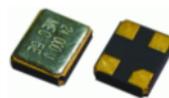


- Ultra-miniature seam sealed SMD 3.2 x 2.5 x 1.3mm
- Stability from ± 1 ppm over -30° to $+75^{\circ}\text{C}$
- Supply Voltage from 2.3 Volts to 5.5 Volts
- Produced as TCXO or VCTCXO with EFC
- Readily customized



DESCRIPTION

EM32 series TCXOs are ceramic SMD TCXOs packaged in an industry-standard, ultra-miniature 3.2 x 2.5mm package. The TCXO supply voltage may be chosen from 2.3 to 5.5 Volts. Close tolerances from ± 1 ppm over -30° to $+75^{\circ}\text{C}$ are available. The part can be produced as either a standard TCXO or a voltage-controlled TCXO (VCTCXO).

SPECIFICATION

Product Series Code	TCXO:	EM32S
	VCTCXO:	VEM32S
Frequency Range:	10.0MHz to 40.0MHz*	
Output Waveform:	Clipped Sinewave	
Initial Calibration Tolerance**:	$< \pm 1$ ppm at 25°C	
Operating Temperature Range:	See table	
Frequency Stability		
vs. Ageing:	± 1.0 ppm max. first year	
vs. Voltage Change:	± 0.3 ppm max. $\pm 5\%$ change	
vs. Load Change:	± 0.3 ppm max. $\pm 10\%$ change	
vs. Reflow:	± 1 ppm max. for one reflow (Measured after 24 hours)	
Current Consumption:		
9.6 to 15MHz:	1.5mA	
15.01 to 26.0MHz:	2.0mA	
26.01 to 40MHz:	2.5mA	
Supply Voltage:	+2.8, +3.0 or +5.0Volts (Specify when ordering)	
Output Voltage Level:	0.8V p-p minimum	
Rise/Fall Time:	10 ns max.	
Start-up Time:	2ms typical, 5ms max.	
Output Load:	10k Ω /10pF $\pm 10\%$	
Harmonic Distortion:	-10dB typical, -7dB max.	
SSB Phase Noise:	See table	
Output Format:	DC coupled. Requires an external AC coupling capacitor at pin 3. 1000 pF recommended	
Storage Temperature:	-50° to $+100^{\circ}\text{C}$	

* Note: The frequency range between 26MHz to 40MHz is only available for 2.8Volt and 3.0Volt supply voltages.

** Stability over temperature is measured from this initial frequency.

FREQUENCY STABILITY

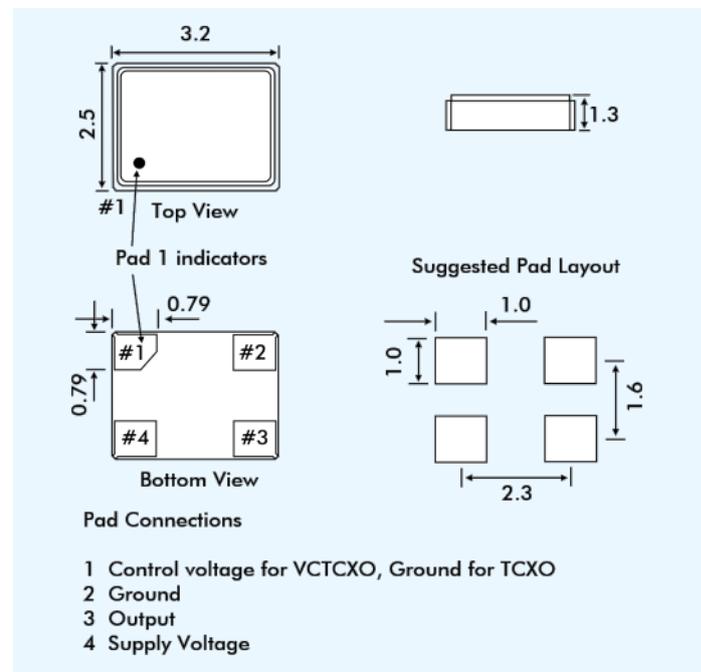
Frequency Stability (ppm)		± 0.5	± 1.0	± 1.5	± 2.0	± 2.5	± 3.0	± 5.0
Temp. Range ($^{\circ}\text{C}$)	0 ~ +50	✓	✓	✓	✓	✓	✓	✓
	-10 ~ +60	ASK	✓	✓	✓	✓	✓	✓
	-20 ~ +70	x	✓	✓	✓	✓	✓	✓
	-30 ~ +75	x	✓	✓	✓	✓	✓	✓
	-40 ~ +85	x	✓	✓	✓	✓	✓	✓

✓ = available, x = not available, ASK = call Technical Sales

PHASE NOISE

SSB Phase Noise at 25°C	Offset (Hz)	10	100	1k	10k	100k	1M	10M
	EM32S 10MHz (dBc/Hz)		-80	-115	-135	-138	-142	-148

EM32S - OUTLINES AND DIMENSIONS



VEM32S VOLTAGE CONTROL SPECIFICATION

Control Voltage:	Standard = $+1.5 \pm 1.0$ Volts for all input voltages. (Contact technical sales if $+2.5 \pm 2.0$ Volts is required.)
Frequency Deviation:	± 5.0 ppm min.
Slope Polarity:	Positive (increase of control voltage increases output frequency.)
Input Impedance:	1.0M Ω min.
Modulation Bandwidth:	3.0kHz min. measured at -3dB
Linearity:	10% max.

PART NUMBERING PROCEDURE

