Winstar Display Co., LTD
華凌光電股份有限公司

SPECIFICATION

CUSTOMER : _____

MODULE NO.: WG12864B-TML-T#N000

APPROVED BY: **(FOR CUSTOMER USE ONLY)**	**PCB VERSION:** **DATA:**

SALES BY	APPROVED BY	CHECKED BY	PREPARED BY

VERSION	DATE	REVISED PAGE NO.	SUMMARY
0	2012/2/24		First issue

Represented by:
FIRST Components s.r.l.
Via Cavour, 69 21020 Buguggiate (VA) Italy
Tel: +39 0332 1888005 Web: www.first.components.com

MODLE NO：

RECORDS OF REVISION

DOC. FIRST ISSUE

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2.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) Winstar 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)Winstar 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, Winstar have the right to modify the version.)

3.General Specification

Item	Dimension	Unit
Number of Characters	128 x 64 Dots	—
Module dimension	75.0 x 52.7 x 8.9(MAX)	mm
View area	58.8 x 31.4	mm
Active area	55.01 x 27.49	mm
Dot size	0.40 x 0.40	mm
Dot pitch	0.43 x 0.43	mm
LCD type	STN Negative, Blue Transmissive, (In LCD production, It will occur slightly color difference. We can only guarantee the same color in the same batch.)	
Duty	1/64	
View direction	12 o'clock	
Backlight Type	LED, White	

4.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	0	—	V_{DD}	V
Supply Voltage For Logic	V_{DD}-V_{SS}	0	—	6.7	V
Supply Voltage For LCD	V_{DD}-V_0	0	—	16.7	V

5.Electrical Characteristics

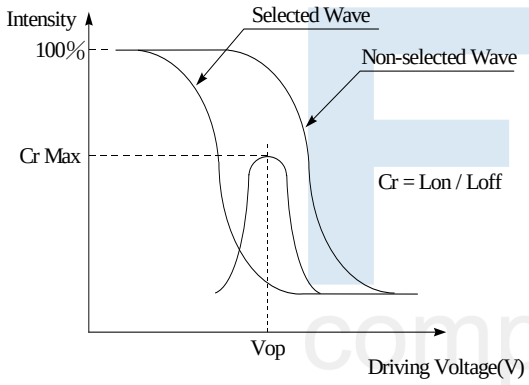
Item	Symbol	Condition	Min	Typ	Max	Unit
Supply Voltage For Logic	V_{DD}-V_{SS}	—	4.5	5.0	5.5	V
Supply Voltage For LCD	V_{DD}-V_0	Ta=-20℃	—	—	—	V
		Ta=25℃	7.8	8.0	8.2	V
		Ta=+70℃	—	—	—	V
Input High Volt.	V_{IH}	—	2.0	—	V_{DD}	V
Input Low Volt.	V_{IL}	—	0	—	0.8	V
Output High Volt.	V_{OH}	—	2.4	—	V_{DD}	V
Output Low Volt.	V_{OL}	—	0	—	0.4	V
Supply Current	I_{DD}	—	3.0	4.0	5.0	mA

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6.Optical Characteristics

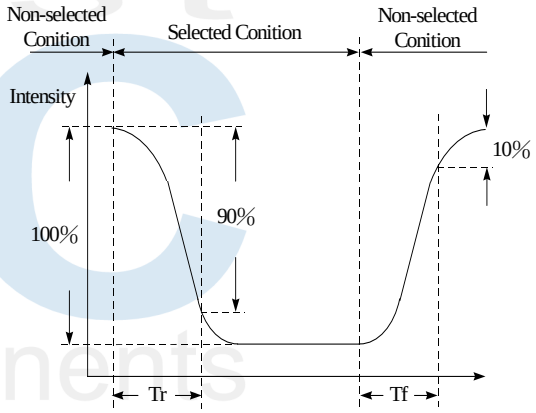
Item	Symbol	Condition	Min	Typ	Max	Unit
View Angle	(V) θ	CR≧2	20	—	40	deg
	(H) φ	CR≧2	-30	—	30	deg
Contrast Ratio	CR	—	—	3	—	—
Response Time	T rise	—	—	150	200	ms
	T fall	—	—	150	200	ms

Definition of Operation Voltage (Vop)



[positive type]

Definition of Response Time (Tr , Tf)



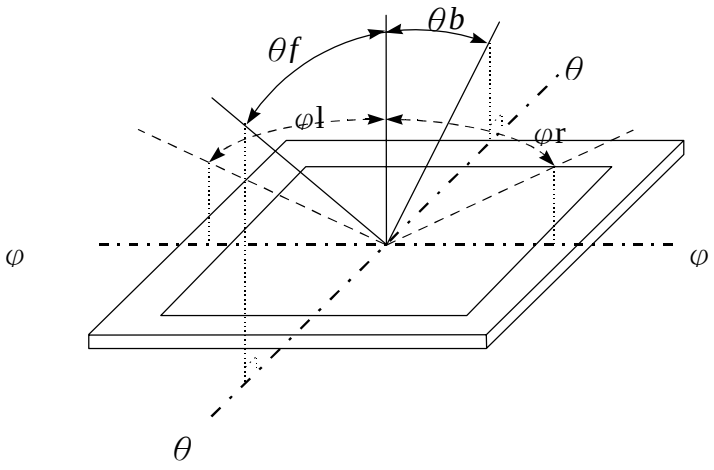
[positive type]

