



# ALL SHORE INDUSTRIES, INC.

## SPECIFICATION FOR LIQUID CRYSTAL DISPLAY MODULE

**MODULE # : ASI\_-204AAS-LJ-\_WS/W**

- (1) NUMBER OF CHARACTERS ----- 20 CH \* 4 LINE
- (2) MODULE SIZE ----- 98.0 W \* 60.0 H \* 15.0 T (Max) mm
- (3) EFFECTIVE AREA ----- 76.0 W \* 25.2 H mm
- (4) CHARACTER PATTERN ----- 5\*7 DOTS + CURSOR
- (5) CHARACTER SIZE ----- 2.95 W \* 4.15 H mm
- (6) CHARACTER PITCH ----- 3.55 mm
- (7) DOT SIZE ----- 0.55 W \* 0.55 H mm
- (8) DOT PITCH ----- 0.60 W \* 0.60 H mm
- (9) VIEWING DIRECTION ----- 6 O'CLOCK



**MODEL NO : ASI\_-204AAS-LJ-\_WS/W**

**RECORD OF REVISION**

DATE	PAGE	SUMMARY

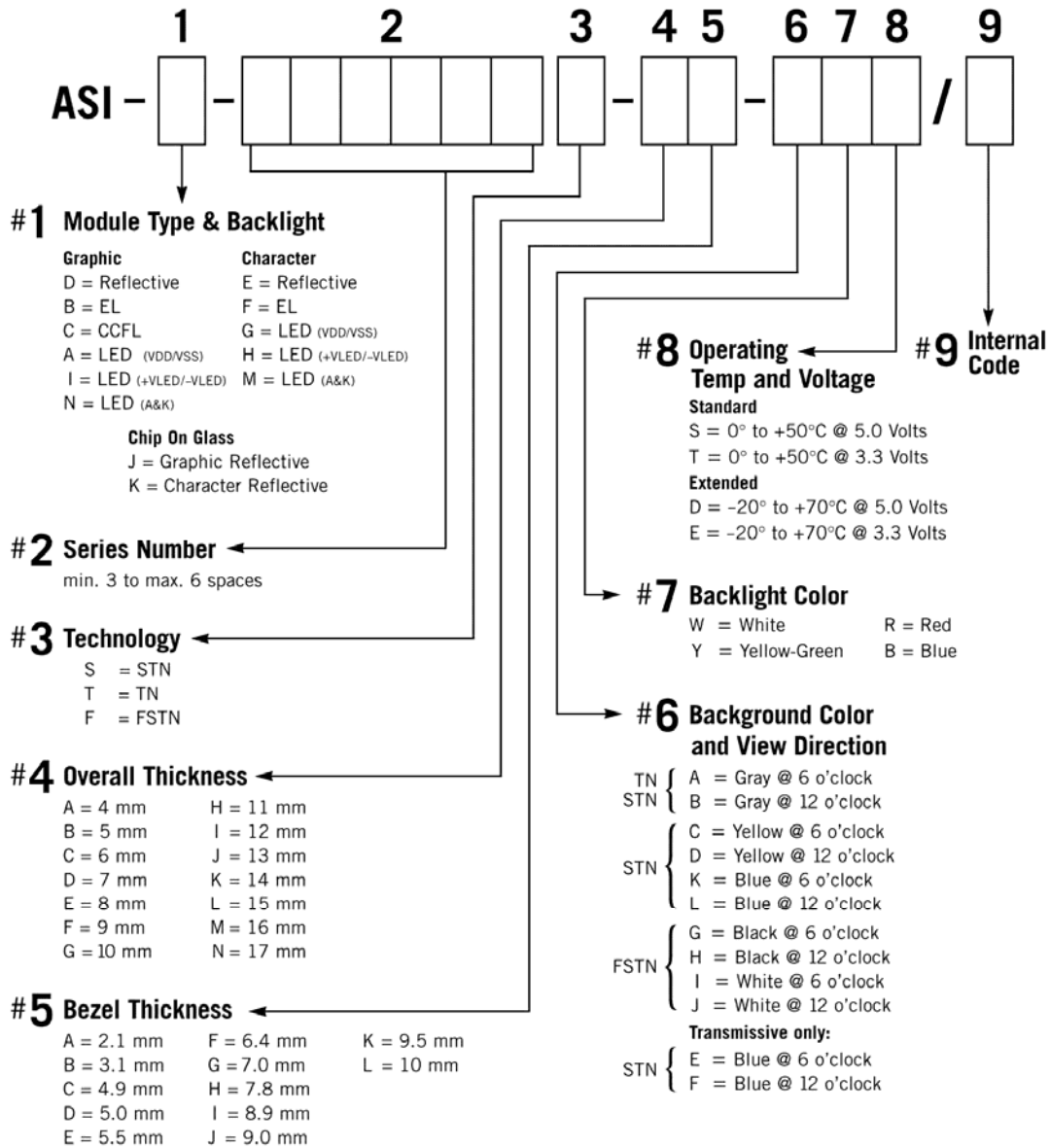


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## LCD MODULE PART NUMBERING SYSTEM



