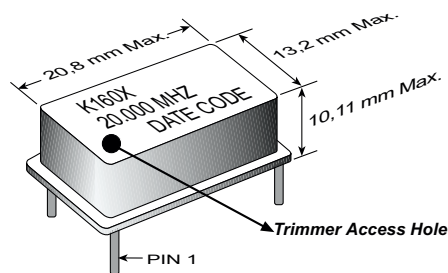


# K1601 & K1602 Series

## 14 pin DIP, 5.0 Volt, Sinewave, TCXO



- ♦ **Applications:** Phase Locked Loops  
Clocking "Sync" to NTSC Video Standards;  
Reference Signal; Signal Tracking
- ♦ 16.0 to 30.0 MHz Frequency Range
- ♦ Manual Frequency Adjusted
- ♦  $\pm 1$ ppm Stability; 0°C to 55°C Op. Temperature
- ♦  $\pm 2$ ppm Stability; -40°C to 85°C Op. Temperature
- ♦ "Clipped" Sine Wave Output
- ♦ Non Hermetic Package



### ELECTRICAL SPECIFICATIONS

| Model                                 | K1601                                                          | K1602          |
|---------------------------------------|----------------------------------------------------------------|----------------|
| Frequency Range (MHz)                 | 16.0 to 30                                                     |                |
| 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 ( $\pm 3$ dB)    | > 20KHz                                                        |                |
| Nominal Control Voltage (V)           | 2.5                                                            |                |
| Control Voltage Range (V)             | 0.5 to 4.5                                                     |                |
| Manual Adjusted (ppm)                 | $\pm 5$ min.                                                   |                |
| Transfer Function                     | Positive                                                       |                |
| Input Impedance                       | > 50K $\Omega$ @ 10KHz                                         |                |
| Frequency Stability (ppm)             |                                                                |                |
| Overall                               | Inclusive of Calibration, Temperature, Voltage, Load and Aging |                |
| 25°C Calibration                      | $\pm 1.5$                                                      |                |
| Aging 10 Years (ppm)                  | $\pm 2.0$                                                      |                |
| Over Operating Temperature            | $\pm 1.0$                                                      | $\pm 2.0$      |
| Temperature Range (°C)                |                                                                |                |
| Operating                             | 0°C to +55°C                                                   | -40°C to +85°C |
| Storage                               | -40°C to +85°C                                                 |                |
| Supply Voltage (V)                    | +5.0V $\pm 5\%$                                                |                |
| Output ("Clipped" Sine Wave)          | 1.0V p-p min., Clipped Sine Wave; 10K $\Omega$ /10pF           |                |
| Start Up Time (ms)                    | <5                                                             |                |
| SSB Phase Noise (dBC/Hz)              | 10Hz                                                           | -70            |
| Offset from Carrier                   | 100Hz                                                          | -95            |
|                                       | 1KHz                                                           | -120           |
|                                       | 10KHz                                                          | -140           |
|                                       | 100KHz                                                         | -150           |

### PART NUMBERING GUIDE

K160X - Specify Frequency

|       |                                                    |
|-------|----------------------------------------------------|
| "1"   | = 0°C to 55°C Operating Temp.                      |
| "1-R" | = RoHS Compliant and 0°C to 55°C Operating Temp.   |
| "2"   | = -40°C to 85°C Operating Temp.                    |
| "2-R" | = RoHS Compliant and -40°C to 85°C Operating Temp. |

