

**SUNSTAR** 深圳市商斯达电子有限公司  
SHENZHEN SUNSTAR ELECTRONICS CO.,LTD.

集成电路  
单片机  
通信

地址(Add):深圳福田区福华路福庆街鸿图大厦1602室  
RM 1602,Hongtu Bldge,Fuhua Rd, Futian Region,Shenzhen China  
电话(Tel):0755-3600718 3758073 邮编(PC):518033  
传真(Fax):0755-3376182 E-mail:szsunstr@public.szptt.net.cn  
网址: [Http://www.sunstare.com/](http://www.sunstare.com/) 手机:(0)13902971329  
西安办事处电话:(0)13609291696 191-8454356  
北京办事处电话:(0)13501189838 191-8886650  
上海办事处电话:(0)13701955389 191-3789221

# SS0112

## ALARM CLOCK WITH THERMOMETER

## ■ General Description

SS0112 is an integrated circuit provided with digital thermometer function, clock and alarm (with snooze) function. Temperature ranging from  $-20^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$  ~  $+158^{\circ}\text{F}$ ) is detected by use of a thermistor as a sensor and temperature is displayed on an LCD by  $0.1^{\circ}$  ~  $0.2^{\circ}\text{C}$  step.

Alarm has snooze function with 5 min. interval.  $3\frac{1}{2}$  digit simultaneous display is made for both time and temperature.

## ■ Features

- Measurement of temperature (built-in thermistor correction circuit)
- Measurable range:  $-20^{\circ}\text{C}$  ~  $+70^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$  ~  $+158^{\circ}\text{F}$ )
- Resolution: Approx.  $0.1^{\circ}\text{C}$  ( $0.1^{\circ}\text{F}$ ), Max.  $0.2^{\circ}\text{C}$  ( $0.4^{\circ}\text{F}$ )
- Accuracy:  $\pm 1^{\circ}\text{C}$
- Sampling cycle: 10 seconds or 1 second
- $3\frac{1}{2}$  digits (clock) +  $3\frac{1}{2}$  digits (temp) + 10 indicators,  $\frac{1}{2}$  duty LCD
- Alarm with snooze function (5 min interval, 12 times)
- Clock function (display of HOUR and MINUTE)
- Mode selection by a slide switch
- Low power consumption
- Few external components
- No adjustment
- 1.5V battery operation
- Applicable thermistor: Ishizuka 103-AT

**SUNSTAR** 深圳市商斯达电子有限公司  
SHENZHEN SUNSTAR ELECTRONICS CO.,LTD.

集成电路  
单片机

地址(Add):深圳福田区福华路福庆街鸿图大厦1602室  
RM 1602,Hongtu Bldge,Fuhua Rd, Futian Region,Shenzhen China  
电话(Tel):0755-3600718 3758073 邮编(PC):518033  
传真(Fax):0755-3376182 E-mail:szsunstr@public.szptt.net.cn  
网址: Http://www.sunstare.com/ 手机:(0)13902971329  
西安办事处电话:(0)13609291696 191-8454356  
北京办事处电话:(0)13501189838 191-8886650  
上海办事处电话:(0)13701955389 191-3789221

