

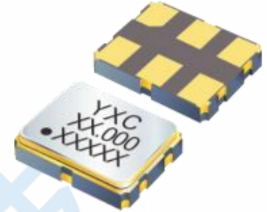
Crystal Oscillator

YSO210PR



General Description (概述)

YSO210PR is a programmable, low-jitter differential crystal oscillator. With a frequency range spanning from **10 MHz to 1500 MHz**, it meets demanding requirements for high precision and stability, while supporting differential signal outputs such as LVDS and LVPECL. We are capable of accommodating custom orders with very short 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 10 MHz to 1500 MHz
- 3.3 V and 2.5 V VDD supply operation
- LVPECL or LVDS output
- ± 50 ppm stability (-40°C to 85°C)
- Available in 6pin metal Package: 5.0*3.2mm, 7.0*5.0mm

Applications (应用领域)

- 5G Base Station
- Industrial Display
- 10 Gigabit Ethernet
- Synchronous Optical Networking(SONET)
- Serial Advanced Technology Attachment
- Serial Attached SCSI(SAS)
- Fibre Channel

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1 Specifications (规格参数)

Table 1 Electrical Characteristic

Item/Type	LVPECL	LVDS	Remarks
Output Frequency Range 额定频率范围	10MHZ ~ 1500MHZ		
Supply Voltage 电源电压	2.5V		Voltage Tolerance: $\pm 5\%$ (2.375V~2.625V)
	3.3V		Voltage Tolerance: $\pm 10\%$ (2.97V~3.63V)
Total Stability 频率偏差	$\pm 50\text{ppm}$, or specify		Inclusive of Initial tolerance at 25°C, 1st year aging at 25°C, and variations over operating temperature
Operating Temperature Range 工作温度	-40~+85°C, or specify		
Storage Temperature Range 储存温度	-55°C~150°C		
Current Consumption 消耗电流	80mA Max	50mA Max	OE=VDD, LVPECL=(50) Ω or LVDS=(100) Ω
Disable Current 禁用电流	16mA Typ.		OE=GND
Output Voltage (LVPECL) 输出电压 (LVPECL)	VOH=VDD-1.03 V Min	--	DC characteristics
	VOL=VDD-1.6 V Max	--	
Output Voltage (LVDS) 输出电压 (LVDS)	--	VOH=1.6 V Max	
	--	VOL=0.9 V Min	
Output Load Condition 输出负载	L_PECL=50 Ω	--	Terminated to VDD-2.0V
	--	L_LVDS=100 Ω	Connected between OUT to OUT
Input Voltage 输入电压	VIH=70% VDD Min, VIL=30%VDD Max		OE terminal
Rise Time/Fall Time 上升沿/下降沿	1nS Max		LVPECL: Between 20% and 80% of (VOH-VOL), LVDS: Between 20% and 80% Differential Output peak to peak voltage
Duty Cycle 占空比	45~55%		
Start-up time 启动时间	10mS		Time at Minimum Supply Voltage to be 0s
Aging 老化率	$\pm 3\text{ppm}$		25°C First year, VDD=2.5V, 3.3V
HBM/ESD 静电防护	2000V Max		

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1.1 Phase Jitter (相噪抖动)

Table 2 Output RMS Jitter and Phase Noise

Item/Type	Value	Remarks
RMS Jitter [12 kHz ~ 20 MHz]	1.0ps Typ.	200MHZ ~ 800MHZ
	2.0ps Typ.	801MHZ ~ 1500MHZ
Phase Noise	-31 dBc/Hz@1Hz	@100MHz
	-68 dBc/Hz@10Hz	
	-99 dBc/Hz@100Hz	
	-113 dBc/Hz@1kHz	
	-120 dBc/Hz@10kHz	
	-122 dBc/Hz@100kHz	
	-140 dBc/Hz@1MHz	
	-149 dBc/Hz@10MHz	
	-25 dBc/Hz@1Hz	@156.25MHz
	-52 dBc/Hz@10Hz	
	-88 dBc/Hz@100Hz	
	-110 dBc/Hz@1kHz	
	-116 dBc/Hz@10kHz	
	-119dBc/Hz@100kHz	
	-138 dBc/Hz@1MHz	
	-144 dBc/Hz@10MHz	

