TFT DISPLAY SPECIFICATION


WINSTAR Display Co.,Ltd.

華凌光電股份有限公司

**Winstar Display Co., LTD**
**華凌光電股份有限公司**
*WEB: http://www.winstar.com.tw* *E-mail: sales@winstar.com.tw*

# SPECIFICATION

**CUSTOMER :** _____

**MODULE NO.: WWTFT-10#**

| | |
|---|---|
| **APPROVED BY:**<br>**( FOR CUSTOMER USE ONLY )** | **PCB VERSION:** **DATA:** |

| SALES BY | APPROVED BY | CHECKED BY | PREPARED BY |
|---|---|---|---|
| | | | 葉虹蘭 |
| **ISSUED DATE:** 2016/08/10 | | | |

TFT Display Inspection Specification: http://www.winstar.com.tw/technology/download.html

MODLE NO：

**DOC. FIRST ISSUE**

## RECORDS OF REVISION

| VERSION | DATE | REVISED PAGE NO. | **SUMMARY** |
|---|---|---|---|
| 0 | 2015/07/13 | | First issue |
| A | 2016/01/21 | | Modify Static electricity test |
| B | 2016/08/10 | | Modify Vibration test. |

# Contents

# 1.Module Classification Information

| W | W | TFT | - | 10 | # |
|---|---|---|---|---|---|
| ① | | ② | | ③ | ④ |

| | | |
|---|---|---|
| ① | Brand：WINSTAR DISPLAY CORPORATION | |
| ② | Display Type： TFT Type | |
| ③ | Version. | |
| ④ | Special Code | #:Fit in with ROHS directive regulations |

# 2.Summary

This technical specification applies to M Serial TFT-LCD EVM board. The M Serial TFT-LCD panel is designed for camcorder, digital camera application and other electronic products which require high quality flat panel displays and EVM board provide simulation test function . This module follows RoHS.

# 3.General Specifications

| Item | Dimension | Unit |
|---|---|---|
| Module dimension | 37.0 x 50.0*12.0 Max | mm |
| Interface | Min USB | |

# 4.Absolute Maximum Ratings

| Item | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|
| Operating Temperature | TOP | -20 | — | +70 | ℃ |
| Storage Temperature | TST | -30 | — | +80 | ℃ |

Note: Device is subject to be damaged permanently if stresses beyond those absolute maximum ratings listed above

1. Temp. ≦60℃, 90% RH MAX. Temp.＞60℃, Absolute humidity shall be less than 90% RH at 60℃

# 5.Electrical Characteristics

**5.1. Operating conditions:**

| Item | Symbol | Condition | Min | Typ | Max | Unit | Remark |
|---|---|---|---|---|---|---|---|
| Supply Voltage | VDD | — | 4.5 | 5 | 5.25 | V | USB Power |
| Supply Current | IDD | — | — | 0.07 | 0.1 | mA | Note1 |
| Power Consumption | — | VDD=5V | — | 0.35 | 0.525 | mW | VDD=5V |

Note 1 : This value is test for VDD=5V , Ta=25 ℃ only

# 6.DC CHARATERISTICS

| Parameter | Symbol | Rating | | | Unit | Condition |
|---|---|---|---|---|---|---|
| | | Min | Typ | Max | | |
| Low level input voltage | $V_{IL}$ | 0 | - | 0.3VDD | V | |
| High level input voltage | $V_{IH}$ | 0.7VDD | - | VDD | V | |

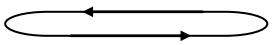
# 7.Interface

| J1 | | | |
|---|---|---|---|
| **Pin** | **Symbol** | **I/O** | **Function** |
| 1 | GND | Power Supply | Power Ground |
| 2 | SW1 | I | Switch ( active low) |
| 3 | SW2 | I | Switch ( active low) |
| 4 | SW3 | I | Switch ( active low) |
| 5 | SW4 | I | Switch ( active low) |
| 6 | GND | Power Supply | Power Ground |
| 7 | SPI_MISO | O | Serial Data Output |
| 8 | SPI_MISI | I | Serial Data Input |
| 9 | SPI__SCK | I | Serial Clock |
| 10 | CS | I | Serial Chip selection |
| 11 | GND | Power Supply | Power Ground |
| 12 | VCC | Power Supply | Power supply : 5V |

| J3 | | | |
|---|---|---|---|
| **Pin** | **Symbol** | **I/O** | **Function** |
| 1 | GND | Power Supply | Power Ground |
| 2 | RXD | I | RS232 Receive pin |
| 3 | TXD | O | RS232 Transmit pin |
| 4 | VCC | Power Supply | Power supply : 5V |
| 5 | D+ | I/O | USB Data + |
| 6 | D1 | I/O | USB Data - |
| 7 | GND | Power Supply | Power Ground |

# 8.Reliability

Content of Reliability Test (Wide temperature, -20℃~70℃)

| **Environmental Test** | | | |
|---|---|---|---|
| **Test Item** | **Content of Test** | **Test Condition** | **Note** |
| High Temperature storage | Endurance test applying the high storage temperature for a long time. | 80℃<br>200hrs | 2 |
| Low Temperature storage | Endurance test applying the low storage temperature for a long time. | -30℃<br>200hrs | 1,2 |
| High Temperature Operation | Endurance test applying the electric stress (Voltage & Current) and the thermal stress to the element for a long time. | 70℃<br>200hrs | —— |
| Low Temperature Operation | Endurance test applying the electric stress under low temperature for a long time. | -20℃<br>200hrs | 1 |
| High Temperature/ Humidity Operation | The module should be allowed to stand at 60℃,90%RH max | 60℃,90%RH<br>96hrs | 1,2 |
| Thermal shock resistance | The sample should be allowed stand the following 10 cycles of operation<br>-20℃ 25℃ 70℃<br>  <br>30min 5min 30min<br>1 cycle | -20℃/70℃<br>10 cycles | —— |
| Vibration test | Endurance test applying the vibration during transportation and using. | Total fixed amplitude : 1.5mm<br>Vibration Frequency : 10~55Hz<br>One cycle 60 seconds to 3 directions of X,Y,Z for Each 15 minutes | 3 |
| Static electricity test | Endurance test applying the electric stress to the terminal. | VS=±600V(contact), ±800v(air),<br>RS=330Ω<br>CS=150pF<br>10 times | —— |

