

- Package pin outs compatible with 14 pin DIL
- Frequency range: 20.0 to 50.0kHz; 32.768kHz
- Supply voltage 3.3 or 5.0 Volts
- Frequency stability from ± 1 ppm over -30 to $+75^{\circ}\text{C}$
- RoHS compliant



DESCRIPTION

EM38GT series TCXOs are packaged in a miniature 6 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: EM38GT VCTCXO: VEM38GT
Frequency Range:	32.768kHz Standard frequency 20.0kHz to 50.0kHz
Output Waveform:	Squarewave
Initial Calibration Tolerance	
Models with mech. trimmer:	< 1.0 ppm (at t. $25^{\circ}\pm 2^{\circ}\text{C}$)
Models without trimmer:	< 2.0 ppm (at t. $25^{\circ}\pm 2^{\circ}\text{C}$)
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:	+3.3 or +5.0Volts (Specify when ordering)
Output Logic Levels:	Logic High: 90% Vdd min. Logic Low: 10% Vdd max.
Rise and Fall Times:	10ns max.
Duty Cycle:	$50\% \pm 5\%$
Start-up Time:	2ms typical, 5ms max.
Current Consumption:	See table below
Output Load:	15pF
Storage Temperature:	$-55 \sim +125^{\circ}\text{C}$

FREQUENCY STABILITY

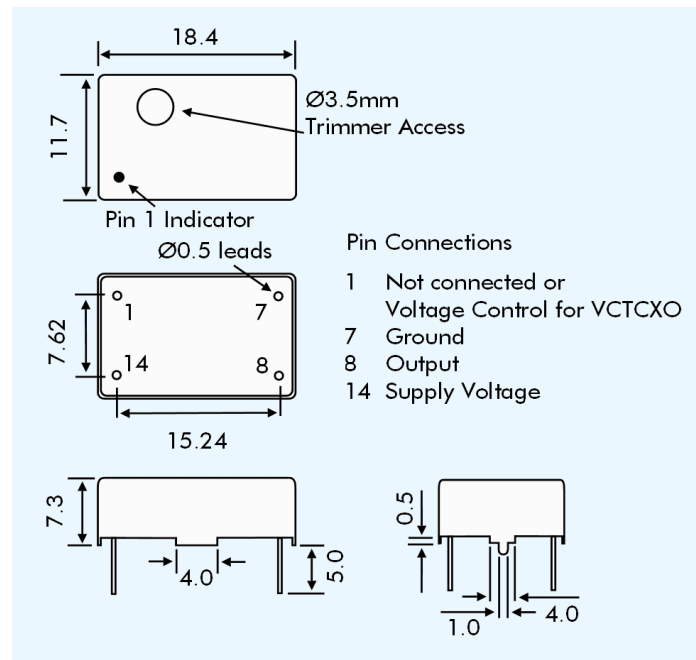
Frequency Stability (ppm)	± 0.5	± 1.0	± 1.5	± 2.0	± 2.5
Temperature Range ($^{\circ}\text{C}$)					
0 ~ +50	ASK	✓	✓	✓	✓
-10 ~ +60	x	✓	✓	✓	✓
-20 ~ +70	x	x	✓	✓	✓
-30 ~ +75	x	x	x	✓	✓
-40 ~ +85	x	x	x	x	✓

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

CURRENT CONSUMPTION

Frequency	+3.3 V
32.768kHz	8.0mA
50kHz	12mA

EM38GT - OUTLINES AND DIMENSIONS



VEM38GT 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.
Slope Polarity:	Positive (increase of control voltage increases output frequency.)
Input Impedance:	10k Ω min.
Modulation Bandwidth:	3.0kHz min. measured at -3dB
Linearity:	10% max.

PART NUMBERING PROCEDURE

Example: **EM38GT33-32.768k-2.5/-30+75**

Series Description
 TCXO = EM38GT
 VCTCXO = VEM38GT
 Supply Voltage
 33 = 3.3 VDC
 5 = 5.0 VDC
 Frequency (kHz)
 Stability over OTR ($\pm$ ppm)
 Operating Temperature Range (OTR) ($^{\circ}\text{C}$)
 Lower and upper limits.