

# 3.3Vdc HCMOS SMD Crystal Clock Oscillator



7.0 x 5.08 x 1.8 mm

ASV SERIES



ESD Sensitive



RoHS/RoHS II compliant

**Moisture Sensitivity Level (MSL) – This product is Hermetically Sealed  
and not Moisture Sensitive - MSL = N/A: Not Applicable**

## FEATURES:

- HCMOS, 3.3Vdc, 2.5Vdc, & 1.8Vdc options
- Suitable for RoHS reflow
- Seam sealed package assures high reliability
- High output drive capability (up to 50pF)

## APPLICATIONS:

- Clock signaling for  $\mu$ Processors, PC Motherboards & Graphic Cards

## STANDARD SPECIFICATIONS:

| Parameters                  | Minimum         | Typical   | Maximum | Units | Notes            |
|-----------------------------|-----------------|-----------|---------|-------|------------------|
| Frequency Range             | 0.312           |           | 200     | MHz   |                  |
| Operating Temperature       | -10             |           | +70     | °C    | See options      |
| Storage Temperature         | -55             |           | +125    | °C    |                  |
| Overall Frequency Stability | -100            |           | +100    | ppm   | See options      |
| Supply Voltage (Vdd)        | +2.97           | 3.3       | +3.63   | V     | See options      |
| Supply Current (Idd)        |                 | 2.0       | 10.0    | mA    | 0.312 ~ 14.9 MHz |
|                             |                 | 3.6       | 15.0    |       | 15.0 ~ 29.9 MHz  |
|                             |                 | 5.6       | 20.0    |       | 30.0 ~ 39.9 MHz  |
|                             |                 | 7.2       | 25.0    |       | 40.0 ~ 49.9 MHz  |
|                             |                 | 13.3      | 30.0    |       | 50.0 ~ 59.9 MHz  |
|                             |                 | 19.0      | 35.0    |       | 60.0 ~ 79.9MHz   |
|                             |                 | 20.2      | 45.0    |       | 80.0 ~ 99.9 MHz  |
|                             |                 | 23.7      | 50.0    |       | 100.0 ~ 125.0MHz |
|                             |                 | 27.2      | 65.0    |       | 125.1 ~ 165 MHz  |
| Symmetry @ 1/2Vdd           | 40              | 50        | 60      | %     | See options      |
| Rise and Fall Time (Tr/Tf)  |                 | 3.0       | 5.0     | ns    | 0.312 ~ 14.9 MHz |
|                             |                 | 2.8       | 4.0     |       | 15.0 ~ 29.9 MHz  |
|                             |                 | 2.6       | 4.0     |       | 30.0 ~ 39.9 MHz  |
|                             |                 | 2.4       | 4.0     |       | 40.0 ~ 49.9 MHz  |
|                             |                 | 2.2       | 4.0     |       | 50.0 ~ 59.9 MHz  |
|                             |                 | 2.2       | 4.0     |       | 60.0 ~ 79.9MHz   |
|                             |                 | 2.0       | 4.0     |       | 80.0 ~ 99.9 MHz  |
|                             |                 | 1.8       | 4.0     |       | 100.0 ~ 125.0MHz |
|                             |                 | 1.5       | 4.0     |       | 125.1 ~ 165 MHz  |
| Output Load                 |                 |           | 15      | pF    | See options      |
| Output Voltage              | V <sub>OH</sub> | 0.9 x Vdd |         | V     |                  |
|                             | V <sub>OL</sub> |           | 0.4     | V     |                  |



