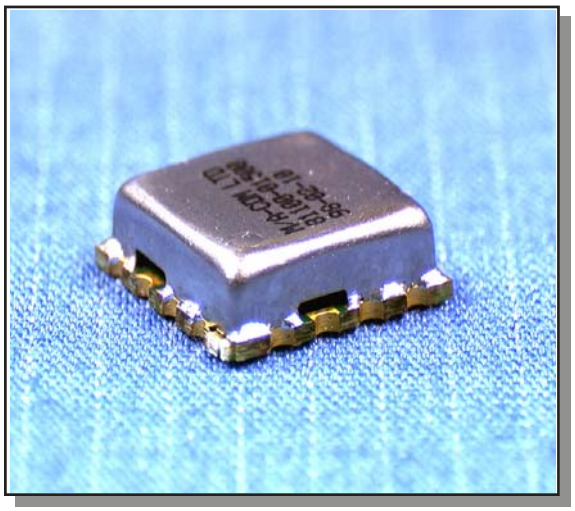
# MAVC-010000-002196

VCO, SMT
2146-2246 MHz

Rev. Preliminary

## 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 | $V_{CC}$ |
| 3 | $V_{tune}$ |
| 4 | GND |

## Electrical Specifications[1]: $Z_0$ = 50 Ohms, $V_{cc}$ = 5V.

| Parameter | Test Conditions | Units | Min | Typ | Max |
|---|---|---|---|---|---|
| Frequency Range | Over $T_{op}$ [2] | MHz | 2146 | | 2246 |
| RF Output Power | Over $V_{CC}$ and $T_{op}$ [2] | dBm | +3.0 | +6 | +9.0 |
| Tuning Voltage | Over $T_{op}$ [2] | V | +0 | | +5 |
| 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>-120<br>-140 | -95<br>-115<br>-135 |
| Tuning Sensitivity | | MHz/V | | 30 | |
| Harmonic Output | (Non Harmonic spurious < -70dBc) | dBc | | -15 | -10 |
| Frequency Pushing | $V_{CC}$ = +5.25V ± 0.25V | MHz/V | | 1.5 | 3.0 |
| Frequency Pulling | 1.5:1 VSWR load, all phases | MHz | | 0.5 | 3.0 |
| Tune Input Capacitance | | pF | | | 50 |
| Supply Voltage ($V_{CC}$) | VCO oscillates | V | +4.75 | +5.00 | +5.25 |
| Supply Current ($I_{CC}$) | | mA | | 15 | 30 |

1. All specification limits are indicated values over the temperature range –40C to 85C.
2. See *Absolute Maximum Ratings* for operating temperature.





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## Absolute Maximum Ratings $T_A$ = +25°C

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

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

## Ordering Information

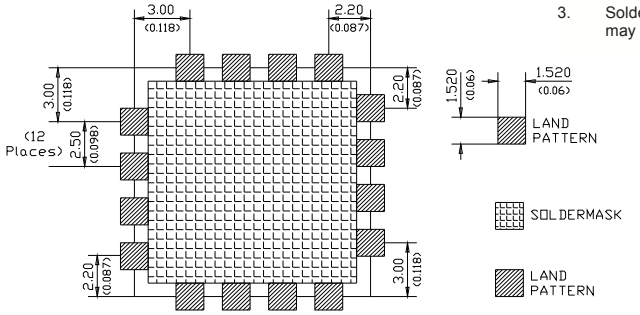
| Part Number | Package |
|---|---|
| MAVC-010000-002196 | Tape and Reel (500/Reel) [1] |

1. See application note M513.

## Environmental Specifications

Devices are designed to function after exposure to vibration, thermal shock and moisture conditions. See *MVS Qual Report* for details of tests performed.

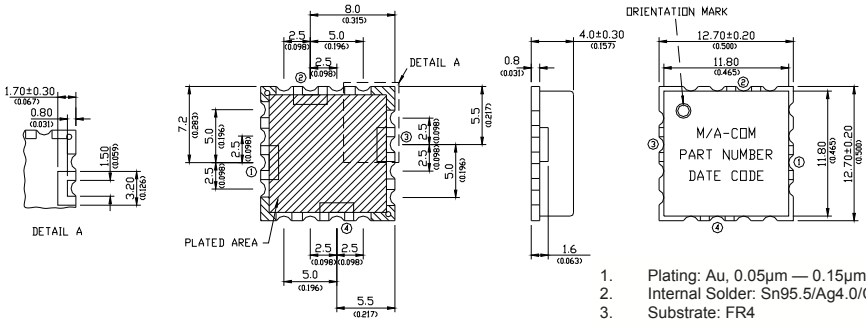
## Recommended PCB Layout




1. Tolerance: ±0.1mm
2. View is shown from top of device.
3. Solder masked areas to be left clear. These areas may have active vias.

Note: Dimensions in Millimetres. (Inch dimensions for reference only).

## Outline Drawing




1. Plating: Au, 0.05µm — 0.15µm over Ni barrier of 2.5µm — 5.0µm.
2. Internal Solder: Sn95.5/Ag4.0/Cu0.5, lead free.
3. Substrate: FR4
4. Cover: mild steel
5. Tolerance: ±0.2mm unless otherwise noted.

## ECO History

| Rev | Date | Description | By |
|---|---|---|---|
| Prel | 16th April 2008 | Created data sheet | AC |





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