EM15T Series TCXO

HCMOS, 14 pin DIL, MHz Range

- **14 pin DIL industry-standard package with trimmer**
- **Wide frequency range: 1.25MHz to 156.0MHz**
- **Supply voltage 2.8, 3.0, 3.3 or 5.0 Volts**
- **Frequency stability from ±1ppm over -30 to +75°C**



DESCRIPTION

EM15T series TCXOs are packaged in the industry-standard 14 pin DIL package. With squarewave (CMOS) output, tolerances are available from ±1.0ppm over -30° to +75°C. The part has a 0.01µF decoupling capacitor built in.

SPECIFICATION

Product Series Code	
TCXO:	EM15T
VCTCXO:	VEM15T
Frequency Range:	1.25MHz to 156.0MHz
Output Waveform:	Squarewave, HCMOS
Initial Calibration Tolerance:	<±1.0ppm at +25°±2°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:	±1.0 ppm max. first year
vs. Voltage Change:	±0.3 ppm max. ±5% change
vs. Load Change:	±0.3 ppm max. ±10% change
vs. Reflow (SMD type):	±1.0ppm max. for one reflow (*Measured after 24 hours*)
Mechanical Frequency Tuning:	±3ppm minimum
Supply Voltage:	+2.8, +3.0, +3.3 or +5.0V (*See table*)
Output Logic Levels:	Logic High: 90% Vdd min. Logic Low: 10% Vdd max.
Rise and Fall Times:	10ns max.
Duty Cycle:	50%±10% standard, 50%±5% option
Start-up Time:	5ms typical, 10ms max.
Current Consumption:	*See table below*
Output Load:	15pF
Storage Temperature:	-55~+125°C

FREQUENCY STABILITY

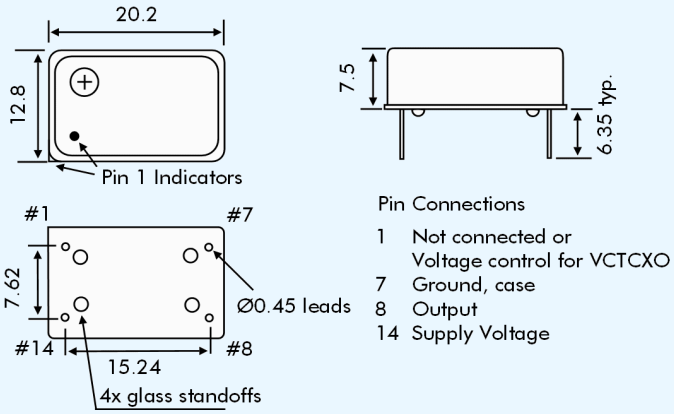
Frequency Stability (ppm)		±0.5	±1.0	±1.5	±2.0	±2.5
Temperature Range (°C)	0 ~ +50	ASK	✓	✓	✓	✓
	-10 ~ +60	x	✓	✓	✓	✓
	-20 ~ +70	x	x	✓	✓	✓
	-30 ~ +75	x	x	x	✓	✓
	-40 ~ +85	x	x	x	x	✓

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

VEM15T VOLTAGE CONTROL SPECIFICATION

Control Voltage:	Standard = +1.5±1.0Volts for all input voltages. (*Contact technical sales if +2.5±2.0 Volts is required.*)
Frequency Deviation:	±6.0 ppm min. (Vcon = +4.5V±1.0V)
Slope Polarity:	Positive (*increase of control voltage increases output frequency.*)
Input Impedance:	50kΩ minimum
Modulation Bandwidth:	20kHz minimum
Linearity:	±10% maximum

EM15T - OUTLINES AND DIMENSIONS



INPUT VOLTAGE & CURRENT CONSUMPTION

Input Voltage/ Frequency	+2.8V	+3.0	+3.3V	+5.0 V
8.192MHz	2mA	2mA		5mA
10.0MHz	3mA	4mA		7mA
77.760MHz	14mA	17mA		32mA
155.520MHz	26mA	35mA		50mA

SSB PHASE NOISE at 25°C

Offset		10Hz	100Hz	1kHz	10kHz	100kHz
Part = EM15T33	at 10.0Mhz (dBc/Hz)	-115	-135	-148	-152	-155
	at 155.250Mhz (dBc/Hz)	-72	-110	-125	-132	-125

PART NUMBERING SCHEDULE

Example: **EM15T33-38.880-2.5/-30+75**

Series Description
TCXO = EM15T
VCTCXO = VEM15T

Supply Voltage
28 = 2.8VDC
3 = 3.0VDC
33 = 3.3 VDC
5 = 5.0 VDC

Frequency (MHz)

Stability over OTR (±ppm)

Operating Temperature Range (OTR) (°C)

Lower and upper limits.

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