



APPROVAL SHEET

Customer Name : _____
 Customer P/N : _____
 Frequency : 38.400000 MHz
 Aker Approved P/N: TXON-038400-2-D4-01
 Aker MPN : TXON-038400-2-D4-01
 Rev. : 1
 ISSUE DATE : Feb.13.2023

APPROVED	CHECKED	PREPARED
		
APPROVED BY CUSTOMER		

AKER TECHNOLOGY CO., LTD.

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MSL:Level 1

RoHS compliant



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APPROVED : Tin	SHEET : 2 of 8
PREPARED : Hitome	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%

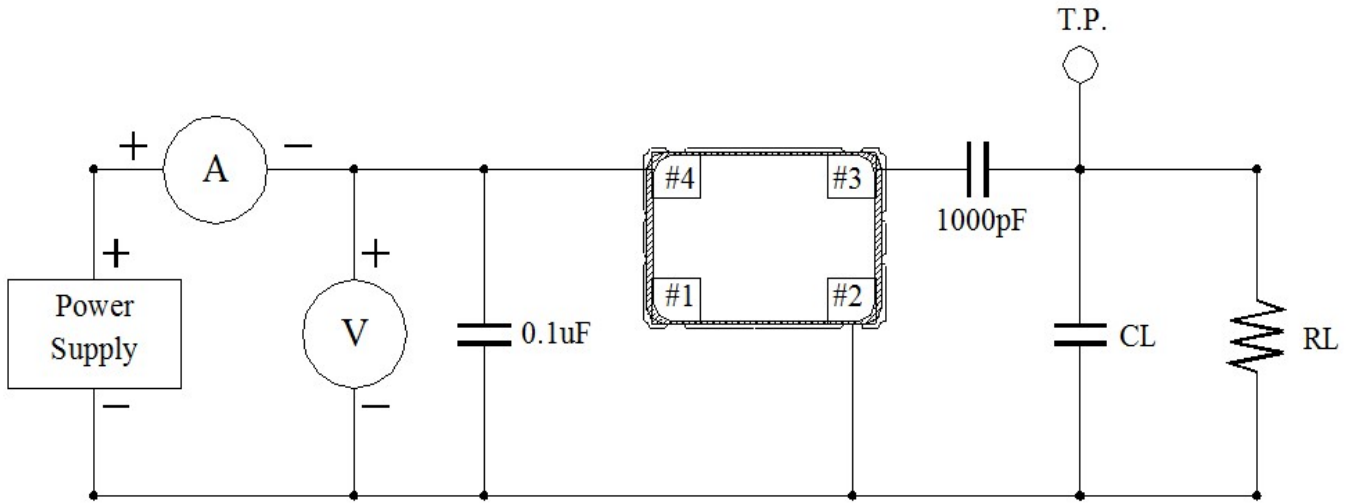
■ AKER Model : TXON-221

■ Cutting Mode : AT CUT

