

# PROGRAMMABLE CRYSTAL OSCILLATOR

## YSO210PR



### Applications

- 10 GB Ethernet, SONET, SATA, SAS, Fibre Channel

### Features

- Freq range:10MHz-1500MHz.
- Output LVPECL or LVDS.
- Package Size: 3.2\*2.5, 5.0\*3.2 7.0\*5.0mm.
- Quartz Crystal Programmable Differential Oscillator.



## Specifications

Item/Type	LVPECL	LVDS	Remarks	
Output Frequency Range	10MHZ~1500MHZ			
Supply Voltage	2.5Vdc ± 10% 3.3Vdc ± 10%			
Operating Temperature Range	-40~+85℃,or specify			
Storage Temperature Range	-55~+125℃			
Total Stability	±50ppm			
Input Resistance	1Mohms Typ			
Current Consumption	80mA Max	50mA Max	OE=Vcc, LVPECL=(50)Ω or LVDS=(100)Ω	
Disable Current	16mA Typ		OE=GND	
Output Voltage (LVPECL)	VOH=Vcc-1.03 Min	--	DC characteristics	
	VOL=Vcc-1.6 Max	--		
Output Voltage (LVDS)	--	VOD= 175mV	VOD1, VOD2	DC characteristics
	--	dVOD=50mV Max.	dVOD= VOD1-VOD2	
	--	VOS= 1.25V	VOS1, VOS2	
	--	dVOS=50mV Max.	dVOS= VOD1-VOD2	
Output Load Condition	L_P ECL=50Ω	--	Terminated to Vcc-2.0V	
	--	L_LVDS=100Ω	Connected between OUT to OUT	
Input Voltage	VIH=70% VccMin, VIL=30%Vcc Max		OE terminal	
Output Symmetry	45~55%			
Rise Time/Fall Time	1nS Max		LVPECL: Between 20% and 80% of (VOH-VOL), LVDS:Between 20% and 80% Differential Output peak to peak voltage	
Start-up time	10mS		Time at minimum supply voltage to be 0 s	
Aging	±3ppm		25℃First year, Vcc=2.5V,3.3V	
Phase Jitter(12KHZ~20MHZ)	1.0ps Typ.		200MHZ~800MHZ	
	2.0ps Typ.		801MHZ~1500MHZ	

## Pin Dimension

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

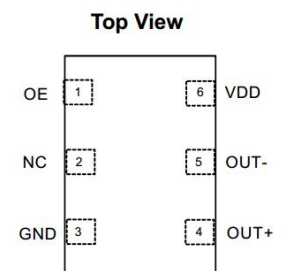


Figure 1. Pin Assignments

**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 Vcc-GND).

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### Dimensions and Patterns [unit:mm]

Package Size – Dimensions (Unit: mm)	Recommended Land Pattern (Unit: mm)
<p>3.2*2.5mm</p> <p>Top View</p> <p>Bottom View</p> <p>Side View</p>	<p>Top View Suggested Layout</p>
<p>5.0*3.2mm</p> <p>Top View</p> <p>Bottom View</p> <p>Side View</p>	<p>Top View Suggested Layout</p>
<p>7.0*5.0mm</p> <p>Top View</p> <p>Bottom View</p> <p>Side View</p>	<p>Top View Suggested Layout</p>
<p>Notes:</p> <p>1.A capacitor of value 0.01uf~0.1uf or higher between Vdd and GND is required.</p>	

