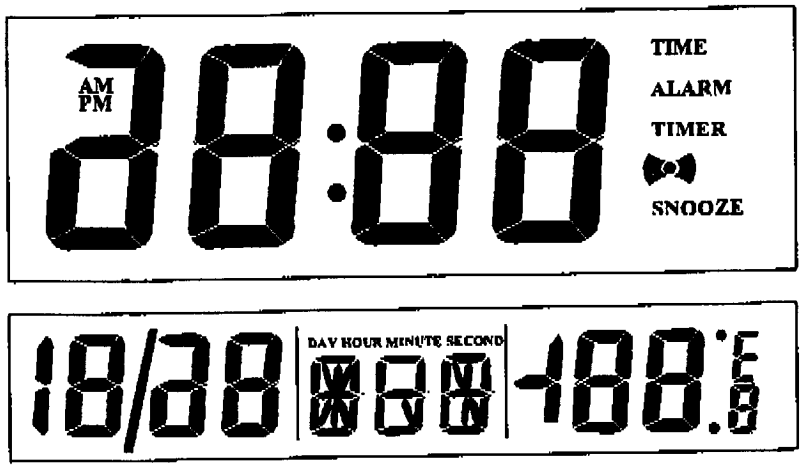
SS0915

ALARM CLOCK WITH THERMOMETER



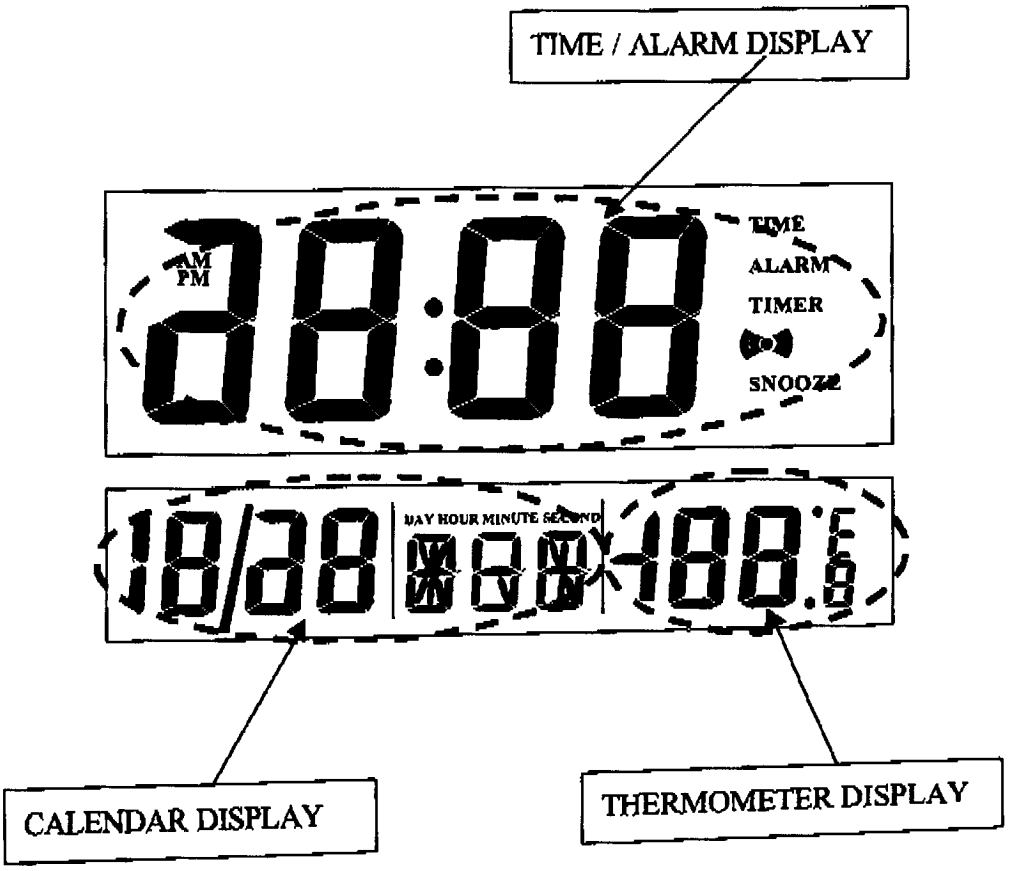
FEATURES

- 3V battery operation
- One real time clock
- 12/24Hr time display format selection
- Calendar: From 1st January, 1990AD to 31st December, 2030AD, searchable
- Daily Alarm: 1 alarm function in hour and minute with Snooze function
- Thermometer: °C / °F selectable display
- Light Control Signal
- Segment Testing

DESCRIPTION

SS0915 is a clock with temperature display by using ATF-103 temperature sensor. It provides a real time clock, clock alarm, calendar, thermometer and light control signal function. The measurement range of thermometer is –19.5°C ~ +60°C.

