LCD / LCM SPECIFICATION



WINSTAR Display Co.,Ltd.
華凌光電股份有限公司

Represented by:

first FC components
FIRST Components s.r.l.
www.first-components.com
technical@first-components.com
+39 0332 1888005

Winstar Display Co., LTD
華凌光電股份有限公司

SPECIFICATION

CUSTOMER : _____

MODULE NO.: WG14432B5-TFH-V#T

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

SALES BY	APPROVED BY	CHECKED BY	PREPARED BY
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VERSION	DATE	REVISED PAGE NO.	SUMMARY
F	2021/07/14		Add Interface

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MODLE NO：

RECORDS OF REVISION			DOC. FIRST ISSUE
VERSION	DATE	REVISED PAGE NO.	SUMMARY
0	2015/09/10		First issue
A	2016/01/27		Modify Precautions in use of LCD Modules & Static electricity test
B	2016/04/29		Modify Luminance
C	2017/01/17		Modify Backlight Information.
D	2019/08/27		Modify Material List of Components for RoHs
E	2019/12/17		Modify Precautions in use of LCD Modules
F	2021/07/14		Add Interface

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General Specification

Item	Dimension	Unit
Number of dots	144 x 32	—
Module dimension	80.0 x 36.0 x 13.2 (MAX)	mm
View area	66.0 x 16.0	mm
Active area	60.44 x 13.4	mm
Dot size	0.38 x 0.38	mm
Dot pitch	0.42 x 0.42	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	1/32	
View direction	6 o'clock	
Backlight Type	LED, White	
IC	ST7920	
Interface	68 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	–	5.5	V
Supply Voltage For LCD	V_O-V_{SS}	0	–	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_0-V_{SS}	Ta=-20℃	—	—	—	V
		Ta=25℃	—	—	—	V
		Ta=+70℃	—	—	—	V
Input High Volt.	V_{IH}	—	0.7V_{DD}	—	V_{DD}	V
Input Low Volt.	V_{IL}	—	-0.3	—	0.6	V
Output High Volt.	V_{OH}	—	0.8 V_{DD}	—	V_{DD}	V
Output Low Volt.	V_{OL}	—	0	—	0.4	V
Supply Current	I_{DD}	V_{DD}=5.0V	2.0	2.5	3.5	mA

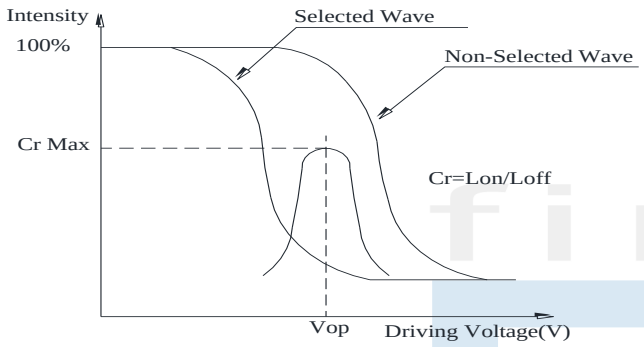
* Note: VOP non-adjustable

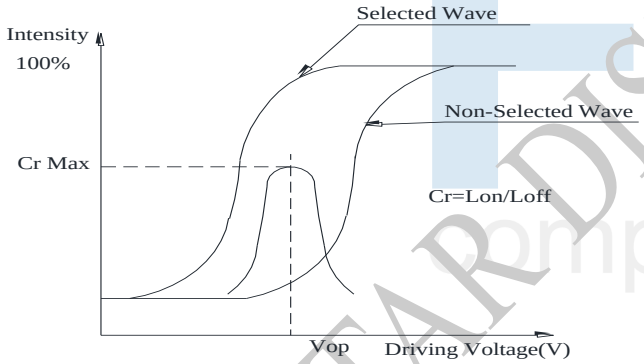
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Optical Characteristics

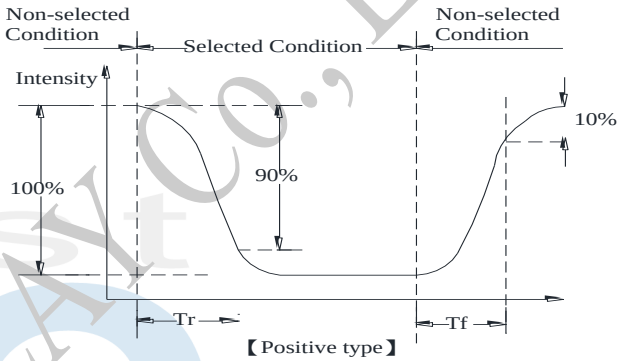
Item	Symbol	Condition	Min	Typ	Max	Unit
View Angle	θ	CR≧2	0	—	30	ϕ = 180°
	θ	CR≧2	0	—	60	ϕ = 0°
	θ	CR≧2	0	—	45	ϕ = 90°
	θ	CR≧2	0	—	45	ϕ = 270°
Contrast Ratio	CR	—	—	5	—	—
Response Time	T rise	—	—	150	200	ms
	T fall	—	—	150	200	ms

