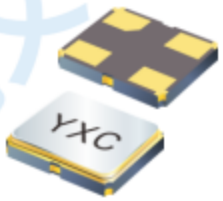
PROGRAMMABLE CRYSTAL OSCILLATOR

YSO171PS Spread Spectrum

General Description（概述）

The **YSO171PS** is a spread spectrum crystal oscillator with its output frequency factory-programmed between **1 MHz and 200 MHz** to meet customer specifications. YSO171PS supports both **center and down spread modulation modes** with spread spectrum widths from **±0.125% to ±2%**. The use of a dedicated programmer allows us to service requests with very fast lead times.



Features（产品特性）

- Available with any frequency from 1MHz to 200MHz
- Spread spectrum widths from ±0.125% to ±2%
- 1.8 V to 3.3V VDD supply operation
- CMOS Output
- Operating temperature range:-40°C to +85°C(industrial); extended range up to +105°C available
- Low Power Consumption: 3.4 mA typical.
- EMI Reduction: Minimizes electromagnetic radiation and susceptibility to interference
- Package Options:Available in 6pin Plastic Package : 3.2*2.5mm,2.5*2.0mm

Applications（应用领域）

- Wireless Communication Equipment
- Computing and Networking Equipment
- Industrial Control Systems
- Medical Devices
- Automotive Electronic Systems

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LIST

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1 Specifications（规格参数）

Table 1 Electrical Characteristic

Item		Min	Typ	Max	Remarks
Nominal Frequency Range 额定频率范围		1MHz ~ 200MHz			
Supply Voltage 电源电压		1.62V	1.8V	1.98V	Voltage Tolerance：±10%
		2.25V	2.5V	2.75V	
		2.97V	3.3V	3.63V	
Frequency Tolerance 频率偏差		±25ppm, ±50ppm, or specify			
Operating Temperature 工作温度		-40 ~+ 85°C, or specify			
Input Voltage 输入电压		VIH=70% VDD Min VIL=30%VDD Max			OE terminal
Output Type 输出方式		CMOS			
Output Load 输出负载		15pF			
Output voltage (DC characteristics) 输出电压	VOH	90% VCC			OE terminal
	VOL			10% VCC	
Disable Time 禁用时间				1 μ s	Measured from the time OE pin crosses 30 % VCC
Enable Time 使能时间				1 μ s	Measured from the time OE pin crosses 70 % VCC
Start-up Time 启动时间				3.0ms	Measured from the time VCC reaches its rated minimum value, 1.62 V
Current Consumption 消耗电流	VCC=1.8V			6.0mA	@170MHz
	VCC=2.5V			6.9mA	
	VCC=3.3V			8.3mA	
Output disable current 输出禁用电流	VCC=1.8V			3.4mA	
	VCC=2.5V			3.5mA	
	VCC=3.3V			3.7mA	
Rise Time/Fall Time 上升/下降时间				3ns Max（f0>40MHz） 6ns Max（f0≤40MHz）	
Duty Cycle 占空比		45%		55%	50 % VCC Level
Frequency Aging 老化（at 25°C）				±5 ppm / year	
ESD-Human Body Model 人体静电放电模型		2000V			
ESD-Machine Model 机器静电放电模型		250V			
ESD-Charged Device Model 充电器件静电放电模型		750V			

Table 2 Absolute Maximum Ratings

Item	Min	Typ	Max	Remarks
Maximum Junction Temperature in Operation 最大工作温度	-40°C		+125°C	
Storage Temperature 储存温度	-40°C		+125°C	

Table 3 Function and Configuration

Item		Min	Typ	Max	Remarks
Enable Function 使能功能		70% of VDD			
Disable Function 禁用功能				30% of VDD	
Spread Type 展频方式	Center Spread 中心展频	±0.125 % (C0.125) to ± 2.0 % (C2.0) in ± 0.125 % steps			
	Down Spread 向下展频	- 0.25 % (D0.25) to - 4.0 % (D4.0) in 0.25 % steps			
Modulation Frequency 调制频率		25.4kHz (Default), 12.7kHz , 8.5kHz, 6.3kHz			

