XO SPECIFICATION

Customer：

Customer P/N：

TKD P/N： XO32A02500AGEHE001

Part Name： SMD XO 3225

Product Description： 25.000625MHz

Issue Date： 2023/11/30

CUSTOMER'S APPROVAL

(PLEASE RETURN A COPY WITH APPOVAL)

TKD Science and Technology Co.,Ltd
泰 晶 科 技 股 份 有 限 公 司

Approved	Checked	Designer
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Rev.	Description of Revision History	Date	Designer	Checked By
A	New Revision	2023/11/30	Li Yan	Wang Peng

XO SPECIFICATION

1.Description : SMD Simple Packaged Xtal Oscillator 3225

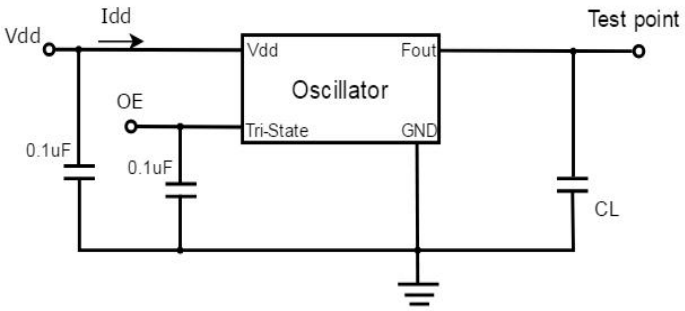
2.Nominal Frequency : 25.000625MHz

3.Electrical Specifications :

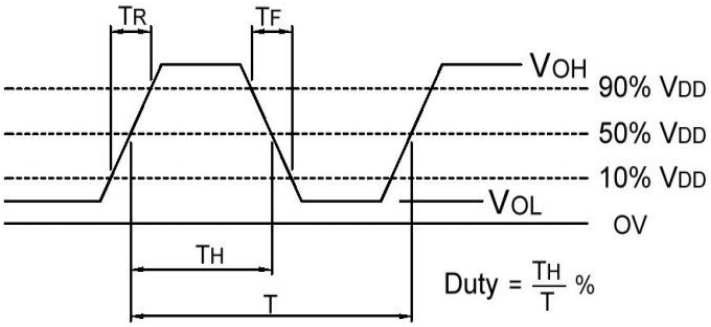
Item	Parameters	Condition	Electrical Specifications			
			Min	Typ	Max	Units
1	Nominal Frequency		25.000625			MHz
2	Frequency Stability Overall	Note1	-25		25	ppm
3	Operating Temperature Range		-40		85	℃
4	Supply Voltage		1.62	1.80	1.98	V
5	Current Consumption	Operating			15	mA
6	Output Waveform		CMOS			
7	Output Load		15			pF
8	Duty Cycle		45	50	55	%
9	Output Rise/Fall Time				4	ns
10	High Output Voltage		0.9Vdd			V
11	Low Output Voltage				0.1Vdd	V
12	Enable		Vdd*70%			V
13	Disable				Vdd*30%	V
14	Aging	Frist year	-3		3	ppm
15	Start Time				5	ms
16	Jitter	12KHz to 20MHz			1	ps
17	Storage Temperature		-55		125	℃

Note1 Frequency stability includes frequency tolerance@25℃ and frequency stability vs. operating temperature range and voltage variance and first year aging

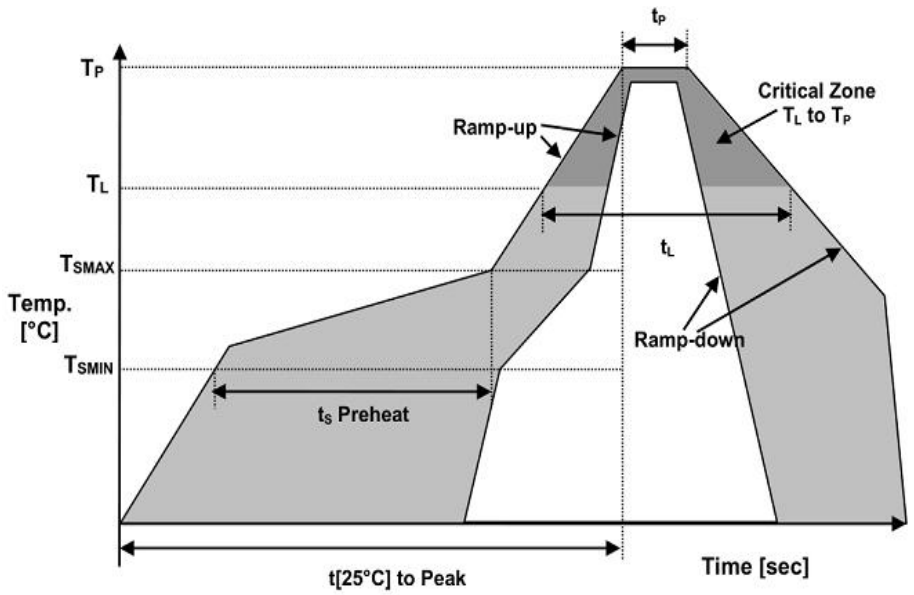
4.Test Circuit (CMOS Load)



