



§ **SPECIFICATION APPROVAL SHEET** §

Fdt Tech Module No	LT080S4xA0-FDR
Description:	8" Digital TFT-LCD Module
SPEC No.:	SAS-1012002
Version:	0.0
Issue Date:	January 18, 2011

※ This approval sheet contains 16 pages including the cover and appendix.

Customer:	APPROVED BY:
Date: / / 10	

APPROVED BY:

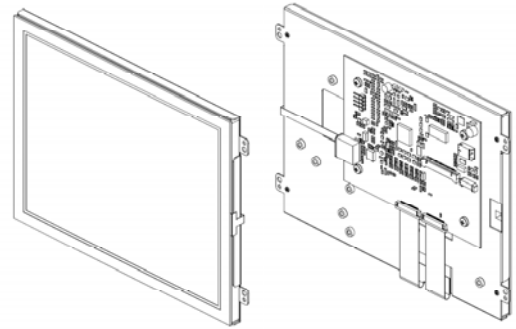
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8" Digital TFT-LCD Module



■ LT080S4xA0-FDR

1. General Descriptions

1.1 Features

- 18bits LVDS interface
- Image Reversion: Up/Down and Left/Right
- LED Backlight Circuit Operation Voltage: +5V
- Support Touch Screen Function (Option)

1.2 Applications

- Portable product
- Industrial
- Hand-held
- Security
- Instrument Display
- Office Electronics

1.3 Application Precautions

Do not use the products herein for the following equipment which demands extremely high performance in terms of functionality, reliability, or accuracy.

- Aerospace equipment
- Communication equipment for trunk lines.
- Control equipment for the nuclear power industry.
- Medical equipment related to life support, etc.

The other application that demands high reliability and functionality should first contact a sales representative.

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■ LP080S4xA0-FDR V0.0



2. Contents

Contents	Page
1. General Description	1
1.1 Features	1
1.2 Applications	1
1.3 Application Precautions	1
2. Contents	2
3. Block Diagram	3
3.1 Block Diagram	3
4. TFT-LCD Information	4
4.1 TFT-LCD Mechanical Specifications	4
4.2 TFT-LCD Optical Characteristics	4
5. Order Information	5
5.1 Unit	5
6. Dimension Information	6-8
6.1 Unit (LT080S40A0-FDR)	6
6.2 Unit (LT080S41A0-FDR)	7
6.3 Unit (LT080S42A0-FDR)	8
7. Pin Description	9-11
7.1 J501A : LVDS I/O Terminals (Pitch 1.25mm 20Pin, Side Entry Type)	9-10
7.2 J502: Pin Assignment of Inverter (Pitch 1.25mm 6Pin, Side Entry Type)	10
7.3 J401C : Pin Assignment of Touch USB (USBA-Female 2.0mm, Side Entry Type)(Option)	10
7.4 J401D : Pin Assignment of Touch RS232 (D-SUB 9 MALE)(Option)	11
8. Absolute Maximum Ratings	11
8.1 Absolute Maximum Ratings	11
9. Recommended Operating Conditions	11
9.1 Electrical Characteristics	11
10. Interface Timing	12
10.1 Timing Parameters	12
11. 4W Resistance Touch Panel Characteristics	13-14
11.1 Touch Screen Integration Design Guide	13
11.2 Electrical Performance	13
11.3 Optical Performance	13
11.4 Mechanical Performance	14
11.5 Durability Performance	14
11.6 Environmental	14
11.7 Reliability Test Procedure	14
12. Operation Manual	15
12.1 Driver Board Manual	15