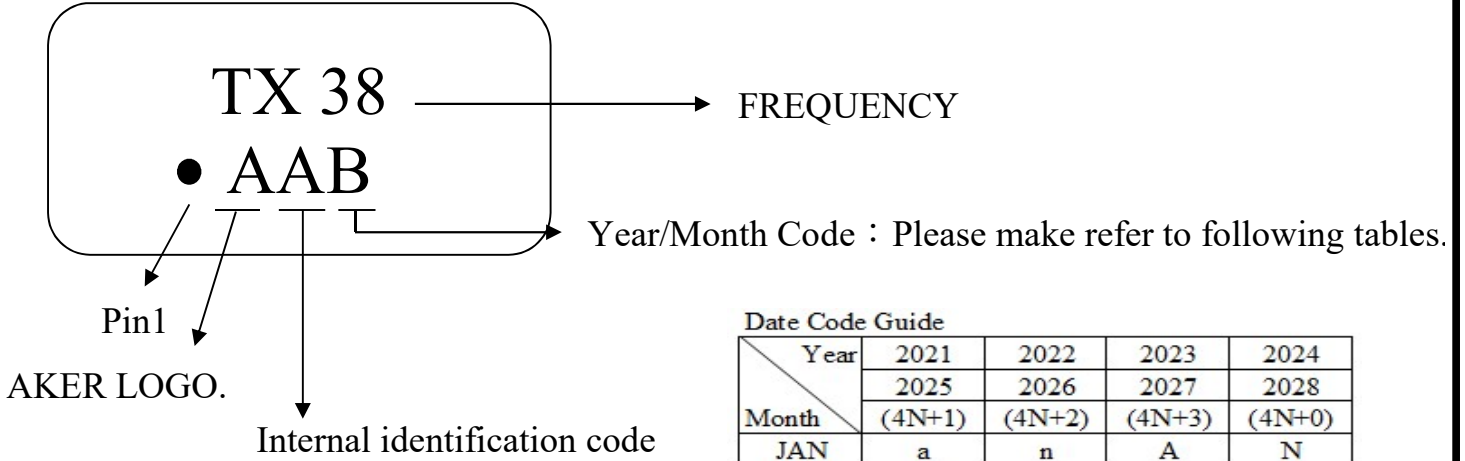
Parameters	Electrical Spec				Notes
	Min.	Typ.	Max.	Unit	
Nominal Frequency	38.400000			MHz	
Supply Voltage	3.135	3.3	3.465	V	
Frequency Tolerance	-1.5	~	1.5	ppm	After 2 times reflow soldering
Frequency Stability Over Temperature	-2.0	~	2.0	ppm	Between minimum and maximum frequency value over the specified 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 :



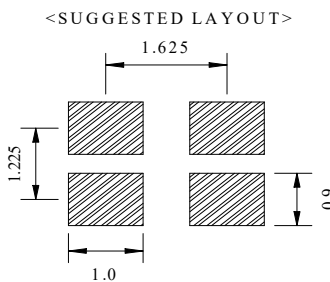
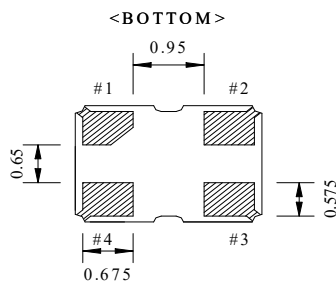
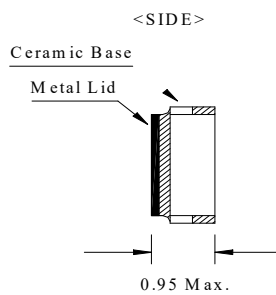
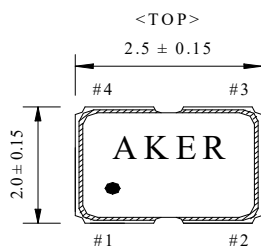
Date Code Guide

