LSI   LS3262

4 Digit Alarm Clock With Calendar

Features:

(a)Single 1.5V operating voltage.

(b)Directly driving 2x14 segment LCD.

©4 display functions: Clock(12 hour format), daily alarm, date and second.

(d)External trigger function in daily alarm output.

(e)Daily Alarm - It generates a sound (4KHz x 8Hz x 1Hz) with external trigger function for 60 seconds. Pressed any key to stop it.

Chime Function - Every hour on the hour, beep sound (4KHz x 4Hz x 1Hz) for 1 second.

(f) 32768 Hz quartz crystal provide the time base, and machine cycle = 4KHz.

(g) Power on reset: When the power up, all LCD segments and the alarm sound are turned on for one second.

(h)Programmable reset: When " M " key and " S " key press together, all LCD segments and it generates a sound(4KHz x 8Hz x 1Hz)with external trigger function. It will be stop and return to normal clock mode until release all keys..

(i)Low power dissipation.

(j)Keys: " M --- Mode (mode and adjust), " S --- setting.

General Description

The LS3262 is a single chip CMOS timer circuit with calendar. It is designed to drive a LCD(4 digits). The timer circuit is based on a 32768Hz quartz crystal controlled oscillator. An oscillator capacitor is build in the chip. An external 32768Hz quartz crystal is required to complete the oscillator circuit. The operation of the basic timekeeping functions is controlled via two keys. When power up reset, the clock will be reset to 1.1 12:00 and 00 seconds(12 hour format). The circuit has a built-in voltage doubler (to drive the LCD) which needs two external capacitors. Only one 1.5V battery is required to power the entire circuit. It has a trigger output to drive external I.C. Direct drive buzzer output.

LCD Drawing
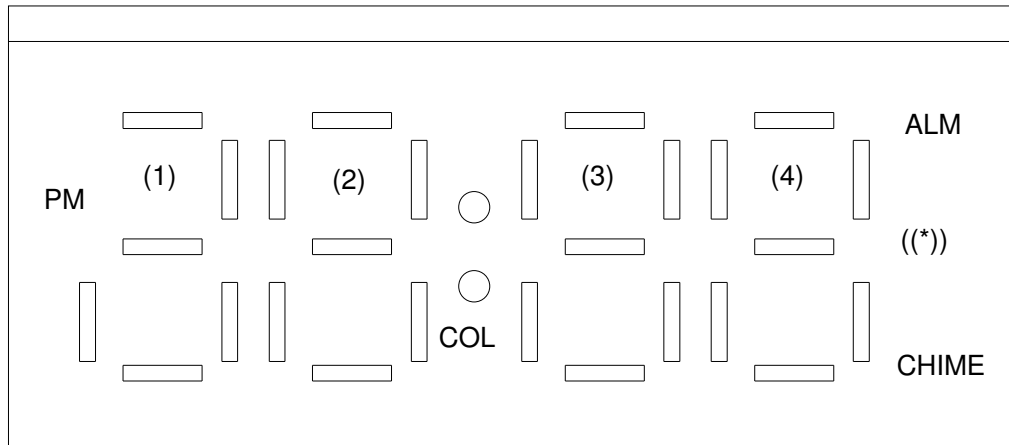
Functional Description

(a) After the power on, it switch into clock state and shows "12:00" (12 hour format). The default value "1 Jan 12:00:00".

(b) It shows 12 hour format and four group of "Hour/minute", "Alarm time", "Month/date", and "second". In clock state, "Hr : Min" is shown with colon flashing 0.5 sec on and 0.5 sec off. Press "M" key to indicate the "Alarm time" (if no key is pressed for 5 seconds, it will auto return to clock state "Hr : Min"), press "M" key again to indicate the "Month/date" (if no key is pressed for 5 seconds, it will auto return to clock state "Hr : Min"). Press again to show the "second". It can be clear by pressing "S" key. It will stay in second indication until return to clock state by pressing "M" key (the colon always on and not flash in second state, it only flash in clock state "Hr : Min").

