



3.2 x 2.5 x 1.0mm

**ASTX-H11**



**ESD Sensitive**



**RoHS/RoHS II compliant**

**Moisture Sensitivity Level (MSL)-1**

## FEATURES:

- HCMOS Output
- Compact and low in height
- Low current consumption; IR reflow possible
- Suitable for high-density SMT

## APPLICATIONS:

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

## STANDARD SPECIFICATIONS:

| Parameters                                                  |          | Minimum                                                                                                            | Typical | Maximum      | Units | Notes                |
|-------------------------------------------------------------|----------|--------------------------------------------------------------------------------------------------------------------|---------|--------------|-------|----------------------|
| Frequency Range                                             |          | 2.500                                                                                                              |         | 55.000       | MHz   |                      |
| Standard Frequencies                                        |          | 5, 10, 12, 16, 20, 24, 32, 40, 44                                                                                  |         |              | MHz   |                      |
| Operating Temperature                                       |          | -30                                                                                                                |         | +75          | °C    |                      |
| Storage Temperature:                                        |          | -40                                                                                                                |         | +125         | °C    |                      |
| Frequency Stability $\Delta f/f_0$<br>vs Tolerance (@+25°C) |          | -2.0                                                                                                               |         | +2.0         | ppm   | 1 hr after reflow    |
| vs Temperature (ref. to +25°C)                              |          | -2.5                                                                                                               |         | +2.5         |       | See option (Table 1) |
| vs Supply Voltage Change ( $V_{dd} \pm 5\%$ )               |          | -0.2                                                                                                               |         | +0.2         |       |                      |
| vs Load Change ( $Z_L \pm 10\%$ )                           |          | -0.2                                                                                                               |         | +0.2         |       |                      |
| vs Aging (first year @+25°C)                                |          | -1.0                                                                                                               |         | +1.0         |       |                      |
| Supply Voltage ( $V_{dd}$ )                                 |          | +2.97                                                                                                              | +3.3    | +3.63        | V     | See option           |
| Supply Current ( $I_{cc}$ )                                 |          |                                                                                                                    |         | 4.0          | mA    | 4~10MHz              |
|                                                             |          |                                                                                                                    |         | 4.8          |       | ~20MHz               |
|                                                             |          |                                                                                                                    |         | 5.5          |       | ~30MHz               |
|                                                             |          |                                                                                                                    |         | 6.0          |       | ~40MHz               |
|                                                             |          |                                                                                                                    |         | 7.0          |       | ~54MHz               |
| Rise and Fall Time ( $T_r/T_f$ )                            |          |                                                                                                                    |         | 5            | ns    | 10%-90% $V_{dd}$     |
| Symmetry                                                    |          | 45                                                                                                                 |         | 55           | %     | @1/2 $V_{dd}$        |
| Output Voltage                                              | $V_{OH}$ | 90% $V_{dd}$                                                                                                       |         |              | V     |                      |
|                                                             | $V_{OL}$ |                                                                                                                    |         | 10% $V_{dd}$ |       |                      |
| Load                                                        |          |                                                                                                                    |         | 15           | pF    |                      |
| Waveform                                                    |          | HCMOS                                                                                                              |         |              |       |                      |
| Phase Noise (Frequency dependant)                           |          |                                                                                                                    | -130    |              | dBc   | @1kHz offset         |
|                                                             |          |                                                                                                                    | -158    |              |       | @100kHz offset       |
| Tri-state Function (Stand-by) :                             |          | "1" ( $V_{IH} \geq 0.7 \cdot 5 \cdot V_{dd}$ ) or Open: Oscillation<br>"0" ( $V_{IL} < 0.25 \cdot V_{dd}$ ) : Hi Z |         |              | V     |                      |



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## OPTIONS & PART IDENTIFICATION:

(Left blank if standard)

ASTX-H11-  -  MHz -  -

| Vdd (V)         |
|-----------------|
| Blank: 3.3V±10% |
| A: 2.8V±10%     |
| B: 2.5V±10%     |

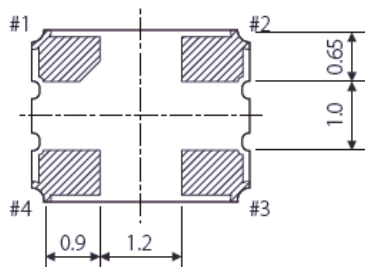
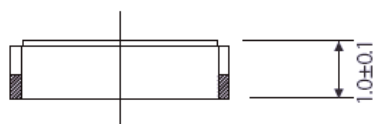
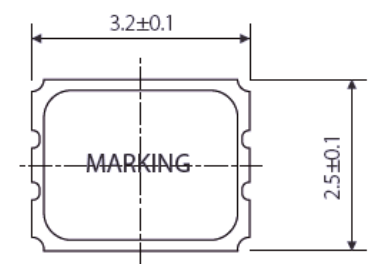
| Frequency in MHz                                       |
|--------------------------------------------------------|
| Please specify the frequency in MHz.<br>e.g. 19.200MHz |

