

SXO-2200 SERIES (+1.8V to +3.3V FIXED MODELS) 2.5x2.0 mm

STANDARD SMD TCXO

XTAL

CLK OSC

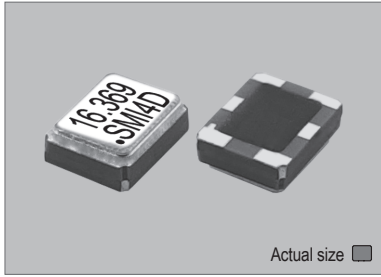
VCXO

TCXO

OCXO

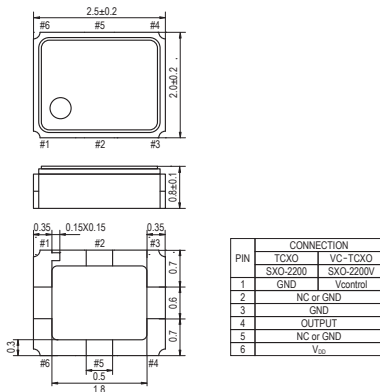
MCF

SXO-2200

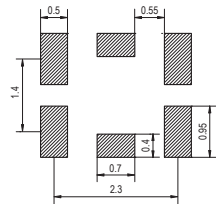


Actual size 0.014 gm (wt.)

SXO-2200



SOLDERING PATTERN

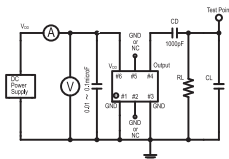


OUTPUT WAVEFORM



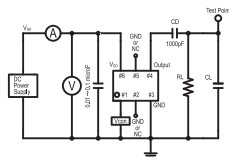
TEST CIRCUIT

SXO-2200



CD : DC-Cut capacitance
RL : 10kΩ ± 10%
CL : 10pF ± 10% including fixture and probe capacitance

SXO-2200V



CD : DC-Cut capacitance
RL : 10kΩ ± 10%
CL : 10pF ± 10% including fixture and probe capacitance

STANDARD SPECIFICATIONS

● CLIPPED SINE WAVEFORM
● PACKAGE SIZE 2.5x2.0 mm

Item	Specifications	
General part number	SXO-2200*1	SXO-2200V*1
Frequency range	13.000 MHz to 52.000 MHz	
Initial frequency tolerance at +25°C ±2°C	±1.5 ppm max.*2	±1.5 ppm max. (Vcon = 1/2 VDD)*2
TCXO or VC-TCXO	TCXO	VC-TCXO
Frequency Stability	Temperature range	±2 ppm max. over -30°C to +85°C (referred to +25°C)*3
	Input voltage change	±0.2 ppm max. at VDD ± 5% DC
	Output load change	±0.2 ppm max. at 10 kΩ ±10% with 10 pF ±10%
	Aging	±1 ppm max. per year at +25°C ±3°C
Operating Conditions	Operating temperature	-30°C to +85°C (Standard) -40°C to +85°C (W = Option, frequency dependent)
	Supply voltage (VDD)	D = +1.8V, F = +2.5V, H = +2.8V, J = +3.0V, K = +3.3V DC ± 5%
	Control voltage (Vcon)	n.a. +0.9V ± 0.8V (VDD = +1.8V) 1/2 VDD ± 1V (VDD = +2.5V to +3.3V)
Absolute Max. Ratings	Supply voltage	-0.6V to +4.6V DC
	Vcontrol voltage (Vcon)	n.a. -0.6V to VDD + 0.6V DC
	Storage temperature	-40°C to +85°C
Input current	1.5 mA max. (13.000 MHz to 30.000 MHz) 1.7 mA max. (30.000 MHz to 40.000 MHz) 2 mA max. (40.000 MHz to 52.000 MHz)	
Output (-40°C to +85°C)	Level	0.8 Vp-p min.
	Load	10 kΩ // 10 pF
	Waveform	Clipped sine wave (DC-coupling)
Frequency Adjustment	Voltage control (Vcon)	±8 to ±13 ppm (VDD = +1.8V)
		±9 to ±15 ppm (VDD = +2.5V to +3.3V)
Frequency slope	n.a.	Positive
Harmonic distortion	-5 dBc max.	
Start-up time	2 ms max.	
SSB phase noise (26.000 MHz)	-135 dBc / Hz, Typical at 1 kHz offset	
Short-term frequency stability	±1 ppb max. (Allan variance Tau = 0.1 sec.)	
IR reflow resistance	±1 ppm max. (referred to frequency before reflow)	
Reflow condition	+250°C ±10°C for 10 seconds +170°C ±10°C for 1 to 2 minutes (preheating)	
Standard frequencies (MHz)	16.368, 16.369, 19.200, 26.000, 27.456, 33.600, 38.400, 52.000	
Optional Operating Temperature*4	Low limit / Symbol	-10°C / g -15°C / h -20°C / i -25°C / j -30°C / k -35°C / l -40°C / m
	High limit / Symbol	+55°C / ff +60°C / gg +65°C / hh +70°C / ii +75°C / jj +80°C / kk +85°C / ll

(*1) Final part number to be assigned with package type, TCXO or VC-TCXO, input voltage, operating temperature and frequency. e.g. SXO-2200-F-W-26MHz

(*2) Referred to nominal frequency before reflow soldering.

(*3) At Vcon = 1/2 VDD DC for SXO-2200V

(*4) Select "low limit" and "high limit" for new operating temperature combination from the lists.

PACKAGE DATA

Item	Package	SXO-2200
Lid		Metal
Base		Ceramic
Sealing		Seam
Terminal		Tungsten (metalized)
Terminal plating		Gold / Nickel (surface) / (under)
RoHS		Compliant (Pb-free)

TAPE SPECIFICATIONS

