



ALL SHORE INDUSTRIES, INC.

SPECIFICATION FOR LIQUID CRYSTAL DISPLAY MODULE

MODULE #: ASI_-1286A_-LJ-_YSW

- (1) NUMBER OF DOTS-----128 W * 64 H DOTS
- (2) MODULE SIZE -----93.0 W * 70.0 H * "C" T (Max) mm
- (3) EFFECTIVE AREA -----71.0 W * 39.0 H mm
- (4) ACTIVE AREA -----66.52 W * 33.24 H mm
- (5) DOT SIZE-----0.48 W * 0.48 H mm
- (6) DOT PITCH-----0.52 W * 0.52 H mm



MODEL NO : ASI-_-1286A_-LJ-_YS/W

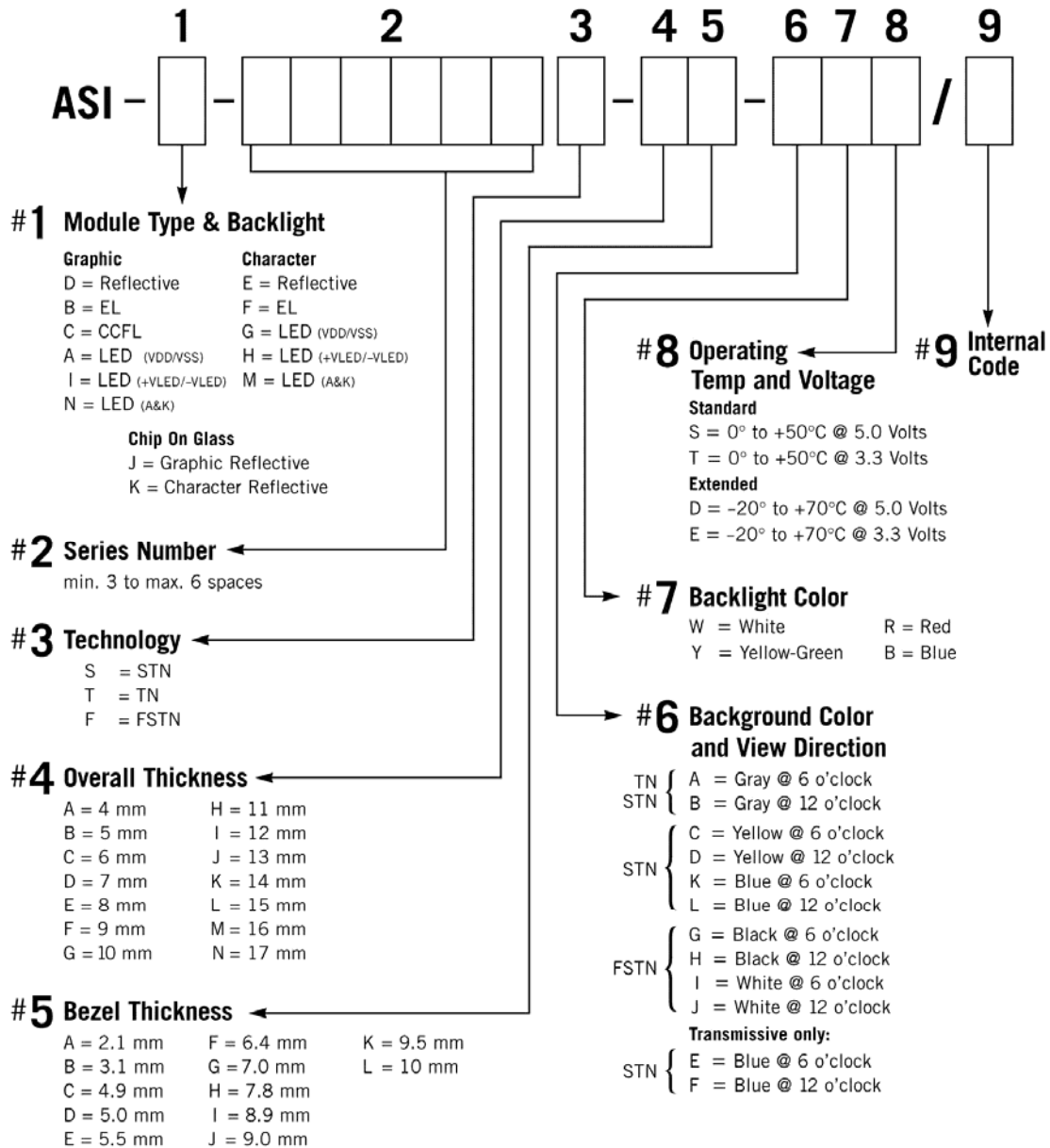
RECORD OF REVISION

DATE	PAGE	SUMMARY



MODEL NO : ASI-_-1286A_-LJ-_YS/W

LCD MODULE PART NUMBERING SYSTEM



NOTE: Some options may not be available in specific modules. Please contact your Sales Representative to check availability.



