



BVT1653T SERIES VCTCXO

BROOKDALE FREQUENCY CONTROLS, INC.



- 5.0 x 3.2 x 2.2 mm Ceramic SMD TCXOs
- HCMOS SQUARE WAVE OUTPUT
- NO MECHANICAL TRIMMER FOR AQUEOUS WASHING
- **RoHS Compliant: Pb Free**
- **REQUEST A CERTIFICATE OF CONFORMANCE**
- 0.01 uF DECOUPLING CAPACITOR BUILT-IN
- WIDE FREQUENCY RANGE: 1.0 MHZ TO 200.0 MHZ
- FREQUENCY STABILITY AS TIGHT AS ± 0.5 PPM AVAILABLE
- -40 TO +85°C TEMPERATURE RANGE AVAILABLE
- **REQUEST A QUOTE ON THIS DEVICE**

BVT1653T VCTCXO SERIES SPECIFICATION SHEET

| | | | | | | |
|---|---------------------------|---|---------------|---------------|---------------|---------------|
| Frequency Range | | 1.0 MHz to 200.0 MHz | | | | |
| Output Wave from | | Square wave HCMOS | | | | |
| Initial Calibration Tolerance ⁽¹⁾ | | ± 2 ppm at +25°C ± 2 °C and Vcon = +1.5VDC | | | | |
| FREQUENCY STABILITY | | ± 0.5 ppm | ± 1.0 ppm | ± 1.5 ppm | ± 2.0 ppm | ± 2.5 ppm |
| TEMPERATURE RANGE | 0°C to +50°C | AVAILABLE | AVAILABLE | AVAILABLE | AVAILABLE | AVAILABLE |
| | -10°C to +60°C | CALL US | AVAILABLE | AVAILABLE | AVAILABLE | AVAILABLE |
| | -20°C to +70°C | Not Available | AVAILABLE | AVAILABLE | AVAILABLE | AVAILABLE |
| | -30°C to +75°C | Not Available | AVAILABLE | AVAILABLE | AVAILABLE | AVAILABLE |
| | -40°C to +85°C | Not Available | AVAILABLE | AVAILABLE | AVAILABLE | AVAILABLE |
| FREQUENCY STABILITY | Vs. Aging | ± 1.0 ppm max. first year at +25°C | | | | |
| | Vs. Voltage Change | ± 0.3 ppm max. for a $\pm 5\%$ input voltage change | | | | |
| | Vs. Load Change | ± 0.3 ppm max. for a $\pm 10\%$ loading condition change | | | | |
| | Vs. Reflow | ± 1 ppm max. 1 reflow and measured 24 hours afterwards | | | | |
| Supply Voltage(V _{DD}) | | +2.8VDC | +3.0VDC | +3.3VDC | | |
| Current Consumption (typical) | | 2mA @ 8.192MHZ 4 mA @ 10 MHz 17 mA @77.760 MHz 35 mA @ 155.520 MHz | | | | |
| Output Voltage Range | Logic High "1" | 90% (V _{DD}) min. | | | | |
| | Logic Low "0" | 10% (V _{DD}) max. | | | | |
| Electronic Frequency Tuning V _{con} (Pad #1) | Frequency Deviation Range | ± 10 ppm typical with Vcontrol centered at = +1.5 V and Vcontrol range of ± 1.0 V | | | | |
| | Slope Polarity | Positive: Positive voltage for positive frequency shift | | | | |
| | Linearity | 10 % max. | | | | |
| Duty Cycle | | 50% $\pm 10\%$ measured @ 50% V _{DD} | | | | |
| Rise Time and Fall Time | | 10 ns max. 20% \leftrightarrow 80% of waveform | | | | |
| Start-Up Time. | | 10ms max. | | | | |
| Output Load | | 15 pF | | | | |
| SSB Phase Noise @ 25°C | Offset | 10 Hz | 100 Hz | 1 kHz | 10 kHz | 100 kHz |
| | 3.3V-100.0MHZ | -72dBc/Hz | -110dBc/Hz | -125dBc/Hz | -132dBc/Hz | -125dB/Hz |
| MSL Level | | MSL 1 per IPC/JEDEC-STD-020C | | | | |
| Humidity | | 85% RH, 85°C, 48 Hours *Crystal component only* | | | | |
| Hermeticity | | Leak rate 2x10 ⁻⁸ ATM-cm ³ /sec max | | | | |
| Solderability | | MIL-STD-202F method 208E | | | | |
| Vibration | | MIL-STD-202F method 204, 35G, 50 to 2000Hz | | | | |
| Shock | | MIL-STD-202F method 213B, test conditions E, 1000GG 1/2sine wave | | | | |
| Storage temperature range | | -55 to +125°C | | | | |

PART NUMBER GUIDE

| Model | Voltage | Stability | Operating Temperature (°C) | Frequency |
|----------|-----------|--------------------|----------------------------|-----------|
| BVT1653T | 2 = 2.8V | 5 = ± 0.5 ppm | A = 0°C to 50°C | |
| | 3 = 3.0V | 1 = ± 1 ppm | B = -10°C to 60°C | |
| | 33 = 3.3V | 15 = ± 1.5 ppm | C = -20°C to 70°C | |
| | | 2 = ± 2 ppm | D = -30°C to 75°C | |
| | | 25 = ± 2.5 ppm | M = -40°C to 85°C | |

