



EVERBOUQUET INTERNATIONAL CO., LTD.

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BEST TECH. FOREVER

PART NO. : MC1602D-SYR

FOR MESSRS. : _____

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ACCEPTED BY : -----

PROPOSED BY : -----

RECORD OF REVISION

DATE	PAGE	SUMMARY

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 * 2 LINE
- (2) MODULE SIZE----- 85.0 W * 30.0 H * 10.0 T (Max) mm
- (3) EFFECTIVE AREA----- 64.5 W * 16.0 H mm
- (4) CHARACTER PATTERN----- 5 * 7 DOTS + CURSOR
- (5) CHARACTER SIZE ----- 2.96 W * 4.86 H mm
- (6) CHARACTER PITCH----- 3.55 mm
- (7) DOT SIZE ----- 0.56 W * 0.66 H mm
- (8) DOT PITCH ----- 0.60 W * 0.70 H mm
- (9) VIEWING DIRECTION ----- 6 O'CLOCK
- (10) LCD TYPE----- STN.YELLOW-GREEN.REFECTIVE.

5. Absolute maximum ratings

5.1 Electrical absolute maximum ratings

I T E M	S Y M B O L	M I N.	M A X.	U N I T	C O M M E N T
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)

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 T E M	O P E R A T I N G		S T O R A G E		C O M M E N T
	M I N.	M A X.	M I N.	M A X.	
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/s²

6. Electrical characteristics

T_a = 25°C V_{DD} = 5.0 ± 0.25 V

I T E M	S Y M B O L	C O N D I T I O N	M I N.	T Y P.	M A X.	U N I T
INPUT VOLTAGE	V _{IH}	-----	2.0	-----	-----	V
	V _{IL}	-----	-----	-----	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	V _{DD} -V _O DUTY= 1/16 Φ=10°	T _a = 0°C	-----	4.9	-----	V
		T _a = 25°C	-----	4.5	-----	V
		T _a = 50°C	-----	4.1	-----	V

