

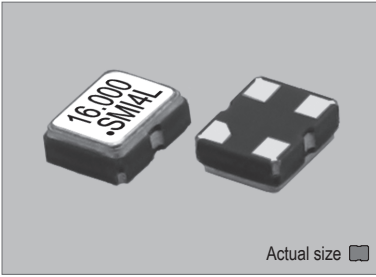
Temperature Compensated Crystal Oscillators

TCXO TRI-STATE ± 2.5 ppm 4 to 54 MHz 2.5x2.0 mm +1.8 to +3.3 V CMOS

**SXO-2520** (+1.8V to +3.3V FIXED MODELS) 2.5x2.0 mm

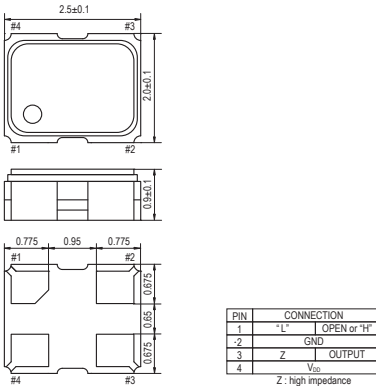
STANDARD SMD TCXO

**SXO-2520**

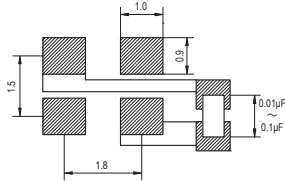


Actual size   
0.014 gm (wt.)

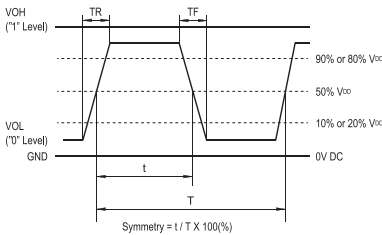
**SXO-2520**



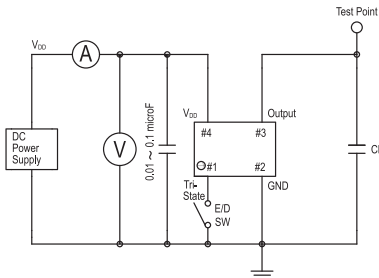
**SOLDERING PATTERN**



**OUTPUT WAVEFORM**



**TEST CIRCUIT**



CL: including fixture and probe capacitance.

**STANDARD SPECIFICATIONS**

- ENABLE / DISABLE OUTPUT CONTROL
- CMOS OUTPUT
- PACKAGE SIZE 2.5x2.0 mm

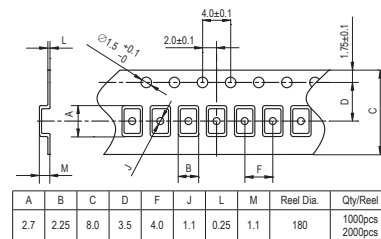
Item	Specifications					
General part number	SXO-2520*1					
Frequency range	4.000 MHz to 54.000 MHz					
Initial frequency tolerance at +25°C ±2°C	±1 ppm max.					
Frequency Stability	Temperature range	±2.5 ppm max. over -30°C to +75°C (referred to +25°C)*2				
	Input voltage change	±0.2 ppm max. at V <sub>DD</sub> ±5% DC				
	Output load change	±0.2 ppm max. at 15 pF ±10%				
	Aging	±1 ppm max. per year at +25°C ±3°C				
Operating Conditions	Operating temperature	-30°C to +75°C (Standard) -40°C to +85°C (W = Option, frequency dependent)				
	Supply voltage (V <sub>DD</sub> )	D = +1.8V*2, F = +2.5V, H = +2.8V, J = +3.0V, K = +3.3V DC ±5%				
Absolute Max. Ratings	Stand-by control voltage (Pin#1)	V <sub>H</sub> : 80% V <sub>DD</sub> min. V <sub>L</sub> : 20% V <sub>DD</sub> max.*2				
	Supply voltage	-0.5V to +4.0V DC				
Input current (max. mA)	Storage temperature	-55°C to +100°C				
		4 to 10 MHz	10 to 20 MHz	20 to 30 MHz	30 to 40 MHz	40 to 54 MHz
	+1.8V*2	3.1	3.7	4.2	4.6	5.5
	+2.5V	3.1	3.7	4.2	4.6	5.5
	+2.8V	3.4	4.1	4.7	5.2	6.0
	+3.3V	4.0	4.8	5.5	6.0	7.0
Stand-by current*3	10 µA max. (Pin#1 = V <sub>L</sub> )... -40°C to +85°C					
Output (-40°C to +85°C)	Symmetry	45% to 55% at 1/2 V <sub>DD</sub> level				
	Rise and fall times	5 ns max. (10% V <sub>DD</sub> to 90% V <sub>DD</sub> level)				
	"0" level	V <sub>OL</sub> : 10% V <sub>DD</sub> max.				
	"1" level	V <sub>OH</sub> : 90% V <sub>DD</sub> min.				
Load	15 pF max. (CMOS)					
Disable delay time	200 ns max.					
Enable delay time	10 ms max.					
Start-up time	10 ms max.					
SSB phase noise (24.000 MHz)	-145 dBc / Hz, Typical at 10 kHz offset					
Reflow condition	+250°C ±10°C for 10 seconds +170°C ±10°C for 1 to 2 minutes (preheating)					
Standard frequencies (MHz)	12.288, 16.000, 20.000, 24.000, 25.000, 32.000, 40.000, 44.000, 49.152					

(\*1) Final part number to be assigned with package type, input voltage, operating temperature and frequency.  
e.g. SXO-2520-F-24MHz  
(\*2) V<sub>DD</sub> = +1.8 V is available for only allover ±5ppm max. of frequency stability.  
(\*3) Internal crystal oscillation to be halted (Pin#1 = V<sub>L</sub>)

**PACKAGE DATA**

Item	Package	SXO-2520
Lid		Metal
Base		Ceramic
Sealing		Seam
Terminal		Tungsten (metalized)
Terminal plating		Gold / Nickel (surface) / (under)
RoHS		Compliant (Pb-free)

**TAPE SPECIFICATIONS**



XTAL

CLK OSC

VCO

TCXO

OCXO

MCF