



# ALL SHORE INDUSTRIES, INC.

## SPECIFICATION FOR LIQUID CRYSTAL DISPLAY MODULE

**MODULE #: ASI-G-162A/W**

( 1 )	NUMBER OF CHARACTER	-----	16 CH X 2 LINES
( 2 )	MODULE SIZE	-----	122.0W X 44.0H X 15.0D (max.) mm
( 3 )	EFFECTIVE AREA	-----	99.0W X 24.0H mm
( 4 )	CHARACTER FONT	-----	5 X 7 DOTS + CURSOR
( 5 )	CHARACTER SIZE	-----	4.84W X 8.06H mm
( 6 )	CHARACTER PITCH	-----	6.0W mm
( 7 )	DOT SIZE	-----	0.92W X 1.10H mm
( 8 )	DOT PITCH	-----	0.98W X 1.16H mm
( 9 )	LCD TYPE	-----	STN
( 10 )	DRIVING METHOD	-----	1 / 16 DUTY MULTIPLEX DRIVE
( 11 )	VIEWING DIRECTION	-----	6 or 12 O 'CLOCK
( 12 )	BACK - LIGHT	-----	LED, COLOR: YELLOW-GREEN
( 13 )	CONTROLLER	-----	SED1278

**MODEL NO : ASI-G-162A/W**

RECORDS OF REVISION			DOC . FIRST ISSUE DEC.12,1999
DATE	REVISED DRAWING NO.	SUMMARY	

**MODEL NO : ASI-G-162A/W****TABLE OF CONTENTS**

<b>NO.</b>	<b>I T E M</b>	<b>PAGE</b>
1.	GENERAL SPECIFICATIONS -----	4
2.	MECHANICAL SPECIFICATIONS -----	4
3.	ABSOLUTE MAXIMUM RATINGS -----	5
4.	ELECTRICAL CHARACTERISTICS -----	6
5.	OPTICAL CHARACTERISTICS -----	6
6.	OUTLINE DIMENSION -----	7
7.	DETAIL DRAWING OF DOT MATRIX -----	8
8.	BLOCK DIAGRAM -----	8
9.	POWER SUPPLY -----	9
10.	DISPLAY DATA RAM ADDRESS -----	9



## MODEL NO : ASI-G-162A/W

### 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	-----	16 CH X 2 LINES
(2)	MODULE SIZE	-----	122.0W X 44.0H X 15.0D (max.) mm
(3)	EFFECTIVE AREA	-----	99.0W X 24.0H mm
(4)	CHARACTER FONT	-----	5 X 7 DOTS + CURSOR
(5)	CHARACTER SIZE	-----	4.84W X 8.06H mm
(6)	CHARACTER PITCH	-----	6.0W mm
(7)	DOT SIZE	-----	0.92W X 1.10H mm
(8)	DOT PITCH	-----	0.98W X 1.16H mm
(9)	LCD TYPE	-----	STN
(10)	DRIVING METHOD	-----	1 / 16 DUTY MULTIPLEX DRIVE
(11)	VIEWING DIRECTION	-----	6 or 12 O 'CLOCK
(12)	BACK - LIGHT	-----	LED, COLOR: YELLOW-GREEN
(13)	CONTROLLER	-----	SED1278



## MODEL NO : ASI-G-162A/W

### 3. ABSOLUTE MAXIMUM RATINGS

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

PARAMETER	SYMBOL	MIN.	MAX.	UNIT	COMMENT
POWER SUPPLY FOR LOGIC	VDD--VSS	0	6	V	
INPUT VOLTAGE	VI	VSS	VDD	V	
STATIC ELECTRICITY	————	—	100	V	NOTE ( 1 )
POWER SUPPLY FOR LED	VLED	—	6.0	V	

NOTE ( 1 ) : TEST METHOD AND CONDITIONS : AFTER CHARGING UP 200 PF CAPACITOR BY STATED VOLTAGE, THE CAPACITOR IS CONNECTED WITH INTERFACE PINS OF THE MODULE .