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(Continued)

| Parameters                     | Minimum                                                                                                   | Typical | Maximum | Units | Notes            |
|--------------------------------|-----------------------------------------------------------------------------------------------------------|---------|---------|-------|------------------|
| Start-up Time                  |                                                                                                           | 0.4     | 4.0     | ms    | 0.312 ~ 14.9 MHz |
|                                |                                                                                                           | 0.4     | 4.0     |       | 15.0 ~ 29.9 MHz  |
|                                |                                                                                                           | 2.0     | 4.0     |       | 30.0 ~ 39.9 MHz  |
|                                |                                                                                                           | 1.5     | 4.0     |       | 40.0 ~ 49.9 MHz  |
|                                |                                                                                                           | 2.9     | 5.0     |       | 50.0 ~ 59.9 MHz  |
|                                |                                                                                                           | 1.5     | 5.0     |       | 60.0 ~ 79.9MHz   |
|                                |                                                                                                           | 1.3     | 5.0     |       | 80.0 ~ 99.9 MHz  |
|                                |                                                                                                           | 1.8     | 5.0     |       | 100.0 ~ 125.0MHz |
|                                |                                                                                                           | 2.7     | 5.0     |       | 125.1 ~ 165 MHz  |
| Tri-state function             | "1" ( $V_{IH} \geq 0.7 \cdot V_{DD}$ ) or Open: Oscillation<br>"0" ( $V_{IL} < 0.3 \cdot V_{DD}$ ) : Hi Z |         |         |       |                  |
| Period Jitter One Sigma (RMS): |                                                                                                           | 2.5     |         | ps    | 0.312 ~ 14.9 MHz |
|                                |                                                                                                           | 3.2     |         |       | 15.0 ~ 29.9 MHz  |
|                                |                                                                                                           | 3.2     |         |       | 30.0 ~ 39.9 MHz  |
|                                |                                                                                                           | 3.2     |         |       | 40.0 ~ 49.9 MHz  |
|                                |                                                                                                           | 3.2     |         |       | 50.0 ~ 59.9 MHz  |
|                                |                                                                                                           | 3.2     |         |       | 60.0 ~ 79.9MHz   |
|                                |                                                                                                           | 3.0     |         |       | 80.0 ~ 99.9 MHz  |
|                                |                                                                                                           | 2.9     |         |       | 100.0 ~ 125.0MHz |
|                                |                                                                                                           | 2.9     |         |       | 125.1 ~ 165 MHz  |
| Aging at 25°C (first year)     | -5                                                                                                        |         | +5      | ppm   |                  |
| Disable Current                |                                                                                                           |         | 10      | uA    |                  |
| Enable Time                    |                                                                                                           | 3.5     | 5       | ms    |                  |
| Disable Time                   |                                                                                                           |         | 100     | ns    |                  |



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7.0 x 5.08 x 1.8 mm

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## ➤ OPTIONS & PART IDENTIFICATION: (Left blank if standard)

ASV - [ ] - [ ] MHz - [ ] [ ] [ ] - [ ] - [ ]

### P/N and Vdd (V)

Blank: 3.3 ± 10%  
25: 2.5 ± 10%  
18: 1.8 ± 10%

### Frequency in MHz

e.g. 0.312MHz  
14.31818MHz  
26.000MHz  
200.000MHz

### Operating Temp.

I: 0°C ~ +50°C  
D: -10°C ~ +60°C  
E: -20°C ~ +70°C  
F: -30°C ~ +70°C  
N: -30°C ~ +85°C  
L: -40°C ~ +85°C

### Overall Freq. Stability

J: ±20ppm  
R: ±25ppm  
K: ±30ppm  
H: ±35ppm  
C: ±50ppm

### Output Load \*

Blank: 15pF  
50: 50pF

### Symmetry

Blank: 40/60% @ 1/2 Vdd  
S: 45/55% @ 1/2 Vdd

### Packaging

Blank: Bulk  
T: 1000pcs/Reel  
T5: 500pcs/Reel

Note \*: See Table below for the Output Load option availability

| Output Load | Supply Voltage |                             |               |
|-------------|----------------|-----------------------------|---------------|
|             | Vdd=3.3V       | Vdd=2.5V                    | Vdd=1.8V      |
| 15pF max    | √              | √                           | √             |
| 50pF max    | √              | Available for Freq. ≤ 70MHz | Not Available |



