

3.3V Voltage Controlled Temperature Compensated Crystal Oscillators

- ♦ **Applications:** Phase Locked Loops Clocking
"Sync" to NTSC Video Standards; Reference
Signal; Signal Tracking
- ♦ ± 10 ppm Stability
- ♦ -40°C to 85°C Op. Temperature
- ♦ "Clipped" Sine Wave Output
- ♦ Non Hermetic Package

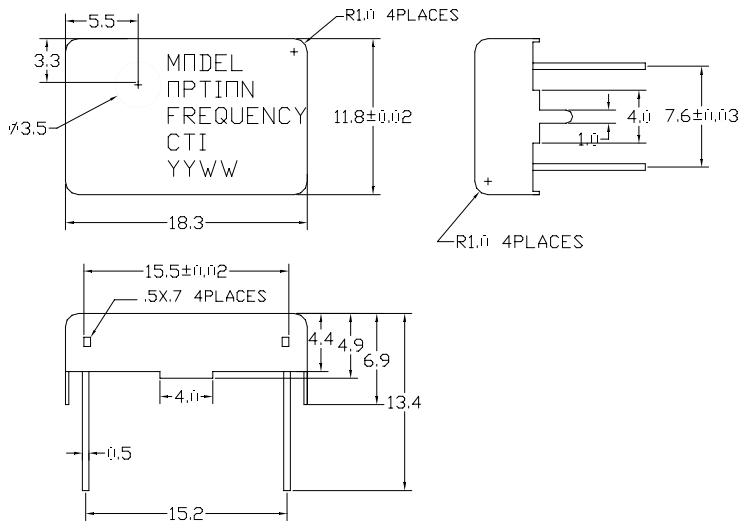
ELECTRICAL SPECIFICATIONS

| Model | K1613 | |
|--|--|------|
| Frequency Range (MHz) | 1 to 25 | |
| Input Current (mA) | < 2 | |
| Frequency Control Function | (For Custom Deviation Range, Vc Range, etc. - Consult Factory) | |
| Voltage Control | Included | |
| Minimum Deviation (ppm) | ± 28 | |
| Minimum Deviation Sensitivity (ppm/V) | +14 | |
| Linearity (%) | <10 | |
| Modulation Bandwidth (3dB) | > 20KHz | |
| Nominal Control Voltage (V) | 2.5 | |
| Control Voltage Range (V) | 0.3 to 3.0 | |
| Manual Adjustment (ppm) | ± 5 min. | |
| Transfer Function | Positive | |
| Input Impedance | > 50K Ω @ 10KHz | |
| Frequency Stability (ppm) | | |
| Overall | ± 10 ppm (Inclusive of Calibration, Temperature, Voltage, Load and 10 yr.Aging) | |
| 25 $^{\circ}\text{C}$ Calibration | ± 1 ppm | |
| Over Operating Temperature | ± 3 ppm | |
| Aging 1st Year | ± 1 ppm | |
| Temperature Range ($^{\circ}\text{C}$) | | |
| Operating | -40°C to $+85^{\circ}\text{C}$ | |
| Storage | -40°C to $+85^{\circ}\text{C}$ | |
| Supply Voltage (V) | $+3.3\text{V} \pm 5\%$ | |
| Output ("Clipped" Sine Wave) | 1.0V p-p min., 10K Ω /10pF | |
| Start Up Time (ms) | <10 | |
| Typical SSB Phase Noise (dBC/Hz) | 10Hz | -70 |
| Offset From Carrier | 100Hz | -95 |
| | 1KHz | -120 |
| | 10KHz | -140 |
| | 100KHz | -150 |

PART NUMBERING GUIDE

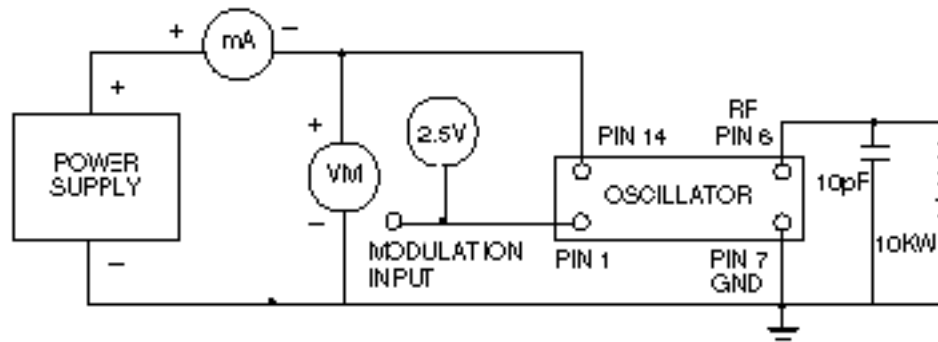
K1613 - Specify Frequency

5V Voltage Controlled Temperature Compensated Crystal Oscillators



| PIN | FUNCTION |
|-----|------------------|
| 1 | Voltage Control |
| 7 | Gnd/ & Case Gnd |
| 8 | Output |
| 14 | +V _{CC} |

TEST CIRCUIT DIAGRAM



MECHANICAL AND ENVIRONMENTAL SPECIFICATIONS

| TEST METHODS | REFERENCE PROCEDURES | DESCRIPTION |
|-------------------------|--------------------------------------|--|
| Temperature Cycle | MIL-STD-833, Mtd 1010, Cond. B | -55°C to +125°C; Air-to-Air; 100 cycles; 10 min. dwell |
| Mechanical Shock | MIL-STD-883, Mtd 2002, Cond. B | 1500 g's |
| Vibration | MIL-STD 883, Mtd 2007, Cond. B | 20-2000 Hz; 0.06 inch; 15g's; 3 planes |
| Humidity Steady State | MIL-STD-202, Mtd 103 | 40°C; 90%-95% R.H.; 56 days |
| Thermal Shock | MIL-STD-883, Mtd 1011.7 Cond. B | 100°C to 0°C; Water-to-Water; 15 cycles |
| Electrostatic Discharge | MIL-STD-883, Mtd 3015 Class II | 2 KV to 4 KV Threshold |
| Solderability | MIL-STD-883, Mtd 2022.2 | Solder dip; Meniscograph Criteria |
| Hermeticity | MIL-STD-883, Mtd 1014.8, Cond. A1 | Mass spectro. 2 x 10 ⁻⁸ atmos. CC/sec He |
| Resistance to Soldering | MIL-STD-202, Mtd 210A, Cond. C | 260°C; 10 seconds: 1 inch/sec. |
| Lead Integrity | MIL-STD-883, Mtd 2004.5, Cond. A, B1 | Lead tension & bend stress |
| Marking Permanence | MIL-STD-883, Mtd 2015.8 | Resistance to solvents |
| Life Test | MIL-STD-883, Mtd 1005.6 | 125°C, powered, 1000 hours minimum |