

APPROVAL SHEET

Customer Name : _____
Customer P/N : _____
Frequency : 20.950000 MHz
Aker Approved P/N: TV53-30010S-20.9500-R
Aker MPN : _____
Rev. : 1
ISSUE DATE : Dec.14.2021

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

AKER TECHNOLOGY CO., LTD.

ADDRESS : NO 11-3, Jianguo Rd., Tanzi Dist., Taichung City 427, Taiwan.

TEL : 886-4-25335978 FAX : 886-4-25336011

Web: www.aker.com.tw

MSL:Level 1

RoHS compliant



CUST. P/N	:		Confidential
Aker Approved P/N	:	TV53-30010S-20.9500-R	
APPROVED	:	Tin	SHEET : 2 of 8
PREPARED	:	Kiku	REV . : 1

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%

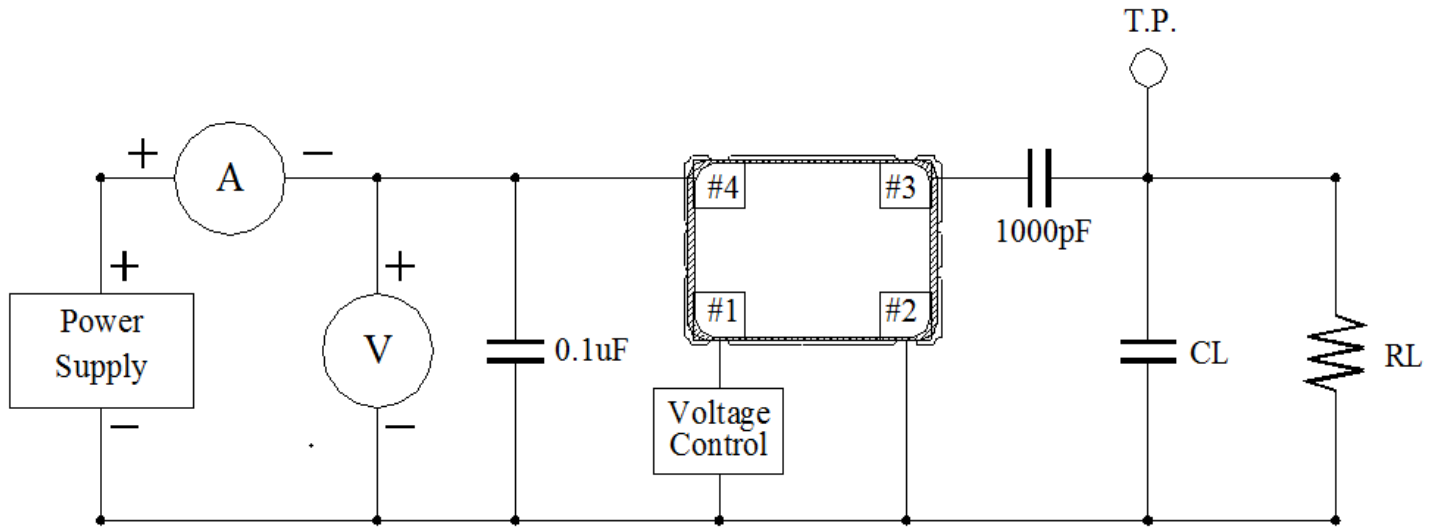
■ AKER Model : VTON-531

■ Cutting Mode : AT CUT

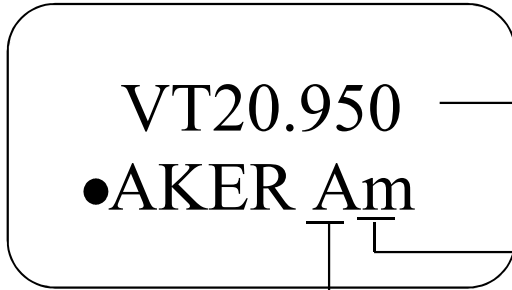
Parameters	Electrical Spec				Notes
	Min.	Typ.	Max.	Unit	
Nominal Frequency	20.950000			MHz	
Supply Voltage	2.85	3.0	3.15	V	
Frequency Tolerance (at 25°C)	-1.5	~	1.5	ppm	After 2 times reflow soldering Between minimum and maximum frequency value over the specified temperature range.
Frequency Stability 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	-20	~	70	°C	
Storage Temperature Range	-40	~	85	°C	
Current Consumption			2.5	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	±5	~	±10	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 :