#### 3.2 ENVIRONMENTAL ABSOLUTE MAXIMUM RATINGS .

I T E M	OPERATING		STORAGE		COMMENT
	MIN .	MAX .	MIN .	MAX .	
AMBIENT TEMPERATURE	0°C	50°C	-20 °C	70 °C	NOTE (2)
HUMIDITY	NOTE (3)		NOTE (3)		WITHOUT CONDENSATION
VIBRATION NOTE (4)	--	4 . 9 m /s <sup>2</sup> (0.5G )	--	1 9 . 6 m /s <sup>2</sup> (2G)	10~300Hz XYZ DIRECTIONS 1 HR EACH
SHOCK NOTE (4)	--	2 9 . 4 m /s <sup>2</sup> (3G)	--	490.0 m /s <sup>2</sup> (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 : ABOLSUTE HUMIDITY MUST BE LOWER THAN THE  
HUMIDITY OF 90%RH AT 50 °C (80%RH AT 60 °C)

NOTE (4) : 1G = 9.8 m /s<sup>2</sup>



## MODEL NO : ASI-G-162A/W

### 4. ELECTRICAL CHARACTERISTICS

Ta = 25°C

VDD = 5.0 ± 0.25 V

PARAMETER	SYMBOL		CONDITION	MIN .	TYP .	MAX .	UNIT
H LEVEL INPUT VOLTAGE	VIH		_____	2 . 0	___	VDD	V
L LEVEL INPUT VOLTAGE	VIL		_____	VSS	___	0 . 8	V
H LEVEL OUTPUT VOLTAGE	VOH		-IOH = 0.2 mA	2 . 4	___	___	V
L LEVEL OUTPUT VOLTAGE	VOL		IOL = 1.2 mA	___	___	0 . 4	V
POWER SUPPLY CURRENT	IDD		VDD = 5.0V	___	1.0	2.0	mA
RECOMMENDED LCD DRIVING VOLTAGE	VDD- VO	N.T.	Ta = 0 °C	___	4.9	___	V
	DUTY = 1/16 φ=10°		Ta = 25 °C	___	4.5	___	V
			Ta = 50 °C	___	4.1	___	V
POWER SUPPLY CURRENT FOR LED	ILED		VDD = 5.0V	___	230	360	mA

### 5. OPTICAL CHARACTERISTICS .

Ta = 25°C

VDD = 5.0 V

I T E M		SYMBOL	CONDITION	MIN .	TYP .	MAX .	UNIT	NOTE
VIEWING AREA	STN	$\phi_2 - \phi_1$	K = 2.0	30	40	--	deg .	2
CONTRAST RATIO	STN	K	$\phi = 10^\circ$ $\theta = 0^\circ$	4.0	5.0	--	--	2
RESPONSE TIME	N.T.	tr ( rise )	$\phi = 10^\circ \theta = 0^\circ$	--	200	350	Ms	2
		tf ( fall )		--	300	400	ms	2
THE BRIGHTNESS OF BACK-LIGHT		B	$\phi = 0^\circ$ $\theta = 0^\circ$	6.0	--	--	cd/m2	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

Technical drawing of a rectangular component, likely a PCB or a similar electronic component, showing dimensions and tolerances. The drawing includes a top view and a side view.

