



ALL SHORE INDUSTRIES, INC.

SPECIFICATION FOR LIQUID CRYSTAL DISPLAY MODULE

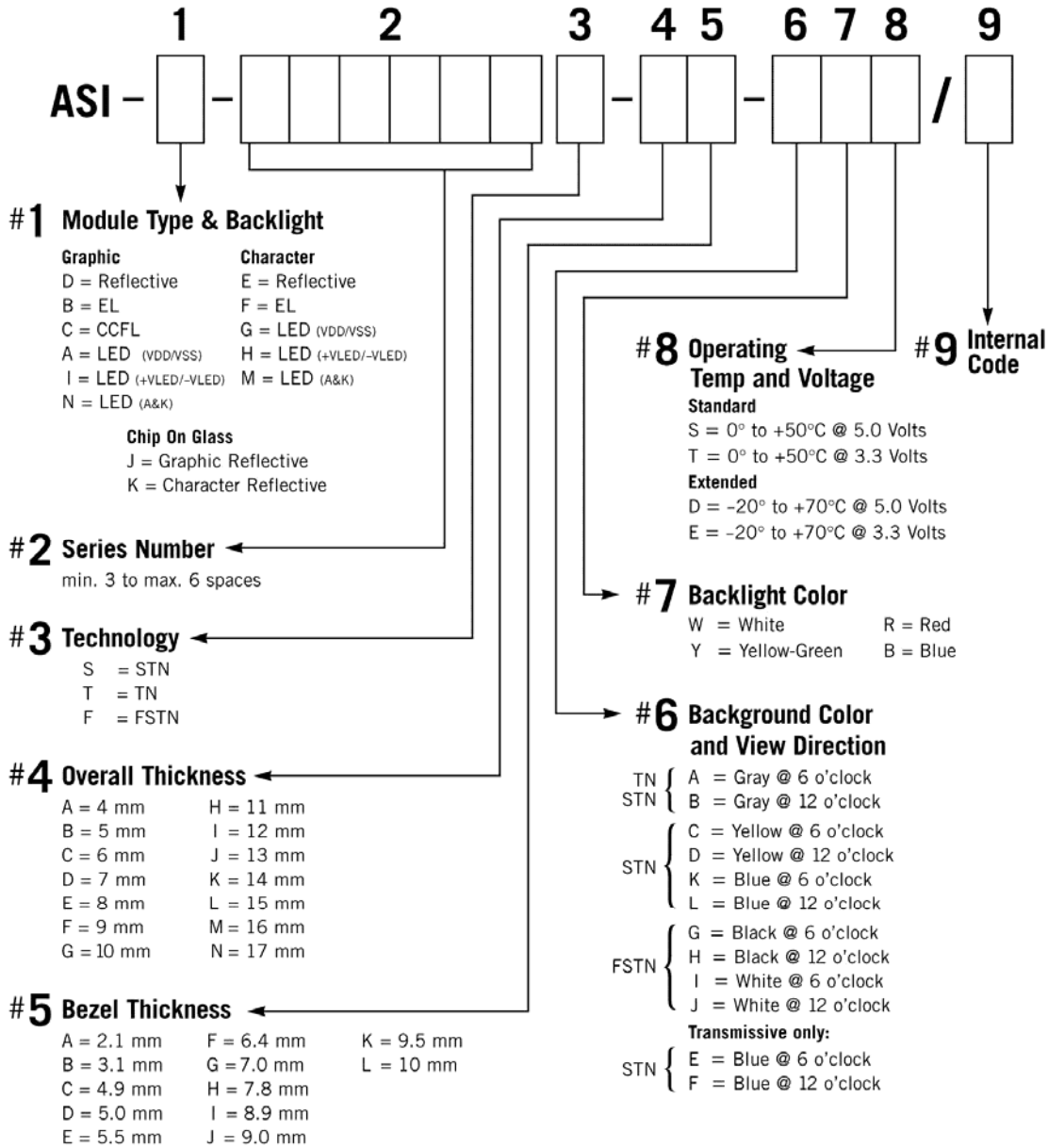
MODULE # : ASI-G-242AS-LK-_YS/W

- (1) NUMBER OF CHARACTERS-----24 CH * 2 LINE
- (2) MODULE SIZE -----118.0 W * 36.0 H * 10.0 T (Max) mm
- (3) EFFECTIVE AREA -----96.0 W * 18.8 H mm
- (4) CHARACTER PATTERN -----5 * 7 DOTS + CURSOR
- (5) CHARACTER SIZE-----3.20 W * 4.85 H mm
- (6) CHARACTER PITCH-----3.70 mm
- (7) DOT SIZE-----0.60 W * 0.65 H mm
- (8) DOT PITCH -----0.70 W * 0.65 H mm



