SPECIFICATIONS

CUSTOMER	:	
SAMPLE CODE	:	SH480272T017-ZBA01
MASS PRODUCTION CODE	:	PH480272T017-ZBA01
SAMPLE VERSION	:	01
SPECIFICATIONS EDITION	:	002
DRAWING NO. (Ver.)	:	LMD-PH480272T017-ZBA01 (Ver.002)
PACKAGING NO. (Ver.)	:	PKG-PH480272T017-ZBA01 (Ver.001)

Customer Approved

Date:

Approved	Checked	Designer
廖志豪 **Rex Liao**	張慶源 **Yuan Chang**	陳宗淇 **Howard Chen**

POWERTIP 2024.06.13 TW RD APR

☐ Preliminary specification for design input

■ Specification for sample approval

POWERTIP TECH. CORP.

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SPECIFICATIONS

Features

Item	Standard Value
Display Type	480 * 3 (RGB) * 272 Dots
LCD Type	Full Viewing Angle , Normally Black , Transmissive type
Screen size(inch)	4.3”(Diagonal)
Color configuration	R,G, B vertical stripe
Display Interface	8080 8 Bit、9 Bit、16 Bit & 3/4 Line、Daul SPI & Quad SPI I/F
Driver IC	NV3041A-01
ROHS	THIS PRODUCT CONFORMS THE ROHS OF PTC

Mechanical Specifications

Item	Standard Value	Unit
Outline Dimension	105.4(W) x 67.15 (L) x 2.9(H)	mm

LCD panel

Item	Standard Value	Unit
Viewing Area	99.6 (W) * 56.7 (L)	mm
Active Area	95.04 (W) x 53.856 (L)	mm
Pixel Size	0.198(W) * 0.198(H)	mm

Note : For detailed information please refer to LCM drawing

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Absolute Maximum Ratings

Item	Symbol	Condition	Min.	Max.	Unit
System Power Supply Voltage	VDD	GND=0	-0.5	+4.6	V
Input Voltage Range	Vin	-	-0.5	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	-	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

GND = 0V, Ta = 25°C

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Power supply Voltage	VDD	-	3.0	3.3	3.6	V
"H" Input Voltage	V_{IH}	-	0.7*VDD	-	VDD	V
"L" Input Voltage	V_{IL}	-	GND	-	0.3* GND	V
"H" Output Voltage	V_{OH}	-	VDD-0.4	-	VDD	V
"L" Output Voltage	V_{OL}	-	GND	-	GND +0.4	V
Supply Current	IDD	VDD=3.3V	-	35	50	mA

Optical Characteristics

VDD =3.3V, Ta=25°C

Item		Symbol	Condition	Min.	Typ.	Max.	unit	
Response time		Tr + Tf	Ta = 25°C θX, θY = 0°	-	40	60	ms	Note2
Viewing angle	Top	θY+	CR ≥ 10	-	80	-	Deg.	Note4
	Bottom	θY-		-	80	-		
	Left	θX-		-	80	-		
	Right	θX+		-	80	-		
Contrast ratio		CR	Ta = 25°C θX , θY = 0°	500	600	-	-	-
Color of CIE Coordinate	White	X		0.25	0.30	0.35	-	Note1
		Y		0.31	0.36	0.41		
	Red	X		0.52	0.57	0.62		
		Y		0.28	0.33	0.38		
	Green	X		0.29	0.34	0.39		
		Y		0.56	0.61	0.66		
	Blue	X		0.08	0.13	0.18		
		Y		0.07	0.12	0.17		
Average Brightness (With LCD) *2		IV	IF= 40mA	400	440	-	cd/m^2	Note1
Uniformity (With LCD) *1		△ B	IF= 40mA	70	-	-	%	Note1

Note1:

1：△ B=B(min) / B(max) × 100%

2：Measurement Condition for Optical Characteristics:

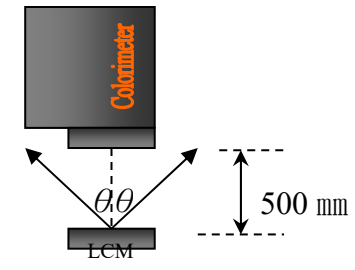
a：Environment: 25℃±5℃ / 60±20%R.H，no wind，dark room below 10 Lux at typical lamp current and typical operating frequency.

