



福建福盛达电子有限公司

Fujian Fushengda Electronics Co., LTD

APPROVAL SHEET 承认书

Customer 客户名称	
Part NO. 产品型号	LCM-FSD043B3027-B
Product type 产品内容	Mode: Transmissive type .NormallyBlack. TFT LCD Module LCD Module: Graphic480RGB*272Dot-matrix
Remarks 备注栏	☐ APPROVAL FOR SEPCIFICATIONS ONLY ☒ APPROVAL FOR SEPCIFICATIONS AND SAMPLE
Signature by Customer: 客户确认签章	

LEAGEND LCM R&D CENTER:

Technical Department: 研发部门	Qualit Assurance Department 质量保证部门	Approved b :核准

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RevisedHistory

Part Number	Revision	Revision Content	Revised on
LCM_ FSD043B3027-B	A	New	2025.10.13



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1. General Description

1.1 Description

FSD043B3027-B is a 480RGB*272 dot-matrix TFT LCD module. This module is composed of a TFT LCD Panel, driver ICs, FPC and a Backlight unit.

1.2 Features

NO.	Item	Contents	Unit
1	LCD Size	4.3 inch(Diagonal)	-
2	Display Mode	Normally Black	-
3	Resolution	480(H)RGB x 272(V)	-
4	Dot pitch	0.135(H) x 0.135(V) mm	-
5	Active area	95.04(H)x53.856(V)mm	-
6	Module size	105.5x67.2x3.0 mm	-
7	Color arrangement	RGB Vvertical stripe	-
8	Interface	18PIN SPI	-
9	Drive IC	-	-
10	Luminance(cd/m2)	TBD	
11	Viewing Direction	ALL	
12	Backlight	7 White LED	
13	Operating Temp.	-20℃~ + 70℃	℃
14	Storage Temp.	-30℃~+ 80℃	℃
15	Weight	TBD	g



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3. PIN DESCRIPTION.

Pin No.	Symbol	Function
1	GND	Ground
2	RESET	Reset Signal
3	SCL	Serial Clock
4	CS	Chip Select
5	SI00	SPI bi-direction data pin
6	SI01	Std-SPI(4 wire): command or parameter select. Dual-SPI: the second data lane. Quard-SPI: the second data pin
7	SI02	the third pin of Quard-SPI
8	SI03	the fourth pin of Quard-SPI
9	VCC	Voltage Common Collector
10	LEDA	Anode of LED Backlight
11-14	LEDK	Cathode of LED Backlight
15	TE	Tear Effect (optional, for display refresh synchronization)
16	IM0	VCC/GND
17	IM1	VCC/GND
18	SPI4W	VCC/GND



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4. ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min	Max	Unit
Supply voltage for logic	VDD - GND	-0.3	3.5	V
Supply Back light voltage for logic	LEDA - LEDK	0	24.5	V
Operating temperature	T _{OP}	-20	+70	°C
Storage temperature	T _{ST}	-30	+80	°C