■ Block Diagram

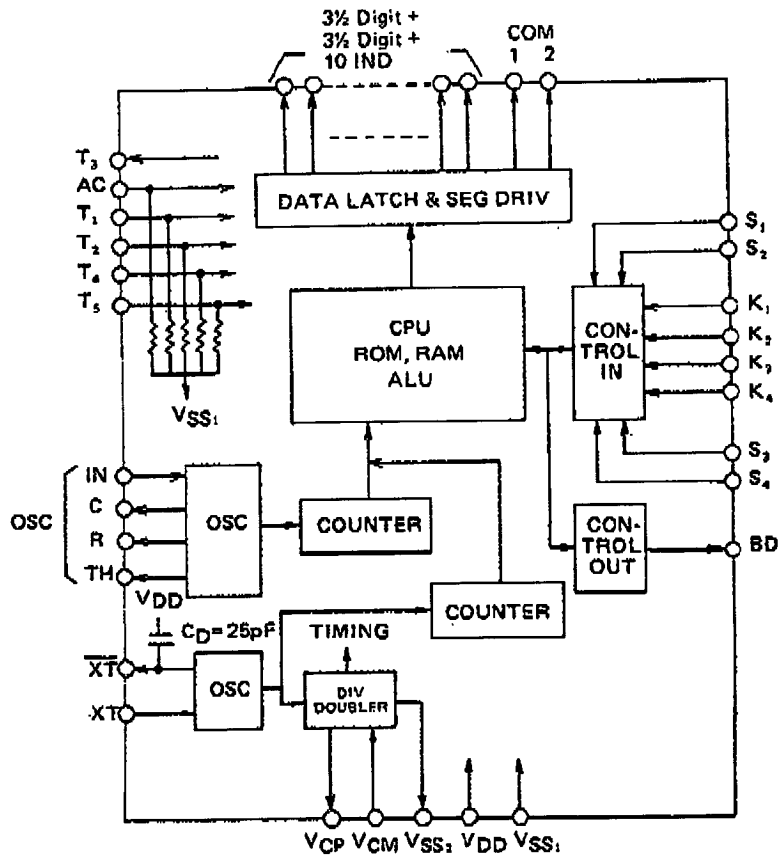
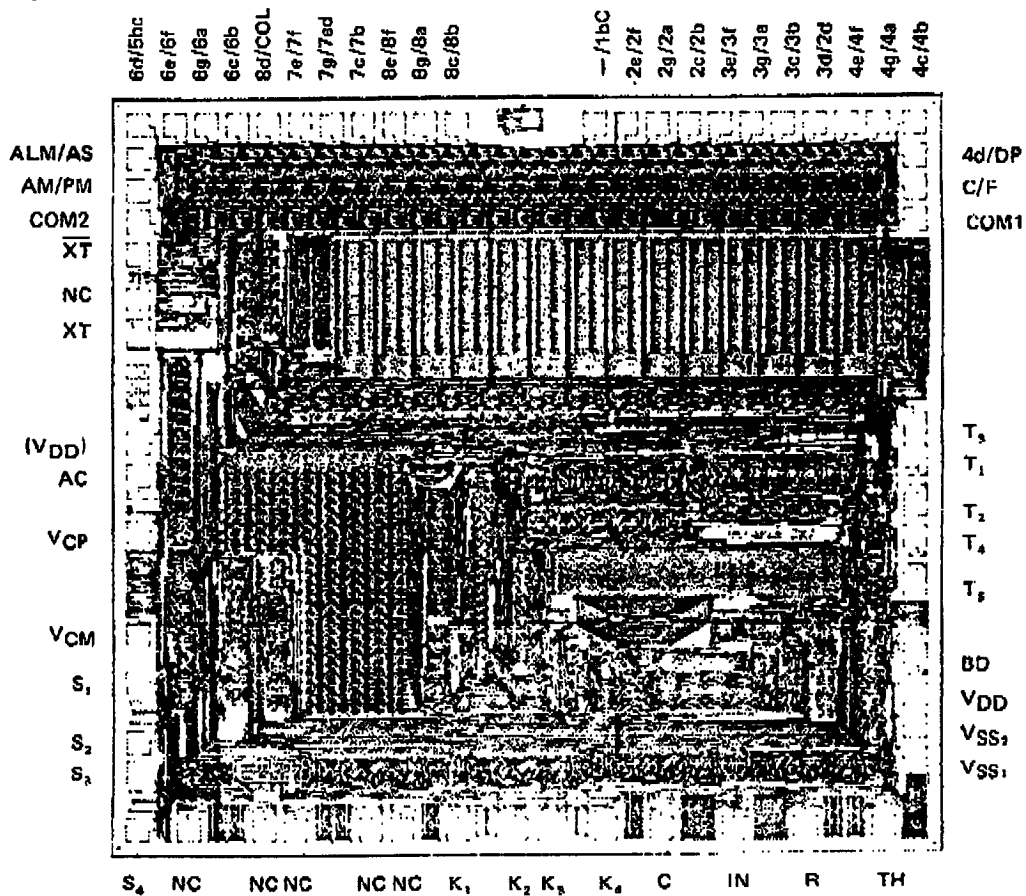


Fig. 1

■ Chip Pad Layout



■ PAD Layout

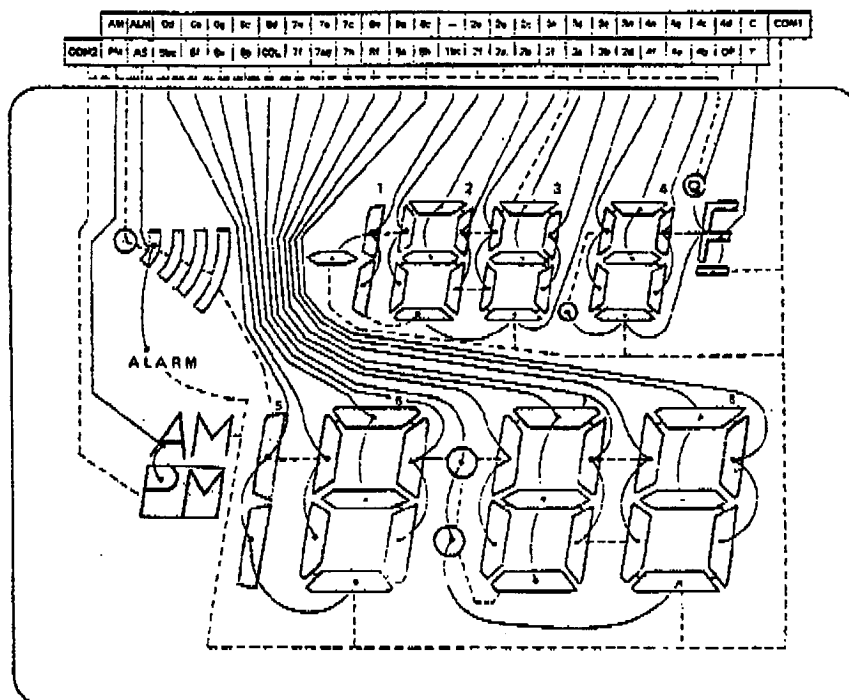
(Unit:  $\mu\text{m}$ )

No.	Signal	X	Y
1	S <sub>1</sub>	-2230	-2025
2	NC	-1940	-2025
3	NC	-1510	-2025
4	NC	-1330	-2025
5	NC	-900	-2025
6	NC	-720	-2025
7	K <sub>1</sub>	-400	-2025
8	K <sub>2</sub>	-62	-2025
9	K <sub>3</sub>	118	-2025
10	K <sub>4</sub>	456	-2025
11	C	778	-2025
12	IN	1190	-2025
13	R	1600	-2025
14	TH	2042	-2025
15	VSS <sub>1</sub>	2230	-1615
16	VSS <sub>2</sub>	2230	-1435
17	VDD	2230	-1225
18	BD	2230	-1025
19	T <sub>3</sub>	2230	-615
20	T <sub>4</sub>	2230	-335
21	T <sub>2</sub>	2230	-155
22	T <sub>1</sub>	2230	125
23	T <sub>5</sub>	2230	305
24	COM1	2230	1475
25	C/F	2230	1655
26	4d/DP	2230	1835
27	4c/4b	2230	2025
28	4g/4a	2020	2025
29	4e/4f	1840	2025
30	3d/2d	1660	2025
31	3c/3b	1480	2025

