

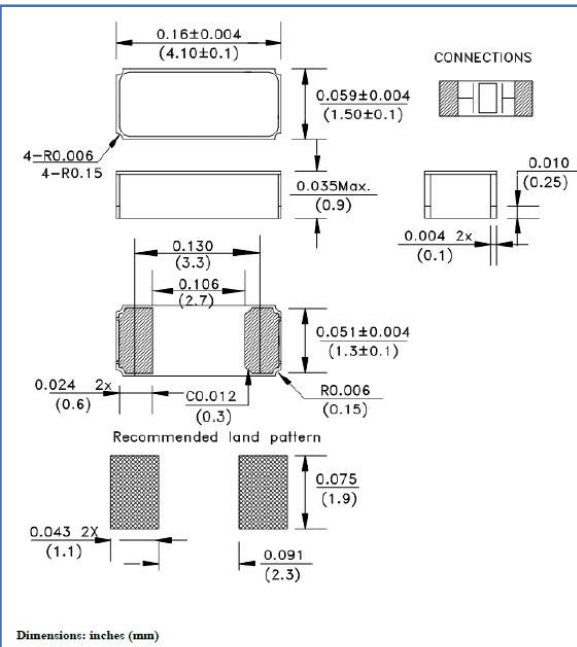
ECN/PCN No.: 4548

For Manufacturer

Product Description: 32.768KHZ SMD LOW PROFILE CRYSTAL	Abrakon Part Number / Part Series: ABS09	<input type="checkbox"/> Documentation only <input checked="" type="checkbox"/> Series <input checked="" type="checkbox"/> ECN <input type="checkbox"/> Part Number <input type="checkbox"/> EOL
Affected Revision: J	New Revision: K	Application: <input type="checkbox"/> Safety <input checked="" type="checkbox"/> Non-Safety

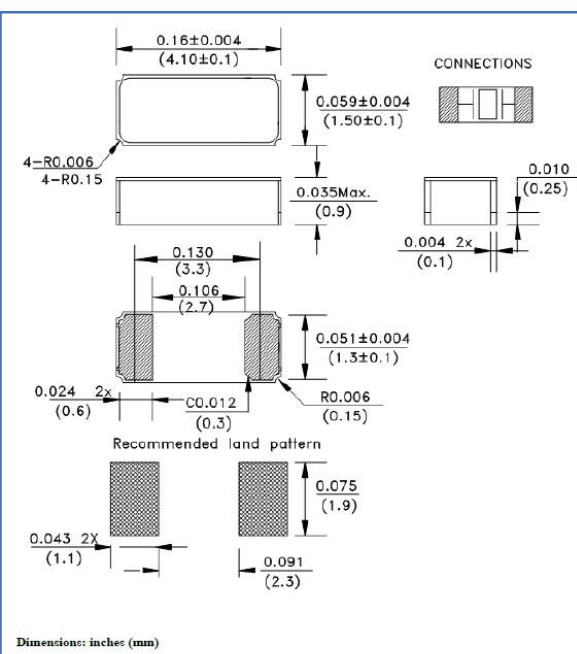
Prior to Change:

Mechanical dimensions

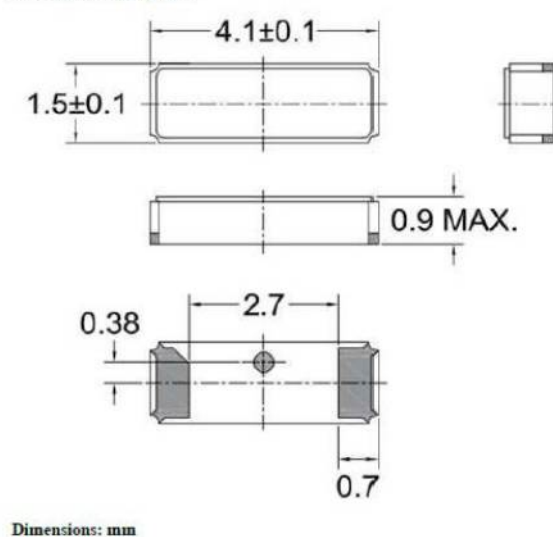


After Change:

Mechanical dimensions



Alternative Packaging 1:



Cause/Reason for Change:

Abracon introduced additional manufacturing sources to ensure product availability and to be in a better position to meet long term customer demand. Added an alternative bottom packaging structure to reflect the product produced by all manufacturing sources.