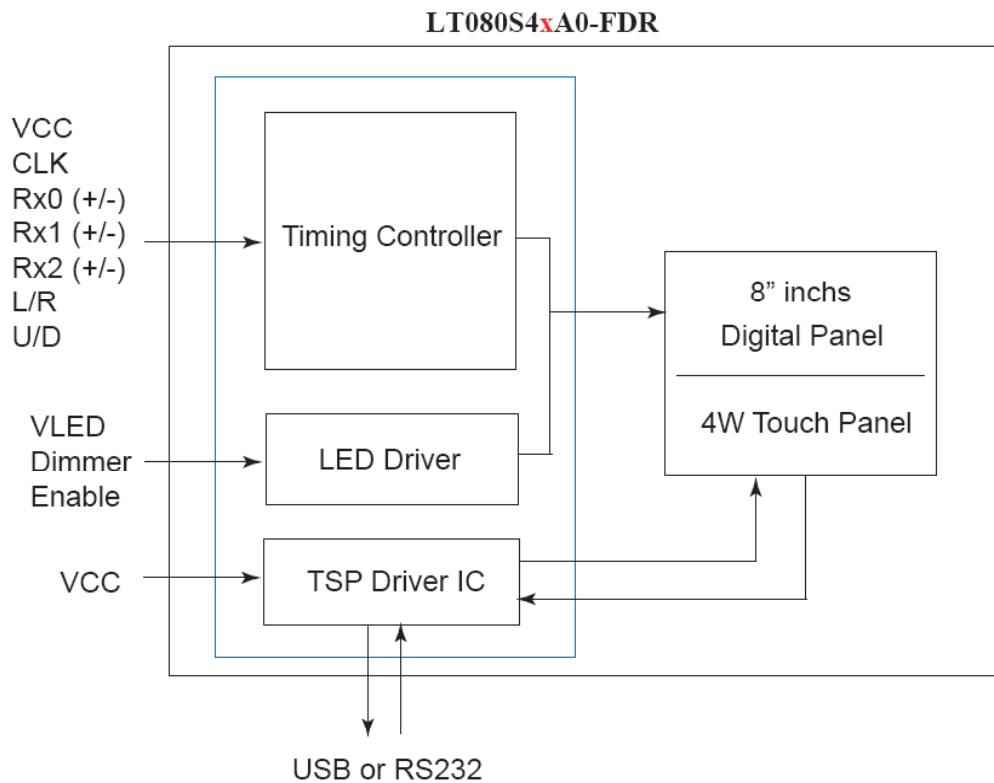
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3. Block Diagram

3.1 Block Diagram



TFT



4. TFT-LCD Information

4.1 TFT-LCD Mechanical Specifications

Parameter	Specifications	Unit
Screen Size	8.0 (diagonal)	inch
Display Format	800 x (R.G.B) x 600	dot
Active Area	162(W) x 121.5(H)	mm
Pixel Pitch	0.2025(W) x 0.2025(H)	mm
Pixel Configuration	Stripe	
Surface Treatment	Anti – Glare + EWW	
Weight	428±15	g

4.2 TFT-LCD Optical Characteristics

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Remark	
Viewing Angle	Horizontal	Left	70	80	---	deg		
		Right	70	80	---	deg		
	Vertical	Top	CR >10	50	60	---	deg	
		Bottom		60	70	---	deg	
Contrast Ratio	CR	$\theta = 0^\circ$	800	900	---	---		
Response time	Rise Fall	Tr	---	15	30	ms		
		Tf	---	25	50	ms		
Uniformity	U	$\theta = 0^\circ$	70	75	---	%		
Brightness	L	$\theta = 0^\circ$	350	400	---	Cd/m ²		
White Chromaticity	x	$\theta = 0^\circ$	0.27	0.31	0.35			
	y	$\theta = 0^\circ$	0.32	0.36	0.40			
LED Life Time		+25°	20000	30000		Hrs		

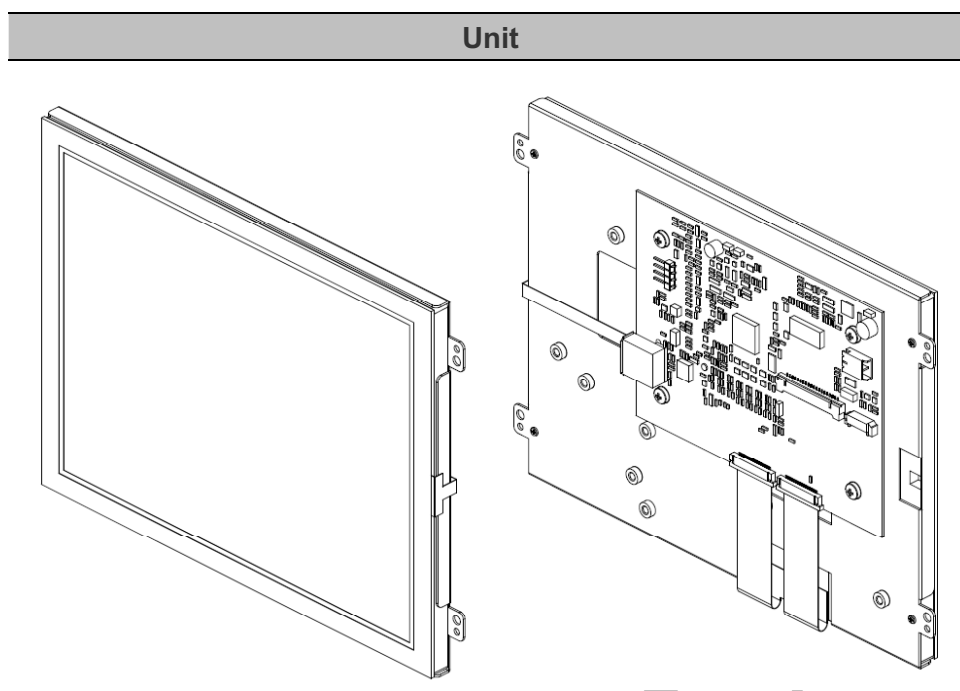
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5. Order Information

