

1. DESCRIPTION

The SS0508 is a CMOS circuit provided with digital thermometer function. Temperature reading from -50°C to $+50^{\circ}\text{C}$ is detected by use of a thermistor as a sensor and temperature is displayed on a LCD by 0.2°C step. High accuracy is obtained in wide range of $-50^{\circ}\text{C} \sim +50^{\circ}\text{C}$ by providing non-linear correction circuit on the chip.

1.1 FEATURES

- Measurement accuracy: $\pm 1^{\circ}\text{C}$
- Measurement of temperature range: -50°C to $+50^{\circ}\text{C}$ ($-58^{\circ}\text{F} \sim +122^{\circ}\text{F}$)
- Resolution : 0.2°C ($^{\circ}\text{F}$)
- $3\frac{1}{2} + 7$ Indicators, $3\frac{1}{2}$ duty LCD
- Low power consumption
- Few external components
- Easiness in adjustment
- Single 1.5V battery operation
- Package Type: Bare chip

1.2 FUNCTIONS

- Measurable temperature range : -49°C (-57°F) $\sim +49.8^{\circ}\text{C}$ ($+121.8^{\circ}\text{F}$)
- Suitable Thermistor $R_T = 10\text{K}\Omega \pm 1\%$ (at 25°C)
- Resolution 0.2°C degree step
- Sampling Cycle 1 seconds, 3 seconds, 5 seconds, 10 seconds (Default 10 sec)
- Oscillation Frequency 32.768 KHz
- Temperature adjustment: Adjustment of temperature is made by adjusting fundamental resistance against dispersion in resistance values of thermistors

2. ABSOLUTE MAXIMUM RATINGS

Characteristic	Symbol	Value	Unit
Supply Voltage (V_{CC})	V_{CC}	$-0.1 \sim +3.0$	V
Operating Temperature Range	T_{opr}	$-50 \sim +50$	$^{\circ}\text{C}$
Storage Temperature Range	T_{stg}	$-50 \sim +125$	$^{\circ}\text{C}$

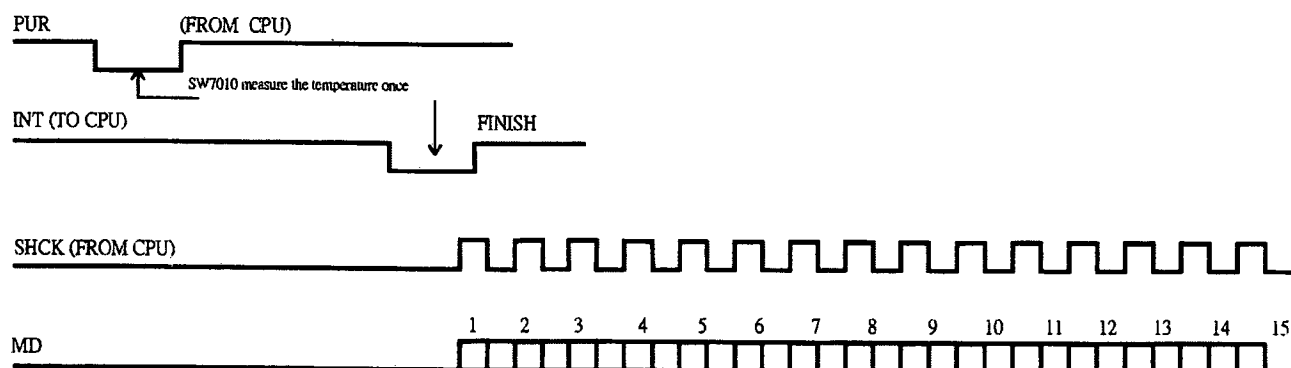
3. ELECTRICAL CHARACTERISTICS(Ta = 25°C, V_{SS} = 0V, V_{CC} = 1.5V unless otherwise specified)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Operating Voltage	V _{CC}		1.25	1.50	2.00	V
LCD Voltage	V _{DD}			3.00		V
Supply Current	I _{CC}	Operating		50	80	μA
	I _{STD}	Standby		5	10	μA

