SPECIFICATIONS

CUSTOMER	:	
SAMPLE CODE	:	SH240320T075-ZHA
MASS PRODUCTION CODE	:	PH240320T075-ZHA
SAMPLE VERSION	:	01
SPECIFICATIONS EDITION	:	006
DRAWING NO. (Ver.)	:	LMD-PH240320T075-ZHA (Ver.002)
PACKAGING NO. (Ver.)	:	PKG-PH240320T075-ZHA (Ver.001)

Customer Approved

Date:

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

POWERTIP
2019.01.28
TW RD APR

☐ 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

Item	Standard Value
Display Type	240 * 3 (RGB) * 320 Dots
LCD Type	Full Viewing Angle , Normally Black , Transmissive type
Screen size(inch)	2.8 inch
Color configuration	RGB-Strip
Backlight Type	White LED B/L
Interface	18/16/9/8-bits 8080 Interface
Other(controller/driver IC)	ST7789VI (Or Compatible IC)
ROHS	THIS PRODUCT CONFORMS THE ROHS OF PTC

Note:

Mechanical Specifications

Item	Standard Value	Unit
Outline Dimension	50.0(W) *70.0 (L) *2.8(H)	mm

LCD Panel

Item	Standard Value	Unit
Active Area	43.2(W) *57.6 (L)	mm
Pixel Size	0.18(W) *0.18 (H)	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	VCC	GND=0	-0.3	4.6	V
	IOCC	GND=0	-0.3	4.6	V
Operating Temperature	T_{OP}	-	-20	70	℃
Storage Temperature	T_{ST}	-	-30	80	℃
Storage Humidity	H_D	Ta ≦ 60 ℃	10	90	%RH

DC Electrical Characteristics

Module

GND = 0V, Ta = 25℃

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Power Supply Voltage	VCC	-	-	2.8	-	V
	IOVCC	-	-	2.8	-	V
Input H/L Level Voltage	VIH	-	0.7*IOVCC	-	IOVCC	V
	VIL	-	GND	-	0.3IOVCC	V
Supply Current	I_{dd}	VCC&IOVCC =2.8V Pattern=Photo	-	8	-	mA
		VCC&IOVCC =2.8 V Pattern= RGB *1	-	10	15	mA

Note1:Maximum current display

Optical Characteristics

TFT LCD Module

VCC &IOVC= 2.8 V, Ta=25℃

Item	Symbol		Condition	Min.	Typ.	Max.	unit	
Response time	Tr+Tf		Ta = 25℃ θX, θY = 0°	-	30	40	ms	Note 2
Viewing angle	Top	θY+	CR ≥ 10	-	80	-	Deg.	Note 4
	Bottom	θY-		-	80	-		
	Left	θX-		-	80	-		
	Right	θX+		-	80	-		
Contrast ratio		CR	Ta = 25℃ θX , θY = 0°	650	800	-		Note 3
Color of CIE Coordinate (With B/L)	White	X		0.24	0.29	0.34	-	Note1
		Y		0.26	0.31	0.36		
	Red	X		0.58	0.63	0.68		
		Y		0.29	0.34	0.39		
	Green	X		0.26	0.31	0.36		
		Y		0.57	0.62	0.67		
	Blue	X		0.09	0.14	0.19		
		Y		0.00	0.05	0.10		
Average Brightness Pattern=white display (With B/L)*1	IF		IF= 40 mA	800	1000	-	cd/m^2	Note1
Uniformity (With B/L)*2	ΔB		IF=40mA	70	-	-	%	Note1

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Backlight Characteristics

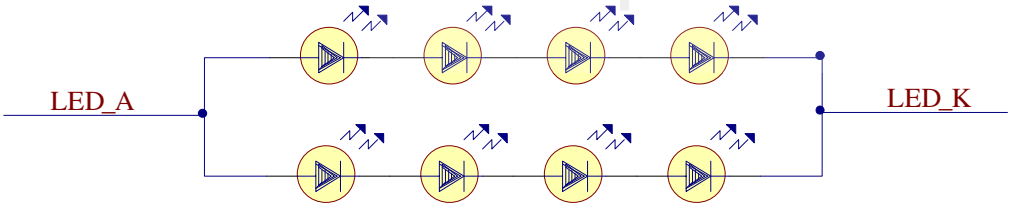
Maximum Ratings

Item	Symbol	Conditions	Min.	Max.	Unit
LED Forward Current	IF	Ta =25℃	-	30*2	mA
LED Reverse Voltage	VR		-	5	V
Power consumption	Pd			400*2	mW

