EMF576P Series PECL TCXO

PECL 7 x 5 x 2.8mm SMD, 'F' Group Specification

- **Miniature 7 x 5 x 2.8mm ceramic SMD package**
- **Frequency range: 38.880MHz to 432.0MHz**
- **Supply voltage 3.3 Volts**
- **Less than 1ps phase jitter, ideal for SONET, xDSL**
- **RoHS compliant**

DESCRIPTION

EMF576P series TCXOs are packaged in a miniature 6 pad 7 x 5 x 2.8mm ceramic SMD package. With differential PECL 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:	EMF576P
VCTCXO:	VEMF576P
Frequency Range:	38.880MHz to 432.0MHz
Output Waveform:	Differential PECL
Initial Calibration Tolerance:	<±2.0ppm at +25°±2°C
Standard Frequencies:	38.880, 40.0, 50.0, 54.0, 64.0, 65.536, 77.76, 80.0, 100.0, 128.0, 155.250, 160.0, 200.0, 204.8, 311.04, 320.0 and 409.60MHz (*Partial list*)
Operating Temperature Range:	*See table*
Frequency Stability	(*see table*)
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*)
Supply Voltage:	+3.3 Volts
Output Logic Levels	
Logic High:	V_{OH} = 2.275V (min.)
	V_{DD} = -1.025V (min.)
Logic Low:	V_{OL} = 1.680V (max.)
	V_{DD} = -1.620V (max.)
Rise and Fall Times	<150MHz = 0.7ns max, 150 to 320MHz = 0.55ns max. <320MHz = 0.45ns max.
Duty Cycle:	50%±5%
Start-up Time:	5ms typical, 10ms max.
Current Consumption	
38.880 to 100MHz:	75mA max.
100.0 to 320MHz:	90mA max.
320 to 432.0MHz:	100mA max.
Output Load:	50Ω to V_{DD} -2.0 Volts
Storage Temperature:	-55° to +125°C
Phase Jitter (RMS) (12kHz to 20MHz):	0.4ps typ., 0.5ps max

ENABLE/DISABLE FUNCTION

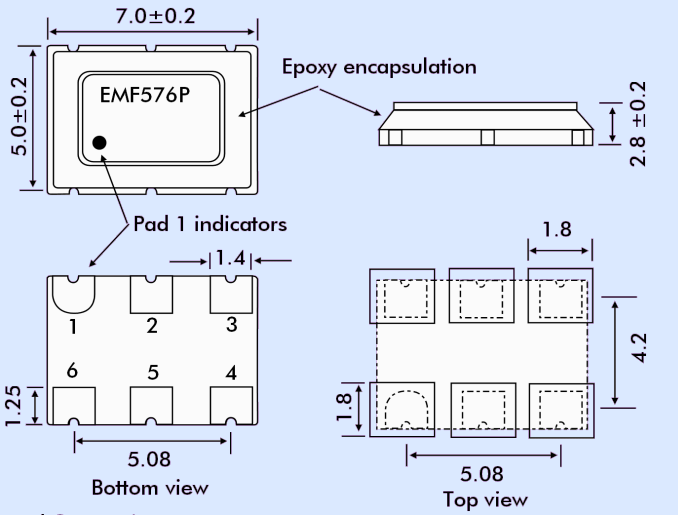
Pad 2 not connected:	PECL and differential PECL outputs enabled.
Disable:	Referenced to Ground (threshold) Oscillator is always on, buffer stage is disabled. Disable current: 50µA max. (at 0.0V), disable time 10ns max.
Enable:	Pad 2 >0.45VCC Ground (threshold) Enable time 10ns plus one period of output freq.

FREQUENCY STABILITY OVER TEMPERATURE

Stability (ppm)		±1.0	±2.0	±2.5	±3.0	±4.0	±5.0
Temp. Range (°C)	0 ~ +50	✓	✓	✓	✓	✓	✓
	-10 ~ +60	ASK	✓	✓	✓	✓	✓
	-20 ~ +70	X	✓	✓	✓	✓	✓
	-30 ~ +75	X	✓	✓	✓	✓	✓
	-40 ~ +85	X	X	X	ASK	ASK	✓

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

EMF576P - OUTLINES AND DIMENSIONS



Pad Connections
1 Not connected for TCXO
Voltage Control for VCTCXO
2 Tri-state
3 Ground
4 PECL Output
5 Complimentary PECL Output
6 Supply Voltage

VEMF576P VOLTAGE CONTROL SPECIFICATION

Control Voltage:	+1.5±1.0Volts
Frequency Deviation:	±6.0 ppm min. with Vcon = +1.5±1.0V
Slope Polarity:	Positive *(increase of control voltage increases output frequency.)*
Linearity:	6% typical, 10% maximum

SSB PHASE NOISE at 25°C

Offset		10Hz	100Hz	1kHz	10kHz	100kHz
Part = EMF576P33	at 155.520MHz (dBc/Hz)	-62	-92	-120	-132	-128
	at 311.020MHz (dBc/Hz)	-59	-86	-116	-129	-124

PERIOD JITTER

Frequency (MHz)	38.880	77.760	155.520	622.080
RMS (typ.)	2.5ps	2.5ps	3.0ps	3.0ps
Peak to Peak	20.0ps	18.0ps	20.0ps	25.0ps

PART NUMBERING SCHEDULE

Example: **EMF576P33-204.80-2.5/-30+75**

Series Description
TCXO = EMF576P
VCTCXO = VEMF576P
Supply Voltage
33 = 3.3 VDC
Frequency (MHz)
Stability over OTR (±ppm)
Operating Temperature Range (OTR) (°C)
Lower and upper limits

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