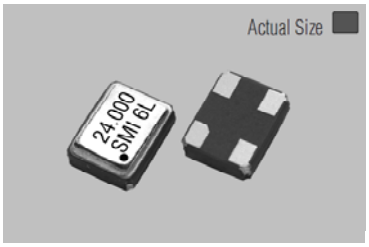
Crystal Clock Oscillators

32SMO (+1.8V, +2.5V, +3.0V or +3.3V FIXED MODELS) — **3.2x2.5mm STANDARD SMD CLOCK**

32SMO



STANDARD SPECIFICATIONS

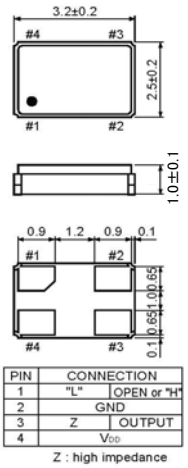
CMOS OUTPUT

Item		Specifications							
Generic part number		32SMO※1							
Frequency range		0.625 MHz to 135.000 MHz					133.000 MHz to 170.000 MHz		
Frequency stability (over all conditions)		32SMO(A) : ±100 ppm over −20℃ to +70℃ 32SMO(B) : ±50 ppm over −20℃ to +70℃ 32SMO(C) : ±30 ppm over −20℃ to +70℃ 32SMO(D) : ±25 ppm over −20℃ to +70℃ 32SMO(E) : ±20 ppm over −20℃ to +70℃ 32SMO(AW) : ±100 ppm over −40℃ to +85℃ 32SMO(BW) : ±50 ppm over −40℃ to +85℃ 32SMO(CW) : ±30 ppm over −40℃ to +85℃ 32SMO(DW) : ±25 ppm over −40℃ to +85℃							
Operating Conditions Operating temperature		−20℃ to +70℃ (Standard) −40℃ to +85℃ (W=Option)							
Supply voltage (V_{DD})		+1.8V, +2.5V, +3.0V or +3.3V ±5%					+2.5V, +3.0V or +3.3V ±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 Storage temperature		−0.5V to +4.0V DC −55℃ to +100℃							
Input current (Pin#1=Open or VIH) (max. mA)	V_{DD}	0.625MHz+	20MHz+	35MHz+	50MHz+	80MHz+	100MHz+	133MHz+	170MHz
	+1.8V	2.5	3.0	3.5	6.5	7.0	7.5	8.5	n.a.
	+2.5V	4.5	5.5	6.5	7.0	8.0	8.5	10.5	18.0
	+3.3V	6.0	7.0	8.0	9.0	9.5	10.5	13.5	21.0
Stand-by current*2		10 μA max. (Pin#1=V_{IL})							
Output (−40℃ to +85℃) Symmetry Rise and fall times "0" level "1" level Load		45% to 55% at 1/2V_{DD} level 5 ns max. (10%V_{DD} to 90%V_{DD} level) V_{OL} : 10%V_{DD} max. V_{OH} : 90%V_{DD} min. 15 pF max. (CMOS)							
Disable delay time		200 ns max.							
Enable delay time		5 ms max.							
Startup time		10 ms max.							
SSB phase noise (at V_{DD}=+3.3V & 133.0MHz)		−135 dBc/Hz, Typical at 1kHz offset −160 dBc/Hz, Typical at 1MHz offset							
Aging (non operating)		±5 ppm max. at +25℃ ±3℃ for first year							
Reflow condition		+250℃ ±10℃ for 10 seconds +175℃ ±10℃ for 1 to 2 minutes (preheating)							

(※1) Final exact part number to be determined with package type, input voltage, frequency stability, operating temperature and frequency.
e.g. 32SMO(2.8VD) 24.000 MHz.

(※2) Internal crystal oscillation to be halted (Pin#1=V_{IL}).

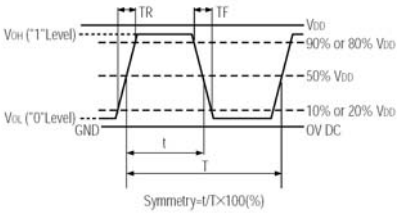
32SMO



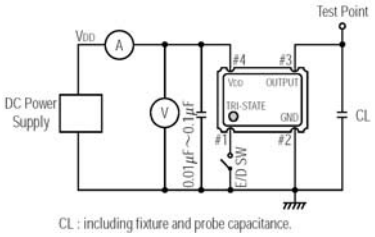
PIN	CONNECTION	
1	"L"	OPEN or "H"
2	GND	
3	Z	OUTPUT
4	V_{DD}	

Z : high impedance

OUTPUT WAVEFORM

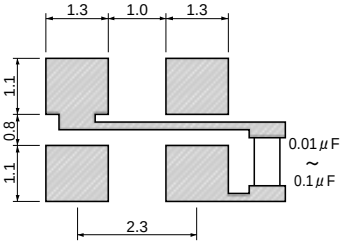


TEST CIRCUIT



CL : including fixture and probe capacitance.

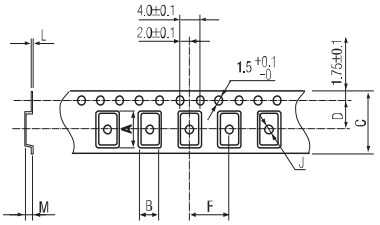
SOLDERING PATTERN



PACKAGE DATA

Item \ Package	32SMO
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
3.5	2.8	8.0	3.5	4.0	1.0	0.3	1.4	178	1000pcs