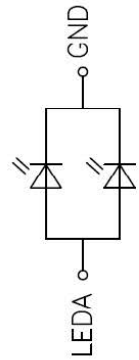
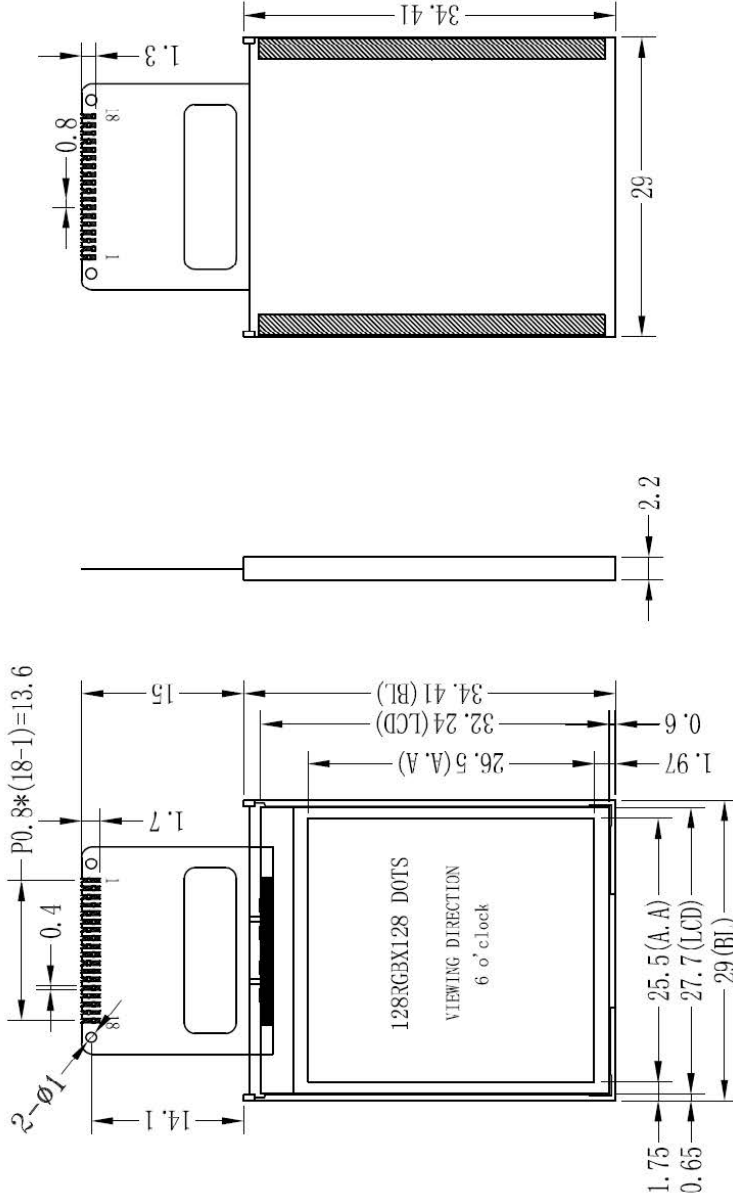


IE-TFT-144128128-016-06

1. Technical drawing

No:	PIN NAME
1	GND
2	K
3	A
4	GND
5	RES
6	RS
7	SDA
8	SCK
9	VCC
10	IOVCC
11	CS
12	GND
13	NC
14	NC
15	NC
16	NC
17	GND
18	GND

- 1.LCM包括LCD、FPC、IC、
- 2.视角为6点钟;
- 3.IC型号: ST7735S;
- 4.显示模式: TFT、正显;
- 5.工作温度-20~+70摄氏度;
- 6.储存温度-30~+80摄氏度;
- 7.输入电压: VDD=3.3V;
- 7.背光: 2颗并联白灯、30mA、3.0V.



CIRCUIT DIAGRAM

REVISION	RECORD	DATE
1		
2		
3		
4		
5		
6		

TITLE: LCD OUTLINE DIMENSION	DATE	DATE	DATE
Model No:			
Part No: LCM			
DRAWN SHEN	2017/08/15		
CHECKED			
APPROVED			

FIG(3)	VER:	SHEET	UNIT:	SCALE
3	A	1/1	mm	1:1

2. Module interface pin function

L. N.	Symbol	Name	Features
1	GND	Ground	0V
2	K	Cathode	0V
3	A	Anode	3.0V
4	GND	Ground	0V
5	RES	Reset	Low level reset
6	RS	Reg. selection	H: data register 0: instruction register
7	SDA	Serial data	Serial data
8	SCK	Serial clock	Serial clock
9	VCC	Circuit power	3.3V
10	IOVCC	Circuit power	3.3V
11	CS	Chip select	Low level chip select
12	GND	Ground	0V
13	NC	Empty feet	Empty feet
14	NC	Empty feet	Empty feet
15	NC	Empty feet	Empty feet
16	NC	Empty feet	Empty feet
17	GND	Ground	0V
18	GND	Ground	0V

Table 1: Interface pin functions of the module

3. Basic principles

3.1 Liquid crystal screen (LCD)

A 128×128 dot matrix is arranged on the LCD, 128 column signals are connected to the driver IC, 128 row signals are also connected to the driver IC, and the IC is bonded on the LCD glass.

