



2.8" MIPI INTERFACE DISPLAY

P/N: DJA-7475-S000

* Description

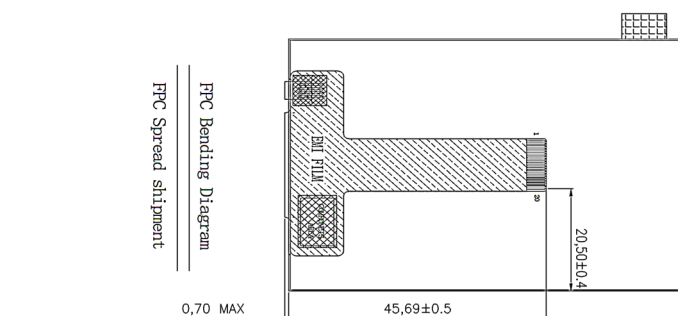
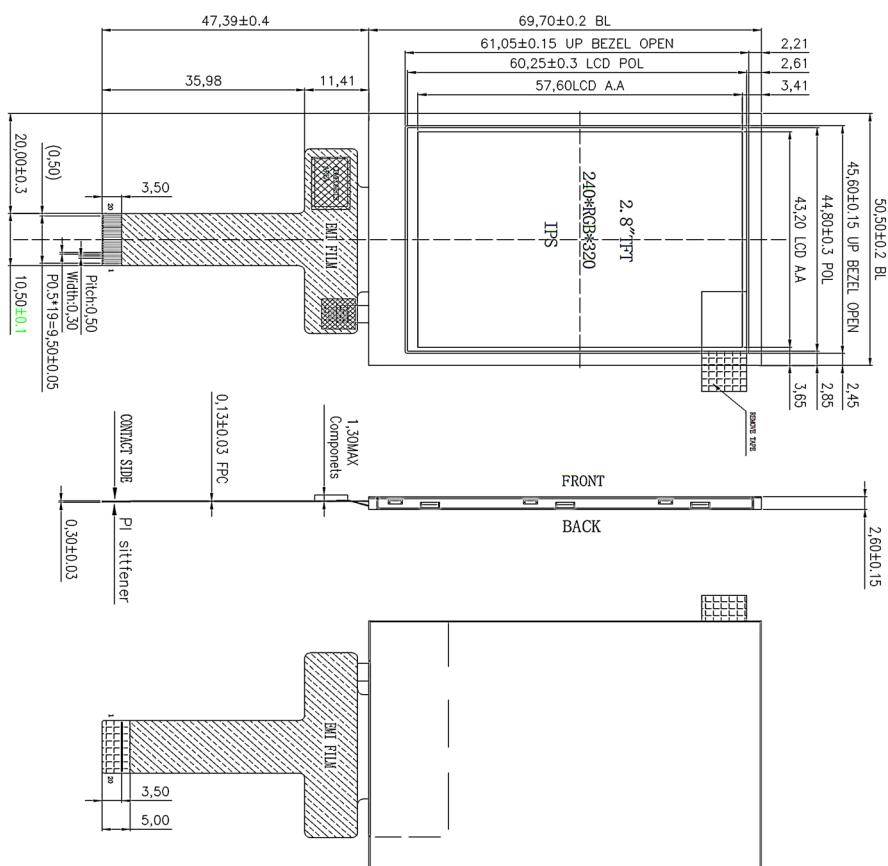
This is a color active matrix TFT (Thin Film Transistor) LCD (liquid crystal display) that uses amorphous silicon TFT as a switching device. This module is composed of a Transmissive type TFT-LCD Panel, driver circuit, back-light unit. The resolution of a 2.8 " TFT-LCD contains 240x320 pixels, and can display up to 262K colors.

