

# MAVC-010000-002140



VCO, SMT  
2110-2170 MHz

Rev. VB

## Features

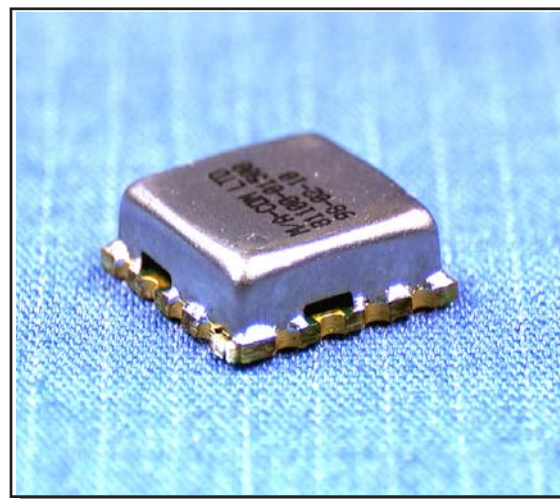
- High Performance, Low Cost
- Low Phase Noise
- Miniature SMT Package (LSM1)
- RoHS Compliant

## Description

This VCO, in a SMT package, provides electrical shielding, easy PCB assembly and repeatable performance. The oscillator is designed for use in wireless base stations and other applications.

M/A-COM VCOs are manufactured in an ISO9001 certified facility, incorporating surface mount assembly and automated electrical testing. This ensures consistent electrical performance and quality over volume production quantities.

Devices are designed to function after exposure to the shock, vibration, thermal shock and moisture conditions typically encountered in base station and other infrastructure environments.



## Pin Configuration

| Pin No. | Function          |
|---------|-------------------|
| 1       | RF Output         |
| 2       | V <sub>CC</sub>   |
| 3       | V <sub>tune</sub> |
| 4       | GND               |

## Electrical Specifications<sup>1</sup>:

Z<sub>0</sub> = 50 Ohms, V<sub>CC</sub> = 5V.

| Parameter                         | Test Conditions                                                                                                | Units  | Min   | Typ                  | Max                 |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------|--------|-------|----------------------|---------------------|
| Frequency Range                   | Over T <sub>op</sub> <sup>2</sup>                                                                              | MHz    | 2110  |                      | 2170                |
| RF Output Power                   | Over V <sub>CC</sub> and T <sub>op</sub> <sup>2</sup>                                                          | dBm    | -2.0  |                      | +4.0                |
| Tuning Voltage                    | Over T <sub>op</sub> <sup>2</sup>                                                                              | V      | +1    |                      | +4.0                |
| Phase Noise                       | SSB at 10 kHz offset from carrier<br>SSB at 100 kHz offset from carrier<br>SSB at 1000 kHz offset from carrier | dBc/Hz |       | -100<br>-122<br>-141 | -95<br>-117<br>-137 |
| Tuning Sensitivity                |                                                                                                                | MHz/V  |       | 30                   |                     |
| Harmonic Output                   | (Non Harmonic spurious < -70dBc)                                                                               | dBc    |       | -15                  | -10                 |
| Frequency Pushing                 | V <sub>CC</sub> = +5.25V ± 0.25V                                                                               | MHz/V  |       | 2.5                  | 4.0                 |
| Frequency Pulling                 | 1.5:1 VSWR load, all phases                                                                                    | MHz    |       |                      | 6.0                 |
| Frequency Drift                   | Over T <sub>op</sub> <sup>2</sup>                                                                              | MHz/°C |       | -0.18                |                     |
| Tune Input Capacitance            |                                                                                                                | pF     |       |                      | 50                  |
| Supply Voltage (V <sub>CC</sub> ) | VCO oscillates                                                                                                 | V      | +4.75 | +5.00                | +5.25               |
| Supply Current (I <sub>CC</sub> ) |                                                                                                                | mA     |       | 15                   | 20                  |

1. All specification limits are indicated values over the temperature range -37C to 75C.
2. See *Absolute Maximum Ratings* for operating temperature.

1

**ADVANCED:** Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.

**PRELIMINARY:** Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

• **North America** Tel: 800.366.2266 • **Europe** Tel: +353.21.244.6400  
• **India** Tel: +91.80.43537383 • **China** Tel: +86.21.2407.1588  
Visit [www.macomtech.com](http://www.macomtech.com) for additional data sheets and product information.