No.	Signal	X	Y
32	3g/3a	1300	2025
33	3e/3f	1120	2025
34	2c/2b	940	2025
35	2g/2a	760	2025
36	2e/2f	580	2025
37	-/1bc	400	2025
38	8c/8b	-400	2025
39	8g/8a	-580	2025
40	8e/8f	-760	2025
41	7c/7b	-940	2025
42	7g/7ad	-1120	2025
43	7e/7f	-1300	2025
44	8d/COL	-1480	2025
45	6c/6b	-1660	2025
46	6g/6a	-1840	2025
47	6e/6f	-2020	2025
48	6d/5bc	-2230	2025
49	ALM/AS	-2230	1835
50	AM/PM	-2230	1655
51	COM2	-2230	1475
52	XT	-2230	1295
53	NC	-2230	1033
54	XT	-2230	805
55	(VDD)	-2230	205
56	AC	-2230	25
57	VCP	-2230	-295
58	VCM	-2230	-885
59	S <sub>1</sub>	-2230	-1169
60	S <sub>2</sub>	-2230	-1507
61	S <sub>3</sub>	-2230	-1687

Segment Out: COM1/COM2  
 CHIP SIZE: 4.77 x 4.36 (mm)  
 PAD SIZE: 110 x 110 ( $\mu\text{m}$ )  
 CHIP THICKNESS: 350  $\pm$  30 ( $\mu\text{m}$ )

■ LCD Format



## Absolute Maximum Ratings

SUNSTAR单片机专用电路 <http://www.icasic.com/> TEL: 0755-83387030 FAX:0755-83376182 E-MAIL:szss20@163.com

Parameter	Symbol	Condition	Rating	Unit
Supply voltage 1	$V_{SS1} - V_{DD}$	$T_a = 25^\circ\text{C}$	-2.0 ~ +0.3	V
Supply voltage 2	$V_{SS2} - V_{DD}$	$T_a = 25^\circ\text{C}$	-4.0 ~ +0.3	V
Input voltage	$V_{IN}$	$T_a = 25^\circ$	$V_{SS1} - 0.3 \sim +0.3$	V
Output voltage 1	$V_{OUT1}$	$T_a = 25^\circ\text{C}$	$V_{SS1} - 0.3 \sim +0.3$	V
Output voltage 2	$V_{OUT2}$	$T_a = 25^\circ\text{C}$	$V_{SS2} - 0.3 \sim +0.3$	V
Operating temperature	$T_{opr}$	-	-20 ~ +75	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-	-40 ~ +125	$^\circ\text{C}$

## Electrical Characteristics

( $V_{DD} = 0\text{V}$ ,  $V_{SS1} = -1.55\text{V}$ ,  $V_{SS2} = -3.0\text{V}$ ,  $C_f = 30\text{k}\Omega$ ,  $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Conditions	Limits			Unit	Note
			MIN.	TYP.	MAX.		
Operating voltage 1	$ V_{SS1} $	$V_{SS2} = -2.3 \sim -3.3\text{V}$ (Fig. 3)	1.25	1.55	1.65	V	1
Operating voltage 2	$ V_{SS2} $	$V_{SS1} = -1.25 \sim -1.65\text{V}$ (Fig. 3)	2.3	3.0	3.3	V	1
Power supply current 1	$I_{DD1}$	At A/D conversion OFF cycle (Fig. 4)	-	3	5	$\mu\text{A}$	2
Power supply current 2	$I_{DD2}$	At A/D conversion operation $C_f = 3000\text{pF}$ , $R_f = 10\text{k}\Omega$ (Fig. 4)	-	40	100	$\mu\text{A}$	3
Leak current	$I_{DD3}$	$V_{SS1}$ logic + $V_{SS2}$ logic (Fig. 3)	-	-	1	$\mu\text{A}$	4
Oscillation start voltage	$ V_{STA} $	Within 10 seconds (Fig. 4)	1.45	-	-	V	
Oscillation hold voltage	$ V_{HOLD} $	(Fig. 4)	1.25	-	-	V	
Output current (1) (COM $V_{SS2}$ )	$I_{OH1}$	(Fig. 3)	$V_{OH1} = -0.2\text{V}$	-	-	-4	$\mu\text{A}$
	$I_{OL1}$		$V_{OL1} = -2.8\text{V}$	4	-	-	
Output current (2) (COM $V_{SS1}$ )	$I_{OH2}$	(Fig. 3)	$V_{OH2} = -1.35\text{V}$	-	-	-4	$\mu\text{A}$
	$I_{OL2}$		$V_{OL2} = -1.75\text{V}$	4	-	-	
Output current (3) (Segment)	$I_{OH3}$	(Fig. 3)	$V_{OH3} = -0.2\text{V}$	-	-	-0.4	$\mu\text{A}$
	$I_{OL3}$		$V_{OL3} = -2.8\text{V}$	0.4	-	-	
Output current (4) OSC (C, R, TH)	$I_{OH4}$	(Fig. 3)	$V_{OH4} = -0.4\text{V}$	-	-	-400	$\mu\text{A}$
	$I_{OL4}$		$V_{OL4} = -1.15\text{V}$	400	-	-	
Output current (5) (BD)	$I_{OH5}$	(Fig. 3)	$V_{OH5} = -0.4\text{V}$	-200	-100	-50	$\mu\text{A}$
	$I_{OL5}$		$V_{OL5} = -1.15\text{V}$	3	-	30	
Switch input current ( $S_1 \sim S_4$ , $K_1 \sim K_4$ )	$I_{IH1}$	(Fig. 3)	$V_{IH1} = 0.0\text{V}$	1	10	100	$\mu\text{A}$
	$I_{IL1}$		$V_{IL1} = -1.55\text{V}$	-0.2	-	-	
Average switch input current ( $S_1 \sim S_4$ , $K_1 \sim K_4$ )	$I_{IH2}$	1/512 duty of Switch input current (Fig. 3)	$V_{IH2} = 0.0\text{V}$	-	0.02	0.4	$\mu\text{A}$
	$I_{IL2}$		$V_{IL2} = -1.55\text{V}$	-0.2	-	-	
Doubler output voltage	$ V_{OUT} $	$V_{SS1} = -1.25\text{V}$ , $C_f, C_2 = 0.1\mu\text{F}$ , $R_L = 3\text{M}\Omega$ (Fig. 4)	2.3	-	-	V	
Oscillation built-in capacitance	$C_D$		-	25	-	pF	
Accuracy in measurement of temperature	$T_M$	$T_a = -20 \sim +70^\circ\text{C}$ $R_T = 10\text{k}\Omega$ at $25^\circ\text{C}$ , $B = 3435$ (Fig. 4)	-1.0	-	1.0	$^\circ\text{C}$	5
$T_M - V_{SS1}$ characteristics	$\Delta eV_{SS1}$	$V_{SS1} = -1.25 \sim -1.55\text{V}$ (Fig. 4)	-0.5	-	0.5	$^\circ\text{C}$	6
Fundamental oscillation frequency	$f_{ST}$	(Fig. 4)	-	16	-	kHz	

