

- **SAW Frequency Stabilization**
- **Fundamental-mode Oscillation at 1090.0 MHz**
- **Ideal for ATC/TCAS Transponder Applications**
- **Complies with Directive 2002/95/EC (RoHS)**



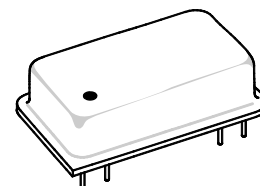
The frequency of this oscillator is stabilized by UHF surface-acoustic-wave (SAW) technology, providing excellent performance in a compact, rugged oscillator operating at the fundamental frequency of 1090.0 MHz. The highly-reliable HO1081-4 is designed for use in Mode-S Air Traffic Control Transponders/Traffic Alert and Collision Avoidance Systems (TCAS).

## Absolute Maximum Ratings

| Rating              |         | Value       | Units |
|---------------------|---------|-------------|-------|
| DC Supply Voltage   |         | 0 to +13    | VDC   |
| Ambient Temperature | Powered | -55 to +105 | °C    |
|                     | Storage | -55 to +125 |       |

## HO1081-4

### 1090.0 MHz SAW Oscillator



Dip 16-8 Case

| Characteristic                       |                            | Sym          | Notes   | Minimum           | Typical | Maximum   | Units    |
|--------------------------------------|----------------------------|--------------|---------|-------------------|---------|-----------|----------|
| Operating Frequency                  | Absolute Frequency         | $f_O$        | 1, 7    | 1089.75           | 1090.00 | 1090.25   | MHz      |
|                                      | Tolerance from 1090.0 MHz  | $\Delta f_O$ |         |                   |         | $\pm 250$ | kHz      |
| RF Output Power                      |                            | $P_O$        | 3, 6    | +10               | +12     | +13       | dBm      |
| Start-up Time                        |                            |              | 2, 8    |                   |         | 500       | ns       |
| Discrete Spurious                    | Second Harmonics           |              | 2, 3, 4 |                   | -25     | -20       | dBc      |
|                                      | Third and Higher Harmonics |              |         |                   | -35     | -30       |          |
|                                      | Nonharmonic                |              |         |                   | <-100   | -80       |          |
| SSB Phase Noise                      | 1 kHz Offset               |              | 2, 3, 4 |                   |         | -90       | dBc/Hz   |
|                                      | 10 kHz Offset              |              |         |                   |         | -110      |          |
| RF Impedance                         | Nominal Impedance          | $Z_O$        | 3       |                   | 50      |           | $\Omega$ |
|                                      | Operating Load VSWR        | $G_L$        | 3, 5    |                   |         | 1.5:1     |          |
| DC Power Supply                      | Operating/Enable Voltage   | $V_{CC}$     | 3, 6    | 11.75             | 12.00   | 12.25     | VDC      |
|                                      | Operating Current          | $I_{CC}$     |         |                   | 37      | 40        | mA       |
| Operating Ambient Temperature        |                            | $T_A$        | 3, 6    | -55               |         | +105      | °C       |
| Lid Symbolization (YY=Year, WW=Week) |                            |              |         | RFM HO1081-4 YYWW |         |           |          |



**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

**COCOM CAUTION: Approval by the U.S. Department of Commerce is required prior to export of this device.**

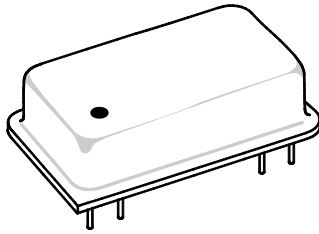
## NOTES:

- One or more of the following United States patents apply: 4,760,352; 5,787,117; and 7,260,375.
- Unless noted otherwise, all specifications are listed at  $T_A = +25 \pm 2^\circ\text{C}$ ,  $V_{CC}$  = nominal voltage  $\pm 0.01$  VDC, and load impedance =  $50 \Omega$  with  $V_{SWR} \leq 1.5:1$ .
- The design, manufacturing process, and specifications of this device are subject to change without notice.
- Applies to oscillator only and not to sidebands caused by external electrical or mechanical sources. (Dedicated external voltage regulation with low-frequency filtering for the DC power supply and proper circuit board layout are recommended for optimum spectral purity.)
- For specified maximum operating load VSWR, any angle, at  $F_O$ . No instability or damage will occur for any passive load impedance.
- For any combination of  $V_{CC}$  and  $T_A$  within the specified operating ranges.
- Applies for any combination of Note 5 and 6 conditions.
- Start-up time is defined as the time from when 90% of  $V_{CC}$  is applied to the Enable Pin until the RF output reaches 90% of its steady-state output level.

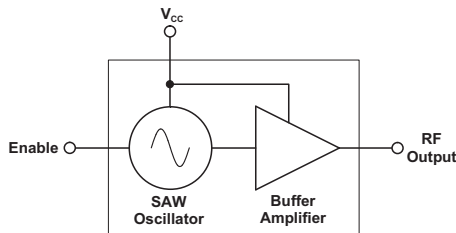
# Discontinued

## DIP16-8

Metal Dual-Inline Package with 8 Leads in a 16-lead DIP Configuration



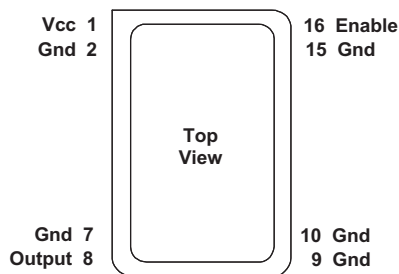
### Block Diagram



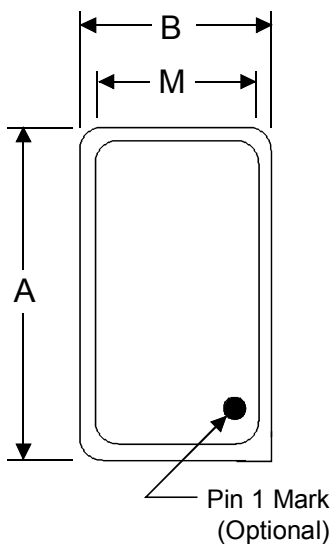
### Case Dimensions

| Dimension | mm            |       | Inches        |       |
|-----------|---------------|-------|---------------|-------|
|           | MIN           | MAX   | MIN           | MAX   |
| A         | —             | 25.02 | —             | 0.985 |
| B         | —             | 12.83 | —             | 0.505 |
| C         | —             | 6.35  | —             | 0.250 |
| D         | 0.40          | 0.51  | 0.016         | 0.020 |
| E         | 0.64 Nominal  |       | 0.025 Nominal |       |
| F         | 7.62 Nominal  |       | 0.300 Nominal |       |
| G         | 2.54 Nominal  |       | 0.100 Nominal |       |
| H         | 17.78 Nominal |       | 0.700 Nominal |       |
| K         | 3.39          | 6.73  | 0.130         | 0.265 |
| L         | 1.30          | —     | 0.051         | —     |
| M         | —             | 11.18 | —             | 0.440 |
| N         | —             | 22.60 | —             | 0.890 |
| R         | 1.75          | 2.26  | 0.069         | 0.089 |

### Pin Out



### Top View



### Bottom View

