APPROVAL SHEET

承 认 书

版本：V1.0

Customer 客户名称	
Part NO. 产品型号	LCDT24963701
Product type 产品内容	Mode: Transmissive type .Normally white. TFT LCD Module LCD Module: Graphic 240RGB*320Dot-matrix
Remarks 备注栏	□ APPROVAL FOR SEPCIFICATIONS ONLY ■ APPROVAL FOR SEPCIFICATIONS AND SAMPLE

工程确认

核准	审核	定制

客户确认

核准	审核	审核

CONTENTS

GENERAL INFORMATION

Item	Contents	Unit
Driver element	a-Si TFT active matrix	--
Viewing direction	12 O'CLOCK	O'Clock
TP V/A (W × H)	--	mm
Active area (W×H)	36.72 * 48.96	mm
Number of Dots	240(RGB)×320	Pixel
Driver IC	ILI9341	--
Colors	65K/262K	--
Weight	TBD	g
Backlight Type	LED	--

Interface Type	Parallel	--
Input voltage	2.8/3.3	V

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min	Max	Unit
Supply voltage for logic	VDD	-0.3	3.3	V
Input voltage	VIN	-0.3	VDD+0.3	V
Operating temperature	TOP	-20	70	℃
Storage temperature	TST	-30	80	℃
Humidity	RH		90%(Max60℃)	RH

ELECTRICAL CHARACTERISTICS

DC CHARACTERISTICS

Parameter	Symbol	Min	Typ	Max	Unit
Supply voltage for logic	VDD	2.5	-	3.3	V
Input Current	Idd	—	2.08	3.26	mA
Supply voltage for I/O circuit	IOVCC	1.65	-	3.3	V
Input voltage ′H′ level	VIH	0.7 IOVCC	—	—	V
Input voltage ′L′ level	VIL	—	—	0.3 IOVCC	V
Output voltage ′H′ level	VOH	0.8 IOVCC	—	—	V
Output voltage ′L′ level	VOL	—	—	0.2 IOVCC	V