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



Accurate Kinetic Energy

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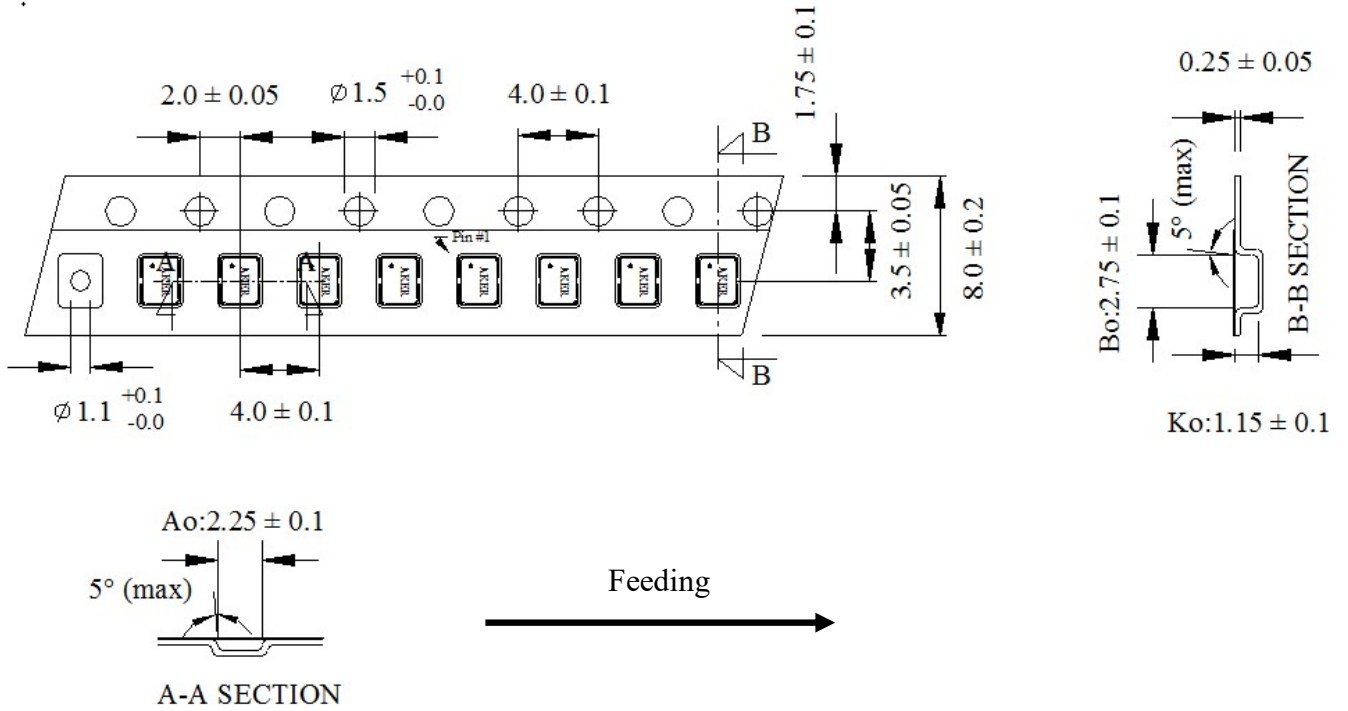
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5. PACKING :

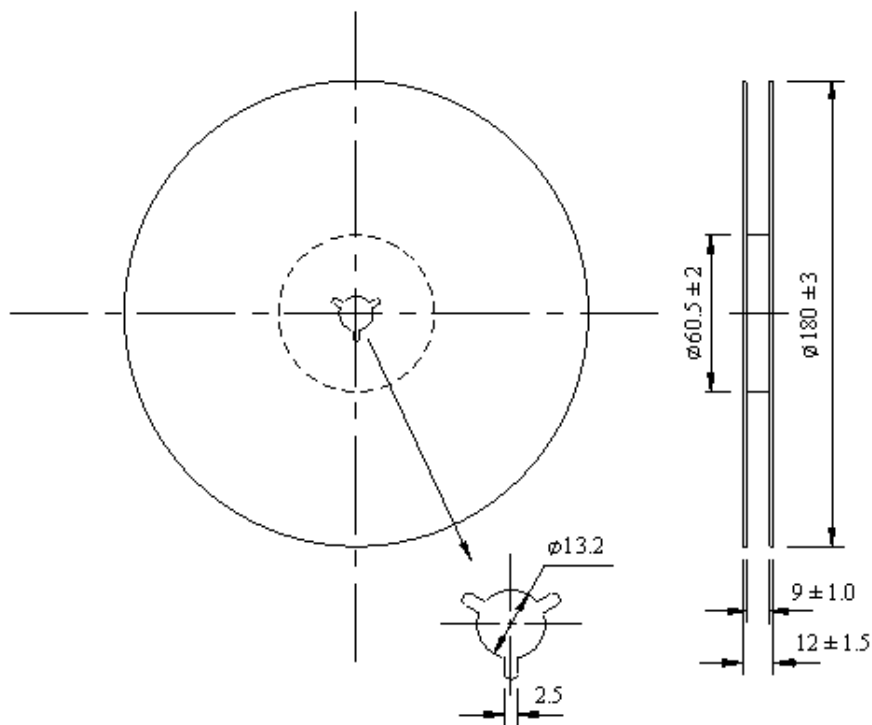
TAPE SPECIFICATION

(Unit : mm)

