

ECN/PCN No.: 4263

For Manufacturer

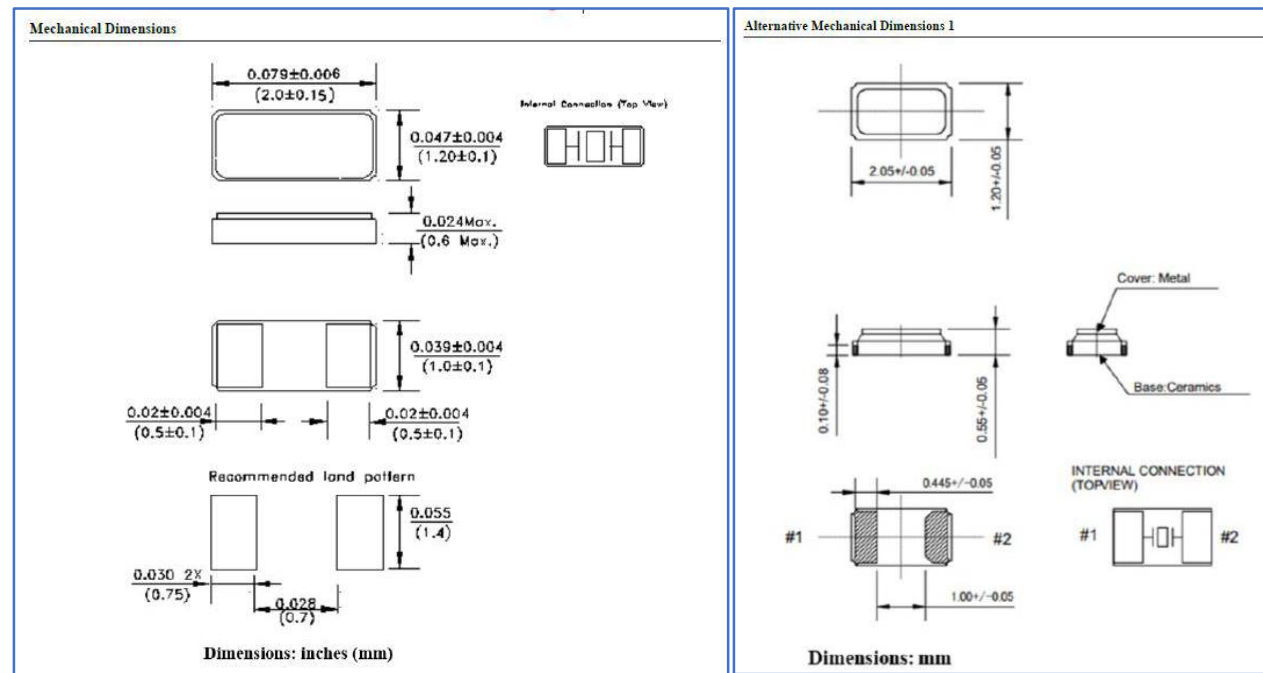
Product Description: 32.768kHz SMD Crystal	Abracon Part Number / Part Series: ABS06	<input type="checkbox"/> Documentation only <input checked="" type="checkbox"/> ECN <input type="checkbox"/> EOL	<input checked="" type="checkbox"/> Series <input type="checkbox"/> Part Number
Affected Revision: K	New Revision: L	Application:	<input type="checkbox"/> Safety <input checked="" type="checkbox"/> Non-Safety

Prior to Change:

Electrical Specifications:

Shunt capacitance (C0), typical value= 0.9~1.2pF

Mechanical Dimensions:

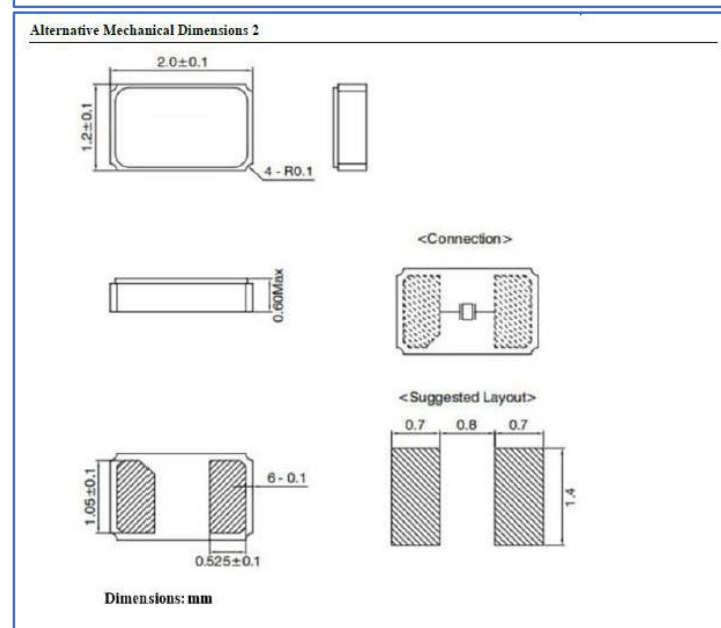
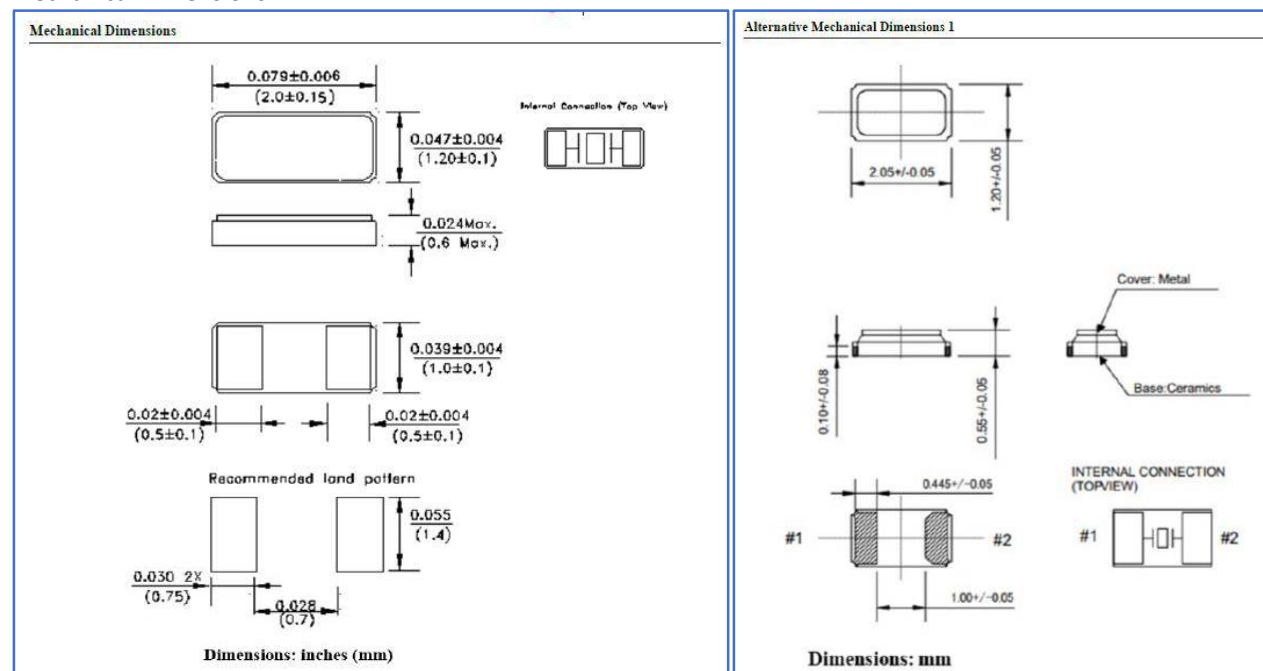


After Change:

Electrical Specifications:

Shunt capacitance (C0), typical value= 0.9~1.4pF

Mechanical Dimensions:



Cause/Reason for Change:

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

Change Plan		
Effective Date: 04/25/2022	Additional Remarks: N/A	
Change Declaration: This statement addresses both the electrical and mechanical changes of the product series.		
Issued Date: 04/25/2022	Issued By: <i>Brooke Cushman</i> Product Engineer	Issued Department: Engineering
Approval: <i>Thomas Culhane</i> Engineering Director	Approval: <i>Reuben Quintanilla</i> Quality Director	Approval: <i>Ying Huang</i> 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: <div style="text-align: center;"><input type="checkbox"/> Approved <input type="checkbox"/> Not accepted</div> <i>Note: It is considered approved if there is no feedback from the customer 1 month after ECN/PCN is released.</i>		
Customer Part Number:	Customer Project:	
Company Name:	Company Representative:	Representative Signature:
Customer Remarks:		

