CDT - 3348 Clinical Thermometer

A. Features :

- ◆. CMOS process --- lower power consumption.
- ◆. Single 1.5V battery operation.
- ◆. Bonding option for ℃/℉ measurement.
- ◆. Range of temperature for measurement : +32.0℃ ~ +42.0℃ (+90.0 ~ +108.0 ℉)
- ◆. Resolution of measured temperature : 0.1℃ (0.1 ℉)
- ◆. Accuracy of measured temperature : ± 0.1℃ (±0.2 ℉)
- ◆. Bonding option for measured time : 4sec / 16sec
- ◆. Single push button for ON/OFF.
- ◆. Holding highest temperature.
- ◆. Alarm warning for fever.
- ◆. Display the previous measured temperature after power on.
- ◆. Auto power off after 8 minutes 40 sec.
- ◆. Buzzer alarms for power turn on and off.

B. General Description :

The C3348 is a digital clinical thermometer for measuring body temperature.

It provide the following functions :

a. ℃ or ℉ display mode.

b. Long measured time for 16 sec or short measured time for 4 sec.

c. Alarm warning for fever.

d. Auto power OFF.

C. The thermometer for C3348 including following electronic components :

a. LCD display.

b. ON/OFF push button.

c. Thermister

d. Buzzer

e. Resistors

f. Capacitors

g. 1.5V battery.

D. Pad Description :

Pin No.	Pin Name	I/O	Description
1	LOWC	B	When connect to VSS with resistor, supply voltage detected.
2	VSS	I	For power supply ground.
3	SC	B	For reference and sensor resistor common point.
4	RF	O	For reference resistor to generate reference clock.
5	RS	O	For sensor resistor to generate sensor clock.
6	VDD	I	For power supply +1.5V.
7	PSW	I	Pull-low, for power ON/OFF switching.
8	TEST2	I	Connect to VDD, LCD displays the highest value, floating this pin, LCD displays real time temperature for production.
9	CLFH	I	Connect to VDD for ℉, floating for ℃.
10	OSCI	I	System oscillator in.
11	OSCO	O	System oscillator out.
12	BZ1	O	Buzzer output 1.
13	BZ2	O	Buzzer output 2.
14	COM1	O	For LCD common pin output.
15	COM2	O	
16	COM3	O	
17	SA1	O	For LCD segment drive.
18	SA2	O	
19	SA3	O	
20	SB1	O	
21	SB2	O	
22	SB3	O	
23	SC1	O	
24	SC2	O	
25	SC3	O	
26	SD1	O	
27	VEE	O	Negative voltage for LCD.
28	CAP	O	For negative voltage generator.
29	C512	O	For negative voltage generator.
30	PLUSOUT	O	Test pin.
31	TEST2IN	I	Test ping.
32	TEST1	I	Test ping.
33	TESTSEC	I	Floating for 16 sec measurement, VDD for 4 sec measurement.

E. Absolute Maximum Ratings :

Supply voltage → 0V to 3V Input voltage → VSS-0.5V to VDD+0.5V

Operation temperature → -20℃ to 75℃ Storage temperature → -55 ℃ to 125 ℃

Note : These are stress ratings only. Stresses exceeding the range specified under "Absolute Maximum Ratings" may cause substantial damage to the device. Functional operation of this device at other conditions beyond those listed in the specification is not implied and prolonged exposure to extreme conditions may affect device reliability.

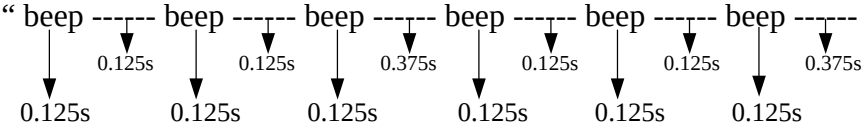
F. Electrical Characteristics :

(Ta = 25°C)

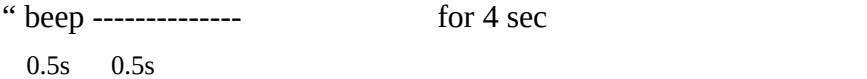
Symbol	Parameter	Test Condition		Min.	Typ.	Max.	Unit.
		V_{DD}	Condition				
V_{DD}	Operating Voltage	VDD	—	1.3	1.5	1.7	V
I_{DD}	Operating Current	1.5V	No Loading	—	60	100	μA
I_{ST}	Stand-by Current	1.5V	—	—		1.0	μA
F_{OSC}	System oscillator frequency	1.5V	Rosc = 910KΩ	—	33	40	KHz
I_{BZ1}	Buzzer output current	1.5V	V_{OH} = 1V	10	12	14	mA
I_{BZ2}	Buzzer output current	1.5V	V_{OL} = 0.5V	10	12	14	mA
L_{OWC}	Low power supply detected	1.5V	R_{LOWC} = 410KΩ	1.25	1.35	1.45	V

