

APPROVAL SHEET

Customer Name : _____
 Customer P/N : _____
 Frequency : 10.000000 MHz
 Aker Approved P/N: VTON-010000-3-AL-00
 Aker MPN : VTON-010000-3-AL-00
 Rev. : 1
 ISSUE DATE : Oct.24.2022

APPROVED	CHECKED	PREPARED
<i>Tim</i>		<i>Jimmy</i>
APPROVED BY CUSTOMER		

AKER TECHNOLOGY CO., LTD.

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MSL:Level 1

RoHS compliant



Aker Approved P/N : VTON-010000-3-AL-00
 APPROVED : Earnest SHEET : 2 of 8
 PREPARED : Jimmy REV. : 1
 Confidential

SMD Temperature compensated crystal oscillator

1. ELECTRICAL CHARACTERISTICS

■ Standard atmospheric conditions

Unless otherwise specified, the standard range of atmospheric conditions for making measurement and tests are as follow :

- Ambient temperature : 25±5°C
- Relative humidity : 40%~70%

If there is any doubt about the results, measurement shall be made within the following limits :

- Ambient temperature : 25±3°C
- Relative humidity : 40%~70%

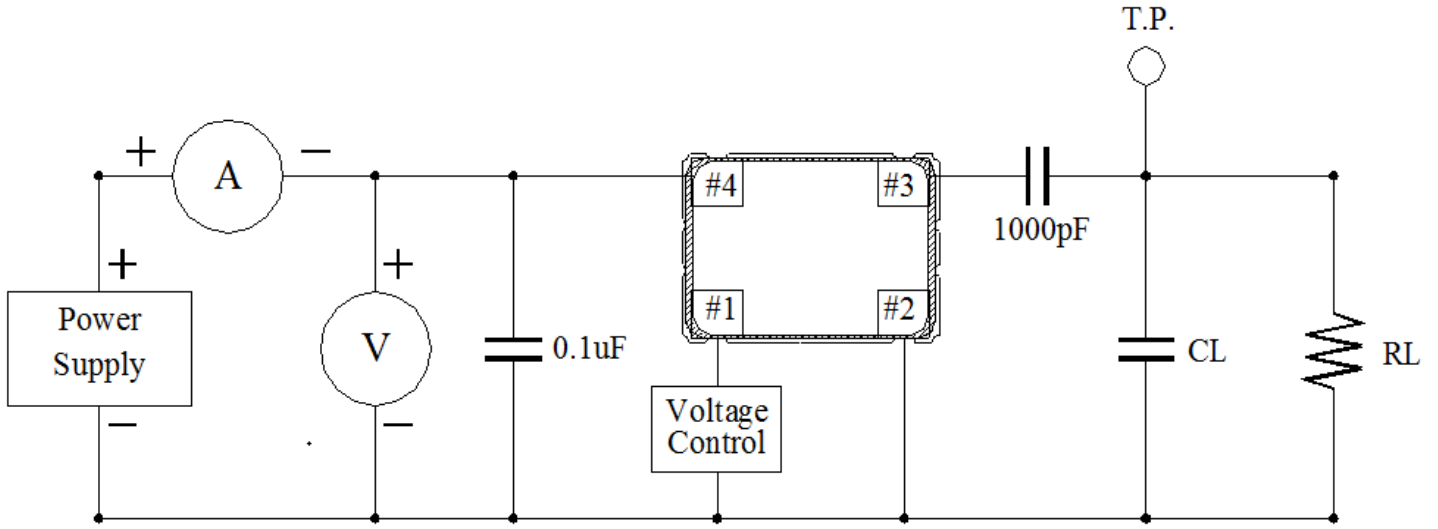
■ AKER Model : VTON-321

■ Cutting Mode : AT CUT

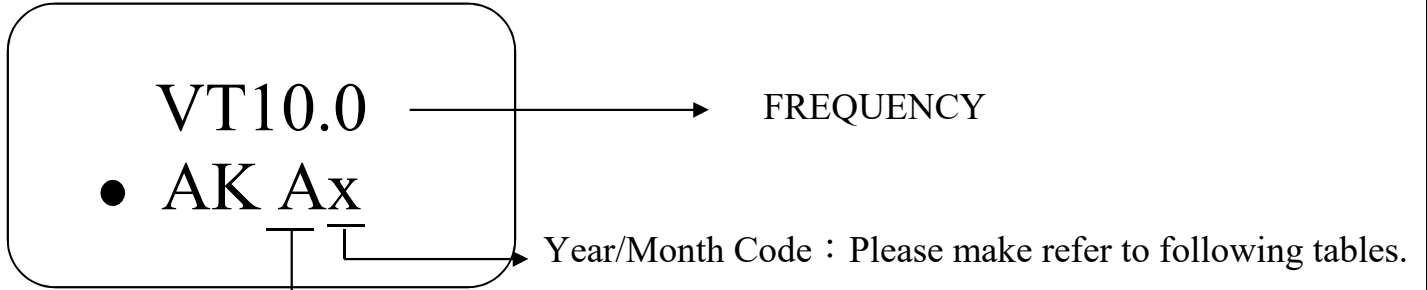
Parameters	Electrical Spec				Notes
	Min.	Typ.	Max.	Unit	
Nominal Frequency	10.000000			MHz	
Supply Voltage	3.135	3.3	3.465	V	