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



MODEL NO : ASI\_-204AAS-LJ-\_WS/W

*General specifications*

*General specifications*

PLEASE REFER TO:

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

*This individual specification is prior to general specifications*

*Mechanical data*

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## MODEL NO : ASI\_-204AAS-LJ-\_WS/W

### *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 <sub>DD</sub> -V <sub>SS</sub>	0	6.0	V	-----
INPUT VOLTAGE	V <sub>I</sub>	V <sub>SS</sub>	V <sub>DD</sub>	V	-----
STATIC ELECTRICITY	-----	-----	100	V	NOTE (1)
POWER SUPPLY FOR LED	V <sub>LED</sub>	-----	6.0	V	-----

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

#### *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/s<sup>2</sup>



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### Electrical characteristics

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

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	
INPUT VOLTAGE (H LEVEL)	$V_{IH}$	-----	2.2	-----	-----	V	
INPUT VOLTAGE (L LEVEL)	$V_{IL}$	-----	-----	-----	0.6	V	
OUTPUT VOLTAGE (H LEVEL)	$V_{OH}$	$-I_{OH} = 0.2 \text{ mA}$	2.4	-----	-----	V	
OUTPUT VOLTAGE (L LEVEL)	$V_{OL}$	$I_{OH} = 1.2 \text{ mA}$	-----	-----	0.4	V	
POWER SUPPLY CURRENT	$I_{DD}$	$V_{DD} = 5.0 \text{ V}$	-----	2.0	3.5	mA	
RECOMMENDED LCD DRIVING VOLTAGE NOTE (1)	$V_{DD}-V_O$	DUTY = 1/16 $\Phi=10^\circ$ $\theta=0^\circ$	$T_a = 0^\circ\text{C}$	-----	4.8	-----	V
		$T_a = 25^\circ\text{C}$	-----	4.6	-----	V	
		$T_a = 50^\circ\text{C}$	-----	4.3	-----	V	
POWER SUPPLY CURRENT FOR LED	$I_{LED}$	$V_{LED} = 5.0$	-----	60	80	mA	

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

### Optical characteristics

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

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	NOTE
VIEWING ANGLE	$\Phi 2-\Phi 1$	$K = 2.0$	30	40	-----	deg.	1
CONTRAST RATIO	K	$\Phi = 10^\circ$ $\theta = 0^\circ$	4.0	5.0	-----	-----	1
RESPONSE TIME	tr (rise)	$\Phi = 10^\circ$ $\theta = 0^\circ$	-----	200	350	ms	1
	tf (fall)	$\Phi = 10^\circ$ $\theta = 0^\circ$	-----	300	400	ms	1
BRIGHTNESS FOR LED BACKLIGHT	B	$\Phi = 0^\circ$ $\theta = 0^\circ$	4.0	-----	-----	cd/m <sup>2</sup>	1,2