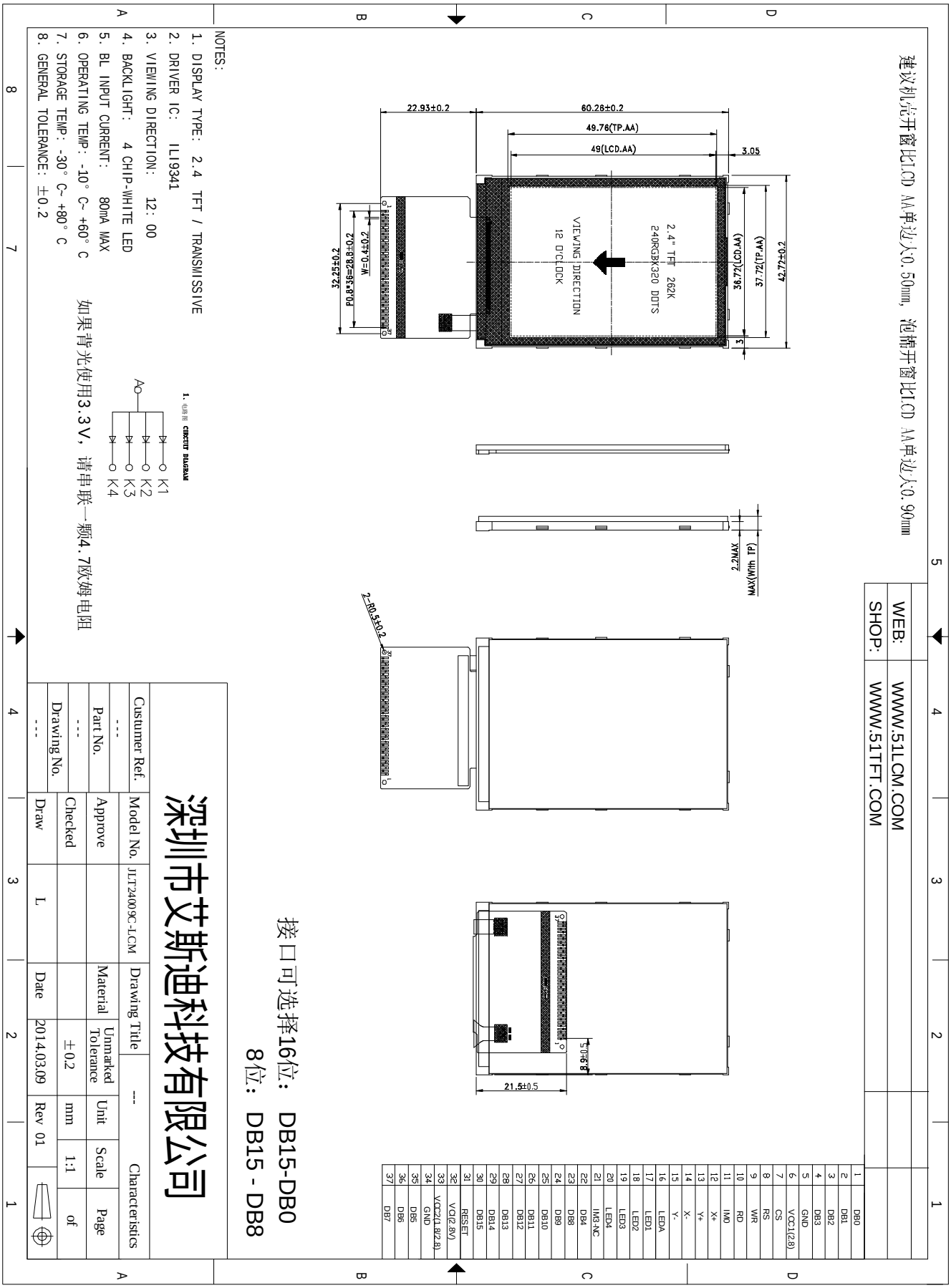
TIMING OF POWER SUPPLY

PLEASE REFER TO THE DRIVER IC SPECIFICATION.

BACKLIGHT CHARACTERISTICS

Item	Symbol	Min	Typ	Max	Unit	Condition
Forward voltage	Vf	2.9	3.2	3.4	V	If=80mA
Luminance	Lv	3600	-	-	cd/㎡	MaX
Number of LED	-	4			Piece	-
Connection mode	p	Parallel			-	-

