

DESCRIPTION

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

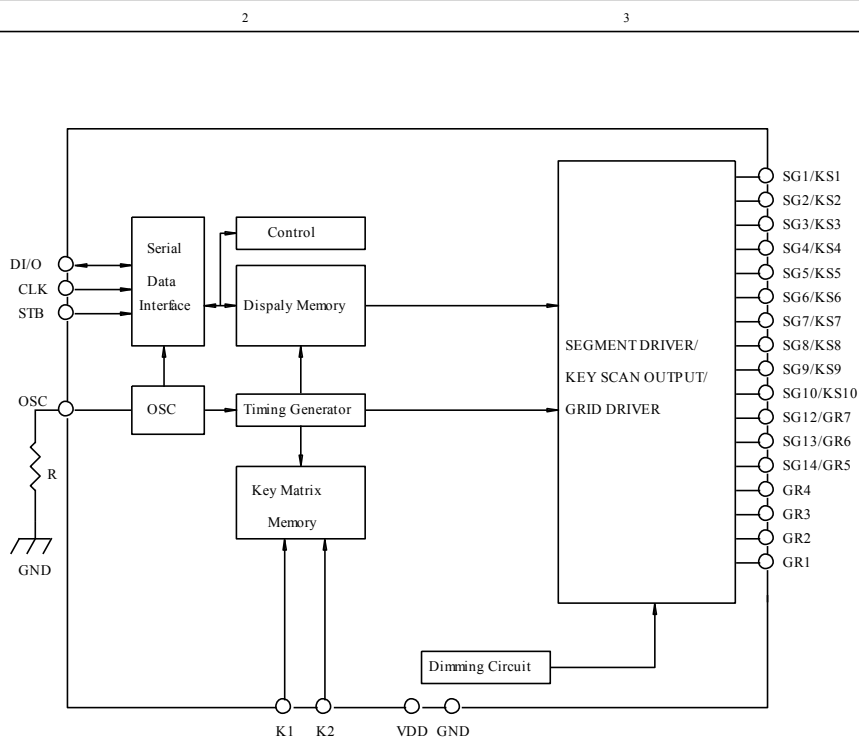
SDL8837 is an LED Controller driven on a 1/7to 1/8 duty factor. Eleven segment output lines, six grid output lines, 1 segment/grid output lines, one display memory, control circuit , key SGan circuit are all incorporated into a single chip to build a highly reliable peripheral device for a single chip microcomputer. Serial data is fed to DL8837 via a four-line serial interface. Housed in a 28-pin SO Package, DL8837 pin assignments and application circuit are optimized for easy PCB Layout and cost saving advantages.