Frequency Tolerance (at 25°C)	-1.5	~	1.5	ppm	After 2 times reflow soldering Between minimum and maximum frequency value over the specified temperature range.
Frequency Stability Over Temperature	-2.0	~	2.0	ppm	
Frequency Stability Over Supply Voltage	-0.2	~	0.2	ppm	
Frequency Stability Vs Load	-0.2	~	0.2	ppm	±10% Change
Operating Temperature Range	-40	~	85	°C	
Storage Temperature Range	-40	~	85	°C	
Current Consumption			2.0	mA	
Output Waveform	Clipped Sinewave				
Output Load	10KΩ // 10pF				
Output Voltage Level	0.8			V _{pp}	
VCTL	0.5	1.5	2.5	V	Positive slope(df/dv)
Pulling Range	±8		±15	ppm	
Phase Noise @100Hz Offset		-115		dBc/Hz	
Phase Noise @1Khz Offset		-131		dBc/Hz	
Phase Noise @10Khz Offset		-144		dBc/Hz	
Start Up Time			2.0	mSec	
Aging	-1.0	~	1.0	ppm	First Year

Please kindly be noted that AKER DO NOT guarantee parts quality which involves human security application.

2 . VCTCXO TESTING CIRCUIT



3 . MARKING :



Internal identification code

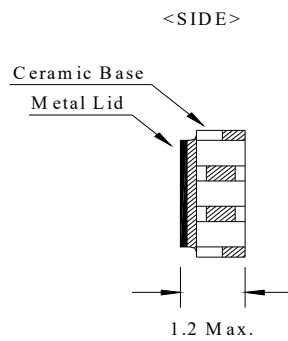
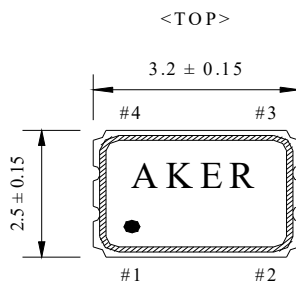
Date Code Guide

Year	2021	2022	2023	2024
	2025	2026	2027	2028
Month	(4N+1)	(4N+2)	(4N+3)	(4N+0)
JAN	a	n	A	N
FEB	b	p	B	P
Mar	c	q	C	Q
Apr	d	r	D	R
May	e	s	E	S
Jun	f	t	F	T
Jul	g	u	G	U
Aug	h	v	H	V
Sep	j	w	J	W
Oct	k	x	K	X
Nov	l	y	L	Y
Dec	m	z	M	Z