EXTERNAL DIMENSIONS



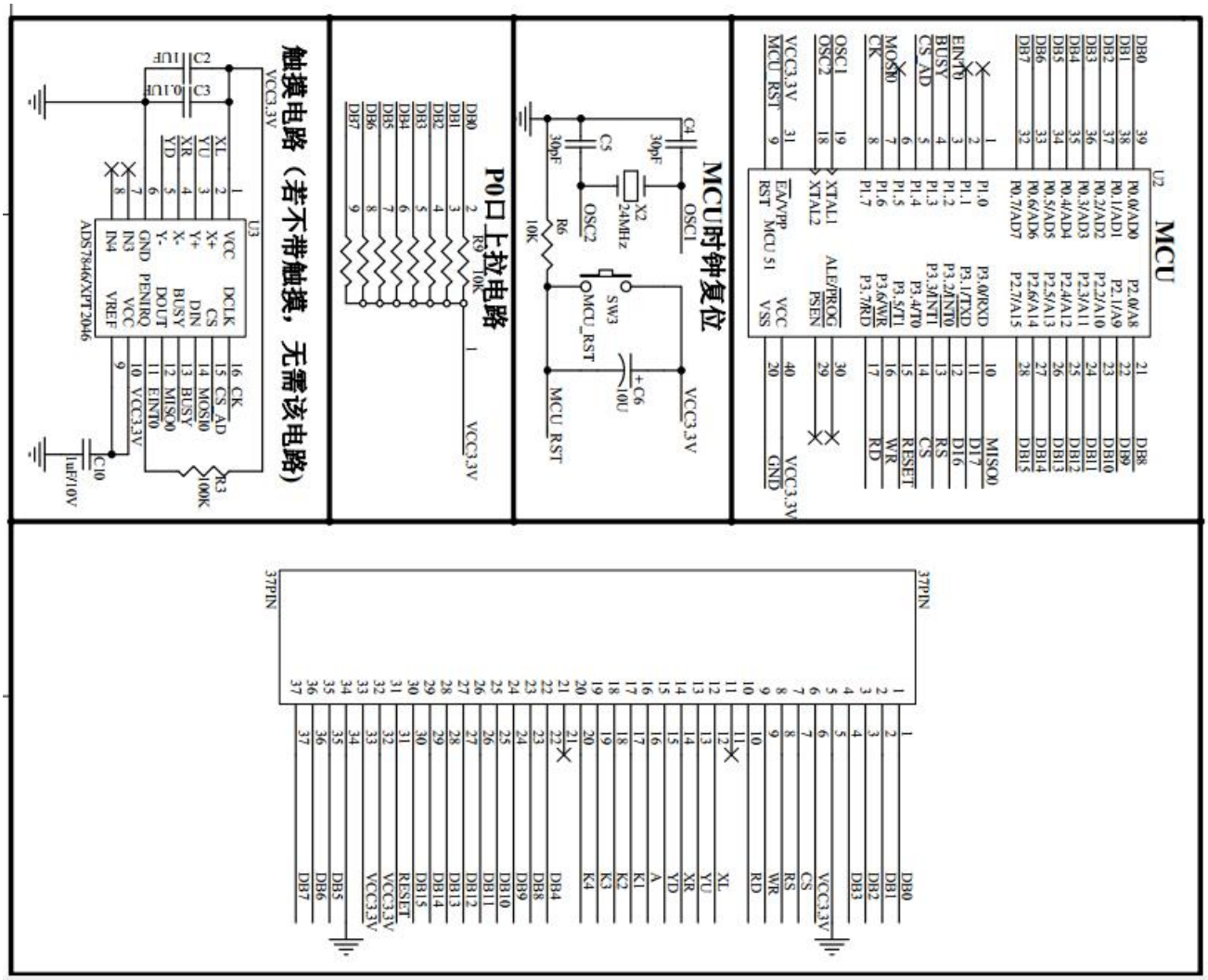
1	DB0
2	DB1
3	DB2
4	DB3
5	GND
6	VCC(2.8)
7	CS
8	RS
9	WR
10	RD
11	IM0
12	X+
13	Y+
14	X-
15	Y-
16	LEDA
17	LED1
18	LED2
19	LED3
20	LED4
21	IM3-NC
22	DB4
23	DB8
24	DB9
25	DB10
26	DB11
27	DB12
28	DB13
29	DB14
30	DB15
31	RESET
32	VCI(2.8V)
33	VCC(1.8/2.8)
34	GND
35	DB5
36	DB6
37	DB7

INTERFANCE SIGANL:

PIN 脚	名称	描述	电路接法
1	DB0	数据线　使用8位接口时，悬空或接GND	接普通IO口
2	DB1	数据线　使用8位接口时，悬空或接GND	接普通IO口
3	DB2	数据线　使用8位接口时，悬空或接GND	接普通IO口
4	DB3	数据线　使用8位接口时，悬空或接GND	接普通IO口
5	GND	电源地	接电源负极
6	VCC	电源VCC(2.8V/3.3V)	接电源正极
7	CS	LCD驱动芯片片选信号	接普通IO口
8	RS	寄存器选择RS=1: 写参数.数据.RS=0：写命令	接普通IO口
9	WR	写允许信号.低电平有效	接普通IO口
10	RD	读允许信号.低电平有效	接普通IO口
11	IM0	选择位.电路悬空就可以.	空
12	X+	触摸屏XL	接触摸芯片模拟端XL
13	Y+	触摸屏YU	接触摸芯片模拟端YU
14	X-	触摸屏XR	接触摸芯片模拟端XR
15	Y-	触摸屏YD	接触摸芯片模拟端YD
16	LEDA	背光正极（接3.1-3.4V）最好用60mA恒流供电	接3.1-3.4V
17	LED1	背光负极	接背光电源负极
18	LED2	背光负极	接背光电源负极
19	LED3	背光负极	接背光电源负极
20	LED4	背光负极	接背光电源负极
21	IM3	空脚，悬空即可	悬空
22	DB4	数据线　使用8位接口时，悬空或接GND	接普通IO口
23	DB8	数据线	接普通IO口
24	DB9	数据线	接普通IO口
25	DB10	数据线	接普通IO口
26	DB11	数据线	接普通IO口
27	DB12	数据线	接普通IO口
28	DB13	数据线	接普通IO口
29	DB14	数据线	接普通IO口