FEATURES

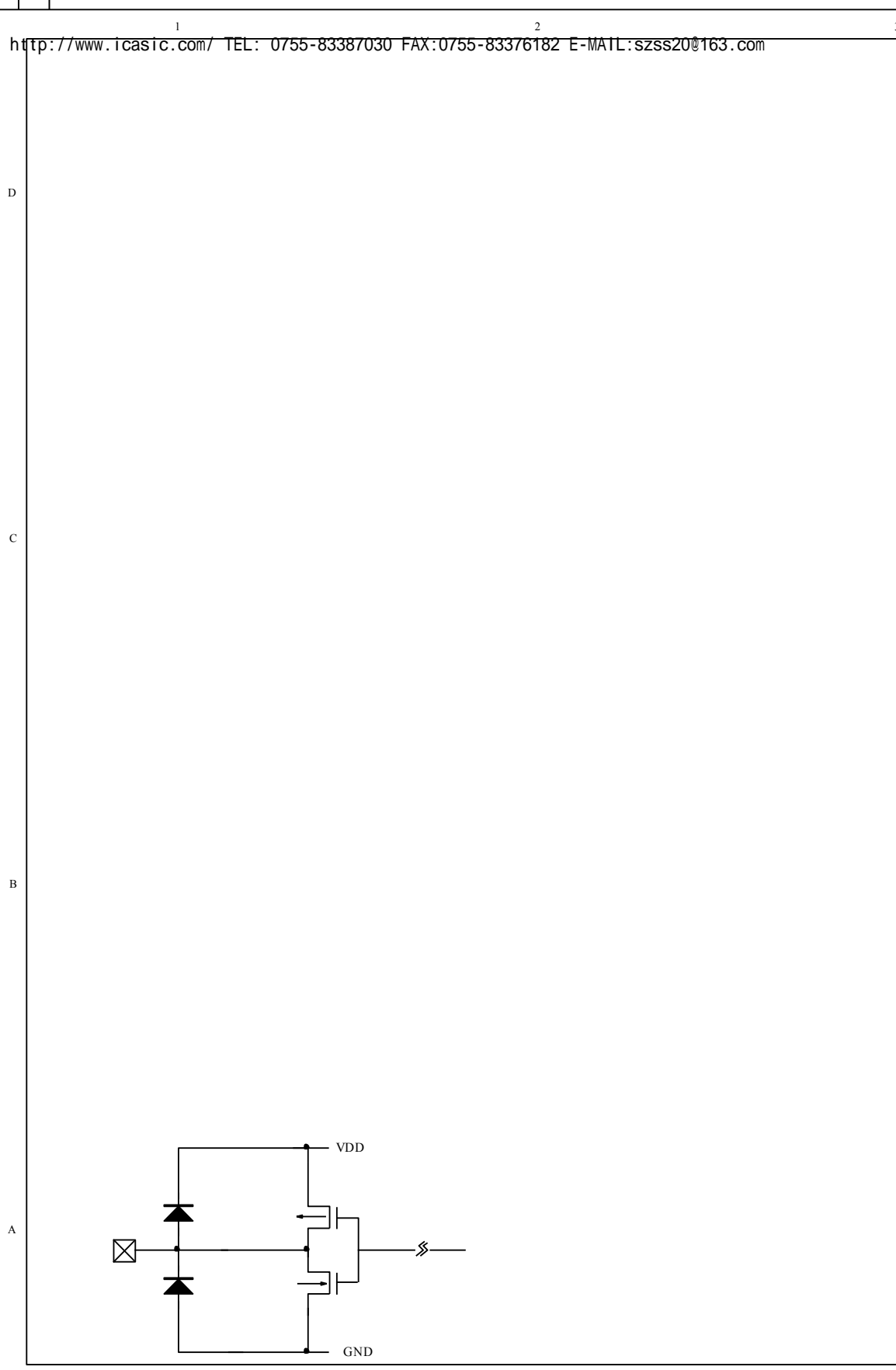
- CMOS Technology
- Low Power Consumption
- Multiple Display Modes
- Key SGanning
- 8-Step Dimming Circuitry
- Serial Interface for Clock, Data Input, Data Output, Strobe Pins
- Available in 28-Pin, SOP Package

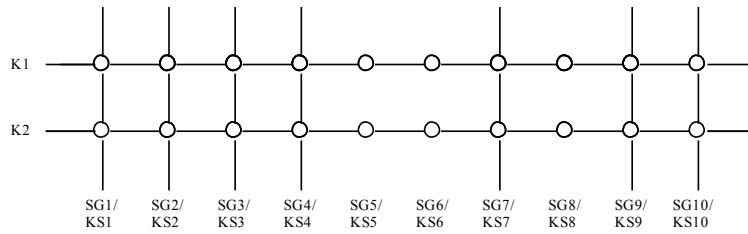
APPLICATION

- Micro-computer Peripheral Device
- VCR set
- Combi set



IN
II
D
II
c
C
C_B
Output Pins: GR5, GR6 and S
A
1

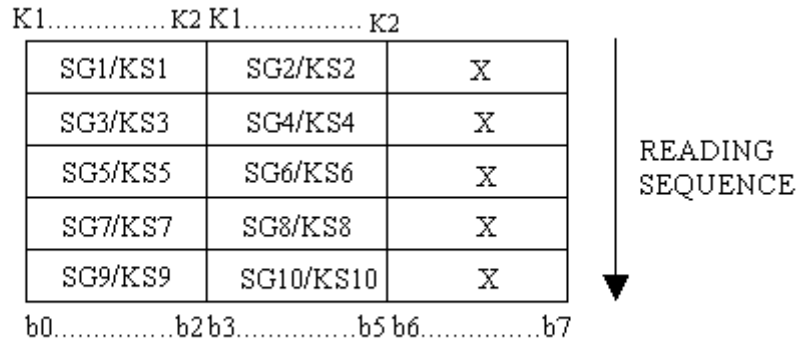




Each data entered by each key is stored as follows and read by a READ Command, starting from the last significant bit.

When the most significant bit of the data (b0) has been read, the least significant bit of the next data (b7) is read.