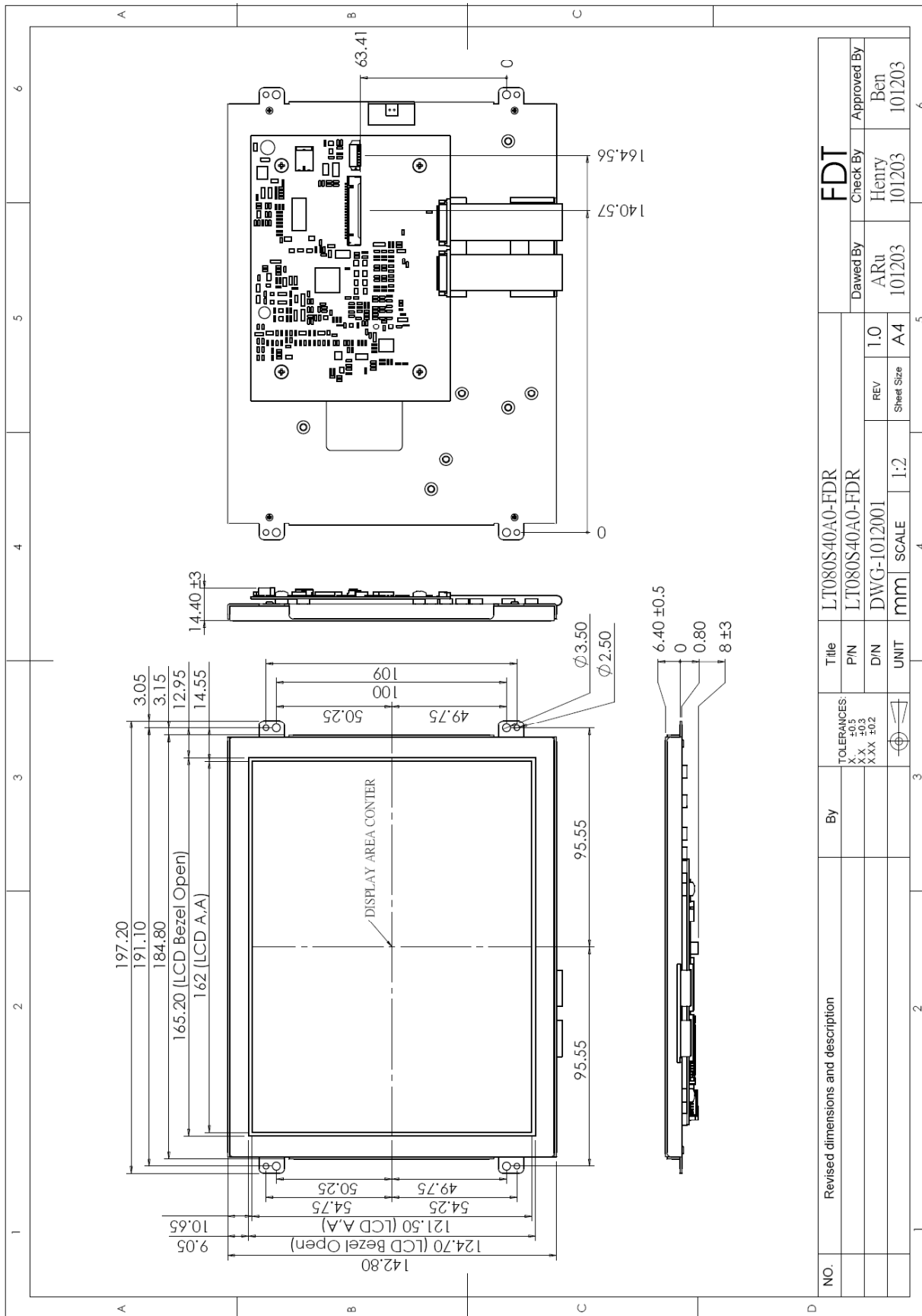
5.1 Unit



Parameter	LT080S40A0-FDR	LT080S41A0-FDR	LT080S42A0-FDR
Signal Input Connector	20 PIN	20 PIN	20 PIN
Touch Panel Type	-	4W Resistive	4W Resistive
Touch Screen Interface	-	USB	RS-232
Bracket	⊙	⊙	⊙