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
LED Forward Current	IF	Ta =25℃	-	60	mA
LED Reverse Voltage	VR	Ta =25℃	-	5	V
Power Dissipation	PD	Ta =25℃	-	990	mW

Electrical / Optical Characteristics

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward Voltage	VF	IF=40mA	13.5	15	16.5	V
Average Brightness (Without LCD)	IV		6300	7000	-	cd/m^2
CIE Color Coordinate (Without LCD)	X		0.26	0.29	0.32	-
	Y		0.26	0.29	0.32	
Color	White					

*1：The “LED life time” is defined as the module brightness decrease to 50% original brightness at Ta=25℃ and I_L=40mA. The LED lifetime could be decreased if operating I_L is lager than 40 mA.

Internal Circuit Diagram



Other Description

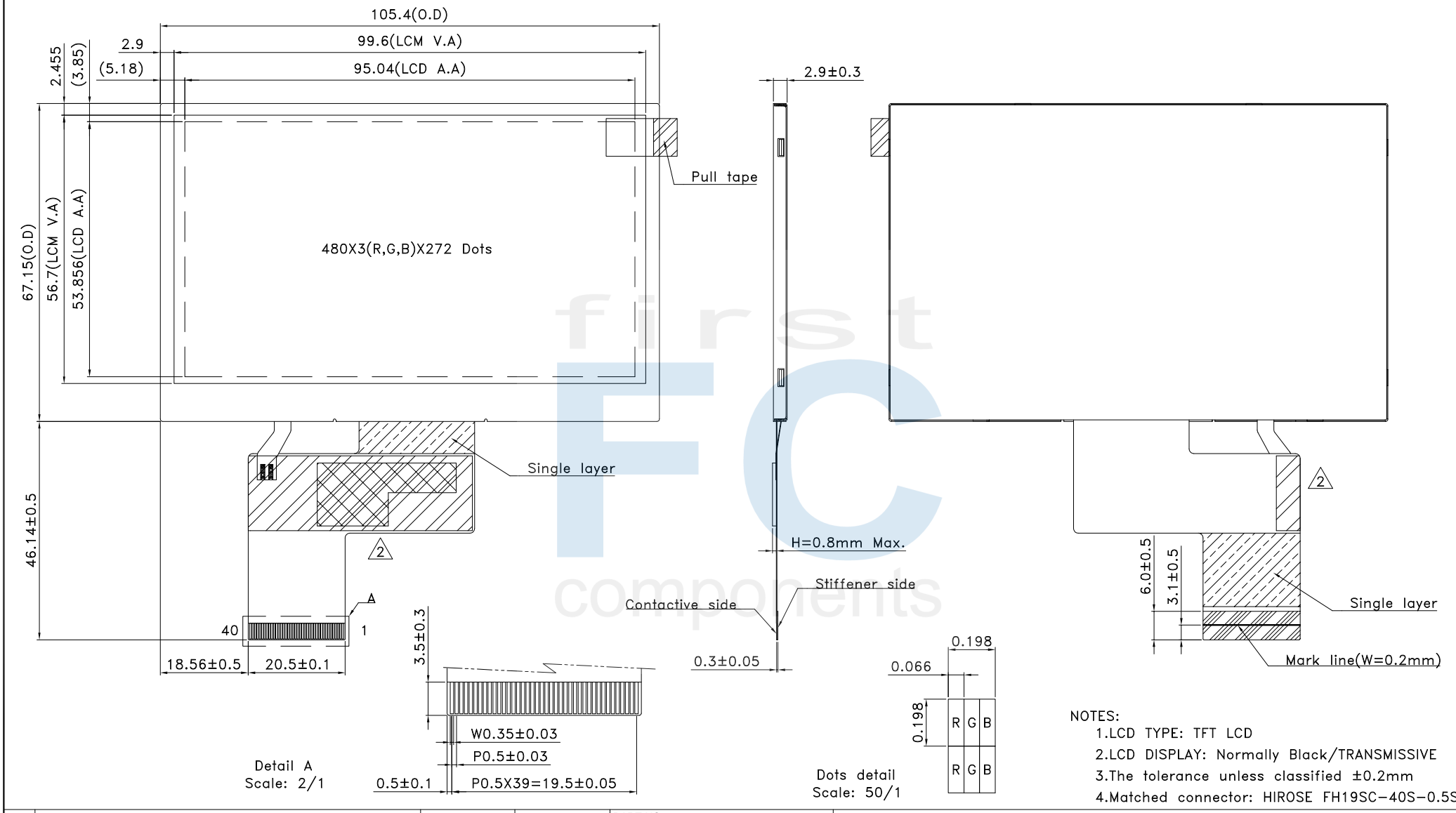
Item	Conditions	Description
Life Time*1	Ta =25℃ IF= 40mA	30,000 hrs

