

# 深圳扬兴科技有限公司

## 产品规格书

### SPECIFICATION

产品名称	石英晶体谐振器 QUARTZ CRYSTAL UNITS
型号	YSX321SC
料号	XC200-114-20M
标准参数	SMD-3225-20MHZ-12PF- -/+10PPM
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## 确认签章

客户		
客户物料号		
机种/型号		
批准	审核	检验

## 扬兴签核

制定	审核	批准
朱灿维		

深圳扬兴科技有限公司

Shenzhen YangXing Technology Co.,Ltd.

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MHz Range Crystal unit

YSX321SC

Product name 系列型号

YSX321SC 20.00000 MHz 12PF +/-10PPM

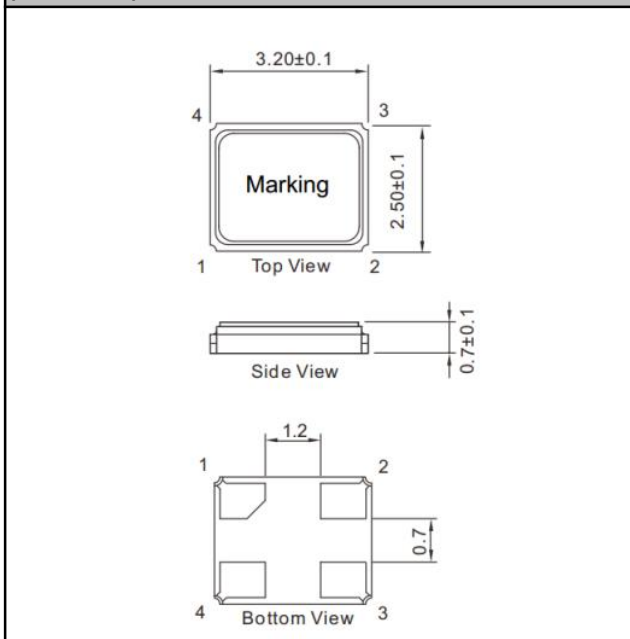
Product Number / Ordering code 产品料号

XC200-114-20M

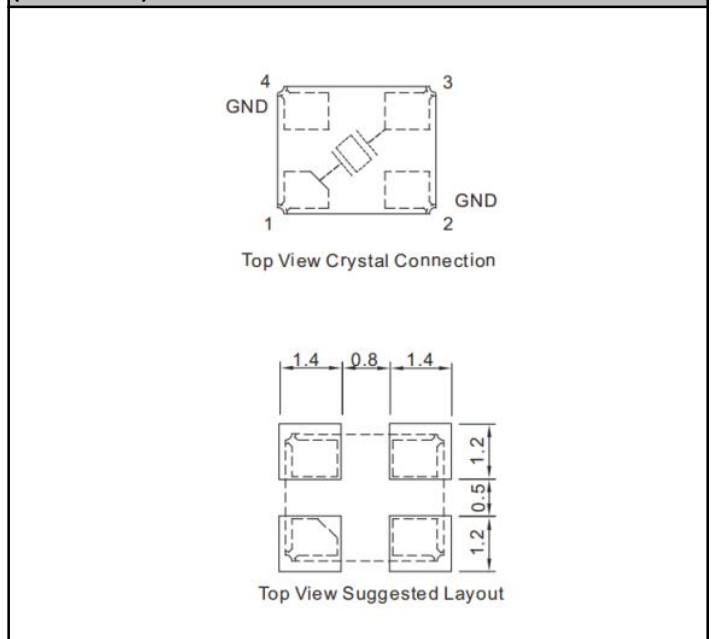
**1.Specifications (characteristics)(规格参数)**

Parameter(电气参数)	Symbol	Min. (最小值)	Typ.(典型值)	Max. (最大值)	Unit (单位)
Oscillation Mode (振动模式)		<input checked="" type="checkbox"/> Fundamental <input type="checkbox"/> 3rd			
Cutting Mode (切割方式)		<input checked="" type="checkbox"/> AT <input type="checkbox"/> BT <input type="checkbox"/> X +2°			
Nominal frequency (标称频率)	f_nom	-	20	-	MHz
Frequency tolerance at 25°C (常温频差)	f_tol	-10	-	10	x 10 <sup>-6</sup>
Stability Over Temperature (温度稳定性)	f_tem	-80	-	80	x 10 <sup>-6</sup>
Load capacitance(负载电容)	CL	-	12	-	pF
Motional resistance (ESR) (等效谐振电阻)	R1	-	-	70	Ω
Shunt capacitance (静电容)	C0	-	-	2	pF
Motional capacitance (动态电容)	C1	-	-	-	fF
Level of drive (激励功率)	DL	-	100	-	μW
Operating temperature (工作温度)	T_use	-40	-	125	°C
Storage temperature (储存温度)	T_stg	-55	-	125	°C
Frequency aging (老化率)	f_age	-3	-	3	x10 <sup>-6</sup> /year

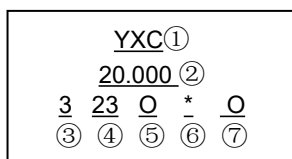
**2.External dimensions (外观尺寸)**  
(Unit: mm)



