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		VERSION : 1

CUSTOMER ACCEPTANCE SPECIFICATIONS

MODEL :

162G0(LED TYPES)
(RoHS)

FOR MESSRS :

CUSTOMER'S APPROVAL

DATE :

BY :

EMERGING DISPLAY
TECHNOLOGIES CORPORATION

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162G0 (LED TYPES) (RoHS)	1	0-1

RECORDS OF REVISION	DOC . FIRST ISSUE	SEP.13,2005
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DATE	REVISED PAGE NO.	SUMMARY

NUMBERING SYSTEM

Polarizer Mode	Backlight	Code value
Transflective	LED	L
Transmissive	LED	M

Backlight Color	Code Value
Yellow-Green	Y

E	W	1	6	2	G	0	G	L	Y
---	---	---	---	---	---	---	---	---	---

LCD type + color	Code Value
STN+ Yellow-Green	Y
STN + Gray	G
STN + Blue	B

TABLE OF CONTENTS

NO.	ITEM	PAGE
1.	GENERAL SPECIFICATIONS -----	1
2.	MECHANICAL SPECIFICATIONS -----	1
3.	ABSOLUTE MAXIMUM RATINGS -----	2
4.	ELECTRICAL CHARACTERISTICS -----	3
5.	OPTICAL CHARACTERISTICS -----	3
6.	OUTLINE DIMENSIONS -----	4
7.	DETAIL DRAWING OF DOT MATRIX -----	5
8.	BLOCK DIAGRAM -----	5
9.	INTERFACE SIGNALS -----	6
10.	POWER SUPPLY -----	7
11.	DISPLAY DATA RAM ADDRESS -----	7
12.	ROM MAP -----	8

1. GENERAL SPECIFICATIONS

1.1 GENERAL SPECIFICATIONS
PLEASE REFER TO :

CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS :
EU - 002B

1.2 APPLICATION NOTES FOR CONTROLLER / DRIVER :
PLEASE REFER TO :

CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS :
EU - KS0066

1.3 THIS INDIVIDUAL SPECIFICATIONS IS PRIOR TO GENERAL SPECIFICATIONS .

1.4 MATERIAL SAFETY DESCRIPTION
ASSEMBLIES SHALL COMPLY WITH EUROPEAN ROHS REQUIREMENTS, INCLUDING PROHIBITED MATERIALS/COMPONENTS CONTAINING LEAD, MERCURY, CADMIUM, HEXAVALENT CHROMIUM, POLYBROMINATED BIPHENYLS (PBB) AND POLYBROMINATED DIPHENYL ETHERS (PBDE)

2. MECHANICAL SPECIFICATIONS

- (1) NUMBER OF CHARACTER ----- 16 CH * 2 LINES
- (2) MODULE SIZE ----- 80.0W * 36.0H * 14.0D (max.) mm
- (3) EFFECTIVE AREA ----- 66.0W * 16H mm
- (4) CHARACTER FONT ----- 5 * 7 DOTS + CURSOR
- (5) CHARACTER SIZE ----- 2.96W * 5.56H mm
- (6) CHARACTER PITCH ----- 3.55W * 5.94H mm
- (7) DOT SIZE ----- 0.56W * 0.66H mm
- (8) DOT PITCH ----- 0.60W * 0.70H mm
- (9) LCD TYPE *
- (10) DRIVING METHOD ----- 1 / 16 DUTY MULTIPLEX DRIVE
- (11) BACK-LIGHT *
- (12) ROM CODE ----- EW162G0GLY*EJ
SPLC780C-02A-C (ENGLISH/RUSSIAN)

* PLEASE REFER TO NUMBERING SYSTEM

3. ABSOLUTE MAXIMUM RATINGS

3.1 ELECTRICAL ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	MIN .	MAX .	UNIT	REMARK
POWER SUPPLY FOR LOGIC	VDD – VSS	0	7.0	V	
POWER SUPPLY FOR LCD DRIVE	VDD – VO	0	13.0	V	
INPUT VOLTAGE	VI	VSS	VDD	V	
STATIC ELECTRICITY	—	—	100	V	NOTE (1)
LED POWER DISSIPATION	PD	—	0.99	W	
LED FORWARD CURRENT	IF	—	220	mA	
LED REVERSE VOLTAGE	VR	—	8	V	