(c) In normal state, press "S" key into the clock setting state. The first setting is alarm option (alarm on/off or chime on/off), it can be change by pressing "M" key. Press "S" key to alarm hour setting, it can be set cycling from "12: A" (12 hour format) to "11: A" (12 hour format), "12: P" (12 hour format) to "11: P" (12 hour format) by pressing "M" key. Hold(2 sec) the "M" key will have auto advance. Press "S" key to alarm minute setting, it can be set from 0 to 59 by pressing "M" key. Hold (2 sec) the "M" key will have auto advance. Press "S" key to return normal mode (with alarm setting) or month setting (without alarm setting), it can be set from 1 to 12 by pressing "M" key. Hold (2 sec) the "M" key will have auto advance. Press "S" key to date setting, it can be set from 1 to 28/30/31(depend the month) by pressing "M" key. Hold (2sec) the "M" key will have auto advance. Press "S" key to hour setting, it can be set cycling from "12: A" (12 hour

format) to "11: A" (12 hour format), "12: P" (12 hour format) to
"11: P" (12 hour format) by pressing "M" key. Hold (2 sec) the
"M" key will have auto advance. Press "S" key to minute setting,
it can be set from ":00" to ":59" by pressing "M" key. Hold (2
sec) the "M" key will have auto advance. Press "S" key to return
normal mode (without minute setting) or hold mode(with minute
setting). In the hold mode, press "M" key only to return normal
mode.

Pin Assignment

DESIGNATION	TYPE	DESCRIPTION
B [0:1]	OUTPUT	Buzzer output
V1, V2	OUTPUT	Doubler output
VEE	OUTPUT	-1.5V
T2, T1	INPUT (PL)	TEST pin
OO	OUTPUT	32KHz oscillator output
OI	INPUT	32KHz oscillator input
VDD	POWER	+1.5V power supply
GND	POWER	Ground
I[0:5]	INPUT(PH)	Input key/option
O[0:3]	OUTPUT	Trigger output (O[0:2])
C[1:2]	OUTPUT	LCD Common output
S[1:14]	OUTPUT	LCD Segment output

Note: (PL) – pull low
      (PH) - pull high

Absolute Maximum Ratings

Supply voltage Vdd - Vss...........................0 to 5V

Input voltage Vin.................................Vss to Vdd

Operating temperature Top ....-10°C to 60°C

Storing temperature Tst ....-40°C to 70°C

*Comments

Stress above those listed under Absolute Maximum Ratings" may cause permanent damage to the
device.   These are stress rating only.   Functional operation of this device at these or any other conditions
above those indicated in the operational sections of this specification is not implied and exposure to absolute
maximum rating conditions for extended periods may affect device reliability.

D.C. Electrical Characteristics

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(GND = 0V, Vdd = 1.5V, Ta = 25°C unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Supply Voltage	Vdd	1.25	1.5	1.7	V	
Operating current	Idd	-	2	5	µA	No load
OSC. built-in cap	Cd	-	20	-	pF	
OSC. trimmer cap	Ctrim	5	-	35	pF	
Frequency stability	^f/f	-	-	10	ppM	Vdd=1.6-1.4
Buzzer output current	Ib	500	-	-	µA	Vbd-Vss=0.5
LCD frequency	Flcd	-	64	-	Hz	
Segment current	Is	0.15	-	-	µA	Vseg=0.2V
Common current	Ic	3.0	-	-	µA	Vcom=0.2V
Trigger output current	Ir	100	-	-	µA	Vr-Vss=0.5

