SPECIFICATIONS

CUSTOMER	:	
SAMPLE CODE	:	SH128160T068-LAA11
MASS PRODUCTION CODE	:	PH128160T068-LAA11
SAMPLE VERSION	:	01
SPECIFICATIONS EDITION	:	003
DRAWING NO. (Ver.)	:	JLMD-PH128160T068-LAA11_001
PACKAGING NO. (Ver.)	:	JPKG-PH128160T068-LAA11_002

Customer Approved

Date:

POWERTIP
2021.10.08
JS RD APPROVED

Approved	Checked	Designer
劉進	劉進	陳璐

□ Preliminary specification for design input

■ Specification for sample approval

POWERTIP TECH. CORP.

Represented by:

FIRST Components s.r.l.
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SPECIFICATIONS

Features

Main LCD Panel

Item	Standard Value
Display Type	128 * (R、G、B) * 160 Dots
LCD Type	a-Si TFT , Normally White TN mode , Transmissive
Screen size(inch)	1.77 (Diagonal)
Viewing Direction	12 O'clock
Color configuration	R.G.B. vertical stripe
Interface	8-bit interface for 80 system
Other(controller / driver IC)	ST7735S
ROHS	THIS PRODUCT CONFORMS THE ROHS OF PTC

Mechanical Specifications

Item	Standard Value	Unit
Outline Dimension	34.0 (W) * 47.0 (L) * 2.4 (H)(MAX)	mm

TFT LCD Panel

Item	Standard Value	Unit
Viewing Area (LCD)	29.032 (W) * 36.04 (L)	mm
Active Area (LCD)	28.032 (W) * 35.04 (L)	mm

Note: For detailed information please refer to LCM drawing.

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Absolute Maximum Ratings

Module

Item	Symbol	Condition	Min.	Max.	Unit
System Power Supply Voltage	VDD	-	-0.3	+4.8	V
	|VGH-VGL|	-	-0.3	30.0	V
Input Voltage	VIN	-	-0.3	VDD+0.3	V
Operating Temperature	T_{OP} (Ts)	Note 1	-20	+70	°C
Storage Temperature	T_{ST} (Ta)	Note 2	-30	+80	°C
Storage Humidity	H_D	Ta ≦ 60 °C	10	90	%RH

The absolute maximum rating values of this product are not allowed to be exceeded at any times. Should a module be used with any of the absolute maximum ratings exceeded, the characteristics of the module may not be recovered, or in an extreme case, the module may be permanently destroyed.

Note 1：Ts is the temperature of panel's surface.
Note 2：Ta is the ambient temperature of samples.

DC Electrical Characteristics

Module GND = 0V, Ta = 25°C

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Interface operation voltage	VDD	I/O supply voltage	2.5	3.0	3.3	V
Input High Voltage	V_{IH}	-	0.7*VDD	-	VDD	V
Input Low Voltage	V_{IL}	-	GND	-	0.3*VDD	V
Output High Voltage	V_{OH}	IOH=-0.1mA	0.8*VDD	-	VDD	V
Output Low Voltage	V_{OL}	IOL=0.1mA	GND	-	0.2*VDD	V
Supply Current	IDD	VDD=3.0V	-	2	3	mA

Optical Characteristics

TFT LCD Panel

VDD = 3.0V, Ta=25°C

Item		Symbol	Condition	Min.	Typ.	Max.	unit	
Response time		Tr + Tf	-	-	28	42	ms	Note2
Viewing angle	Top	θY+	CR ≥ 10	-	15	-	Deg.	Note4
	Bottom	θY-		-	45	-		
	Left	θX-		-	45	-		
	Right	θX+		-	45	-		
Contrast ratio		CR	-	200	250	-	-	Note3
Color of CIE Coordinate (With B/L)	White	X	IF= 30mA	0.24	0.29	0.34	-	Note1
		Y		0.25	0.30	0.35		
	Red	X		0.54	0.59	0.64		
		Y		0.29	0.34	0.39		
	Green	X		0.29	0.34	0.39		
		Y		0.54	0.59	0.64		
	Blue	X		0.10	0.15	0.20		
		Y		0.02	0.07	0.12		
Average Brightness Pattern=white display (With B/L)		IV	IF= 30mA	190	260	-	cd/m^2	Note1
Uniformity (With B/L)		△B		80	-	-	-	Note1

Note1:

1：△B= B(min) / B(max) × 100%.