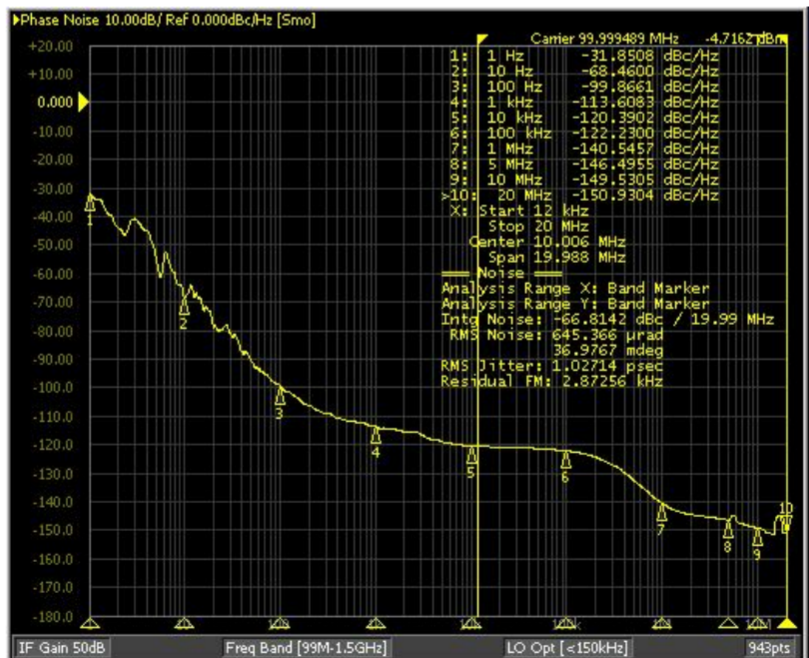


Figure 1 Representative Phase Noise Measurement@100M

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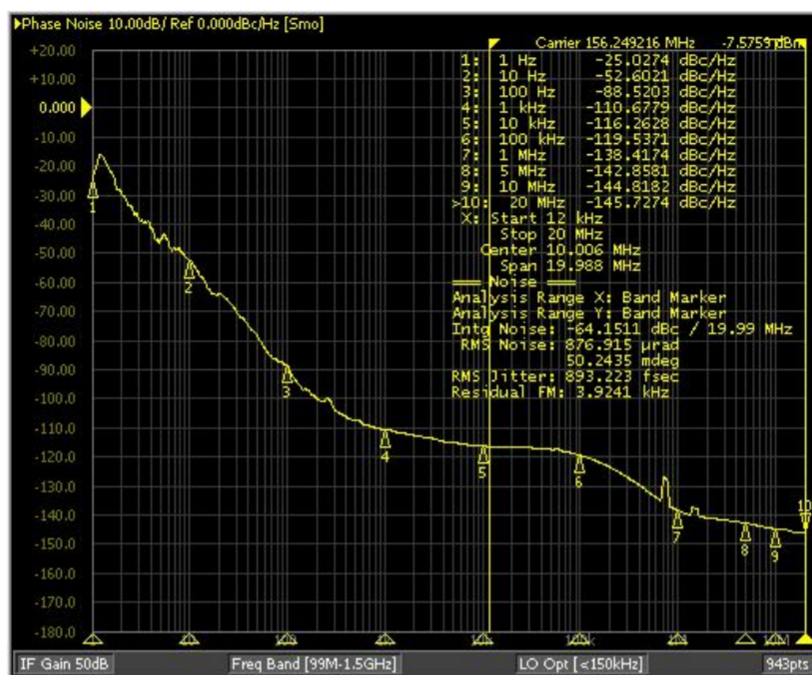


