ER-AS-SSD1963

Arduino Shield Datasheet

ISO9001
Registered Company

sira
CERTIFICATION

UKAS
QUALITY
MANAGEMENT
011

RoHS
COMPLIANT

EastRising Technology Co., Limited

Attention:

A. Some specifications of IC are not listed in this datasheet. Please refer to the IC datasheet for more details.

B. The related documents for interfacing, demo code, ic datasheet are all available, please download from our web.

C. Please pay more attention to "INSPECTION CRITERIA" in this datasheet. We assume you already agree with these criterions when you place an order with us. No more recommendations.

REV	DESCRIPTION	RELEASE DATE
1.0	Preliminary Release	Dec-02-2015

CONTENTS

1. ORDERING INFORMATION

1.1 Order Number:

Part Number(Order Number)	Description
ER-AS-SSD1963	Arduino Shield Designed for TFT LCD Display with SSD1963 Controller Board

1.2 What's included in the package:

| No	Standard Accessory Name	Quantity
1	EastRising Arduino Shield	1

1.3 Compatible with following tft lcd modules:

Part Number(Order Number)	Description
ER-TFTM043-4	4.3"TFT LCD Display with SSD1963 Controller Board/480x272 Dots
ER-TFTM050-4	5"TFT LCD Display with SSD1963 Controller Board/480x272 Dots
ER-TFTM050-5	5"TFT LCD Display with SSD1963 Controller Board/800x480 Dots
ER-TFTM070-4V2.1	7"TFT LCD Display with SSD1963 Controller Board/800x480 Dots
ER-TFTM080-1	8"TFT LCD Display with SSD1963 Controller Board/800x480 Dots
ER-TFTM090-1	9"TFT LCD Display with SSD1963 Controller Board/800x480 Dots

1.4 Compatible with following Arduino Board:

Board Name	MCU	I/O
Arduino MEGA2560	ATMEGA2560	54
Arduino MEGA1280	ATMEGA1280	54
Arduino Due	AT91SAM3X8EA	54

