

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](#)

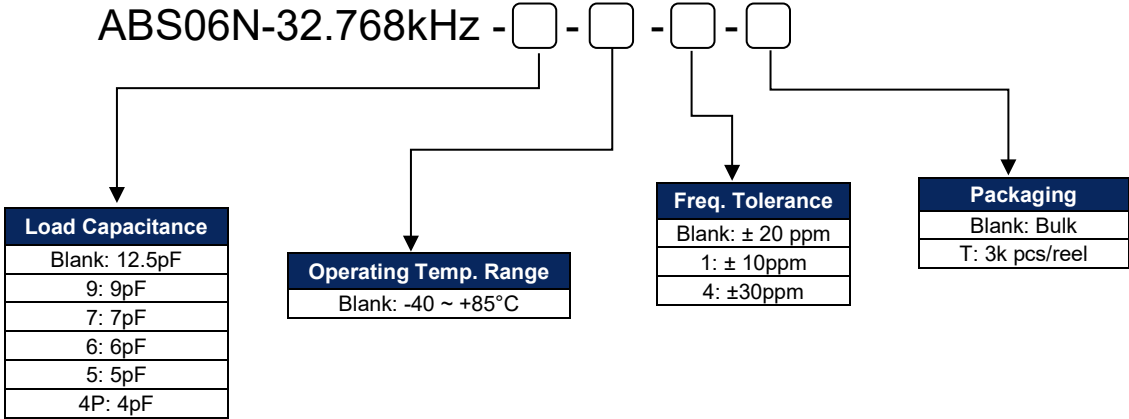
Typical Applications

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

Electrical Specifications

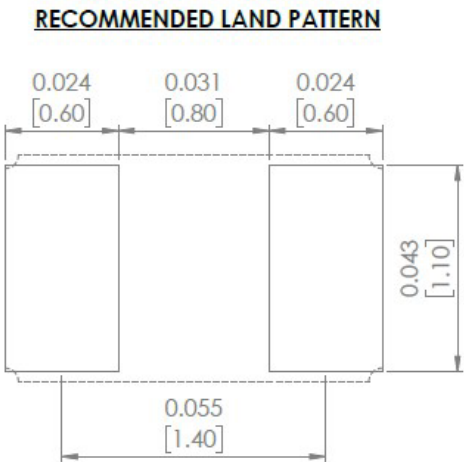
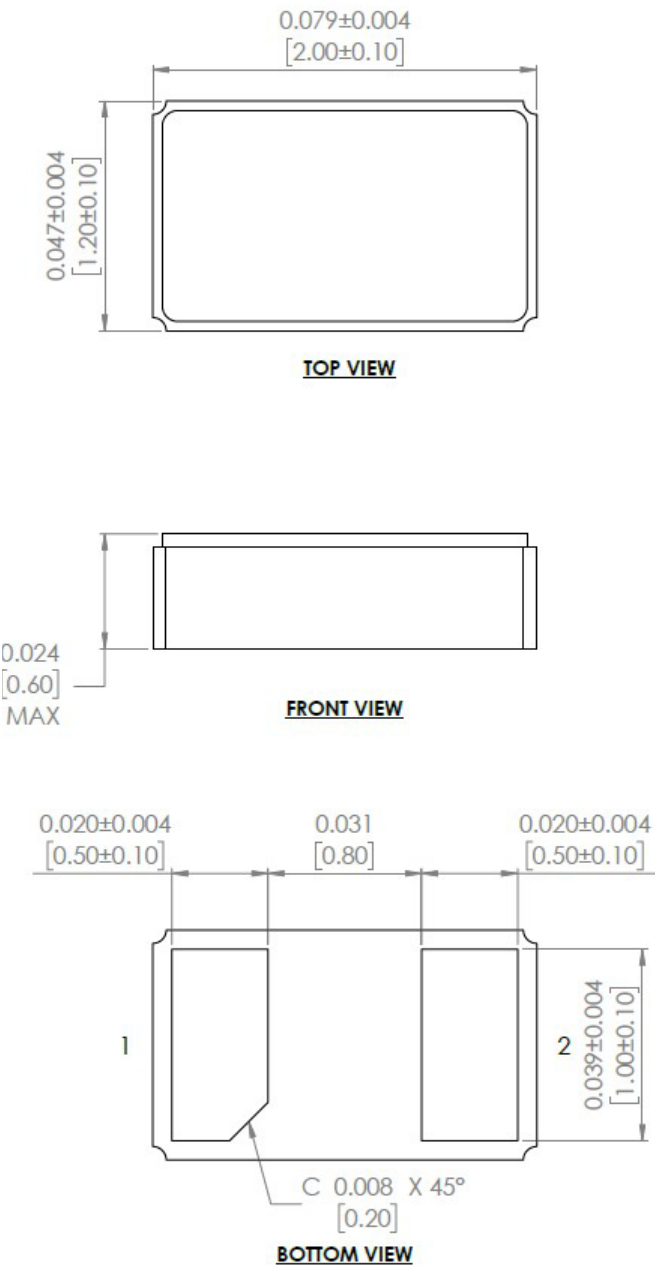
| Parameters | Min. | Typ. | Max. | Units | Notes |
|-----------------------------------|-----------------------------|------|--------|---------------------|-----------------------------|
| Frequency | 32.768 | | | kHz | |
| Operation Mode | Flexural Mode (Tuning Fork) | | | | |
| Operating Temperature Range | -40 | | +85 | °C | |
| Storage Temperature Range | -55 | | +125 | °C | |
| 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 | °C | |
| 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



