

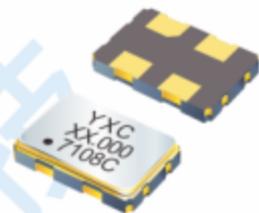
Programmable Crystal Oscillator YSO690PR

YXC®



General Description (概述)

YSO690PR is a CMOS output quartz crystal oscillator. It supports the frequency range of 1 MHz to 200 MHz and can achieve precise output up to six decimal places. Various package options are available to meet different design requirements. We can service customer requirements with very fast lead times.



Features (产品特性)

- Fast Delivery: Rapid Sample Service (typically within 2 seconds) and Quick Turn Bulk Delivery (24 to 48 hours)
- The PLL supports frequency operation across a wide range, from 1 MHz to 200 MHz
- 3.3 V, 2.5 V and 1.8 V VDD supply operation
- CMOS output
- ± 50 ppm stability (-40°C to 85°C)
- Available in 4pin metal Package: 2.0*1.6mm, 2.5*2.0mm, 3.2*2.5mm, 5.0*3.2mm, 7.0*5.0mm
- Maximum Operating Temperature: -40°C to 125°C

Applications (应用领域)

- Routers and switches
- Two-way radios (Walkie-talkies)
- EV charging stations
- Printers and multifunction devices
- Unmanned Aerial Vehicle Applications

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1 Specifications (规格参数)

Table 1 Electrical Characteristic

Item / Type	CMOS		
Frequency Range 额定频率范围	1MHz ~ 125MHz	1MHz ~ 200MHz	1MHz ~ 200MHz
Supply Voltage 电源电压 (Voltage Tolerance: $\pm 10\%$)	1.8 V	2.5 V	3.3 V
Supply Voltage Variation 电压范围	1.62V~1.98V	2.25V~2.75V	2.97V~3.63V
Standby Current 待机电流	400uA		
Frequency Tolerance 频率偏差	$\pm 30\text{ppm}$, $\pm 50\text{ppm}$, $\pm 110\text{ppm}$ or specify		
Output Load 输出负载	15pF		
Operating Temperature Range 工作温度	-40~+85°C, -40~+125°C or specify		
Storage Temperature Range 储存温度	-55~+125°C		
Input Voltage 输入电压	VIH=70% VDD Min VIL=30%VDD Max		
Voltage VOH(Min.) / VOL(Max.) 输出电压	VOH = 90%VDD / VOL = 10%VDD		
Duty Cycle 占空比	45~55%		
Rise Time/Fall Time 上升沿/下降沿	5ns Max		
Start-up Time 启动时间	7ms Max		
Supply Current 消耗电流	35mA Max	1MHz~156.25MHz: 35mA Max	
		156.25MHz~200MHz: 40mA Max	
Frequency Aging (at 25°C) 老化率	$\pm 3\text{ ppm/year}$ Max		
HBM/ESD 静电防护	2000V~3999V		

1.1 Phase Jitter (相噪抖动)

Table 2 Output RMS Jitter and Phase Noise

Item/Type	Value	Remarks
Phase Jitter [12 kHz~20MHz]	1.5ps Typ	1MHz~200MHz
Phase Noise	-27 dBc/Hz@1Hz	@12.5MHz
	-52 dBc/Hz@10Hz	
	-81 dBc/Hz@100Hz	
	-109 dBc/Hz@1kHz	
	-120 dBc/Hz@10kHz	
	-120 dBc/Hz@100kHz	
	-143 dBc/Hz@1MHz	
	-147 dBc/Hz@10MHz	
	-28 dBc/Hz@1Hz	@156.25MHz
	-54 dBc/Hz@10Hz	
	-83 dBc/Hz@100Hz	
	-109 dBc/Hz@1kHz	
	-119 dBc/Hz@10kHz	
	-118 dBc/Hz@100kHz	
	-138 dBc/Hz@1MHz	
	-143 dBc/Hz@10MHz	