* Please offer external 5v

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1.5 Image

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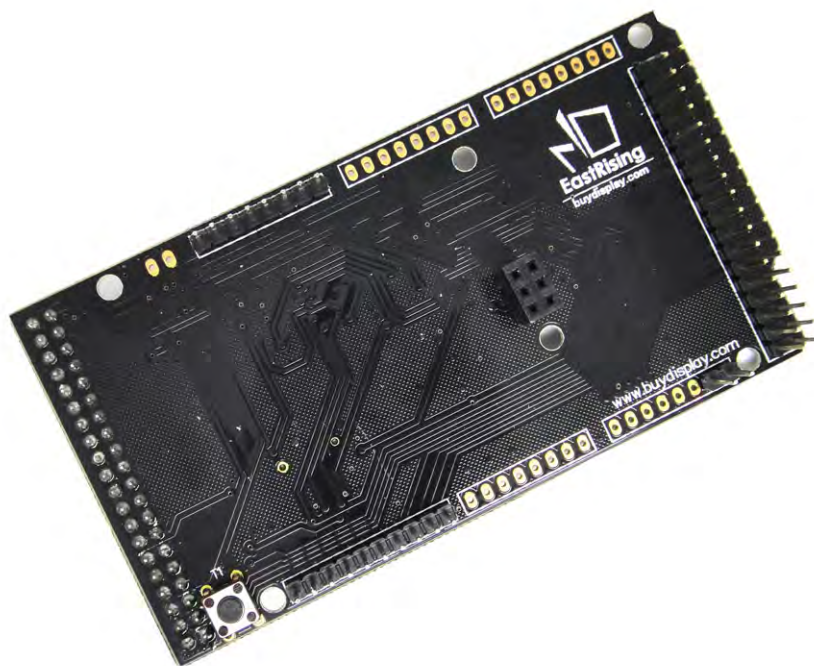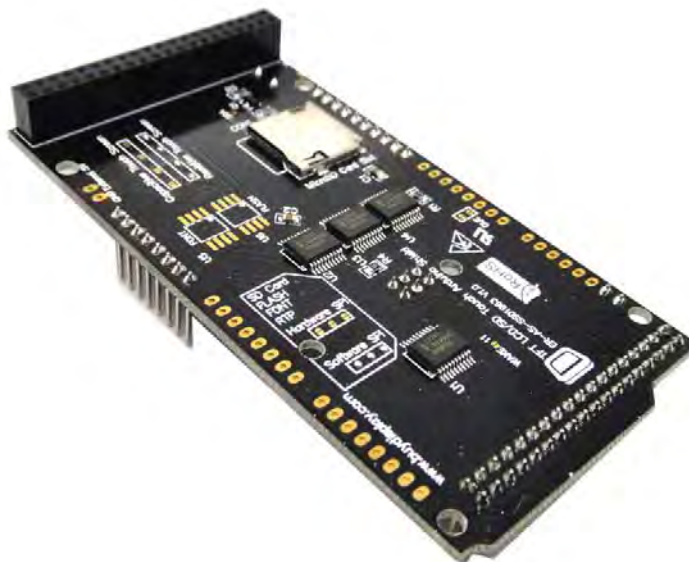
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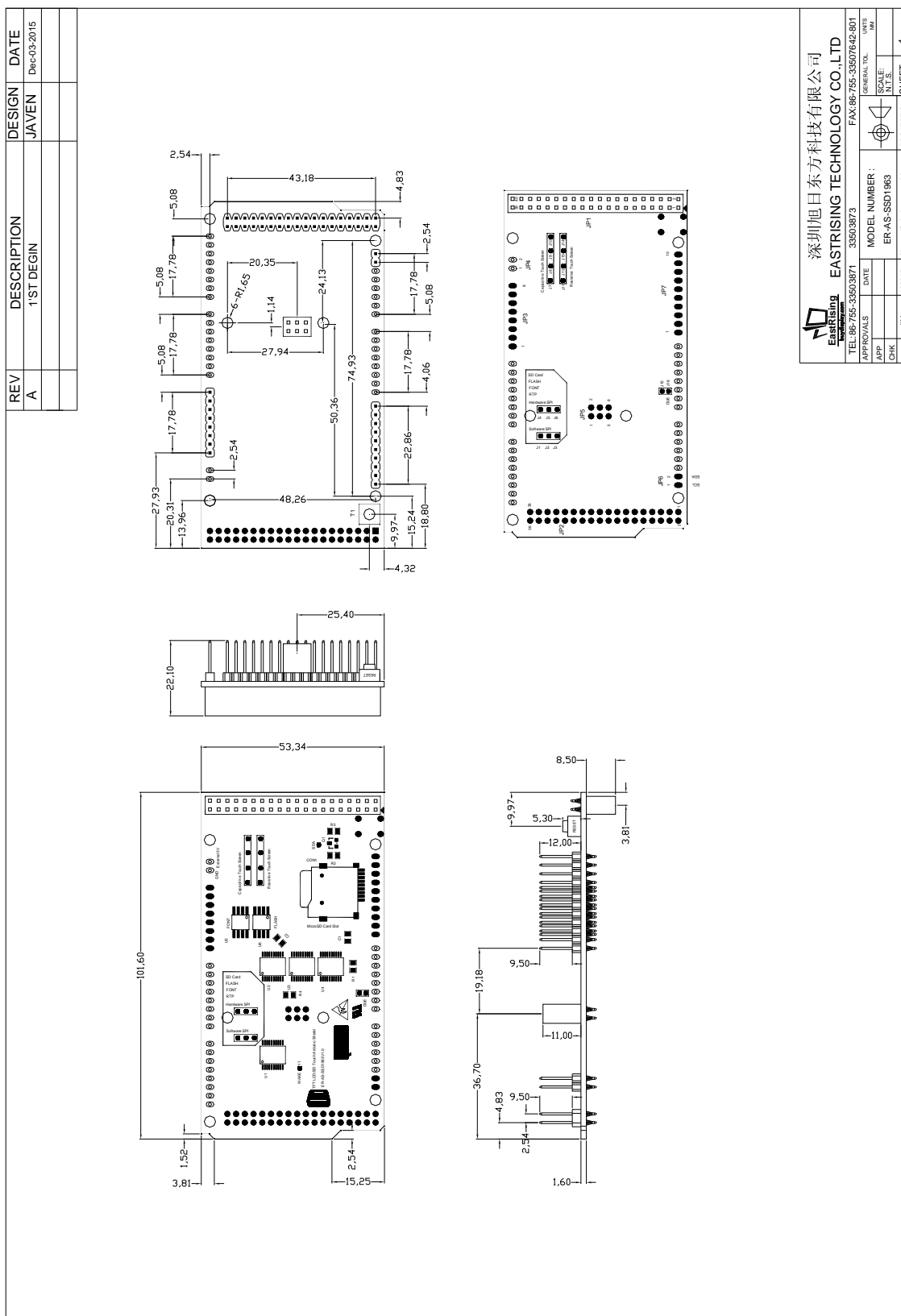
3.INTERFACE DESCRIPTION