4. SERIAL OUTPUT

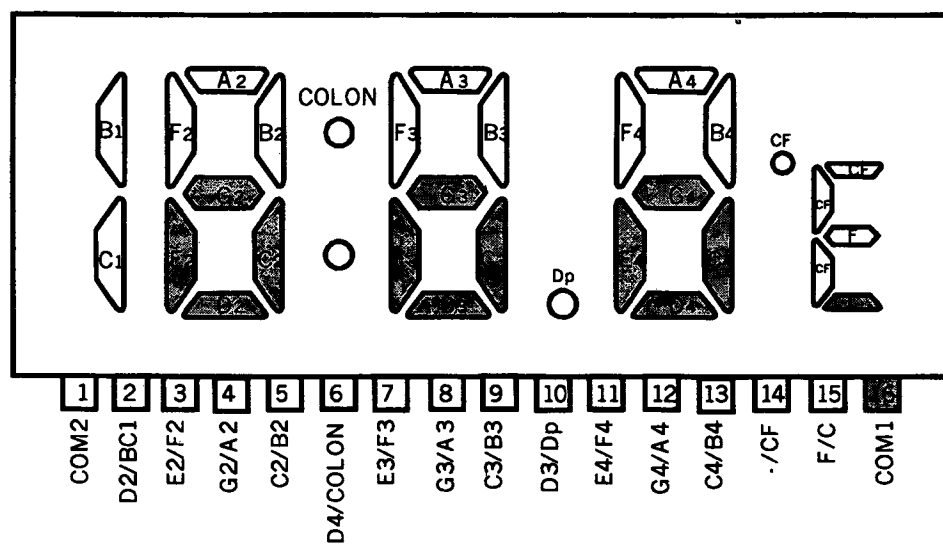
Temperature data converted serially by MD, SHCK INT, PUR terminals.

Temperature data is output a total 15-bits data.

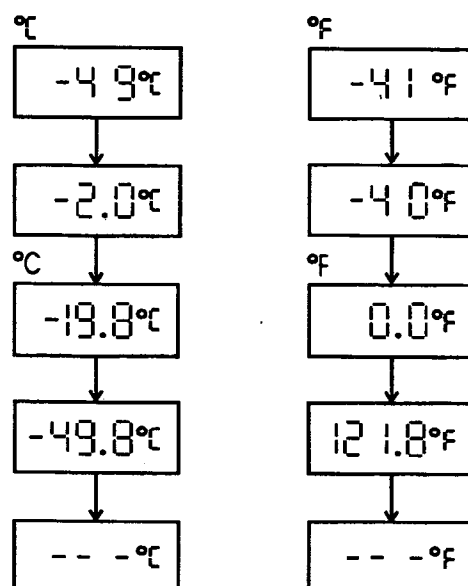


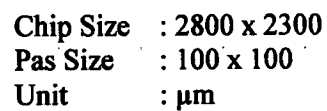
Bit No.	Function	Remark
01	Polarity	Polarity (1= Minus; 0 = Plus)
02		(Hundred digit) (°C no use)
03	80	
04	40	
05	20	
06	10	
07	8	
08	4	
09	2	
10	1	
11	0.8	
12	0.4	
13	0.2	
14	0.1	
15	(°C/°F)	(0 = °C; 1 = °F)

5. LCD FORMAT



6. DISPLAY FORMAT





9. PAD ASSIGNMENT

Pad No.	Signal	Description			X	Y
1	OSC2	Oscillator circuit			969	1014
2	PUR				713	1014
3	S1	Pin option, select the thermistor sampling cycle (default 10 seconds)			314	1014
4	S2				80	1014
		S1	S2	SAMPLING CYCLE, sec		
		V _{SS}	V _{SS}	10		
		V _{SS}	V _{CC}	1		
		V _{CC}	V _{SS}	2		
		V _{CC}	V _{CC}	5		
5	CAP1	Booster capacitor			-148	1014
6	T1	Test input			-318	1014
7	T2	Test input			-517	1014
8	ADJ	Adjust the fixed temperature (active high)			-714	1014
9	REF	Terminal for temperature detection			-876	1014
10	THER	Terminal for temperature detection			-1244	1014
11	CAP	Terminal for temperature detection			-1266	685
12	V _{CC}	Supply voltage			-1266	525
13	CAP2	Booster capacitor			-1266	223
14	COM2	LCD common drive			-1266	-213
15	SEG14	LCD segment drive			-1266	-383
16	SEG13	LCD segment drive			-1266	-646
17	SEG12	LCD segment drive			-1266	-808
18	SEG11	LCD segment drive			-1266	-1016
19	SEG10	LCD segment drive			-923	-1016
20	SEG9	LCD segment drive			-763	-1016
21	SEG8	LCD segment drive			-434	-1016
22	SEG7	LCD segment drive			-269	-1016
23	SEG6	LCD segment drive			59	-1016
24	SEG5	LCD segment drive			224	-1016
25	SEG4	LCD segment drive			552	-1016
26	SEG3	LCD segment drive			718	-1016
27	SEG2	LCD segment drive			1046	-1016
28	SEG1	LCD segment drive			1229	-1016
29	COM1	LCD common drive			1261	-723
30	VDD	LCD supply voltage			1261	-295
31	VSS	GND			1261	-127
32	CF	°C/°F Terminal, default (VSS) select oC			1261	40
33	INT	Signal to interrupt the MPU			1261	218
34	MD	Serial Data			1261	431
35	SHCK	Serial shift Clock Input			1261	606
36	OSC1	Oscillator circuit			1261	772

Substrate connected to V_{SS}

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