5.Output Waveform (CMOS Load)



6.Recommended Reflow Profile



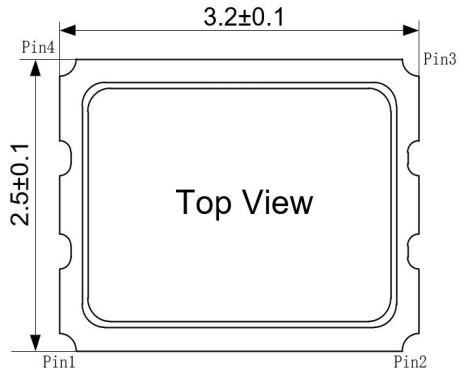
Reflow Profile		
Temperature MIN Preheat	T_{SMIN}	150℃
Temperature MAX Preheat	T_{SMAX}	200℃
Time（T_{SMIN} -T_{SMAX}）	t_S	60-180sec
Temperature	T_L	217℃
Peak Temperature	T_P	260℃
Ramp-up Rate	R_{UP}	3℃/sec max
Ramp-Down Rate	R_{DOWN}	6℃/sec max
Time within 5℃ of Peak Temperature	t_P	10sec
Time t(25℃) to Peak Temperature	t(25℃)to Peak	480sec
Time	t_L	60-150sec
Suggest reflow times	3 Times max	

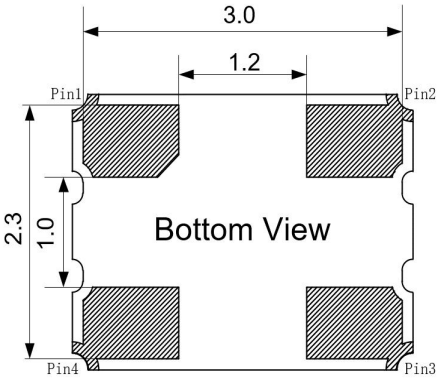
7.Reliability Specifications

No.	Test Item	Test Conditions	Reference
1	High Temperature Storage	Temperature: 125 ±5 ℃ Time: 1000±12 Hours	MIL-STD-202 Method 108
2	Temperature Cycle	Temperature 1: -55 ±3 ℃ Temperature 2: 125 ±3 ℃ Temperature change between T1 and T2 at soonest; Run 1000 cycles, maintain T1 and T2 5minutes each in one cycle	JESD22 Method JA-104
3	Resistance to Soldering Heat	Pre-heat: 125℃ 60~120 Seconds Solder Temperature: 260℃±5℃ Time: 30 Seconds	MIL-STD-202 Method 210
4	Drop Test	3 Timed Free Fall from 150cm height to concrete floor	IEC 68-2-32
5	HIgh Temperature High Humidity Strorage	Temperature: 85 ±5 ℃ Relative Humidity: 80%--85% Time: 1000Hours±12 Hours	MIL-STD-202 Method 103
6	Steam Aging	Temperature: 97 ±5 ℃ Time: 24Hours 260℃ solder pot to check solderability	J-STD-002
7	Solderability	Dip in flux 5~10 seconds Temperature: 245℃±5℃ Time: 10 Seconds	J-STD-002
8	Aging	Temperature: 85 ±2 ℃ Time: 1000±12Hours	MIL-STD-202 Method 108
9	Thermal Shock	Temperature1：-55 ℃ ±3 ℃ Temperature:2：125 ℃ ±3 ℃ Temperature change between T1 and T2：5seconds 1000 cycles，maintain T1 and T2 for 30 minutes each in one cycle	MIL-STD-202 Method 107
10	Vibration	Frequency Range: 10Hz~2000Hz Amplitude: 1.5mm or 20G 4Hours in each direction, total 12Hours	MIL-STD-202 Method 204