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

3.2 ENVIRONMENTAL ABSOLUTE MAXIMUM RATINGS.

I T E M	OPERATING		STORAGE		REMARK
	MIN .	MAX .	MIN .	MAX .	
AMBIENT TEMPERATURE	- 2 0°C	7 0°C	- 3 0°C	8 0°C	NOTE (1), (3)
HUMIDITY	NOTE (2)		NOTE (2)		WITHOUT CONDENSATION
VIBRATION	—	4 . 9 m /s ² (0 . 5 G)	—	1 9 . 6 m /s ² (2 G)	
SHOCK	—	2 9 . 4 m /s ² (3 G)	—	4 9 0 . 0 m /s ² (5 0 G)	XYZ DIRECTIONS
CORROSIVE GAS	NOT ACCEPTABLE		NOT ACCEPTABLE		

NOTE (1) : BACKGROUND COLOR CHANGES SLIGHTLY DEPENDING ON AMBIENT
TEMPERATURE THIS PHENOMENON IS REVERSIBLE.

NOTE (2) : Ta ≤ 60°C : 90%RH (96HRS MAX.)

Ta > 60°C : ABSOLUTE HUMIDITY MUST BE

LOWER THAN THE HUMIDITY OF 90%RH AT 60°C(96HRS MAX.)

NOTE (3) : Ta AT -30°C: WILL BE < 48hrs

80°C: WILL BE < 168hrs

4. ELECTRICAL CHARACTERISTICS

			Ta = 25 °C		VDD = 5.0 ±0.25 V	
PARAMETER	SYMBOL	CONDITION	MIN .	TYP .	MAX .	UNIT
POWER SUPPLY VOLTAGE FOR LOGIC	VDD	—	4.75	5.0	5.25	V
H LEVEL INPUT VOLTAGE	VIH	—	2.2	—	—	V
L LEVEL INPUT VOLTAGE	VIL	—	—	—	0.6	V
H LEVEL OUTPUT VOLTAGE	VOH	-IOH = 0 . 2 mA	2.4	—	—	V
L LEVEL OUTPUT VOLTAGE	VOL	IOL = 1 . 2 mA	—	—	0.4	V
POWER SUPPLY CURRENT (LOGIC)	IDD	VDD = 5 . 0 V	—	1.0	3.0	mA
RECOMMENDED LCD DRIVING VOLTAGE	VDD - VO θy- = 10°, θx = 0° DUTY = 1/16	Ta = - 20 °C	3.9	4.4	4.9	V
		Ta = 25 °C	3.9	4.4	4.9	V
		Ta = 70 °C	3.9	4.4	4.9	V
CLOCK OSCILLATION FREQUENCY	FOSC	Ta = 25 °C	—	270	—	KHz
LED FORWARD VOLTAGE	VF	IF = 110mA	—	4.2	4.5	V
LED FORWARD CURRENT	IF	—	—	110	—	mA
LED REVERSE CURRENT	IR	VR = 8V	—	—	0.2	mA

5. OPTICAL CHARACTERISTICS .

			Ta = 25 °C		VDD = 5.0 ±0.25 V			
I T E M	SYMBOL	CONDITION	MIN .	TYP .	MAX .	UNIT	NOTE	
VIEWING ANGLE	θy+	K ≥ 1.5	θx = 0°	(53)	(58)	—	deg.	1
	θy-			(43)	(48)	—		
	θx+		θy = 0°	(60)	(65)	—		
	θx-			(60)	(65)	—		
CONTRAST RATIO	K	θy- = 10 °, θx = 0°	2.0	3.0	—	—	1	
RESPONSE TIME	tr (rise)	θx = 0° θy- = 10°	Ta = -20°C	—	5538	7199	ms	1
			Ta = 25°C	—	228	296		
			Ta = 70°C	—	104	135		
	tf (fall)		Ta = -20°C	—	2316	3011		
			Ta = 25°C	—	174	226		
			Ta = 70°C	—	85	111		
THE BRIGHTNESS OF MODULE	L	VDD = 5.0 V	15	20	—	cd/m ²	1, 2	
			22.5	30	—		1, 3	
PEAK EMISSION WAVELENGTH	λP	VDD = 5.0 V	570	572	575	nm	1	