Figure 2 Representative Phase Noise Measurement@156.25M

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

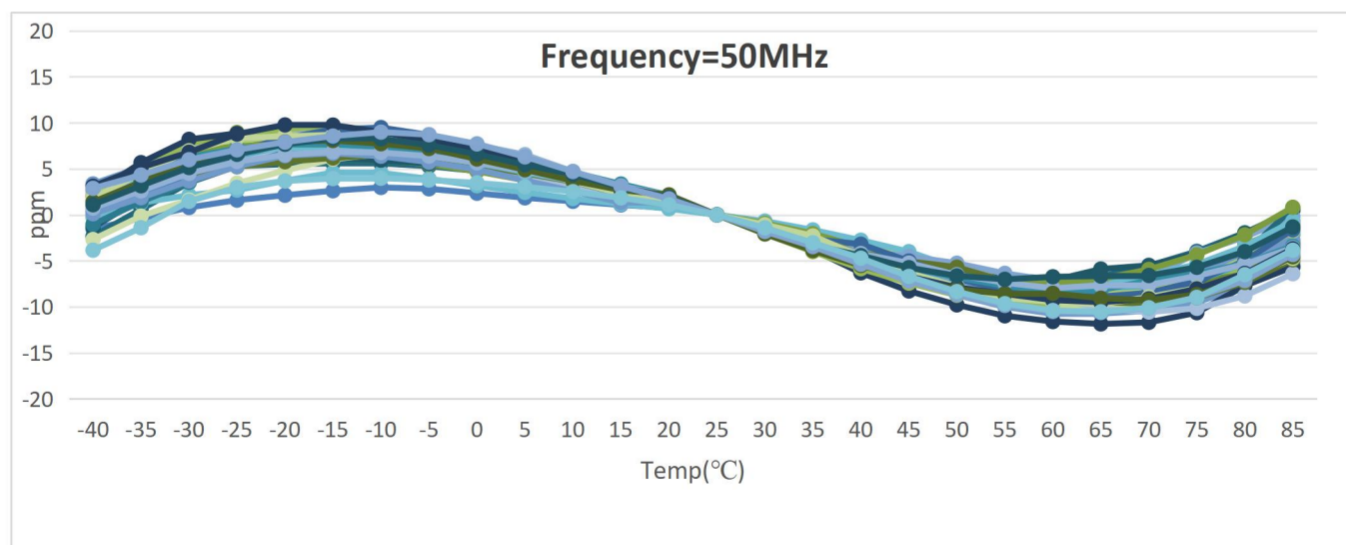


Figure 3 Frequency vs Temperature

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2 Pin Description (脚位说明)

Table 3 Pin Description

PIN	#1	#2	#3	#4	#5	#6
FUNCTION	OE	NC	GND	OUT+	OUT-	VDD

Notes: To maintain stable operation provide a 0.01uF to 0.1uF by-pass capacitor at a location as near as possible to the power source terminal of the crystal product (between VDD-GND).

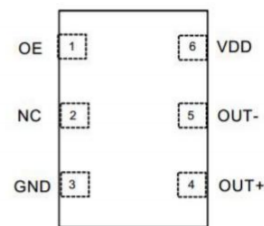


Figure 4 Pin Assignments

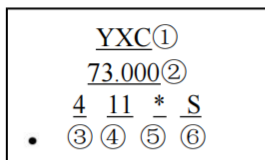
3 Dimensions and Recommended Land Pattern (外观尺寸及推荐焊盘)

Dimensions (Unit: mm)	Recommended Land Pattern (Unit: mm)
5.0*3.2mm Top View Bottom View Side View	Recommended soldering Pattern
7.0*5.0mm Top View Bottom View Side View	Recommended soldering

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4 Marking information (丝印说明)



① YangXing LOGO
② Frequency
③ Year
④ The production cycle
⑤ Line
⑥ Voltage+Operating Temperature

