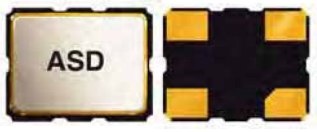
# HCMOS SMD Crystal Oscillator

## ASD SERIES

ESD Sensitive

RoHS/RoHS II compliant




2.5 X 2.0 X 1.0 mm

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

**For Vdd=3.3V & 2.5V and custom frequencies between 8.00MHz & 200.000MHz, or carrier frequency > 60.0MHz, please consider Abracon's ASG2-C series of XO and VCXO's**

### FEATURES:

- Low height 1.0mm max
- Low current consumption
- Tri-state function
- Suitable for RoHS compliant reflow
- Tight stability option
- Seam sealed package assures high reliability

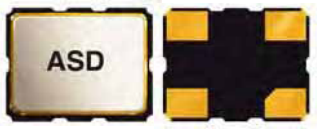
### APPLICATIONS:

- 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 | | 60 | 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 | | 40.000~60.000 MHz |
| | ASD1 (3.0V) | | 2.5 | 4 | mA | 0.750~15.999 MHz |
| | | | 3.5 | 6 | | 16.000~39.999 MHz |
| | | | 8 | 12 | | 40.000~60.000 MHz |
| | ASD2 (2.5V) | | 2 | 3.5 | mA | 0.750~15.999 MHz |
| | | | 3 | 5 | | 16.000~39.999 MHz |
| | | | 7 | 10 | | 40.000~60.000 MHz |
| | ASD3 (1.8V) | | 1 | 2.5 | mA | 0.750~15.999 MHz |
| | | | 2 | 4 | | 16.000~39.999 MHz |
| | | | 4 | 7 | | 40.000~60.000 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 | |

# HCMOS SMD Crystal Oscillator




2.5 X 2.0 X 1.0 mm

## ASD SERIES

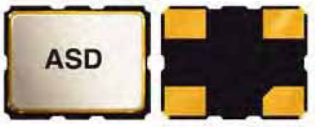
RoHS/RoHS II compliant

(Continued)

| Parameters | | Minimum | Typical | Maximum | Units | Notes |
|---|---|---|---|---|---|---|
| Rise and Fall Time (Tr/Tf): | ASD (3.3V) | | 3 | 7 | ns | 0.750~15.999 MHz |
| | | | 2.5 | 6 | | 16.000~39.999 MHz |
| | | | 2 | 4 | | 40.000~60.000 MHz |
| | ASD1 (3.0V) | | 3 | 7 | ns | 0.750~15.999 MHz |
| | | | 2.5 | 6 | | 16.000~39.999 MHz |
| | | | 2 | 4 | | 40.000~60.000 MHz |
| | ASD2 (2.5V) | | 4 | 8 | ns | 0.750~15.999 MHz |
| | | | 3 | 7 | | 16.000~39.999 MHz |
| | | | 2.5 | 5 | | 40.000~60.000 MHz |
| | ASD3 (1.8V) | | 5 | 10 | ns | 0.750~15.999 MHz |
| | | | 3.5 | 8 | | 16.000~39.999 MHz |
| | | | 3 | 6 | | 40.000~60.000 MHz |
| | ASD6 (1.0V) | | 1.9 | 6.0 | ns | 25.000 MHz |
| Start-up Time: | ASD (3.3V) | | 6 | 10 | ms | 0.750~15.999 MHz |
| | | | 6 | 10 | | 16.000~39.999 MHz |
| | | | 5 | 10 | | 40.000~60.000 MHz |
| | ASD1 (3.0V) | | 6 | 10 | ms | 0.750~15.999 MHz |
| | | | 6 | 10 | | 16.000~39.999 MHz |
| | | | 5 | 10 | | 40.000~60.000 MHz |
| | ASD2 (2.5V) | | 6 | 10 | ms | 0.750~15.999 MHz |
| | | | 6 | 10 | | 16.000~39.999 MHz |
| | | | 5 | 10 | | 40.000~60.000 MHz |
| | ASD3 (1.8V) | | 6 | 10 | ms | 0.750~15.999 MHz |
| | | | 6 | 10 | | 16.000~39.999 MHz |
| | | | 5 | 10 | | 40.000~60.000 MHz |
| | ASD6 (1.0V) | | 2.0 | 10 | ms | 25.000 MHz |
| Tri-state function (Stand-by) : | | "1" (VIH≥0.7*Vdd) or Open: Oscillation; "0" (VIH<0.3*Vdd) : No oscillation/Hi Z | | | | |
| Phase Jitter (12kHz to 20MHz) | ASD (3.3V) | | 0.4 | 1.0 | ps | 0.750~15.999 MHz |
| | | | 0.4 | 1.0 | | 16.000~39.999 MHz |
| | | | 0.3 | 1.0 | | 40.000~60.000 MHz |
| | ASD1 (3.0V) | | 0.4 | 1.0 | ps | 0.750~15.999 MHz |
| | | | 0.4 | 1.0 | | 16.000~39.999 MHz |
| | | | 0.3 | 1.0 | | 40.000~60.000 MHz |
| | ASD2 (2.5V) | | 0.5 | 1.0 | ps | 0.750~15.999 MHz |
| | | | 0.5 | 1.0 | | 16.000~39.999 MHz |
| | | | 0.5 | 1.0 | | 40.000~60.000 MHz |
| | ASD3 (1.8V) | | 0.5 | 1.0 | ps | 0.750~15.999 MHz |
| | | | 0.5 | 1.0 | | 16.000~39.999 MHz |
| | | | 0.5 | 1.0 | | 40.000~60.000 MHz |
| | ASD6 (1.0V) | | 0.3 | 1.0 | ps | 25.000 MHz |
| Period Jitter RMS | ASD (3.3V) | | 3.0 | 5.0 | ps | 0.750~15.999 MHz |
| | | | 3.0 | 5.0 | | 16.000~39.999 MHz |
| | | | 3.0 | 5.0 | | 40.000~60.000 MHz |
| | ASD1 (3.0V) | | 3.0 | 5.0 | ps | 0.750~15.999 MHz |
| | | | 3.0 | 5.0 | | 16.000~39.999 MHz |
| | | | 3.0 | 5.0 | | 40.000~60.000 MHz |
| | ASD2 (2.5V) | | 3.0 | 5.0 | ps | 0.750~15.999 MHz |
| | | | 3.0 | 5.0 | | 16.000~39.999 MHz |
| | | | 3.0 | 5.0 | | 40.000~60.000 MHz |
| | ASD3 (1.8V) | | 3.0 | 5.0 | ps | 0.750~15.999 MHz |
| | | | 3.0 | 5.0 | | 16.000~39.999 MHz |
| | | | 3.0 | 5.0 | | 40.000~60.000 MHz |
| | ASD6 (1.0V) | | 4.8 | 6.0 | ps | 25.000 MHz |
| Aging at 25°C/year | | -5 | | +5 | ppm | |
| Disable Current: | | | | 20 | µA | |

