

SMD VC/TCXO

ASVTX-12/ASTX-12 Series

Request Samples



Check Inventory



ESD Sensitive



2.5 x 2.0 x 0.8 mm

RoHS/RoHS II Compliant

MSL Level = 1

Features

- Ultra miniature and low height 0.8mm
- Low current consumption 2.5mA
- Vc function corresponds to PLL circuits
- Suitable for RoHS reflow profile
- Low phase noise

Applications

- Cellular phones
- Standard OSC for exact equipment
- Mobile communication equipment
- Portable radio equipment
- Personal Digital Assistants (PDAs)
- Portable music players

Key Electrical Specifications

| Parameters | Minimum | Typical | Maximum | Unite | Notes |
|--|--|---------|---------|-------|---|
| Frequency Range | 10 | | 52 | MHz | |
| Standard Frequencies | 10, 13, 16.368, 16.369, 19.2, 26, 38.4, 40, 52 | | | MHz | |
| Operating Temperature | -30 | | +85 | °C | See option (Table 1) |
| Storage Temperature | -40 | | +85 | °C | |
| Frequency Stability $\Delta f/f_0$ vs Tolerance (@+25°C) | -2.0 | | +2.0 | ppm | +25°C, Vcon=1.4V After 2 time reflow |
| Temperature (ref. to +25°C) | -2.0 | | +2.0 | | See option (Table 1) |
| Supply Voltage Change (Vcc±5%) | -2.0 | | +2.0 | | |
| Load Change (ZL±10%) | -2.0 | | +2.0 | | |
| Control Voltage (V con) (ASVTX-12 only) | +0.4 | | +2.4 | V | Option A |
| | +0.4 | | +2.4 | | Option B |
| | +0.4 | | +2.4 | | Option C |
| | +0.3 | | +1.5 | | Option D |
| | +0.4 | | +2.4 | | Option E |
| Supply Voltage (Vcc) | +2.85 | +3.0 | +3.15 | V | Option A |
| | +2.66 | +2.8 | +2.94 | | Option B |
| | +2.375 | +2.5 | +2.625 | | Option C |
| | +1.71 | +1.8 | +1.89 | | Option D |
| | +3.135 | +3.3 | +3.465 | | Option E |
| Aging (first year @+25±2°C) | -1.0 | | +1.0 | ppm | |
| Supply Current (Icc) | | | 2.0 | mA | 10MHz ≤ Fo < 26MHz |
| | | | 2.5 | mA | 26MHz ≤ Fo ≤ 52MHz |
| Startup Time | | | 2.0 | ms | |
| Frequency Tuning Range (ASVTX-12 only) | ±5.0 | | ±9.5 | ppm | |
| Vcon Input Impedance (ASVTX-12 only) | 500 | | | kΩ | |

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| Parameters | Minimum | Typical | Maximum | Units | Notes |
|-------------------------------|-------------------|---------|---------|-------|-------|
| Frequency Tuning Transition | Positive | | | | |
| Output Voltage | 0.8 | | | Vp-p | |
| Harmonics | | | -5.0 | dBc | |
| Load | 10kΩ/10pF | | | | |
| Waveform | Clipped Sine Wave | | | | |
| Phase Noise @ 19.2MHz | | | | | |
| 100Hz offset from the carrier | | -115 | -100 | dB/Hz | |
| 1kHz offset from the carrier | | -135 | -125 | | |
| 10kHz offset from the carrier | | -150 | -140 | | |

Options and Part Identification (left blank if standard)

