

**22SMOV** (+1.8V, +2.5V, +2.8V or +3.3V FIXED MODELS) 2.5x2.0 mm

STANDARD SMD VCXO

XTAL

CLK OSC

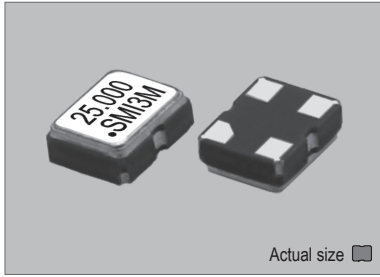
VCXO

TCXO

OCXO

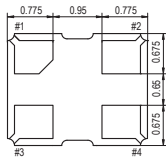
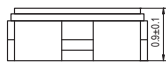
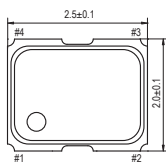
MCF

**22SMOV**



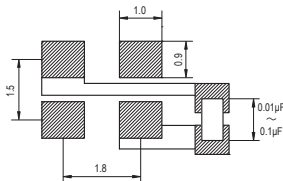
0.014 gm (wt.)

**22SMOV**

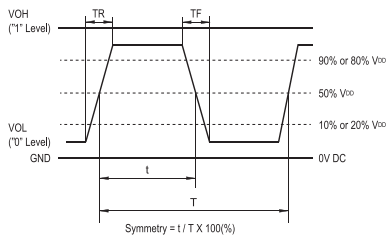


PIN	CONNECTION
1	Vcontrol
2	GND
3	OUTPUT
4	VDD

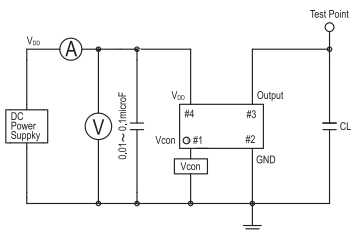
**SOLDERING PATTERN**



**OUTPUT WAVEFORM**



**TEST CIRCUIT**



CL: including fixture and probe capacitance.

**STANDARD SPECIFICATIONS**

- WIDE FREQUENCY RANGE
- CMOS OUTPUT
- PACKAGE SIZE 2.5x2.0 mm

Item		Specifications	
General part number		22SMOV*1	
Frequency range		1.300 MHz to 55.000 MHz	55.000 MHz to 100.000 MHz
Frequency stability (over all conditions)		22SMOV(B) : ±50 ppm over -20°C to +70°C 22SMOV(C) : ±30 ppm over -20°C to +70°C 22SMOV(D) : ±25 ppm over -20°C to +70°C 22SMOV(E) : ±20 ppm over -20°C to +70°C 22SMOV(BW) : ±50 ppm over -40°C to +85°C 22SMOV(CW) : ±30 ppm over -40°C to +85°C 22SMOV(DW) : ±25 ppm over -40°C to +85°C	
		Vcon = 1/2 VDD	
Frequency pulling range	VDD = +1.8V Vcon = +0.9V ±0.9V	±120 ppm min.	n.a.
	VDD = +2.5V Vcon = +1.25V ±1.25V	±120 ppm min.	n.a.
	VDD = +2.8V Vcon = +1.4V ±1.4V	±130 ppm min.	±90 ppm
	VDD = +3.3V Vcon = +1.65V ±1.65V	±130 ppm min.	±90 ppm
Frequency change vs. input voltage		±2 ppm max. (VDD ±10%)	
Operating Conditions	Operating temperature	-20°C to +70°C (Standard) -40°C to +85°C (W = Option)	
	Supply voltage (VDD)	+1.8V (Max. 55 MHz), +2.5V, +2.8V DC ±5% or +3.3V DC ±10%	
	Control voltage (Vcon = Pin#1)	1/2 VDD ±1/2 VDD DC	
Absolute Max. Ratings	Supply voltage	-0.5V to +5.0V DC	
	Vcontrol voltage	-0.5V to VDD +0.5V DC	
	Storage temperature	-40°C to +100°C	
Input current (no load)	VDD = +1.8V	2 mA max.	
	VDD = +2.5V	3 mA max.	14 mA max. (VDD = +2.8V)
	VDD = +3.3V	5 mA max.	19 mA max. (VDD = +3.3V)
Output (-40°C to +85°C)	Symmetry	45% to 55% at 1/2 VDD level	
	Rise and fall times (20% VDD to 80% VDD level)	6 ns max. (VDD = +1.8V)	n.a.
	"0" Level	VOL : 20% VDD max.	
	"1" Level	VOH : 80% VDD min.	
	Load	15 pF max. (CMOS)	
Start-up time	10 ms max.		
Frequency linearity	10 % max.		
Frequency slope	Positive		
Modulation bandwidth (-3 dB)	20 kHz, Typical (15 kHz min.)		
SSB phase noise (at VDD = +3.3V & 27.000 MHz)	-130 dBc / Hz, Typical at 1 kHz offset		
Vcon input impedance (Vcon - GND)	10 MΩ min.	5 MΩ min.	
Aging	±5 ppm max. at +25°C ±3°C for first year +250°C ±10°C for 10 seconds +170°C ±10°C for 1 to 2 minutes (preheating)		
Reflow condition			

(\*1) Final part number to be assigned with package type, input voltage, frequency stability, operating temperature and frequency. e.g. 22SMOV(3.3VB) 27.000MHz

**PACKAGE DATA**

Item	Package	22SMOV
Lid		Metal
Base		Ceramic
Sealing		Seam
Terminal		Tungsten (metalized)
Terminal plating		Gold / Nickel (surface) / (under)
RoHS		Compliant (Pb-free)

**TAPE SPECIFICATIONS**

