

## 3.3V Voltage Controlled Temperature Compensated Crystal Oscillators

- ♦ **Applications:** Phase Locked Loops Clocking  
"Sync" to NTSC Video Standards; Reference  
Signal; Signal Tracking
- ♦  $\pm 10$ ppm Stability
- ♦  $-40^{\circ}\text{C}$  to  $85^{\circ}\text{C}$  Op. Temperature
- ♦ "Clipped" Sine Wave Output
- ♦ Non Hermetic Package

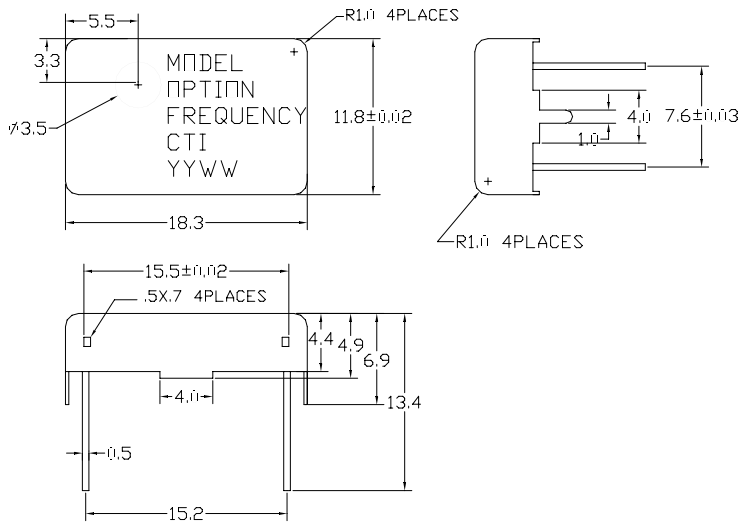
### ELECTRICAL SPECIFICATIONS

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)	$\pm 28$	
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)	$\pm 5$ min.	
Transfer Function	Positive	
Input Impedance	> 50K $\Omega$ @ 10KHz	
Frequency Stability (ppm)		
Overall	$\pm 10$ ppm (Inclusive of Calibration, Temperature, Voltage, Load and 10 yr.Aging)	
25 $^{\circ}\text{C}$ Calibration	$\pm 1$ ppm	
Over Operating Temperature	$\pm 3$ ppm	
Aging 1st Year	$\pm 1$ ppm	
Temperature Range ( $^{\circ}\text{C}$ )		
Operating	$-40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$	
Storage	$-40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$	
Supply Voltage (V)	$+3.3\text{V} \pm 5\%$	
Output ("Clipped" Sine Wave)	1.0V p-p min., 10K $\Omega$ /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

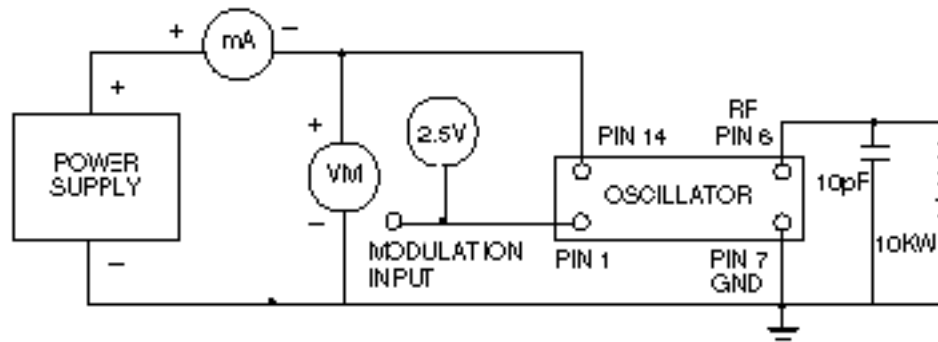
**K1613** - Specify Frequency

## 5V Voltage Controlled Temperature Compensated Crystal Oscillators



PIN	FUNCTION
1	Voltage Control
7	Gnd/ & Case Gnd
8	Output
14	+V <sub>CC</sub>

### 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 <sup>-8</sup> 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