

SS0213

Thermometer, Hygrometer & Clock

Ver1.0 30 Jul 2002

Features

3 LCD selections

2 humidity sensor selections (HS12P or GHS104)

Indoor relative humidity & comfort level indicator

Humidity measurement range (HS12P - 20%RH to 99%RH, GHS104 - 30%RH to 99%RH)

Indoor and outdoor temperature measure function

Indoor measurement range (-30°C to 50°C (-22°F to 122°F))

Outdoor measurement range (-50°C to 70°C (-58°F to 158°F))

Celsius (°C) or Fahrenheit (°F) temperature display

Maximum and minimum temperature and indoor humidity memory

12/24 hours mode clock

Daily 1 minute alarm timer

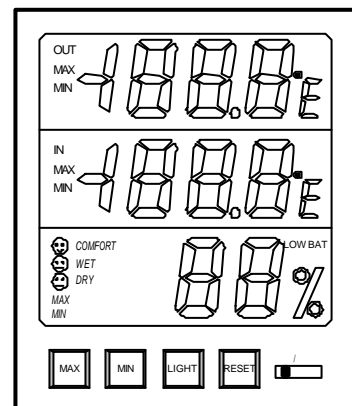
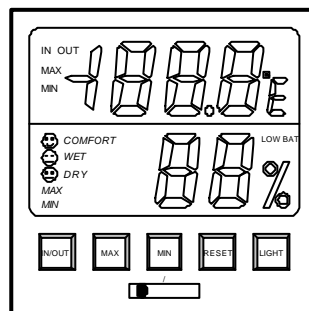
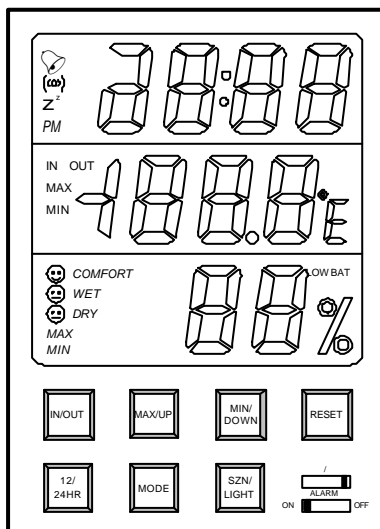
8 minute snooze function

8 second Backlight function

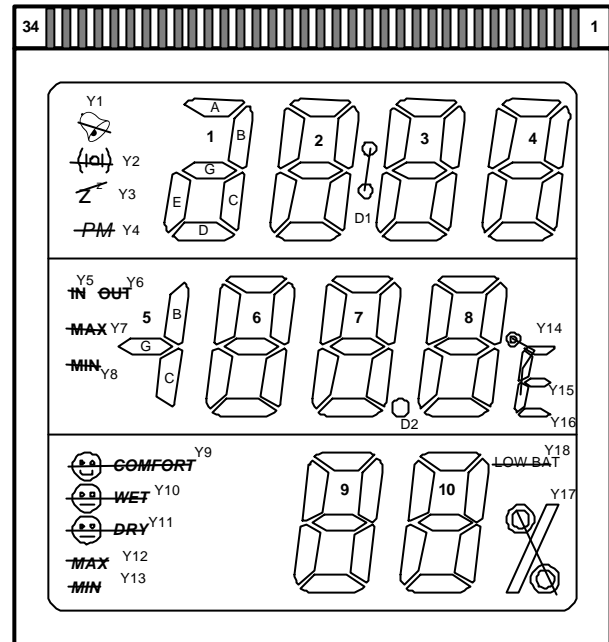
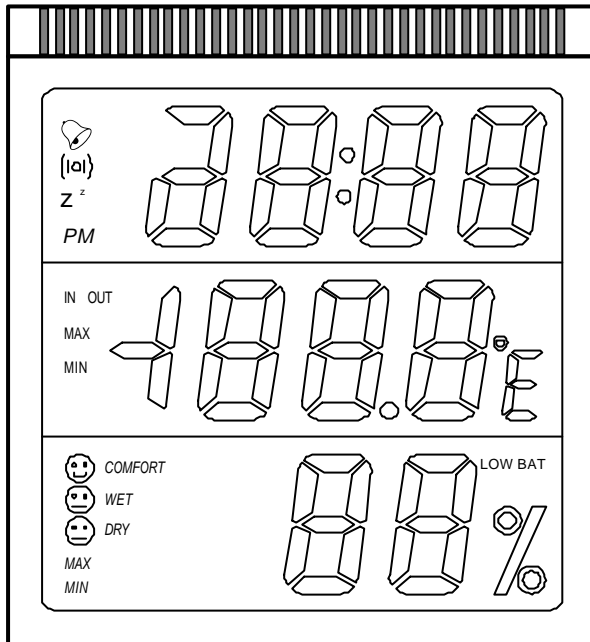
Low voltage detect function