3.1 JP1-TFT LCD Module Input Interface

No	Symbol	Descriptions
1	VSS	Ground
2	VDD	Power Supply
3	/CS	Chip Select, Active Low
4	D/C	Data/Command Select
5	E_/RD	RD#(read strobe signal)
6	R/W_/WR	WR#(write strobe signal
7	E/RESET_NC	Master Synchronize Reset, Active Low
8	NC	No Connect
9-32	DB0-DB23	Data Bus.
33	RTP CS	Chip Select Input. Active Low Logic Input. This input provides the dual function of initiating conversions on the XPT2046 and also enables the serial input/output register.
	CTP_/RST	External low signal reset the chip. RC reset circuit on board, this pin can be left unconnected.
34	RTP CLK	External Clock Input. Logic Input. DCLK provides the serial clock for accessing data from the part. This clock input is also used as the clock source for the XPT2046 conversion process.
	CTP SCL	Serial clock input
35	RTP DIN	Data In. Logic input. Data to be written to the XPT2046 control register is provided on this input and is clocked into the register on the rising edge of DCLK (see the Control Register section).
	CTP_SDA	Serial Data Input/Output
36	RTP DOUT	Data Out. Logic Output. The conversion result from the XPT2046 is provided on this output as a serial data stream.The bits are clocked out on the falling edge of the DCLK input. This output is high impedance when CS is high.
	CTP_INT	An interrupt signal to inform the host processor that touch data is ready for read
37	RTP BUSY_VSS	BUSY Output. Logic Output. This output is high impedance when CS is high.
	CTP_WAKE	An interrupt signal for the host to change F5206 from hibernates to active mode.
		CTP INT: An interrupt signal to inform the host processor that touch data is ready for read
38	RTP PEN_VSS	Pen Interrupt. CMOS logic open-drain output
39	BL_ON/OFF	Backlight Control Signal

| 40 | VSS | Ground |

Note :CTP is the short for Capacitive Touch Panel. RTP is the short for 4-wire Resistive Touch Panel.

