

Clipped Sinewave 8 pin DIL

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



DESCRIPTION

EM8S 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: | EM8S |
| | VCTCXO: | VEM8S |
| Frequency Range: | 9.6MHz 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 $+5.0\text{Volts}$ (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

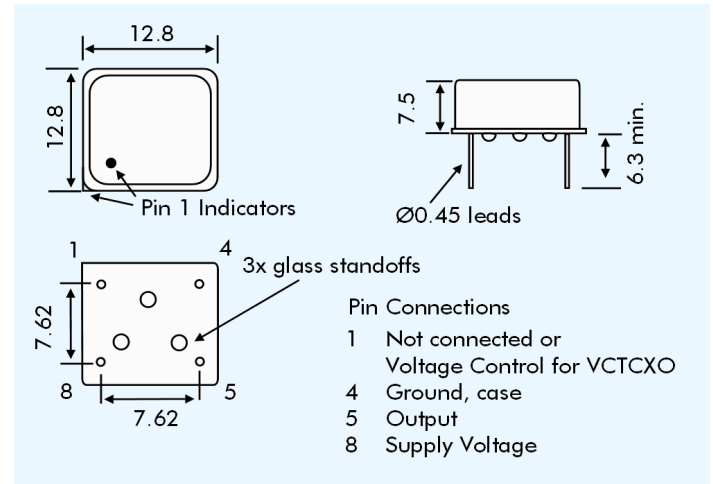
| Frequency Stability (ppm) | | ± 0.5 | ± 1.0 | ± 1.5 | ± 2.0 | ± 2.5 |
|--|-----------|-----------|-----------|-----------|-----------|-----------|
| Temperature Range ($^\circ\text{C}$) | 0 ~ +50 | ASK | ✓ | ✓ | ✓ | ✓ |
| | -10 ~ +60 | x | ✓ | ✓ | ✓ | ✓ |
| | -20 ~ +70 | x | x | ✓ | ✓ | ✓ |
| | -30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

EM8S - OUTLINES AND DIMENSIONS



VEM8S 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 |
|---------------------------------------|---------------------|----|-----|------|------|------|
| | EM8S 13MHz (dBc/Hz) | | -80 | -115 | -135 | -148 |

PART NUMBERING PROCEDURE

Example: **EM8S3-19.44-2.5/-30+75**

Series Description
 TCXO = EM8S
 VCTCXO = VEM8S

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.