

REV B.
VS2 SERIES: VCXO OSCILLATOR, HCMOS, +5.0 VDC, 7x5mm Package

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. The device is contained in a sub-miniature, very low profile, leadless ceramic SMD package with 6 gold contact pads. This miniature 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;**
- **+5.0 VDC HCMOS**
- **Frequency Range from 1 to 51.84 MHz**
- **Miniature Ceramic SMD Package Available on Tape and Reel**
- **Lead Free**

■ ELECTRICAL PARAMETERS:

| PARAMETER | SYMBOL | TEST CONDITIONS ^{*1} | VALUE | UNIT |
|---|------------|--|----------------------------------|------------|
| Nominal Frequency | fo | | 1.000 ~ 51.840 | MHz |
| Supply Voltage | Vcc | | +5.0 ±10% | VDC |
| Supply Current MAX | Is | | 35.0 | mA |
| Output Logic Type | | | HCMOS | |
| Load | | Connected from output to ground | 15 | pF |
| Output Voltage Levels | Voh Vol | | 0.9•Vcc MIN 0.1•Vcc MAX | VDC 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 ^{*2} | 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 | ±50 ^{*4} | ppm |
| Control Voltage Range | VC | Positive slope; 10% linearity MAX | 0 to +5.0 | VDC |
| Settability | Vfo | | +2.5 ± 0.5 | VDC |
| Absolute Pull Range | APR | Minimum guaranteed freq. pull over Δf/fc | See Part Numbering ^{*3} | ppm |
| Input Impedance | Zin | | 10 MIN | kΩ |
| Modulation Bandwidth | BW | -3 dB | 10 MIN | kHz |
| Pin 2 Output Enabled Output Disabled | En Dis | High Voltage or No Connect Ground | 0.7•Vcc MIN 0.3•Vcc MAX | VDC VDC |
| Absolute voltage range | Vcc(abs) | Non-Destructive | -0.5...+7.0 | VDC |

*1 Test Conditions Unless Stated Otherwise: Nominal Vcc, Nominal Load, +25 ±3°C

*2 Frequency Dependent

*3 Not All APR's Available With All Temperature Ranges—Consult Factory For Availability

*4 Tighter stabilities available at narrow temperature ranges—Consult Factory For Availability

■ ENVIRONMENTAL PARAMETERS:

| PARAMETER | SYMBOL | TEST CONDITIONS ^{*1} | 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) |
|-----------------------------|--|--|---|-----------------|
| VS2: VCXO with HCMOS Output | A: 40/60 to 60/40% T: 45/55 to 55/45% | R: 0...+50 S: 0...+70 U: -20...+70 V: -40...+85 | F: ±32 ppm H: ±50 ppm G: ±80 ppm J: ±100 ppm | 1.000...51.840 |

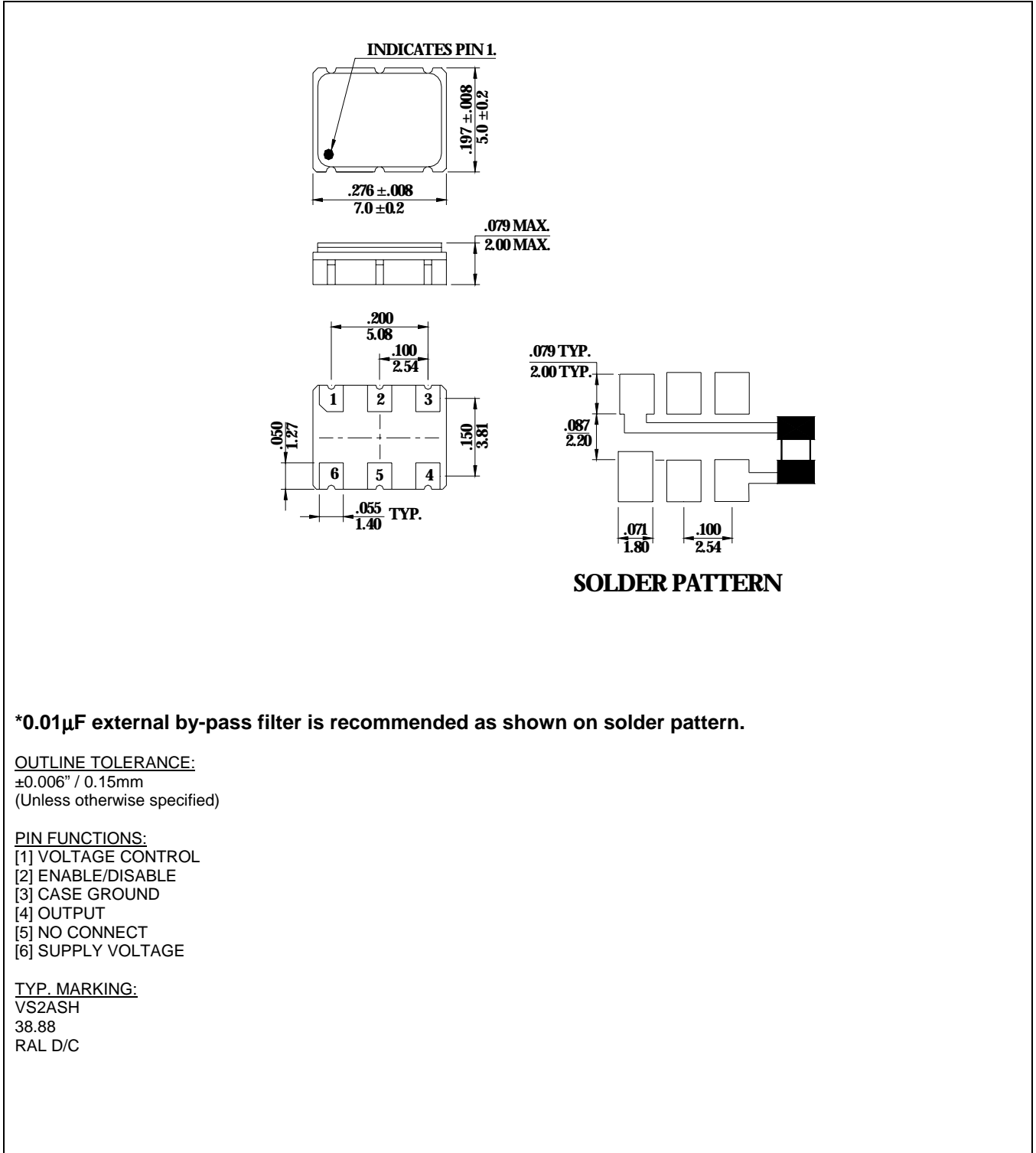
EXAMPLE: VS2ASH-38.880

VCXO Oscillator, 7x5mm Package, +5.0 VDC Supply Voltage, HCMOS Output, 40/60% Symmetry, 0...+70°C Operating Temperature Range, ±50 ppm APR, 38.880 MHz

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Consult the factory for any custom requirements.

■ MECHANICAL PARAMETERS:



* $0.01\mu\text{F}$ external by-pass filter is recommended as shown on solder pattern.

OUTLINE TOLERANCE:
 $\pm 0.006'' / 0.15\text{mm}$
 (Unless otherwise specified)

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

TYP. MARKING:
 VS2ASH
 38.88
 RAL D/C