6. Dimension Information

6.1 Unit (LT080S40A0-FDR)

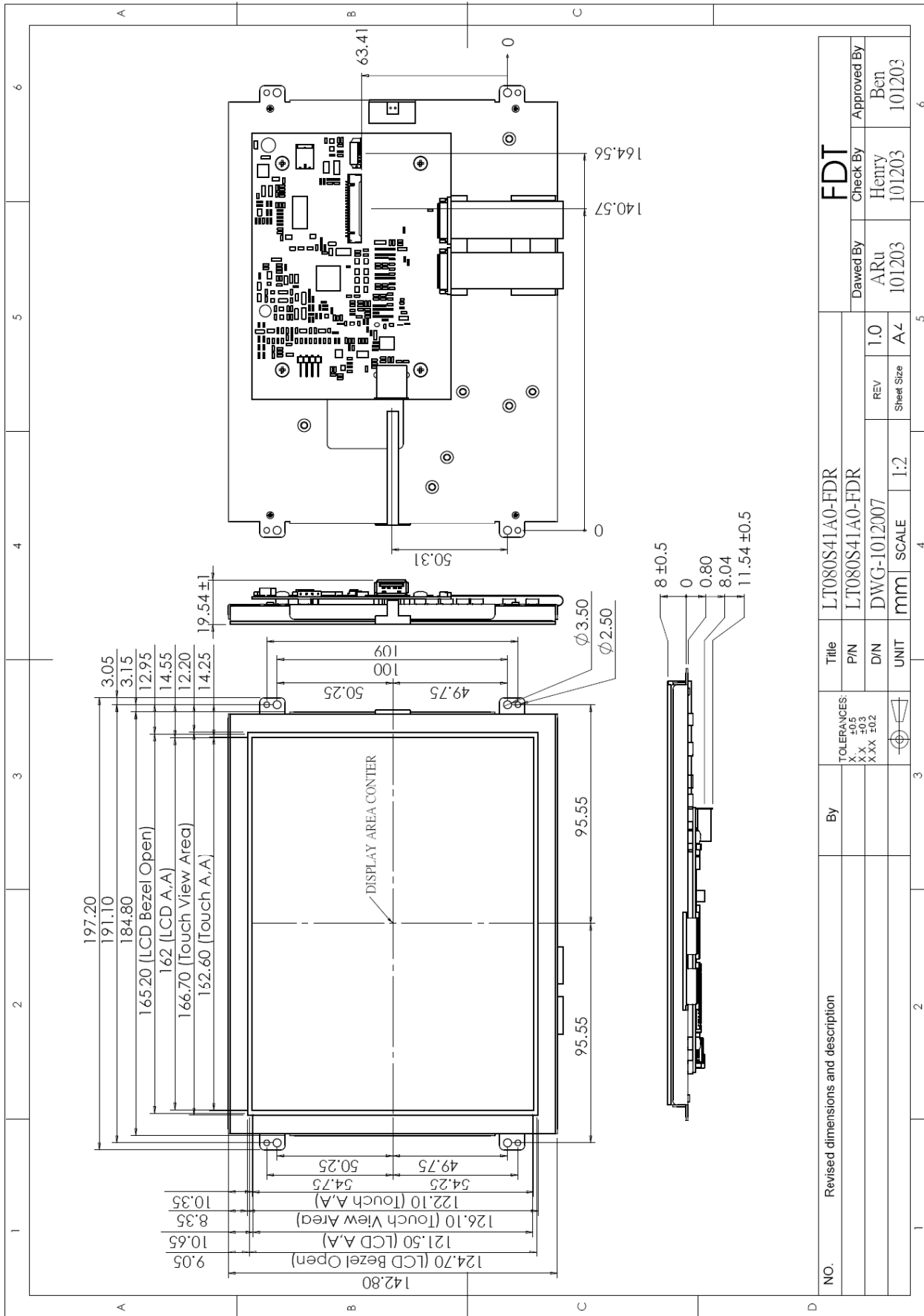


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■ LP080S4xA0-FDR V0.0



6.2 Unit (LT080S41A0-FDR)



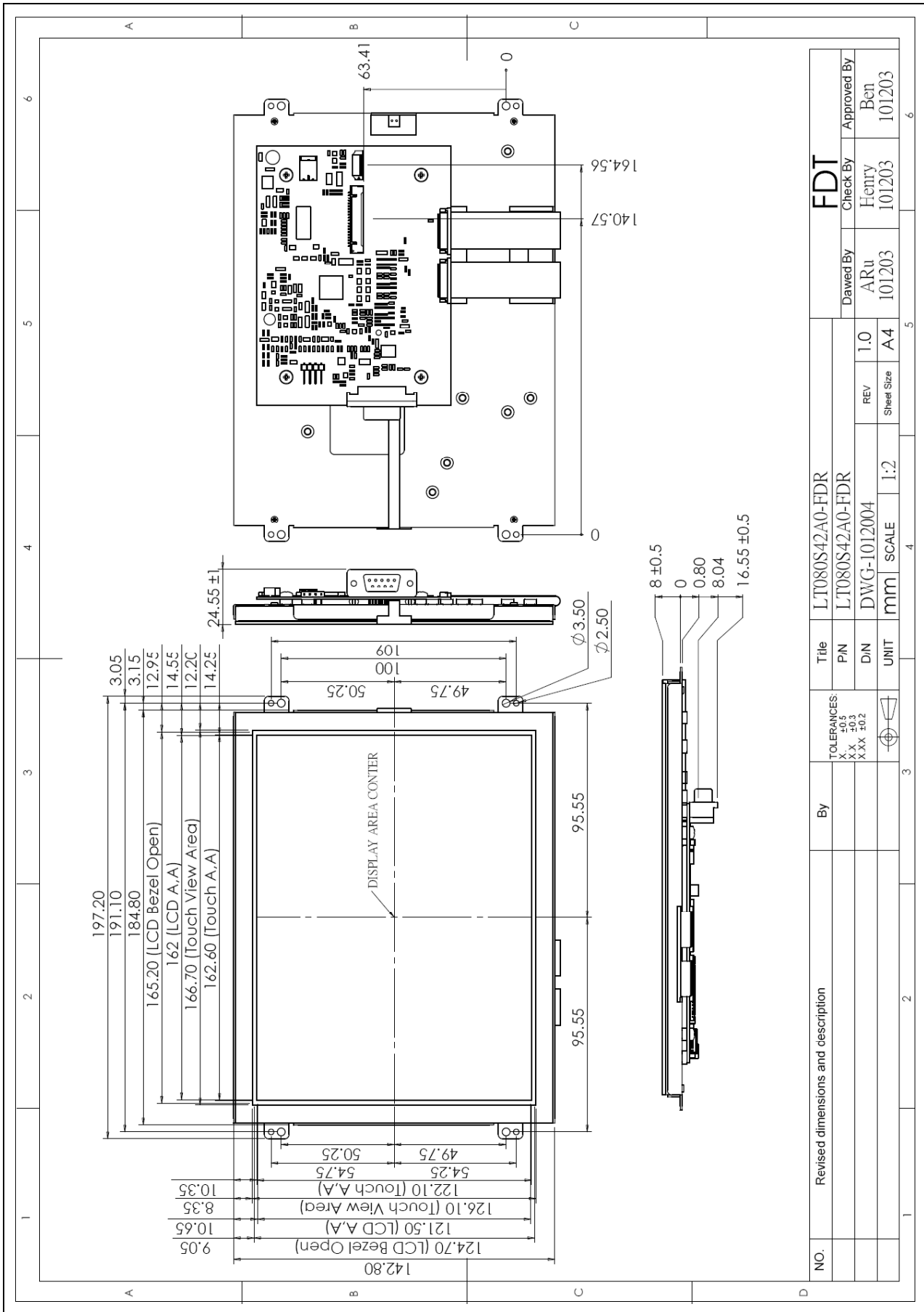
NO.	Revised dimensions and description	By	TOLERANCES: XX ±0.3 XXX ±0.2	Title	LT080S41A0-FDR	FDT	
			UNIT	PIN	LT080S41A0-FDR	Drawn By	Check By
			mm	D/N	DWG-1012007	ARu	Henry
			SCALE	1:2	REV	1.0	Approved By
					Sheet Size	A4	Ben
						101203	101203
						101203	101203

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6.3 Unit (LT080S42A0-FDR)



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7. Pin Description

7.1 J501A : LVDS I/O Terminals (Pitch 1.25mm 20Pin, Side Entry Type)

※ Connector Part No.: FI-SEB20P-HF13E (JAE) or MS240420G (STM) ; Matching Connector Part No.: FI-S20S (JAE) or P240420 (STM)

Pin No	Symbol	I/O	Description	Remark
1	VCC	I	Power Supply (3.3 V)	
2	VCC	I	Power Supply (3.3 V)	
3	GND	P	Ground	
4	GND	P	Ground	
5	RX0-	I	Differential Data Input, CH0 (Negative)	R0 ~ R5, G0
6	RX0+	I	Differential Data Input, CH0 (Positive)	
7	GND	P	Ground	
8	RX1-	I	Differential Data Input, CH1 (Negative)	G1 ~ G5, B0, B1
9	RX1+	I	Differential Data Input , CH1 (Positive)	
10	GND	P	Ground	
11	RX2-	I	Differential Data Input , CH2 (Negative)	B2 ~ B5, DE, Hsync, Vsync
12	RX2+	I	Differential Data Input , CH2 (Positive)	
13	GND	P	Ground	
14	CLK-	I	Differential Clock Input (Negative)	LVDS Level Clock
15	CLK+	I	Differential Clock Input (Positive)	
16	GND	P	Ground	
17	L/R	I	Horizontal Display Mode Select Signal	Note
18	U/D	I	Vertical Display Mode Select Signal	Note
19	GND	P	Ground	
20	GND	P	Ground	

