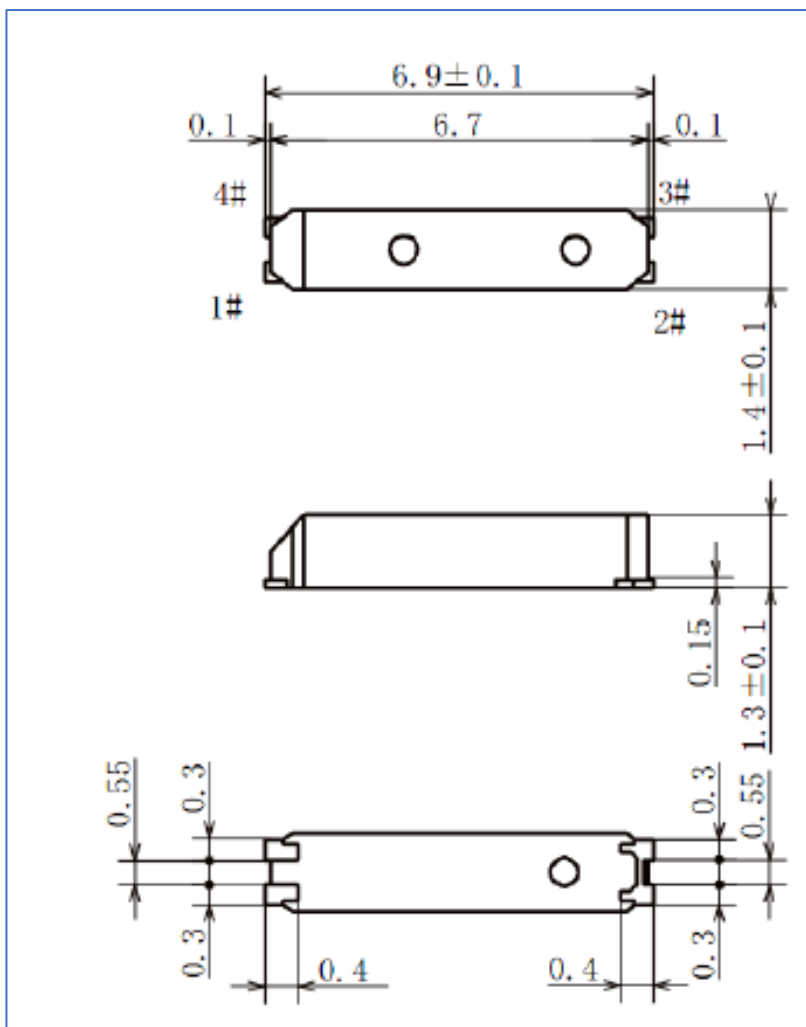


ECN/PCN No.: 3448

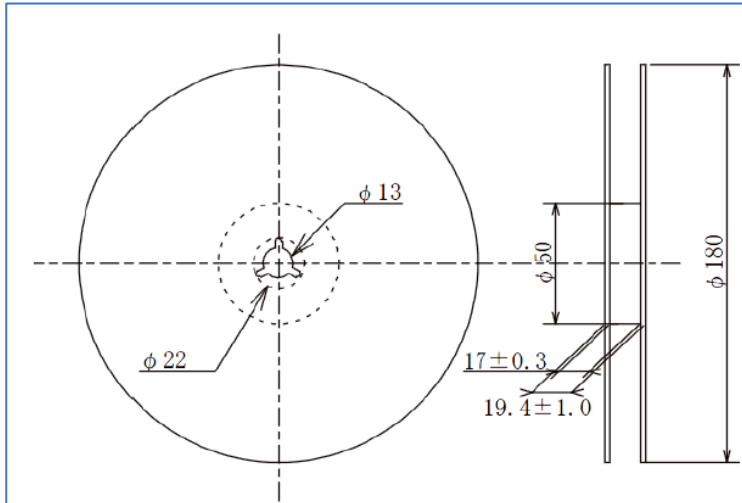
For Manufacturer			
<b>Product Description:</b> 32.768kHz SMD Crystal		<b>Abracon Part Number / Part Series:</b> ABS13	
<b>Affected Revision:</b> K		<b>New Revision:</b> L	
		<b>Application</b>	
		<input checked="" type="checkbox"/> Series <input type="checkbox"/> Part Number <input type="checkbox"/> 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 ( $\beta$ ):
    - i. Min =  $-0.040 \text{ ppm/T}^2$
    - ii. Typ =  $-0.034 \text{ ppm/T}^2$
    - iii. Max =  $-0.028 \text{ ppm/T}^2$
3. Mechanical Dimensions (millimeters)
  - a. Side view; height dimension =  $1.3 \pm 0.1 \text{ mm MAX}$
  - b. Side view; lead/pad height dimension =  $0.15 \text{ mm}$
  - c. Bottom view; lead/pad width dimension =  $0.3 \text{ mm}$
  - d. Bottom view; lead/pad length dimension =  $0.4 \text{ mm}$
  - e. Bottom view; length between pad #2 & #3 =  $0.55 \text{ mm}$

