开拓晶体
KAITUO CRYSTAL

APPROVAL SHEET

Approval Specification		**Customer’ s Approval Certificate**
TO: Part No.: Customer’ s Part No.:		Checked & Approved by: Date: Please return this copy as a certification of your approval

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Part No.	:	KC24M
Pages	:	7
Date	:	2021/7/1
Revision	:	1.0

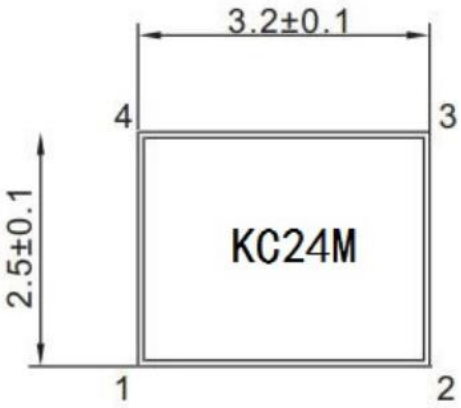
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Approved by:	

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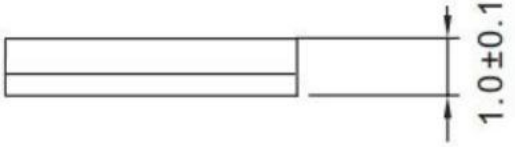
History Record

Date	Part No.	Version No.	Modify Content	Remark

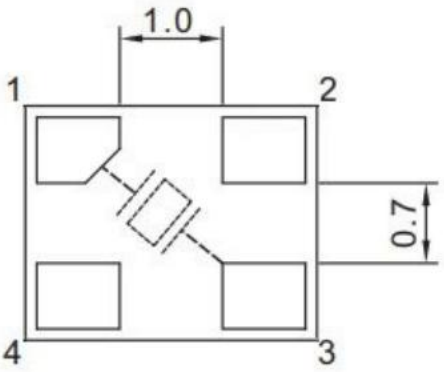
1.Product outline dimension(mm)



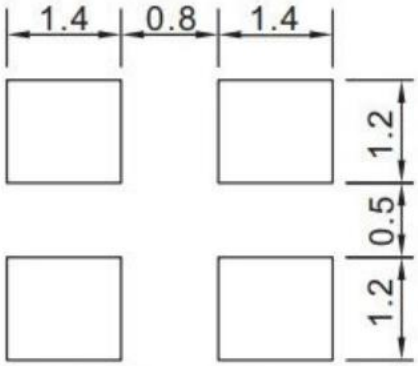
Top View



Side View



Buttom View



Top View Suggested Layout

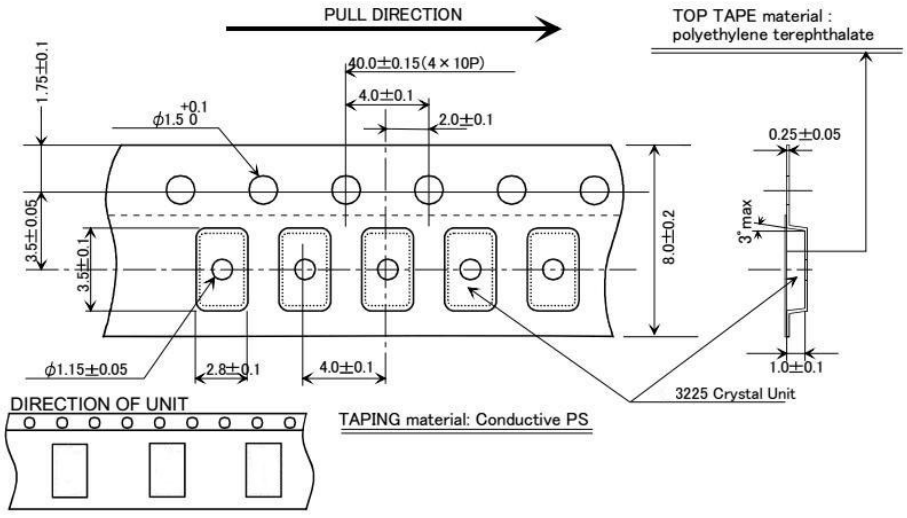
2. General characteristics

Nominal frequency	24.000000 MHz
Overtone order	Fundamental
Type	MEMS3225
Operating temperature	-20~70 ℃
Storage temperature	-40~85 ℃