Conditions :

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

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

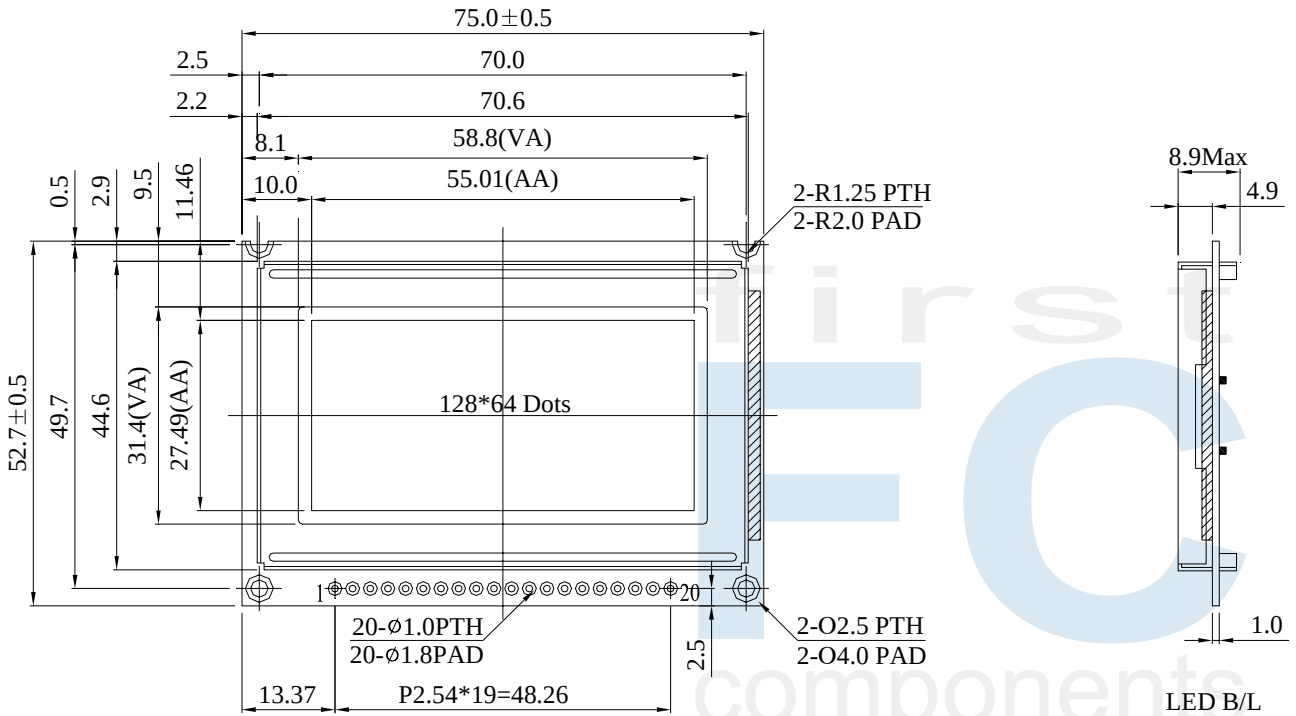
Definition of viewing angle(CR≧2)

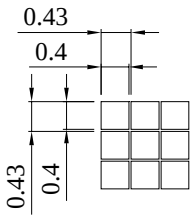


7.Interface Description

Pin No.	Symbol	Level	Description
1	VDD	5.0V	Supply voltage for logic
2	V_{SS}	0V	Ground
3	V_o		NC
4	DB0	H/L	Data bus line
5	DB1	H/L	Data bus line
6	DB2	H/L	Data bus line
7	DB3	H/L	Data bus line
8	DB4	H/L	Data bus line
9	DB5	H/L	Data bus line
10	DB6	H/L	Data bus line
11	DB7	H/L	Data bus line
12	CS1	L	Select Column 1~ Column 64
13	CS2	L	Select Column 65~ Column 128
14	/RST	L	Reset signal
15	R/$\overline{W}$	H/L	H: Read (MPU←Module) , L: Write (MPU→Module)
16	D/I	H/L	H: Data , L : Instruction
17	E	H	Enable signal
18	Vee	—	Negative Voltage output
19	A	—	Power Supply for LED backlight (+)
20	K	—	Power Supply for LED backlight (-)

8.Contour Drawing &Block Diagram





DOT SIZE
SCALE 10/1

PIN NO.	SYMBOL
1	Vdd
2	Vss
3	Vo
4	DB0
5	DB1
6	DB2
7	DB3
8	DB4
9	DB5
10	DB6
11	DB7
12	CS1
13	CS2
14	$\overline{RST}$
15	R/$\overline{W}$
16	D/$\overline{I}$
17	E
18	Vee
19	A
20	K

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

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