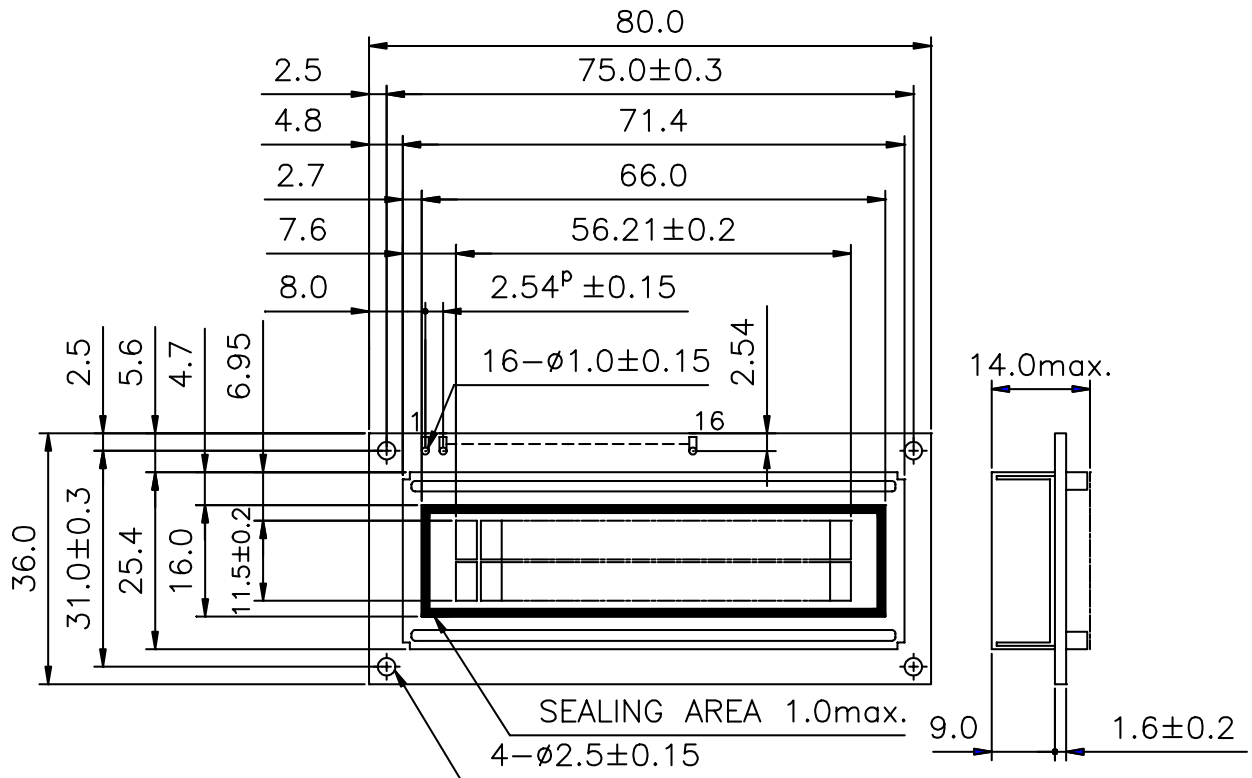
NOTE (1) : PLEASE REFER TO :

