

FEATURES

- Single-chip CMOS construction
- Driver 4 digit multiplexed LCD with PM/AL-time, Alarm Chime mark.
- Colon display.
- Direct drive of piezoelectric transducer
- 32,768 Hz crystal frequency.
- Single 1.5V battery operation.
- On chip oscillator, capacitor, resistor and voltage doubler

FUNCTIONS

- 5 Functions: month, date, hour, minutes, & second.
- 30- second alarm sound.
- 4- year calendar.
- Chime on every hour
- User Selective 12-hour / 24- hour format.
- One-touch correction of time error within ± 30 seconds.
- 2-switch sequential operating.
- LCD test.
- Alarm chime enable / disable

DESCRIPTION

SS0849 is a CMOS 5-function watch integrated circuit with alarm function that provides to drive a 4- digit multiplexed liquid crystal display with colon, PM / AL-time and AL/CH mark.

ABSOLUTE MAXIMUM RATING ($T_a = 25^\circ\text{C}$)

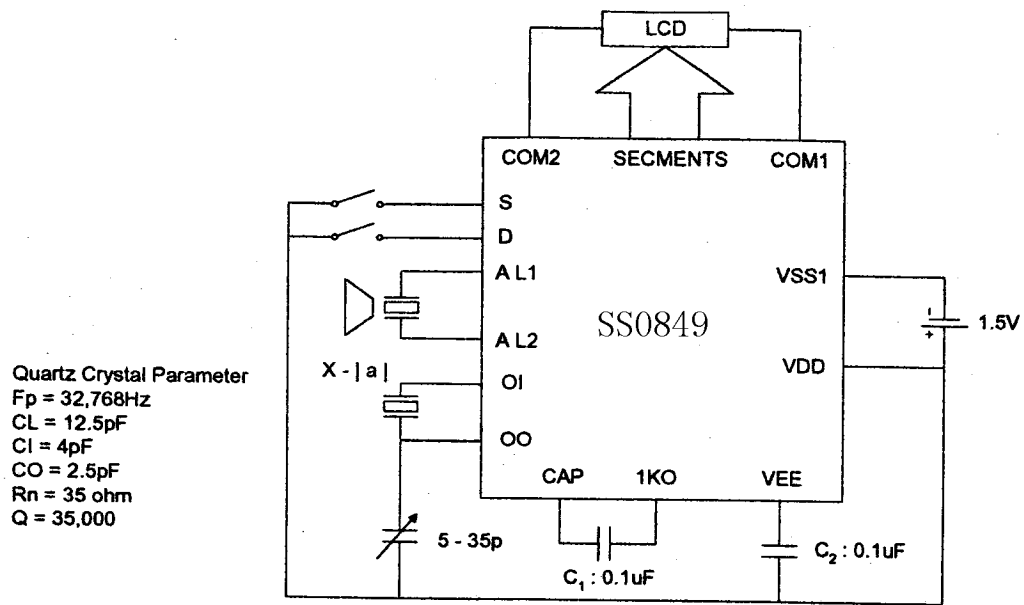
Characteristic	Symbol	Value	Unit
Supply Voltage	$V_{DD} - V_{SS}$	-0.3 + 2.0	V
Operation Temperature	T_a	-20 + 75	$^\circ\text{C}$
Storage Temperature	T_{stg}	-40 + 125	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$, $V_{SS} = -1.5\text{V}$, $V_{DD} = 0\text{V}$, UNLESS OTHERWISE SPECIFIED)