FREQUENCY

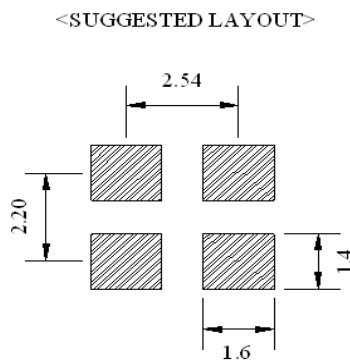
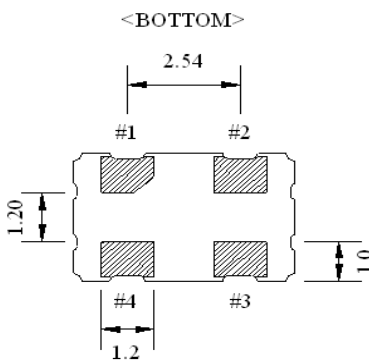
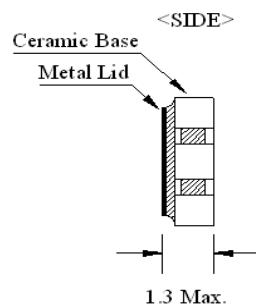
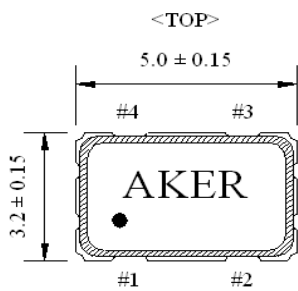
Year/Month Code : Please make refer to following tables.

Production line code

Year Month	2019	2020	2021	2022
	2023	2024	2025	2026
	2027	2028	2029	2030
	2031	2032	2033	2034
	2035	2036	2037	2038
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

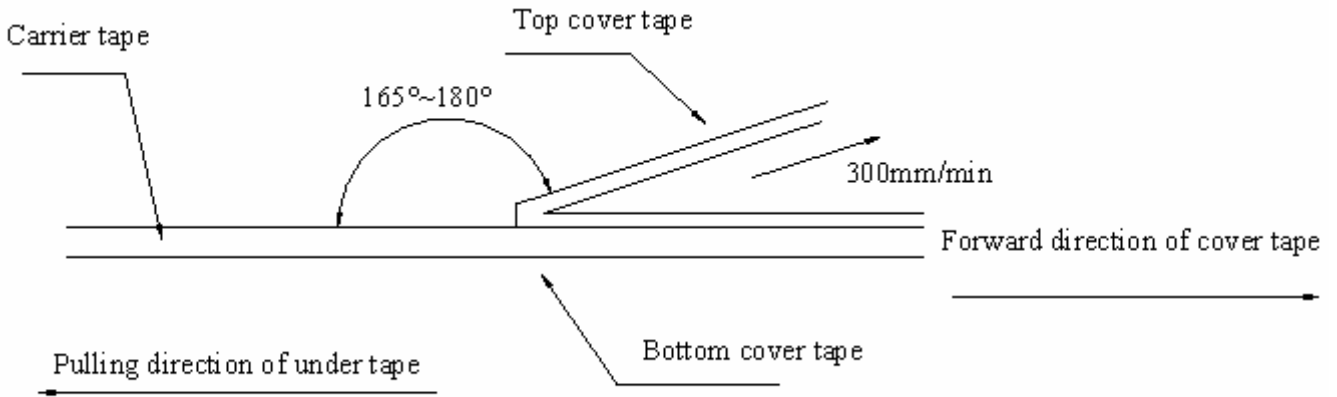
4 . DIMENSION :

(Unit : mm)



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

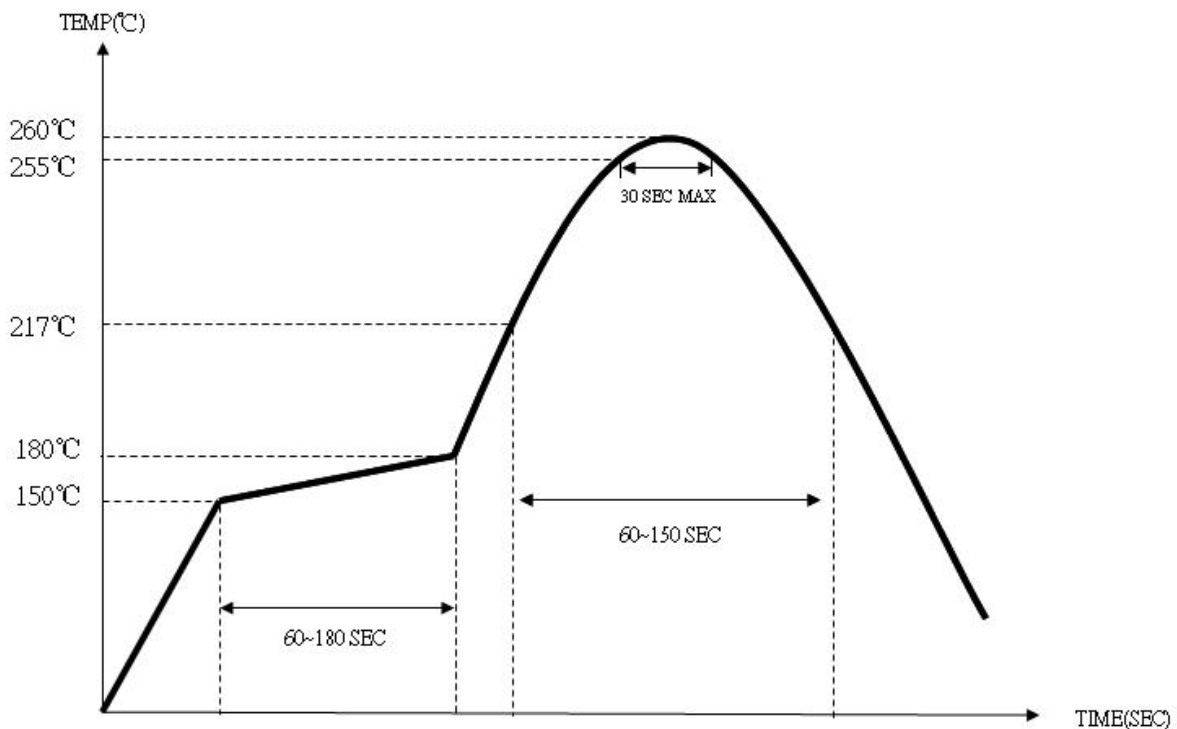
6. COVER TAPE ADHESION STRENGTH :