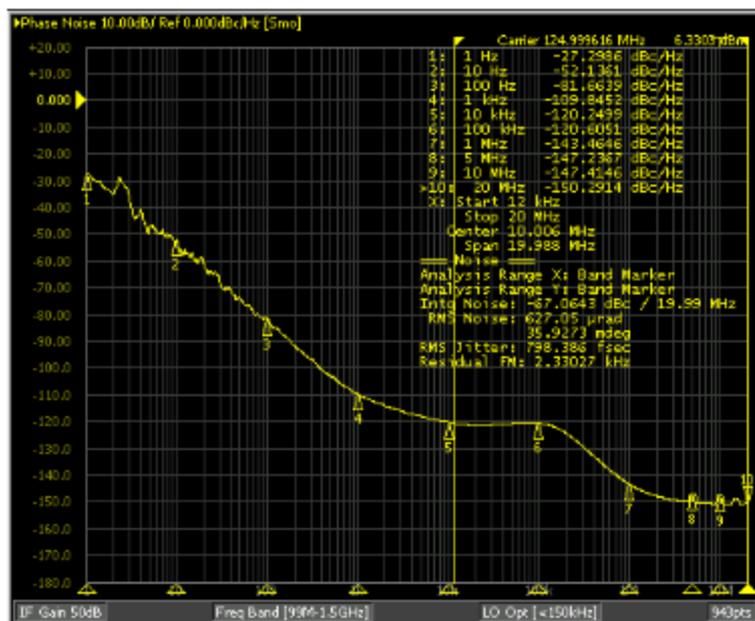


Figure 1 Representative Phase Noise Measurement@12.5M

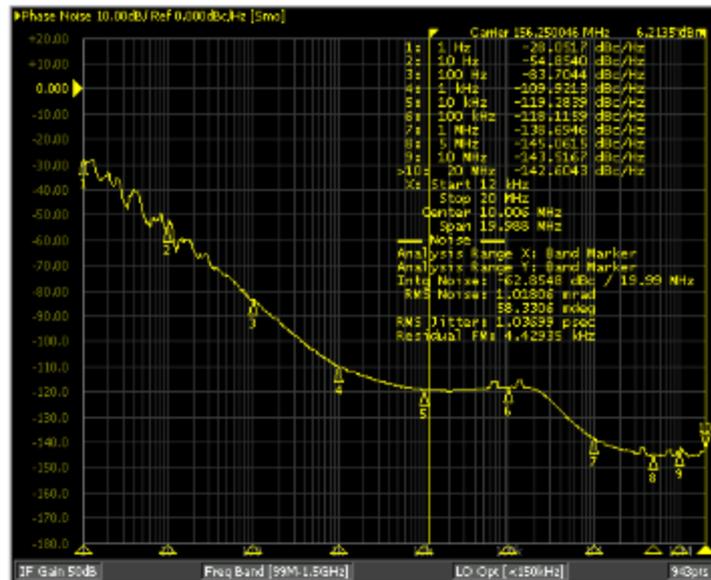


Figure 2 Representative Phase Noise Measurement @156.25M

1.2 Frequency vs Temperature Test (频率-温度特性测试)

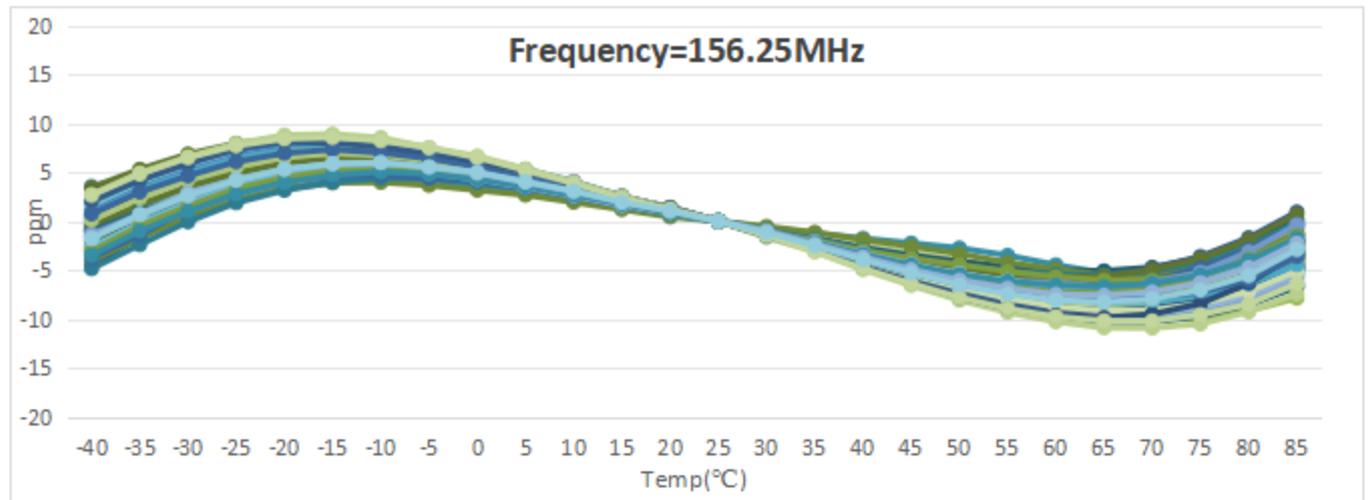


Figure 3 Frequency vs Temperature (-40~85°C)