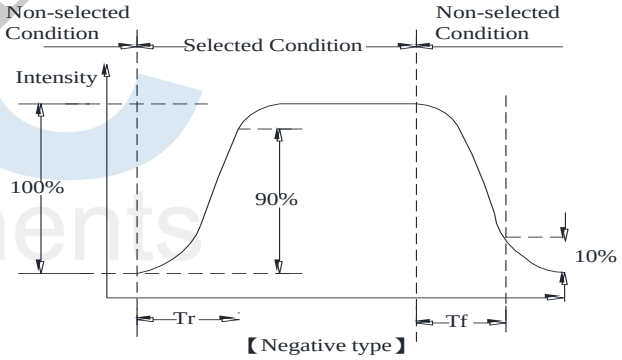
Definition of Operation Voltage (Vop)





Definition of Response Time (Tr , Tf)



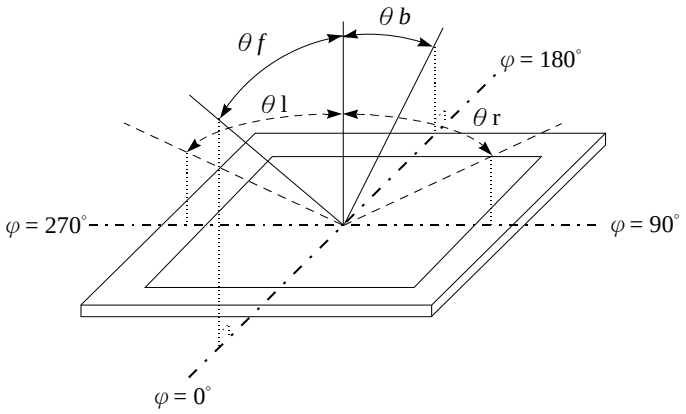


Conditions :

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)



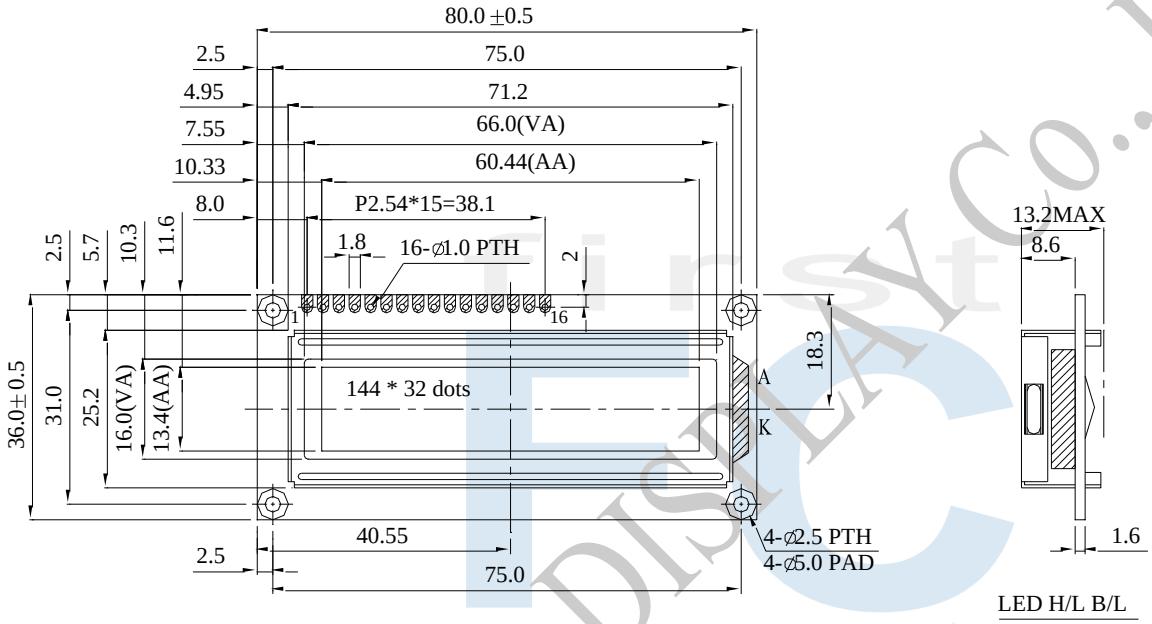
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Interface Pin Function