32.768kHz SMD Crystal

ABS06

Request Samples



Check Inventory



2.0 x 1.2 x 0.6 mm
RoHS/RoHS II Compliant
MSL Level = N/A



Features

- 2.0 x 1.2 x 0.6mm ideal for high density circuit boards
- 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	Minimum	Typical	Maximum	Units	Notes
Frequency	32.768			kHz	
Operation Mode	Flexural Mode (Tuning Fork)				
Operating Temperature	-40		+85	°C	Option "blank"; See options
Storage Temperature	-55		+125	°C	
Frequency Tolerance @+25°C	-20		+20	ppm	Option "blank"; See options
Temperature Coefficient:	-0.04	-0.03	-0.02	ppm/T ²	
Turn-over temperature:	+20	+25	+30	°C	
Equivalent series resistance (R1)			90	kΩ	For -40 ~ +85°C option
			110	kΩ	For -40 ~ +125°C option & -55 ~ +125°C option
Load capacitance (CL)		12.5		pF	Option "blank"; See options
Shunt capacitance (C0)		0.9 ~ 1.4	2.0	pF	
Drive Level		0.1	0.5	μW	
Q value	9000				
Aging	-3		+3	ppm	@25°C ± 3°C First year
Insulation Resistance	500			MΩ	@ 100Vdc ± 15V

32.768kHz SMD Crystal

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Options and Part Identification (left blank if standard)

ABS06 – 32.768 kHz - - - -

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

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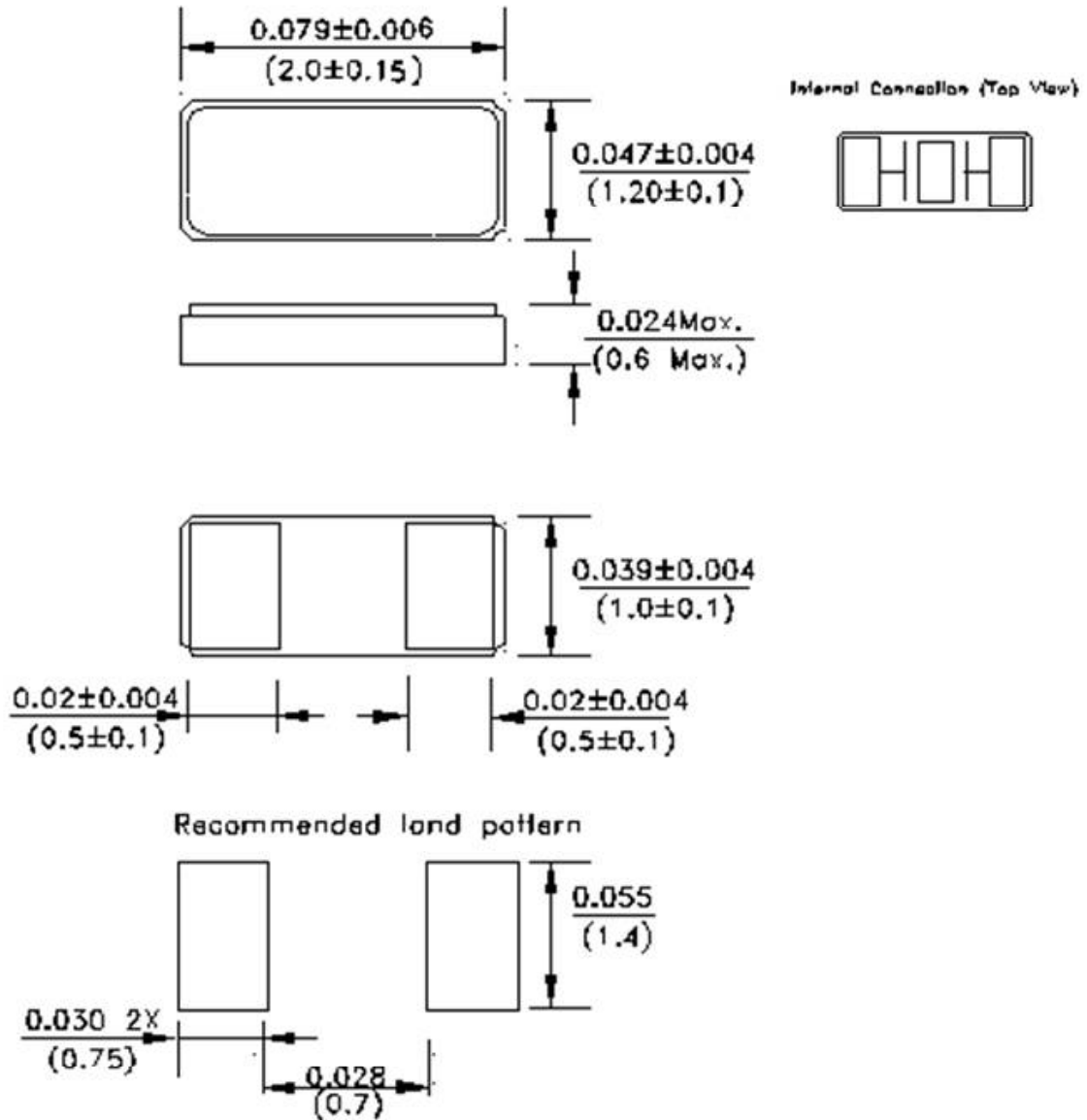
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2.0 x 1.2 x 0.6 mm
RoHS/RoHS II Compliant
MSL Level = N/A