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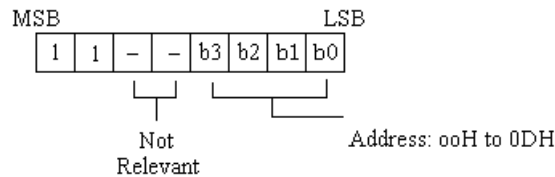


Note: b6 and b7 do not care

Command 3: Address Setting Commands

Address Setting Commands are used to set the address of the display memory. The address is considered valid if it has a value of 00H to 0DH. If the address is set to 0EH or higher, the data is ignored until a valid address is set. When power is turned ON, the address is set at 00H.

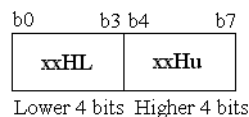
Please refer to the diagram below.



DISPALYMODE AND RAMADDRESS

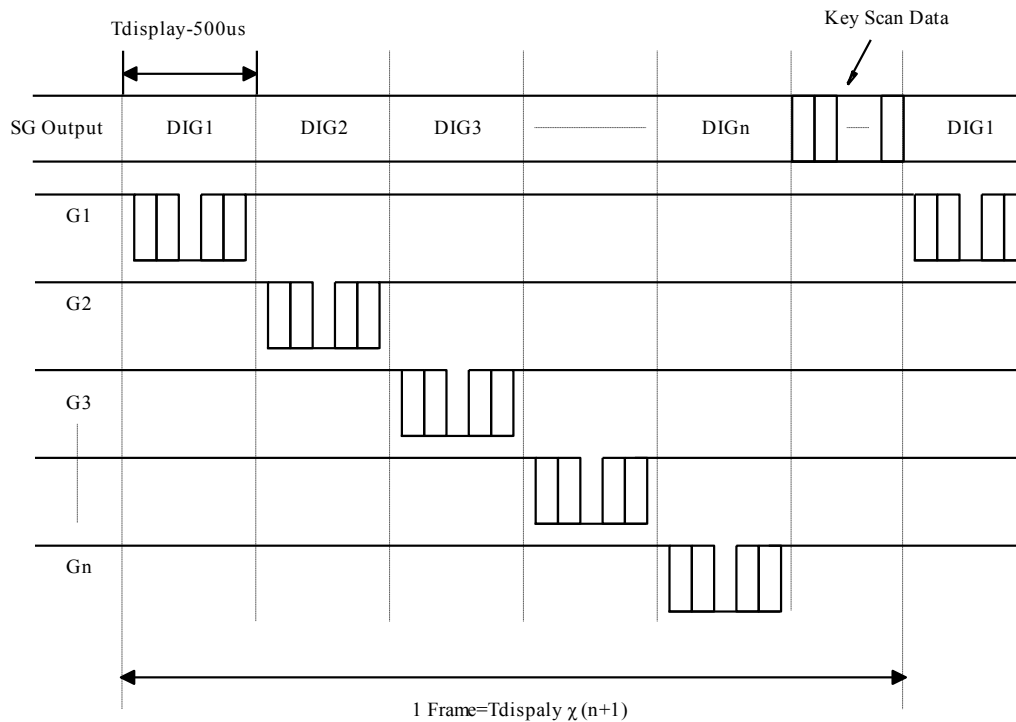
Data transmitted from an external device to DL8837 via the serial interface are stored in the Display RAM and are assigned addresses. The RAM addresses of DL8837 are given below in 8 bits unit.

SG1	SG4 SG5	SG8 SG9	
00HL	00Hu	01HL	DIG1
02HL	02Hu	03HL	DIG2
04HL	04Hu	05HL	DIG3
06HL	06Hu	07HL	DIG4
08HL	08Hu	09HL	DIG5
0AHL	0AHu	0BHL	DIG6
0CHL	0CHu	0DHL	DIG7



Command 4: Display Control Commands

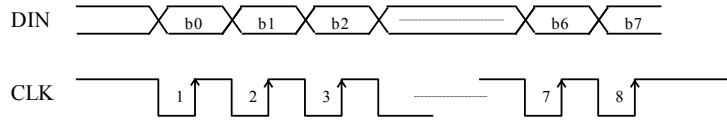
The Display Control Commands are used to turn ON or OFF a display. It also used to set the pulse width. Please refer to