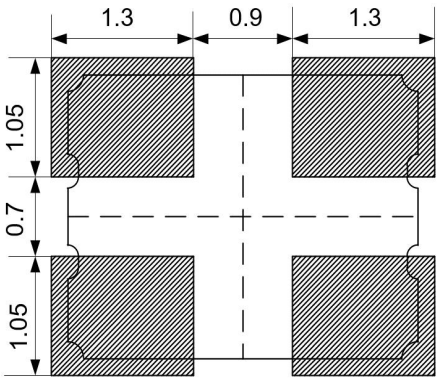
8.Product Dimensions

Unit：mm









Recommend Soldering Pattren

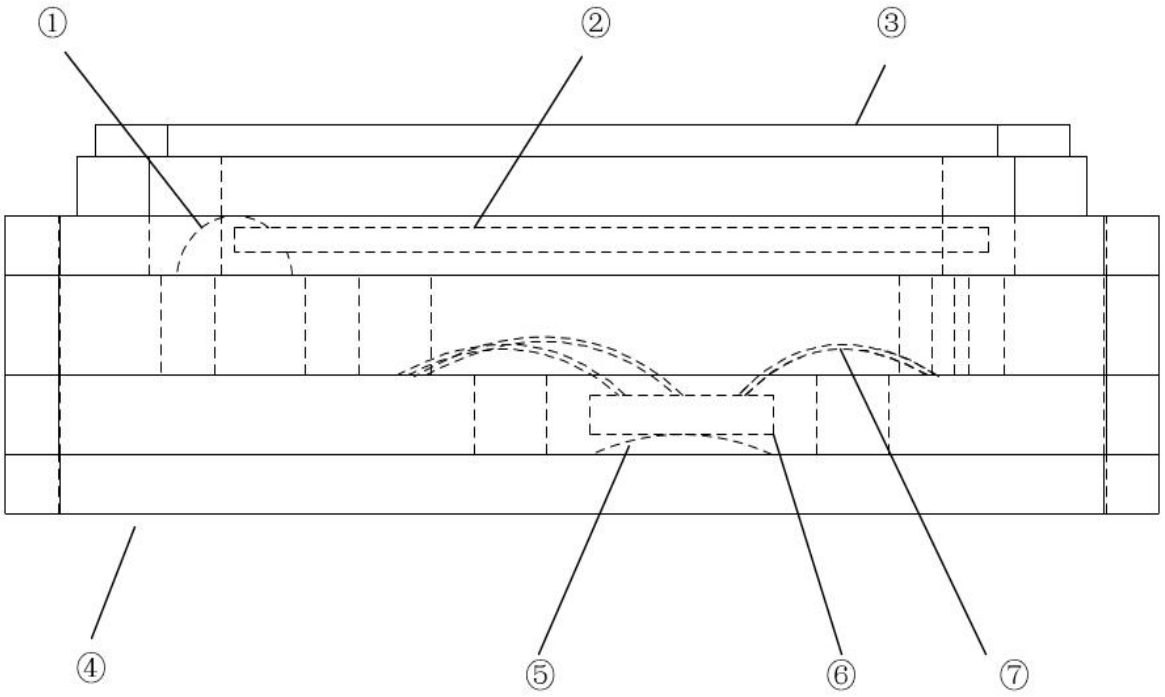
Pin Connection

Name	Connection
pin 1	Tri-State
pin 2	GND
pin 3	Fout
pin 4	Vdd

Function

Pin1 Input	Pin3 Output
High level	Oscillation Out
Open	
Low level	High Z

9.Structure illustration



No.	Components	Materials
①	Conductive Adhesive	Ag+Silicone resin
②	Crystal Blank	SiO_2
③	Lid	Fe-Ni-Co Alloy
④	Base	Ceramic+Noble Metal
⑤	Conductive Adhesive of Solid IC	Ag+Epoxy resin
⑥	IC	Si
⑦	Gold wire	Au

10.Product Identification (Marking)

