

# APPROVAL SHEET

Customer Name : \_\_\_\_\_  
Customer P/N : \_\_\_\_\_  
Frequency : 38.400000 MHz  
Aker Approved P/N: TXON-038400-2-AL-00  
Aker MPN : TXON-038400-2-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 : TXON-038400-2-AL-00	
APPROVED : Tin	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%

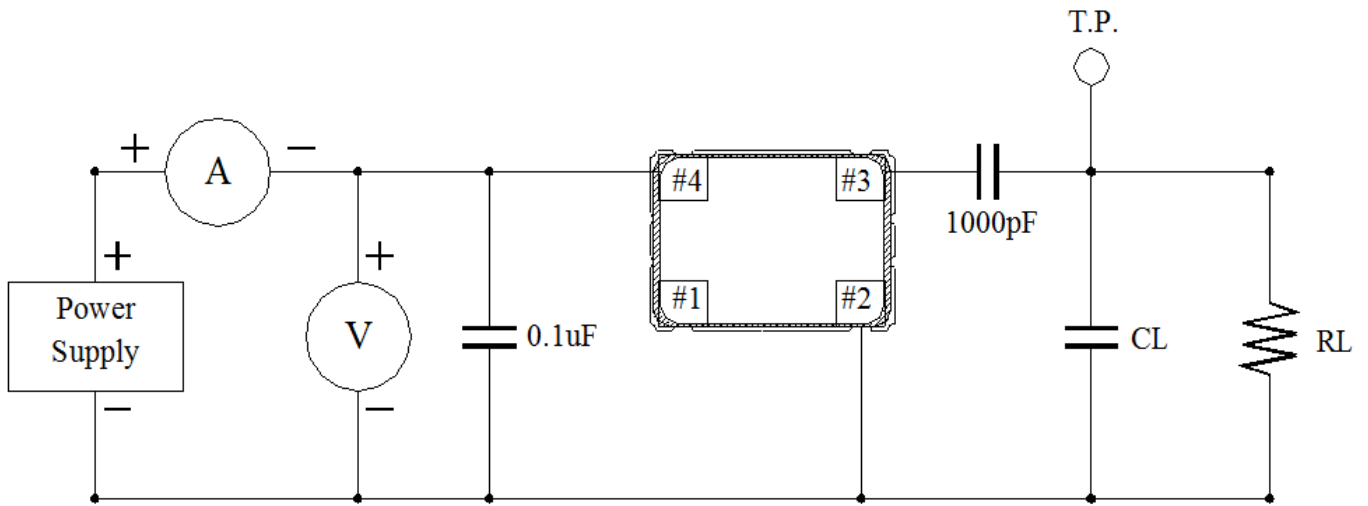
■ AKER Model : TXON-221

■ Cutting Mode : AT CUT

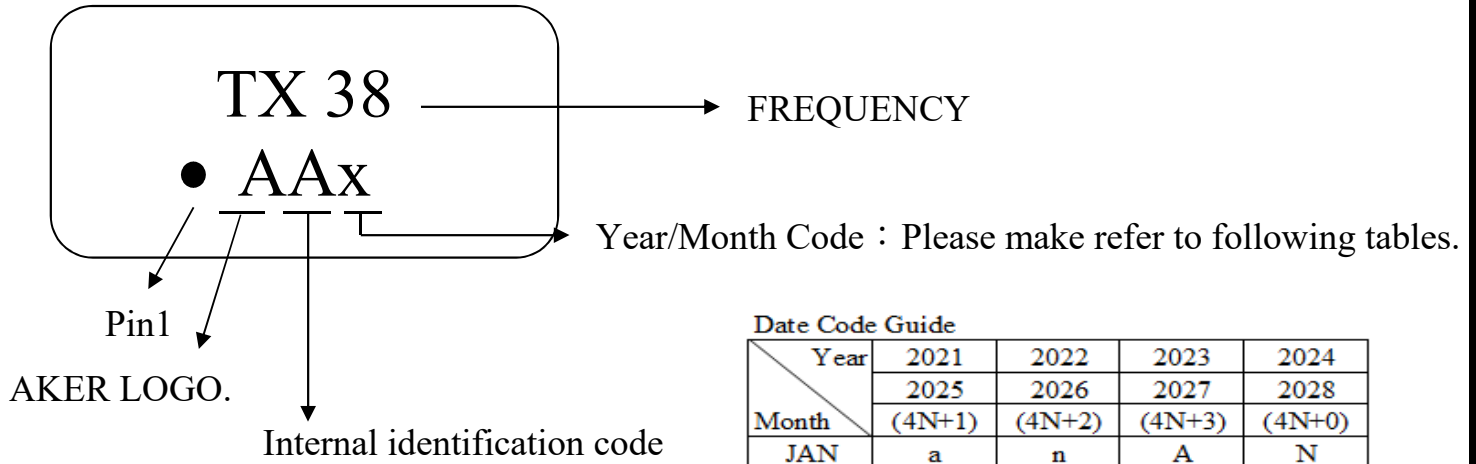
Parameters	Electrical Spec				Notes
	Min.	Typ.	Max.	Unit	
Nominal Frequency	38.400000			MHz	
Supply Voltage	1.7	~	3.3	V	
Frequency Tolerance	-1.5	~	1.5	ppm	After 2 times reflow soldering
