SPECIFICATIONS

CUSTOMER	:	
SAMPLE CODE	:	S-GMA31027A-0-Q
MASS PRODUCTION CODE	:	D-GMA31027A-0-Q
SAMPLE VERSION	:	01
SPECIFICATIONS EDITION	:	002
DRAWING NO. (Ver.)	:	LMD-D-GMA31027A-0-Q (Ver.002)
PACKAGING NO. (Ver.)	:	PKG-D-GMA31027A-0-Q (Ver.001)

Customer Approved

Date:

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

POWERTIP
2023.06.09
TW RD APR

☐ Preliminary specification for design input

■ Specification for sample approval

POWERTIP TECH. CORP.

Represented by:

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SPECIFICATIONS

Features

Main LCD Panel

Item	Standard Value
Display Type	200 * 200 dots
LCD Type	a-Si TFT , Normally white, Reflection
Screen size(inch)	1.54 inch
Viewing Direction	6 O'clock
Color configuration	Mono
Weight	1.5g
Interface	4-line serial Interface
Driver IC	ST7305
ROHS	THIS PRODUCT CONFORMS THE ROHS OF PTC

Mechanical Specifications

Item	Standard Value	Unit
Outline Dimension	29.46 (W) * 31.71(L) * 0.76 (H)	mm
Viewing Area	28.26 (W) * 28.26 (L)	mm
Active Area	27.66 (W) * 27.66 (L)	mm
Pixel Size	0.138 (W) * 0.138(H)	mm

Note : For detailed information please refer to LCM drawing

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Absolute Maximum Ratings

Item	Symbol	Condition	Min.	Max.	Unit
Power Supply Voltage	VDDA	-	-0.3	4.0	V
Power Supply Voltage	VDDI		-0.3	4.0	V
Input Voltage	VIN	-	-0.3	VDDI+0.5	V
Operating Temperature	T_{OP} (Ts)	Note 1	-20	70	℃
Storage Temperature	T_{ST} (Ta)	Note 2	-30	80	℃
Storage Humidity	H_D	Ta < 60 °C	20	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.

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DC Electrical Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Analog Power Supply (Normal Mode)	VDDA	-	3.0	3.3	3.6	V
Digital Power Supply (Normal Mode)	VDDI	-	3.0	3.3	3.6	V
“H” Input Voltage	V_{IH}	-	0.7VDDI	-	VDDI	V
“L” Input Voltage	V_{IL}	-	VSS	-	0.3VDDI	V
Output High Voltage	V_{OH}	IOH = -0.5mA	0.8VDDI	—	VDDI	V
Output Low Voltage	V_{OL}	IOL = -0.5mA	VSS	—	0.2VDDI	V
Supply Current	IVDDI	VDDI=3.3 V ; Pattern= text	-	13	-	uA
	IVDDA	VDDA=3.3 V ; Pattern= horizontal line*1		65	100	uA

NOTE: *1 The Maximum current display

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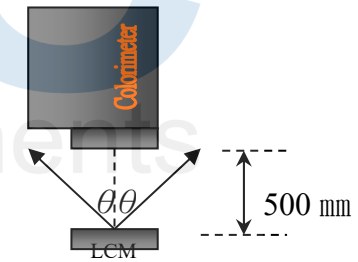
Optical Characteristics

Item		Symbol	Condition	Min.	Typ.	Max.	unit	
Response time	Rise+Fall	Tr + Tf	C ≥ 2.0 ∅ =270°	-	5	7	ms	Note1
Viewing angle	Top	θY+		-	60	-	Deg.	Note3
	Bottom	θY-		-	60	-		
	Left	θX-		-	60	-		
	Right	θX+		-	60	-		
Contrast ratio		CR	θ = 0°, ∅ = 270°	-	15	-	-	Note2