T： TKD Logo

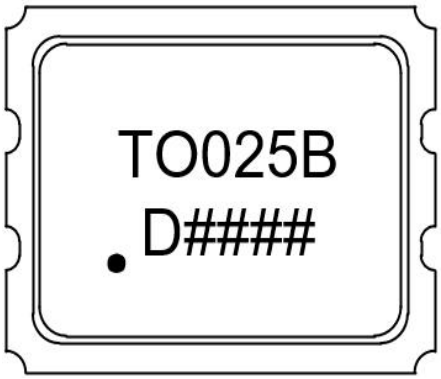
O： Oscillator Code

025B： Frequency Code

●： Pin1 Index

D： Date Code

####： XO Lot Code



Date Code

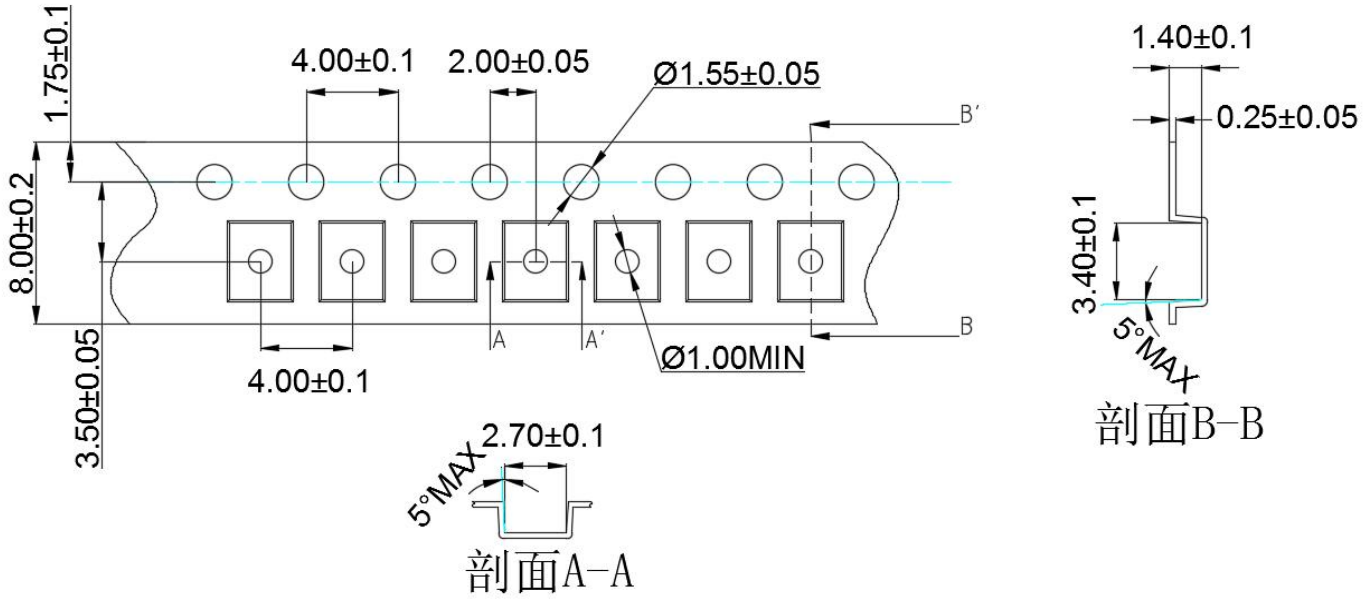
Year		2019	2020	2021	2022
		2023	2024	2025	2026
		2027	2028	2029	2030
		2031	2032	2033	2034
Month	JAN	a	n	A	N
	FEB	b	p	B	P
	MAR	c	q	C	Q
	APR	d	r	D	R
	MAY	e	s	E	S
	JUN	f	t	F	T
	JUL	g	u	G	U
	AUG	h	v	H	V
	SEP	j	w	J	W
	OCT	k	x	K	X
	NOV	l	y	L	Y
	DEC	m	z	M	Z

This date code will be cycled every four years.

