

- Miniature SMD 5 x 3.2mm package
- Frequency range: 6.4MHz to 52MHz
- Close tolerance stability available from  $\pm 0.5\text{ppm}$
- Supply voltage 1.8V, 2.5V, 2.8V, 3.0, 3.3
- Very low power consumption



### DESCRIPTION

(V)EM53S series TCXOs are packaged in a miniature 5.0 x 3.2mm ceramic SMD case. With clipped sinewave output, tolerances are available from  $\pm 1.0\text{ppm}$  over  $-40^\circ$  to  $+85^\circ\text{C}$ . The part exhibits low supply current, 3.5mA max. at 52MHz

### SPECIFICATION

Product Series Code	TCXO: EM53S VCTCXO: VEM53S
Frequency Range:	6.4MHz to 52MHz
Output Waveform:	Clipped Sine
Initial Calibration Tolerance:	$< \pm 1\text{ppm}$ at $25^\circ\text{C}$
Standard Frequencies:	10.0, 12.8, 13.0, 14.40, 14.7456, 15.36, 16.367667, 16.384, 19.2, 19.44, 20.0, 25.0, 26.0, 27.0 MHz
Operating Temperature Stab:	See table
Frequency Stability vs. Ageing:	$\pm 1.0\text{ppm max/Year}$ at $25^\circ\text{C}$
vs. Voltage Change:	$\pm 0.2\text{ppm max. } \pm 5\%$ change
vs. Load Change:	$\pm 0.2\text{ppm max. } \pm 10\%$ change
vs. Reflow (SMD type):	$\pm 1.0\text{ppm max.}$ for one reflow (measured after 24 hours)
Supply Voltage:	+2.5VDC $\pm 5\%$ , +3.0VDC $\pm 5\%$ , +3.3Volts $\pm 5\%$ , +5VDC $\pm 5\%$
Start-up Time:	5ms typical, 10ms max.
Output Load:	10k $\Omega$ max./10pF $\pm 10\%$
Current Consumption:	2.5mA max.
Harmonic Distortion:	-10dB typical, -7dB max.
Storage Temperature:	$-40^\circ\text{C}$ to $+85^\circ\text{C}$

### FREQUENCY STABILITY OVER OPERATING TEMP

Stability	0.5ppm	1.0ppm	1.5ppm	2.0ppm	2.5ppm	3.0ppm
0°C to +50°C:	✓	✓	✓	✓	✓	✓
-10°C to +60°C:	Ask	✓	✓	✓	✓	✓
-20°C to +70°C:	Ask	✓	✓	✓	✓	✓
-30°C to +75°C:	Ask	✓	✓	✓	✓	✓
-30°C to +85°C:	Ask	✓	✓	✓	✓	✓
-40°C to +85°C:	Ask	Ask	✓	✓	✓	✓

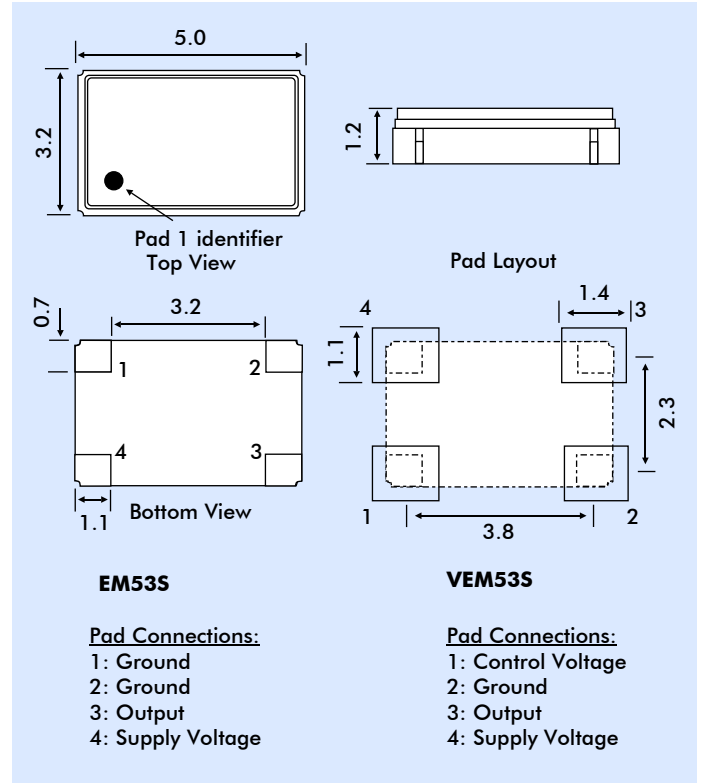
### VEM53S VOLTAGE CONTROL SPECIFICATION

Control Voltage	V <sub>con</sub> centre = $+1.4\text{V} \pm 1\text{V}$ V <sub>con</sub> centre = $+1.5\text{V} \pm 1\text{V}$
Frequency Pulling Range:	$\pm 5\text{ppm min.}$
Slope Polarity:	Positive (increase of control voltage increases output freq.)
Linearity:	$\pm 5\%$ typical $\pm 10\%$ max.
Input Impedance:	1M $\Omega$ typical
Modulation Bandwidth:	10kHz min. measured at +3dB

### SSB PHASE NOISE at 25°C

Offset	10Hz	100Hz	1kHz	10kHz	100kHz
Test Frequency 13.0MHz	(dBc/Hz) -80	-115	-135	-148	-148

### EM53S- OUTLINES AND DIMENSIONS



### PART NUMBERS