# HCMOS SMD Crystal Oscillator

## ASD SERIES




2.5 X 2.0 X 1.0 mm

## OPTIONS AND PART IDENTIFICATION:

ASD ☐ - ☐ MHz - ☐ - ☐ - ☐ - ☐

| P/N and Vdd (V) |
|---|
| Blank: 3.3±5% |
| 1: 3.0±5% |
| 2: 2.5±5% |
| 3: 1.8±5% |
| 6: 1.0±5% |

| Frequency in MHz |
|---|
| e.g. 24.576MHz<br>14.31818MHz<br>26.000MHz |

| Operating Temp. |
|---|
| E: -20°C ~ +70°C (STD) |
| F: -30°C ~ +70°C |
| N: -30°C ~ +85°C |
| L: -40°C ~ +85°C |
| M(***): -40°C ~ +105°C |
| V(***): -40°C ~ +125°C |

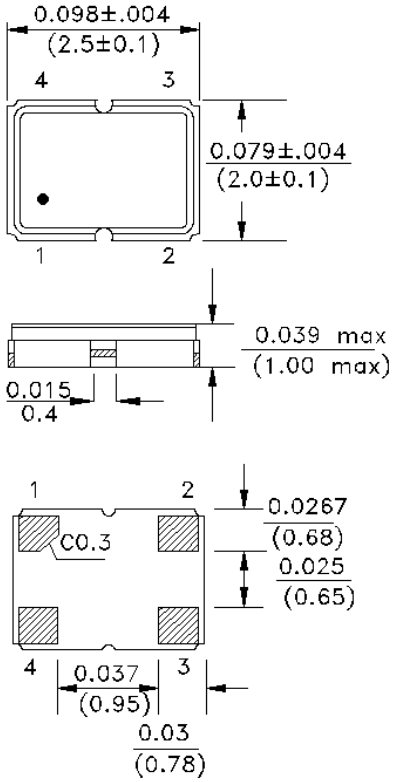
| Overall Freq. Stability |
|---|
| J(*): ±20ppm |
| R(**): ±25ppm |
| K: ±30ppm |
| H: ±35ppm |
| C: ±50ppm |

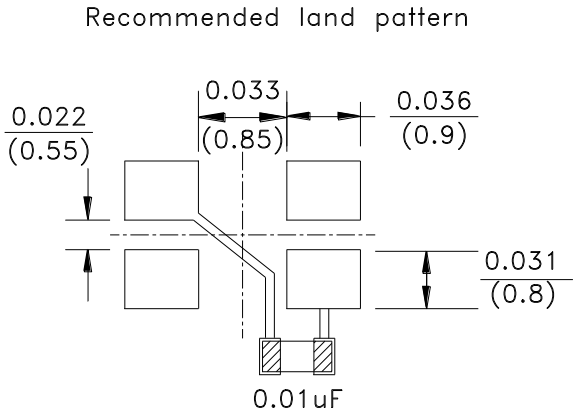
| Duty Cycle |
|---|
| Blank : 40/60% @ 1/2Vdd |
| S: 45/55% @ 1/2Vdd |

