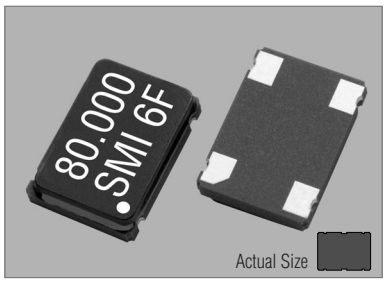
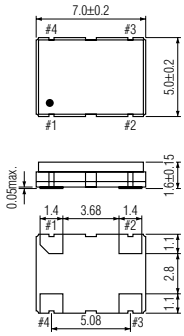
91SMO (+3.0V, +3.3V or +5V FIXED MODELS)

STANDARD SMD CLOCK OSCILLATORS

91SMO



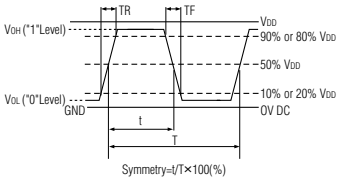
91SMO



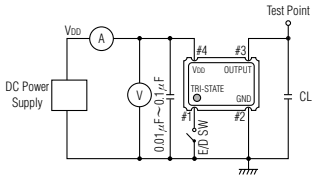
PIN	CONNECTION	
1	"L"	OPEN or "H"
2	GND	
3	Z	OUTPUT
4	V_{DD}	

Z : high impedance

OUTPUT WAVEFORM

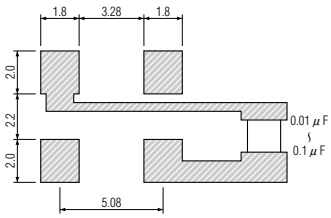


TEST CIRCUIT



CL : including fixture and probe capacitance.

SOLDERING PATTERN



STANDARD SPECIFICATIONS

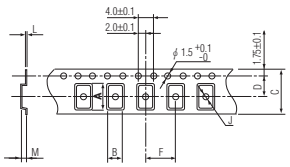
Item	Specifications			
Generic part number	91SMO※1			
Frequency range	1.8 MHz to 80.0 MHz	100.0MHz to 165.0 MHz	1.8 MHz to 80.0 MHz	1.8 MHz to 66.0 MHz
Frequency stability (−10˚C to +70˚C) over all conditions	91SMO(3VJ) : ±100 ppm 91SMO(3VJK) : ±50 ppm 91SMO(3VJS) : ±30 ppm 91SMO(3VJSS) : ±25 ppm 91SMO(3VJSSS) : ±20 ppm	91SMO(3VL) : ±100 ppm 91SMO(3VLH) : ±50 ppm 91SMO(3VLS) : ±30 ppm 91SMO(3VLSS) : ±25 ppm 91SMO(3VLSSS) : ±20 ppm	91SMO(E) : ±100 ppm 91SMO(F) : ±50 ppm 91SMO(FS) : ±30 ppm 91SMO(FSS) : ±25 ppm 91SMO(FSSS) : ±20 ppm	91SMO(X) : ±100 ppm 91SMO(Y) : ±50 ppm 91SMO(YS) : ±30 ppm 91SMO(YSS) : ±25 ppm 91SMO(YSSS): ±20 ppm
Operating Conditions				
Operating temperature	−10˚C to +70˚C (standard) −40˚C to +85˚C (W) : ±50 ppm & ±100 ppm			
Input voltage (V_{DD})	+3.0V DC ±10% or +3.3V DC ±10%		+5V DC ±10%	
Tri-state control	V_{IH} : 90%V_{DD} min. V_{IL} : 10%V_{DD} max.			V_{IH} : +2.2V_{DD} min. V_{IL} : +0.5V_{DD} max.
Absolute Max. Ratings				
Supply voltage	−0.5V to +7.0V DC			
Storage temperature	−55˚C to +125˚C			
Input current (Pin #1 = Open or V_{IH})	8 mA max. (1.8 MHz to 34 MHz)		10 mA max.(1.8 to 30 MHz)	20 mA max.(1.8 to 20 MHz)
	12 mA max. (34 MHz to 50 MHz)		15 mA max.(30 to 50 MHz)	35 mA max.(20 to 50 MHz)
	15 mA max. (50 MHz to 66 MHz)		30 mA max.(50 to 66 MHz)	60 mA max.(50 to 66 MHz)
	45 mA max. (66 MHz to 165 MHz)		50 mA max.(66 to 80 MHz)	
Stand−by current	n.a.※3	15 μA max.※2	n.a.※3	
Output (−40˚C to +85˚C)				
Symmetry	40% to 60% at 50%V_{DD} level			
Rise and fall times (10%V_{DD} to 90%V_{DD} level)	10 ns max.	3 ns max.	10 ns max.	
"0" level	V_{OL} : 10%V_{DD} max.			
"1" level	V_{OH} : 90%V_{DD} min.			
Load	15 pF max. (CMOS)			50 pF max. (CMOS)
Disable delay time	150 ns max.		100 ns max.	
Enable delay time	150 ns max.	10 ms max.	100 ns max.	
Startup time	10 ms max.			
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 exact part number to be determined with frequency, frequency stability, operating temperature and input voltage.
e.g. 91SMO(3.0VLH) 80.000 MHz.
(※2) Internal crystal oscillation to be halted (Pin #1=V_{IL}).
(※3) Stand-by (SB) function is available upon request.

PACKAGE DATA

Item / Package	91SMO
Lid	Ceramic
Base	Ceramic
Sealing	Glass
Terminal	Tungsten (metalized)
Terminal plating	Gold / Nickel (surface) / (under)
RoHS	Compliant

TAPE SPECIFICATIONS



A	B	C	D	F	J	L	M	Reel Dia.	Qty/Reel
7.4	5.4	16.0	7.5	8.0	1.5	0.3	1.9	180	1000pcs