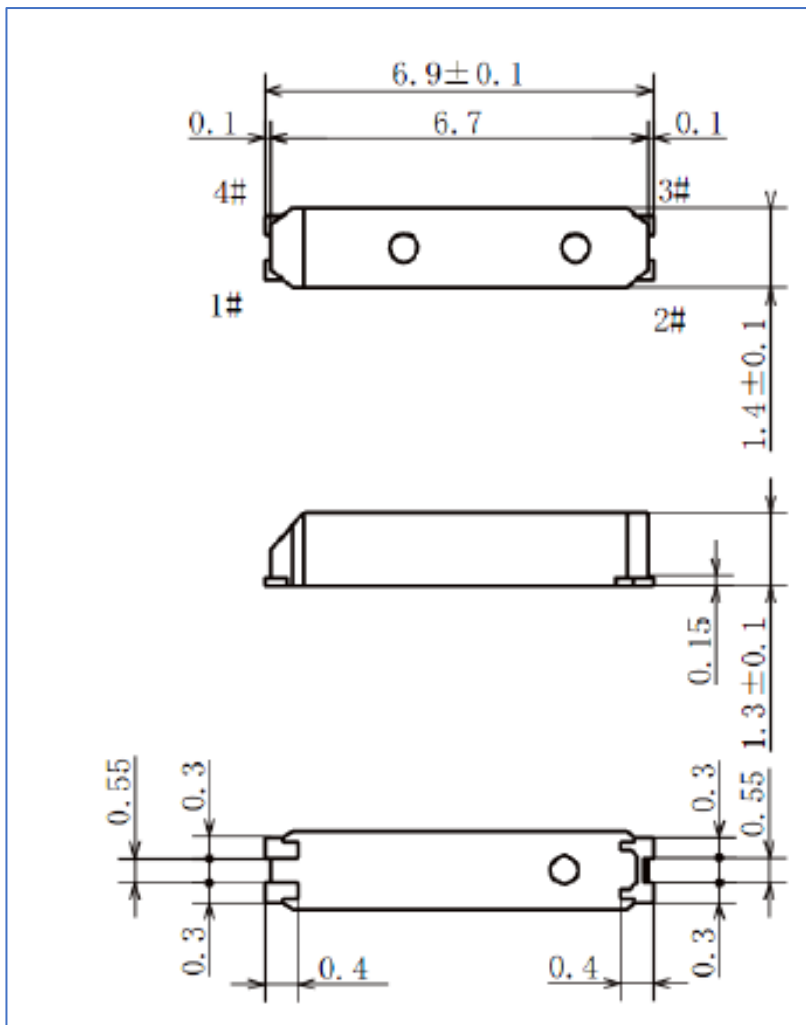


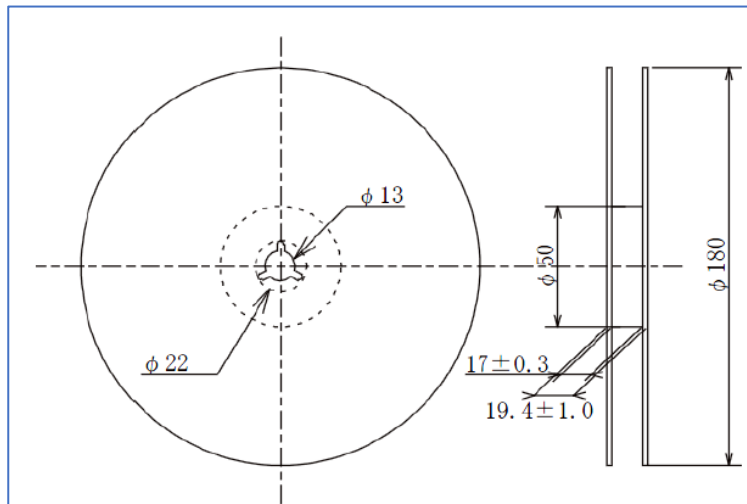
ECN/PCN No.: 3448

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
Prior to Change:			<input checked="" type="checkbox"/> Non-Safety