5 Inside Structure (内部结构)

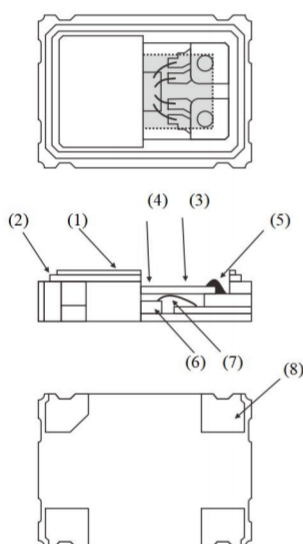
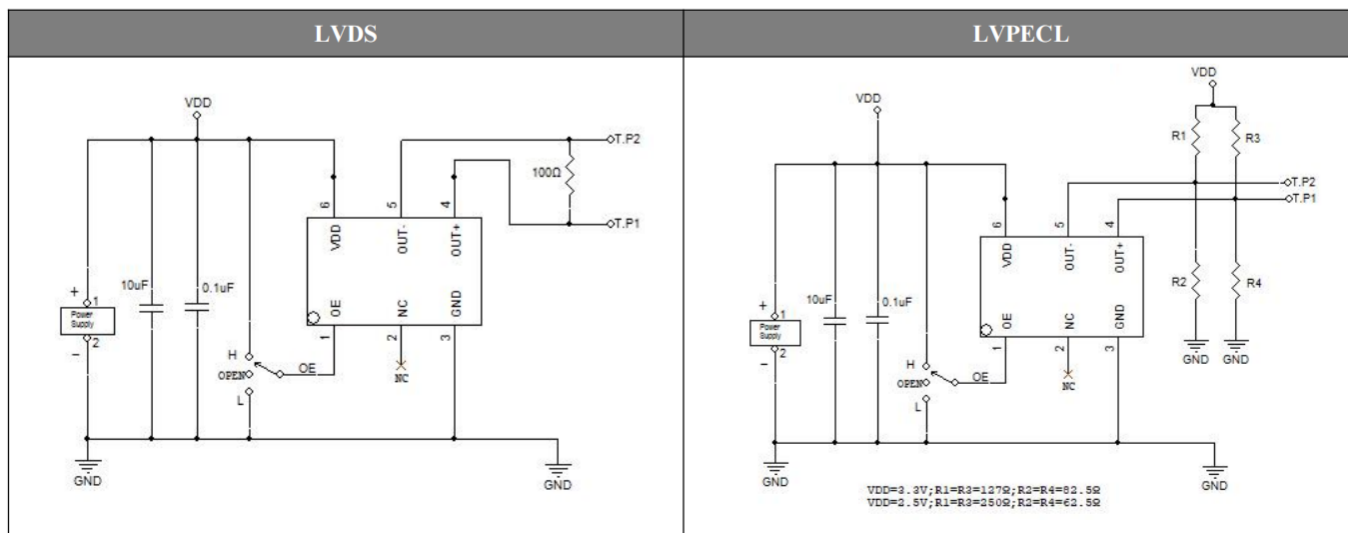


