

# VOLTAGE CONTROLLED TEMPERATURE COMPENSATED CRYSTAL OSCILLATOR

ASTX-09/ASVTX-09



RoHS  
Compliant



5.0 X 3.2 X 1.5mm

## FEATURES:

- Low height 1.5mm
- Low phase noise -135dBc typical / 1kHz
- Low current 1.5mA / ~20MHz
- Clipped sine wave output.
- Suitable for RoHS reflow

## APPLICATIONS:

- Cellular and cordless phones.
- GPS
- Mobile communication equipment.
- Portable radio equipment and music player.

## STANDARD SPECIFICATIONS:

### PARAMETERS

|                                                                                                                  |                                                                                                                                               |
|------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| ABRACON P/N                                                                                                      | ASTX-09/ASVTX-09 Series                                                                                                                       |
| Frequency:                                                                                                       | 6.000MHz to 45.000MHz                                                                                                                         |
| Nominal Frequencies:                                                                                             | 8, 10, 12, 12.8, 13, 14.4, 16.368, 19.2, 19.8, 20, 22, 24.5535, 26.40                                                                         |
| Operating Temperature:                                                                                           | -30°C to +75°C (See Table 1 for options)                                                                                                      |
| Storage Temperature:                                                                                             | -40°C to +85°C                                                                                                                                |
| Frequency Stability:<br>vs +25°C before reflow<br>vs Operating Temp.<br>vs Aging<br>vs Supply Voltage<br>vs Load | ±0.5ppm standard (See option)<br>±2.5ppm standard (See Table1 for options)<br>±1ppm/1st year<br>±0.2ppm (±5% change)<br>±0.2ppm (±10% change) |
| Voltage Control Range (Vcc):                                                                                     | 1.5V ±1.0V                                                                                                                                    |
| Supply Voltage (Vdd):                                                                                            | 3.0V ±5% Standard (See options)                                                                                                               |
| Supply Current:                                                                                                  | 1.5mA max (~20MHz), 2.0mA max (~32MHz), 2.5mA max (~45MHz)                                                                                    |
| Output Type:                                                                                                     | Clipped Sine                                                                                                                                  |
| Output Voltage                                                                                                   | 0.8Vp-p min                                                                                                                                   |
| Output Load:                                                                                                     | 10 kohm // 10 pF                                                                                                                              |
| Pullability:                                                                                                     | ±8ppm min                                                                                                                                     |
| Transfer function:                                                                                               | Positive                                                                                                                                      |
| Phase Noise (Reference only):                                                                                    | -135dBc typical @ 1KHz (Frequency dependent.)<br>e.g. -131dBc typical @ 1KHz (32MHz), Please contact ABRACON for each frequencies.            |

## OPTIONS & PART IDENTIFICATION:

(Left blank if standard)

ASTX- 09/ASVTX - 09 - □ - Frequency - □ - □□□ - □

|        | Supply Voltage (Vdd) |
|--------|----------------------|
| A      | 2.5V±0.1 V           |
| Blank* | 3.0V±5%              |
| B      | 3.3V±5%              |
| C      | 5.0V±5%              |

\*3.0V±5% : Standard

| Frequency Stability vs +25°C |         |
|------------------------------|---------|
| Blank*                       | ±0.5ppm |
| J                            | ±1.5ppm |

\* Standard

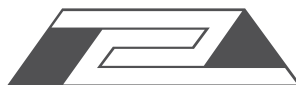
| Packaging |               |
|-----------|---------------|
| Blank     | Bulk          |
| T         | Tape and Reel |

(1,000 or 2,000pcs/reel)

Table 1: Frequency Stability vs Operating Temp.

|                | ±1ppm | ±1.5ppm | ±2ppm | ±2.5ppm | ±3ppm | ±4ppm | ±5ppm |
|----------------|-------|---------|-------|---------|-------|-------|-------|
| 0°C-50°C       | D10   | D15     | D20   | D25     | D30   | D40   | D50   |
| -10°C to 60°C  | E10   | E15     | E20   | E25     | E30   | E40   | E50   |
| 0°C to 70°C    |       | F15     | F20   | F25     | F30   | F40   | F50   |
| -20°C to +75°C |       |         | G20   | G25     | G30   | G40   | G50   |
| -30°C to 75°C  |       |         |       | STD     | H30   | H40   | H50   |
| -40°C to 85°C  |       |         |       |         | I30   | I40   | I50   |

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CERTIFIED



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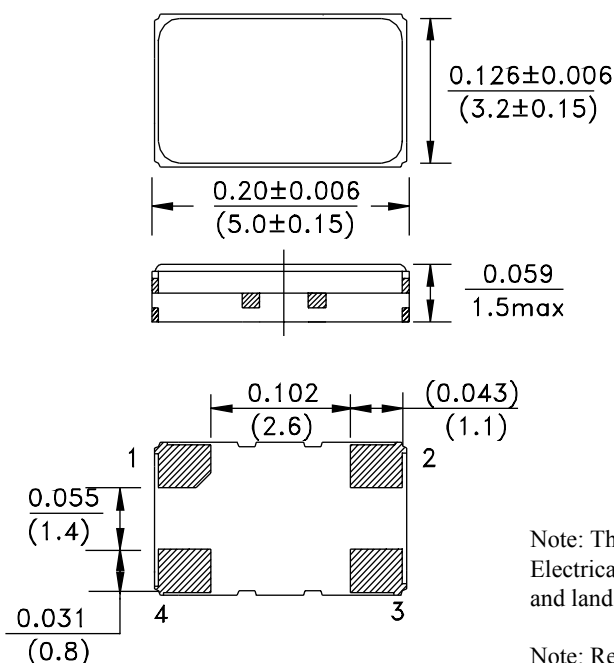


RoHS  
Compliant



5.0 X 3.2 X 1.5mm

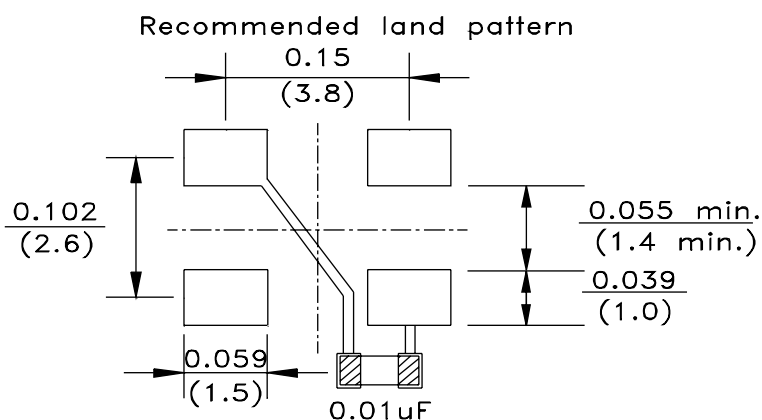
## OUTLINE DIMENSIONS:



Dimension : Inches (mm)

Note: The outline package may vary.  
Electrical properties, pin configuration,  
and land pattern are the same.

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



| PIN | FUNCTION |
|-----|----------|
| 1   | Vc/NC*   |
| 2   | GND      |
| 3   | Output   |
| 4   | Vdd      |

\*NC for ASTX-09 only

## TAPE & REEL:

T= tape and reel (1,000 or 2,000pcs/reel)

Dimension : mm

