

## Features

- \* 6 digit (HH:MM SS) LCD display
- \* Hour:Minute Second display
- \* Month Date weekday display
- \* Alarm with Chime
- \* Dual time display
- \* 3/4 keys operation
- \* Auto Chime (8am-11pm only)
- \* 12/24Hour display
- \* 1/2 bias 1/3 duty LCD format
- \* Very low power consumption
- \* 32768 Crystal oscillator
- \* Single 3.0V operation.

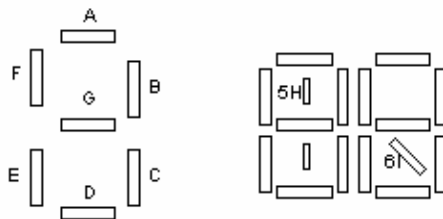
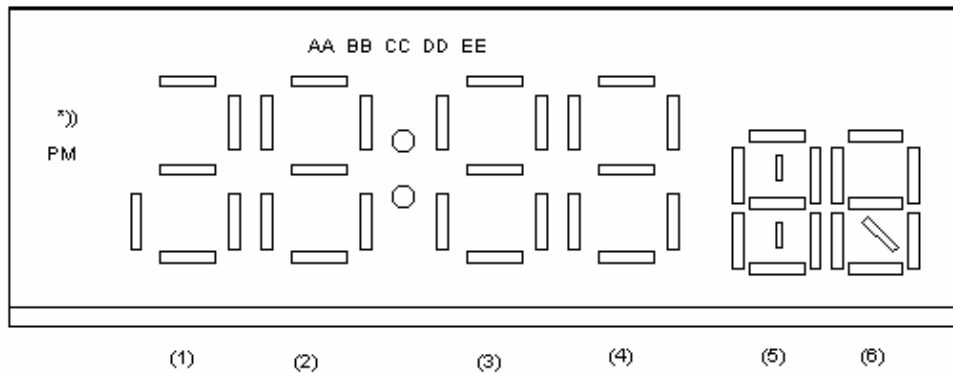
## General Description

The LS6052 is a 6 digit LCD watch I.C. with Hour:Minute Second, Month Date weekday display. It support 12H/24 H display format and has a time alarm and hourly chime function. The dual time display is selected by bonding option. It also has 5 icon for different animation. It has 2/3/4 keys operation : KD, KS, KEL and KICON.

## Bonding option

I5/BP1	I4/BP0	Description
GND	GND	A, AB, ABC, ABCD, ABCDE, (REPEAT)
GND	VDD	A,AB,ABC,ABCD,(REPEAT)
VDD	GND	A, B, C, D, E, ABCDE, OFF, (REPEAT)
VDD	VDD	A, B, C, D, ABCD, OFF, (REPEAT)

## LCD Drawing



PIN	SIGNAL				
1	C3			C3	
2	C2		C2		
3	C1	C1			
4	S1	5B	5A	6E	
5	S2	5H	5F	6F	
6	S3	5C	5G	6A	
7	S4	5D	5E	6B	
8	S5	4B	4A	6G	
9	S6	4G	4F	6I	
10	S7	4C	4E	6C	
11	S8	4D	EE	6D	
12	S9	3B	3A	DD	
13	S10	3G	3F	CC	
14	S11	3C	3E	BB	
15	S12	3D	:	AA	
16	S13	2B	2A	PM	
17	S14	2G	2F	1ADEG	
18	S15	2C	2E	1B	
19	S16	2D	*)	1C	

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Pin Assignment

DESIGNATION	TYPE	DESCRIPTION
B [0:1]	OUTPUT	Buzzer output
VC1, VC2	OUTPUT	Halfer output
VEE	OUTPUT	Halfer voltage
T2, T1	INPUT (PL)	TEST pin
OO	OUTPUT	oscillator output
OI	INPUT	oscillator input
VDD	POWER	+3.0V power supply
GND	POWER	Ground
I0(KICON)	INPUT	KEY
I1(KMODE)	INPUT	KEY
I2(KEL)	INPUT	KEY
I3(KSET)	INPUT	KEY
I4(BP0)	INPUT	BONDING OPTION
I5(BP1)	INPUT	BONDING OPTION
R[0:1]	OUTPUT	Output /EL output
C[1:3]	OUTPUT	LCD Common output
S[1:28]	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

