

北京金科佳华电子科技有限公司

Temperature Compensated Crystal Oscillators TCXO, M572T Series, CMOS Output

Features:

- ◆ 5x7x2.3 mm ceramic SMD TCXOs with CMOS square wave output
- ◆ Wide frequency range: 1.0 MHz to 156.0 MHz
- ◆ Frequency stability as tight as ± 0.5 ppm over 0°C to $+55^{\circ}\text{C}$ or ± 1 ppm over -40 to $+85^{\circ}\text{C}$
- ◆ An Improved version of the original M57T series with an identical footprint



General Specifications (at $+25^{\circ}\text{C}$ and specified input voltage)

Product Series		M572T						
Frequency Range		1.0 MHz ~ 156.0 MHz NOTE: 20 to 52.7 KHz including 32.768 KHz is also available						
Output Wave Form		Square wave. Wave form code is "T"						
Initial Calibration Tolerance ⁽¹⁾		± 2 ppm at $+25^{\circ}\text{C} \pm 2^{\circ}\text{C}$						
Standard Frequencies		10.0, 12.8, 13.0, 14.4, 16.0, 16.384, 19.2, 19.440, 19.680, 20.0, 25.0, 27.0, 38.880, 77.760, 155.520 MHz (partial list)						
Frequency Stability (ppm)		± 0.5 ppm	± 1 ppm	± 1.5 ppm	± 2.0 ppm	± 2.5 ppm		
Operating Temperature Range	0 to $+55^{\circ}\text{C}$	✓	✓	✓	✓	✓	✓: Available □: Call us ✗: Not Available	
	-10 to $+60^{\circ}\text{C}$	✓	✓	✓	✓	✓		
	-20 to $+70^{\circ}\text{C}$	✓	✓	✓	✓	✓		
	-30 to $+85^{\circ}\text{C}$	□	✓	✓	✓	Standard		
	-40 to $+85^{\circ}\text{C}$	✗	□	✓	✓	✓		
Frequency Stability vs Aging vs Voltage Change vs Load Change vs Reflow		± 1.0 ppm max. first year at $+25^{\circ}\text{C}$ ± 0.2 ppm max. for a $\pm 5\%$ input voltage change ± 0.2 ppm max. for a $\pm 10\%$ loading condition change ± 1 ppm max. 1 reflow and measured 24 hours afterwards						
Supply Voltage (V_{DD})	+2.8 V (voltage code is "28")	+3.0 V (voltage code is "3")			+3.3 V (voltage code is "33")		+5.0 V (voltage code is "5")	
Current Consumption (typical)	2 mA @ 8.192MHz 3 mA @ 10 MHz 5 mA @ 24.576 MHz 11 mA @ 60.000 MHz 19 mA @ 150.000 MHz	2 mA @ 8.192MHz 4 mA @ 10 MHz 6 mA @ 24.576 MHz 14 mA @ 60.000 MHz 23 mA @ 150.000 MHz			5 mA @ 8.192MHz 7 mA @ 10 MHz 10 mA @ 24.576 MHz 24 mA @ 60.000 MHz 36 mA @ 150.000 MHz			
Output Voltage Levels	Logic "1"	90% V_{DD} min.						
	Logic "0"	10% V_{DD} max.						
Rise Time and Fall Time		1.0 ~ 3.0 nano. sec. max. Freq. dependent. Measured at 20% \leftrightarrow 80% of the waveform.						
Duty Cycle (Symmetry)		50% \pm 10%. Measured at 50% of the waveform.						
Start-up Time		10 m. sec. max.						
Output Load		15 pF						
SSB Phase Noise (dBc/Hz) and RMS Jitter (All at $+25^{\circ}\text{C}$, typical)	Offset	10 Hz	100 Hz	1 kHz	10 kHz	100 kHz	1 MHz	5 MHz
	M572T33-10.000 (see plot below)	-96	-120	-135	-142	-143	-149	-150
	M572T5-10.000	-93	-120	-137	-144	-145	-152	-152