MODEL NO : ASI_-1286A_-LJ-_YS/W

3. General specifications

3.1 General specifications

PLEASE REFER TO:

“CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS (MS-10-0108)”.

3.2 This individual specification is prior to general specifications

4. Mechanical data

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Absolute maximum ratings

Electrical absolute maximum ratings

<i>I T E M</i>	<i>SYMBOL</i>	<i>MIN.</i>	<i>MAX.</i>	<i>UNIT</i>	<i>COMMENT</i>
POWER SUPPLY FOR LOGIC	V _{DD} -V _{SS}	0	6.0	V	-----
INPUT VOLTAGE	V _I	V _{SS}	V _{DD}	V	-----
STATIC ELECTRICITY	-----	-----	100	V	NOTE (1)
POWER SUPPLY FOR LED	V _{LED}	-----	NOTE(2)	V	-----

NOTE (1): ELECTRO-STATIC DISCHARGE RESISTANCE IS TESTED BY CHARGING A 200PF CAPACITOR AND DISCHARGING IT BY CONTACT WITH A INTERFACE CONNECTOR PIN.

NOTE (2):

<i>SYMBOL</i>	<i>V_{LED} MAX.</i>	<i>LED TYPE</i>
V _{LED}	6.0V	YELLOW-GREEN,AMBER,ORANGE,RED
	5.0V	WHITE, BLUE, PURE-GREEN

5.2 Environmental absolute maximum ratings

<i>I T E M</i>	<i>CONDITION</i>	<i>OPERATING</i>		<i>STORAGE</i>		<i>COMMENT</i>
		<i>MIN.</i>	<i>MAX.</i>	<i>MIN.</i>	<i>MAX.</i>	
AMBIENT TEMPERATURE	NORMAL	0°C	50°C	-20°C	70°C	-----
	WIDE	-20°C	70°C			
HUMIDITY	-----	NOTE (3)		NOTE (3)		NO CONDENSATION
VIBRATION NOTE (4)	-----	-----	0.5G	-----	2G	10~300HZ XYZ DIRECTIONS 1 Hr EACH
SHOCK NOTE (4)	-----	-----	3G	-----	50G	10 msec XYZ DIRECTIONS 1 TIME EACH
CORROSIVE GAS	NOT ACCEPTABLE			NOT ACCEPTABLE		-----

NOTE (3): T_a ≤ 50°C: 90% RH MAX.

T_a > 50°C: ABSOLUTE HUMIDITY MUST BE LOWER THAN THE HUMIDITY OF 90% RH AT 50°C. (80%RH AT 60°C)

NOTE (4): 1G = 9.8 m/s²



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Electrical characteristics

$T_a = 25^\circ\text{C}$

$V_{DD} = 5.0\text{V} \pm 0.25\text{V}$

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	
POWER SUPPLY VOLTAGE FOR CIRCUIT	$V_{DD}-V_{SS}$	-----	4.75	5.0	5.25	V	
INPUT VOLTAGE NOTE (2)	V_{IH}	H LEVEL	$0.7V_{DD}$	-----	V_{DD}	V	
	V_{IL}	L LEVEL	V_{SS}	-----	$0.3V_{DD}$	V	
OUTPUT VOLTAGE NOTE (1)	V_{OH}	$I_{OH} = -0.4\text{ mA}$	$V_{DD}-0.4$	-----	-----	V	
	V_{OL}	$I_{OL} = 0.4\text{ mA}$	-----	-----	0.4	V	
POWER SUPPLY CURRENT, NOTE (3)	I_{DD}	$V_{DD}-V_{SS} = 5.0\text{V}$	-----	5.0	8.0	mA	
RECOMMENDED LCD DRIVING VOLTAGE, NOTE(4)	$V_{DD}-V_O$	STN/ FSTN DUTY =1/64 $\Phi=10^\circ$ NOTE(5)	$T_a = -20^\circ\text{C}$	-----	8.9	-----	V
			$T_a = 0^\circ\text{C}$	-----	8.7	-----	V
			$T_a = 25^\circ\text{C}$	-----	8.5	-----	V
			$T_a = 50^\circ\text{C}$	-----	8.3	-----	V
			$T_a = 70^\circ\text{C}$	-----	8.1	-----	V
POWER SUPPLY CURRENT FOR LED	I_{LED}	NOTE(6)	-----	NOTE(6)	NOTE(6)	mA	