Change Plan

Effective Date:

02/10/2023

Additional Remarks:

N/A

Change Declaration:

The added bottom packaging structure does not impact the electrical performance of the device.

Issued Date:

02/10/2023

Issued By:

Brooke Cushman
Product Engineer

Issued Department:

Engineering

Approval:

Thomas Culhane
Engineering Director

Approval:

Reuben Quintanilla
Quality Director

Approval:

Ying Huang
Purchasing Director

For Abracon EOL only

Last Time Buy (if applicable):

N/A

Alternate Part Number / Part Series:

N/A

Additional Approval:

N/A

Additional Approval:

N/A

Additional Approval:

N/A

Customer Approval (If Applicable)

Qualification Status:

☐ Approved ☐ Not accepted

Note: It is considered approved if there is no feedback from the customer 1 month after ECN/PCN is released.

Customer Part Number:
Customer Project:
Company Name:
Company Representative:
Representative Signature:
Customer Remarks:

32.768KHz SMD Low Profile Crystal

ABS09

Request Samples



Check Inventory



4.1 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
- Ceramic package offers excellent environmental & heat resistance
- -40°C to +85°C for industrial applications

Applications

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

Key Electrical Specifications

Parameter	Specification
Nominal frequency:	32.768 kHz
Operating temperature:	- 40° C to + 85°C
Turn-over temperature:	+25° C ± 5° C
Storage temperature:	- 55° C to + 125°C
Frequency tolerance:	± 20 ppm max.
Temperature coefficient:	- 0.034±0.006 ppm/T ²
Equivalent series resistance:	70 kohms max.
Load capacitance CL:	12.5 pF (see options)
Drive level:	1.0 µW max.
Aging @ 25° C first year:	± 5 ppm max.
Insulation resistance:	500Mohms with 100Vdc ± 15V
Shunt capacitance C0:	1.0pF typ.
Motional capacitance C1:	2.0fF typ.

32.768KHz SMD Low Profile Crystal

ABS09

Request Samples



Check Inventory



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

OPTIONS AND PART IDENTIFICATION (Left blank if standard)