**D.C. Electrical Characteristics**

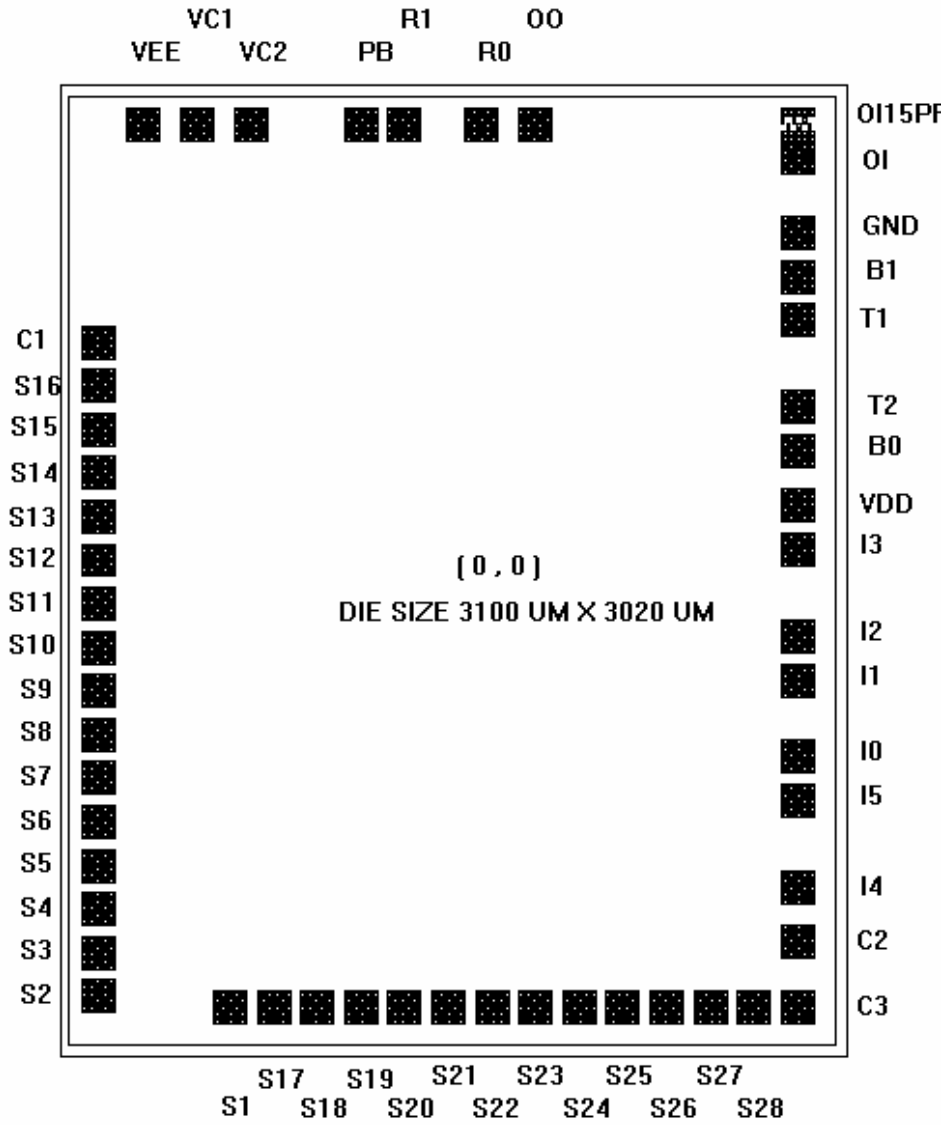
(GND = 0V, Vdd = 3.0V, Ta = 25°C unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Supply Voltage	Vdd	2.5	3.0	3.6	V	
Operating current	Idd	-	3	6	μA	No load
OSC. built-in cap	Cd	-	15	-	pF	Bonding option
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
R[0:1] output current	Ir	0.8	-	-	mA	Vr-Vss=0.7

## Pad Coordinate

PAD	X( $\mu$ m)	Y( $\mu$ m)	PAD	X( $\mu$ m)	Y( $\mu$ m)
C1	-1408.20	506.10	S26	942.20	-1513.90
S16	-1408.20	372.10	S27	1076.20	-1513.90
S15	-1408.20	238.10	S28	1210.20	-1513.90
S14	-1408.20	104.10	C3	1344.20	-1513.90
S13	-1408.20	-29.90	C2	1408.00	-1287.00
S12	-1408.20	-163.90	I4	1408.00	-1151.00
S11	-1408.20	-297.90	I5	1408.00	-741.60
S10	-1408.20	-431.90	I0	1408.00	-597.60
S9	-1408.20	-565.90	I1	1408.00	-188.20
S8	-1408.20	-699.90	I2	1408.00	-44.20
S7	-1408.20	-833.90	I3	1408.00	365.20
S6	-1408.20	-967.90	VDD	1408.00	509.20
S5	-1408.20	-1101.90	B0	1408.00	653.20
S4	-1408.20	-1235.90	T2	1408.00	797.20
S3	-1408.20	-1369.90	T1	1408.00	941.20
S2	-1408.20	-1503.90	B1	1408.00	1085.20
S1	-570.50	-1513.90	GND	1408.00	1229.20
S17	-436.50	-1513.90	OI	1400.30	1423.00
S18	-238.70	-1513.90	OI 15pF	1400.30	1513.00
S19	-104.70	-1513.90	OO	184.00	1499.30
S20	93.10	-1513.90	R0	-56.30	1499.30
S21	227.10	-1513.90	R1	-425.20	1499.30
S22	406.20	-1513.90	PB	-561.20	1499.30
S23	540.20	-1513.90	VC1	-1045.70	1499.30
S24	674.20	-1513.90	VC2	-1179.70	1499.30
S25	808.20	-1513.90	VEE	-1313.70	1499.30

### Pad Location



# Application Circuit

