



2.5 x 2.0 x 0.9mm

**ASTX-H12**



**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                                             |                 | 3.200                                                                       |         | 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 (Vdd $\pm$ 5%)                     |                 | -0.2                                                                        |         | +0.2    |       |                      |
| vs Load Change (ZL $\pm$ 10%)                               |                 | -0.2                                                                        |         | +0.2    |       |                      |
| vs Aging (first year @+25°C)                                |                 | -1.0                                                                        |         | +1.0    |       |                      |
| Supply Voltage (Vdd)                                        |                 | +2.97                                                                       | +3.3    | +3.63   | V     | See option           |
| Supply Current (Icc)                                        |                 |                                                                             |         | 4.0     | mA    | 4~10MHz              |
|                                                             |                 |                                                                             |         | 4.8     |       | ~20MHz               |
|                                                             |                 |                                                                             |         | 5.5     |       | ~30MHz               |
|                                                             |                 |                                                                             |         | 6.0     |       | ~40MHz               |
|                                                             |                 |                                                                             |         | 7.0     |       | ~54MHz               |
| Rise and Fall Time (Tr/Tf)                                  |                 |                                                                             |         | 5       | ns    | 10%-90%Vdd           |
| Symmetry                                                    |                 | 45                                                                          |         | 55      |       | @1/2 Vdd             |
| Output Voltage                                              | V <sub>OH</sub> | 90%Vdd                                                                      |         |         | V     |                      |
|                                                             | V <sub>OL</sub> |                                                                             |         | 10%Vdd  |       |                      |
| Load                                                        |                 |                                                                             |         | 15      | pF    |                      |
| Waveform                                                    |                 | HCMOS                                                                       |         |         |       |                      |
| Phase Noise (Frequency dependant)                           |                 |                                                                             | -130    |         | dBc   | @1kHz offset         |
|                                                             |                 |                                                                             | -158    |         |       | @100kHz offset       |
| Tri-state Function (Stand-by) :                             |                 | "1" (VIH $\geq$ 0.75*Vdd) or Open: Oscillation<br>"0" (VIL<0.25*Vdd) : Hi Z |         |         | V     |                      |



ASTX-H12

2.5 x 2.0 x 0.9mm

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## OPTIONS & PART IDENTIFICATION:

(Left blank if standard)

ASTX-H12- - MHz - -

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

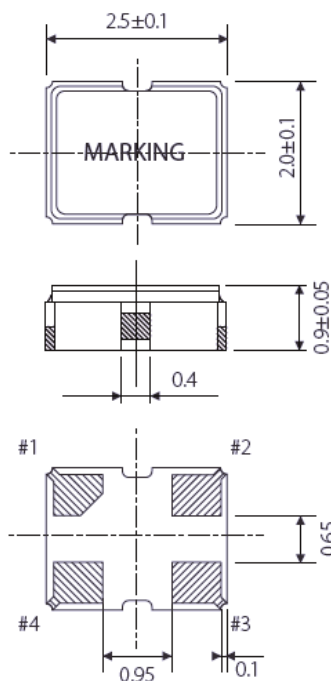
| Frequency in MHz                                       |
|--------------------------------------------------------|
| Please specify the frequency in MHz.<br>e.g. 19.200MHz |

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

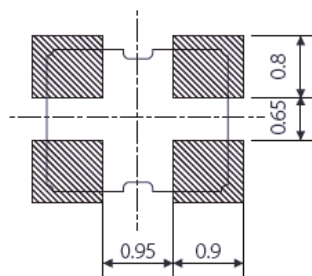
|               | ±2.5ppm    | ±3.0ppm | ±4ppm | ±5ppm |
|---------------|------------|---------|-------|-------|
| 0°C ~ +50°C   | D25        | D30     | D40   | D50   |
| -10°C ~ +60°C | E25        | E30     | E40   | E50   |
| -0°C ~ +70°C  | F25        | F30     | F40   | F50   |
| -20°C ~ +75°C | 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



