

# LOW VOLTAGE HCMOS SURFACE-MOUNT CRYSTAL CLOCK OSCILLATOR

ASD SERIES



RoHS  
Compliant



2.5 X 2.0 X 0.95 mm

## FEATURES:

- Low height 0.95mm max
- Low current consumption
- Tri-state function
- Suitable for RoHS compliant reflow
- Tight stability option
- Seam sealed package assures high reliability

## APPLICATIONS:

- CCD clock for VTR Camera
- Equipment connected to PC or PC cards
- Thin equipment

## STANDARD SPECIFICATIONS:

| Parameters                  |             | Minimum  | Typical | Maximum  | Units | Notes                                 |
|-----------------------------|-------------|----------|---------|----------|-------|---------------------------------------|
| Frequency Range             |             | 0.750    | -----   | 75       | MHz   |                                       |
| Operating Temperature       |             | -20      | -----   | +70      | °C    | STD temp. Option code E (See options) |
| Storage Temperature         |             | -55      | -----   | +100     | °C    |                                       |
| Overall Frequency Stability |             | -100     | -----   | +100     | ppm   | See options                           |
| Supply Voltage (Vdd)        |             | +3.135   | +3.3    | +3.465   | V     | ASD (Standard)                        |
|                             |             | +2.85    | +3.0    | +3.15    |       | ASD1                                  |
|                             |             | +2.375   | +2.5    | +2.625   |       | ASD2                                  |
|                             |             | +1.71    | +1.8    | +1.89    |       | ASD3                                  |
|                             |             | +0.95    | +1.0    | +1.05    |       | ASD6                                  |
| Input Current (Idd)         | ASD (3.3V)  | -----    | 2.5     | 5        | mA    | 0.750~15.999 MHz                      |
|                             |             | -----    | 4       | 7        |       | 16.000~39.999 MHz                     |
|                             |             | -----    | 9       | 13       |       | 40.000~66.666 MHz                     |
|                             | ASD1 (3.0V) | -----    | 2.5     | 4        | mA    | 0.750~15.999 MHz                      |
|                             |             | -----    | 3.5     | 6        |       | 16.000~39.999 MHz                     |
|                             |             | -----    | 8       | 12       |       | 40.000~66.666 MHz                     |
|                             | ASD2 (2.5V) | -----    | 2       | 3.5      | mA    | 0.750~15.999 MHz                      |
|                             |             | -----    | 3       | 5        |       | 16.000~39.999 MHz                     |
|                             |             | -----    | 7       | 10       |       | 40.000~66.666 MHz                     |
|                             | ASD3 (1.8V) | -----    | 1       | 2.5      | mA    | 0.750~15.999 MHz                      |
|                             |             | -----    | 2       | 4        |       | 16.000~39.999 MHz                     |
|                             |             | -----    | 4       | 7        |       | 40.000~66.666 MHz                     |
|                             | ASD6 (1.0V) | -----    | 1.0     | 2.5      | mA    | 25.000 MHz                            |
| Symmetry @ 1/2Vdd           |             | 40       | -----   | 60       | %     | STD (See option)                      |
| Output Load:                |             | -----    | -----   | 15       | pF    | CMOS                                  |
| Output Voltage (VOH):       |             | 0.9* Vdd | -----   | -----    | V     |                                       |
| Output Voltage (VOL):       |             | -----    | -----   | 0.1* Vdd | V     |                                       |