Note: The definitions U/D & R/L

L/R=High , U/D=High



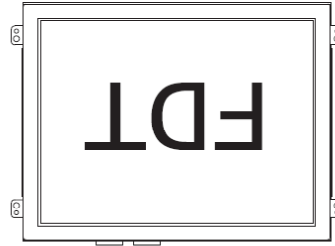
L/R=Low , U/D=High



L/R=High , U/D=Low



L/R=Low , U/D=Low

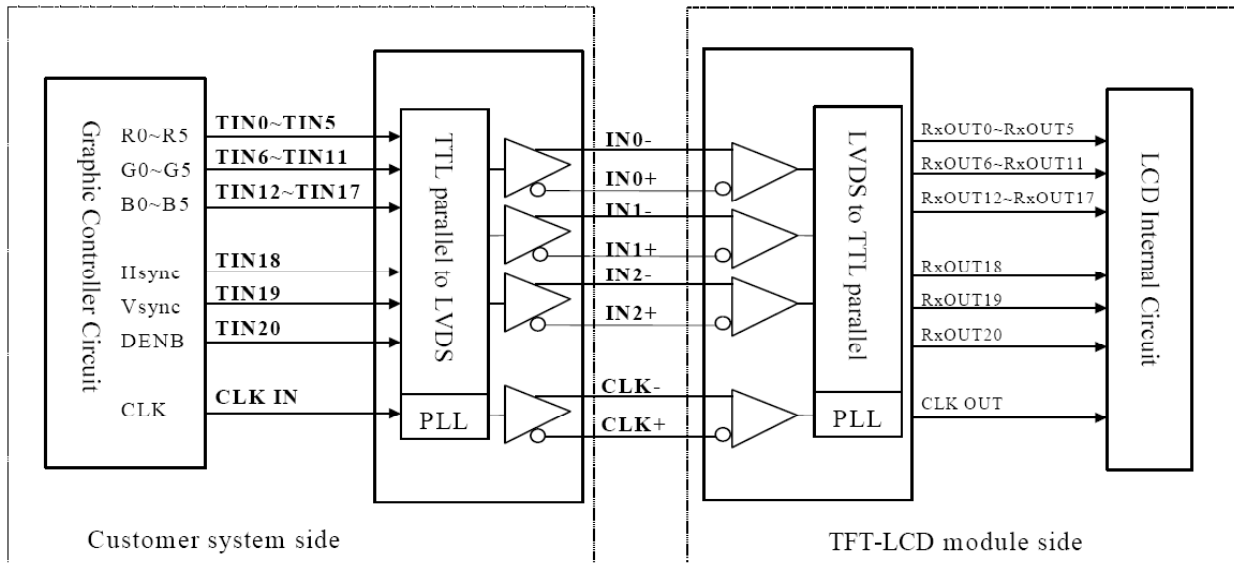


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LVDS Interface Block Diagram



7.2 J502: Pin Assignment of Inverter (Pitch 1.25mm 6Pin, Side Entry Type)

※ Connector Part No.: 53261-0619 (MOLEX) or MS24016R (STM); Matching Connector Part No.: 51021-0600 (MOLEX) or P24016 (STM)

Pin No	Symbol	I/O	Description	Remark
1	VLED	-	Power Voltage For LED Backlight Circuit (+5V)	
2	VLED	-	Power Voltage For LED Backlight Circuit (+5V)	
3	DIMMER	O	Backlight Brightness Adjust	
4	ENABLE	O	Enable For LED Backlight	
5	GND	-	Power Ground	
6	GND	-	Power Ground	

7.3 J401C : Pin Assignment of Touch USB (USBA-Female 2.0mm, Side Entry Type)(Option)

Pin No	Symbol	I/O	Description	Remark
1	DGND	-	Digital Ground	
2	D+	-	DATA (+)	
3	D-	-	DATA (-)	
4	VBUS	-	USB VCC	

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■ LP080S4xA0-FDR V0.0



7.4 J401D : Pin Assignment of Touch RS232 (D-SUB 9 MALE)(Option)

Pin No	Symbol	I/O	Description	Remark
1	NC	-	No Connection	
2	RXD	-	Receive Data	
3	TXD	-	Transmit Data	
4	NC	-	No Connection	
5	GND	-	Ground	
6	NC	-	No Connection	
7	NC	-	No Connection	
8	NC	-	No Connection	
9	NC	-	No Connection	

8. Absolute Maximum Ratings

8.1 Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit	Remark
Input Voltage	Vcc	+3	+3.6	V	
LED Driver Input Voltage	VLED	+4.5	+5.8	V	
Digital Input Signal	TTL	Vcc-0.5	Vcc+0.5	V	
Operating Temperature		-20	+70	°C	
Storage Temperature		-30	+80	°C	
Operating Temperature With TSP		-10	+60	°C	
Storage Temperature With TSP		-30	+70	°C	

