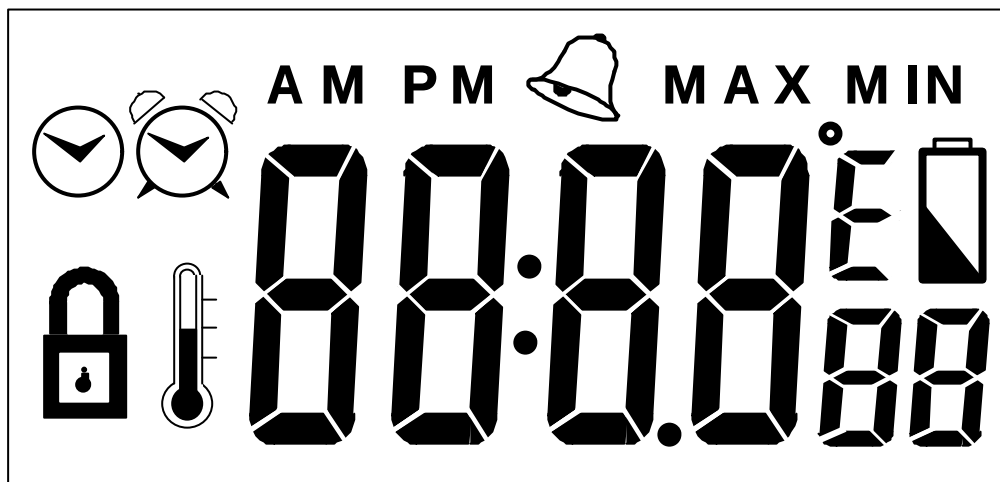

SS0117A

Alarm Clock with Wide Range Thermometer –50°C to +300°C (-58°F to +572°F)



FEATURES

- 1.5V (SS0117A) or 3V (SS0117B) battery operation with very low power consumption
- Maximum and Minimum temperature records
- Temperature data hold function
- Measure ranging from – 50°C to +300°C (-58°F to +572°F)
- 12/24 Hour real time clock with Hour, Minute and Second display
- Daily Alarm function
- Low Battery Indicator
- Back light function
- Segment test function on power on reset

DESCRIPTIONS

The SS0117A is low power consumption IC to detect wide temperature range. By using a special made thermistor SE238 as sensor, SS0117A can measure temperature range from -50°C to $+300^{\circ}\text{C}$ (-58°F to $+572^{\circ}\text{F}$). The measured temperature is displayed on a liquid crystal display (LCD). Besides, the SS0117A records the maximum and minimum temperature automatically. Data hold function is included for temperature display locking. Apart from the temperature function, the SS0117A contains a real time clock with alarm function. The 12-hour or 24-hour display format is user selectable. Data hold function and power on segment test are available.

The application for SS0117A is cooking thermometer, laboratory thermometer and any other applications where wide range, digital temperature measurement required.

KEY FUNCTIONS

MODE/ $^{\circ}\text{C} \leftrightarrow ^{\circ}\text{F}$: Toggle between Real Time Clock Display Mode and Alarm Display Mode or Toggle the temperature display format between $^{\circ}\text{C}$ and $^{\circ}\text{F}$ when it is in temperature mode

