POWERTIP TECH. CORP.

# SPECIFICATIONS

| | | |
|---|---|---|
| CUSTOMER | : | CIT022 |
| SAMPLE CODE | : | SH128800T008-ZIR |
| MASS PRODUCTION CODE | : | PH128800T008-ZIR |
| SAMPLE VERSION | : | 01 |
| SPECIFICATIONS EDITION | : | 001 |
| DRAWING NO. (Ver.) | : | LMD-PH128800T008-ZIR (Ver.001) |
| PACKAGING NO. (Ver.) | : | - |

## Customer Approved

Date:

| Approved | Checked | Designer |
|---|---|---|
| 廖志豪<br>Rex Liao | 陳宗淇<br>Howard Chen | 張慶源<br>Yuan Chang |

POWERTIP
2023.11.01
TW RD APR

■ Preliminary specification for design input

□ Specification for sample approval

**POWERTIP TECH. CORP.**

***Sales:***

Represented by:

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# 1. SPECIFICATIONS

## 1.1 Features

| Item | Standard Value |
|---|---|
| Screen Size(Inch) | 12.1(Diagonal) |
| Resolution | 1280* (R、G、B) * 800 Dots |
| Display Mode | Full Viewing Angle、Transmissive、Normally Black |
| Color | 16.7M |
| Weight | - |
| Interface | 8 bit LVDS |
| ROHS | THIS PRODUCT CONFORMS THE ROHS OF PTC |

## 1.2 Mechanical Specifications

| Item | Standard Value | Unit |
|---|---|---|
| Outline Dimension | 301.9(W) * 203.9(L) * 11.5(H) | mm |

**LCD Panel**

| Item | Standard Value | Unit |
|---|---|---|
| Active Area | 261.12(W) * 163.2(L) | mm |

Note : For detailed information please refer to LCM drawing.

## 1.3 Absolute Maximum Ratings

| Item | Symbol | Condition | Min. | Max. | Unit | Remark |
|---|---|---|---|---|---|---|
| Logic Supply Voltage | $V_{DD}$ | GND=0V | -0.3 | +3.6 | V | - |
| Power Supply for Backlight Unit | VLED | LED_GND=0V | -0.3 | +18.0 | 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<50°C | - | +80 | %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.

## 1.4 DC Electrical Characteristics

| Item | | Symbol | Condition | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| Power Supply Voltage for LCD Driver | | VDD | - | 3.0 | 3.3 | 3.6 | V |
| Power Supply Voltage for LED Driver | | VLED | - | 9.0 | 12.0 | 24.0 | V |
| Power Supply Current | | IDD | VDD=3.3V | - | (130) | - | mA |
| Power Supply For Backlight | | PLED | VBL =12V | - | (15.2) | - | W |
| PWM Signal Voltage | High | LED_PWM | - | 2.6 | 3.3 | 5.0 | V |
| | Low | | - | 0 | - | 0.7 | V |
| Input PWM Frequency | | $F_{PWM}$ | - | 600 | - | 1000 | Hz |
| PWM Duty Ratio | | PWM | | 1 | | 100 | % |

## 1.5 Optical Characteristics

**TFT LCD Panel** VDD=3.3V, Ta=25°C

| Item | | Symbol | Condition | Min. | Typ. | Max. | Unit | - |
|---|---|---|---|---|---|---|---|---|
| Response Time | | Tr + Tf | - | - | 30 | 35 | ms | Note2 |
| Viewing Angle | Top | ΘY+ | CR ≥ 10 | - | 85 | - | Deg. | Note4 |
| | Bottom | ΘY- | | - | 85 | - | | |
| | Left | ΘX- | | - | 85 | - | | |
| | Right | ΘX+ | | - | 85 | - | | |
| Contrast Ratio | | CR | Ta = 25°C<br>θX , θY = 0° | - | (1200) | - | - | Note3 |
| Color of CIE Coordinate | White | X | | - | (0.32) | - | - | Note1 |
| | | Y | | - | (0.35) | - | | |
| | Red | X | | - | (0.64) | - | | |
| | | Y | | - | (0.35) | - | | |
| | Green | X | | - | (0.31) | - | | |
| | | Y | | - | (0.61) | - | | |
| | Blue | X | | - | (0.13) | - | | |
| | | Y | | - | (0.06) | - | | |
| Average Brightness Pattern=white display (With LCD&TP)*1 | | IF | VLED=12.0V<br>PWM="High"<br>Duty=100% | - | (1800) | - | cd/m2 | Note1 |
| Luminance Uniformity (With LCD&TP)*2 | | △B | VLED=12.0V<br>PWM="High"<br>Duty=100% | 70 | - | - | % | Note1 |

