

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:	TJ1
料号 Code No:	TJ1124000HYFBC
频率 Frequency:	24.000MHz
数量 Sample Quantity:	
日期 Date:	2025-8-25

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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

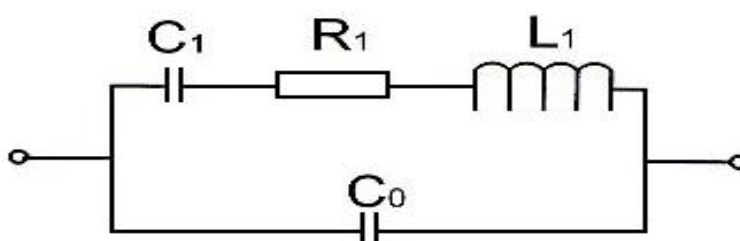
客户承认栏:

承认 Checked	核审 Approved

1. Electrical Parameters

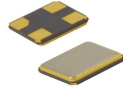
No.	Item	Symb	Electrical Specification				Remark
			Min.	Type	Max.	Units	
1	Nominal Frequency	F0	24.000			MHz	
2	Mode of Vibration		Fundamental				
3	Frequency Tolerance	$\Delta F/F0$	-10		10	ppm	At 25°C ± 3°C
4	Operating Temperature Range	TOPR	-30		85	°C	
5	Frequency Stability	TC	-20		20	ppm	
6	Storage Temperature	TSTG	-40		85	°C	
7	Load Capacitance	CL	9			PF	
8	Equivalent Series Resistance	ESR			70	Ω	
9	Drive Level	DL		100		μW	
10	Insulation Resistance	IR	500			MΩ	At 100VDC
11	Aging Per Year	Fa	-3		3	ppm	First Year