Electrical / Optical Characteristics

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward Voltage	VF	If= 40mA	10.8	12	13.2	
Average Brightness (Without LCD)	IV		13000	14000	16000	cd/m^2
CIE Color Coordinate (Without LCD)	X		-	0.30	-	-
	Y		-	0.30	-	
Color	White					

B/L Internal Circuit Diagram:



Other Description

Item	Conditions	Description
Life Time	Ta =25℃ IF= 40mA	50,000 hrs

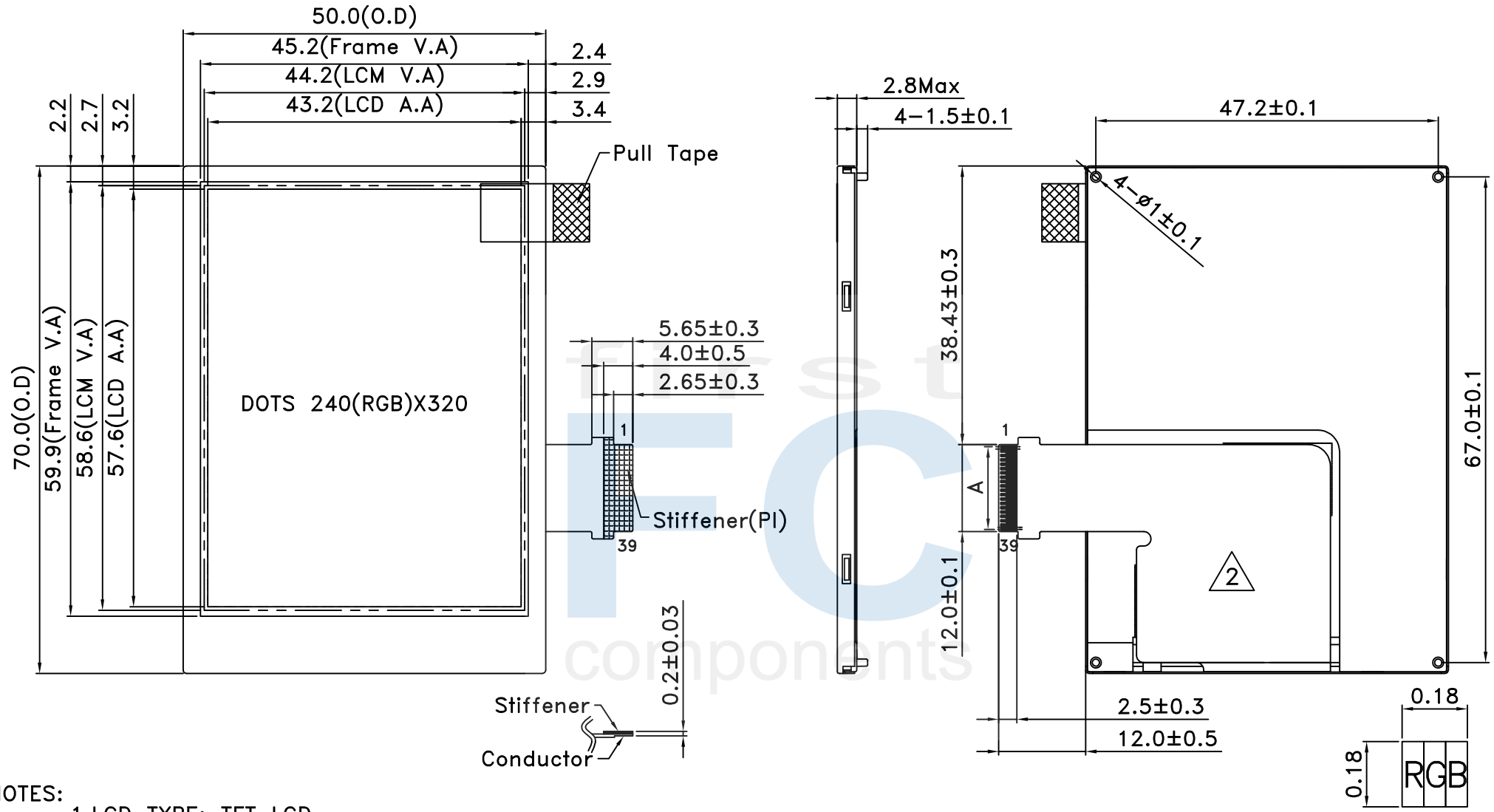
Interface Pin Description

<table>
<tr><th>Pin No.</th><th>Symbol</th><th>Function</th></tr>
<tr><td>1</td><td>GND</td><td>Signal ground.(0V)</td></tr>
<tr><td>2</td><td>GND</td><td>Signal ground.(0V)</td></tr>
<tr><td>3</td><td>ID</td><td>Identify pin ---1K Pullup to IOVCC</td></tr>
<tr><td>4</td><td>IM0</td><td>Interface mode pin</td></tr>
<tr><td>5</td><td>IM1</td><td>External setting pins
<table>
<tr><th>IM1</th><th>IM0</th><th>Interface Mode</th><th>DB PIN</th></tr>
<tr><td>0</td><td>0</td><td>80-16-bit parallel interface II</td><td>DB17-10, DB8-1</td></tr>
<tr><td>0</td><td>1</td><td>80-8-bit parallel interface II</td><td>DB17-10</td></tr>
<tr><td>1</td><td>0</td><td>80-18-bit parallel interface II</td><td>DB17-0</td></tr>
<tr><td>1</td><td>1</td><td>80-9-bit parallel interface II</td><td>DB17-9</td></tr>
</table></td></tr>
<tr><td>6</td><td>RESET</td><td>Reset input pin for TFT LCD.
When RESET is “L”, initialization is executed</td></tr>
<tr><td>7</td><td>DB17</td><td>Bi-directional data bus</td></tr>
<tr><td>8</td><td>DB16</td><td>Bi-directional data bus</td></tr>
<tr><td>9</td><td>DB15</td><td>Bi-directional data bus</td></tr>
<tr><td>10</td><td>DB14</td><td>Bi-directional data bus</td></tr>
<tr><td>11</td><td>DB13</td><td>Bi-directional data bus</td></tr>
<tr><td>12</td><td>DB12</td><td>Bi-directional data bus</td></tr>
<tr><td>13</td><td>DB11</td><td>Bi-directional data bus</td></tr>
<tr><td>14</td><td>DB10</td><td>Bi-directional data bus</td></tr>
<tr><td>15</td><td>DB9</td><td>Bi-directional data bus</td></tr>
