



ALL SHORE INDUSTRIES, INC.

SPECIFICATION FOR LIQUID CRYSTAL DISPLAY MODULE

MODULE #: ASI-E-242AS-GC-_S-/W

(1)	NUMBER OF CHARACTER	-----	24 CH X 2 LINES
(2)	MODULE SIZE	-----	118.0W X 36.0H X 10.0D (max.) mm
(3)	EFFECTIVE AREA	-----	96.0W X 19.8H mm
(4)	CHARACTER FONT	-----	5 X 7 DOTS + CURSOR
(5)	CHARACTER SIZE	-----	3.20W X 4.855H mm
(6)	CHARACTER PITCH	-----	3.70 mm
(7)	DOT SIZE	-----	0.60W X 0.65H mm
(8)	DOT PITCH	-----	0.70W X 0.65H mm
(9)	LCD TYPE	-----	STN GRAY, YELLOW
(10)	DRIVING METHOD	-----	1 / 16 DUTY MULTIPLEX DRIVE
(11)	VIEWING DIRECTION	-----	6 or 12 O'CLOCK
(12)	BACK - LIGHT	-----	NONE



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RECORDS OF REVISION		DOC . FIRST ISSUE JUNE 19, 2003
DATE	REVISED DRAWING NO.	SUMMARY



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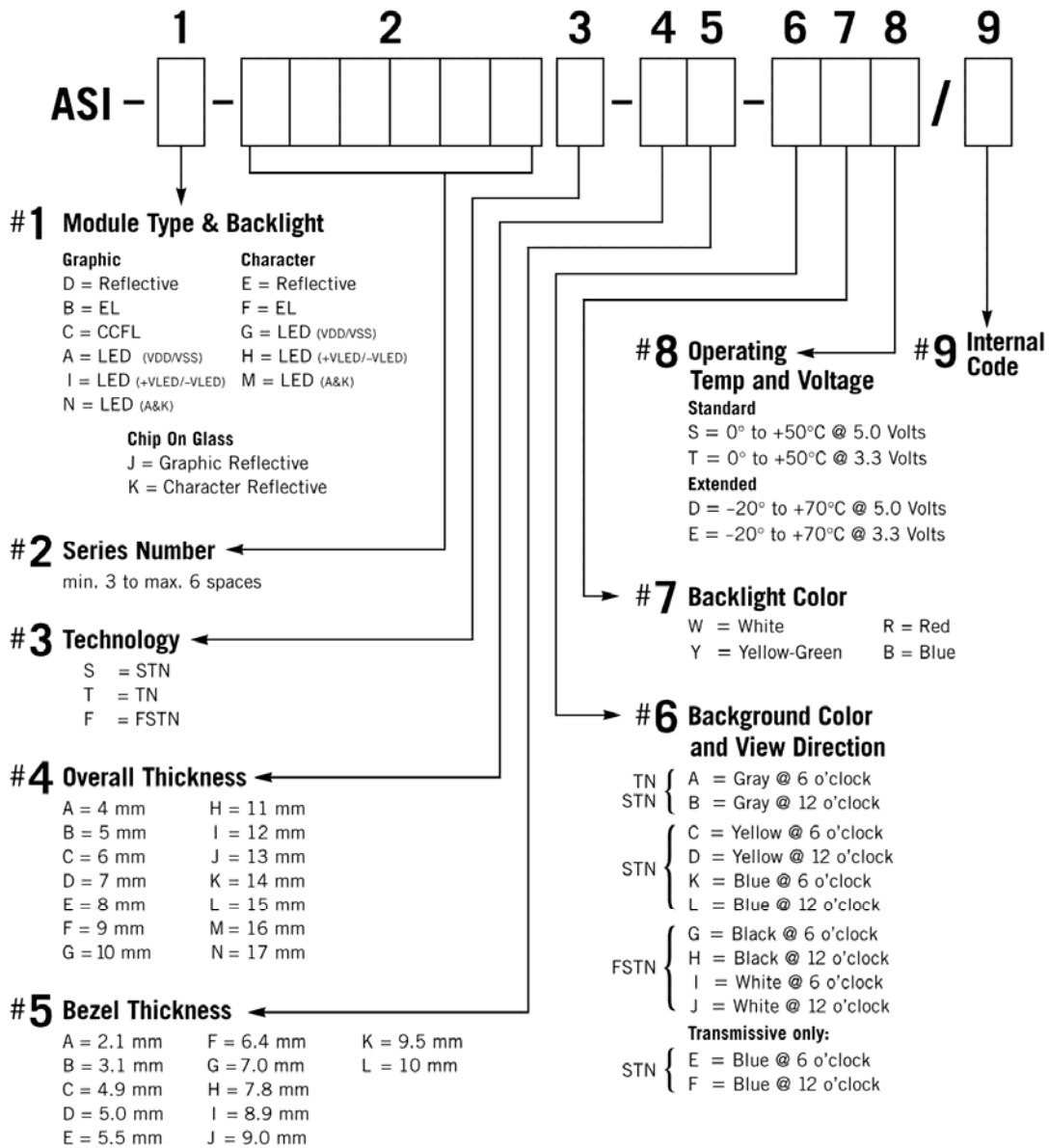
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LCD MODULE PART NUMBERING SYSTEM