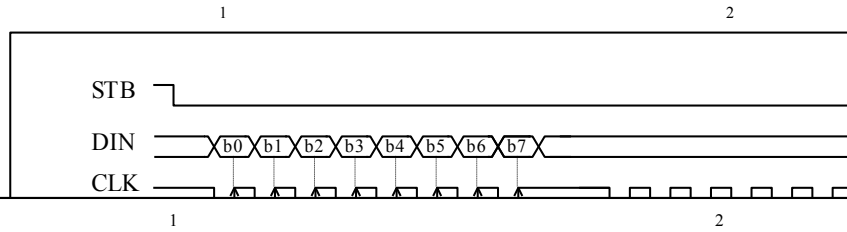
SERIAL COMMUNICATION FROMAT

The following diagram shows the DL8837 serial communication format. The DOUT Pin is an N-channel, opendrain output pin, therefore, it is highly recommended that an external pull-up resistor (1 KOhms to 10 KOhms) must be connected to DOUT.

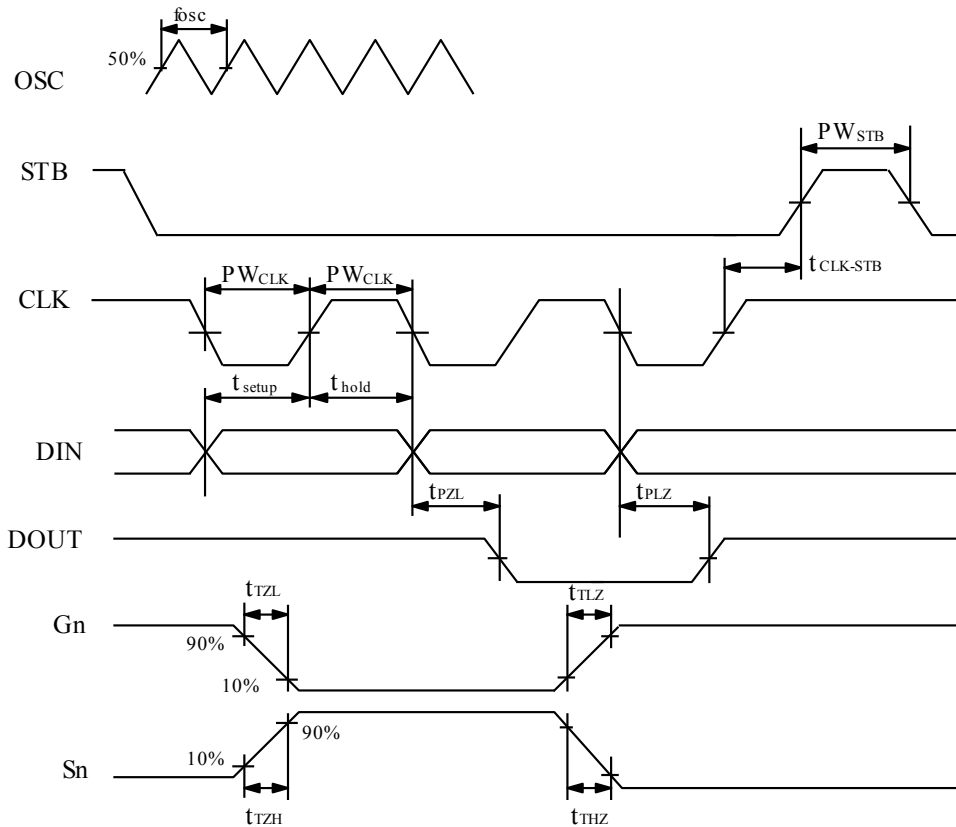
RECEPTION (Data/Command Write)



TRANSMISSION

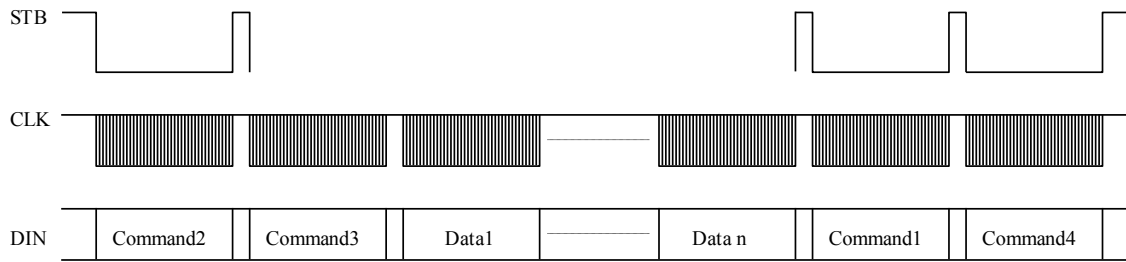


where: t_v
It must b
command and
SWITCH
DL8837 Swit



where: PW_{CLK} (Clock Pulse Width) $\geq 400nS$ PW_{STB} (Strobe Pulse Width) $\geq 1\mu s$
 t_{setup} (Data Setup Time) $\geq 100nS$ t_{hold} (Data Hold Time) $\geq 100nS$

