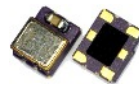
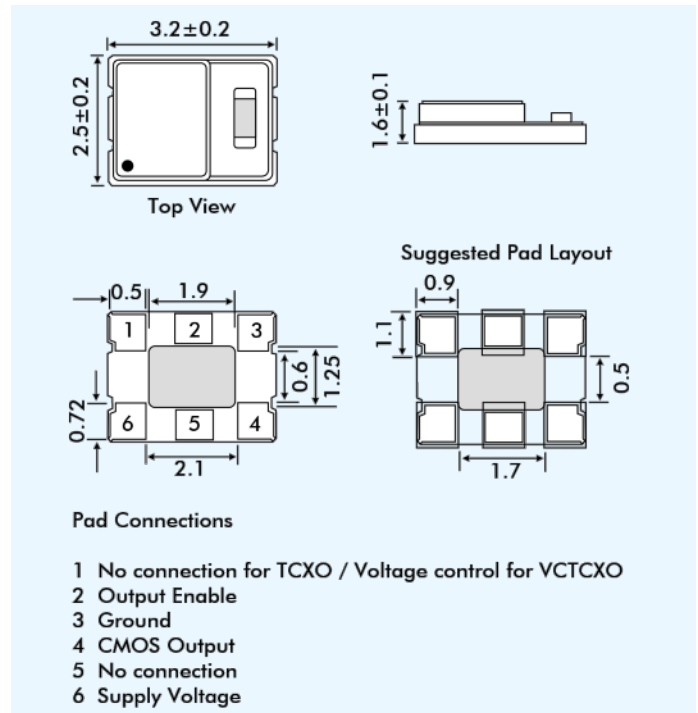


- 1.5ps phase jitter
- Quick turnaround, low-cost TCXO
- Miniature 3.2 x 2.5 x 1.3mm SMD package
- Supply voltage 2.5V or 3.3 VDC
- Frequency stability from ± 1 ppm over -40 to +85°C



EMQF326T - OUTLINES AND DIMENSIONS



DESCRIPTION

(V)EMQF326T series TCXOs are packaged in a miniature, 3.2 x 2.5mm outline, ceramic SMD package. With squarewave (LVCMOS) output, tolerances are available from ± 1.0 ppm over -40° to +85°C. The part exhibits low supply current, 25mA typ. at 50MHz.

SPECIFICATION

Product Series Code	TCXO:	EMQF326T
	VCTCXO:	VEMQF326T
Frequency Range:	10.0MHz to 245MHz	
Output Waveform:	Squarewave, LVCMOS	
Phase jitter rms	12kHz to 20MHz:	1.5ps typical
	1.875MHz to 20MHz:	<400fs
Initial Calibration Tolerance:	< ± 1.0 ppm at +25°±2°C	
Operating Temperature Range:	from 0°~50° to -40°~+85°C	
Frequency Stability	vs. Temperature:	± 2.5 ppm over -30 to 85°C (Default)
		± 0.5 ppm over -30 to 85°C (Available)
		± 1.0 ppm over -40 to 85°C (Available)
	vs. Ageing:	± 1.0 ppm max. first year
	vs. Voltage Change:	± 0.2 ppm max. $\pm 5\%$ change
	vs. Load Change:	± 0.2 ppm max. $\pm 10\%$ change
	vs. Reflow (SMD type):	± 1.0 ppm max. for one reflow (measured after 24 hours)
Supply Voltage:	+2.5VDC±5% or +3.3Volts ±5%	
Output Logic Levels:	Logic High: 90% Vdd min. Logic Low: 10% Vdd max.	
Rise/Fall Times:	1.5ns typ. 3.0ns max.	
Duty Cycle:	50%±5% standard,	
Start-up Time:	5ms typical, 10ms max.	
Output Load:	15pF	
Current Consumption at +2.5V	at 50MHz:	24mA typical
	at 125MHz:	28mA typical
	at 200MHz:	30mA typical
Current Consumption at +3.3V	at 50MHz:	26mA typical
	at 125MHz:	30mA typical
	at 200MHz:	34mA typical
Current when disabled:	18mA typical	

VEMQF326T VOLTAGE CONTROL SPECIFICATION

Control Voltage	Vdd = +2.5V:	Vcon centre = +1.4V
	Vdd = +3.3V:	Vcon centre = +1.5V
V Control Range	Supply = +2.5V:	Vcon range = +1.4V±1.0V
	Supply = +3.3V:	Vcon range = +1.5V±1.0V
Frequency Pulling Range:	± 8 ppm min.	
Slope Polarity:	Positive (increase of control voltage increases output freq.)	
Linearity:	$\pm 5\%$ typical $\pm 10\%$ max.	
Input Impedance:	1MΩ typical	
Modulation Bandwidth:	10kHz min. measured at +3dB	

PART NUMBERS

Example:

EMQF326T33-50.000-2.5/-30+75

Series Description
 TCXO = EMQF326T
 VCTCXO = VEMQF326T

Supply Voltage
 3.3V = 33
 2.5V = 25

Frequency (MHz)

Stability over OTR (\pm ppm)

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

SSB PHASE NOISE at 25°C

Offset	10Hz	100Hz	1kHz	10kHz	100kHz	1 MHz	10 MHz
VMQF326T 156.25MHz	(dBc/Hz)	-57	-94	-105	-112	-113	-134
RMS Jitter	1.5ps (12kHz to 20MHz integrated)						

OUTPUT ENABLE FUNCTION ON PAD 2

OE Control on Pad 2	
Enable:	0.7% Vdd minimum or no connection to enable output
Disable:	0.3%Vdd maximum to disable output (high impedance)
Output Enable Time:	200ns max.
Output Disable Time:	50ns max.

ENVIRONMENTAL PERFORMANCE SPECIFICATIONS

Status:	RoHS Compliant, Pb (lead) free in accordance with EU Directive 2002/95/EC 6/6(2002/95/EC) and WEEE (2002/96/EC)
Moisture Sensitivity:	Level 1 (infinite) according to IPC/JEDEC J-STD-020D.1
Second Level Interconnect:	e4
Storage Temperature Range:	-55° to +125°C
Humidity:	85%RH, 85°C, 48 hours
Fine Leak / Gross Leak:	MIL-STD-202F method 1014, condition A / MIL-STD-883, method 1014, condition C
Solderability:	MIL-STD-202F method 208E
Reflow:	260°C for 10s, x2
Vibration:	MIL-STD-202F method 204, 35g, 50 to 2000Hz
Shock:	MIL-STD-202F method 2133B, test condition E, 1000g ² ½ sinewave
Resistant to Solvents:	MIL-STD-202F method 215
Temperature Cycling:	MIL-STD-883 method 1010
ESD Rating:	Human Body Model (HBM): 1500V min.
Pad Surface Finish:	Gold (Au) 0.3µm to 1.0µm over nickel (N) 1.27µm to 8.89µm
Weight of device:	0.045gm typical

PHASE NOISE PLOT OF VMQF326P33-156.250MHz

VDD = +3.3V, Vcontrol = 0.0V

