



ALL SHORE INDUSTRIES, INC.

SPECIFICATION FOR LIQUID CRYSTAL DISPLAY MODULE

MODULE # : ASI-G-404AS-LK-_YS/W

- (1) NUMBER OF CHARACTERS-----40 CH * 4 LINE
- (2) MODULE SIZE -----190.0 W * 54.0 H * 15.0 T (Max) mm
- (3) EFFECTIVE AREA-----149.0 W * 31.0 H mm
- (4) CHARACTER PATTERN-----5 * 7 DOTS + CURSOR
- (5) CHARACTER SIZE -----2.78 W * 4.27 H mm
- (6) CHARACTER PITCH-----3.53 W * 5.49 H mm
- (7) DOT SIZE -----0.50 W * 0.55 H mm
- (8) DOT PITCH-----0.57 W * 0.62 H mm
- (9) VIEWING DIRECTION -----6 or 12 O'CLOCK
- (10) LCD TYPE -----STN. YELLOW, GRAY, BLUE
- (11) LED COLOR -----YELLOW, RED



MODEL NO : ASI-G-404AS-LK-_YS/W

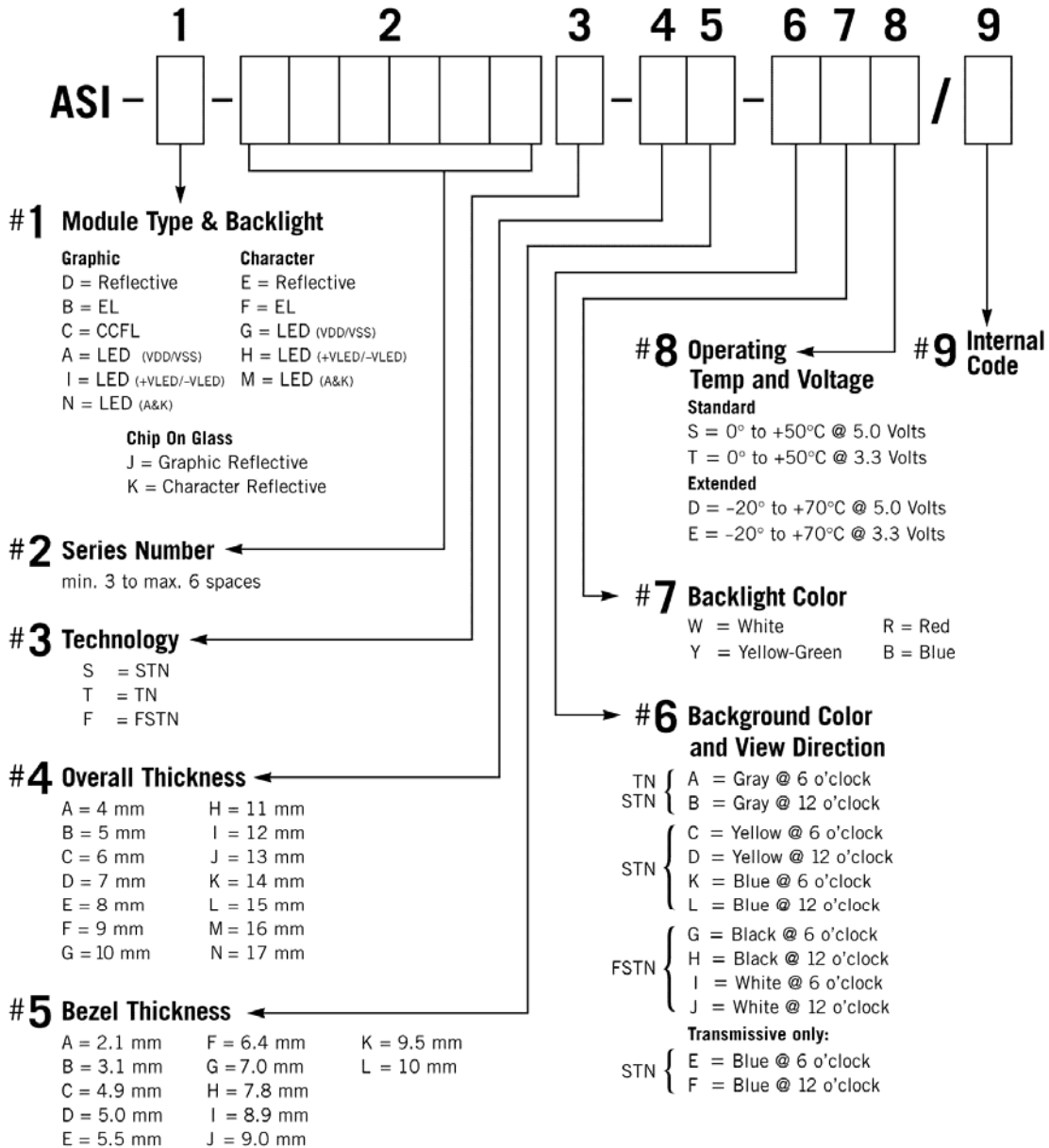
RECORD OF REVISION

DATE	PAGE	SUMMARY



MODEL NO : ASI-G-404AS-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.