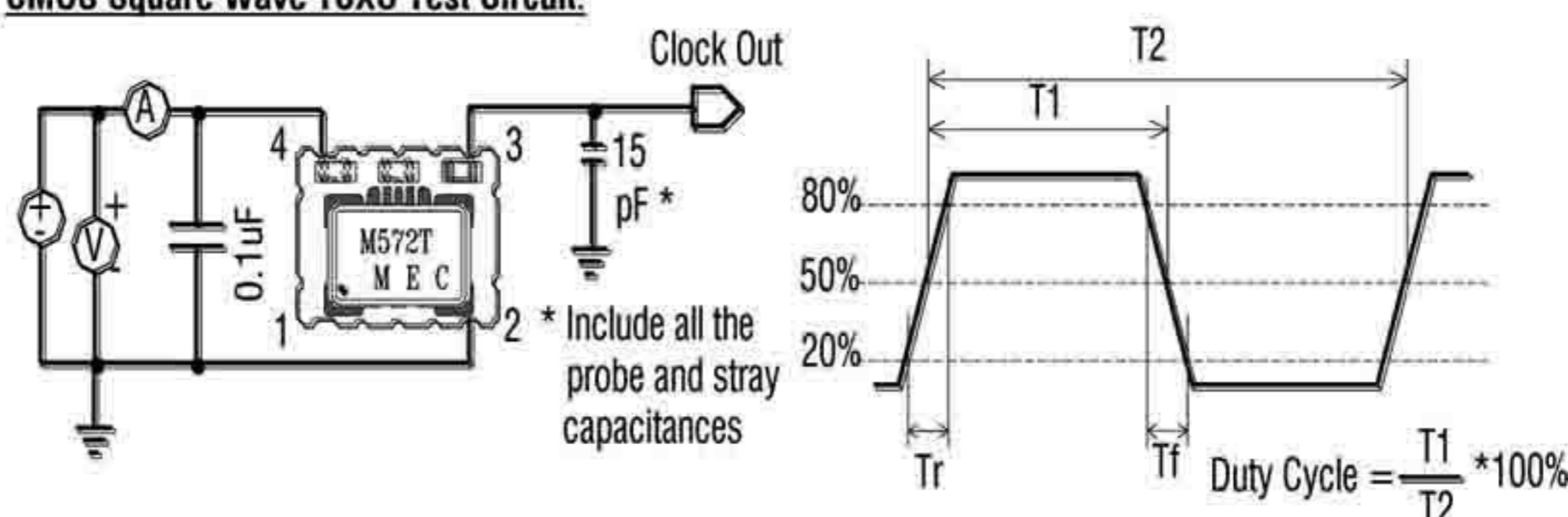
values)		RMS Jitter: 1.8 ps typical						
	M572T33-40.000	-71	-109	-118	-119	-116	-108	-116
		RMS Jitter: 30.0 ps typical						
	M572T33-64.000	-68	-99	-118	-121	-117	-109	-120
		RMS Jitter: 18.0 ps						
	M572T33-150.000	-63	-91	-108	-116	-112	-105	-122
		RMS Jitter: 10.0 ps						
	M572T33-155.520	-54	-91	-110	-116	-108	-105	-122
		RMS Jitter: 11.4 ps						