Frequency Stability Over Temperature	-2.0	~	2.0	ppm	Between minimum and maximum frequency value over the specified temperature range.
Frequency Stability Over Supply Voltage	-0.2	~	0.2	ppm	
Frequency Stability Vs Load	-0.2	~	0.2	ppm	±10% Change
Operating Temperature Range	-30	~	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			Vp-p	
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 . TCXO TESTING CIRCUIT



### 3 .MARKING :



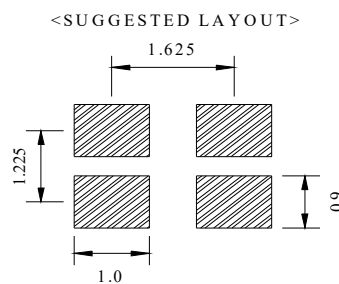
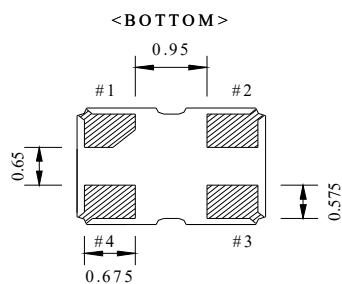
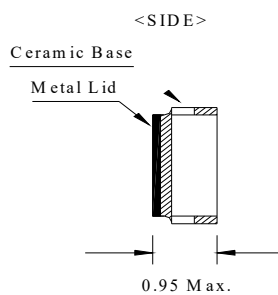
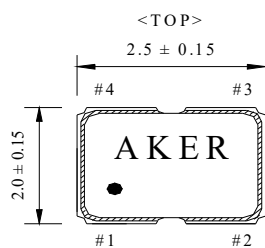
Date Code Guide

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 )