NOTE(1): APPLIED TO TERMINALS DB0~DB7

(2): APPLIED TO TERMINALS $\overline{D/I}$, $\overline{R/W}$, E, DB0~DB7, CS1, CS2, \overline{RST}

(3): THE DISPLAY PATTERN IS ALL "ON", OR ALL "OFF"

(4): RECOMMENDED LCD DRIVING VOLTAGE MAY FLUCTUATE ABOUT $\pm 0.5\text{V}$ BY EACH MODULE.

(5): $\theta = 0^\circ$: VIEWING DIRECTION AT 6 O'CLOCK

$\theta = 180^\circ$: VIEWING DIRECTION AT 12 O'CLOCK

(6): LED CURRENT FOR DIFFERENT LED BACKLIGHT TYPE

LED B.L TYPE	CONDITION	I_{LED}				LED COLOR
		MIN.	TYP.	MAX.	UNIT.	
LED B.L (ARRAY)	$V_{LED} = 5.0\text{V}$	-----	250	375	mA	YELLOW-GREEN、AMBER、ORANGE、RED
LED B.L (EDGE)	$V_{LED} = 4.0\text{V}$	-----	75	100	mA	BLUE、WHITE、PURE-GREEN



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Optical characteristics

STN TYPE LCD

$T_a = 25^{\circ}\text{C}$ $V_{DD}-V_O = 8.5\text{V}$

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	NOTE
VIEWING ANGLE	$\Phi 2-\Phi 1$	K = 2.0 NOTE(1)	30	40	----	deg.	NOTE(2)
CONTRAST RATIO	K	$\Phi = 10^{\circ}$ NOTE(1)	3.0	4.0	----	----	NOTE(2)
RESPONSE TIME	tr (rise)	$\Phi = 10^{\circ}$ NOTE(1)	----	200	350	ms	NOTE(2)
	tf (fall)	$\Phi = 10^{\circ}$ NOTE(1)	----	300	400	ms	NOTE(2)

FSTN、STN BLUE TYPE LCD

$T_a = 25^{\circ}\text{C}$ $V_{DD}-V_O = 8.5\text{V}$

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	NOTE
VIEWING ANGLE	$\Phi 2-\Phi 1$	K = 2.0 NOTE(1)	30	40	----	deg.	NOTE(2)
CONTRAST RATIO	K	$\Phi = 10^{\circ}$ NOTE(1)	4.0	5.0	----	----	NOTE(2)
RESPONSE TIME	tr (rise)	$\Phi = 10^{\circ}$ NOTE(1)	----	200	350	ms	NOTE(2)
	tf (fall)	$\Phi = 10^{\circ}$ NOTE(1)	----	300	400	ms	NOTE(2)

Brightness for LCM backlight

SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	LED TYPE	NOTE
B	$\Phi = 0^{\circ}$ $\theta = 0^{\circ}$	5.0	----	----	cd/m ²	YELLOW-GREEN、RED AMBER、ORANGE	NOTE(2)
		6.0	----	----		BLUE、WHITE、 PURE-GREEN	NOTE(3)

NOTE (1): $\theta = 0^{\circ}$: VIEWING DIRECTION AT 6 O'CLOCK

$\theta = 180^{\circ}$: VIEWING DIRECTION AT 12 O'CLOCK

NOTE (2): SEE CUSTOMER ACCEPTANCE STANDARD SPECIFICATION FOR DEFINITION OF OPTICAL CHARACTERISTICS.

