



深圳市一众显示科技有限公司

SHEN ZHEN TEAM SOURCE DISPLAYTECH. CO, TD.

TFT-LCD Module Specification

Module NO.: TST029FWBS-X12

Version: V1.0

APPROVAL FOR SPECIFICATION

APPROVAL FOR SAMPLE

For Customer' s Acceptance:	
Approved by	Comment

Team Source Display:		
Presented by	Reviewed by	Organized by

Version No.	Date	Content	Remark
V1.0	2025-11-05	First Released	

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1. Introduction

1.1 Scope of application

This specification applies to the Normally White type TFT transmissive dot matrix LCD module that is supplied by TEAM SOURCE DISPLAY. This LCD module should be designed for mobile phone use.

LCD specification: Duty 1/480, Dots376xRGBx960.

As to basic specification of the driver IC, refer to the IC (ST7701S) specification and datasheet.

1.2 Structure:

Single display structure:

TFT MODULE+ BL

RGB Stripe Color 2.86 Inch TFT LCD size for main LCD;

One bare chip with gold bump (COG) TECH;

MIPI 1 lane interface;

1. General specification

ITEM 项目编号	Standard value 标准值	UNIT 单位
LCD Type 液晶	TFT Transmissive	0.8D
Number of Dots 点阵	376*(RGB)*960	Dots
Pixel Arrangement 像素排列	RGB Stripe	
Active Area 显示区域	26.51 (W) x 67.88(H)	mm
Viewing Area 最大可视区域	28.51 (W) x 70.18 (H)	mm
Glass Area 玻璃尺寸	/	mm
Viewing Direction 最佳视角	IPS all 0' CLOCK	
Control IC 驱动 IC	ST7701S	
Module Size 模组尺寸	31.20*76.60*2.15 公差 0.1	mm
Back Light 背光灯	4 White LED	

2. Mechanical drawing

3.MIPI Interface Pin Function

NO.	SYMBOL	Description	
1	D0N	Mipi data signal	负MIPI差分数据
2	D0P	Mipi data signal	正MIPI差分数据
3	GND	Ground	接地
4	CLKN	Mipi clock signal	负MIPI差分时钟
5	CLKP	Mipi clock signal	正 MIPI 差分时钟
6	GND	Ground	接地
7	VCI	Power voltage (2.8v-3.3v)	模拟电源
8	IOVCC	Power supply for I/O System(1.8v-3.3v)	逻辑电压
9	RESET	Reset pin	复位
10	GND	Ground	接地
11	K	BACK LIGHT(-)	背光负极
12	A	BACK LIGHT(+)	背光正极

5. ABSOLUTE MAXIMUM RATINGS

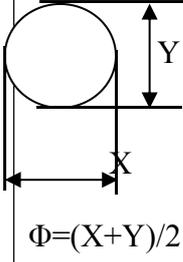
Parameter 参数	Symbol 符号	Min 最小值	Max 最大值	Unit 单位
Supply voltage for logic 逻辑电压	V _{DD}	-0.3	3.6	V
Input voltage for logic 输入电压	V _{IN}	-0.3	3.6	V
Supply current (one LED)背光单灯电流	I _{LED}		20	mA
Operating temperature 工作温度	T _{OP}	-30	+85	°C
Storage temperature 储存温度	T _{ST}	-40	+90	°C

6. ELECTRICAL CHARACTERISTICS

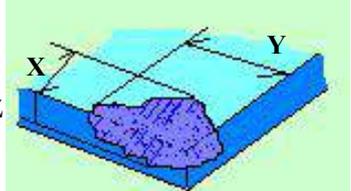
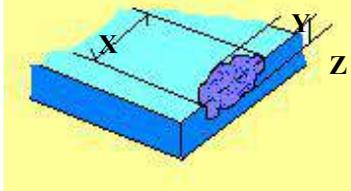
Item 项目	Symbol 符号	Min 最小值	Typ 典型值	Max 最大值	Unit 单位	Applicable terminal 接口
Supply voltage for logic 逻辑电压	V _{DDI}	1.65	1.8	3.3	V	IOVCC
Supply voltage(DC/DC) 输入电压	V _{DD}	2.5	2.8	3.6	V	V _{DD}
LED Forward voltage 背光电压	V _f	12	12.5	13	V	--
Input backlight current 背光单灯电流	I _{LED(one LED)}	-	20		mA	