* Features

General Information Items	Specification	Unit	Note
	Main Panel		
Display area(AA)	43.20(H)*57.60(V) (2.8 inch)	mm	
Driver element	TFT active matrix	-	
Display colors	262K	colors	
Number of pixels	240(RGB)*320	dots	
Pixel arrangement	RGB vertical stripe	-	
Pixel pitch	0.18(H)*0.18(V)	mm	
Viewing angle	Free	o'clock	
Controller IC	JD9852	-	
LCM Interface	1-Lane MIPI	-	
Display mode	Transmissive /Normally Black	-	
Operating temperature	-20~+70	°C	
Storage temperature	-30~+80	°C	

* Mechanical Information

Item		Min.	Typ.	Max.	Unit	Note
Module size	Horizontal(H)	-	50.50	-	mm	
	Vertical(V)	-	69.70	-	mm	
	Depth(D)	-	2.60	-	mm	
Weight		-	20	-	g	



No.	Pin Name
1	NC
2	LEDK
3	NC
4	LEDA
5	NC
6	VCI
7	IOVCC
8	TE
9	RESET
10	GND
11	NC
12	NC
13	GND
14	MIP1_CLP
15	MIP1_CLN
16	GND
17	MIP1_D0P
18	MIP1_D0N
19	GND
20	GND

NOTES:

1. DISPLAY TYPE: 2.8", TFT-LCD, 262K COLORS
2. DISPLAY MODE: NORMALLY BLACK
3. VIEWING DIRECTION: Free
4. DRIVER IC: J09852 (COG)
- LCM Interface: 11ANE_MIP1
5. VO: -3.3V/IOCC:1.65~3.3V
6. OPERATING TEMP: -20°C TO 70°C
- STORAGE TEMP: -30°C TO 80°C
7. BACK LIGHT: LED WHITE, 6 LED, 20mA, 19.2±0.3V
8. RoHS COMPLIANT.



Re V	Revision content description	Date
A	FIRST	2019. 06. 28

TOLERANCE(公差)	TOLERANCE UNLESS OTHERWISE SPECIFIED	X X±0.3 X XX±0.2	Drawn	Unit
		Checked		mm
Scale 1:1		Approve		Page 1/1



3. Input terminal Pin Assignment

Pin NO.	Symbol	Function	I/O
1	NC		
2	LEDK	Cathode pin of backlight.	P
3	NC		
4	LEDA	Anode pin of backlight.	P
5	NC		
6	VCI	Supply voltage (3.3V).	P
7	IOVCC	Power supply for I/O block(1.8-3.3V)	P
8	TE	Serve as a TE (Tearing Effect) output signal	O
9	RESET	Reset pin. Setting either pin low initializes the LSI. Must be reset after power is supplied.	I
10	GND	Ground.	P
11	NC		
12	NC		
13	GND	Ground.	P
14	MIPI_CLP	DSI Positive polarity of low voltage differential clock signal	I
15	MIPI_CLN	DSI Negative polarity of low voltage differential clock signal	
16	GND	Ground.	P
17	MIPI_D0P	DSI Positive polarity of low voltage differential data signal	I
18	MIPI_D0N	DSI Negative polarity of low voltage differential data signal	I
19	GND	Ground.	P
20	GND	Ground.	P