MODEL NO : ASI-G-242AS-LK-_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-G-242AS-LK-_YS-/W

1. GENERAL SPECIFICATIONS

1.1 GENERAL SPECIFICATIONS

PLEASE REFER TO :

CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS :

1.2 APPLICATION NOTES FOR CONTROLLER / DRIVER :

PLEASE REFER TO :

CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS :

1.3 THIS INDIVIDUAL SPECIFICATIONS IS PRIOR TO GENERAL SPECIFICATIONS .

2. MECHANICAL SPECIFICATIONS

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Absolute maximum ratings

5.1 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-VSS}	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}	5.5V	YELLOW-GREEN,AMBER,ORANGE,RED
	5.0V	BLUE,PURE GREEN,WHITE

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 (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): 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 (3): 1G = 9.8 m/s²


MODEL NO : ASI-G-242AS-LK-_YS-/W
Electrical characteristics

$T_a = 25^{\circ}\text{C} \quad V_{DD} = 5.0 \pm 0.25 \text{ V}$

<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}	-----	2.2	-----	-----	V	
	V_{IL}	-----	-----	-----	0.6	V	
OUTPUT VOLTAGE	V_{OH}	$-I_{OH} = 0.2 \text{ mA}$	2.4	-----	-----	V	
	V_{OL}	$I_{OL} = 1.6 \text{ mA}$	-----	-----	0.4	V	
POWER SUPPLY CURRENT	I_{DD}	$V_{DD} = 5.0 \text{ V}$	-----	1.8	3.0	mA	
RECOMMENDED LCD DRIVING VOLTAGE, NOTE(1)	$V_{DD}-V_O$	STN/ FSTN DUTY =1/16 $\Phi=10^{\circ}$ NOTE(2)	$T_a = -20^{\circ}\text{C}$	-----	4.8	-----	V
			$T_a = 0^{\circ}\text{C}$	-----	4.7	-----	V
			$T_a = 25^{\circ}\text{C}$	-----	4.5	-----	V
			$T_a = 50^{\circ}\text{C}$	-----	4.3	-----	V
			$T_a = 70^{\circ}\text{C}$	-----	4.2	-----	V
		TN DUTY =1/16 $\Phi=25^{\circ}$ NOTE(2)	$T_a = -20^{\circ}\text{C}$	-----	4.5	-----	V
			$T_a = 0^{\circ}\text{C}$	-----	4.4	-----	V
			$T_a = 25^{\circ}\text{C}$	-----	4.2	-----	V
			$T_a = 50^{\circ}\text{C}$	-----	4.0	-----	V
			$T_a = 70^{\circ}\text{C}$	-----	3.9	-----	V
POWER SUPPLY CURRENT FOR LED	I_{LED}	NOTE(3)	-----	NOTE(3)	NOTE(3)	mA	

NOTE (1): RECOMMENDED LCD DRIVING VOLTAGE MAY FLUCTUATE ABOUT $\pm 0.5 \text{ V}$ BY EACH MODULE.

- (2): $\theta = 0^{\circ}$: VIEWING DIRECTION AT 6 O'CLOCK
 $\theta = 180^{\circ}$: VIEWING DIRECTION AT 12 O'CLOCK

(3): LED CURRENT OF DEFFERENT LED TYPE

<i>LED B.L TYPE</i>	V_{LED}	I_{LED}				<i>LED COLOR</i>
		<i>MIN.</i>	<i>TYP.</i>	<i>MAX.</i>	<i>UNIT.</i>	
A	4.8V	-----	30	40	mA	YELLOW-GREEN、AMBER、ORANGE、RED
B	4.0V	-----	30	40	mA	BLUE、WHITE、PURE GREEN



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Optical characteristics

TN TYPE LCD

$$T_a = 25\text{ }^{\circ}\text{C} \quad V_{DD}-V_O = 4.2V$$

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	NOTE
VIEWING ANGLE	$\Phi 2-\Phi 1$	K = 1.4 NOTE(1)	20	30	----	deg.	NOTE(2)
CONTRAST RATIO	K	$\Phi = 25^{\circ}$ NOTE(1)	2.0	3.0	----	----	NOTE(2)
RESPONSE TIME	tr (rise)	$\Phi = 25^{\circ}$ NOTE(1)	----	150	250	ms	NOTE(2)
	tf (fall)	$\Phi = 25^{\circ}$ NOTE(1)	----	150	250	ms	NOTE(2)

