

08LCD51 Datasheet

1. FEATURES

•Display construction	16 Characters * 2 Lines
•Display mode	STN(Y/G)
•Display type	Positive Transmissive
•Backlight	LED/5.0V(Y-G)
•Viewing direction	6 o'clock
•Operating temperature	0 to 50°C
•Storage temperature	-10 to 60°C
•Controller	AIP31066 or Equivalence
•Driving voltage	Single power
•Driving method	1/16 duty, 1/5 bias
•Type	COB (Chip On Board)
•Number of data line	6800 4/8-bit parallel
•Connector	Zebra

2. MECHANICAL DATA

ITEM		WIDTH	HEIGHT	THICKNES S	UNIT
Module size		80.0	36.0	19.5(MAX)	mm
Viewing area		64.5	14.5	-	mm
character	Construction	5*7			dots
	Size	2.95	4.75	-	mm
	Pitch	3.65	5.45	-	mm
Dot	Size	0.55	0.55	-	mm
	Pitch	0.60	0.60	-	mm
Diameter of mounting hole		Φ2.9			mm
Weight		About 50			g

3. ABSOLUTE MAXIMUM RATINGS

(TA = 25, VSS=0V)

Item	Symbol	MIN.	Max.	Unit
Supply Voltage (Logic)	VDD-VSS	4.5	5.5	V
Supply Voltage (LCD Driveer)	V _{LCD}	VDD-12	VDD+0.3	V
Input Voltage	V _{IN}	-0.3	VDD+0.3	V
Operating temperature	Top	0	50	°C
Storage temperature	Tsto	-10	60	°C

4. ELECTRICAL CHARACTERISTICS

(VDD 4.5 to 5.5V, TA = 25)

Characteristic	Symbol	Condition	Min	Typ	Max	Unit
Operating Voltage	V _{DD}	-	4.5	-	5.5	V
Operating Current	I _{DD}	Internal oscillation or external clock (V _{DD} = 5.0V, fosc = 270kHz)	-	0.35	0.6	mA
Input Voltage (1) (except OSC1)	V _{IH1}	-	2.2	-	V _{DD}	V
	V _{IL1}	-	-0.3	-	0.6	
Input Voltage (2) (OSC1)	V _{IH2}	-	V _{DD} -1.0	-	V _{DD}	V
	V _{IL2}	-	-0.2	-	1.0	
Output Voltage (1) (DB0 to DB7)	V _{OH1}	I _{OH} = -0.205mA	2.4	-	-	V
	V _{OL1}	I _{OL} = 1.2mA	-	-	0.4	
Output Voltage (2) (except DB0 to DB7)	V _{OH2}	I _O = -40μA	0.9V _{DD}	-	-	V
	V _{OL2}	I _O = 40μA	-	-	0.1V _{DD}	
Voltage Drop	V _{dCOM}	I _O = ±0.1mA	-	-	1	V
	V _{dSEG}		-	-	1	
Input Leakage Current	I _{LKG}	V _{IN} = 0V to V _{DD}	-1	-	1	μA
Input Low Current	I _{IL}	V _{IN} = 0V, V _{DD} = 5V (pull up)	-50	-125	-250	
Internal Clock (external Rf)	f _{OSC1}	Rf = 91kΩ ±2% (V _{DD} = 5V)	190	270	350	kHz
External Clock	f _{OSC}	-	125	270	350	kHz
	duty		45	50	55	%
	t _R , t _F		-	-	0.2	μA
LCD Driving Voltage	V _{LCD}	V _{DD} -V5 (1/5, 1/4 bias)	3.0	-	13.0	V