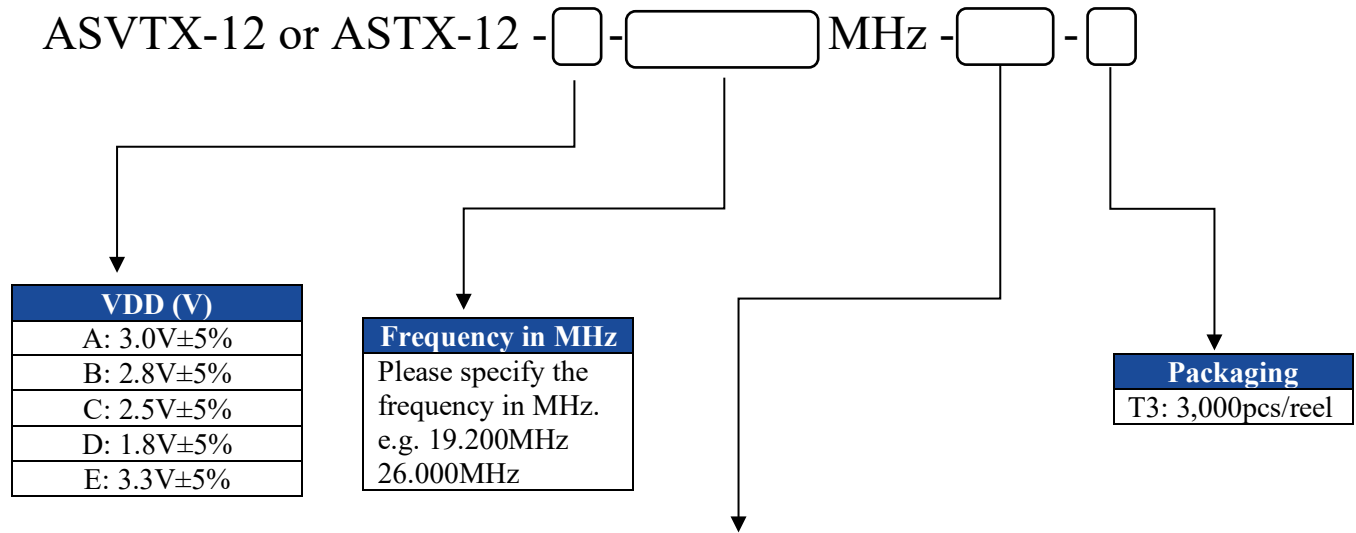


Table 1: Frequency Stability vs Operating Temperature

| | ±0.5ppm | ±1.0ppm | ±1.5ppm | ±2.0ppm | ±2.5ppm |
|---------------|---------|---------|---------|----------------|---------|
| 0°C ~ +55°C | D05 | D10 | D15 | D20 | D25 |
| -10°C ~ +60°C | E05 | E10 | E15 | E20 | E25 |
| 0°C ~ +70°C | F05 | F10 | F15 | F20 | F25 |
| -20°C ~ +70°C | G05 | G10 | G15 | G20 | G25 |
| -30°C ~ +85°C | H05* | H10 | H15 | STD (Blank) | H25 |
| -40°C ~ +85°C | I05* | I10* | I15 | I20 | I25 |

*Please contact Abracon for availability



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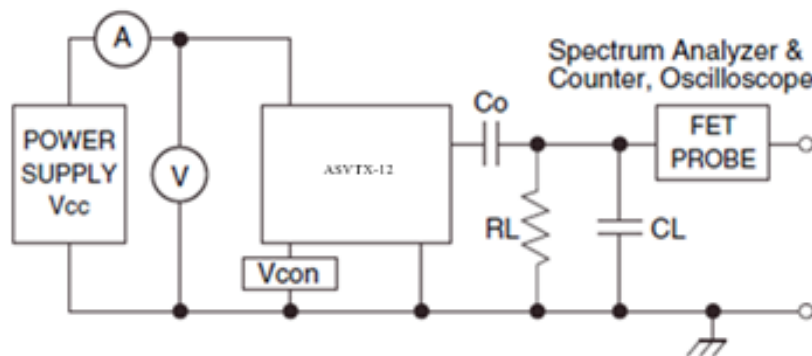
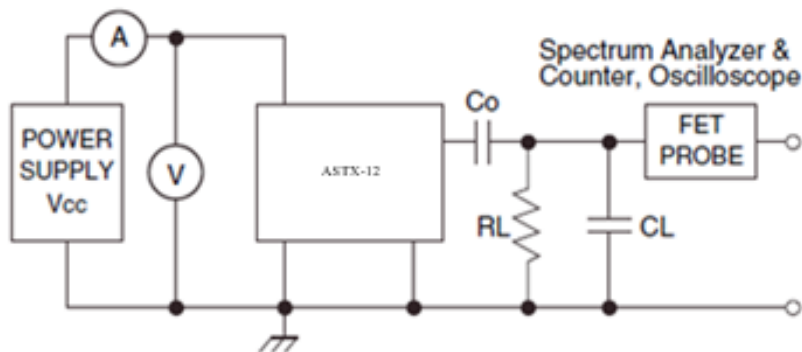


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Recommended Test Circuit



RL=10kΩ±10% CL=10pF±10%
• CL include Probe Capacitance
Co: DC Cut Capacitance



Reflow Profile [JEDEC J-STD-020]