Characteristic	Symbol	Test Conditions	Min	Type	Max	Unit
Operating Voltage	V_{SS}		-1.8	-1.5	-1.2	V
Operating Voltage	V_{EE}		-3.6	-3.0	-2.4	V
Supply Current	I_{DD}	Without Load		1.0	2.0	μA
Input Low Voltage	V_{IL}		V_{SS}		$V_{SS} + 0.3$	V
Input High Voltage	V_{IH}		$V_{DD} - 0.3$		V_{DD}	V
Switch Activation Current	I_{SW}	$V_{IN} = V_{DD}$	0.1	10	3.0	μA
Oscillator Start Voltage	V_{OSC}	Within 5 Sec	-1.45			V
Oscillator Stop Voltage	V_{OSP}		-1.15			V
Alarm drive current	I_{ALA}	$V_{sat} = 0.5\text{V}(\text{BothDir})$	0.5	2.0		mA
Oscillator Frequency	F_{OSC}			32,786		Hz
DC-DC Conversion Frequency	F_{CON}	$C1 = C2 = 0.1\mu\text{F}$		1024		Hz
LCD Frequency	F_D			32		Hz
Oscillator input capacitor	C_{IN}			20		pF
Time Stability	T_{stb}	$V_{SS} = -1.3 \sim -1.8\text{V}$		1	3	ppm
SW Debouncing Time	T_{ded}				62.5	msec

