Dynamic Engineers Inc.
2550 Gray Falls Dr., Suite#128, Houston, TX, 77077 USA
TEL: 1-281-870-8822 EMAIL:Sales@DynamicEng.com

TCXO7500Z-50MHz-A-V
High Stability Low Aging TCXO

Features and Benefits

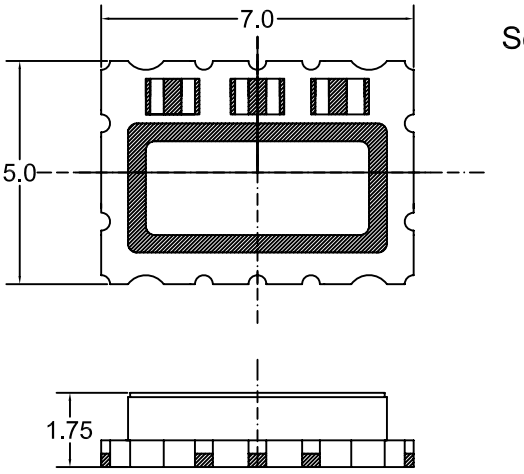
Better than ±1.0PPM from -40°C to +85°C
3.3V supply; 10mA maximum
Less than -130dBc/Hz @ 1KHz offset

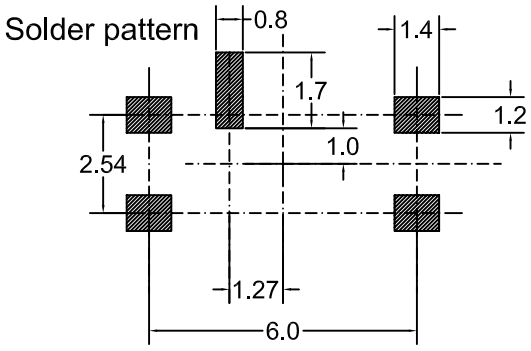
Typical Applications

Mobile Radio
Communication Equipments

Mechanical Drawing & Pin Connections

Drawing No:MD150075-2

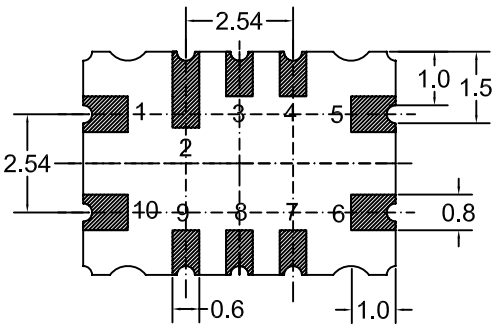




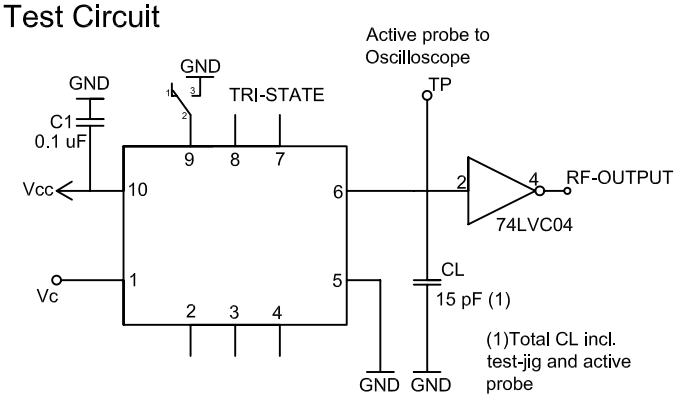
Pin Function

#1 Vc(EFC)
#5 GND
#6 Output
#9 NC or E/D
#10 Vcc

Do not connect #2, #3, #4, #7, #8



Test Circuit



Unit: mm
1mm=0.0394inch

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Specifications

Oscillator Specification	Sym	Condition	Value			Unit	Note
			Min.	Typ.	Max.		
Nominal Frequency	F_0			50.00		MHz	
RF Output							
Output Wave Form		$V_{OH} \geq 0.9 \times V_{CC}$ / $V_{OL} \leq 0.1 \times V_{CC}$		CMOS			
Load				10		pF	
Symmetry		@ ½ Vdc	45		55	%	
Rise / Fall Time				<7		ns	
Power Supply							
Voltage	V_{cc}			3.3		V	
Current Consumption				<8		mA	
Frequency Control							
Input Impedance				>100		kΩ	
Electronic Frequency Control (EFC) Range	ΔF			>±5		ppm	
EFC Control V_C		Positive slope		+1.5		V	±1.0 V
Frequency Slope		Over operating temperature		≤0.05		ppm/°C	
Tri-State Function		Pin #6 -> oscillation		≥2.3		V	Pin #9 or open
		Pin #6 -> high impedance		≤0.9		V	Pin #9 or GND
Frequency Stability							
VS. Tolerance		@ +25°C		≤±1.0		ppm	
VS. Temperature Reference to $(F_{MAX}+F_{MIN})/2$		Over -40°C to +85°C		≤±1.0		ppm	
VS Supply Voltage Change Reference to frequency at nominal supply		±5%		≤±0.1		ppm	
VS.Load Change Reference to frequency at nominal load		±10%		≤±0.1		ppm	
Aging		1st year		≤±1.0		ppm	
		Over 10 years		≤±5.0			
Short Term Stability ADEV		T = 1 s		$<5 \times 10^{-10}$			
Phase Noise							
Phase noise@ 50 MHz carrier frequency		@ 100 Hz		-110		dBc/Hz	
		@ 1 kHz		-130			
		@ 10 kHz		-150			
		@ 100 kHz		-155			

Environmental Conditions	
Parameter	**Reference Std.**
