ALL SHORE INDUSTRIES, INC.

SPECIFICATION FOR
LIQUID CRYSTAL DISPLAY MODULE

MODULE #: ASI-_-1286DAS-GF-_YD/W

(1)	NUMBER OF DOTS	----------	128.0W X 64.0H DOTS
(2)	MODULE SIZE	----------	63.2W X 54.00H X 9.5D (max)mm
(3)	EFFECTIVE AREA	----------	54.0W X 36.0H mm
(4)	ACTIVE AREA	----------	49.88W X 31.32H mm
(5)	DOT SIZE	----------	0.35W X 0.45H mm
(6)	DOT PITCH	----------	0.39W X 0.49H mm
(7)	DRIVING METHOD	----------	1 /64 DUTY MULTIPLEX DRIVE
(8)	VIEWING DIRECTION	----------	6 or 12 O ' CLOCK
(9)	LCD TYPE	----------	STN BLUE, GRAY, YELLOW
(10)	LED COLOR	----------	YELLOW GREEN
(11)	CONTROLLER	----------	HD61210

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

ALL SHORE INDUSTRIES

MODEL NO : ASI-A-1286DAS-GF-_YD /W

RECORDS OF REVISION		DOC . FIRST ISSUE Feb.12, 2003
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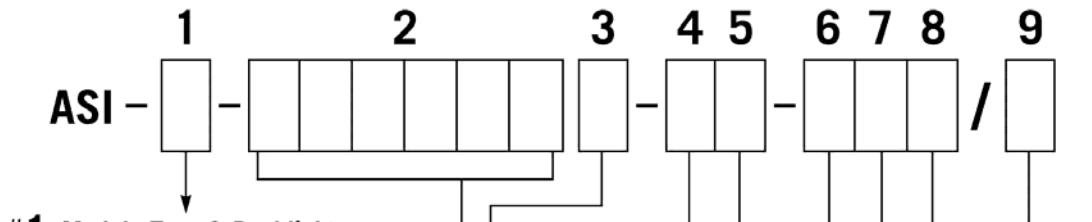
LCD MODULE PART NUMBERING SYSTEM



#1 Module Type & Backlight

Graphic	Character
D = Reflective	E = Reflective
B = EL	F = EL
C = CCFL	G = LED (VDD/VSS)
A = LED (VDD/VSS)	H = LED (+VLED/–VLED)
I = LED (+VLED/–VLED)	M = LED (A&K)
N = LED (A&K)	

Chip On Glass
J = Graphic Reflective
K = Character Reflective

#2 Series Number
min. 3 to max. 6 spaces

#3 Technology
S = STN
T = TN
F = FSTN

#4 Overall Thickness

A = 4 mm	H = 11 mm
B = 5 mm	I = 12 mm
C = 6 mm	J = 13 mm
D = 7 mm	K = 14 mm
E = 8 mm	L = 15 mm
F = 9 mm	M = 16 mm
G = 10 mm	N = 17 mm

#5 Bezel Thickness

A = 2.1 mm	F = 6.4 mm	K = 9.5 mm
B = 3.1 mm	G = 7.0 mm	L = 10 mm
C = 4.9 mm	H = 7.8 mm	
D = 5.0 mm	I = 8.9 mm	
E = 5.5 mm	J = 9.0 mm	

#8 Operating Temp and Voltage
Standard
S = 0° to +50°C @ 5.0 Volts
T = 0° to +50°C @ 3.3 Volts
Extended
D = -20° to +70°C @ 5.0 Volts
E = -20° to +70°C @ 3.3 Volts

#9 Internal Code

#7 Backlight Color

W = White	R = Red
Y = Yellow-Green	B = Blue

#6 Background Color and View Direction

TN / STN	A = Gray @ 6 o'clock
	B = Gray @ 12 o'clock
STN	C = Yellow @ 6 o'clock
	D = Yellow @ 12 o'clock
	K = Blue @ 6 o'clock
	L = Blue @ 12 o'clock
FSTN	G = Black @ 6 o'clock
	H = Black @ 12 o'clock
	I = White @ 6 o'clock
	J = White @ 12 o'clock
Transmissive only:	
STN	E = Blue @ 6 o'clock
	F = Blue @ 12 o'clock

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 : (MS-10-61210)".