30	DB15	数据线	接普通IO口
31	RESET	LCD驱动芯片复位信号.低电平复位	接普通IO口或硬件复位电路
32	VCC	电源VCC(2.8V/3.3V)	接电源正极VCC(2.8V/3.3V)
33	IOVCC	电源VCC(1.8V/2.8V/3.3V)	接电源正极VCC(2.8V/3.3V)
34	GND	电源地	电源地
35	DB5	数据线　使用8位接口时，悬空或接GND	接普通IO口
36	DB6	数据线　使用8位接口时，悬空或接GND	接普通IO口
37	DB7	数据线　使用8位接口时，悬空或接GND	接普通IO口
		16位接口时，数据线DB15-DB0; **8位接口时，数据线DB15-DB8**	

APPLICATION CIRCUIT



INITIAL CODE

Please consult our technical department for detail information.

ELECTRO-OPTICAL CHARACTERISTICS

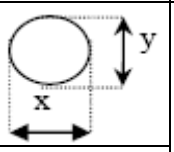
Item		Symbol	Condition	Min	Typ	Max	Unit	Remark	Note
Response time		Tr+Tf	θ =0° E=0° Ta=25℃	-	30	-	ms	FIG 1.	4
Contrast ratio		Cr		-	300	-	-	FIG 2.	1
Luminance uniformity		δ WHITE		80	-	-	%	FIG 2.	3
Surface Luminance		Lv		180	-	-	cd/㎡	FIG 2.	2
Viewing angle range		θ	E=90°	-	30	-	deg	FIG 3.	6
			E=270°	-	30	-	deg	FIG 3.	
			E=0°	-	45	-	deg	FIG 3.	
			E=180°	-	45	-	deg	FIG 3.	
CIE(x,y) chromaticity	Red	x	θ =0° E=0° Ta=25℃	0.633	0.653	0.673		FIG 2.	5
		y		0.310	0.330	0.350			
	Green	x		0.296	0.316	0.336			
		y		0.556	0.576	0.596			
	Blue	x		0.118	0.138	0.158			
		y		0.110	0.130	0.150			
	White	x		0.288	0.308	0.328			
		y		0.317	0.337	0.357			

4.Standards of inspection items

4.1Major Defect

Item No	Items to be inspected	Inspection Standard	Classification of defects
4.1.1	All functional defects	1.No display 2.Display abnormally 3.Missing vertical, horizontal segment 4.Short circuit 5. Back-light no lighting, flickering and abnormal lighting.	Major
4.1.2	Missing	Missing component	
4.1.3	Outline dimension	Overall outline dimension beyond the drawing is not allowed.	
4.1.4	linearity	No more than 1.5%	

4.2 Cosmetic Defect

Item No	Items to be inspected	Inspection Standard	Classification of defects
4.21	Clear Spots Black and white Spot defect Pinhole, Foreign Particle, polarizer Dirt	For dark/white spot, size Φ is defined as $\Phi=\frac{(x+y)}{2}$ 	Minor
		1	

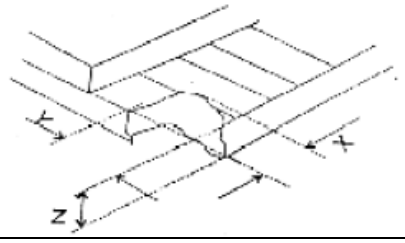
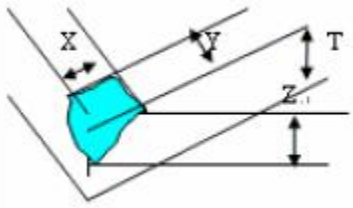
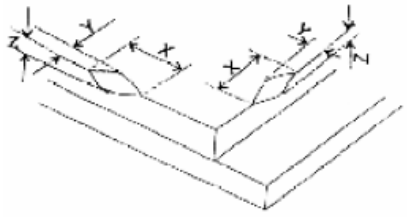
Zone / Size(mm)	Acceptable Qty		
	A	B	C
Φ≤0.15	Ignore		Ignore

