

DL1063

One-Decimal Clinical Thermometer

Features

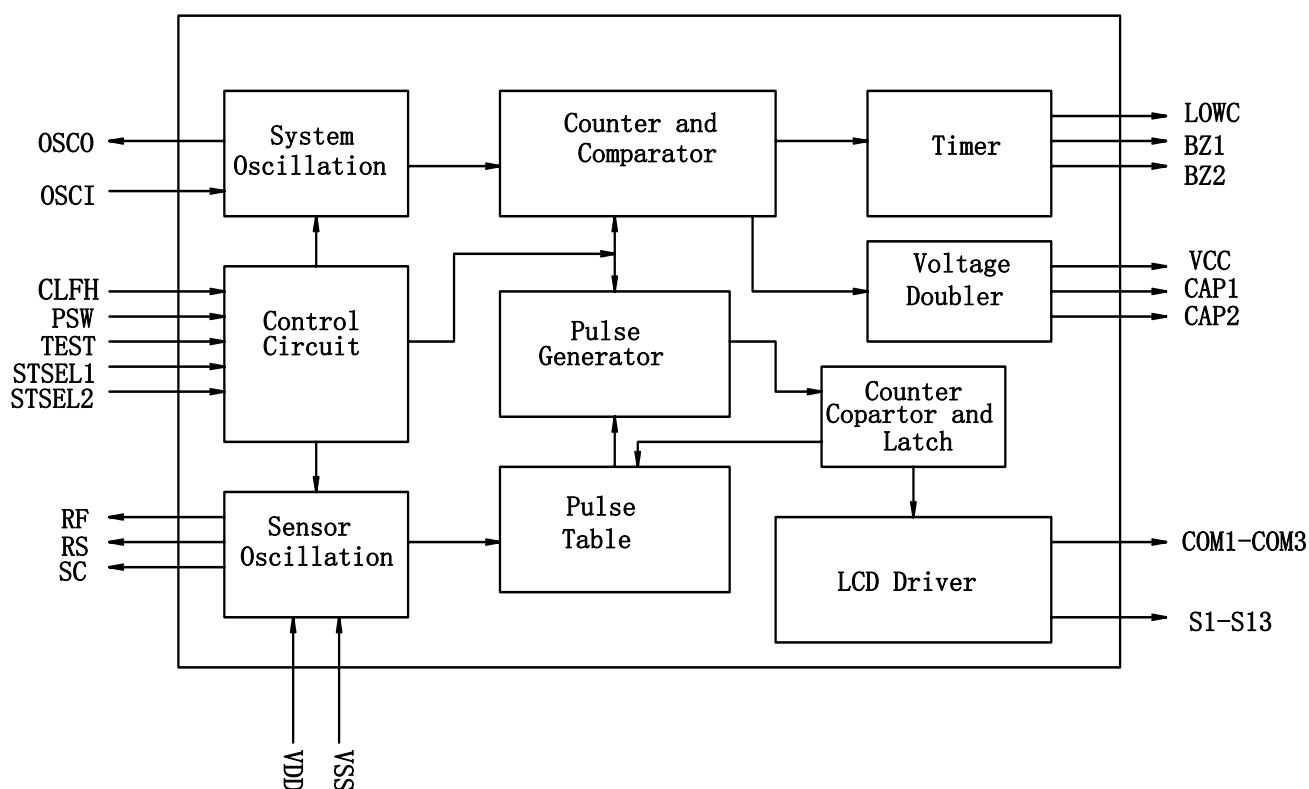
- Single-chip CMOS construction
- Measurement range: 32.0 ~42.9°C (90°F ~109.9°F)
- Measurement accuracy: $\pm 0.1^{\circ}\text{C}$ ($\pm 0.2^{\circ}\text{F}$)
- Resolution: 0.1°C (0.1°F)
- Single 1.5V battery operation
- Highest temperature hold
- Round off function
- Multi stable time selection: 4s/8s/16s/32s
- Automatic power off
- One ON/OFF switch input key
- Bonding option for $^{\circ}\text{C}$ and $^{\circ}\text{F}$
- Display the last time measured temperature
- Alarm warning for fever
- Buzzer output: 6k/8kHz
- For various sensor application, change one layer only

General Description

The DL1063 is CMOS digital clinical thermometer IC for measuring body temperature from 32.0°C ~ 42.9°C (90°F ~ 109.9°F). It also provides stable alarm, fever alarm, automatic power off and the memory function of the last time measured

temperature. The chip provides multi stable time for various of the mister also. The other electronic components are LCD display, the mister, 1.5V battery, ON/OFF switch, buzzer, resistors and capacitors.