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2.5 X 2.0 X 0.8mm

## STANDARD SPECIFICATIONS... continued:

| Parameters                      | Minimum     | Typical                                                                            | Maximum | Units | Notes             |
|---------------------------------|-------------|------------------------------------------------------------------------------------|---------|-------|-------------------|
| Rise and Fall Time (Tr/Tf):     | ASD (3.3V)  | -----                                                                              | 3       | ns    | 0.750~15.999 MHz  |
|                                 |             | -----                                                                              | 2.5     |       | 16.000~39.999 MHz |
|                                 |             | -----                                                                              | 2       |       | 40.000~66.666 MHz |
|                                 | ASD1 (3.0V) | -----                                                                              | 3       | ns    | 0.750~15.999 MHz  |
|                                 |             | -----                                                                              | 2.5     |       | 16.000~39.999 MHz |
|                                 |             | -----                                                                              | 2       |       | 40.000~66.666 MHz |
|                                 | ASD2 (2.5V) | -----                                                                              | 4       | ns    | 0.750~15.999 MHz  |
|                                 |             | -----                                                                              | 3       |       | 16.000~39.999 MHz |
|                                 |             | -----                                                                              | 2.5     |       | 40.000~66.666 MHz |
|                                 | ASD3 (1.8V) | -----                                                                              | 5       | ns    | 0.750~15.999 MHz  |
|                                 |             | -----                                                                              | 3.5     |       | 16.000~39.999 MHz |
|                                 |             | -----                                                                              | 3       |       | 40.000~66.666 MHz |
|                                 | ASD6 (1.0V) | -----                                                                              | 1.9     | ns    | 25.000 MHz        |
| Start-up Time:                  | ASD (3.3V)  | -----                                                                              | 6       | ms    | 0.750~15.999 MHz  |
|                                 |             | -----                                                                              | 6       |       | 16.000~39.999 MHz |
|                                 |             | -----                                                                              | 5       |       | 40.000~66.666 MHz |
|                                 | ASD1 (3.0V) | -----                                                                              | 6       | ms    | 0.750~15.999 MHz  |
|                                 |             | -----                                                                              | 6       |       | 16.000~39.999 MHz |
|                                 |             | -----                                                                              | 5       |       | 40.000~66.666 MHz |
|                                 | ASD2 (2.5V) | -----                                                                              | 6       | ms    | 0.750~15.999 MHz  |
|                                 |             | -----                                                                              | 6       |       | 16.000~39.999 MHz |
|                                 |             | -----                                                                              | 5       |       | 40.000~66.666 MHz |
|                                 | ASD3 (1.8V) | -----                                                                              | 6       | ms    | 0.750~15.999 MHz  |
|                                 |             | -----                                                                              | 6       |       | 16.000~39.999 MHz |
|                                 |             | -----                                                                              | 5       |       | 40.000~66.666 MHz |
|                                 | ASD6 (1.0V) | -----                                                                              | 2.0     | ms    | 25.000 MHz        |
| Tri-state function (Stand-by) : |             | "1" (VIH≥0.7*Vdd) or Open: Oscillation;<br>"0" (VIH<0.3*Vdd) : No oscillation/Hi Z |         |       |                   |
| Phase Jitter (12kHz to 20MHz)   | ASD (3.3V)  | -----                                                                              | 0.4     | ps    | 0.750~15.999 MHz  |
|                                 |             | -----                                                                              | 0.4     |       | 16.000~39.999 MHz |
|                                 |             | -----                                                                              | 0.3     |       | 40.000~66.666 MHz |
|                                 | ASD1 (3.0V) | -----                                                                              | 0.4     | ps    | 0.750~15.999 MHz  |
|                                 |             | -----                                                                              | 0.4     |       | 16.000~39.999 MHz |
|                                 |             | -----                                                                              | 0.3     |       | 40.000~66.666 MHz |
|                                 | ASD2 (2.5V) | -----                                                                              | 0.5     | ps    | 0.750~15.999 MHz  |
|                                 |             | -----                                                                              | 0.5     |       | 16.000~39.999 MHz |
|                                 |             | -----                                                                              | 0.5     |       | 40.000~66.666 MHz |
|                                 | ASD3 (1.8V) | -----                                                                              | 0.5     | ps    | 0.750~15.999 MHz  |
|                                 |             | -----                                                                              | 0.5     |       | 16.000~39.999 MHz |
|                                 |             | -----                                                                              | 0.5     |       | 40.000~66.666 MHz |
|                                 | ASD6 (1.0V) | -----                                                                              | 0.3     | ps    | 25.000 MHz        |
| Period Jitter RMS               | ASD (3.3V)  | -----                                                                              | 3.0     | ps    | 0.750~15.999 MHz  |
|                                 |             | -----                                                                              | 3.0     |       | 16.000~39.999 MHz |
|                                 |             | -----                                                                              | 3.0     |       | 40.000~66.666 MHz |
|                                 | ASD1 (3.0V) | -----                                                                              | 3.0     | ps    | 0.750~15.999 MHz  |
|                                 |             | -----                                                                              | 3.0     |       | 16.000~39.999 MHz |
|                                 |             | -----                                                                              | 3.0     |       | 40.000~66.666 MHz |
|                                 | ASD2 (2.5V) | -----                                                                              | 3.0     | ps    | 0.750~15.999 MHz  |
|                                 |             | -----                                                                              | 3.0     |       | 16.000~39.999 MHz |
|                                 |             | -----                                                                              | 3.0     |       | 40.000~66.666 MHz |
|                                 | ASD3 (1.8V) | -----                                                                              | 3.0     | ps    | 0.750~15.999 MHz  |
|                                 |             | -----                                                                              | 3.0     |       | 16.000~39.999 MHz |
|                                 |             | -----                                                                              | 3.0     |       | 40.000~66.666 MHz |
|                                 | ASD6 (1.0V) | -----                                                                              | 4.8     | ps    | 25.000 MHz        |
| Aging at 25°C/year              |             | -5                                                                                 | -----   | +5    | ppm               |
| Disable Current:                |             | -----                                                                              | -----   | 10    | µA                |





