AND Displays

AND-TFT-7WX
1440 x 234 Pixels
LCD Color Monitor

The AND-TFT-WX is a compact full color TFT LCD module, whose driving board is capable of converting composite video signals to the proper interface of LCD panel and is suitable for car TV, portable DVD and GPS, multimedia applications and other AV systems.

This device consists of amorphous silicon TFT liquid crystal display with B/L unit. The display has 1440 x 234 pixels on a 7.0 inch diagonal screen. X and Y drivers, LSI controller, and a built-in CCFL backlight inverter (with optional board.)

Features

• Pixel in stripe configuration
• 7.0 inch (16 cm) diagonal screen
• High brightness CCFL backlight (400 Nits)
• Slim and compact
• Amorphous silicon TFT-LCD with B/L unit
• Imager Reversion: Up/Down and Left/Right
• Support multi display mode
• High performance, low power consumption
• **RoHS compliant**

Mechanical Characteristics

Item	Specification	Unit
Screen Size	7.0 inch (16.9 cm) diagonal	–
Outline Dimensions	165.0 (W) x 104.0 (H) x 6.2 (D)	mm
Active Area	152.4 (W) x 91.44 (H)	mm
Surface Treatment	Anti-glare and Wide View Film	–
Weight	175 ± 10	g
Pixel Arrangement	stripe	–
Pixel Pitch	0.1905 (W) x 0.1905 (H)	mm
Display Format	1440 x (R.G.B) x 234	dot
Display Mode	Normally White	–
Backlight	CCFL, 1 tube	–

Absolute Maximum Rating

Item	Symbol	Remarks	Specifications Min.	Specifications Max.	Unit
Input Voltage	Vin		+9	+15	V
Video Input Signal	Video in	@ 75 Ω	0.5	2.0	Vp-p
S-Video Input Signal	S-Video in	@ 75 Ω	0.5	2.0	Vp-p
Analog RGB Input Signal	Analog RGB in	@ 75 Ω	0.5	2.0	Vp-p
Digital Input Signal	TTL		+0.3	+3.6	V
Operating Temperature	–		-10	+60	ºC
Storage Temperature	–		-20	+70	ºC

Product specifications contained herein may be changed without prior notice. It is therefore advisable to contact Purdy Electronics before proceeding with the design of equipment incorporating this product.

TFT-LCD Optical Characteristics

Item		Symbol	Conditions	Specifications			Units
				Min.	Typ.	Max.	
Viewing Angle	Horizontal	Left	CR > 10	55	60	–	deg
		Right		55	60	–	deg
	Vertical	Top		35	40	–	deg
		Bottom		50	55	–	deg
Contrast Ratio		CR	At optimized viewing angle	250	400	–	–
Response Time	Rise Fall	TR	$\theta = 0$	–	15	30	ms
		Tf		–	25	50	ms
Uniformity		U	–	70	75	–	–
Brightness		–	–	350	400	–	cd/m^2
White Chromaticity		x	$\theta = 0$	0.27	0.3	0.33	–
		y	$\theta = 0$	0.297	0.327	0.357	–
Lamp Life Time		–	at 6 mA	25,000	–	–	hr

J405 Pin Assignment of Key (Ptich 1.25 mm 9 Pin, Side Entry Type)

Pin #	Symbol	I/O	Description
1	NC	–	No Connection
2	KEY-ADC1	I	KEY ADC Input 1
3	KEY-ADC0	I	KEY ADC Input 0
4	GND	–	Ground
5	VDD	–	+3.3V Output Voltage
6	IR_DATA	I	DATA of IR Receiver
7	LED-R	O	Index Red LED for power off control
8	LED-G	O	Index Green LED for power on control
9	GND	–	Ground

J403APin Assignment of Signal Input (Pitch 1.25 mm 8 pin, Side Entry Type)

Pin #	Symbol	I/O	Description
1	VCC12V	–	+12V Input Voltage
2	VCC12V	–	+12V Input Voltage
3	GND_D	–	Ground
4	GND_D	–	Ground
5	VIDEO1	I	Video 1 Input Signal
6	GND_A	–	Ground for Video1
7	VIDEO2	I	Video2 Input Signal
8	GND_A	–	Ground for Video2