Mechanical Dimensions



Dimensions: inches (mm)

Notes:

- Chamfer not shown.
- 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.

32.768kHz SMD Crystal

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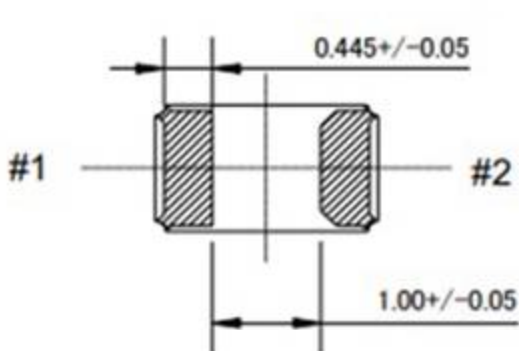
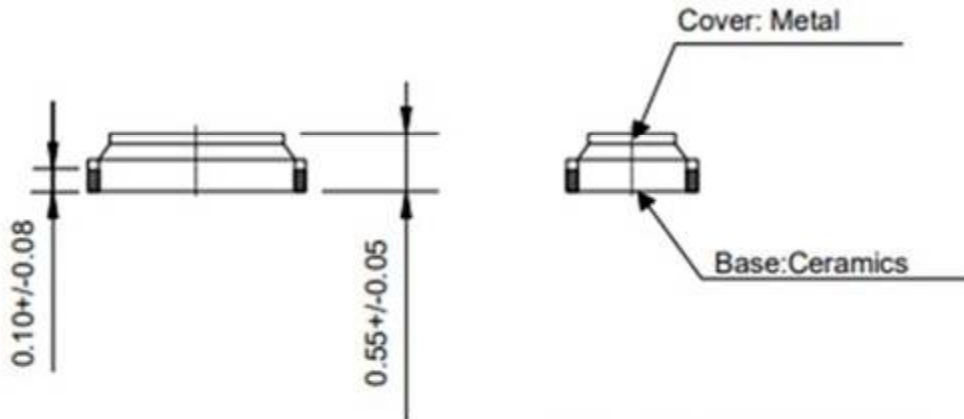
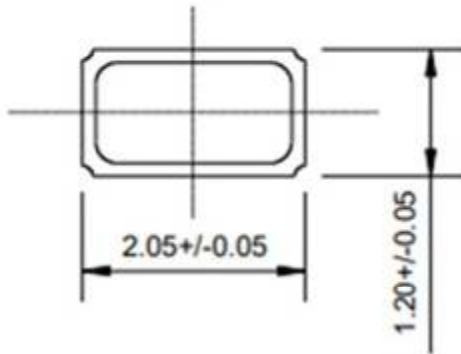
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2.0 x 1.2 x 0.6 mm
RoHS/RoHS II Compliant
MSL Level = N/A