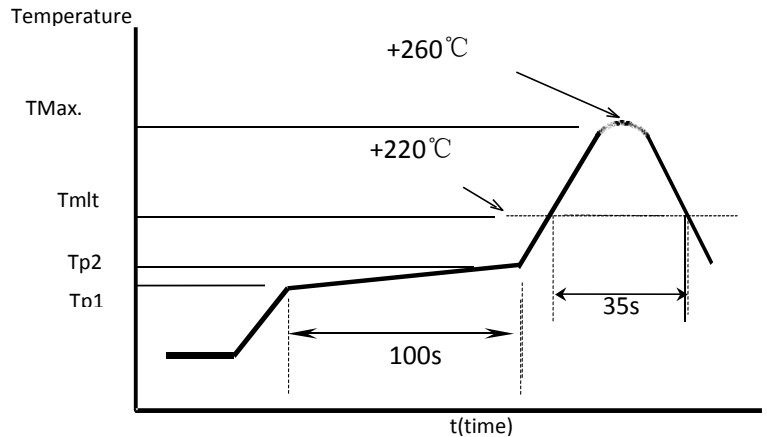
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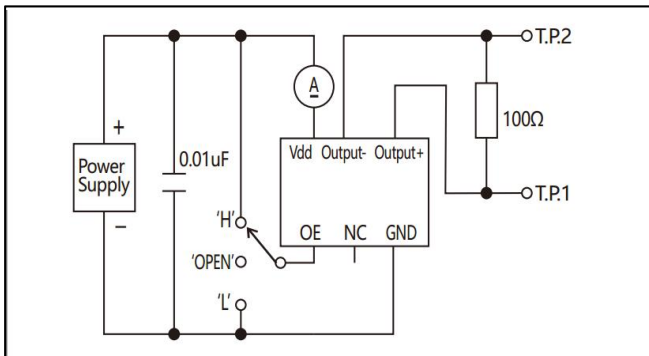
### Reflow Soldering Profile

Pre Heating Temperature  $T_{p1} \sim T_{p2} = +170\text{ }^{\circ}\text{C}$   
 Heating Temperature  
 $T_{Mlt} = +220\text{ }^{\circ}\text{C}$   
 Peak Temperature  
 $T_{Max.} = +260\text{ }^{\circ}\text{C}$   
 Point of measuring  
 In case of Solder ability Terminal.  
 In case of Resistance to soldering heat Surface.

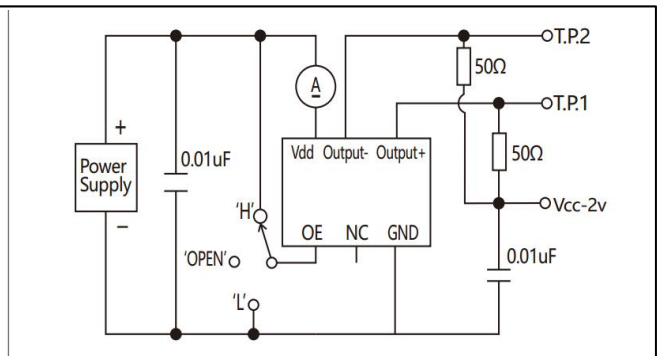


### Test Circuit

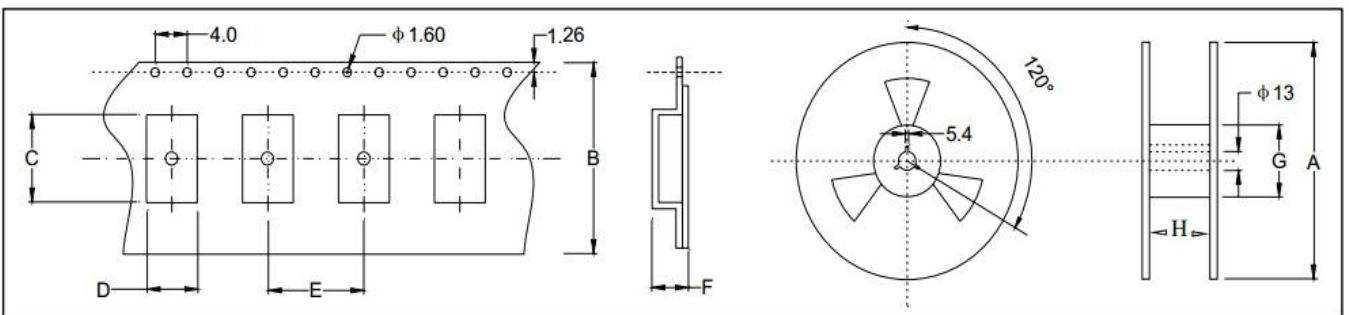
LVDS



LVPECL



### Taping Specification(Unit: mm)



Size(OSC)	A	B	C	D	E	F	G	H
SMD-7050	180±2.0	16.0±0.3	7.50±0.1	5.50±0.1	8.0±0.1	2.00±0.1	61.0±1.0	16.0±1.0
SMD-5032	180±2.0	12.0±0.3	5.40±0.1	3.60±0.1	8.0±0.1	1.70±0.1	61.0±1.0	12.0±1.0
SMD-3225	180±2.0	8.0±0.3	3.40±0.1	2.70±0.1	4.0±0.1	1.50±0.1	61.0±1.0	8.0±1.0