

## CMOS 4 pad SMD, kHz Range

## 20.0kHz to 52.7kHz

- Miniature 11.4 x 9.6 x 4.7mm SMD package
- Frequency range: 20.0 to 50.0kHz; 32.768kHz
- Supply voltage 3.3 or 5.0 Volts
- Frequency stability from  $\pm 1$ ppm over  $-30$  to  $+75^\circ\text{C}$
- RoHS compliant



### DESCRIPTION

EM44GT series TCXOs are packaged in a miniature 4 pad ceramic SMD package. With squarewave (CMOS) output, tolerances are available from  $\pm 1.0$ ppm over  $-30^\circ$  to  $+75^\circ\text{C}$ . The part has a  $0.01\mu\text{F}$  decoupling capacitor built in.

### SPECIFICATION

Product Series Code	TCXO: EM44GT VCTCXO: VEM44GT
Frequency Range:	32.768kHz Standard frequency 20.0kHz to 50.0kHz
Output Waveform:	Squarewave
Initial Calibration Tolerance	
Models with mech. trimmer:	<1.0ppm (at t. $25^\circ\pm 2^\circ\text{C}$ )
Models without trimmer:	<2.0ppm (at t. $25^\circ\pm 2^\circ\text{C}$ )
Operating Temperature Range:	See table
Frequency Stability	
vs. Ageing:	$\pm 1.0$ ppm max. first year
vs. Voltage Change:	$\pm 0.3$ ppm max. $\pm 5\%$ change
vs. Load Change:	$\pm 0.3$ ppm max. $\pm 10\%$ change
vs. Reflow:	$\pm 1$ 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

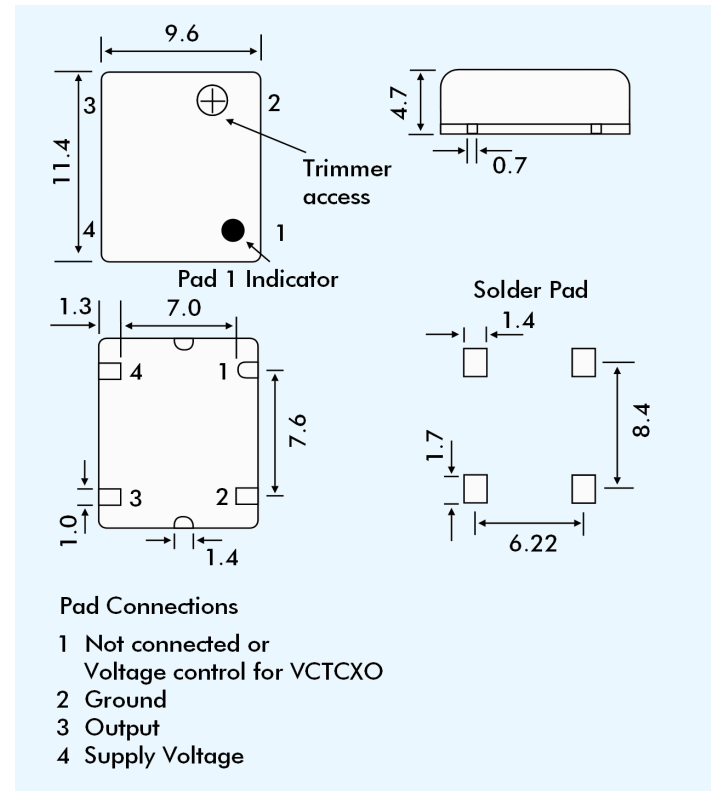
Frequency Stability (ppm)		$\pm 0.5$	$\pm 1.0$	$\pm 1.5$	$\pm 2.0$	$\pm 2.5$
Temperature Range ( $^\circ\text{C}$ )	0 ~ +50	ASK	✓	✓	✓	✓
	-10 ~ +60	x	✓	✓	✓	✓
	-20 ~ +70	x	x	✓	✓	✓
	-30 ~ +75	x	x	x	✓	✓
	-40 ~ +85	x	x	x	x	✓

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

### CURRENT CONSUMPTION

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

### EM44GT - OUTLINES AND DIMENSIONS



### VEM44GT 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:	$\pm 6.0$ ppm min.
Slope Polarity:	Positive (increase of control voltage increases output frequency.)
Input Impedance:	10k $\Omega$ min.
Modulation Bandwidth:	3.0kHz min. measured at -3dB
Linearity:	10% max.

### PART NUMBERING PROCEDURE

Example: **EM44GT33-32.768k-2.5/-30+75**

Series Description  
 TCXO = EM44GT  
 VCTCXO = VEM44GT  
 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.