4.1 LED ELECTRICAL/OPTICAL CHARACTERISTICS

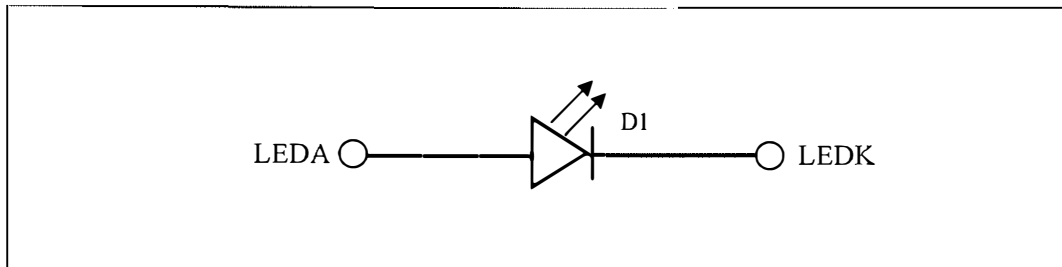
Item	Symbol	min	typ	max	Unit	Condition
Forward Voltage	V _f	4.8	5.0	5.2	V	I _f =20mA
Reverse Current	I _r	-	20	-	uA	V _r =5V
Dominant wave length	λ _p	-	X=0.29 Y=0.30	-	nm	I _f =20mA
Spectral Line Half width	Δλ	-	-	-	nm	I _f = mA
Luminance	L _v	-	70	-	cd/m ²	I _f =20mA

4.2 LED ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Condition	Rating	Unit
Reverse Voltage	V _r	T _a =25°C	5	V
Absolute maximum forward current	I _{fm}	T _a =25°C	25	mA
Power description	pd	T _a =25°C	125	mW

4.2.1 LED ARRAY BLOCK DIAGRAM

(LED DICE 1 dices)



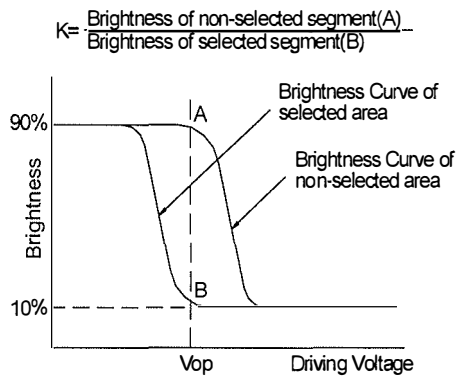
4.2.2 LED POWER SOURCE

	Option	Power source	Jumper setting
LED	A	15A/16K	R7=110Ω

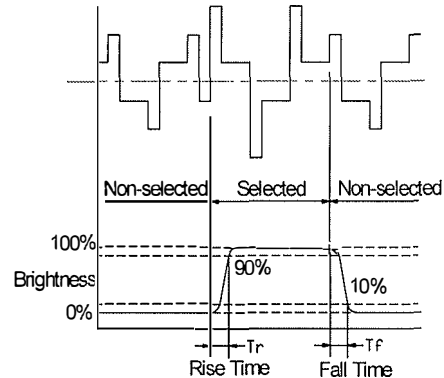
5. ELECTRO-OPTICAL CHARACTERISTICS

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	NOTE
Contrast ratio	K	$\Phi=0^\circ$	1.4	4	-	-	1
Response time (rise)	Tr	$\Phi=0^\circ \theta=0^\circ$	-	130	-	ms	2
Response time (fall)	Tf	$\Phi=0^\circ \theta=0^\circ$	-	130	-	ms	2
Viewing angle	Φ	K \geq 1.4	-40 -- +40			deg.	3
	θ		-40 -- +15				

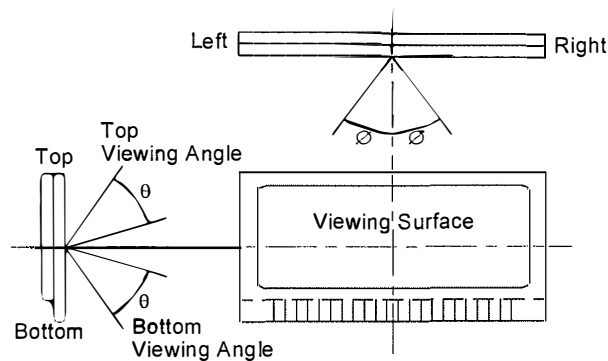
Note 1: Definition of Contrast Ratio "K"