CUSTOMER ACCEPTANCE STANDARD SPECIFICATION : EU-002B

NOTE (2) : POLARIZER MODE : TRANSFLECTIVE

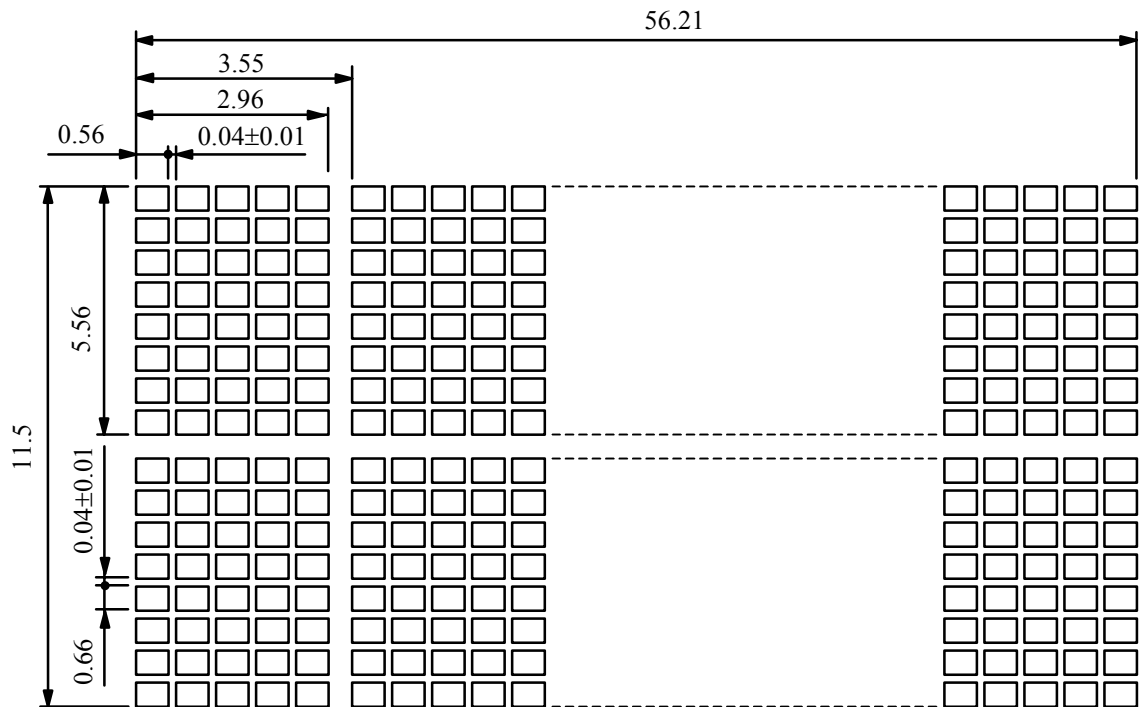
NOTE (3) : POLARIZER MODE : TRANSMISSIVE

6. OUTLINE DIMENSIONS



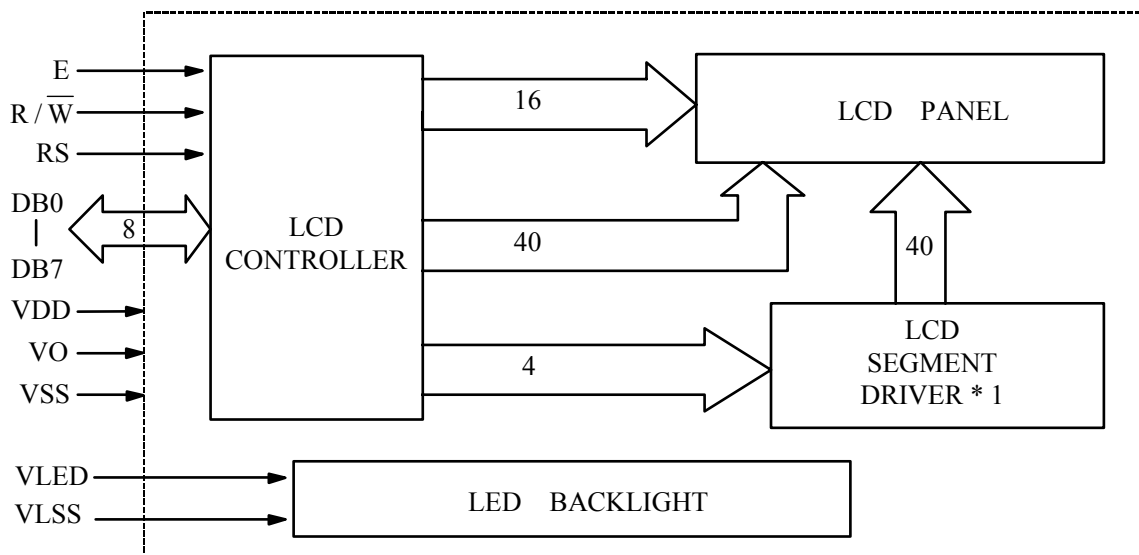
UNIT : mm
SCALE : NTS
NOT SPECIFIED TOLERANCE IS ±0.5

