EA W122-ANLED

2x12 character, y/g LED backlight, 5.5 mm char. height

Dimension 55.7 x 32.0 x 9.7 mm

FEATURES

- LC- DISPLAY WITH 2x12 CHARACTER
- SUPERTWIST TECHNOLOGY STN YELLOW/GREEN MODE
- WITH LED BACKLIGHT YELLOW/GREEN (TYP. 60mA @4.2V)
- 5.5 mm CHARACTER HEIGHT
- OPERATING TEMPERATURE RANGE -20..+70°C
- SINGLE SUPPLY +5V @ TYP. 2 mA
- +3.3V SUPPLY TOGETHER WITH -0.9V AT PIN V_{EE}
- 4- AND 8-BIT BUS INTERFACE
- ON-BOARD CONTROLLER ST7066 OR COMPATIBLE
- OPTIONAL RS-232/RS-422 INTERFACE EA 9707-V24S
- OPTIONALLY WITH CYRILLIC CHARACTER SET (PLS. ASK FOR MIN. ORDER QTY.)

ORDERING CODE

- DOTMATRIX LCD 2x12, 5.5 mm, $T_{OP.}$ -20..+70°C **EA W122-ANLED**

DISPLAY VISIONS GmbH
Zeppelinstraße 19
D-82205 Gilching
Germany

Fon: +49 (0)8105-7780 90
Fax: +49 (0)8105-7780 99
e-Mail: info@lcd-module.de
Web: www.lcd-module.de

Issue 04.2023

Content

1. Precautions in use of LCD Modules

(1)Avoid applying excessive shocks to the module or making any alterations or modifications to it.
(2)Don't make extra holes on the printed circuit board, modify its shape or change the components of LCD module.
(3) Don't disassemble the LCM.
(4) Don't operate it above the absolute maximum rating.
(5) Don't drop, bend or twist LCM.
(6) Soldering: only to the I/O terminals.
(7) Storage: please storage in anti-static electricity container and clean environment.
(8) DISPLAY VISIONS have the right to change the passive components, including R3,R6 & backlight adjust resistors. (Resistors,capacitors and other passive components will have different appearance and color caused by the different supplier.)
(9) DISPLAY VISIONS have the right to change the PCB Rev. (In order to satisfy the supplying stability, management optimization and the best product performance...etc, under the premise of not affecting the electrical characteristics and external dimensions, DISPLAY VISIONS have the right to modify the version.)
(10) To ensure the stability of the display screen, please apply screen saver after showing 30 mins of fixed display content.
(11) Please heat up a little the tape sticking on the components when removing it; otherwise the components might be damaged.

2. General Specification

Item	Dimension	Unit
Number of Characters	12 characters x 2Lines	—
Module dimension	55.7 x 32.0 x 9.7 (MAX)	mm
View area	46.0 x 14.5	mm
Active area	37.85 x 11.7	mm
Dot size	0.45 x 0.60	mm
Dot pitch	0.55 x 0.70	mm
Character size	2.65 x 5.50	mm
Character pitch	3.20 x 6.20	mm
LCD type	STN Positive, Yellow Green Transflective (In LCD production, it will occur slightly color difference. We can guarantee same color in same batch only)	
Duty	1/16	
View direction	6 o'clock	
Backlight Type	LED, Yellow Green	
IC	ST7066U or compatible	
Interface	68 series	

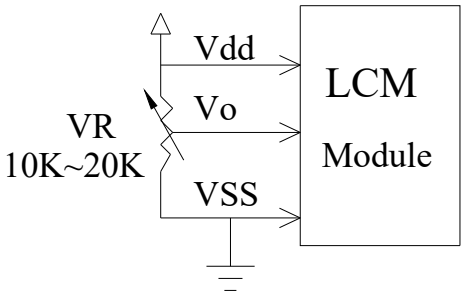
3. Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	T_{OP}	-20	—	+70	℃
Storage Temperature	T_{ST}	-30	—	+80	℃
Input Voltage	V_I	V_{SS}	—	V_{DD}	V
Supply Voltage For Logic	V_{DD}-V_{SS}	-0.3	—	7	V
Supply Voltage For LCD	V_{DD}-V_o	-0.3	—	13	V