LCD LAYOUT



LCD PORTIONS	DISPLAY
TIME/ALARM DISPLAY	Real Time Clock Current Alarm Time Setting Year
CALENDAR DISPLAY	Day of week Month Date
THERMOMETER DISPLAY	°C or °F Temperature Display

MODE SELECTION

a. Keys and Switches definitions

This IC has **2 slide switches** (one pole three throw slide switch and one pole four throw slide switch) and **4 press buttons**

SLIDE SWITCHES	FUNCTION
[MODE]	Mode Slide Switch (Normal Mode Time Set Mode Alarm Set Mode Date Set Mode)
[SNZ / ALM On / Off]	Alarm Slide Switch (Snooze Alarm On Alarm Off)

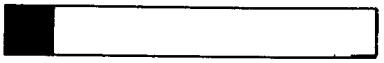
BUTTON	FUNCTION
[SNOOZE/LIGHT]	Snooze Light
[MONTH/HR]	Month Hour Alarm Display
[DATE/MIN]	Date Minute Alarm Display
[YR/ 12/24HR]	Year 12/24Hr format interchange
[°C / °F]	°C / °F interchange

b. [MODE] operation

Slide the **[MODE]** switch to change different mode:

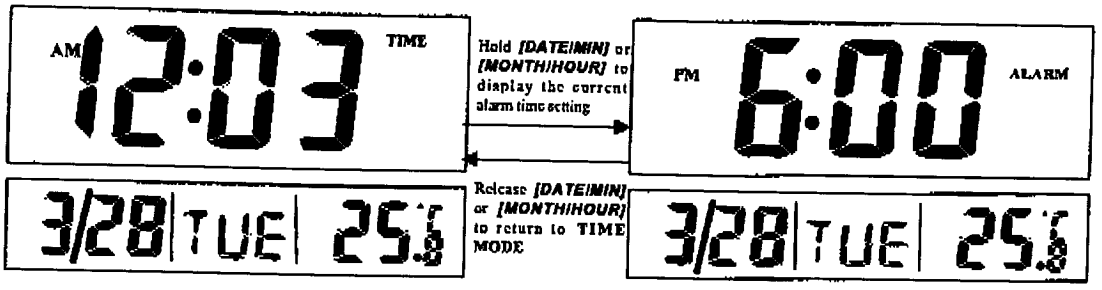
Normal Mode

Slide the **[MODE]** switch to Normal Mode, for **TIME/ALARM DISPLAY** displaying real time clock. "**TIME**" icon then appears.



NORMAL TIME SET AL SET DATE SET

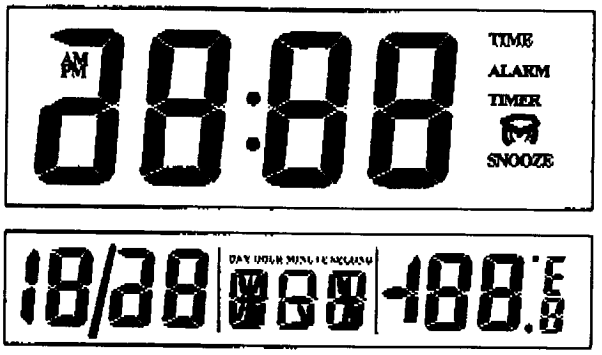
Holding **[MONTH/HR]** or **[DATE/MIN]**, to enter to **Alarm Display Mode**. LCD then displays current alarm setting time to replace the real time clock. At this time, the **ALARM** icon appears. Releasing the **[MONTH/HR]** or **[DATE/MIN]**, the LCD returns to normal display mode.



Press **[YR/ 12/24HR]** to switch between 12-hour and 24-hour format.

