

# 3.3V CMOS SMD Crystal Oscillator

ASE SERIES



RoHS/RoHS II compliant



3.2 x 2.5 x 1.2mm

Moisture Sensitivity Level (MSL) –1

## FEATURES:

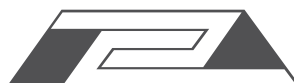
- Low height 1.2mm max
- Tri-state function
- Low current consumption 30mA max for 200MHz
- Low RMS jitter 5ps max
- Suitable for RoHS reflow
- Available for tight stability option

## APPLICATIONS:

- CCD clock for VTR camera
- Equipment connected to PC or PC cards
- PDA, wireless communication.
- Laptop, SSD (Solid State Drive)

## STANDARD SPECIFICATIONS:

| Parameters                    | Minimum                                                                            | Typical | Maximum  | Units | Notes                                             |
|-------------------------------|------------------------------------------------------------------------------------|---------|----------|-------|---------------------------------------------------|
| Frequency Range               | 0.625                                                                              |         | 200      | MHz   |                                                   |
| Operating Temperature         | -10                                                                                |         | +70      | °C    | STD (See options)                                 |
| Storage Temperature           | -55                                                                                |         | +125     | °C    |                                                   |
| Overall Frequency Stability   | -100                                                                               |         | +100     | ppm   | See options                                       |
| Supply Voltage (Vdd)          | +3.135                                                                             | 3.3     | +3.465   | V     |                                                   |
| Supply Current (Idd)          |                                                                                    | 2.5     | 7        | mA    | 0.5 ~ 20 MHz                                      |
|                               |                                                                                    | 4.4     | 13       |       | 20.1 ~ 40.0 MHz                                   |
|                               |                                                                                    | 6.5     | 19       |       | 40.01 ~ 60.0 MHz                                  |
|                               |                                                                                    | 12.7    | 24       |       | 60.01 ~ 75.0 MHz                                  |
|                               |                                                                                    | 7.4     | 20       |       | 75.01 ~ 80.0 MHz                                  |
|                               |                                                                                    | 7.4     | 25       |       | 80.01 ~ 133.0MHz                                  |
|                               |                                                                                    | 11.7    | 30       |       | 133.01 ~ 200.0 MHz                                |
| Symmetry @ 1/2Vdd             | 45                                                                                 | 50      | 55       | %     | 0.5 ~ 80.0MHz                                     |
|                               | 40                                                                                 | 50      | 60       |       | 80.01 ~ 200.0MHz                                  |
| Rise and Fall Time (Tr/Tf)    |                                                                                    | 2.5     | 4.0      | ns    | 0.5 ~ 20 MHz                                      |
|                               |                                                                                    | 2.4     | 4.0      |       | 20.1 ~ 40.0 MHz                                   |
|                               |                                                                                    | 2.4     | 4.0      |       | 40.01 ~ 60.0 MHz                                  |
|                               |                                                                                    | 2.3     | 4.0      |       | 60.01 ~ 75.0 MHz                                  |
|                               |                                                                                    | 1.5     | 4.0      |       | 75.01 ~ 133.0 MHz                                 |
|                               |                                                                                    | 1.9     | 4.0      |       | 133.01 ~ 200.0 MHz                                |
| Output Load                   |                                                                                    |         | 15       | pF    | CMOS                                              |
| Output Voltage (VOH)          | 0.9* Vdd                                                                           |         |          | V     |                                                   |
| Output Voltage (VOL)          |                                                                                    |         | 0.1* Vdd | V     |                                                   |
| Start-up Time                 |                                                                                    | 1       | 2.0      | ms    | 0.5 ~ 20 MHz                                      |
|                               |                                                                                    | 1       | 2.0      |       | 20.1 ~ 40.0 MHz                                   |
|                               |                                                                                    | 1       | 2.0      |       | 40.01 ~ 60.0 MHz                                  |
|                               |                                                                                    | 1       | 2.0      |       | 60.01 ~ 75.0 MHz                                  |
|                               |                                                                                    | 1.2     | 2.0      |       | 75.01 ~ 133.0 MHz                                 |
|                               |                                                                                    | 1.5     | 2.0      |       | 133.01 ~ 200.0 MHz                                |
| Tri-state function (Stand-by) | "1" (VIH≥0.7*Vdd) or Open: Oscillation;<br>"0" (VIL<0.3*Vdd) : No oscillation/Hi Z |         |          |       |                                                   |
| Peak to Peak Jitter           |                                                                                    | 28      |          | ps    | Reference only.<br>Contact ABRACON for the Jitter |
| RMS Jitter:                   |                                                                                    | 3.2     | 5        | ps    | 0.5 ~ 20 MHz                                      |
|                               |                                                                                    | 3.2     | 5        |       | 20.1 ~ 40.0 MHz                                   |
|                               |                                                                                    | 3.2     | 5        |       | 40.01 ~ 60.0 MHz                                  |
|                               |                                                                                    | 3.2     | 5        |       | 60.01 ~ 75.0 MHz                                  |
|                               |                                                                                    | 2.2     | 5        |       | 75.01 ~ 133.0 MHz                                 |
|                               |                                                                                    | 2.2     | 5        |       | 133.01 ~ 200.0 MHz                                |
| Aging at 25°C (first year)    | -3                                                                                 |         | +3       | ppm   |                                                   |
| Stand-by Current:             |                                                                                    |         | 10       | μA    |                                                   |