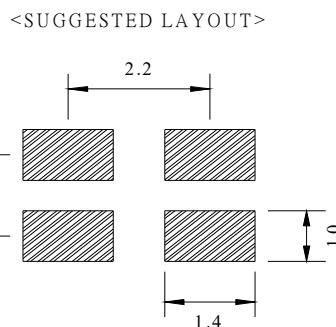
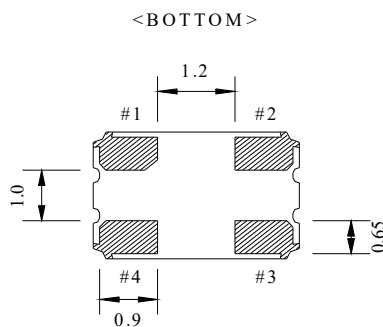
A cycle every four years

4 . DIMENSION :

(Unit : mm)



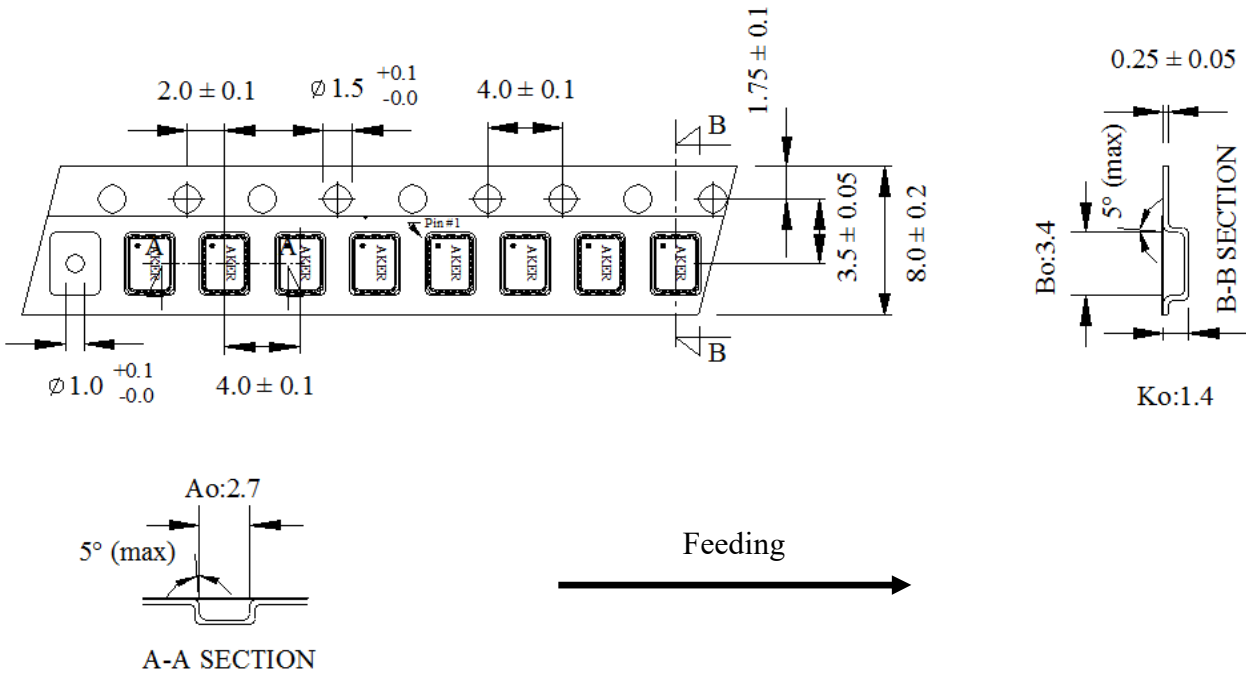
Pad	Connection
#1	VCON
#2	GND
#3	OUTPUT
#4	VDD