7. DETAIL DRAWING OF DOT MATRIX



UNIT : mm
SCALE : NTS
NOT SPECIFIED TOLERANCE IS ± 0.1

8. BLOCK DIAGRAM

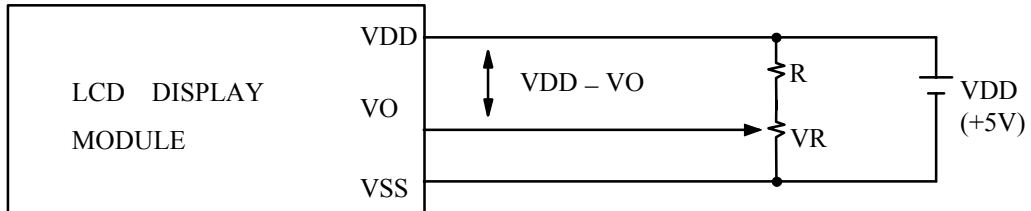


9. INTERFACE SIGNALS

PIN NO.	SYMBOL	DESCRIPTION	FUNCTION
1	VSS	GROUND	0V (GND)
2	VDD	POWER SUPPLY FOR LOGIC CIRCUIT	+5V
3	VO	LCD CONTRAST ADJUSTMENT	
4	RS	INSTRUCTION/DATA REGISTER SELECTION	RS = 0 : INSTRUCTION REGISTER RS = 1 : DATA REGISTER
5	R / \overline{W}	READ/WRITE SELECTION	R / \overline{W} = 0 : REGISTER WRITE R / \overline{W} = 1 : REGISTER READ
6	E	ENABLE INPUT	
7	DB0	DATA INPUT/OUTPUT LINES	4 BIT/8BIT SELECTABLE 4 BIT : DB4 - DB7 8 BIT : DB0 - DB7
8	DB1		
9	DB2		
10	DB3		
11	DB4		
12	DB5		
13	DB6		
14	DB7		
15	VLED	POWER SUPPLY FOR LED BACKLIGHT (ANODE)	—
16	VLSS	POWER SUPPLY FOR LED BACKLIGHT (CATHODE)	0V(GND)

10. POWER SUPPLY

10.1 POWER SUPPLY FOR LCD MODULE

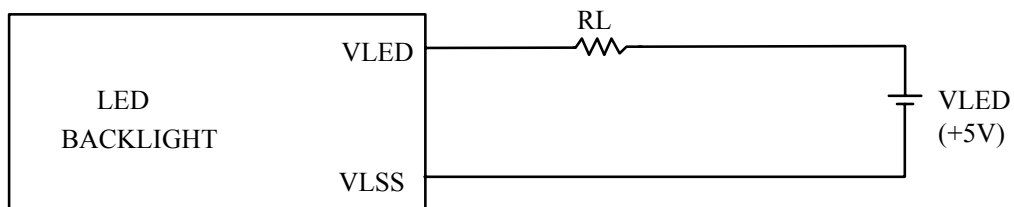


VDD - VO : LCD DRIVING VOLTAGE

VR : 10K Ω ~ 20K Ω

RECOMMENDED RESISTOR R : VDD - VO \geq 1.5 V

10.2 POWER SUPPLY FOR LED BACKLIGHT



RECOMMENDED RESISTOR RL = 6 ~ 15 Ω , 1/4 W, (CONTROLLED BY USER)

