

# VOLTAGE CONTROLLED TEMPERATURE COMPENSATED SMD CRYSTAL OSCILLATOR

ASTX-11, ASVTX-11



RoHS  
Compliant



3.2 X 2.5 X 0.9mm

## FEATURES:

- 3.2 x 2.5 x 0.9mm miniature package
- Low current consumption 1.5mA for 19.68MHz
- Vc function corresponds to PLL circuits
- Suitable for RoHS reflow profile

## APPLICATIONS:

- Cellular and cordless phones
- Standard OSC for exact equipment
- Mobile communication equipment
- Portable radio equipment and music player.
- PLL

## STANDARD SPECIFICATIONS:

| Parameters                              | Minimum                                                                | Typical | Maximum | Units      | Notes                |
|-----------------------------------------|------------------------------------------------------------------------|---------|---------|------------|----------------------|
| Frequency Range                         | 10                                                                     | -----   | 40      | MHz        |                      |
| Standard Frequencies:                   | 10, 13, 14.4, 16.3676, 19.2, 19.8, 20, 24.5535, 26, 33.6, 38.4, 39, 40 |         |         | MHz        |                      |
| Operating Temperature:                  | -30                                                                    | -----   | +75     | °C         |                      |
| Storage Temperature:                    | -40                                                                    | -----   | +85     | °C         |                      |
| Frequency Stability $\Delta f/f_0$ vs   |                                                                        |         |         |            |                      |
| Tolerance (@+25°C) at shipping:         | -0.5                                                                   | -----   | +0.5    | ppm        |                      |
| Tolerance (@+25°C) after reflow:        | -1.5                                                                   | -----   | +1.5    | ppm        |                      |
| Temperature (ref. to +25°C):            | -2.5                                                                   | -----   | +2.5    |            | See option (Tabel 1) |
| Supply Voltage Change (Vdd $\pm$ 5%):   | -0.2                                                                   | -----   | +0.2    |            |                      |
| Load Change (ZL $\pm$ 10%):             | -0.2                                                                   | -----   | +0.2    |            |                      |
| Supply Voltage (Vdd):                   | +3.135                                                                 | +3.3    | +3.465  | V          | See option           |
| Aging (first year @+25°C):              | -1.0                                                                   | -----   | +1.0    | ppm        |                      |
| Supply Current (Icc):                   | -----                                                                  | -----   | 1.5     | mA         | ~19.68MHz            |
|                                         | -----                                                                  | -----   | 2.0     | mA         | ~32.00MHz            |
|                                         | -----                                                                  | -----   | 2.5     | mA         | ~40.00MHz            |
| Voltage Control Function (for ASVTX-11) | +0.5                                                                   | +1.5    | +2.5    | Vdc        |                      |
| Control Voltage (Vcc):                  | $\pm 8$                                                                |         |         | ppm        |                      |
| Frequency Tuning Range:                 | Positive                                                               |         |         |            |                      |
| Frequency Tuning Transition:            | 500                                                                    | 650     |         | k $\Omega$ |                      |
| Input Impedance:                        |                                                                        |         |         |            |                      |
| Output                                  |                                                                        |         |         |            |                      |
| Voltage:                                | 0.8                                                                    |         |         | Vp-p       |                      |
| Load:                                   | 10k $\Omega$ /10pF                                                     |         |         |            |                      |
| Waveform:                               | Clipped Sine Wave                                                      |         |         |            |                      |
| Phase Noise:                            |                                                                        | -135    |         | dBc        | @1kHz                |

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

ASVTX-11 or ASTX-11 -  -  MHz -  -

| Vdd (V)              |
|----------------------|
| Blank: 3.3V $\pm$ 5% |
| A: 3.0V $\pm$ 5%     |
| B: 2.8V $\pm$ 5%     |
| C: 2.5V $\pm$ 5%     |

| Frequency in MHz                                       |
|--------------------------------------------------------|
| Please specify the frequency in MHz.<br>e.g. 19.200MHz |

| Packaging        |
|------------------|
| Blank: Bulk      |
| T: 1000pcs/reel  |
| T3: 3000pcs/reel |