G. Function Description :

1. Push psw button to turn power on or off.
2. When push psw to turn power on.
   buzzer will generate a “beep” sound for 0.125 sec.
   After “beep”, the sequencial action as following steps.
   Step1 : display all segments on for 2 sec.
   Step2 : After step1, then display the last time measured temperature for 2 sec.
   Step3 : Display °C or °F for 0.75 sec.
   Step4 : °C or °F mark will flash at speed of 1Hz and start to measure and display temperature.
   Step5 : If the temperature is less than 32°C (or 90 °F), the display will show L°C or L °F .
   Step6 : If the temperature is large than 42°C (or 108 °F), the display will show H°C or H °F .
   Step7 : LCD display always shows the highest temperature during the temperature measurement.
   Step8 : If the measured temperature does not change for more than 16 sec (or 4 sec), the measurement will stop and °C (or °F) mark will cease flash.
   Step9 : When end of measured temperature, if the temperature is large than 37.5°C (99.5 °F) the buzzer will alarms :



   for 4 sec, if the temperature is less than 37.6°C (or 99.6 °F) the buzzer will alarms as follows :



Step10 : When end of measurement, and if the temperature rises in 8 minutes 40 sec, the ℃ (or ℉) mark will flash again (repeat from step 4, and the counter of 8 minutes 40 sec will start to count again from zero.

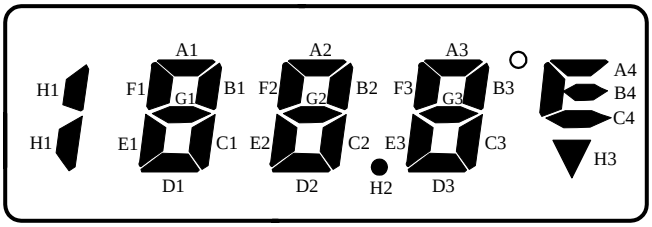
Step11 : When measured temperature does not change for 8 minutes 40 sec, the Power will turn off automaticlly.

Step12 : The temperature does not measure during beep alarm.

Step13 : When battery voltage is low, the battery mark ∇ will flashes at the speed of 1Hz, and the measured temperature may not be accurate.
The low voltage detect : 1.35±0.05V

3. Bonding option for ℃、 ℉ .
4. Bonding option for time of measured temperature for 4 sec or 16 sec.
5. Sensor use 503ET.
6. Reference resistor is the value of sensor at 37.0℃.
7. During the process of mass production, in order to adjust the reference resistance (RF), let test 2 be floating, the LCD will display the real present temperature not always show the highest temperature of measurement.

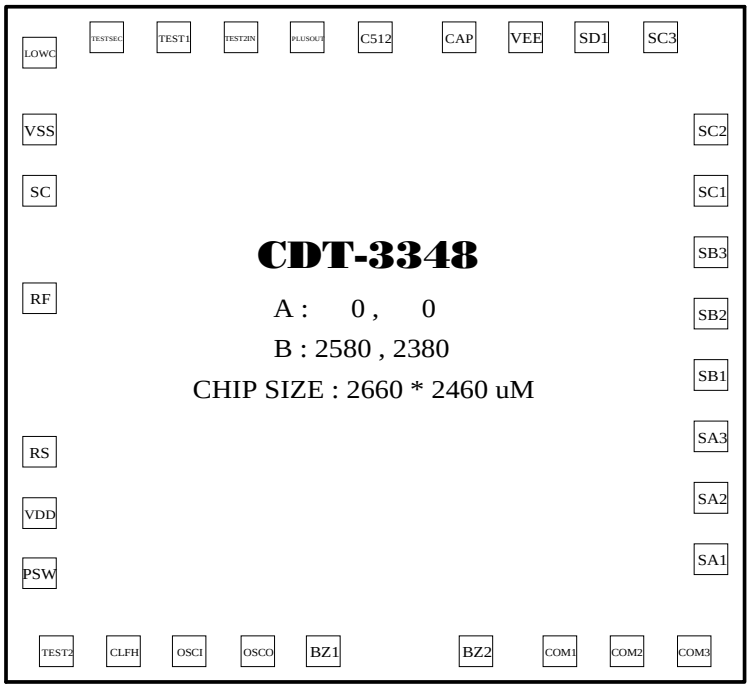
H. LCD Electrode Pattern :



	SA1	SA2	SA3	SB1	SB2	SB3	SC1	SC2	SC3	SD1
COM1	F1	A1	B1	F2	A2	B2	F3	A3	B3	A4
COM2	E1	G1	C1	E2	G2	C2	E3	G3	C3	B4
COM3	H1	D1	–	–	D2	H2	–	D3	H3	C4

Note. 1/3 duty, 1/2 bias (LCD uses 3V)

I. Pad Assignment :



J. Application Circuits :