

- Miniature 11.4 x 9.6 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  $\pm 1$ ppm over -30 to +75°C
- RoHS compliant

## DESCRIPTION

EM62GT series TCXOs are packaged in a miniature 6 pad ceramic SMD package. With squarewave (CMOS) output, tolerances are available from  $\pm 1.0$ ppm over -30° to +75°C. The part has a 0.01 $\mu$ F decoupling capacitor built in.

## SPECIFICATION

|                                |                                                                                                                                   |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Product Series Code            | TCXO: EM62GT<br>VCTCXO: VEM62GT                                                                                                   |
| Frequency Range:               | 1.25MHz to 156.0MHz                                                                                                               |
| Output Waveform:               | Squarewave, HCMOS                                                                                                                 |
| Initial Calibration Tolerance: | $< \pm 1.0$ ppm at +25 $\pm 2^\circ$ 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:                    | $\pm 1.0$ 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 (SMD type):         | $\pm 1.0$ ppm max. for one reflow (Measured after 24 hours)                                                                       |
| Mechanical Frequency Tuning:   | $\pm 3$ ppm minimum                                                                                                               |
| Supply Voltage:                | +2.8, +3.0, +3.3 or +5.0V (See table)                                                                                             |
| Output Logic Levels:           | Logic High: 90% Vdd min.<br>Logic Low: 10% Vdd max.                                                                               |
| Rise and Fall Times:           | 10ns max.                                                                                                                         |
| Duty Cycle:                    | 50% $\pm 10\%$ standard,<br>50% $\pm 5\%$ option                                                                                  |
| Start-up Time:                 | 5ms typical, 10ms max.                                                                                                            |
| Current Consumption:           | See table below                                                                                                                   |
| Output Load:                   | 15pF                                                                                                                              |
| Storage Temperature:           | -55~+125°C                                                                                                                        |

## FREQUENCY STABILITY

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

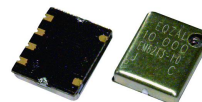
✓ = available, x = not available, ASK = call Technical Sales

## VEM62GT VOLTAGE CONTROL SPECIFICATION

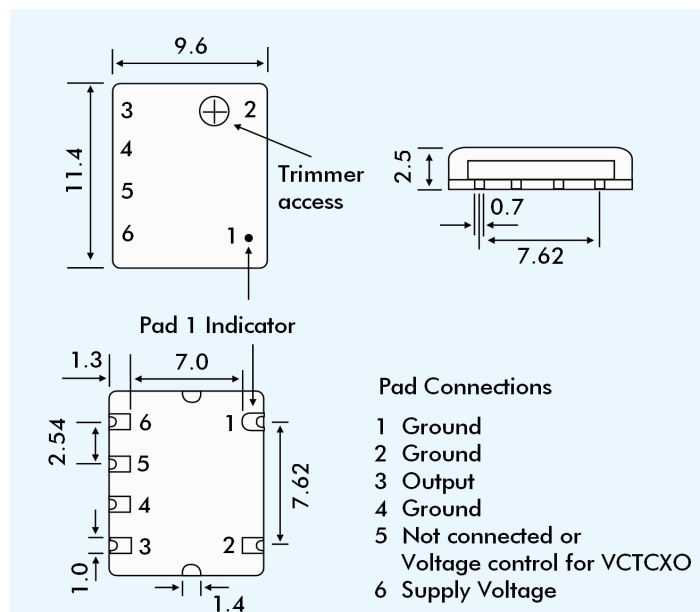
|                       |                                                                                                                        |
|-----------------------|------------------------------------------------------------------------------------------------------------------------|
| Control 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. (Vcon = +4.5V $\pm 1.0$ V)                                                                          |
| Slope Polarity:       | Positive (increase of control voltage increases output frequency.)                                                     |
| Input Impedance:      | 50k $\Omega$ minimum                                                                                                   |
| Modulation Bandwidth: | 20kHz minimum                                                                                                          |
| Linearity:            | $\pm 10\%$ maximum                                                                                                     |

# EM62GT Series TCXO

## HCMOS, 6 pad SMD, MHz Range



## EM62GT - OUTLINES AND DIMENSIONS



## INPUT VOLTAGE & CURRENT CONSUMPTION

| Input Voltage/<br>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   |

## SSB PHASE NOISE at 25°C

| Offset         |                        | 10Hz | 100Hz | 1kHz | 10kHz | 100kHz |
|----------------|------------------------|------|-------|------|-------|--------|
| Part = M62GT33 | at 10.0Mhz (dBc/Hz)    | -115 | -135  | -148 | -152  | -155   |
|                | at 155.250Mhz (dBc/Hz) | -72  | -110  | -125 | -132  | -125   |

## PART NUMBERING PROCEDURE

Example: **EM62GT33-38.880-2.5/-30+75**

Series Description  
TCXO = EM62GT  
VCTCXO = VEM62GT

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) (°C)  
Lower and upper limits.