9. Recommended Operating Conditions

9.1 Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Note	Remark
Input Voltage	Vcc	+3.1	+3.3	+3.5	V		
Total Current	Icc	-	-	-	mA		@+3.3V
LED Driver Input Voltage	VLED	+4.8	+5	+5.5	V		
LED Driver Current	ILED	-	-	-	mA		
LED Driver Power Consumption		-	-	-	W		
Digital Input Signal	TTL	Vcc-0.3	Vcc	Vcc+0.3	V		
Dimmer Adjust	Dimmer	0(Dark)	-	+3.3(Bright)	V	Floating: 1/2VCC	Positive
Enable Backlight	Enable	0		+3.3	V		1: Enable 0: Disable

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■ LP080S4xA0-FDR V0.0



10. Interface Timing

10.1 Timing Parameters

※ Electrical Characteristics (VCC=3.3V, Ta=25°C)

Parameter	Symbol	Min	Typ	Max	Unit
CLK Frequency	Fclk	-	40	45	MHz
CLK Pulse Width	TCW	22	-	-	ns
Data Set-up Time	Tsu	4	-	-	ns
Data Hold Time	Thd	2	-	-	ns
Propagation Delay of DIO2/1	Tphl	6	10	15	ns
Time That The Last Data to LD	Tld	1	-	-	TCW
Pulse width of LD	Twld	2	-	-	TCW
Time That LD to DIO1/2	Tlds	5	-	-	TCW
POL Set-up Time	Tpsu	6	-	-	Ns
POL Hold Time	Tphd	6	-	-	Ns
OE Pulse Width	TOEV	1	-	-	μs
CKV Pulse Width	TCKV	500	-	-	Ns
STV Set-up Time	TSUV	400	-	-	Ns
STV Hold Time	THDV	400	-	-	Ns
Horizontal Display Period	THDP	800	800	800	TCW
Horizontal Period Timing Range	THP	920	1056	1064	TCW
Horizontal Lines Per Field	TV	604	628	800	THP
Vertical Display Timing Range	TDV	600	600	600	THP

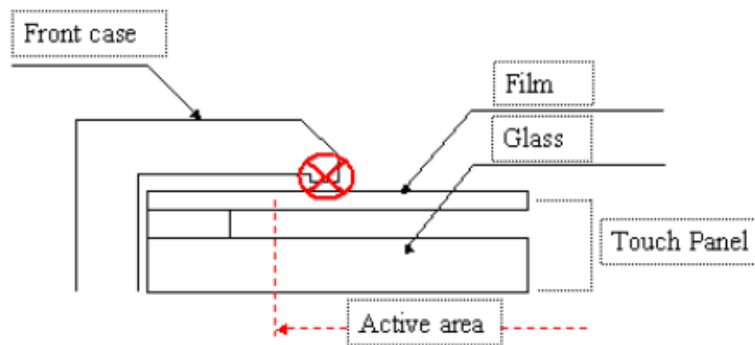


11. 4W Resistance Touch Panel Characteristics

11.1 Touch Screen Integration Design Guide

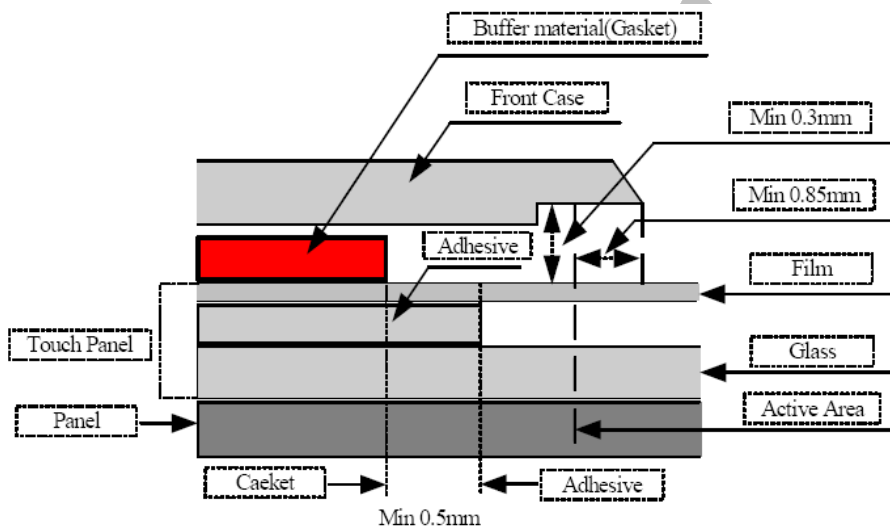
Avoid the design that Front-case overlap and press on the active area of the touch-panel.

Give enough gap (over 0.5mm at compressed) between the front case and touch-panel to protect wrong operating.



Use a buffer material (Gasket) between the touch-panel and front-case to protect damage and wrong operating.

