

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

STANDARD SMD TCXO

XTAL

CLK OSC

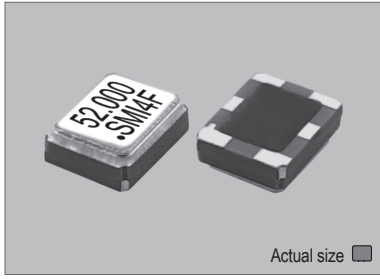
VCXO

TCXO

OCXO

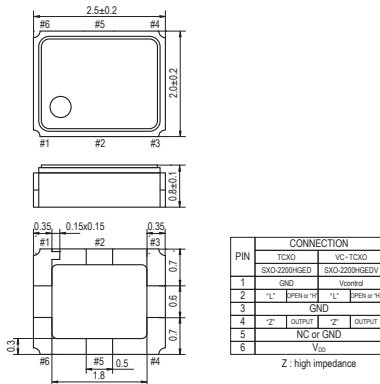
MCF

SXO-2200HGED

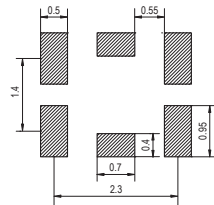


Actual size 0.014 gm (wt.)

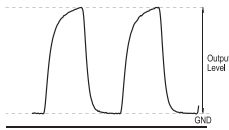
SXO-2200HGED



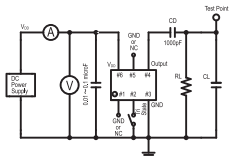
SOLDERING PATTERN



OUTPUT WAVEFORM

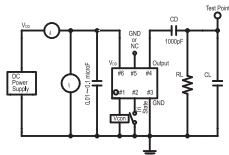


TEST CIRCUIT SXO-2200HGED



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

SXO-2200HGEDV



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

STANDARD SPECIFICATIONS

- ENABLE / DISABLE OUTPUT CONTROL
- GPS APPLICATION
- CLIPPED SINE WAVEFORM
- PACKAGE SIZE 2.5x2.0 mm

Item		Specifications	
General part number		SXO-2200HGED*1	SXO-2200HGEDV*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	±0.5 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)
	E/D control voltage (Pin#2)	V _H : 80% VDD min. (Enable) V _L : 20% VDD max. (Disable)	
Absolute Max. Ratings	Supply voltage	-0.6V to +4.6V DC	
	Vcontrol voltage (Vcon)	n.a.	-0.6V to VDD +0.6V DC
	E/D control voltage (Pin#2)	-0.6V to VDD +0.6V (+4.6V max.)	
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)	
Disable current	2 µA max. (Pin#2 = V _L)		
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)	n.a.	±8 ppm to ±13 ppm (VDD = +1.8V) ±9 ppm to ±15 ppm (VDD = +2.5V to +3.3V)
	Frequency slope	n.a.	Positive
Harmonic distortion	-5 dBc max.		
Start-up time	10 ms max.		
SSB phase noise (26.000 MHz)	-135 dBc / Hz, Typical at 1 kHz offset		
Frequency slope vs. temperature	±0.1 ppm / °C max. (-20°C to +75°C) ±0.3 ppm / °C max. (-30°C to +85°C)		
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		
Operational Operating Temperature*4	Low limit / Symbol	-10°C / g	-15°C / h
	High limit / Symbol	+55°C / ff	+60°C / gg
		-20°C / i	-25°C / j
		+65°C / hh	+70°C / ii
		-30°C / k	-35°C / l
		+75°C / jj	+80°C / kk
		-40°C / m	+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-2200HGED-J-52MHz

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

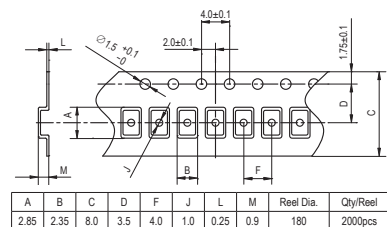
(*3) At Vcon = 1/2 VDD DC for SXO-2200HGEDV.

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

PACKAGE DATA

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

TAPE SPECIFICATIONS



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