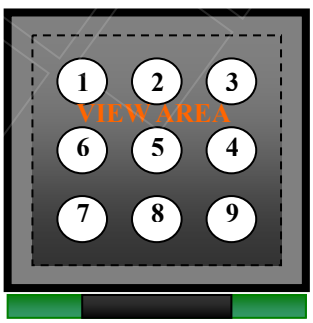
2：Measurement Condition for Optical Characteristics:

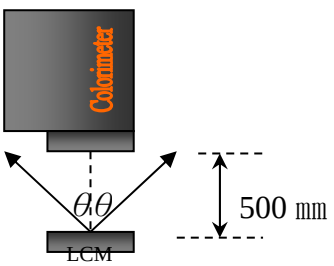
a：Environment: 25℃±5℃ / 60±20%R.H, no wind, dark room below 10 Lux at typical lamp current and typical operating frequency.

b：Measurement Distance: 500 ± 50 ㎜, (θ= 0°).

c：Equipment: TOPCON BM-7 fast, (field 1°), after 10 minutes operation.

d：The uncertainty of the C.I.E coordinate measurement ±0.01, Average Brightness ± 4%.





Colorimeter=BM-7 fast

Backlight Characteristics

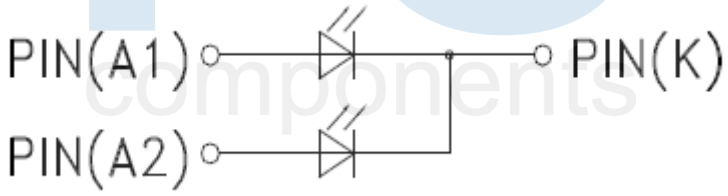
Maximum Ratings

Item	Symbol	Conditions	Min.	Max.	Unit
Forward Current	IF	Ta =25℃	-	30/LED	mA
Reverse Voltage	VR	Ta =25℃	-	5.0	V
Power Dissipation	PD	Ta =25℃	-	105	mW

Electrical / Optical Characteristics

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward Voltage	VF	IF=30mA	2.8	3.3	3.5	V
Average Brightness (without LCD)	IV	IF=30mA	3200	3800	-	cd/m^2
Color of CIE Coordinate (without LCD)	X		0.25	0.28	0.31	-
	Y		0.25	0.28	0.31	
Color	White					

Internal Circuit Diagram



Other Description

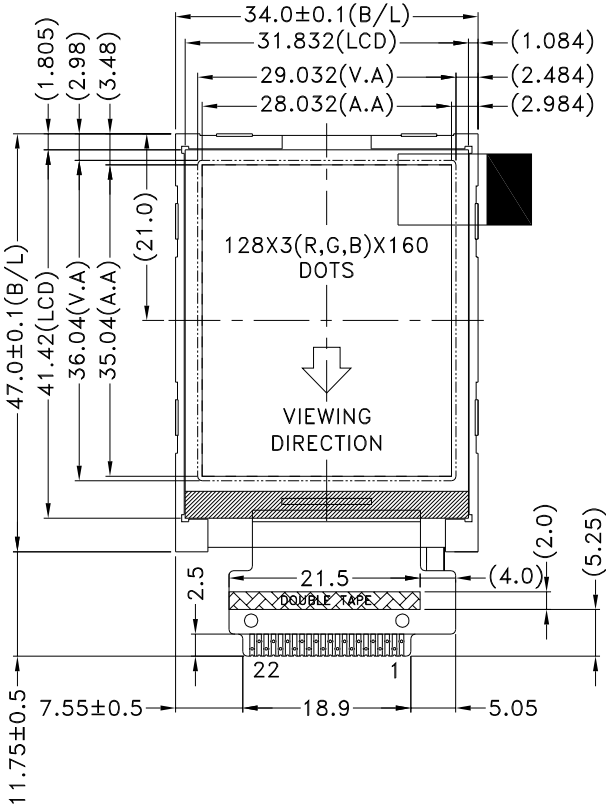
Item	Conditions	Description
Life Time	Ta =25℃ IF= 30mA	50000 hrs