7. OPTICAL CHARACTERISTICS

ITEM 项目	SYMBOL 符号	CONDITIO NS 条件	SPECIFICATIONS 参数			UNIT 单位	NOTE 备注	
			MIN 最小	TYP 典型	MAX 最大			
Brightness 模组亮度	B	Viewing normal angle 正常视角	TBD	450	TBD	Cd/m ²	/	
Contrast Ratio 对比度	CR		--	1500	--	--		
Response Time 响应时间	Tr+Tf		--	30	35	ms		
CIE Color Coordinate 颜色	Red 红色		XR	0.614	0.644	0.674		
			YR	0.290	0.320	0.350		
	Green 绿色		XG	0.270	0.300	0.330		
			YG	0.540	0.570	0.600		
	Blue 蓝色	XB	0.104	0.134	0.164			
		YB	0.097	0.127	0.157			
White 白色	Xw	0.267	0.297	0.327				
	Yw	0.302	0.332	0.362				
Viewing Angle 视角	Hor.	θ_{X+}	--	85	--	Deg.		
		θ_{X-}	--	85	--			
	Ver.	θ_{Y+}	--	85	--			
		θ_{Y-}	--	85	--			
Uniformity 均匀度	Un		--	80	--	%		

Number	Items	Criteria (mm)					
2.0	Spot defect  $\Phi=(X+Y)/2$	① light dot (LCD/TP/Polarizer black/white spot , light dot, pinhole, dent, stain)					
		Zone Size (mm)		Acceptable Qty		亮点类型, 可接受范围, 点直径小于等于 0.2mm (视距 10mm 以上)	
				A	B		C
		$\Phi \leq 0.10$		Ignore			Ignore
		$0.10 < \Phi \leq 0.15$		3(distance $\geq 10\text{mm}$)			
		$0.15 < \Phi \leq 0.2$		1			
		$0.2 < \Phi$		0			
		② Dim spot (LCD/TP/Polarizer dim dot, light leakage, dark spot)				暗点类型, 可接受范围, 点直径小于等于 0.3mm (视距 10mm 以上)	
		Zone Size (mm)		Acceptable Qty			
				A	B		C
		$\Phi \leq 0.1$		Ignore			Ignore
		$0.1 < \Phi \leq 0.2$		2(distance $\geq 10\text{mm}$)			
		$0.2 < \Phi \leq 0.3$		1			
		$\Phi > 0.3$		0			
		③ Polarizer accidented spot				偏光片凹凸点, 可接受范围, 点直径小于等于 0.5mm(视距 10mm 以上)	
Zone Size (mm)		Acceptable Qty					
		A	B	C			
$\Phi \leq 0.2$		Ignore		Ignore			
$0.2 < \Phi \leq 0.5$		2(distance $\geq 10\text{mm}$)					
$\Phi > 0.5$		0					