Displays

Pin Description: CN3: LCD Panel I/O Terminals (FPC 30 pin below contact type)

Pin #.	Symbol	I/O	Description
1	DIO1	I/O	Horizontal Start Pulse Signal Input or Output
2	VSS1	I	Ground
3	VDD1	I	Power Ground
4	CLK	I	Horizontal Shift Clock
5	VSS1	I	Ground
6	R/L	I	Right/Left Selection
7	R0	I	Red Data (LSB)
8	R1	I	Red Data
9	R2	I	Red Data
10	R3	I	Red Data
11	R4	I	Red Data
12	R5	I	Red Data (MSB)
13	VSS1	I	Ground
14	G0	I	Green Data (LSB)
15	G1	I	Green Data
16	G2	I	Green Data
17	G3	I	Green Data
18	G4	I	Green Data
19	G5	I	Green Data (MSB)
20	VSS1	I	Ground
21	B0	–	Blue Data (LSB)
22	B1	I	Blue Data
23	B2	I	Blue Data
24	B3	I	Blue Data
25	B4	I	Blue Data
26	B5	I	Blue Data (MSB)
27	LD	I	Load Output Signal
28	REV	I	Data Invert Control
29	POL	I	Polarity Selection
30	DIO2	I/O	Horizontal Start Pulse Signal Input or Output

J402B: Pin Assignment of Analog RGB Input (D-Sub 15 pin)

Pin #	Symbol	I/O	Description	Pin #	Symbol	I/O	Description
1	RI+	I	Analog Red Signal	9	VGA5V	–	VGA +5V Input
2	GI+	I	Analog Green Signal	10	VGA-DET	I	VGA Detect
3	BI+	I	Analog Blue Signal	11	NC	–	No Connection
4	NC	–	No Connection	12	NC	–	No Connection
5	GND	–	Ground	13	HS_IN	I	TTL Horizontal sync
6	AGND	–	Analog Ground	14	VS_IN	I	TTL Vertical sync
7	AGND	–	Analog Ground	15	NC	–	No Connection
8	AGND	–	Analog Ground				

J401B Pin Assignment of Interter (Pitch 1.25 mm 6 Pin, Side Entry Type)

Pin No	Symbol	I/O	Description
1	DC-IN	–	Inverter Power (+12 V)
2	DC-IN	–	Inverter Power (+12 V)
3	DIMMER	O	Backlight Brightness Adjust
4	ENABLE	O	Inverter Enable (): Enable 1: Disable)
5	GND	–	Power Ground
6	GND	–	Power Ground

J101 Pin Assignment of UART (Pitch 1.25 mm 4Pin, Side Entry Type)

Pin No	Symbol	I/O	Description
1	TX	O	UART Transmission Data
2	RX	I	UART Receive Data
3	GND	–	Ground
4	+5VA	O	+5V Output Voltage

Note: About UART command list please contact FDT sales.

Pin Description: CN4: LCD Panel I/O Terminals (FPC 30 pin below contact type)

Pin #.	Symbol	I/O	Description
1	VSS2	I	Ground
2	V1	I	Gamma Voltage Level 1
3	V2	I	Gamma Voltage Level 2
4	V3	I	Gamma Voltage Level 3
5	V4	I	Gamma Voltage Level 4
6	V5	I	Gamma Voltage Level 5
7	V6	I	Gamma Voltage Level 6
8	V7	I	Gamma Voltage Level 7
9	VSS2	I	Ground
10	V8	I	Gamma Voltage Level 8
11	V9	I	Gamma Voltage Level 9
12	V10	I	Gamma Voltage Level 10
13	V11	I	Gamma Voltage Level 11
14	V12	I	Gamma Voltage Level 12
15	V13	I	Gamma Voltage Level 13
16	V14	I	Gamma Voltage Level 14
17	VSS2	I	Ground
18	VDD2	I	Voltage for Analog Circuit
19	VCOM	I	Common Voltage
20	XON	I	NC
21	OE	I	Output Enable
22	U/D	I	Up/Down Selection
23	CKV	I	Vertical Shift Clock
24	STVU	I/O	Vertical Shift Pulse Signal Input or Output
25	STVD	I/O	Vertical Shift Pulse Signal Input or Output
26	VGG	I	Gate on Voltage
27	GND	I	Ground
28	VCC	I	Voltage for Logic Circuit
29	GND	I	Ground
30	VEE	I	Gate Off Voltage