Figure 5 Internal Structure

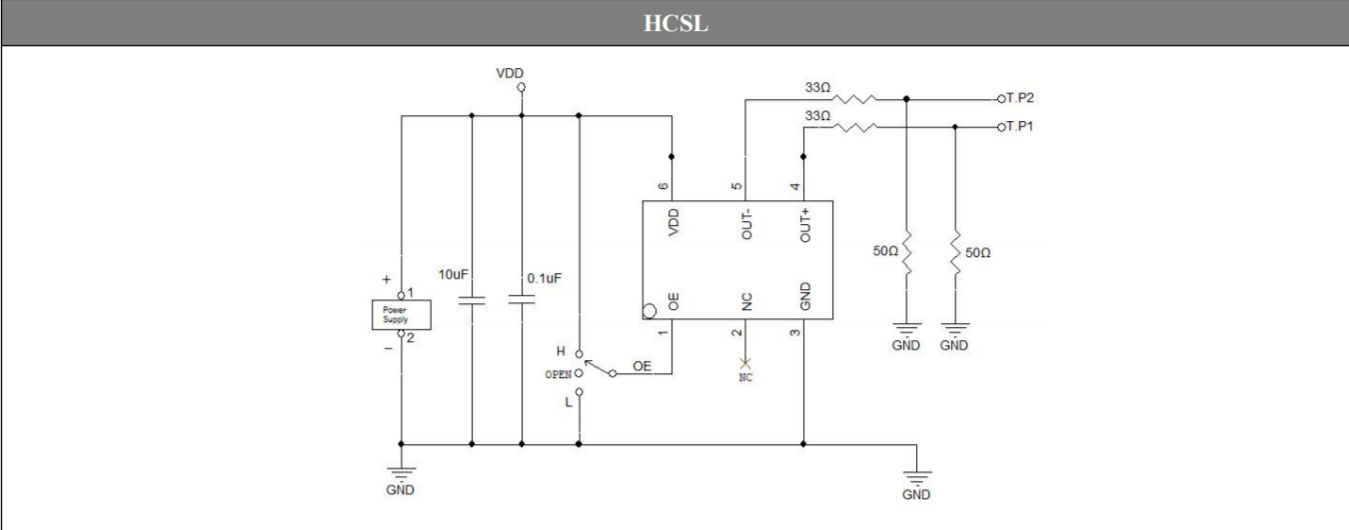
Table 4 Inside Structure

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

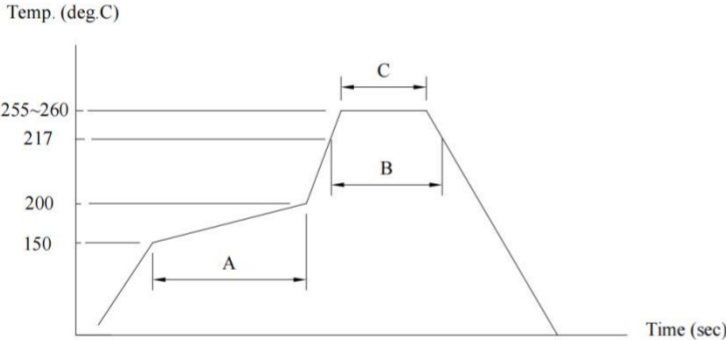
6 Test Circuit (测试电路)



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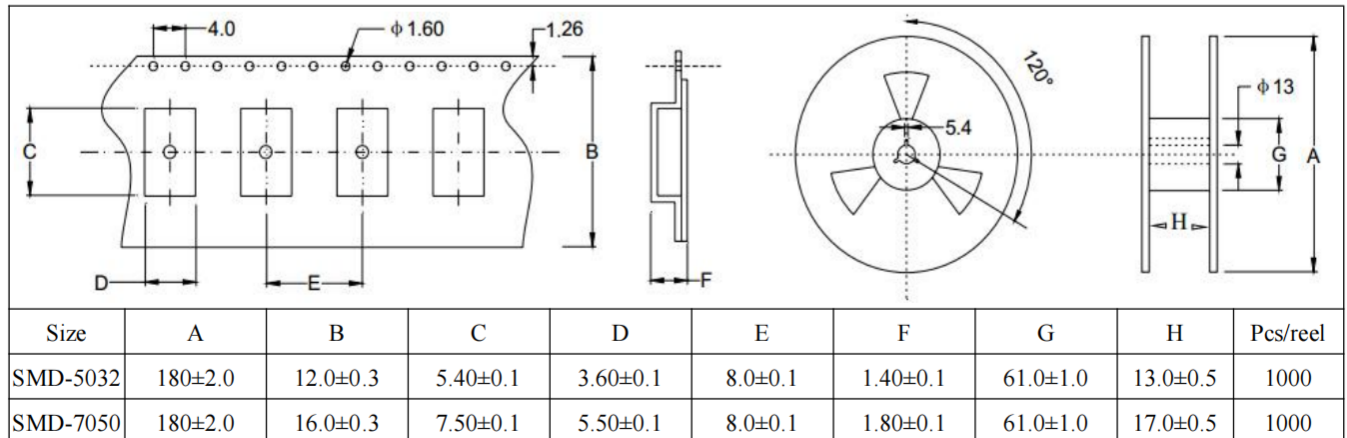
7 Reflow profile (回流焊)



(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

Figure 6 Reflow Profile

8 Taping Specification (載帶規格) (Unit: mm)



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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，请与我方案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.