

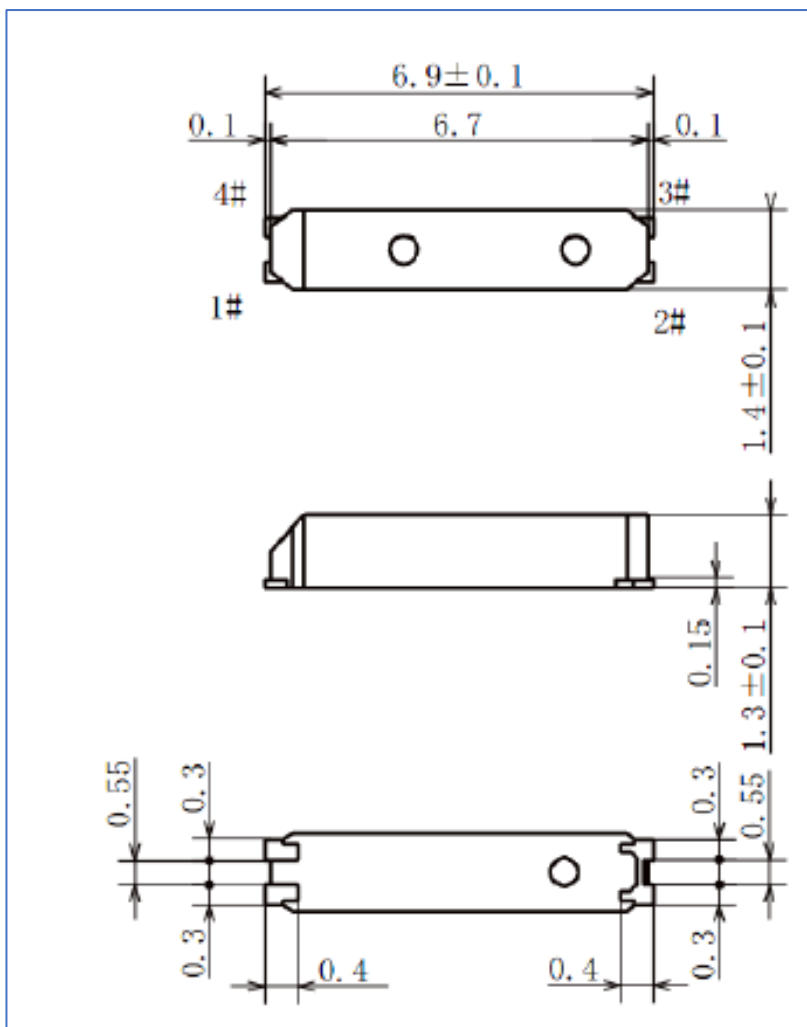
ECN/PCN No.: 3448

For Manufacturer

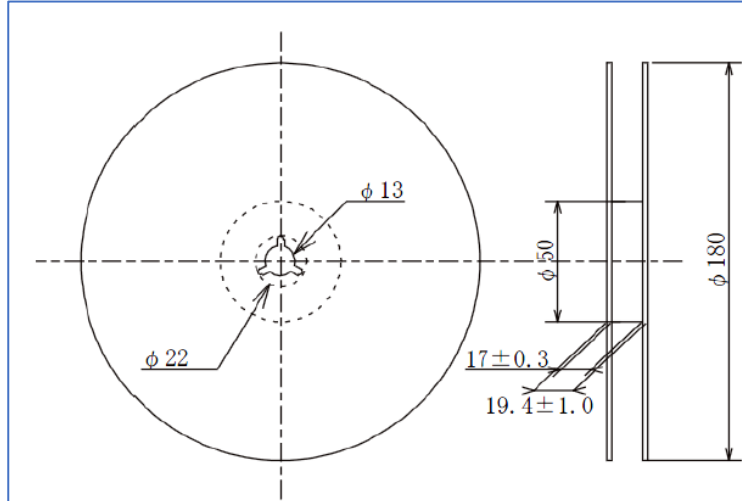
Product Description: 32.768kHz SMD Crystal		Abracon Part Number / Part Series: ABS13	<input checked="" type="checkbox"/> Series
Affected Revision: K		New Revision: L	<input type="checkbox"/> Part Number
		Application	<input type="checkbox"/> Safety
			<input checked="" type="checkbox"/> Non-Safety

