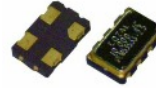


HCMOS TCXO 3.2 x 2.5mm SMD

1.25MHz to 156.0MHz

- Miniature 3.2 x 2.5 x 1.3mm SMD 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 $+75^\circ\text{C}$
- RoHS compliant



DESCRIPTION

EM32T series TCXOs are packaged in a miniature, 3.2 x 2.5mm outline, 4 pad ceramic SMD 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: EM32T VCTCXO: VEM32T
Frequency Range:	1.25MHz to 156.0MHz
Output Waveform:	Squarewave, HCMOS
Initial Calibration Tolerance:	$< \pm 2.0$ 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 <i>(Partial list)</i>
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 <i>(Measured after 24 hours)</i>
Supply Voltage:	+2.8, +3.0, +3.3 or +5.0V <i>(See table)</i>
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

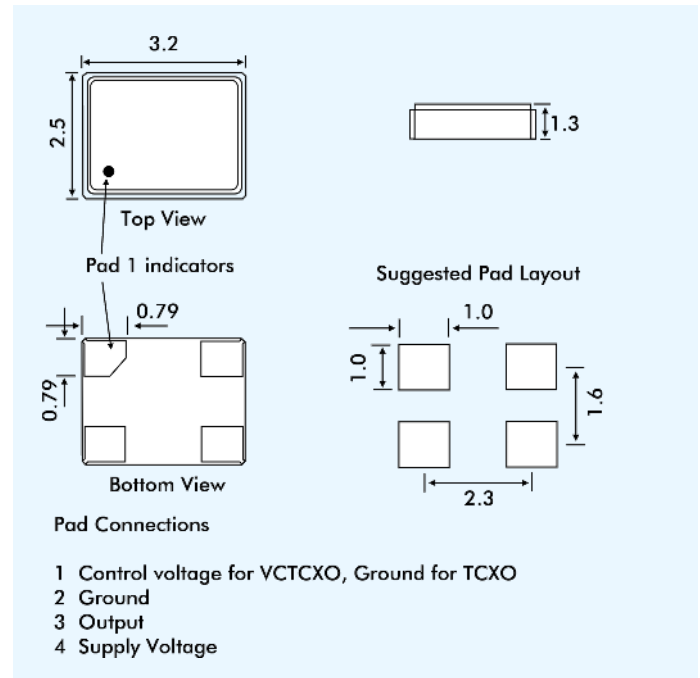
Frequency Stability (ppm)		± 0.5	± 1.0	± 1.5	± 2.0	± 2.5
Temperature Range ($^\circ\text{C}$)	0 ~ +50	✓	✓	✓	✓	✓
	-10 ~ +60	ASK	✓	✓	✓	✓
	-20 ~ +70	x	✓	✓	✓	✓
	-30 ~ +75	x	✓	✓	✓	✓
	-40 ~ +85	x	✓	✓	✓	✓

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

INPUT VOLTAGE & CURRENT CONSUMPTION

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

EM32T - OUTLINES AND DIMENSIONS



VEM32T VOLTAGE CONTROL SPECIFICATION

Control Voltage:	Standard = $+1.5 \pm 1.0$ Volts for all input voltages. <i>(Contact technical sales if $+2.5 \pm 2.0$ Volts is required.)</i>
Frequency Deviation:	± 6.0 ppm min. ($V_{con} = +4.5V \pm 1.0V$)
Slope Polarity:	Positive <i>(increase of control voltage increases output frequency.)</i>
Input Impedance:	50k Ω minimum
Modulation Bandwidth:	20kHz minimum
Linearity:	$\pm 10\%$ maximum

SSB PHASE NOISE at 25°C

		Offset	10Hz	100Hz	1kHz	10kHz	100kHz
Part = M53T33	at 10.0Mhz (dBc/Hz)		-96	-122	-138	-145	-150
	at 155.250Mhz (dBc/Hz)		-68	-96	-110	-117	-112

PART NUMBERS

Example:

EM32T33-38.880-2.5/-30+75

Series Description
TCXO = EM32T
VCTCXO = VEM32T

Supply Voltage
28 = 2.8VDC
3 = 3.0VDC
33 = 3.3 VDC
5 = 5.0 VDC

Frequency (MHz)
Stability over OTR (\pm ppm)
Operating Temperature Range (OTR) ($^\circ\text{C}$)
(Lower and upper limits.)