



**TRUE SINEWAVE SMD (11.4x9.6 mm) TCXO/VCTCXO IN LEADLESS PACKAGE - TCLS Series**

**FEATURES**

- RoHS Compliant (Pb-Free), True Sine Wave or Clipped Sine Wave Output
- Voltage Control Option for Electric Frequency Adjustments
- High Reliability with ASIC Circuit, Trimmerless, Reflow Soldering
- SMD Miniature Size, Industry de factor Standard Footprint

**SPECIFICATIONS**

|                                       |  |
|---------------------------------------|--|
| <b>Frequency Range</b>                | 10.000 MHz to 20.000 MHz   |
| <b>Standard Frequency</b>             | 10.0/10.24/12.0/12.8/13.0/16.0/16.384/16.8/19.2/19.44/19.80 MHz  |
| <b>Supply Voltage (Vcc)</b>           | A = 5.0 VDC $\pm$ 5%; B = 3.3 VDC $\pm$ 5%; C = 3.0 VDC $\pm$ 5%   |
| <b>Input Current</b>                  | 2.0 mA Maximum   |
| <b>Storage Temperature</b>            | -40°C to 125°C   |
| <b>Controllable Frequency Option</b>  | V = Voltage control option: $\pm$ 8 ppm Minimum  |
| <b>Control Voltage (Vc)</b>           | 2.5 $\pm$ 2.0 VDC for Vcc = 5 VDC; 1.5 $\pm$ 1.0 VDC for Vcc = 3 VDC   |
| <b>Setability of Vc at Fnom, 25°C</b> | 2.5 $\pm$ 0.5 VDC for 5.0V part; 1.5 $\pm$ 0.4 VDC for 3.0V part   |
| <b>Frequency Stability vs Temp.</b>   | $\pm$ 2.5 ppm Maximum / -30°C to 80°C  |
| <b>Frequency Stability vs Vcc</b>     | $\pm$ 0.3 ppm Maximum / Vcc $\pm$ 5%   |
| <b>Frequency Stability vs Load</b>    | $\pm$ 0.3 ppm Maximum / 10 kOhms or 10 pF $\pm$ 10%  |
| <b>Aging</b>                          | $\pm$ 1 ppm Maximum per year @25°C   |
| <b>Output Load</b>                    | 10 kOhms or 10 pF $\pm$ 10%  |
| <b>Output Waveform</b>                | Sine wave  |
| <b>Output Level</b>                   | 0.8Vp-p Minimum  |
| <b>Start-up Time</b>                  | 2 ms Typical at 90% Final output level   |
| <b>Phase Noise (Max)</b>              | -135 dBc/Hz at 1KHz; -140 dBc/Hz at 10KHz  |
| <b>Typical Part Number</b>            | TCLS-Frequency-Vcc-Voltage control option  |
| <b>P/N Example</b>                    | TCLS-12M800-A:<br>Leadless SMD TCXO in 11.4x9.6x2.5 mm package, Sine wave output, 12.800 MHz, +5 VDC supply voltage, $\pm$ 2.5 ppm / -30°C to 80°C |

**OUTLINE DRAWING**