Prior to Change:

1. ROHS Statement
 - a. RoHS/Ro HS II compliant. Pb in high temperature solder (exempt 7(a) per RoHS II 2011/65/EU Annex)
2. Electrical performance
 - a. Frequency Coefficient (β):
 - i. Min = -0.040 ppm/T²
 - ii. Typ = -0.034 ppm/T²
 - iii. Max = -0.028 ppm/T²
3. Mechanical Dimensions (millimeters)
 - a. Side view; height dimension = 1.3 ± 0.1 mm MAX
 - b. Side view; lead/pad height dimension = 0.15 mm
 - c. Bottom view; lead/pad width dimension = 0.3 mm
 - d. Bottom view; lead/pad length dimension = 0.4 mm
 - e. Bottom view; length between pad #2 & #3 = 0.55 mm

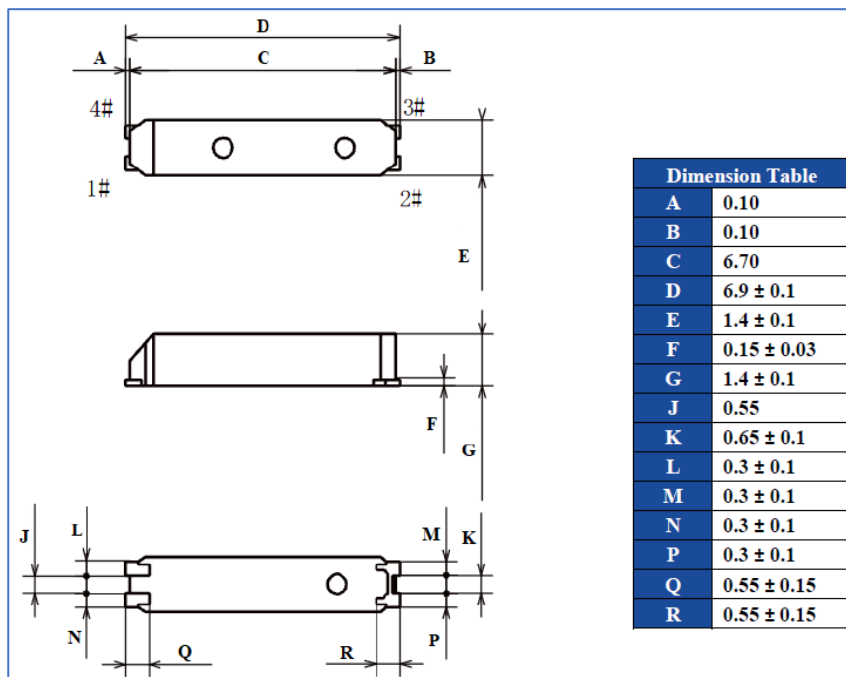


4. Reel Packaging Dimensions (millimeters)
 - a. Top view; inner radial dimension = 13
 - b. Side view; outer radial dimension = $\varnothing 180$
 - c. Side view; inner radial dimension = $\varnothing 50$
 - d. Side view; outer height dimension = 19.4 ± 1.0 mm
 - e. Side view; inner height dimension = 17 ± 0.3 mm



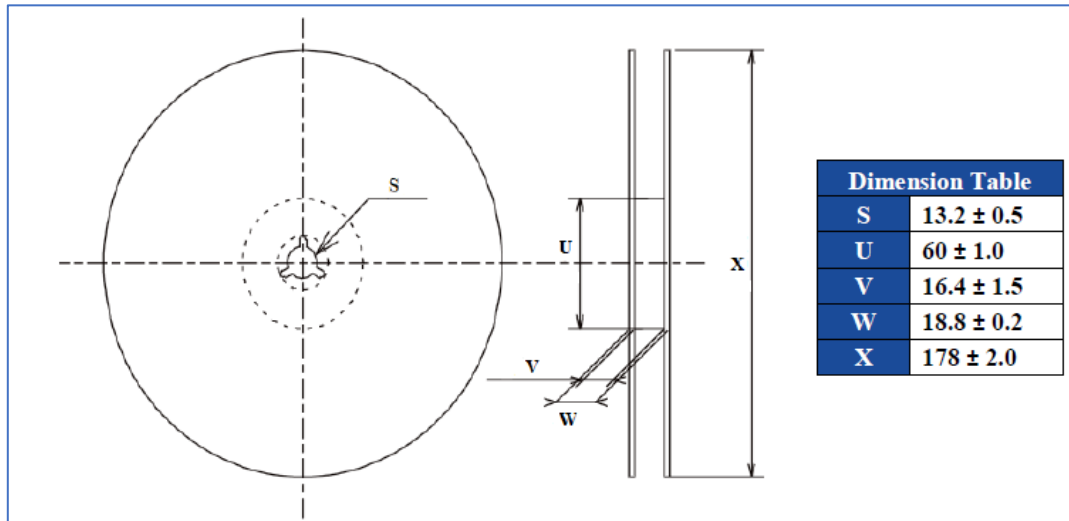
After Change:

