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EVERBOUQUET INTERNATIONAL CO., LTD.

PART NO. : MC1601H-SBLW

FOR MESSRS. : _____

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ACCEPTED BY: _____

PROPOSED BY : _____



RECORD OF REVISION

DATE	PAGE	SUMMARY
2002/5/24	P5/7	Modify the LCD driving voltage : 4.9V → 4.4V at 0°C 4.5V → 4.3V at 25°C 4.1V → 4.2V at 50°C
2002/5/24	P5/7	Modify the power supply current for LED 40/60mA → 30/40mA
2002/09/23	5/7	6.Modify the CONDITION of I_{LED} : $V_{LED} = 5.0V \rightarrow 4.0V$
	7/7	10.Modify the Power supply for LCM.

3. General specifications

3.1 General specifications

PLEASE REFER TO:

“CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS (MS-10-12780)”.

3.2 This individual specification is prior to general specifications

4. 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 O’CLOCK
- (10) LCD TYPE -----STN.BLUE.TRANSMISSIVE.
- (11) LED BACKLIGHT COLOR-----WHITE

5. Absolute maximum ratings

5.1 Electrical absolute maximum ratings

<i>I T E M</i>	<i>SYMBOL</i>	<i>MIN.</i>	<i>MAX.</i>	<i>UNIT</i>	<i>COMMENT</i>
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	-----	-----	6.0	V	-----

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

<i>I T E M</i>	<i>OPERATING</i>		<i>STORAGE</i>		<i>COMMENT</i>
	<i>MIN.</i>	<i>MAX.</i>	<i>MIN.</i>	<i>MAX.</i>	
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 ≤ 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/s²

6. Electrical characteristics

Ta = 25°C VDD = 5.0 ± 0.25 V

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	
INPUT VOLTAGE	V _{IH}	-----	2.0	-----	V _{DD}	V	
	V _{IL}	-----	V _{SS}	-----	0.8	V	
OUTPUT VOLTAGE	V _{OH}	-I _{OH} = 0.2 mA	2.4	-----	-----	V	
	V _{OL}	I _{OL} = 1.6 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}	DUTY= 1/16 Φ=10° θ=0°	Ta = 0°C	-----	4.4	-----	V
			Ta = 25°C	-----	4.3	-----	V
			Ta = 50°C	-----	4.2	-----	V
POWER SUPPLY CURRENT FOR LED	I _{LED}	V _{LED} = 4.0V	-----	30	40	mA	

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

7. Optical characteristics

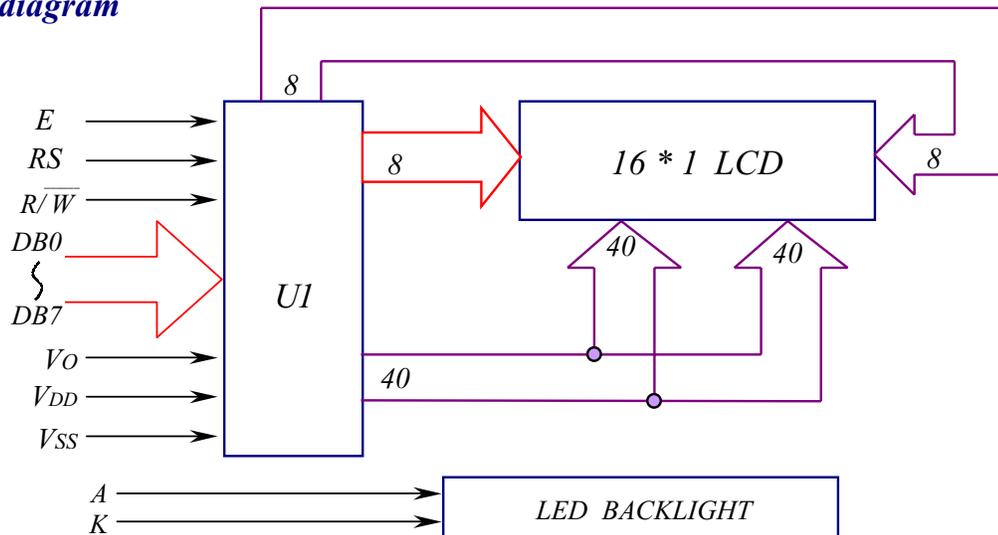
Ta = 25°C V_{DD-V_O} = 4.3 V

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	NOTE
VIEWING ANGLE	Φ2-Φ1	K = 2.0 θ = 0°	30	40	-----	deg.	1
CONTRAST RATIO	K	Φ = 10° θ = 0°	4.0	5.0	-----	-----	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° θ = 0°	6.0	-----	-----	cd/m ²	1,2

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

NOTE (2): UNDER NORMAL TEMPERATURE AND HUMIDITY IN A DARK ROOM.

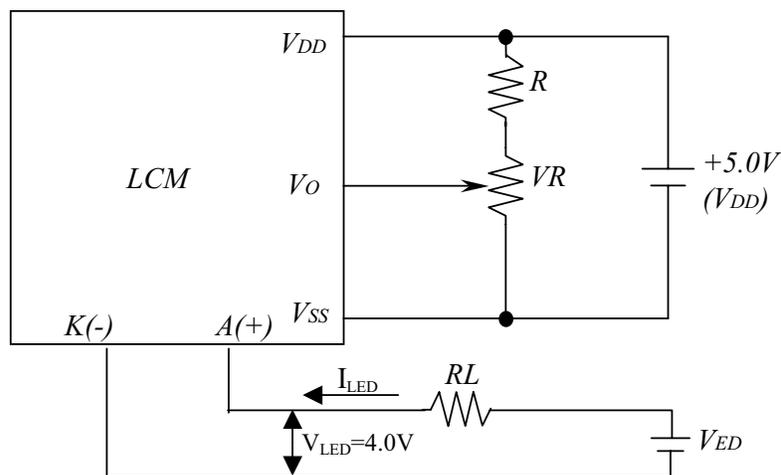
9 Block diagram



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

10. Power supply for LCM



RECOMMENDED RESISTOR R: $V_{DD} - V_O \geq 1.5V$

$R_L \geq ((V_{ED} - 4.0V) / I_{LED})$, $I_{LED} \leq 40mA$

$V_{DD} - V_O$: LCD DRIVING VOLTAGE

VR: $10K\Omega \sim 20K\Omega$