

# Crystal Oscillator

## YSO120TK



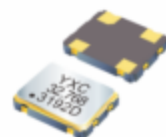
### Applications

- RTC

### Features

- Frequency: 32.768KHz  
- Ultra Small SMD Seam Sealed Crystal Oscillator

- Package Size: 1.6\*1.2, 2.0\*1.6,  
2.5\*2.0, 3.2\*2.5, 5.0\*3.2, 7.0\*5.0mm



## Specifications (规格参数)

Item	Symbol	Specifications
Nominal Frequency 标称频率	$f_0$	32.768KHz
Supply Voltage 电源电压	VDD	1.8V ~ 3.3V
Output Type 输出方式	-	CMOS
Frequency Tolerance over Operating Temperature Range 频率频差(at 25°C)	$f_{tol}$	$\pm 10ppm, \pm 20ppm, \text{ or specify}$
Output Load 输出负载	L_cmos	15pF
Operating Temperature 工作温度	T_use	-40~+85°C, or specify
Storage Temperature 储存温度	T_stg	-55~+125°C
Frequency Versus Temperature Characteristics 频率-温度特性	$f_{tem}$	$\pm 20ppm, \pm 30ppm, \pm 50ppm, \text{ or specify}$
Output Voltage 输出电压	Voh	90%VDD Min
	Vol	10%VDD Max
Duty Cycle 占空比	SYM	45~55%
Start-up Time 启动时间	t_str	3ms Max
Phase Jitter [12 kHz ~ 20 MHz] 相位抖动	tpj	0.7ps Max
Frequency Aging 老化(at 25°C)	$f_{age}$	$\pm 3ppm/year \text{ Max}$
Tri-State	Enable (High Voltage or Floating)	70% of VDD Min
	Disable (Low Voltage or GND)	30% of VDD Max

## Current Consumption (消耗电流)

Supply Voltage (V)	32.768KHZ	
	7050/5032/3225	2520/2016/1612
1.8V	0.2mA Max	0.2mA Max
2.5V	0.3mA Max	0.3mA Max
3.3V	0.5mA Max	0.4mA Max

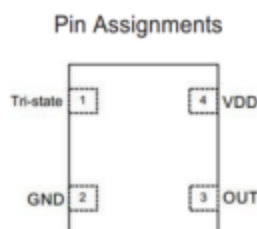
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## Pin Dimension (脚位尺寸)

Pin	#1	#2	#3	#4
FUNCTION	Tri-state	GND	OUTPUT	VDD

\*The picture on the right is only for PIN function description.



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

Dimensions (Unit: mm)	Recommended Land Pattern (Unit: mm)
<p>1.6*1.2</p> <p>Top View</p> <p>Bottom View</p> <p>Side View</p> <p>Recommended soldering Pattern</p>	<p>Recommended soldering Pattern</p>
<p>2.0*1.6</p> <p>Top View</p> <p>Bottom View</p> <p>Side View</p> <p>Recommended soldering Pattern</p>	<p>Recommended soldering Pattern</p>
<p>2.5*2.0</p> <p>Top View</p> <p>Bottom View</p> <p>Side View</p> <p>Recommended soldering Pattern</p>	<p>Recommended soldering Pattern</p>

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<p>3.2*2.5</p> <p>Top View</p> <p>Bottom View</p> <p>Side View</p>	<p>Recommended soldering Pattern</p>
<p>5.0*3.2</p> <p>Top View</p> <p>Bottom View</p> <p>Side View</p>	<p>Recommended soldering Pattern</p>
<p>7.0*5.0</p> <p>Top View</p> <p>Bottom View</p> <p>Side View</p>	<p>Recommended soldering Pattern</p>
<p>Notes: 1. A capacitor value-0.01uf-0.1uf or higher between Vdd and GND is required.</p>	

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## Test Circuit (测试电路)