**3.Footprint(Recommended) (焊盘推荐)**  
(Unit: mm)

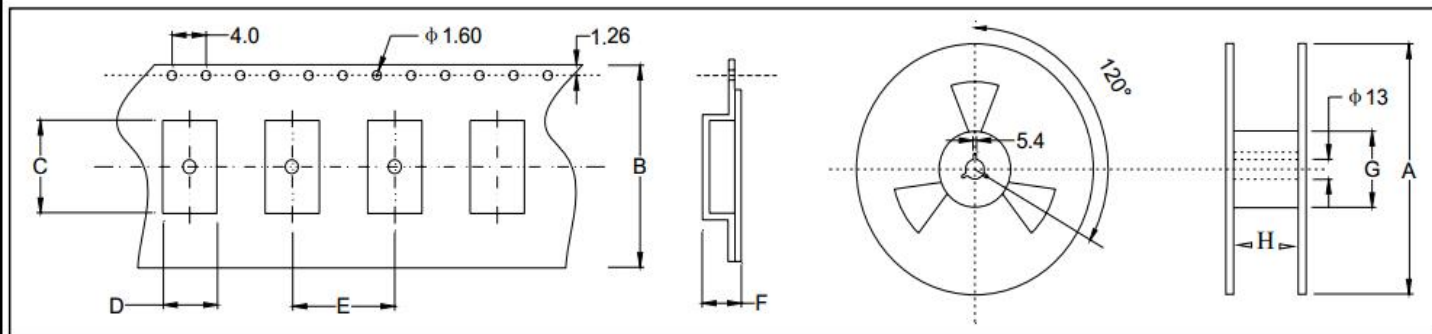


**4.Marking information(丝印说明)**



- ① YangXing LOGO
- ② Frequency
- ③ Year
- ④ Production Cycle
- ⑤ Load capacitance
- ⑥ Line
- ⑦ Operating Temperature

**5.Taping Specification (载带规格) (Unit: mm)**



Size	A	B	C	D	E	F	G	H
SMD-3225	180±2.0	8.0±0.3	3.50±0.1	2.80±0.1	4.0±0.1	1.40±0.1	61.0±1.0	8.0±1.0