Operating temperature range	-40°C to +85°C
Storage temperature range	-55°C to +105°C
Reflow Profiles as per IPC/JEDEC J-STD-020C	≤260°C over 10 sec. max
Moisture Sensitivity	Level 1 (unlimited)
Packing Units	Tape and Reel 500 or 1000 pcs

Environmental Conditions

Test	IEC 60068 Part …	IEC 60679-1 Clause	MIL-STD-202G Method	MIL-STD-810F Method	MIL-PRF-55310D Clause	Test Conditions (IEC)
Sealing Tests (if applicable)	2-17	5.6.2	112E		3.6.1.2	Gross leak: Test Qc. Fine leak. Test Qk
Solderablility Resistance to Soldering Heat	2-20 2-58	5.6.3	208H 210F		3.6.52 3.6.48	Test Ta method 1 Test Td_1 method 2 Test Td_2 method 2
Shock	2-27	5.6.8	213B	516.4	3.6.40	Test Ea, 3 x per axis, 100 g 6 ms half-sine pulse
Vibration Sinusoidal	2-6	5.6.7.1	201A 204D	516.4-4	3.6.38.1 3.6.38.2	Test Fc, 30 min per axis, 1 oct/min 10 Hz – 55 Hz 0.75 mm; 55 Hz – 2 kHz 10g
Vibration Random	2-64	5.6.7.3	214A	514.5	3.6.38.3 3.6.38.4	Test Fdb
Endurance Tests - Aging - Extended Aging		 5.7.1 5.7.2	108A		 4.8.35	 30 days @ 85°C 1000 h, 2000 h, 8000 h @ 85°C

Handling Precautions

Flux Residue Resistance
Yes, even an unclean board can affect analog circuit performance. Be aware if the circuit has very high resistances – even in the low MΩ - special attention may need to be paid to cleaning. A finished assembly may be adversely affected by flux or cleansing residue. The electronics industry in the past few years has joined the rest of the world in becoming environmentally responsible. Hazardous chemicals are being removed from the manufacturing process – including flux that has to be cleaned with organic solvents. Water-soluble fluxes are becoming more common, but water itself can become contaminated easily with impurities. These impurities will lower the insulation characteristics of the PCB substrate. It is vitally important to clean with freshly distilled water every time a high-impedance circuit is cleaned. There are applications that may call for the older organic fluxes and solvents, such as very low power battery powered equipment with resistors in the 10s of MΩ range. Nothing can beat a good vapor defluxing machine for ensuring that the board is clean