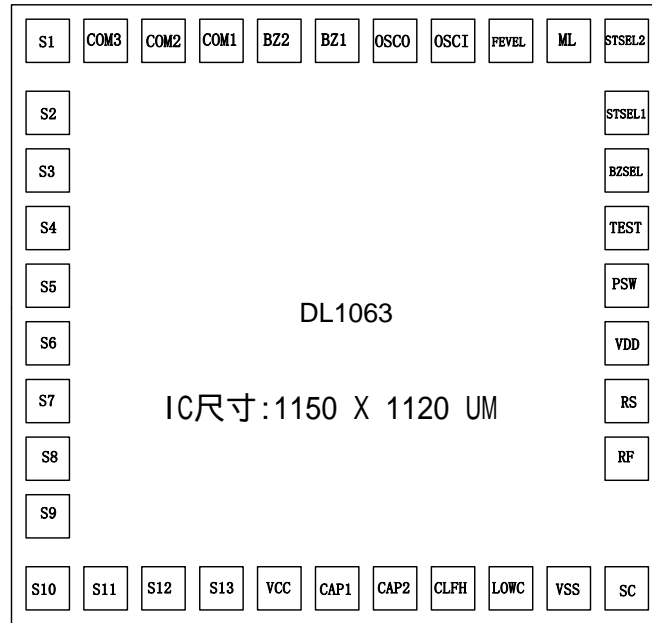
Block Diagram



DL1063

One-Decimal Clinical Thermometer

Pad Assignment



Note: The IC substrate should be connect to VSS

Pad Coordinates

Pad No.	Pad Name	X (um)	Y (um)	Pad No.	Pad Name	X (um)	Y (um)
1	S1	-575.00	559.90	20	SC	575.00	-560.00
2	S2	-575.00	415.45	21	RF	575.00	-274.55
3	S3	-575.00	300.45	22	RS	575.00	-159.55
4	S4	-575.00	185.45	23	VDD	575.00	-44.55
5	S5	-575.00	70.45	24	PSW	575.00	70.45
6	S6	-575.00	-44.55	25	TEST	575.00	185.45
7	S7	-575.00	-159.55	26	BZSEL	575.00	300.45
8	S8	-575.00	-274.55	27	STSEL1	575.00	415.45
9	S9	-575.00	-389.55	28	STSEL2	575.00	559.90
10	S10	-575.00	-560.00	29	ML	460.00	559.90
11	S11	-460.00	-560.00	30	FEVEL	345.00	559.90
12	S12	-345.00	-560.00	31	OSCI	230.00	559.90
13	S13	-230.00	-560.00	32	OSCO	115.00	559.90
14	VCC	-115.00	-560.00	33	BZ1	0.00	559.90
15	CAP1	0.00	-560.00	34	BZ2	-115.00	559.90
16	CAP2	115.00	-560.00	35	COM1	-230.00	559.90
17	CLFH	230.00	-560.00	36	COM2	-345.00	559.90
18	LOWC	345.00	-560.00	37	COM3	-460.00	559.90
19	VSS	460.00	-560.00				

