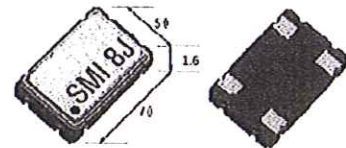
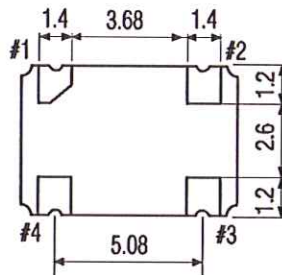
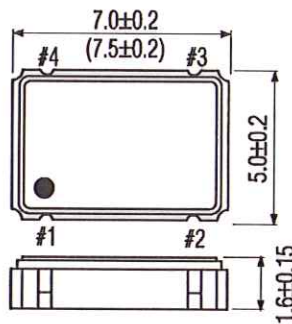
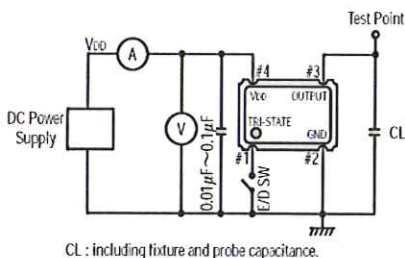
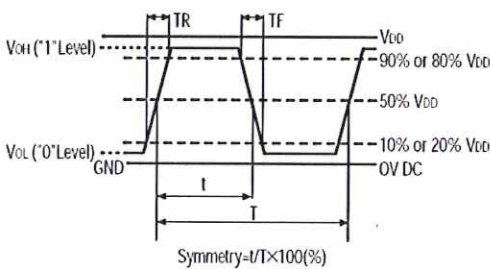


1. Part No. : 97SMO-WW
2. Frequency range : 1.0000 MHz to 60.0000 MHz
3. Frequency stability :  $\pm 100$  ppm ( $\pm 0.01\%$ ) over all conditions
4. Operating Conditions
  - Operating temperature :  $-40^{\circ}\text{C}$  to  $+105^{\circ}\text{C}$
  - Storage temperature :  $-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$
  - Input voltage ( $V_{DD}$ ) :  $+1.8\text{V}$ ,  $+2.5\text{V}$ ,  $+3.0\text{V}$  or  $+3.3\text{V}$  DC  $\pm 10\%$
  - Tri-state control voltage :  $70\%V_{DD}$  min. ( $V_{IH}$ )  
 $30\%V_{DD}$  max. ( $V_{IL}$ )
5. Input current : 10 mA max.
6. Output ( $-40^{\circ}\text{C}$  to  $+105^{\circ}\text{C}$ )
  - Symmetry : 45% to 55% at  $1/2V_{DD}$  level
  - Rise and fall times : 5.0 ns max. ( $10\%V_{DD}$  to  $90\%V_{DD}$  level)
  - "0" level :  $V_{OL}$  : 0.4V max.
  - "1" level :  $V_{OH}$  :  $V_{DD}-0.4\text{V}$  min.
  - Output load : CMOS 15 pF max.
7. Stand-by current :  $10 \mu\text{A}$  max. (Pin#1 =  $V_{IL}$ )
8. SSB phase noise :  $-129$  dBc/Hz at 1 kHz offset.
9. Start-up time : 10 ms max.
10. Aging :  $\pm 5$  ppm max. at  $+25^{\circ}\text{C} \pm 3^{\circ}\text{C}$  for first year
11. Disable phase delay time : 50  $\mu\text{s}$  max.
12. Enable phase delay time : 10 ms max.
13. Reflow soldering condition :  $+250^{\circ}\text{C} \pm 10^{\circ}\text{C}$  for 10 seconds ( reflow soldering )  
 $+170^{\circ}\text{C} \pm 10^{\circ}\text{C}$  for 1 or 2 minutes ( preheating )
14. Outline dimensions : See below

**97SMO-WW**  
**RoHS (Pb-free)**

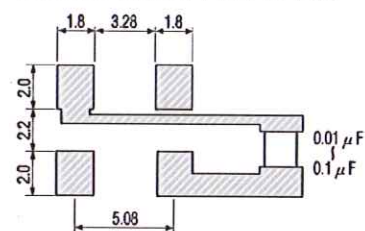


OSC WITH TRI-STATE

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

Z : high impedance

SOLDERING PATTERN



mm

ISSUED

CHECKED

APPROVAL



*H. Sasaki*



*Edward*



*[Signature]*

**SMI**

ITEM.

**CRYSTAL CLOCK OSCILLATORS**

No.

**SO-9969A**