ALL SHORE INDUSTRIES

ALL SHORE INDUSTRIES, INC.

SPECIFICATION FOR

LIQUID CRYSTAL DISPLAY MODULE

MODULE # : ASI-G-161BS-LJ-_YS/W

(1) NUMBER OF CHARACTERS ---------- 16 CH * 1 LINE

(2) MODULE SIZE---------- 122.0 W * 33.0 H *"C" T (Max) mm

(3) EFFECTIVE AREA---------- 99.0 W * 13.0 H mm

(4) CHARACTER PATTERN---------- 5 * 7 DOTS + CURSOR

(5) CHARACTER SIZE ---------- 4.84 W * 8.06 H mm

(6) CHARACTER PITCH ---------- 6.0 mm

(7) DOT SIZE ---------- 0.92 W * 1.10 H mm

(8) DOT PITCH---------- 0.98 W * 1.16 H mm

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

ALL SHORE INDUSTRIES

MODEL NO ：ASI-G-161BS-LJ-_YS/W

RECORD OF REVISION

DATE	PAGE	SUMMARY

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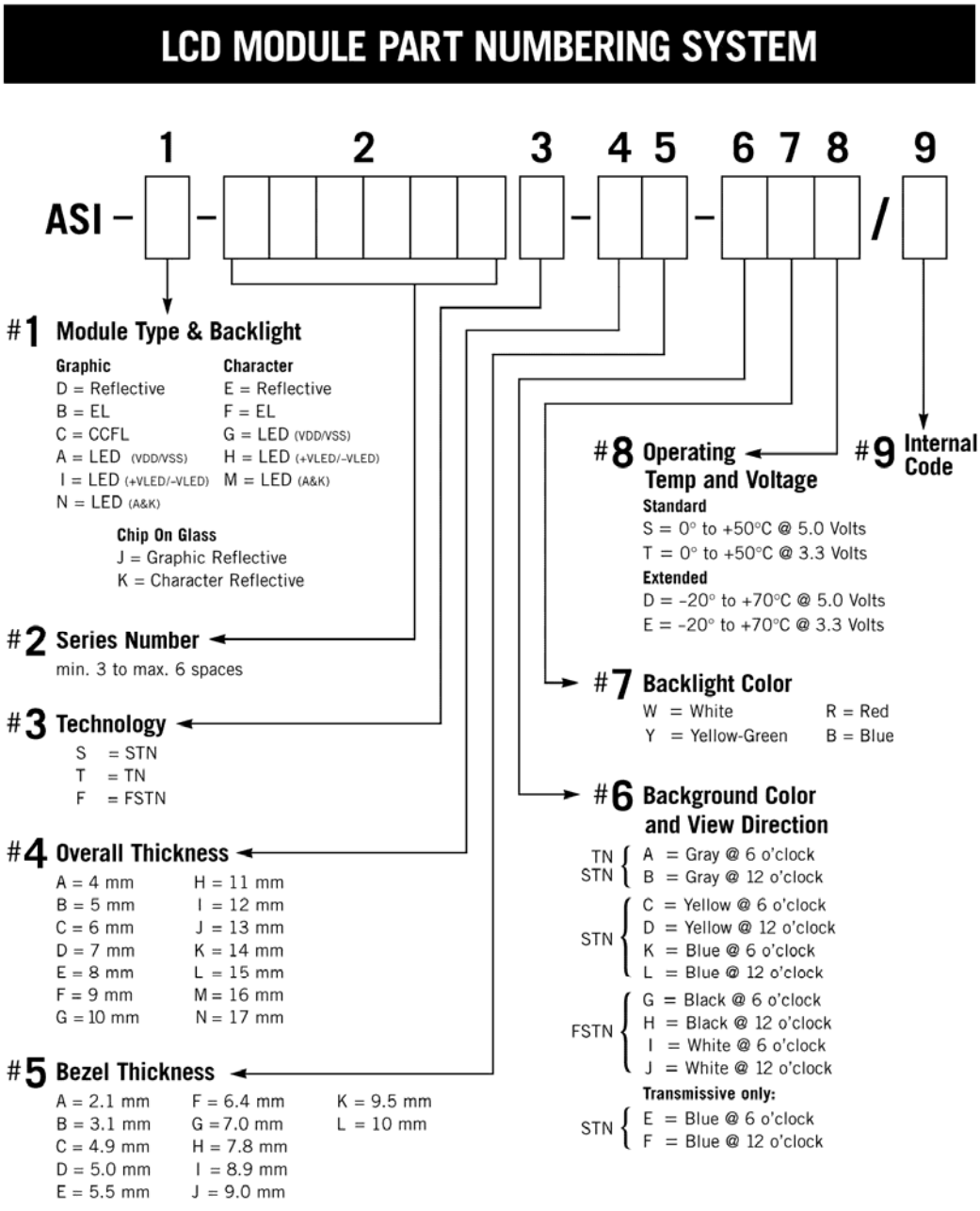
MODEL NO : ASI-G-161BS-LJ-_YS/W



