

Surface Mount Voltage Controlled Oscillator 4020 - 4230 MHz

MLO82200-34125

V1.00

Features

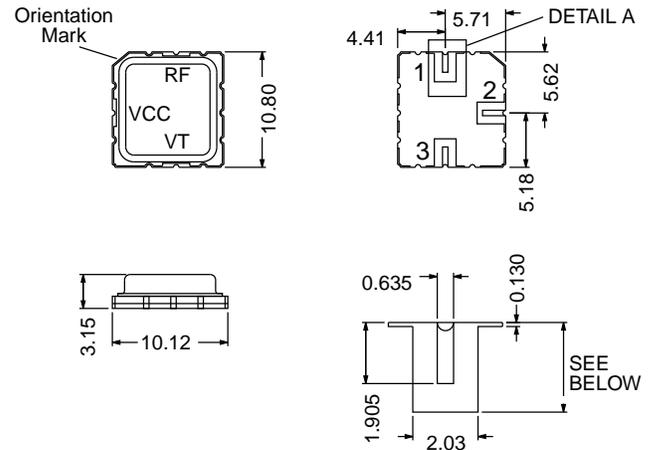
- Miniature Size
- Surface Mount Package
- Electrically Shielded
- Low Phase Noise
- Highly Linear Tuning

Description

The MLO82200-34125 is a fundamental single ended oscillator designed for use in cost sensitive wireless and telemetry applications. The device has been optimised by careful selection of the bipolar transistor and varactor diode for low phase noise and high linearity tuning characteristics.

The low profile surface mount package used provides for electrical shielding, ease of assembly and repeatable performance. M/A-COM's GMIC volume manufacturing techniques together with automatic assembly and electrical testing ensure a high degree of electrical and mechanical repeatability at low cost and in high volume. Manufacturing is carried out in an ISO 9000 qualified facility.

LCC1 Package Dimensions



TOLERANCE AS FOLLOWS:-
 X.X = +/- 0.500
 X.XX = +/- 0.127
 X.XXX = +/- 0.127

Pad	Length
1	2.79
2	2.67
3	2.67

All dimensions in mm.

Electrical Specifications¹, T_A = +25°C, V_{CC} = +12V (unless otherwise stated)

Parameters	Test Conditions	Units	Min.	Typ.	Max.
Frequency Range		MHz	4020		4230
Tuning Voltage (V _T) ²		V	+1		+10
RF Output Power ³	4020 - 4230 MHz	dBm	+4.0		+8.0
Supply Voltage (V _{CC}) ⁴		V	+11.5	+12.0	+12.5
Supply Current (I _{CC})		mA			50
Phase Noise ⁵	SSB at 100 KHz offset from carrier	dBc/Hz			-100
Tuning Sensitivity	4020 - 4230 MHz	MHz/V			100
Tuning Linearity	4020 - 4230 MHz	Ratio			2.0
Modulation Bandwidth	3 dB bandwidth	MHz	10		
Harmonic Outputs ⁶		dBc			-10
Frequency Pushing	VCC 11.5V to 12.5V	MHz/V			8.0
Frequency Pulling	1.5:1 VSWR load, all phases	MHz			20
Frequency Drift		MHz/°C		0.35	
Tune Input Capacitance		pF			50

1. All specifications apply with a 50 ohm load impedance.
2. Tuning voltages shown are the minimum and maximum voltages required to tune the frequency range including temperature effects -20°C to +70°C. Devices will oscillate normally with tuning voltages from 0V to +15V.
3. Output power window includes unit to unit variation, temperature effects -20°C to +70°C and frequency flatness (typically ±0.5 dB at any constant temperature).

4. Devices may be operated at lower supply voltage with reduced performance.
5. For typical phase noise at other offsets see phase noise curve.
6. No non-harmonic spurious visible when measured on a test system with a dynamic range of 70 dB.

The Preliminary Specifications Data Sheet Contains Typical Electrical Specifications Which May Change Prior to Final Introduction.