Operating voltage 1.5V

Product Outlook



LCD Layout Diagram 1



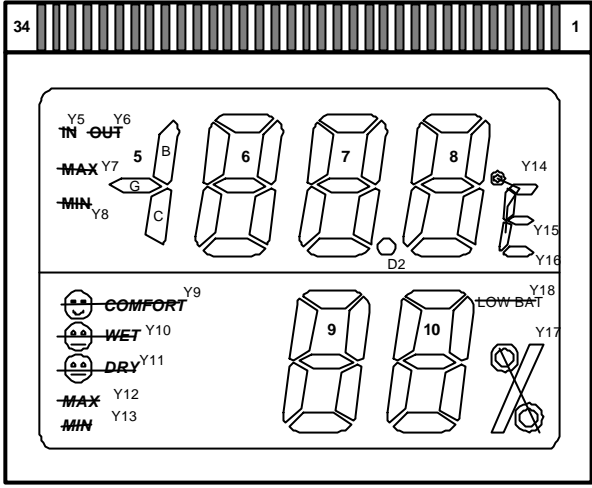
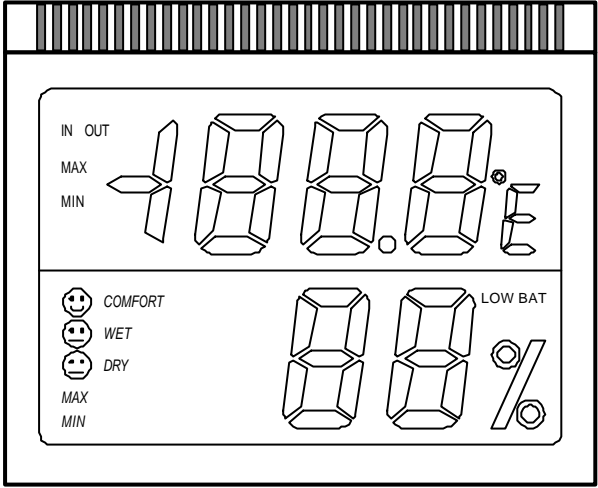
IC Pin	LCD Pin	COM1	COM2	COM3	COM4	IC Pin	LCD Pin	COM1	COM2	COM3	COM4
COM1	1	COM1				SEG14	18	2A	2F	2G	2E
COM2	2		COM2			SEG15	19	1A	1B	1D,1E, 1G	1C
COM3	3			COM3		SEG16	20	Y1	Y2	Y3	Y4
COM4	4				COM4	COM1	21	COM1			
SEG1	5	10D	10C	Y17	10B	COM2	22		COM2		
SEG2	6	10E	10G	10F	10A	COM3	23			COM3	
SEG3	7	9D	9C	9G	9B	COM4	24				COM4
SEG4	8		Y15	Y16	Y18	SEG17	25	6B	6C	6D	
SEG5	9	8B	Y14	8C	8D	SEG18	26	6A	6F	6G	6E
SEG6	10	8A	8F	8G	8E	SEG19	27	5B	5G	5C	
SEG7	11	7B	7C	D2	7D	SEG20	28	Y6	Y5	Y7	Y8
SEG8	12	7A	7F	7G	7E	COM1	29	COM1			
SEG9	13	4B	4C	4D		COM2	30		COM2		
SEG10	14	4A	4F	4G	4E	COM3	31			COM3	
SEG11	15	3B	3C	3D		COM4	32				COM4
SEG12	16	3A	3F	3G	3E	SEG21	33	Y12	Y11	Y10	Y9
SEG13	17	2B	D1	2C	2D	SEG22	34	Y13	9E	9F	9A