API
Disp^B



where: Command 1: Display Mode Setting Command

Command 2: Data Setting Command

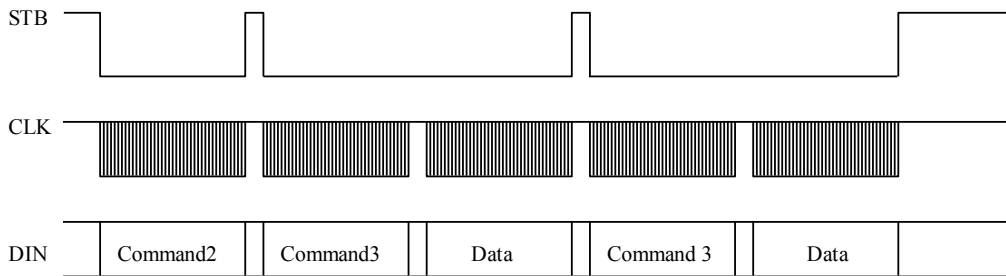
Command 3: Address Setting Command

Command 4: Data Setting Command

3

4

5



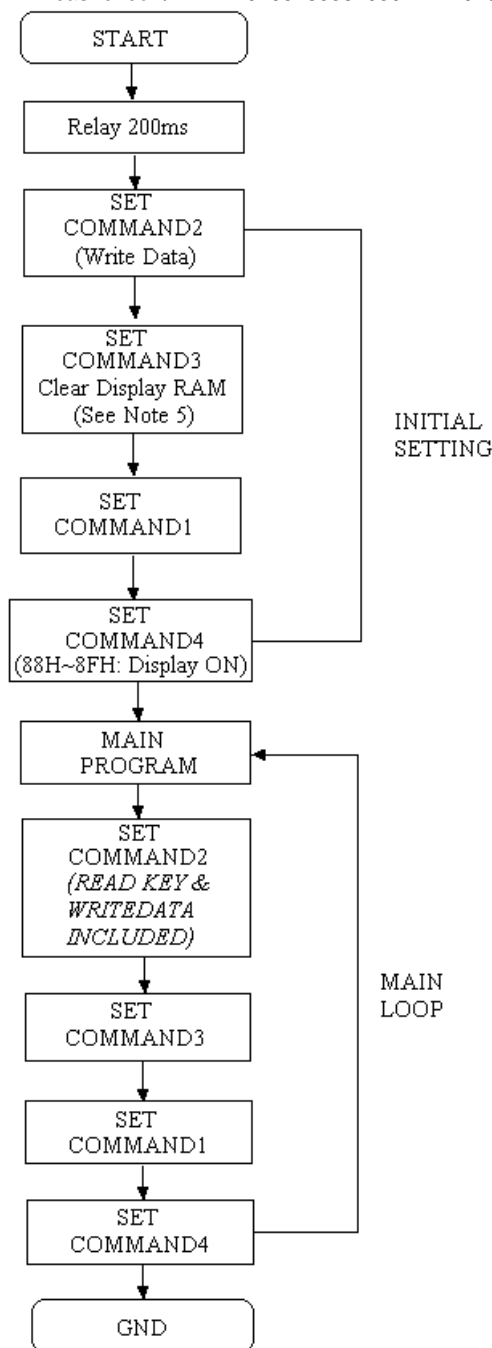
where: Command 2 — Data Setting Command

Command 3 — Address Setting Command

Data — Display Data

RECOMMENDED SOFTWARE PROGRAMMING FLOWCHART

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Note: 1. Command 1: Display Mode Commands

2. Command 2: Data Setting Commands

3. Command 3: Address Setting Commands

4. Command 4: Display Control Commands

5. When IC power is applied for the first time, the contents of the Display RAM is not defined; thus, it is strongly suggested that the contents of the Display RAM must be cleared during the initial setting.