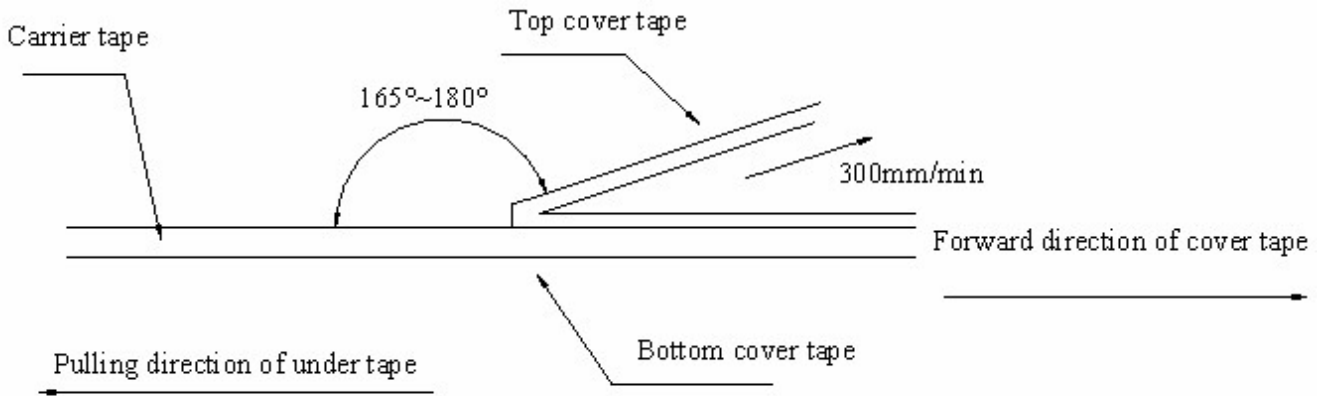


OUTLINE DIMENSION

(Unit : mm)