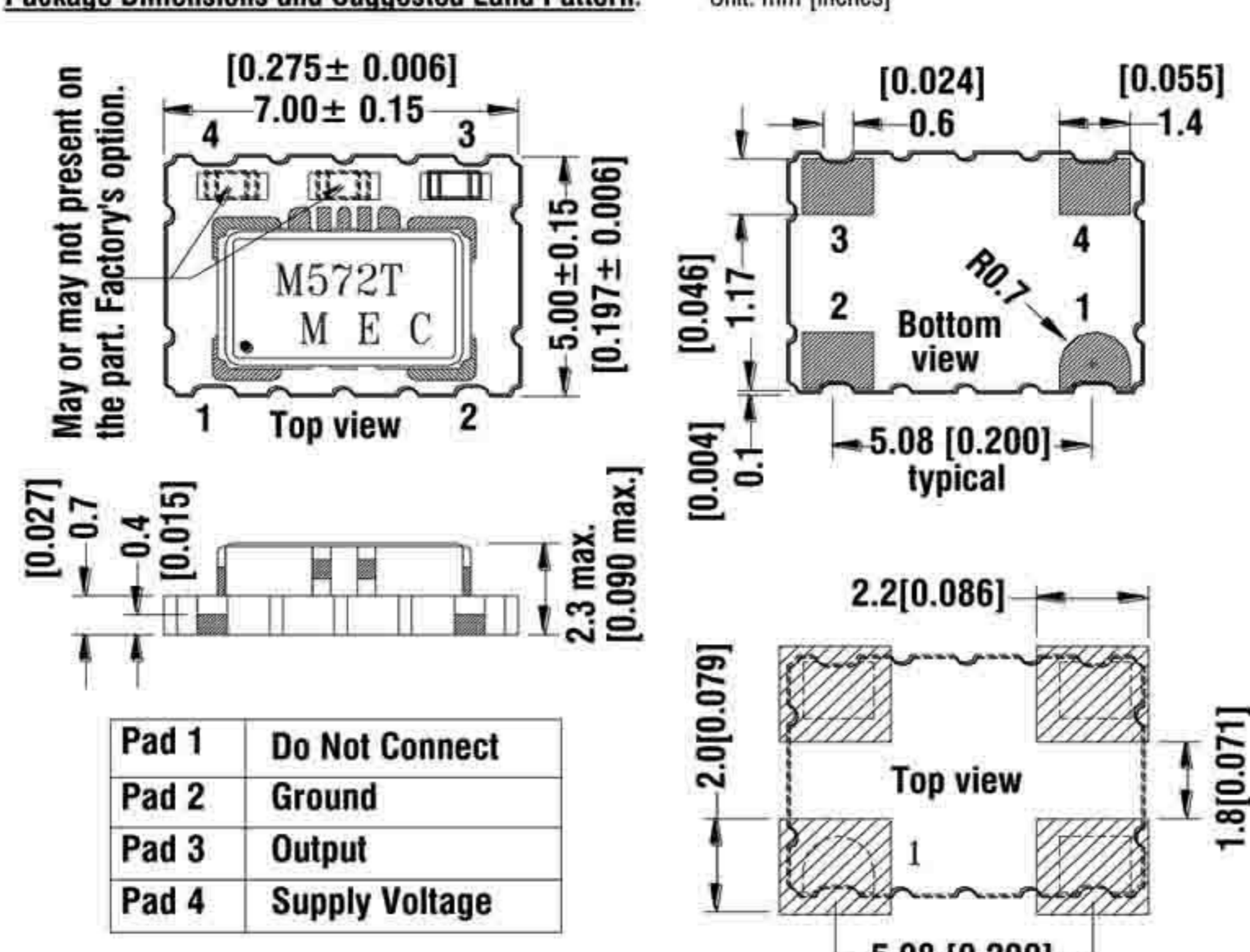
Environmental Performance Specifications

Green Requirement	RoHS compliant, Pb (lead) free in accordance with EU Directive 2002/95/EC
MSL Level	Level 1 according to IPC/JEDEC J-STD-020D.1
Humidity	85% RH, 85°C , 48 hours
Hermeticity	Leak rate 2×10^{-8} ATM-cm ³ /sec max. (Crystal part only).
Solderability	MIL-STD-202F method 208E
Vibration	MIL-STD-202F method 204, 35G, 50 to 2000 Hz
Shock	MIL-STD-202F method 213B, test condi. E, 1000GG $\frac{1}{2}$ sine wave
Electrostatic Sensitivity	Human body model (HBM) according to IEC 61000-4-2.
Storage temp. range	-55 to $+125^{\circ}\text{C}$
Contact pad surface finish	0.3~1.2 μm gold over 1.27~8.89 μm nickel

CMOS Square Wave TCXO Test Circuit:



Package Dimensions and Suggested Land Pattern:



Rounded pad is pad No. 1. Count counter-clockwise when looking at top view. Count clockwise when looking at bottom view. Decoupling capacitor is not built-in.