

## VA4 SERIES: 9.3X8.5mm VCXO OSCILLATOR, HCMOS, +3.3 VDC

**DESCRIPTION:** A crystal controlled, high frequency, highly stable, voltage controlled oscillator, adhering to HCMOS Standards. The output can be Tri-stated to facilitate testing or combined multiple clocks. This oscillator is ideal for today's automated assembly environments.

### APPLICATIONS AND FEATURES:

- Common Frequencies: 16.384 MHz; 19.44 MHz; 27 MHz; 38.88 MHz; 51.84 MHz; 77.76 MHz
- +3.3 VDC HCMOS
- Frequency Range from 1 to 100 MHz

### ■ ELECTRICAL PARAMETERS:

| PARAMETER                               | SYMBOL     | TEST CONDITIONS <sup>*1</sup>                      | VALUE                            | UNIT       |
|-----------------------------------------|------------|----------------------------------------------------|----------------------------------|------------|
| Nominal Frequency                       | fo         |                                                    | 1.000 ~ 100.000                  | MHz        |
| Supply Voltage                          | Vcc        |                                                    | +3.3 ±5%                         | VDC        |
| Supply Current                          | Is         |                                                    | 35.0 MAX                         | mA         |
| Output Logic Type                       |            |                                                    | HCMOS                            |            |
| Load                                    |            | Connected from output to ground                    | 15                               | pF         |
| Output Voltage Levels                   | Voh<br>Vol |                                                    | 0.9 * Vcc MIN<br>0.1 * Vcc MAX   | VDC<br>VDC |
| Duty Cycle                              | DC         | Measured at 50% of Vcc                             | 40/60 to 60/40 or 45/55 to 55/45 | %          |
| Rise / Fall Time                        | tr / tf    | Measured at 20/80% and 80/20% Vcc Levels           | 6.0 MAX <sup>*2</sup>            | ns         |
| Jitter                                  | J          | RMS, Fj = 12 kHz...20 MHz                          | 1 TYP                            | ps         |
| Overall Frequency Stability             | Δf/fc      | Op. Temp., Aging, Load, Supply and Cal. Variations | <sup>*3</sup>                    | ppm        |
| Control Voltage Range                   | VC         | Positive slope; 10% linearity MAX                  | 0 to +3.3                        | VDC        |
| Settability                             | Vfo        |                                                    | +1.65 ± 0.25                     | VDC        |
| Absolute Pull Range                     | APR        | Minimum guaranteed freq. pull over Δf/fc           | See Part Numbering               | ppm        |
| Input Impedance                         | Zin        |                                                    | 10 MIN                           | kΩ         |
| Modulation Bandwidth                    | BW         | -3 dB                                              | 10 MIN                           | kHz        |
| Pin 1 Output Enabled<br>Output Disabled | En<br>Dis  | High Voltage or No Connect<br>Ground               | 0.7•Vcc MIN<br>0.3•Vcc MAX       | VDC<br>VDC |
| Absolute voltage range                  | Vcc(abs)   | Non-Destructive                                    | -0.5...+7.0                      | VDC        |

<sup>\*1</sup> Test Conditions Unless Stated Otherwise: Nominal Vcc, Nominal Load, +25 ±3°C

<sup>\*2</sup> Frequency Dependent

<sup>\*3</sup> Not All APR's Available With All Temperature Ranges—Please Consult Factory For Availability

### ■ ENVIRONMENTAL PARAMETERS:

| PARAMETER                   | SYMBOL | TEST CONDITIONS <sup>*1</sup> | VALUE                 | UNIT |
|-----------------------------|--------|-------------------------------|-----------------------|------|
| Operating temperature range | Ta     |                               | SEE PART NUMBER TABLE | °C   |
| Storage temperature range   | T(stg) |                               | -55...+90             | °C   |