3.2 JP2-Arduino Board Output Interface

No	Symbol	Descriptions
1	+5V	+5V Power
2	+5V	+5V Power
3	DB8(IO22)	Data bus 8 to Arduino Board Digital IO 22
4	DB9(IO23)	Data bus 9 to Arduino Board Digital IO 23
5	DB10(IO24)	Data bus 10 to Arduino Board Digital IO 24
6	DB11(IO25)	Data bus 11 to Arduino Board Digital IO 25
7	DB12(IO26)	Data bus 12 to Arduino Board Digital IO 26
8	DB13(IO27)	Data bus 13 to Arduino Board Digital IO 27
9	DB14(IO28)	Data bus 14 to Arduino Board Digital IO 28
10	DB15(IO29)	Data bus 15 to Arduino Board Digital IO 29
11	DB7(IO30)	Data bus 7 to Arduino Board Digital IO 30
12	DB6(IO31)	Data bus 6 to Arduino Board Digital IO 31
13	DB5(IO32)	Data bus 5 to Arduino Board Digital IO 32
14	DB4(IO33)	Data bus 4 to Arduino Board Digital IO 33
15	DB3(IO34)	Data bus 3 to Arduino Board Digital IO 34
16	DB2(IO35)	Data bus 2 to Arduino Board Digital IO 35
17	DB1(IO36)	Data bus 1 to Arduino Board Digital IO 36
18	DB0(IO37)	Data bus 0 to Arduino Board Digital IO 37
19	D/C(IO38)	Data/Command Select,Arduino Board Digital IO 38
20	/WR(IO39)	Write Strobe Signal , Arduino Board Digital IO 39
21	LCD_/CS(IO40)	Chip Select Signal, Arduino Board Digital IO 40
22	/RESET	LCD Reset Signal, Arduino Board Digital IO 41
23	RTP_CS	Resistive Touchscreen Chip Select Signal, Arduino Board Digital IO 42
24	SCLK (SD Card, RTP,Falsh,Font Chip)	Serial Colock signal, Arduino Board Digital IO 43 (Software SPI)
25	DIN (SD card, RTP,Falsh,font chip)	Serial Data Input, Arduino Board Digital IO 44 (Software SPI)
26	Dout (SD card, RTP,Falsh,font chip)	Serial Data Output, Arduino Board Digital IO 45 (Software SPI)
27	RTP PEN	Resistive Touch Screen Pen Interrupt, Arduino Board Digital IO 46
28	SD_CS	SD Card Chip Select Signal, Arduino Board Digital IO 47

29	CTP INT	Capacitive Touch Screen Interrupt, Arduino Board Digital IO 48
30	NC	No Connect
31	NC	No Connect
32	NC	No Connect
33	NC	No Connect
34	NC	No Connect
35	VSS	Ground
36	VSS	Ground

Note-1: Please use external 5V(1A) power supply on JP4 if you wish the whole module works for a long time.

Note-2: CTP is the short for Capacitive Touch Panel. RTP is the short for 4-wire Resistive Touch Panel.

3.3 JP3-Arduino Board Output Interface

No	Symbol	Descriptions
1	NC	No Connect
2	VSS	Ground
3	VSS	Ground
4	+5v	+5V Power
5	+3.3V	+3.3V Power
6	/RESET	Master Reset
7	NC	No Connect
8	NC	No Connect

3.4 JP4-Arduino Board Output External Power Interface

No	Symbol	Descriptions
1	VSS	Ground
2	External +5V Input	External Input Power +5V

Note: Please use external 5V(1A) power supply on JP4 if you wish the whole module works for a long time.

3.5 JP5-Arduino Board Output Hardware SPI Interface

No	Symbol	Description
1	VSS	Ground
2	NC	No Connect
3	MOSI	SPI Master Output/Slave Input
4	SCLK	Serial Clock
5	+5V	+3.3V Power
6	MISO	SPI Master Input/Slave Output

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3.6 JP6-Arduino Board Output Hardware I2C Interface