	Line defect (LCD/TP /Polarizer black/white line, scratch, stain)	<table border="1"> <thead> <tr> <th rowspan="2">Width(mm)</th> <th rowspan="2">Length(mm)</th> <th colspan="3">Acceptable Qty</th> </tr> <tr> <th>A</th> <th>B</th> <th>C</th> </tr> </thead> <tbody> <tr> <td>$\Phi \leq 0.03$</td> <td>Ignore</td> <td colspan="3">Ignore</td> </tr> <tr> <td>$0.03 < W \leq 0.05$</td> <td>$L \leq 3.0$</td> <td colspan="2">$N \leq 2$</td> <td rowspan="2">Ignore</td> </tr> <tr> <td>$0.05 < W \leq 0.08$</td> <td>$L \leq 2.0$</td> <td colspan="2">$N \leq 2$</td> </tr> <tr> <td>$0.08 < W$</td> <td colspan="4">Define as spot defect</td> </tr> </tbody> </table> <p>线最大宽度长度可接受范围, 宽度小于等于 0.08mm, 小于等于 2mm</p>	Width(mm)	Length(mm)	Acceptable Qty			A	B	C	$\Phi \leq 0.03$	Ignore	Ignore			$0.03 < W \leq 0.05$	$L \leq 3.0$	$N \leq 2$		Ignore	$0.05 < W \leq 0.08$	$L \leq 2.0$	$N \leq 2$		$0.08 < W$	Define as spot defect			
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3.0	Polarizer Bubble	<table border="1"> <thead> <tr> <th rowspan="2">Zone Size (mm)</th> <th colspan="3">Acceptable Qty</th> </tr> <tr> <th>A</th> <th>B</th> <th>C</th> </tr> </thead> <tbody> <tr> <td>$\Phi \leq 0.2$</td> <td colspan="3">Ignore</td> </tr> <tr> <td>$0.2 < \Phi \leq 0.4$</td> <td colspan="2">$2(\text{distance} \geq 10\text{mm})$</td> <td rowspan="3">Ignore</td> </tr> <tr> <td>$0.4 < \Phi \leq 0.6$</td> <td colspan="2">1</td> </tr> <tr> <td>$0.6 < \Phi$</td> <td colspan="2">0</td> </tr> </tbody> </table> <p>偏光片气泡可接受范围, 最大直径小于等于 0.6mm, (AA 区以外, 不超过 VA 区单边宽度的 1/2)</p>	Zone Size (mm)	Acceptable Qty			A	B	C	$\Phi \leq 0.2$	Ignore			$0.2 < \Phi \leq 0.4$	$2(\text{distance} \geq 10\text{mm})$		Ignore	$0.4 < \Phi \leq 0.6$	1		$0.6 < \Phi$	0							
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$0.6 < \Phi$	0																												
4.0	SMT	According to IPC-A-610C class II standard . Function defect and missing part are major defect ,the others are minor defect.																											
	TP bubble/ accidented spot	<table border="1"> <thead> <tr> <th rowspan="2">Size Φ(mm)</th> <th colspan="3">Acceptable Qty</th> </tr> <tr> <th>A</th> <th>B</th> <th>C</th> </tr> </thead> <tbody> <tr> <td>$\Phi \leq 0.1$</td> <td colspan="3">Ignore</td> </tr> <tr> <td>$0.1 < \Phi \leq 0.2$</td> <td colspan="2">2</td> <td rowspan="3">Ignore</td> </tr> <tr> <td>$0.2 < \Phi \leq 0.3$</td> <td colspan="2">1</td> </tr> <tr> <td>$0.3 < \Phi$</td> <td colspan="2">0</td> </tr> </tbody> </table> <p>TP 点可接受范围, 点直径小于等于 0.3mm</p>	Size Φ (mm)	Acceptable Qty			A	B	C	$\Phi \leq 0.1$	Ignore			$0.1 < \Phi \leq 0.2$	2		Ignore	$0.2 < \Phi \leq 0.3$	1		$0.3 < \Phi$	0							
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	Assembly deflection	beyond the edge of backlight $\leq 0.15\text{mm}$																											

5.0	TP Related	Newton Ring	<p>Newton Ring area > 1/3 TP area NG</p> <p>Newton Ring area ≤ 1/3 TP area OK</p>							
		TP corner broken X: length Y: width Z: height	<table border="1" data-bbox="646 1220 1077 1366"> <thead> <tr> <th>X</th> <th>Y</th> <th>Z</th> </tr> </thead> <tbody> <tr> <td>X ≤ 3.0mm</td> <td>Y ≤ 3.0mm</td> <td>Z < LCD thickness</td> </tr> </tbody> </table> <p>* Circuitry broken is not allowed.</p>	X	Y	Z	X ≤ 3.0mm	Y ≤ 3.0mm	Z < LCD thickness	
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		TP edge broken X: length Y: width Z: height	<table border="1" data-bbox="646 1444 1077 1568"> <thead> <tr> <th>X</th> <th>Y</th> <th>Z</th> </tr> </thead> <tbody> <tr> <td>X ≤ 6.0mm</td> <td>Y ≤ 2.0mm</td> <td>Z < LCD thickness</td> </tr> </tbody> </table> <p>* Circuitry broken is not allowed.</p>	X	Y	Z	X ≤ 6.0mm	Y ≤ 2.0mm	Z < LCD thickness	
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