EM22S TCXO

2.5 x 2.0mm SMD Clipped Sinewave TCXO 10MHz to 52MHz

- **Miniature SMD 2.5x2.0mm package**
- **Frequency range: 10MHz to 52MHz**
- **Close tolerance stability available from ±0.5ppm**
- **Supply voltage 1.8,2.5V, 2.8,3.0, 3.3VDC**
- **Very low power consumption**

DESCRIPTION

(V)EM22S series TCXOs are packaged in a miniature 2.0x1.6mm ceramic SMD case. With clipped sinewave output, tolerances are available from ±1.0ppm over -40° to +85°C. The part exhibits low supply current, 3.5mA max. 3.3V 52MHz.

SPECIFICATION

Product Series Code	
TCXO:	EM22S
VCTCXO:	VEM22S
Frequency Range:	10MHz to 52MHz
Output Waveform:	Clipped Sine
Initial Calibration Tolerance:	<±1ppm at 25°C
Standard Frequencies:	10.0, 12.8, 13.0, 14.40, 14.7456, 15.36, 16.367667, 16.384, 19.2, 19.44,20.0, 25.0, 26.0, 27.0 MHz
Operating Temperature Stab:	See table
Frequency Stability vs. Ageing:	±1.0 ppm max/Year at 25°C
vs. Voltage Change:	±0.2 ppm max. ±5% change
vs. Load Change:	±0.2 ppm max. ±10% change
vs. Reflow (SMD type):	±1.0ppm max. for one reflow *(measured after 24 hours)*
Supply Voltage:	+2.5VDC±5%, +3.0VDC ±5% +3.3Volts ±5% +5VDC ±5%
Start-up Time:	5ms typical, 10ms max.
Output Load:	10kΩmax./10pF ±10%
Current Consumption:	2.5mA max.
Harmonic Distortion:	-10dB typical, -7dB max.
Storage Temperature:	-40°C to +85°C

FREQUENCY STABILITY OVER OPERATING TEMP

Stability	0.5ppm	1.0ppm	1.5ppm	2.0ppm	2.5ppm	3.0ppm
0°C to+50°C:	√	√	√	√	√	√
-10°C to +60°C:	Ask	√	√	√	√	√
-20°C to +70°C:	Ask	√	√	√	√	√
-30°C to +75°C:	Ask	√	√	√	√	√
-30°C to +85°C:	Ask	√	√	√	√	√
-40°C to +85°C:	Ask	Ask	√	√	√	√

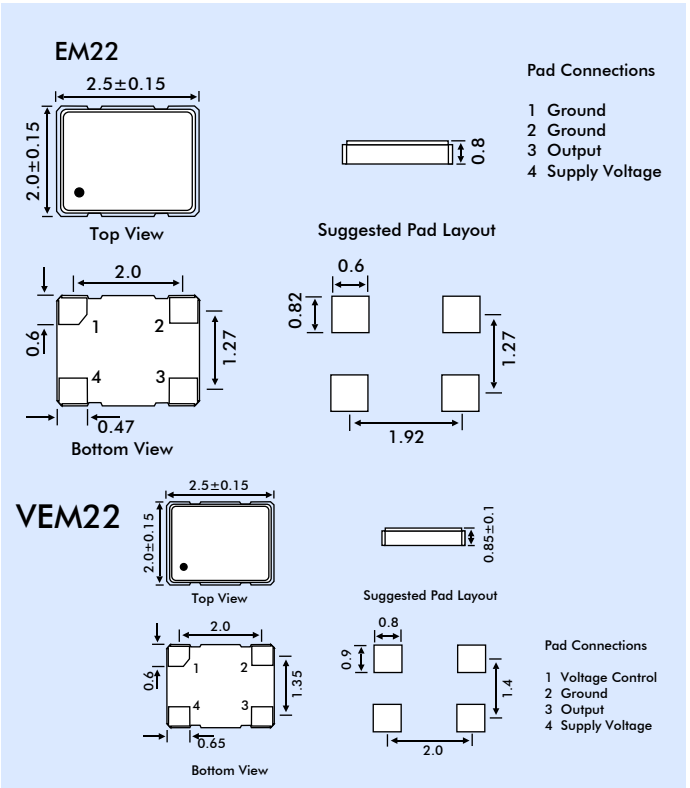
VEM53S VOLTAGE CONTROL SPECIFICATION

Control Voltage	
Vdd = +2.5V:	Vcon centre = +1.4V ±1V
Vdd = +3.3V/5V:	Vcon centre = +1.5V ±1V
Frequency Pulling Range:	±5 ppm min.
Slope Polarity:	Positive *(increase of control voltage increases output freq.*
Linearity:	±5% typical ±10% max.
Input Impedance:	1MΩ typical
Modulation Bandwidth:	10kHz min. measured at +3dB

SSB PHASE NOISE at 25°C

Offset		10Hz	100Hz	1kHz	10kHz	100kHz
Test Frequencyy 13.0MHz	(dBc/Hz)	-80	-115	-135	-148	-148

EM22S- OUTLINES AND DIMENSIONS



PART NUMBERS

Example: **VEM22S 33-38.120-1.5/-30+75**

Series Description
TCXO = EM22S
VCTCXO = VEM22S

Supply Voltage
3.3V = 33
3.0V = 3
2.8V = 28
2.5V = 25
1.8V = 18

Frequency (MHz)

Stability over OTR (±ppm)

Operating Temperature Range (OTR) (°C)
(Lower and upper limits.)

Issue 3

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