ALL SHORE INDUSTRIES, INC.

SPECIFICATION FOR

LIQUID CRYSTAL DISPLAY MODULE

MODULE #: ASI-B-1286AS-GD-_WS/W

(1) NUMBER OF DOTS ---------- 128 W * 64 H DOTS
(2) MODULE SIZE---------- 93.0 W * 70.0 H * 15.0 T (Max) mm
(3) EFFECTIVE AREA---------- 71.0 W * 39.0 H mm
(4) ACTIVE AREA---------- 66.52 W * 33.24 H mm
(5) DOT SIZE ---------- 0.48 W * 0.48 H mm
(6) DOT PITCH---------- 0.52 W * 0.52 H mm
(7) VIEWING DIRECTION---------- 6 or 12 O'CLOCK
(8) LCD TYPE ---------- STN GRAY, YELLOW, BLUE
9) EL COLOR---------- WHITE

All Shore Industries, Inc. One Edgewater Plaza, Staten Island, NY 10305

ALL SHORE INDUSTRIES

MODEL NO : ASI-B-1286AS-GD-_WS/W

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ACCEPTED BY : ----------

PROPOSED BY : ----------

ALL SHORE INDUSTRIES

MODEL NO : ASI-B-1286AS-GD-_WS/W

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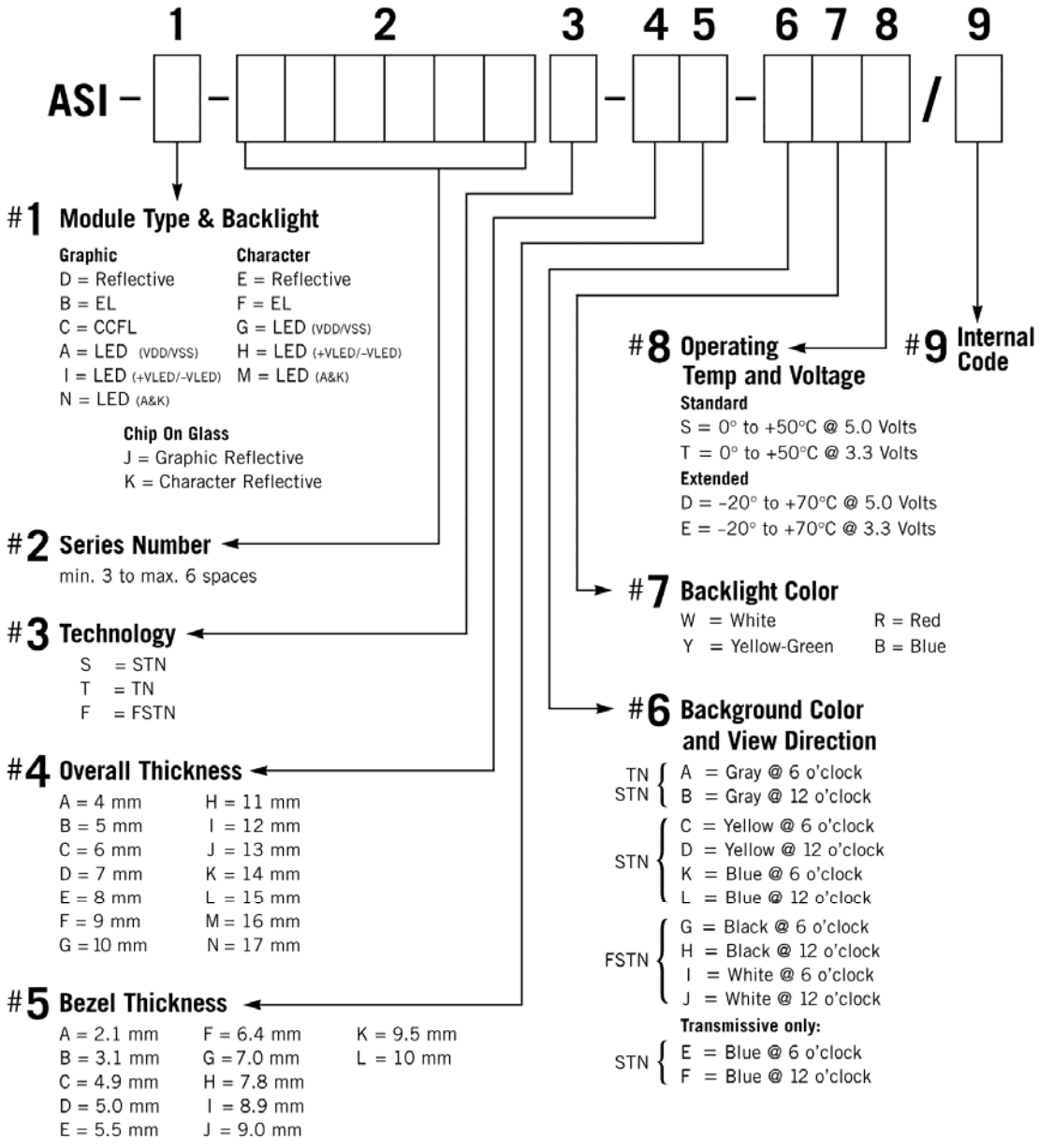
LCD MODULE PART NUMBERING SYSTEM