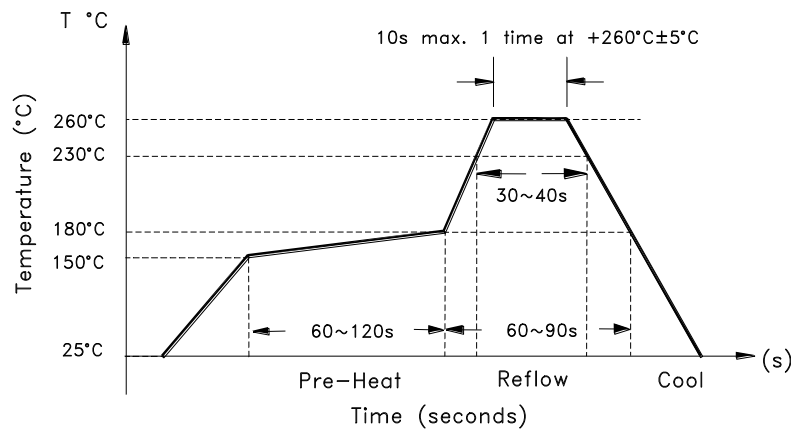
| Tri-state pin    | Output       |
|------------------|--------------|
| High or floating | Active       |
| Low              | Hi-impedance |

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       |

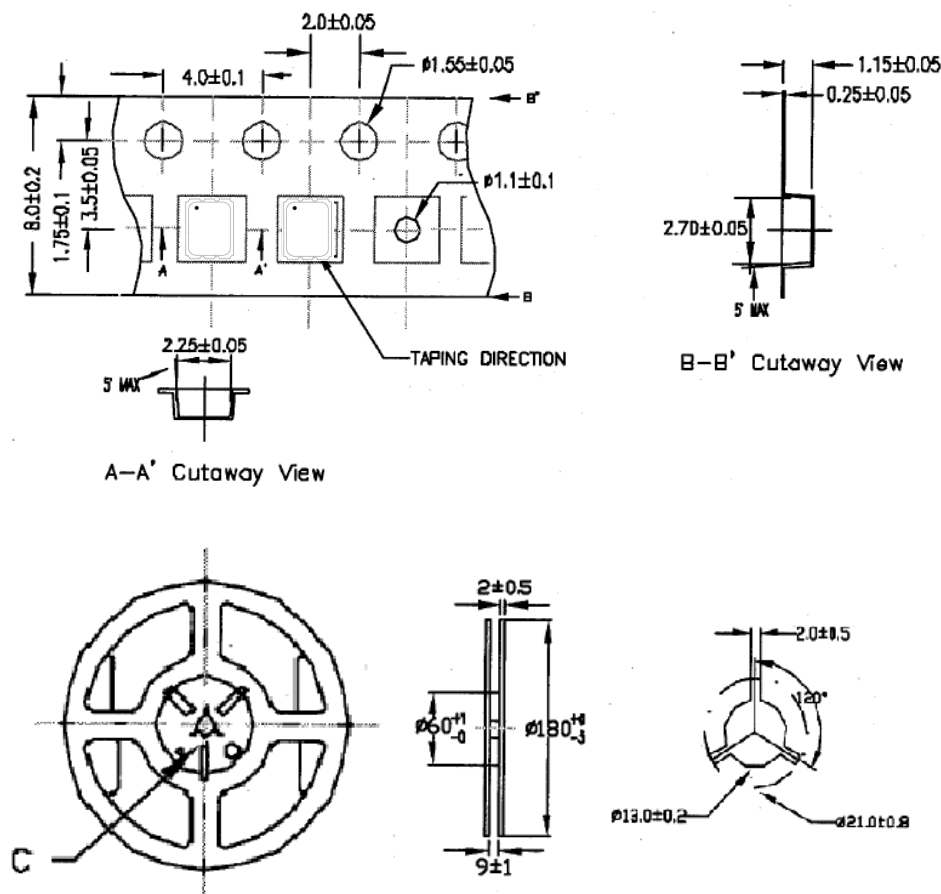
Dimensions: mm

## REFLOW PROFILE:



## TAPE & REEL:

**T: 1,000pcs/reel**



**Dimensions: mm**

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