



## CRYSTAL SEPECIFICATION

Customer : \_\_\_\_\_  
Customer P/N : \_\_\_\_\_  
Part Name : 3225 32M 20PF 20PPM  
Product Description : 3225-32MHz-20PF- 20PPM  
Issue Date : 2017.03.01

### **CUSTOMER'S APPROVAL**

(PLEASE RETURN A COPY WITH APPROVAL)

**Hubei TKD Electronic Technology Co.,LTD**  
湖北泰晶电子科技股份有限公司

<b>APPROVED</b>	<b>DESIGNER</b>
	

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REV.	Description of Revision History	Date	Designer	Checked By
A	New revision	2014 年 10 月 30 日	Feng liu	Huang xm

## CRYSTAL SEPECIFICATION

1. Description: Quartz Crystal
2. Nominal Frequency: 32.000000MHz
3. Oscillation Mode: Fundamental
4. Cutting Mode: AT cut
5. Measurement Instrument: S&A 250B(Measured FL)
6. Electrical Characteristics:

[1]Operation Conditions:

Item	Symbol	MIN.	TYP.	MAX.	Unit	Condition
Operating Temperature Range	Topt	-20		75	°C	
Storage Temperature Range	Tstg	-40		85	°C	
Load Capacitance	CL		20		pF	
Drive Level	DL			100	uW	

[2]Frequency Stability:

Item	Symbol	MIN.	TYP.	MAX.	Unit	Condition
Tolerance	dF/Fo	-20		20	ppm	Refer to Center Frequency@25±3°C
Stability Over Temperature	dF/F25	-20		20	ppm	Refer to Operating Temperature
Aging	dF/F25	-3		3	ppm	Per Year

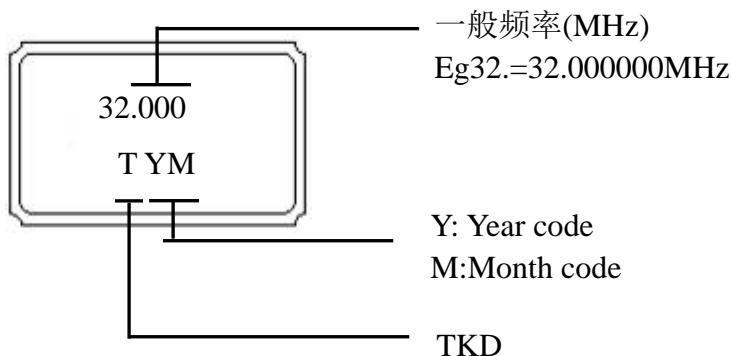
dF/Fo:Frequency Deviation Refer to Center Frequency

dF/F25:Frequency Deviation Refer to 25°C Frequency

[3]Electrical Performance:

Item	Symbol	MIN.	TYP.	MAX.	Unit	Condition
Equivalent Series Resistance	ESR			40	Ω	@Series
Shunt Capacitance	C0			5	pF	
Insulation Resistance	IR	500			MΩ	@DC 100 Volt

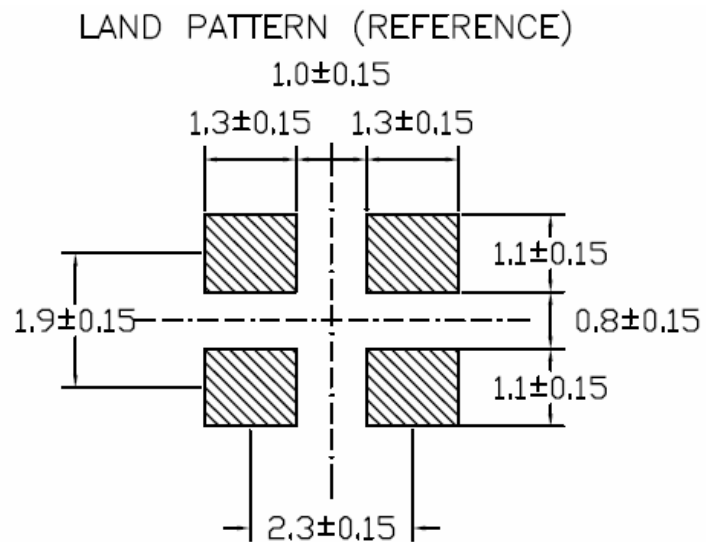
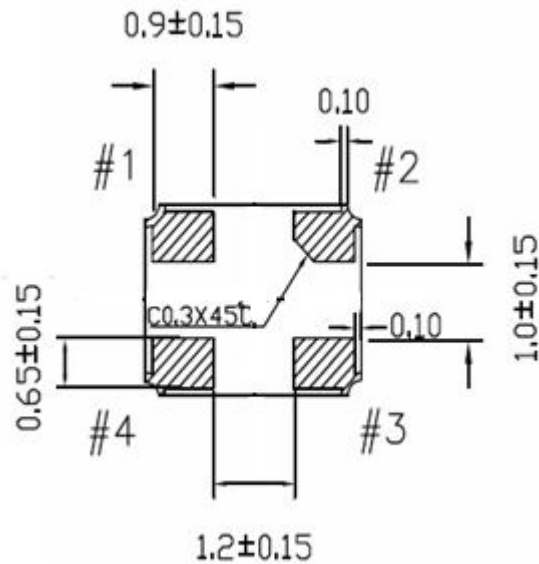
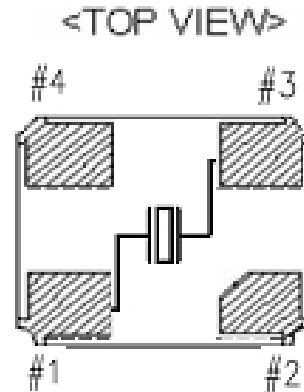
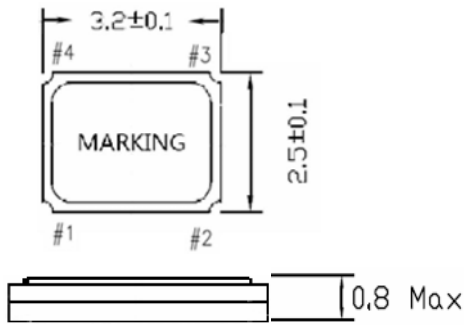
7. Marking:Laser