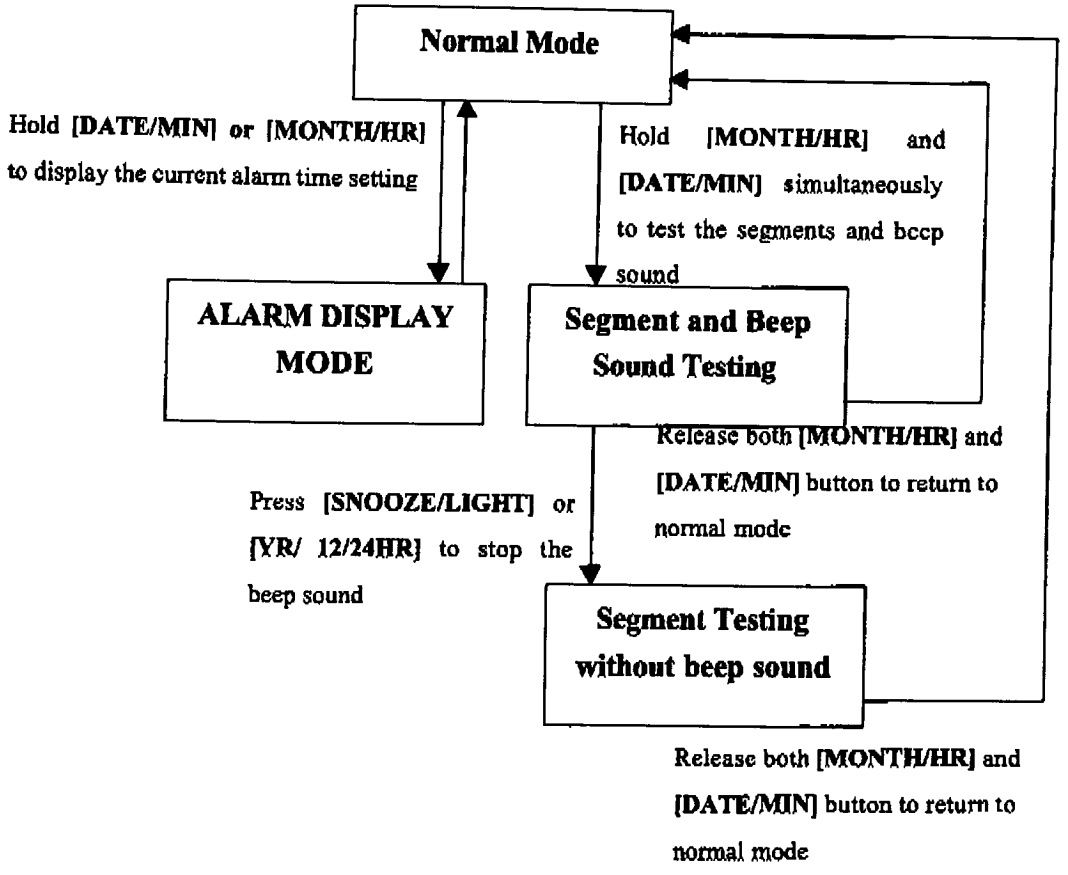
Press **[°C / °F]** to select either Celsius (°C) or Fahrenheit (°F).

Hold **[MONTH/HR]** and **[DATE/MIN]** at the same time to test the segment and alarm. At this time all segments on the LCD will appear and the alarm will generate beep sound with testing beep pattern. When press the **[SNOOZE/LIGHT]** or **[YR/ 12/24HR]** once, the alarm will turn off and the segment also appears. Releasing both **[MONTH/HR]** and **[DATE/MIN]** button, the LCD will return to normal mode.



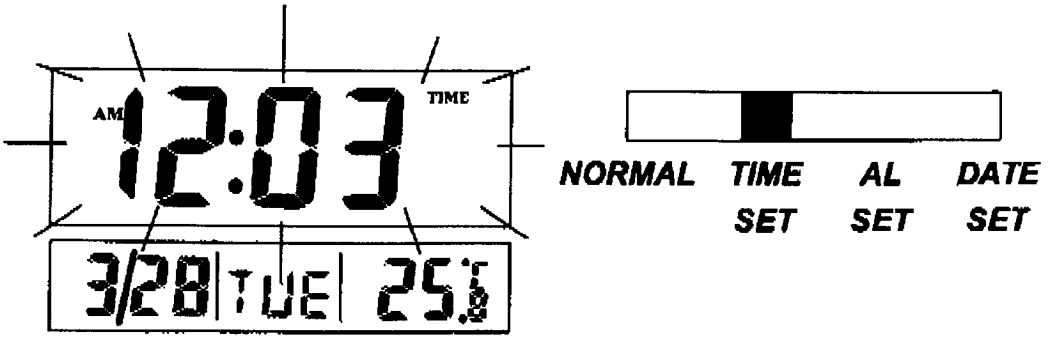
Hold ***[MONTH/HR]*** and ***[DATE/MIN]*** simultaneously to test the segments and beep sound

Hold the **[SNOOZE/LIGHT]** button to turn on the backlight. When released the button, the backlight will turn off after **3 seconds**.