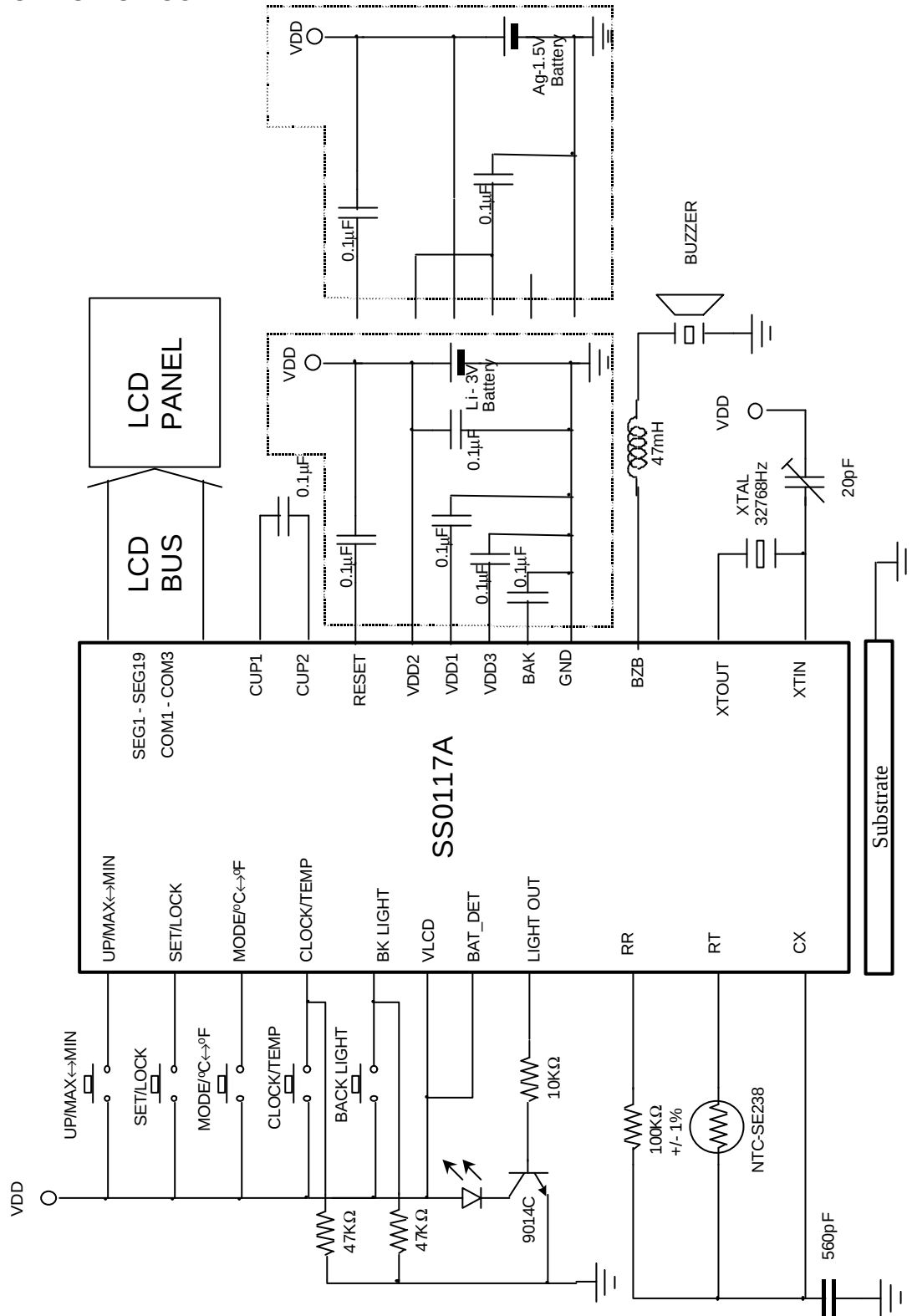
SET/LOCK : Enter set mode and shift setting digits in either time or alarm display modes or enable temperature hold function in temperature mode

UP/MAX $\leftrightarrow$ MIN : Increase the setting digit in time or alarm setting mode or toggle between normal, maximum and minimum temperature display in temperature mode

CLOCK $\leftrightarrow$ TEMP: Toggle between time mode and temperature display modes