1.1 Power Consumption Characteristics （功耗特性）

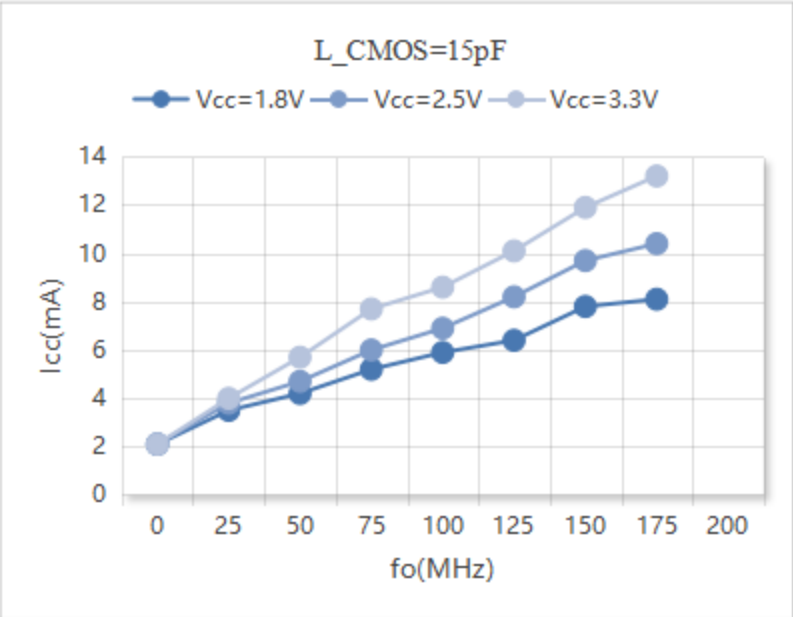

Figure 1 Power Consumption Chart

1.2 Modulation Depth Testing（展频调制深度测试）

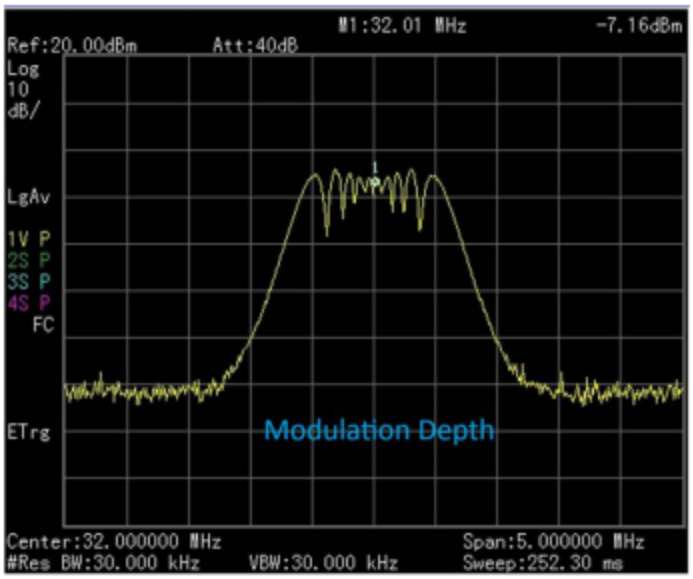

Figure 2 Spread Spectrum Crystal Oscillator Modulation Depth Test Chart @32MHz

2 Pin Dimension（脚位尺寸）

Table 4 Pin Description

Pin	Name	Function	
1	OE	Output enable	High:Specified frequency output from OUT pin Low:Out pin is low (weak pull down),only output driver is disabled
2	GND	Ground	
3	OUT	Clock output	
4	VDD	Power supply	

