



BT1657T SERIES

HCMOS/TTL SMD TCXO



FEATURES:

- 5.0 X 7.0 X 2.5MM CERAMIC SMD TCXOS
- HCMOS SQUARE WAVE OUTPUT
- NO MECHANICAL TRIMMER FOR AQUEOUS WASHING
- RoHS Compliant
- 0.01 UF DECOUPLING CAPACITOR BUILT-IN
- WIDE FREQUENCY RANGE: 1.0 MHZ TO 156.0 MHZ
- FREQUENCY STABILITY AS TIGHT AS ± 0.5 PPM AVAILABLE
- -40 TO +85°C TEMPERATURE RANGE AVAILABLE

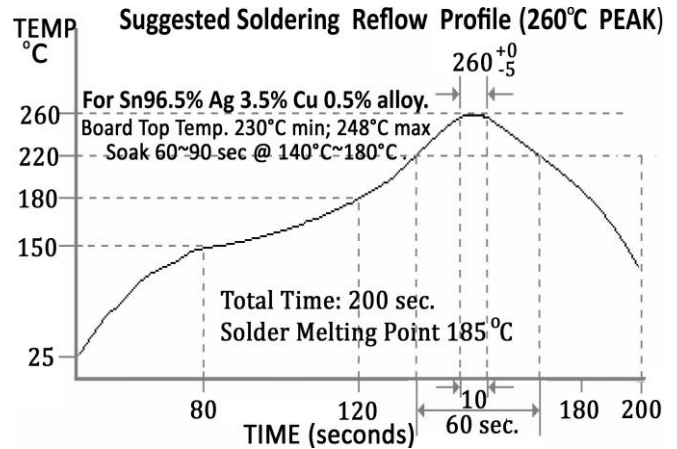
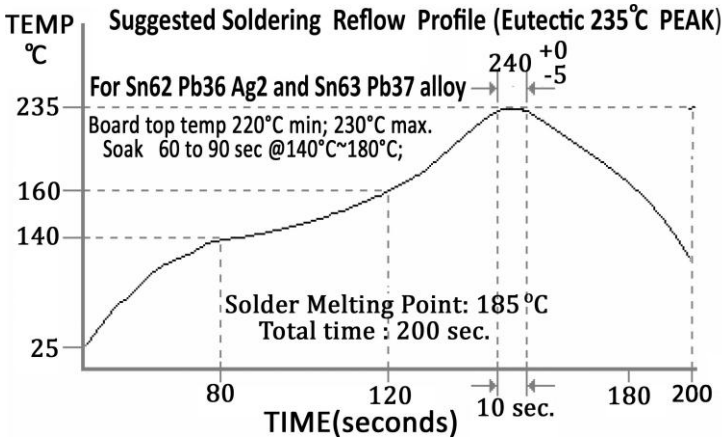
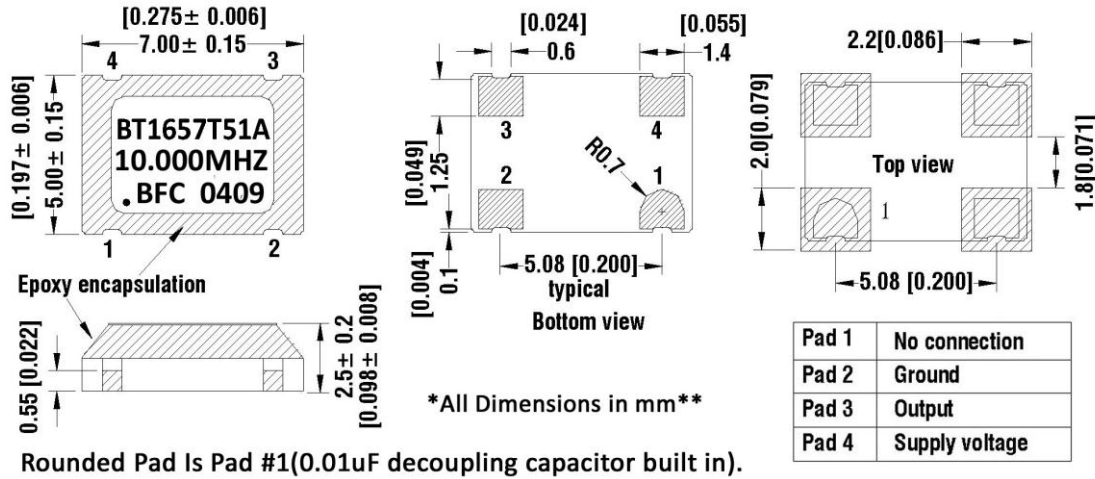
BT1657T TCXO SERIES SPECIFICATION SHEETS								
Frequency Range		1.0 MHz ~ 156.0 MHz						
Output Wave form		Square wave HCMOS						
Initial Calibration Tolerance ⁽¹⁾		± 2 ppm at +25°C ± 2 °C						
Frequency Stability		± 0.5 ppm	± 1.0 ppm	± 1.5 ppm	± 2.0 ppm	± 2.5 ppm		
TEMPERATURE RANGE	0°C to +50°C	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	+5VDC			
Current Consumption (typical)		2 mA @ 8.192MHz 3 mA @ 10 MHz 14 mA @ 77.760 MHz 26 mA @ 155.520 MHz	2mA @ 8.192MHz 4 mA @ 10 MHz 17 mA @ 77.760 MHz 35 mA @ 155.520 MHz	5 mA @ 8.192MHz 7 mA @ 10 MHz 32 mA @ 77.760 MHz 50 mA @ 155.520 MHz				
Output Voltage Range	Logic High "1"	90% (V _{DD}) min.						
	Logic Low "0"	10% (V _{DD}) 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 At 25°C	Offset	10 Hz	100 Hz	1 kHz	10 kHz	100 kHz	1 MHz	5 MHz
	3.3V-10.000MHZ	-93dBc/Hz	-117dBc/Hz	-137dBc/Hz	-144dBc/Hz	-144dB/Hz	-151dBc/Hz	-152dBc/Hz
	3.3V-155.520MHZ	-62dBc/Hz	-88dBc/Hz	-111dBc/Hz	-121dBc/Hz	-116dBc/Hz	-107dBc/Hz	-122dBc/Hz
Green Requirement		RoHS Compliant, Pb Lead Free						
MSL Level		MSL 1 per IPC/JEDEC-STD-020C						
Humidity		85% RH, 85°C, 48 Hours						
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						
Solderability		MIL-STD-202F method 208E						
PART NUMBER GUIDE								
Model	Voltage	Stability		Operating Temperature (°C)			Frequency	
BT1657T	2 = 2.8V	1 = ± 1 ppm		A = 0°C to 50°C				
	3 = 3.0V	15 = ± 1.5 ppm		B = -10°C to 60°C				
	33 = 3.3V	2 = ± 2 ppm		C = -20°C to 70°C				
	5 = 5.0V	25 = ± 2.5 ppm		D = -30°C to 75°C				
			5 = ± 0.5 ppm		M = -40°C to 85°C			
EXAMPLE								
BT1657T	3	1		A			50.000 MHz	
Suffix "B" After Frequency Denotes changes in Product Change Notice # PCN012810B								