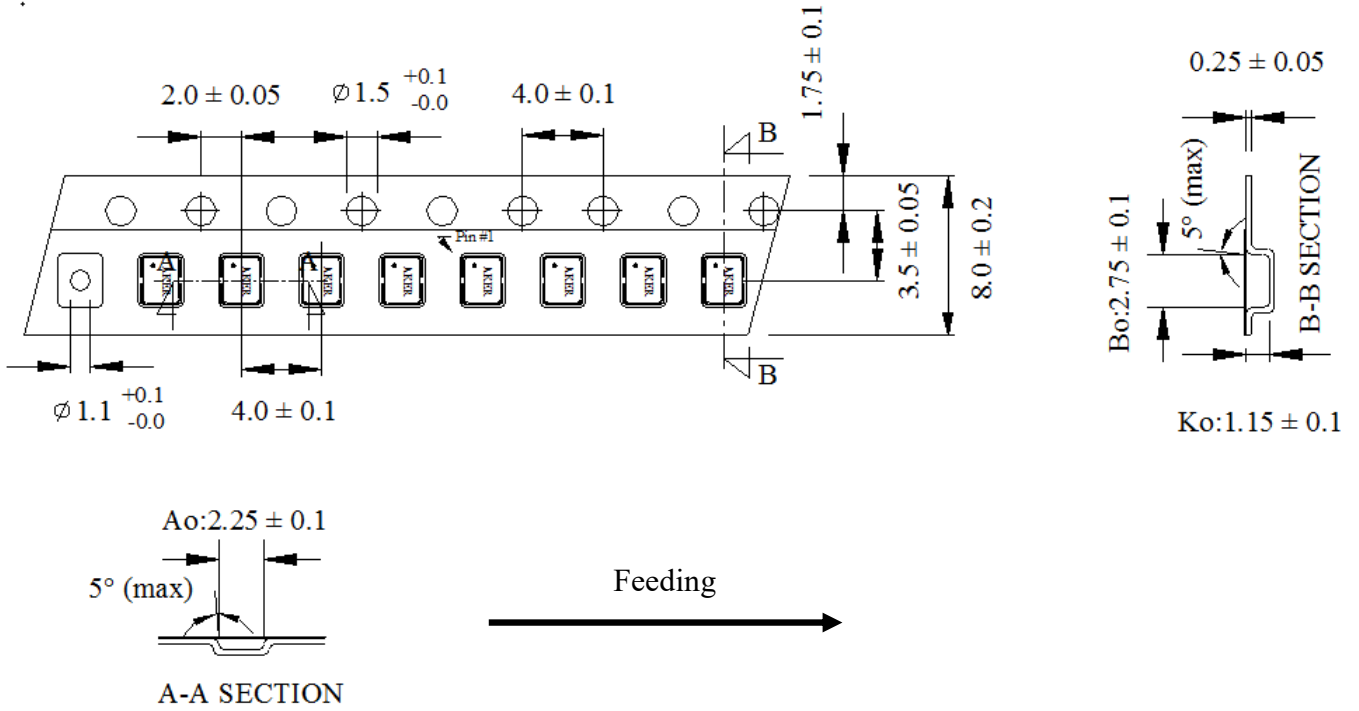


PIN No.	Connection
#1	NC / GND
#2	GND
#3	Output
#4	VDC

### 5. PACKING :

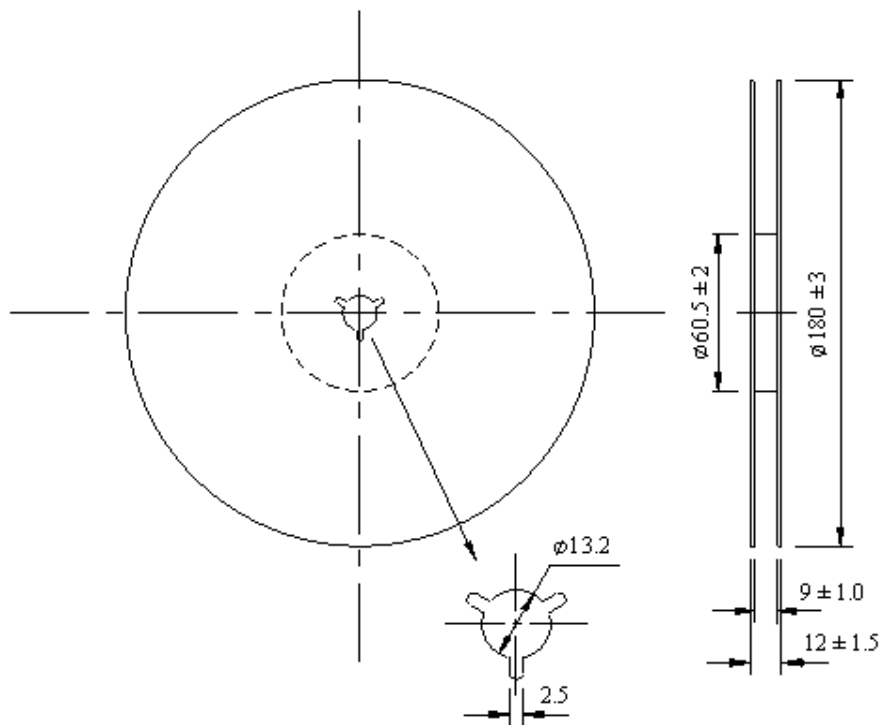
#### TAPE SPECIFICATION

( Unit : mm )