Normal Mode
Hold [DATE/MIN] or [MONTH/HR] to display the current alarm time setting
Hold [MONTH/HR] and [DATE/MIN] simultaneously to test the segments and beep sound
ALARM DISPLAY MODE
Segment and Beep Sound Testing
Release both [MONTH/HR] and [DATE/MIN] button to return to normal mode
Press [SNOOZE/LIGHT] or [YR/ 12/24HR] to stop the beep sound
Segment Testing without beep sound
Release both [MONTH/HR] and [DATE/MIN] button to return to normal mode

TIME SET MODE

Slide the **[MODE]** switch to **TIME SET**. This causes the hour and minutes digits to flash on the **TIME/ALARM DISPLAY**. The "**TIME**" icon will flash on LCD



Press **[MONTH/HR/CALENDAR]** button to increase the hour digits and **[DATE/MIN/AL DISPLAY]** to increase the minutes digits. Holding either button will change its setting at **8Hz**.

Though the seconds are not displayed, they rest to 00 when press **[DATE/MIN/AL DISPLAY]** or **[MONTH/HR/CALENDAR]**.

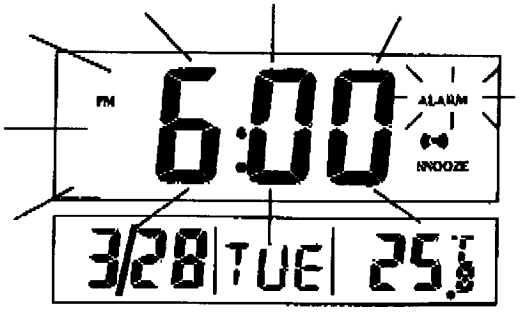
Press **[YR/ 12/24HR]** to switch between 12-hour and 24-hour format.

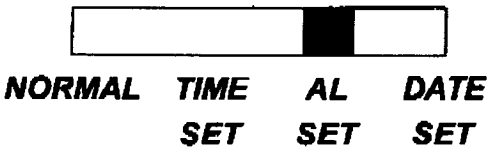
Press **[°C / °F]** to select either Celsius (°C) or Fahrenheit (°F).

Hold the **[SNOOZE/LIGHT]** button to turn on the backlight. When released the button, the backlight will turn off after **3 seconds**.

ALARM SET MODE

Slide the **[MODE]** switch to **AL SET**. This causes the current alarm time setting flash on **TIME/ALARM DISPLAY**. At this time **ALARM** icon appears and flash on the display.





Press **[MONTH/HR]** to increase hour digits and **[DATE/MIN]** to increase the minute digits. Holding either button will change its setting at **8Hz**.

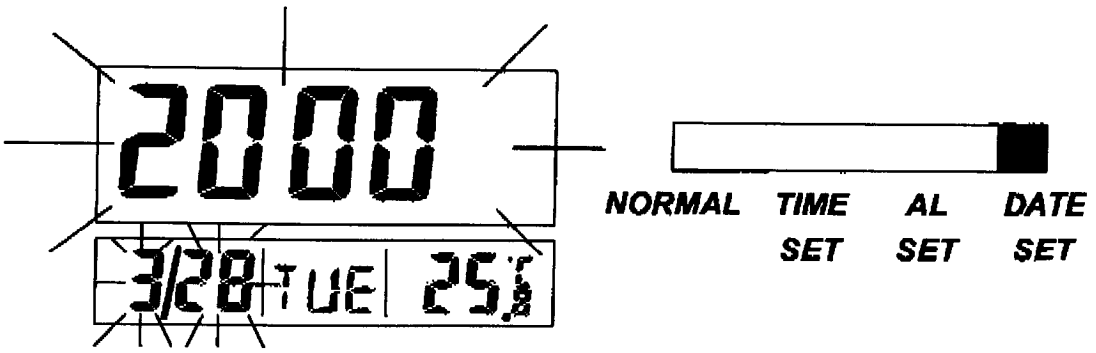
Press **[YR/ 12/24HR]** to switch between 12-hour and 24-hour format.

Press **[°C / °F]** to select either Celsius (°C) or Fahrenheit (°F).

Hold the **[SNOOZE/LIGHT]** button to turn on the backlight. When released the button, the backlight will turn off after **3 seconds**.

DATE SET

Slide the **[MODE]** switch to **DATE SET**. This cause the month, date flash on the **CALENDAR DISPLAY** and year flash on **TIME/ALARM DISPLAY.**



Press **[MONTH/HR/CALENDAR]** button to increase the month digits, **[DATE/MIN/AL DISPLAY]** button to increase the date digits and **[YR/ 12/24HR]** button to increase the year digits. Holding either button will change its setting at **8Hz.**

The **DAY OF WEEK** is automatically set in accordance with the date.

The date can be set within the range of January 1, 1990 to December 31, 2030. The default **YEAR** is 2000.