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

ALL SHORE INDUSTRIES

MODEL NO : ASI-G-161BS-LJ-_YS/W

General specifications

General specifications

PLEASE REFER TO:
"CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS (MS-10-12780)".

This individual specification is prior to general specifications

Mechanical data

(1) NUMBER OF CHARACTERS ---------- 16 CH * 1 LINE
(2) MODULE SIZE ---------- 122.0 W * 33.0 H * 15.0 T (Max) mm
(3) EFFECTIVE AREA ---------- 99.0 W * 13.0 H mm
(4) CHARACTER PATTERN ---------- 5 * 7 DOTS + CURSOR
(5) CHARACTER SIZE ---------- 4.84 W * 8.06 H mm
(6) CHARACTER PITCH ---------- 6.0 mm
(7) DOT SIZE ---------- 0.92 W * 1.10 H mm
(8) DOT PITCH ---------- 0.98 W * 1.16 H mm
(9) VIEWING DIRECTION ---------- 6 or 12 O'CLOCK

ALL SHORE INDUSTRIES

MODEL NO : ASI-G-161BS-LJ-_YS/W

Absolute maximum ratings

Electrical absolute maximum ratings

I T E M	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 LED	NOTE(2)	------	NOTE(2)	V	NOTE(2)

NOTE (1): ELECTRO-STATIC DISCHARGE RESISTANCE IS TESTED BY CHARGING A 200PF CAPACITOR AND DISCHARGING IT BY CONTACT WITH A INTERFACE CONNECTOR PIN.

NOTE (2):

B.L TYPE	SYMBOL	MAX.	COMMENT
ARRAY LED	V_{LED}	6.0	YELLOW-GREEN,AMBER,ORANGE,RED
EDGE LED	V_{LED}	5.0	BLUE,PURE GREEN,WHITE

Environmental absolute maximum ratings

I T E M	CONDITION	OPERATION		STORAGE		COMMENT
		MIN.	MAX.	MIN.	MAX.	
AMBIENT TEMPERATURE	NORMAL	0℃	50℃	-20℃	70℃	------
	WIDE	-20℃	70℃			
HUMIDITY	------	NOTE (3)		NOTE (3)		NO CONDENSATION
VIBRATION NOTE (3)	------	------	0.5G	------	2G	10~300Hz XYZ DIRECTIONS 1 Hr EACH
SHOCK NOTE (4)	------	------	3G	------	50G	10 msec XYZ DIRECTIONS 1 TIME EACH
CORROSIVE GAS	------	NOT ACCEPTABLE		NOT ACCEPTABLE		-------

NOTE (3): Ta ≦ 50℃: 90% RH MAX.