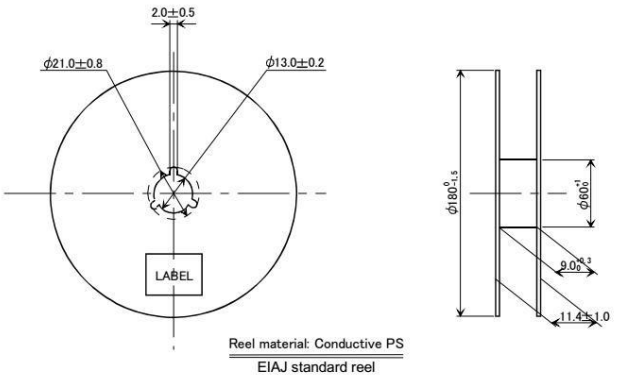
3.Electric characteristics

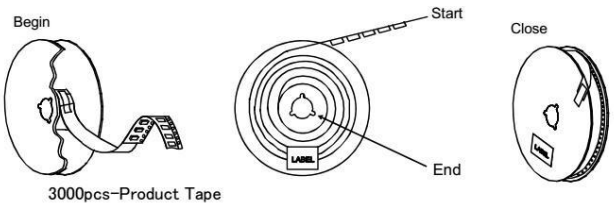
Adjustment tolerance: (at+25℃)	±10 ppm
Load capacitance	12.0 pF
Drive level	100.0 μW
Equivalent resistance	60.0ΩMax
Shut capacitance	3.0pF Max
Aging	±3ppm/Year

4.Carrier Dimensional Drawing (mm)

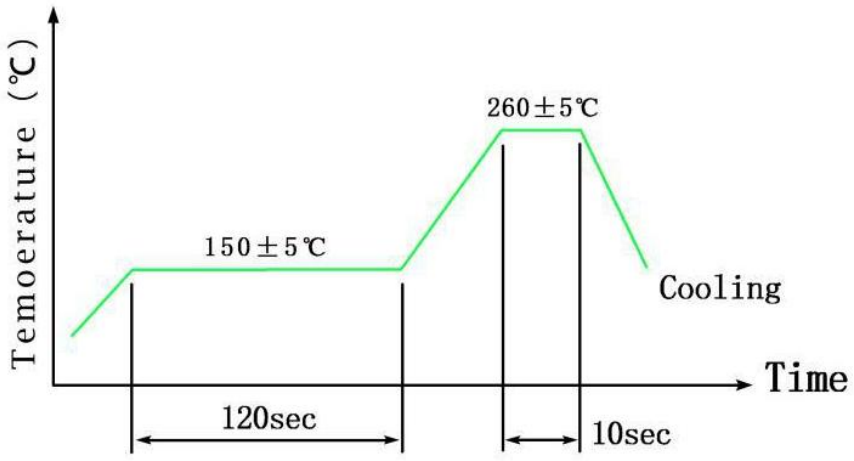


5.Reel Dimensional Drawing (mm)