Press **[°C / °F]** to select either Celsius (°C) or Fahrenheit (°F).

Hold the **[SNOOZE/LIGHT]** button to turn on the backlight. When released the button, the backlight will turn off after **3 seconds**.

THERMOMETER

This IC has an indoor thermometer which have the range of --19.5°C ~ +60°C. The readout from the thermometer can also be switched between Celsius (°C) or Fahrenheit (°F).

Temperature Overflow Display

When the measured temperature is under –19.5°C or over +60°C, the **THERMOMETER DISPLAY** will display **HI** or **LO** respectively. The **HI** or **LO** display will display on the **THERMOMETR DISPLAY** middle two digits.

SNOOZE / ALM ON /OFF

Slide the **[SNZ / ALM On /Off]** switch to select alarm on, alarm off or snooze. If the switch slide to **AL ON**, the " ((•)) " icon will appear on **TIME/ALARM DISPLAY**. When the alarm time you set is reached, the alarm starts to sound with alarm beep pattern (see fig.2) and the backlight will turn on. Press **[SNOOZE/LIGHT]** or slide the **[SNZ / ALM On /Off]** switch to **ALARM OFF** to stop the alarm and turn off the backlight.

When the switch slid to **ALARM OFF**, the " ((•)) " icon will disappear. The alarm is not available at this time.

Slide the **[SNZ / ALM On /Off]** to select **SNZ**. The "((•)) " icon and the "**SNOOZE**" icon appear at the same time. When the alarm you set is reached, the "**SNOOZE**" icon will flash at 1Hz and the alarm will starts to sound with alarm beep pattern (see fig.2). The alarm will turn on at the same time. Press **[SNOOZE/LIGHT]** to pause the alarm and turn off the backlight. After **5** minutes, the alarm will on again and so on. Also, backlight will turn on again. If **[SNOOZE/LIGHT]** button is not pressed after **1** minutes, the snooze will stop automatically. Backlight will turn off at the same time. Slide the **[SNZ / ALM On /Off]** switch to **ALARM OFF** can also stop the alarm and turn off the backlight.

When the alarm is announcing, slide **[SNZ / ALM On /Off]** switch to **ALM OFF** will stop the alarm immediately.

When the alarm is announcing, slide **[SNZ / ALM On /Off]** switch to **ALM ON** or **SNZ** will not affect the alarm announcing.