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

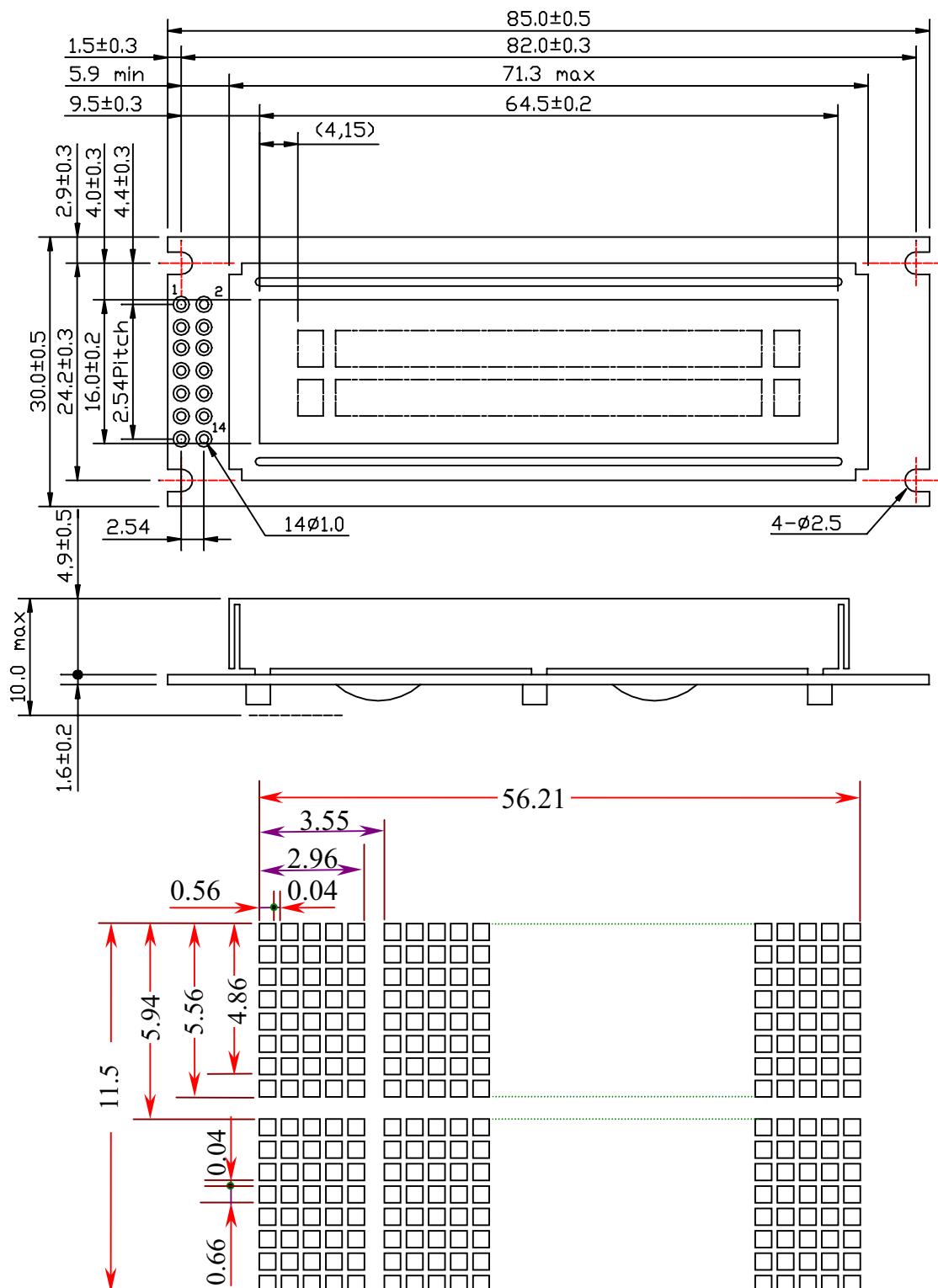
7. Optical characteristics

T_a = 25 °C V_{DD} = 5.0V

I T E M	S Y M B O L	C O N D I T I O N	M I N.	T Y P.	M A X.	U N I T	N O T E
VIEWING ANGLE	Φ2-Φ1	K = 2.0	30	40	-----	deg.	2
CONTRAST RATIO	K	Φ = 10° θ = 0°	3.0	4.0	-----	-----	2
RESPONSE TIME	tr (rise)	Φ = 10° θ = 0°	-----	200	350	ms	2
	tf (fall)	Φ = 10° θ = 0°	-----	300	400	ms	2

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

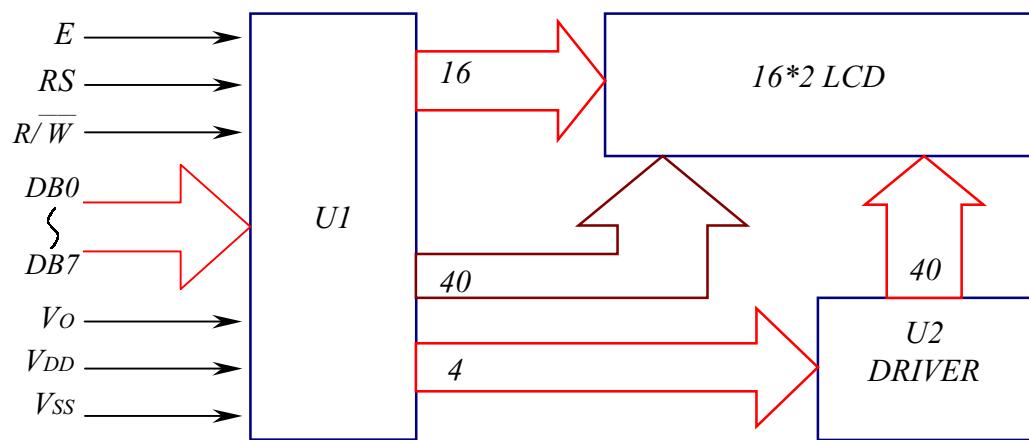
8. Outline dimension



Interface pin connection

PIN NO.	1	2	3	4	5	6	7
SYMBOL	DB7	DB6	DB5	DB4	DB3	DB2	DB1
PIN NO.	8	9	10	11	12	13	14
SYMBOL	DB0	E	R/W	RS	VO	VSS	VDD

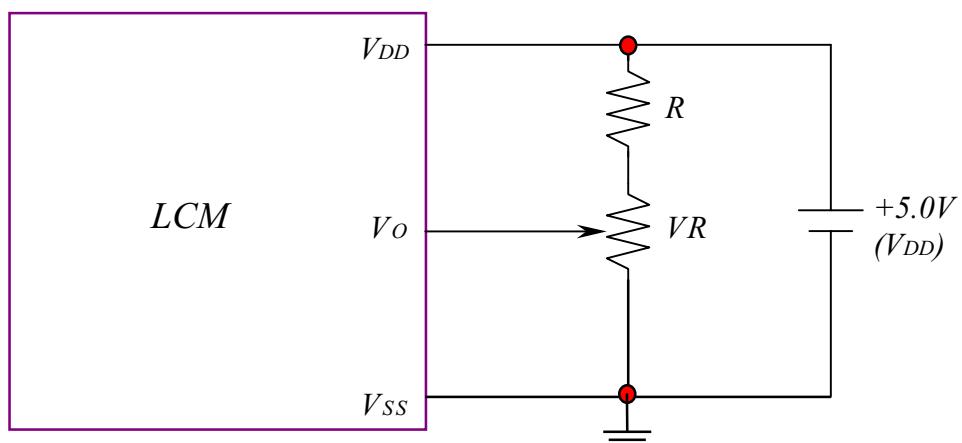
9 Block diagram



Display data address charts

<i>Character</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>	<i>13</i>	<i>14</i>	<i>15</i>	<i>16</i>
LINE 1	80	81	82	83	84	85	86	87	88	89	8A	8B	8C	8D	8E	8F
LINE 2	C0	C1	C2	C3	C4	C5	C6	C7	C8	C9	CA	CB	CC	CD	CE	CF

10. Power supply for LCM



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

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

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