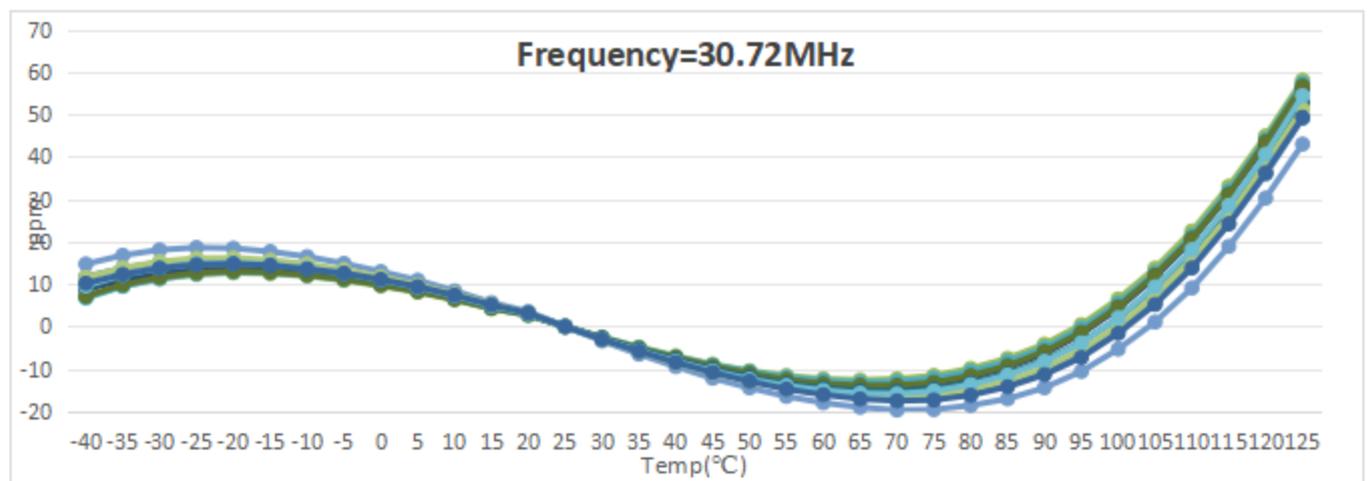


Figure 4 Frequency vs Temperature (-40~125°C)

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2 Pin Description (脚位说明)

Table 3 Pin Description

Pin No.	Pin Name	I/O Type	Description
1	OE/ST/NC	Output Enable	H: specified frequency output L: output is low. Specified frequency output stop.
		Standby	H: specified frequency output L: output is low. Device goes to sleep mode. Supply current reduces to 400uA(Standby Current).
		No Connect	Pin 1 = VDD or Pin 1 is Open : Specified frequency output. Pin 1 has no function
2	GND	Power	Electrical ground
3	OUT	Output	Oscillator output
4	VDD	Power	Power supply voltage

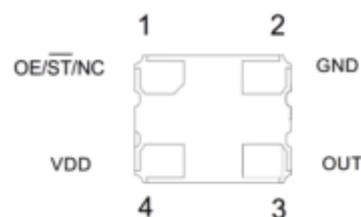


Figure 5 Pin Assignments

3 Dimensions and Recommended Land Pattern (外观尺寸及推荐焊盘)

Dimensions (Unit: mm)	Recommended Land Pattern (Unit: mm)
<p>2.0*1.6mm</p> <p>Top View</p> <p>Side View</p> <p>Bottom View</p> <p>Recommended soldering</p>	<p>Recommended soldering</p>
<p>2.5*2.0mm</p> <p>Top View</p> <p>Side View</p> <p>Bottom View</p> <p>Recommended soldering Pattern</p>	<p>Recommended soldering Pattern</p>