Year : 1 2 3 4 5 6 7 8 9 0

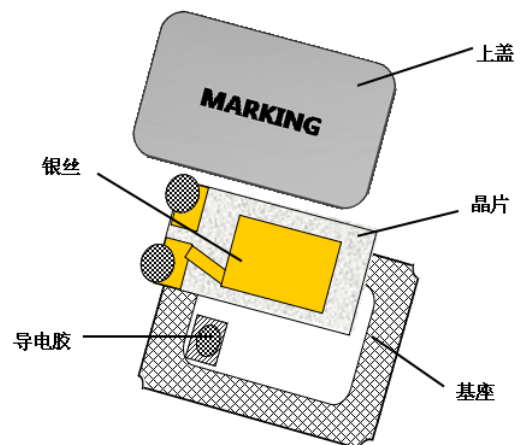
Month : 1 2 3 4 5 6 7 8 9 10 11 12 Code: A B C D E F G H J K L M

8. Outline drawing (unit: mm)



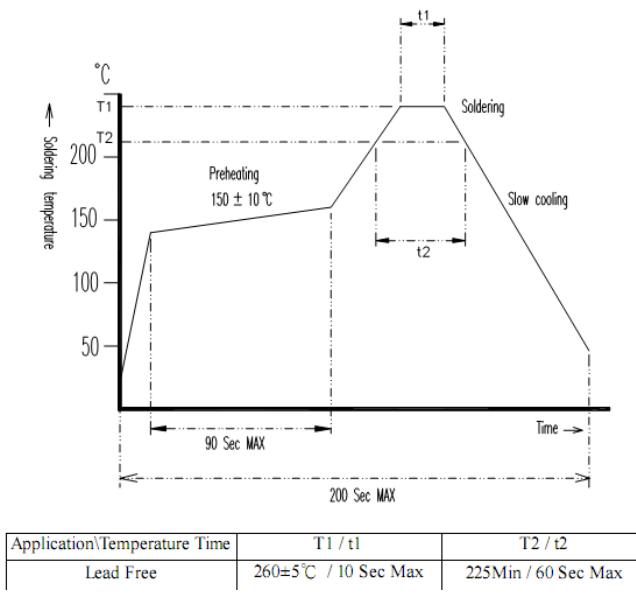
9.内部结构以及材料清单

No.	NAME	材料/规格
1	LID	锌白铜（表面镀镍）
2	BASE	陶瓷
6	BLANK	SiO <sub>2</sub> (二氧化硅)
7	Adhesive	XA-819A(树脂+银粉)
8	BLANK BP MASK	Ag(纯银)

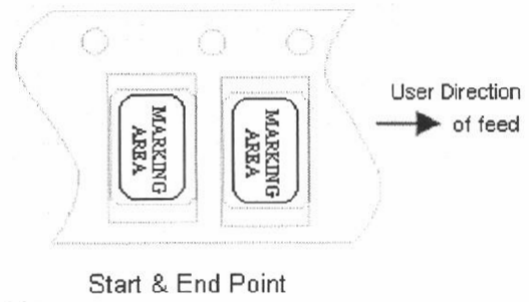
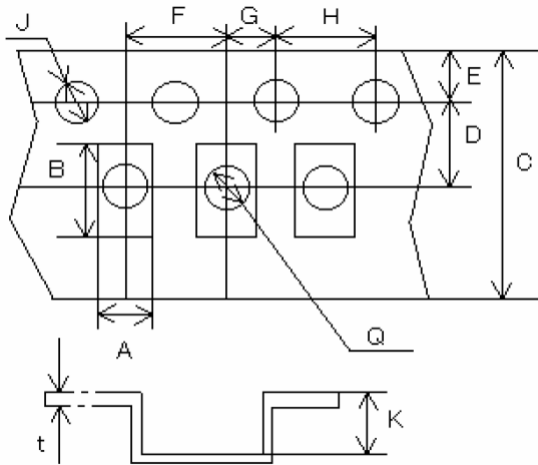


