

## VS4 SERIES: VCXO OSCILLATOR, HCMOS, +3.3 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; 77.76 MHz**
- **+3.3 VDC HCMOS**
- **Frequency Range from 1 to 125.000 MHz**
- **Miniature Ceramic SMD Package Available on Tape and Reel**
- **Lead Free and ROHS Compliant**

### ■ ELECTRICAL PARAMETERS:

PARAMETER	SYMBOL	TEST CONDITIONS <sup>*1</sup>	VALUE	UNIT
Nominal Frequency	fo		1.000 ~ 125.000	MHz
Supply Voltage	Vcc		+3.3 ±10%	VDC
Supply Current MAX	Is		35.0 <sup>*5</sup>	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 <sup>*2</sup>	ns
Jitter	J	RMS, Fj = 12 kHz...20 MHz Peak-to-peak	1 TYP 6.5 TYP	ps ps
Overall Frequency Stability	Δf/fc	Op. Temp., Aging, Load, Supply and Cal. Variations	±50 <sup>*4</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 <sup>*3</sup>	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

\*5 Lower current consumption (<10mA) available at certain frequency ranges—Consult Factory For Availability

### ■ ENVIRONMENTAL PARAMETERS:

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

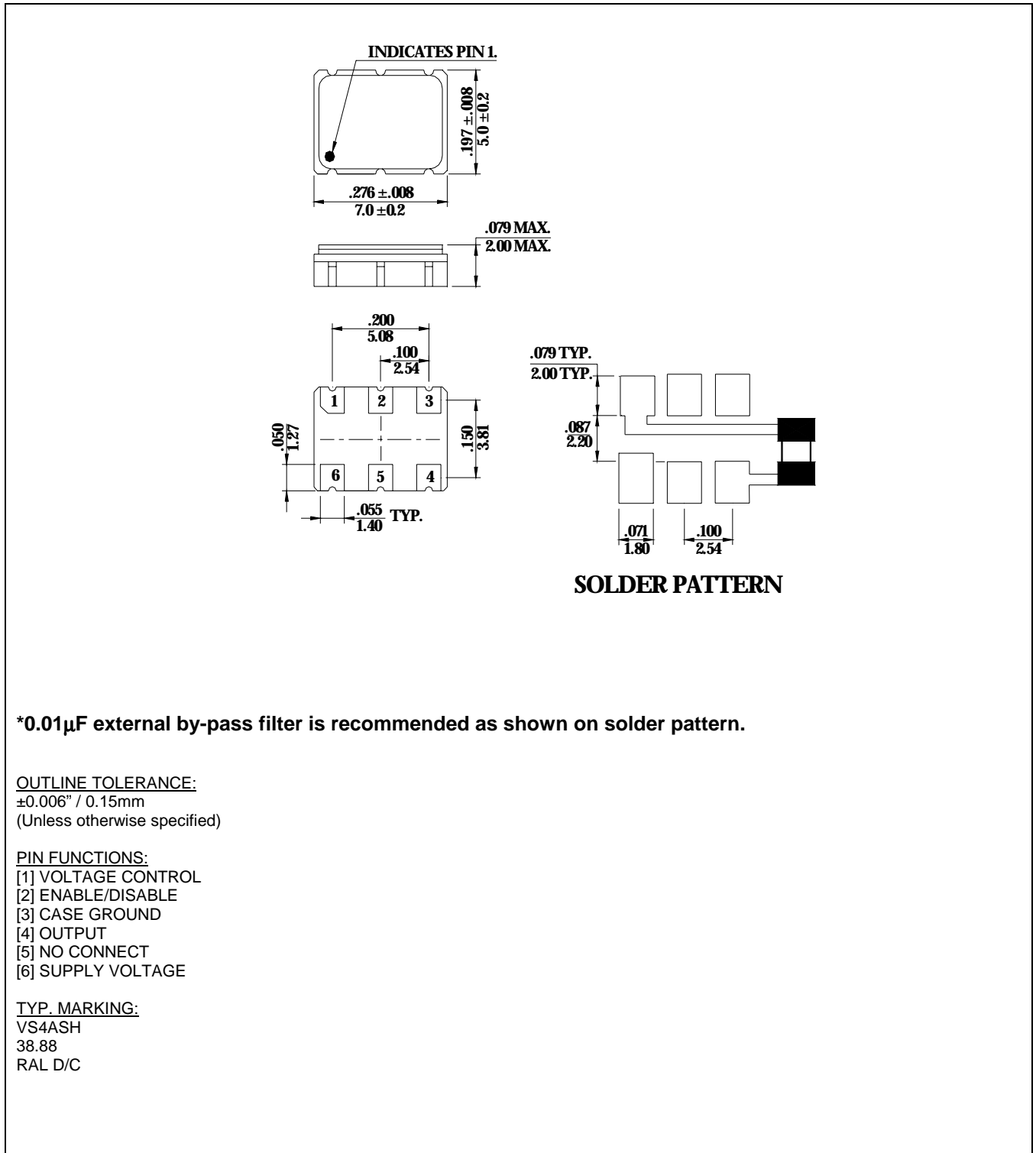
### ■ PART NUMBERING SYSTEM:

SERIES	SYMMETRY	TEMPERATURE RANGE (°C)	APR (ppm)	FREQUENCY (MHz)
VS4: 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...125.000

**EXAMPLE: VS4ASH-38.880**

VCXO Oscillator, 7x5mm Package, +3.3 VDC Supply Voltage, HCMOS Output, 40/60% Symmetry, 0...+70°C Operating Temperature Range, ±50 ppm APR, 38.880 MHz, Enable High on Pin 2 (standard)  
 Consult the factory for any custom requirements.

■ MECHANICAL PARAMETERS:



\*0.01µF external by-pass filter is recommended as shown on solder pattern.

OUTLINE TOLERANCE:  
 ±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

TYP. MARKING:  
 VS4ASH  
 38.88  
 RAL D/C