2. Equivalent Circuit:

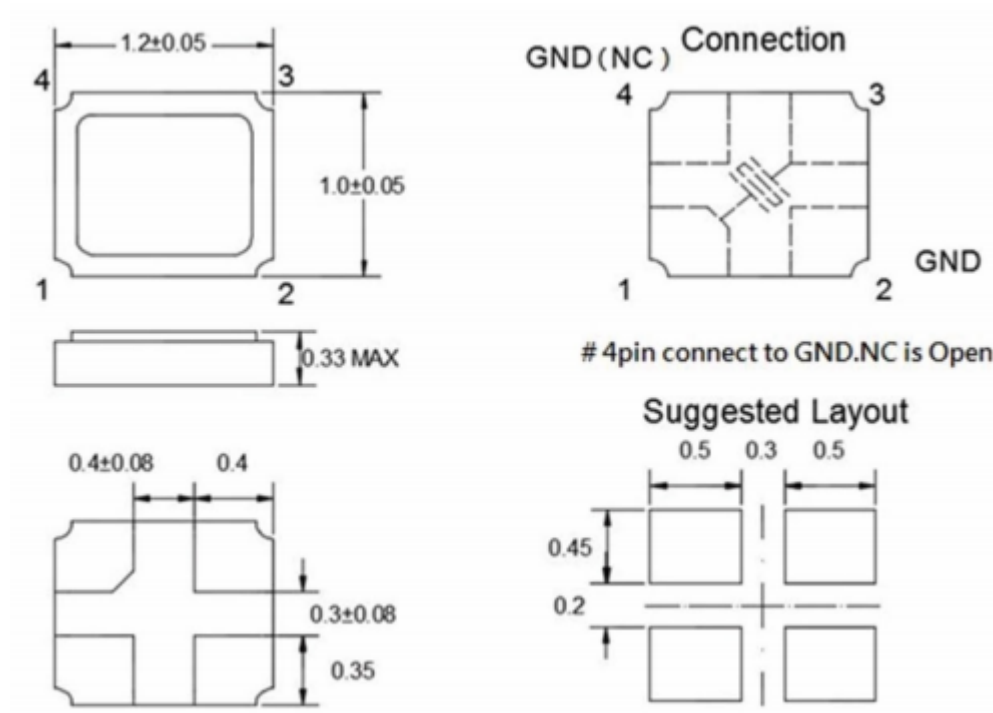


Equivalent Circuit

3.实物 Product

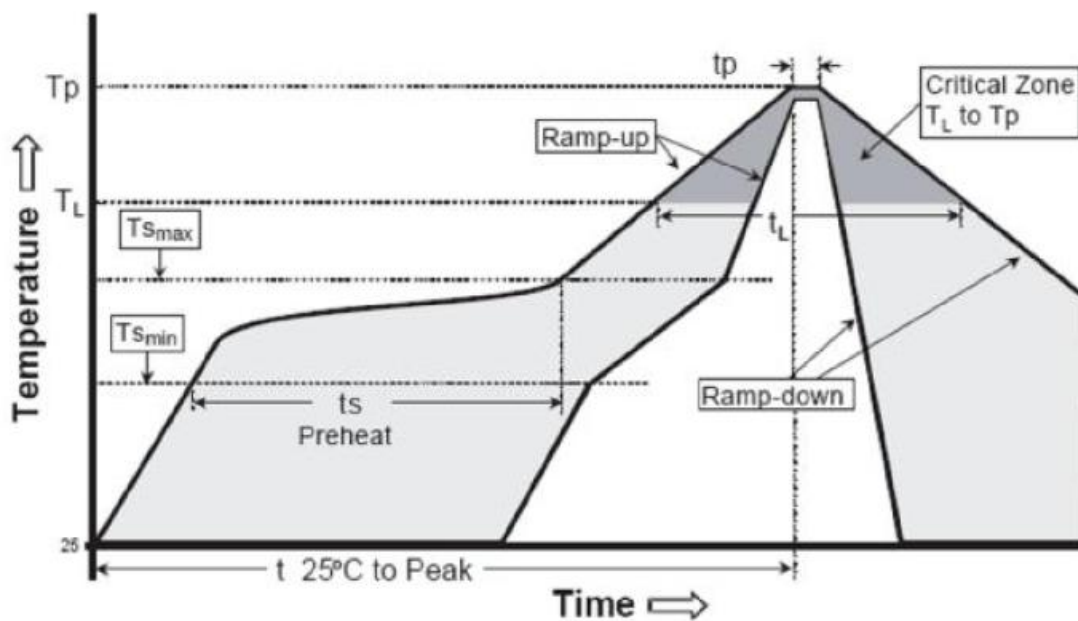


4.外型尺寸 Outline Dimensions (unit:mm)



5.回流焊曲线 Reflow Profiles

Profiles Feature	Pb-Free Assembly
Average Ramp-up Rate (Ts max to Tp)	3°C/second max.
Preheat	
Temperature Min (Ts min)	125°C
Temperature Max(Ts max)	200°C
Time (ts min to ts max)	60~180 seconds
Time maintained above Temperature (TL)	217°C
Time (tL)	60~150 seconds
Peak/Classification Temperature (Tp)	
Time within 5°C of actual Peak Temperature(tp)	20~40 second
Ramp-down rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.
Suggest reflow times	3 times max.