4. Electrical Characteristics

Item	Symbol	Condition	Min	Typ	Max	Unit
Supply Voltage For Logic	V_{DD}-V_{SS}	–	4.5	5.0	5.5	V
Supply Voltage For LCD * Note	V_{DD}-V_{EE}	Ta=-20℃ Ta=25℃ Ta=70℃	– 4.1 3.5	– 4.2 –	5.7 4.3 –	V V V
Input High Volt.	V_{IH}	–	0.7 V_{DD}	–	V_{DD}	V
Input Low Volt.	V_{IL}	–	V_{SS}	–	0.6	V
Output High Volt.	V_{OH}	–	3.9	–	V_{DD}	V
Output Low Volt.	V_{OL}	–	0	–	0.4	V
Supply Current	I_{DD}	V_{DD}=5.0V	0.5	1.0	2.0	mA

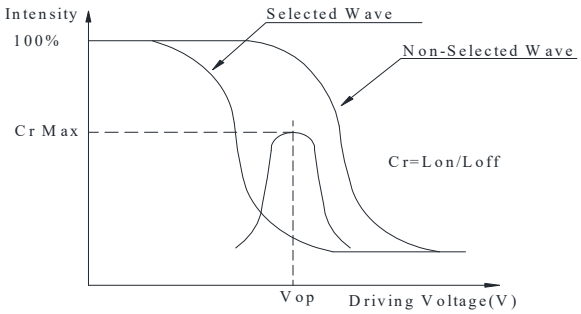
Note: Please design the VOP adjustment circuit on main board

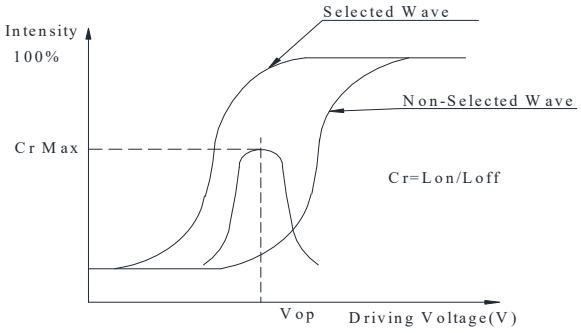


5. Optical Characteristics

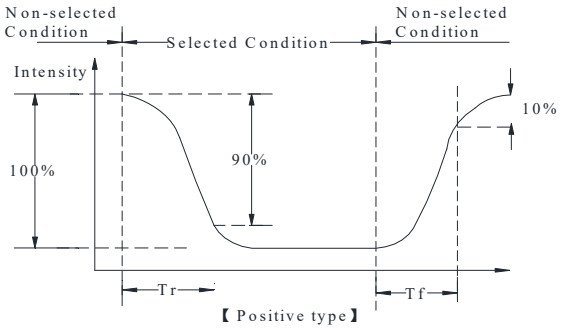
Item	Symbol	Condition	Min	Typ	Max	Unit
View Angle	θ	CR≧2	0	—	20	$\phi = 180^\circ$
	θ	CR≧2	0	—	40	$\phi = 0^\circ$
	θ	CR≧2	0	—	30	$\phi = 90^\circ$
	θ	CR≧2	0	—	30	$\phi = 270^\circ$
Contrast Ratio	CR	—	—	3	—	—
Response Time	T rise	—	—	150	200	ms
	T fall	—	—	150	200	ms

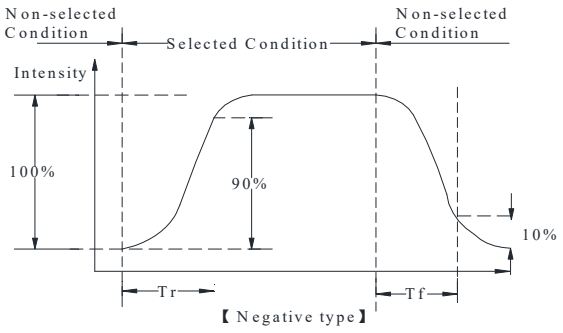
Definition of Operation Voltage (Vop)





Definition of Response Time (Tr , Tf)