<tr><td>16</td><td>DB8</td><td>Bi-directional data bus</td></tr>
<tr><td>17</td><td>DB7</td><td>Bi-directional data bus</td></tr>
<tr><td>18</td><td>DB6</td><td>Bi-directional data bus</td></tr>
<tr><td>19</td><td>DB5</td><td>Bi-directional data bus</td></tr>
<tr><td>20</td><td>DB5</td><td>Bi-directional data bus</td></tr>
<tr><td>21</td><td>DB3</td><td>Bi-directional data bus</td></tr>
<tr><td>22</td><td>DB2</td><td>Bi-directional data bus</td></tr>
<tr><td>23</td><td>DB1</td><td>Bi-directional data bus</td></tr>
<tr><td>24</td><td>DB0</td><td>Bi-directional data bus</td></tr>
</table>

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Pin No.	Symbol	Function
25	RD	Read data at the rising edge
26	WR	Write signal input，active at Low.
27	RS	When RS = 0: Command. When RS = 1: Display data
28	CS	Chip select signal , Active at ”L”
29	IOVCC	Power supply of Digital Circuit
30	IOVCC	Power supply of Digital Circuit
31	VCC	Power supply of Analog circuit.
32	VCC	Power supply of Analog circuit.
33	GND	Signal ground.(0V)
34	LEDA	Power supply for LED Backlight Anode input
35	LEDK	Power supply for LED Backlight Cathode input
36	GND	Signal ground.(0V)
37	GND	Signal ground.(0V)
38	GND	Signal ground.(0V)
39	GND	Signal ground.(0V)

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NOTES:

1.LCD TYPE: TFT LCD

2.LCD DISPLAY: Nomally Black/TRANSMISSIVE

3.A=0.3X38=11.4±0.05 ; W=0.3±0.05

4.The tolerance unless classified ±0.3mm

5.FPC connector : "Hirose" FH26−39S−0.3SHW(05)

REV	REV BY	REVISER	DATE
007			
006			
005			
004			
003			
002	Modify Backlight & FPC design	Clare	2018/12/3
001	NEW DRAWING	Clare	2018/8/22

sales@first-components.com

PART NO: PH240320T075-ZHA

DRAWING NAME : LMD-PH240320T075-ZHA

TITLE: LCD MODULE DRAWING PH240320T075-ZHA

久正光電股份有限公司
POWERTIP TECHNOLOGY CORPORATION

Design	Clare Chen	(3)	Surface		
Check	Tina Chen	Unit	MM	Material	
Approve	Jimmy Chen	Scale	FIT	Thickness	
		Page	1/1	Quantity	

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