No	Symbol	Description
1	SCL	Serial Clock
2	SDA	Serial Data Input/Output

3.7 JP7-Arduino Board Output Interface

No	Symbol	Description
1	BL_CONTROL(IO8)	BackLight Control Signal.Arduino Board Digital IO 8
2	FLASH_CS(IO9)	LCD Reset, Active Low. Arduino Board Digital IO 9
3	FONT_CS(IO10)	LCD chip select signal. Low active.Arduino Board Digital IO 10
4	RTP_BUSY(IO11)	Resistive Touch Screen Busy Signal.Arduino Board Digital IO 11
	CTPWAKE(IO11)	Capacitive Touch Screen Wake Signal,Arduino Board Digital IO 11
5	NC	No Connect
6	NC	No Connect
7	VSS	Ground
8	NC	No Connect
9	SDA1	Hardware I2C/ Serial Data Input/Output
10	SCL1	Hardware I2C/Serial Clock

Note-2: CTP is the short for Capacitive Touch Panel. RTP is the short for 4-wire Resistive Touch Panel.

3.8 Jump Point Description

Function Description	Jump Method
RTP,Flash,Font IC,SD Card Interface by Software SPI	J1,,J2,,J3 Short and J4,,J5,,J16 Open
RTP,Flash,Font IC,SD Card Interface by Hardware SPI	J4,,J5,,J16 Short and J1,,J2,,J3 Open.
Capactive Touch Panel used on Arduino Mega Board	J7,,J8,,J9,,J10 Short and J11,,J12,,J13,,J14 Open
Resistive Touch Panel used on Arduino Due or Mega Board	J11,,J12,,J13,,J14 Short and J7,,J8,,J9,J10 Open
Capacitive Touch Panel used on Arduino Due Board	J7,,J8,,J9,,J10,J15,J16 Short and J11,,J12,,J13,,J14 Open

Note-2: CTP is the short for Capacitive Touch Panel. RTP is the short for 4-wire Resistive Touch Panel.

3.9 Adding an External Power Supply

For 7 inch display or above, the high current is needed. But the current of arduino uno or arduino mega board is low, an external 5V power supply is needed. The below image shows the external power supply position on shield ER-AS-RA8875.
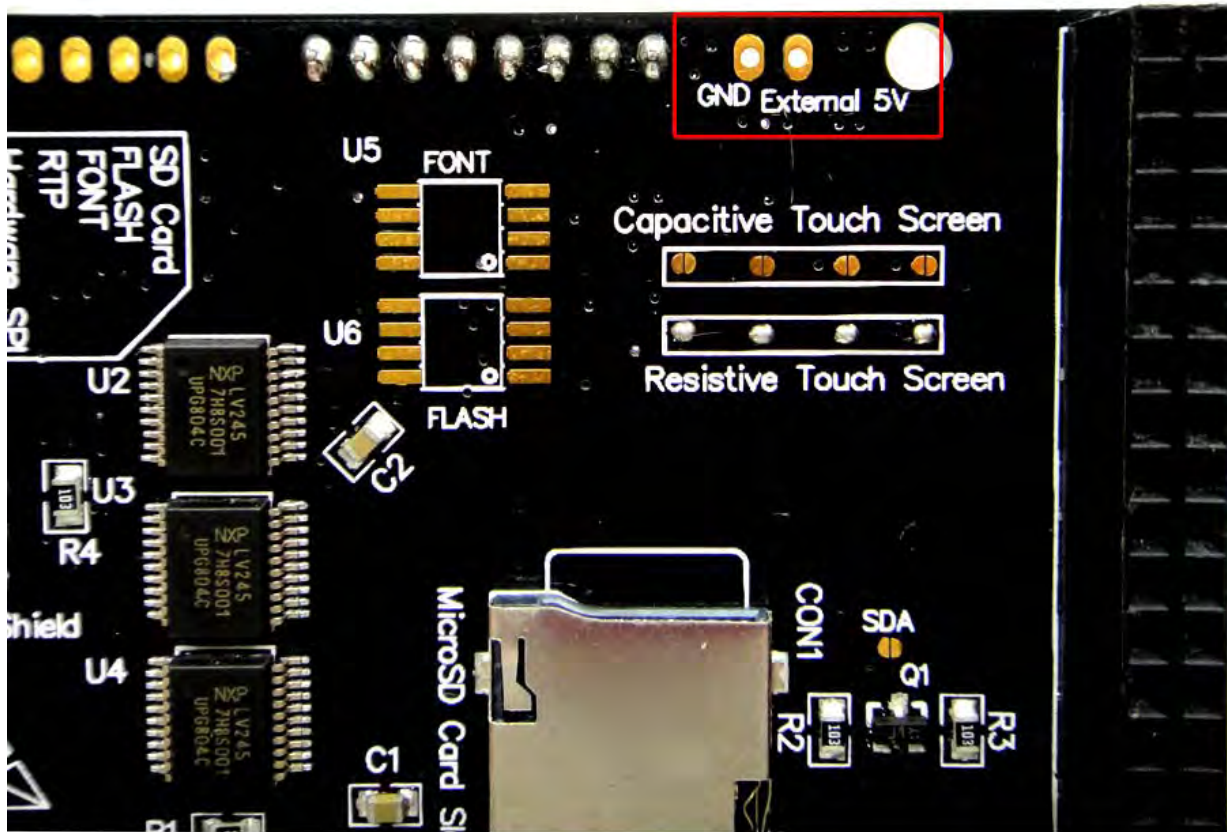
4. CARE AND HANDLING PRECAUTIONS

