



Accurate Kinetic Energy

No.11-3 Jianguo Rd., T.E.P.Z. 42760 Taiwan, ROC

All dimensions are millimeters.

CAD: TCR

Review: EG

Appr: JL

Page: 1/4 Date: August 01,2022

### Specification Title:

**Temperature Compensated  
Voltage Controlled Crystal Oscillator  
Automotive Grade  
VCTCXO - Ceramic Package  
2.0 x 1.6 millimeter Surface Mount**

**Part Number:**

**TV21 Auto Series**

### Electrical Specifications:

Frequency Range	10.000 to 52.000	MHz	
Frequency Tolerance	±2.0	ppm Max.	
Frequency Stability vs. Operating Temperature	±0.5 ~ ±2.0		
Frequency Stability vs. Supply Voltage Change	±0.2		
Frequency Stability vs. 10% Load Change	±0.2		
Aging per Year	±1.0		
Operating Temperature Range	Standard	-20 to +70	°C
	Extended	-40 to +85	
Storage Temperature Range	-55 to +125		
Supply Voltage	1.8 ± 5%	VDC	
	2.5 ± 5%		
	3.3 ± 5%		
Frequency Pulling Range	VCON=0.3V~1.5V@1.8VDC	±5	ppm Min.
	VCON=0.4V~2.4V@2.5VDC		
	VCON=0.4V~2.4V@3.3VDC		
Transfer Function	Positive		
Input Current	2.5	mA Max.	
Output Level	0.8	Vp-p Min.	
Output Waveform	Clipped Sinewave		
Output Load	10KΩ // 10pF		
Phase Noise	@100Hz Offset	-114	dBc/Hz Typ.
	@1KHz Offset	-131	
	@10KHz Offset	-148	
Start Up Time	2	ms Max.	