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

*: Standard only
**: E,F, N and L only
***: ± 100 ppm only

## OUTLINE DRAWING:




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

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

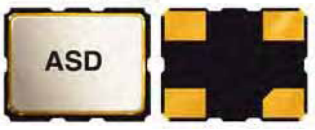
**Dimensions: inches (mm)**



30332 Esperanza, Rancho Santa Margarita, California 92688
tel 949-546-8000 | fax 949-546-8001 | www.abracon.com

# HCMOS SMD Crystal Oscillator

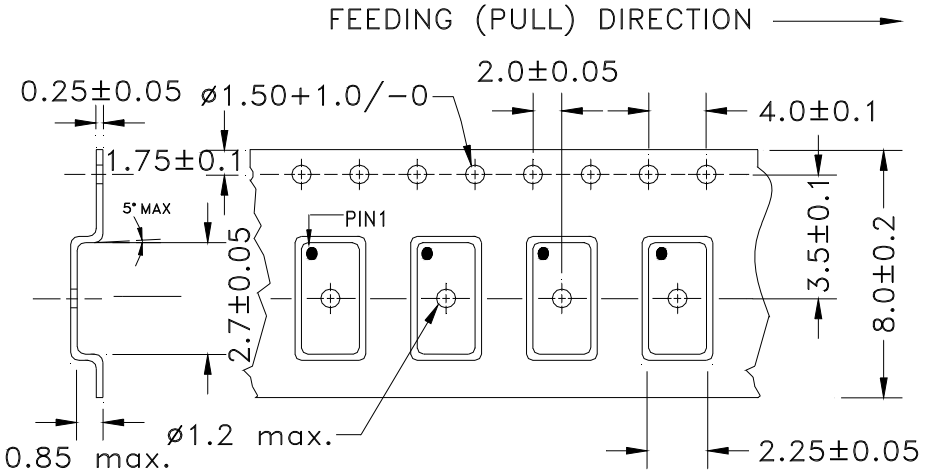
## ASD SERIES

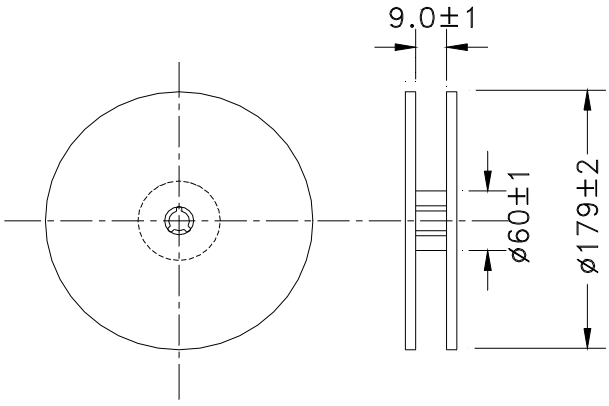



**2.5 X 2.0 X 1.0 mm**

## TAPE & REEL:

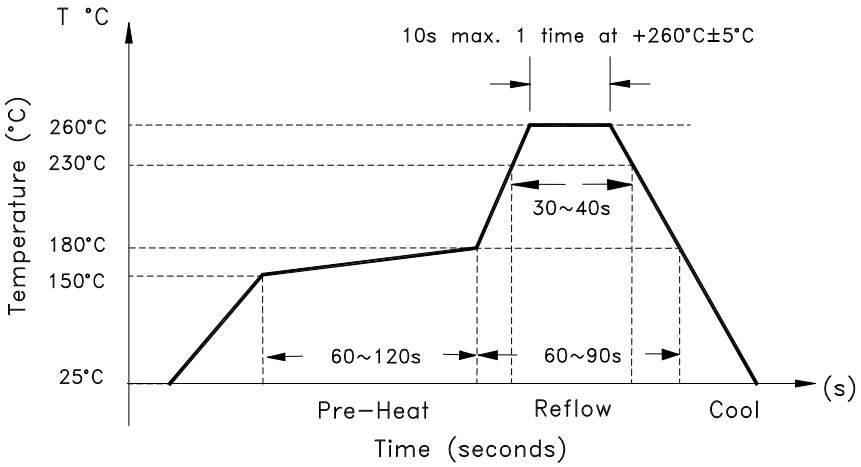
**T: 1000pcs/reel**
**T2: 250pcs/reel**
**T3: 3000pcs/reel**




**Dimensions: mm**

## REFLOW PROFILE:






Need a test socket for the ASD Series? To view compatible **PRECISION TEST & BURN-IN SOCKETS** for these parts, **click here. P/N AXS-2520-04-01**

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