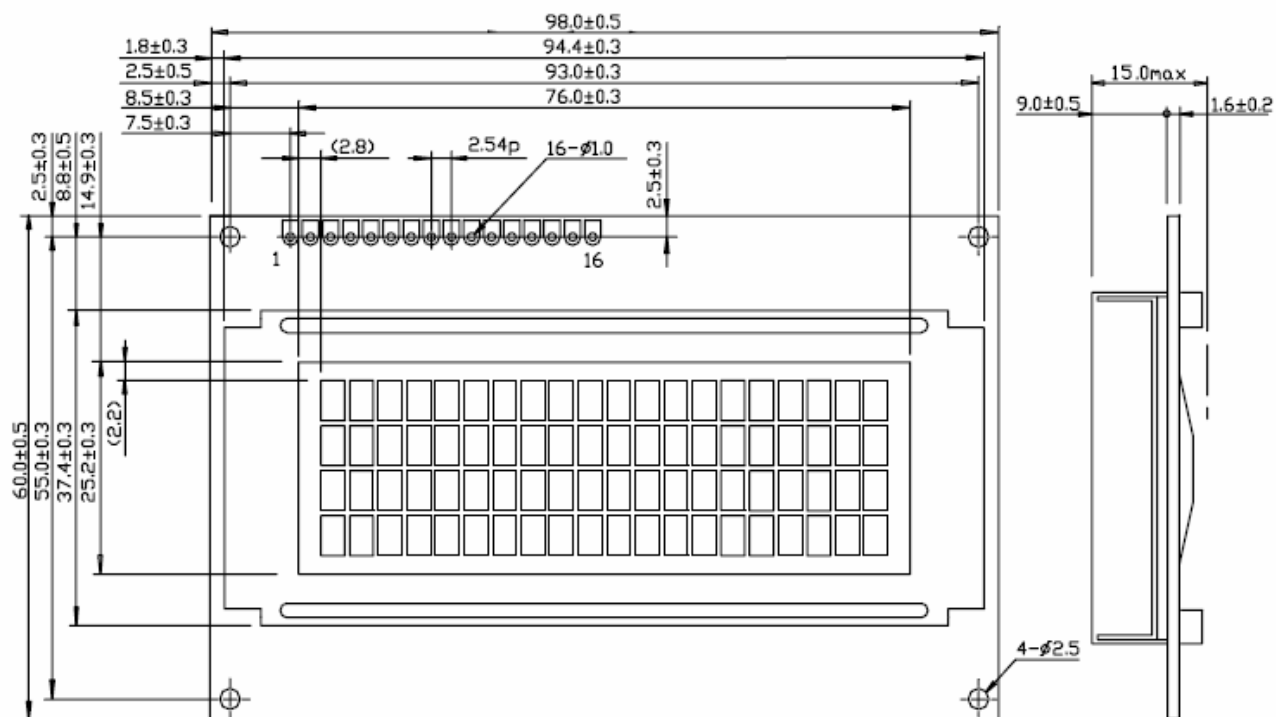
NOTE (1): SEE CUSTOMER ACCEPTANCE STANDARD SPECIFICATION FOR DEFINITION OF OPTICAL CHARACTERISTICS.

NOTE (2): UNDER NORMAL TEMPERATURE AND HUMIDITY IN A DARK ROOM.