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

MODEL NO : ASI-B-1286AS-GD-_WS/W

3. General specifications

3.1 General specifications

PLEASE REFER TO:

"CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS (MS-10-0108)"

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

ITEM	SYMBOL	MIN.	MAX.	UNIT	COMMENT
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)
POWER SUPPLY FOR EL	V_{EL}	———	AC200	Vrms	fEL=1.-KHZ 60 SEC MAX
	f_{EL}	———	2.0	KHz	ACC155 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.

5.2 Environmental absolute maximum ratings

ITEM	OPERATING		STORAGE		COMMENT
	MIN.	MAX.	MIN.	MAX.	
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 $\leq$ 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^2

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6. Electrical characteristics

Ta = 25°C VDD = 5.0±0.25 V

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
POWER SUPPLY VOLTAGE FOR CIRCUIT	VDD-VSS	———	4.75	5.0	5.25	V
INPUT VOLTAGE NOTE (2)	VIH	H LEVEL	2.0VDD	——	VDD	V
	VIL	L LEVEL	0	——	0.8VDD	V
OUTPUT VOLTAGE NOTE (1)	VOH	IOH = -0.3 mA	2.4	——	——	V
	VOL	IOL = 3.0 mA	——	——	0.4	V
POWER SUPPLY CURRENT, NOTE (3)	IDD	VDD-VSS=5.0V	——	5.0	8.0	mA
LCD DISPLAY DUTY RATIO	DUTY	———	——	1/64	——	——
RECOMMENDED LCD DRIVING VOLTAGE, NOTE (4)	VDD-VO Φ = 10° ϕ = 0°	TA = 50°C	——	8.4	——	V
		TA = 25°C	——	8.8	——	V
		TA = 0°C	——	9.2	——	V
POWER SUPPLY CURRENT FOR EL	IEL	VEL=115V FEL=400HZ	——	5		mA

NOTE (1): APPLIED TO TERMINALS DB0~DB7

NOTE (2): APPLIED TO TERMINALS D/I, R/$\overline{W}$, E, DB0~DB7, CS1, CS2, $\overline{RST}$

NOTE (3): THE DISPLAY PATTERN IS ALL "ON", OR ALL "OFF"

NOTE (4): RECOMMENDED LCD DRIVING VOLTAGE MAY FLUCTUATE ABOUT ±0.5V BY EACH MODULE.

