深 圳 市 星 通 时 频 电 子 有 限 公 司
SHENZHEN SCTF ELECTRONICS CO.，LTD

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日期	2023/5/22
版本	B01

RoHS compliant

承 认 书

SPECIFICATION FOR APPROVAL

客户名称 Customer Name：	立创商城
供应商物料名称 Part Name：	石英晶体谐振器
产品描述 Description：	SMD2520 12.000MHz/8pF
供应商物料料号 Part NO.：	SX2B12.000F0810F30
供应商名称 Supplier Name：	深圳市星通时频电子有限公司

PLEASECONFIRMOURSPECIFICATION。敬请确认规格书之内容。

CUSTOMER APPROVAL 客户审批		
物料代号 PART NO. _____ 使用于机型 USED IN MODEL: _____		
工程部	品质部	采购部

(敬请承认后返回一份，谢谢！)

SUPPLIER APPROVAL 供应商审批		
DGN.制表人	CKD. 校对	APPD. 审核、签章
吴丽红	李俊	胡华才

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RoHS Compliant

Revision Record				
Rev.	Revise page 修订页	Revise contents 修订内容	Rev. Date 修订日期	Reviser 修订人
A02	N/A	Initial released.	2013/1/1	Martin.Hu
A03	N/A	The version is upgraded and the content remains unchanged.	2018/2/25	Martin.Hu
B01	Page2	The version is upgraded and add revision record page.	2021/2/24	Martin.Hu

■ QUARTZ CRYSTAL UNIT SPECIFICATION

1. Crystal Unit Spec:

N0.	Item	Symb.	Electrical Spec.	Notes
1	Nominal Frequency 标称频率	f	12.000000 MHz	
2	Oscillation Mode 振荡模式		AT Fundamental	
3	Holder Type 封装		SMD2520	
4	Frequency Tolerance 常温频差	△f/f	±10ppm	at 25℃±2℃
5	Drive Level 激励功率	DL	10 μW Typical	See the 2.1
6	Load Capacitance 负载电容	CL	8pF	See the 2.2
7	Effective Resistance 谐振电阻	RR	200Ω max.	See the 2.3
8	Shunt Capacitance 静电容	C0	3 pF Max.	
9	Drive Level Dependency 激励功率依赖性	DLD2	50Ω max.	Sweep from 100nW to 100uW in 20 steps.
10	Temperature Drift 温度频差	f_tem	±30ppm	Over Operating Temp. Range (Reference 25℃)
11	Spurious response 寄生响应	SPDB	-3dB max.	Start -1000ppm stop 5000ppm 30 steps power applied: 10dBm
12	Operating Temperature 工作温度范围	T_use	-40～85℃	
13	Storage Temperature Range 存储温度	T_stg	-55～125℃	
14	Insulation Resistance 绝缘阻抗	IR	500 MΩ	at DC 100V
15	Aging 年老化率	f_age	±3 ppm	1st Year
16	Measurement Condition 测量条件	Measured by S&A250B or equivalen,TA=25℃±2℃，RH=40%~70%.		

2. Circuit Coditions Spec:

2.1 Drive Level (DL) 100μW max.

(If Drive Level is too high,that may cause crystal resonator abnormal oscillation or damagaed the main body of quartz)

2.2 Loading capacitance (CL) : 8pF

(The total circuit load capacitance should be equal to the crystal (CL) values, too large or too small load, will result in frequency drift.)

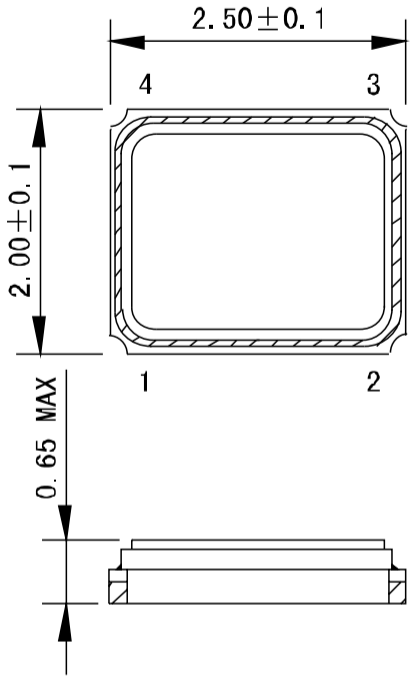
2.3 Negative Resistance (-R) ≥ 1000Ω

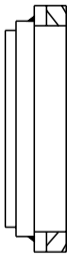
(If –R more than ESR spec of 5 times will be better. If Negative Resistance is too low, that may cause crystal resonator stop oscillation or not easy to oscillate)