* THE BRIGHTNESS WOULD BE ALTERED SUBJECT TO DIFFERENT VALUES OF RL

11. DISPLAY DATA RAM ADDRESS

CHARACTER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
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

12. ROM MAP
SPLC 780C-02A-C

Upper 4 bit Lower 4 bit	LLLL	LLLH	LLHL	LLHH	LHLL	LHLH	LHHL	LHHH	HLLL	HLLH	HLHL	HLHH	HHLL	HHLH	HHHL	HHHH
LLLL				0	1	2	3	4	5	6	7	8	9	A	B	C
LLLH			D	E	F	G	H	I	J	K	L	M	N	O	P	Q
LLHL			R	S	T	U	V	W	X	Y	Z	[]	^	_	grave
LLHH			backslash	backtick	at	asterisk	underscore	tilde	number sign	dollar sign	percent	ampersand	circled X	circled Y	circled Z	circled A
LHLL			circled B	circled C	circled D	circled E	circled F	circled G	circled H	circled I	circled J	circled K	circled L	circled M	circled N	circled O
LHLH			circled P	circled Q	circled R	circled S	circled T	circled U	circled V	circled W	circled X	circled Y	circled Z	circled [circled]	circled ^
LHHL			circled _	circled grave	circled number sign	circled dollar sign	circled percent	circled ampersand	circled asterisk	circled tilde	circled number sign	circled dollar sign	circled percent	circled ampersand	circled asterisk	circled tilde
LHHH			circled number sign	circled dollar sign	circled percent	circled ampersand	circled asterisk	circled tilde	circled number sign	circled dollar sign	circled percent	circled ampersand	circled asterisk	circled tilde	circled number sign	circled dollar sign
HLLL			circled number sign	circled dollar sign	circled percent	circled ampersand	circled asterisk	circled tilde	circled number sign	circled dollar sign	circled percent	circled ampersand	circled asterisk	circled tilde	circled number sign	circled dollar sign
HLLH			circled number sign	circled dollar sign	circled percent	circled ampersand	circled asterisk	circled tilde	circled number sign	circled dollar sign	circled percent	circled ampersand	circled asterisk	circled tilde	circled number sign	circled dollar sign
HLHL			circled number sign	circled dollar sign	circled percent	circled ampersand	circled asterisk	circled tilde	circled number sign	circled dollar sign	circled percent	circled ampersand	circled asterisk	circled tilde	circled number sign	circled dollar sign
HLHH			circled number sign	circled dollar sign	circled percent	circled ampersand	circled asterisk	circled tilde	circled number sign	circled dollar sign	circled percent	circled ampersand	circled asterisk	circled tilde	circled number sign	circled dollar sign
HHLL			circled number sign	circled dollar sign	circled percent	circled ampersand	circled asterisk	circled tilde	circled number sign	circled dollar sign	circled percent	circled ampersand	circled asterisk	circled tilde	circled number sign	circled dollar sign
HHLH			circled number sign	circled dollar sign	circled percent	circled ampersand	circled asterisk	circled tilde	circled number sign	circled dollar sign	circled percent	circled ampersand	circled asterisk	circled tilde	circled number sign	circled dollar sign
HHHL			circled number sign	circled dollar sign	circled percent	circled ampersand	circled asterisk	circled tilde	circled number sign	circled dollar sign	circled percent	circled ampersand	circled asterisk	circled tilde	circled number sign	circled dollar sign
HHHH			circled number sign	circled dollar sign	circled percent	circled ampersand	circled asterisk	circled tilde	circled number sign	circled dollar sign	circled percent	circled ampersand	circled asterisk	circled tilde	circled number sign	circled dollar sign