Panel Backlight Data (IL = 6mA (± 10%)

Item	Symbol	Min.	Typ.	Max.	Unit
Lamp Voltage	VL	520	580	638	Vrms
Lamp Current	IL	4	6	7	mA

Inverter Test Data (Ta = 25ºC @ +12V)

Item	Symbol	Min.	Typ.	Max.	Unit
Lamp Current	IL		6		mA
Lamp Voltage	VL		575		Vrms

Timing Characteristics of Input Signals

Characteristics	Symbol	Min.	Typ.	Max.	Unit	Remarks
Rising time	t_r	–	–	10	ns	–
Falling time	t_f	–	–	10	ns	–
HIgh and low level pulse width	t_{CPH}	9.2	9.6	10.0	MAz	CPH1~CPH3
CPH pulse duty	t_{CWH}	30	50	70	%	CPH1~CPH3
STH setup time	t_{SUH}	20	–	–	ns	STHR, STHL
STH hold time	t_{HDH}	20	–	–	ns	STHR, STHL
STH pulse width	t_{STH}	–	1	–	tCPH	STHR, STHL
STH period	t_H	61.5	63.5	65.5	µs	STHR, STHL
OEH pulse width	t_{OEH}	–	1.40	–	µs	OEH
Sample and hold disable time	t_{DIS1}	–	7.43	–	µs	–
OEV pulse width	t_{OEV}	–	18	–	µs	OEV
CKV puse width	t_{CKV}	–	31.75	–	µs	CKV
Clean enable time	t_{DIS2}	–	9.0	–	µs	–
Horizontal display start	t_{SH}	–	0	–	t_{CPH}/3	–
Horizontal display timing range	t_{DH}	–	480	–	t_{CPH}	–
STV setup time	t_{SUV}	400	–	–	Ns	STVR, STVL
STV hold time	t_{HDV}	400	–	–	Ns	STVR, STVL
STV pulse width	t_{STV}	–	–	1	t_H	STVR, STVL
Horizontal lines per field	t_V	256	262	268	t_H	–
Vertical display start	t_{SV}	–	3	–	t_H	–
Vertical display timing range	t_{DV}	–	234	–	t_H	–
VCOM rising time	t_{rCOM}	–	–	5	Ms	–
VCOM falling time	t_{fCOM}	–	–	5	Ms	–
VCOM delay time	t_{DCOM}	–	–	3	Ms	–
RGB delay time	t_{DRGB}	–	–	1	Ms	–

Recommended Operating Conditions - Electrical Characteristics

Item	Symbol	I/O		Min.	Typ.	Max.	Unit	Remark
Input Voltage	Vin	I		+10	+12	+14	V	
Total Current	Iin	I			557		mA	
Power Consumption		I			6.684		W	@+12V
Output Voltage	VDD	O		+3.2	+3.3	+3.4	V	I=10mA
Video Input Signal	Video in	I			1.0		Vp-p	@ 75 Ω
S-Video Input Signal	S-Video in	Y	I		0.7		Vp-p	@ 75 Ω
		C	I		0.286		Vp-p	@ 75 Ω
Analog RGB Input Signal	Analog RGB in	FGB	I		0.7		Vp-p	@ 75 Ω