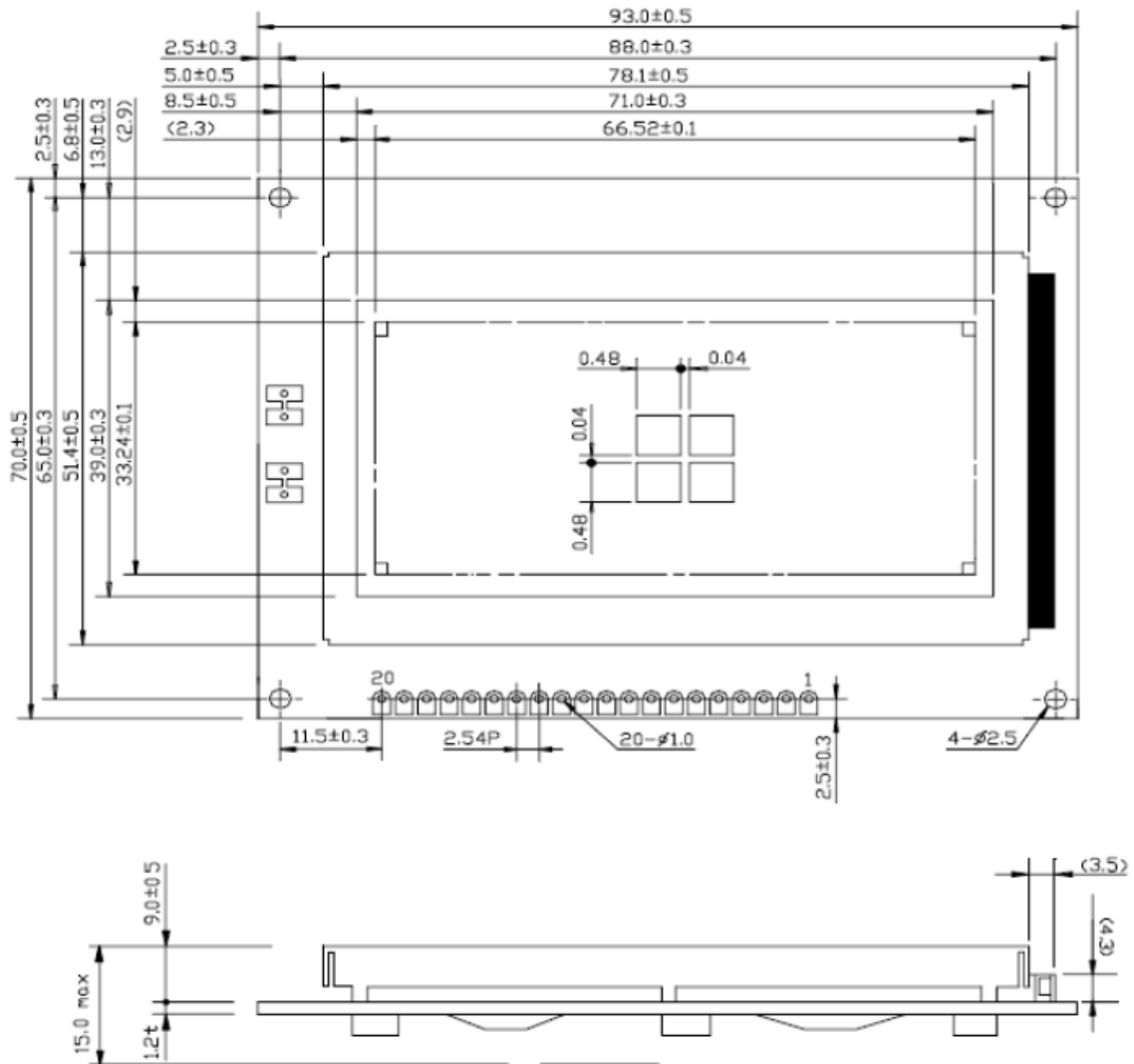
NOTE (3): UNDER NORMAL TEMPERATURE AND HUMIDITY IN A DARK ROOM.