# 3.3Vdc HCMOS SMD Crystal Clock Oscillator



7.0 x 5.08 x 1.8 mm

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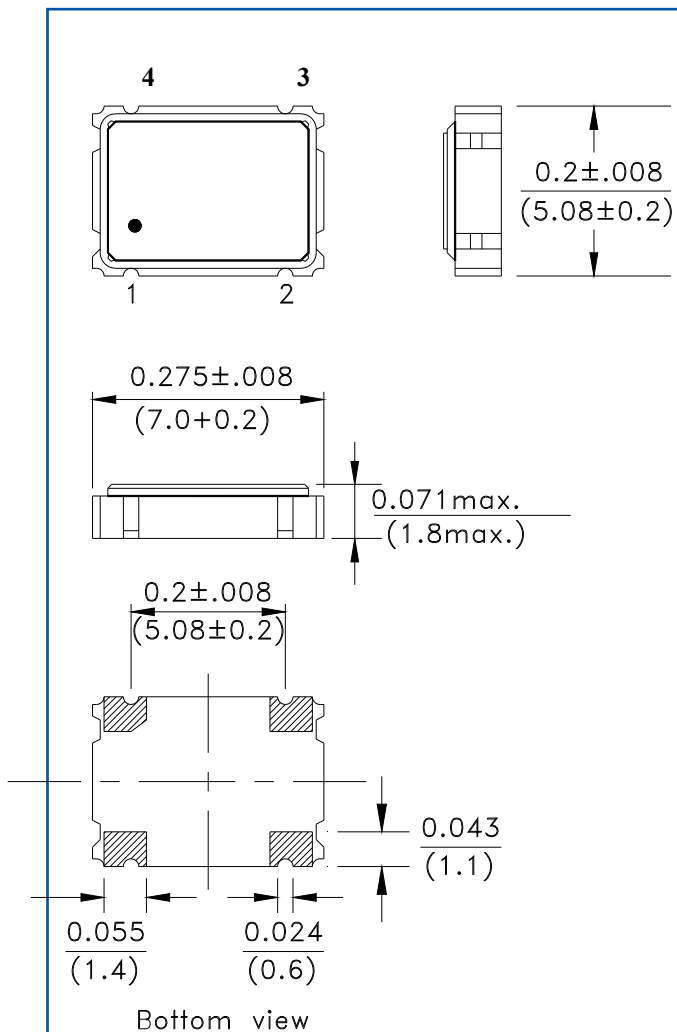


ESD Sensitive



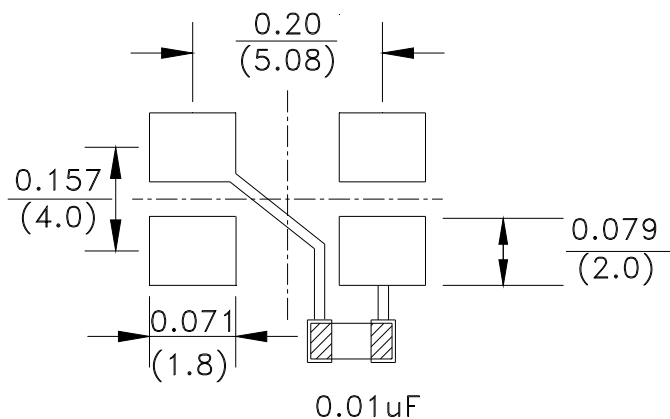
RoHS/RoHS II compliant

## OUTLINE DIMENSION:

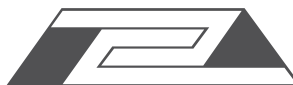


Dimension: Inches (mm)

## Recommended land pattern



| Pin | Function                 |
|-----|--------------------------|
| 1   | Tri-State Enable/Disable |
| 2   | GND/Case                 |
| 3   | Output                   |
| 4   | Vdd                      |