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Mechanical Dimensions



Dimensions: inches (mm)

Reflow Profile [JEDEC J-STD-020]

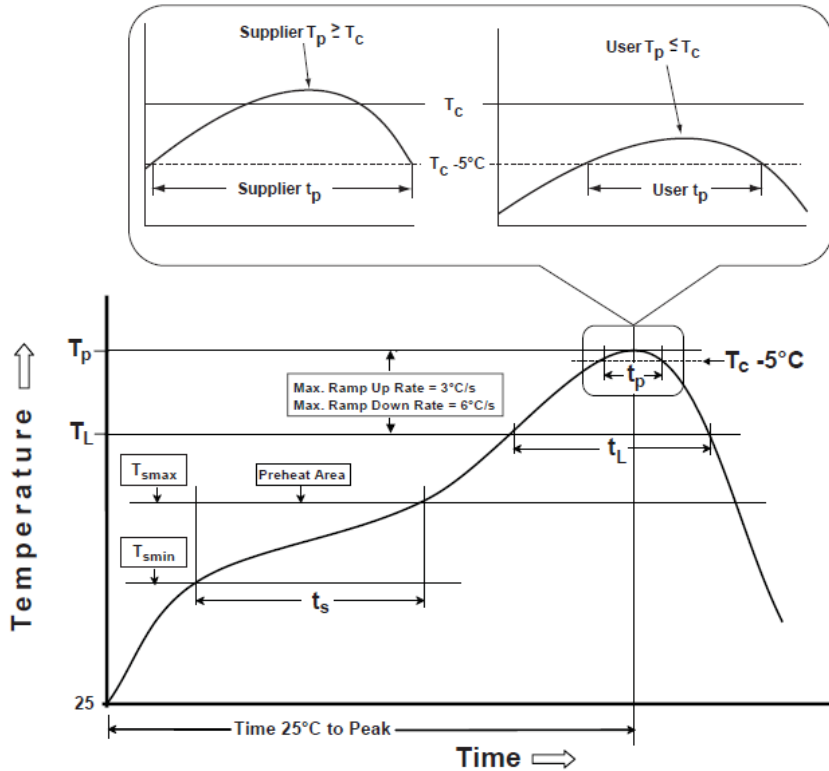


Table 1

| 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 |

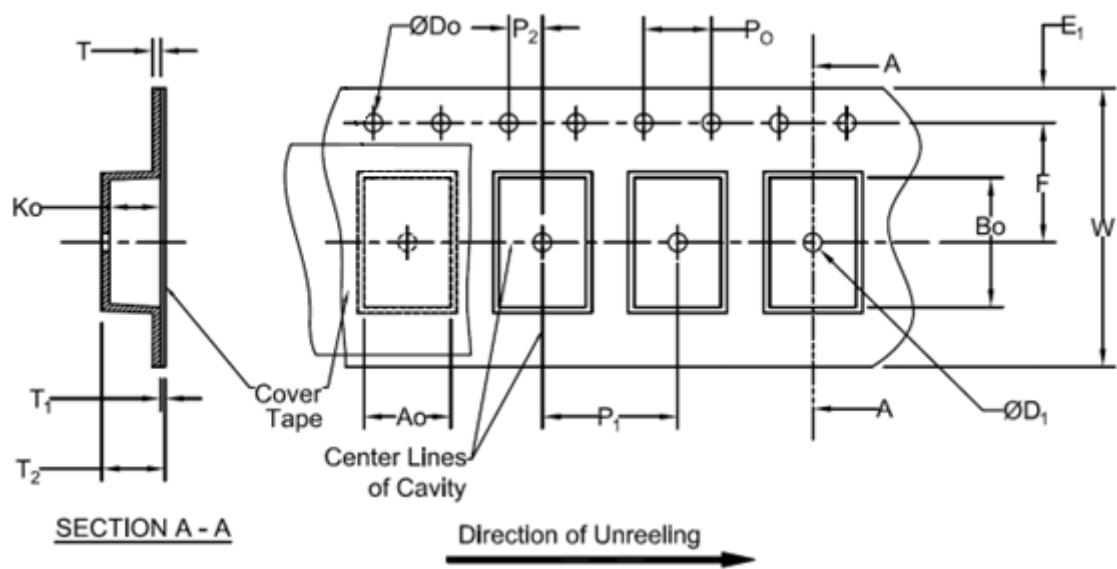
| Profile Feature | Sn-Pb Eutectic Assembly | Pb-Free Assembly |
|---|-------------------------|------------------|
| Preheat / soak | | |
| Temperature minimum (T_{smin}) | 100°C | 150°C |
| Temperature maximum (T_{smax}) | 150°C | 200°C |
| Time (T_{smin} to T_{smax}) (t_s) | 60 - 120 sec. | 60 - 120 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 supplier minimum and a user maximum.