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Dimensional outline

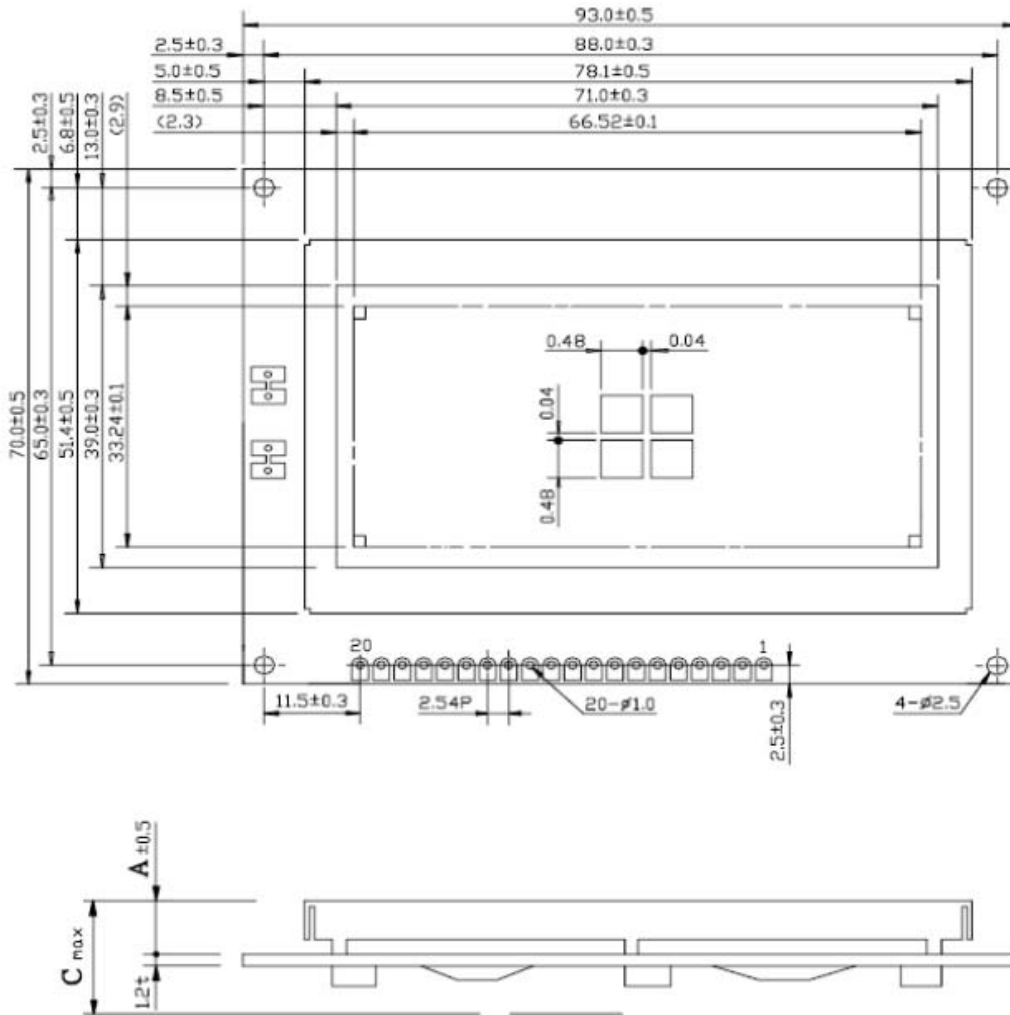
.1EDGE LED Outline dimension





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2.ARRAY LED and NO BLACKLIGHT Outline dimension



TYPE	A	C
LED B.L	9.0	15.0
NO B.L	5.0	10.0

NOTE :
 1.UNIT : mm
 2.SCALE : NTS



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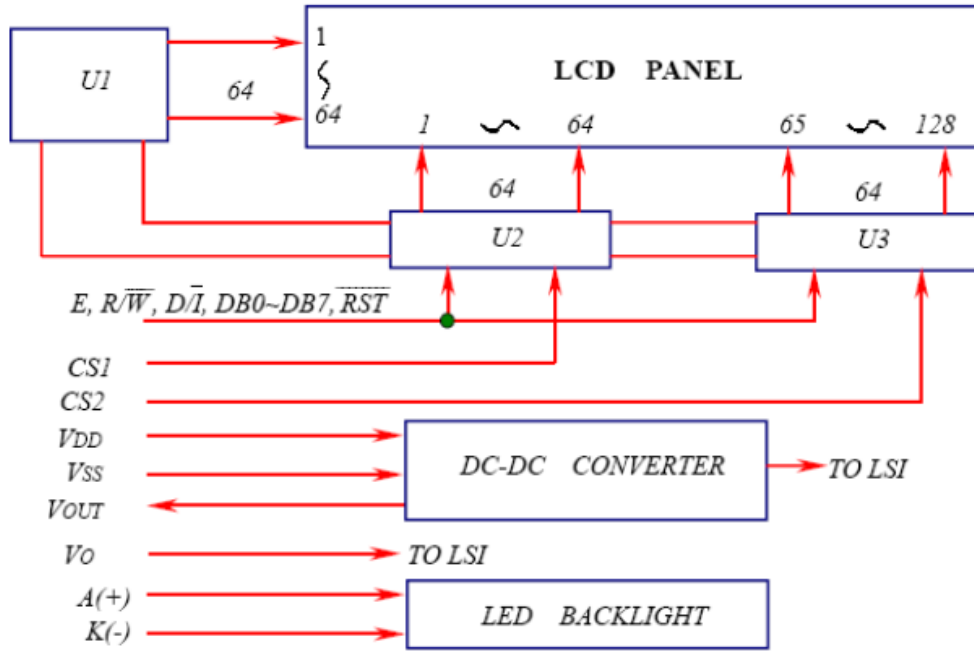
Interface pin connection