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7.0 x 5.08 x 1.8 mm

ASV SERIES

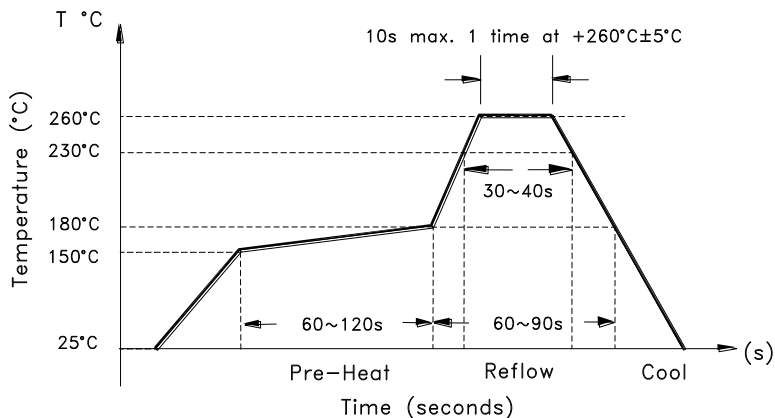


ESD Sensitive



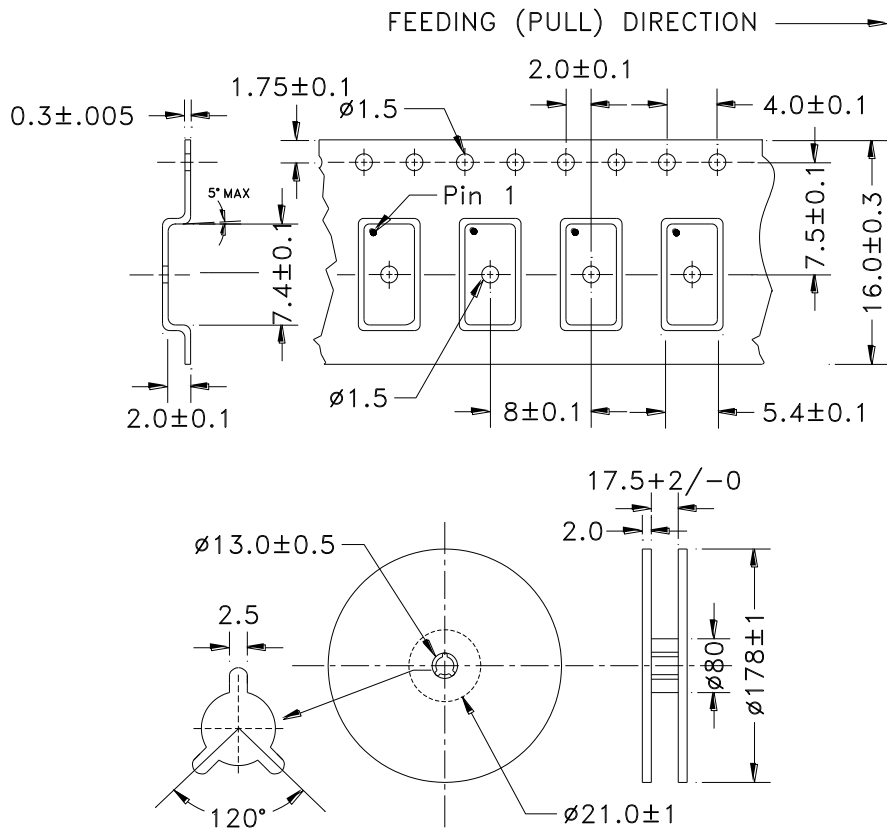
RoHS/RoHS II compliant

## REFLOW PROFILE:



## TAPE & REEL:

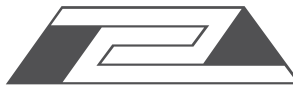
T: 1000pcs/reel  
T5: 500pcs/reel



Dimension: mm

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