5. ELECTRICAL CHARACTERISTICS

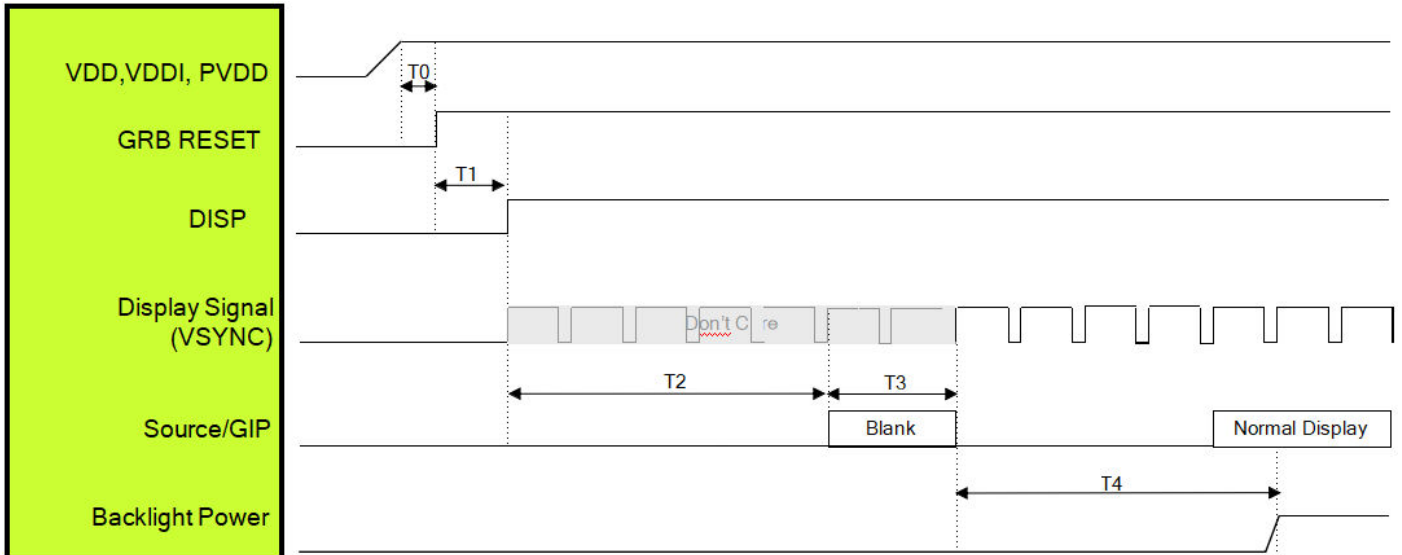
Item	Symbol	Min	Typ	Max	Unit	Applicable terminal
Supply voltage for logic	VDD	2.8	3.3	3.5	V	
Supply voltage current	I _{VDD}	20	30	80	mA	VDD=3.3V
Input voltage	V _{IL}	-0.3	-	0.2 VDD	V	
	V _{IH}	0.8 VDD	-	VDD	V	
LED backlight voltage	V _f	19.6	21	24.5	V	--
Input backlight current	I _{LED}	2	20	20	mA	V _f = 21V
backlight LED quantity	LED	6series 2parallel				7 LED



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6. POWER ON



Symbol	Description	Time	Unit
T0	System power stability to GRB RESET signal	≥ 1	ms
T1	GRB RESET= "High" to DISP="High"	≥ 10	ms
T2	DISP="High" to Source/GIP scan blank	85	ms
T3	IC scan blanking signal	≥ 33	ms
T4	Display signal input to Backlight power on (base on Display Signal Frame Rate 60Hz)	≥ 100	ms

Note: 1. When DISP pull "H" or "L", IC will execute the internal power on or power off procedures .Please be careful about the timing of DISP and do not interrupt it during power on or power off procedure, otherwise unexpected errors will occur.

2.RGB interface Display signal: DCLK; VSYNC; HSYNC; DE; DR[7:0]; DG[7:0]; DB[7:0].

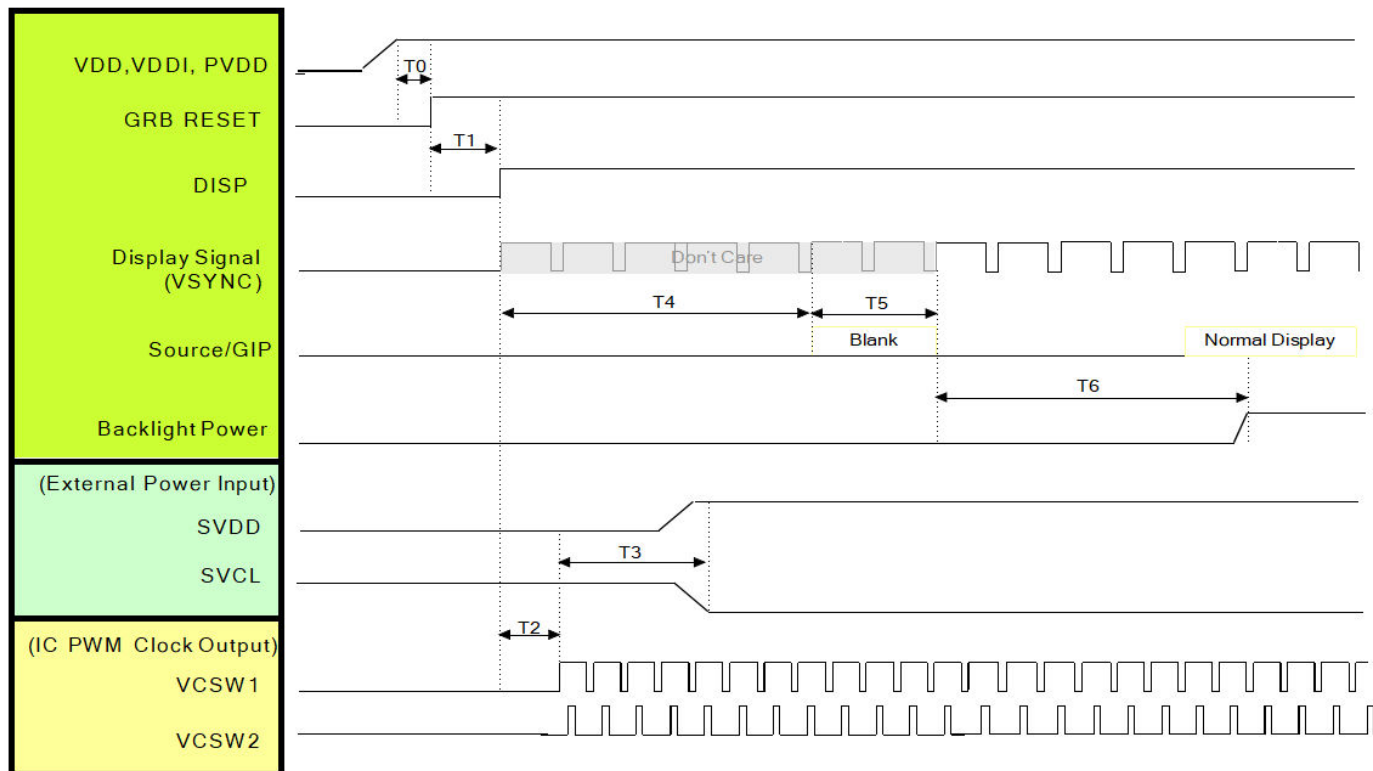
3.LVDS interface Display signal: DCLK P/N; RX[3:0] P/N.



