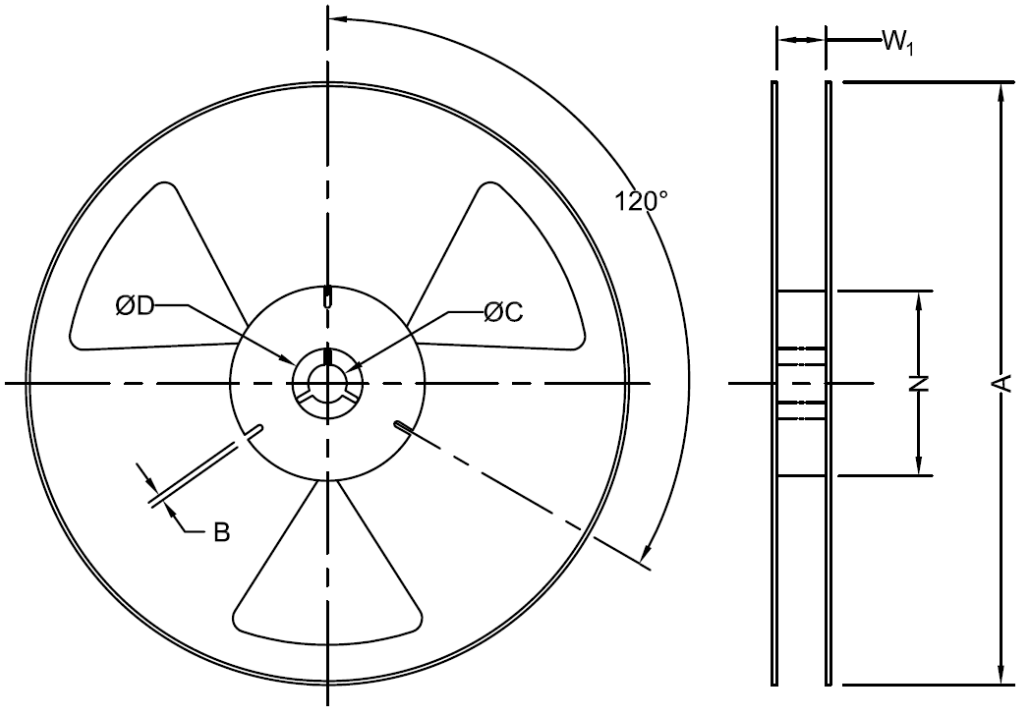


Tape Specifications (mm)							
Width	Ao	Bo	Do	D_1 (min)	E_1	F	Ko
8mm	*	*	1.5+0.1/-0.0	1.0	1.75±0.1	3.5±0.05	*
Width	P_1	P_2	P_0	T (Max)	T_1 (Max)	T_2 (Max)	W (Max)
8mm	4.0±0.1	2.0±0.05	4.0±0.1	0.6	0.1	2.5	8.3

***Note: Compliant to EIA-481**

Dimensions: mm

Packaging *continued*



Reel Specifications (mm)							
Width	Qty/Reel	A (Nom)	B (Min)	C (Min)	D (Min)	N (Min)	*W_1
8mm	3000	178	1.5	13.0+0.5/-0.2	20.2	50	8.4+1.5/-0.0

***Note: Measured at Hub**

Dimensions: mm