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

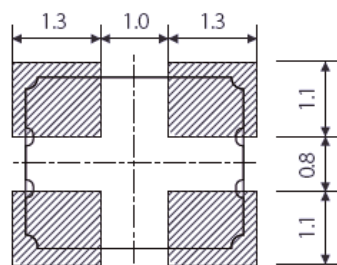
|               | ±2.5ppm    | ±3.0ppm | ±4ppm | ±5ppm |
|---------------|------------|---------|-------|-------|
| 0°C ~ +50°C   | D25        | D30     | D40   | D50   |
| -10°C ~ +60°C | E25        | E30     | E40   | E50   |
| -0°C ~ +70°C  | F25        | F30     | F40   | F50   |
| -20°C ~ +75°C | G25        | G30     | G40   | G50   |
| -30°C ~ +75°C | Blank(STD) | H30     | H40   | H50   |
| -40°C ~ +85°C | I25        | I30     | I40   | I50   |

Table 1

## OUTLINE DIMENSIONS:



### Recommended Land Pattern



| Tri-state pin    | Output       |
|------------------|--------------|
| High or floating | Active       |
| Low              | Hi-impedance |

Note: Recommend using an approximately 0.01μF bypass capacitor between Pin 2 and 4.

| PIN | FUNCTION  |
|-----|-----------|
| 1   | Tri-state |
| 2   | GND       |
| 3   | Output    |
| 4   | Vdd       |

Dimensions: mm



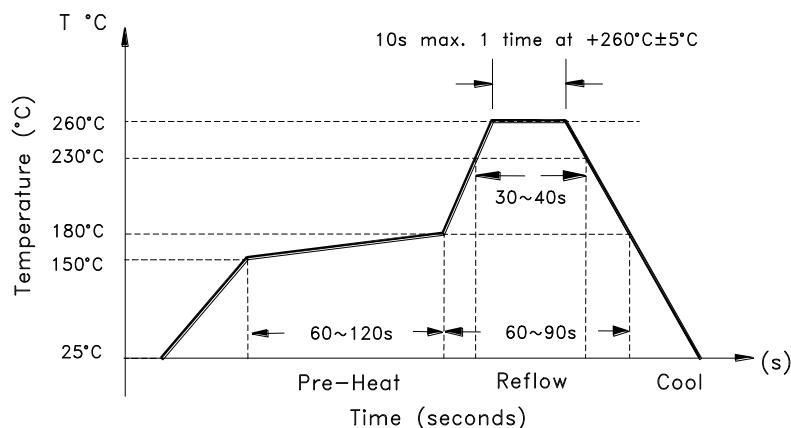
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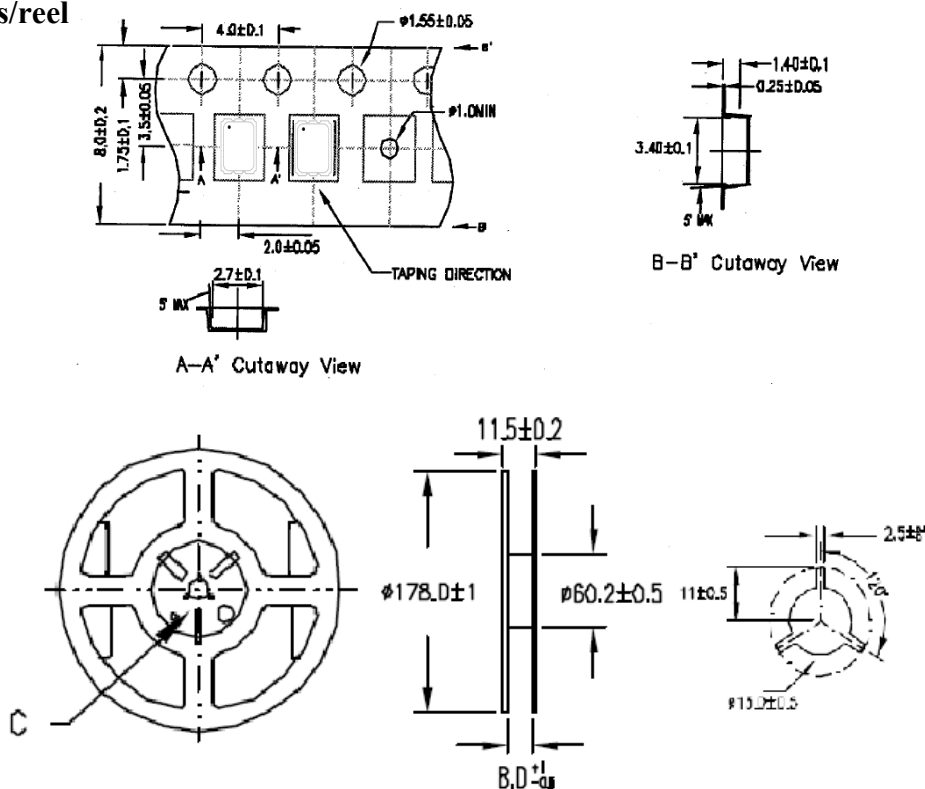
RoHS/RoHS II compliant

## REFLOW PROFILE:



## TAPE & REEL:

T: 1,000pcs/reel



Dimensions: mm

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