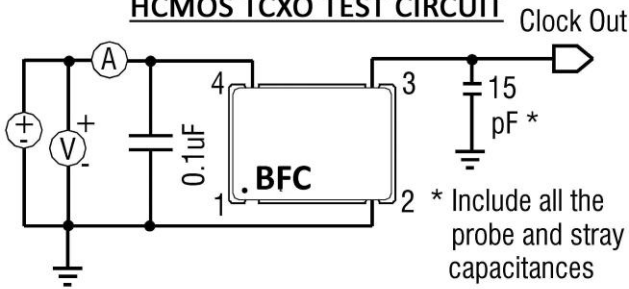
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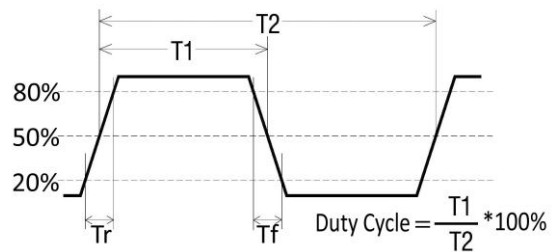
MECHANICAL DIMENSIONS AND LAND PATTERN



HCMOS TCXO TEST CIRCUIT



HCMOS OUTPUT WAVEFORM



PHASE NOISE (dBc/Hz)

