

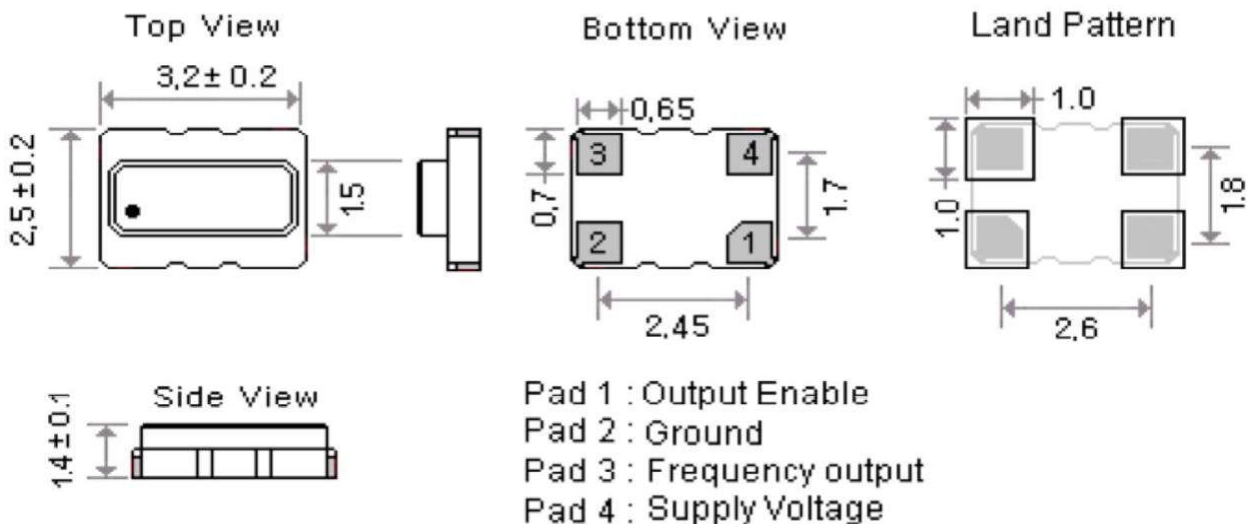
Electrical Specification

Series No. : NT3225

Date : 2024/5/23

	Parameters	SYM.	Electrical Spec.				Notes
			Min.	Typical	Max.	Unit	
1	Part No.		-				NT3225 - 32.768KHz
2	Nominal Frequency	FL	32.768000			KHz	
3	Holder Type		-				3.2 * 2.5 * 1.4 mm , 4 pads
4	Output Waveform		-				CMOS , Square Wave
5	Input Voltage	V _{DD}		3.3		V	V _{DD} ± 5 %
6	Output Voltage High " 1 "	V _{oh}	2.90			V	
7	Output Voltage Low " 0 "	V _{oL}			0.40	V	
8	Initial Frequency Tolerance	△Ft	-2.5		2.5	ppm	Temp = +25° C ± 3° C
9	Freq. Stability vs Temperature	△Fr	-5.0		5.0	ppm	Operating Temperature : -40 to +85°C
	Freq. Stability vs Supply Voltage Delta	△F / v	-1.0		1.0	ppm	± 1.0 ppm / V (max.)
	Freq. Stability vs Load Change	△FL	-0.2		0.2	ppm	for at ±10% loading condition change
	Freq. Stability vs Aging	△Fa	-3.0		3.0	ppm	first year at 25 °C
10	Output current	I _{DD}		1.0	2.0	uA	without load
11	Compensation interval				2.0	Sec.	
12	Duty Cycle	tw / t	40		60	%	50% ± 10%
13	Start-up Time	ST			3.0	Sec.	
14	Rise Time and Fall Time	Tr / Tf			100	nSec.	20% ↔ 80% of the waveform.
15	Output Load	CL			15	pF	
16	Output Enable	Tri	80%			V _{DD}	Enable Voltage (High)
					20%		Disable Voltage (Low)
							Open connection prohibit
17	Operating Temperature	T _{opr}	-40		85	°C	
18	Storage Temperature	T _{stg}	-55		85	°C	