ABS09-32.768kHz-□-□-□

Load Capacitance (*)	
Blank	12.5pF
9	9pF
7	7pF

(*) Contact ABRACON for non-standard load capacitance

Freq. Tolerance	
1	± 10 ppm
4	± 30 ppm

Packaging	
Blank	Bulk
T	Tape and Reel

32.768KHz SMD Low Profile Crystal

ABS09

Request Samples



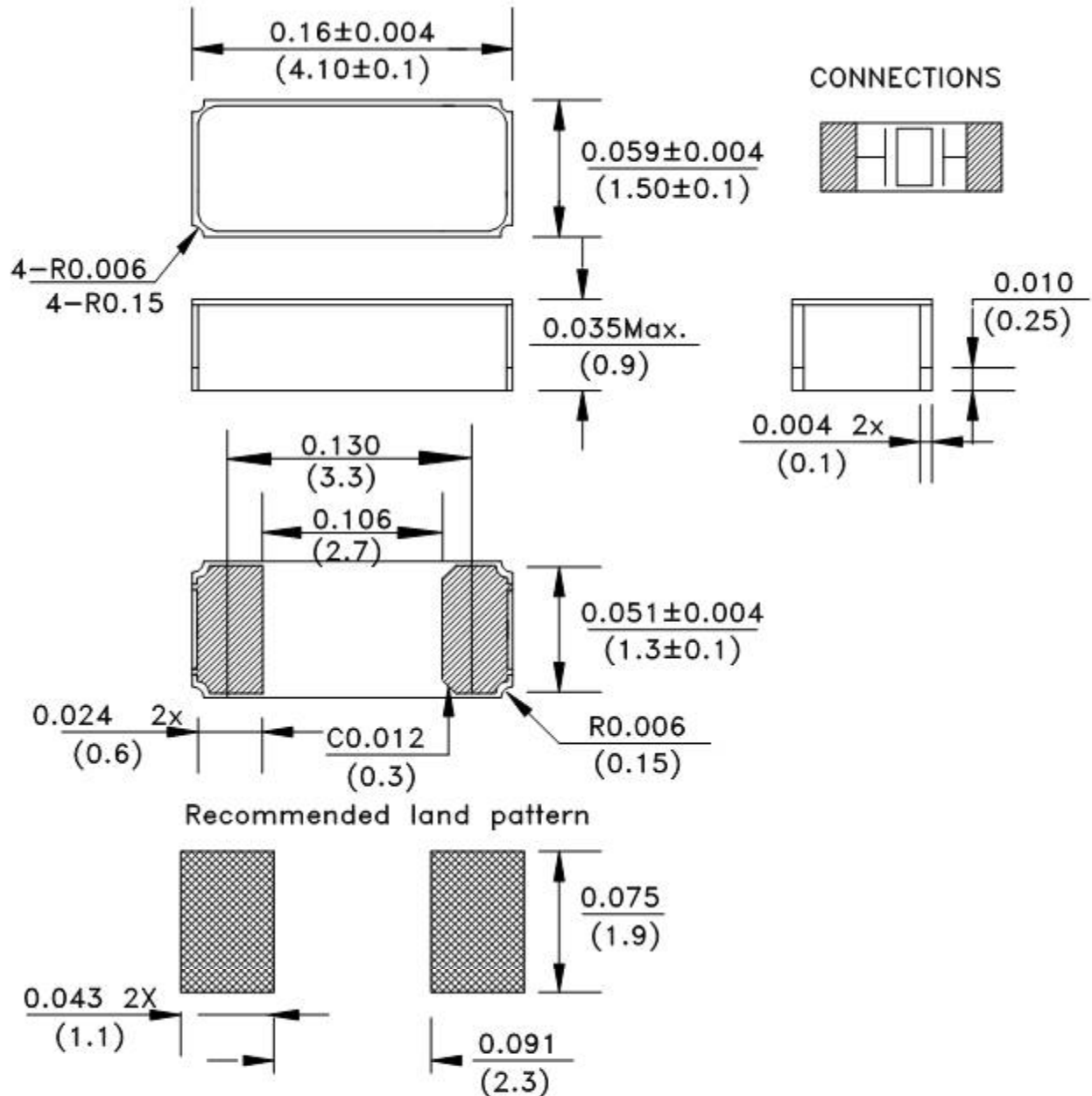
Check Inventory



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



MECHANICAL DIMENSIONS



Dimensions: inches (mm)

