

CMOS TCXO 11.4 x 9.6 x 3.0mm SMD

40MHz to 156MHz

- Industry-standard 11.4 x 9.6 x 3.0mm SMD package
- Frequency range: 40MHz to 156.0MHz
- Supply voltage 2.5, 3.0, 3.3 or 5.0 Volts
- Frequency stability from ± 0.5 ppm
- RoHS compliant



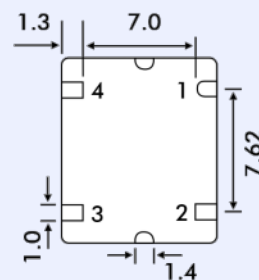
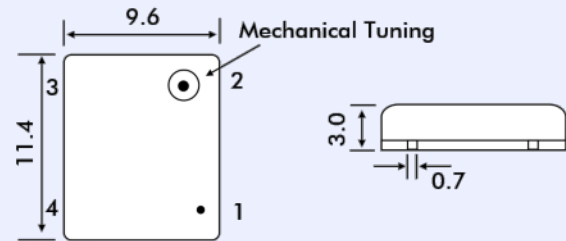
DESCRIPTION

ML43T series TCXOs are packaged in an industry-standard 4 pad SMD package. With squarewave (CMOS) output, tolerances are available from ± 0.5 ppm. The part has a 0.01 μ F decoupling capacitor built in.

SPECIFICATION

| | |
|--------------------------------|--|
| Product Series Code: | ML43T |
| Frequency Range: | 40.0MHz to 156. MHz |
| Output Waveform: | Square wave, HCMOS |
| Initial Calibration Tolerance: | $< \pm 2$ ppm at 25 $^{\circ} \pm 2^{\circ}$ C |
| Operating Temperature Range: | See table |
| Frequency Stability | |
| 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: | ± 1 ppm max. for one reflow (Measured after 24 hours) |
| Supply Voltage: | +2.5, 3.0, 3.3 or +5.0Volts |
| Output Logic Levels | |
| Logic High '1': | 90% V _{DD} minimum |
| Logic Low '0': | 10% V _{DD} maximum |
| Rise/Fall Times: | 10ns maximum |
| Duty Cycle: | 50 $\pm 10\%$ standard, 50 $\pm 5\%$ available |
| Start-up Time: | 5ms typical, 10ms max. |
| Current Consumption | |
| 40.000MHz: | 10mA maximum |
| 77.760MHz: | 32mA maximum |
| 155.52MHz: | 50mA maximum |
| Output Load: | 15pF |
| Storage Temperature: | -50 $^{\circ}$ to +100 $^{\circ}$ C |
| RoHS Status: | RoHS Compliant and lead free |

ML43T - OUTLINE AND DIMENSIONS



Pad Connections

- 1 TCXO: not connected
- 2 Ground
- 3 Output
- 4 Supply Voltage

VML43T VOLTAGE CONTROL SPECIFICATION

| | |
|-----------------------|--|
| Control Voltage: | Standard = +1.5 ± 1.0 Volts for all input voltages. (Contact technical sales if +2.5 ± 2.0 Volts is required.) |
| Frequency Deviation: | ± 5.0 ppm min. |
| Slope Polarity: | Positive (increase of control voltage increases output frequency.) |
| Input Impedance: | 50M Ω min. |
| Modulation Bandwidth: | 20.0kHz min. |
| Linearity: | 10% max. |

FREQUENCY STABILITY vs TEMPERATURE

| Frequency Stability (ppm) | ± 0.5 | ± 1.0 | ± 1.5 | ± 2.0 | ± 2.5 |
|-----------------------------------|-----------|-----------|-----------|-----------|-----------|
| 0 $^{\circ}$ ~ +50 $^{\circ}$ C | ✓ | ✓ | ✓ | ✓ | ✓ |
| -10 $^{\circ}$ ~ +60 $^{\circ}$ C | ASK | ✓ | ✓ | ✓ | ✓ |
| -20 $^{\circ}$ ~ +70 $^{\circ}$ C | x | ✓ | ✓ | ✓ | ✓ |
| -30 $^{\circ}$ ~ +75 $^{\circ}$ C | x | ✓ | ✓ | ✓ | ✓ |
| -30 $^{\circ}$ ~ +80 $^{\circ}$ C | x | ✓ | ✓ | ✓ | ✓ |
| -40 $^{\circ}$ ~ +85 $^{\circ}$ C | x | ASK | ✓ | ✓ | ✓ |

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

SSB PHASE NOISE (supply = 3.3V, Load 15pF at 25 $^{\circ}$ C)

| Offset: | 10Hz | 100Hz | 1kHz | 10kHz | 100kHz |
|------------|-----------|------------|------------|------------|------------|
| 40.000MHz | -85dBc/Hz | -102dBc/Hz | -121dBc/Hz | -130dBc/Hz | -132dBc/Hz |
| 77.760MHz | -74dBc/Hz | -99dBc/Hz | -98dBc/Hz | -95dBc/Hz | -90dBc/Hz |
| 155.520MHz | -68dBc/Hz | -96dBc/Hz | -100dBc/Hz | -99dBc/Hz | -90dBc/Hz |

PART NUMBERING

Example: **ML43T33-10.000-2.5/-30+75**

Series Description

TCXO = ML43T

VCTCXO = VML43T

Supply Voltage

25 = 2.5VDC

3 = 3.0VDC

33 = 3.3 VDC

5 = 5.0 VDC

Frequency (MHz)

Stability over OTR (\pm ppm)

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

(Lower and upper limits)