Table 1: Frequency Stability vs Operating Temperature

|               | $\pm 2$ ppm | $\pm 2.5$ ppm | $\pm 3$ ppm | $\pm 4$ ppm | $\pm 5$ ppm |
|---------------|-------------|---------------|-------------|-------------|-------------|
| 0°C ~ +50°C   | D20         | D25           | D30         | D40         | D50         |
| -10°C ~ +60°C | E20         | E25           | E30         | E40         | E50         |
| -20°C ~ +70°C | F20         | F25           | F30         | F40         | F50         |
| -30°C ~ +70°C | G20         | G25           | G30         | G40         | G50         |
| -30°C ~ +85°C | H20         | Std.(Blank)   | H30         | H40         | H50         |
| -40°C ~ +85°C | I20         | I25           | I30         | I40         | I50         |



**3.2 X 2.5 X 0.9mm**

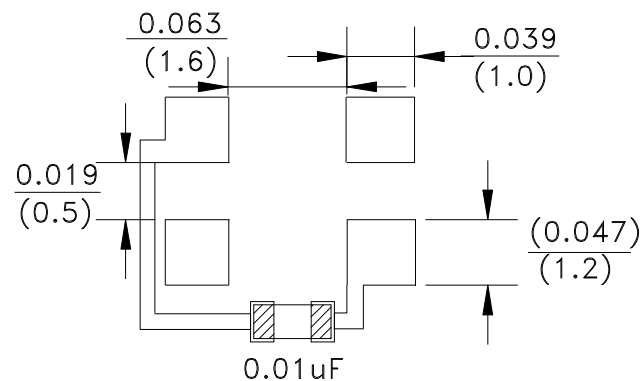


**RoHS**  
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The technical drawing consists of three views of a mechanical part:

- Top View:** A rectangular plate with rounded corners. It has a small circular hole in the bottom-left corner. Dimensions are given as  $\frac{0.10 \pm .004}{(2.5 \pm 0.1)}$  for the height and  $\frac{0.13 \pm .004}{(3.2 \pm 0.1)}$  for the width.
- Side View:** A cross-section view showing the thickness of the plate. The dimension is given as  $\frac{0.035 \pm 0.004}{(0.9 \pm 0.1)}$ .
- Bottom View:** A rectangular plate with six features labeled 1 through 6. Features 1, 2, and 3 are at the top; features 4, 5, and 6 are at the bottom. Features 1, 2, and 3 are hatched areas. Features 4, 5, and 6 are octagonal holes. Dimensions are given as  $\frac{0.021 - 0.027}{(0.53 - 0.7)}$  for the distance between features 2 and 3,  $\frac{0.09}{(2.3)}$  for the distance between features 5 and 6, and  $\frac{0.118}{(3.0)}$  for the total width.

Recommended land pattern



**Note 1:** It is not recommended that paths go underneath the oscillator. If needed, please use multi-layer PCB board or resist coating.

**Note 2:** Recommend using an approximately 0.01 $\mu$ F bypass capacitor between Pin 3 and 6.

| Pin | Function |         |
|-----|----------|---------|
|     | ASVTX-11 | ASTX-11 |
| 1   | Vcc      | GND     |
| 2   | N.C.     |         |
| 3   | GND      |         |
| 4   | Output   |         |
| 5   | N.C.     |         |
| 6   | Vdd      |         |

Technical drawing of a mechanical part, showing front, top, and side views with dimensions and tolerances.

**Front View (Top):**

- Overall length:  $17.5 \pm 0.1$
- Overall width:  $8.0 \pm 0.3$
- Distance from left edge to first hole center:  $1.1 \pm 0.1$
- Distance between hole centers:  $4.0 \pm 0.1$
- Distance from last hole center to right edge:  $2.9 \pm 0.1$
- Hole diameter:  $\phi 1.5$
- Pin diameter:  $\phi 1.0$
- Pin location: PIN1
- Distance from top edge to hole center line:  $3.6 \pm 0.1$
- Distance from top edge to pin center line:  $3.5 \pm 0.1$
- Feeding (Pull) Direction: Indicated by an arrow pointing right.

**Top View (Bottom):**

- Overall diameter:  $\phi 21.0 \pm 1$
- Distance from center to hole center:  $2.5$
- Hole diameter:  $\phi 13.0 \pm 0.5$
- Angle:  $120^\circ$

**Side View (Right):**

- Overall height:  $180 \pm 1$
- Distance from top edge to hole center line:  $9.0 + 2 / -0$
- Distance from hole center line to bottom edge:  $2.0$
- Hole diameter:  $\phi 60$

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