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*Outline dimension*

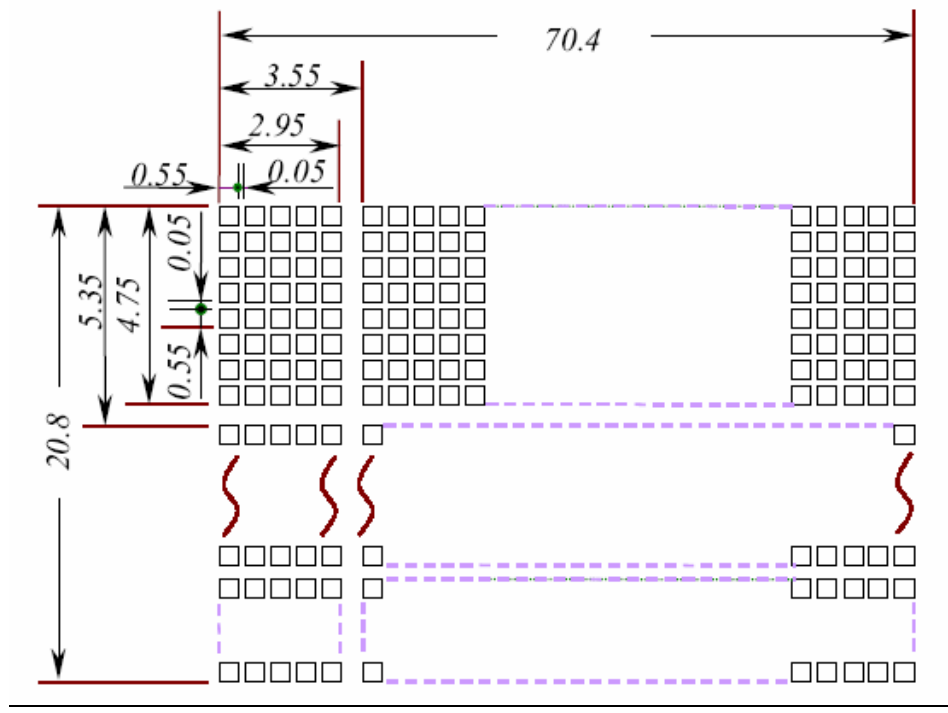


*Interface pin connection*

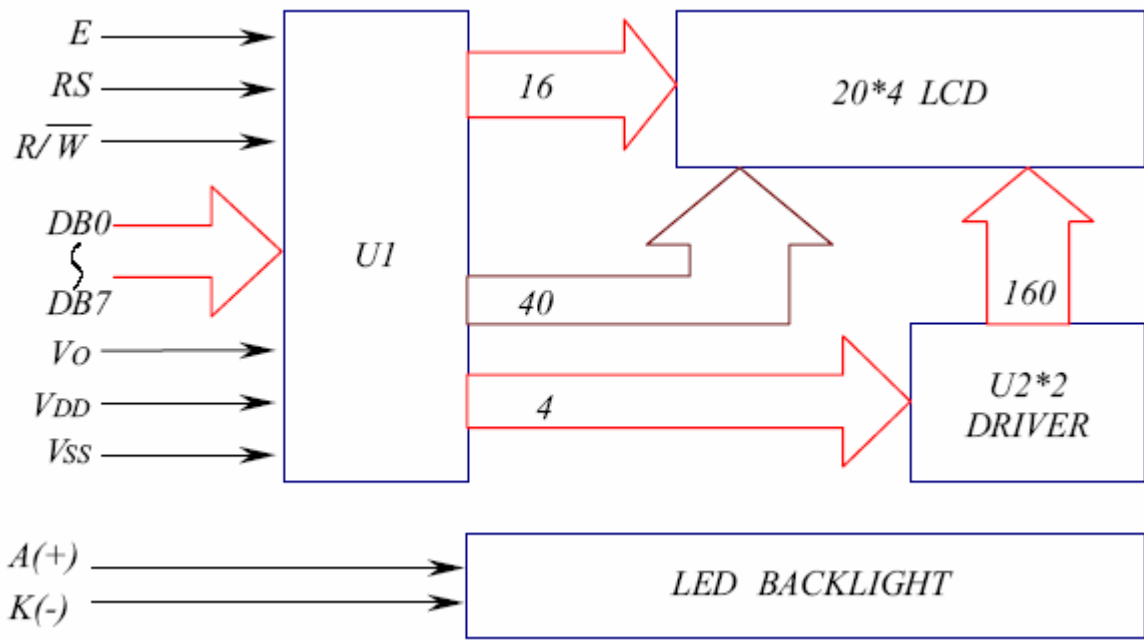
<b><i>PIN NO.</i></b>	<b><i>1</i></b>	<b><i>2</i></b>	<b><i>3</i></b>	<b><i>4</i></b>	<b><i>5</i></b>	<b><i>6</i></b>	<b><i>7</i></b>	<b><i>8</i></b>
SYMBOL	V <sub>SS</sub>	V <sub>DD</sub>	V <sub>O</sub>	RS	R/ $\bar{W}$	E	DB0	DB1
<b><i>PIN NO.</i></b>	<b><i>9</i></b>	<b><i>10</i></b>	<b><i>11</i></b>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

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**DRAWING OF DOT MATRIX**



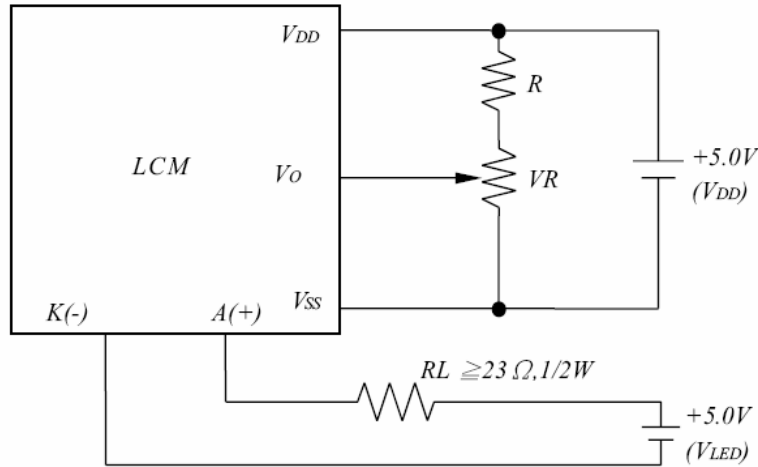
**Block diagram**





MODEL NO : ASI\_-204AAS-LJ-\_WS/W

*Power supply for LCM*



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

*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
LINE 3	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F	20	21	22	23	24	25	26	27
LINE 4	54	55	56	57	58	59	5A	5B	5C	5D	5E	5F	60	61	62	63	64	65	66	67

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.