1. ROHS Statement
 - a. RoHS/RoHS II compliant. Pb in high temperature solder (exempt 7(a) per 2015/863/EU Annex)
2. Electrical performance
 - a. Frequency Coefficient (β):
 - i. Typ = -0.035 ± 0.01 ppm/ $^{\circ}\text{C}^2$
3. Mechanical Dimensions (millimeters)
 - a. Side view; height dimension = 1.4 ± 0.1 mm MAX (increase)
 - b. Side view; lead/pad height dimension = 0.15 ± 0.03 mm (increase)
 - c. Bottom view; lead/pad width dimension = 0.3 ± 0.1 mm (increase)
 - d. Bottom view; lead/pad length dimension = 0.55 ± 0.15 mm (increase)
 - e. Bottom view; length between pad #2 & #3 = 0.65 ± 0.1 mm (increase)



4. Reel Packaging Dimensions (millimeters)

- Top view; inner radial dimension = 13.2 ± 0.5
- Side view; outer radial dimension = $\varnothing 178 \pm 2.0$
- Side view; inner radial dimension = $\varnothing 60 \pm 1.0$
- Side view; outer height dimension = 18.8 ± 0.2 mm
- Side view; inner height dimension = 16.4 ± 1.5 mm



Cause/Reason(s) for Change:

- Standard review and upgrade of product series.
- ROHS compliance statement updated.
- Due to raw material availability, part size/dimension adjustments were implemented along with reel packaging size/adjustments.

Change Plan	Effective Date: 9/12/2019	Additional Remarks: N/A
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Change Declaration:

These changes do not negatively impact electrical performance of this series. The mechanical dimension changes of the part slightly increased

Issued Date: 9/12/2019	Issued By: Brooke Cushman	Issued Department: Engineering
Approval: Syed Raza Engineering VP	Approval: Reuben Quintanilla Quality Manager	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 customer 1 month after ECN/PCN is released

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

32.768kHz SMD CRYSTAL

ABS13

ABS13

RoHS/RoHS II compliant.
Pb in high temperature solder
(exempt 7(a) per 2015/863/EU Annex)

6.9 x 1.4 x 1.4 mm

Moisture Sensitivity Level: Level 1

FEATURES:

- Low frequency
- Plastic package with embedded heat resistant crystal in cylinder package
- Extended temperature -40°C to +85°C for industrial applications
- Suitable to RoHS compliant reflow

APPLICATIONS:

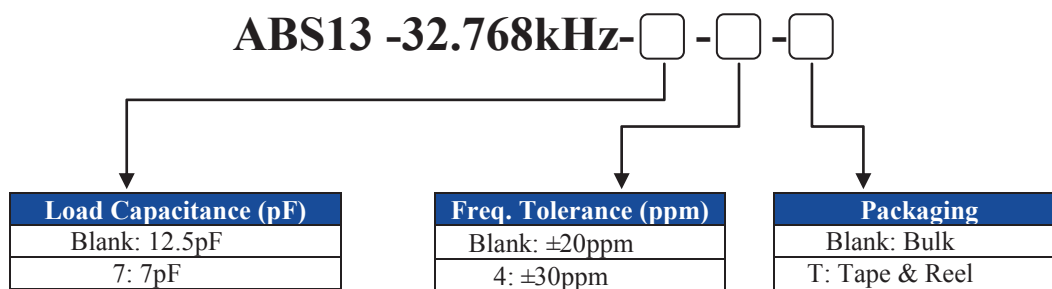
- Commercial & Industrial applications
- Wireless communications
- PDA and Palm Pilots