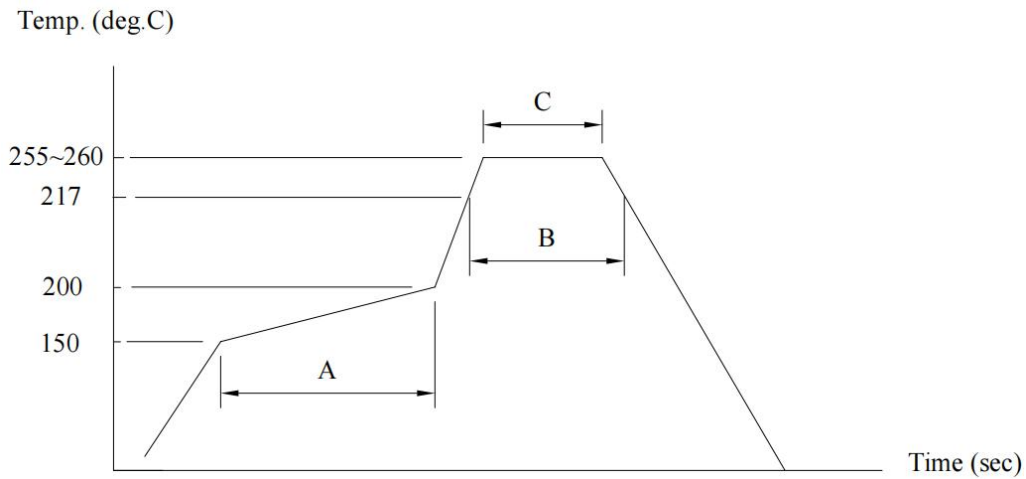
3000 pcs per reel

**6.Reliability characteristic (可靠性)**

No	Test Item	Test Conditions (测试条件)	Reference (参考)	
( applicable to SMD type OSC and X'tal /(Glass type) SMD type X'tal for AEC-Q200)			Condition E	
Test Items	Test Condition	Specification		
		OSC In spec	X'tal In spec	
1. Pre-and Post-Stress Electrical Test	Test is performed for crystal unit.			
2. High Temperature Exposure(Storage) Test	1000 Hours at 125°C	$\Delta F \cong \pm 10\text{PPM}$ , Duty within spec	$\Delta F \cong \pm 10\text{PPM}$ , $\Delta C.I \cong \pm 10\text{ohms}$	
3 Temperature Cycling Test	1000 Cycles( 40°C to 125°C)	$\Delta F \cong \pm 10\text{PPM}$ , Duty within spec	$\Delta F \cong \pm 10\text{PPM}$ , $\Delta C.I \cong \pm 10\text{ohms}$	
4. Biased Humidity Test	1000 Hours 85°C85%R.H Rated VDD applied with 1MΩ and inverter in parallel	$\Delta F \cong \pm 10\text{PPM}$ , Duty within spec	$\Delta F \cong \pm 10\text{PPM}$ , $\Delta C.I \cong \pm 10\text{ohms}$	
5. Operational Life Test	1000 Hours at 125°C Rated VDD applied with 1MΩ and inverter in parallel	$\Delta F \cong \pm 10\text{PPM}$ , Duty within spec	$\Delta F \cong \pm 10\text{PPM}$ , $\Delta C.I \cong \pm 10\text{ohms}$	
External Visual Test	Inspect device construction, marking and workmanship. Electrical Test not required.	In spec	In spec	
7 Physical Dimension	Verify external view and dimension as per the specification Electrical Test not required.	In spec	In spec	
8. Mechanical Shock Test	100gs, 6msec, 1/2sinusoid 3 times for each direction(X, Y, Z)	$\Delta F \cong \pm 10\text{PPM}$ , Duty within spec	$\Delta F \cong \pm 10\text{PPM}$ , $\Delta C.I \cong \pm 10\text{ohms}$	
9. Vibration Test	Freq. range: 10~2000Hz Peak to peak amplitude:1.5mm Peak acceleration 5g's for 20 minutes of 3 orientations(X,Y,Z)	$\Delta F \cong \pm 10\text{PPM}$ , Duty within spec	$\Delta F \cong \pm 10\text{PPM}$ , $\Delta C.I \cong \pm 10\text{ohms}$	
10. Resistance to Soldering Heat Test	IR reflow as STD 260±5°C/10sec Max twice.	$\Delta F \cong \pm 10\text{PPM}$ , Duty within spec	$\Delta F \cong \pm 10\text{PPM}$ , $\Delta C.I \cong \pm 10\text{ohms}$	

11 Thermal Shock Test	100 cycles(-55°C to +125°C) Max transfertime : 20sec.	$\Delta F \cong \pm 10\text{PPM}$ , Duty within spec	$\Delta F \cong \pm 10\text{PPM}$ , $\Delta C.I \cong \pm 10\text{ohms}$
12. Electrical Characterization Test	Sample data is summary to show Min, Max,Mean and Standard deviation Satisfactory electrical performance.	In spec	In spec
13. Board Flex Test	Apply a force which will bend the board (D)x=2mm Minimum (or as defined in the customer specification or Q200) The duration of the applied forces shall be 60(+5) Sec.	$\Delta F \cong \pm 10\text{PPM}$ , Duty within spec	$\Delta F \cong \pm 10\text{PPM}$ , $\Delta C.I \cong \pm 10\text{ohms}$
14. TerminalStrength (SMD) Test	Force : 17.7N(1.8Kg) Test duration : 60+1 sec	$\Delta F \cong \pm 10\text{PPM}$ , Duty within spec	$\Delta F \cong \pm 10\text{PPM}$ , $\Delta C.I \cong \pm 10\text{ohms}$

**7.Reflow profile (回流焊)**



- (A)→Preheating area : 150~200°C, 60~120sec.
- (B)→Heating area : 217°C, 60~150sec.
- (C)→Peak temperature : 255~260°C, 30sec. Max.
- Ramp-up rate (217→260°C) : 3°C/sec. Max.
- Ramp-down rate (260→217°C) : 6°C/sec. Max.
- Time 25°C→260°C : 480sec. Max.
- Moisture Sensitivity Level : Level1

## 8. Notice (注意)

- 包装 PACKING
- 包装方式应符合运输和装卸要求，特殊包装须经双方认可。
- Packing must prevent damage during transportation and handing. Specific method will be settled by mutual agreement.
- 对环境影响 INFLUENCE TO ENVIRONMENT
- 本产品在生产过程中不使用 ODS I，对臭氧层无破坏。
- This product doesn't use the class I ODS at any of production process .
- 生产厂家 MANUFACTURE
- 公司名称：深圳扬兴科技有限公司
- Shenzhen YangXing Technology Co.,Ltd.
- 其它 OTHERS
- 1. 如果您对本公司产品规格书有疑问或书中未列出，请与我方联系，协商解决及改进。
- If you have some doubt or unknowing about this specification, Please contact us for settlement or development.
- 2. 我们按照产品规格书要求保证晶体品质，若客户要求具体数据，我们可提供。
- We guarantee that quartz crystal unit satisfies this specification, If you need the data, we will provide it.
- 3. 变更与联络 (MODIFY AND CONTACT)
- 本产品在设计、工艺、材料、生产场所、关键设备、操作人员等影响产品质量的因素有变更时，应事先提供更改后的产品并经过质量认可后，方可大批量供货。
- When the quality is changed due to the changes of the design, technology, material, manufacture place, main equipment and workers, we will first supply the modified products and obtain approval from you, then start to supply mass production.
- 4. 售前售后服务 (AFTER SALE SERVICE)
- 若在生产过程中遇到不良品，本公司负责调换，并及时提交不良品的分析及改进措施报告经认可。
- If the defection product was found in the production process, we will exchange and provide the improving measures in time.

## Contact us

[www.yxc.hk](http://www.yxc.hk)