Ta ＞ 50℃: ABSOLUTE HUMIDITY MUST BE LOWER THAN THE HUMIDITY OF 90% RH AT 50℃. (80%RH AT 60℃)

NOTE (4): 1G = 9.8 m/s^2

ALL SHORE INDUSTRIES

MODEL NO : ASI-G-161BS-LJ-_YS/W

Electrical characteristics

$Ta = 25℃$ $V_{DD} = 5.0 \pm 0.25$ V

ITEM	SYMBOL	CONDITION		MIN.	TYP.	MAX.	UNIT
INPUT VOLTAGE	V_{IH}	----------		2.2	------	------	V
	V_{IL}			------	------	0.6	V
OUTPUT VOLTAGE	V_{OH}	$-I_{OH}$ =0.205 mA		2.4	------	------	V
	V_{OL}	I_{OL} = 1.2 mA		------	------	0.4	V
POWER SUPPLY CURRENT	I_{DD}	V_{DD} = 5.0V		------	1.0	1.5	mA
RECOMMENDED LCD DRIVING VOLTAGE, NOTE(1)	V_{DD}-V_O	STN/ FSTN (POSITIVE) DUTY =1/16 Φ=10° NOTE(2)	Ta=-20°C	------	4.8	------	V
			Ta= 0°C	------	4.7	------	V
			Ta= 25°C	------	4.5	------	V
			Ta= 50°C	------	4.3	------	V
			Ta= 70°C	------	4.2	------	V
		STN/ FSTN (NEGATIVE) DUTY =1/16 Φ=10° NOTE(2)	Ta=-20°C	------	4.6	------	V
			Ta= 0°C	------	4.5	------	V
			Ta= 25°C	------	4.3	------	V
			Ta= 50°C	------	4.1	------	V
			Ta= 70°C	------	4.0	------	V
		TN DUTY =1/16 Φ=25° NOTE(2)	Ta=-20°C	------	4.7	------	V
			Ta= 0°C	------	4.6	------	V
			Ta= 25°C	------	4.2	------	V
			Ta= 50°C	------	3.8	------	V
			Ta= 70°C	------	3.7	------	V
POWER SUPPLY CURRENT FOR NOTE(3)	I_{LED}	NOTE(3)		------	NOTE(3)	NOTE(3)	mA

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

(2): $\theta = 0°$: VIEWING ANGLE AT 6 O'CLOCK

$\theta = 180°$: VIEWING ANGLE AT 12 O'CLOCK

(3): LED CURRENT OF DIFFERENT LED TYPE

LED B.L TYPE	V_{LED}	I_{LED}				LED COLOR
		MIN.	TYP.	MAX.	UNIT.	
ARRAY LED	5.0V	-----	90	140	mA	YELLOW-GREEN、AMBER、ORANGE、RED
EDGE LED	4.0V	-----	30	40	mA	BLUE、WHITE、PURE GREEN

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MODEL NO : ASI-G-161BS-LJ-_YS/W

Optical characteristics

TN TYPE LCD

Ta = 25℃ V_{DD}-V_O

I T E M	*SYMBOL*	*CONDITION*	*MIN.*	*TYP.*	*MAX.*	*UNIT*	*NOTE*
VIEWING ANGLE	Φ2-Φ1	K = 1.4 NOTE(1)	20	30	----	deg.	NOTE(2)
CONTRAST RATIO	K	Φ = 25° NOTE(1)	2.0	3.0	----	----	NOTE(2)
RESPONSE TIME	tr (rise)	Φ = 25° NOTE(1)	----	150	250	ms	NOTE(2)
	tf (fall)	Φ = 25° NOTE(1)	----	150	250	ms	NOTE(2)

STN TYPE LCD

Ta = 25℃ V_{DD}-V_O

I T E M	*SYMBOL*	*CONDITION*	*MIN.*	*TYP.*	*MAX.*	*UNIT*	*NOTE*
VIEWING ANGLE	Φ2-Φ1	K = 2.0 NOTE(1)	30	40	----	deg.	NOTE(2)
CONTRAST RATIO	K	Φ = 10° NOTE(1)	3.0	4.0	----	----	NOTE(2)
RESPONSE TIME	tr (rise)	Φ = 10° NOTE(1)	----	200	350	ms	NOTE(2)
	tf (fall)	Φ = 10° NOTE(1)	----	300	400	ms	NOTE(2)

