TELEDYNE
MICROWAVE SOLUTIONS
Everywhereyoulook™

Rev. 2/15

# OS6500 5000 TO 6500 MHz VOLTAGE CONTROLLED OSCILLATOR

| Typical Values @ +25 °C | OS6500 |
|---|---|
| Tuning Voltage Limits | 0-15 V |
| Power Output | +1.0 dBm |
| Power Flatness | 2.0 dB |

**Standard Size SMTO-8 Package**

## SPECIFICATIONS*

| Parameter | Typical @ +25°C | Guaranteed -55 to +85 °C |
|---|---|---|
| **Frequency** | **4900-6600 MHz** | **5000-6500 MHz** |
| **Tuning Voltage Limits** | | |
| Tuning Voltage at low end | 0 V | 0 V |
| Tuning voltage at high end | 15 V | 15 V |
| **Power Output (Min.)** | +1.0 dBm | -3.0 dBm |
| **Power Flatness^ (Min.)** | 2.0 dB | 3.0 dB |
| **Modulation Sensitivity (Min.–Max.)** | 80 to 190 MHz/V | 70 to 210 MHz/V |
| **Modulation Sensitivity Ratio (Max.)** | 1.9:1 | 2.3:1 |
| **SSB Phase Noise (Max.)** | | |
| at 10 kHz offset | -80 dBc/Hz | -68 dBc/Hz |
| at 100 kHz offset | -102 dBc/Hz | -98 dBc/Hz |
| **Harmonics (Max.)** | -17.0 dBc | -10.0 dBc |
| **Spurious (Max.)** | -60.0 dBc | -60.0 dBc |
| **Frequency Pulling (Max.)** | | |
| Load VSWR = 1.67:1 | 15.0 MHz | 30.0 MHz |
| **Frequency Pushing (Max.)** | | |
| Vdc ± 0.5 V | 15.0 MHz/V | 30.0 MHz/V |
| **Bias Voltage (Vdc)** | 5.0 V | 5.0 V |
| **DC Current (Max.)** | 26 mA | 30 mA |

* Specifications are measured in 50-ohm system at +5 Volts bias unless otherwise specified.
^ Power Flatness is defined as power variation over frequency band at any given temperature.

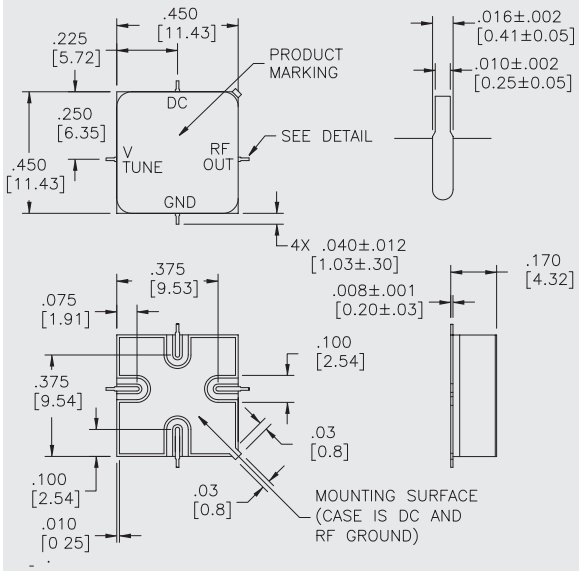
## ABSOLUTE MAXIMUM RATINGS

| | |
|---|---|
| **Storage Temperature** | -62 °C to +125 °C |
| **Maximum Case Temperature** | 125 °C |
| **Maximum DC Voltage** | +10 V |
| **Maximum Tuning Voltage** | +20 V |
| **Burn-In Temperature** | +125 °C |
| **Thermal Resistance**[1] (θjc) | +53.8 °C/Watt |
| **Junction Temperature Rise Above Case** (Tjc) | +8.1 °C |

[1] Thermal resistance is based on total power dissipation. Ratings based on +25 °C.