## 1.6 Backlight Unit Characteristics

### Maximum Ratings

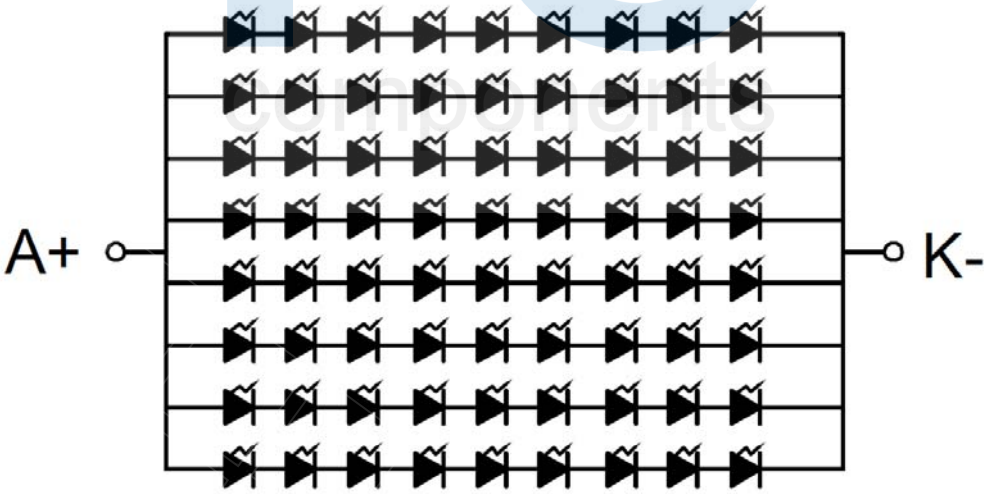
| Item | Symbol | Min. | Max. | Unit | Remark |
|---|---|---|---|---|---|
| LED Reverse Current | $I_R$ | - | - | uA | Per LED |
| LED Reverse Voltage | $V_R$ | - | - | V | |

### Backlight Characteristics

| Item | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Forward Voltage | VF | IF= 480 mA | 25.2 | - | 29.7 | V |
| Average Brightness (Without LCD ) | IV | | - | - | - | $cd/m^2$ |
| CIE Color Coordinate (Without LCD ) | X | | - | (0.28) | - | - |
| | Y | | - | (0.28) | - | |
| Uniformity *1 | △B | | 80 | | - | *2 |
| Color | White | | | | | |

*1：This value will be changed while mass production.

*2：△B=B(min) / B(max)%




### Other Description

| Item | Conditions | Description |
|---|---|---|
| Life Time | Ta =25℃<br>IF= 480 mA | 30000 hrs |

## 2.2 Interface Pin Description

### LCM Interface

| Pin No. | Symbol | Description |
|---|---|---|
| 1 | NC | No Connection. |
| 2 | VDD | Power Supply. |
| 3 | VDD | Power Supply. |
| 4 | VDD | Power Supply. |
| 5 | NC | No Connection. |
| 6 | GND | Ground. |
| 7 | GND | Ground. |
| 8 | RIN0- | -LVDS Differential Data Input. |
| 9 | RIN0+ | +LVDS Differential Data Input. |
| 10 | GND | Ground. |
| 11 | RIN1- | -LVDS Differential Data Input. |
| 12 | RIN1+ | +LVDS Differential Data Input. |
| 13 | GND | Ground. |
| 14 | RIN2- | -LVDS Differential Data Input. |
| 15 | RIN2+ | +LVDS Differential Data Input. |
| 16 | GND | Ground. |
| 17 | LVDS_CLK- | -LVDS Differential Clock Input. |
| 18 | LVDS_CLK+ | +LVDS Differential Clock Input. |
| 19 | GND | Ground. |
| 20 | RIN3- | -LVDS Differential Data Input. |
| 21 | RIN3+ | +LVDS Differential Data Input. |
| 22 | GND | Ground. |
| 23 | NC | No Connection. |
| 24 | NC | No Connection. |
| 25 | GND | Ground. |
| 26 | SDA | Serial data input/output for I2C interface |
| 27 | SCL | Clock input for I2C interface |

