CAT# LCD-107 SPEC / HOOK-UP SHEET
24 CHARACTER X 2 LINE LCD W/ EL BACKLIGHT, USED

CAT# LCD-107 is a used display, removed from working equipment. It may have been manufactured by one of several manufacturers, but all are alike in form and function. This spec sheet is for a display that is similar, but probably not exactly the same. We believe it to be appropriate for our LCD-107.

EMERGING DISPLAY TECHNOLOGIES CORPORATION	MODEL NO.	VERSION	PAGE
	24210(EL TYPES)	2	1

1. GENERAL SPECIFICATIONS

1.1 GENERAL SPECIFICATIONS
PLEASE REFER TO :

CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS :

EU-002A

1.2 APPLICATION NOTES FOR CONTROLLER / DRIVER : HD44780U
PLEASE REFER TO :

CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS :

EU-KS0066

1.3 THIS INDIVIDUAL SPECIFICATIONS IS PRIOR TO GENERAL SPECIFICATIONS .

2. MECHANICAL SPECIFICATIONS

(1) NUMBER OF CHARACTER ---------- 24 CH * 2 LINES
(2) MODULE SIZE ---------- 118.0W * 36.0H * 10.0D (max.) mm
(3) EFFECTIVE AREA ---------- 94.5W * 15.8H mm
(4) CHARACTER FONT ---------- 5 * 7 DOTS + CURSOR
(5) CHARACTER SIZE ---------- 3.20W * 5.55H mm
(6) CHARACTER PITCH ---------- 3.70W * 5.95H mm
(7) DOT SIZE ---------- 0.60W * 0.65H mm
(8) DOT PITCH ---------- 0.65W * 0.70H mm
(9) LCD TYPE *
(10) DRIVING METHOD ---------- 1/16 DUTY MULTIPLEX DRIVE
(11) BACK-LIGHT ---------- EL , COLOR .

* PLEASE REFER TO NUMBERING SYSTEM

3. ABSOLUTE MAXIMUM RATINGS

3.1 ELECTRICAL ABSOLUTE MAXIMUM RATINGS. (AT Ta = 25 ℃)

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)
POWER SUPPLY FOR EL BACKLIGHT	VOLTAGE	VEL	—	AC200	—	fEL=1.0KHZ 60SEC. MAX
	FREQUENCY	fEL	—	2.0	—	AC115 Vrms 60SEC. MAX

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.

ITEM	OPERATING		STORAGE		REMARK
	MIN.	MAX.	MIN.	MAX.	
AMBIENT TEMPERATURE	-20 °C	60 °C	-30 °C	70 °C	NOTE (2), (3)
HUMIDITY	—	90 % RH	—	90 % RH	WITHOUT CONDENSATION
VIBRATION	—	4.9 m/s^2 (0.5G)	—	19.6 m/s^2 (2G)	
SHOCK	—	29.4 m/s^2 (3G)	—	490.0 m/s^2 (50G)	XYZ DIRECTIONS
CORROSIVE GAS	NOT ACCEPTABLE		NOT ACCEPTABLE		

NOTE (2) : Ta AT -20°C : 48HR MAX.
60°C : 48HR MAX.
NOTE (3) : BACKGROUND COLOR CHANGES SLIGHTLY DEPENDING ON AMBIENT TEMPERATURE THIS PHENOMENON IS REVERSIBLE.

4. ELECTRICAL CHARACTERISTICS

Ta = 25 °C VDD = 5.0 ± 0.25 V

PARAMETER	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
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	—	2.0	5.0	mA
RECOMMENDED LCD DRIVING VOLTAGE	VDD − VO ∅ = 10°, θ = 0° DUTY= 1/16	Ta = -20 °C	—	4.4	—	V
		Ta = 25 °C	—	4.4	—	V
		Ta = 60 °C	—	4.4	—	V
CLOCK OSCILLATION FREQUENCY	FOSC	Ta = 25 °C	—	270	—	KHZ
POWER SUPPLY FOR EL BACKLIGHT	VEL	fEL=400HZ	—	100	—	Vrms
	IEL	VEL=100V fEL=400HZ	—	2.9	—	mArms