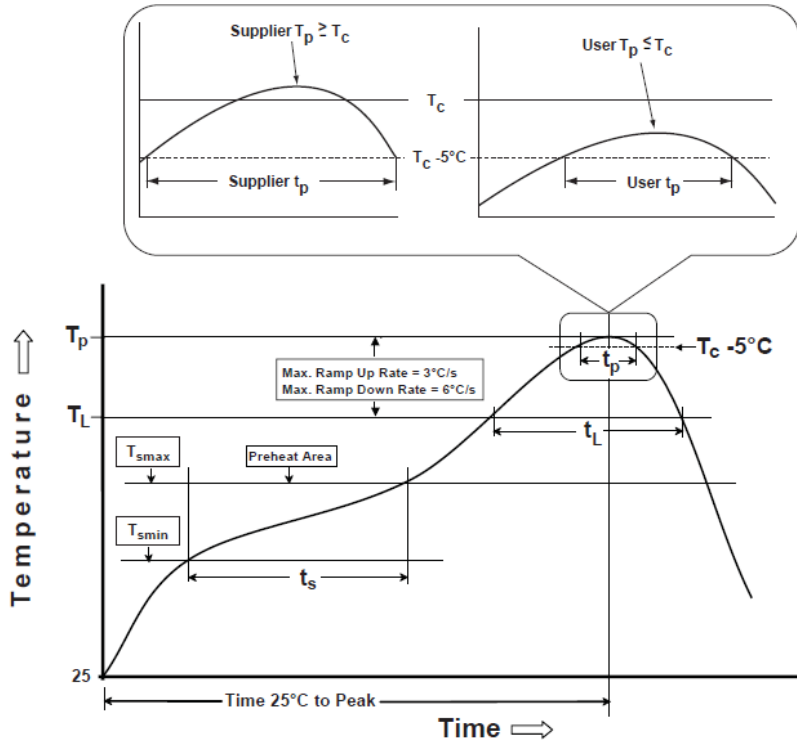


Table 1

SnPb Eutectic Process

Classification Temperatures (T_c)

| Package Thickness | Volume mm ³ <350 | Volume mm ³ ≥350 |
|-------------------|-----------------------------|-----------------------------|
| <2.5 mm | 235 °C | 220 °C |
| ≥2.5 mm | 220 °C | 220 °C |

Table 2

Pb-Free Process

Classification Temperatures (T_c)

| Package Thickness | Volume mm ³ <350 | Volume mm ³ 350-2000 | Volume mm ³ >2000 |
|-------------------|-----------------------------|---------------------------------|------------------------------|
| <1.6 mm | 260 °C | 260 °C | 260 °C |
| 1.6 mm - 2.5 mm | 260 °C | 250 °C | 245 °C |
| >2.5 mm | 250 °C | 245 °C | 245 °C |

| Profile Feature | Sn-Pb Eutectic Assembly | Pb-Free Assembly |
|---|-------------------------|--------------------|
| Preheat / soak | | |
| Temperature minimum (T _{smin}) | 100°C | 150°C |
| Temperature maximum (T _{smax}) | 150°C | 200°C |
| Time (T _{smin} to T _{smax}) (t _s) | 60 - 120 sec. | 60 - 120 sec. |
| Average ramp-up rate (T _{smax} to T _p) | 3°C/sec. max | 3°C/sec. max |
| Liquidous temperature (T _L) | 183°C | 217°C |
| Time at liquidous (t _L) | 60 - 150 sec. | 60 - 150 sec. |
| Peak package body temperature (T _p)* | see Table 1 | see Table 2 |
| Time (t _p)** within 5°C of the specified classification temperature (T _c) | 20 sec. | 30 sec. |
| Ramp-down rate (T _p to T _{smax}) | 6°C/sec. max | 6°C/sec. max |
| Time 25°C to peak temperature | 6 min. max | 8 min. max |
| Reflow cycles | 2 max | 2 max |

*Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.

**Tolerance for time at peak profile temperature (t_p) is defined as supplier minimum and a user maximum.

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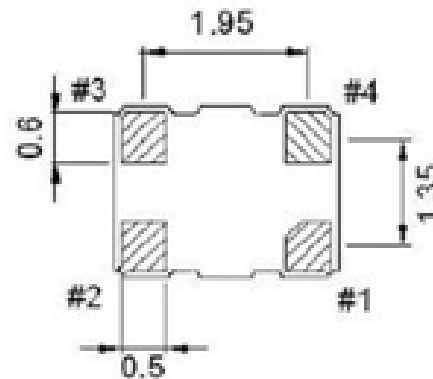
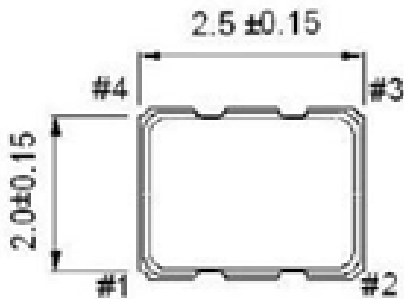