*** 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

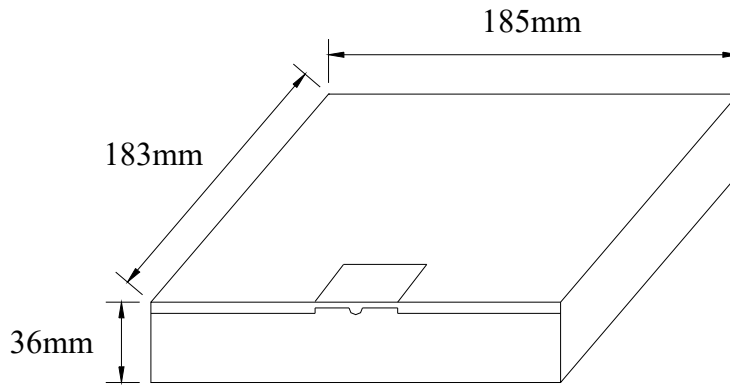
(Cover tape adhesion strength)

7. SOLDERING REFLOW PROFILE

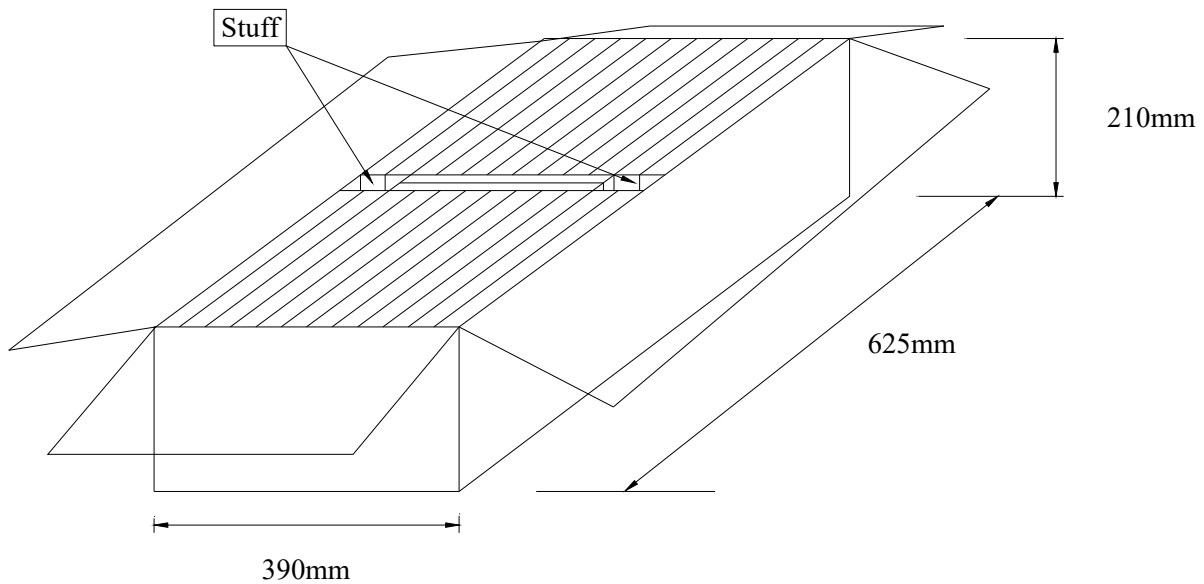


CUST. P/N	:		Confidential
Aker Approved P/N	:	TV53-30010S-20.9500-R	
APPROVED	:	Tin	SHEET : 7 of 8
PREPARED	:	Kiku	REV . : 1

8. PACKING :



PIZZA BOX = 1000 PCS / REEL(MAX)



SMD product packs 32 BOX = The outside box packs (1000 PCS * 32 BOX = 32000 PCS)(MAX)



CUST. P/N	:		
Aker Approved P/N	:	TV53-30010S-20.9500-R	Confidential
APPROVED	:	Tin	SHEET : 8 of 8
PREPARED	:	Kiku	REV . : 1

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