## 10. Reliability Specification

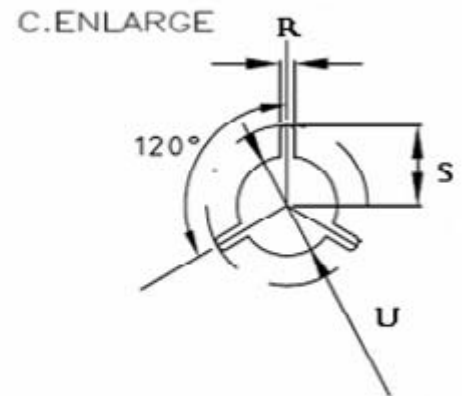
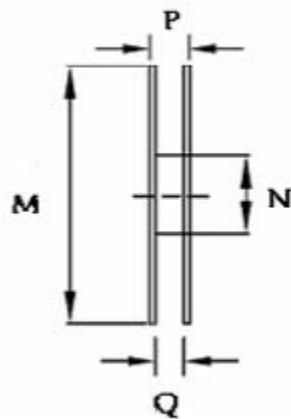
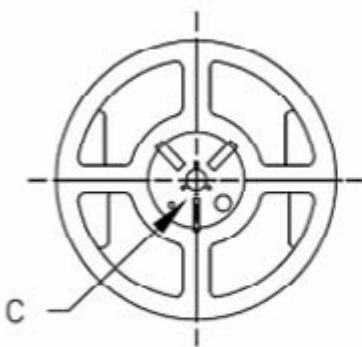
Test Item	Condition of test	Performance Requirements															
Vibration	Endurance condition by a frequency sweep shall be made. The entire frequency range from 10HZ to 55HZ and return to 10HZ, shall be transverseb in 1min. Amplitude(total excursion):1.5mm this motion shall be applied for a period of 2h each of 3 mutually perpendicular axes(a total of 6h)	(1).Frequency Change:±5ppm (2).Resistance:±15%															
Drop	Form 75cm height 3 times on 3cm hard wooden floor	(1).Frequency Change:±5ppm (2).Resistance:±15%															
Salt mist	Concentration: 5%, Temperature: 25°C, TIME:36h	No rust															
Damp heat	The unit shall be stored at a temperature of 60±2°C with relative humidity of 90% to 95% for 240h, then it shall be subjected to standard atmospheric conditions for 1 ~ 2h after which measurement shall be made.	(1).Frequency Change:±5ppm (2).Resistance:±15%															
Dry heat	The unit shall be stored at a temperature of 85°C±5°C for 240h, then it shall be subjected to standard atmospheric conditions for 1~2h after which measurement shall be made.	(1).Frequency Change:±5ppm (2).Resistance:±15%															
Cold	The unit shall be stored at a temperature of -40°C±5°C for 240h, then it shall be subjected to standard atmospheric conditions for 1~2h after which measurement shall be made.	(1).Frequency Change:±5ppm (2).Resistance:±15%															
Aging	Voltage: 5V, Temperature: 25°C, TIME:1000h	(1).Frequency Change:±5ppm (2).Resistance:±15%															
Temperature cycling	The unit shall be subjected to 25 successive change of temperature cycles, each as show in table below, then it shall be subjected to standard atmospheric conditions for 1 ~ 2h after which measurement shall be made <table border="1" data-bbox="400 1498 1062 1794"> <thead> <tr> <th></th> <th>Temperature</th> <th>Duration</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-40°C±3°C</td> <td>30min</td> </tr> <tr> <td>2</td> <td>Standard atmospheric conditions</td> <td>Within 30s</td> </tr> <tr> <td>3</td> <td>85°C±3°C</td> <td>30min</td> </tr> <tr> <td>4</td> <td>Standard atmospheric conditions</td> <td>Within 30s</td> </tr> </tbody> </table>		Temperature	Duration	1	-40°C±3°C	30min	2	Standard atmospheric conditions	Within 30s	3	85°C±3°C	30min	4	Standard atmospheric conditions	Within 30s	(1).Frequency Change:±5ppm (2).Resistance:±15%
	Temperature	Duration															
1	-40°C±3°C	30min															
2	Standard atmospheric conditions	Within 30s															
3	85°C±3°C	30min															
4	Standard atmospheric conditions	Within 30s															

Test Item	Condition of test	Performance Requirements
Sealing	He: $5 \pm 0.5 \text{Kg/cm}^2$ , TIME:120min	Leakage rate < $1 \cdot 10^{-9} \text{Pa} \cdot \text{m}^3/\text{s}$
Resistance to soldering heat	 <p style="text-align: center;">Reflow soldering cure see the chart.</p>	(1).Frequency Change: $\pm 5 \text{ppm}$ (2).Resistance: $\pm 15\%$

11.Packing Description



A	B	C	D	E	F	G	H	J	K	t
2.7	3.4	8.0	3.5	1.75	4.0	2.0	4.0	1.55	1.4	0.25



M	N	P	Q	R	S	U
178.0	60.2	11.5	8.0	2.5	11.0	13.0

注：3000PCS/卷

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