DL1063

One-Decimal Clinical Thermometer

Pad Description

Pad No.	Pad Name	I/O	Function															
1~13	S1~S13	O	LCD segment driver															
14	VCC	O	Generated 3V voltage															
15	CAP1	O	For positive voltage pumping, NMOS open drain output															
16	CAP2	O	For positive voltage pumping, inverter output															
17	CLFH	I	Selection of °C or °F CLFH = open or VDD: °C CLFH = VSS: °F															
18	LOWC	I/O	For the supply voltage detector; output?															
19	VSS	-	Negative power supply															
20	SC	I/O	Common point, NMOS open drain															
21	RF	O	Connect to reference resistor, PMOS open drain															
22	RS	O	Connect to sensor resistor, PMOS open drain															
23	VDD	-	Positive power supply															
24	PSW	I	Power ON/OFF input, toggle active															
25	TEST	I	For the test of production. TEST = open or VDD: LCD display the highest value TEST = VSS: LCD display the real time value															
26	BZSEL	I	Buzzer output frequency selection BZSEL = open or VDD: 8KHz BZSEL = VSS: 6KHz															
27 28	STSEL1 STSEL2	I	Stable time selection (STSEL1, STSEL2 is bonding option) <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>ST</th> <th>STSEL1</th> <th>STSEL2</th> </tr> </thead> <tbody> <tr> <td>4 sec</td> <td>VSS</td> <td>VDD or open</td> </tr> <tr> <td>8 sec</td> <td>VDD or open</td> <td>VSS</td> </tr> <tr> <td>16 sec</td> <td>VDD or open</td> <td>VDD or open</td> </tr> <tr> <td>32 sec</td> <td>VSS</td> <td>VSS</td> </tr> </tbody> </table>	ST	STSEL1	STSEL2	4 sec	VSS	VDD or open	8 sec	VDD or open	VSS	16 sec	VDD or open	VDD or open	32 sec	VSS	VSS
ST	STSEL1	STSEL2																
4 sec	VSS	VDD or open																
8 sec	VDD or open	VSS																
16 sec	VDD or open	VDD or open																
32 sec	VSS	VSS																
29	ML	I	Memory function option ML = open or VDD: Without memory function ML = VSS: With memory function. The last measurement value Will be displayed after power on.															
30	FEVEL	I	Fever function option FEVEL = open or VDD: with fever function FEVEL = VSS: without fever function															
31	OSCI	I	For system oscillator input															
32	OSCO	O	For system oscillator input															
33	BZ1	O	Buzzer output 1															
34	BZ2	O	Buzzer output 2															
35~37	COM1~ COM3	O	LCD common driver															

