

- 8 pin DIL package, with trimmer
- Frequency range: 9.6MHz to 27.0MHz
- Supply voltage 2.8 to 5.0 Volts
- Customized specifications available

DESCRIPTION

EM9S series TCXOs are packaged in the industry-standard 14 pin Dual-in-Line package. With Clipped Sinewave output, tolerances are available from $\pm 1.0\text{ppm}$ over 0° to 50°C to $\pm 1\text{ppm}$ over -30° to $+70^\circ\text{C}$. Supply voltage 2.8 to 5.0 Volts.

SPECIFICATION

Product Series Code	TCXO: EM9S VCTCXO: VEM9S
Frequency Range:	9.6MHz to 27.0MHz
Output Waveform:	Clipped Sinewave
Initial Calibration Tolerance**:	$\leq \pm 1\text{ppm}$ 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:	$\pm 0.3\text{ ppm max. } \pm 5\% \text{ change}$
vs. Load Change:	$\pm 0.3\text{ ppm max. } \pm 10\% \text{ change}$
vs. Reflow:	$\pm 1\text{ppm max. for one reflow (Measured after 24 hours)}$
Supply Voltage:	$+2.8, +3.0 \text{ or } +5.0\text{Volts (Specify when ordering)}$
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:	-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

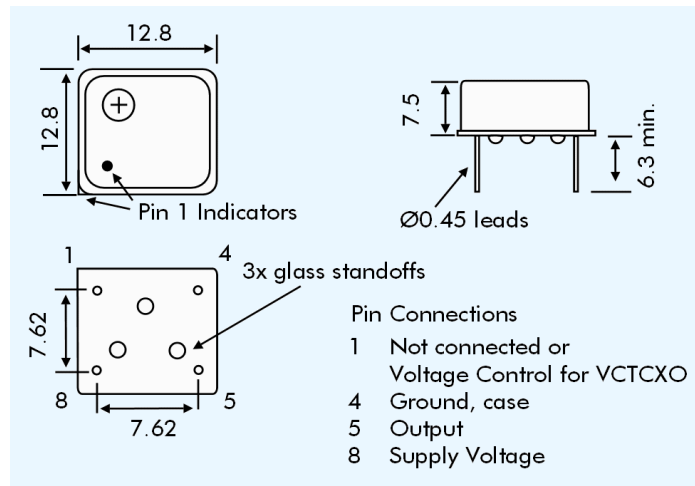
CURRENT CONSUMPTION

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

Clipped Sinewave 8 pin DIL



EM9S - OUTLINES AND DIMENSIONS



VEM9S 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:	1.0M Ω 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
	EM9S 13MHz (dBc/Hz)	-80	-115	-135	-148	-150

PART NUMBERING PROCEDURE

Example:

EM9S3-19.44-2.5/-30+75

Series Description

TCXO = EM9S

VCTCXO = VEM9S

Supply Voltage

28 = 2.8 VDC

3 = 3.0 VDC

5 = 5.0 VDC

Frequency (MHz)

Stability over OTR ($\pm\text{ppm}$)

Operating Temperature Range (OTR) ($^\circ\text{C}$)

Lower and upper limits.