**SUNSTAR** 深圳市商斯达电子有限公司  
SHENZHEN SUNSTAR ELECTRONICS CO.,LTD.

集成电路  
单片机

地址(Add):深圳福田区福华路福庆街鸿图大厦1602室  
RM 1602, Hongtu Bldg, Fuhua Rd, Futian Region, Shenzhen China  
电话(Tel):0755-3600718 3758073 邮编(PC):518033  
传真(Fax):0755-3376182 E-mail:szsunstr@public.szptt.net.cn  
网址: <http://www.sunstare.com/> 手机:(0)13902971329  
西安办事处电话:(0)13609291696 191-8454356  
北京办事处电话:(0)13501189838 191-8886650  
上海办事处电话:(0)1370195389 191-6378922

SUNSTAR 半导体集成电路 <http://www.icasic.com/> TEL: 0755-83387030 FAX: 0755-83376182 E-MAIL: szss20@163.com

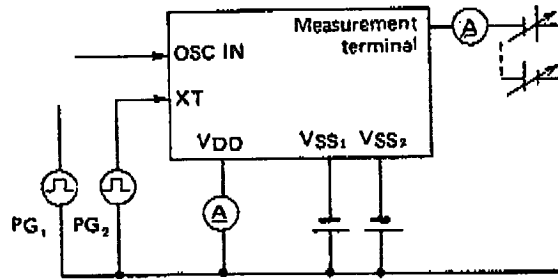


Fig. 3

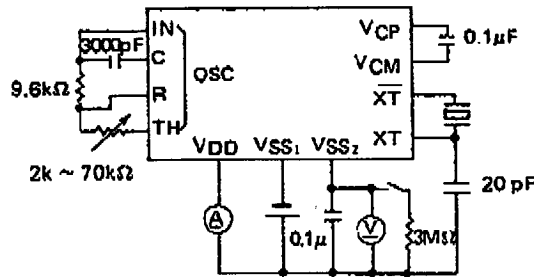


Fig. 4

- Note:
1. Voltage range where oscillation is maintained and functions operate normally.
  2. 9.7/10.0 seconds when A/D conversion circuit is suspending conversion operation, crystal is oscillating and clock is working.
  3. Approx. 0.3 seconds at every 10 seconds at A/D conversion operation.
  4. Leak current at static condition.
  5. Using thermister having  $R_T = 10k\Omega \pm 1\%$  at  $25^\circ C$  and  $B = 3435$ .
  6.  $\Delta\epsilon V_{SS1}$  is expressed by the following formula:

$$\Delta\epsilon V_{SS1} = \left| \frac{T_M (V_{SS1} = -1.55 V) - T_M (V_{SS1} = -1.25 V)}{T_M (V_{SS1} = -1.55 V)} \right|$$

**SUNSTAR 深圳市商斯达电子有限公司**  
SHENZHEN SUNSTAR ELECTRONICS CO.,LTD.

集成电路  
传感器  
单片机

地址(Add):深圳福田区福华路福庆街鸿图大厦1602室  
RM 1602,Hongtu Bldge,Fuhua Rd, Futian Region,Shenzhen China  
电话(Tel):0755-3600718 3758073 邮编(PC):518033  
传真(Fax):0755-3376182 E-mail:szsunstr@public.szptt.net.cn  
网址: [Http://www.sunstare.com/](http://www.sunstare.com/) 手机:(0)13902971329  
西安办事处电话:(0)13609291696 191-8454356  
北京办事处电话:(0)13501189838 191-8886650  
上海办事处电话:(0)13701955389 191-3789221

