

# CMOS/TTL COMPATIBLE VOLTAGE CONTROLLED CRYSTAL OSCILLATOR



7.0 x 5.0 x 1.6 mm

**ASVV**



**RoHS**  
Compliant

## FEATURES:

- Low profile (1.6) SMD VCXO
- Tristate functions
- Seam sealed package assures high reliability
- CMOS/TTL output
- Suitable for RoHS compliant reflow process

## APPLICATIONS:

- Phase locked loops (PLLs)
- Synthesizers
- Clock Recover, Digital Transmission device
- Digital set-up box
- Computers; Test Equipment

## STANDARD SPECIFICATIONS:

| Parameters                            |                 | Minimum  | Typical     | Maximum             | Units | Notes                             |
|---------------------------------------|-----------------|--|-------------|---------------------|-------|-----------------------------------|
| Frequency Range:                      |                 | 1.0  | -----       | 200                 | MHz   |                                   |
| Operating Temperature:                |                 | 0  | -----       | +70                 | °C    | See options                       |
| Storage Temperature:                  |                 | -45  | -----       | +90                 | °C    |                                   |
| Overall Frequency Stability*:         |                 | -50  | -----       | +50                 | ppm   | See options                       |
| Supply Voltage (V <sub>dd</sub> ):    |                 | 3.135  | 3.3         | 3.465               | V     | 3.3V±5%                           |
| Control Voltage (V <sub>c</sub> ):    |                 | 0.15   | 1.65        | 3.15                | V     |                                   |
| Supply Current (I <sub>dd</sub> ):    |                 | -----  | 1.1 ~ 2.0   | 5.0                 | mA    | 1.000~11.999 MHz                  |
|                                       |                 | -----  | 1.4 ~ 4.0   | 8.0                 |       | 12.000~26.999 MHz                 |
|                                       |                 | -----  | 1.8 ~ 5.0   | 10.0                |       | 27.000~39.999 MHz                 |
|                                       |                 | -----  | 3.4 ~ 8.0   | 15.0                |       | 40.000~57.999 MHz                 |
|                                       |                 | -----  | 5.9 ~ 20.0  | 35.0                |       | 58.000~99.999 MHz                 |
|                                       |                 | -----  | 20.0 ~ 30.0 | 40.0                |       | 100.000~200.000 MHz               |
| Linearity:                            |                 | -10  | -----       | 10                  | %     |                                   |
| Output Load                           |                 | -----  | -----       | 15                  | pF    |                                   |
|                                       |                 | -----  | -----       | 5                   | TTL   |                                   |
| Output Voltage:                       | V <sub>OH</sub> | 0.9*V <sub>dd</sub>  | -----       | -----               | V     |                                   |
|                                       | V <sub>OL</sub> | -----  | -----       | 0.1*V <sub>dd</sub> | V     |                                   |
| Pullability:                          |                 | ±80  | -----       | -----               | ppm   | See options                       |
| Tri-state function (Stand-by) :       |                 | "1" (VIH≥2.2V) or Open: Oscillation<br>"0" (VIH<0.8V) : Hi Z |             |                     |       |                                   |
| Aging:                                |                 | -3.0   | -----       | +3.0                | ppm   | @+25°C First year                 |
| Symmetry:                             |                 | 40   | -----       | 60                  | %     |                                   |
| Start-up Time :                       |                 | -----  | 1.1 ~ 2.0   | 5                   | ms    | @1/2V <sub>dd</sub> (See options) |
| Rise/Fall Time (Tr/Tf):               |                 | -----  | 1.6 ~ 4.0   | 8.0                 | ns    | 1.000~11.999 MHz                  |
|                                       |                 | -----  | 1.0 ~ 3.0   | 6.0                 |       | 12.000~26.999 MHz                 |
|                                       |                 | -----  | 1.4 ~ 2.5   | 5.0                 |       | 27.000~39.999 MHz                 |
|                                       |                 | -----  | 1.1 ~ 2.0   | 4.0                 |       | 40.000~57.999 MHz                 |
|                                       |                 | -----  | 0.7 ~ 2.0   | 3.0                 |       | 58.000~99.999 MHz                 |
|                                       |                 | -----  | 0.9 ~ 1.5   | 3.0                 |       | 100.000~200.000 MHz               |
| Period jitter RMS :                   |                 | -----  | 2.0         | 3.5                 | ps    | 1.000~11.999 MHz                  |
|                                       |                 | -----  | 2.0         | 3.5                 |       | 12.000~26.999 MHz                 |
|                                       |                 | -----  | 2.0         | 3.5                 |       | 27.000~39.999 MHz                 |
|                                       |                 | -----  | 2.0         | 3.5                 |       | 40.000~57.999 MHz                 |
|                                       |                 | -----  | 5.0         | 8.0                 |       | 58.000~99.999 MHz                 |
|                                       |                 | -----  | 7.0         | 10.0                |       | 100.000~200.000 MHz               |
| Phase jitter RMS<br>(12kHz to 20MHz): |                 | -----  | 0.5         | 1.0                 | ps    | 1.000~11.999 MHz                  |
|                                       |                 | -----  | 0.5         | 1.0                 |       | 12.000~26.999 MHz                 |
|                                       |                 | -----  | 0.5         | 1.0                 |       | 27.000~39.999 MHz                 |
|                                       |                 | -----  | 0.5         | 1.0                 |       | 40.000~57.999 MHz                 |
|                                       |                 | -----  | 4.5         | 5.5                 |       | 58.000~99.999 MHz                 |
|                                       |                 | -----  | 5.0         | 6.0                 |       | 100.000~200.000 MHz               |

