

### Features

- 32.768 kHz RTC oscillator in seam sealed ceramic package
- Supply voltage : 1.8V ~ 3.3V
- CMOS output
- Ultra low current consumption
- Tri-state function available for power saving
- Dimensions (mm) : L : 2.0 x W : 1.6 x H : 0.76
- RoHS and REACH compliant, Pb-free, Halogen-free

### Applications

- Real-time clock (RTC)
- System in sleep mode or low energy mode timekeeping

### Electrical Characteristics

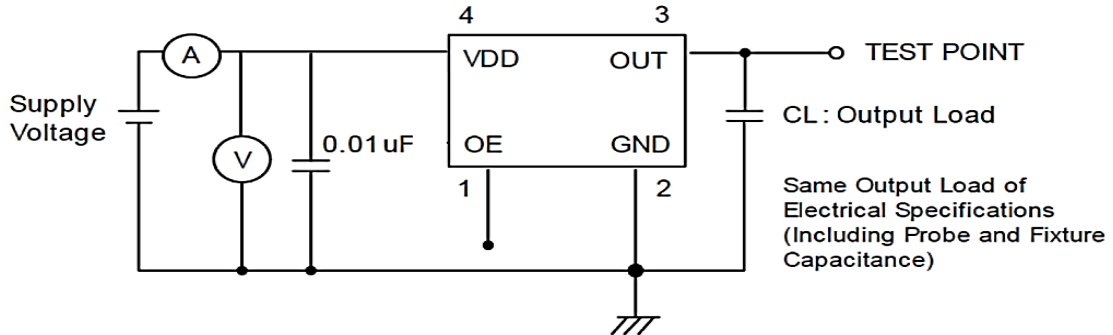
Item	8NZ	Conditions
Frequency Range ( $F_0$ )	32.768 kHz	
Frequency Stability ( $F_{stab}$ )	$\pm 25$ ppm	-10°C ~ +70°C; Note[1]
	$\pm 50$ ppm, $\pm 25$ ppm	-40°C ~ +85°C; Note[1]
Operating Temperature Range ( $T_{OTR}$ )	-10°C ~ +70°C	
	-40°C ~ +85°C	
Supply Voltage ( $V_{DD}$ )	1.8V, 2.5V, 3.3V	$V_{DD} \pm 10\%$
Current Consumption ( $I_{DD}$ )	15 $\mu$ A Max.	$C_L = 15$ pF
Standby Current ( $I_{CCST}$ )	5 $\mu$ A Max.	OE = Low
Output Type	CMOS	
Output Load ( $C_L$ )	15 pF	
Output Voltage High ( $V_{OH}$ )	90% $V_{DD}$ Min.	
Output Voltage Low ( $V_{OL}$ )	10% $V_{DD}$ Max.	
Rise & Fall Time ( $T_r / T_f$ )	20 ns Max.	10% ~ 90% of $V_{DD}$
Duty Cycle	45% ~ 55%	
Start-up Time	10 ms Max.	To 90% of final amplitude
Enable Voltage High ( $V_{IH}$ ), Logic "1"	70% $V_{DD}$ Min.	Enable control @ Pin 1 Note [2]
Enable Voltage Low ( $V_{IL}$ ), Logic "0"	30% $V_{DD}$ Max.	
Aging ( $F_{aging}$ )	$\pm 3$ ppm Max.	at 25°C $\pm$ 3°C, first year
Storage Temperature Range ( $T_{STR}$ )	-55°C ~ +125°C	

#### Notes:

[1] Inclusive of frequency tolerance at 25°C, variation over temperature, supply voltage variation, aging and vibration.

[2] Output will be enable if Pin1 is Logic "1" or Open; Output will be disable if Pin1 is Logic "0".