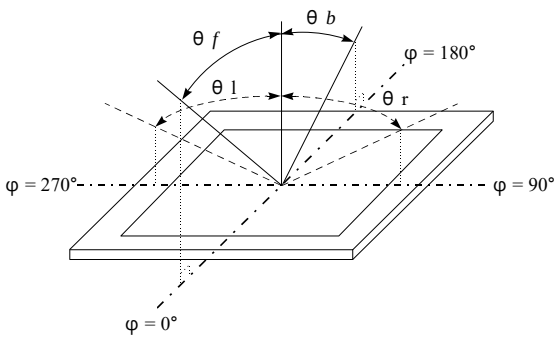


Conditions :

Operating Voltage : Vop — Viewing Angle(θ , ϕ) : 0° , 0°

Frame Frequency : 64 HZ — Driving Waveform : 1/N duty , 1/a bias

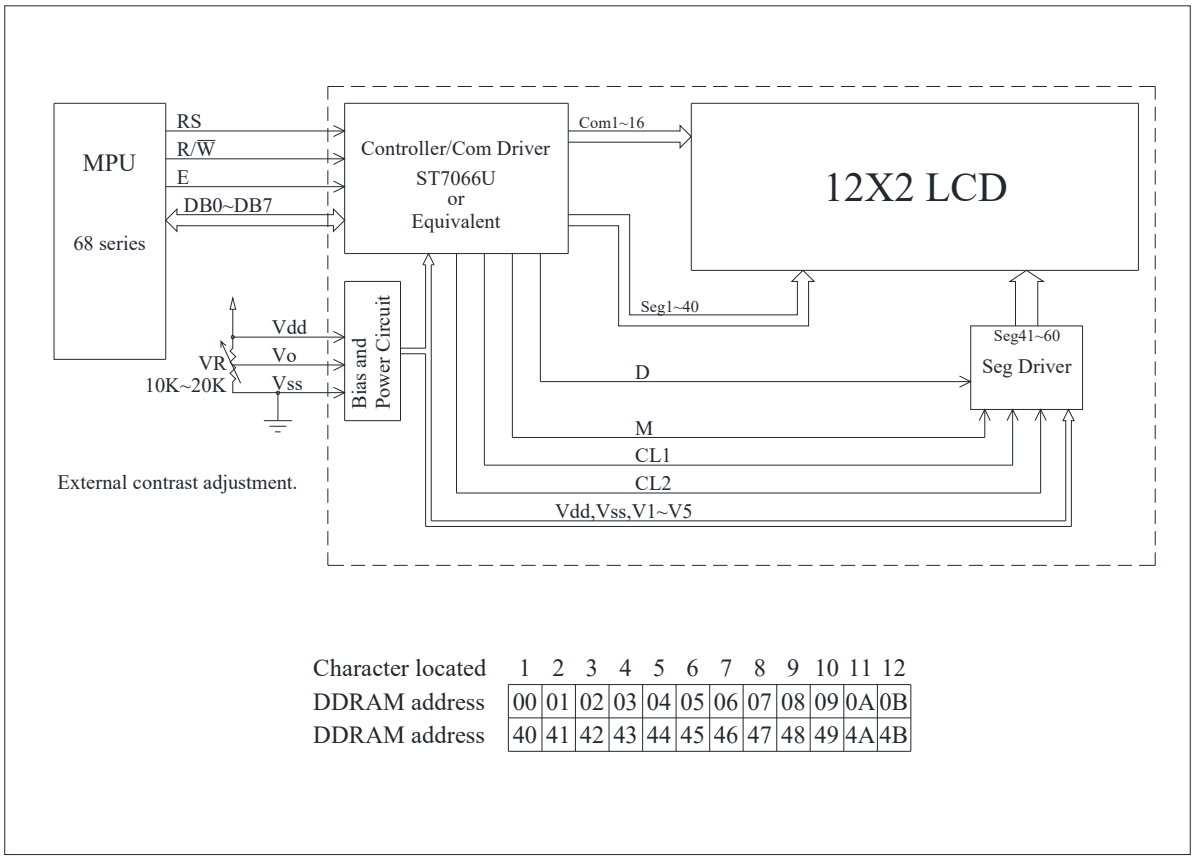
Definition of viewing angle (CR≧2)