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3.2 x 2.5 x 1.2mm

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

ASE -  MHz -  -  -

| Frequency in MHz |
|------------------|
| e.g. 0.625MHz    |
| 24.576MHz        |
| 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 |

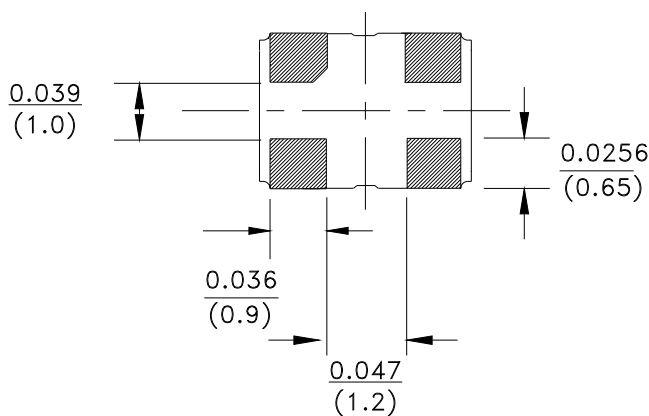
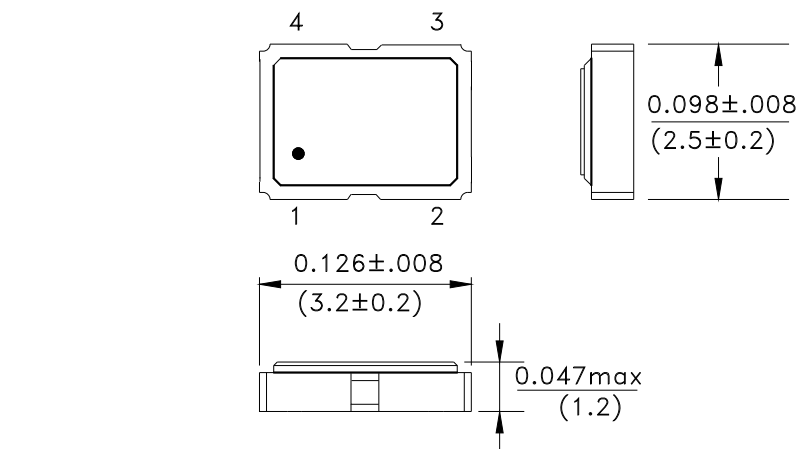
Contact ABRACON for wider temperature range.

| Overall Freq. Stability |
|-------------------------|
| J(*): ±20ppm            |
| R: ±25ppm               |
| K: ±30ppm               |
| H: ±35ppm               |
| B: ±40ppm               |
| C: ±50ppm               |

\*: Temp options I, D, E, and -10°C to +70°C only

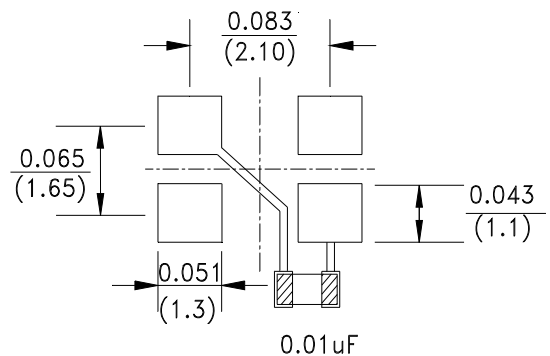
| Packaging        |
|------------------|
| Blank: Bulk      |
| T: 1000pcs/Reel  |
| T2: 250pcs/Reel  |
| T3: 3000pcs/Reel |

## OUTLINE DIMENSIONS:



Bottom view

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.

Note2: The outline package configuration varies with frequency range. Electrical properties, pin configuration, and land pattern are the same.