## ■ Functional Description

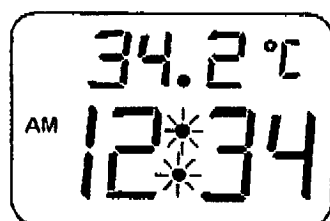
### Thermometer

Temperature is always on display regardless of mode selection (ON/OFF of K1, K2, K3 and K4). A thermistor is used for detecting temperature and A/D conversion is performed by frequency conversion method. High accuracy is accomplished in the wide range of  $-20^{\circ}\text{C} \sim +70^{\circ}\text{C}$  ( $-4^{\circ}\text{F} \sim +158^{\circ}\text{F}$ ) by providing the IC with non-linear correction circuit for thermistor.

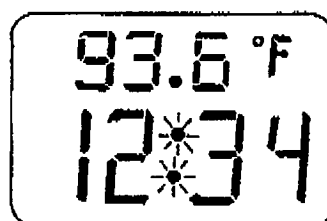
- Measurable temperature range;  $^{\circ}\text{C}$  (S3 = OPEN) :  $-20.0^{\circ}\text{C} \sim +70.0^{\circ}\text{C}$   
 $^{\circ}\text{F}$  (S3 = VDD) :  $-4.0^{\circ}\text{F} \sim +158.0^{\circ}\text{F}$
- Suitable thermistor;  $R_T = 10\text{k}\Omega \pm 1\%$  at  $25^{\circ}\text{C}$   
 $B = 3435 \pm 1\%$
- Resolution; by  $0.1^{\circ}\text{C}$  step (Max.  $0.2^{\circ}\text{C}$  step)

Resolution	$^{\circ}\text{C}$
0.2 ~ 0.1	-20 ~ 3
0.1	3 ~ 29
0.1 ~ 0.2	29 ~ 62
0.2	62 ~ 70

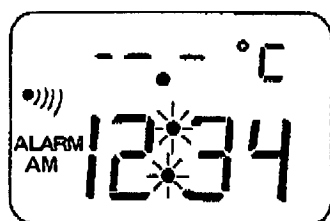
- Sampling cycle; S4 ON (VDD) : 1 second  
S4 OFF (OPEN) : 10 seconds
- $^{\circ}\text{C}/^{\circ}\text{F}$  selection; S3 ON (VDD) :  $^{\circ}\text{F}$  display  
S3 OFF (OPEN) :  $^{\circ}\text{C}$  display

TEMP ( $^{\circ}\text{C}$ )

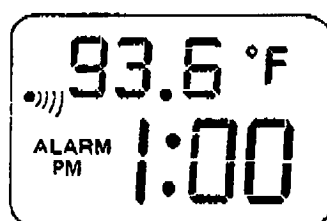
TIME

TEMP ( $^{\circ}\text{F}$ )

TIME

TEMP ( $^{\circ}\text{C}$ )  
OUT OF  
RANGE

ALARM TIME

TEMP ( $^{\circ}\text{F}$ )

ALARM TIME



1 Hz Flashing

**SUNSTAR** 深圳市商斯达电子有限公司  
SHENZHEN SUNSTAR ELECTRONICS CO.,LTD.

地址(Add):深圳福田区福华路福庆街鸿图大厦1602室  
RM 1602,Hongtu Bldge,Fuhua Rd, Futian Region,Shenzhen China  
电话(Tel):0755-3600718 3758073 邮编(PC):518033  
传真(Fax):0755-3376182 E-mail:szsunstr@public.szpt.net.cn  
网址: [Http://www.sunstar.com/](http://www.sunstar.com/) 手机:(0)13902971322

SUNSTAR半导体集成电路 <http://www.icasic.com/> TEL: 0755-83387030 FAX:0755-83376182 E-MAIL:szss20@163.com

西安办事处电话:(0)13609291696 191-8454356  
北京办事处电话:(0)13501189838 191-8886650  
上海办事处电话:(0)13701955389 191-3789221



**Clock**SUNSTAR单片机专用电路 <http://www.icasic.com/> TEL: 0755-83387030 FAX:0755-83376182 E-MAIL:szss20@163.com

— Time setting mode is selected by turning K1 ON (VDD).

In this mode, time is displayed with colon flashing at 1 Hz. Time correction is made by S1 (hour) and S2 (minute). Fast advancement is made at 4 Hz when either S1 or S2 is being depressed for 1 ~ 2 second(s). When minute digits are advanced up, second digits are reset to 00.

— Alarm setting is selected by turning K2 ON (VDD).

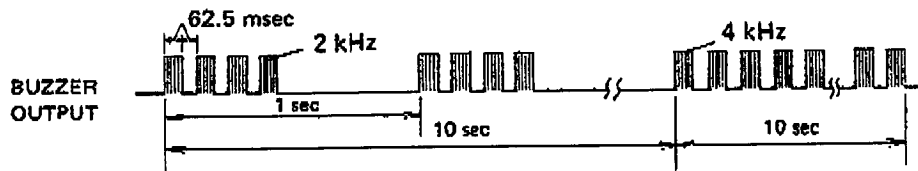
Alarm setting time, colon and alarm mode indicator (●))) ) are on display.

Alarm time setting is made by S1 (hour) and S2 (minute). Fast advancement is made by depressing switch for 1 ~ 2 second(s).