**RoHS Compliant  
Pb - Lead Free**

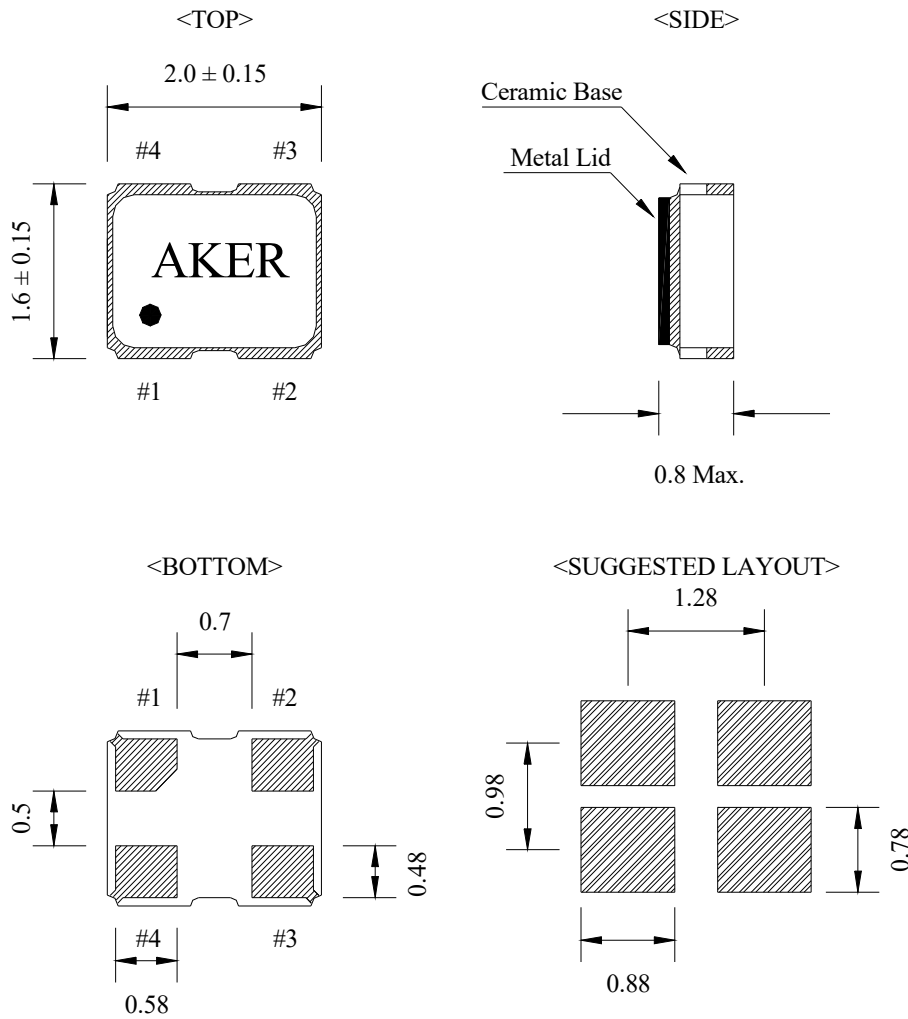
Ltr

Revisions

Date

Appr

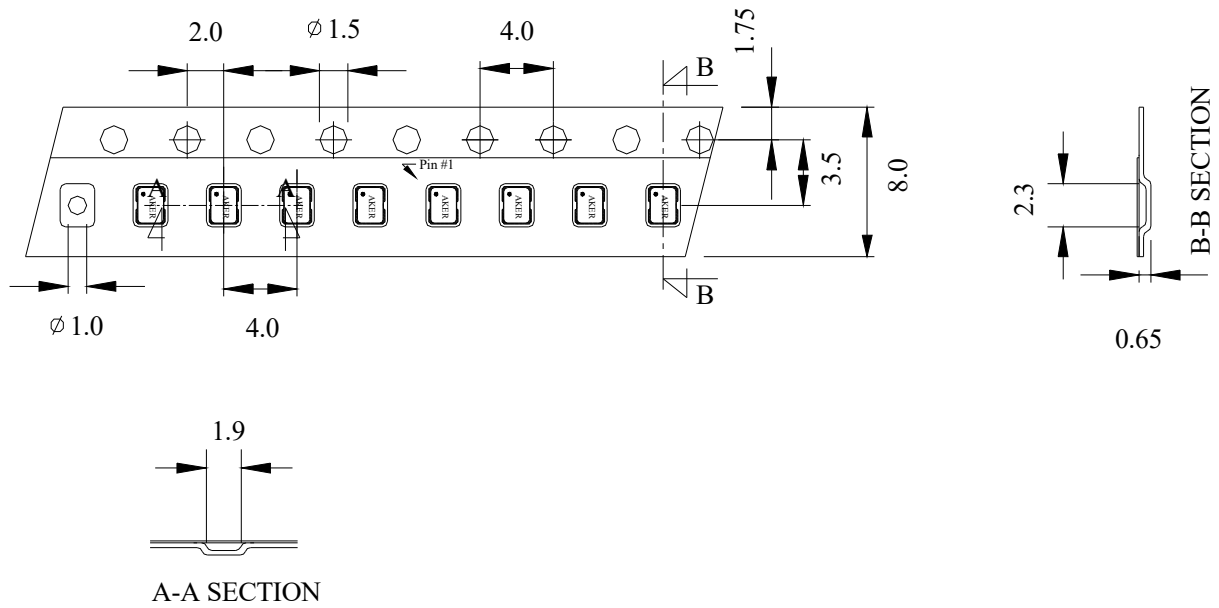
**Mechanical Outline and Solder Pad Layout:**