### ■ PART NUMBERING SYSTEM:

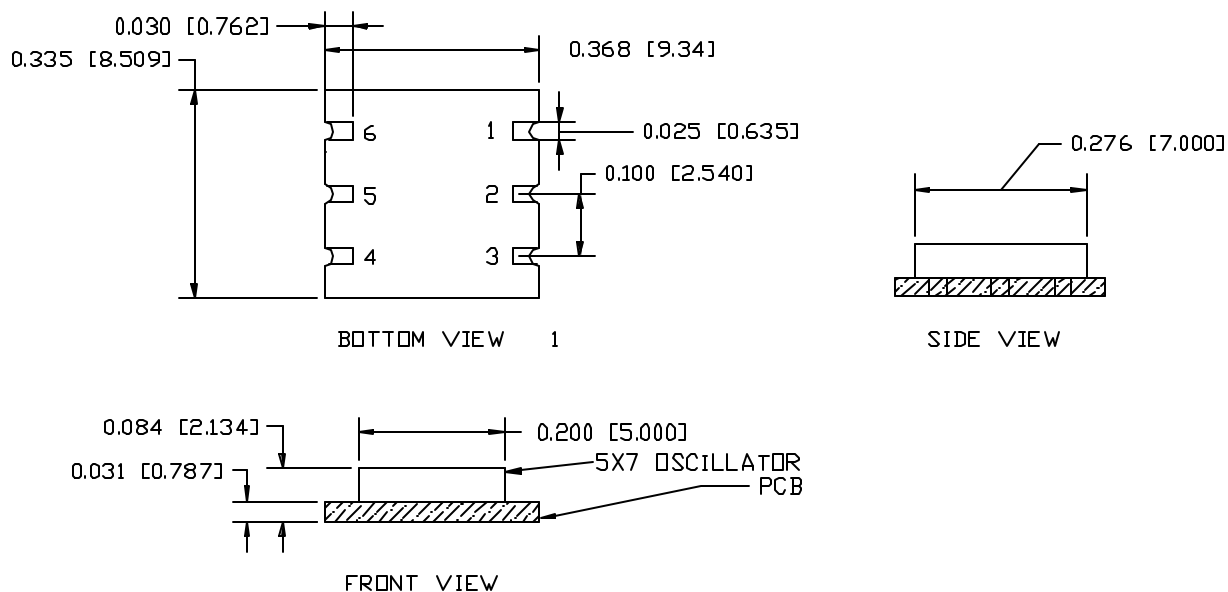
| SERIES                      | SYMMETRY                                 | TEMPERATURE RANGE (°C)                                                 | APR (ppm)                                                                         | FREQUENCY (MHz) |
|-----------------------------|------------------------------------------|------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------|
| VA4: VCXO with HCMOS Output | A: 40/60 to 60/40%<br>T: 45/55 to 55/45% | R: 0...+50<br>S: 0...+70<br>U: -20...+70<br>W: 0...+85<br>V: -40...+85 | F: ±32 ppm<br>H: ±50 ppm<br>K: ±70PPM<br>G: ±80 ppm<br>J: ±100 ppm<br>L: ±130 ppm | 1.000...100.000 |

### EXAMPLE: VA4ASH-38.880

VCXO Oscillator, 9.3X8.5mm Package, +3.3 VDC Supply Voltage, HCMOS Output, Standard Symmetry, 0...+70°C Operating Temperature Range, ±50 ppm APR, 38.880 MHz

Please consult the factory for any custom requirements.

## MECHANICAL PARAMETERS:



TOLERANCES:  $\pm 0.005$  [0.127] UNLESS OTHERWISE NOTED.

### OUTLINE TOLERANCE:

$\pm 0.006$ " / 0.15mm

(Unless otherwise specified)

### PIN FUNCTIONS:

- [1] VOLTAGE CONTROL
- [2] ENABLE / DISABLE
- [3] CASE GROUND
- [4] OUTPUT
- [5] NO CONNECT
- [6] SUPPLY VOLTAGE

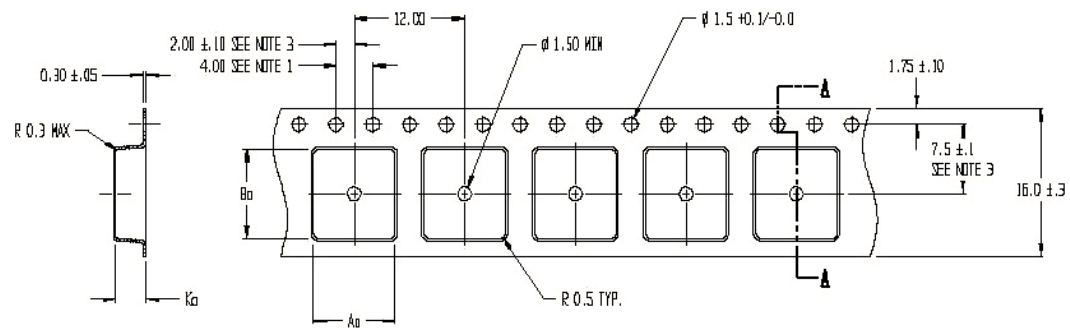
### MARKING:

TBD

\*0.01mF external by-pass

filter is recommended as seen on solder pattern.

## TAPE AND REEL



### SECTION A - A

$A_o = 8.75$   
 $B_o = 9.65$   
 $K_o = 3.20$

#### NOTES:

1. 10 SPROCKET HOLE PITCH CUMULATIVE TOLERANCE  $\pm 0.2$
2. CAMBER IN COMPLIANCE WITH EIA 481
3. POCKET POSITION RELATIVE TO SPROCKET HOLE MEASURED AS TRUE POSITION OF POCKET, NOT POCKET HOLE