6. COVER TAPE ADHESION STRENGTH :

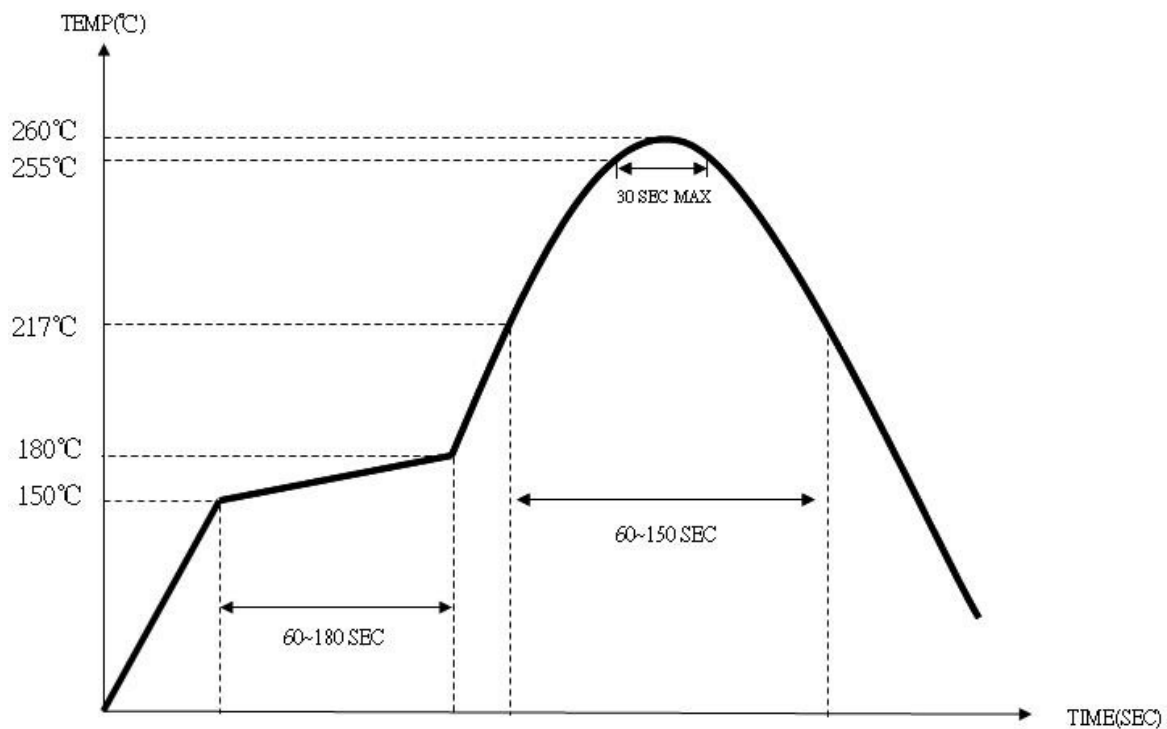


*** In the case, the cover tape is pulled off under the above conditions, the cover tape adhesion strength should be $10.2\text{g} \sim 71.4\text{g}$

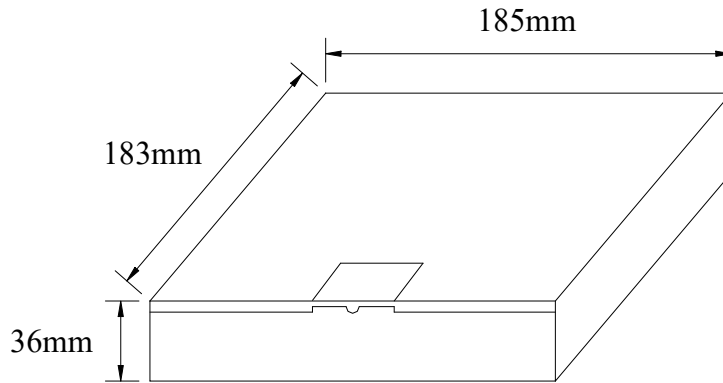
Plastic tape: $10.2\text{g} \sim 71.4\text{g}$

(Cover tape adhesion strength)

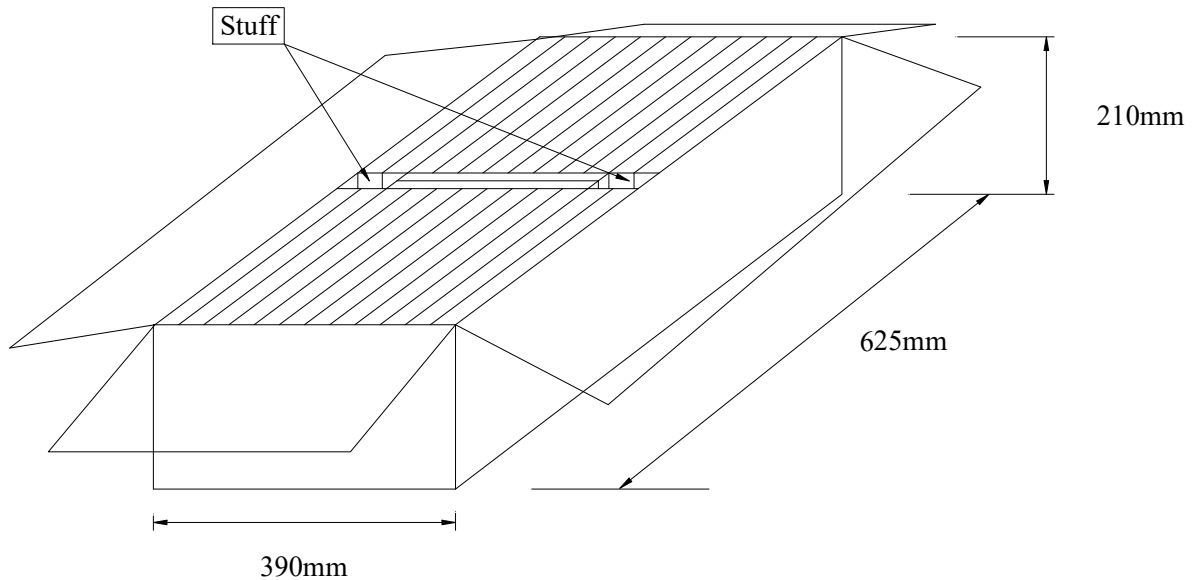
7. SOLDERING REFLOW PROFILE



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)	
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