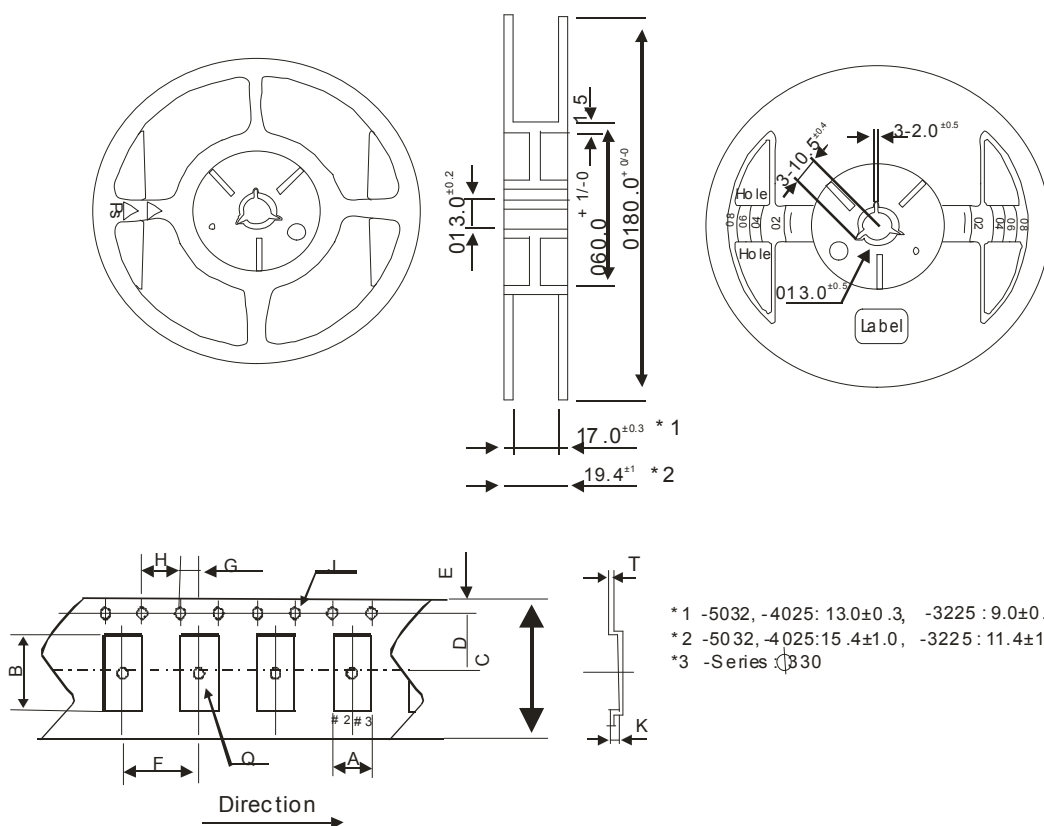


6.机械可靠/信赖性 Mechanical Performance

	Item	Condition	Standard
1.	Drop characteristics	Free drop from 50cm height on a hard wooden board for 3 times. (Board is thickness more than 30 mm.)	Frequency change: $\leq 5\text{ppm}$ Rr as specification
2..	Shake characteristics	Shake frequency 10~55Hz, cyc1~2 minutes, swing 1.5mm, direction x/y/z, all 30 minutes, test after 1 hours.	Frequency change: $\leq 5\text{ppm}$ Rr as specification
3.	Airproof characteristics	Put crystal into the pressure cabin with alcohol, keep pressure 0.4~0.5mpa 10 minutes, then take out and blow for 5 minutes	$IR \geq 500M\Omega$
4.	Weld characteristics	260℃ Max, 10 seconds	90% exhibit tin ok
5.	Humidity characteristics	+40±2℃ & 90%~95% R.H. 250 hours	Frequency change: $\leq 5\text{ppm}$ Rr as specification
6.	Low temperature characteristics	-30±2℃, 250 hours, put in room temperature, test after 1 hours.	Frequency change: $\leq 5\text{ppm}$ Rr as specification
7.	High temperature characteristics	+85±2℃, 250 hours, put in room temperature, test after 1 hours.	Frequency change: $\leq 5\text{ppm}$ Rr as specification
8.	Temperature cycling	-30±3℃/30±3 min~+85±2℃/30±3min, 5 cycles	Frequency change: $\leq 5\text{ppm}$ Rr as specification