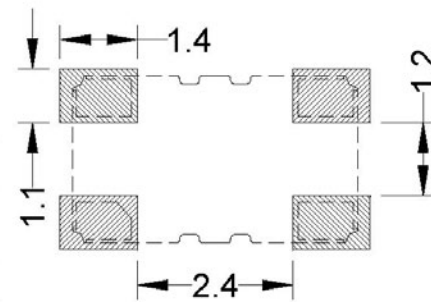
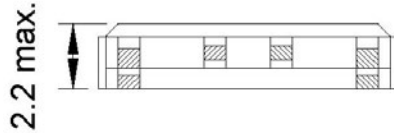
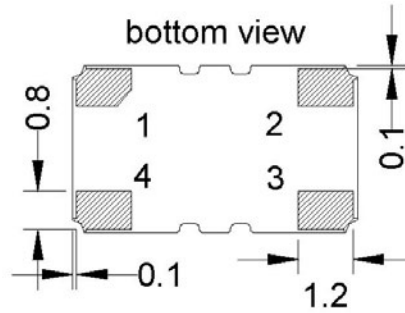
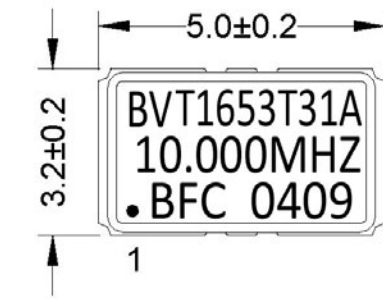
EXAMPLE

| | | | | |
|----------|---|---|---|------------|
| BVT1653T | 3 | 1 | A | 50.000 MHz |
|----------|---|---|---|------------|

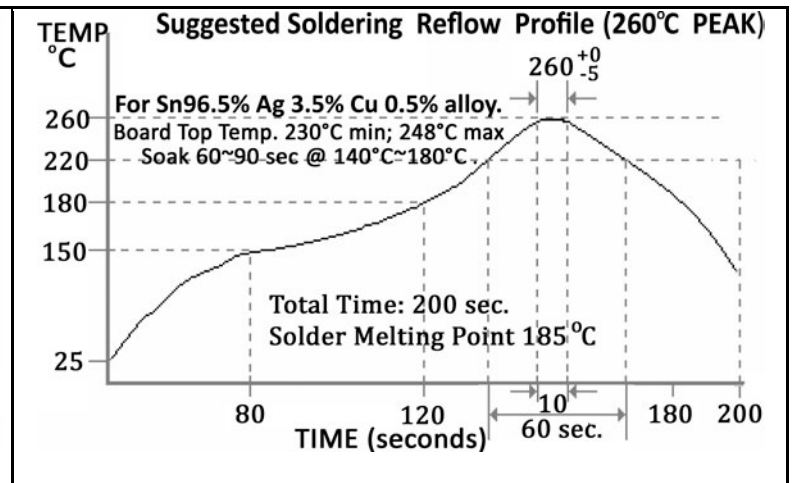
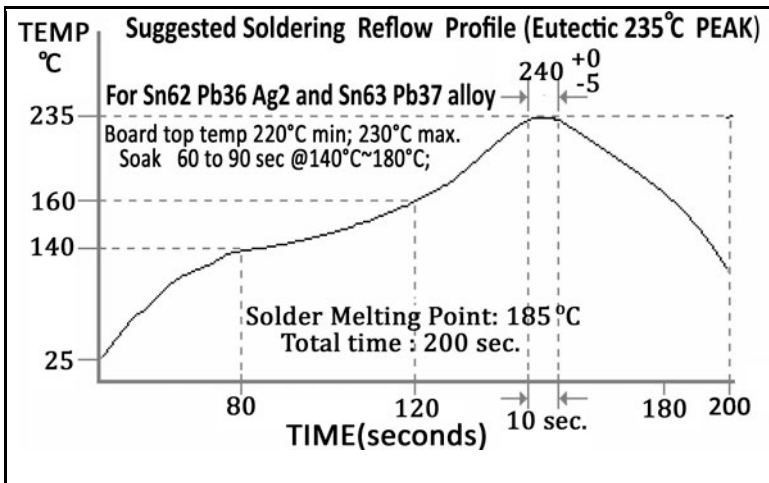


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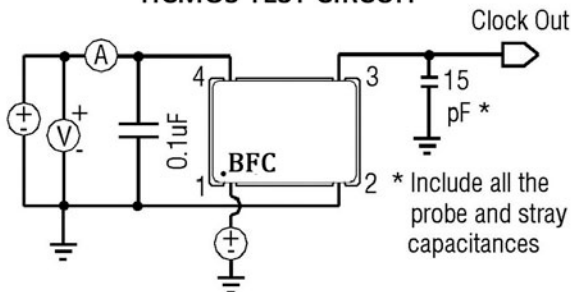
BROOKDALE FREQUENCY CONTROLS, INC.



| | |
|-------|-----------------|
| Pad 1 | Voltage Control |
| Pad 2 | Ground |
| Pad 3 | Output |
| Pad 4 | Supply Voltage |



HCMOS TEST CIRCUIT



HCMOS OUTPUT WAVEFORM