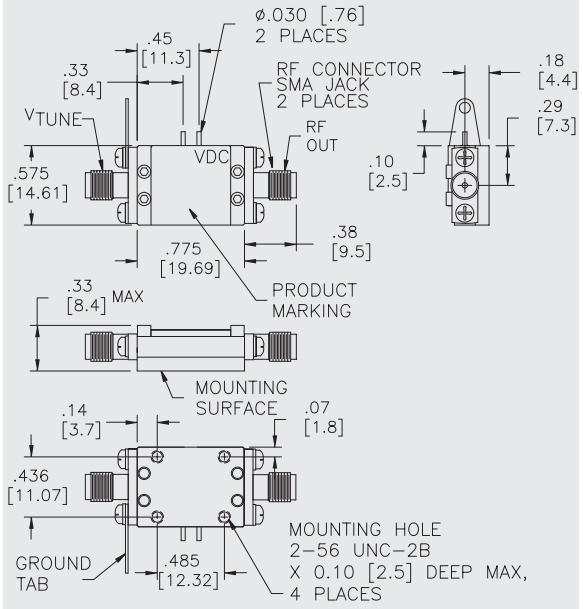
## OS6500

**SMTO-8 Package for Oscillators**




## OCP6500

**CougarPak® Package for Oscillators**




DIMENSIONS ARE IN INCHES [MILLIMETERS]

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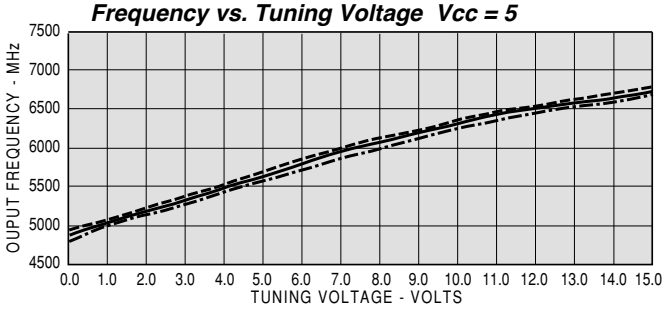
# OS6500

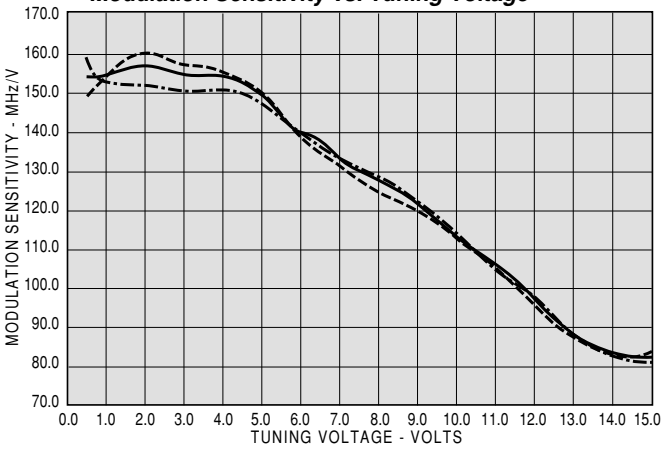
## TYPICAL PERFORMANCE

KEY: +25 °C ——
+85 °C -·-·-
-55 °C - - -

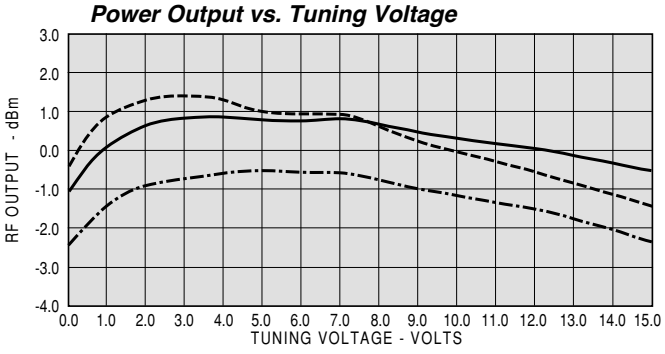
### Frequency vs. Tuning Voltage Vcc = 5



