



ALL SHORE INDUSTRIES, INC.

SPECIFICATION FOR LIQUID CRYSTAL DISPLAY MODULE

MODULE #: ASI-D-1286DS-EC-_S/W

(1)	NUMBER OF DOTS	-----	128.0W X 64.0H DOTS
(2)	MODULE SIZE	-----	63.2W X 54.00H X 8.0D (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 YELLOW, GRAY



MODEL NO : ASI-D-1286DS-EC-_S/W

RECORDS OF REVISION		DOC . FIRST ISSUE December 12, 2003
DATE	REVISED DRAWING NO.	SUMMARY



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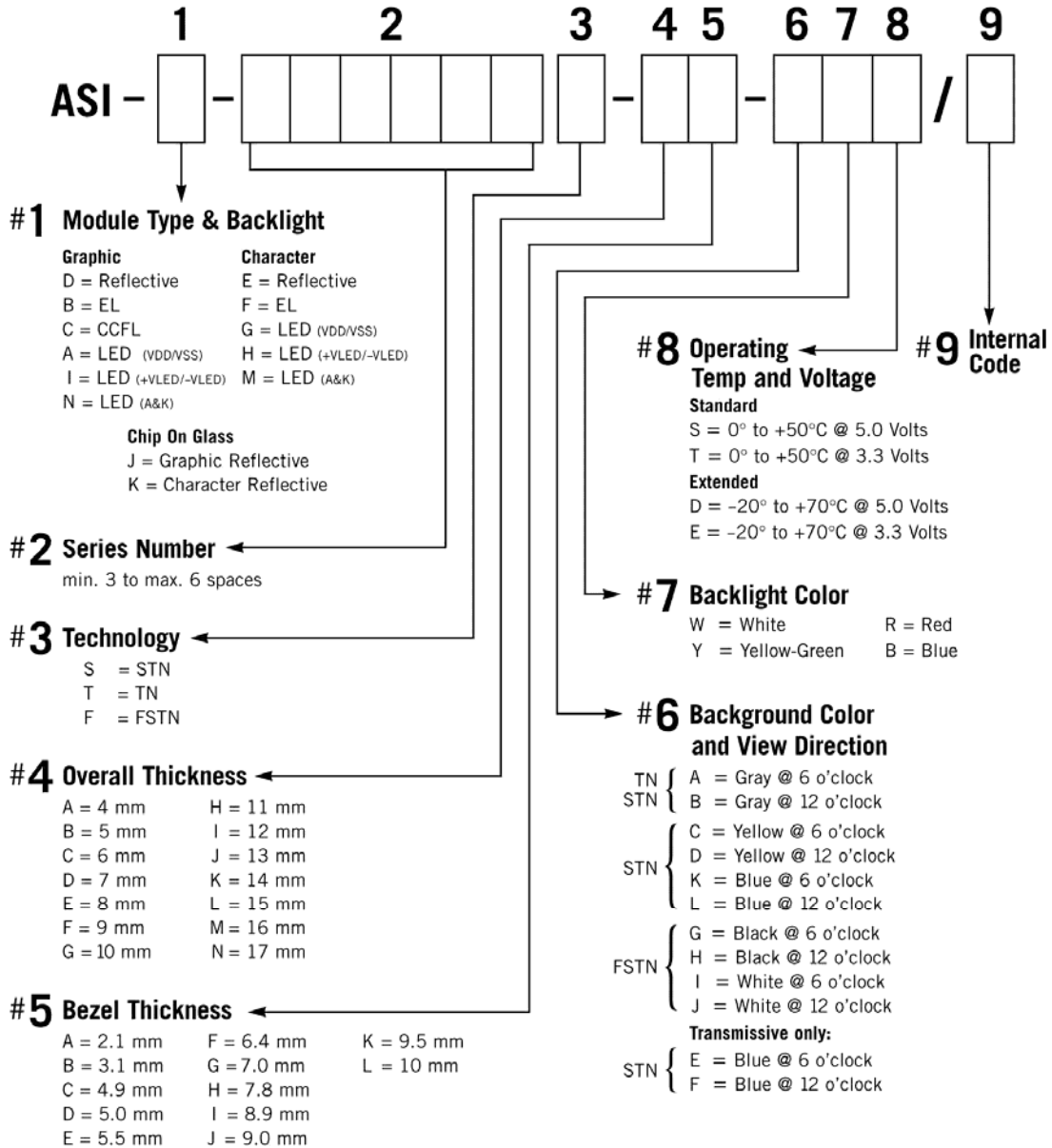
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LCD MODULE PART NUMBERING SYSTEM



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 : (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

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(10)	CONTROLLER	-----	HD61210



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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)

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 ≤ 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/s²