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3. General specifications

3.1 General specifications

PLEASE REFER TO:

“CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS (MS-10-12780)”.

3.2 This individual specification is prior to general specifications

4. Mechanical data

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5. 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} -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.

5.2 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°	50°	-20°	70°	
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°: 90% RH MAX.

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

NOTE (3): 1G = 9.8 m/s²



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6. Electrical characteristics

$$T_a = 25^\circ \text{ V}_{DD} = 5.0 \pm 0.25 \text{ V}$$

<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}	—————	2.0	—————	—————	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} = 5.0 V	—————	2.5	3.5	mA
RECOMMENDED LCD DRIVING VOLTAGE	V _{DD-V_O} DUTY= 1/16	T _a = 0°	—————	4.9	—————	V
		T _a = 25°	—————	4.5	—————	V
		T _a = 50°	—————	4.1	—————	V
POWER SUPPLY CURRENT FOR LED	I _{LED}	V _{DD} = 5.0V	—————	320	450	mA

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

7. Optical characteristics

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

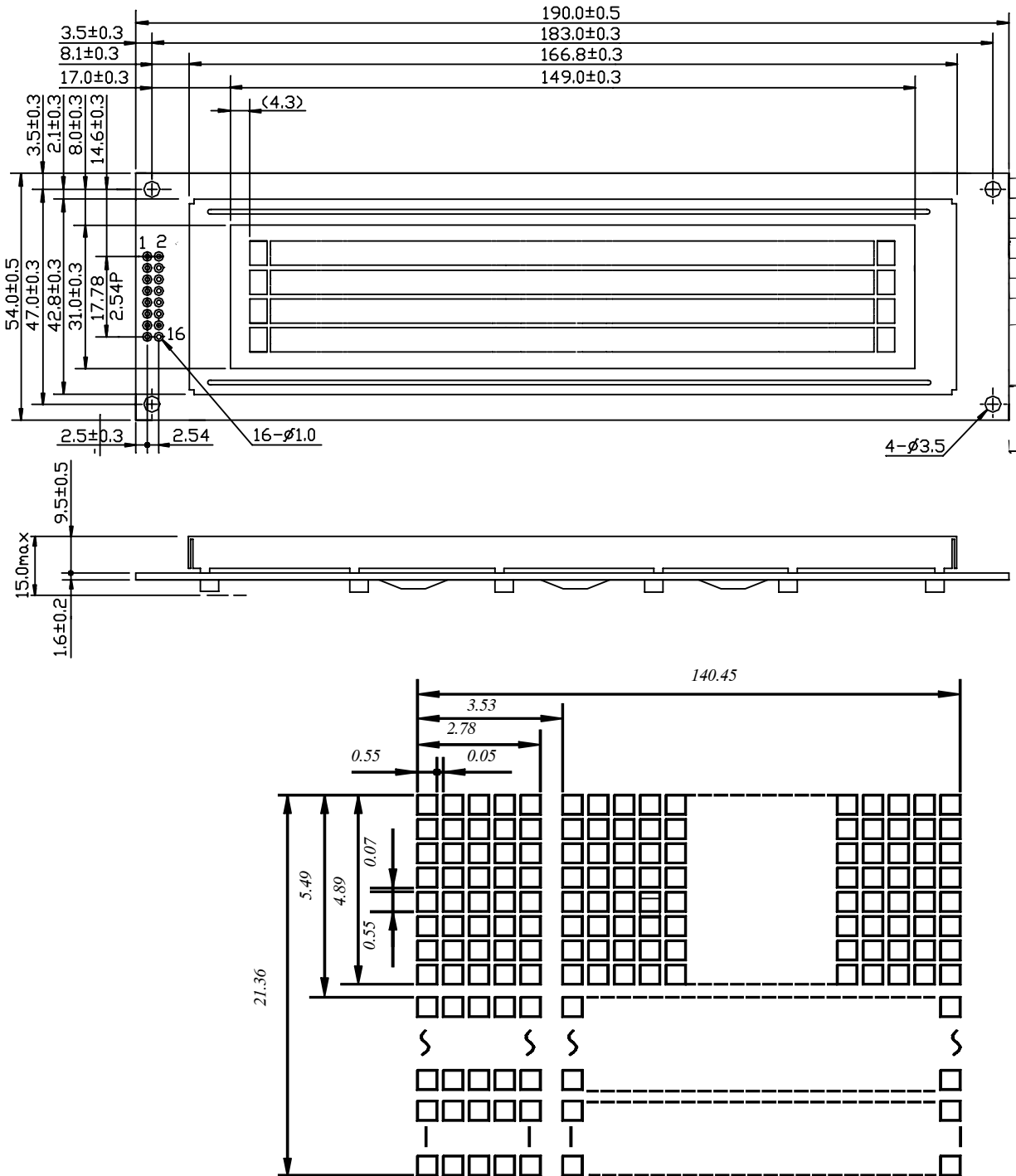
<i>I T E M</i>	<i>SYMBOL</i>	<i>CONDITION</i>	<i>MIN.</i>	<i>TYP.</i>	<i>MAX.</i>	<i>UNIT</i>	<i>NOTE</i>
VIEWING ANGLE	$\phi_2 - \phi_1$	K = 2.0	30	40	—————	deg.	2
CONTRAST RATIO	K	$\phi = 10^\circ; \theta = 0^\circ$	3.0	4.0	—————	—————	2
RESPONSE TIME	t _r (rise)	$\phi = 10^\circ; \theta = 0^\circ$	—————	200	350	ms	2
	t _f (fall)	$\phi = 10^\circ; \theta = 0^\circ$	—————	300	400	ms	2
BRIGHTNESS FOR LED BACKLIGHT	B	$\phi = 10^\circ; \theta = 0^\circ$	5.0	—————	—————	cd/m ²	2,3