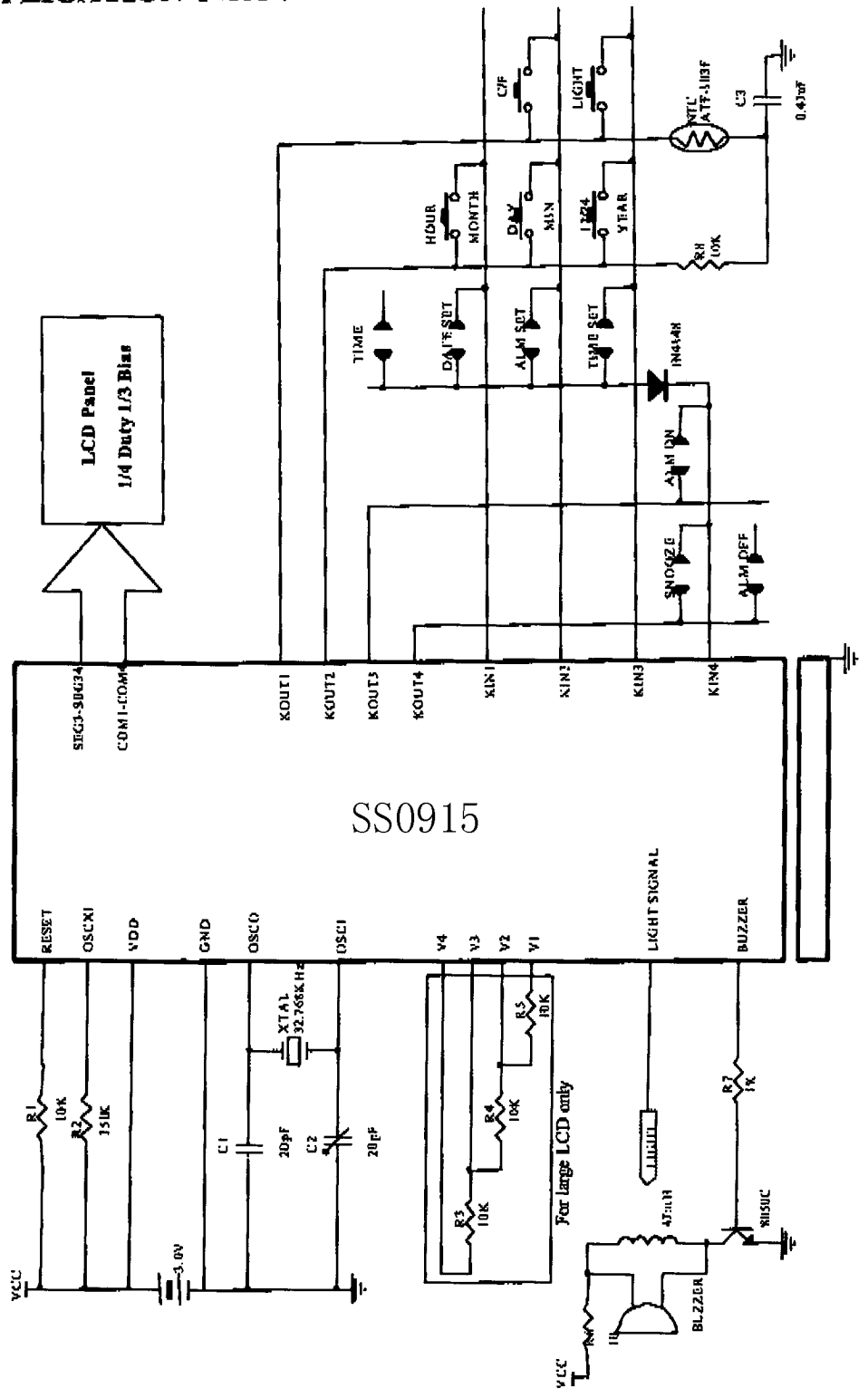
LIGHT CONTROL SIGNAL

This IC has a light control signal pin to control the backlight on/off. When user hold the **[SNOOZE/LIGHT]**, this pin will output a **High Level Signal**. When released the button, the backlight will turn off after **3 seconds**.