■ DIMENSIONS

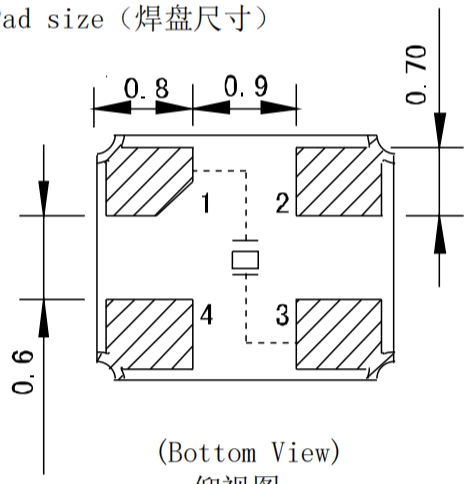
Product size（产品尺寸）

Units（单位）：mm(毫米)

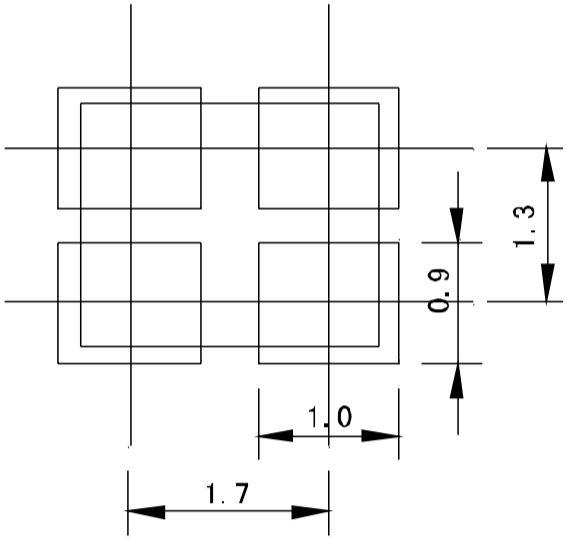




Pad size（焊盘尺寸）



(Bottom View)
仰视图

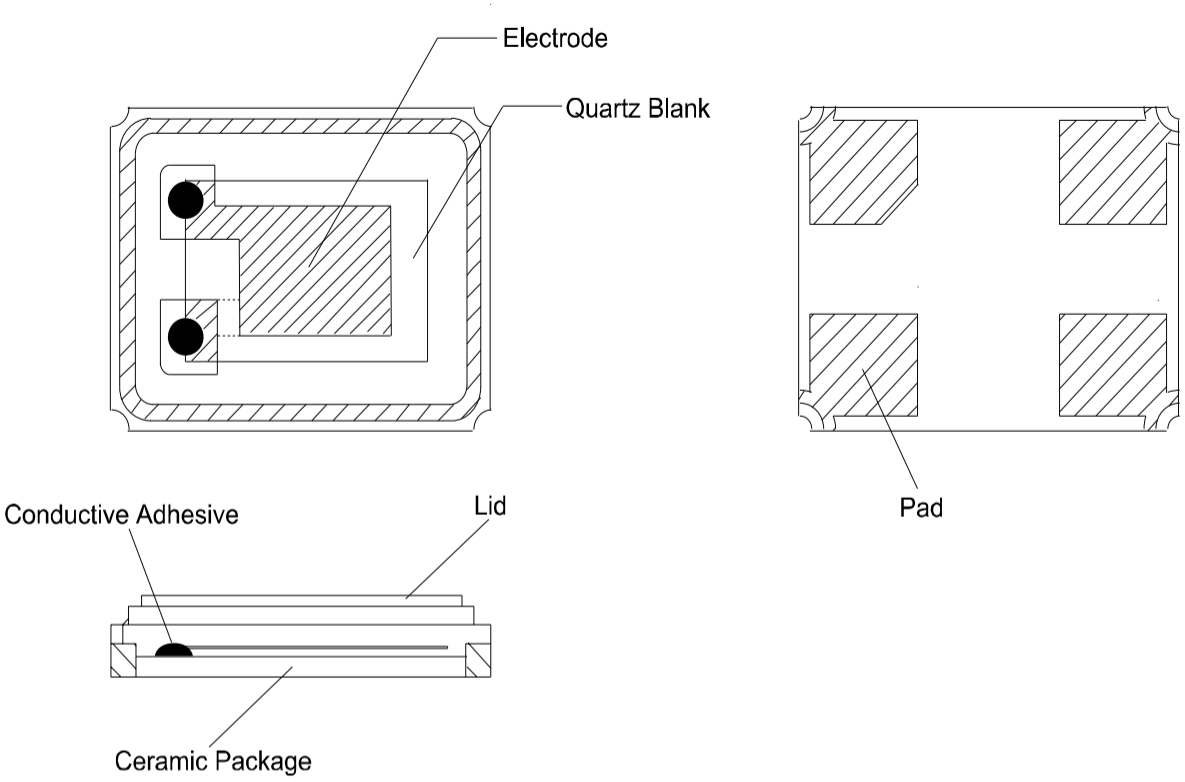


suggested solder pad layout

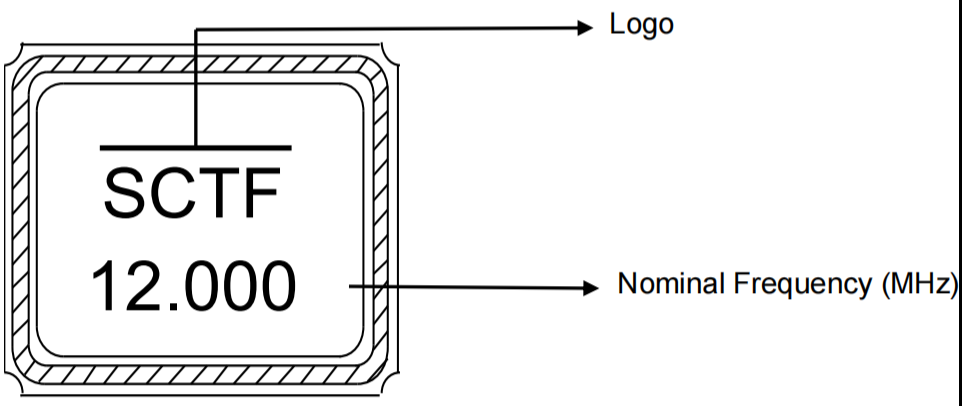
Note: #2, #4 is connected with a cover
(Please connect with GND or floating.)

