

XTAL

CLK OSC

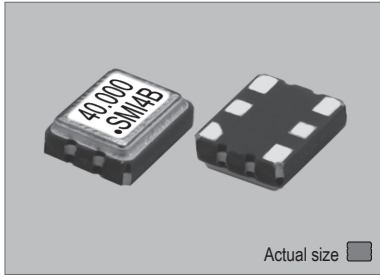
VCXO

TCXO

OCXO

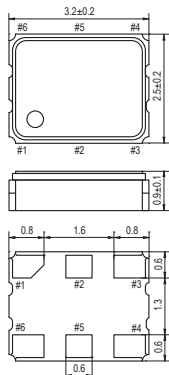
MCF

32SMOVF



Actual size 0.024 gm (wt.)

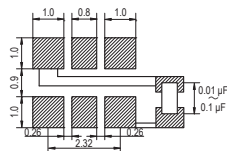
32SMOVF



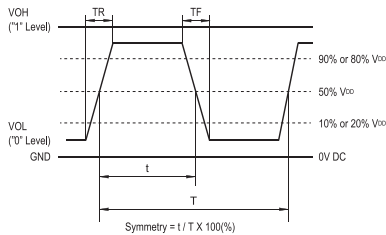
PIN	CONNECTION
1	V _{control}
2	"L", OPEN or "H"
3	GND
4	Z OUTPUT
5	N.C.
6	V _{DD}

Z: high impedance

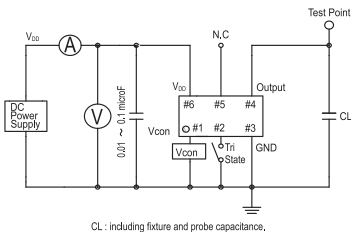
SOLDERING PATTERN



OUTPUT WAVEFORM



TEST CIRCUIT



STANDARD SPECIFICATIONS

- CMOS OUTPUT
- WIDE FREQUENCY RANGE
- PACKAGE SIZE 3.2x2.5 mm

Item	Specifications	
General part number	32SMOVF*1	
Frequency range	1.250 MHz to 62.000 MHz	62.000 MHz to 170.000 MHz
Frequency stability (over all conditions)	32SMOVF(3.3VB) : ±50 ppm over -20°C to +70°C 32SMOVF(3.3VC) : ±30 ppm over -20°C to +70°C 32SMOVF(3.3VD) : ±25 ppm over -20°C to +70°C 32SMOVF(3.3VE) : ±20 ppm over -20°C to +70°C 32SMOVF(3.3VBW) : ±50 ppm over -40°C to +85°C 32SMOVF(3.3VCW) : ±30 ppm over -40°C to +85°C 32SMOVF(3.3VDW) : ±25 ppm over -40°C to +85°C	
Frequency pulling range	V _{DD} = +3.3V V _{con} = +1.65V ±1.65V	±120 ppm min. (1.250 MHz to 40.000 MHz) ±110 ppm min. (40.000 MHz to 62.000 MHz)
Frequency change vs. input voltage	±2 ppm max. (V _{DD} ±5%)	
Operating Conditions	Operating temperature	-20°C to +70°C (Standard) -40°C to +85°C (W = Option)
	Supply voltage (V _{DD})	+3.3V DC ±10%
	Control voltage (V _{con} = Pin#1)	1/2 V _{DD} ±1/2 V _{DD} DC
	Stand-by control voltage (Pin#2)	V _H : 70% V _{DD} min. V _L : 30% V _{DD} max.*2
Absolute Max. Ratings	Supply voltage	-0.3V to +5.0V DC
	V _{control} voltage	-0.3V to V _{DD} +0.3V DC
	Storage temperature	-40°C to +100°C
Input current (no load)	5 mA max. (V _{DD} = +3.3V)	25 mA max.
Stand-by current (Pin#2 = "L")	10 µA max.	
Output (-40°C to +85°C)	Symmetry	45% to 55% at 1/2 V _{DD} level
	Rise and fall times (10% V _{DD} to 90% V _{DD} level)	6 ns max. (1.25 MHz to 40.000 MHz) 5 ns max. (40.000 MHz to 62.000 MHz)
	"0" Level	V _{OL} : 10% V _{DD} max.
	"1" Level	V _{OH} : 90% V _{DD} min.
Start-up time	10 ms max.	
Frequency linearity	10 % max.	
Frequency slope	Positive	
Modulation bandwidth (-3 dB)	15 kHz min. (25 kHz, Typical)	20 kHz min. (40 kHz, Typical)
SSB phase noise (at V _{DD} = +3.3V)	-135 dBc / Hz, Typical at 1 kHz offset (40.000 MHz) -160 dBc / Hz, Typical at 10.000 MHz offset (40.000 MHz)	-125 dBc / Hz, Typical at 1 kHz offset (155.520 MHz) -158 dBc / Hz, Typical at 10.000 MHz offset (155.520 MHz)
Disable delay time	200 ns max.	
Enable delay time	2 ms max.	
V _{con} input impedance (V _{con} -GND)	10 MΩ min.	10MΩ min. (62.000 MHz to 100.000 MHz) 5 MΩ min. (100.000 MHz to 170.000 MHz)
Aging	±5 ppm max. at +25°C ±3°C for first year	
Reflow condition	+250°C ±10°C for 10 seconds +170°C ±10°C for 1 to 2 minutes (preheating)	

(*1) Final part number to be assigned with package type, input voltage, frequency stability, operating temperature and frequency. e.g. 32SMOVF(3.3VD) 122.880 MHz
(*2) Internal crystal oscillation to be halted (Pin#2=V_{IL}).

PACKAGE DATA

Item	Package	32SMOVF
Lid		Metal
Base		Ceramic
Sealing		Seam
Terminal		Tungsten (metallized)
Terminal plating		Gold / Nickel (surface) / (under)
RoHS		Compliant (Pb-free)

TAPE SPECIFICATIONS