4. LCD Optical Characteristics

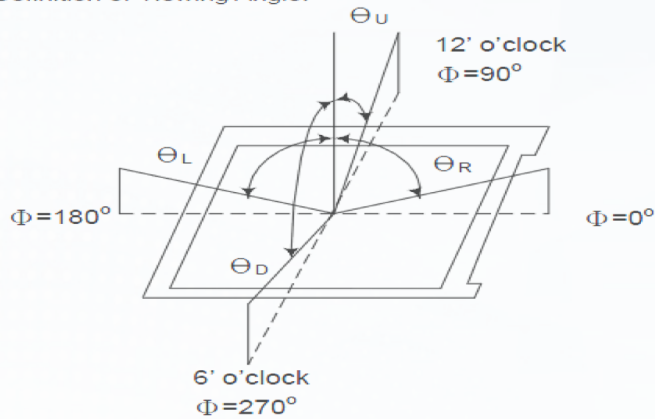
4.1 Optical specification

Item		Symbol	Condition	Min.	Typ.	Max.	Unit.	Note
Contrast Ratio		CR	Θ=0 Normal viewing angle	600	800	--		(1)(2)
Response time	Rising	T _R +T _F		--	30	40	msec	(1)(3)
	Falling							
Color Gamut		S(%)		--	(60)	--	%	
Color Filter Chromaticity	White	W _X		0.2424	0.2824	0.3224		(1)(4) CF glass
		W _Y		0.2593	0.2993	0.3393		
	Red	R _X		0.5955	0.6155	0.6355		
		R _Y		0.3256	0.3454	0.3654		
	Green	G _X		0.2829	0.3029	0.3229		
		G _Y		0.5566	0.5766	0.5966		
	Blue	B _X		0.1288	0.1488	0.1688		
		B _Y		0.0372	0.0572	0.0772		
Viewing angle	Hor.	Θ _L	CR>10	--	80	--		(1)(4)
		Θ _R		--	80	--		
	Ver.	Θ _U		--	80	--		
		Θ _D		--	80	--		
		Option View Direction		Free				

Measuring Condition

- Measuring surrounding : dark room
- Ambient temperature : $25\pm 2^\circ\text{C}$
- 15min. warm-up time.

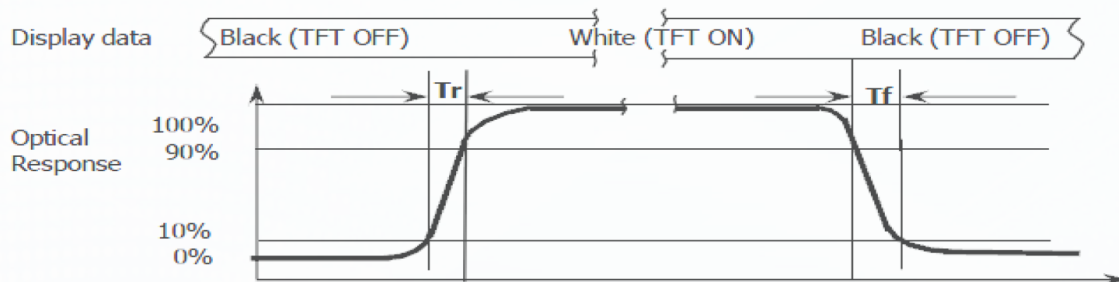
Note (1) Definition of Viewing Angle:



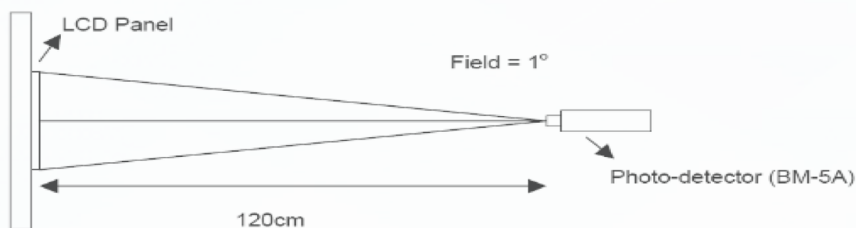
Note (2) Definition of Contrast Ratio (CR) :
measured at the center point of panel

$$CR = \frac{\text{Luminance with all pixels white}}{\text{Luminance with all pixels black}}$$

Note 3: Response Time



Note (4) Definition of optical measurement setup





5. Electrical Characteristics

5.1 Absolute Maximum Rating

Characteristics	Symbol	Min.	Max.	Unit	Note
Digital Supply Voltage	V _{CI}	-0.3	3.3	V	Note1
Digital interface supply Voltage	IOVCC	-0.3	3.3	V	Note1
Operating temperature	T _{OP}	-20	+70	°C	
Storage temperature	T _{ST}	-30	+80	°C	

NOTE1: If the absolute maximum rating of even is one of the above parameters is exceeded even momentarily, the quality of the product may be degraded. Absolute maximum ratings, therefore, specify the values exceeding which the product may be physically damaged. Be sure to use the product within the range of the absolute maximum ratings.