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7. POWER OFF.



Symbol	Description	Time	Unit
T0	System power stability to GRB RESET signal	≥1	ms
T1	GRB RESET= "High" to DISP= "High"	≥10	ms
T2	DISP="High" to IC output PWM clock	1	ms
T3	PWM clock input to SVDD/SVCL stability	≤50	ms
T4	DISP="High" to Source/GIP scan blank	85	ms
T5	IC scan blanking signal	≥33	ms
T6	Display Signal input to Backlight power on (base on Display Signal Frame Rate 60Hz)	≥100	ms

Note: 1. When DISP pull "H" or "L", IC will execute the internal power on or power off procedures .Please be careful about the timing of DISP and do not interrupt it during power on or power off procedure, otherwise unexpected errors will occur.

2.RGB interface Display signal: DCLK; VSYNC; HSYNC; DE; DR[7:0]; DG[7:0]; DB[7:0].

3.LVDS interface Display signal: DCLK P/N; RX[3:0] P/N.



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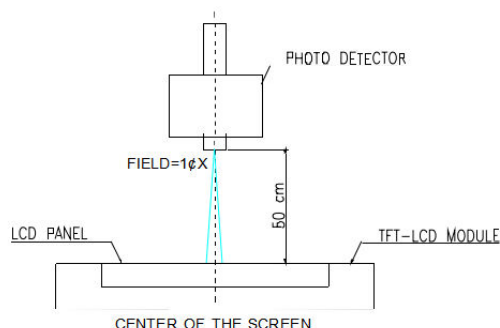
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8. LCM Optical Characteristics

Item of electro-optical characteristics 项目		Symbol 符号	Condition 条件	Min 最小值	Typ 典型值	Max 最大值	Unit 单位	Note 备注
Transmittance 透光率		Tr	∅=0°	4.19	4.9	--	%	1. Panel W/O APCF 2. C-LIGHT,W/BSITO 3. Note 7
NTSC色域			∅=0°	50	55	--	%	1. C-LIGHT,W/BSITO 2. Note 7
Contrast Ratio对比度		CR	∅=0°	1000	1200	--	--	Note 4,7
Response time响应时间		Tr+Tf	∅=0° Ta=25°C	--	30	35	ms	Note 3
Color chromaticity (CIE 1931) 色彩饱和度	White	X		-0.03	TBD	+0.03		Note 7
		Y			TBD			
	Red	X			TBD			
		Y			TBD			
	Green	X			TBD			
		Y			TBD			
	Blue	X			TBD			
		Y			TBD			
Viewing angle 视角范围	Ver.	Y+	CR ≧ 10	80	85	--	deg	Note 5,7 ∅=0, 90 , 180, 270
		Y-		80	85	--		
	Hor.	X-		80	85	--		
		X+		80	85	--		
Cross-talk Ratio			57~63HZ	--	--	3	%	Note 8
Flicker			57~63HZ	--	--	-30	dB	Note 6
Cross Talk		Ct	∅=0° Ta=25°C	--	--	3	%	Note 7
Module brightness 模组亮度		LM	∅=0° Ta=25°C	--	TBD	--	CD/M2	Note 7
Uniformity 均匀度		UL	∅=0° Ta=25°C	80	85	--	%	Note 7

Note 1: Measured under Ambient temperature =25C, and LED lightbar current IL = 20mA in the dark room.

