

Clipped Sinewave, 4 Pad FR4 substrate SMD

- Industry-standard SMD package 11.4 x 9.6 x 4.7mm
- Close tolerance stabilities from $\pm 0.5\text{ppm}$ over 0° to $+50^\circ\text{C}$
- $\pm 1\text{ppm}$ over -40 to $+85^\circ\text{C}$
- Low power consumption



DESCRIPTION

EM44S series TCXOs are packaged in the industry-standard 11.4 x 9.6 x 4.7mm SMD package. With clipped sinewave output, close tolerances are available from $\pm 0.5\text{ppm}$ over 0° to 50°C or $\pm 1\text{ppm}$ over -40° to $+85^\circ\text{C}$. The part has low power consumption.

SPECIFICATION

Product Series Code	TCXO:	EM44S
	VCTCXO:	VEM44S
Frequency Range:	10.0MHz to 27.0MHz	
Output Waveform:	Clipped Sinewave	
Initial Calibration Tolerance**:	$< \pm 1\text{ppm}$ 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:	$\pm 1.0\text{ppm}$ max. first year	
vs. Voltage Change:	$\pm 0.3\text{ppm}$ max. $\pm 5\%$ change	
vs. Load Change:	$\pm 0.3\text{ppm}$ max. $\pm 10\%$ change	
vs. Reflow:	$\pm 1\text{ppm}$ max. for one reflow (Measured after 24 hours)	
Supply Voltage:	+2.8, +3.0 or +5.0Volts (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:	-10dB typical, -7dB max.	
SSB Phase Noise:	See table	
Output Format:	DC block, AC coupled	
Storage Temperature:	-50° to $+100^\circ\text{C}$	

FREQUENCY STABILITY

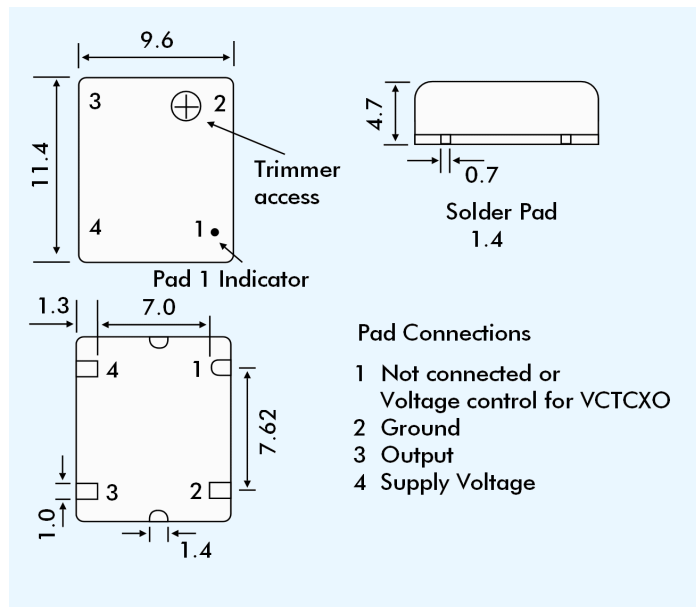
Frequency Stability (ppm)		± 0.5	± 1.0	± 1.5	± 2.0	± 2.5
Temperature Range ($^\circ\text{C}$)	0 ~ +50	ASK	✓	✓	✓	✓
	-10 ~ +60	x	✓	✓	✓	✓
	-20 ~ +70	x	x	✓	✓	✓
	-30 ~ +75	x	x	x	✓	✓
	-40 ~ +85	x	x	x	x	✓

✓ = 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

EM44S - OUTLINES AND DIMENSIONS



VEM44S VOLTAGE CONTROL SPECIFICATION

Control Voltage:	Standard = $+1.5 \pm 1.0\text{Volts}$ for all input voltages. (Contact technical sales if $+2.5 \pm 2.0\text{Volts}$ is required.)
Frequency Deviation:	$\pm 6.0\text{ppm}$ min.
Slope Polarity:	Positive (increase of control voltage increases output frequency.)
Input Impedance:	$1.0\text{M}\Omega$ min.
Modulation Bandwidth:	3.0kHz min. measured at -3dB
Linearity:	10% max.

PHASE NOISE

SSB Phase Noise at 25°C	Offset (Hz)	10	100	1k	10k	100k
	EM44S 13MHz (dBc/Hz)	-80	-115	-135	-148	-150

PART NUMBERING PROCEDURE

Example: **EM44S3-19.44-2.5/-30+75**

Series Description: EM44S
 VCTCXO = VEM44S
 Supply Voltage: 28 = 2.8 VDC, 3 = 3.0 VDC, 5 = 5.0 VDC
 Frequency (MHz): 19.44
 Stability over OTR ($\pm\text{ppm}$): 2.5
 Operating Temperature Range (OTR) ($^\circ\text{C}$): -30 to +75
 Lower and upper limits.