Displays

Application Circuit

The core of the jack is positive.
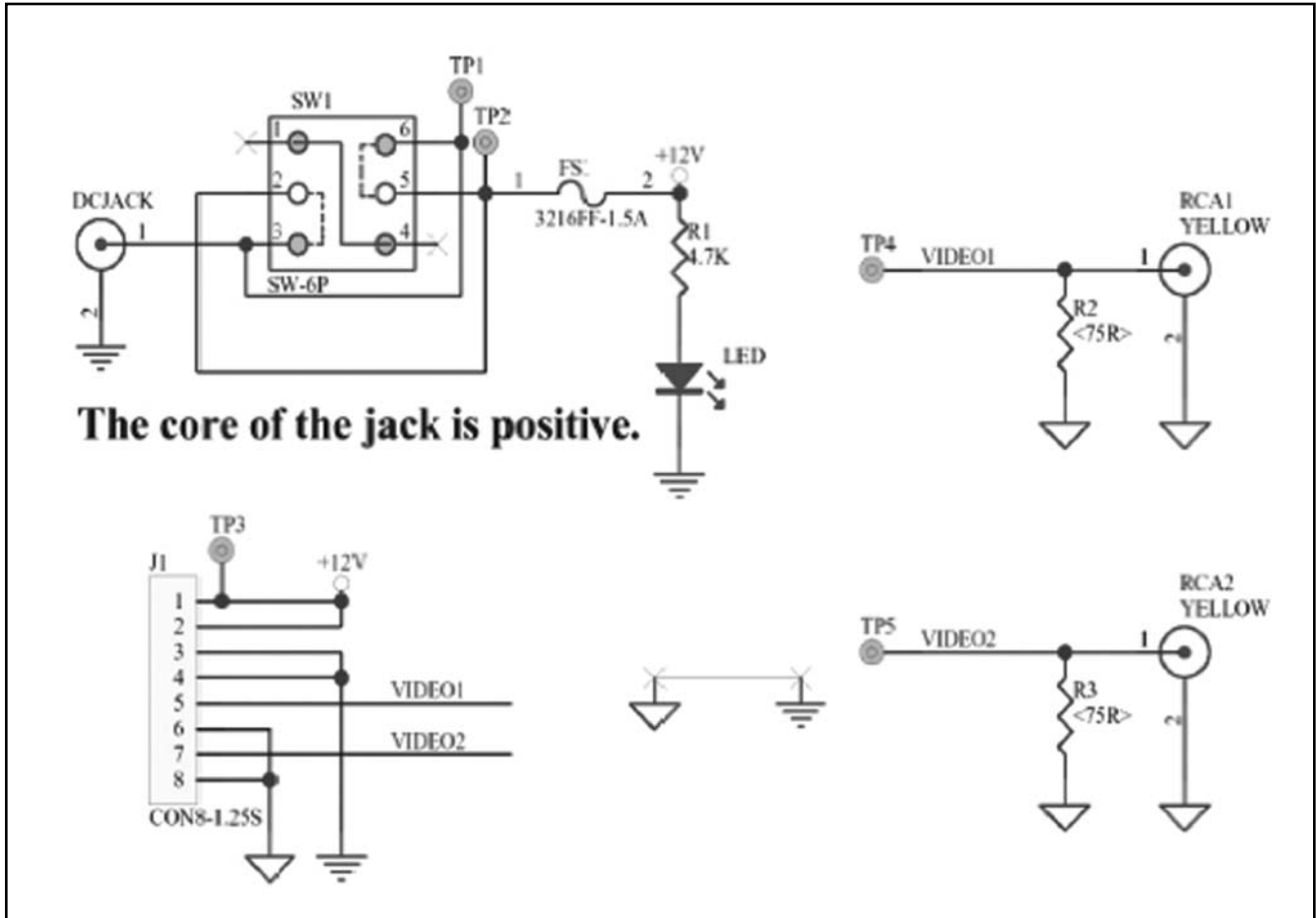
Dimensional Outline

General mechanical tolerance = 0.5mm

18.70

125.46

35.50

12.90

3.50

5.80

6.30

Display Area Center

165

156

152.40 (ACTIVE AREA)

91.44 (ACTIVE AREA)

2.20

95

104

9/11/08

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8