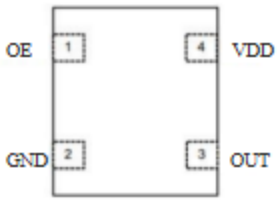

Figure 3 Pin Assignments

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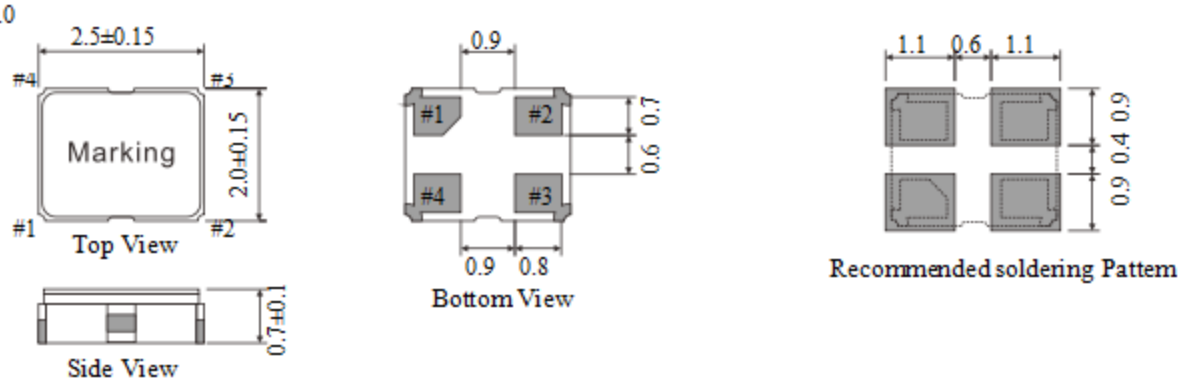
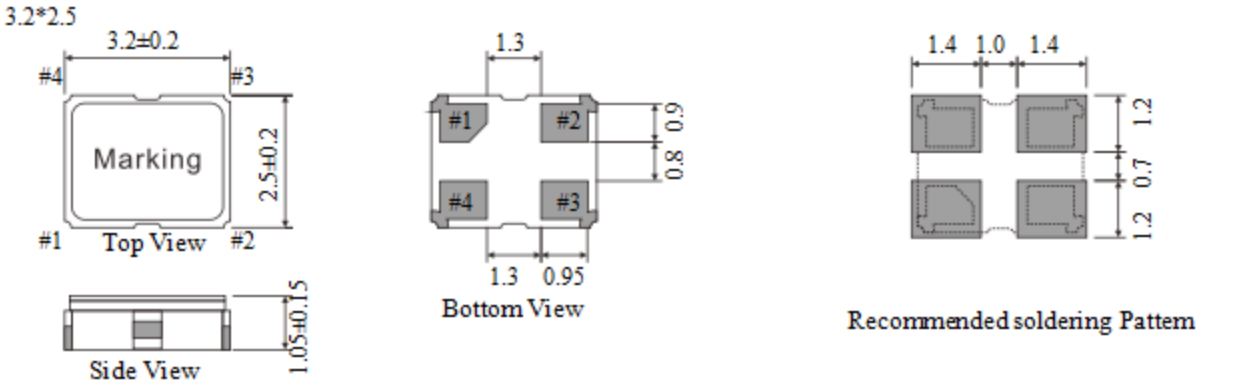
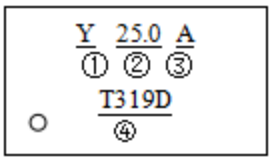
3 Dimensions and Recommended Land Pattern (外观尺寸及推荐焊盘)