The kit is sold with a module mounted on it. If you attempt to modify the board to work with other modules, the warranty is void. For optimum operation of the module and demonstration board and to prolong their life, please follow the precautions below.

4.1 ESD (Electro-Static Discharge)
The circuitry is industry standard CMOS logic and susceptible to ESD damage. Please use industry standard antistatic precautions as you would for any other PCB such as expansion cards or motherboards.

4.2 Avoid Shock,Impact,Torque and Tension
◇ Do not expose the module to strong mechanical shock, impact, torque, and tension.
◇ Do not drop, toss, bend, or twist the module.
◇ Do not place weight or pressure on the module.

4.3 LCD&OLED Display Glass
◇ The exposed surface of the LCD "glass" is actually a polarizer laminated on top of the glass.To protect the soft plastic polarizer from damage, the module ships with a protective film over the polarizer. Please peel off the protective film slowly. Peeling off the protective film abruptly may generate static electricity.

◇ The polarizer is made out of soft plastic and is easily scratched or damaged. When handling the module, avoid touching the polarizer. Finger oils are difficult to remove.

◇ If the LCD panel breaks, be careful not to get the liquid crystal fluid in your mouth or eyes. If the liquid crystal fluid touches your skin, clothes, or work surface, wash it off immediately using soap and plenty of water.

◇ Be very careful when you clean the polarizer. Do not clean the polarizer with liquids. Do not wipe the polarizer with any type of cloth or swab (for example, Q-tips). Use the removable protective film to remove smudges (for example, fingerprints) and any foreign matter. If you no longer have the protective film, use standard transparent office tape . If the polarizer is dusty, you may carefully blow it off with clean, dry, oil-free compressed air.

4.4 Operation

◇ Use only the included AC adapter to power the board.

◇ Observe the operating temperature limitations: from -20°C minimum to +70°C maximum with minimal fluctuations. Operation outside of these limits may shorten the life and/or harm the display.

　　□ At lower temperatures of this range, response time is delayed.

　　□ At higher temperatures of this range, display becomes dark. (You may need to adjust the contrast.)

◇ Operate away from dust, moisture, and direct sunlight.

4.5 Storage and Recycling

◇ Store in an ESD-approved container away from dust, moisture, and direct sunlight.

◇ Observe the storage temperature limitations: from -30°C minimum to +80°C maximum with minimal fluctuations. Rapid temperature changes can cause moisture to form, resulting in permanent damage.

◇ Do not allow weight to be placed on the modules while they are in storage.

◇ Please recycle your outdated displays at an approved facility.

That's the end of the datasheet.