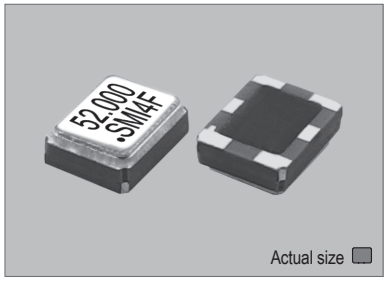
SXO-2200HGED SERIES (+1.8V to +3.3V FIXED MODELS) 2.5x2.0 mm

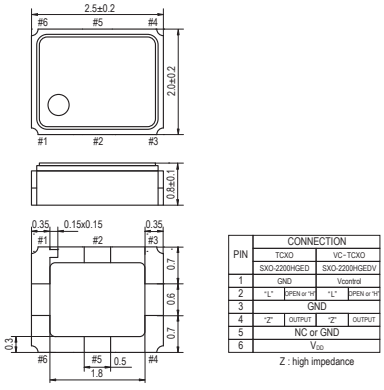
STANDARD SMD TCXO

SXO-2200HGED



0.014 gm (wt.)

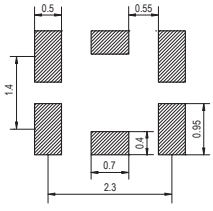
SXO-2200HGED



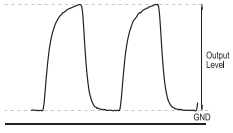
PIN	CONNECTION	
	TCXO	VC-TCXO
	SXO-2200HGED	SXO-2200HGEDV
1	GND	Vcontrol
2	"L" OPEN or "H"	"L" OPEN or "H"
3	GND	
4	"Z" OUTPUT	"Z" OUTPUT
5	NC or GND	
6	V_{DD}	

Z : high impedance

SOLDERING PATTERN

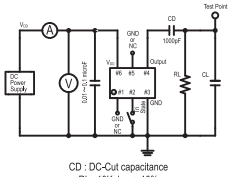


OUTPUT WAVEFORM



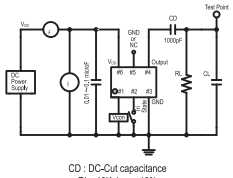
TEST CIRCUIT

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 frequnecy tolerance at +25°C ±2°C		±1.5 ppm max.*2	±1.5 ppm max. (Vcon = 1/2 V_{DD})*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 V_{DD} ±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 (V_{DD})	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 (V_{DD} = +1.8V)
			1/2 V_{DD} ±1V (V_{DD} = +2.5V to +3.3V)
	E/D control voltage (Pin#2)	V_{IH} : 80% V_{DD} min. (Enable) V_{IL} : 20% V_{DD} max. (Disable)	
Absolute Max. Ratings	Supply voltage	-0.6V to +4.6V DC	
	Vcontrol voltage (Vcon)	n.a.	-0.6V to V_{DD} +0.6V DC
	E/D control voltage (Pin#2)	-0.6V to V_{DD} +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_{IL})	
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 (V_{DD} = +1.8V)
			±9 ppm to ±15 ppm (V_{DD} = +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	

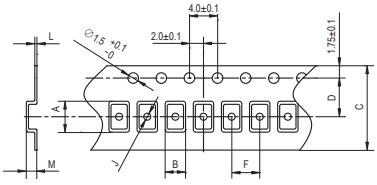
Optional Operating Temperature*4	-10°C / g	-15°C / h	-20°C / i	-25°C / j	-30°C / k	-35°C / l	-40°C / m
Low limit / Symbol							
High limit / Symbol	+55°C / ff	+60°C / gg	+65°C / hh	+70°C / ii	+75°C / jj	+80°C / kk	+85°C / ll

(*1) Final part number to be assigned with package type, TCXO or VC-TCXO, input voltage, operating temperature and frequency.
e.g. SXO-2200HGED-J-52MHz
(*2) Referred to nominal frequency before reflow soldering.
(*3) At Vcon = 1/2 V_{DD} 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



A	B	C	D	F	J	L	M	Reel Dia.	Qty/Reel
2.85	2.35	8.0	3.5	4.0	1.0	0.25	0.9	180	2000pcs