Pad location
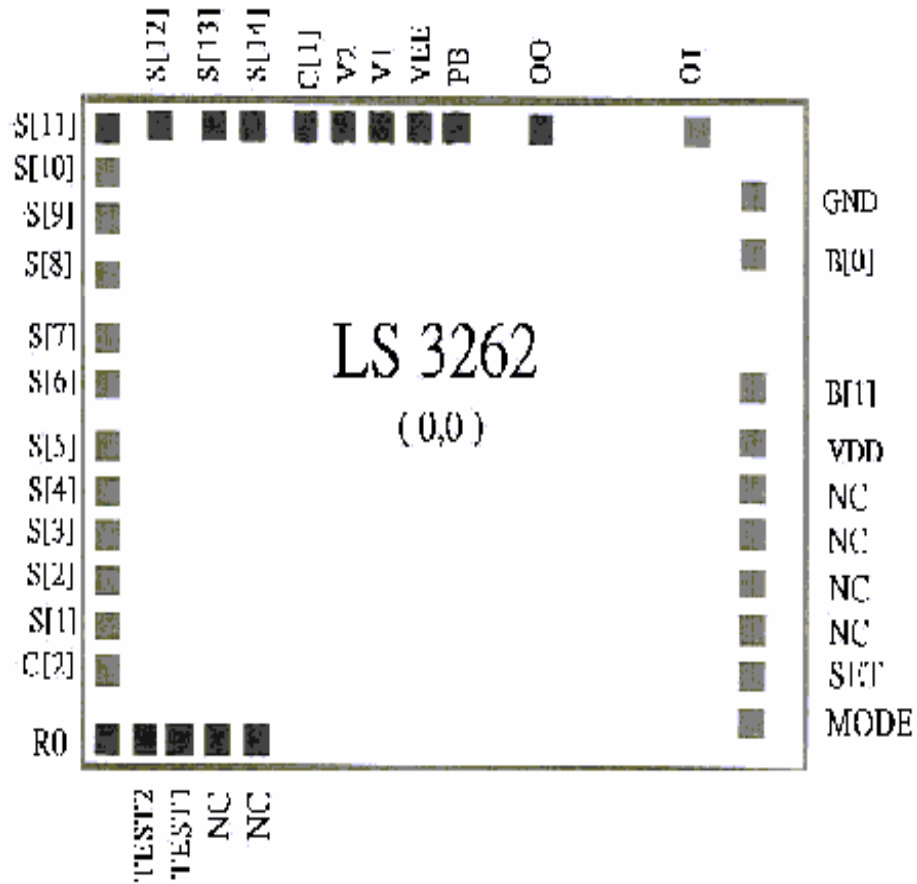
Chip Size: 2690um x 2120um

Pad Coordinate

PAD	X(μm)	Y(μm)	PAD	X(μm)	Y(μm)
NC[6]	-667.0	-923.0	C[1]	-494.0	+923.0
NC[7]	-802.0	-923.0	V2	-361.0	+923.0
TEST1	-937.0	-923.0	V1	-223.0	+923.0
TEST2	-1072.0	-923.0	VEE	-90.0	+923.0
R0	-1208.0	-923.0	PB	-47.0	+923.0
C[2]	-1208.0	-717.0	OO	+348.0	+916.0
S[1]	-1208.0	-582.0	OI	+901.0	+916.0
S[2]	-1208.0	-447.0	GND	+1098.0	+724.0
S[3]	-1208.0	-312.0	B0	+1098.0	+554.0
S[4]	-1208.0	-177.0	B1	+1098.0	+149.0
S[5]	-1208.0	-42.0	VDD	+1098.0	-20.0
S[6]	-1208.0	+149.0	NC[5]	+1098.0	-156.0
S[7]	-1208.0	+285.0	NC[4]	+1098.0	-294.0
S[8]	-1208.0	+476.0	NC[3]	+1098.0	-438.0
S[9]	-1208.0	+646.0	NC[2]	+1098.0	-576.0
S[10]	-1208.0	+781.0	SET	+1098.0	-720.0
S[11]	-1208.0	+916.0	MODE	+1098.0	-859.0
S[12]	-1012.0	+923.0			
S[13]	-821.0	+923.0			
S[14]	-686.0	+923.0			