Pin No.	Symbol	Level	Description
1	VSS	0V	GND
2	VDD	5.0V	Power Supply
3	NC	—	Noconnection
4	RS	H/L	H/L register select signal
5	R/W	H/L	H/L Read/Write signal
6	E	H/L	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 +
16	K	—	Power supply for B/L -

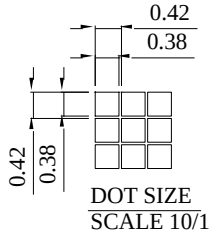
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Contour Drawing & Block Diagram

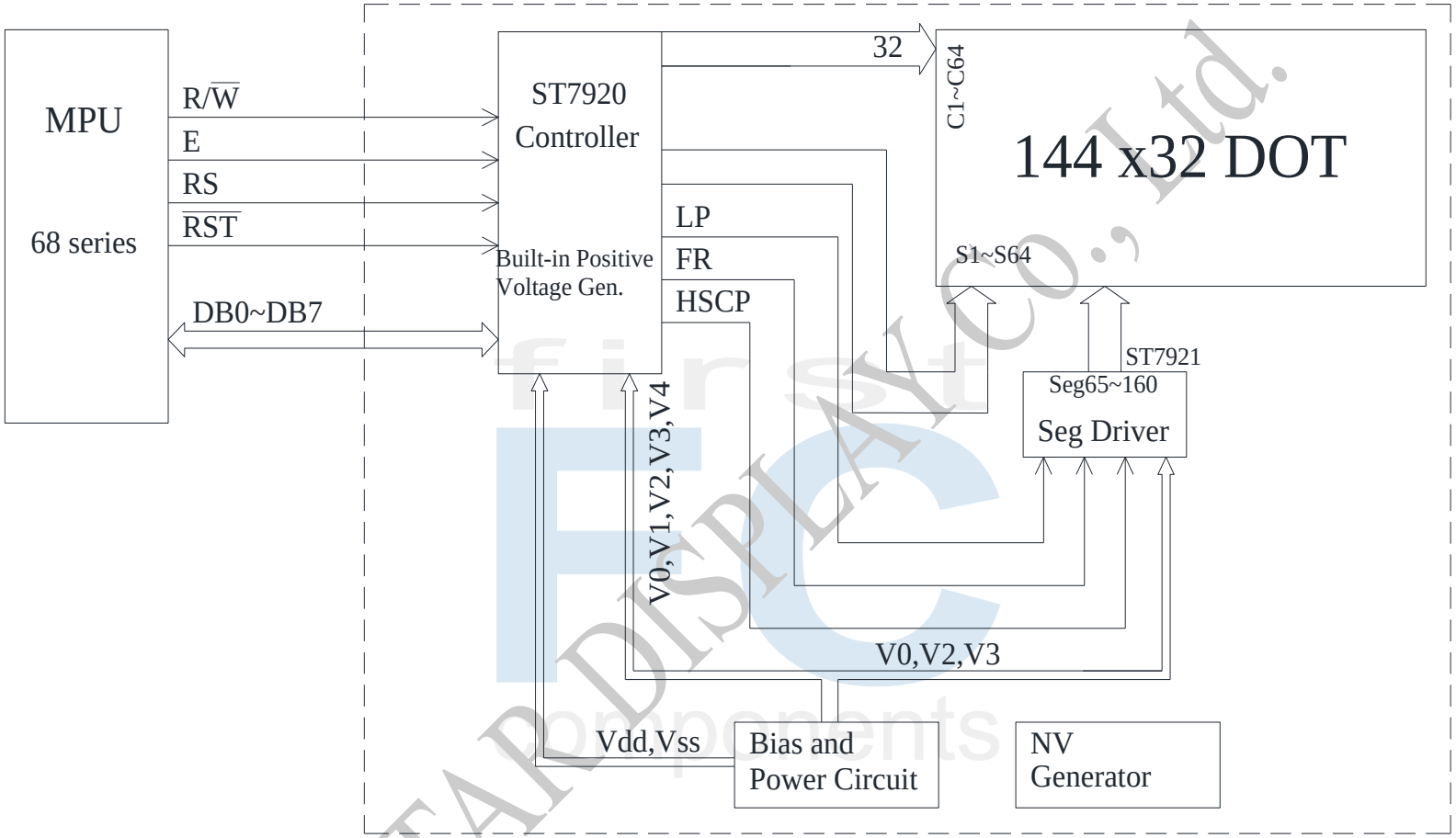


PIN NO.	SYMBOL
1	Vss
2	Vdd
3	NC
4	RS
5	R/$\overline{W}$
6	E
7	DB0
8	DB1
9	DB2
10	DB3
11	DB4
12	DB5
13	DB6
14	DB7
15	A
16	K

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



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