



Features and Benefits

High frequency stability(up to $\pm 0.3\text{ppm}$ over -40°C to $+85^\circ\text{C}$)
 1×10^{-10} short term stability ADEV (at tau = 1 sec)
SMD package design

Typical Applications

Microwave Communication
Mobile Devices

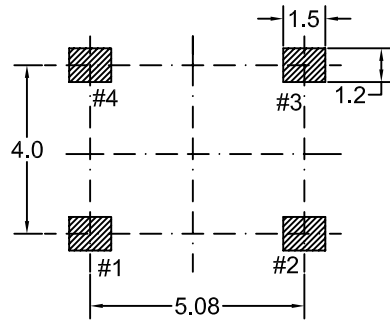
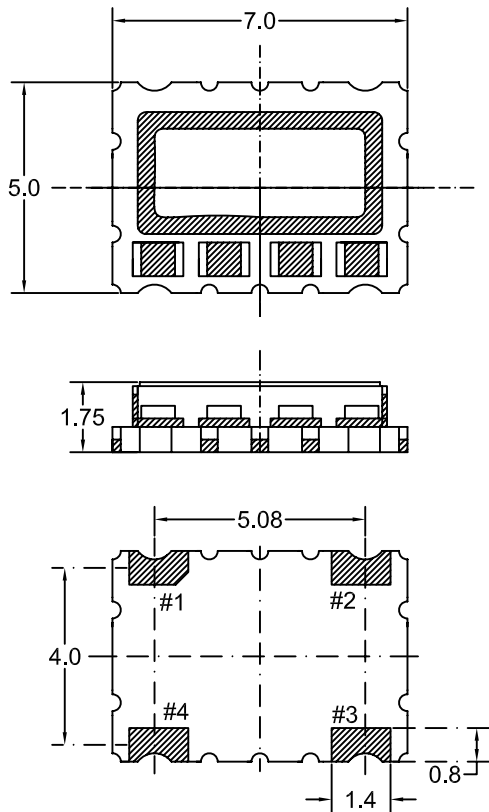
Description

TCXO7500Z-48MHz-A-V offers high frequency stability and reliable short and long term stability in a compact SMD package, which is suitable for microwave communication and mobile applications.

Mechanical Drawing & Pin Connections

Drawing No: MD1) 00+) !*

Solder pattern



Pin Function

- #1 Vc(EFC)
- #2 GND
- #3 Output
- #4 Vcc

Unit in mm
1mm = 0.0394 inches



Specifications

Oscillator Specification	Sym	Condition	Value			Unit	Note
			Min.	Typ.	Max.		
Nominal Frequency	F _O			48		MHz	
Output Waveform				CMOS			
Output High	V _{OH}			≥0.9V _{CC}		V _{CC}	
Output Low	V _{OL}			≤0.1V _{CC}		V _{CC}	
Output Load					15	pF	
Rise / Fall Time				<3		ns	
Symmetry (Duty)		@ ½ V _{CC}	45		55	%	
Start-up Time				<5		ms	
Power Supply							
Supply Voltage	V _{CC}			+3.3		V	
Current Consumption				<6		mA	
Frequency Adjustment Range							
Electronic Frequency Control (EFC)				ΔF >±5		ppm	
EFC Voltage	V _C	±1.0V		1.5		V	
EFC Slope				Positive			
Frequency Stability							
Vs Operating Temperature Reference to (F _{MAX} + F _{MIN}) / 2		Over -40°C to +85°C		≤±0.3		ppm	
Vs Supply Voltage changes Reference to frequency at nominal supply	V _S	±5%		≤±0.1		ppm	
Vs Load changes Reference to frequency at nominal load		±10%		≤±0.1		ppm	
Vs. Aging		1 st year		≤±1.0		ppm	
Short Term Stability ADEV		τ = 1 sec		1 x 10 ⁻¹⁰			
Frequency Tolerance ex-factory		@ +25°C		≤±1.0		ppm	
Phase Noise @ 48MHz		@ 100 Hz		-110		dBc / Hz	
		@ 1 KHz		-135			
		@ 10 KHz		-150			
		@ 100 KHz		-155			
Environmental Conditions							
Operating Temperature Range		-40°C to +85°C					
Storage Temperature Range		-55°C to +105°C					
Reflow Profile as per IPC/JEDEC J-STD-020C		≤ 260°C over 10 sec max.					
Moisture Sensitivity		Level 1 (unlimited)					



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
Solderability	2-20	5.6.3	208H		3.6.52	Test Ta Method 1
Resistance to soldering heat	2-58		210F		3.6.48	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 axes 100g, 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 axes, 1 oct / min 10 Hz – 55 Hz 0,75mm; 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 1000h, 2000h, 8000h @ +85°C

Test Circuit