■ PRODUCT STRUCTURE & MARKING

◆ Product Structure产品结构

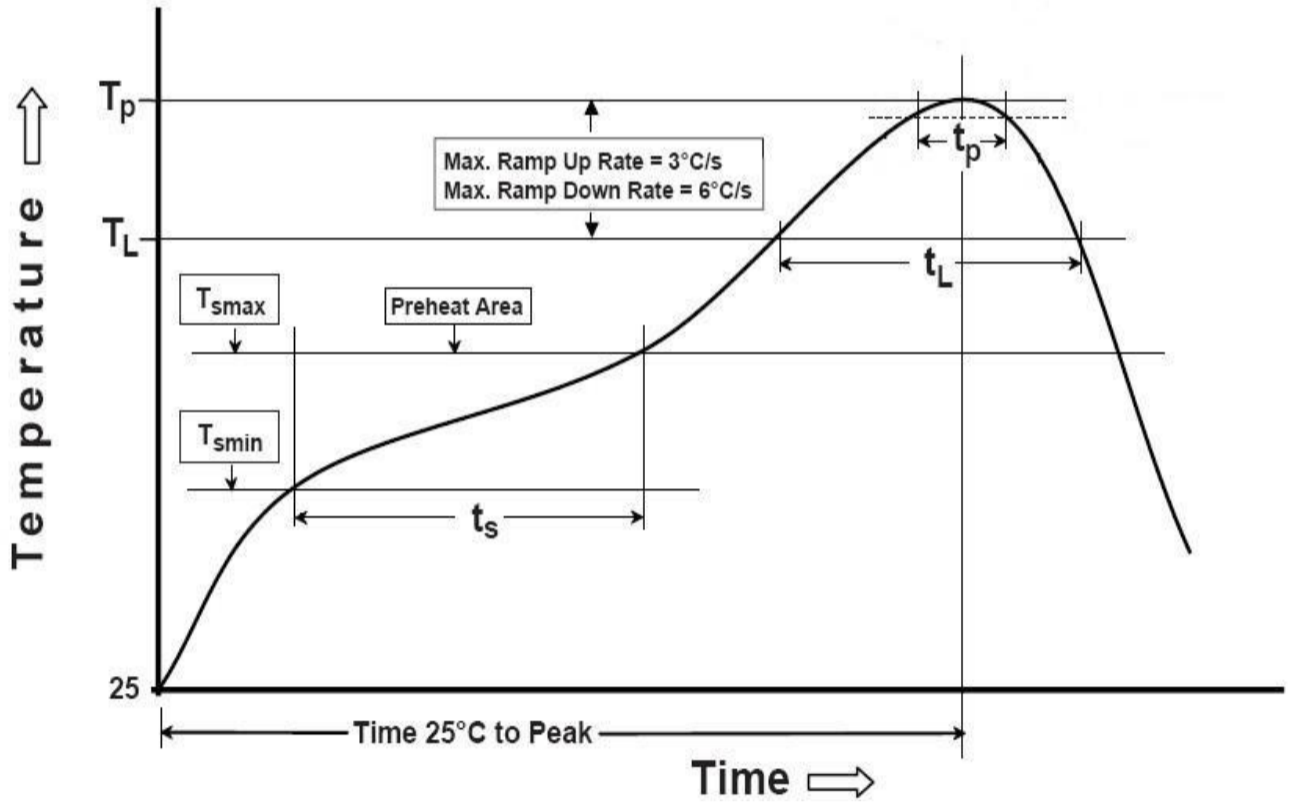


◆ Marking印字



■ REFLOW PROFILES

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Preheat/Soak ●Temperature Min(Ts min) ●Temperature Max (Ts max) ●Time (Ts min to Ts max)	 100 °C 150 °C 60-120 seconds	 150 °C 200 °C 60-120 seconds
Ramp-up rate (T_L to Tp)	3 °C/second max.	3 °C/second max.
Time maintained above ●Liquidous temperature (T_L) ●Time (t_L) maintained above T_L	 183 °C 60-150 seconds	 217 °C 60-150 seconds
Peak package body temperature (Tp)	235℃	260℃
Time within 5 °C of the specified classification temperature (Tp)	20 seconds	30 seconds
Ramp-down rate (Tp to T_L)	6 °C/second max.	6 °C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.
Suggust reflow times	**3 Times max.**	