Dimensions (Unit: mm)
2.5*2.0 
3.2*2.5 

4 Marking information (丝印说明)



① YangXing LOGO
② Frequency
③ Spread detail
④ Lot number

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5 Inside Structure （内部结构）

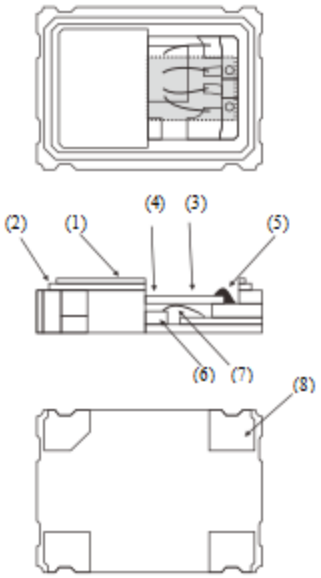
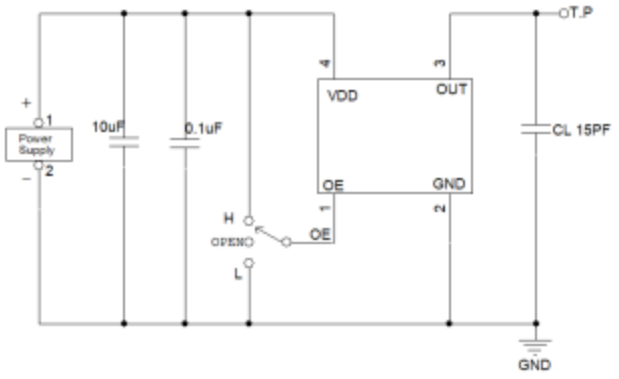


Table 5. Materials of Internal Components

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

6 Test Circuit (测试电路)

CMOS


7 Reflow profile（回流焊）

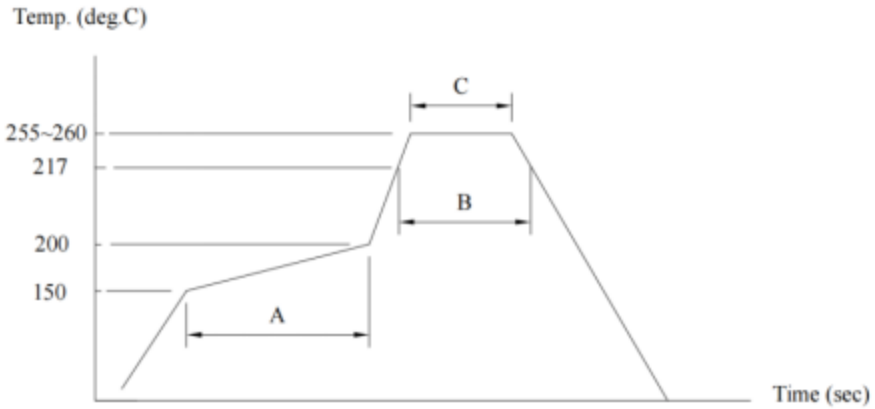
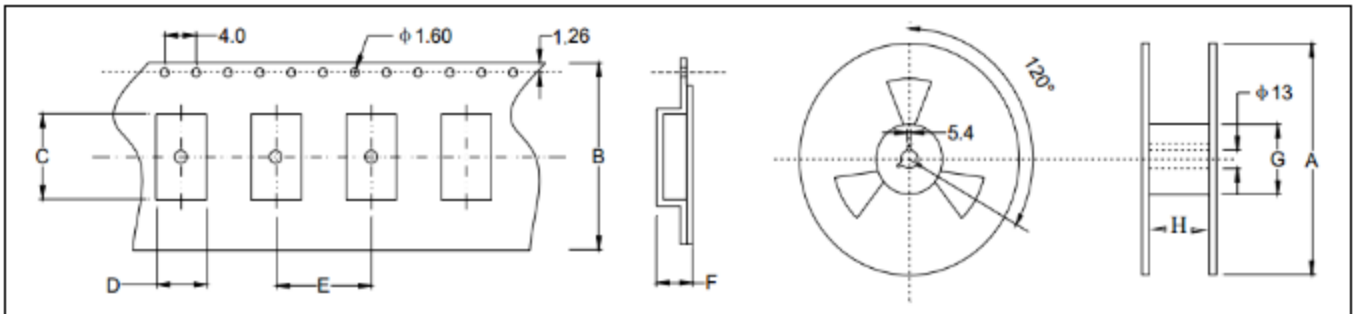


Figure 5. Reflow Profile

(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-2520	180±2.0	8.0±0.3	2.70±0.1	2.25±0.1	4.0±0.1	0.8±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

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.
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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.