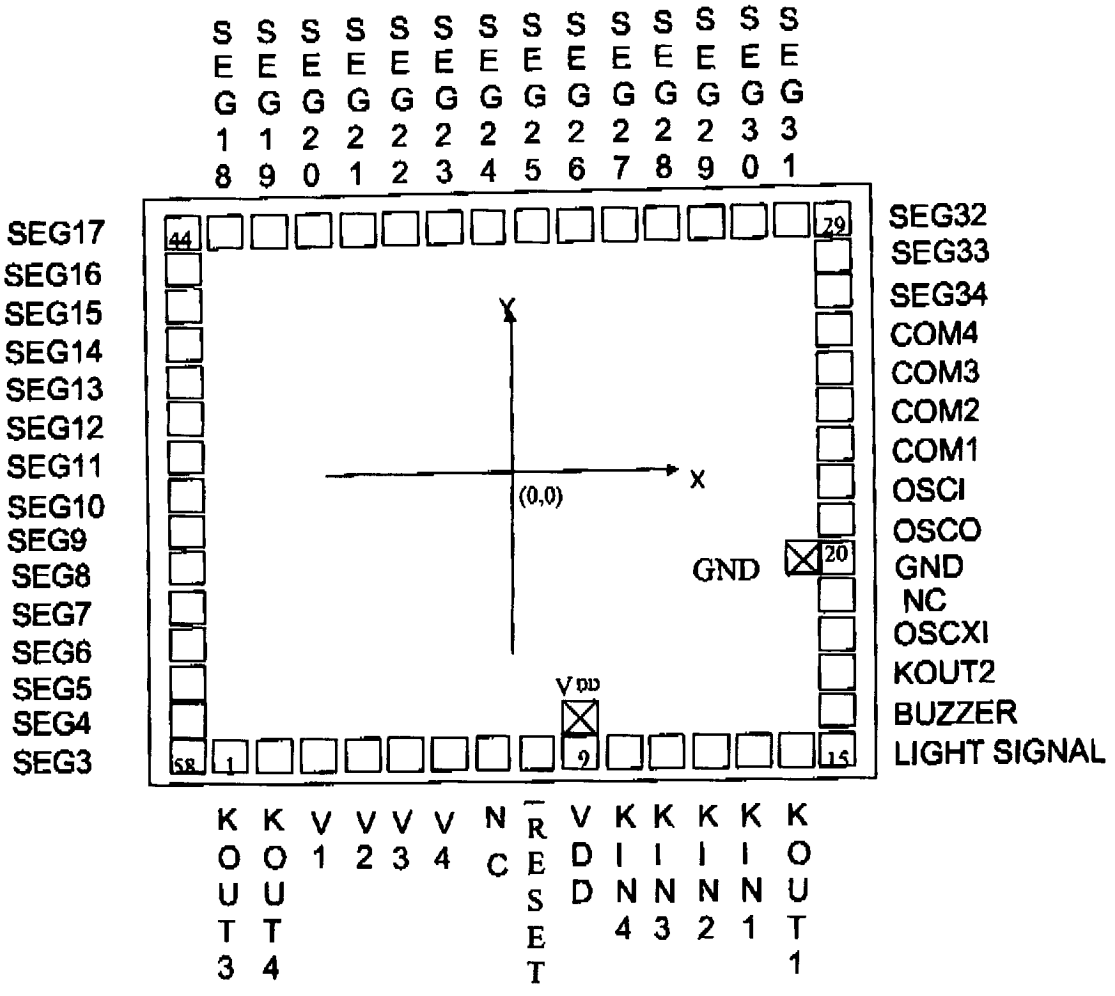
Light On = High

Light Off = Low

APPLICATION CIRCUIT



BONDING DIAGRAM



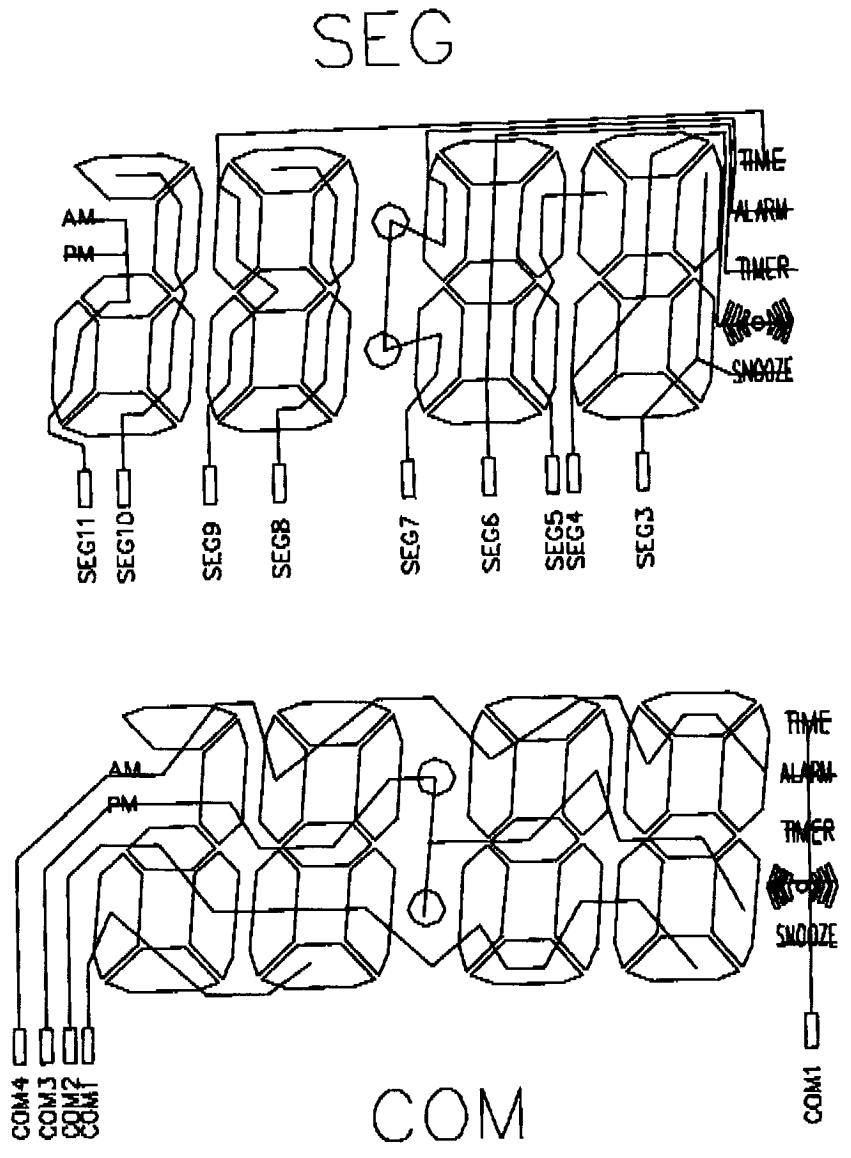
PIN/PAD ASWSIGNMENT：

單位：μA

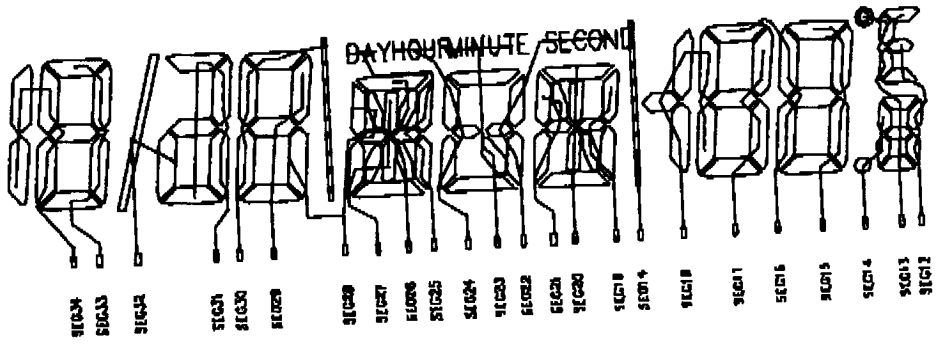
Pad No.	Pad Name	Coordinate X	Coordinate Y	Pad No.	Pad Name	Coordinate X	Coordinate Y
1	KOUT3	-770.00	-840.00	29	SEG32	900.00	840.00
2	KOUT4	-640.00	-840.00	30	SEG31	770.00	840.00
3	V1	-520.00	-840.00	31	SEG30	640.00	840.00
4	V2	-405.00	-840.00	32	SEG29	520.00	840.00
5	V3	-290.00	-840.00	33	SEG28	405.00	840.00
6	V4	-175.00	-840.00	34	SEG27	290.00	840.00
7	NC	-60.00	-840.00	35	SEG26	175.00	840.00
8	$\overline{\text{RESET}}$	55.00	-840.00	36	SEG25	60.00	840.00
BO	NC	180.00	-746.00	37	SEG24	-60.00	840.00
9	VDD	175.95	-848.90	38	SEG23	-175.00	840.00
10	KIN4	295.00	-840.00	39	SEG22	-290.00	840.00
11	KIN3	410.00	-840.00	40	SEG21	-405.00	840.00
12	KIN2	525.00	-840.00	41	SEG20	-520.00	840.00