1 . 2 APPLICATION NOTES FOR CONTROLLER / DRIVER :
PLEASE REFER TO :

CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS :

1 . 3 THIS INDIVIDUAL SPECIFICATIONS IS PRIOR TO GENERAL SPECIFICATIONS .

2 . MECHANICAL SPECIFICATIONS

(1)	NUMBER OF DOTS	----------	128.0W X 64.0H DOTS
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3 . ABSOLUTE MAXIMUM RATINGS

3 . 1 ELECTRICAL ABSOLUTE MAXIMUM RATINGS .

PARAMETER	SYMBOL	MIN .	MAX .	UNIT	COMMENT
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 LED	VLED		6.0	V	

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

3 . 3 ENVIRONMENTAL ABSOLUTE MAXIMUM RATINGS .

I T E M	OPERATING		STORAGE		COMMENT
	MIN .	MAX .	MIN .	MAX .	
AMBIENT TEMPERATURE	-20°C	70°C	-20 °C	70 °C	NOTE (2)
HUMIDITY	SEE NOTE 2		SEE NOTE 2		WITHOUT CONDENSATION
VIBRATION (NOTE3)	--		4 . 9 m /s^2 (0.5G)		10~300HZ XYZ DIRECTIONS 1 HR EACH
SHOCK (NOTE 3)	--		2 9 . 4 m /s^2 (3G)		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 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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4 . ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	CONDITION	MIN .	TYP .	MAX .	UNIT
LOGIC CIRCUIT POWER SUPPLY VOLTAGE	VDD-VSS	_____	---	3.3	--	V
LOGIC CIRCUIT POWER SUPPLY FOR LCD DRIVE	VEE-VSS	_____	---	-5.0	--	V
INPUT VOLTAGE NOTE (2)	VIH	H LEVEL	0.7VDD	____	VDD	V
	VIL	L LEVEL	VSS	____	0.3VDD	V
OUTPUT VOLTAGE NOTE (1)	VOH	IOH =-0.4mA	VDD-0.4	____	____	V
	VOL	----	____	____	0.4	V
POWER SUPPLY CURRENT NOTE (3)	IDD	VDD-VSS=3.3V	____	5.0	8.0	mA
LCD DISPLAY DUTY RATIO	DUTY	_____	____	1/64	____	____
RECOMMENDED LCD DRIVING VOLTAGE NOTE (4)	VDD-VO ϕ =10° θ = 0°	Ta = 70°C	____	8.5	____	V
		Ta = 25°C	____	8.9	____	V
		Ta = -20°C	____	9.3	____	V
POWER SUPPLY CURRENT FOR LED	ILED	VLED = 4.0V		75	100	mA

5 . OPTICAL CHARACTERISTICS .

Ta = 25°C VDD = 3.0 V

I T E M	SYMBOL	CONDITION	MIN .	TYP .	MAX .	UNIT	NOTE
VIEWING AREA	ϕ2 - ϕ1	K = 2.0	30	40	____	Deg.	1
CONTRAST RATIO	K	ϕ = 10° θ = 0°	3.0	4.0	____	____	1
RESPONSE TIME	tr (rise)	ϕ = 10° θ = 0°	____	200	350	ms	1
	tf (fall)	ϕ = 10° θ = 0°	____	300	400	ms	1
BRIGHTNESS FOR LED BACKLIGHT	B	Φ = 0° ϕ = 0°	6.0			cd/m^2	2,3

(* UNDER NORMAL TEMPERATURE AND HUMIDITY IN A DARK ROOM)

