



**Winstar Display Co., LTD**

**華凌光電股份有限公司**



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## SPECIFICATION

**CUSTOMER :** \_\_\_\_\_

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

<p style="text-align: center;"><b>APPROVED BY:</b></p> <p>( FOR CUSTOMER USE ONLY )</p>	<p><b>PCB VERSION:</b> _____</p> <p><b>DATA:</b> _____</p>
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SALES BY	APPROVED BY	CHECKED BY	PREPARED BY
			葉虹蘭
<b>ISSUED DATE: 2016/01/21</b>			

TFT Display Inspection Specification: <http://www.winstar.com.tw/service.php>

**RECORDS OF REVISION**

**DOC. FIRST ISSUE**

VERSION	DATE	REVISED PAGE NO.	<b>SUMMARY</b>
0	2015/07/13		First issue
A	2016/01/21		Modify Static electricity test

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# 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**

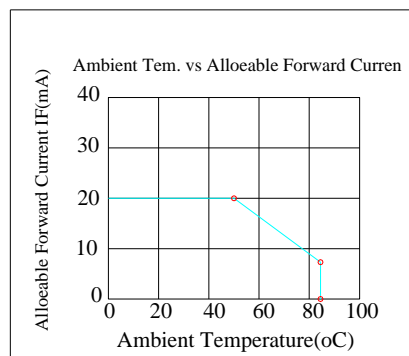
<b>Item</b>	<b>Dimension</b>	<b>Unit</b>
Module dimension	37.0 x 50.0*12.0 Max	mm
Interface	Min USB	

# 4. Absolute Maximum Ratings

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

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

1. Temp.  $\leq 60^{\circ}\text{C}$ , 90% RH MAX. Temp.  $> 60^{\circ}\text{C}$ , Absolute humidity shall be less than 90% RH at  $60^{\circ}\text{C}$



# 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 °C 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

<b>J1</b>			
<b>Pin</b>	<b>Symbol</b>	<b>I/O</b>	<b>Function</b>
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

<b>J3</b>			
<b>Pin</b>	<b>Symbol</b>	<b>I/O</b>	<b>Function</b>
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°C ~70°C)

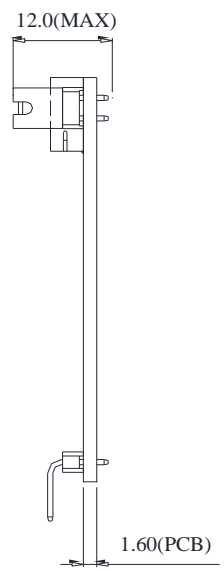
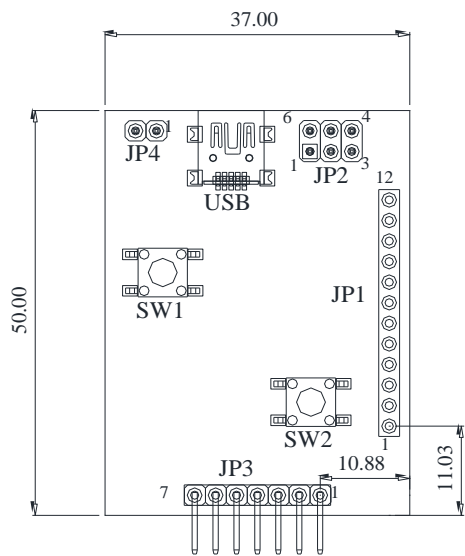
Environmental Test			
Test Item	Content of Test	Test Condition	Note
High Temperature storage	Endurance test applying the high storage temperature for a long time.	80°C 200hrs	2
Low Temperature storage	Endurance test applying the low storage temperature for a long time.	-30°C 200hrs	1,2
High Temperature Operation	Endurance test applying the electric stress (Voltage & Current) and the thermal stress to the element for a long time.	70°C 200hrs	—
Low Temperature Operation	Endurance test applying the electric stress under low temperature for a long time.	-20°C 200hrs	1
High Temperature/ Humidity Operation	The module should be allowed to stand at 60 °C, 90%RH max	60°C, 90%RH 96hrs	1,2
Thermal shock resistance	The sample should be allowed stand the following 10 cycles of operation <div style="text-align: center;"> <p style="margin: 0;">-20°C    25°C    70°C</p> <p style="margin: 0;">30min    5min    30min</p> <p style="margin: 0;">1 cycle</p> </div>	-20°C /70°C 10 cycles	—
Vibration test	Endurance test applying the vibration during transportation and using.	Total fixed amplitude : 15mm Vibration Frequency : 10~55Hz 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), RS=330Ω CS=150pF 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  $\pm 0.3\text{mm}$ .



**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 :        /        /        \_\_\_\_\_