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## STANDARD SPECIFICATIONS - continued:

| Phase Noise<br>(Typical value): | Offset              | 1kHz   | 10kHz  | 100kHz | dBc |
|---------------------------------|---------------------|--------|--------|--------|-----|
|                                 | 10.000MHz Carrier   | -137.8 | -148.4 | -148.3 |     |
|                                 | 12.288MHz Carrier   | -130.0 | -145.0 | -148.0 |     |
|                                 | 16.384 MHz Carrier  | -136.1 | -147.9 | -152.2 |     |
|                                 | 19.440 MHz Carrier  | -133.4 | -147.3 | -151.6 |     |
|                                 | 25.000 MHz Carrier  | -134.3 | -149.4 | -152.1 |     |
|                                 | 32.768 MHz Carrier  | -130.6 | -144.6 | -149.7 |     |
|                                 | 35.328 MHz Carrier  | -120.0 | -143.0 | -150.0 |     |
|                                 | 44.736 MHz Carrier  | -125.8 | -142.4 | -151.4 |     |
|                                 | 55.296 MHz Carrier  | -130.4 | -146.0 | -149.0 |     |
|                                 | 57.142 MHz Carrier  | -105.0 | -130.0 | -117.0 |     |
|                                 | 60.000 MHz Carrier  | -123.4 | -134.3 | -147.4 |     |
|                                 | 100.000 MHz Carrier | -115.0 | -125.0 | -117.0 |     |
|                                 | 120.000 MHz Carrier | -108.0 | -123.0 | -116.0 |     |
| 125.000 MHz Carrier             | -112.6              | -127.1 | -122.3 |        |     |
| 155.250 MHz Carrier             | -108.0              | -120.0 | -113.0 |        |     |

## OPTIONS & PART IDENTIFICATION:

(Left blank if standard)

ASVV -  MHz -  -  -  -

**Frequency in MHz**  
Please specify the frequency in MHz.  
e.g. 14.31818MHz

**Packaging**  
Blank: Bulk  
T: Tape & Reel

**Pullability**  
Blank: ±80ppm  
N102: ±100ppm  
N122: ±120ppm  
N152: ±150ppm

**Symmetry**  
Blank: 40/60% @ 1/2Vdd  
S: 45/55% @ 1/2Vdd

| Operating Temperature | Frequency stability (ppm) |         |         |                  |
|-----------------------|---------------------------|---------|---------|------------------|
|                       | ±20 ppm                   | ±25 ppm | ±30 ppm | ±50 ppm          |
| 0°C to 50°C           | I20                       | I25     | I30     | I50              |
| 0°C to 60°C           | B20                       | B25     | B30     | B50              |
| -10°C to 60°C         | D20                       | D25     | D30     | D50              |
| 0°C to 70°C           | C20                       | C25     | C30     | STD (Left blank) |
| -10°C to 70°C         | F20                       | F25     | F30     | F50              |
| -20°C to 70°C         | E20                       | E25     | E30     | E50              |
| -40°C to 85°C         | -----                     | L25     | L30     | L50              |



# CMOS/TTL COMPATIBLE VOLTAGE CONTROLLED CRYSTAL OSCILLATOR



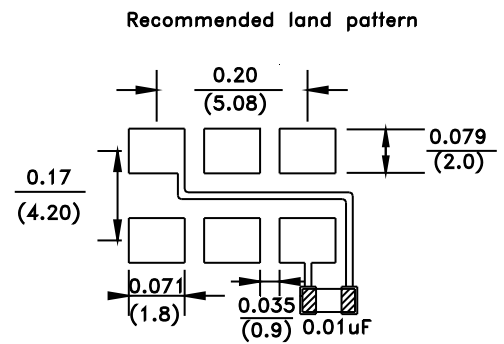
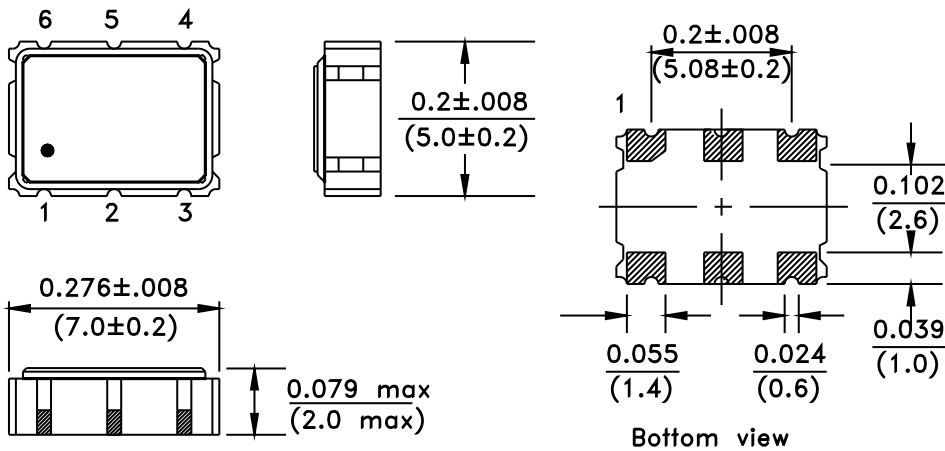
7.0 x 5.0 x 1.6 mm