13	KIN1	640.00	-840.00	42	SEG19	-640.00	840.00
14	KOUT1	770.00	-840.00	43	SEG18	-770.00	840.00
15	LIGHT SIGNAL	900.00	-840.00	44	SEG17	-900.00	840.00
16	BUZZER	900.00	-710.00	45	SEG16	-900.00	710.00
17	KOUT2	900.05	-590.00	46	SEG15	-900.00	590.00
18	OSCXT	900.00	-470.00	47	SEG14	-900.00	470.00
19	NC	900.00	-355.00	48	SEG13	-900.00	355.00
BO	NC	806.05	-240.00	49	SEG12	-900.00	240.00
20	GND	907.60	-248.05	50	SEG11	-900.00	120.00
21	OSCO	900.00	-120.00	51	SEG10	-900.00	0.00
22	OSCI	900.00	0.00	52	SEG9	-900.00	-120.00
23	COM1	900.00	120.00	53	SEG8	-900.00	-240.00
24	COM2	900.00	240.00	54	SEG7	-900.00	-355.00
25	COM3	900.00	355.00	55	SEG6	-900.00	-470.00
26	COM4	900.00	470.00	56	SEG5	-900.00	-590.00
27	SEG34	900.00	590.00	57	SEG4	-900.00	-710.00
28	SEG33	900.00	710.00	58	SEG3	-900.00	-840.00

注意：IC 基底接地。

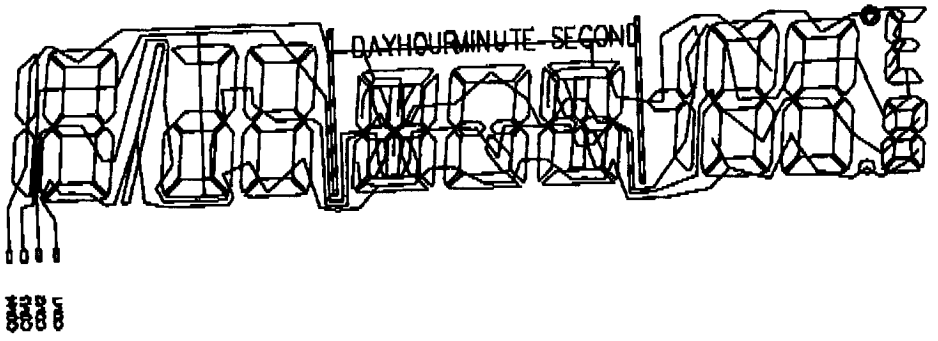
LCD LAYOUT – UPPER LCD



LCD LAYOUT – LOWER LCD



SEG



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