**Testing diagram:**

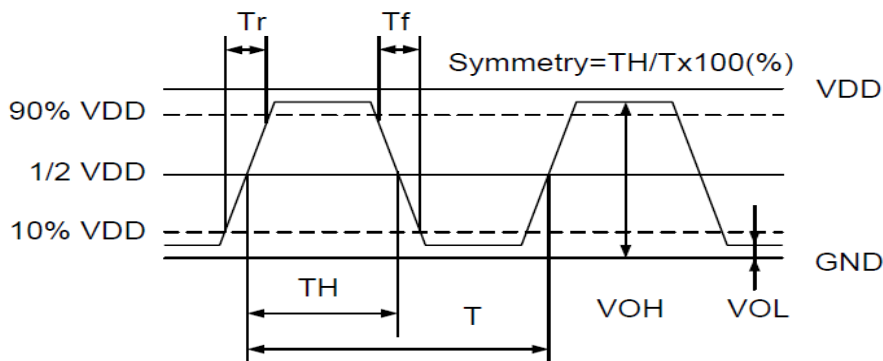


**Notes:** Sets CL to 15pF for simulation IC load. Customer does not need to layout it in reality circuit.

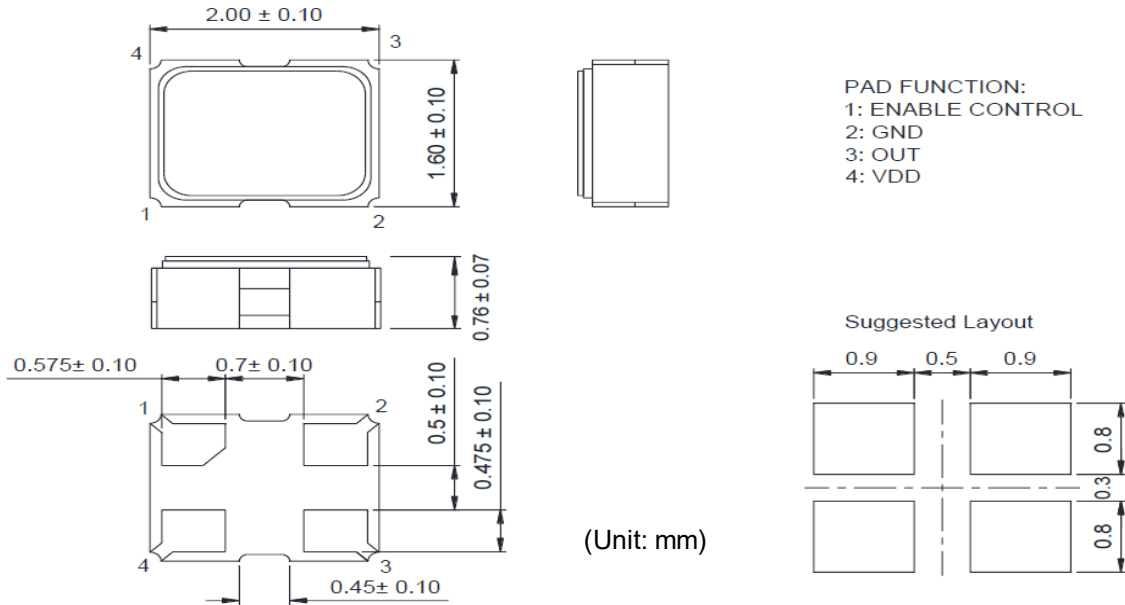
Pad 1 (OE)	Pad 3 (Output)	Oscillator
High (or open)	OSC out	Normal operation
Low	High impedance	Stop oscillation