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## OUTLINE DRAWING:



| PIN # | Name            |
|-------|-----------------|
| 1     | V <sub>c</sub>  |
| 2     | Tri-state       |
| 3     | GND             |
| 4     | Output          |
| 5     | NC              |
| 6     | V <sub>dd</sub> |

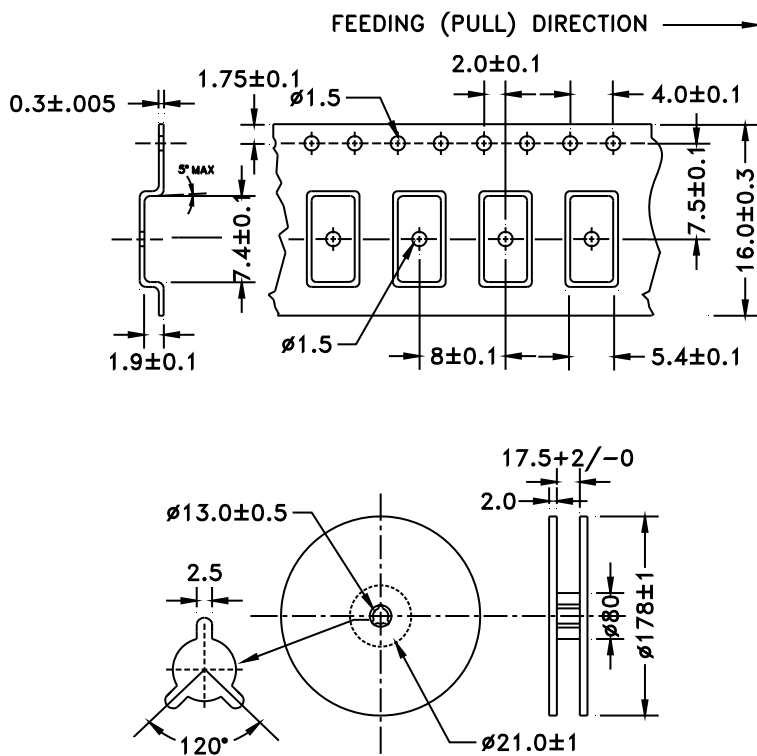
**Note 1:** Due to the material availability, the chamfer on pin 1 may have different outline.

**Note 2:** Recommend using an approximately 0.01 μF bypass capacitor between PIN 3 and 6.

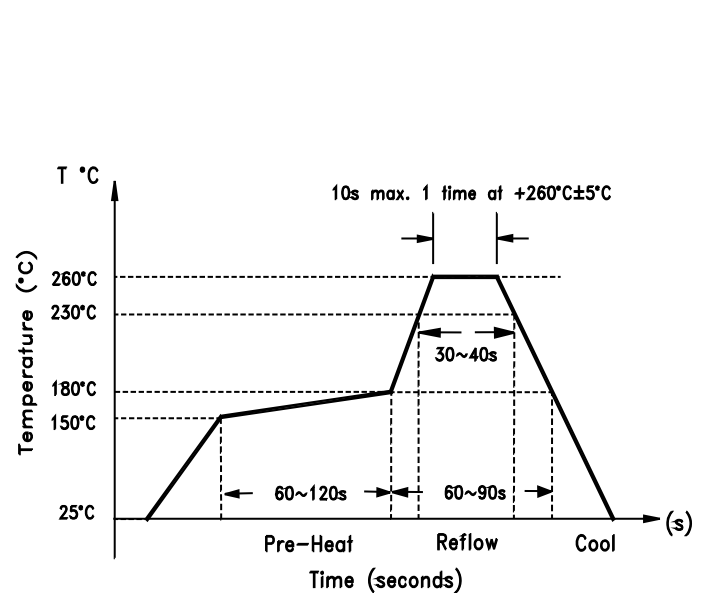
Dimensions: inches (mm)

## TAPE & REEL: T= Tape and reel (1,000pcs/reel)

## REFLOW PROFILE:



Dimensions: mm



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#### Как с нами связаться

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