**Top View Dimensions:**

- Overall width:  $122.0 \pm 0.5$
- Overall height:  $44.0 \pm 0.5$
- Internal width (excluding side margins):  $115.0 \pm 0.3$
- Internal height (excluding top and bottom margins):  $106.2 \pm 0.3$
- Width of the central rectangular area:  $99.0 \pm 0.3$
- Width of the central rectangular area (excluding side margins):  $94.84 \pm 0.1$
- Width of the left margin:  $3.5 \pm 0.5$
- Width of the right margin:  $4.4 \pm 0.3$
- Width of the top margin:  $8.0 \pm 0.3$
- Width of the bottom margin:  $(2.08)$
- Width of the left margin (excluding side margins):  $3.5 \pm 0.3$
- Width of the right margin (excluding side margins):  $1.3 \pm 0.3$
- Width of the top margin (excluding side margins):  $4.6 \pm 0.3$
- Width of the bottom margin (excluding side margins):  $(2.02)$
- Width of the left margin (excluding side margins):  $37.0 \pm 0.3$
- Width of the right margin (excluding side margins):  $35.6 \pm 0.3$
- Width of the top margin (excluding side margins):  $24.0 \pm 0.3$
- Width of the bottom margin (excluding side margins):  $20.0 \pm 0.1$

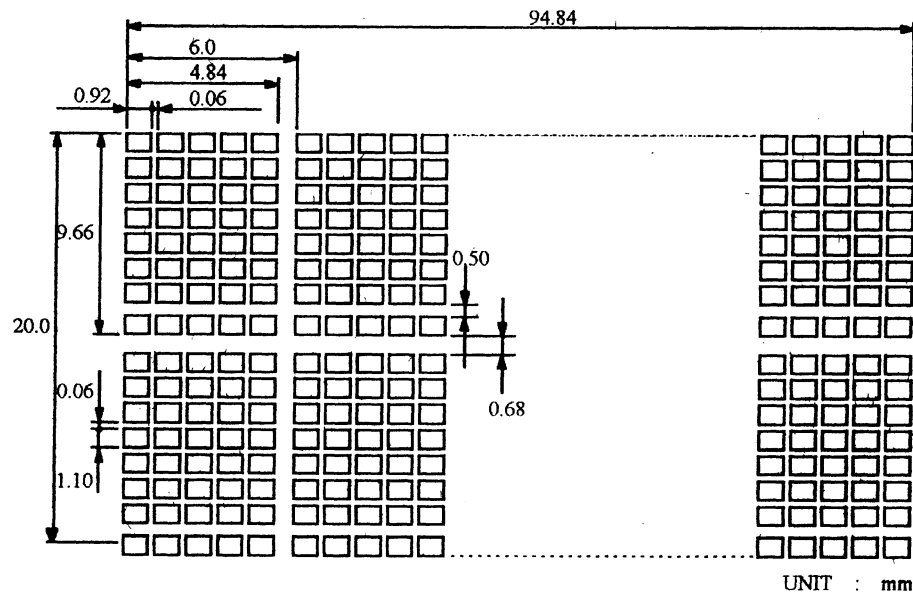
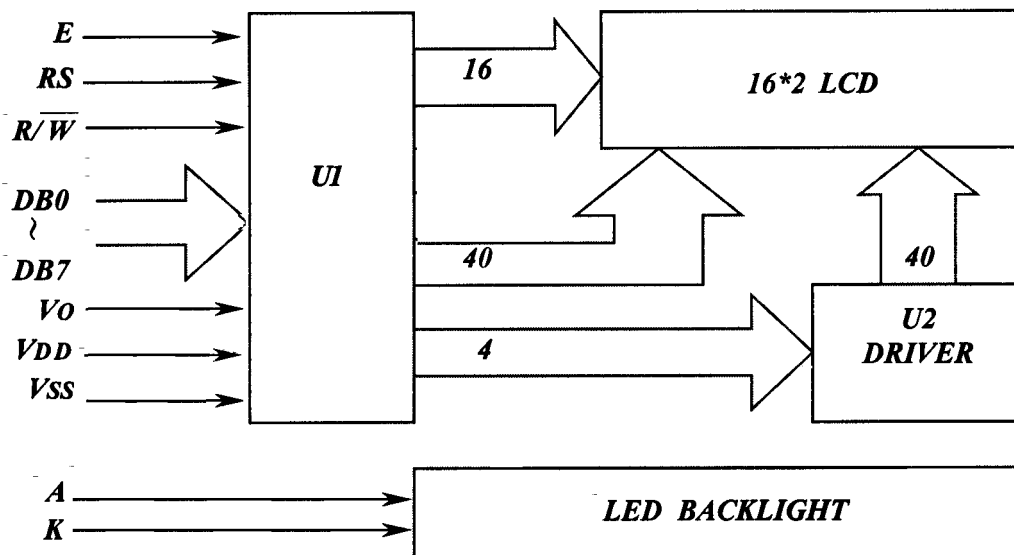
**Side View Dimensions:**

