

WINSTAR Display Co.,Ltd.
華凌光電股份有限公司

Represented by:

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Winstar Display Co., LTD
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SPECIFICATION

CUSTOMER : _____

MODULE NO.: WG240128A1-TFH-VZ#

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

SALES BY	APPROVED BY	CHECKED BY	PREPARED BY

VERSION	DATE	REVISED PAGE NO.	SUMMARY
0	2026/04/27		First issue

General Specification

Item	Dimension	Unit
Number of dots	240 x 128	—
Module dimension	170.0 x 93.4 x 12.4(MAX)	mm
View area	128.0 x 74.0	mm
Active area	119.97 x 63.97	mm
Dot size	0.47 x 0.47	mm
Dot pitch	0.50 x 0.50	mm
LCD type	FSTN Positive Transflective (In LCD production, It will occur slightly color difference. We can only guarantee the same color in the same batch.)	
Duty	1/128	
View direction	6 o'clock	
Backlight Type	LED White	
IC	RA6963	
Interface	80 series	

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Absolute Maximum Ratings

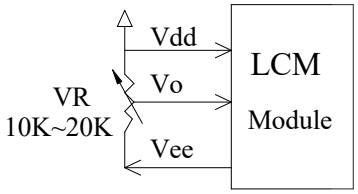
Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	T_{OP}	-20	—	+70	℃
Storage Temperature	T_{ST}	-30	—	+80	℃
Input Voltage	V_{IN}	-0.3	—	V_{DD}+0.3	V
Supply Voltage For Logic	V_{DD}-V_{SS}	-0.3	—	+7.0	V

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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_0	Ta=-20℃	—	—	20.1	V
		Ta=25℃	17.5	18.0	18.5	V
		Ta=70℃	16.3	—	—	V
Input High Volt.	V_{IH}	—	0.8V_{DD}	—	V_{DD}	V
Input Low Volt.	V_{IL}	—	0	—	0.15 V_{DD}	V
Output High Volt.	V_{OH}	—	V_{DD}-0.3	—	V_{DD}	V
Output Low Volt.	V_{OL}	—	0	—	0.3	V
Supply Current	I_{DD}	—	—	33	60	mA

* Note: Please design the VOP adjustment circuit on customer's main board

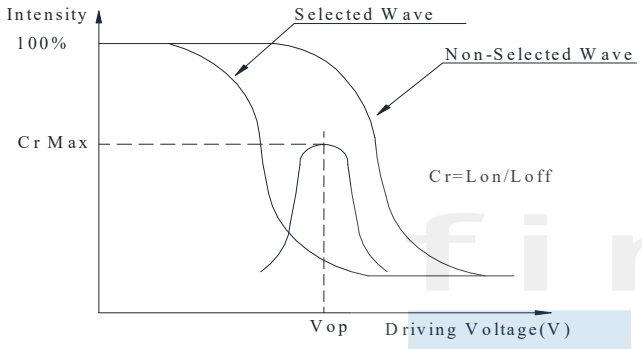


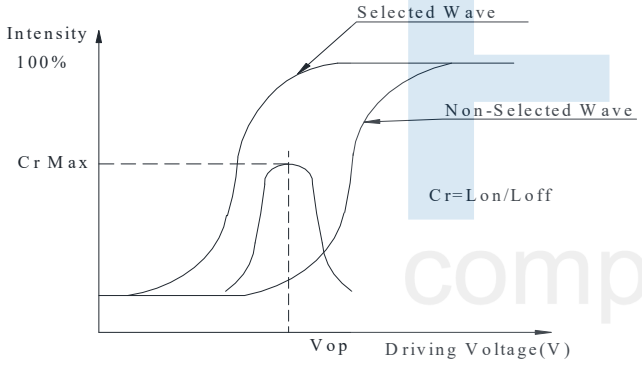
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Optical Characteristics