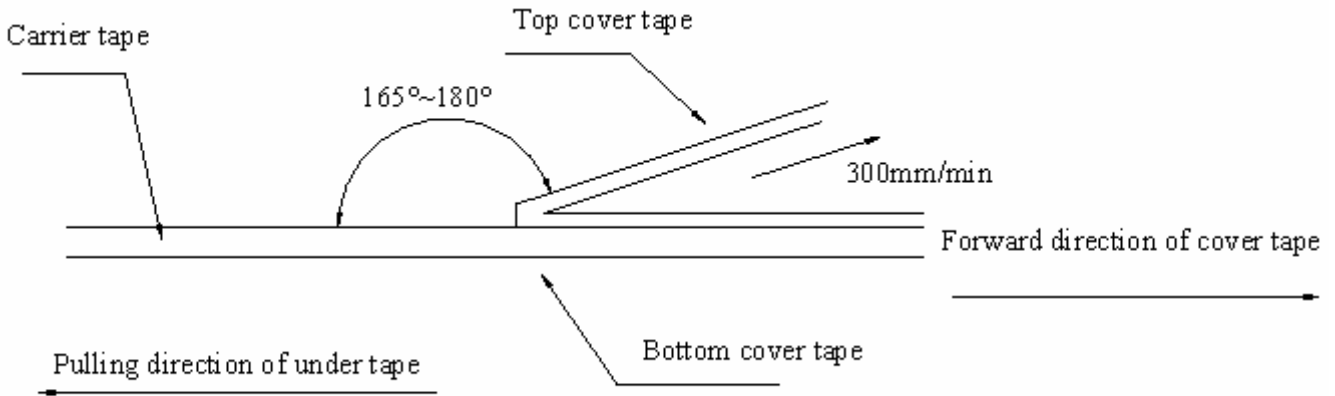


#### OUTLINE DIMENSION

( Unit : mm )



## 6. COVER TAPE ADHESION STRENGTH :

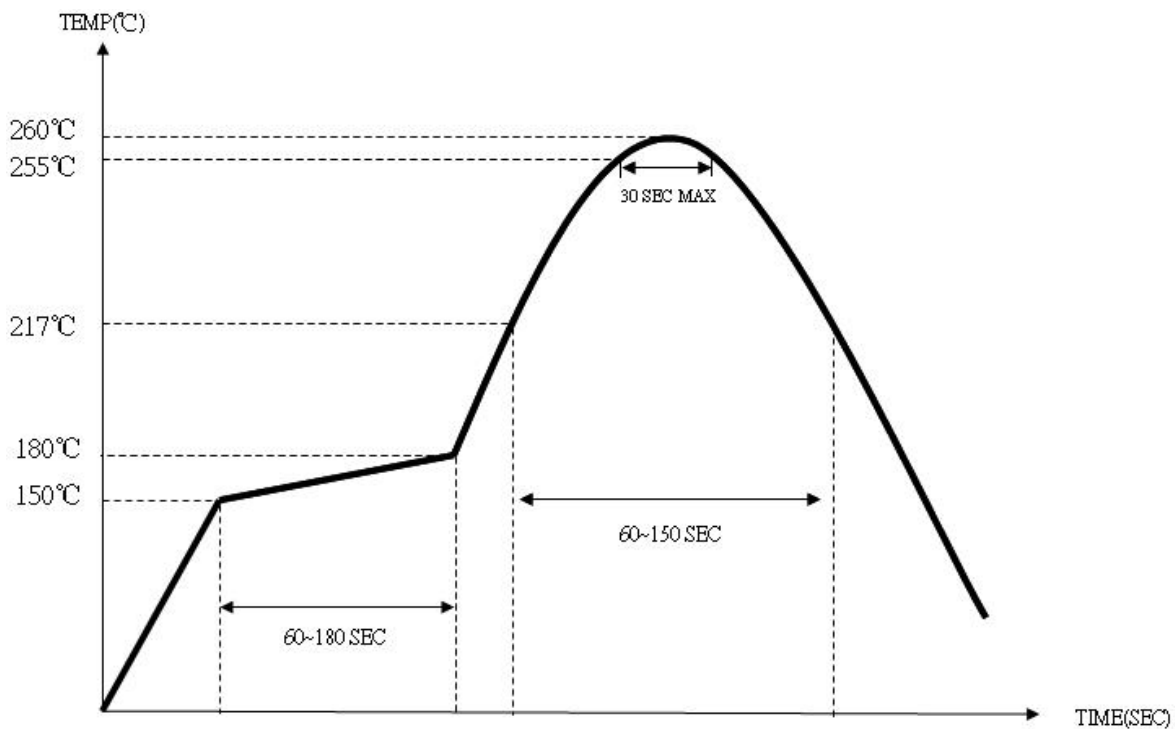


\*\*\* In the case, the cover tape is pulled off under the above conditions, the cover tape adhesion strength should be 10.2g~71.4g