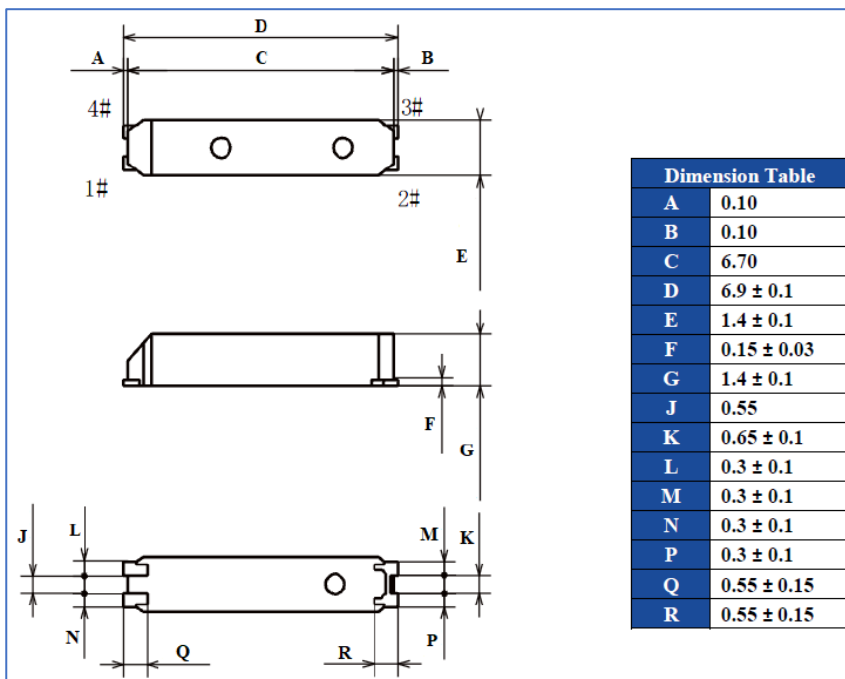


4. Reel Packaging Dimensions (millimeters)
  - a. Top view; inner radial dimension = 13
  - b. Side view; outer radial dimension =  $\varnothing$  180
  - c. Side view; inner radial dimension =  $\varnothing$  50
  - d. Side view; outer height dimension =  $19.4 \pm 1.0$  mm
  - e. Side view; inner height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

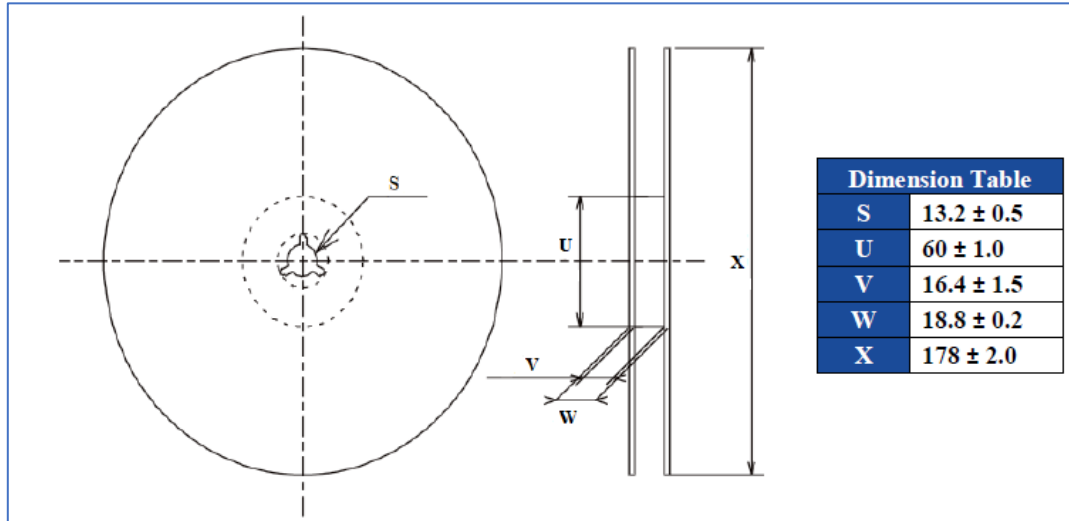


**After Change:**

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 ( $\beta$ ):
    - i. Typ =  $-0.035 \pm 0.01$  ppm/ $^{\circ}$ C<sup>2</sup>
3. Mechanical Dimensions (millimeters)
  - a. Side view; height dimension =  $1.4 \pm 0.1$  mm MAX (increase)
  - b. Side view; lead/pad height dimension =  $0.15 \pm 0.03$  mm (increase)
  - c. Bottom view; lead/pad width dimension =  $0.3 \pm 0.1$  mm (increase)
  - d. Bottom view; lead/pad length dimension =  $0.55 \pm 0.15$  mm (increase)
  - e. Bottom view; length between pad #2 & #3 =  $0.65 \pm 0.1$  mm (increase)



4. Reel Packaging Dimensions (millimeters)
- Top view; inner radial dimension =  $13.2 \pm 0.5$
  - 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 =  $18.8 \pm 0.2$  mm
  - Side view; inner height dimension =  $16.4 \pm 1.5$ 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.

<b>Change Plan</b>	<b>Effective Date:</b> 9/12/2019	<b>Additional Remarks:</b> 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

<b>Issued Date:</b> 9/12/2019	<b>Issued By:</b> Brooke Cushman	<b>Issued Department:</b> Engineering
<b>Approval:</b> Syed Raza Engineering VP	<b>Approval:</b> Reuben Quintanilla Quality Manager	<b>Approval:</b> Ying Huang Purchasing Director

**For Abracon EOL only**

<b>Last Time Buy (if applicable):</b> N/A	<b>Alternate Part Number / Part Series:</b> N/A	
<b>Additional Approval:</b> N/A	<b>Additional Approval:</b> N/A	<b>Additional Approval:</b> N/A

**Customer Approval (If Applicable)**

<b>Qualification Status:</b> <input type="checkbox"/> Approved <input type="checkbox"/> Not accepted <small>Note: It is considered approved if there is no feedback from customer 1 month after ECN/PCN is released</small>		
<b>Customer Part Number:</b>	<b>Customer Project:</b>	
<b>Company Name:</b>	<b>Company Representative:</b>	<b>Representative Signature:</b>
<b>Customer Remarks:</b>		