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



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1. GENERAL SPECIFICATIONS

1.1 GENERAL SPECIFICATIONS

PLEASE REFER TO :

CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS :

AS - 002A

1.2 APPLICATION NOTES FOR CONTROLLER / DRIVER : SED1278

PLEASE REFER TO :

CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS :

AS- SED1278

1.3 THIS INDIVIDUAL SPECIFICATIONS IS PRIOR TO GENERAL SPECIFICATIONS .

2. MECHANICAL SPECIFICATIONS

(1) NUMBER OF CHARACTER	-----	24 CH X 2 LINES
(2) MODULE SIZE	-----	118.0W X 36.0H X 10.0D (max.) mm
(3) EFFECTIVE AREA	-----	96.0W X 19.8H mm
(4) CHARACTER FONT	-----	5 X 7 DOTS + CURSOR
(5) CHARACTER SIZE	-----	3.20W X 4.855H mm
(6) CHARACTER PITCH	-----	3.70 mm
(7) DOT SIZE	-----	0.60W X 0.65H mm
(8) DOT PITCH	-----	0.70W X 0.65H mm
(9) LCD TYPE	-----	STN GRAY, YELLOW
(10) DRIVING METHOD	-----	1 / 16 DUTY MULTIPLEX DRIVE
(11) VIEWING DIRECTION	-----	6 or 12 O'CLOCK
(12) BACK - LIGHT	-----	NONE
(13) CONTROLLER	-----	SED1278



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3. Absolute maximum ratings

3.1 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)

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

3.2 Environmental absolute maximum ratings

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

NOTE (2): Ta ≤ 50°C: 90% RH MAX.

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

NOTE (3): 1G = 9.8 m/s²



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4. Electrical characteristics

$T_a = 25$ $V_{DD} = 5.0 \pm 0.25$ V

<i>I T E M</i>	<i>SYMBOL</i>	<i>CONDITION</i>	<i>MIN.</i>	<i>TYP.</i>	<i>MAX.</i>	<i>UNIT</i>
INPUT VOLTAGE	V _{IH}		2.0			V
	V _{IL}				0.8	V
OUTPUT VOLTAGE	V _{OH}	-I _{OH} = 0.2 mA	2.4			V
	V _{OL}	I _{OL} = 1.6 mA			0.4	V
POWER SUPPLY CURRENT	I _{DD}	V _{DD} = 5.0V		1.8	3.0	mA
RECOMMENDED LCD DRIVING VOLTAGE	V _{DD-VO} DUTY= 1/16 $\Phi=25^\circ$	T _a = 0°		4.9		V
		T _a = 25°		4.5		V
		T _a = 50°		4.1		V

NOTE (1): RECOMMENDED LCD DRIVING VOLTAGE MAY FLUCTUATE ABOUT ± 0.5 V BY EACH MODULE.