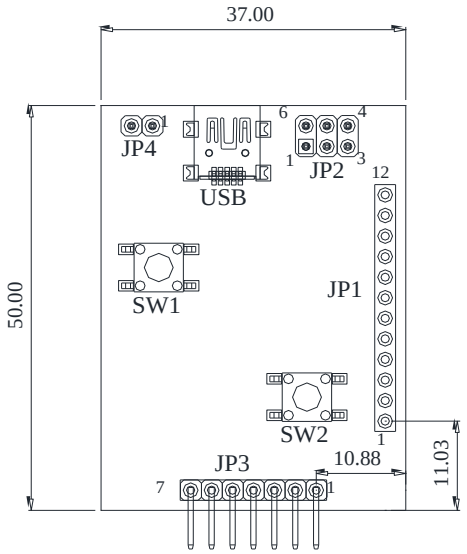
Note1: No dew condensation to be observed.

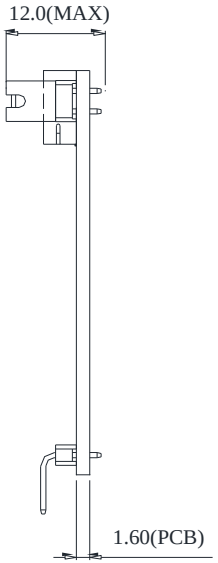
Note2: The function test shall be conducted after 4 hours storage at the normal Temperature and humidity after remove from the test chamber.

Note3: The packing have to including into the vibration testing.

# 9.Contour Drawing

| J3 | | J1 | |
|---|---|---|---|
| PIN NO. | SYMBOL | PIN NO. | SYMBOL |
| 1 | GND | 1 | GND |
| 2 | RXD | 2 | SW1 |
| 3 | TXD | 3 | SW2 |
| 4 | VCC | 4 | SW3 |
| 5 | D+ | 5 | SW4 |
| 6 | D- | 6 | GND |
| 7 | GND | 7 | SPI_MISO |
| | | 8 | SPI_MISI |
| | | 9 | SPI_SCK |
| | | 10 | CS |
| | | 11 | GND |
| | | 12 | VCC |




The non-specified tolerance of dimension is ±0.3mm.

winstar

# LCM Sample Estimate Feedback Sheet

**Module Number：** _____ 

## 1、Panel Specification：

1. Panel Type： □ Pass □ NG ,_____
2. View Direction： □ Pass □ NG ,_____
3. Numbers of Dots： □ Pass □ NG ,_____
4. View Area： □ Pass □ NG ,_____
5. Active Area： □ Pass □ NG ,_____
6. Operating Temperature： □ Pass □ NG ,_____
7. Storage Temperature： □ Pass □ NG ,_____
8. Others：_____

## 2、Mechanical Specification：

1. PCB Size： □ Pass □ NG ,_____
2. Frame Size： □ Pass □ NG ,_____
3. Material of Frame： □ Pass □ NG ,_____
4. Connector Position： □ Pass □ NG ,_____
5. Fix Hole Position： □ Pass □ NG ,_____
6. Backlight Position： □ Pass □ NG ,_____
7. Thickness of PCB： □ Pass □ NG ,_____
8. Height of Frame to PCB： □ Pass □ NG ,_____
9. Height of Module： □ Pass □ NG ,_____
10. Others： □ Pass □ NG ,_____

## 3、Relative Hole Size：

1. Pitch of Connector： □ Pass □ NG ,_____
2. Hole size of Connector： □ Pass □ NG ,_____
3. Mounting Hole size： □ Pass □ NG ,_____
4. Mounting Hole Type： □ Pass □ NG ,_____
5. Others： □ Pass □ NG ,_____

## 4、Backlight Specification：

1. B/L Type： □ Pass □ NG ,_____
2. B/L Color： □ Pass □ NG ,_____
3. B/L Driving Voltage (Reference for LED Type)： □ Pass □ NG ,_____
4. B/L Driving Current： □ Pass □ NG ,_____
5. Brightness of B/L： □ Pass □ NG ,_____
6. B/L Solder Method： □ Pass □ NG ,_____
7. Others： □ Pass □ NG ,_____

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## 5、Electronic Characteristics of Module：

| | | | |
|---|---|---|---|
| 1. | Input Voltage： | □ Pass | □ NG ,_____ |
| 2. | Supply Current： | □ Pass | □ NG ,_____ |
| 3. | Driving Voltage for LCD： | □ Pass | □ NG ,_____ |
| 4. | Contrast for LCD： | □ Pass | □ NG ,_____ |
| 5. | B/L Driving Method： | □ Pass | □ NG ,_____ |
| 6. | Negative Voltage Output： | □ Pass | □ NG ,_____ |
| 7. | Interface Function： | □ Pass | □ NG ,_____ |
| 8. | LCD Uniformity： | □ Pass | □ NG ,_____ |
| 9. | ESD test： | □ Pass | □ NG ,_____ |
| 10. | Others： | □ Pass | □ NG ,_____ |

## 6、Summary：

**Sales signature**：_____

**Customer Signature**：_____ **Date**：____/____/____