

XTAL

CLK OSC

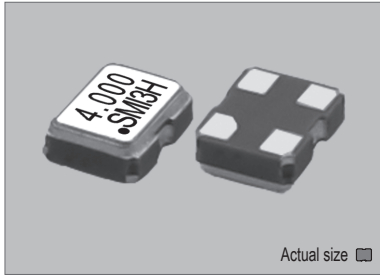
VCXO

TCXO

OCXO

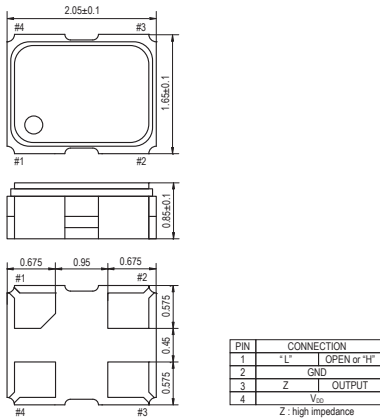
MCF

21SMO

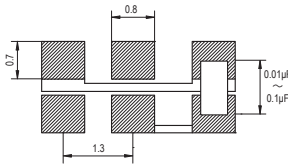


Actual size 0.008 gm (wt.)

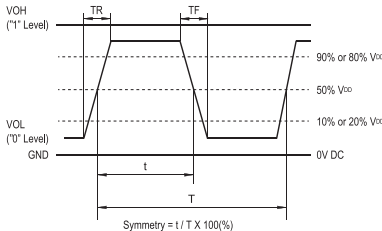
21SMO



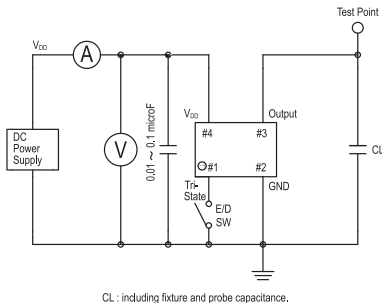
SOLDERING PATTERN



OUTPUT WAVEFORM



TEST CIRCUIT



STANDARD SPECIFICATIONS

● CMOS OUTPUT
● PACKAGE SIZE 2.0x1.6 mm

Item	Specifications		
General part number	21SMO*1		
Frequency range	1.500 MHz to 80.000 MHz		
Frequency stability (over all conditions)	21SMO(A) : ±100 ppm over -10°C to +70°C 21SMO(B) : ±50 ppm over -10°C to +70°C 21SMO(C) : ±30 ppm over -10°C to +70°C 21SMO(D) : ±25 ppm over -10°C to +70°C 21SMO(E) : ±20 ppm over -10°C to +70°C 21SMO(AW) : ±100 ppm over -40°C to +85°C 21SMO(BW) : ±50 ppm over -40°C to +85°C		
Operating Conditions	Operating temperature	-10°C to +70°C (Standard) -20°C to +70°C (SW = Standard) -40°C to +85°C (W = Option) -40°C to +105°C (WW = Option)	
	Supply voltage (V _{DD})	+1.8V, +2.5V, +3.0V or +3.3V DC ±5%	
	Stand-by control voltage (Pin#1)	V _{IH} : 70% V _{DD} min. V _{IL} : 30% V _{DD} max.*2	
Absolute Max. Ratings	Supply voltage	-0.3V to +4.0V DC	
	Storage temperature	-55°C to +100°C	
Input current (max. mA) (Pin#1 = Open or V _{IH}) No load	V _{DD}	Frequency	1.5M+ 10M+ 20M+ 30M+ 40M+ 50M+ 60M+ 70M+
		+1.8V	1.8 2.1 2.5 3.5 4.0 4.5 6.0 6.5
	+2.5V	2.5 3.0 3.5 4.5 5.0 5.5 6.5 7.0	
	+3.0V	3.0 3.5 4.0 5.0 5.5 6.0 7.5 8.5	
	+3.3V	3.5 4.0 4.5 5.5 6.0 6.5 8.0 9.0	
Stand-by current*2	10 µA max. (Pin#1 = V _{IL})		
Output (-40°C to +85°C)	Symmetry	45% to 55% at 1/2 V _{DD} level	
	Rise and fall times	6 ns max. (10% V _{DD} to 90% V _{DD} level)	
	"0" Level	V _{OL} : 10% V _{DD} max.	
	"1" Level	V _{OH} : 90% V _{DD} min.	
Load	15 pF max. (CMOS)		
Disable delay time	150 ns max.		
Enable delay time	10 ms max.		
Start-up time	10 ms max.		
SSB phase noise (at V _{DD} = +3.3V & 40.000 MHz)	-143 dBc/Hz, Typical at 1 kHz offset -157 dBc/Hz, Typical at 100 kHz offset		
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. 21SMO(2.5VC) 10.000MHz
(*2) Internal crystal oscillation to be halted (Pin#1 = V_{IL})

PACKAGE DATA

Item	Package	21SMO
Lid		Metal
Base		Ceramic
Sealing		Seam
Terminal		Tungsten (metalized)
Terminal plating		Gold / Nickel (surface) / (under)
RoHS		Compliant (Pb-free)

TAPE SPECIFICATIONS

