



给您一颗快乐的“芯”！

# YSO690PR



## Features



- Quartz Crystal Programmable Oscillator
- Any frequency between 1MHz~200MHz accurate to 6 decimal places
- Operating temperature from -40 to +85
- Period Jitter, Typical: 1pSec at 12KHz to 20MHz
- CMOS compatible output
- Industry-standard packages: 2.0x1.6 , 2.5 x 2.0 , 3.2 x 2.5 , 5.0 x 3.2 , 7.0 x 5.0 mm x mm

### Applications:

- Ideal for DSC, DVC, DVR, IP CAM, Tablets, e-Books, SSD, GPON, EPON, etc
- Ideal for high-speed serial protocols such as : USB, SATA, SAS,

## Electrical Specifications

All Min and Max limits are specified over temperature and rated operating voltage with 15 pF output load unless otherwise stated. Typical values are at 25°C and nominal supply voltage.

| Parameter                              | 1.8 V   | 2.5 V         | 3.3 V         |
|--|---|---------------|---------------|
| Frequency Range                        | 1MHz~125MHz                                       | 1MHz~200MHz   | 1MHz~200MHz   |
| Supply Voltage Variation(Vdd)10%       | 1.62 V~1.98 V                                     | 2.25 V~2.75 V | 2.97 V~3.63 V |
| Standby Current                        | 400 $\mu$ A                                       |               |               |
| Frequency Tolerance                    | $\pm$ 20ppm, $\pm$ 25ppm, $\pm$ 50ppm, or specify |               |               |
| Output Load                            | 15 pF, or specify                                 |               |               |
| Operating Temperature Range            | - 40 ~ + 85 $^{\circ}$ C, or specify              |               |               |
| Storage Temperature Range              | - 55 ~ +150 $^{\circ}$ C                          |               |               |
| Voltage Vol ( Max. ) / Vol ( Min. )    | VOH = 90%Vdd/VOL = 10%Vdd                         |               |               |
| Duty Cycle                             | 45~55%  |               |               |
| Period Jitter(@12K-20Mhz)              | 1.8V=1.5ps 2.5V=1.1ps 3.3V=1ps                    |               |               |
| Start-up Time                          | 7ms Max.  |               |               |
| Supply Current                         | See Below   |               |               |
| Frequency Aging ( at 25 $^{\circ}$ C ) | $\pm$ 3 ppm / year Max.                           |               |               |

## Pin Description

| Pin | Symbol                |               | Functionality   |
|-----|-----------------------|---------------|---|
| 1   | OE/ $\overline$ ST/NC | Output Enable | H : specified frequency output<br>L : output is low. Specified frequency output stop.   |
|     |                       | Standby       | H : specified frequency output<br>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.<br>Pin 1 has no function   |
| 2   | GND                   | Power         | Electrical ground   |
| 3   | OUT                   | Output        | Oscillator output   |
| 4   | VDD                   | Power         | Power supply voltage  |



Pin Assignments



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## Dimensions and Patterns

| Package Size – Dimensions (Unit: mm) | Recommended Land Pattern (Unit: mm) |
|--------------------------------------|-------------------------------------|
| 2.0 x 1.6 mm                         |                                     |
| 2.5 x 2.0 mm                         |                                     |
| 3.2 x 2.5 mm                         |                                     |
| 5.0 x 3.2 mm                         |                                     |
| 7.0 x 5.0 mm                         |                                     |

**Notes:**

- 1. A capacitor of value 0.01μF-0.1μF for higher between Vdd and GND is required.

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★ PART NUMBER GUIDE 部件号示例 e.g. O97050200MEDA4SI-\* YSO690PR=7.0 ×5.0 SMD SEAM TYPE

| Quartz Crystal Oscillator | Series | Dimensions | Frequency (Hz) | Supply voltage (V) | Frequency Stability Overall (ppm) | output | Pin | Material | Operating Temp. Range | - | Remark |
|---------------------------|--------|------------|----------------|--------------------|-----------------------------------|--------|-----|----------|-----------------------|---|--------|
| O                         | 9      | 7050       | 200M           | E                  | D                                 | A      | 4   | S        | I                     | - | *      |

★ INPUT CURRENT 工作电流

| Supply Voltage | Power Dissipaton   |                     |                      |                       |                       |
|----------------|--------------------|---------------------|----------------------|-----------------------|-----------------------|
|                | 1.000 ~ 30.000 MHz | 30.000 ~ 75.000 MHz | 75.000 ~ 110.000 MHz | 133.000 ~ 166.000 MHz | 166.000 ~ 200.000 MHz |
| 1.8 V          | 18 mA max          | 19 mA max           | 20 mA max            | 20 mA max             | 20 mA max             |
| 2.5 V          | 21 mA max          | 22mA max            | 23 mA max            | 24mA max              | 25mA max              |
| 3.3 V          | 23 mA max          | 24 mA max           | 25 mA max            | 26 mA max             | 27 mA max             |

★ REFLOW SOLDERING PROFILE 回流焊特性



| Pb free reflow<br>A | ① | Preheat      | 160~180°C | 120sec. max |
|---------------------|---|--------------|-----------|-------------|
|                     | ② | Primary heat | 220°C     | 60sec. max  |
|                     | ③ | Peak         | 260°C     | 10sec. max. |

★ Test Circuit 测试电路



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