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

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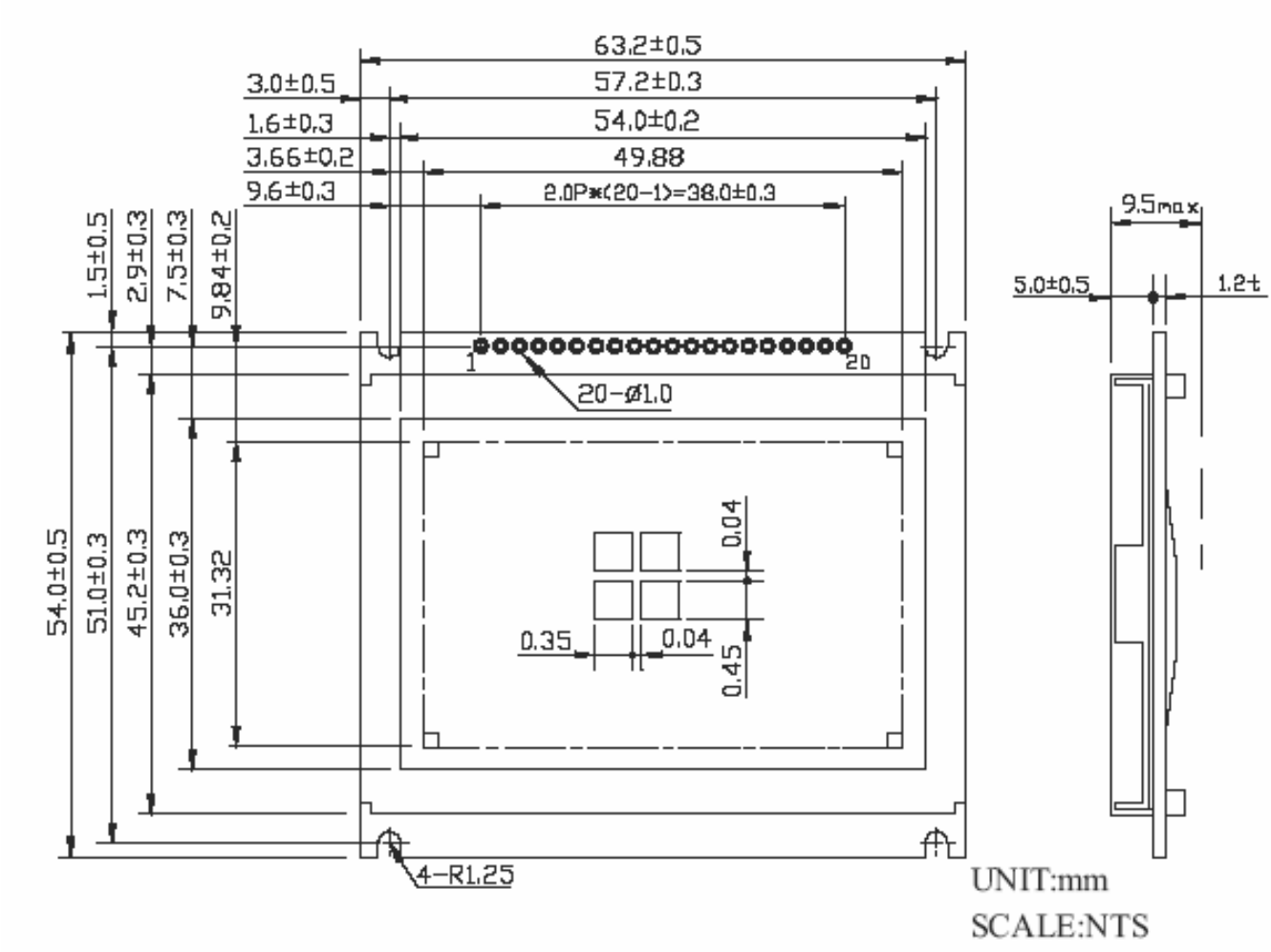
6 . OUTLINE DIMENSION