STANDARD SPECIFICATIONS:

Parameters	Minimum	Typical	Maximum	Units	Notes
Nominal Frequency	-----	32.768	-----	kHz	
Operating Temperature	-40	-----	+85	°C	
Turnover Temperature	+20	+25	+30	°C	
Storage Temperature	-55	-----	+125	°C	
Frequency Tolerance @+25°C	-20	-----	+20	ppm	See options
Frequency Coefficient (β)		-0.035±0.01		ppm/°C ²	
Equivalent series resistance (R1)	-----	-----	65	kΩ	
Load capacitance (CL)	-----	12.5	-----	pF	See options
Drive Level	-----	-----	1	μW	
Aging	-3	-----	+3	ppm	@25°C±3°C First year
Insulation Resistance	500	-----	-----	MΩ	@ 100Vdc ± 15V

OPTIONS AND PART IDENTIFICATION:

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32.768kHz SMD CRYSTAL

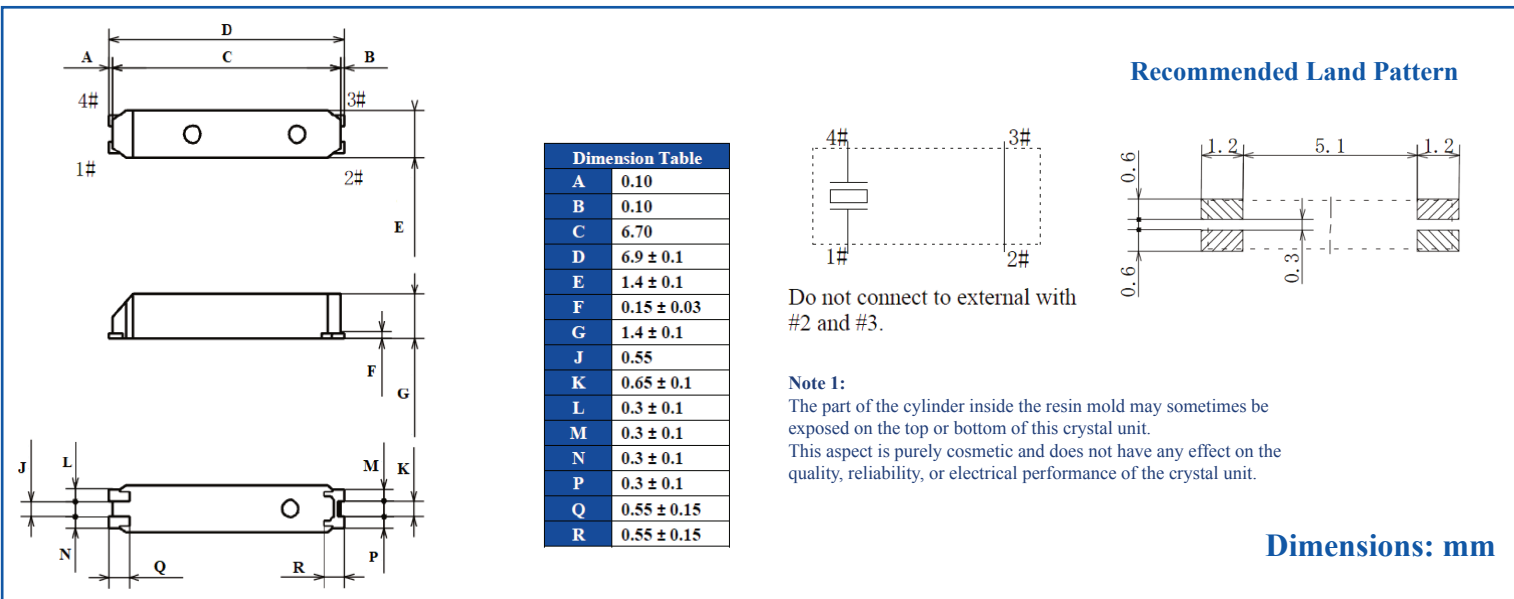
ABS13

ABS13

RoHS/RoHS II compliant.
Pb in high temperature solder
(exempt 7(a) per 2015/863/EU Annex)