**(1) Alarm operation**

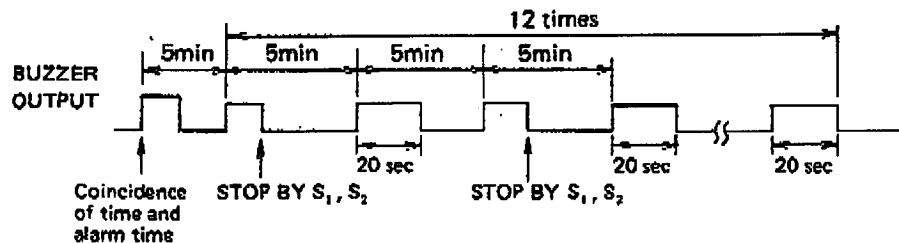
Alarm stand-by mode is selected by turning one of K1, K2 or K3 ON (VDD), and alarm stand-by indicator (●))) ) turns on.

Buzzer output continues for 20 seconds when time coincides with the alarm time already set. Buzzer output is stopped by depressing either S1 or S2. (No buzzer output is made by coincidence of time and alarm time during time setting).

**(2) Snooze operation**

Snooze stand-by mode is selected by turning K4 ON (VDD), and alarm stand-by indicator (●))) ) flashes (0.5 sec ON/0.5 sec OFF).

Snooze function starts to work when time coincides with the alarm time. Snooze interval is 5 minutes and snooze function is repeated 12 times.



**SUNSTAR** 深圳市商斯达电子有限公司  
SHENZHEN SUNSTAR ELECTRONICS CO.,LTD.

集成电路  
单片机

地址(Add):深圳福田区福华路福庆街鸿图大厦1602室  
RM 1602,Hongtu Bldg,Fuhua Rd, Futian Region,Shenzhen China  
电话(Tel):0755-3600718 3758073 邮编(PC):518033  
传真(Fax):0755-3376182 E-mail:szsunstr@public.szptt.net.cn  
网址: [Http://www.sunstare.com/](http://www.sunstare.com/) 手机:(0)13902971329  
西安办事处电话:(0)13609291696 191-8454356  
北京办事处电话:(0)13501189838 191-8886650  
上海办事处电话:(0)13701955389 191-3789221

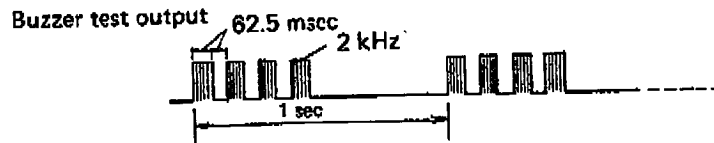


**(3) Disarming alarm operation**

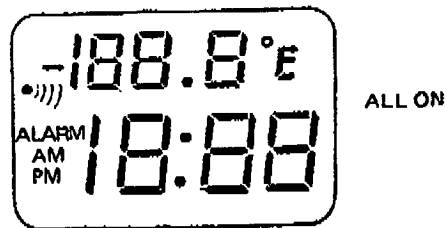
Alarm stand-by indicator ( ●))) ) turns off and alarm operation is disarmed when all of K1, K2, K3 and K4 are OFF (OPEN).

**Buzzer test, segments all-on**

Buzzer sound is output and segments are in the ALL-ON status, when S1 and S2 are ON (VDD) simultaneously in either snooze stand-by mode or alarm stand-by mode.