PIN NO.	SYMBOL	FUNCTION
1	VSS	GROUND
2	VDD	POWER SUPPLY FOR LOGIC
3	Vo	OPERATING VOLTAGE FOR LCD DRIVING
4	D/ \bar{T}	H: DATA INPUT L: INSTRUCTION CODE INPUT
5	R/ \bar{W}	H: DATA READ (LCD MODULE → MPU) L: DATA WRITE (LCD MODULE ← MPU)
6	E	ENABLE SIGNAL
7	DB0	DATA INPUT/OUTPUT (LSB)
8	DB1	DATA INPUT/OUTPUT
9	DB2	DATA INPUT/OUTPUT
10	DB3	DATA INPUT/OUTPUT
11	DB4	DATA INPUT/OUTPUT
12	DB5	DATA INPUT/OUTPUT
13	DB6	DATA INPUT/OUTPUT
14	DB7	DATA INPUT/OUTPUT (MSB)
15	CS1	H: CHIP SELECTION FOR IC1
16	CS2	H: CHIP SELECTION FOR IC2
17	\bar{RST}	L: RESET
18	VOUT	POWER SUPPLY FOR LCD DRIVING
19	A(+)	POWER SUPPLY FOR LED (+)
20	K(-)	POWER SUPPLY FOR LED (-)

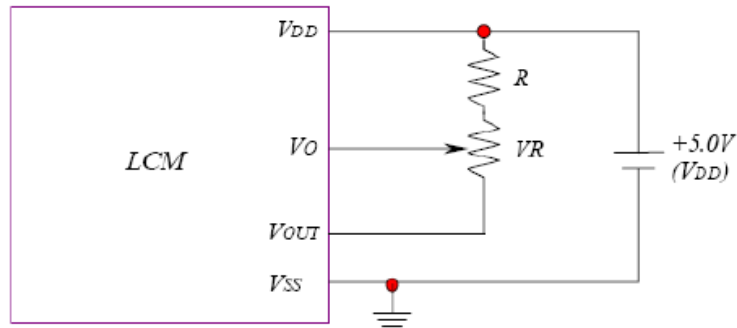


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Block diagram



Power supply for LCM

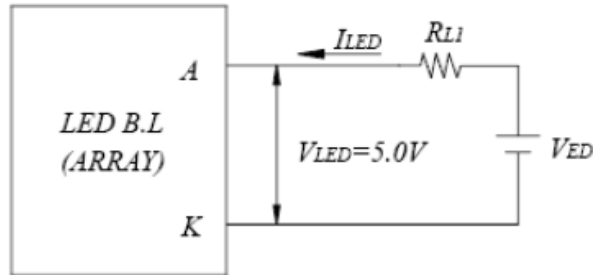


RECOMMENDED RESISTOR R: $V_{DD} - V_O \geq 1.5V$
 $V_{DD} - V_O$: LCD DRIVING VOLTAGE
 VR: $10K\Omega \sim 20K\Omega$

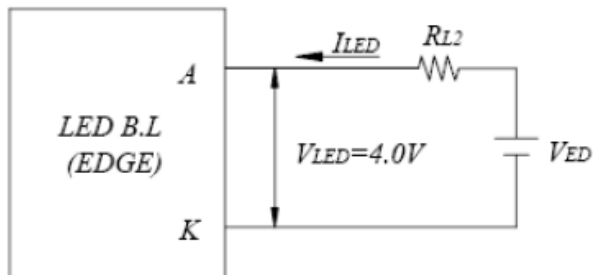


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Power supply for LED Backlight



$$RL1 \geq (V_{ED} - V_{LED}) / I_{LED} \quad , \quad I_{LED} \leq 375.0 \text{ mA (max)}$$



$$RL2 \geq (V_{ED} - V_{LED}) / I_{LED} \quad , \quad I_{LED} \leq 100.0 \text{ mA (max)}$$

The information presented in this datasheet has been carefully checked and is believed to be accurate; however, no responsibility is assumed for inaccuracies. Information contained herein is for selection purposes only, and is subject to change without notice. Please contact ASI for current datasheets prior to designing.