3.2 Backlight parameters

This type of LCD module is equipped with LED backlight. Its performance parameters are as follows:

Working temperature: -20~+70°C;

Storage temperature: -30~+80°C;

The backlight panel is white.

The normal working current is: 16~40mA (the number of LED lights is 2 in total, and each light is 8-20 mA).

Working voltage: 3.0V (3.3V power supply plus 20 ohm current limiting resistor, 5.0V power supply plus 120 ohm current limiting resistor).

4. Technical parameters

4.1 Maximum limit parameters

Name	Symbol	Standard value			Unit
		MIN	TYPE	MAX	
Power supply	VDD	-0.3	3.3	3.6	V
Operating temperature		-20		+70	°C
Storage temperature		-30		+80	°C

Table 2: Maximum limit parameters

4.2 Direct current (DC) parameters

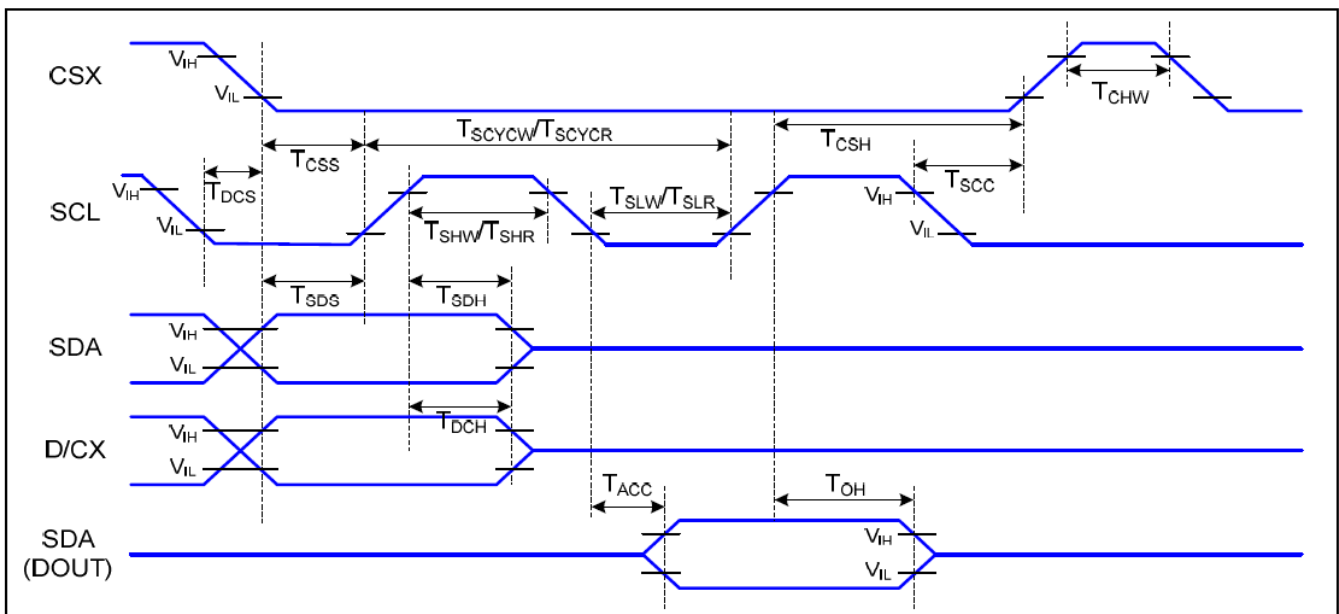
Name	Symbol	Test Condition	Standard value			Unit
			MIN	TYPE	MAX	
Operating Voltage	VDD		2.8	3.3	3.6	V
Backlight working voltage	VLED		2.9	3.0	3.1	V
Backlight working current	ILED	VLED=3.0V	16	30	40	mA

Table 3: Direct Current (DC) Parameters

5. Read and write timing characteristics

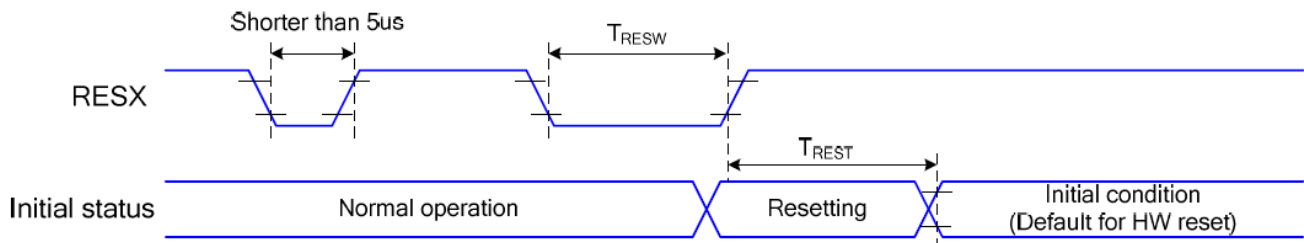
For details, please refer to the IC data "ST7735S", please ask for therelevant customer service personnel.

