

DM-TFT57-115
5.7" RESISTIVE TOUCH TFT DISPLAY
WITH 8 BIT MCU INTERFACE

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1 Revision History

Date	Changes
2015-03-02	First release

2 Main Features

Item	Specification	Unit
Screen Size	5.7	inch
Driver Mode	Transmissive	-
Display Colors	16.7M	colors
Resolution	320 x 240	dots
Controller IC	SSD1963	-
Interface	8 bit MCU	-
Power Supply	3.3	V
View Direction	6 o'clock	-
Background LED	21 LED Normally White	-
Weight	202.6	g

3 Pin Description

Pin No.	Symbol	Function Description
1	GND	System ground pin of the IC. Connect to system ground.
2	VDD	Power supply : +3.3V
3	NC	No connection
4	D/C	Data/Command select
5	WR	Write strobe signal
6	RD	Read strobe signal
7	DB0	Data bus
8	DB1	Data bus
9	DB2	Data bus
10	DB3	Data bus
11	DB4	Data bus
12	DB5	Data bus
13	DB6	Data bus
14	DB7	Data bus
15	CS	Chip select
16	RST	Hardware reset
17	NC	No connection
18	RL	Left /Right selection; Scan direction; Default RL=H
19	UD	Up/Down selection; Scan direction; Default UD=L
20	NC	No connection

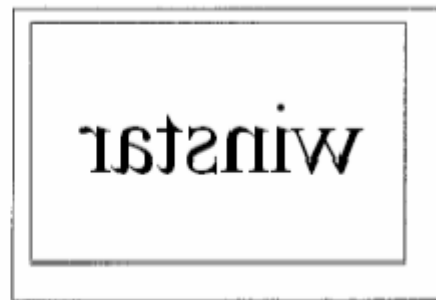
Note1: Selection of scanning mode

Setting of scan control input		Scanning direction
U/D	L/R	
GND	VDD	Up to down, left to right
VDD	GND	Down to up, right to left
GND	GND	Up to down, right to left
VDD	VDD	Down to up, left to right

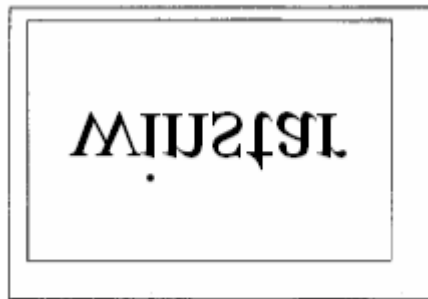
Note2: Definition of scanning direction. Refer to the figure as below:



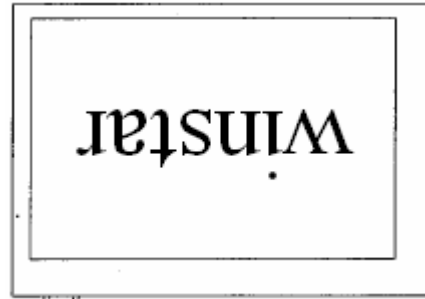
U/D=L, L/R=H



U/D=L, L/R=L



U/D=H, L/R=H



U/D=H, L/R=L

5 Electrical Characteristics

Item	Symbol	Condition	Min	Typ.	Max	Unit
Supply Voltage For Logic	VDD		3.0	3.3	3.6	V
Digital Operation Current	IDD	-	-	120	180	mA
Low Level Input Voltage	V _{IL}		GND	-	0.3VDD	V
High Level Input Voltage	V _{IH}		0.7VDD	-	VDD	V
Low Level Output Voltage	V _{OL}		GND		0.2VDD	V
High Level Output Voltage	V _{OH}		0.8VDD		VDD	V
Backlight Forward Voltage	V _{LED}		9.0	-	10.5	V
Backlight Forward Current	I _{LED}		-	140	-	mA
Operating Temperature	TOP	Absolute Max	-20	-	+70	°C
Storage Temperature	TST	Absolute Max	-30	-	+80	°C