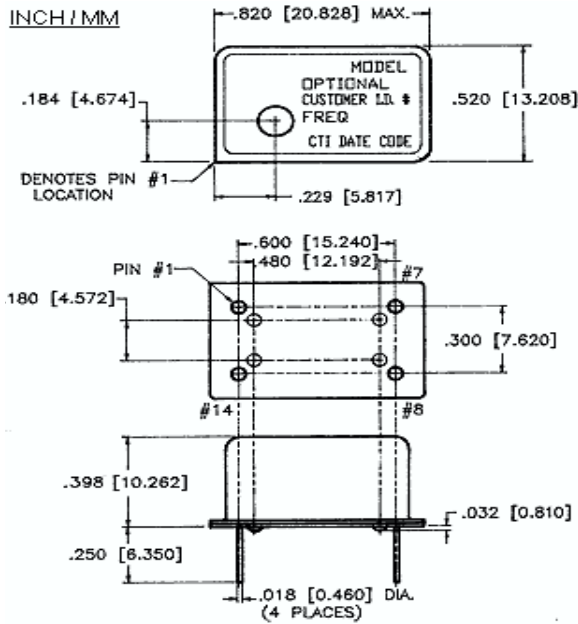
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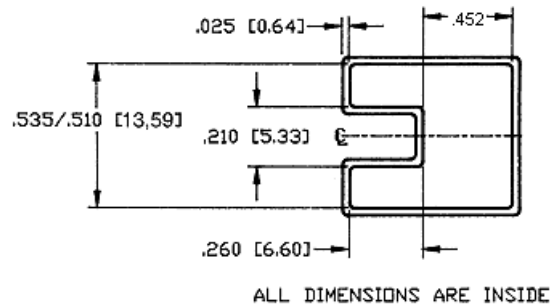
# K1601 & K1602 Series

## 14 pin DIP, 5.0 Volt, Sinewave, TCXO

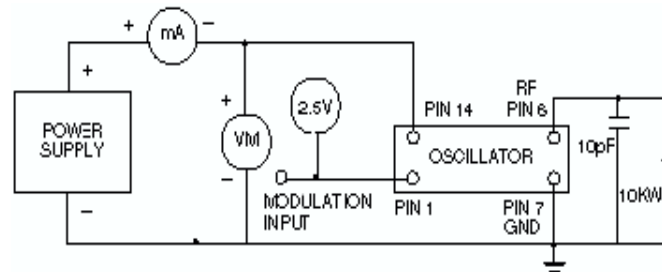


| PIN | FUNCTION          |
|-----|-------------------|
| 1   | Voltage Control   |
| 7   | Gnd/ & Case Gnd   |
| 8   | Output            |
| 14  | + V <sub>CC</sub> |

