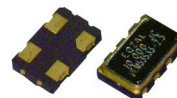


CMOS 5 x 3.2 x 2.5mm SMD, MHz Range 1.25MHz to 156.0MHz

- Miniature 5 x 3.2 x 2.5mm 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 $\pm 1\text{ppm}$ over -30 to $+75^\circ\text{C}$
- RoHS compliant



DESCRIPTION

EM53T series TCXOs are packaged in a miniature 4 pad ceramic SMD package. With squarewave (CMOS) output, tolerances are available from $\pm 1.0\text{ppm}$ 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: EM53T VCTCXO: VEM53T
Frequency Range:	1.25MHz to 156.0MHz
Output Waveform:	Squarewave, HCMOS
Initial Calibration Tolerance:	$\leq \pm 2.0\text{ppm}$ 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:	$\pm 1.0\text{ ppm max. first year}$
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 (SMD type):	$\pm 1.0\text{ppm max. for one reflow (Measured after 24 hours)}$
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

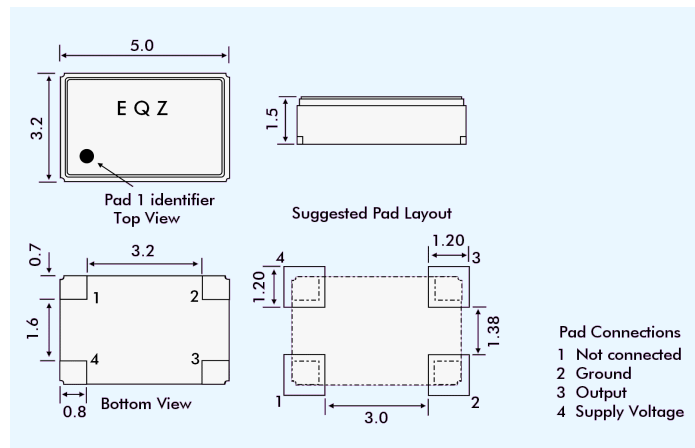
Frequency Stability (ppm)		± 0.5	± 1.0	± 1.5	± 2.0	± 2.5
Temperature Range ($^\circ\text{C}$)	0 ~ +50	ASK	✓	✓	✓	✓
	-10 ~ +60	x	✓	✓	✓	✓
	-20 ~ +70	x	x	✓	✓	✓
	-30 ~ +75	x	x	x	✓	✓
	-40 ~ +85	x	x	x	x	✓

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

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

EM53T - OUTLINES AND DIMENSIONS



VEM53T 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:	$\pm 6.0\text{ ppm min.}$ ($V_{con} = +4.5\text{V} \pm 1.0\text{V}$)
Slope Polarity:	Positive (increase of control voltage increases output frequency.)
Input Impedance:	50k Ω minimum
Modulation Bandwidth:	20kHz minimum
Linearity:	$\pm 10\%$ maximum

SSB PHASE NOISE at 25°C

Offset	10Hz	100Hz	1kHz	10kHz	100kHz
Part = M53T33					
at 10.0MHz (dBc/Hz)	-115	-135	-148	-152	-155
at 155.250MHz (dBc/Hz)	-72	-110	-125	-132	-125

PART NUMBERING PROCEDURE

Example: **EM53T33-38.880-2.5/-30+75**

Series Description

TCXO = EM53T

VCTCXO = VEM53T

Supply Voltage

28 = 2.8VDC

3 = 3.0VDC

33 = 3.3 VDC

5 = 5.0 VDC

Frequency (MHz)

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

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

Lower and upper limits.