**Waveform conditions :**

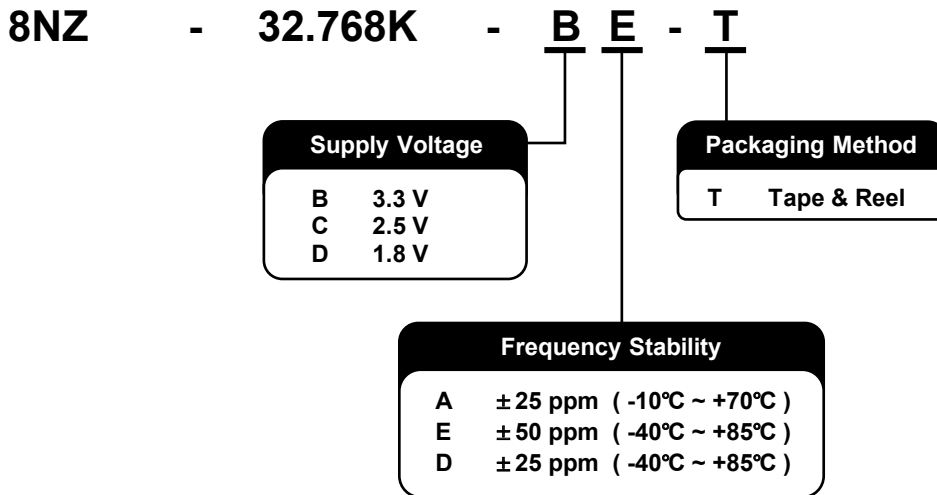
Waveform measurement system should have min. bandwidth 5 times of the frequency being tested.



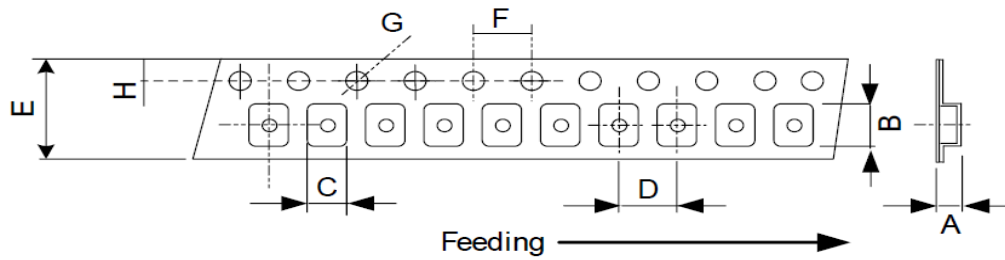
### Dimensions



### Ordering Information

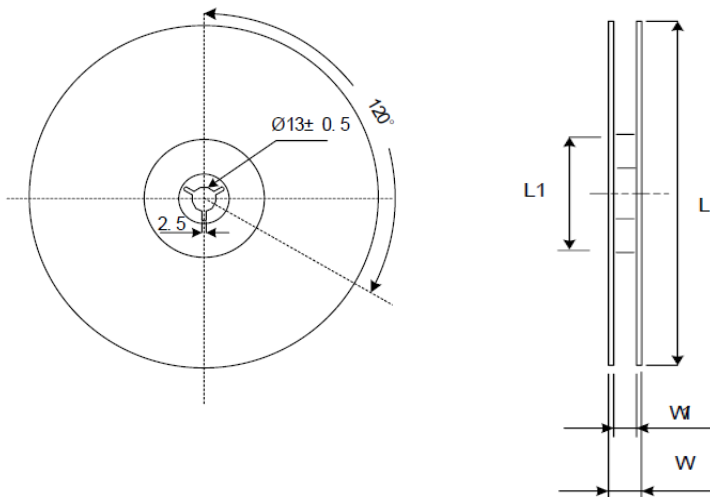


### Packing



DIMENSIONS	A	B	C	D	E	F	G	H
	0.90	2.30	1.90	4.00	8.00	4.00	1.55	1.75
	±0.10	±0.10	±0.10	±0.10	±0.20	±0.10	±0.05	±0.10

(UNIT:mm)



DIMENSIONS	L	L1	W	W1	Standard Reel Quantity is 3,000 pcs per reel (UNIT:mm)
	178	60.2	11.5	8	
	±1.00	±0.50	±0.2	+1/-0	

### Reflow Profile

Total time : 600 sec. Max.  
Solder melting point : 220°C