APPLICATION CIRCUIT

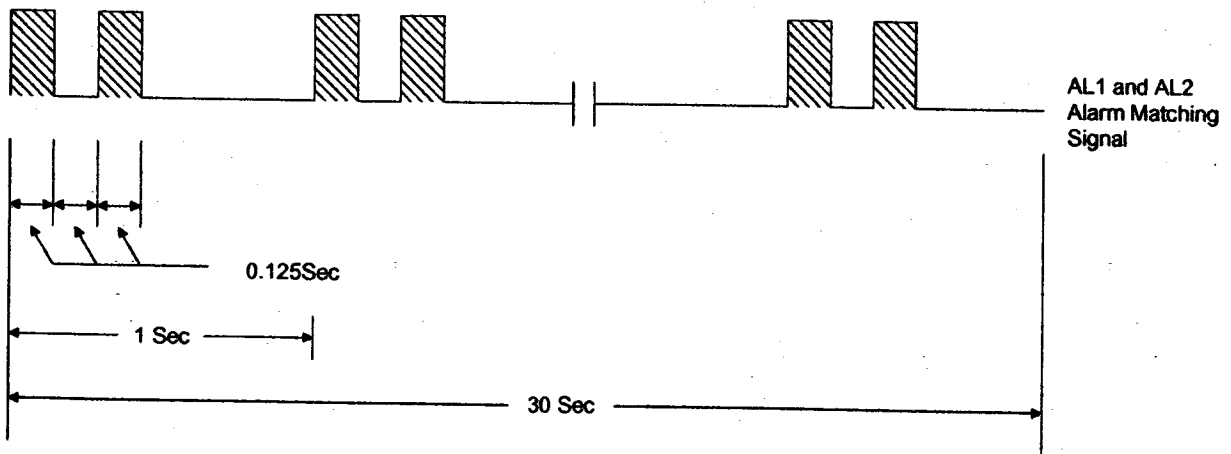
SS0849



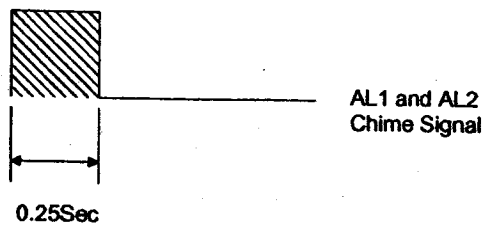
Substrate is connected to Vdd

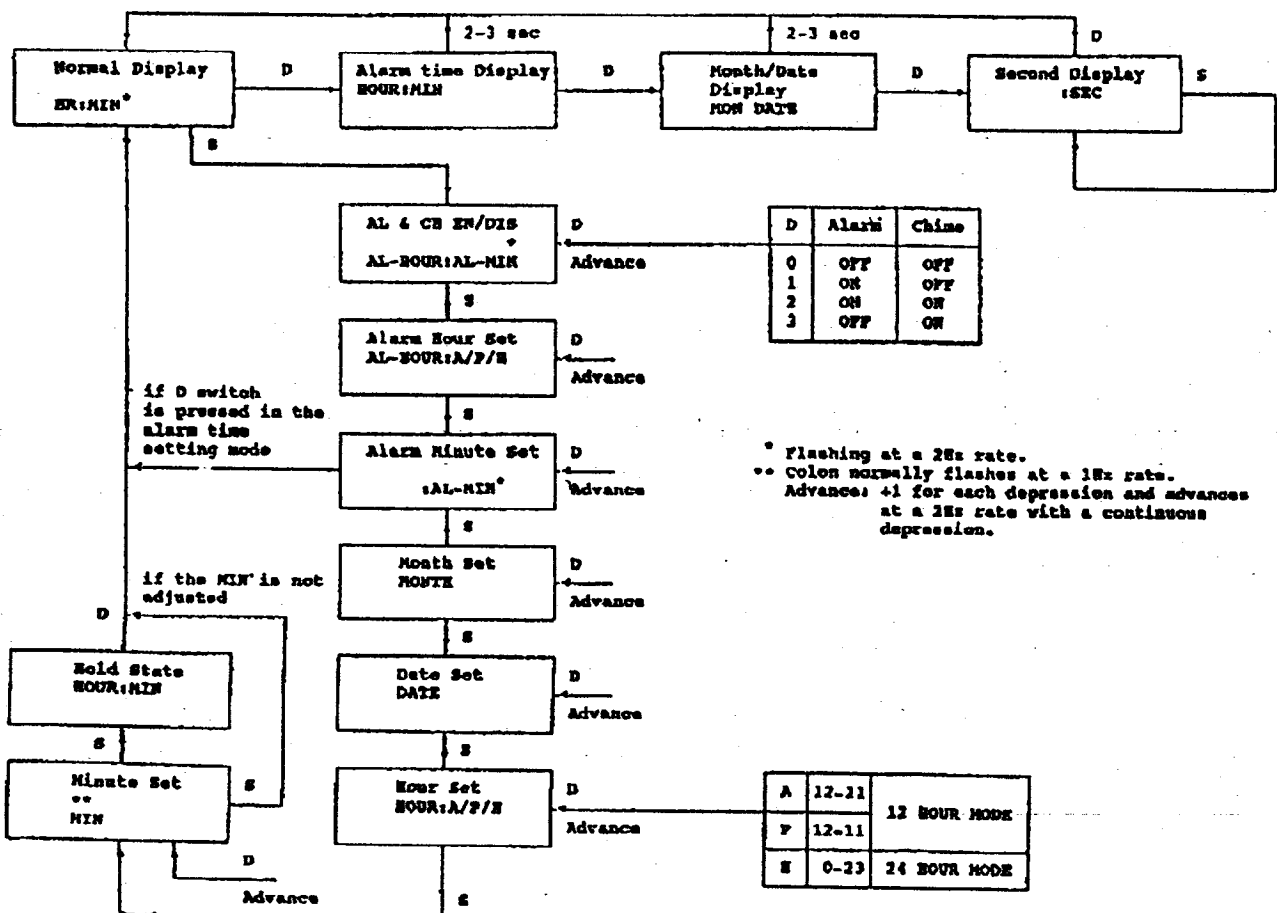
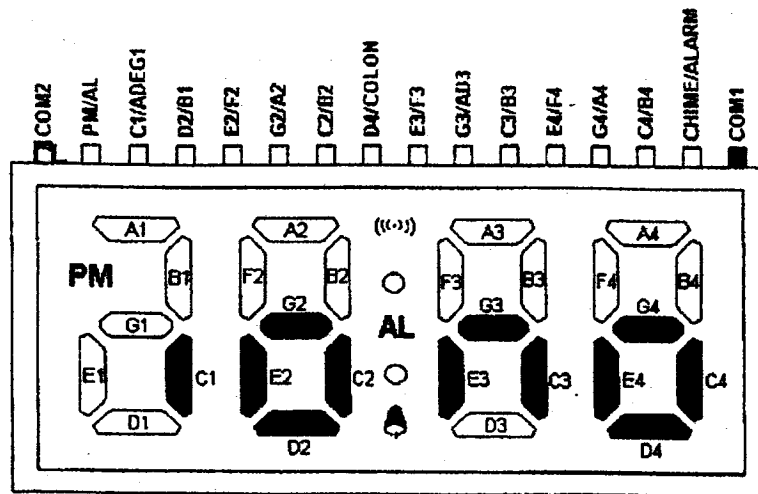
ALARM OUTPUT WAVEFORM