32.768KHz SMD Low Profile Crystal

ABS09

Request Samples



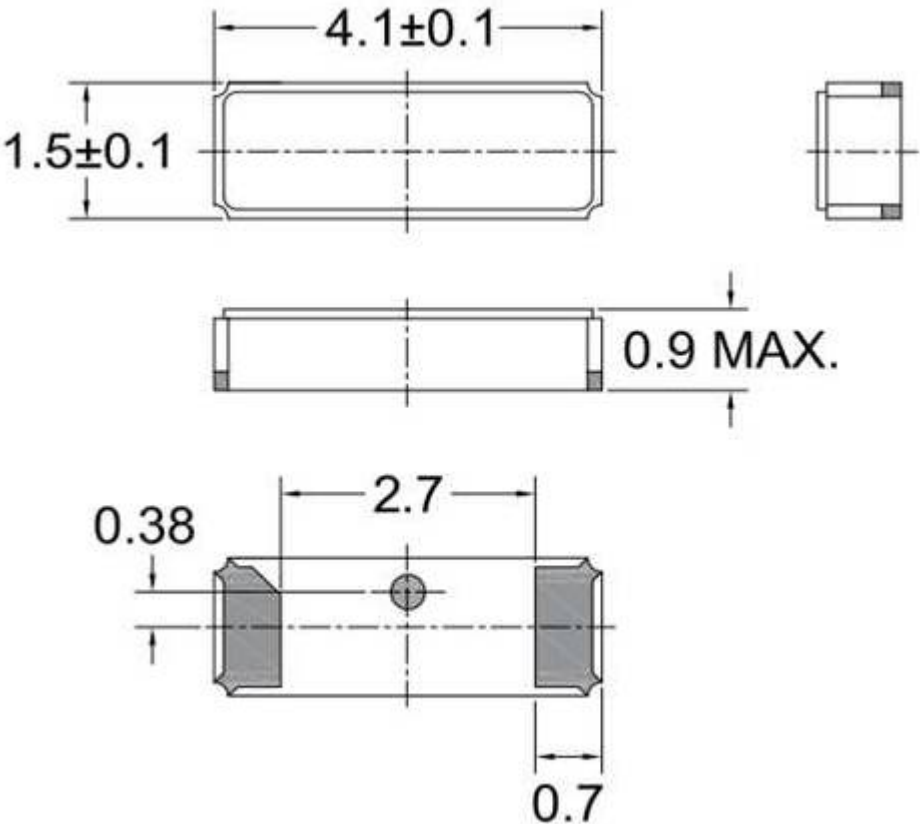
Check Inventory



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



Alternative Packaging 1:



Dimensions: mm

32.768KHz SMD Low Profile Crystal

ABS09

Request Samples



Check Inventory



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



Reflow Profile [JEDEC J-STD-020]

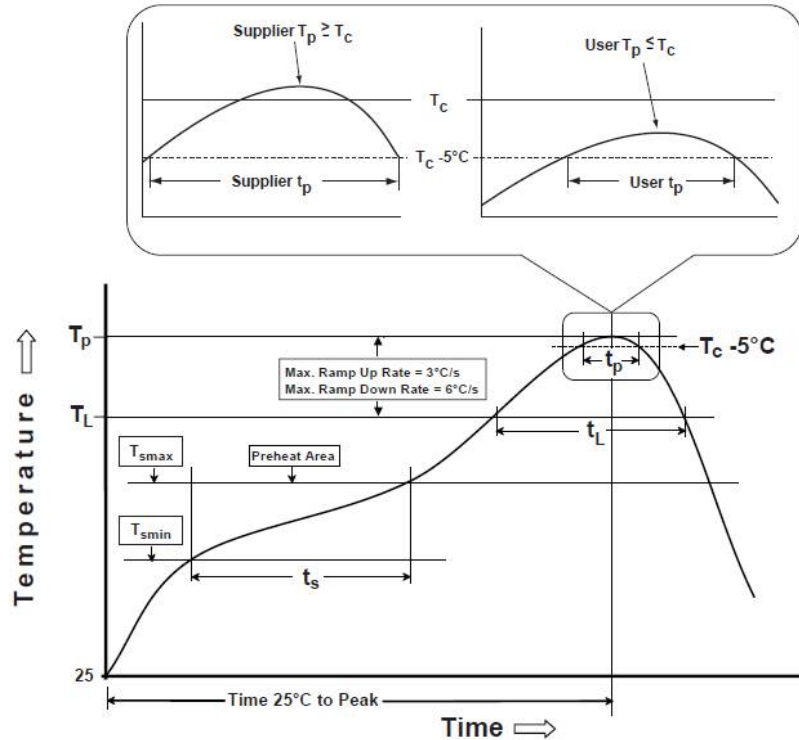


Table 1

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.

