



# ALL SHORE INDUSTRIES, INC.

## SPECIFICATION FOR LIQUID CRYSTAL DISPLAY MODULE

**MODULE #: ASI-F-242AS-GC-\_WS/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-F-242AS-GC-\_WS/W**

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



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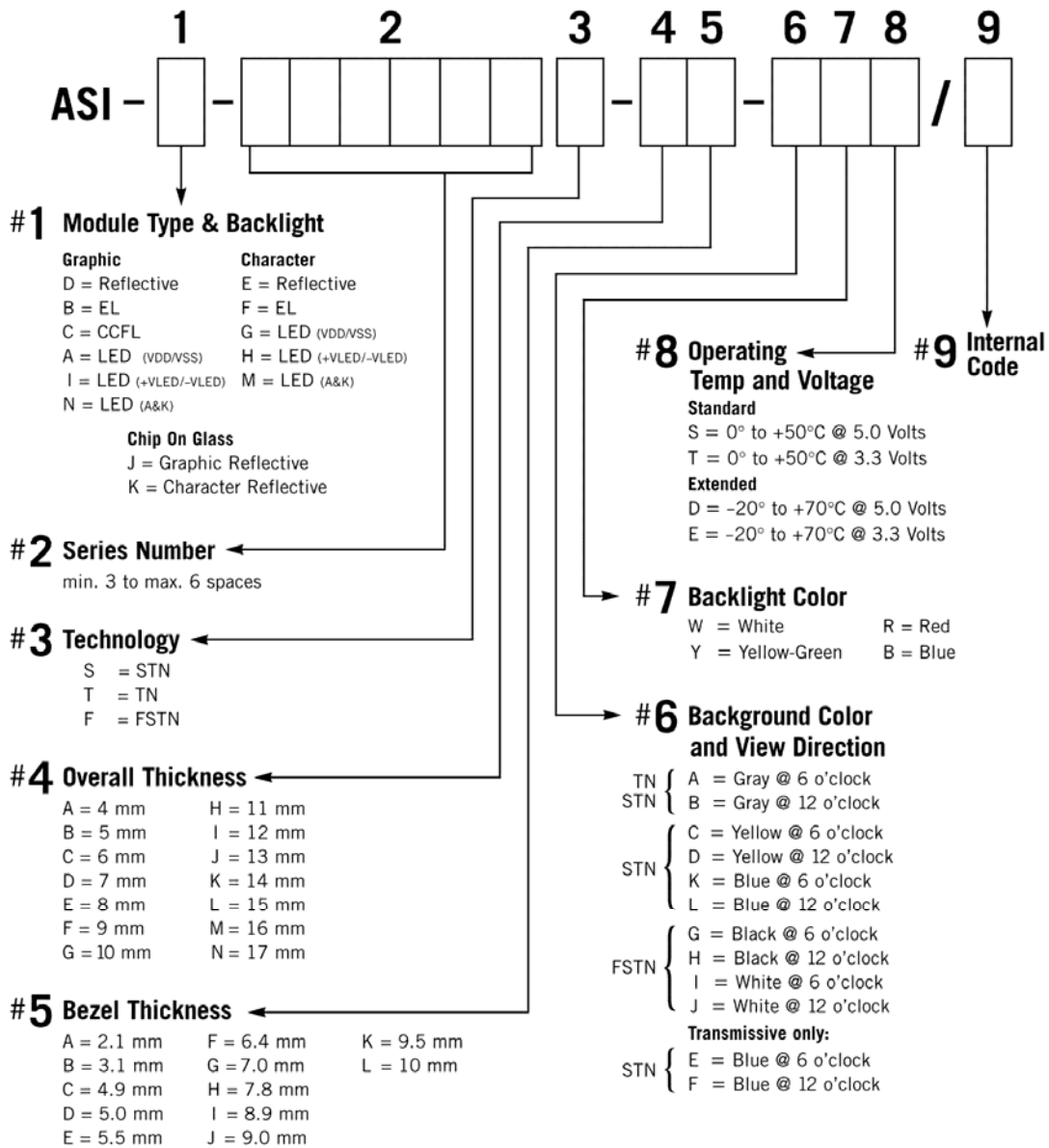
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## LCD MODULE PART NUMBERING SYSTEM



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 : HD44780U

PLEASE REFER TO :

CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS :

1.3 THIS INDIVIDUAL SPECIFICATIONS IS PRIOR TO GENERAL SPECIFICATIONS .

2. MECHANICAL SPECIFICATIONS

- (1) NUMBER OF CHARACTERS-----24 CH \* 2 LINE
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### 3. ABSOLUTE MAXIMUM RATINGS

#### 3.1 ELECTRICAL ABSOLUTE MAXIMUM RATINGS . ( AT Ta = 25°C )

<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	VDD-VSS	0	6.0	V	
INPUT VOLTAGE	VI	VSS	VDD	V	
STATIC ELECTRICITY	—	—	100	V	NOTE (1)
POWER SUPPLY FOR ELBLACKLIGHT	VEL	—	AC200	Vrms	Fel=1.0KHz 60 SEC.MAX
	ƒEL	—	2.0	KHz	ACC115 Vrms 60 SEC. MAX

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/S<sup>2</sup>

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### 4. ELECTRICAL CHARACTERISTICS

Ta = 25°C

VDD = 5.0 +/- 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 <sub>IH</sub>	—————	2.0	—————	—————	V
	V <sub>IL</sub>	—————	—————	—————	0.8	V
OUTPUT VOLTAGE	V <sub>OH</sub>	-I <sub>OH</sub> = 0.2 mA	2.4	—————	—————	V
	V <sub>OL</sub>	I <sub>OL</sub> = 1.6 mA	—————	—————	0.4	V
POWER SUPPLY CURRENT	I <sub>DD</sub>	VDD = 5.0V	—————	1.8	3.0	mA
RECOMMENDED LCD DRIVING VOLTAGE	VDD-VO DUTY= 1/16 Φ=25°	Ta = 0°C	—————	4.9	—————	V
		Ta = 25°C	—————	4.5	—————	V
		Ta = 50°C	—————	4.1	—————	V
POWER SUPPLY CURRENT FOR LED	VEL	F <sub>el</sub>	—————	115	—————	V <sub>ram</sub>
	f <sub>EL</sub>	VEL	—————	3.0	—————	mA rms

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

### 5. OPTICAL CHARACTERISTICS .

Ta = 25°C

VDD = 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	Φ 2-Φ 1	K = 2.0	30	40	—————	deg.	2
CONTRAST RATIO	K	Φ = 10° θ = 0°	3.0	4.0	—————	—————	2
RESPONSE TIME	t <sub>r</sub> (rise)	Φ = 10° θ = 0°	—————	200	350	ms	2
	t <sub>f</sub> (fall)	Φ = 10° θ = 0°	—————	300	400	ms	2
BRIGHTNESS FOR LED BACKLIGHT	B	Φ = 0° θ = 0°	4.0	—————	—————	Cd/m <sup>2</sup>	2,3

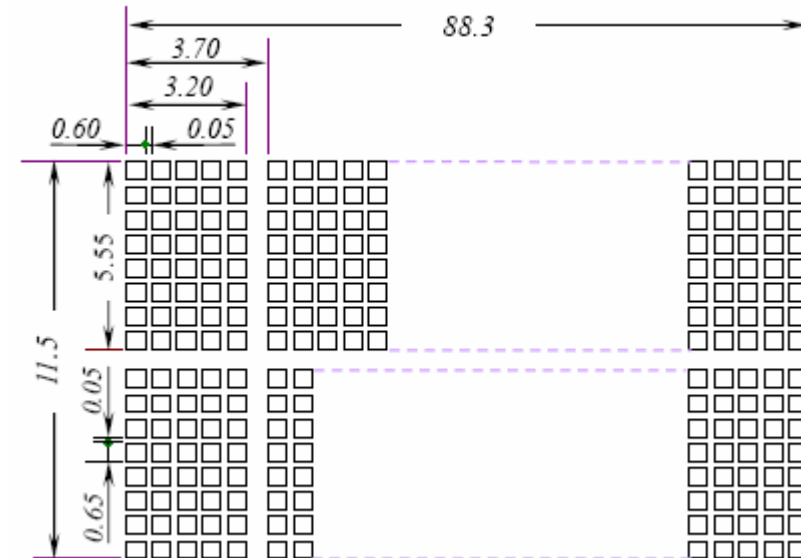
NOTE (2): SEE CUSTOMER ACCEPTANCE STANDARD SPECIFICATION FOR DEFINITION OF OPTICAL CHARACTERISTICS.

