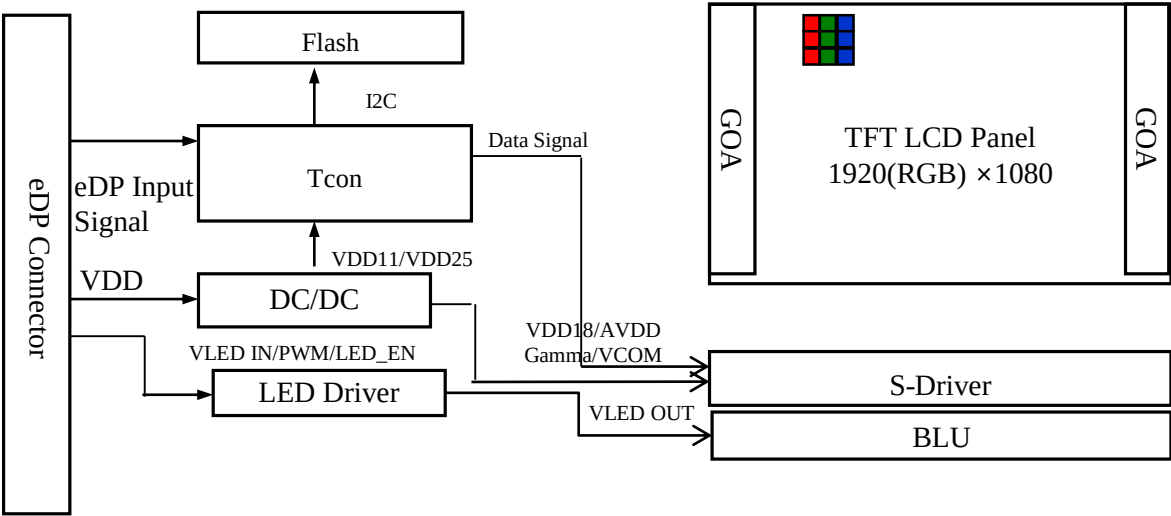


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1.0 GENERAL DESCRIPTION

1.1 Introduction

QV156FHB-N83 is a color active matrix TFT LCD module using amorphous silicon TFT 's (Thin Film Transistors) as an active switching devices. This module has a 15.6 inch diagonally measured active area with FHD resolutions (1920 horizontal by 1080vertical pixel array). Each pixel is divided into RED, GREEN, BLUE dots which are arranged in vertical stripe and this module can display 16.7M colors.



1.2 Features

- 0.4T Glass (Single)
- 6-bit (6bit+FRC) color depth, display 16. 7M colors
- eDP 1.4 interface with 2 Lane
- Reverse Type

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1.3 Application

- 绘图板

1.4 General Specification

The followings are general specifications at the QV156FHB-N83

<Table 1. LCD Module Specifications>

Parameter	Specification	Unit	Remarks
Active Area	344.16 (H) ×193.59 (V)	mm	
Number Of Pixels	1920 (H) ×1080 (V)	pixels	
Pixel Pitch	0.17925 (H) X 0.17925 (V)	mm	
Pixel Arrangement	RGB Vertical stripe		
Display Mode	Normally Black		
Display Colors	16.7M	colors	6+FRC
Surface Treatment	Anti Glare		
Viewing Angle(CR>10)	85/85/85/85	deg.	
Response Time	30ms@tpy,35ms@max	ms	
Color Gamut	72%NTSC		
Transmittance	6.1%@APF POL based on YAG LED	%	APF POL or not, based on xx LED fluorescent
Power Consumption	1.08	watt	
Outline Dimension	384.76*223.205	mm	
Weight	TBD	gram	
Back-light	TBD		

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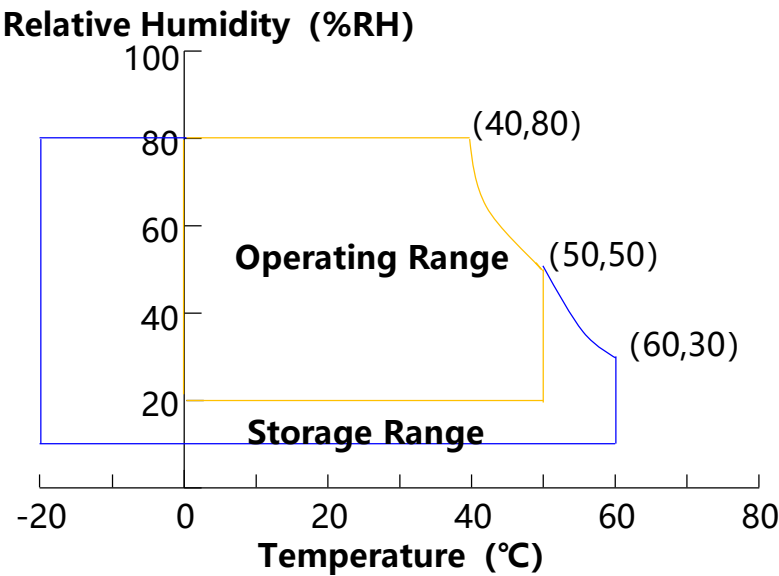
2.0 ABSOLUTE MAXIMUM RATINGS

The followings are maximum values which, if exceed, may cause faulty operation or damage to the unit. The operational and non-operational maximum voltage and current values are listed in Table 2.

