

HCMOS, 14 pin DIL, MHz Range

- 14 pin DIL industry-standard package
- Wide frequency range: 1.25MHz to 156.0MHz
- Supply voltage 2.8, 3.0, 3.3 or 5.0 Volts
- Frequency stability from ± 1 ppm over -30 to $+75^\circ\text{C}$



DESCRIPTION

EM14T series TCXOs are packaged in the industry-standard 14 pin DIL package. With squarewave (CMOS) output, tolerances are available from ± 1.0 ppm over -30° to $+75^\circ\text{C}$. The part has a $0.01\mu\text{F}$ decoupling capacitor built in.

SPECIFICATION

| | |
|--------------------------------|---|
| Product Series Code | TCXO: EM14T VCTCXO: VEM14T |
| Frequency Range: | 1.25MHz to 156.0MHz |
| Output Waveform: | Squarewave, HCMOS |
| Initial Calibration Tolerance: | $< \pm 1.0$ ppm at $+25^\circ \pm 2^\circ\text{C}$ |
| Standard Frequencies: | 10.0, 12.8, 13.0, 14.4, 15.36, 16.384, 19.2, 19.440, 19.68, 25.0, 20.0, 27.0, 38.880, 40.0, 77.760, 125.0, 155.520 (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 (SMD type): | ± 1.0 ppm max. for one reflow (Measured after 24 hours) |
| Mechanical Frequency Tuning: | ± 3 ppm minimum |
| Supply Voltage: | +2.8, +3.0, +3.3 or +5.0V (See table) |
| Output Logic Levels: | Logic High: 90% Vdd min. Logic Low: 10% Vdd max. |
| Rise and Fall Times: | 10ns max. |
| Duty Cycle: | 50% $\pm 10\%$ standard, 50% $\pm 5\%$ option |
| Start-up Time: | 5ms typical, 10ms max. |
| Current Consumption: | See table below |
| Output Load: | 15pF |
| Storage Temperature: | $-55 \sim +125^\circ\text{C}$ |

FREQUENCY STABILITY

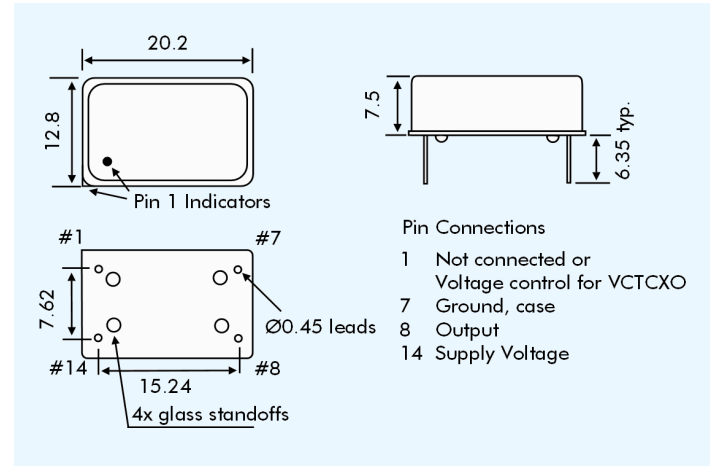
| Frequency Stability (ppm) | | ± 0.5 | ± 1.0 | ± 1.5 | ± 2.0 | ± 2.5 |
|--|-----------|-----------|-----------|-----------|-----------|-----------|
| Temperature Range ($^\circ\text{C}$) | 0 ~ +50 | ASK | ✓ | ✓ | ✓ | ✓ |
| | -10 ~ +60 | x | ✓ | ✓ | ✓ | ✓ |
| | -20 ~ +70 | x | x | ✓ | ✓ | ✓ |
| | -30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

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

VEM14T 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. (Vcon = $+4.5\text{V} \pm 1.0\text{V}$) |
| Slope Polarity: | Positive (increase of control voltage increases output frequency.) |
| Input Impedance: | 50k Ω minimum |
| Modulation Bandwidth: | 20kHz minimum |
| Linearity: | $\pm 10\%$ maximum |

EM14T - OUTLINES AND DIMENSIONS



INPUT VOLTAGE & CURRENT CONSUMPTION

| Input Voltage/ Frequency | +2.8V | +3.0 | +3.3V | +5.0 V |
|-----------------------------|-------|------|-------|--------|
| 8.192MHz | 2mA | 2mA | 2mA | 5mA |
| 10.0MHz | 3mA | 4mA | 4mA | 7mA |
| 77.760MHz | 14mA | 17mA | 17mA | 32mA |
| 155.520MHz | 26mA | 35mA | 35mA | 50mA |

SSB PHASE NOISE at 25 $^\circ\text{C}$

| Offset | | 10Hz | 100Hz | 1kHz | 10kHz | 100kHz |
|----------------|------------------------|------|-------|------|-------|--------|
| Part = EM14T33 | at 10.0MHz (dBc/Hz) | -115 | -135 | -148 | -152 | -155 |
| | at 155.250MHz (dBc/Hz) | -72 | -110 | -125 | -132 | -125 |

PART NUMBERING SCHEDULE