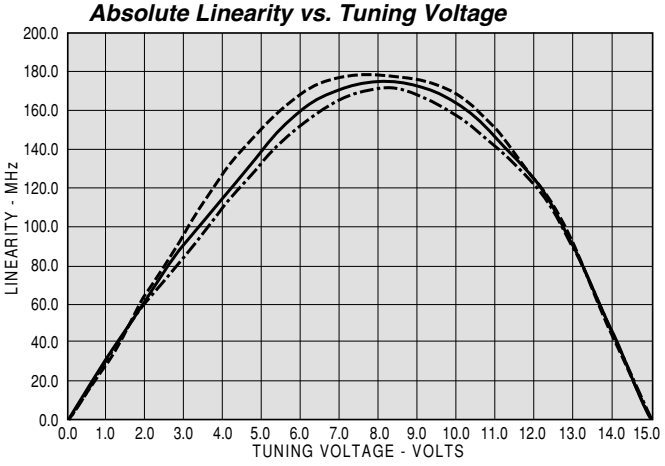

### Modulation Sensitivity vs. Tuning Voltage




### Power Output vs. Tuning Voltage




### Absolute Linearity vs. Tuning Voltage

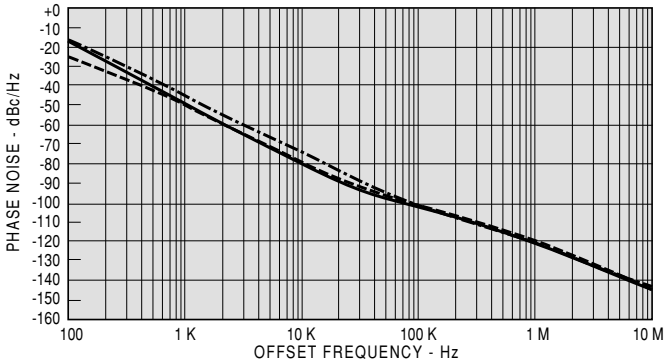



## TYPICAL AUTOMATIC TEST DATA

Model: OS6500 Vcc= +5V Vstr mA = 27.55 Vstop mA = 27.3

| TUNING VOLTAGE V | FREQ. MHz | POWER dBm | MODULATION SENSITIVITY MHz/V | LINEARITY MHz |
|---|---|---|---|---|
| 0.0 | 4,873 | -0.60 | | 0.0 |
| 0.5 | 4,955 | -0.02 | 162.2 | 18.0 |
| 1.0 | 5,039 | 0.43 | 160.7 | 35.6 |
| 1.6 | 5,122 | 0.75 | 160.9 | 53.0 |
| 2.1 | 5,205 | 0.96 | 159.6 | 70.1 |
| 2.6 | 5,285 | 1.10 | 157.4 | 85.6 |
| 3.1 | 5,367 | 1.21 | 156.6 | 101.1 |
| 3.6 | 5,448 | 1.29 | 156.8 | 116.4 |
| 4.1 | 5,530 | 1.33 | 156.7 | 132.0 |
| 4.7 | 5,608 | 1.30 | 154.2 | 145.9 |
| 5.2 | 5,687 | 1.24 | 150.1 | 158.1 |
| 5.7 | 5,760 | 1.25 | 143.8 | 166.7 |
| 6.2 | 5,832 | 1.33 | 137.8 | 172.4 |
| 6.7 | 5,902 | 1.37 | 135.1 | 176.6 |
| 7.2 | 5,972 | 1.34 | 133.6 | 180.1 |
| 7.8 | 6,039 | 1.24 | 131.2 | 182.2 |
| 8.3 | 6,106 | 1.10 | 127.9 | 182.7 |
| 8.8 | 6,169 | 1.00 | 124.3 | 181.4 |
| 9.3 | 6,232 | 0.94 | 120.6 | 178.1 |
| 9.8 | 6,293 | 0.90 | 116.8 | 172.7 |
| 10.4 | 6,351 | 0.86 | 112.8 | 165.5 |
| 10.9 | 6,408 | 0.80 | 108.1 | 155.6 |
| 11.4 | 6,460 | 0.72 | 103.0 | 143.5 |
| 11.9 | 6,511 | 0.62 | 97.2 | 127.9 |
| 12.4 | 6,558 | 0.50 | 92.4 | 110.3 |
| 12.9 | 6,604 | 0.41 | 87.9 | 89.8 |
| 13.5 | 6,647 | 0.34 | 85.0 | 68.5 |
| 14.0 | 6,691 | 0.25 | 83.2 | 45.5 |
| 14.5 | 6,733 | 0.16 | 82.7 | 23.0 |
| 15.0 | 6,777 | 0.07 | 83.1 | 0.0 |

### Phase Noise at 5000 MHz




### Phase Noise at 6500 MHz