Interface Pin Description

Pin No.	Symbol	Function
1	VDD	Digital power
2	VDD	Digital power
3	NC	Not Connect
4	GND	Ground
5	CS	A chip select signal.Signal is active low.
6	SDA/ SDO1	SPI bi-direction data pin
7	WRX/SCL	Write signal input for 8080 I/F,Clock input for SPI I/F
8	RDX	read enable input .
9	DCX/SDO2	8080 & 3/4 Line I/F Data or Command DCX = “H” is data ,DCX = “L” is command Dual-SPI: the second data lane. Quard-SPI: the second data pin
10	GND	Ground
11	RESET	Global reset. Active low
12	GND	Ground
13	D0	When using 8080 8-bit parallel interface D8~D15 is pull low When using 8080 9-bit parallel interface D9~D15 is pull low When using 3/4 SPI interface D[15:0] are not used and should connect to “L” by GND. When using Dual-SPI interface SDA:In/Out, DCX:In D[15:0] are not used and should connect to “L” by GND. When using Quard-SPI interface D2: the third pin of Quard-SPI SDO3 D3: the fourth pin of Quard-SPI SDO4 D[15:2] are not used and should connect to “L” by GND.
14	D1	
15	D2	
16	D3	
17	D4	
18	D5	
19	D6	
20	D7	
21	D8	
22	D9	
23	D10	
24	D11	
25	D12	

<table>
<tr><th>Pin No.</th><th>Symbol</th><th>Function</th></tr>
<tr><td>26</td><td>D13</td><td></td></tr>
<tr><td>27</td><td>D14</td><td></td></tr>
<tr><td>28</td><td>D15</td><td></td></tr>
<tr><td>29</td><td>TE</td><td>Tearing effect output pin is used to synchronize MCU frame writing, activated by S/W command. When this pin is not activated (TE function OFF), this pin is GND level</td></tr>
<tr><td>30</td><td>IM0</td><td rowspan="2">IM0,IM1 selects interface mode.
<table><tr><th>IM1</th><th>IM0</th><th>Selected Interface</th></tr><tr><td rowspan="3">0</td><td rowspan="3">0</td><td>8080 series 8bit</td></tr><tr><td>8080 series 9bit</td></tr><tr><td>8080 series 16bit</td></tr><tr><td>0</td><td>1</td><td>3/4-wire SPI</td></tr><tr><td>1</td><td>0</td><td>Dual SPI</td></tr><tr><td>1</td><td>1</td><td>Quad SPI</td></tr></table></td></tr>
<tr><td>31</td><td>IM1</td></tr>
<tr><td>32</td><td>SPI4W</td><td>SPI 3/4 wire selection.
SPI4W=“H”, 4 wire SPI
SPI4W=“L”, 3wire SPI</td></tr>
<tr><td>33</td><td>GND</td><td>Ground</td></tr>
<tr><td>34</td><td>NC</td><td>Not Connect</td></tr>
<tr><td>35</td><td>A</td><td>Power supply for LED Backlight anode input</td></tr>
<tr><td>36</td><td>K</td><td>Power supply for LED Backlight cathode input</td></tr>
<tr><td>37</td><td>NC</td><td>Not Connect</td></tr>
<tr><td>38</td><td>NC</td><td>Not Connect</td></tr>
<tr><td>39</td><td>NC</td><td>Not Connect</td></tr>
<tr><td>40</td><td>NC</td><td>Not Connect</td></tr>
</table>

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NOTES:
1.LCD TYPE: TFT LCD
2.LCD DISPLAY: Normally Black/TRANSMISSIVE
3.The tolerance unless classified ±0.2mm
4.Matched connector: HIROSE FH19SC-40S-0.5SH

REV	REV BY	REVISER	DATE
007			
006			
005			
004			
003			
002	MODIFY DRAWING	Mike	2024/06/11
001	NEW DRAWING	Mike	2024/04/12

PART NO:

DRAWING NAME :

TITLE: LCD MODULE DRAWING

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POWERTIP TECHNOLOGY CORPORATION

Design		Surface	(3)
Check		Unit	MM
Approve		Material	
		Scale	1:1
		Thickness	
		Page	1/1
		Quantity	

Precision / Tolerance Length(Min) (mm)	Level
1 ~ 4	-
4 ~ 16	-
16 ~ 63	-
63 ~ 250	-
250 ~ 1000	-

PH480272T017-ZBA01

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