Dimensions: inches (mm)

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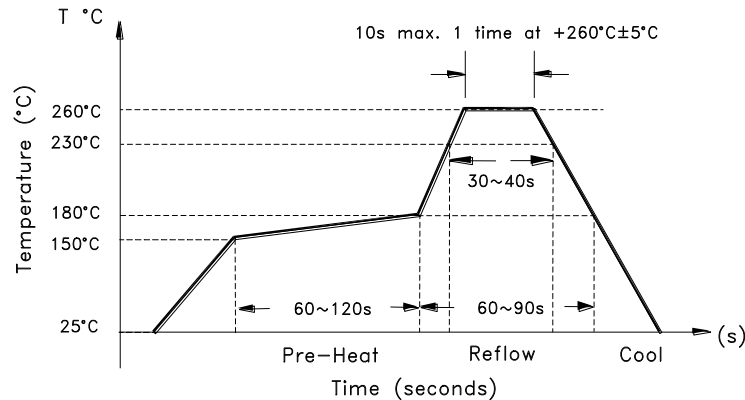


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3.2 x 2.5 x 1.2mm

## REFLOW PROFILE:



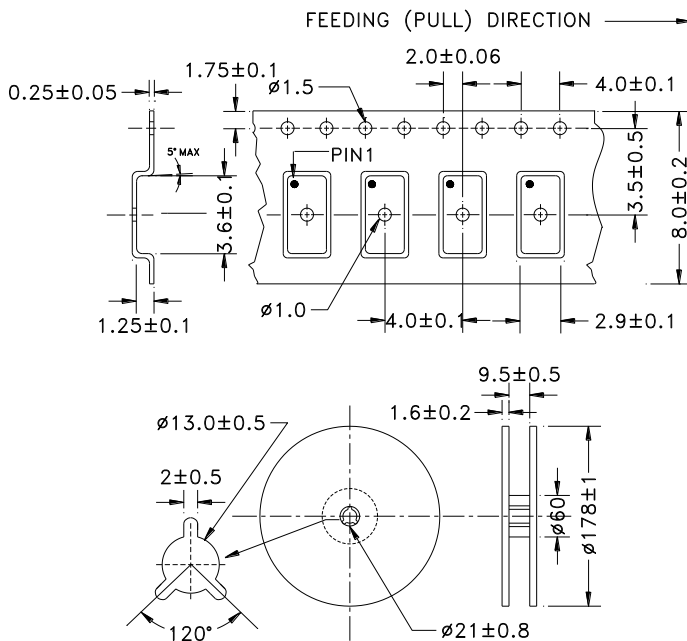
## TAPE & REEL:

T: 1000pcs/reel

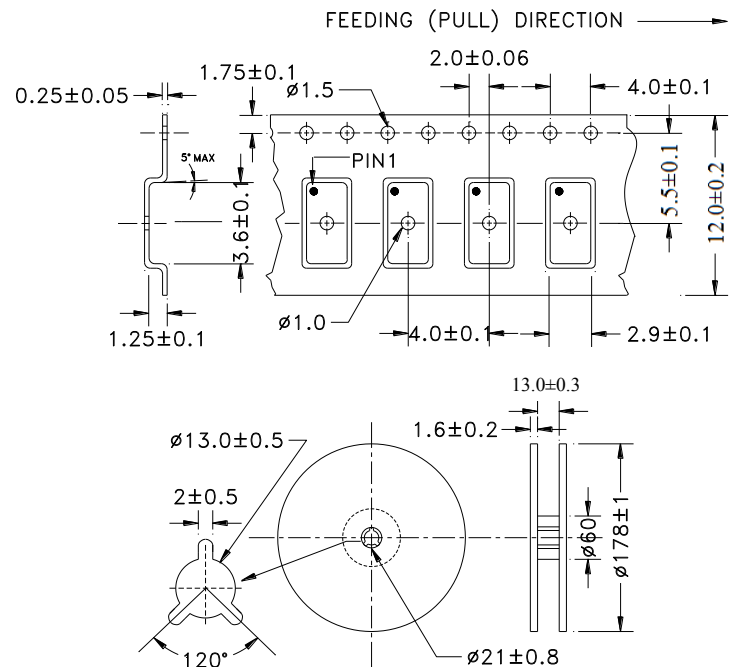
T2: 250pcs/reel

T3: 3000pcs/reel

### 8mm Tape Width



### 12mm Tape Width



Dimensions: mm



Need a test socket for the ASE Series? To view compatible **PRECISION TEST & BURN-IN SOCKETS** for these parts, [click here](#).

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