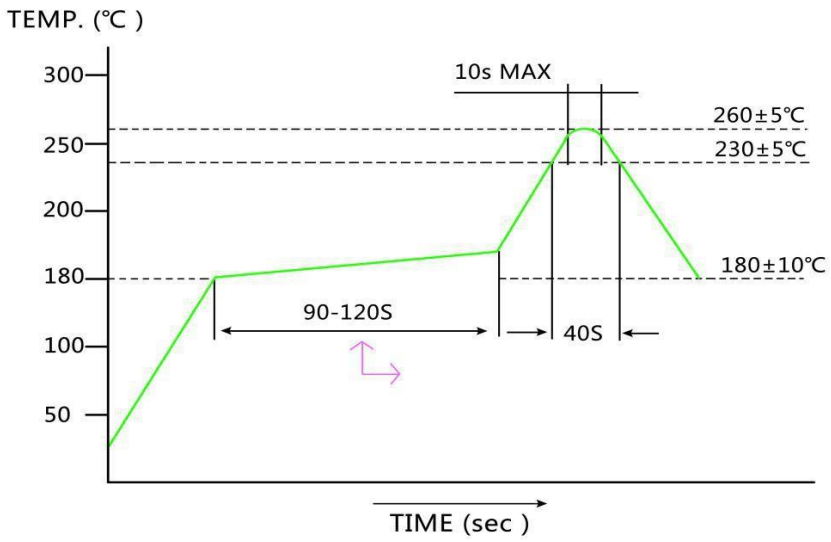




6.Product reliability

Item	Condition	Result
1	Cold resistance Stored at -40±2℃ for 1000±2 hrs then 25±2℃ 1~2 hrs before testing	(I)
2	Heat resistance Stored at 85±2℃ for 1000±2 hrs then 25±2℃ 1~2 hrs before testing	(I)
3	Salt Mist Test Spray the 35℃±2℃ salt water (salt density 5%) to crystal for 48±2hrs,then clean by water	(I)
4	Humidity Resistance Result Steady temperature: 60±2℃;humidity: 90 ~ 95 % RH; time:500h	(I)
5	Mechanical Shock 14700m/S2 0.5sec 5times in each of 6 direction	(I)
6	Aging Stored at 85±3℃ for 720±12Hrs then 25±2℃ 1~2 Hrs before testing Stored at 25±2℃ for 1±0.03 year	(I)
7	Leakage Fine leak: Helium leak test *JIS C 6701 10.6	(V)
8	Temperature Cycle –40℃ ~ 85℃ , Dewell 30Min , 100 cycles 	(I)

7.Mechanism characteristics

1	**Drop Test** Device are dropped from a height of 100 cm onto 20mm thickness stainless plate executing 3 times of random drops	**(I)**
2	**Resistance of Vibration** Frequency：10~55Hz，amplitude(total excursion)：1.5mm±15%,3 direction (X,Y,Z) each 2 hr	**(I)**
3	**Resistance to soldering heat**（Hand soldering method） Temperature：370~400℃；Time：3~4sec； Frequency：2 times； Soldering iron：60W/Min	**(I)**
4	**Solderability** 240±2℃，3±0.5sec	**(II)**
5	Reflow)Resistance to soldering heat(Reflow) 260± 5℃ ;10S ;2Times Reflow  	**(I)**

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Item Result NO. Specification Requirements

1. Frequency variation < ±10ppm ; Resistance variation < 5Ω or 15% of RR spec. ; select the bigger value.
2. The covering rate of Tin-plating is more than 95%.
3. There is no bubbles after the Crystal is dipped in the water Insulation Resistance: 500 MΩ Min 100VDC/±15VDC.
4. The Crystal is no crackle under the observation of 10 times Magnifier.
5. 1*10-9Pa.m³/s Max

NOTES

1. As a result of the particularity of inner structure of Crystal products, it easy to be breakdown by electrostatic, so we should pay attention to **ESD protect** in the test.
2. **Static voltage** between signal load and ground may cause deterioration and destruction of the component. Please avoid static voltage.
3. **Ultrasonic cleaning** may cause deterioration and destruction of the component. Please avoid ultrasonic cleaning.
4. Only leads of component may **be soldered**. Please avoid soldering another part of component.
5. There is a close relationship between the device's performance and **matching network**. The specifications of this device are based on the test circuit shown above. L and C values may change depending on board layout. Values shown are intended as a guide only.

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