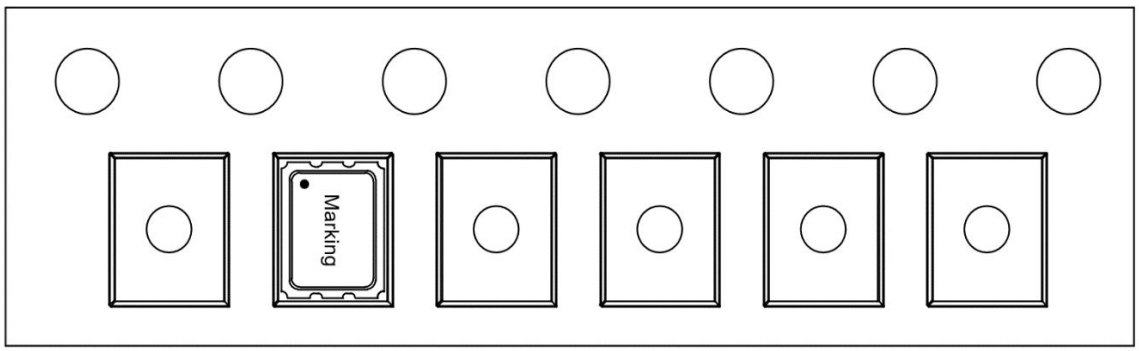
11.Package Information

Tape (Carrier) Dimensions

Unit：mm

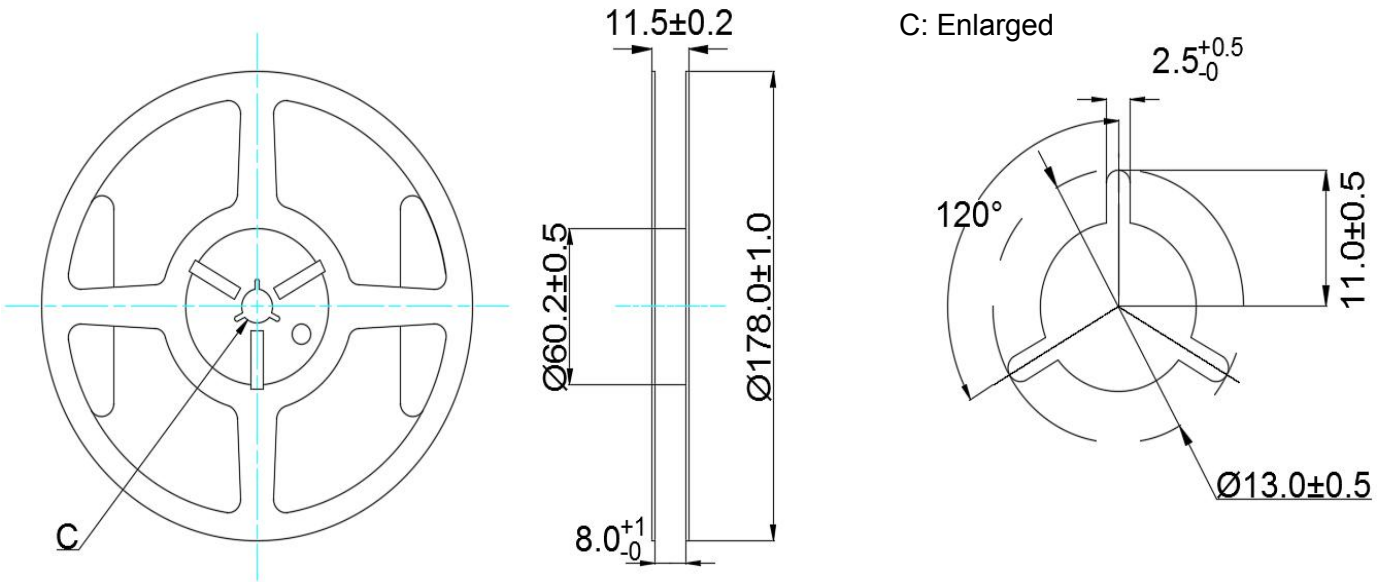


The Direction of Packing



Reel Dimensions

Unit：mm



Handling Instructions

1. Cautions for Handling

a) Prevention against electrostatic breakdown

Your full attention to static electricity is still requested.

b) Direction

Before mounting the crystal oscillator on board, Please confirm the direction to make sure the GND terminal and the terminal of power supply are not taken wrongly.

2. Prevention against Vibration and Shock

While the product is being transported or mounted onto board, if undue hock and vibration exceeding the specification is put on, there is risk hat the built-in crystal blank is broken.

When undue shock and vibration exceeding the specification is put on the product,please be sure to make confirmation of the product's characteristics.

3. Soldering

In order to assure the reliability of the crystal oscillator, please use the product under the recommended conditions.

4. Surface mounting

a)This product is surface-mounting device.

So, Please pay attention to the following things.

b)Extreme deformation of board may make pattern off, the electrode of terminals off and solder broken.Full attention is requested especially when splitting the board with the oscillator mounted where the camber of the board occurs.

c)In case that automatic mounter is used, please choose the type with small shock generation and make confirmation of the shock before use.

5. Cleaning

Because cleaning will cause change to all characteristics, cleaning is forbidden.

6. Store keeping (method and duration)

Long-time storage in the high/low temperature and high humidity leads to deterioration of solderability. So, please keep the product in the temperature of +5~+35 and humidity of 45~70%.

Moreover, please keep the product in the circumstance with measures against static electricity.

The storage life is 6 months before the pack is opened and please use it within 168 hours after the pack is opened.

(Please keep it with desiccator etc. when you exceed 168 hours after the bag is opened. Please use it after confirming the product solderability.)

7. Caution

This product should not be used in toxic, harmful, or corrosive environments such as mercury, chlorine, sulfur, acid-base environments etc.