LCD Voltage = 3 Volt

LCD Duty = 1/4

LCD Bias = 1/2

LCD Layout Diagram 2



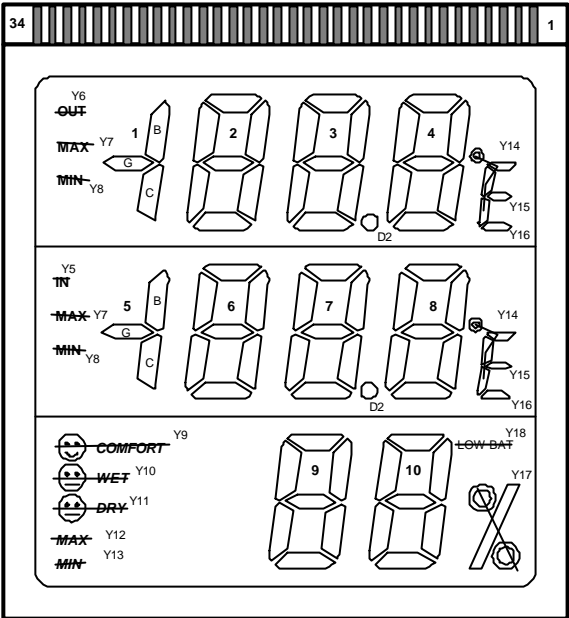
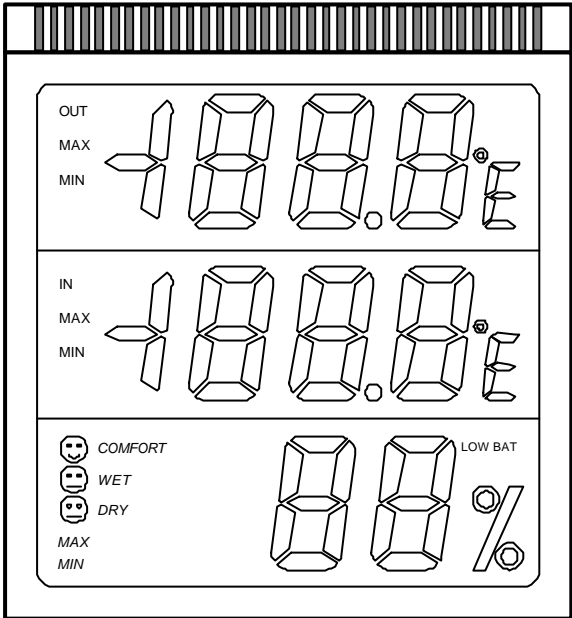
IC Pin	LCD Pin	COM1	COM2	COM3	COM4	IC Pin	LCD Pin	COM1	COM2	COM3	COM4
COM1	1	COM1					18				
COM2	2		COM2				19				
COM3	3			COM3			20				
COM4	4				COM4		21				
SEG1	5	10D	10C	Y17	10B		22				
SEG2	6	10E	10G	10F	10A		23				
SEG3	7	9D	9C	9G	9B		24				
SEG4	8		Y15	Y16	Y18	SEG17	25	6B	6C	6D	
SEG5	9	8B	Y14	8C	8D	SEG18	26	6A	6F	6G	6E
SEG6	10	8A	8F	8G	8E	SEG19	27	5B	5G	5C	
SEG7	11	7B	7C	D2	7D	SEG20	28	Y6	Y5	Y7	Y8
SEG8	12	7A	7F	7G	7E	COM1	29	COM1			
	13					COM2	30		COM2		
	14					COM3	31			COM3	
	15					COM4	32				COM4
	16					SEG21	33	Y12	Y11	Y10	Y9
	17					SEG22	34	Y13	9E	9F	9A