STN TYPE LCD

$$T_a = 25\text{ }^{\circ}\text{C} \quad V_{DD}-V_O = 4.5V$$

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

$$T_a = 25\text{ }^{\circ}\text{C} \quad V_{DD}-V_O = 4.5V$$

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 LED 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)

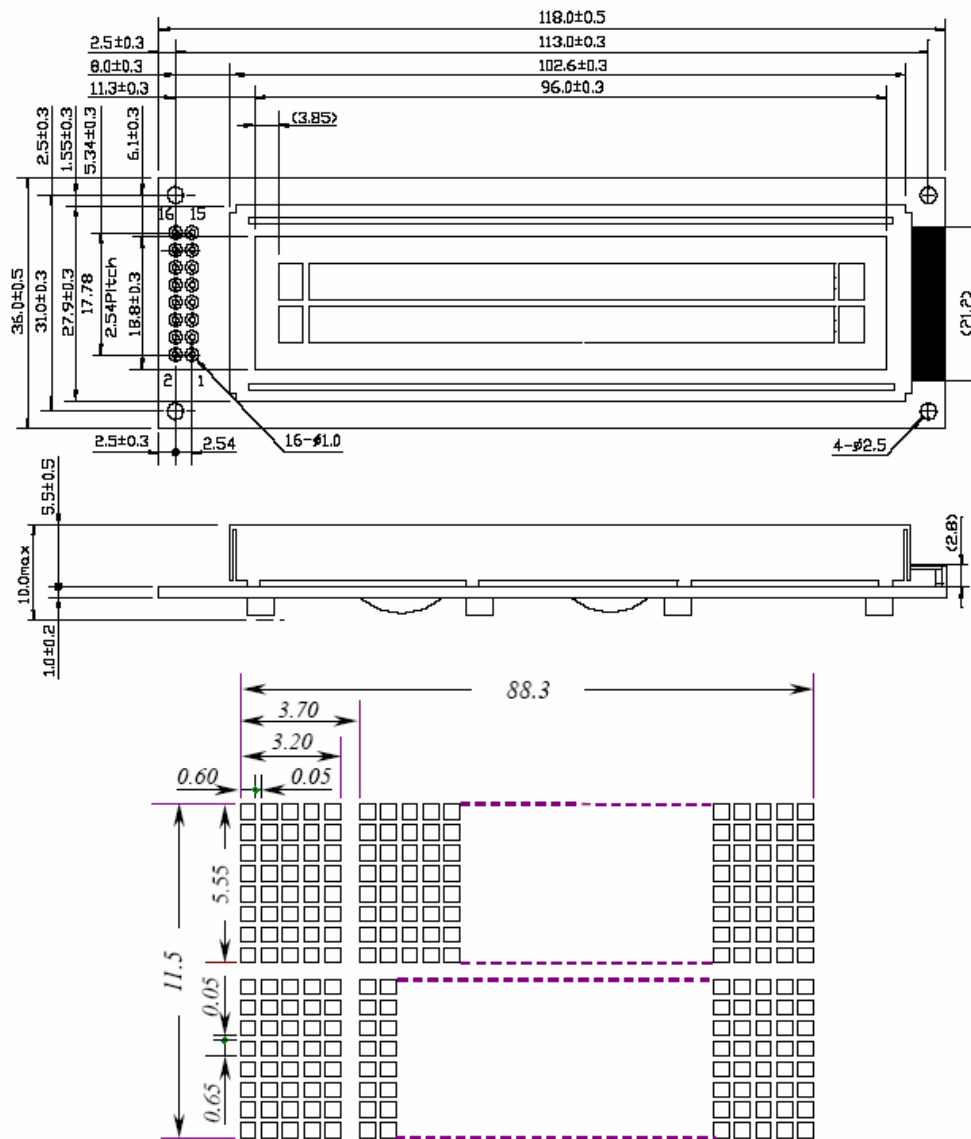
NOTE (1): $\theta = 0^{\circ}$: VIEWING DIRECTION AT 6 O'CLOCK
 $\theta = 180^{\circ}$: VIEWING DIRECTION AT 12 O'CLOCK