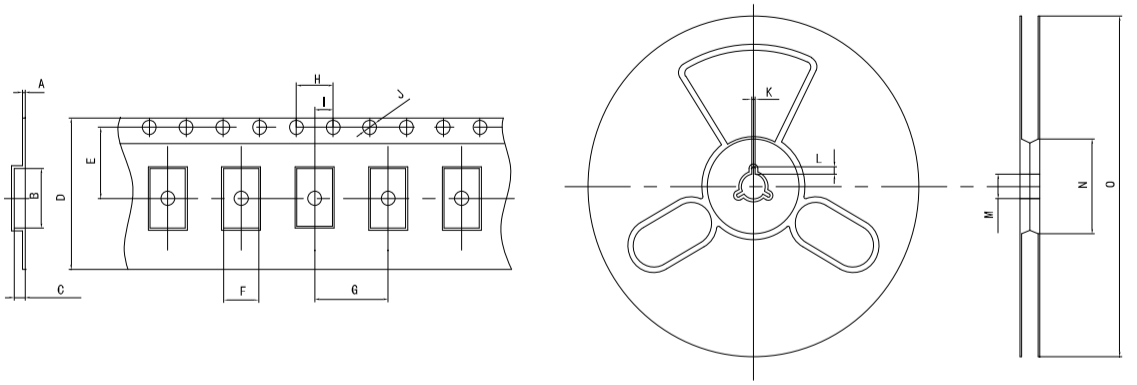
■ RELIABILITY SPECIFICATION

序号 NO.	项目 ITEM	条件 CONDITIONS	合格标准 BASIS OF VERDICT
1	跌落 DROP	100cm高处自由跌落到3cm厚木板上,3次 High:100cm;Thickness:3cm;3 times.	△FL≤±5ppm △RR≤RR(max)*10%
2	振动 VIBRATION	频率 Frequency:10~57.7Hz:幅度 Amplitude:±0.75mm 频率Frequency:57.7Hz~500Hz:加速度幅度acceleration rate:98m/s2 周期 Cycle time:10-500-10Hz：15min 振动方向 Direction:X,Y, Z 振动时间 Duration: 每个方向2小时 2 h/direction.	△FL≤±5ppm △RR≤RR(max)*10%
3	温度变化 TEMPERATURE SHOCK	-40℃±2℃（30min）←→85℃±2℃（30min）;循环10次 -40℃±2℃（30min）←→85℃±2℃（30min）;For 10 cycles	△FL≤±5ppm △RR≤RR(max)*10%
4	湿热 HUMIDITY	温度:40℃±2℃;湿度90-95%;时间:96小时 Temp:40℃±2℃;Humidity:90-95%;Times:96h	△FL≤±5ppm △RR≤RR(max)*10%
5	低温 COLD RESISTANCE	温度:-40℃±2℃;时间:96小时 Temp:-40℃±2℃;Times:96h	△FL≤±5ppm △RR≤RR(max)*10%
6	高温1 HEAT RESISTANCE 1	温度:100℃±2℃;时间:96小时 Temp:100℃±2℃;Times:96h	△FL≤±5ppm △RR≤RR(max)*10%
7	高温2 HEAT RESISTANCE 2	温度:155℃±2℃;时间:2小时 Temp:155℃±2℃;Times:2h	△FL≤±5ppm △RR≤RR(max)*10%
8	高温3 HEAT RESISTANCE 3	温度:85℃±2℃;电压:3.3V/5.0V;时间:96小时 Temp:85℃±2℃;Voltage:3.3V/5.0V;Times:96h	△FL≤±5ppm △RR≤RR(max)*10%