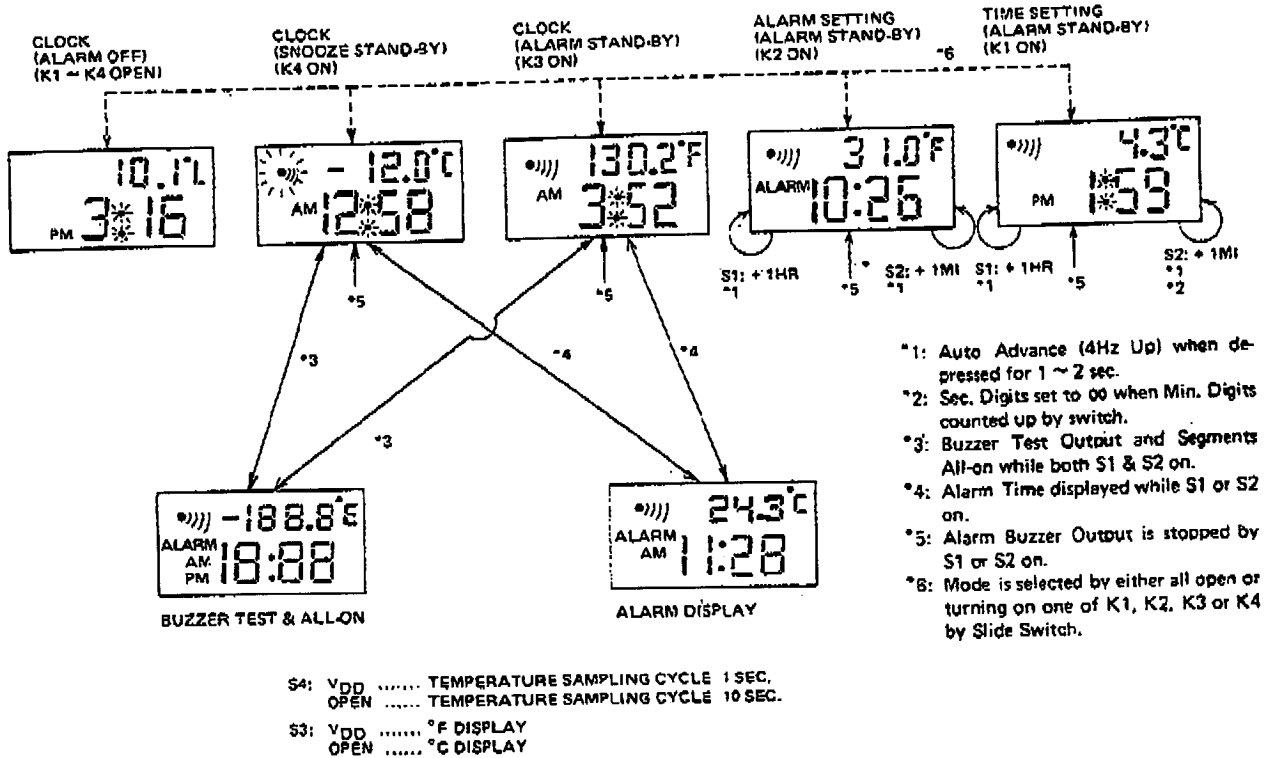


Segment output



**SUNSTAR** 深圳市商斯达电子有限公司  
SHENZHEN SUNSTAR ELECTRONICS CO.,LTD.

地址(Add):深圳福田区福华路福庆街鸿图大厦1602室  
RM 1602,Hongtu Bldge,Fuhua Rd, Futian Region,Shenzhen China  
电话(Tel):0755-3600718 3758073 邮编(PC):518033  
传真(Fax):0755-3376182 E-mail:szsunstr@public.szptt.net.cn  
网址: [Http://www.sunstare.com/](http://www.sunstare.com/) 手机:(0)13902971329  
西安办事处电话:(0)13609291696 191-8454356  
北京办事处电话:(0)13501189838 191-8886650  
上海办事处电话:(0)13701955389 191-3789221



■ Adjustment and initialization

(1) Temperature adjustment

This IC does not need temperature adjustment.

- 103-AT (ISHIZUKA) is to be used as thermistor.
- The resistor used for temperature measurement should have good temperature characteristics and be as less affected by time as possible.

(2) Initialization

Initialization is done by pushing AC switch.

AC terminal should be connected to VDD after power-on, since CPU architecture is adopted in this IC.

Initial status is;   CLOCK   AM 12:00  
                          ALARM   AM 12:00

**SUNSTAR** 深圳市商斯达电子有限公司  
SHENZHEN SUNSTAR ELECTRONICS CO.,LTD.

集成电路  
单片机

地址(Add):深圳福田区福华路福庆街鸿图大厦1602室  
RM 1602,Hongtu Bldge,Fuhua Rd, Futian Region,Shenzhen China  
电话(Tel):0755-3600718 3758073   邮编(PC):518033  
传真(Fax):0755-3376182   E-mail:szsunstr@public.szptt.net.cn  
网址: Http://www.sunstare.com/   手机:(0)13902971329  
西安办事处电话:(0)13609291696   191-8454356  
北京办事处电话:(0)13501189838   191-8886650  
上海办事处电话:(0)13701955389   191-3789221

## ■ Function of Terminals

Name of terminal	Level	Function
OSC IN, C, R, TH	$V_{DD} = H$ $V_{SS1} = L$	Capacitor, resistor, thermistor connection terminal for temperature detection circuit.
K1, K2, K3, K4	$V_{DD} = H$ $(V_{SS1}) = L$	Each mode is selected by either all open or turning on one of K1, K2, K3, K4. <ul style="list-style-type: none"> <li>• <math>K1 = K2 = K3 = K4 = (V_{SS1})</math> Clock mode (Alarm disarmed)</li> <li>• <math>K1 = V_{DD}, K2 = K3 = K4 = (V_{SS1})</math> Clock setting mode (Alarm stand-by)</li> <li>• <math>K2 = V_{DD}, K1 = K3 = K4 = (V_{SS1})</math> Alarm setting mode (Alarm stand-by)</li> <li>• <math>K3 = V_{DD}, K1 = K2 = K4 = (V_{SS1})</math> Clock mode (Alarm stand-by)</li> <li>• <math>K4 = V_{DD}, K1 = K2 = K3 = (V_{SS1})</math> Clock mode (Snore stand-by)</li> </ul>
S1, S2	$V_{DD} = \text{Operation}$ $(V_{SS1}) = \text{Suspension}$	Time and alarm time setting input terminals.
S3	$V_{DD} = ^\circ F$ $(V_{SS1}) = ^\circ C$	$^\circ C/^\circ F$ switching terminal
S4	$V_{DD} = 1 \text{ sec. sampling}$ $(V_{SS1}) = 10 \text{ sec. sampling}$	Sampling cycle switching terminal.
AC	$V_{DD} = H$ $(V_{SS1}) = L$	Inner logic clear terminal (Initial clear is necessary since CPU architecture is adopted)
$V_{CP}, V_{CM}$		Booster capacitor connection terminals
T1 ~ T5	$V_{DD} = H$ $(V_{SS1}) = L$	Terminals for inner logic test, T1 ~ T3, T5 are pulled down to $V_{SS1}$ . T4 is output terminal.