Packaging

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

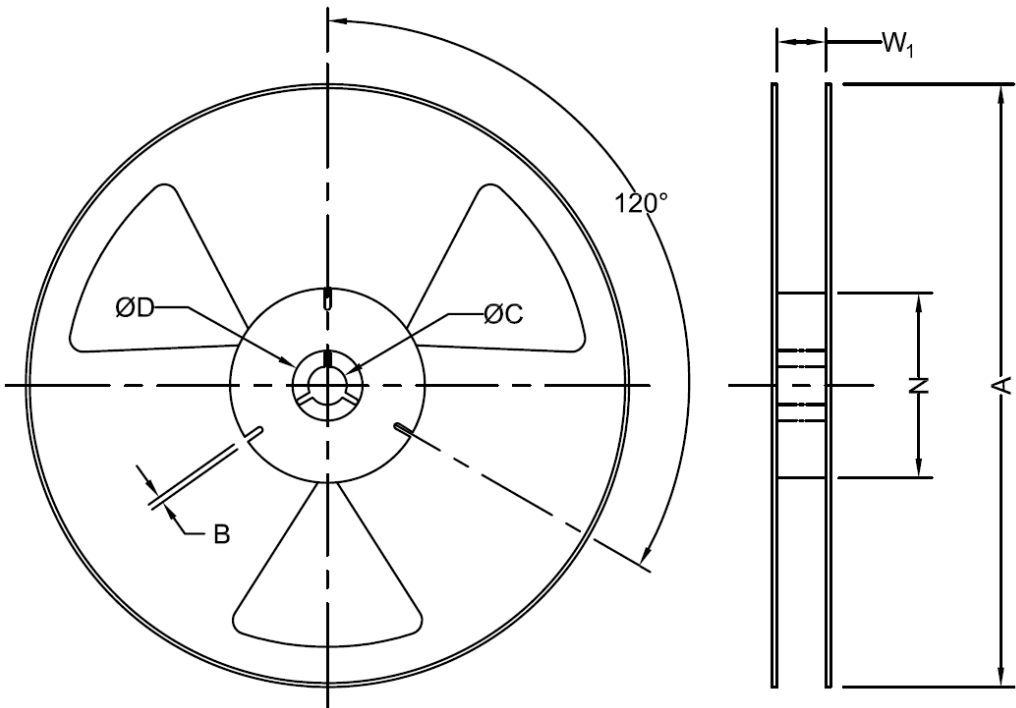


| Tape Specifications (mm) | | | | | | | |
|--------------------------|---------|----------|--------------|----------|----------|----------|---------|
| Width | Ao | Bo | Do | D1 (min) | E1 | F | Ko |
| 8mm | * | * | 1.5+0.1/-0.0 | 1.0 | 1.75±0.1 | 3.5±0.05 | * |
| Width | P1 | P2 | P0 | T (Max) | T1 (Max) | T2 (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

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