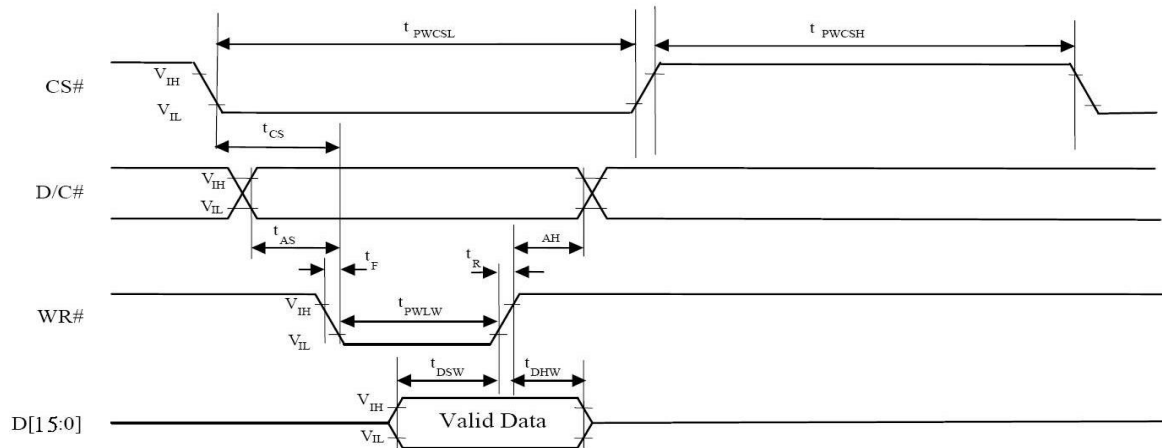
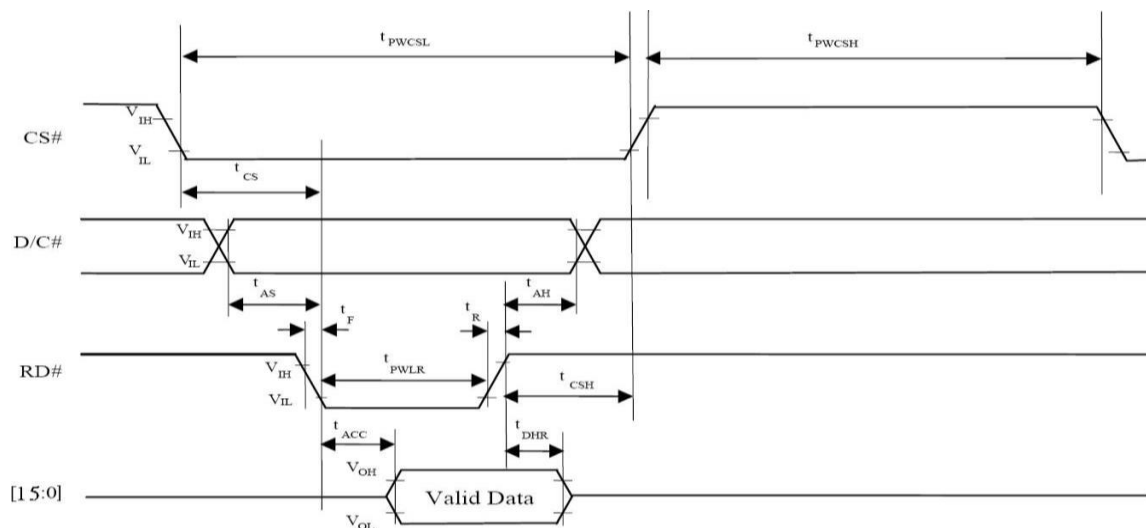
6 Optical Characteristics

Item	Symbol	Min	Typ	Max	Unit	Note
View Angles Left		60	70		°	
View Angles Right		60	70		°	
View Angles Top		40	50		°	
View Angles Bottom		60	70		°	
Response Time (25°C)	Tr + Tf		50	80	ms	
Uniformity		80			%	
Contrast Ratio	CR	150	200			
Luminance	L _v	400	500		cd/m ²	

7 Timing Characteristics

7.1 Parallel MCU (8080 mode) Timing Characteristics

Symbol	Parameter	Min	Typ	Max	Unit
fMCLK	System Clock Frequency	1	-	110	MHz
tMCLK	System Clock Period	1/ fMCLK	-	-	ns
tPWCSH	Control Pulse High Width Write Read	13	1.5* tMCLK	-	ns
		30	3.5* tMCLK		
tPWCSL	Control Pulse Low Width Write (next write cycle) Write (next read cycle) Read	13	1.5* tMCLK	-	ns
		80	9* tMCLK		
		80	9* tMCLK		
tAS	Address Setup Time	1	-	-	ns
tAH	Address Hold Time	2	-	-	ns
tDSW	Write Data Setup Time	4	-	-	ns
tDHW	Write Data Hold Time	1	-	-	ns
tPWLW	Write Low Time	12	-	-	ns
tDHR	Read Data Hold Time	1	-	-	ns
tACC	Access Time	32	-	-	ns
tPWLR	Read Low Time	36	-	-	ns
tR	Rise Time	-	-	0.5	ns
tF	Fall Time	-	-	0.5	ns
tCS	Chip Select Setup Time	2	-	-	ns
tCSH	Chip Select Hold Time to Read Signal	3	-	-	ns