9	回流焊 REFLOW	150℃±5℃保持120s后升到270℃±5℃保持10s，升温和保温时间小于200s，常温放置1～2h后测定 Keep 150 ℃ ± 5 ℃ 120s and then rose to 270 ℃ ± 5 ℃ for 10s, warming and holding time is less than the 200s, placed at room temperature 1 ~ 2h after test	△FL≤±5ppm △RR≤RR(max)*10%
10	盐雾 SALT SPRAY	盐雾浓度:5%;温度:35℃;时间:24小时 Salt density:5%;Temp:35℃;Times:24h	目测无明显腐蚀现象 Visual no significant corrosion.
11	老化 AGING	温度:85℃;时间:30天 Temp:85℃;Times:30days	△FL≤±5ppm △RR≤RR(max)*10%
12	气密性 LEAKAGE	氦气(0.6~0.65MPa):10分钟 He(0.6~0.65MPa):10min	≤3*10-9Pa.m3/s
13	焊接 SOLDER	温度:260℃±5℃ Temp:260℃±5℃	浸锡率大于90% Soldering tin rate greater than 90%

■ PACKAGE

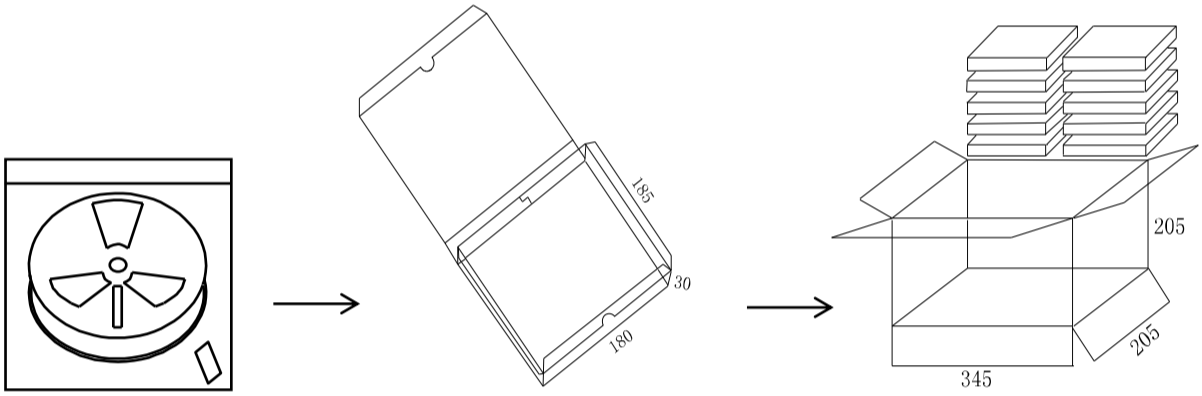
◆ Taping Specifications编带规格

UNIT(单位):mm(毫米)



TEYE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
2.5×2.0 SMD	0.30	2.80	0.75	8.00	3.50	2.30	4.00	4.00	2.00	1.50	2.00	4.00	13.00	60.00	180.00

◆ Packaging specifications包装规格



自封袋(Bag)
3000只 = 1 轮
3000pcs = 1 Reel

内包装(Inside package)
1 轮=1 盒
1 Reel=1 box

外包装(Outside Package)
10 盒=1 箱
10 box=1 carton

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