LCD Voltage = 3 Volt

LCD Duty = 1/4

LCD Bias = 1/2

LCD Layout Diagram 3



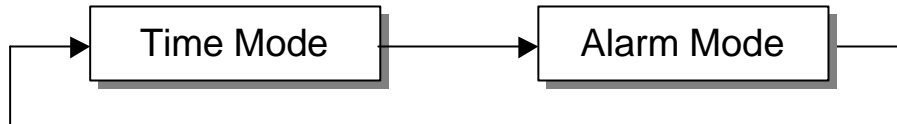
IC Pin	LCD Pin	COM1	COM2	COM3	COM4	IC Pin	LCD Pin	COM1	COM2	COM3	COM4
COM1	1	COM1				SEG14	18	2A	2F	2G	2E
COM2	2		COM2			SEG15	19		1B	1G	1C
COM3	3			COM3		SEG16	20				
COM4	4				COM4	COM1	21	COM1			
SEG1	5	10D	10C	Y17	10B	COM2	22		COM2		
SEG2	6	10E	10G	10F	10A	COM3	23			COM3	
SEG3	7	9D	9C	9G	9B	COM4	24				COM4
SEG4	8		Y15	Y16	Y18	SEG17	25	6B	6C	6D	
SEG5	9	8B	Y14	8C	8D	SEG18	26	6A	6F	6G	6E
SEG6	10	8A	8F	8G	8E	SEG19	27	5B	5G	5C	
SEG7	11	7B	7C	D2	7D	SEG20	28	Y6	Y5	Y7	Y8
SEG8	12	7A	7F	7G	7E	COM1	29	COM1			
SEG9	13	4B	4C	4D		COM2	30		COM2		
SEG10	14	4A	4F	4G	4E	COM3	31			COM3	
SEG11	15	3B	3C	3D		COM4	32				COM4
SEG12	16	3A	3F	3G	3E	SEG21	33	Y12	Y11	Y10	Y9
SEG13	17	2B		2C	2D	SEG22	34	Y13	9E	9F	9A

LCD Voltage = 3 Volts
LCD Duty = 1/4
LCD Bias = 1/2

Operation Description

- **Time Mode / Alarm Mode**

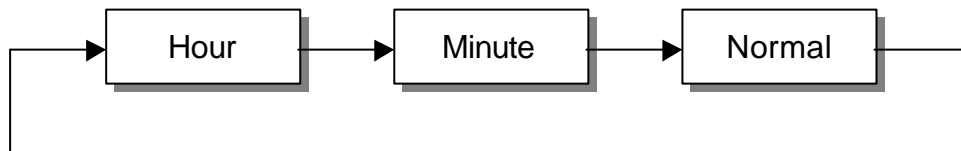
- Press **MODE** key to alternate between time mode or alarm mode.



- The alarm mode will automatically revert back to time mode after 10 seconds if no changes are made.

- **Setting of Real Time Clock**

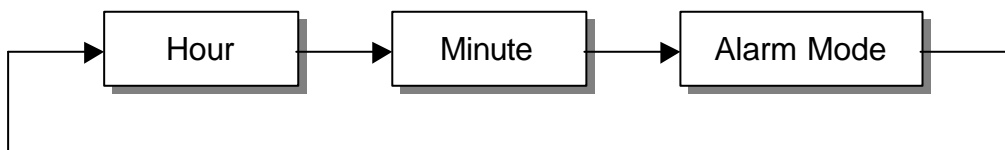
- At time mode press and hold **MODE** key for 3 seconds to set hour and minute.
- The setting sequence as follows:



- The setting object will be flash, then press **MAX/UP** or **MIN/DOWN** key to adjust. Adjust of second will to zero. To rapidly increase the numbers, press and hold until the correct time is achieved.