FSTN、STN BLUE TYPE LCD

Ta = 25℃ V_{DD}-V_O

I T E M	*SYMBOL*	*CONDITION*	*MIN.*	*TYP.*	*MAX.*	*UNIT*	*NOTE*
VIEWING ANGLE	Φ2-Φ1	K = 2.0 NOTE(1)	30	40	----	deg.	NOTE(2)
CONTRAST RATIO	K	Φ = 10° NOTE(1)	4.0	5.0	----	----	NOTE(2)
RESPONSE TIME	tr (rise)	Φ = 10° NOTE(1)	----	200	350	ms	NOTE(2)
	tf (fall)	Φ = 10° NOTE(1)	----	300	400	ms	NOTE(2)

Brightness for backlight

SYMBOL	*CONDITION*	*MIN.*	*TYP.*	*MAX.*	*UNIT*	*LED TYPE*	*NOTE*
B	Φ = 0° θ = 0°	5.0	----	----	cd/m²	YELLOW-GREEN、RED、AMBER、ORANGE	NOTE(2)
		6.0	----	----		BLUE、PURE GREEN、WHITE	NOTE(3)

NOTE (1): θ = 0° WHEN VIEWING ANGLE AT 6 O'CLOCK
θ = 180° WHEN VIEWING ANGLE AT 12 O'CLOCK

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

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

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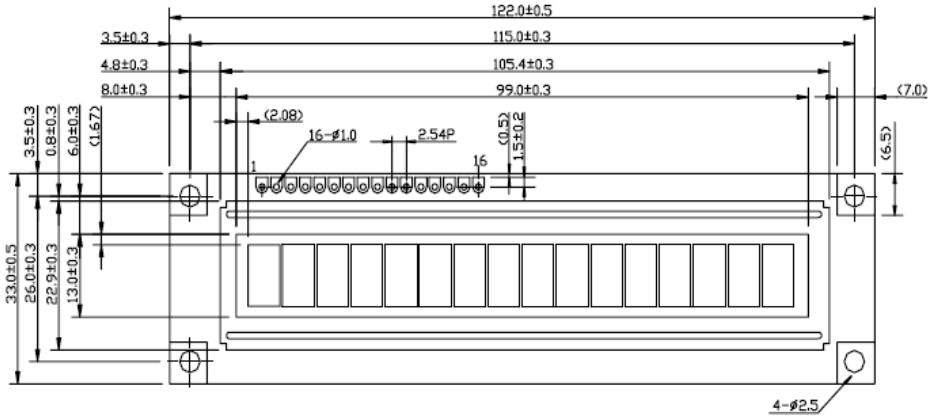
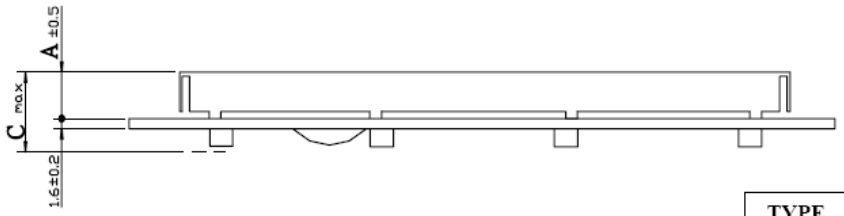
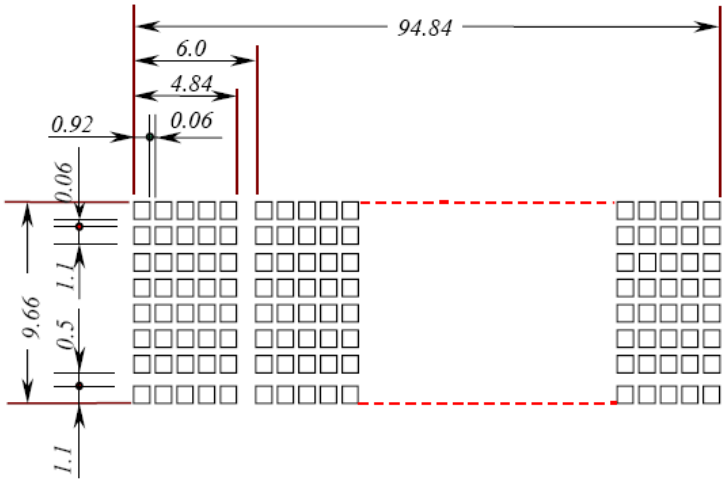
MODEL NO : ASI-G-161BS-LJ-_YS/W