 $(V_{SS1})$ : open or  $V_{SS1}$ 

## SUNSTAR 深圳市商斯达电子有限公司

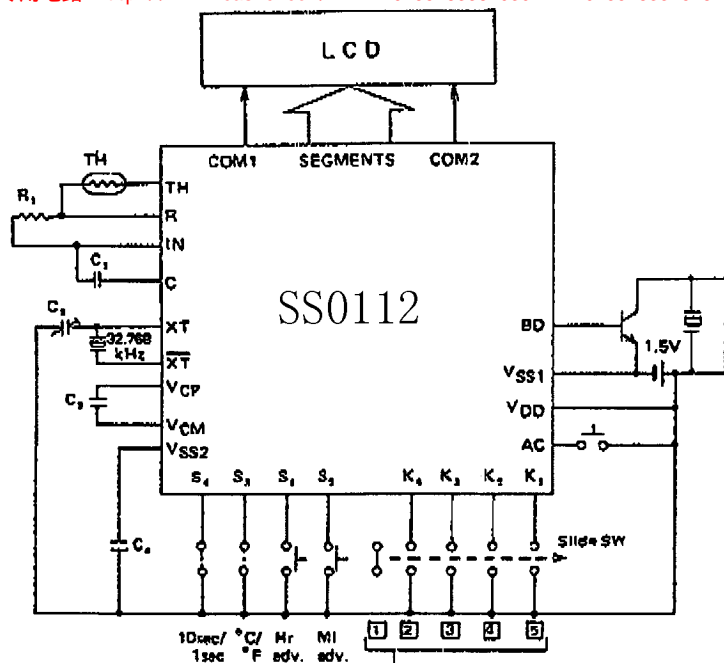
SHENZHEN SUNSTAR ELECTRONICS CO.,LTD.

集成电路  
单片机

地址(Add):深圳福田区福华路福庆街鸿图大厦1602室  
RM 1602, Hongtu Bldg, Fuhua Rd, Futian Region, Shenzhen China  
电话(Tel):0755-3600718 3758073 邮编(PC):518033  
传真(Fax):0755-3376182 E-mail:szsunstr@public.szptt.net.cn  
网址: [Http://www.sunstare.com/](http://www.sunstare.com/) 手机:(0)13902971329  
西安办事处电话:(0)13609291696 191-8454356  
北京办事处电话:(0)13501189838 191-8886650  
上海办事处电话:(0)13701955389 191-3789221

# Typical Application

SUNSTAR单片机专用电路 <http://www.icasic.com/> TEL: 0755-83387030 FAX:0755-83376182 E-MAIL:szss20@163.com



TH: 103AT  
 RT = 10kΩ ± 1% at 25°C  
 B = 3435  
 R<sub>T</sub>: 9.6kΩ  
 C<sub>1</sub>: 3000pF  
 C<sub>2</sub>: 5 ~ 35pF  
 C<sub>3</sub>, C<sub>4</sub>: 0.1μF

	DISPLAY	ALARM
1	CLOCK	OFF
2	CLOCK*	SNOOZE
3	CLOCK*	ON
4	ALARM**	ON
5	CLOCK**	ON

ALARM DISPLAY WHILE S1 OR S2 ON  
 \*\* SETTING MODE

Table of thermistor characteristics applicable to SS0112

°C	Resistance Value*
-20	6774
-15	5339
-10	4245
-5	3389
0	2728
5	2205
10	1796
15	1468
20	1209
25	1000
30	831.3
35	694.1
40	582.8
45	491.2
50	416.1
55	353.7
60	302.1
65	258.9
70	222.9

\* Relative values assuming the value at 25°C to be 1000.  
 Centre resistance value at 25°C is 10kΩ.

## SUNSTAR 深圳市商斯达电子有限公司

地址(Add):深圳福田区福华路福庆街鸿图大厦1602室  
 RM 1602, Hongtu Bldg, Fuhua Rd, Futian Region, Shenzhen China  
 电话(Tel):0755-3600718 3758073 邮编(PC):518033  
 传真(Fax):0755-3376182 E-mail:szsunstr@public.szptt.net.cn  
 网址: <http://www.sunstare.com/> 手机:(0)13902971329  
 西安办事处电话:(0)13609291696 191-8454356  
 北京办事处电话:(0)13301189838 191-8886650  
 上海办事处电话:(0)13701955389 191-3789221

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。

[中国传感器科技信息网：HTTP://WWW.SENSOR-IC.COM/](http://WWW.SENSOR-IC.COM/)

[工控安防网：HTTP://WWW.PC-PS.NET/](http://WWW.PC-PS.NET/)

[消费电子专用电路网：HTTP://WWW.SUNSTARE.COM/](http://WWW.SUNSTARE.COM/)

E-MAIL：[xjr5@163.com](mailto:xjr5@163.com) [szss20@163.com](mailto:szss20@163.com)

MSN：[suns8888@hotmail.com](mailto:suns8888@hotmail.com)

QQ: 195847376

地址：深圳市福田区福华路福庆街鸿图大厦 1602 室

电话：0755-83376549 83376489 83387030 83387016

传真：0755-83376182 83338339 邮编：518033 手机：(0)13902971329

深圳展销部：深圳华强北路赛格电子市场 2583 号 TEL/FAX：  
0755-83665529 25059422

北京分公司：北京海淀区知春路 132 号中发电子大厦 3097 号

TEL：010-81159046 82615020 13501189838 FAX：010-82613476

上海分公司：上海市北京东路 668 号上海赛格电子市场 2B35 号

TEL：021-28311762 56703037 13701955389 FAX：021-56703037

西安分公司：西安高新开发区 20 所(中国电子科技集团导航技术研究所)  
西安劳动南路 88 号电子商城二楼 D23 号

TEL：029-81022619 13072977981 FAX:029-88789382

成都：TEL:(0)13717066236

技术支持：0755-83394033 13501568376