7. Optical characteristics

Ta = 25°C VDD = 5.0V

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	NOTE
VIEWING ANGLE	Φ2-Φ1	K = 2.0	30	40	——	deg.	2
CONTRAST RATIO	K	Φ = 10°; ϕ = 0°	3.0	4.0	——	——	2
RESPONSE TIME	tr (rise)	Φ = 10°; ϕ = 0°	——	200	350	ms	2
	tf (fall)	Φ = 10°; ϕ = 0°	——	300	400	ms	2
BRIGHTNESS FOR EL BACKLIGHT	B	Φ = 10°; ϕ = 0°	4.0	——	——	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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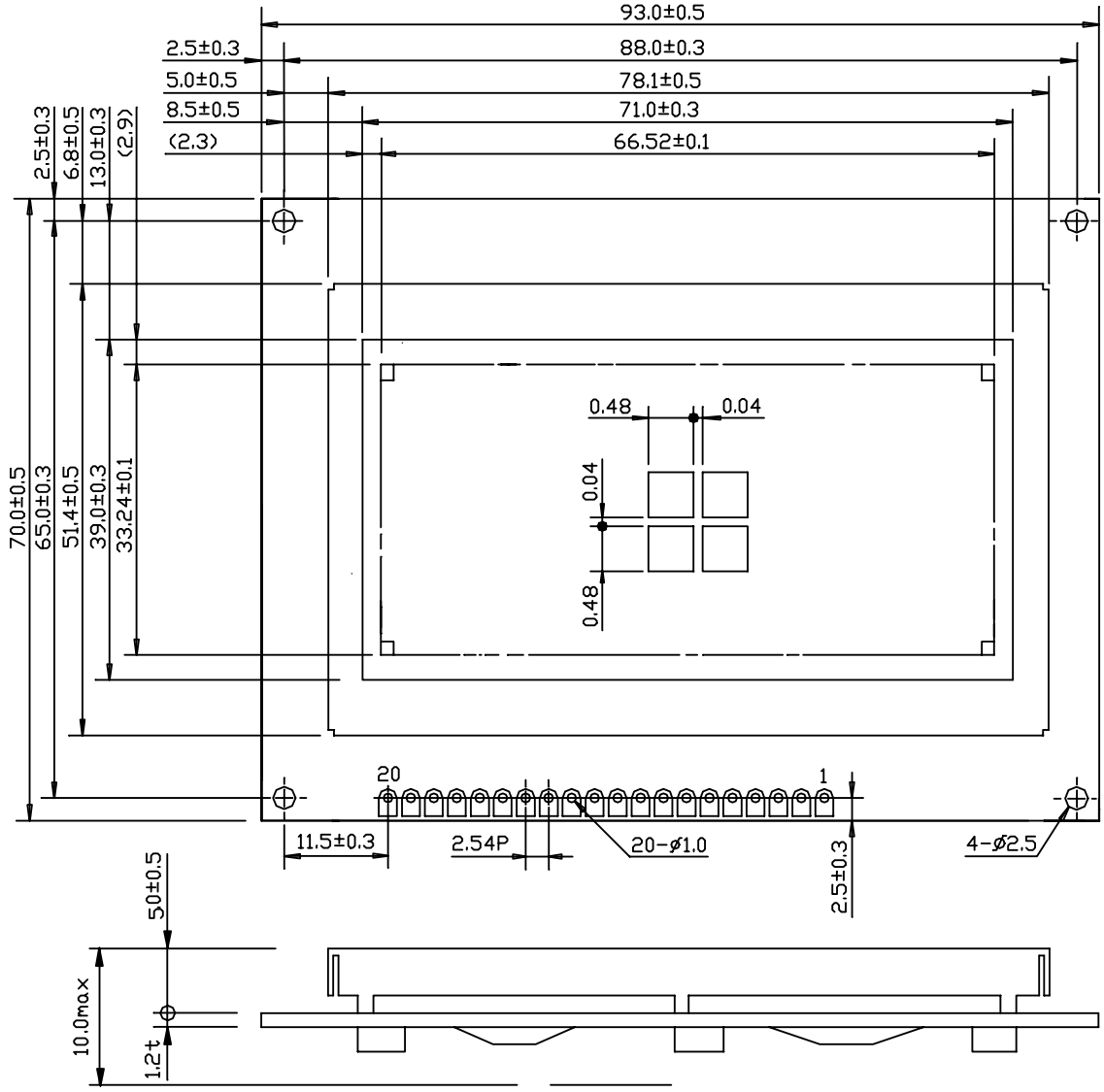
8. Dimensional outline



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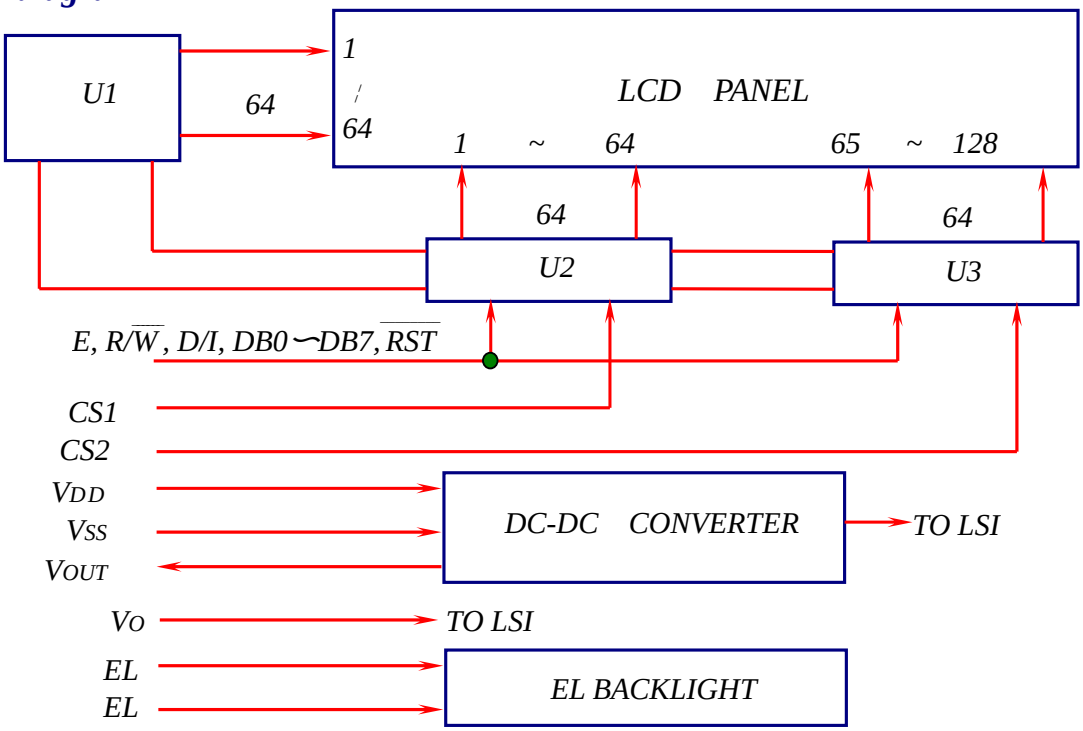
8.1 Interface