- Overall height:  $9.0 \pm 0.5$
- Height of the top flange:  $15.0 \text{ max}$
- Height of the bottom flange:  $1.6 \text{ t}$
- Width of the top flange:  $7.5 \pm 0.3$
- Width of the bottom flange:  $2.54 \text{ P}$
- Width of the top flange (excluding side margins):  $14$
- Width of the bottom flange (excluding side margins):  $116$
- Width of the top flange (excluding side margins):  $15$
- Width of the bottom flange (excluding side margins):  $2.54 \pm 0.3$

**Other Features:**

- Four mounting holes (4- $\phi 3.5$ ) are located at the corners of the component.
- The central rectangular area contains two horizontal slots.

<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/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

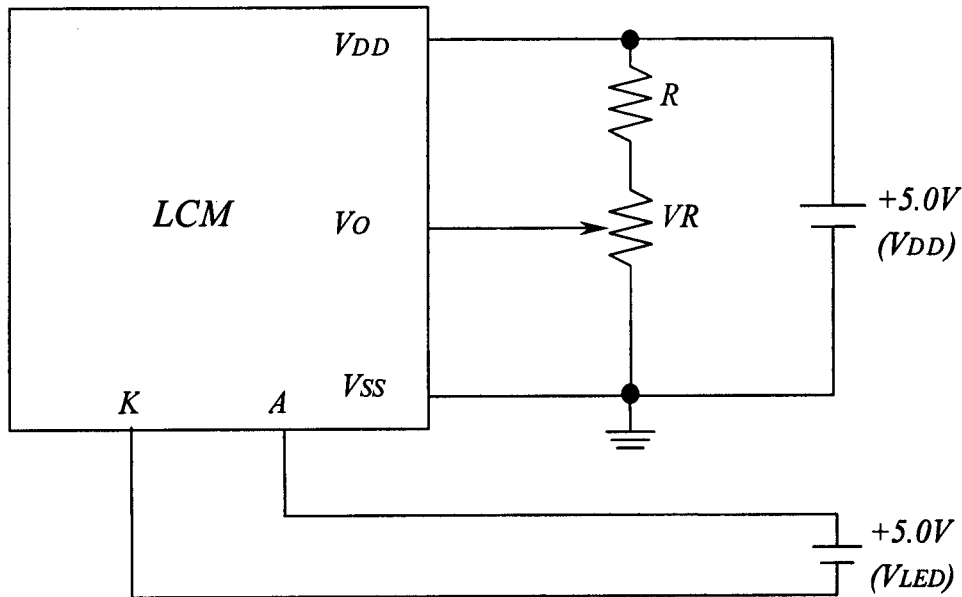
**MODEL NO : ASI-G-162A/W****7. DETAIL DRAWING OF DOT MATRIX****8. BLOCK DIAGRAM**





## MODEL NO : ASI-G-162A/W

### 1 0 . POWER SUPPLY



### 1 1 DISPLAY DATA RAM ADDRESS

Character	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
LINE 1	80	81	82	83	84	85	86	87	88	89	8A	8B	8C	8D	8E	8F
LINE 2	C0	C1	C2	C3	C4	C5	C6	C7	C8	C9	CA	CB	CC	CD	CE	CF