DL1063

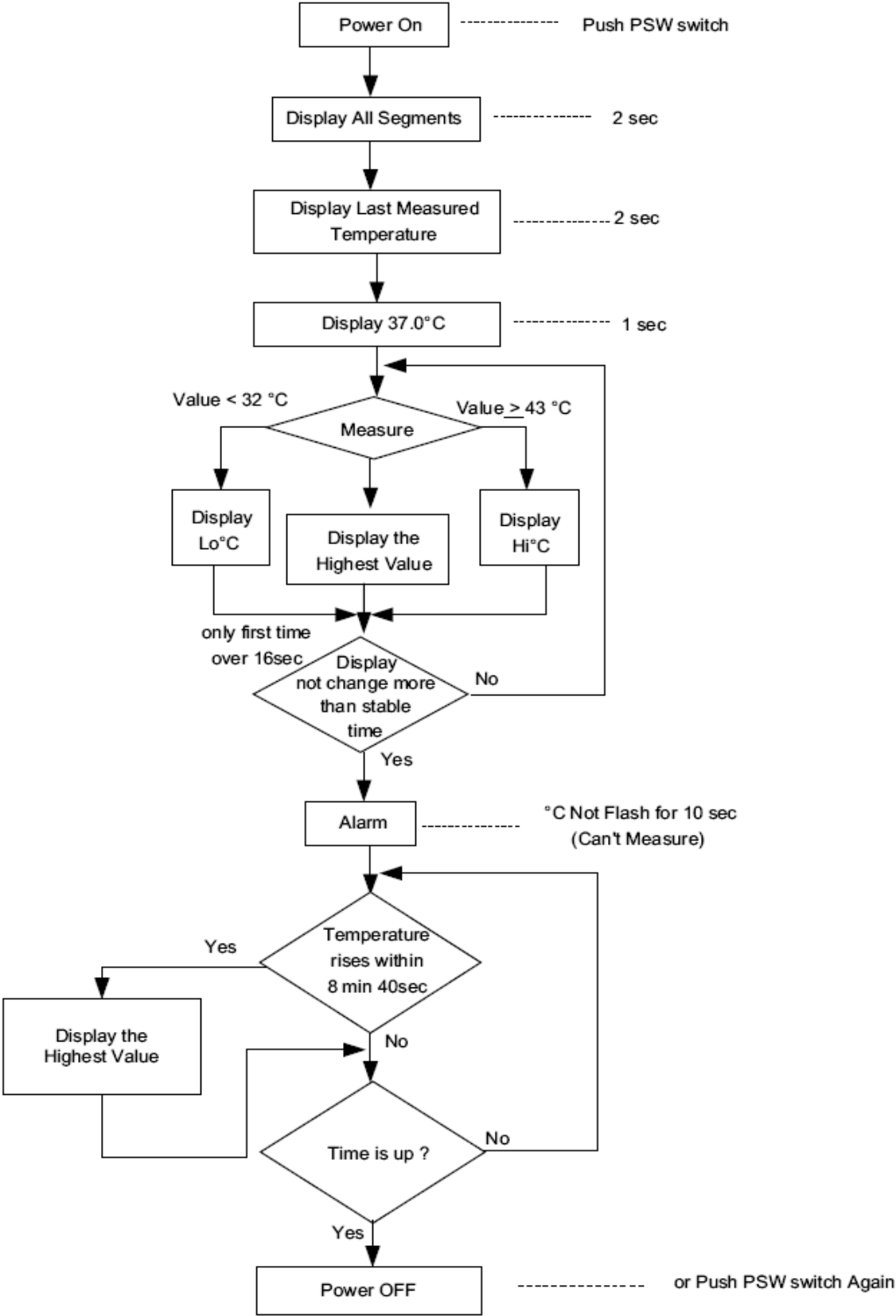
One-Decimal Clinical Thermometer

- b. After a. LCD shows the last-time temperature about 2sec. (If the memory function is optioned)
- c. After b., LCD shows the self-test temperature ($37.0\pm 0.1^{\circ}\text{C}$) about 1 sec. The $^{\circ}\text{C}$ or $^{\circ}\text{F}$ mark will flash at the speed of 1Hz.
- d. After c., LCD shows the higher measured temperature always, the $^{\circ}\text{C}$ ($^{\circ}\text{F}$) mark will flash at the speed of 1Hz.
- e. If the temperature $< 32.0^{\circ}\text{C}$ (or 90.0°F), the display show Lo $^{\circ}\text{C}$ (or Lo $^{\circ}\text{F}$).
- f. If the temperature $\geq 43.0^{\circ}\text{C}$ (or 109.9°F), The display show Hi $^{\circ}\text{C}$ (or Hi $^{\circ}\text{F}$).
- g. The LCD always show the higher temperature during the temperature measurement.
- h. After power on, the measurement time is over 16 sec and the measured temperature does not change within the stable time, the measurement will be over and the $^{\circ}\text{C}$ ($^{\circ}\text{F}$) mark flash stop.
- i. For DL1063, when measurement is over and if the temperature $\geq 37.8^{\circ}\text{C}$ (100°F). In this case the buzzer alarms “BI-BI-BI--- BI-BI-BI---” for 10 sec, as follows:
BI --- BI --- BI ----- BI ---
BI: 0.125sec
---: 0.125sec
-----: 0.375sec
- if the temperature $< 37.80^{\circ}\text{C}$ (100°F), the buzzer alarms “BI-BI-BI-BI-” for 10 sec, as follows:
BI --- BI---
BI: 0.5sec
---: 0.5sec
- j. It will automatically power off after measurement is stable and the system is still on more than 8 min 40sec($F_{\text{sys}}=32\text{kHz}$)
- k. When measurement is over and the beep sound is terminated, if the temperature rises within 8 min 40 sec, the measurement will start again, but the $^{\circ}\text{C}$ mark will not flash and the buzzer will not output also.
- l. During bi sound is on 10 sec, the temperature is not measurement.
- When power off: the stand-by current $\leq 1\mu\text{A}$.
 - The frequency of buzzer is 6k(VSS) or 8kHz (Open or VDD) by pin option.
 - Measurement to 0.1 degree at $^{\circ}\text{C}$.
 - Sensor use 503ET.
 - Reference resistor is the value sensor in 37.0°C .
 - The low battery and “M” flag can not display when the temperature show Hi or Lo.
 - When battery voltage is low, the battery mark “▲” flashes at the speed of 1Hz and the measurement maybe not accurate. The low TEST pin connect to Vss, the measured temperature will be the actual temperature of voltage detect: $1.35\text{V}\pm 0.05\text{V}$.
 - During the process of mass production, in order to adjust the reference resistance (RF), let the measured environment. The LCD can be up or down changed, not always show the higher one.
 - There are 4 kinds of stable time to be selected; 4 sec, 8 sec, 16 sec and 32 sec.