BK-LIGHT : Turn on or turn off the back-light

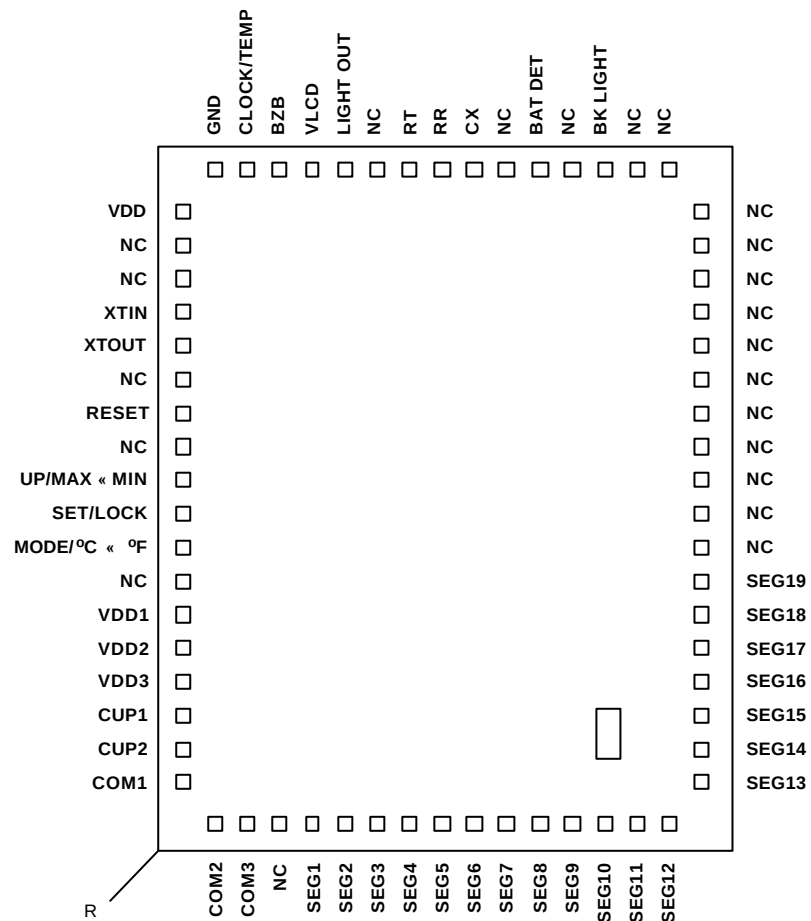
APPLICATION CIRCUIT



CHIP INFORMATION

Chip size 2040 x 2335 (μm^2)
 Pad size 90 x 90 (μm^2)
 Pad pitch min. 115 μm

PIN/PAD DIAGRAM



PIN/PAD ASSIGNMENT
Unit : μm

Pad No.	Pad Name	Coordinate		Pad No.	Pad Name	Coordinate	
		X	Y			X	Y
1	BAK	70.0	2175.0	34	SEG13	1970.0	160.0
2	NC	70.0	2045.0	35	SEG14	1970.0	290.0
3	NC	70.0	1915.0	36	SEG15	1970.0	420.0
4	XTIN	70.0	1800.0	37	SEG16	1970.0	535.0
5	XTOUT	70.0	1685.0	38	SEG17	1970.0	650.0
6	NC	70.0	1570.0	39	SEG18	1970.0	765.0
7	RESET	70.0	1455.0	40	SEG19	1970.0	880.0
8	NC	70.0	1340.0	41	NC	1970.0	995.0
9	UP/MAX $\leftrightarrow$ MIN	70.0	1225.0	42	NC	1970.0	1110.0
10	SET/LOCK	70.0	1110.0	43	NC	1970.0	1225.0
11	MODE/ $^{\circ}\text{C} \leftrightarrow ^{\circ}\text{F}$	70.0	985.0	44	NC	1970.0	1340.0
12	NC	70.0	880.0	45	NC	1970.0	1455.0
13	VDD1	70.0	765.0	46	NC	1970.0	1570.0
14	VDD2	70.0	650.0	47	NC	1970.0	1685.0
15	VDD3	70.0	535.0	48	NC	1970.0	1800.0
16	CUP1	70.0	420.0	49	NC	1970.0	1915.0
17	CUP2	70.0	290.0	50	NC	1970.0	2045.0
18	COM1	70.0	160.0	51	NC	1970.0	2175.0
19	COM2	200.0	70.0	52	NC	1840.0	2265.0
20	COM3	330.0	70.0	53	NC	1710.0	2265.0
21	NC	445.0	70.0	54	BK LIGHT	1595.0	2265.0
22	SEG1	560.0	70.0	55	NC	1480.0	2265.0
23	SEG2	675.0	70.0	56	BAT DET	1365.0	2265.0
24	SEG3	790.0	70.0	57	NC	1250.0	2265.0
25	SEG4	905.0	70.0	58	CX	1135.0	2265.0
26	SEG5	1020.0	70.0	59	RR	1020.0	2265.0
27	SEG6	1135.0	70.0	60	RT	905.0	2265.0
28	SEG7	1250.0	70.0	61	NC	790.0	2265.0
29	SEG8	1365.0	70.0	62	LIGHT OUT	675.0	2265.0
30	SEG9	1480.0	70.0	63	VLCD	560.0	2265.0
31	SEG10	1595.0	70.0	64	BZB	445.0	2265.0
32	SEG11	1710.0	70.0	65	CLOCK/TEMP	330.0	2265.0
33	SEG12	1840.0	70.0	66	GND	200.0	2265.0