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4. ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	CONDITION	MIN .	TYP .	MAX .	UNIT
LOGIC CIRCUIT POWER SUPPLY VOLTAGE	VDD-VSS	_____	4.75	5.0	5.25	V
INPUT VOLTAGE NOTE (2)	V _{IH}	H LEVEL	0.7VDD	_____	VDD	V
	V _{IL}	L LEVEL	VSS	_____	0.3VDD	V
OUTPUT VOLTAGE NOTE (1)	V _{OH}	I _{OH} = -0.3mA	VDD-2.4	_____	_____	V
	V _{OL}	I _{OL} = 3.0mA	_____	_____	0.4	V
POWER SUPPLY CURRENT NOTE (3)	IDD	VDD-VSS=3.0V	_____	5.0	8.0	mA
LCD DISPLAY DUTY RATIO	DUTY	_____	_____	1/64	_____	_____
RECOMMENDED LCD DRIVING VOLTAGE NOTE (4)	VDD-V _O	T _a = 70°C	_____	8.1	_____	V
	$\phi = 10^\circ$ $\theta = 0^\circ$	T _a = 25°C	_____	8.5	_____	V
		T _a = -20°C	_____	8.5	_____	V

5. OPTICAL CHARACTERISTICS .

I T E M	SYMBOL	CONDITION	T _a = 25°C VDD = 3.0 V			UNIT	NOTE
			MIN .	TYP .	MAX .		
VIEWING AREA	$\phi_2 - \phi_1$	K = 2.0	30	40	_____	Deg.	1
CONTRAST RATIO	K	$\phi = 10^\circ$ $\theta = 0^\circ$	3.0	4.0	_____	_____	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

(* 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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7. Interface pin connection

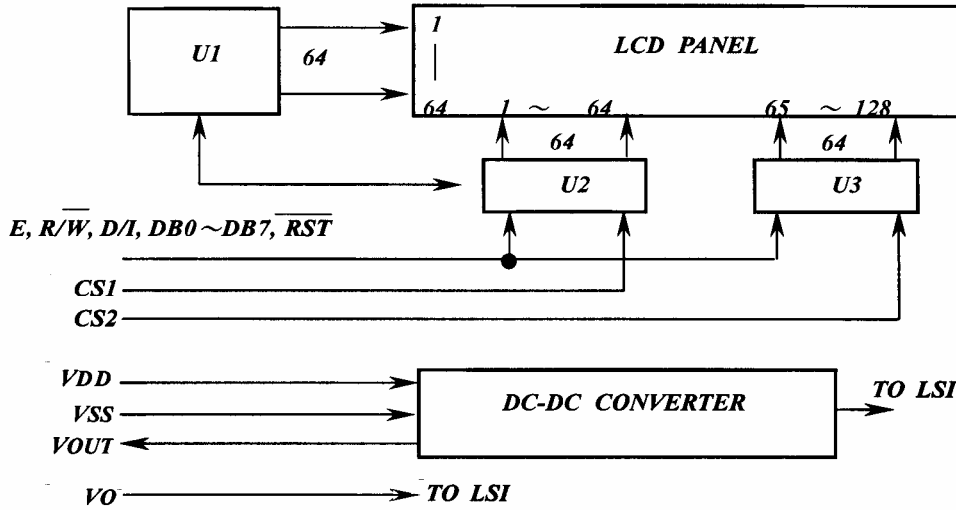
Interface

PIN NO.	SYMBOL	FUNCTION
1	V _{SS}	GROUND
2	V _{DD}	POWER SUPPLY FOR LOGIC
3	V _O	OPERATING VOLTAGE FOR LCD DRIVING
4	D/I	H: DATA INPUT
5	R/ \overline{W}	L: INSTRUCTION CODE INPUT
6	E	H: DATA READ (LCD MODULE → MPU) L: DATA WRITE (LCD MODULE ← MPU)
7	DB0	ENABLE SIGNAL
8	DB1	DATA INPUT/OUTPUT (LSB)
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
15	CS1	H: CHIP SELECTION FOR IC1
16	CS2	H: CHIP SELECTION FOR IC2
17	\overline{RST}	L: RESET
18	V _{OUT}	POWER SUPPLY FOR LCD DRIVING
19	NC	NO CONNECTION
20	NC	NO CONNECTION

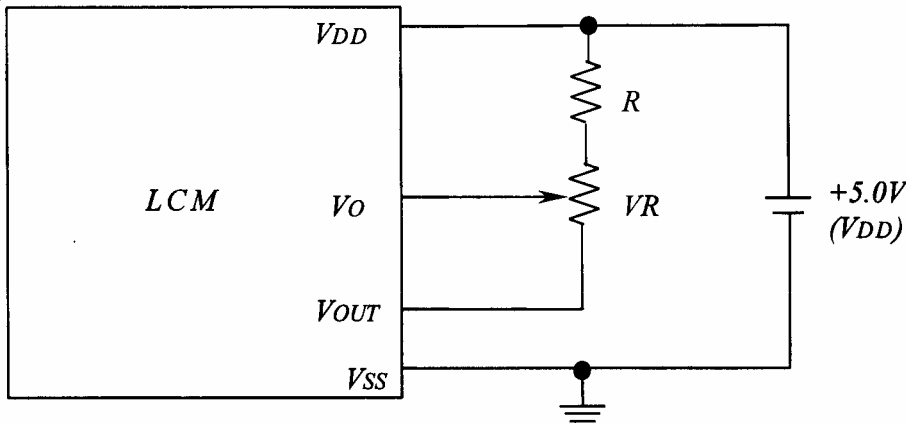


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8. BLOCK DIAGRAM



9. POWER SUPPLY



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