



深圳市晶友嘉电子有限公司

SHENZHEN JINGYOUJIA ELECTRONIC CO., LTD



CRYSTAL RESONATOR SPECIFICATIONS

石英晶体谐振器承认书

客户 Customer:	立创
型号 Product:	F3K2
客户料号 Code No:	C17702128
我司料号 Code No:	F3K232768HWRBD
频率 Frequency:	32.768KHz
数量 Sample Quantity:	
日期 Date:	2023-8-15

深圳市晶友嘉电子有限公司

SHENZHEN JINGYOUJIA ELECTRONIC CO., LTD  
深圳市龙华区东环二路数字智能颖博园B栋4楼

TEL: 86-755-32840201 32850080  
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供应商确认栏:

制作 Handler	确认 Checked	核审 Approved
戴晓嘉	陈斌	李晨

客户承认栏:

承认 Checked	核审 Approved



深圳市晶友嘉电子有限公司

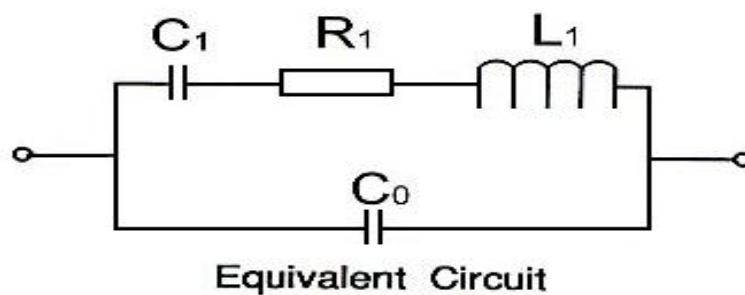
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## 1. Electrical Parameters

No.	Item	Symb	Electrical Specification				Remark
			Min.	Type	Max.	Units	
1	Nominal Frequency	F0	32.768			KHz	
2	Mode of Vibration		Fundamental				
3	Frequency Tolerance	$\Delta F/F0$	-20		20	ppm	At 25°C ± 3°C
4	Operating Temperature Range	TOPR	-40		85	°C	
5	Parabolic Coefficient	TC	-0.02		-0.04	PPM/°C <sup>2</sup>	
6	Storage Temperature	TSTG	-40		85	°C	
7	Load Capacitance	CL		9		PF	
8	Equivalent Series Resistance	ESR			75	KΩ	
9	Drive Level	DL		0.1	0.5	μW	
10	Insulation Resistance	IR	500			MΩ	At 100VDC
11	Aging Per Year	Fa	-3		3	ppm	First Year

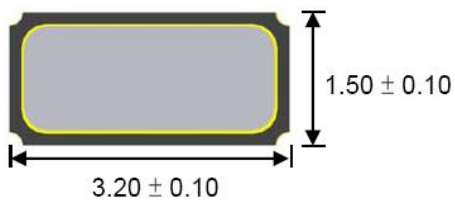
## 2. Equivalent Circuit:



## Marking: T142A

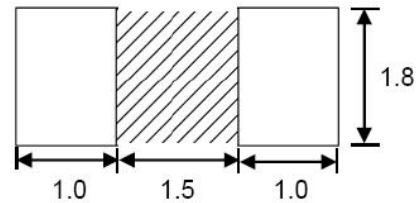
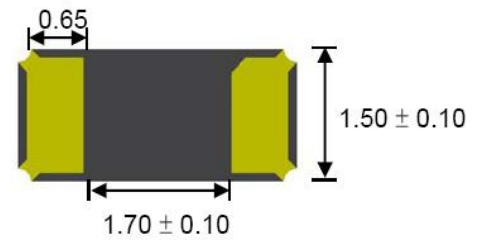
### ■ DIMENSIONS

(UNIT:mm)



### ■ RECOMMENDED SOLDER PAD

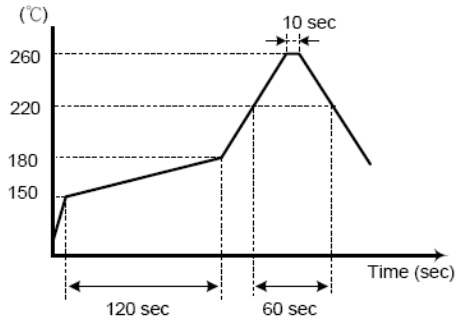
(UNIT:mm)



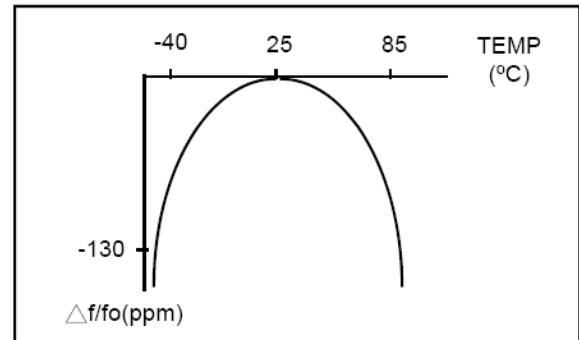
### ■ SUGGESTED REFLOW PROFILE

Total time : 200 sec. Max.

Solder melting point :  $220^{\circ}\text{C}$



### ■ TEMPERATURE V.S FREQUENCY CURVE





■ RELIABILITY SPECIFICATIONS

1. Mechanical Endurance

No.	Test Item	Test Methods
1	Drop Test	150 cm height, fall freely onto concrete floor 3 times.
1	Mechanical Shock	Device are shocked to half sine wave ( 1000 G ) three mutually perpendicular axes each 3 times. 0.5m sec. duration time
1	Vibration	Frequency range                      10 ~ 2000 Hz Amplitude                                1.52 mm,20G Sweep time                                20 minute Perpendicular axes each test time    4 hours (Total test time 12 hours)
1	Solderability	Temperature                              245 °C ± 5°C Immersing depth                        0.5 mm minimum Immersion time                         5 ± 1 seconds Flux                                         Rosin resin methyl alcohol solvent ( 1 : 4 )

2. Environmental Endurance

No.	Test Item	Test Methods
2	Resistance To Soldering Heat	Pre-heat temperature                    125 °C Pre-heat time                              60 ~ 120 sec. Test temperature                         260 ± 5 °C Test time                                    10 ± 1 sec.
2	High Temp. Storage	+ 125 °C ± 3 °C for 1000 ± 12 hours
2	Low Temp. Storage	- 40 °C ± 3 °C for 1000 ± 12 hours
2	Thermal Shock	Total 100 cycles of the following temperature cycle 
3	Pressure Cooker Storage	121 ± 3°C, RH100%, 2 bar, for 240 hours
3	High Temp & Humidity	85°C ± 3°C, RH 85% , 1000Hrs

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