Alternative Mechanical Dimensions 1



INTERNAL CONNECTION
(TOPVIEW)



Dimensions: mm

32.768kHz SMD Crystal

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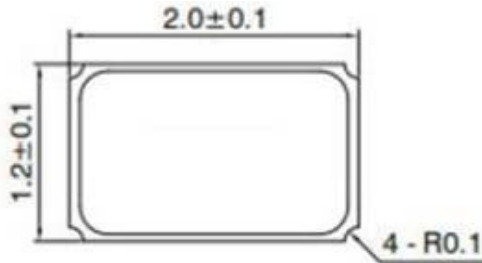
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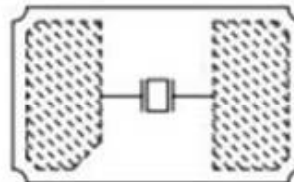
2.0 x 1.2 x 0.6 mm
RoHS/RoHS II Compliant
MSL Level = N/A



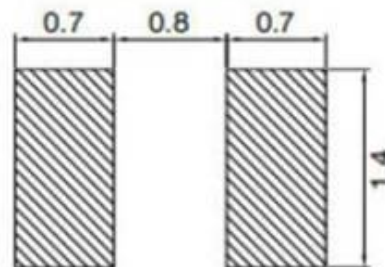
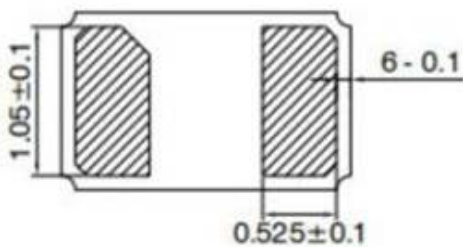
Alternative Mechanical Dimensions 2



<Connection>



<Suggested Layout>



Dimensions: mm

Sealing Method = Seam Sealing

32.768kHz SMD Crystal

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2.0 x 1.2 x 0.6 mm
RoHS/RoHS II Compliant
MSL Level = N/A



Reflow Profile [JEDEC J-STD-020]

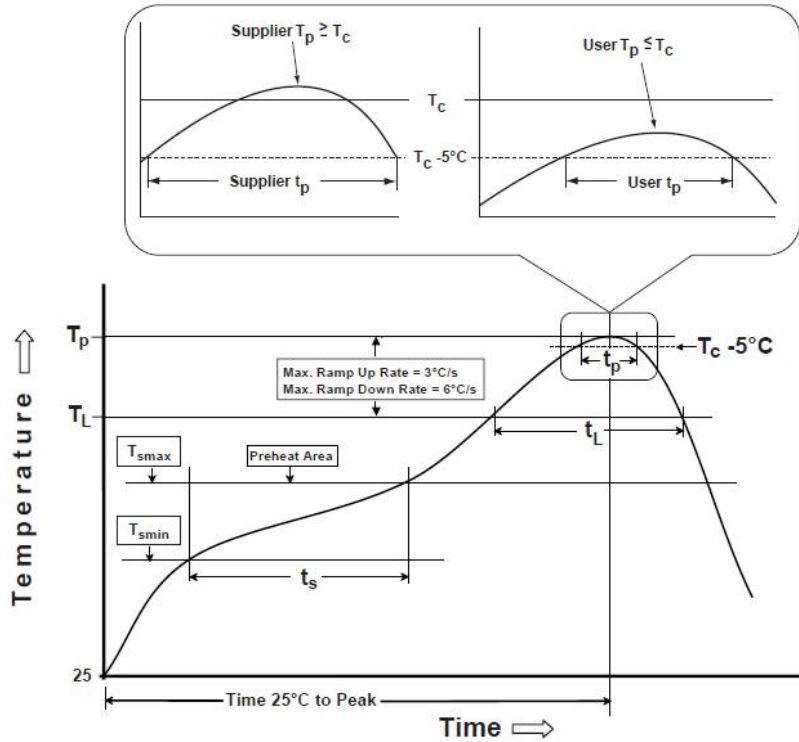


Table 1

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.