Write Cycle

Read Cycle

Interface	Cycle	D(23)	D(22)	D(21)	D(20)	D(19)	D(18)	D(17)	D(16)	D(15)	D(14)	D(13)	D(12)	D(11)	D(10)	D(9)	D(8)	D(7)	D(6)	D(5)	D(4)	D(3)	D(2)	D(1)	D(0)
24 bits	1 st	R7	R6	R5	R4	R3	R2	R1	R0	G7	G6	G5	G4	G3	G2	G1	G0	B7	B6	B5	B4	B3	B2	B1	B0
18 bits	1 st							R5	R4	R3	R2	R1	R0	G5	G4	G3	G2	G1	G0	B5	B4	B3	B2	B1	B0
16 bits (565 format)	1 st									R5	R4	R3	R2	R1	G5	G4	G3	G2	G1	G0	B5	B4	B3	B2	B1
16 bits	1 st									R7	R6	R5	R4	R3	R2	R1	R0	G7	G6	G5	G4	G3	G2	G1	G0
	2 nd									B7	B6	B5	B4	B3	B2	B1	B0	R7	R6	R5	R4	R3	R2	R1	R0
	3 rd									G7	G6	G5	G4	G3	G2	G1	G0	B7	B6	B5	B4	B3	B2	B1	B0
12 bits	1 st													R7	R6	R5	R4	R3	R2	R1	R0	G7	G6	G5	G4
	2 nd													G3	G2	G1	G0	B7	B6	B5	B4	B3	B2	B1	B0
9 bits	1 st																R5	R4	R3	R2	R1	R0	G5	G4	G3
	2 nd																G2	G1	G0	B5	B4	B3	B2	B1	B0
8 bits	1 st																	R7	R6	R5	R4	R3	R2	R1	R0
	2 nd																	G7	G6	G5	G4	G3	G2	G1	G0
	3 rd																	B7	B6	B5	B4	B3	B2	B1	B0

Pixel Data Format

8 Initial Code for Reference

```
Void Initial_SSD1963 ()
{
    Write_Command(0x01);
    Delay_ms(10);
    Write_Command(0xe0);
    Write_Parameter(0x01);
    Delay_ms(50);
    Write_Command(0xe0);
    Write_Parameter(0x03);
    Delay_ms(5);

    Write_Command(0xb0);
    Write_Parameter(0x0c);
    Write_Parameter(0x80);
    Write_Parameter(0x01);
    Write_Parameter(0x3f);
    Write_Parameter(0x00);
    Write_Parameter(0xef);
    Write_Parameter(0x00);
    Write_Command(0xf0);
    Write_Parameter(0x03);
    Write_Command(0xe2);
    Write_Parameter(0x1d);
    Write_Parameter(0x02);
    Write_Parameter(0x54);

    Write_Command(0xe6);
    Write_Parameter(0x01);
    Write_Parameter(0x40);
    Write_Parameter(0xff);

    Write_Command(0xb4);
    Write_Parameter(0x01);
    Write_Parameter(0xb8);
    Write_Parameter(0x00);
    Write_Parameter(0x44);
    Write_Parameter(0x07);
    Write_Parameter(0x00);
    Write_Parameter(0x00);
    Write_Parameter(0x00);

    Write_Command(0xb6);
    Write_Parameter(0x01);
    Write_Parameter(0x08);
    Write_Parameter(0x00);
    Write_Parameter(0x13);
    Write_Parameter(0x07);
    Write_Parameter(0x00);
    Write_Parameter(0x00);

    Write_Command(0x2a);
    Write_Parameter(0x00);
    Write_Parameter(0x00);
    Write_Parameter(0x01);
    Write_Parameter(0x3f);

    Write_Command(0x2b);
    Write_Parameter(0x00);
    Write_Parameter(0x00);
    Write_Parameter(0x00);
    Write_Parameter(0xef);

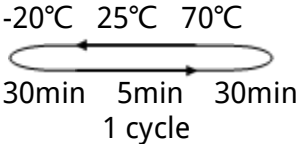
    Write_Command(0x29);
    Write_Command(0x2c);
}
```

9 Driver/Controller Information

SSD1963 Driver:

<https://drive.google.com/file/d/0B0U8oRNRy9XuTFNrbUNnVW9jN1E/view?usp=sharing>

10 Reliability

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 high 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, for 96hrs under no-load condition excluding the polarizer. Then taking it out and drying it at normal temperature.	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: 10~55Hz; One cycle 60 seconds to 3 directions of X, Y, Z, for each 16 minutes.	3
Static Electricity Test	Endurance test apply the electric stress to the terminal.	VS=800V, RS=1.5kΩ, CS=100pF, 1 time.	-

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 rest chamber.

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

11 Warranty and Conditions

<http://www.displaymodule.com/pages/faq>