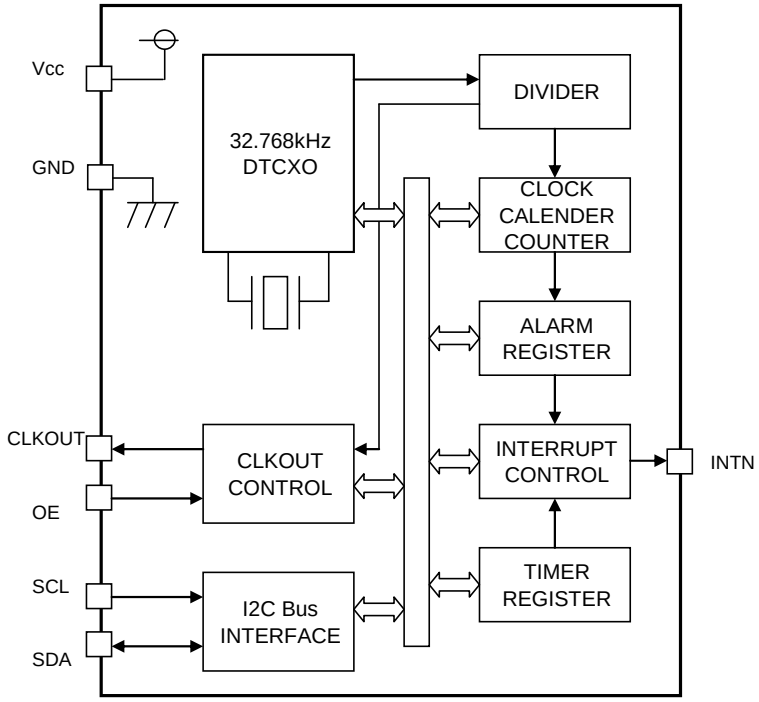
1. Type DD3225TS

2. Block Diagram



■ Functional Overview

- ●High Stability : ±5 x10^{-6}/-40～85℃ (13sec/month)
- ●Automatic identification leap year calendar (up to 2099)
- ●Timer interrupt
- ●Alarm interrupt
- ●Output Frequency Selection : 32.768kHz / 1024Hz / 32Hz / 1Hz
- ●I^2C-Bus* Serial Interface

  "I^2C-Bus" is a registered trademark of NXP Semiconductors

- ●AEC-Q200 (IC:AEC-Q100) Compliant

▼Refer to Application Manual for details

3. Absolute Maximum Value

	Item	Symbol	Condition	Rating	Unit
1	Supply Voltage	Vcc	Vcc-Gnd	-0.3 ~ +7.0	V
2	Storage Temperature Range	T_stg	Without dew condensation	-40 ~ +85	℃
3	Input Voltage	Vin	SCL,SDA,OE	-0.3 ~ +7.0	V
4	Output Voltage	Vout	Output	-0.3 ~ Vcc+0.3	V
			SDA,INTN	-0.3 ~ +7.0	V

4. Recommended Operating Conditions

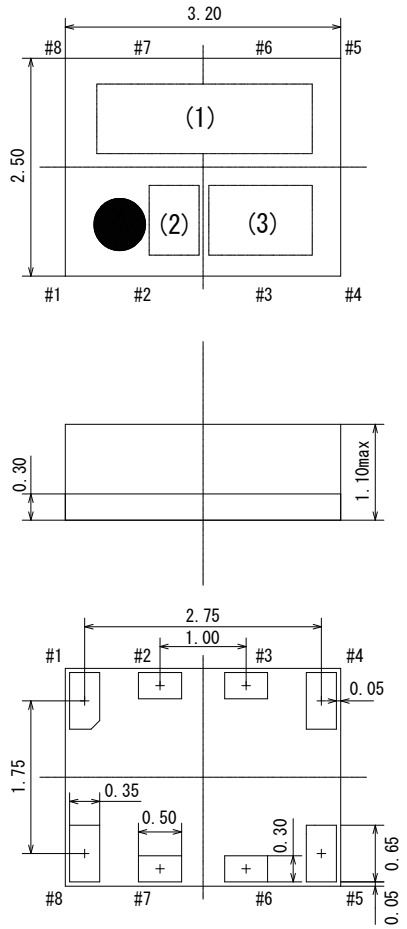
	Item	Symbol	Conditions	Rating			Unit
				min.	typ.	max.	
1	Supply Voltage	Vcc	I^2C Bus Serial Interface Voltage	+1.5	+3.3	+5.5	V
			Temperature compensation Voltage	+1.5	+3.3	+5.5	
			Clock Voltage	+1.3	+3.3	+5.5	
2	Output Load	L_{CMOS}		-	-	15	pF
3	Operating Temperature Range	T_use		-40	-	+85	℃

5. Electrical Characteristics

(Ta=+25℃,Vcc=+3.0V,L_{CMOS}=15pF unless otherwise noted)

