

# Ultra Miniature SMD Crystal Clock Oscillator

ASCO



RoHS/RoHS II compliant



1.6 x 1.2 x 0.7mm

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

## FEATURES:

- Ultra miniature package: 1.6 x 1.2 x 0.7mm
- Tri-state function
- Suitable for high density SMT
- Suitable for RoHS compliant reflow process
- Electrical beam sealed package assures extreme accuracy and high reliability

## APPLICATIONS:

- CCD clock for VTR camera
- Computers and peripherals
- Portable electronics
- Mobile communication, PDA

## STANDARD SPECIFICATIONS:

| Parameters                             |                 | Minimum                                                             | Typical | Maximum | Units | Notes               |
|----------------------------------------|-----------------|---------------------------------------------------------------------|---------|---------|-------|---------------------|
| Frequency Range*                       |                 | 7.0                                                                 |         | 80      | MHz   |                     |
| Operating Temperature                  |                 | -10                                                                 |         | +60     | °C    | See options         |
| Storage Temperature                    |                 | -40                                                                 |         | +85     | °C    |                     |
| Overall Frequency Stability**          |                 | -50                                                                 |         | +50     | ppm   | See options         |
| Supply Voltage (Vdd)                   |                 | 2.97                                                                | 3.3     | 3.63    | V     | Standard            |
|                                        |                 | 2.25                                                                | 2.5     | 2.75    |       | Option “1”          |
|                                        |                 | 1.62                                                                | 1.8     | 1.98    |       | Option “2”          |
| Supply Current (Idd)<br>into 15pF Load | Vdd = 3.3 V     |                                                                     | 3.0     | 4.5     | mA    | 1MHz ≤ F ≤ 20 MHz   |
|                                        |                 |                                                                     | 4.2     | 6.0     |       | 20 MHz < F ≤ 50 MHz |
|                                        |                 |                                                                     | 6.0     | 8.5     |       | 50 MHz < F ≤ 80 MHz |
|                                        | Vdd = 2.5 V     |                                                                     | 2.5     | 3.5     |       | 1MHz ≤ F ≤ 20 MHz   |
|                                        |                 |                                                                     | 3.0     | 4.5     |       | 20 MHz < F ≤ 50 MHz |
|                                        |                 |                                                                     | 4.0     | 6.0     |       | 50 MHz < F ≤ 80 MHz |
|                                        | Vdd = 1.8 V     |                                                                     | 2.0     | 3.0     |       | 1MHz ≤ F ≤ 20 MHz   |
|                                        |                 |                                                                     | 2.5     | 3.5     |       | 20 MHz < F ≤ 50 MHz |
|                                        |                 |                                                                     | 3.5     | 5.0     |       | 50 MHz < F ≤ 80 MHz |
| Standby Current (IST)                  |                 |                                                                     | 1.1     | 3.0     | μA    |                     |
| Output Load                            |                 |                                                                     |         | 15      | pF    | CMOS                |
| Output Voltage                         | V <sub>OH</sub> | 0.9*Vdd                                                             |         |         | V     |                     |
|                                        | V <sub>OL</sub> |                                                                     |         | 0.1*Vdd |       |                     |
| Tri-state function                     |                 | “1” (VIH≥0.7*Vdd) or Open : Oscillation<br>“0” (VIH<0.3*Vdd) : Hi Z |         |         |       |                     |
| Aging                                  |                 | -3.0                                                                |         | 3.0     | ppm   | @+25°C First year   |
| Symmetry @1/2Vdd                       |                 | 40                                                                  | 50      | 60      | %     | Standard            |
|                                        |                 | 45                                                                  | 50      | 55      |       | Option S            |
| Start-up Time                          |                 |                                                                     |         | 2.0     | ms    |                     |
| Rise/Fall Time (Tr/Tf)                 |                 |                                                                     |         | 5.0     | ns    |                     |
| RMS Phase Jitter                       |                 |                                                                     |         | 2.0     | ps    | (12kHz ~5MHz)       |

\* Please contact Abracon for frequency < 7MHz.

\*\*Overall frequency stability includes initial frequency tolerance @+25°C and stability over the operating temperature.



1.6 x 1.2 x 0.7mm

Diagram illustrating the pin configuration and associated specifications for the ASCO oscillator. The top line shows the pin sequence: ASCO, a blank box, MHz, a blank box, a blank box, a blank box, and a blank box. Arrows point from these boxes to various specification tables below.