**Pb**

**2.5 X 2.0 X 0.8mm**

(Left blank if standard)



| Duty Cycle              |
|-------------------------|
| Blank : 40/60% @ 1/2Vdd |
| S: 45/55% @ 1/2Vdd      |

\*: Standard only  
 \*\*: E, F, N, and L only  
 \*\*\*:  $\pm 100$  ppm only

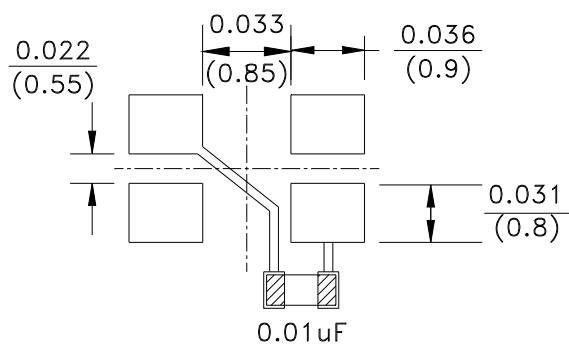
Technical drawings of a rectangular component with dimensions in millimeters.

**Top View:** A rectangle with a central hole. Dimensions: 4 mm by 3 mm. Thickness:  $0.079 \pm 0.004$  mm ( $2.0 \pm 0.1$ ).

**Side View:** A cross-section showing a central hole with a diameter of  $0.015$  mm ( $0.4$  mm max). The total width is  $0.037$  mm max ( $0.95$  mm max).

**Bottom View:** A rectangle with a central hole. Dimensions: 4 mm by 3 mm. Thickness:  $0.03$  mm ( $0.78$  mm max).

Recommended land pattern



| PIN | FUNCTION         |
|-----|------------------|
| 1   | Tri-State (STBY) |
| 2   | GND/Case         |
| 3   | Output           |
| 4   | Vdd              |

**Note1: Recommend using an approximately 0.01uF bypass capacitor between PIN 2 and 4.**

### Dimensions: inches (mm)



**2.5 X 2.0 X 0.8mm**

### Dimensions: mm

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## Данный компонент на территории Российской Федерации

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Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

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Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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