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7. Interface pin connection

1	Vss	GROUND
2	VDD	POWER SUPPLY FOR LOGIC
3	Vo	OPERATING VOLTAGE FOR LCD DRIVING
4	D/$\overline{I}$	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	DB1	DATA INPUT/OUTPUT
9	DB2	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	A(+)	POWER SUPPLY FOR LED (+)
20	K(-)	POWER SUPPLY FOR LED (-)

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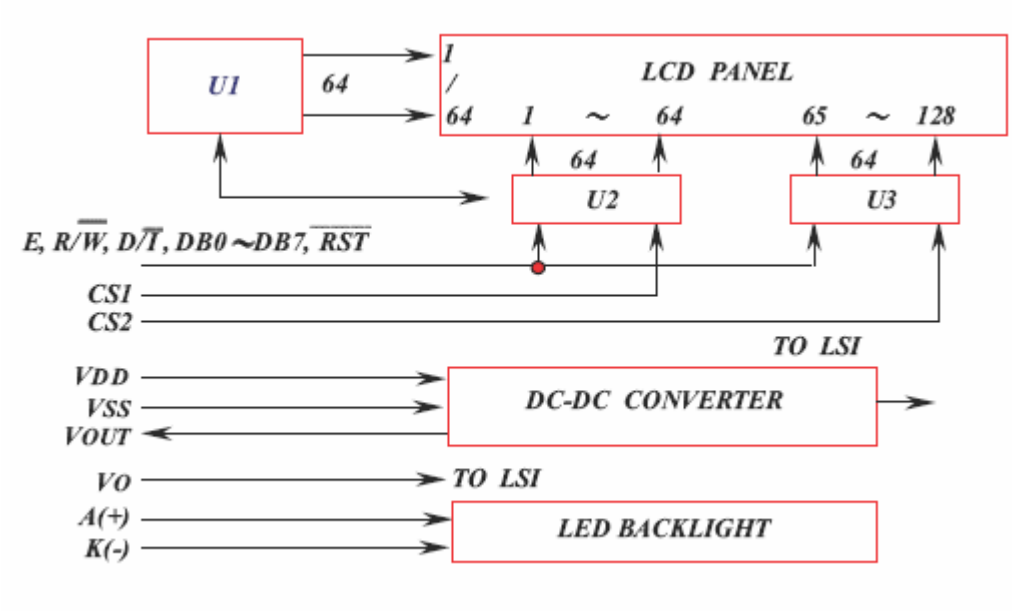
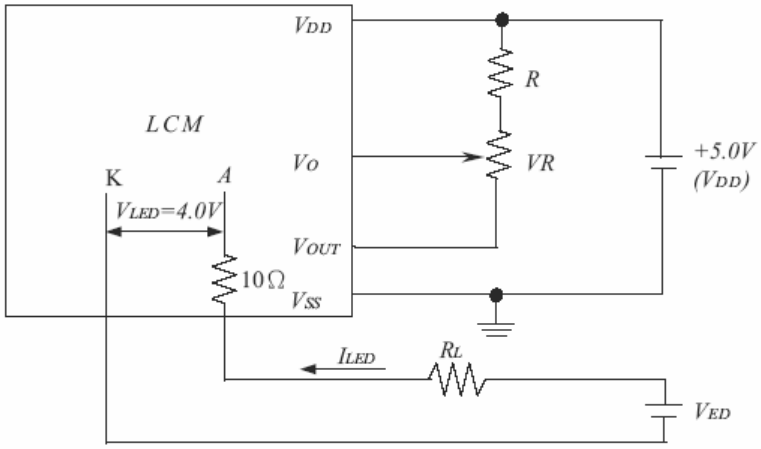
8. BLOCK DIAGRAM



9. POWER SUPPLY



RECOMMENDED RESISTOR R: V_{DD} –Vo≧1.5V

I_{LED}=[(V_{ED}- V_{LED}) / (R_L+10Ω)] , I_{LED} = 75mA *(TYP)*

V_{DD} - Vo: LCD DRIVING VOLTAGE

VR: 10KΩ ~ 20KΩ

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.