32.768KHz SMD Low Profile Crystal

ABS09

Request Samples



Check Inventory

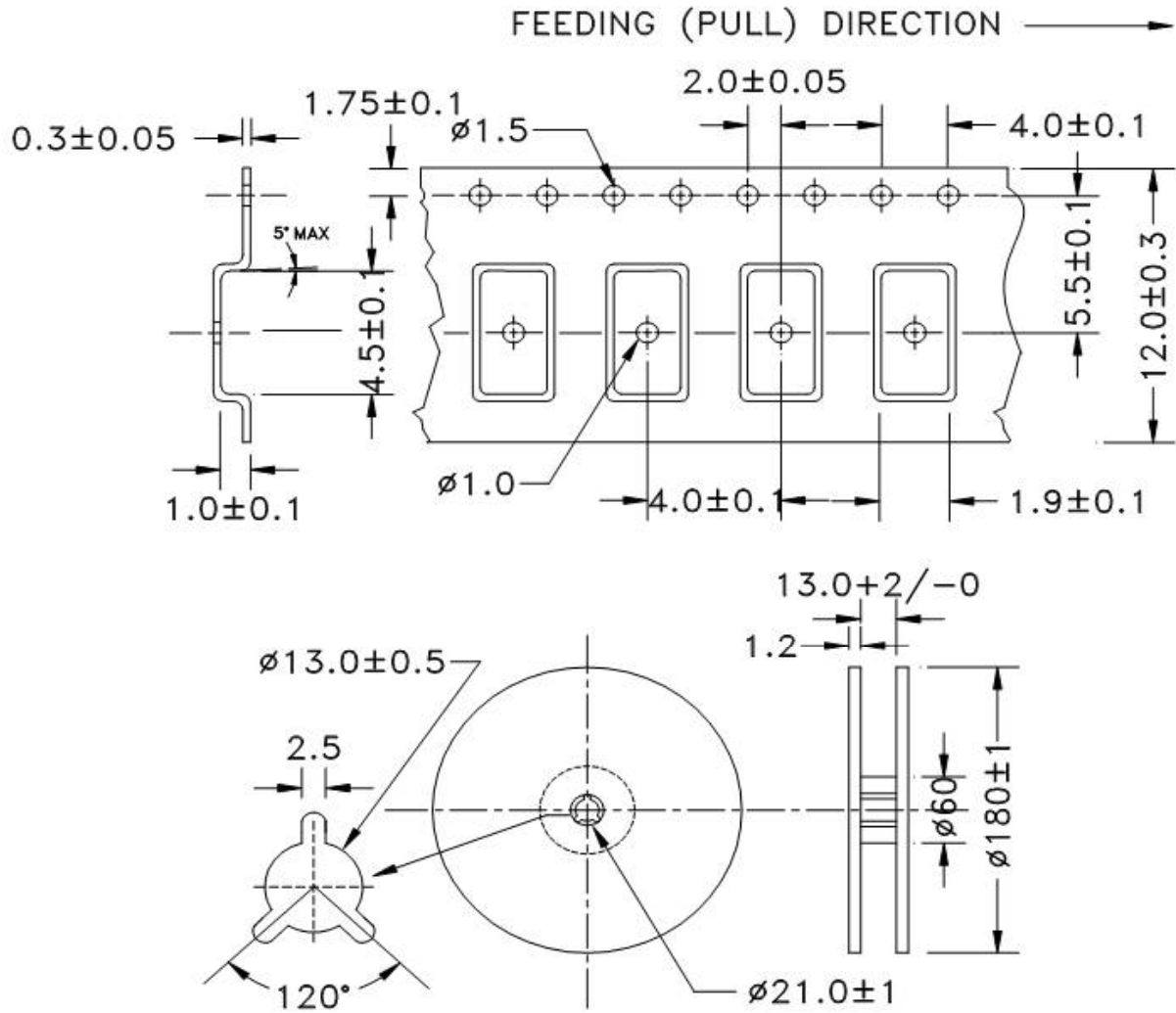


4.1 x 1.5 x 0.9 mm
RoHS/RoHS II Compliant
MSL Level = N/A



PACKAGING

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



Dimension : mm

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.



5101 Hidden Creek Ln Spicewood TX 78669
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sales, please visit:
www.abracon.com

REVISED: 02-10-23

ABRACON IS
ISO9001-2015
CERTIFIED

brand	affected part numbers
abracon	ABS09-32.768KHZ
abracon	ABS09-32.768KHZ
abracon	ABS09-32.768KHZ-1
abracon	ABS09-32.768KHZ-1-T
abracon	ABS09-32.768KHZ-4
abracon	ABS09-32.768KHZ-4-T
abracon	ABS09-32.768KHZ-6-T
abracon	ABS09-32.768KHZ-7
abracon	ABS09-32.768KHZ-7-T
abracon	ABS09-32.768KHZ-9
abracon	ABS09-32.768KHZ-9-1
abracon	ABS09-32.768KHZ-9-1-T
abracon	ABS09-32.768KHZ-9-T
abracon	ABS09-32.768KHZ-T