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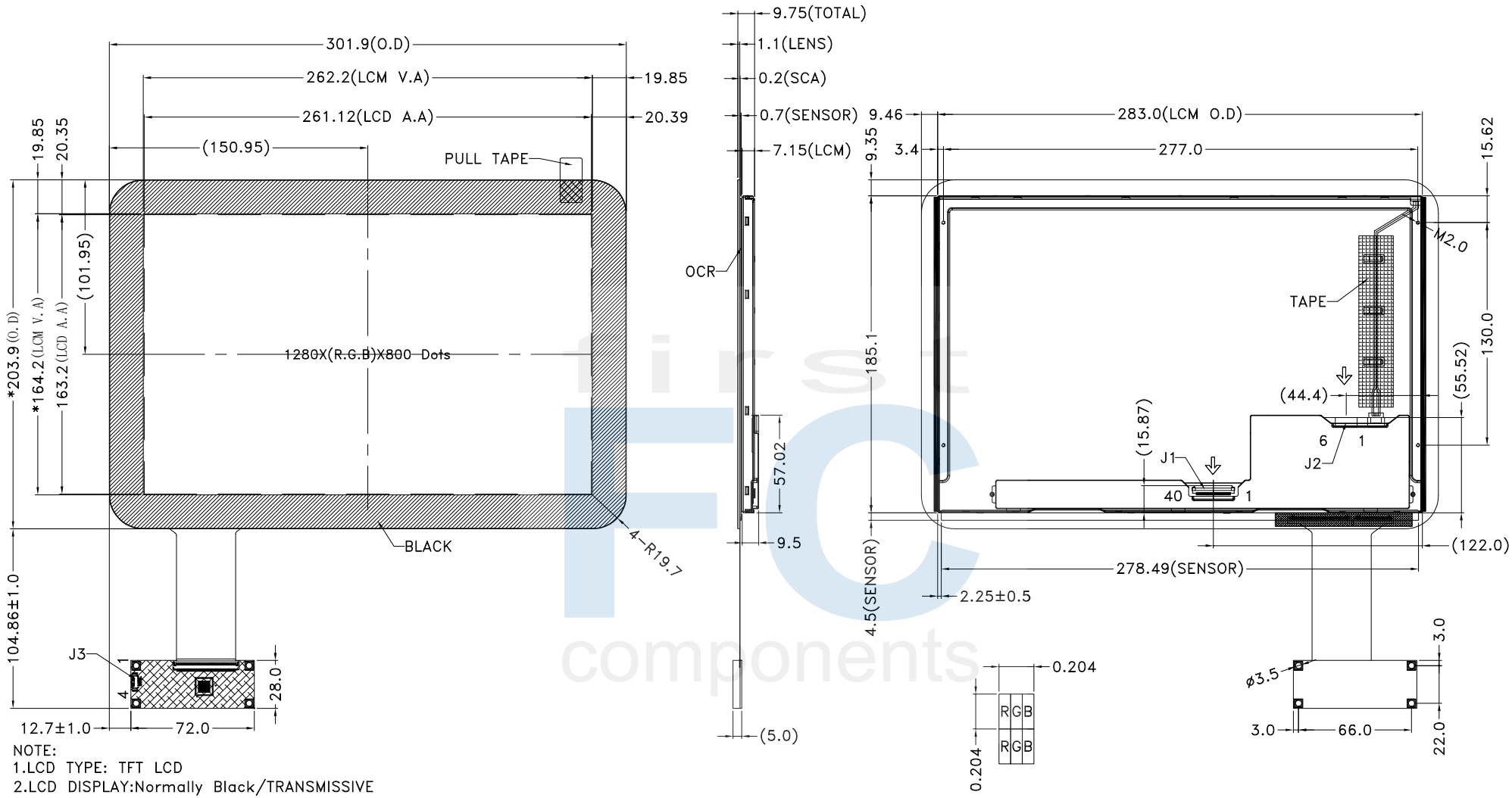
| Pin No. | Symbol | Description |
|---|---|---|
| 28 | GND | Ground. |
| 29 | NC | No Connection. |
| 30 | NC | No Connection. |
| 31 | GND | Ground. |
| 32 | GND | Ground. |
| 33 | GND | Ground. |
| 34 | NC | No Connection. |
| 35 | NC | No Connection. |
| 36 | NC | No Connection. |
| 37 | NC | No Connection. |
| 38 | NC | No Connection. |
| 39 | NC | No Connection. |
| 40 | NC | No Connection. |

**CTP interface**

| Pin No. | Symbol | Description |
|---|---|---|
| 1 | VDD-5V | Power Supply for CTP |
| 2 | D- | USB_N for CTP |
| 3 | D+ | USB_P for CTP |
| 4 | GND | Ground. |

**CN1 : LED Backlight Interface**

| Pin No. | Symbol | Description |
|---|---|---|
| 1 | VLED | Power Supply for LED Backlight driving. |
| 2 | VLED | Power Supply for LED Backlight driving. |
| 3 | EN | LED Backlight enable |
| 4 | ADJ | LED Backlight PWM control signal for dimming. |
| 5 | GND | Ground. |
| 6 | GND | Ground. |




NOTE:
1.LCD TYPE: TFT LCD
2.LCD DISPLAY:Normally Black/TRANSMISSIVE
3.VIEW DIRECTION:FULL VIEWING ANGLE
4.The tolerance unless classfle ±0.5mm
5.J1: JS AFC01-S40FCA-00 (0.5pitch ; 40pin) or compatible
6.J2: STM MSB24038P6 (1.25pitch ; 6pin) or compatible
7.J3: Molex 53261-0471 (1.25pitch ; 4pin) or compatible

DOTS DETAIL
SCALE: 100/1

| REV | REV BY | REVISER | DATE |
|---|---|---|---|
| 007 | | | |
| 006 | | | |
| 005 | | | |
| 004 | | | |
| 003 | | | |
| 002 | | | |
| 001 | NEW DRAWING | Stone | 2023/10/06 |

PART NO: PH128800T008-ZIR

DRAWING NAME : LMD-PH128800T008-ZIR

TITLE: LCD MODULE DRAWING

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

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

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

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