

CMOS TCXO 3.2 x 2.5 x 1.0mm SMD

- Miniature 3.2 x 2.5 x 1.0mm SMD package
- Frequency range: 8.192MHz to 40.0MHz
- Supply voltage 2.5, 3.0 or 3.3Volts
- Frequency stability from ± 0.5 ppm over 0 to +50°C
- RoHS compliant



DESCRIPTION

M32T series TCXOs are packaged in a miniature 4 pad ceramic SMD package. With squarewave (CMOS) output, tolerances are available from ± 0.5 ppm over 0° to +50°C. The part has a 0.01 μ F decoupling capacitor built in.

SPECIFICATION

Product Series Code

Standard TCXO:	M32T
Voltage-controlled TCXO (VCTCXO):	VM32T
Frequency Range:	1.25MHz to 38.4MHz
Output Waveform:	Square wave, HCMOS
Initial Calibration Tolerance	$< \pm 2$ ppm at 25 ± 2 °C
Standard Frequencies:	10.0, 12.8, 13.0, 14.4, 15.36, 16.384, 19.2, 19.440, 19.68, 20.0, 25.0, 27.0 (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:	± 1 ppm max. for one reflow (Measured after 24 hours)

Supply Voltage:

Output Logic Levels

Logic High '1':	90% V _{DD} minimum
Logic Low '0':	10% V _{DD} maximum

Rise/Fall Times:

10ns maximum

Duty Cycle:

50 $\pm 10\%$ standard, 50 $\pm 5\%$ available

Start-up Time:

5ms typical, 10ms max.

Current Consumption:

6mA maximum

Output Load:

15pF

Storage Temperature:

-50° to +100°C

RoHS Status:

RoHS Compliant and lead free

FREQUENCY STABILITY vs TEMPERATURE

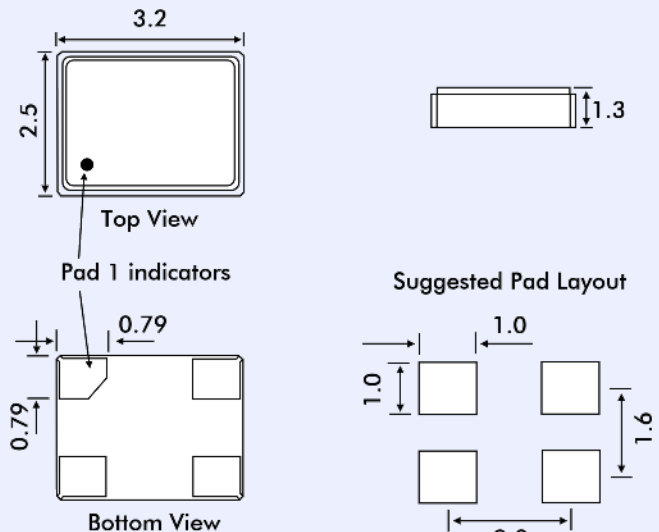
Frequency Stability (ppm)		± 0.5	± 1.0	± 1.5	± 2.0	± 2.5
Temperature Range (°C)	0° ~ +50°C	✓	✓	✓	✓	✓
	-10° ~ +60°C	ASK	✓	✓	✓	✓
	-20° ~ +70°C	x	✓	✓	✓	✓
	-30° ~ +75°C	x	✓	✓	✓	✓
	-30° ~ +85°C	x	✓	✓	✓	✓
	-40° ~ +85°C	x	ASK	✓	✓	✓

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

SSB PHASE NOISE at 25°C

Offset:	10Hz	100Hz	1kHz	10kHz	100kHz
Fr. 10.000MHz	-96dBc/Hz	-122dBc/Hz	-138dBc/Hz	-145dBc/Hz	-150dBc/Hz

M32T - OUTLINE AND DIMENSIONS



Pad Connections

- 1 Control voltage for VCTCXO, Ground for TCXO
- 2 Ground
- 3 Output
- 4 Supply Voltage

VM32T VOLTAGE CONTROL SPECIFICATION

Control Voltage:	Standard = +1.5 ± 1.0 Volts for all input voltages. (Contact technical sales if +2.5 ± 2.0 Volts is required.)
Frequency Deviation:	± 5.0 ppm min. V _{con} = +1.5 ± 1.0 V
Slope Polarity:	Positive (increase of control voltage increases output frequency.)
Input Impedance:	50M Ω min.
Modulation Bandwidth:	20.0kHz min.
Linearity:	$\pm 10\%$ max.

PART NUMBERING PROCEDURE

Example:

M32T33-10.000-2.5/-30+75

Series Description

TCXO = M32T

VCTCXO = VM32T

Supply Voltage

25 = 2.5VDC

3 = 3.0VDC

33 = 3.3 VDC

Frequency (MHz)

Stability over OTR (\pm ppm)

Operating Temperature Range (OTR) (°C)

(Lower and upper limits)