N.B : The Substrate must be connected to GND

ABSOLUTE MAXIMUM RATINGS

Parameters	Symbol	Min	Max	Unit
Maximum Supply Voltage	V _{DD}	-0.3	+5.5	V
Maximum Input Voltage	V _{in}	-0.3	VDD+0.3	V
Maximum Output Voltage	V _{out}	-0.3	VDD+0.3	V
Maximum Operating Temperature	T _{opq}	0	70	°C
Maximum Storage Temperature	T _{stg}	-25	125	°C

ELECTRICAL CHARACTERISTICS

Condition 1 : at Ta = 25°C, VDD = 1.5V

Parameters	Symbol	Min	Typ.	Max	Unit
Operating Voltage	VDD	1.2	1.5	1.7	V
Operating Current	I _d		6		μA
Standby Current	I _{st}		2		μA
Stop Current	I _{stop}			0.3	μA
LCD Supply Voltage	V _{lcd}		3		V
LCD Frame Frequency	F _{lcd}		32		Hz
Operating Frequency (SLOW)	F _{slow}		32.768		kHz

Condition 2 : at Ta = 25°C, VDD = 3V

Parameters	Symbol	Min	Typ.	Max	Unit
Operating Voltage	VDD	2.4	3.0	5.25	V
Operating Current	I _d		6		μA
Standby Current	I _{st}		2		μA
Stop Current	I _{stop}			0.3	μA
LCD Supply Voltage	V _{lcd}		3		V
LCD Frame Frequency	F _{lcd}		32		Hz
Operating Frequency (SLOW)	F _{slow}		32.768		kHz

THERMOMETER CHARACTERISTICS

Parameters	Symbol	Condition	Min	Typ.	Max	Unit
Measurement Range	T _{in}		-50		300	°C
Resolution	T _{dd}			0.1		°C
Accuracy	% _{err}	0°C -50°C	-1		+1	°C
		-50°C - 150 °C	-3		+3	°C
		otherwise	-5		+5	°C
Sample Frequency	F _s			2		secs