- **Setting of Alarm**

- At alarm mode press and hold **MODE** key for 3 seconds to set hour and minute
- The setting sequence as follows:



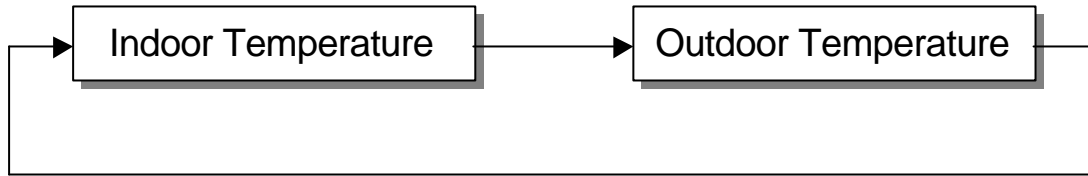
- The setting object will be flash, then press **MAX/UP** or **MIN/DOWN** key to adjust. To rapidly increase the numbers, press and hold until the correct time is achieved.
- Toggle the **Alarm ON/OFF** slide key to enable / disable alarm function. Moreover, the snooze function will be disable.

- **Light & Snooze**

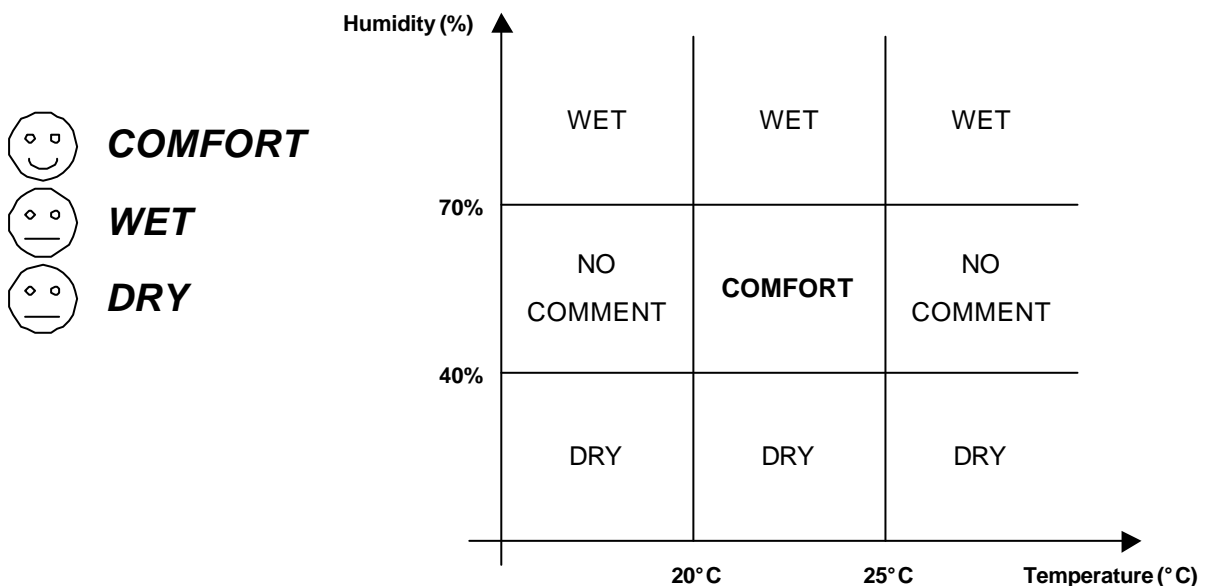
- When **SZN/LIGHT** key is pressed, the backlight will stay lit for 8 seconds.
- When alarm sounds and pressing the **SZN/LIGHT** key will activate the snooze function and backlight will stay lit for 8 seconds.

- **Indoor / Outdoor Temperature & Humidity**

- Press **IN/OUT** key to view between indoor or outdoor temperature.