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

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

MODEL NO : ASI-G-242AS-LK-_YS-/W

Outline dimension



UNIT:mm
SCALE:NTS

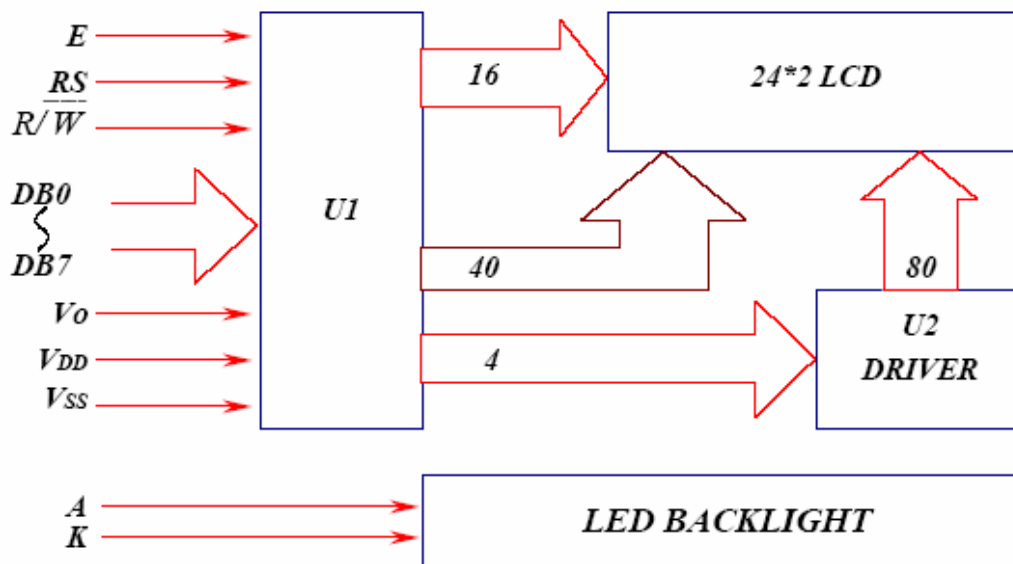
Interface pin connection

<i>PIN NO.</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
SYMBOL	V _{SS}	V _{DD}	V _o	RS	R/ \bar{W}	E	DB0	DB1
<i>PIN NO.</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>	<i>13</i>	<i>14</i>	<i>15</i>	<i>16</i>
SYMBOL	DB2	DB3	DB4	DB5	DB6	DB7	A(+)	K(-)



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Block diagram

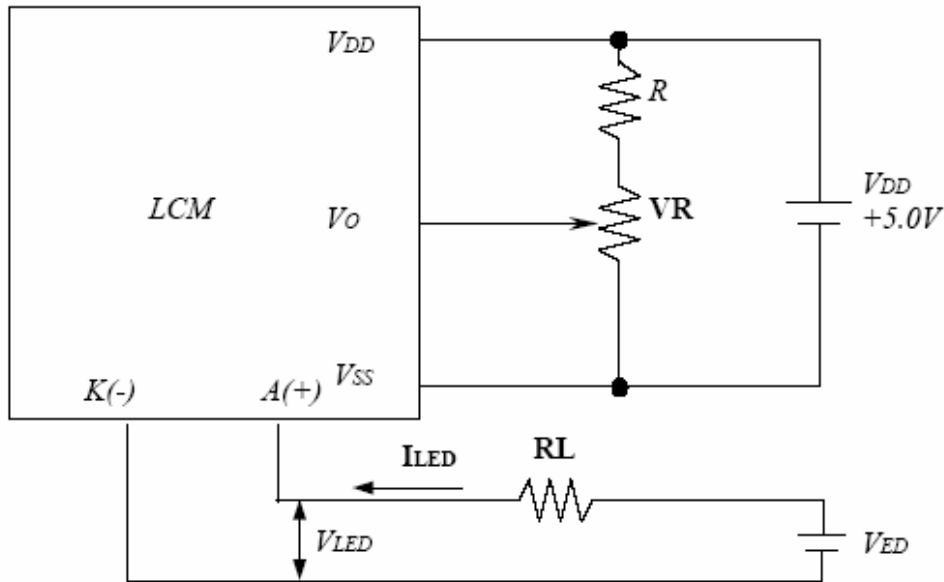


Display data address charts

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																

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Power supply for LCM



Power supply for backlight

<i>LED B.L TYPE</i>	<i>CONDITION</i>
A	$RL \geq ((V_{ED} - 4.8V) / I_{LED}) , I_{LED} \leq 40mA$
B	$RL \geq ((V_{ED} - 4.0V) / I_{LED}) , I_{LED} \leq 40mA$

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.