### SHIPPING TUBE CROSS SECTION



### TEST CIRCUIT DIAGRAM



### MECHANICAL AND ENVIRONMENTAL SPECIFICATIONS

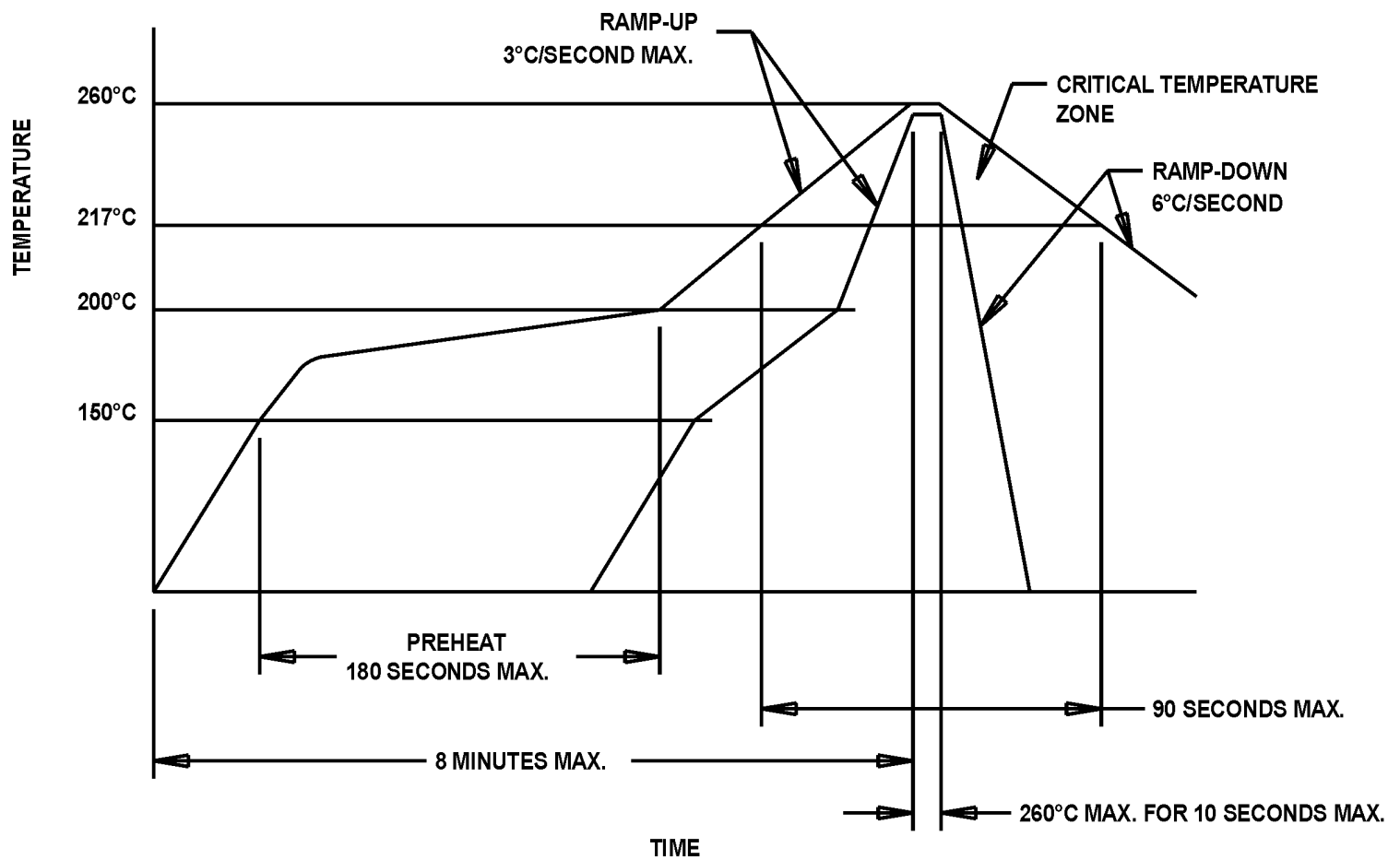
| TEST METHODS            | REFERENCE PROCEDURES                 | DESCRIPTION                                            |
|-------------------------|--------------------------------------|--------------------------------------------------------|
| Temperature Cycle       | MIL-STD-833, Mtd 1010, Cond. 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       |                                                        |
| 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                     |

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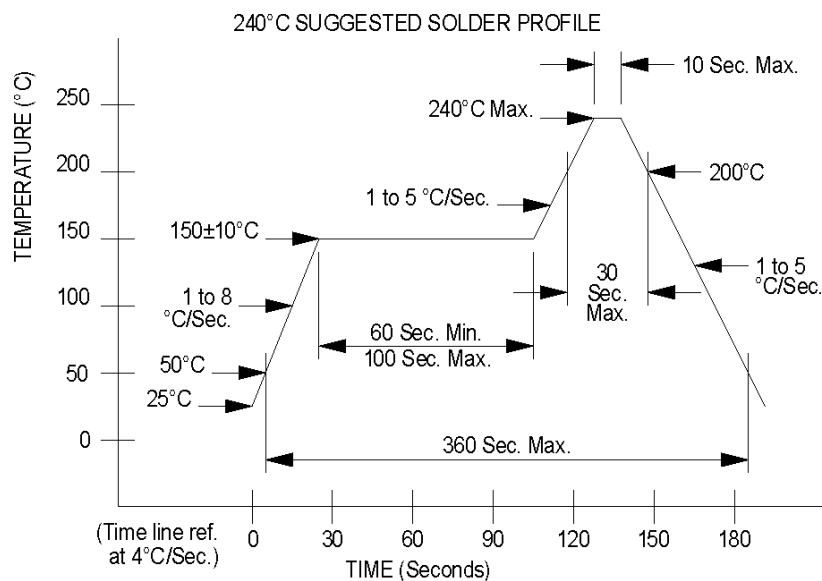
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## MtronPTI Lead Free Solder Profile



## MtronPTI Non-RoHS Profile

240°C  
All the remaining surface mount,  
both crystal and oscillator.



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