Avoid the design that buffer material overlap and press on the inside of touch-panel viewing area.



Note: We strongly suggest to follow above design guide to avoid the linear defect happened on the touch panel.

11.2 Electrical Performance

Parameter	Symbol	Min	Typ	Max	Unit	Remark
Terminal Resistance	X	300		1100	Ω	
	Y	150		650	Ω	
Linearity		-	-	1.5	%	
Insulation Impedance		20	-	-	M Ω	DC 25V
Response Time		-	-	10	ms	

11.3 Optical Performance

Parameter	Specifications
Light Transmittance	82% Typ.
Haze	5.0% Typ.

11.4 Mechanical Performance

Parameter	Specifications
Input Method	Finger or stylus pen
Operating Force	$\leq 50g$
Surface Hardness	3H or more

11.5 Durability Performance

Parameter	Specifications
Hitting Durability	≥ 1000000 times, with R8.0 mm silicon rubber, 200g, 5Hz
Sliding Durability	≥ 100000 words, with R0.8 mm polyacetal stylus, 250g, 60 mm / sec

11.6 Environmental

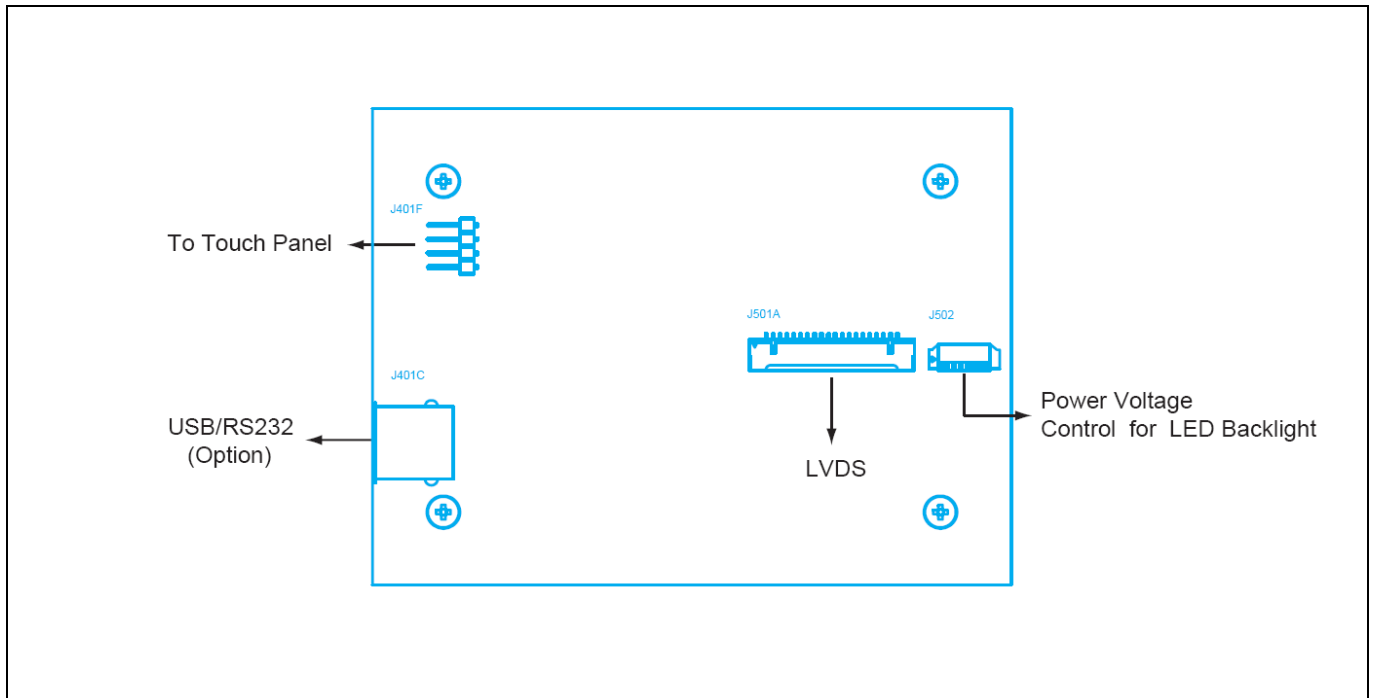
Parameter	Specifications
Operating Temp.	-10°C~60°C (Except dew condensation)
Storage Temp.	-30°C~70°C (Except dew condensation)

11.7 Reliability Test Procedure

Parameter	Specifications
High temperature storage test	70°C for 240 hours.
Low temperature storage test	-30°C for 240 hours.
Thermal Cycling	-30°C (30 min)~70°C (30 min) for 50 cycles.
High temperature and high humidity	40°C, 95%RH for 240 hours.

12. Operation Manual

12.1 Driver Board Manual



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