6. Interface Pin Function

Pin No.	Symbol	Level	Description
1	V_{SS}	0V	Ground
2	V_{DD}	5.0V	Supply Voltage for logic
3	V_{EE}	(Variable)	Operating voltage for LCD
4	RS	H/L	H: DATA, L: Instruction code
5	R/W	H/L	H: Read L: Write
6	E	H,H→L	Chip enable signal
7	DB0	H/L	Data bus line
8	DB1	H/L	Data bus line
9	DB2	H/L	Data bus line
10	DB3	H/L	Data bus line
11	DB4	H/L	Data bus line
12	DB5	H/L	Data bus line
13	DB6	H/L	Data bus line
14	DB7	H/L	Data bus line
15	A	—	Power supply for B/L + (Cathode is connected to V_{SS} internally)

7. Block Diagram



Character located	1	2	3	4	5	6	7	8	9	10	11	12
DDRAM address	00	01	02	03	04	05	06	07	08	09	0A	0B
DDRAM address	40	41	42	43	44	45	46	47	48	49	4A	4B

8. Character Generator ROM Pattern

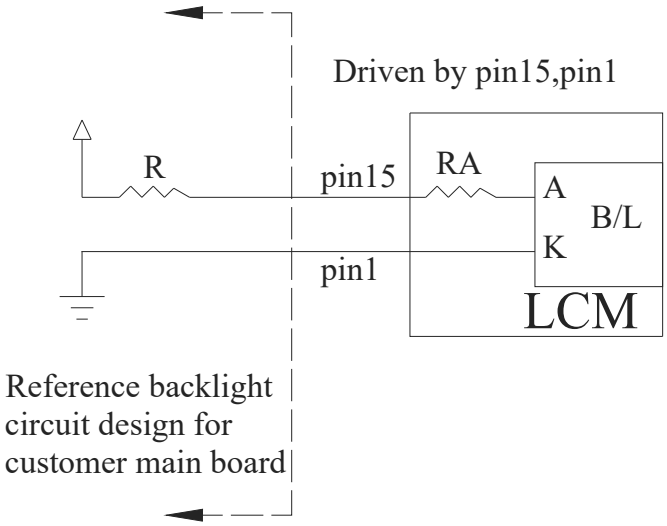
Upper 4 bit / Lower 4 bit	LLLL	LLLH	LLHL	LLHH	LHLL	LHLH	LHHL	LHHH	HLLL	HLLH	HLHL	HLHH	HHLL	HHLH	HHHL	HHHH
LLLL	CG RAM (1)															
LLLH	(2)															
LLHL	(3)															
LLHH	(4)															
LHLL	(5)															
LHLH	(6)															
LHHL	(7)															
LHHH	(8)															
HLLL	(1)															
HLLH	(2)															
HLHL	(3)															
HLHH	(4)															
HHLL	(5)															
HHLH	(6)															
HHHL	(7)															
HHHH	(8)															