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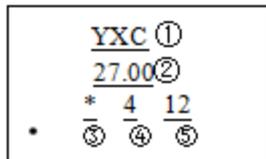


<p>3.2±0.5mm</p> <p>Top View</p> <p>Bottom View</p> <p>Side View</p>	<p>Recommended soldering Pattern</p>
<p>5.0±0.2mm</p> <p>Top View</p> <p>Bottom View</p> <p>Side View</p>	<p>Recommended soldering Pattern</p>
<p>7.0±0.5mm</p> <p>Top View</p> <p>Bottom View</p> <p>Side View</p>	<p>Recommended soldering Pattern</p>

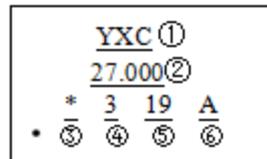
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4 Marking information (丝印说明)



Or



①	YangXing LOGO
②	Frequency
③	Line
④	Year
⑤	Production Cycle
⑥	Voltage+Operating Temperature

5 Inside Structure (内部结构)

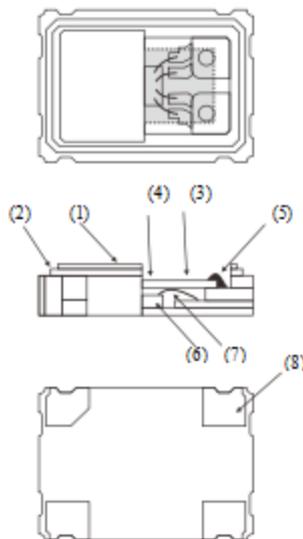
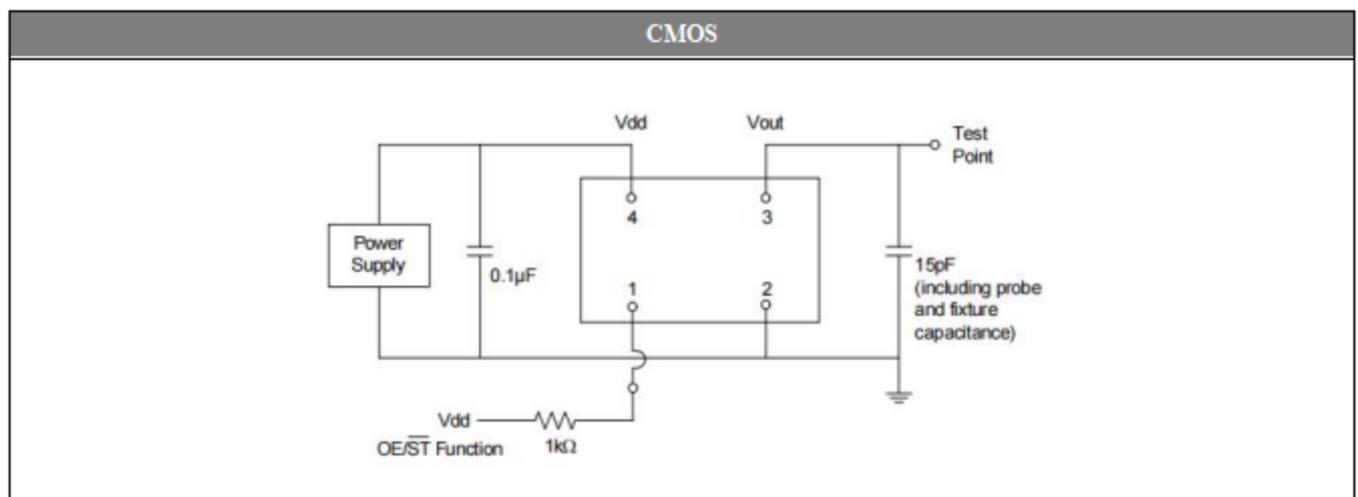


Figure 6 Internal Structure

Table 4 Inside Structure

No.	Name	Material
(1)	Can	Fe-Co-Ni
(2)	Base	Ceramic
(3)	Blank	Quartz
(4)	Electrode	Ag
(5)	Epoxy	Slilcon+Ag
(6)	IC	Silicon
(7)	Wire	Au
(8)	Soldering Pads	Au plated