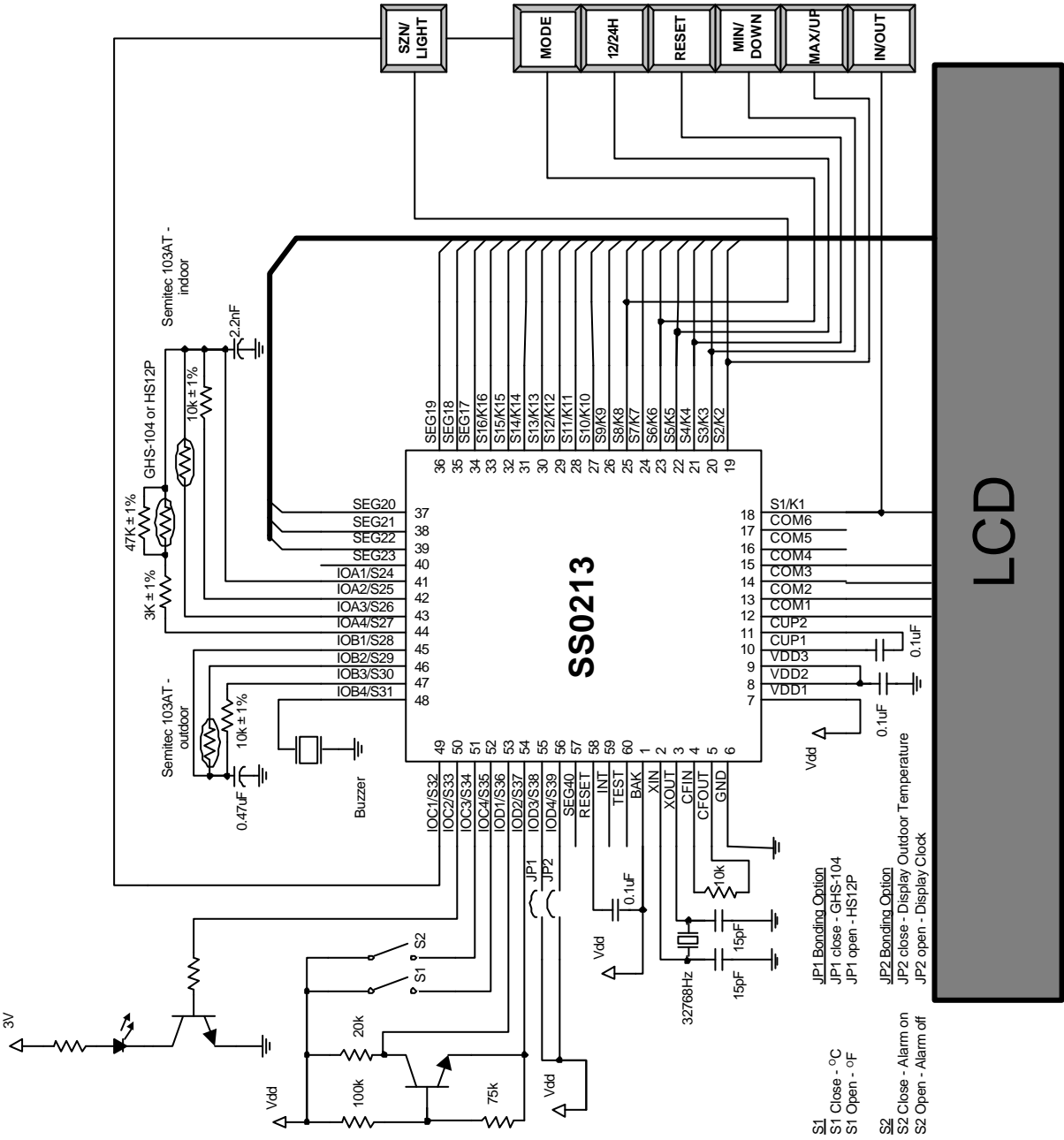
- In indoor temperature, press **MAX/UP** key will display the maximum indoor temperature and maximum indoor humidity. Press **MIN/DOWN** key will display the minimum indoor temperature and minimum indoor humidity.
- In outdoor temperature, press **MAX/UP** key will display the maximum outdoor temperature and maximum indoor humidity. Press **MIN/DOWN** key will display the minimum outdoor temperature and minimum indoor humidity.
- Toggle the **°C/°F** slide key to alternative between Celsius (°C) or Fahrenheit (°F) temperature display.
- Press **RESET** key will clear the Indoor / Outdoor Temperature & Humidity memory.
- Comfort indicators will display the level as comfortable, wet or dry. The table is shown below:



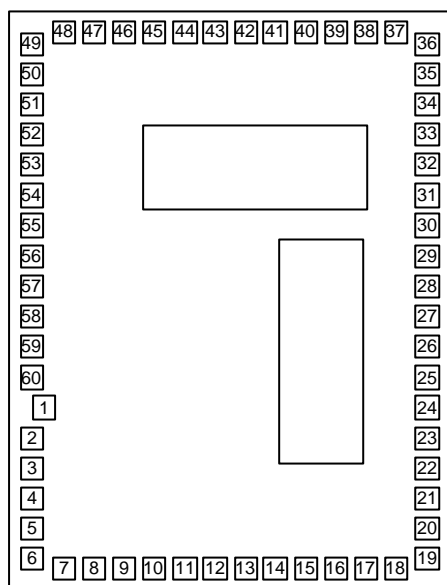
- **12/24 Hour Mode Setting**

- Press **12/24HR** to alternative 12 / 24 hour mode.

SS0213 Circuit Diagram



SS0213 Bonding Pad Diagram



The substrate of chip should be connected to GND

No.	Name	X	Y	No.	Name	X	Y
1	BAK	99.35	717.50	31	SEG14(K14)	1627.50	1522.50
2	XIN	72.50	602.50	32	SEG15(K15)	1627.50	1637.50
3	XOUT	72.50	487.50	33	SEG16(K16)	1627.50	1752.50
4	CFIN	72.50	372.50	34	SEG17	1627.50	1867.50
5	CFOUT	72.50	247.50	35	SEG18	1627.50	1992.50
6	GND	72.50	122.50	36	SEG19	1627.50	2117.50
7	VDD1	197.50	72.50	37	SEG20	1502.50	2167.50
8	VDD2	322.50	72.50	38	SEG21	1377.50	2167.50
9	VDD3	447.50	72.50	39	SEG22	1252.50	2167.50
10	CUP1	562.50	72.50	40	SEG23	1137.50	2167.50
11	CUP2	677.50	72.50	41	SEG24/IOA1/CX	1022.50	2167.50
12	COM1	792.50	72.50	42	SEG25/IOA2/RR	907.50	2167.50
13	COM2	907.50	72.50	43	SEG26/IOA3/RT	792.50	2167.50
14	COM3	1022.50	72.50	44	SEG27/IOA4/RH	677.50	2167.50
15	COM4	1137.50	72.50	45	SEG28/IOB1/ELC	562.50	2167.50
16	COM5	1252.50	72.50	46	SEG29/IOB2/ELP	447.50	2167.50
17	COM6	1377.50	72.50	47	SEG30/IOB3/BZB	322.50	2167.50
18	SEG1(K1)	1502.50	72.50	48	SEG31/IOB4/BZ	197.50	2167.50
19	SEG2(K2)	1627.50	122.50	49	SEG32/IOC1/K11	72.50	2117.50
20	SEG3(K3)	1627.50	247.50	50	SEG33/IOC2/K12	72.50	1992.50
21	SEG4(K4)	1627.50	372.50	51	SEG34/IOC3/K13	72.50	1867.50
22	SEG5(K5)	1627.50	487.50	52	SEG35/IOC4/K14	72.50	1752.50
23	SEG6(K6)	1627.50	602.50	53	SEG36/IOD1	72.50	1637.50
24	SEG7(K7)	1627.50	717.50	54	SEG37/IOD2	72.50	1522.50
25	SEG8(K8)	1627.50	832.50	55	SEG38/IOD3	72.50	1407.50
26	SEG9(K9)	1627.50	947.50	56	SEG39/IOD4	72.50	1292.50
27	SEG10(K10)	1627.50	1062.50	57	SEG40	72.50	1177.50
28	SEG11(K11)	1627.50	1177.50	58	RESET	72.50	1062.50
29	SEG12(K12)	1627.50	1292.50	59	INT	72.50	947.50
30	SEG13(K13)	1627.50	1407.50	60	TEST	72.50	832.50

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