

### Clipped Sinewave, 6 Pad FR4 substrate SMD

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



#### DESCRIPTION

EM64S 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  $\pm 0.5$ ppm over 0° to 50°C or  $\pm 1$ ppm over -40° to +85°C. The part has low power consumption.

#### SPECIFICATION

Product Series Code	TCXO:	EM64S
	VCTCXO:	VEM64S
Frequency Range:	10.0MHz 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:	$\pm 1.0$ ppm max. first year	
vs. Voltage Change:	$\pm 0.3$ ppm max. $\pm 5\%$ change	
vs. Load Change:	$\pm 0.3$ ppm max. $\pm 10\%$ change	
vs. Reflow:	$\pm 1$ 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°C	

#### FREQUENCY STABILITY

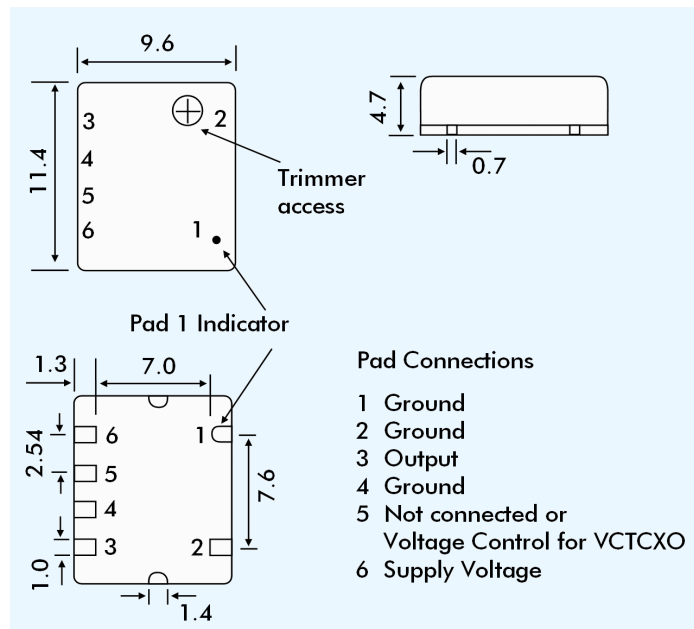
Frequency Stability (ppm)		$\pm 0.5$	$\pm 1.0$	$\pm 1.5$	$\pm 2.0$	$\pm 2.5$
Temperature Range (°C)	0 ~ +50	ASK	✓	✓	✓	✓
	-10 ~ +60	x	✓	✓	✓	✓
	-20 ~ +70	x	x	✓	✓	✓
	-30 ~ +75	x	x	x	✓	✓
	-40 ~ +85	x	x	x	x	✓

✓ = 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

#### EM64S - OUTLINES AND DIMENSIONS



#### VEM64S VOLTAGE CONTROL SPECIFICATION

Control Voltage:	Standard = +1.5 $\pm$ 1.0Volts for all input voltages. (Contact technical sales if +2.5 $\pm$ 2.0 Volts is required.)
Frequency Deviation:	$\pm 6.0$ ppm min.
Slope Polarity:	Positive (increase of control voltage increases output frequency.)
Input Impedance:	1.0M $\Omega$ 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
	EM64S 13MHz (dBc/Hz)		-80	-115	-135	-148

#### PART NUMBERING PROCEDURE

Example: **EM64S3-19.44-2.5/-30+75**

Series Description: EM64S  
 VCTCXO = VEM64S  
 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) (°C): -30+75  
 Lower and upper limits.