4-wire SPI timing diagram



Signal	Symbol	Parameter	MIN	MAX	Unit	Description
CSX	TCSS	Chip Select Setup Time (Write)	TBD		ns	
	TCSH	Chip Select Hold Time (Write)	TBD		ns	
	TCSS	Chip Select Setup Time (Read)	TBD		ns	
	TSCC	Chip Select Hold Time (Read)	TBD		ns	
	TCHW	Chip Select "H" Pulse Width	TBD		ns	
SCL	TSCYCW	Serial Clock Cycle (Write)	TBD		ns	-Write Command & Data Ram
	TSHW	SCL "H" Pulse Width (Write)	TBD		ns	
	TSLW	SCL "L" Pulse Width (Write)	TBD		ns	
	TSCYCR	Serial Clock Cycle (Read)	TBD		ns	-Read Command & Data Ram
	TSHR	SCL "H" Pulse Width (Read)	TBD		ns	
	TSLR	SCL "L" Pulse Width (Read)	TBD		ns	
D/CX	TDCS	D/CX Setup Time	TBD		ns	
	TDCH	D/CX Hold Time	TBD		ns	
SDA (DIN) (DOUT)	TSDS	Data Setup Time	TBD		ns	For Maximum CL=30pF For Minimum CL=8pF
	TSDH	Data Hold Time	TBD		ns	
	TACC	Access Time	TBD	TBD	ns	
	TOH	Output Disable Time	TBD	TBD	ns	

5.1 Timing requirements for reset after power on.

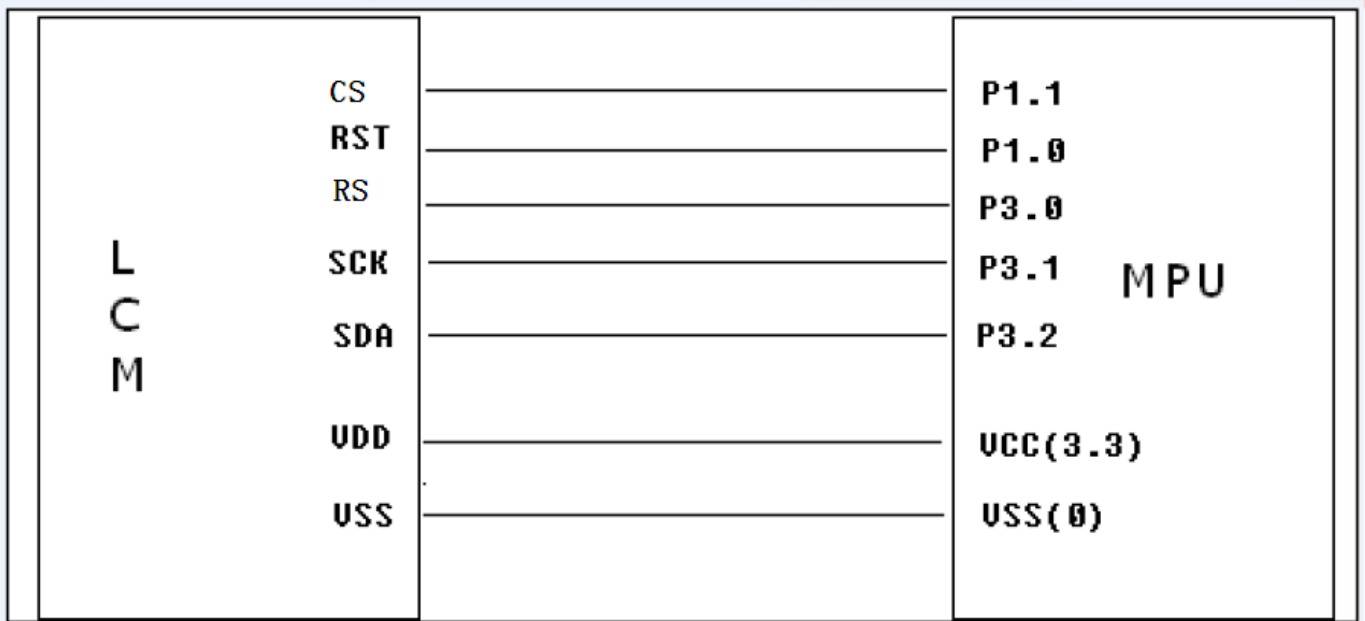


The picture shows the reset sequence after the power is turned on

Timing requirements for reset after power on

Name	Symbol	Test Conditions	Standard value			Unit
			MIN	TYPE	MAX	
Reset hold low time	t_{Res-L}		—	—	5	ms
Reset time	T_{RES}	Pin: RES	10	—	—	µs
Reset time to keep high level	T_{RES-H}		—	—	120	ms

6. Application example



18PIN

GND	1	GND
K	2	K
A	3	A
GND	4	GND
RES	5	RES
RS	6	RS
SDA	7	SDA
SCK	8	SCK
VCC	9	3.3V
IOVCC	10	3.3V
CS	11	CS
GND	12	GND
NC	13	
NC	14	
NC	15	
NC	16	
GND	17	GND
GND	18	GND