



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  
VCTCXO - Ceramic Package  
2.0 x 1.6 millimeter Surface Mount**

**Part Number:**

**TV21 Series**

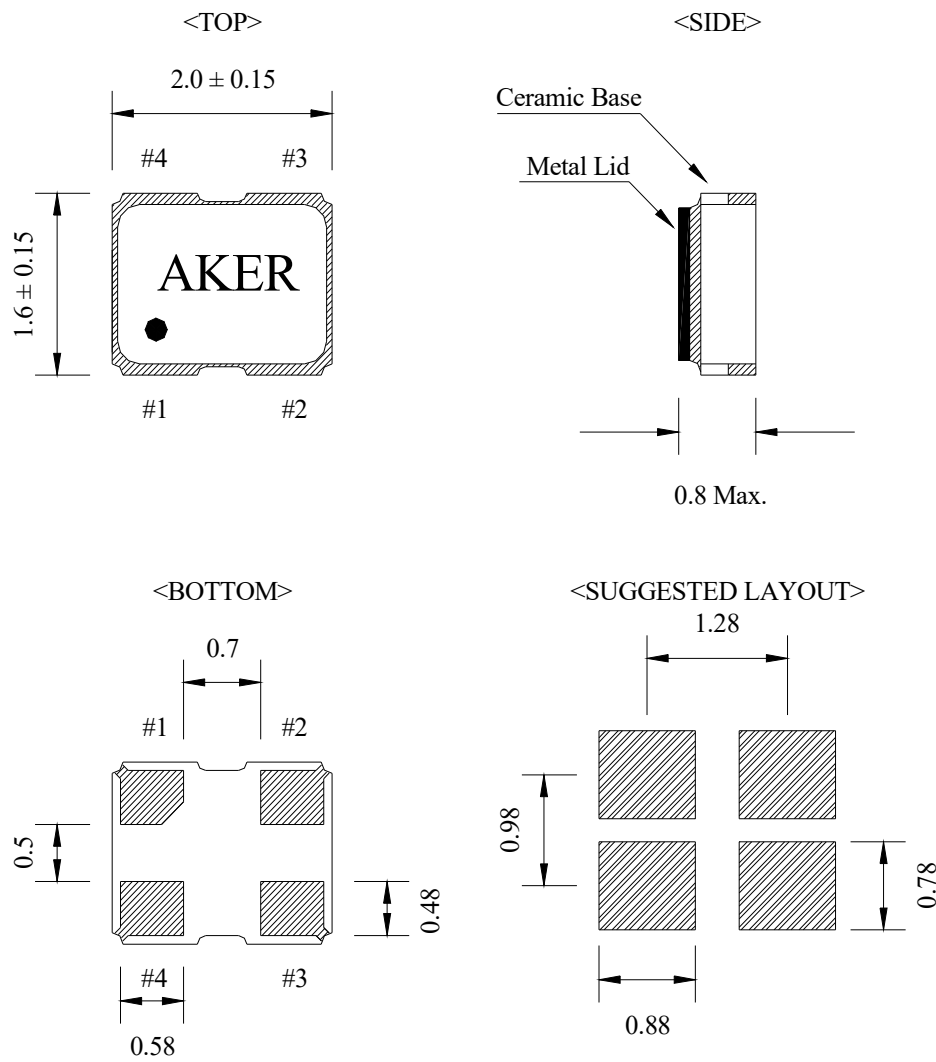
**Electrical Specifications:**

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

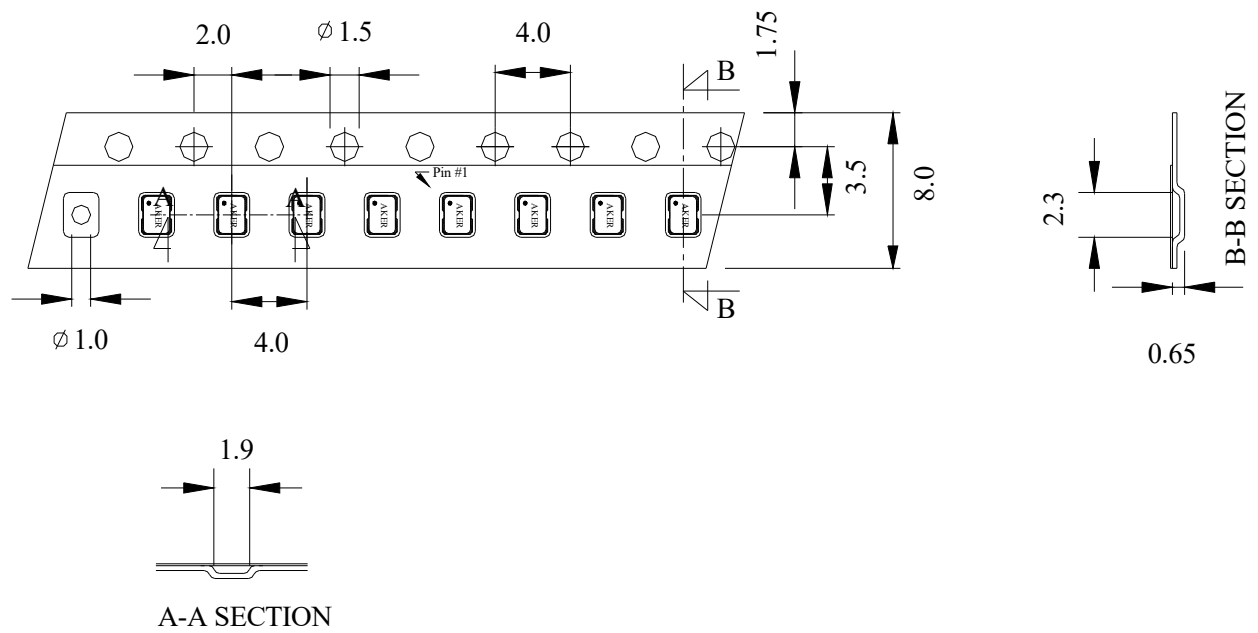
## Mechanical Outline and Solder Pad Layout:



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

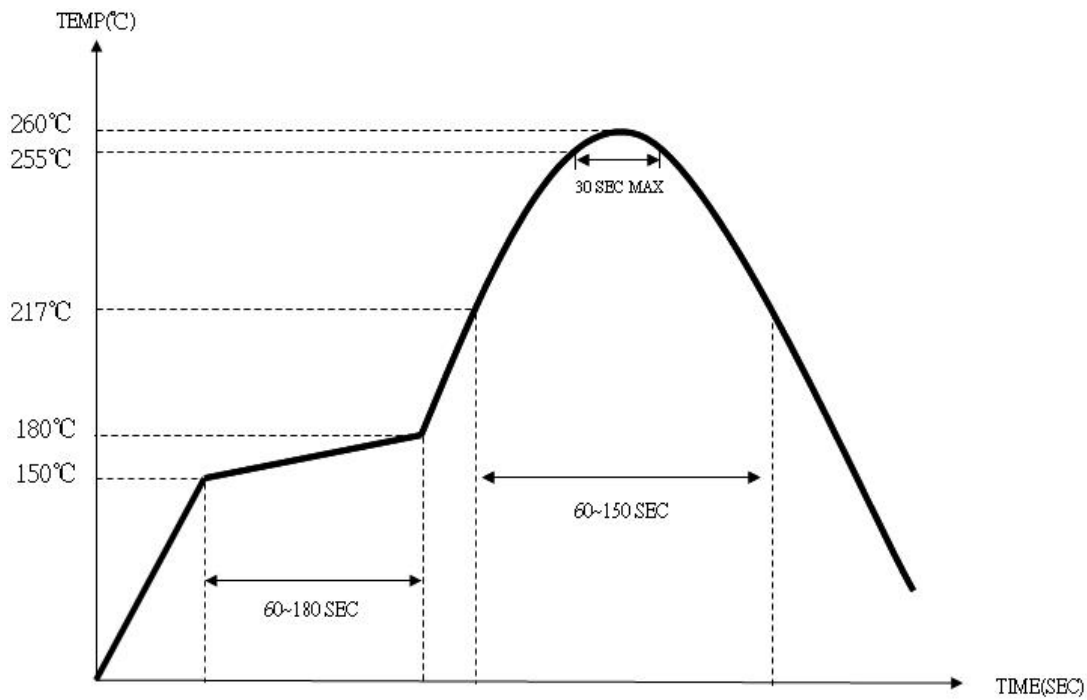
**Package is Seam Sealed Ceramic-Metal.  
 Dimensions are millimeters.**

### Carrier Tape Dimensions:



Dimensions are millimeters.

### Solder Reflow Characteristics:



### How to build a Part Number:

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

### Part Number Example:

TV21-3320S-26.000-X-R

TV21: 2.0 x 1.6 mm SMD Package

33: +3.3 VDC Supply Voltage

020:  $\pm$ 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.