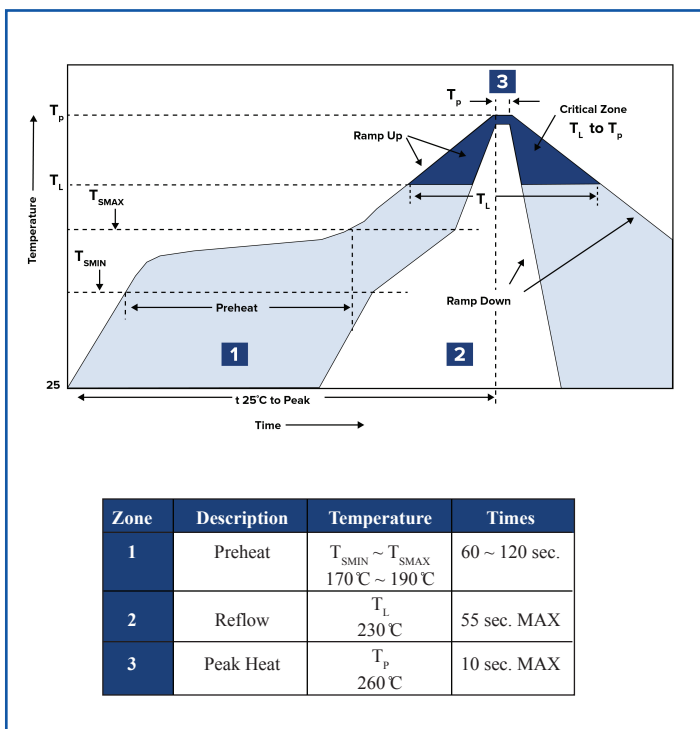
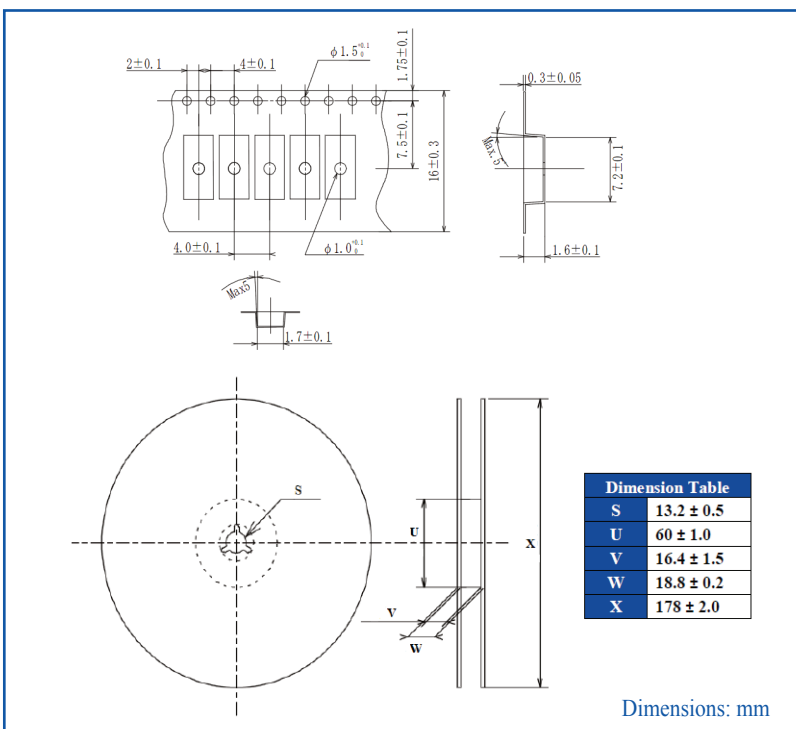
6.9 x 1.4 x 1.4 mm

OUTLINE DRAWING:



TAPE & REEL: T = Tape and reel 3,000pcs/reel

REFLOW PROFILE



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.

AFFECTED MPN

ABS13-32.768KHZ-T

ABS13-32.768KHZ-7-T

ABS13-32.768KHZ-7

ABS13-32.768KHZ

ABS13-32.768KHZ-T-LF

ABS13-32.768KHZ-TR

ABS13-32.768KHZ-1-T

ABS13-32.768KHZ-9-TR

ABS13-32.768KHZ-4-T