M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.

# MAVC-010000-002140



VCO, SMT  
2110-2170 MHz

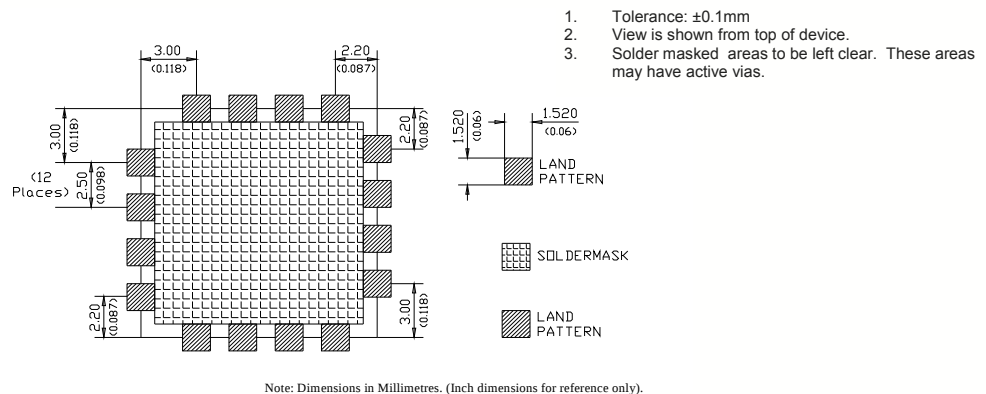
Rev. VB

## Absolute Maximum Ratings $T_A = +25^\circ\text{C}$

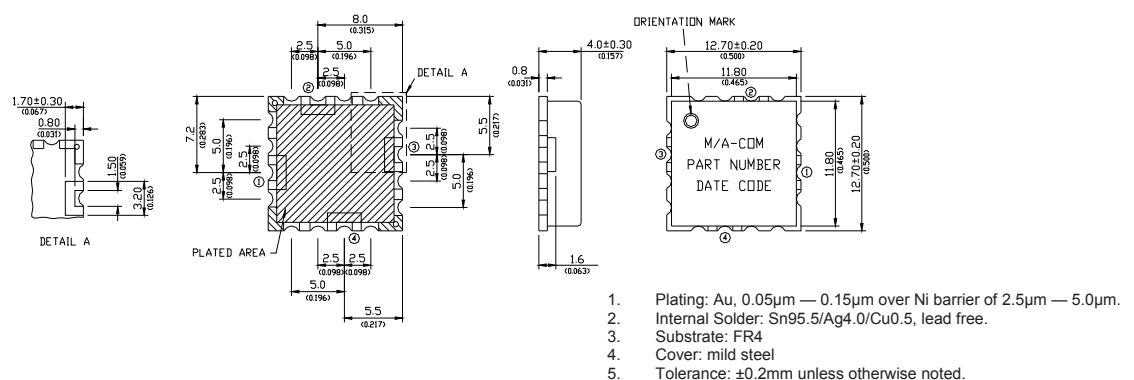
| Parameter                   | Absolute Maximum                            |
|-----------------------------|---------------------------------------------|
| Supply Voltage ( $V_{CC}$ ) | 4.5V to 5.5 V                               |
| Operating Temperature       | $-40^\circ\text{C}$ to $+85^\circ\text{C}$  |
| Storage Temperature         | $-45^\circ\text{C}$ to $+120^\circ\text{C}$ |
| Solder Assembly Temperature | See App Note M2032                          |

1. Operation of this device above any one of these parameters may cause permanent damage.

## Recommended PCB Layout



## Outline Drawing



## ECO History

| Rev | Date           | Description                                               | By |
|-----|----------------|-----------------------------------------------------------|----|
| A   | 19th July 2006 | Created data sheet based upon MLO81169-02140              | JS |
| B   | 1st Sept 2006  | Updated electrical specification based upon measured data | JS |

2

**ADVANCED:** Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.

**PRELIMINARY:** Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

• **North America** Tel: 800.366.2266 • **Europe** Tel: +353.21.244.6400  
• **India** Tel: +91.80.43537383 • **China** Tel: +86.21.2407.1588  
Visit [www.macomtech.com](http://www.macomtech.com) for additional data sheets and product information.

M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.