5. PACKING :

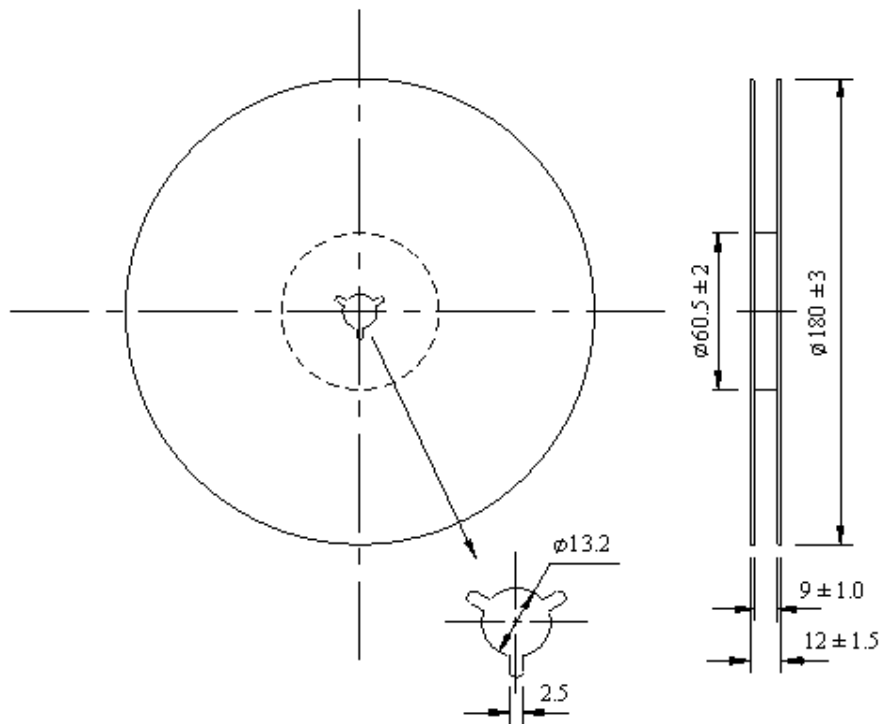
TAPE SPECIFICATION

(Unit : mm)

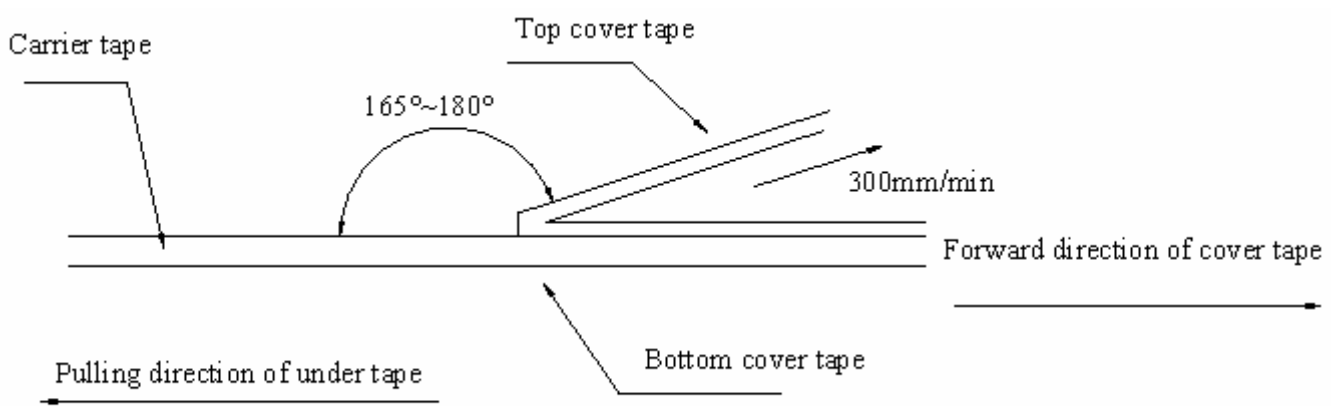


OUTLINE DIMENSION

(Unit : mm)