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Absolute Maximum Ratings¹

Parameter	Absolute Maximum
Tuning Voltage (V_T)	0 to +20V
Supply Voltage ² (V_{CC})	+13V
Storage Temperature	-45°C to +100°C
Solder Assembly Temperature	+250°C for 2 min

1. Exceeding these limits may cause permanent damage.
2. A series resistor will allow operation at any greater supply voltage. Used in conjunction with a bypass capacitor this will yield improved power supply decoupling and noise suppression.

Functional Configuration

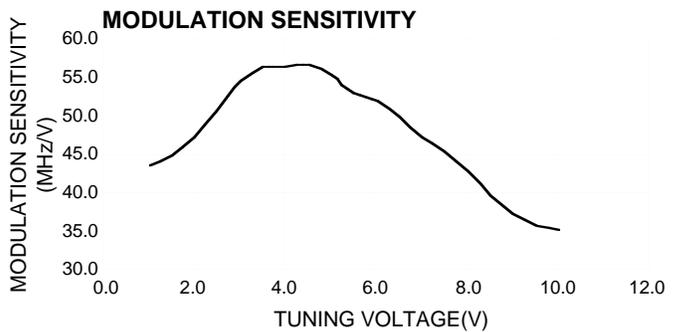
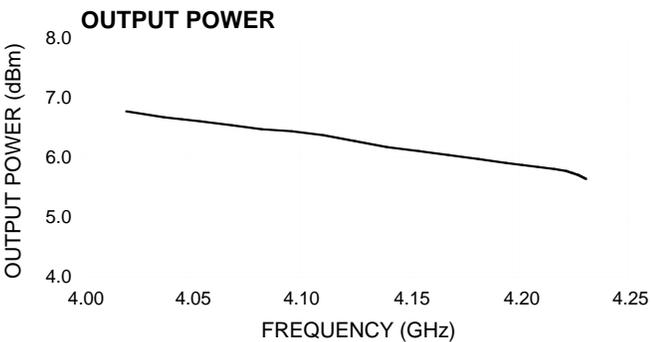
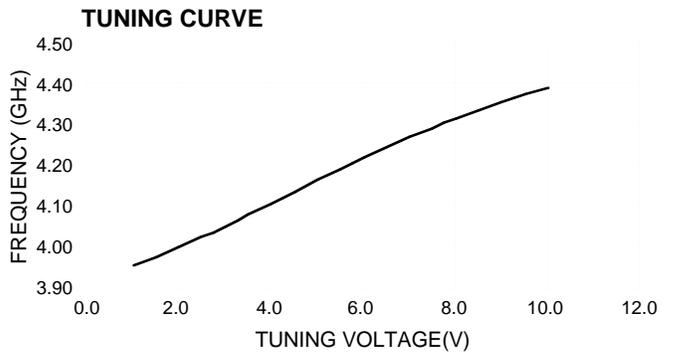
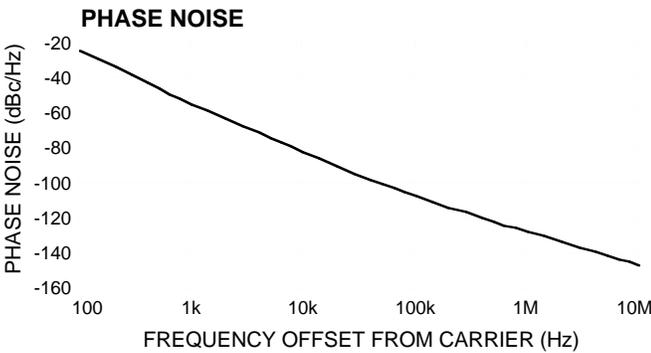
Pad	Configuration
1	RF Output
2	VCC
3	VT
Case / Lid	Ground

Case material is alumina with gold plate finish.

Environmental Specifications

Devices are designed to operate over the temperature range of -20°C to +70°C and after exposure to the shock, vibration, thermal shock and moisture conditions typically encountered in base station and subscriber terminal environments.

Typical Performance @ +25°C



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