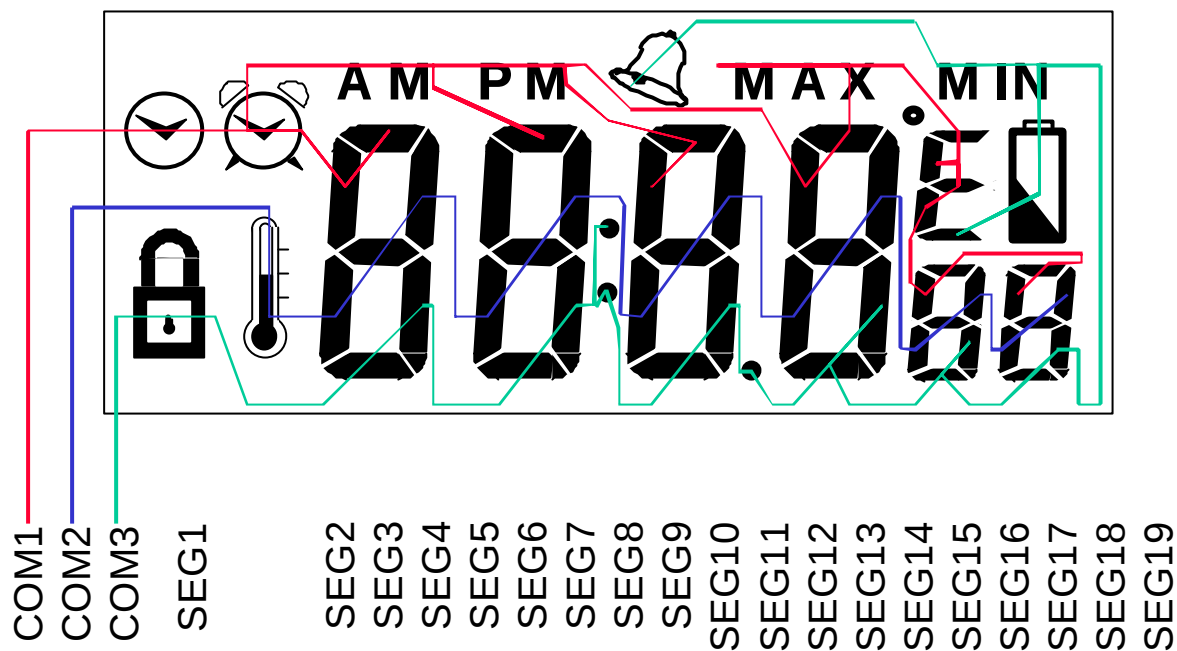
THERMISTOR CHARACTERISTICS REQUIREMENTS

Parameters	Symbol	Min	Typ.	Max	Unit
Resistance at Ta= 25°C	R ₂₅		98.63		kΩ
B Constant	B		4066		
R ₂₅ Tolerance	% _{err} R		1		%
B Constant Tolerance	% _{err} B		1		%
Operating Temperature Range	T _{ther}	-50		300	°C

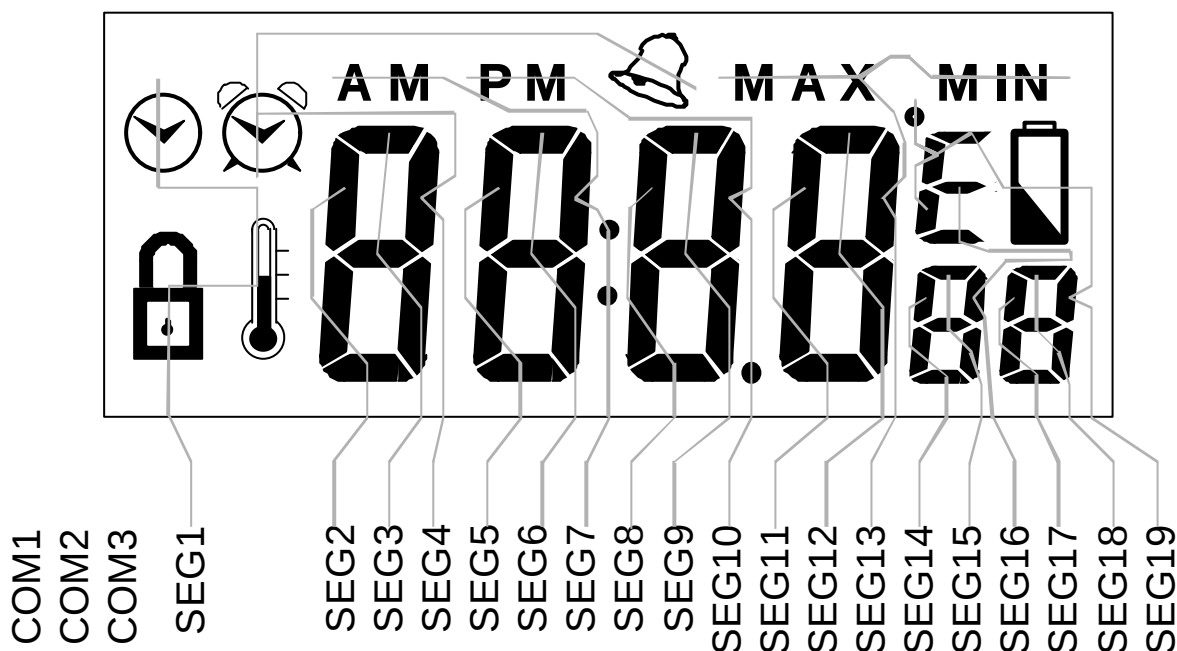
LCD CHARACTERISTICS REQUIREMENT

Parameters	Symbol	Min	Typ.	Max	Unit
Operating Voltage	V _{op}		3		V
Duty			1/3		
Bias			1/2		

LCD LAYOUT



COMMON



SEGMENTS

欢迎索取免费详细资料、设计选型指南和光盘、样品；产品繁多未能尽录，欢迎来电查询。

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