5.2 DC Electrical Characteristics

Characteristics	Symbol	Min.	Typ.	Max.	Unit	Note
Digital Supply Voltage	V _{CI}	2.6	3.3	3.6	V	
Digital interface supply Voltage	IOVCC	1.65	1.8	3.3	V	
Normal mode Current	IDD	--	10	--	mA	
Level input voltage	V _{IH}	0.7*IOVCC	--	IOVCC+0.3	V	
	V _{IL}	GND-0.3	--	0.3*IOVCC	V	
Level output voltage	V _{OH}	IOVCC-0.4	--	--	V	
	V _{OL}	GND	--	GND+0.4	V	

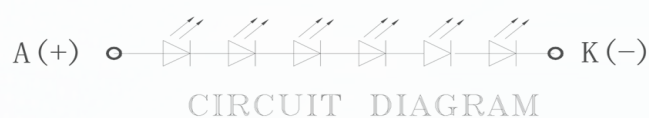


5.3 LED Backlight Characteristics

The back-light system is edge-lighting type with 6 chips LED

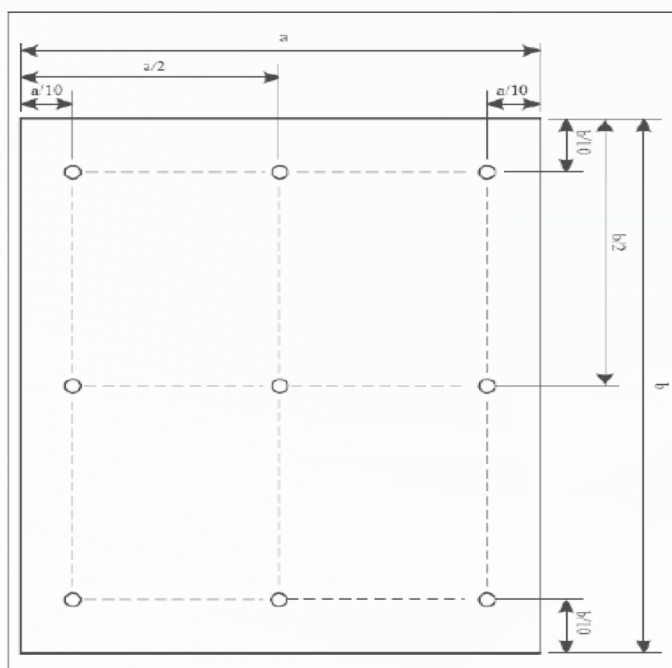
Item	Symbol	Min.	Typ.	Max.	Unit	Note
Forward Current	I_F	15	20	--	mA	
Forward Voltage	V_F	--	19.2	--	V	
LCM Luminance	LV	650	710	--	cd/m ²	Note3
LED life time	Hr	--	50000	--	Hour	Note1,2
Uniformity	Avg	80	--	--	%	Note3

- Note1: LED life time (Hr) can be defined as the time in which it continues to operate under the condition:
 $T_a = 25 \pm 3^\circ\text{C}$, typical IL value indicated in the above table until the brightness becomes less than 50%.
- Note 2: The “LED life time” is defined as the module brightness decrease to 50% original brightness at
 $T_a = 25^\circ\text{C}$ and $I_L = 20\text{mA}$. The LED lifetime could be decreased if operating I_L is larger than 20mA. The constant current driving method is suggested.





Note (3) Luminance Uniformity of these 9 points is defined as below:



$$\text{Uniformity} = \frac{\text{minimum luminance in 9 points (1-9)}}{\text{maximum luminance in 9 points (1-9)}}$$

$$\text{Luminance} = \frac{\text{Total Luminance of 9 points}}{9}$$