Time	STSEL1	STSEL2
4 sec	VSS	VDD/or open
8 sec	VDD/or open	VSS
16 sec	VDD/or open	VDD/or open
32 sec	VSS	VSS

One-Decimal Clinical Thermometer

Flow Chart

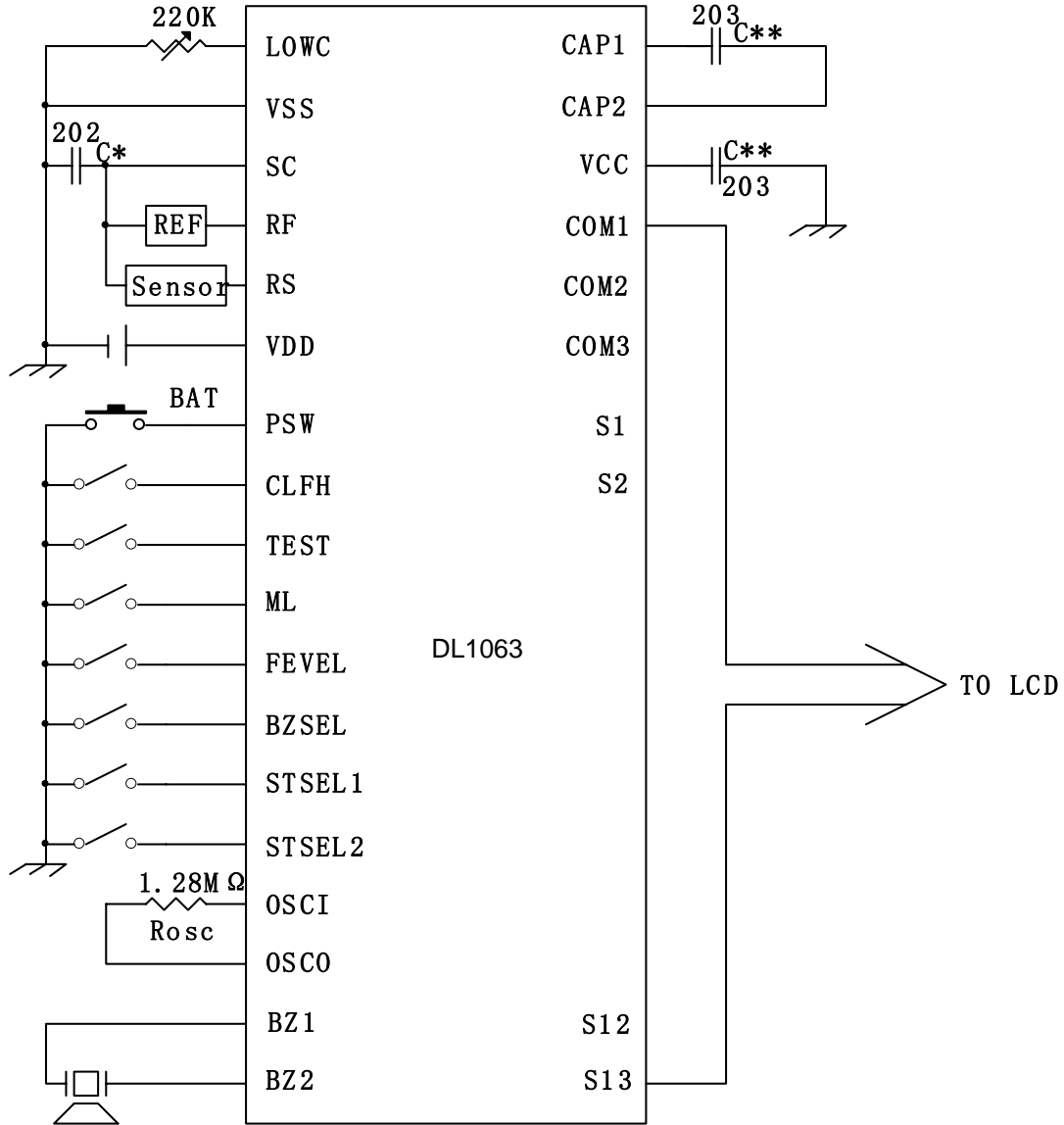


DL1063

One-Decimal Clinical Thermometer

Application Circuit

这个电阻是低电量检测的。220K大概1.2V



Note:

REF=30kΩ, 1%

C* = 272~202

C** = 103~104



IC图片，裸片IC，需要绑定的！