5. OPTICAL CHARACTERISTICS.

Ta = 25 °C VDD = 5.0 V

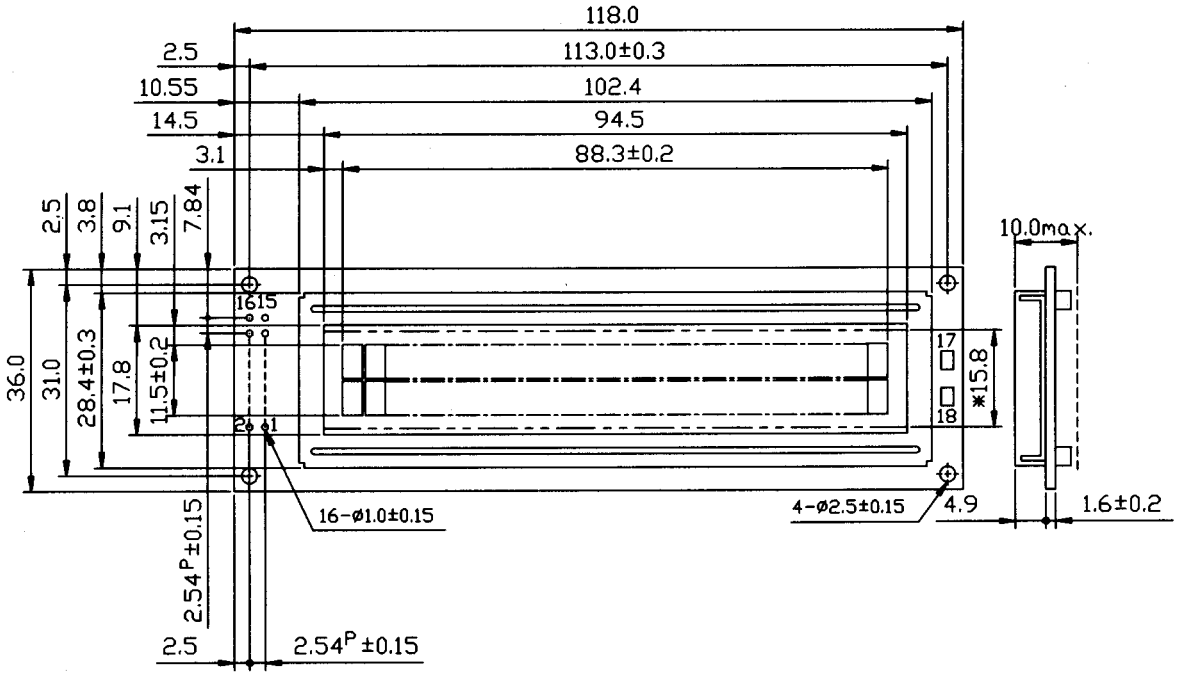
ITEM	SYMBOL	CONDITION		MIN.	TYP.	MAX.	UNIT	NOTE
VIEWING AREA	∅2 - ∅1	K ≥ 1.4		30	—	—	deg.	1
CONTRAST RATIO	K	∅ = 10° ∅ = 0°		5	—	—	—	1
RESPONSE TIME	tr (rise)	∅ = 10° θ = 0°	Ta = -20°C	—	5538	—	ms	1
			Ta = 25°C	—	228	—		
			Ta = 70°C	—	104	—		
	tf (fall)		Ta = -20°C	—	2316	—		
			Ta = 25°C	—	174	—		
			Ta = 70°C	—	85	—		
THE BRIGHTNESS OF BACKLIGHT	B	∅ = 10° θ = 0°		4	—	—	cd/m²	1, 2
				12	—	—		1, 3