		0.15＜Φ≤0.20	2			
		0.20＜Φ≤0.30	1			
		Φ＞0.30	0			
	Clear Spots TP Dirt	2				Minor
		Zone / Size(mm)	Acceptable Qty			
			A	B	C	
		Φ≤0.15	Ignore		Ignore	
		0.15＜Φ≤0.20	2			
		0.20＜Φ≤0.30	1			
		Φ＞0.30	0			
	Dim Spots Circle shaped and dim edged defects	3				Minor
		Zone / Size(mm)	Acceptable Qty			
			A	B	C	
		Φ≤0.2	Ignore		Ignore	
		0.20＜Φ≤0.40	2			
		0.40＜Φ≤0.60	1			
		Φ＞0.60	0			

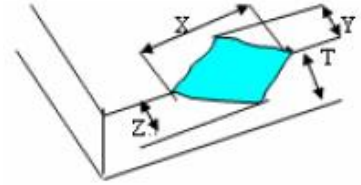
4.2 Cosmetic Defect

Item No	Items to be inspected	Inspection Standard					Classification of defects
4.2.2	Line defect Black line, White line, Foreign material on polarizer	Size(mm)		Acceptable Qty			Minor
		L(Length)	W(Width)	Zone			
				A	B	C	
		Ignore	W≤0.01	Ignore		Ignore	
		L≤3.0	0.01＜W≤0.03	2			
		L≤3.0	0.03＜W≤0.05	1			
			W＞0.05	0			
	Foreign material on TP film	The line can be seen after mobile phone in the operating condition:					Minor
		Size(mm)		Acceptable Qty			
		L(Length)	W(Width)	Zone			
				A	B	C	
		Ignore	W≤0.03	Ignore		Ignore	
		L≤5.0	0.03＜W≤0.05	3			
			W＞0.05	0			
4.2.3	Dim line defect Polarizer scratch TP film scratch	If the scratch can be seen after mobile phone cover assembling or in the operating condition, judge by the line defect of 4.2.2. If the scratch can be seen only in non-operating condition or some special angle, judge by the following.					Minor
		Size(mm)		Acceptable Qty			
		L(Length)	W(Width)	Zone			

				A	B	C	
		Ignore	W≤0.03	Ignore		Ignore	
		5.0<L≤10.0	0.03<W≤0.05	2			
		L≤5.0	0.05<W≤0.08	1			
			W>0.08	0			
4.2.4	Polarize Air bubble	Air bubbles between glass & polarizer					Minor
		Zone / Size(mm)		Acceptable Qty			
				A	B	C	
		Φ≤0.25		Ignore		Ignore	
		0.25<Φ≤0.5		2			
		Φ>0.50		0			

Item No	Items to be inspected	Inspection Standard			Classification of defects
4.35	Glass defect	(i) Chips on corner A:LCD Glass defect			Minor
					
		X(mm)	Y(mm)	Z(mm)	
		≤2.0	≤S	Disregard	
		Notes: S=contact pad length Chips on the corner of terminal shall not be allowed to extend into the ITO pad or expose perimeter seal. B:TP Glass defect			
					
		X(mm)	Y(mm)	Z(mm)	
		≤3.0	≤3.0	Disregard	
		(ii)Usual surface cracks A:LCD Glass defect			
					
		X(mm)	Y(mm)	Z(mm)	
		≤3.0	<Inner border line of the seal	Disregard	

B:TP Glass defect



X(mm)	Y(mm)	Z(mm)
≤6.0	＜2.0	Disregard

(iii) Crack

Cracks tend to break are not allowed.