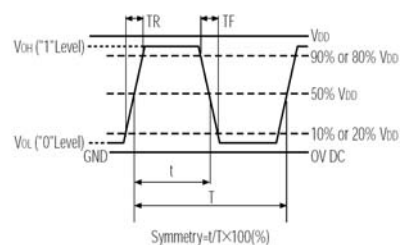
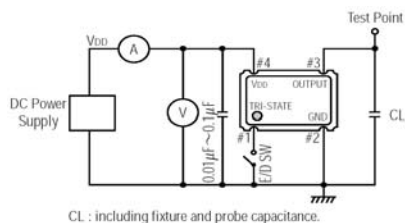
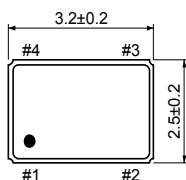
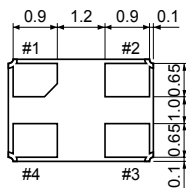


1. Part No. : 32SMO
2. Output frequency range : 0.75000 MHz to 50.0000 MHz
3. Frequency stability :
  - 32SMO(A):  $\pm 100$  ppm over  $-20^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$
  - 32SMO(B):  $\pm 50$  ppm over  $-20^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$
  - 32SMO(C):  $\pm 30$  ppm over  $-20^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$
  - 32SMO(D):  $\pm 25$  ppm over  $-10^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$
  - 32SMO(E):  $\pm 20$  ppm over  $0^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$
4. Operating Conditions
  - Operating temperature :  $-20^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$  (Standard)  
 $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  (W)
  - Storage temperature :  $-55^{\circ}\text{C}$  to  $+100^{\circ}\text{C}$
  - Input voltage ( $V_{DD}$ ) :  $+0.8\text{V}$  to  $+2.0\text{V}$
5. Input current : 5.0 mA max.
6. Stand-by current : 100  $\mu\text{A}$  max. (Pin#1= $V_{iL}$ )
7. Output ( $-20^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$ )
  - Symmetry : 45% to 55% at  $1/2 V_{DD}$  level
  - Rise and fall times : 4.0 ns max. ( $20\%V_{DD}$  to  $80\%V_{DD}$  level)
  - "0" level :  $V_{OL}$ :  $+0.2\text{Vmax}$  ( $V_{DD}=+0.8\text{V}$ )/ $+0.3\text{Vmax}$  ( $V_{DD}=+1.1\text{V}$ )/ $+0.4\text{Vmax}$  ( $V_{DD}=+1.4\text{V}$ )
  - "1" level :  $V_{OH}$ :  $+0.2\text{Vmin}$  ( $V_{DD}=+0.8\text{V}$ )/ $+0.8\text{Vmin}$  ( $V_{DD}=+1.1\text{V}$ )/ $+1.0\text{Vmin}$  ( $V_{DD}=+1.4\text{V}$ )
  - Output load : CMOS 15pF max.
8. Tri-state control voltage :
  - 70% $V_{DD}$  min. ( $V_{iH}$ )
  - 30% $V_{DD}$  max. ( $V_{iL}$ )
9. Start-up time : 10 ms max.
10. Aging :  $\pm 5$  ppm max. at  $+25^{\circ}\text{C}$   $\pm 3\text{K}$  for first year
11. Enable/Disable phase delay time : 100 ns max.
12. Reflow soldering condition :
  - $+250^{\circ}\text{C} \pm 10\text{K}$  for 10 seconds (reflow soldering)
  - $+170^{\circ}\text{C} \pm 10\text{K}$  for 1 to 2 minutes (preheating)
13. Outline dimensions : See below



□H=1.1 ±0.1mm

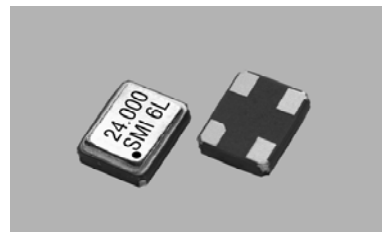
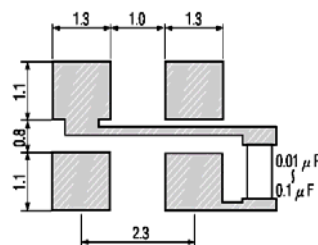


| PIN | CONNECTION      |
|-----|-----------------|
| 1   | "L" OPEN or "H" |
| 2   | GND             |
| 3   | Z OUTPUT        |
| 4   | $V_{DD}$        |

Z : high impedance

32SMO

RoHS compliant (Pb-free)



mm

ISSUED

CHECKED

APPROVAL

SMI  
09/04/07

Yagisawa

SMI  
09/04/07

Edward

SMI  
09/04/07

[Signature]

SMI

ITEM.

LOW VOLTAGE OPERATION CRYSTAL CLOCK  
OSCILLATORS( $V_{DD}=+0.8\text{V}$  to  $+2.0\text{V}$ )

No.

SO-9980A