Outline dimension





TYPE	A	C
BL	9.0	15.0
NO BL	4.9	10.0



UNIT : mm
SCALE : NTS

Interface pin connection

PIN NO.	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*
SYMBOL	Vss	VDD	Vo	RS	R/$\overline{W}$	E	DB0	DB1
PIN NO.	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*
SYMBOL	DB2	DB3	DB4	DB5	DB6	DB7	A	K

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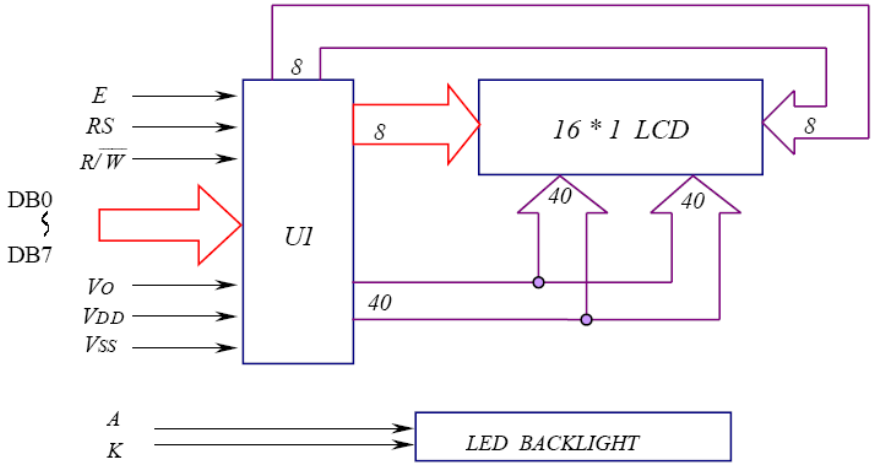
MODEL NO : ASI-G-161BS-LJ-_YS/W

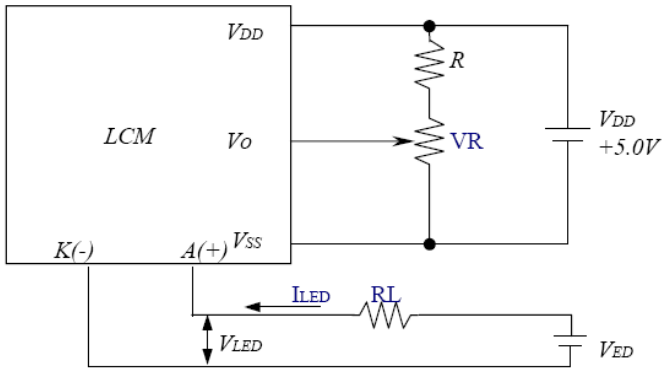
Block diagram



Display data address charts

Character	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
LINE 1	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F

Power supply for LCM



RECOMMENDED RESISTOR R : VDD–Vo≧1.5V
VDD–Vo: LCD DRIVING VOLTAGE
VR: 10KΩ~20KΩ

ITEM	LED TYPE	CONDITION
Limit resister of LED **(RL)**	ARRAY LED	RL≧((VED-5.0V) / ILED)，ILED≦140mA
	EDGE LED	RL≧((VED-4.0V) / ILED)，ILED≦40mA

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.