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

Interface Pin Description

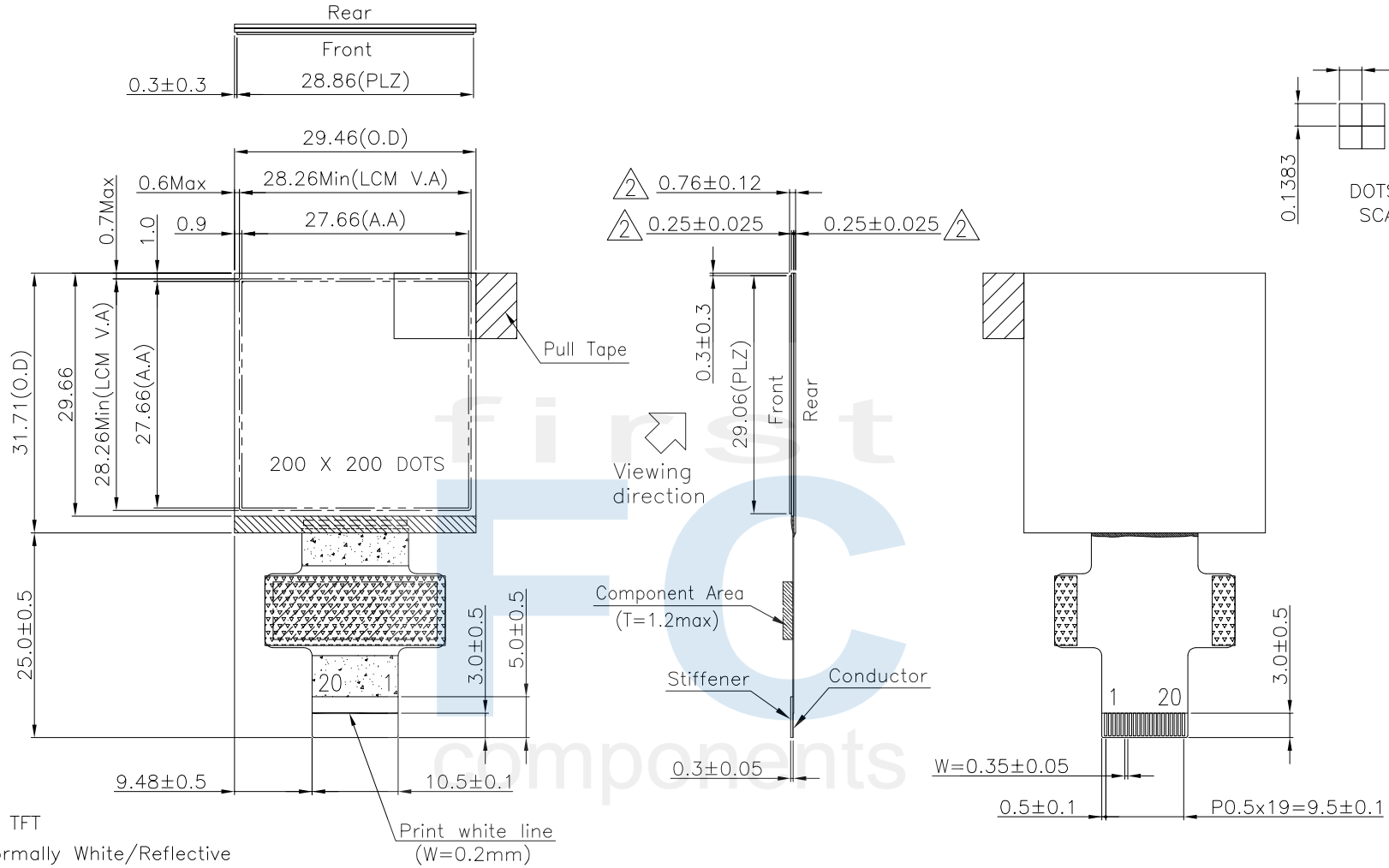
CON1 Interface

Pin	Symbol	Description
01	VSS	Ground
02	VSS	Ground
03	NC	Not Connect
04	VDDA	Power Supply (Analog)
05	VDDA	Power Supply (Analog)
06	VDDI	Power Supply (Digital)
07	VDDI	Power Supply (Digital)
08	NC	Not Connect
9	CSB	Chip select input pin. CSB="L": This chip is selected and the MPU interface is active. CSB="H": This chip is not selected and the MPU interface is disabled (D[7:0] are high impedance).
10	A0	A0 = "H": Indicates that D[7:0] are display data; A0 = "L": Indicates that D[7:0] are control data.
11	RSTB	Reset input pin.
12	SCLK	serial input clock
13	SDA	serial input / output data
14	NC	Not Connect
15	TE	Tearing effect signal is used to synchronize MCU to frame memory writing. If not used, please let this pin open
16	EXTB	EXTB="L": Enable the extension operation mode. When programming MTP, connect EXTB to VDGND externally. This pin has an internal pull-high resistor. Please leave this pin OPEN after special operation.
17	VPP	The programming power supply of the built-in NVM. Apply external power 7.5V here when programming (> 8mA for successful programming). If not used, left this pin open.

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Pin	Symbol	Description
18	NC	Not Connect
19	VSS	Ground
20	VSS	Ground

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NOTES:

1.LCD TYPE: Mono TFT

2.LCD DISPLAY: Normally White/Reflective

3.VIEW DIRECTION: 6 o'clock

4.THE TOLERANCE UNLESS CLASSIFIED ±0.2mm

5.LCM FPC suggested connector : CF31201D0R0-05-NH (CviLux) or compatible

6. :Bending Area; :Kapton Tape; :Component Area;

REV	REV BY	REVISER	DATE
007			
006			
005			
004			
003			
002	Modify thickness	Jason	2023/05/29
001	NEW DRAWING	Jason	2023/01/05

PART NO: D-GMA31027A-0-Q

DRAWING NAME : LMD-D-GMA31027A-0-Q

TITLE: LCD MODULE DRAWING D-GMA31027A-0-Q

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POWERTIP TECHNOLOGY CORPORATION

Design	Jason	(3)	Surface		
Check	Tina	Unit	MM	Material	
Approve	Bright	Scale	FIT	Thickness	
		Page	1/1	Quantity	

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

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