	Item	Symbol	Test Conditions		Limits			Unit
					min.	typ.	max.	
1	Frequency Tolerance	f_tol	Vcc=+3.3V, Ta=-40 ~ +85 ℃		-	-	±5	$x10^{-6}$
2	Aging	fag	1year at +25℃		-	-	±5	$x10^{-6}$
3	Supply Current	Icc	OE= "H" SCL,SDA,INTN=Vcc at No Load Interval of temperature compensation : 30s	Vcc=+3.3V	-	-	2.9	μA
				Vcc=+5.0V	-	-	4.0	μA
4	Stand-by Current (Output OFF)	I-std	OE="L" SCL,SDA,INTN=Vcc Interval of temperature compensation : 30s	Vcc=+3.3V	-	-	2.1	μA
				Vcc=+5.0V	-	-	2.9	μA
5	Output Character		(CMOS)					
	1. Symmetry	SYM	50%Vcc		40	-	60	%
	2. “1” Level	V_{OH}	I_{OH}= -1mA		0.8Vcc	-	-	V
	3. “0” Level	V_{OL}	I_{OL}= 1mA		-	-	0.2Vcc	V
	4. Rise Time	tr	20 ~ 80% Output Level		-	-	100	ns
	5. Fall Time	tf	80 ~ 20% Output Level		-	-	100	ns
6	Input OE							
	1. ”1” Level Input Voltage	V_{IH}			0.8Vcc	-	-	V
	2. “0” Level Input Voltage	V_{IL}			-	-	0.2Vcc	V
7	Start up time	Tstart	Vcc=+1.3V		-	-	1	s

6. Outline, Pin Connections



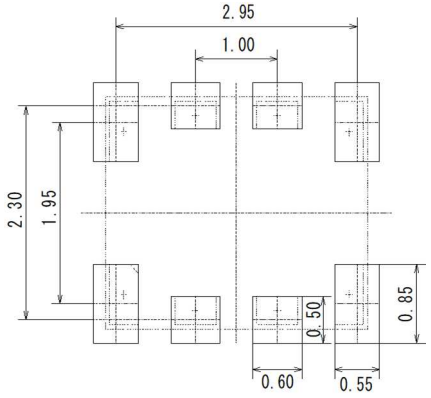
Function

#1 input	#5 Output Condition
H	Oscillation Out
L	High Z

Marking

(1) Type	D32TS
(2) Logo	D
(3) Date code	Year(1digit) + Week(2digits) e.g.2024/1/1 → 401

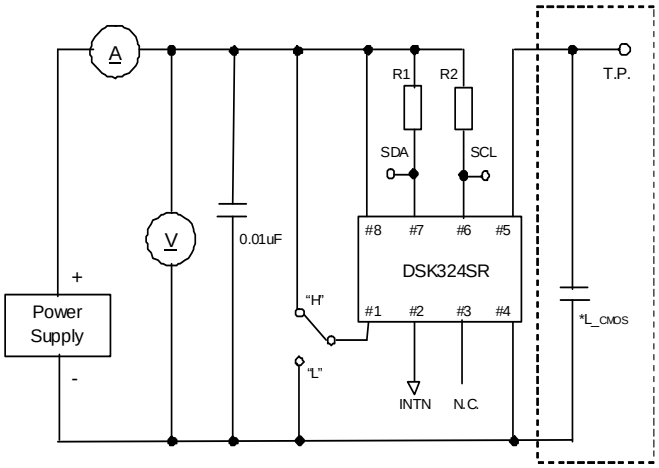
Recommended Land Pattern [mm]



Pin Function

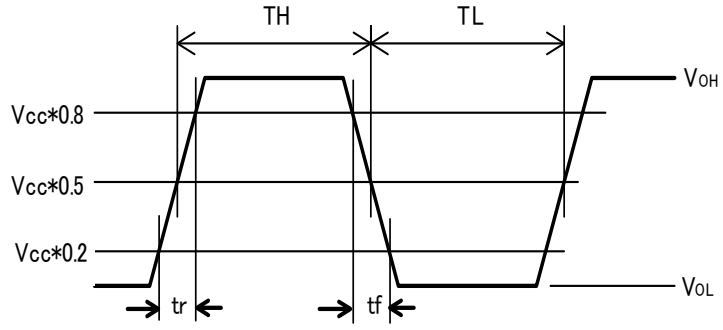
No.	name	I/0	Description
#1	OE	I	Output Enable Control (L : High Impedance, H : Oscillation out)
#2	INTN	O	Interrupt Output
#3	N.C.	-	No Connection
#4	GND	-	Ground
#5	Output	O	Frequency Output (CMOS)
#6	SCL	I	Serial Clock Input. SCL is the clock input for the I^2C serial interface.
#7	SDA	I/O	Serial Data Input/Output. SDA is the data input/output for the I^2C serial interface.
#8	Vcc	-	Supply Voltage

7. Measurement Circuit



*Total Fixture and Probe Capacitance

8. Output Waveform



SYM=TH / (TH + TL) * 100 [%]

9. Supplement

9.1.Soldering

Peak-temperature 260℃ 10sec max. , 3times max.

If the temperature exceeds 280 ° C, the sealing alloy inside may remelt.

Please leave after reflow in 24h or more at room ambient.

9.2.Solder Iron

Bit temp.:350 ℃ max.,Time:3 s max., Each terminal solder a 1 time max.

Please take care so that a soldering iron should not touch a product directly.