NOTE (1): PLEASE REFER TO :
CUSTOMER ACCEPTANCE STANDARD SPECIFICATION: EU-002A

NOTE (2): POLARIZER MODE : TRANSFLECTIVE

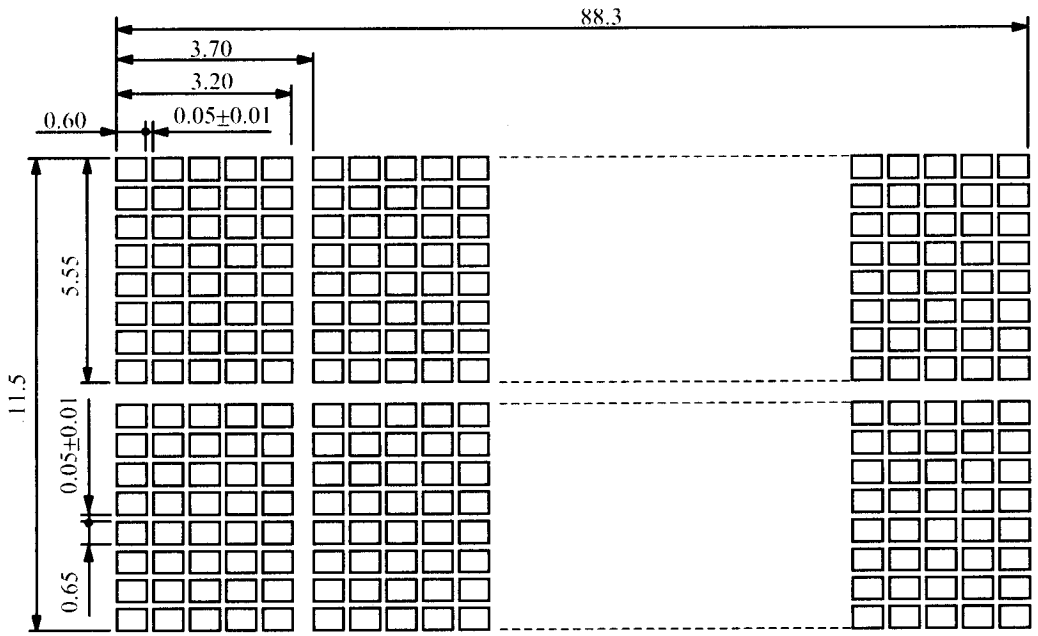
NOTE (3): POLARIZER MODE : TRANSMISSIVE

6. OUTLINE DIMENSION



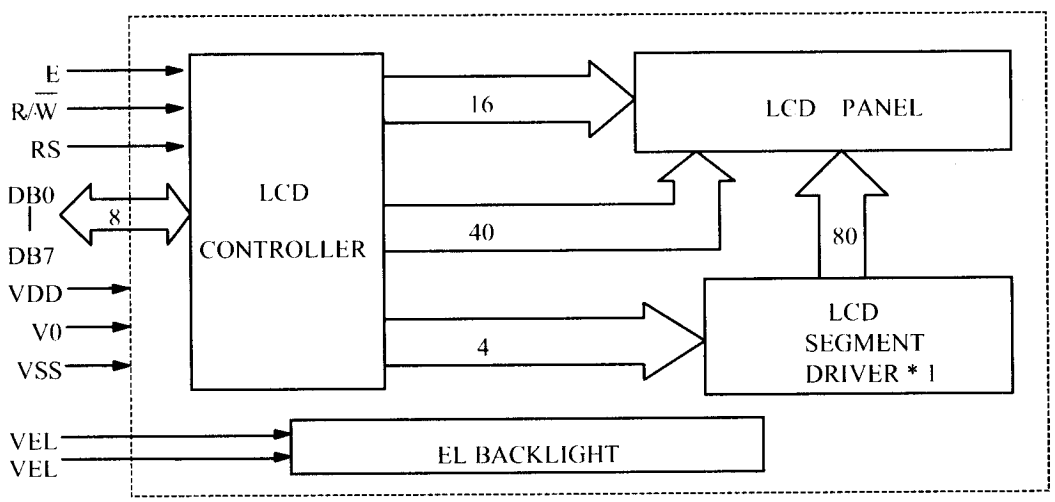
*LIGHTING AREA WHEN EL B/L IS ON
UNIT : mm
SCALE : NTS
NOT SPECIFIED TOLERANCE IS ± 0.5mm

7. DETAIL DRAWING OF DOT MATRIX



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

8. BLOCK DIAGRAM

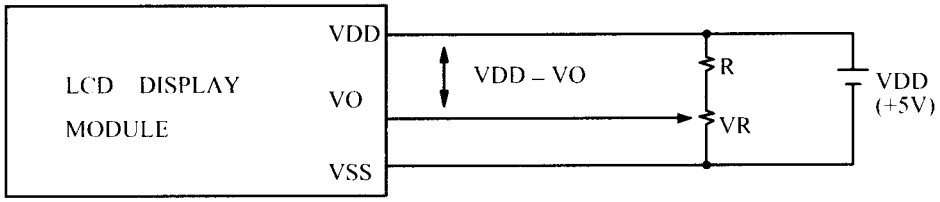


9. INTERFACE SIGNALS

PIN NO.	SYMBOL	DESCRIPTION	FUNCTION
1	VSS	GROUND	OV (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	NC	NO CONNECTION	
16	NC	NO CONNECTION	
17	VEL	POWER SUPPLY FOR EL BACKLIGHT	
18	VEL	POWER SUPPLY FOR EL BACKLIGHT	

10. POWER SUPPLY

10.1 POWER SUPPLY FOR LCD MODULE

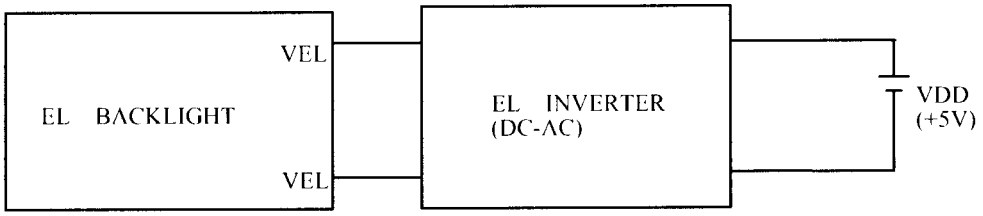


VDD – VO : LCD DRIVING VOLTAGE

VR: 10KΩ~20KΩ

RECOMMENDED RESISTOR R : VDD – VO ≒ 1.5 V

10.2 POWER SUPPLY FOR EL BACKLIGHT



RECOMMENDED INVERTER : SOUN50350 (SUPER OPTICS)

11. DISPLAY DATA RAM ADDRESS

CHARACTER	1	2	3	4	5	6	7	8	9	10	11	12
LINE 1	80	81	82	83	84	85	86	87	88	89	8A	8B
LINE 2	C0	C1	C2	C3	C4	C5	C6	C7	C8	C9	CA	CB
CHARACTER	13	14	15	16	17	18	19	20	21	22	23	24
LINE 1	8C	8D	8E	8F	90	91	92	93	94	95	96	97
LINE 2	CC	CD	CE	CF	D0	D1	D2	D3	D4	D5	D6	D7