Application Circuit

LCD DRAWING

LSI   LS3262
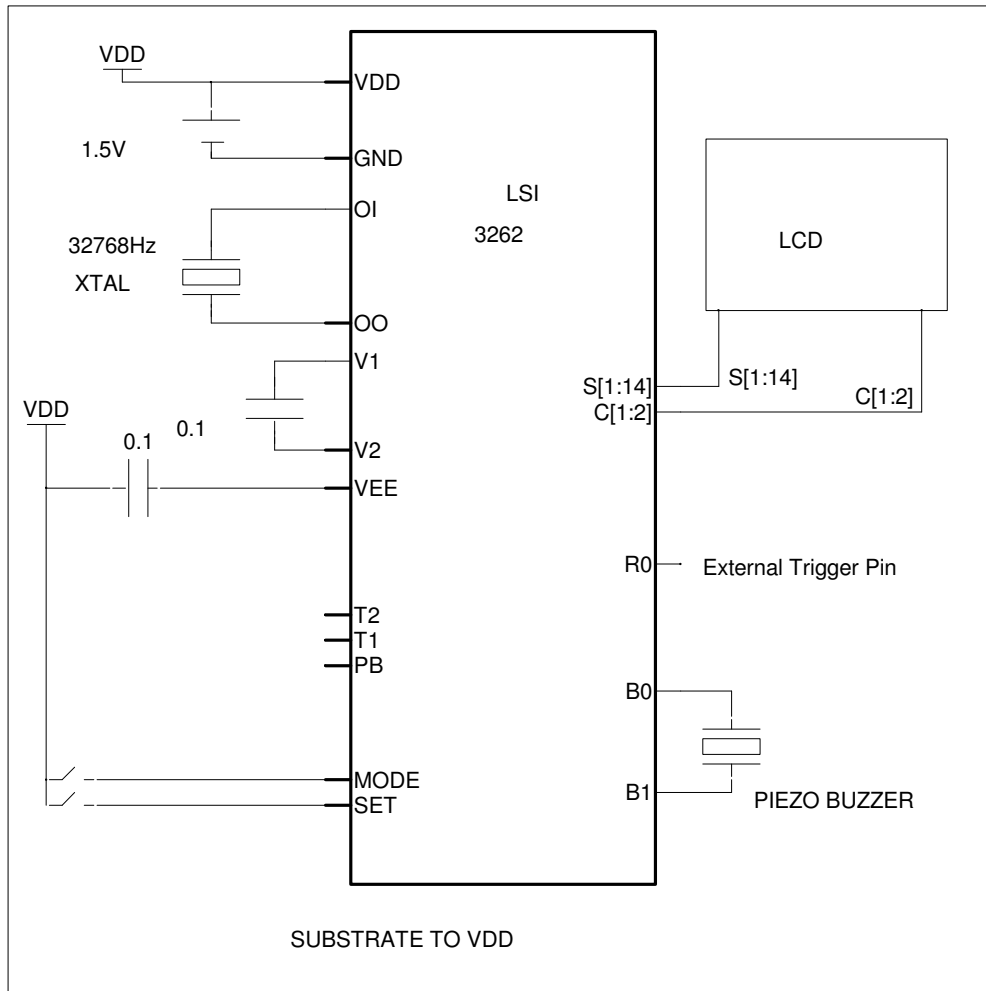
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PIN 1........
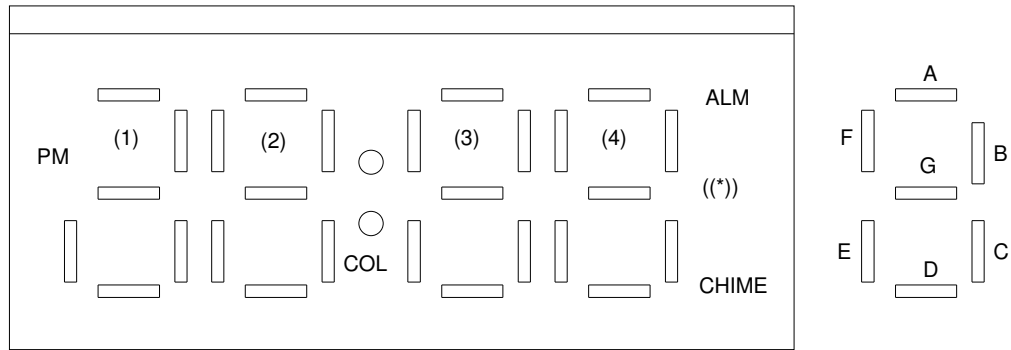
PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
SEG	C2	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	C1
C1		PM	C1	D2	E2	G2	C2	E3	G3	C3	E4	G4	C4	D4	CHIME	COM1
C2	COM2	ALM	ADEG1	B1	F2	A2	B2	F3	AD3	B3	F4	A4	B4	COL	*))	