4096 Hz (50%Duty)



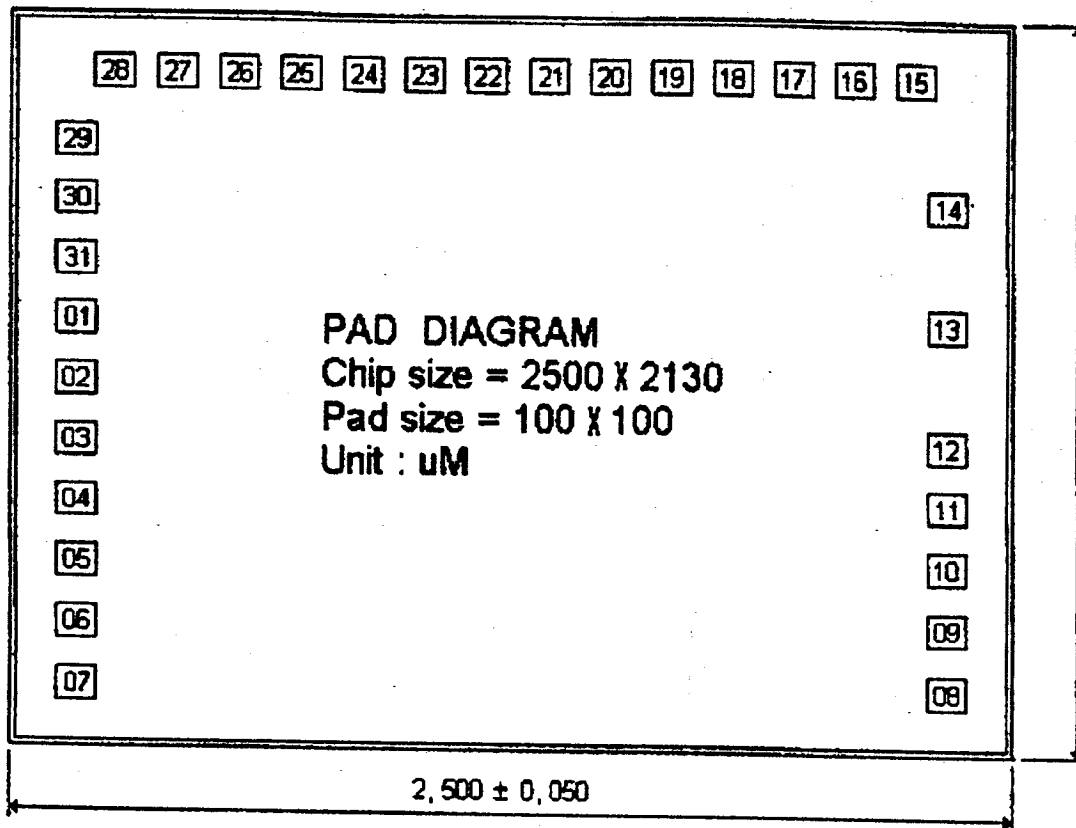
4096Hz (50%Duty)





PAD DIAGRAM

SS0849



Pad No	Name	Pad No	Name
1	VDD	17	G4/A4
2	IKO	18	E4/F4
3	CAP	19	C3/B3
4	S	20	G3/AD3
5	T1	21	E3/F3
6	T2	22	D4/COLON
7	T3	23	C2/B2
8	VEE	24	G2/A2
9	VDD	25	E2/F2
10	VSS	26	D2/B1
11	D	27	C1/ADEF1
12	AL2	28	PM/AL
13	AL1	29	COM2
14	COM1	30	OSCI
15	CHIME/ALARM	31	OSCO
16	C4/B4		

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