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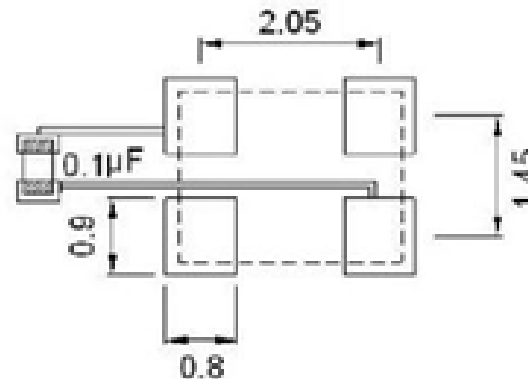
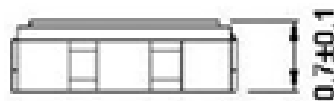


2.5 x 2.0 x 0.8 mm
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MSL Level = 1

Mechanical Dimensions



Recommended Land Pattern



Dimensions: mm

| PIN | FUNCTION | |
|-----|----------|------|
| | ASVTX | ASTX |
| 1 | Vcon | GND |
| 2 | GND | |
| 3 | OUTPUT | |
| 4 | Vcc | |

Note:

It is recommended that a by-pass capacitor of 0.1μF value be placed between pin #2 and pin #4 and an AC-coupling capacitor of the same value be placed in series with pin#3 for optimal performance.

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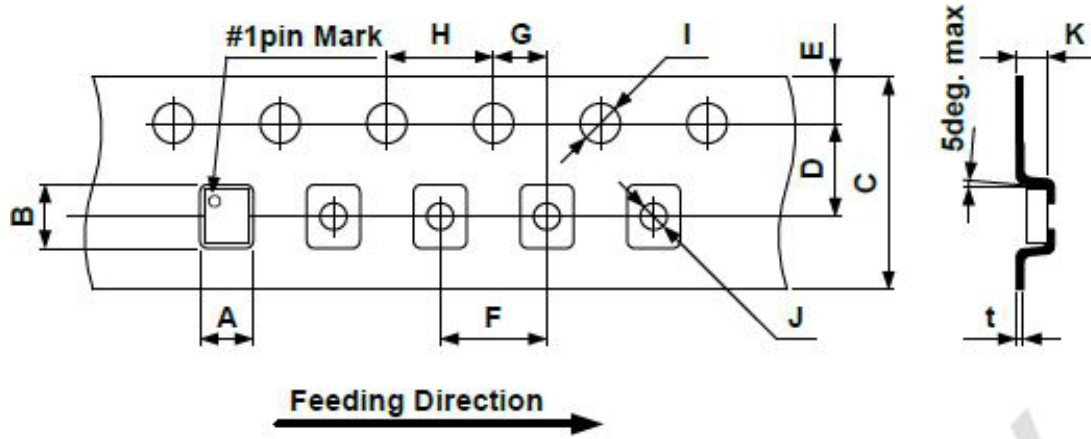
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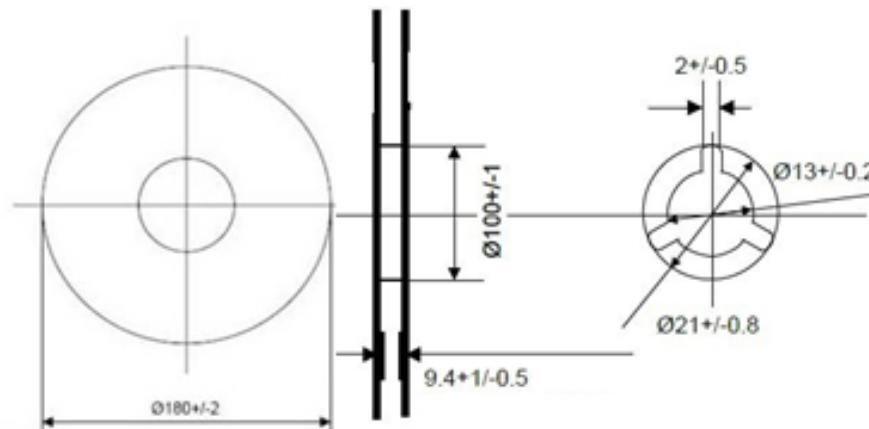
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Packaging

T3: 3,000pcs/reel



| | | | | |
|-------------|-------------|--------------|-------------|-------------|
| A | B | C | D | E |
| 2.4±/-0.1 | 2.9±/-0.1 | 8.0+0.3/-0.2 | 3.5±/-0.05 | 1.75±/-0.1 |
| F | G | H | I | J |
| 4.0±/-0.1 | 2.0±/-0.05 | 4.0±/-0.1 | φ1.5+0.1/-0 | φ1.1+0.1/-0 |
| K | t | | | |
| 1.15±/-0.05 | 0.25±/-0.05 | | | |



Dimensions: mm

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