9. Backlight Information

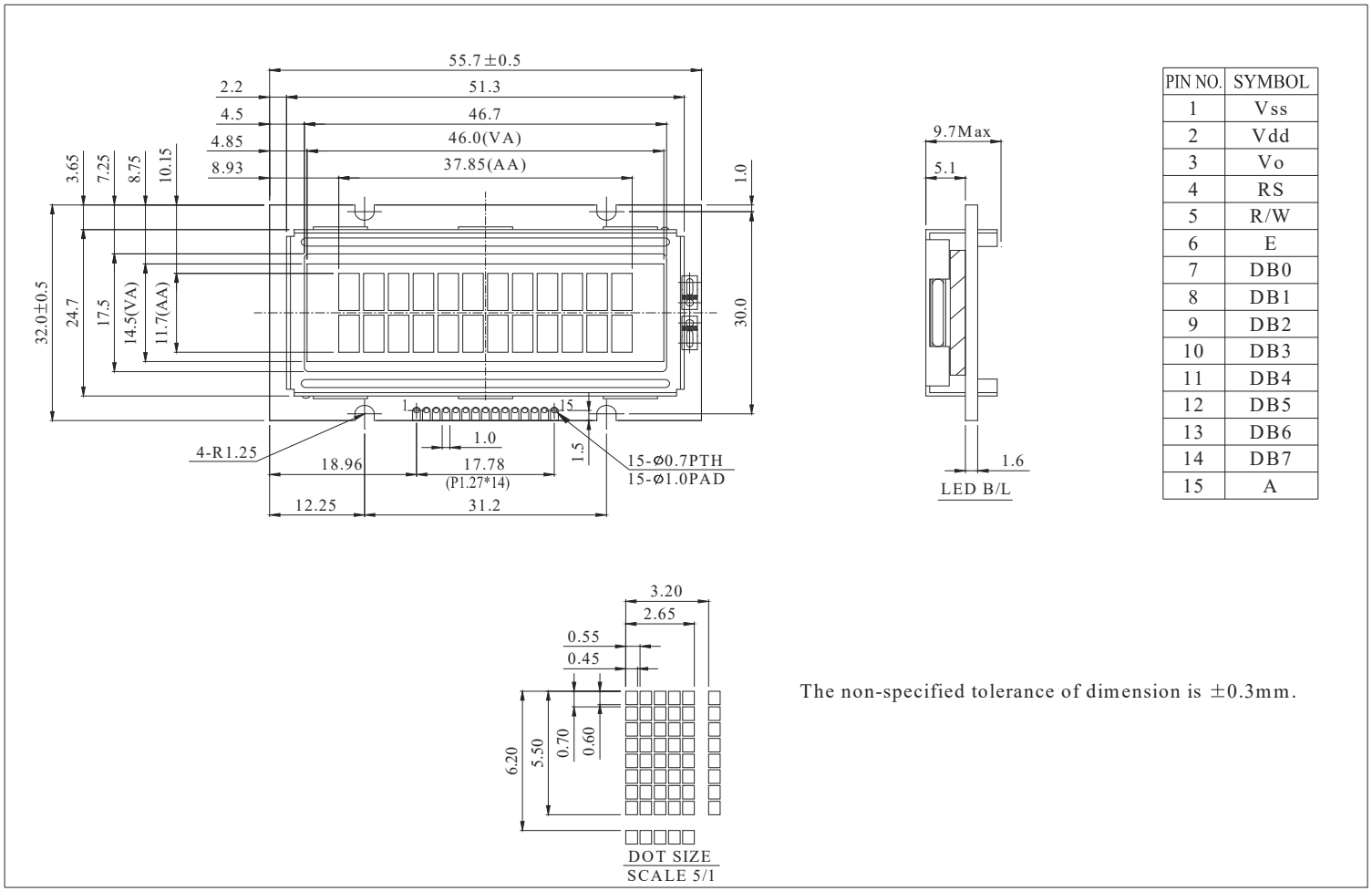
Specification

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Supply Current	I_{LED}	32	40	48	mA	V=4.2V
Supply Voltage	V	4.0	4.2	4.7	V	—
Reverse Voltage	VR	—	—	3	V	—
Luminance (Without LCD)	IV	48	60	—	cd/m^2	I_{LED}=40mA
Wave Length	λ p	565	569	575	nm	I_{LED}=40mA
Life Time	—	—	100000	—	hr.	I_{LED}=40mA 25°C,50-60%RH
Color	Yellow Green					

Note: The LED of B/L is drive by current only, drive voltage is for reference only. drive voltage can make driving current under safety area (current between minimum and maximum).



10. Contour Drawing



PIN NO.	SYMBOL
1	Vss
2	Vdd
3	Vo
4	RS
5	R/W
6	E
7	DB0
8	DB1
9	DB2
10	DB3
11	DB4
12	DB5
13	DB6
14	DB7
15	A

The non-specified tolerance of dimension is ±0.3mm.

DISPLAY VISIONS GmbH
Zeppelinstraße 19
D-82205 Gilching
Germany

Fon: +49 (0)8105-7780 90
Fax: +49 (0)8105-7780 99
e-Mail: info@lcd-module.de
Web: www.lcd-module.de