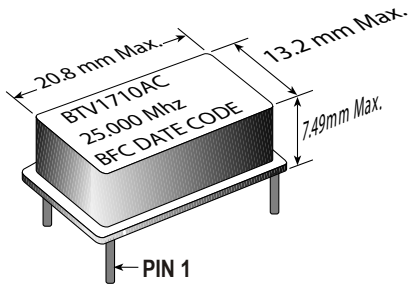
# 5V Temperature Compensated Voltage Controlled Crystal Oscillators

**Applications:**

- Phase Locked Loops
- Clocking
- Sync. for NTSC Video Standards
- Reference Signal
- Signal Tracking
- ATM




**Features:**

- 2.0 to 35.0 MHz Frequency Range
- ±10ppm Frequency Stability; 0°C to 70°C (BTV1710)
- ±20ppm Frequency Stability; -40°C to 85°C (BTV1720)
- -40°C to 85°C Operating Temperature
- TTL/CMOS Output
- Meets Stratum IV Stability Requirements
- Hermetically Sealed Package

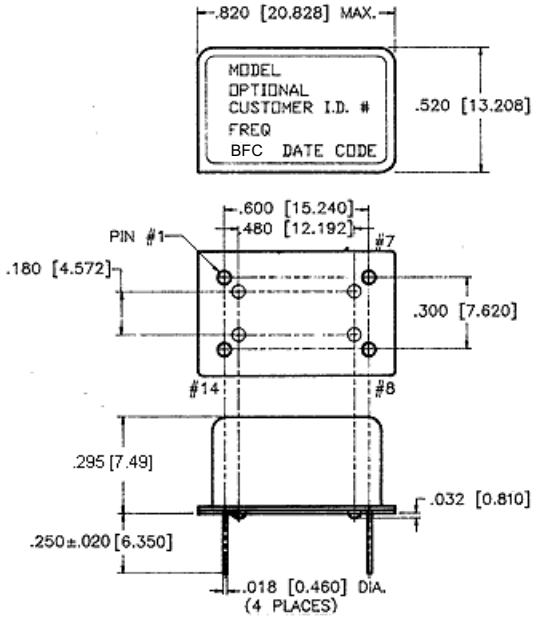
## Electrical Specifications

| Model | BTV1710AC | BTV1720ACM |
|---|---|---|
| Frequency Range (MHz) | 2.0 to 35.0 | |
| Input Current (mA) | < 30 | |
| Frequency Control Function | | |
| Deviation (ppm) | | |
| Minimum (ppm) | ± 60 | |
| Maximum | ± 120 | |
| Linearity | <10 | |
| Modulation Bandwidth (±3dB) | >20 KHz | |
| Nominal Control Voltage (V) | 2.5 | |
| Control Voltage Range (V) | 0.5 to 4.5 | |
| Transfer Function | Positive | |
| Input Impedance | >50K ohms @ 10KHz | |
| Frequency Stability (ppm) | | |
| Overall | Inclusive of Calibration, Temperature, Voltage, Load, Aging | |
| 0 to 70 C | ± 10 | |
| -40 to +85 C | | ± 20 |
| Aging, 10 Years | ± 3.0 | |

| | | |
|---|---|---|
| **Temperature Range (C)** | | |
| **Operating** | **0°C to 70°C** | **-40°C to 85°C** |
| **Storage** | **-40°C to +85°C** | |
| **Supply Voltage (V)** | **+5.0V ± 5%** | |
| **Symmetry CMOS/TTL** | **45/55 < 16 MHz ; 40/60> 16MHz** | |
| **Start Up Time (ms)** | **< 10** | |
| **Typical SSB Phase Noise (dBC/Hz) Offset from Carrier** | **10 Hz** | **-65** |
| | **100 Hz** | **-95** |
| | **1 KHz** | **-120** |
| | **10 KHz** | **-140** |
| | **100 KHz** | **-150** |

| PIN | Function |
|---|---|
| 1 | Voltage Control |
| 7 | Gnd/ & Case Gnd |
| 8 | Output |
| 14 | $+V_{CC}$ |

## Mechanical Dimensions



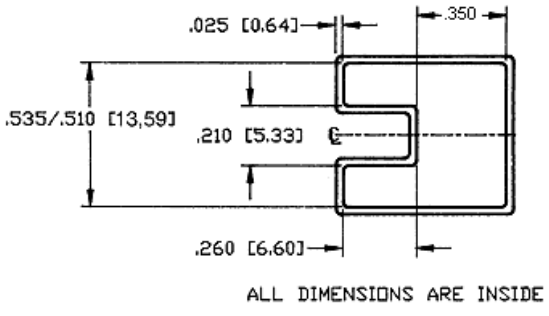

## Part Numbering Guide

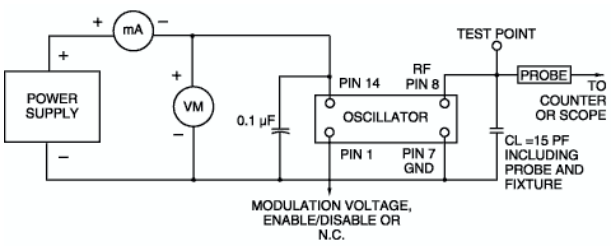
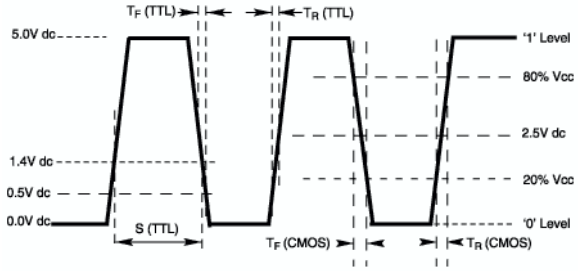
**BTV17X0X** - Specify Frequency

"Blank" = 0°C to 70°C Operating Temp.
"M" = -40°C to +85°C Operating Temp.

"1" = ±.10ppm, 0°C to 70°C Operating Temp.
"2" = ±.20ppm, -40°C to +85°C Operating Temp.

## Shipping Tube Cross Section



| Test Circuit Diagram | Output Waveform |
|---|---|
|  |  |





# Mechanical and Environmental Specifications

| Test | Reference Documents | Test Description |
|---|---|---|
| Temperature Cycle | MIL-STD-883, Mtd 1010, Cond. B | -55°C to + 25°C; Air to Air; 100 cycles; 10 min. dwell |
| Mechanical Shock | MIL-STD-883, Mtd 2002, Cond. B | 1500g's |
| Vibration | MIL-STD-883, Mtd 2007, Cond. B | 20-2000 Hz; 0.06 inch; 15 g'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 and 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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