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

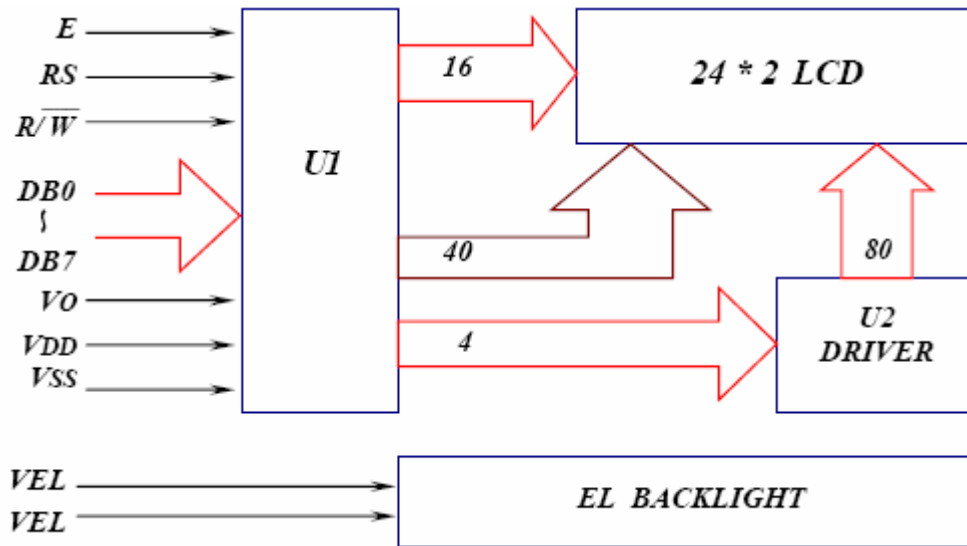


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7. DETAIL DRAWING OF DOT MATRIX



8. BLOCK DIAGRAM

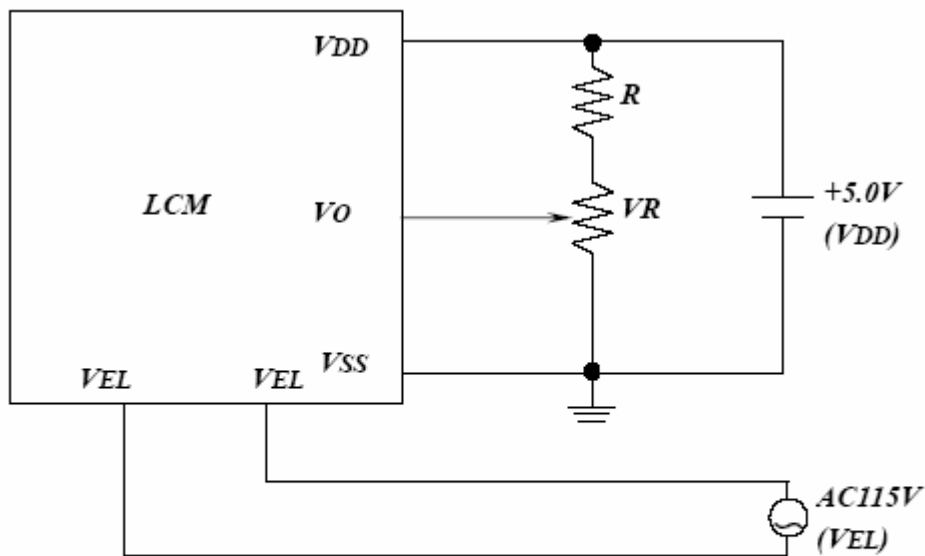




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9. POWER SUPPLY

9.1 POWER SUPPLY FOR LCD MODULE



*RECOMMENDED RESISTOR R:  $VDD - VO \geq 1.5V$*

*VDD - VO: LCD DRIVING VOLTAGE*

*VR: 10KΩ ~ 20KΩ*

*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	80	81	82	83	84	85	86	87	88	89	8A	8B	8C	8D	8E	8F	90	91	92	93
LINE 2	C0	C1	C2	C3	C4	C5	C6	C7	C8	C9	CA	CB	CC	CD	CE	CF	D0	D1	D2	D3
	21	22	23	24																
LINE 1	94	95	96	97																
LINE 2	D4	D5	D6	D7																