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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8. Outline dimension

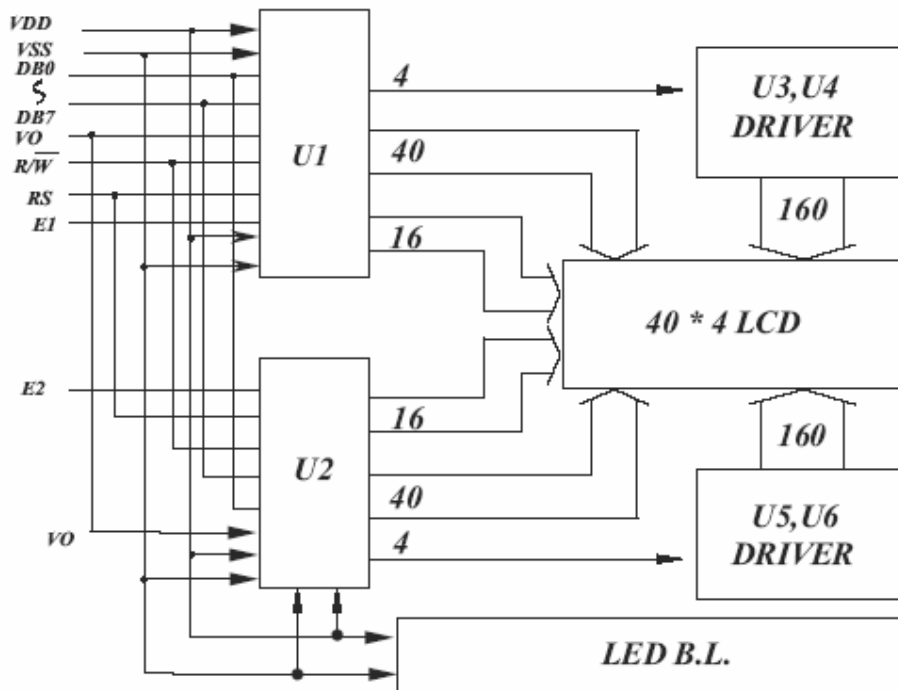


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Interface pin connection

<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	DB7	DB6	DB5	DB4	DB3	DB2	DB1	DB0
<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	E1	R/ \bar{W}	RS	V ₀	V _{SS}	V _{CC}	E2	NC

9 Block diagram

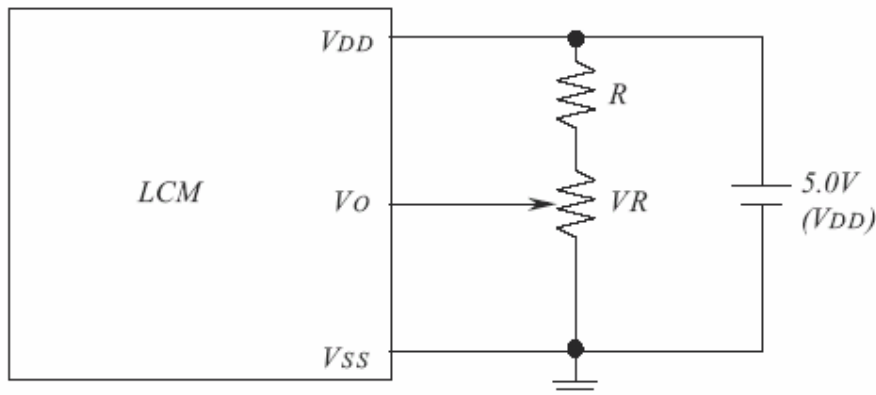


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Display data address charts

Character	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
LINE1	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F	30	31	32	33	34	35	36	37
LINE2	40	41	42	43	44	45	46	47	48	49	4A	4B	4C	4D	4E	4F	50	51	52	53	54	55	56	57	58	59	5A	5B	5C	5D	5E	5F	60	61	62	63	64	65	66	67
LINE3	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F	30	31	32	33	34	35	36	37
LINE4	40	41	42	43	44	45	46	47	48	49	4A	4B	4C	4D	4E	4F	50	51	52	53	54	55	56	57	58	59	5A	5B	5C	5D	5E	5F	60	61	62	63	64	65	66	67

10. Power supply for LCM



RECOMMENDED RESISTOR R: $V_{DD} - V_O \geq 1.5V$

$V_{DD} - V_O$: LCD DRIVING VOLTAGE

VR: 10K Ω ~20K

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.