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ABRACON IS
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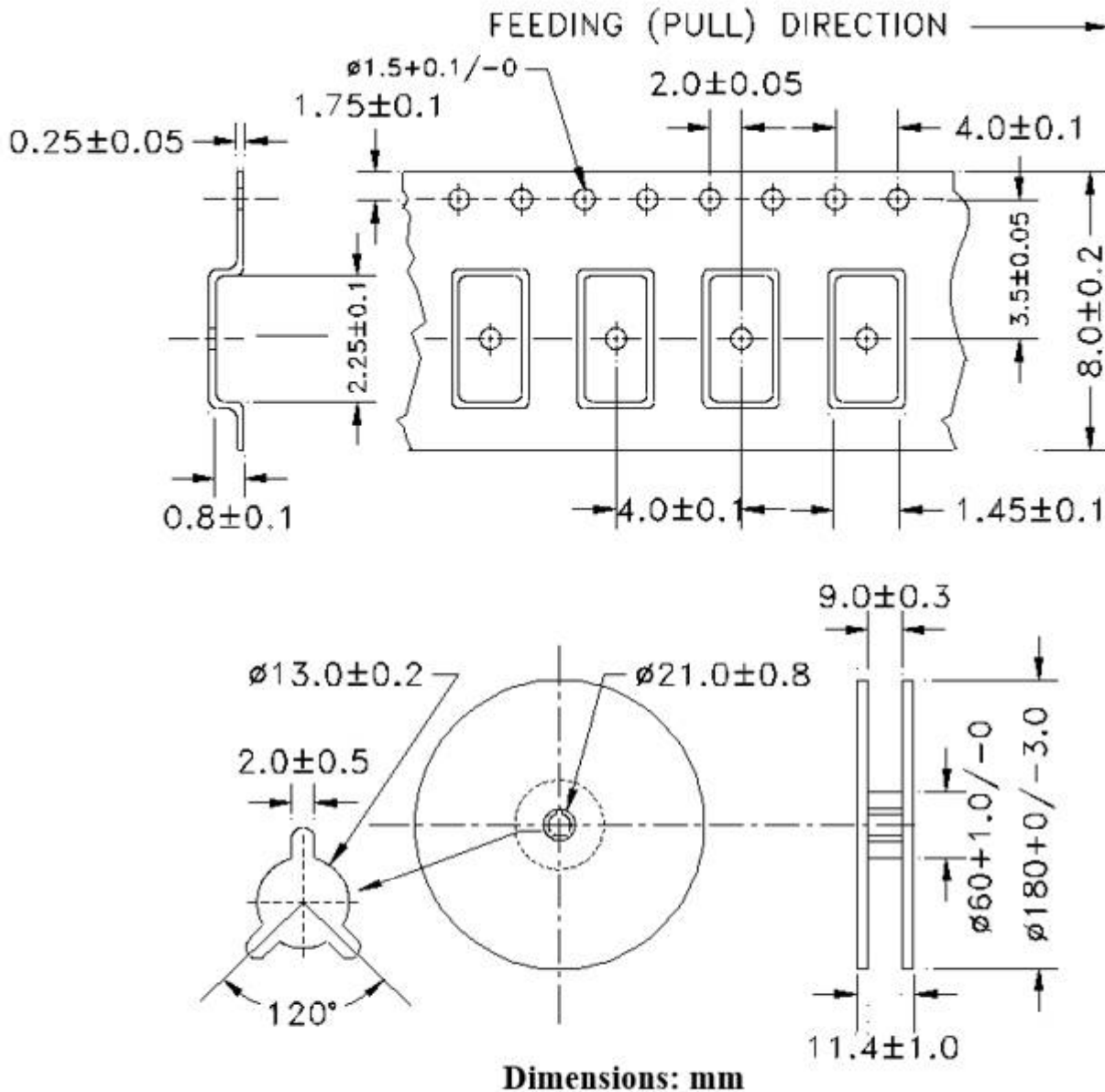


2.0 x 1.2 x 0.6 mm
RoHS/RoHS II Compliant
MSL Level = N/A



Packaging:

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



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brand	affected part numbers	series	eco#	datasheet link
abracon	ABS06-32.768KHZ	ABS06	4263	https://abracon.com/Resonators/ABS06.pdf
abracon	ABS06-32.768KHZ-1	ABS06	4263	https://abracon.com/Resonators/ABS06.pdf
abracon	ABS06-32.768KHZ-1-T	ABS06	4263	https://abracon.com/Resonators/ABS06.pdf
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