Note 2: Definition of Optical Response Time

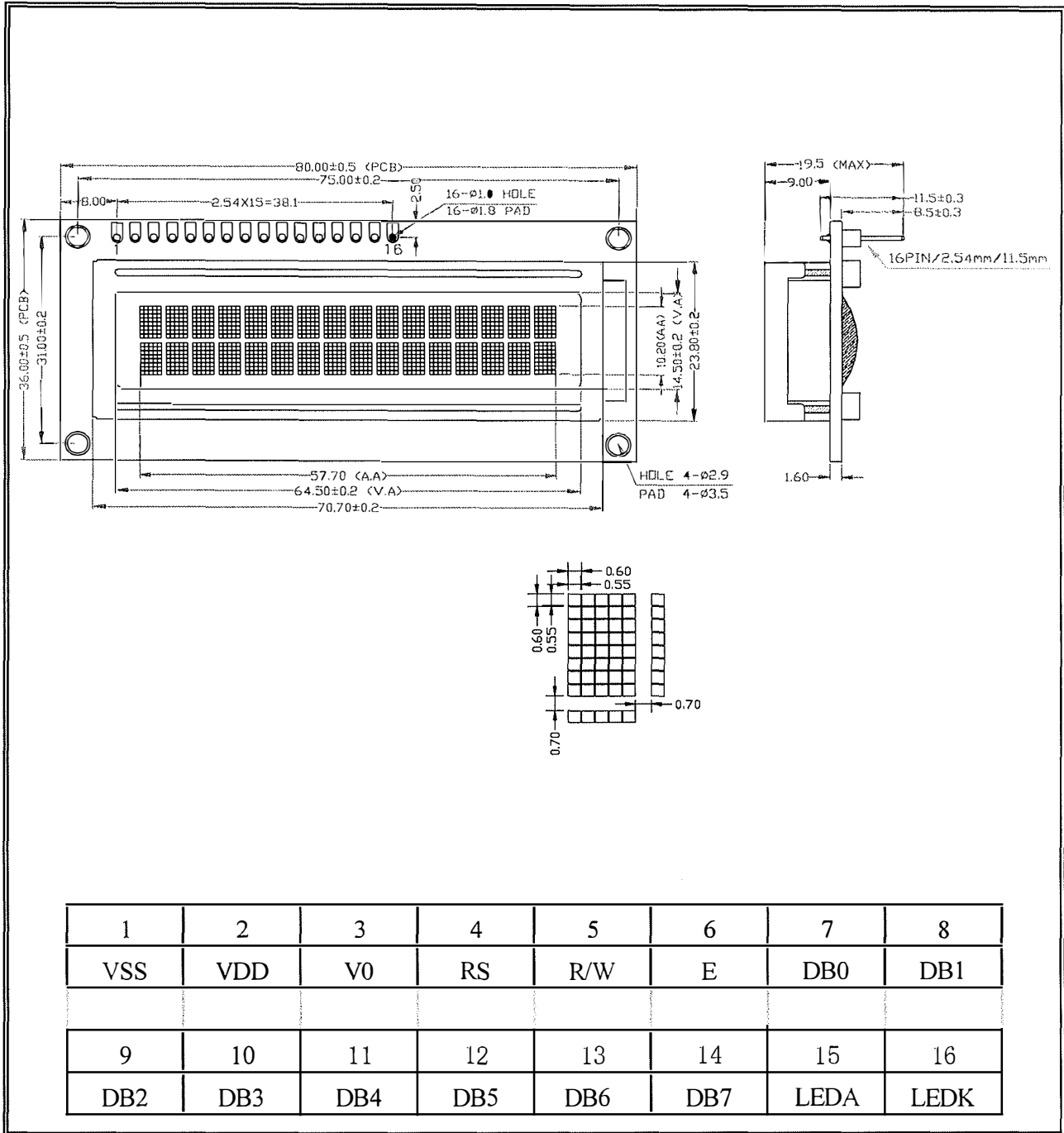


Note 3: Definition of Viewing Angle



Please select either top or bottom viewing angle

13. OUTLINE DRAWING



14. INTERFACE

PIN NO.	SYMBOL	DESCRIPTION	FUNCTION
1	VSS	GROUND	0V (GND)
2	VDD	POWER SUPPLY FOR LOGIC CIRCUIT	+5.0V
3	V0	LCD CONTRAST ADJUSTMENT	
4	RS	INSTRUCTION/DATA REGISTER SELECTION	RS = 0 : INSTRUCTION REGISTER RS = 1 : DATA REGISTER
5	R/W	READ/WRITE SELECTION	R/W = 0 : REGISTER WRITE R/W = 1 : REGISTER READ
6	E	ENABLE SIGNAL	
7	DB0	DATA INPUT/OUTPUT LINES	8 BIT: DB0-DB7
8	DB1		
9	DB2		
10	DB3		
11	DB4		
12	DB5		
13	DB6		
14	DB7		
15	LEDA	SUPPLY VOLTAGE FOR LED+	+5.0V
16	LEDK	SUPPLY VOLTAGE FOR LED-	0V