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

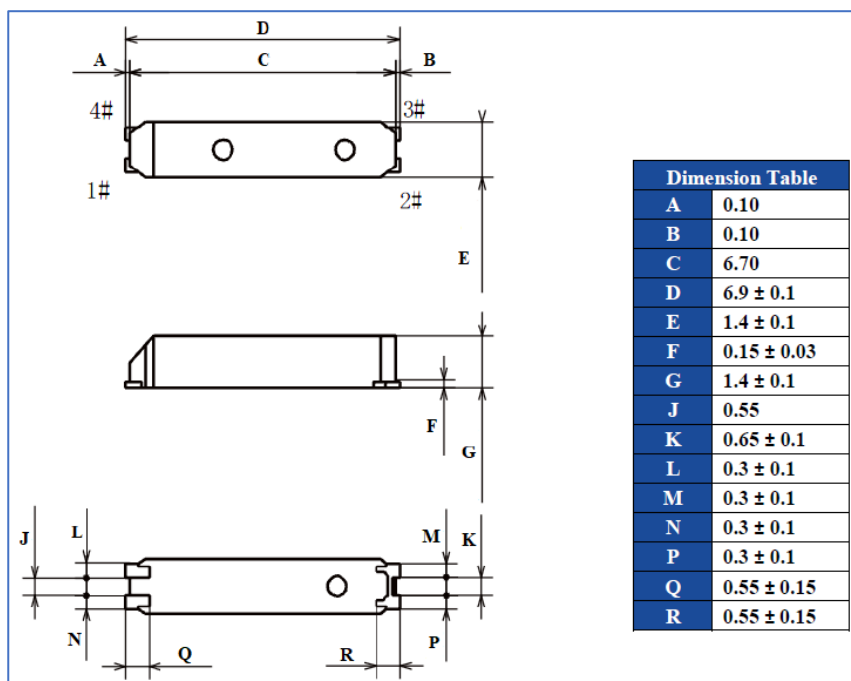


4. Reel Packaging Dimensions (millimeters)
 - a. Top view; inner radial dimension = 13
 - b. Side view; outer radial dimension = \varnothing 180
 - c. Side view; inner radial dimension = \varnothing 50
 - d. Side view; outer height dimension = 19.4 ± 1.0 mm
 - e. Side view; inner height dimension = 17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

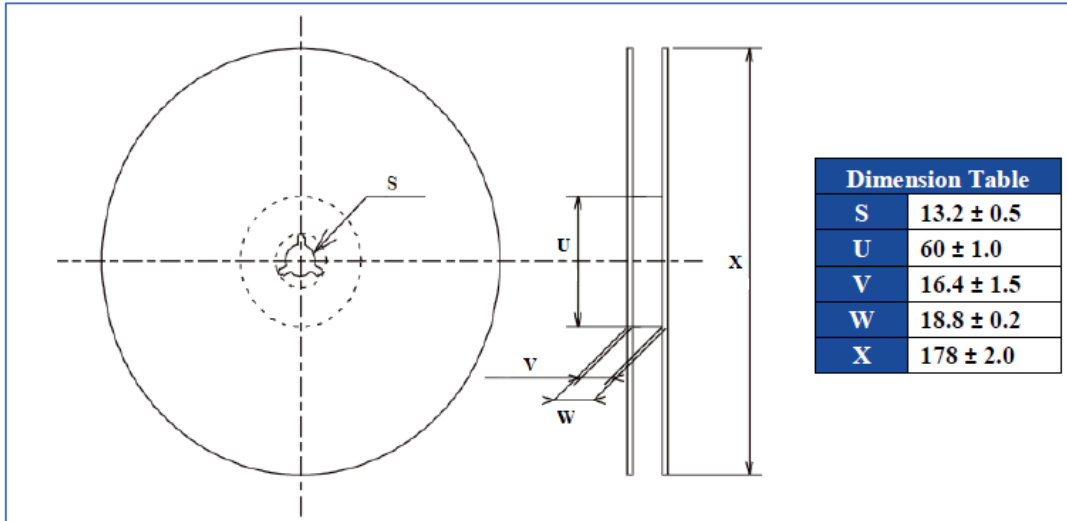


After Change:

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/ $^{\circ}$ C²
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 = $\text{Ø } 178 \pm 2.0$
 - Side view; inner radial dimension = $\text{Ø } 60 \pm 1.0$
 - 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
--------------------	-------------------------------------	-----------------------------------

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:		