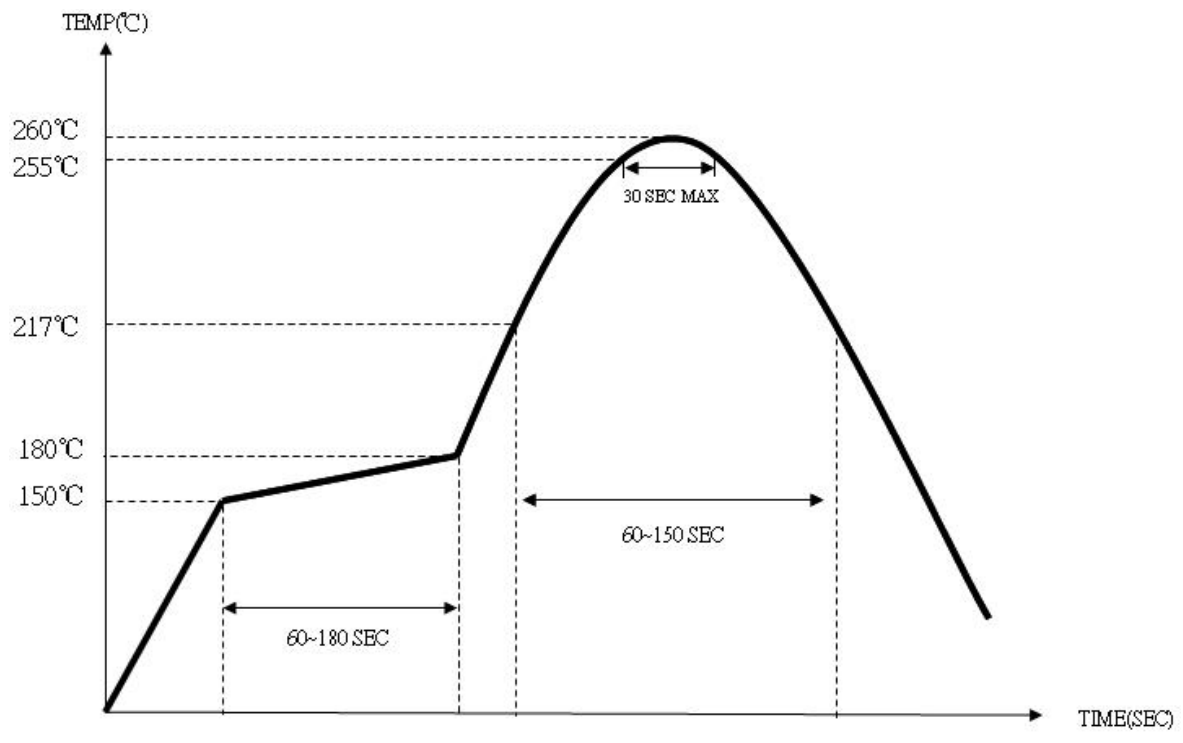
6. COVER TAPE ADHESION STRENGTH :



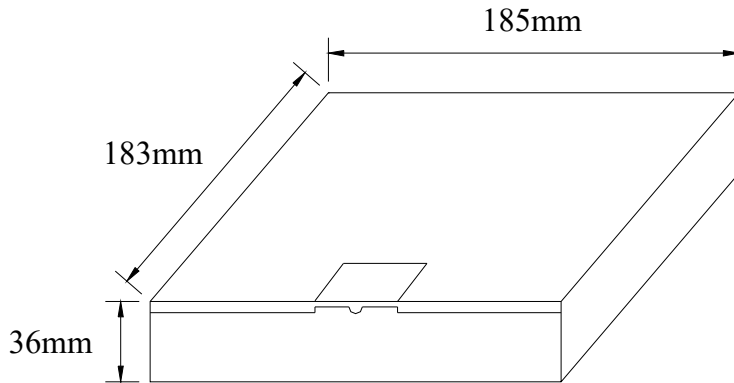
*** In the case, the cover tape is pulled off under the above conditions, the cover tape adhesion strength should be 10.2g~71.4g Plastic tape: 10.2g~71.4g

(Cover tape adhesion strength)

