

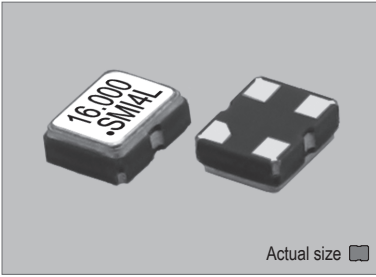
Temperature Compensated Crystal Oscillators

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

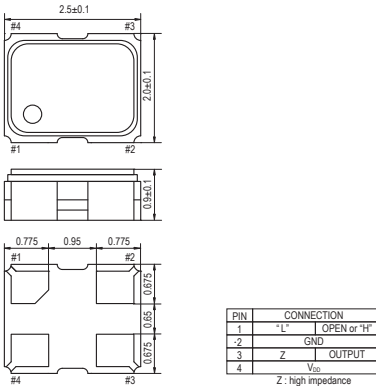
STANDARD SMD TCXO

SXO-2520

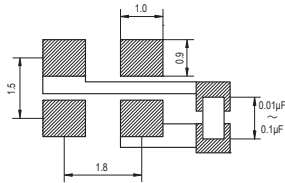


Actual size
0.014 gm (wt.)

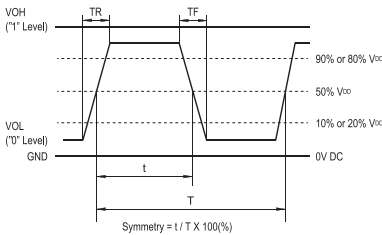
SXO-2520



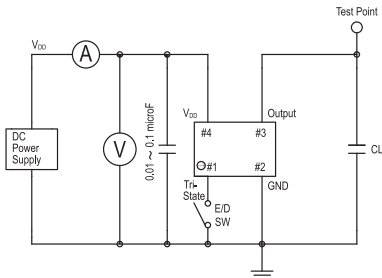
SOLDERING PATTERN



OUTPUT WAVEFORM



TEST CIRCUIT



CL: including fixture and probe capacitance.

STANDARD SPECIFICATIONS

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

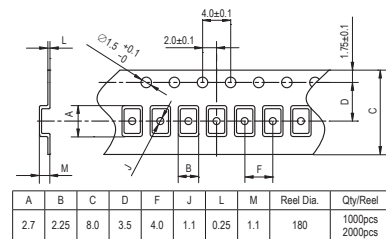
Item	Specifications																														
General part number	SXO-2520*1																														
Frequency range	4.000 MHz to 54.000 MHz																														
Initial frequency tolerance at +25°C ±2°C	±1 ppm max.																														
Frequency Stability	Temperature range	±2.5 ppm max. over -30°C to +75°C (referred to +25°C)*2																													
	Input voltage change	±0.2 ppm max. at V _{DD} ±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 _{DD})	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 _H : 80% V _{DD} min. V _L : 20% V _{DD} max.*2																													
	Supply voltage	-0.5V to +4.0V DC																													
Storage temperature	Storage temperature	-55°C to +100°C																													
	Input current (max. mA)	<table border="1"> <thead> <tr> <th></th> <th>4 to 10 MHz</th> <th>10 to 20 MHz</th> <th>20 to 30 MHz</th> <th>30 to 40 MHz</th> <th>40 to 54 MHz</th> </tr> </thead> <tbody> <tr> <td>+1.8V*2</td> <td>3.1</td> <td>3.7</td> <td>4.2</td> <td>4.6</td> <td>5.5</td> </tr> <tr> <td>+2.5V</td> <td>3.1</td> <td>3.7</td> <td>4.2</td> <td>4.6</td> <td>5.5</td> </tr> <tr> <td>+2.8V</td> <td>3.4</td> <td>4.1</td> <td>4.7</td> <td>5.2</td> <td>6.0</td> </tr> <tr> <td>+3.3V</td> <td>4.0</td> <td>4.8</td> <td>5.5</td> <td>6.0</td> <td>7.0</td> </tr> </tbody> </table>		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
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+3.3V	4.0	4.8	5.5	6.0	7.0																										
Stand-by current*3	10 µA max. (Pin#1 = V _L)... -40°C to +85°C																														
Output (-40°C to +85°C)	Symmetry	45% to 55% at 1/2 V _{DD} level																													
	Rise and fall times	5 ns max. (10% V _{DD} to 90% V _{DD} level)																													
	"0" level	V _{OL} : 10% V _{DD} max.																													
	"1" level	V _{OH} : 90% V _{DD} 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_{DD} = +1.8 V is available for only allover ±5ppm max. of frequency stability.
(*3) Internal crystal oscillation to be halted (Pin#1 = V_L)

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