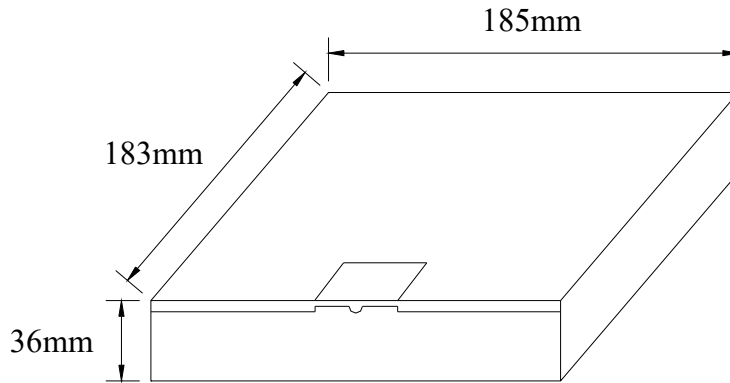
Plastic tape: 10.2g~71.4g

(Cover tape adhesion strength)

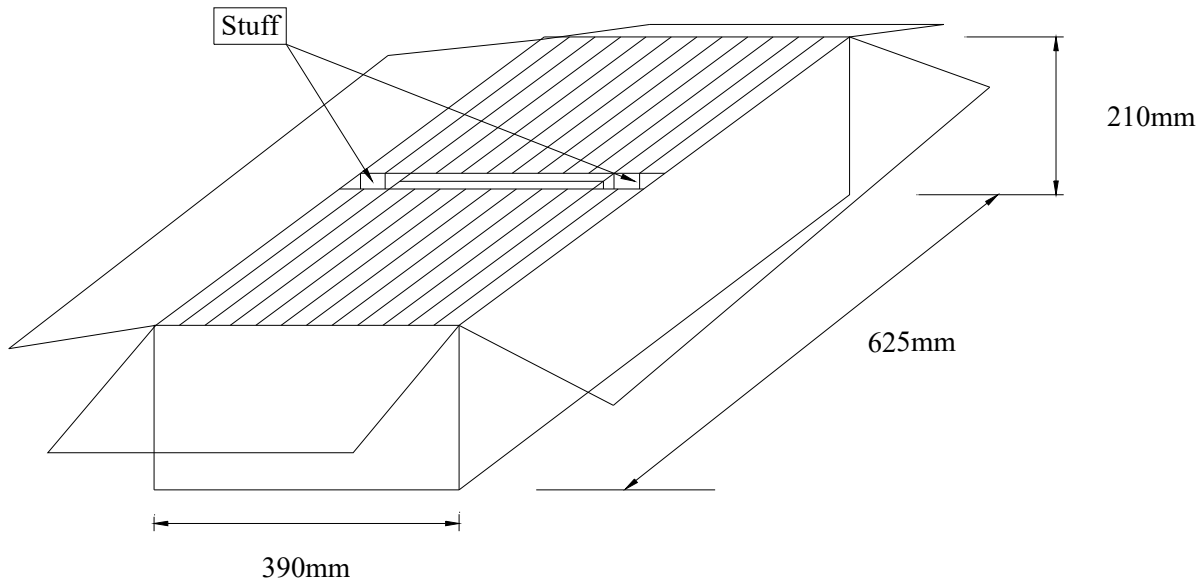
## 7. SOLDERING REFLOW PROFILE



### 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 <sup>2</sup> Helium bombing for 1 Hour	≤1*10 <sup>-8</sup> 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)	
Vibration Test	Freq. range: 20~2000Hz Peak to peak amplitude:1.52mm Peak acceleration:20 G(196m/s <sup>2</sup> ) 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