

MV-TS644-1313C is a Temperature Compensated Crystal Oscillator (TCXO) . This TCXO is analog temperature compensated, Sine Wave output device and comes in a Half Dip, Through Hole 12.7x12.7mm package.

The device is qualified to meet the JEDEC standard for Pb-Free assembly and compliant to the RoHS directive.

#### Electrical Performance

| Parameter                                 | Min | Typ                             | Max  | Units    |
|-------------------------------------------|-----|---------------------------------|------|----------|
| <b>General</b>                            |     |                                 |      |          |
| Output Frequency                          | 10  |                                 | 600  | MHz      |
| Operating Temperature                     |     | -10/+70 to -40/+85              |      | °C       |
| Package Size                              |     | 12.7 x 12.7 x 5.1               |      | mm       |
| <b>Frequency Stability</b>                |     |                                 |      |          |
| Stability Over Temperature                |     | ±1.0 to ±0.28                   |      | ppm      |
| Initial Accuracy (25°C ±2°C)              |     |                                 | ±1.0 | ppm      |
| Power Supply Stability (±5% Change)       |     |                                 | ±0.2 | ppm      |
| Load Stability (±10% Change)              |     |                                 | ±0.2 | ppm      |
| Aging / year (after 30 days of operation) |     |                                 | ±1.0 | ppm/year |
| <b>Supply</b>                             |     |                                 |      |          |
| Supply Voltage (Vdd)                      |     | +3.3 to +5.0                    |      | V        |
| Supply Current                            |     |                                 |      |          |
| @ 10 MHz                                  |     |                                 | 10   | mA       |
| @ 190 MHz                                 |     |                                 | 50   | mA       |
| <b>Tuning</b>                             |     |                                 |      |          |
| Tuning (Pull) Range                       |     | ±5 to ±10                       |      | ppm      |
| Tuning Slope                              |     | Positive                        |      |          |
| Control Voltage to reach Pull Range       |     | 2.5±2.0 (@5.0), 1.65±1.5 (@3.3) |      | V        |
| Linearity                                 |     | < 10                            |      | %        |
| Control Voltage Impedance                 | 10  |                                 |      | KΩ       |
| <b>Output</b>                             |     |                                 |      |          |
| Output Signal                             |     | Sine Wave                       |      |          |
| Output Logic Level                        |     |                                 |      |          |
| Output Level - Logic High                 |     | 0dBm (@3.3V), +5dBm (5V)        |      | V        |
| Output Load                               |     | 50 Ω ± 10%                      |      |          |
| <b>Phase Noise &amp; Jitter</b>           |     |                                 |      |          |
| Phase Noise: (20 MHz)                     |     |                                 |      |          |
| 10 Hz offset                              |     | -80                             |      | dBc/Hz   |
| 100 Hz offset                             |     | -120                            |      | dBc/Hz   |
| 1kHz offset                               |     | -135                            |      | dBc/Hz   |
| 10kHz offset                              |     | -140                            |      | dBc/Hz   |
| 100kHz offset                             |     | -145                            |      | dBc/Hz   |
| 1MHz offset                               |     | -150                            |      | dBc/Hz   |
| Jitter                                    |     |                                 |      |          |
| RMS Jitter: (12kHz - 20MHz) - 20 MHz      |     | 0.1                             |      | ps       |

#### Notes:

- 1 SMD oscillators must be on the top side of the PCB during the reflow process.

**Maximum Ratings**

|                |                |
|----------------|----------------|
| Storage Temp   | -55°C to 125°C |
| Supply Voltage | 0V to +6.0V    |

**Maximum Ratings Notes:**

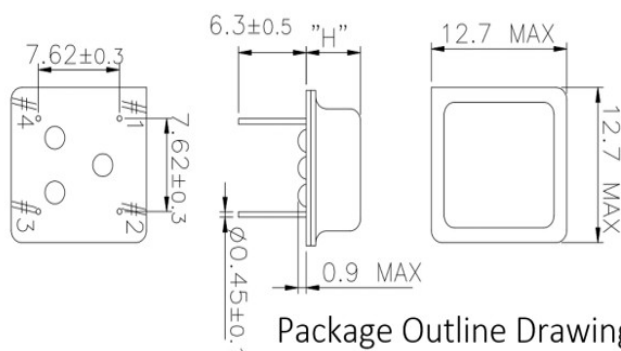
- 1 Stresses in excess of the absolute maximum ratings can permanently damage the device.
- 2 Exposure to absolute maximum ratings for extended periods may adversely affect device reliability.

**Package Information**

| Pin # | Function                   |
|-------|----------------------------|
| Pin 1 | Vc = Control Voltage or NC |
| Pin 2 | GND = Ground               |
| Pin 3 | OUT = Output               |
| Pin 4 | Vdd = Supply Voltage       |

**Package and Assembly Notes:**

- 1 H = 5.1 mm


**Handling and Construction**

|                            |                                      |
|----------------------------|--------------------------------------|
| Package Construction       | Half Dip, Through Hole               |
| Washable                   | non-washable device                  |
| RoHS compliance            | 100% ROHS 6 compliant                |
| Moisture Sensitivity Level | MSL 1                                |
| ESD                        | HBM JESD22-A114-F Class 1C 10* 2000V |

**Ordering Information**
**MV-TS644-1313C -**

TCXO, Sine Wave

12.7 x 12.7 x 5.1mm, 4 Pins

**X X X X**

① ② ③ ④

**- xxxMxxxx**

Frequency

① Voltage

A: 5.0 V

B: 3.3 V

② Temp Range

J: -10/+70 °C

H: -20/+70 °C

K: -40/+85 °C

③ Temp Stability

Q: ±1.0 ppm

R: ±0.5 ppm

S: ±0.28 ppm

④ Tuning Range

X: No Tuning

L: ±5 ppm

K: ±8 ppm

J: ±10 ppm