< Table 2. Absolute Maximum Ratings >

Parameter	Symbol	Min.	Max.	Unit	Remark
Power Supply Voltage	VDD	-0.3	5.5	V	Ta = 25 °C
Operating Temperature	T _{OP}	0	+50	°C	Note 1
	T _{SUR} 产品表面温度		+65	°C	
Storage Temperature	T _{ST}	-20	+60	°C	
Operating Ambient Humidity	Hop	10	80	%RH	
Storage Humidity	Hst	10	80	%RH	

Note : 1) Temperature and relative humidity range are shown in the figure below.
Wet bulb temperature should be 39 °C max. and no condensation of water.
T_{SUR} : Panel surface Temperature is measured at 50°C Dry Condition



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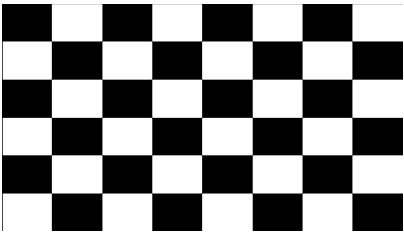
3.0 ELECTRICAL SPECIFICATIONS

3.1 TFT LCD Module

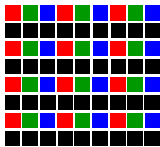
< Table 3. Open cell Electrical specifications > [Ta =25±2 °C]

Parameter		Symbol	Values			Unit	Notes
			Min.	Typ.	Max.		
Power Supply Voltage		VDD	3.0	3.3	3.6	V	Note 1
Power Supply Ripple Voltage		VRP	-	-	300	mV	
Power Supply Current		IDD	-	300	700	mA	
Rush current		IRUSH	-	-	2	A	Note 2
eDP Interface	Main link swing voltage	V _{ID}	100	-	1000	mV	
	Common mode voltage	Vcm	0	-	2	V	
Power Consumption		P _D		1.08	2.1	W	Note 1

Notes : 1. The supply voltage is measured and specified at the interface connector of FOB.
The current draw and power consumption specified is for 3.3V at 25 °C
Max value at H 1 Line Pattern
a) Typ : Mosaic Pattern
b) Max : H1L Pattern
2. The duration of rush current is about 2ms and rising time of Power Input is 1ms(min)



(a)



(b)

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3.2 LED driver

< Table 4. LED Driving guideline specifications >

[Ta =25±2 °C]

Parameter		Symbol	Values			Unit	Notes
			Min.	Typ.	Max.		
PWM Control Level	PWM High Level	-	2.7	3.3	5	V	
	PWM Low Level	-	0	-	0.7	V	
LEDEN Control Level	LEDEN High Level	-	2.7	3.3	5	V	
	LEDEN Low Level	-	0	-	0.7	V	
PWM Control Frequency		F _{PWM}	200	-	10000	Hz	
Duty Ratio		-	1	-	100	%	

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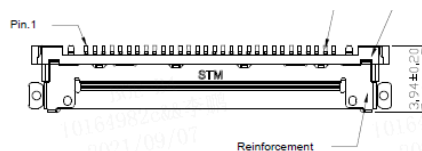
4.0 INTERFACE CONNECTION

4.1 Interface Input Signal & Power

- eDP Connector : MSAK24025P30 or Equivalent

< Table5. Pin Assignment for **open cell** Connector >

PIN #	Symbol	Description Remark	PIN #	Symbol	Description Remark
1	NC	NC	16	H_GND	Ground
2	H_GND	Ground	17	HPD	Hot Plug Detect Output
3	LANE1_N	eDP RX Channel 1 Negative	18	BL_GND	LED Ground
4	LANE1_P	eDP RX Channel 1 Positive	19	BL_GND	LED Ground
5	H_GND	Ground	20	BL_GND	LED Ground
6	LANE0_N	eDP RX Channel 0 Negative	21	BL_GND	LED Ground
7	LANE0_P	eDP RX Channel 0 Positive	22	BL_ENAB LE	LED Enable Pin(+3.3V Input)
8	H_GND	Ground	23	BL_PWM	System PWM Signal Input
9	AUX_CH_P	eDP AUX CH Positive	24	NC	No Connection
10	AUX_CH_N	eDP AUX CH Negative	25	NC	No Connection
11	H_GND	Ground	26	BL_POWER	LED Power Supply 10.8V-13.2V
12	LCD_VCC	Power Supply, 3.3V (typ.)	27	BL_POWER	LED Power Supply 10.8V-13.2V
13	LCD_VCC	Power Supply, 3.3V (typ.)	28	BL_POWER	LED Power Supply 10.8V-13.2V
14	BIST	Panel Self Test Enable	29	BL_POWER	LED Power Supply 10.8V-13.2V
15	H_GND	Ground	30	NC	No Connection



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4.2 Pin assignment for PWM驱动
Connector : PF040-B09B-C09 or Equivalent.

< Table6. Pin assignment for LED driver >

PIN #	Symbol	Description Remark
1	LED1	LED-
2	LED2	
3	LED3	
4	LED4	
5	NC	NC
6	NC	
7	VLEDOUT	LED+
8	VLEDOUT	
9	VLEDOUT	

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4.3 Dimension

CNT Dimension

-30pin Connector: MSAK24025P30