5. Optical characteristics

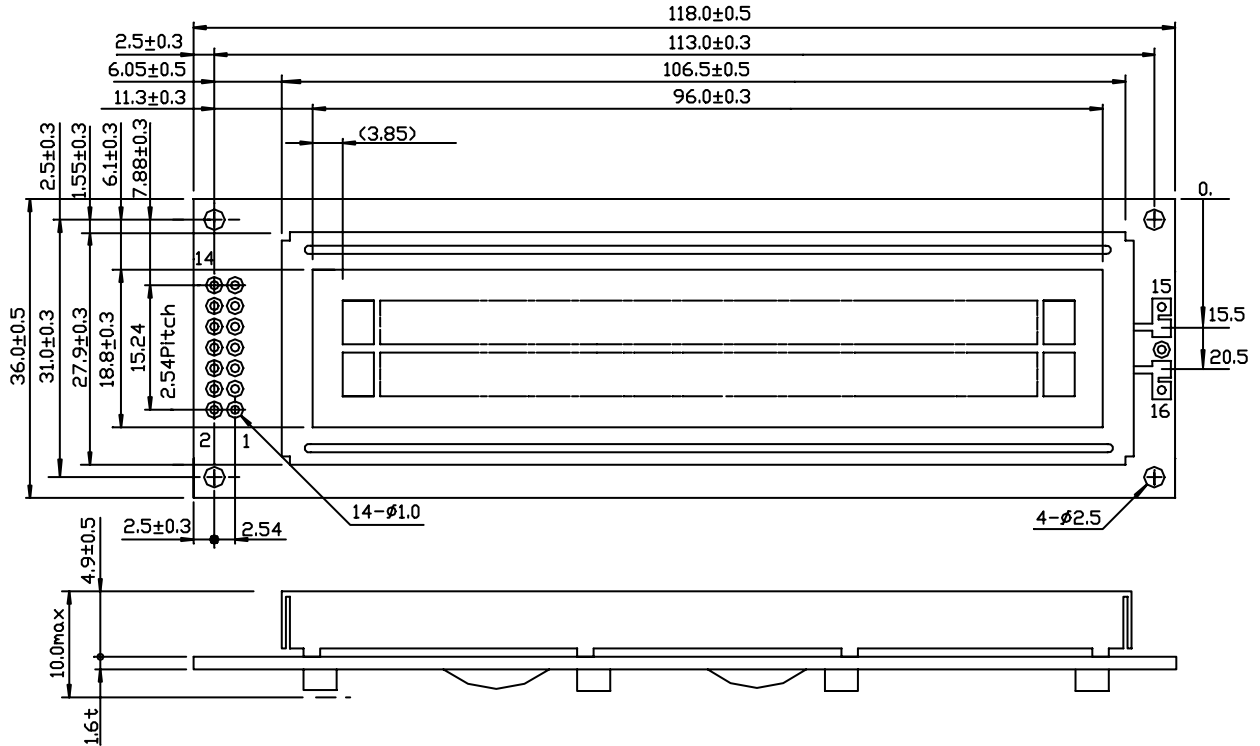
$T_a = 25^\circ$ $V_{DD} = 5.0$ V

<i>I T E M</i>	<i>SYMBOL</i>	<i>CONDITION</i>	<i>MIN.</i>	<i>TYP.</i>	<i>MAX.</i>	<i>UNIT</i>	<i>NOTE</i>
VIEWING ANGLE	$\Phi_2 - \Phi_1$	K = 2.0 $\theta = 0^\circ$	30	40	-----	deg.	1
CONTRAST RATIO	K	$\Phi = 10^\circ$ $\theta = 0^\circ$	3	4	-----	-----	1
RESPONSE TIME	t _r (rise)	$\Phi = 10^\circ$ $\theta = 0^\circ$	-----	200	350	ms	1
	t _f (fall)	$\Phi = 10^\circ$ $\theta = 0^\circ$	-----	300	400	ms	1

NOTE (1): SEE CUSTOMER ACCEPTANCE STANDARD SPECIFICATION FOR DEFINITION OF OPTICAL CHARACTERISTICS.