**Supply Voltage**

|                 |
|-----------------|
| Blank: 3.3V±10% |
| 1: 2.5 V±10%    |
| 2: 1.8 V±10%    |

**Frequency in MHz**

|                                                          |
|----------------------------------------------------------|
| Please specify the frequency in MHz.<br>e.g. 14.31818MHz |
|----------------------------------------------------------|

**Operating Temp.**

|                      |
|----------------------|
| Blank: -10°C ~ +60°C |
| E: -20°C ~ +70°C     |
| N: -30°C ~ +85°C     |
| L*: -40°C ~ +85°C    |

**Overall Freq. Stability**

|               |
|---------------|
| Blank: ±50ppm |
| J**: ±20ppm   |
| K: ±30 ppm    |
| H: ±35 ppm    |
| B: ±40 ppm    |

**Symmetry**

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

**Packaging**

|                                                         |
|---------------------------------------------------------|
| Blank: Bulk                                             |
| T3: 3000pcs/reel (Standard)                             |
| T: 1000pcs/reel (Special order. Available upon request) |

\* Only available with standard Freq. stability and option "B"  
 \*\*Available for -10 to +60°C, option E only  
 Please contact Abracon for tighter frequency stability options

| Pin | Function  |
|-----|-----------|
| 1   | Tri-state |
| 2   | GND       |
| 3   | Output    |
| 4   | Vdd       |

Pin 2 is connected to the metal lid (※1).

Recommended Land Pattern

※1

Dimensions: mm

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ASCO

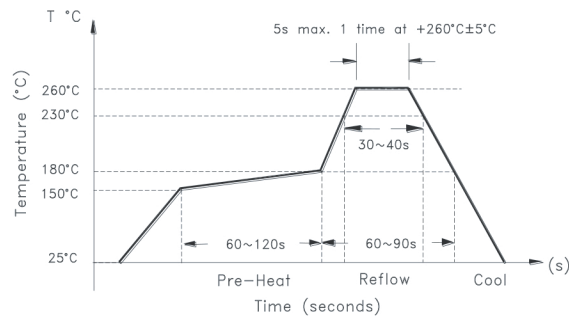


RoHS/RoHS II compliant



1.6 x 1.2 x 0.7mm

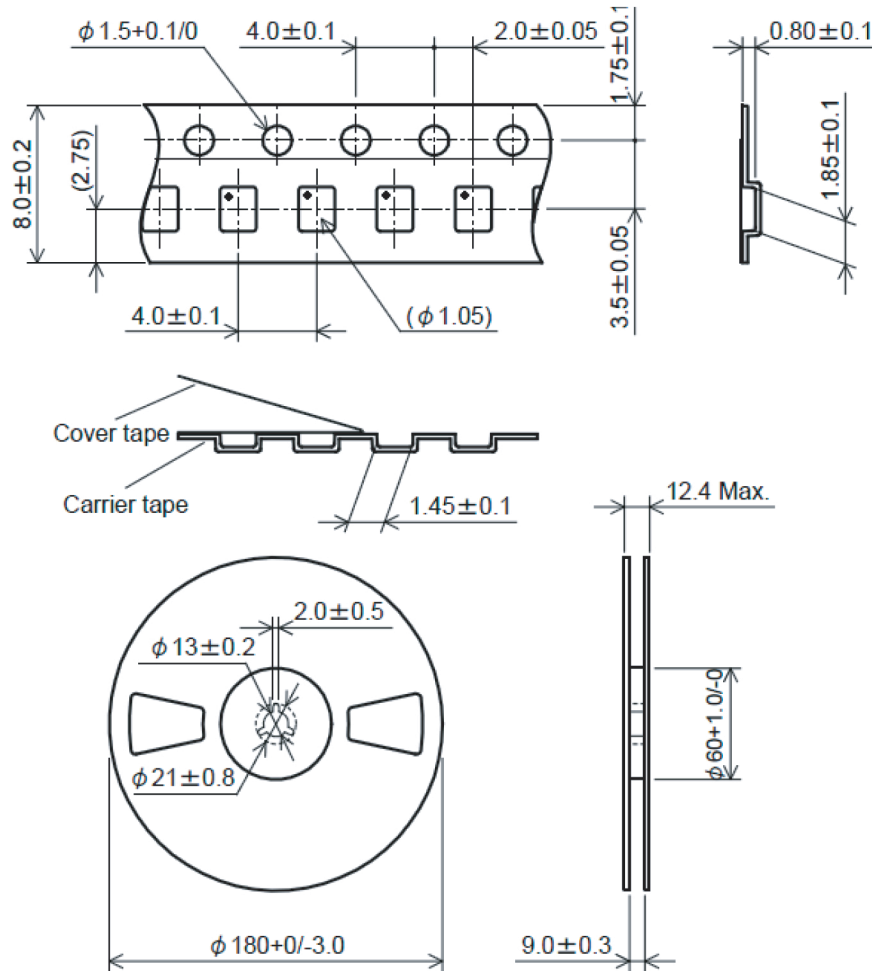
## REFLOW PROFILE:



## TAPE & REEL:

T3= 3,000pcs/reel (Standard)

T= 1,000pcs/reel (Special order. Available upon request)



Dimensions: mm

**ATTENTION:** ABRACON products are COTS – Commercial-Off-The-Shelf products; suitable for Commercial, Industrial and where designated, Automotive Applications. ABRACON's products are not specifically designed for Military, Aviation, Aerospace, Life-dependent Medical applications or any application requiring high reliability where component failure could result in loss of life and/or property. For applications requiring high reliability and/or presenting an extreme operating environment, written consent and authorization from ABRACON is required. Please contact ABRACON for more information.

REVISED: 10.12.2017