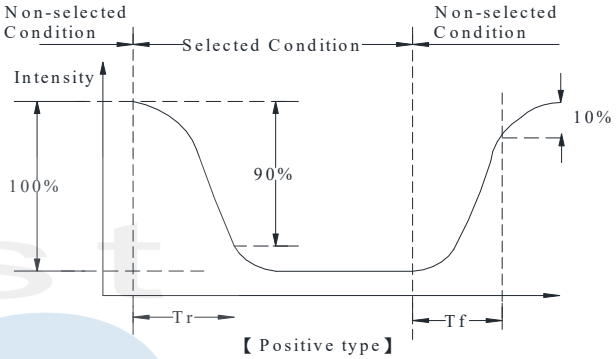
Item	Symbol	Condition	Min	Typ	Max	Unit
View Angle	θ	CR≧2	0	—	30	$\phi = 180^\circ$
	θ	CR≧2	0	—	60	$\phi = 0^\circ$
	θ	CR≧2	0	—	45	$\phi = 90^\circ$
	θ	CR≧2	0	—	45	$\phi = 270^\circ$
Contrast Ratio	CR	—	—	5	—	—
Response Time	T rise	—	—	200	300	ms
	T fall	—	—	250	350	ms

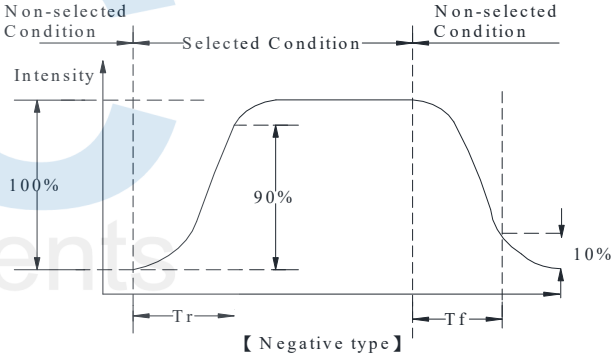
Definition of Operation Voltage (Vop)





Definition of Response Time (Tr , Tf)



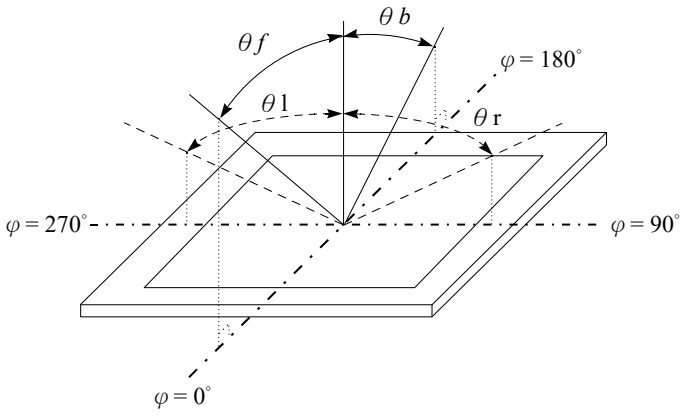


Conditions :

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)