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6. Outline Dimensions

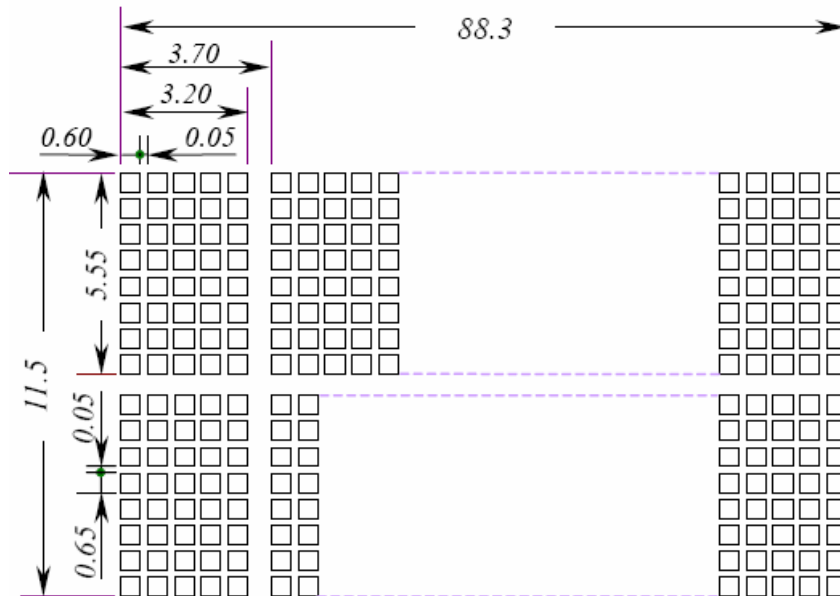


Interface pin connection

PIN NO.	1	2	3	4	5	6	7	8
SYMBOL	V _{SS}	V _{DD}	V _O	RS	R/ \bar{W}	E	DB0	DB1
PIN NO.	9	10	11	12	13	14	15	16
SYMBOL	DB2	DB3	DB4	DB5	DB6	DB7	NC	NC

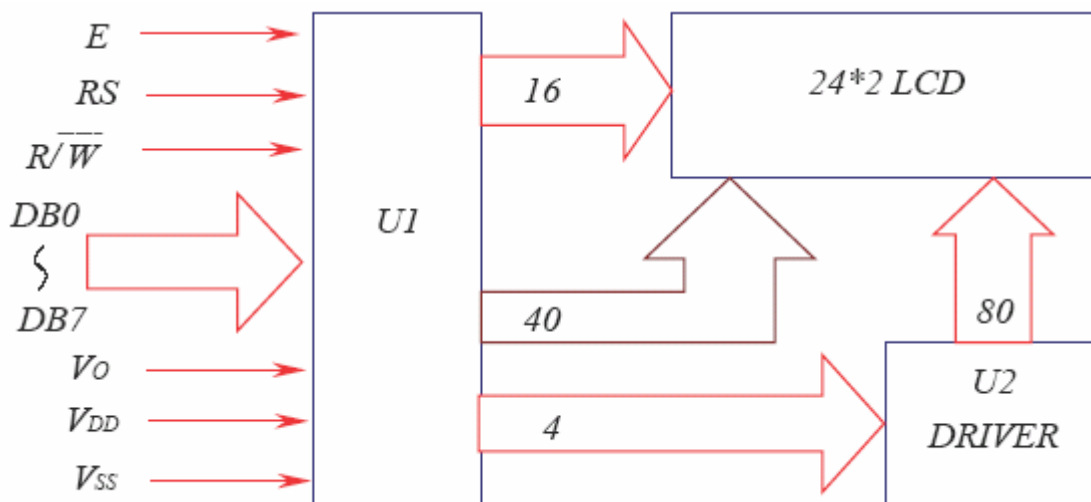
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6. Detail Drawing of Dot Matrix



UNIT : mm
SCALE : NTS

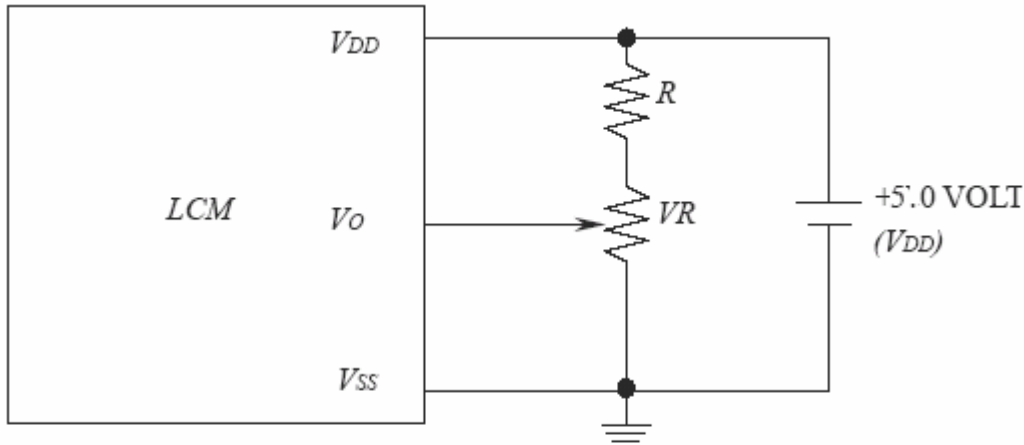
8. Block Diagram





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9. Power Supply



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

10. Display Data Address Charts

Display data address charts

Character	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
LINE 1	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13
LINE 2	40	41	42	43	44	45	46	47	48	49	4A	4B	4C	4D	4E	4F	50	51	52	53
	21	22	23	24																
LINE 1	14	15	16	17																
LINE 2	54	55	56	57																