Note 2: To be measured on the center area of panel with a viewing cone of 1° by luminance meter, after 15 minutes operation.



Note 3: Definition of response time

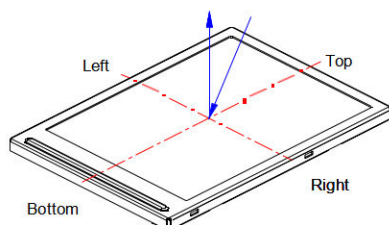
The output signals of photo detector are measured when the input signals are changed from “black” to “white” (rising time) and from “white” to “black” (falling time), respectively.

The response time is defined as the time interval between the 10% and 90% of amplitudes. Refer to figure as below.



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Note 4. Definition of contrast ratio:

Contrast ratio is calculated with the following formula.

$$\text{Contrast ratio (CR)} = \frac{\text{Photo detector output when LCD is at "White" status}}{\text{Photo detector output when LCD is at "Black" status}}$$

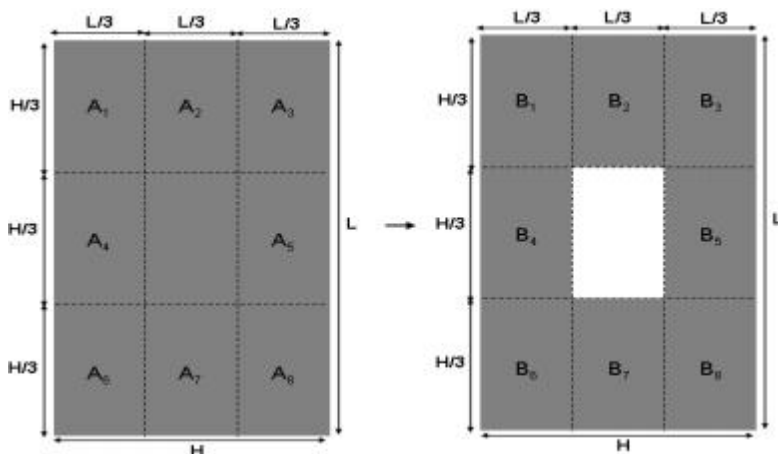
Note 5. Definition of viewing angle, θ , Refer to figure as below.

Note 6: It is strongly recommended VCOM setting by piece by piece OTP technology to get best display quality.

Note 7: The spec in table is for reference, different polarizer and APCF would make different performance for it.

Note 8: Cross-talk ratio is measuring by follow pattern and formula

The test pattern of cross-talk is 128L gray around one white block, size is defined as picture.



$$\text{Cross talk Ratio} = \max_{i=1 \text{ to } 8} \frac{|A_i - B_i| \text{ (Photo detector output when LCD is at test pattern)}}{A_i \text{ (Photo detector output when LCD is at 128L gray pattern)}}$$



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9. Reliability Test Items

Test Item 测试项目	Test Condition 测试条件	Test result determinant gist 实验结果判定
高温存储	80±3℃, 96H;	试验结束后,已测试的LCD 样品必须在室内正常温湿度环境下放置2~4个小时以上才能进行功能和外观检查, 样品不允许有以下缺陷: 1.模块中有气泡; 2.; 不显示; 3; 玻璃破碎; 4.需要满足模块电气性能。
低温存储	-30±3℃, 96H;	
高温运行测试	70±3℃, 96H;	
低温运行测试	-20±3℃, 96H;	
高温高湿	50℃±3℃,90%±3%RH, 120H;	
冷热冲击	-20℃/0.5h~25℃/10MIN~+70℃/0.5h for a total 10 cycles;	
静电测试	±2KV, Human Body Mode, 150pF/330Ω; ±8KV, Air Mode, 150pF/330Ω;	

Remark: 注意:

1:每个被测试的模块只能用于其中的一个测试项目。

2. 每个测试项目的样品数量为2片。



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3.故障判断标准:基本规格,电气特性,机械特性,光电特性。