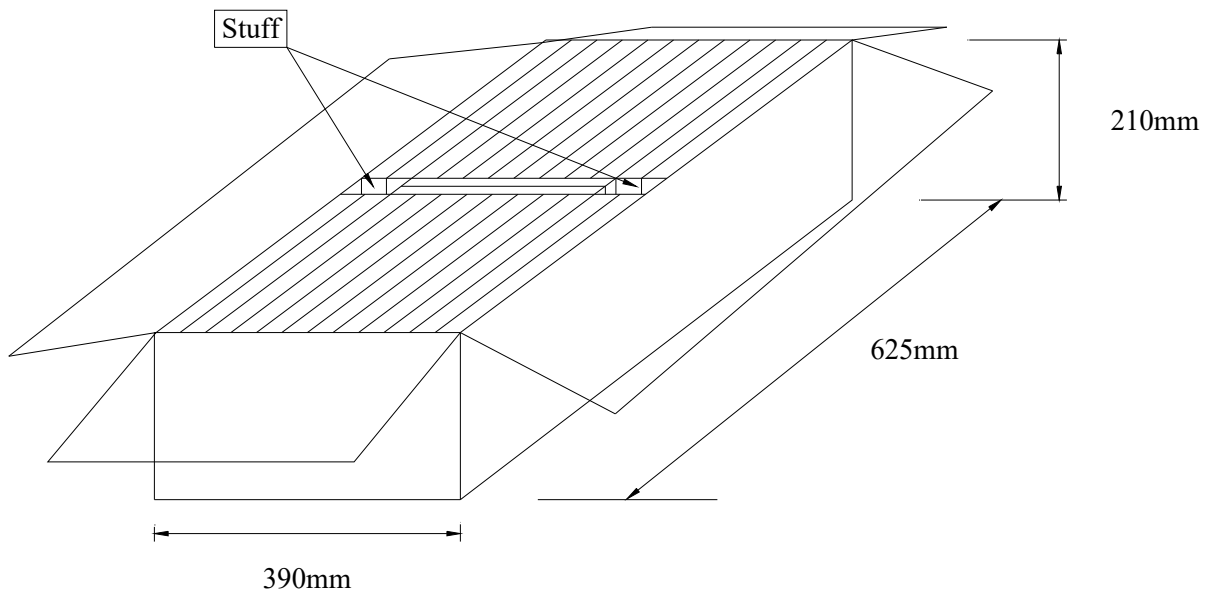
7. SOLDERING REFLOW PROFILE



8. PACKING :



PIZZA BOX = 3000 PCS / REEL(MAX)



SMD product packs 32 BOX = The outside box packs (3000 PCS * 32 BOX = 96000 PCS)(MAX)



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9 .RELIABILITY SPECIFICATION

Mechanical Endurance

TEST ITEMS	TEST METHODS AND TEST CONDITION	CRITERIA
Fine Leak Test	4.5 kg/cm ² Helium bombing for 1 Hour	≤1*10 ⁻⁸ atm.cc/sec Helium
Drop Test	Free drop from 100 cm height on a hard wooden board for 3 times(board is thickness more than 30 mm)	ΔF≤±2ppm
Vibration Test	Freq. range: 20~2000Hz Peak to peak amplitude:1.52mm Peak acceleration:20 G(196m/s ²) 3 direction(X, Y,Z) , each 20min , 4cycles	ΔF≤±2ppm
Solderability	Soldering temperature : 260±5°C Soldering duration : 2±0.5s Solder bath	90% coated
Mechanical Shock Test	1500G, 0.5ms, 6 sides, impact each side 3 times.	ΔF≤±2ppm

Environmental Endurance

TEST ITEMS	TEST METHODS AND TEST CONDITION	CRITERIA
Temperature Cycling	-55±3°C/15±3min ~ +125±3°C/15±3min 100cycles	ΔF≤±2ppm
Low Temp. Exposure	-40±3°C ,500±6 hrs	ΔF≤±2ppm
High Temp. & Humidity	+85°C±5°C & 85%±5% R.H. , 168±6 hrs	ΔF≤±2ppm
Resistance To Soldering Heat Test	IR Reflow furnace with the condition 2 times Peak temp.260±3°C , 10sec(Min.)	ΔF≤±2ppm
Aging Test	85±3°C , 500±12hrs	ΔF≤±2ppm