PIN No.	Connection
#1	VCON
#2	GND
#3	Output
#4	VDC

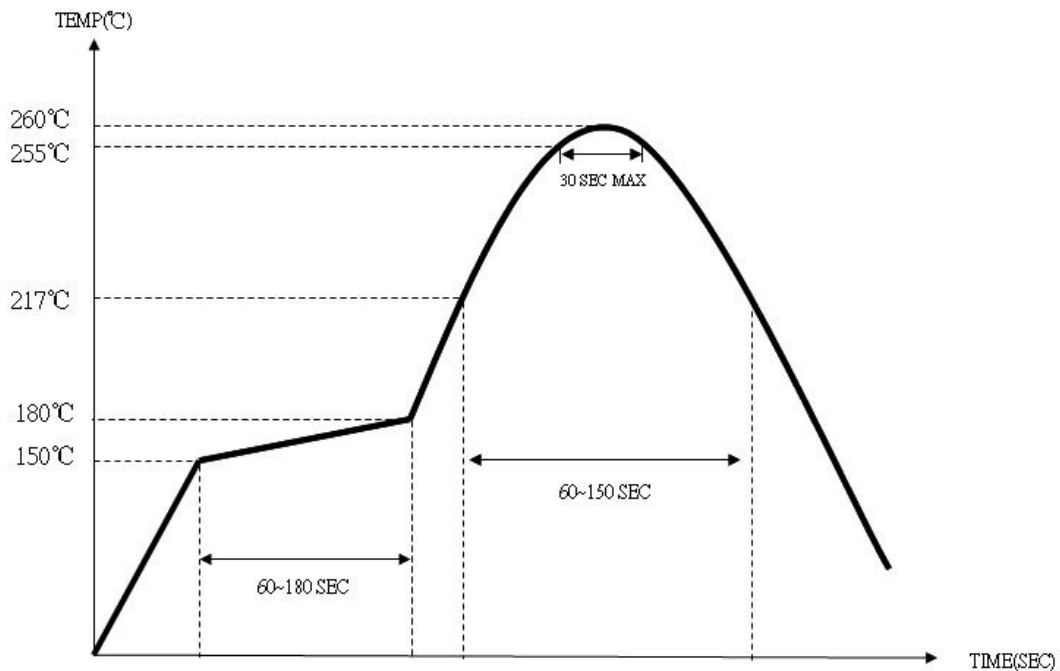
**Package is Seam Sealed Ceramic-Metal.  
Dimensions are millimeters.**

**Carrier Tape Dimensions:**



**Dimensions are millimeters.**

**Solder Reflow Characteristics:**



### How to build a Part Number:

<b>Series</b>	<b>TV</b>	<b>Parameter</b>
<b>Package</b>	<b>21</b>	<b>2.0 x 1.6 mm</b>
-		
<b>Supply Voltage</b>	<b>18</b>	<b>1.8 VDC ± 5%</b>
	<b>25</b>	<b>2.5 VDC ± 5%</b>
	<b>33</b>	<b>3.3 VDC ± 5%</b>
-		
<b>Temperature Stability</b>	<b>005</b>	<b>±0.5 ppm</b>
	<b>010</b>	<b>±1.0 ppm</b>
	<b>020</b>	<b>±2.0 ppm</b>
-		
<b>Output Waveform</b>	<b>S</b>	<b>Clipped Sinewave</b>
-		
<b>Frequency</b>	<b>10.000~52.000</b>	<b>MHz</b>
-		
<b>AECQ-200</b>	<b>A</b>	<b>Automotive</b>
-		
<b>Temperature Range</b>	<b>See Notes</b>	<b>-20 to +70 °C</b>
	<b>X</b>	<b>-40 to +85 °C</b>
-		
<b>Packaging</b>	<b>R</b>	<b>1000pcs Reel</b>
	<b>R3</b>	<b>3000pcs Reel</b>

### Part Number Example:

TV21-33020S-26.000-A-X-R

TV21: 2.0 x 1.6 mm SMD Package

33: +3.3 VDC Supply Voltage

020: ±2.0 ppm Temperature Stability

S: Clipped Sinewave Output

26.000 MHz Nominal Frequency

X: -40 to + 85°C Temperature Range

R: Tape and Reel Packaging

### Notes:

- 1- Standard Temperature Range do not need to be included in Part Number description.
- 2- Product is shipped in Tape and Reel configuration.
- 3- Quantities less than 1000 pieces are shipped bulk in ESD pouches.
- 4- Specification subject to change without notice.