ABSOLUTE MAXIMUM RATINGS

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(Unless otherwise stated, Ta=25°C, GND=0V)

Parameter	Symbol	Ratings	Unit
Supply Voltage	V _{DD}	-0.5 to +7	Volts
Logic Input Voltage	V _I	-0.5 to V _{DD} +0.5	Volts
Driver Output Current	I _{OLGR}	+250	mA
	I _{OHS}	-50	mA
Maximum Driver Output Current/Total	I _{TOTAL}	400	mA

RECOMMENDED OPERATING RANGE

(Unless otherwise stated, Ta=-20 to +70°C, GND=0V)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Logic Supply Voltage	V _{DD}	4.5	5	5.5	V
Dynamic Current (see Note)	I _{DDdyn}	-	-	10	mA
High-Level Input Voltage	V _{IH}	0.8V _{DD}	-	V _{DD}	V
Low-Level Input Voltage	V _{IL}	0	-	0.3V _{DD}	V

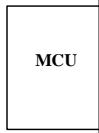
Note: Test Condition: Set Display Control Commands = 80H (Display Turn OFF State & under no load)

ELECTRICAL CHARACTERISTICS

(Unless otherwise stated, V_{DD}=5V, GND=0V, Ta=25°C)

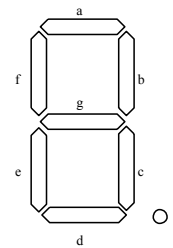
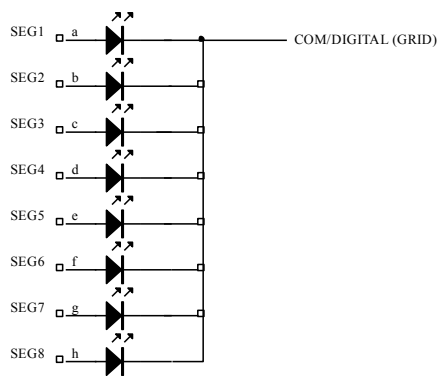
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
High-Level Output Current	IOHSG1	V _o =V _{DD} -2V SG1 to SG10, SG12/GR7	-20	-25	-40	mA
	IOHSG2	V _o =V _{DD} -3V SG1 to SG12, SG12/GR7	-25	-30	-50	mA
Low-Level Output Current	IOLGR	V _o =0.3V GR1 to GR6, SG12/GR7	100	140	-	mA
Low-Level Output Current	IOLDOUT	V _o =0.4V	4	-	-	mA
Segment High-Level Output Current Tolerance	ITOLSG	V _o =V _{DD} -3V SG1 to SG10, SG12/GR7	-	-	±5	mA
High-Level Input Voltage	VIH	-	0.8 V _{DD}	-	5	V
Low-Level Input Voltage	VIL	-	0	-	0.3V _{DD}	V
OSGillation Frequency	foSG	R=33 KOhms	350	500	650	KHz
K1 to K2 Pull Down Resistor	RKN	K1 to K2 V _{DD} =5V	40	-	100	KOhms

A



+5V

COMMON CATHOD

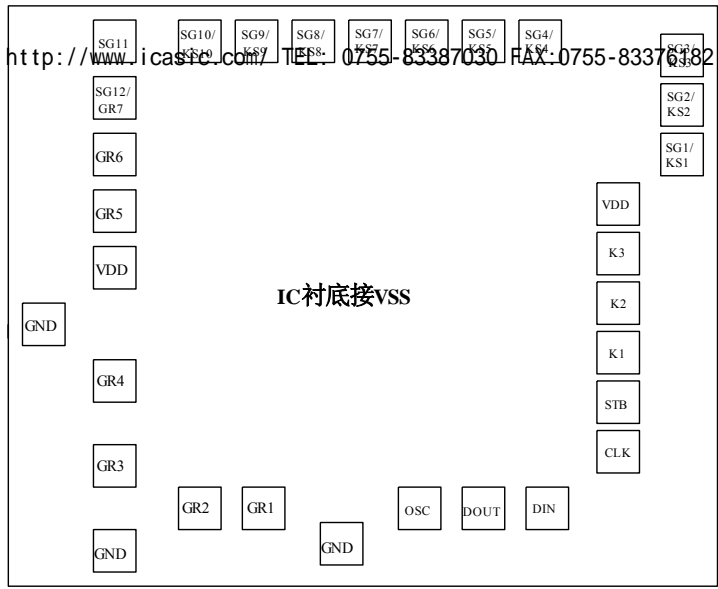


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Note: 1、 The capacitor (0.1uF) connected between the GND and the VDD pins must be located as close as possible to the DL8837 chip.

2、 The DL8837 power supply is separate from the application system power supply.

Pad Assignment (Chip size:1380um x 1390um)



Title

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