6 Test Circuit (测试电路)



7 Reflow profile (回流焊)

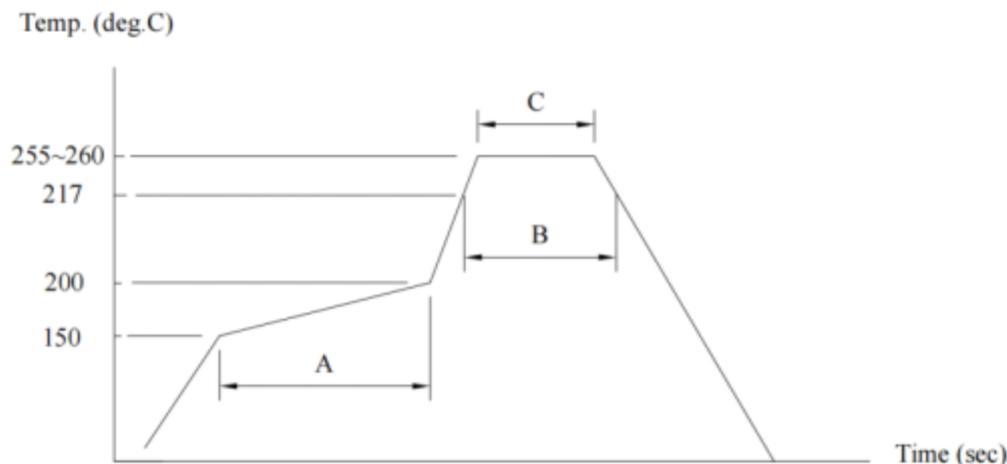
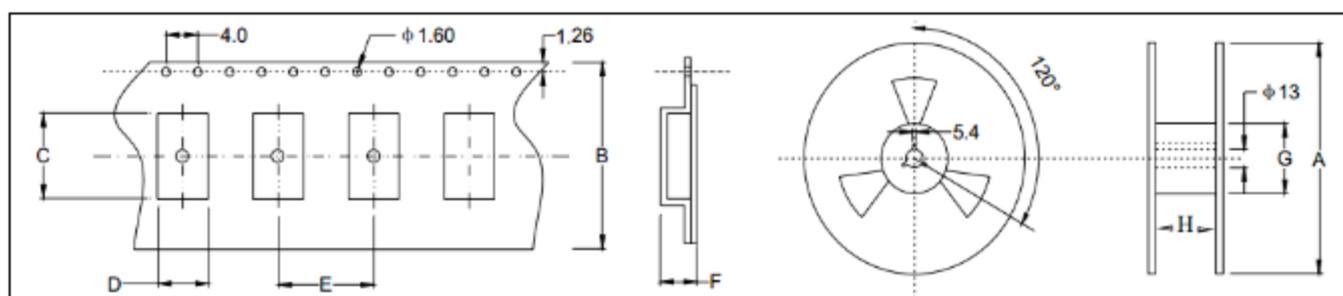


Figure 7 Reflow Profile

- (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 Taping Specification (载带规格) (Unit: mm)



Size	A	B	C	D	E	F	G	H	Pcs/reel
SMD-2016	180±2.0	8.0±0.3	2.30±0.1	1.9±0.1	4.0±0.1	1.1±0.1	61.0±1.0	9.5±0.5	3000
SMD-2520	180±2.0	8.0±0.3	2.90±0.1	2.40±0.1	4.0±0.1	1.20±0.1	61.0±1.0	9.5±0.5	3000
SMD-3225	180±2.0	8.0±0.3	3.40±0.1	2.70±0.1	4.0±0.1	1.40±0.1	61.0±1.0	9.5±0.5	3000
SMD-5032	180±2.0	12.0±0.3	5.40±0.1	3.60±0.1	8.0±0.1	1.40±0.1	61.0±1.0	13.0±0.5	1000
SMD-7050	180±2.0	16.0±0.3	7.50±0.1	5.50±0.1	8.0±0.1	1.80±0.1	61.0±1.0	17.0±0.5	1000

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9 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.

对环境的影响 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 MANUFACTURER

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.如需应用于超声波环境下，请与我们联系。

For application in ultrasonic environment, please contact us.

4.变更与联络 (MODIFY AND CONTACT)

本产品在设计、工艺、材料、生产厂所、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.

5.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.

此规格书仅供参考。若有需要，请与我方索要正式承认书作为物料承认及质量判定依据。

This specification is for reference only. If needed, please request a formal letter of acknowledgment from our side to serve as the basis for material acknowledgment and quality judgment.