7.Dimension of Inside Package

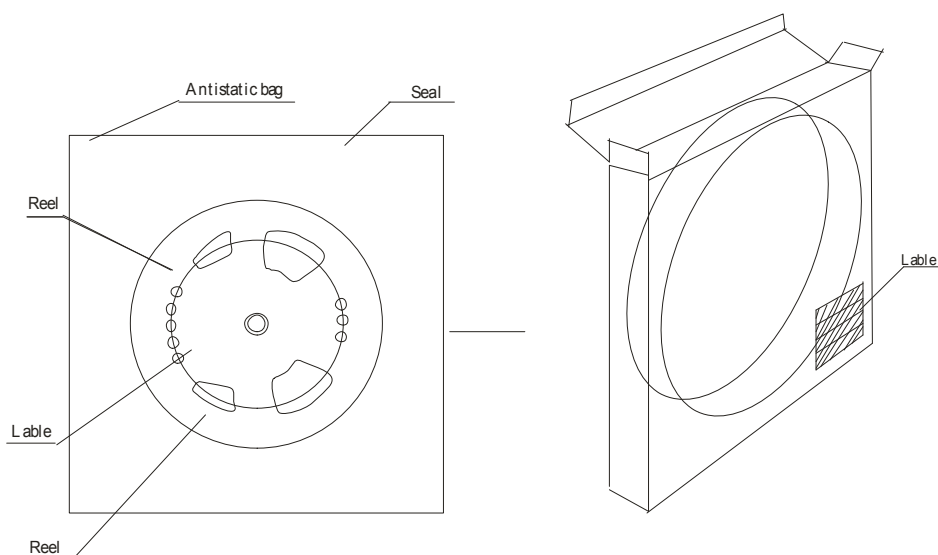
内包装尺寸图



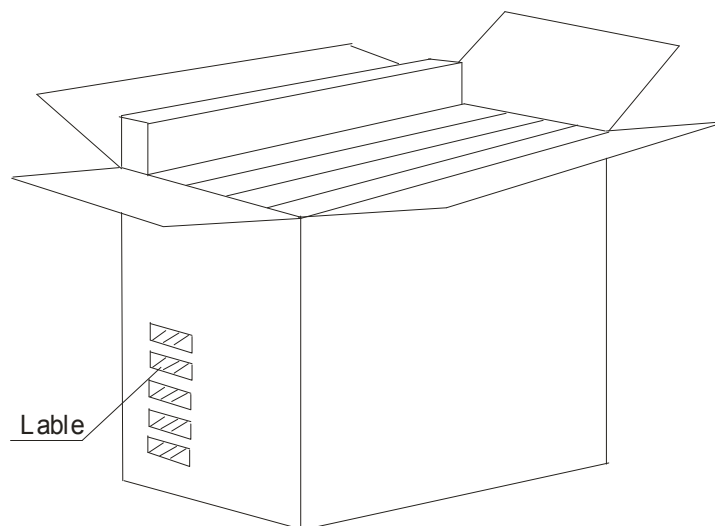
- Standard quantity of 2520 : 3.000 pcs/reel
- Standard quantity of others : 1.000 pcs/reel
- Carrier tape : Antistatic material (PS)
- Each reel can be recycled

	7050	6035	3225	2520
A	$5.4^{+0.1}$	$3.9^{+0.1}$	$3.5^{+0.1}$	$2.9^{+0.1}$
B	$7.4^{+0.1}$	$6.4^{+0.1}$	$5.4^{+0.1}$	$3.6^{+0.1}$
C	$16.0^{+0.2}$	$16.0^{+0.2}$	$12.0^{+0.2}$	$10.0^{+0.2}$
D	$7.5^{+0.1}$	$7.5^{+0.1}$	$5.5^{+0.1}$	$5.5^{+0.1}$
E	$1.75^{+0.1}$	$1.75^{+0.1}$	$1.75^{+0.1}$	$1.75^{+0.1}$
F	$8.0^{+0.1}$	$8.0^{+0.1}$	$8.0^{+0.1}$	$4.0^{+0.1}$
G	$2.0^{+0.1}$	$2.0^{+0.1}$	$2.0^{+0.1}$	$2.0^{+0.1}$
H	$4.0^{+0.1}$	$4.0^{+0.1}$	$4.0^{+0.1}$	$4.0^{+0.1}$
J	$1.55^{+0.05}$	$1.55^{+0.05}$	$1.5^{+0.1/0}$	$1.5^{+0.1/0}$
K	$1.4^{+0.1}$	$1.5^{+0.1}$	$1.0^{+0.1}$	$0.9^{+0.1}$
Q	$1.6^{+0.1/0}$	$1.55^{+0.05}$	$1.6^{+0.1}$	$1.5^{+0.1/0}$
T	$0.3^{+0.05}$	$0.3^{+0.05}$	$0.25^{+0.05}$	$0.25^{+0.05s}$

8. Inner carton



OUTET CARTON



8-1. MARKING

- (1) Marking Labels are affixed to reel, inner carton and outer carton.
- (2) Each label contains the following information.
 - (a) Manufacture's name or aymbol
 - (b) Parts name or type
 - (c) Frequency
 - (d) Quantity
 - (e) Reel number
 - (f) Manufacturer's code (EIAJ code)

8-2. QUANTITY

3000pcs/reel (max.5reels in outer carton)

8-3. STORAGE ENVIRONMENT

- ✧ Storage the reel at normal temperature and humidity
- ✧ Open the packing just before using
- ✧ Do not expose the sun
- ✧ Do not storage with some erosive chemicals
- ✧ Nothing is allowed to put on the reel or carton to prevent mechanical damage
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8-4. HANDLING

- ✧ Handle with care to prevent the damage of tape, reel and products.