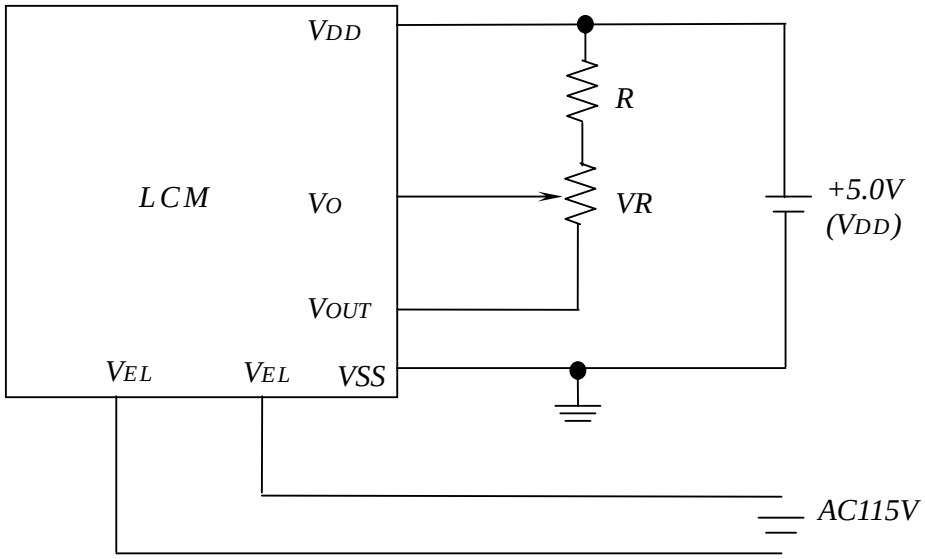
PIN NO.	SYMBOL	FUNCTION
1	VSS	GROUND
2	VDD	POWER SUPPLY FOR LCD LOGIC
3	VO	OPERATING VOLTAGE FOR LCD DRIVING
4	D/I	H: DATA INPUT L: INSTRUCTION CODE INPUT
5	R/$\overline{W}$	H: DATA READ (LCD MODULE → MPU) L: DATA WRITE (LCD MODULE ← MPU)
6	E	ENABLE SIGNAL
7	DB0	DATA INPUT / OUTPUT (LSB)
8	CB1	DATA INPUT / OUTPUT
9	CB2	DATA INPUT / OUTPUT
10	DB3	DATA INPUT / OUTPUT
11	DB4	DATA INPUT / OUTPUT
12	DB5	DATA INPUT / OUTPUT
13	DB6	DATA INPUT / OUTPUT
14	DB7	DATA INPUT / OUTPUT (MSB)
15	CS1	H: CHIP SELECTION FOR IC1
16	CS2	H: CHIP SELECTION FOR IC2
17	$\overline{RST}$	L: RESET
18	VOUT	POWER SUPPLY FOR LCD DRIVING
19	NC	NO CONNECTION
20	NC	NO CONNECTION

MODEL NO : ASI-B-1286AS-GD-_WS/W

9. Block diagram



10. Power supply for LCM



RECOMMENDED RESISTOR R: VDD – VO≧1.5V

VDD - VO: LCD DRIVING VOLTAGE

VR: 10K6~20K6