Package Dimension (Unit : mm)



Marking

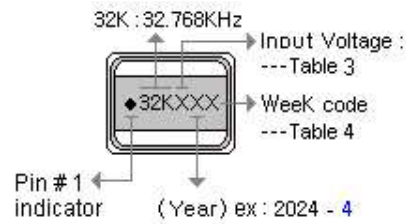


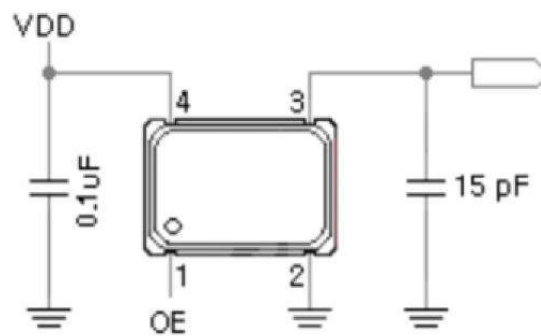
Table 3

Input Voltage	5.0 V	3.3 V	2.5 V	1.8 V
	B	D	H	J

Table 4

Week	1	2	3	4	5	6	7	8	9	10	11	12	13
Code	A	B	C	D	E	F	G	H	I	J	K	L	M
Week	14	15	16	17	18	19	20	21	22	23	24	25	26
Code	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Week	27	28	29	30	31	32	33	34	35	36	37	38	39
Code	a	b	c	d	e	f	g	h	i	j	k	l	m
Week	40	41	42	43	44	45	46	47	48	49	50	51	52
Code	n	o	p	q	r	s	t	u	v	w	x	y	z

CMOS Test Circuit



Environmental Specification

1. Temperature Test			
*Temperature Cycling Test			
Conditions:	Steps of cycle	(1)Extreme Cold Temp: $-55^{\circ}\text{C}(+0/-10^{\circ}\text{C})/ 15\pm 3\text{min}$	
		(2)Extreme Hot Temp: $+125^{\circ}\text{C}(+15/-0^{\circ}\text{C})/ 15\pm 3\text{min}$	
	Number of	10 cycles min	
Results:	Frequency and wave form of tested products must remain within specifications.		
*Thermal Shock Test			
Conditions:	Temperature $-55(+0/-10)^{\circ}\text{C}$ to $125(+10/-0)^{\circ}\text{C}$	Duration of cycle 15 times(min)	
	ExTotal Transfer Time < 10 seconds		
	Total Dwell time > 2minutes		
	Specified Temp reached in < 5 minutes		
Results:	Frequency and wave form of tested products must remain within specifications.		
*Low Temperature Test			
Conditions:	Temperature $-50^{\circ}\text{C}\pm 5^{\circ}\text{C}$	Duration of test 168hours(min)	
Results:	Frequency and wave form of tested products must remain within specifications.		
2. Accelerated Life Test(Aging Biased)			
Conditions:	Temperature $+85^{\circ}\text{C}\pm 5^{\circ}\text{C}$	Duration of test 168hours ± 6 hours	
Results:	DC Power supply		
	Frequency and wave form of tested products must remain within specifications.		
3. Salt Spray Test			
Conditions	Temperature 35°C	Duration of test 24 hours	
	NaCl 5%		
Results:	There Should be no rust on surface of products		
4. Humidity Test			
Conditions:	Temperature: $85^{\circ}\text{C}\pm 5^{\circ}\text{C}$	Relative humidity: $85\%\pm 5\%$	Duration of test: 168 hours(min)
Results:	Frequency and wave form of tested products must remain within specifications.		

Mechanical Specification Sheet

1.Vibration Test

Conditions:	Freq. range: 20~2000Hz Peak to Peak
	amplitude:1.52mm Peak acceleration:20G(98m/s ²)
	3direction(X,Y,Z),each 20min, 4cycles
Results:	Frequency and wave form of tested products must remain within specifications.

2.Drop Test

Conditions:	Method of drop	Free drop
	Dropping floor	Hard wood board
	Height	75 cm +1/-0cm
	Number of drops	3 times
Results:	Frequency and wave form of tested products must remain within specifications.	