

LVDS 7 x 5 x 2.8mm SMD, 'F' Group

- Miniature 7 x 5 x 2.8mm ceramic SMD package
- Frequency range: 12.0MHz to 800.0MHz
- Supply voltage 3.3 Volts
- Low cost, low jitter for general applications
- RoHS compliant



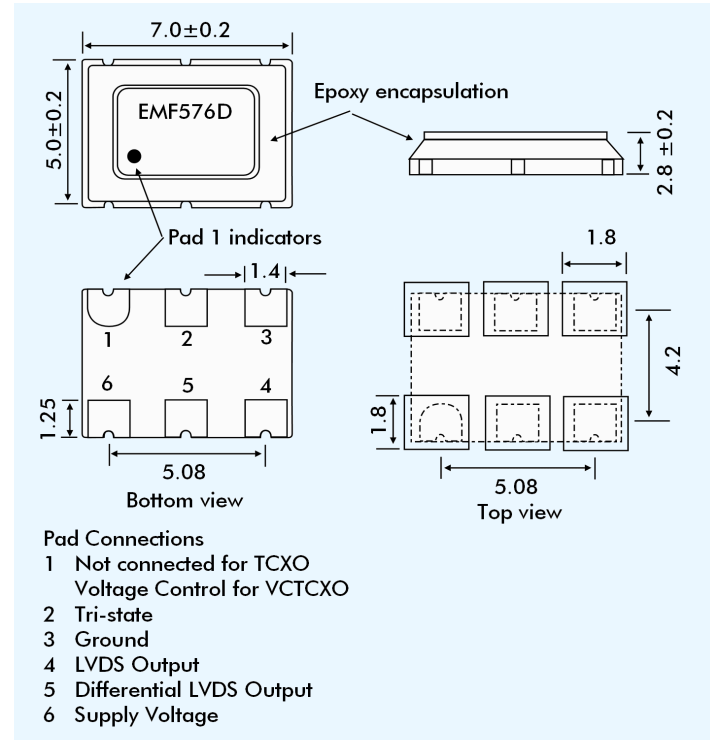
DESCRIPTION

EMF576D series TCXOs are packaged in a miniature 6 pad 7 x 5 x 2.8mm ceramic SMD package. With LVDS output, tolerances are available from ± 1.0 ppm over -30° to $+75^{\circ}$ C. The part has a 0.01 μ F decoupling capacitor built in.

SPECIFICATION

| | |
|--|---|
| Product Series Code | TCXO: EMF576D VCTCXO: VEMF576D |
| Frequency Range: | 12.0MHz to 800.0MHz |
| Output Waveform: | LVDS |
| Initial Calibration Tolerance: | $\leq \pm 2.0$ ppm at $+25^{\circ} \pm 2^{\circ}$ C |
| Standard Frequencies: (Partial list) | 12.8, 16.0, 19.44, 20.0, 25.0, 27.0, 30.0, 32.0, 32.768, 38.880, 40.0, 50.0, 54.0, 64.0, 65.536, 77.76, 80.0, 100.0, 128.0, 155.52, 160.0, 200.0, 204.8, 311.04, 320.0, 409.6, 622.08, and 800.0MHz |
| Operating Temperature Range: | See table |
| Frequency Stability | (see table) |
| vs. Ageing: | ± 1.0 ppm max. first year |
| vs. Voltage Change: | ± 0.3 ppm max. $\pm 5\%$ change |
| vs. Load Change: | ± 0.3 ppm max. $\pm 10\%$ change |
| vs. Reflow (SMD type): | ± 1.0 ppm max. for one reflow (Measured after 24 hours) |
| Supply Voltage: | +3.3 Volts |
| Differential Output Voltage V_{OD} : | 247mV min., 355mV typical; 454mV max., Output 1 - Output 2 |
| Differential Output Error dV_{OD} : | -50mV min., 50mV max. |
| Output Offset Voltage V_{OS} : | 1.125V min., 1.200V typ., 1.375V max. |
| Offset Magnitude Error dV_{OS} : | 0mV min., 3.0mV typ., 25mV max. |
| Rise and Fall Times: | 1.5ns typical |
| Duty Cycle: | 50% $\pm 5\%$ |
| Start-up Time: | 5ms typical, 10ms max. |
| Current Consumption: 12MHz to 24MHz: | < 33 mA max., 24MHz to 96MHz: < 50 mA max., 96MHz to 800MHz: < 85 mA max. |
| Output Load: | 50 Ω from each load |
| Drive Capability: | 100W between LVDS and Complementary LVDS |
| Storage Temperature: | -55° to $+125^{\circ}$ C |
| Phase Jitter (RMS) (12kHz to 20MHz): | 0.4ps typ., 0.5ps max |

EMF576D - OUTLINES AND DIMENSIONS



VEMF576D VOLTAGE CONTROL SPECIFICATION

| | |
|----------------------|--|
| Control Voltage: | $+1.5 \pm 1.0$ Volts |
| Frequency Deviation: | ± 6.0 ppm min. with $V_{con} = +1.5 \pm 1.0$ V |
| 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 = EMF576D33 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 | 311.020 |
|-----------------|--------|--------|---------|---------|
| RMS (typ.) | 2.5ps | 2.5ps | 3.0ps | 3.0ps |
| Peak to Peak | 18.0ps | 18.0ps | 20.0ps | 25.0ps |

PART NUMBERING SCHEDULE

Example: **EMF576D33-155.52-2.5/-30+75**

Series Description

TCXO = EMF576D

VCTCXO = VEMF576D

Supply Voltage

33 = 3.3 VDC

Frequency (MHz)

Stability over OTR (\pm ppm)

Operating Temperature Range (OTR) ($^{\circ}$ C)

Lower and upper limits

ENABLE/DISABLE FUNCTION

Pad 2 not connected: LVDS and Differential LVDS outputs enabled.

Disable: Pad 2 taken below 0.45V_{cc} referenced to Ground. Osc. is always on, only buffer stage is disabled. Disable current: 50 μ A max. (at 0.0V). Disable time: 10ns max.

Enable: Pad 2 taken above 0.45V ref. to Ground. Enable time: 10ns max.

FREQUENCY STABILITY OVER TEMPERATURE

| Stability (ppm) | ± 1.0 | ± 2.0 | ± 2.5 | ± 3.0 | ± 4.0 | ± 5.0 |
|-----------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Temp. Range ($^{\circ}$ 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