

Clipped Sinewave 14 pin DIL compatible

- 14 pin DIL package compatible
- Frequency range: 9.6MHz to 27.0MHz
- Supply voltage 2.8 to 5.0 Volts
- Customized specifications available



DESCRIPTION

EM39S series TCXOs packages are compatible with the industry-standard 14 pin Dual-in-Line package. With Clipped Sinewave output, tolerances are available from ± 1.0 ppm over 0° to 50° C to ± 1 ppm over -30° to $+70^{\circ}$ C. Supply voltage 2.8 to 5.0 Volts.

SPECIFICATION

Product Series Code	TCXO:	EM39S
	VCTCXO:	VEM39S
Frequency Range:	9.6MHz to 27.0MHz	
Output Waveform:	Clipped Sinewave	
Initial Calibration Tolerance**:	$< \pm 1$ ppm at 25° C	
Standard Frequencies:	10.0, 12.80, 13.0, 14.40, 15.36, 16.384, 19.2, 19.440, and 19.68MHz (Partial list)	
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)	
Supply Voltage:	$+2.8$, $+3.0$ or $+5.0$ Volts (Specify when ordering)	
Output Voltage Level:	0.8V p-p minimum	
Start-up Time:	2ms typical, 5ms max.	
Current Consumption:	See table below	
Output Load:	10kOhm//10pF $\pm 10\%$	
Harmonic Distortion:	-10 dB typical, -7 dB max.	
SSB Phase Noise:	See table	
Output Format:	DC block, AC coupled	
Storage Temperature:	-50° to $+100^{\circ}$ C	

FREQUENCY STABILITY

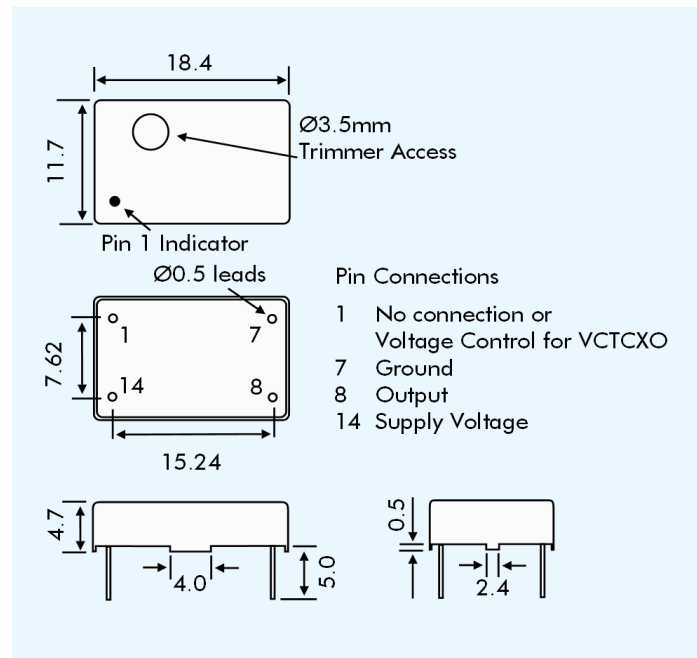
Frequency Stability (ppm)		± 0.5	± 1.0	± 1.5	± 2.0	± 2.5
Temperature Range ($^{\circ}$ C)	0 ~ +50	ASK	✓	✓	✓	✓
	-10 ~ +60	x	✓	✓	✓	✓
	-20 ~ +70	x	x	✓	✓	✓
	-30 ~ +75	x	x	x	✓	✓
	-40 ~ +85	x	x	x	x	✓

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

CURRENT CONSUMPTION

Frequency Range	+3.0 V	+5.0 V
10.0MHz to 13MHz	1.3mA	2.0mA
13.1MHz to 20MHz	1.5mA	2.2mA
20.1MHz to 27MHz	2.0mA	2.5mA

EM39S - OUTLINES AND DIMENSIONS



VEM39S 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:	± 6.0 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 -3 dB
Linearity:	10% max.

PHASE NOISE

SSB Phase Noise at 25° C	Offset (Hz)	10	100	1k	10k	100k
	EM39S 13MHz (dBc/Hz)		-80	-115	-135	-148

PART NUMBERING PROCEDURE

Example: **EM39S3-19.44-2.5/-30+75**

Series Description: EM39S
 VCTCXO = VEM39S
 Supply Voltage: 28 = 2.8 VDC, 3 = 3.0 VDC, 5 = 5.0 VDC
 Frequency (MHz): 19.44
 Stability over OTR (\pm ppm): 2.5
 Operating Temperature Range (OTR) ($^{\circ}$ C): -30 to +75
 Lower and upper limits.