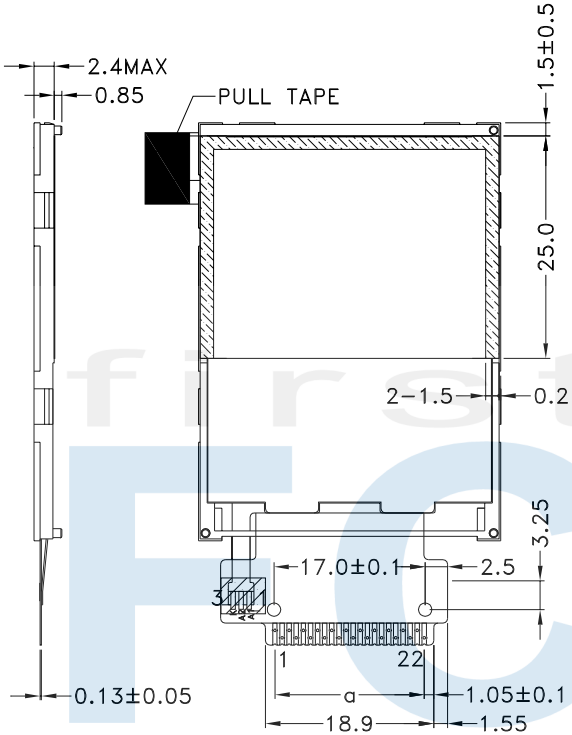
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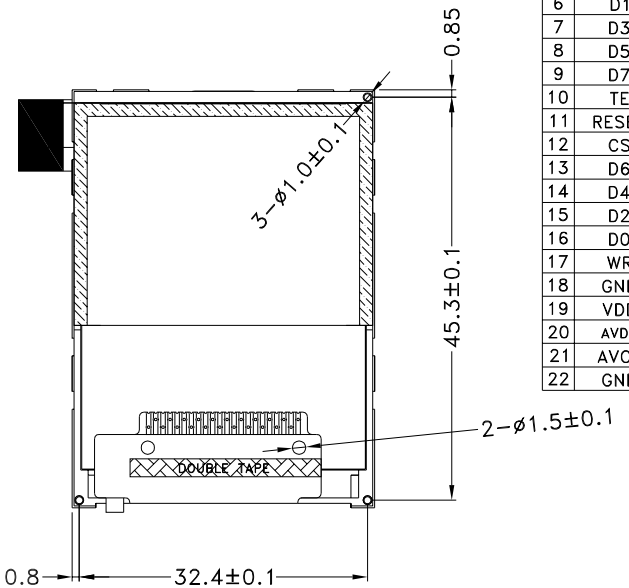
Interface Pin Description

Pin No.	Symbol	Function
1	K	Power Supply for LED Backlight Cathode input.
2	A2	Power Supply for LED Backlight Anode input.
3	A1	Power Supply for LED Backlight Anode input.
4	RD	Read signal input , Active “L”.
5	RS	The signal for command or parameter select under parallel mode Low: command.；High: parameter.
6	D1	Bi-directional data bus.
7	D3	Bi-directional data bus.
8	D5	Bi-directional data bus.
9	D7	Bi-directional data bus.
10	TE	Tearing effect output pin to synchronies MPU to frame rate,activated by S/W command
11	RESET	This signal will reset the device and it must be applied to properly initialize the chip, Active “L”.
12	CS	Chip selection pin, Active “L”.
13	D6	Bi-directional data bus.
14	D4	Bi-directional data bus.
15	D2	Bi-directional data bus.
16	D0	Bi-directional data bus.
17	WR	Write enable in MPU parallel interface, Active “L”.
18	GND	System ground
19	VDD	Power supply for analog, digital , I/O system and booster circuit
20	AVDD	Power pin for analog circuits. Please Open This Pins
21	AVCL	A power supply pin for generating GVCL. Please Open This Pins
22	GND	System ground

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No	PIN NAME
1	K
2	A2
3	A1
4	RD
5	RS
6	D1
7	D3
8	D5
9	D7
10	TE
11	RESET
12	CS
13	D6
14	D4
15	D2
16	D0
17	WR
18	GND
19	VDD
20	AVDD
21	AVCL
22	GND

NOTES:
1.THE TOLERANCE UNLESS CLASSIFIED±0.2mm
2.R=0.5±0.1mm FOR NOT ASSIGNED
3.OPERATING TEMP:−20°C~70°C
4.STORAGE TEMP:−30°C~80°C
5.LCD DRIVER:ST7735S
6.VIEWING DIRECTION:12 O'CLOCK
7.BACKLIGHT:LUMINANCE
>=100cd/m^2,UNIFORMITY >=80%
8.▨ DOUBLE TAPE(T=0.05mm)
9.a:P0.8x21=16.8±0.05(W=0.5±0.05)

REV	REV BY	REVISER	DATE
007			
006			
005			
004			
003			
002			
001	NEW DRAWING	Crystal	2021/07/13

PART NO: PH128160T068-LAA11
DRAWING NAME : JLMD-PH128160T068-LAA11
TITLE: LCD MODULE DRAWING

江蘇久正光電有限公司
JIANGSU POWERTIP TECHNOLOGY CORP.LTD.

Design	Crystal	⟨3⟩	Surface		
Check	Air	Unit	MM	Material	
Approve	Liujin	Scale	4:5	Thickness	
		Page	1/1	Quantity	

最小公差長度(mm)	精度等級 精級
1 ~ 4	-
4 ~ 16	-
16 ~ 63	-
63 ~ 250	-
250 ~ 1000	-