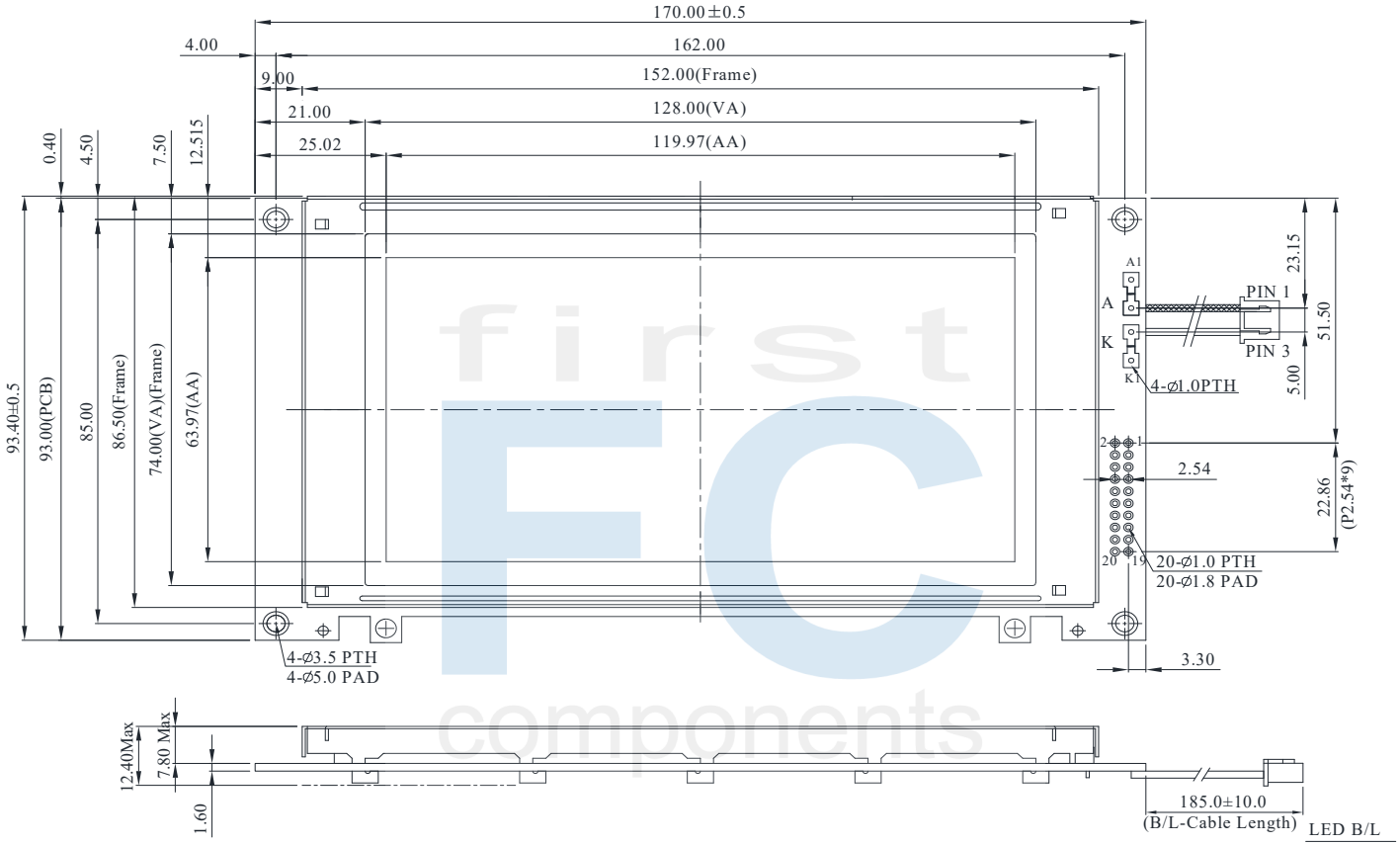
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Interface Pin Function

Pin No.	Symbol	Description
1	FGND	Frame ground (Connected to bezel)
2	Vss	GND
3	Vdd	Power supply
4	Vo	Power supply for LCD driver
5	/WR	Data write. Write data into RA6963when WR = L
6	RD	Data read. Read data from RA6963when RD = L
7	/CE	L : Chip enable
8	C/D	WR=L , C/D=H : Command Write C/D=L: Data write RD=L , C/D=H : Status Read C/D=L: Data read
9	Vee	Negative Voltage Output
10	/RESET	H : Normal ; L : Initialize RA6963
11	DB0	Data bus line
12	DB1	Data bus line
13	DB2	Data bus line
14	DB3	Data bus line
15	DB4	Data bus line
16	DB5	Data bus line
17	DB6	Data bus line
18	DB7	Data bus line
19	FS	Pins for selection of font; H : 6 * 8 , L : 8 * 8
20	RV	H: Reverse L: Normal

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Contour Drawing &Block Diagram



Pin No.	Symbol
1	FGND
2	Vss
3	Vdd
4	Vo
5	$\overline{WR}$
6	RD
7	$\overline{CE}$
8	C/D
9	Vee
10	$\overline{RESET}$
11	DB0
12	DB1
13	DB2
14	DB3
15	DB4
16	DB5
17	DB6
18	DB7
19	FS
20	RV

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

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