深圳市一众显示科技有限公司

SHEN ZHEN TEAM SOURCE DISPLAY TECH. 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	

CONTENTS

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;

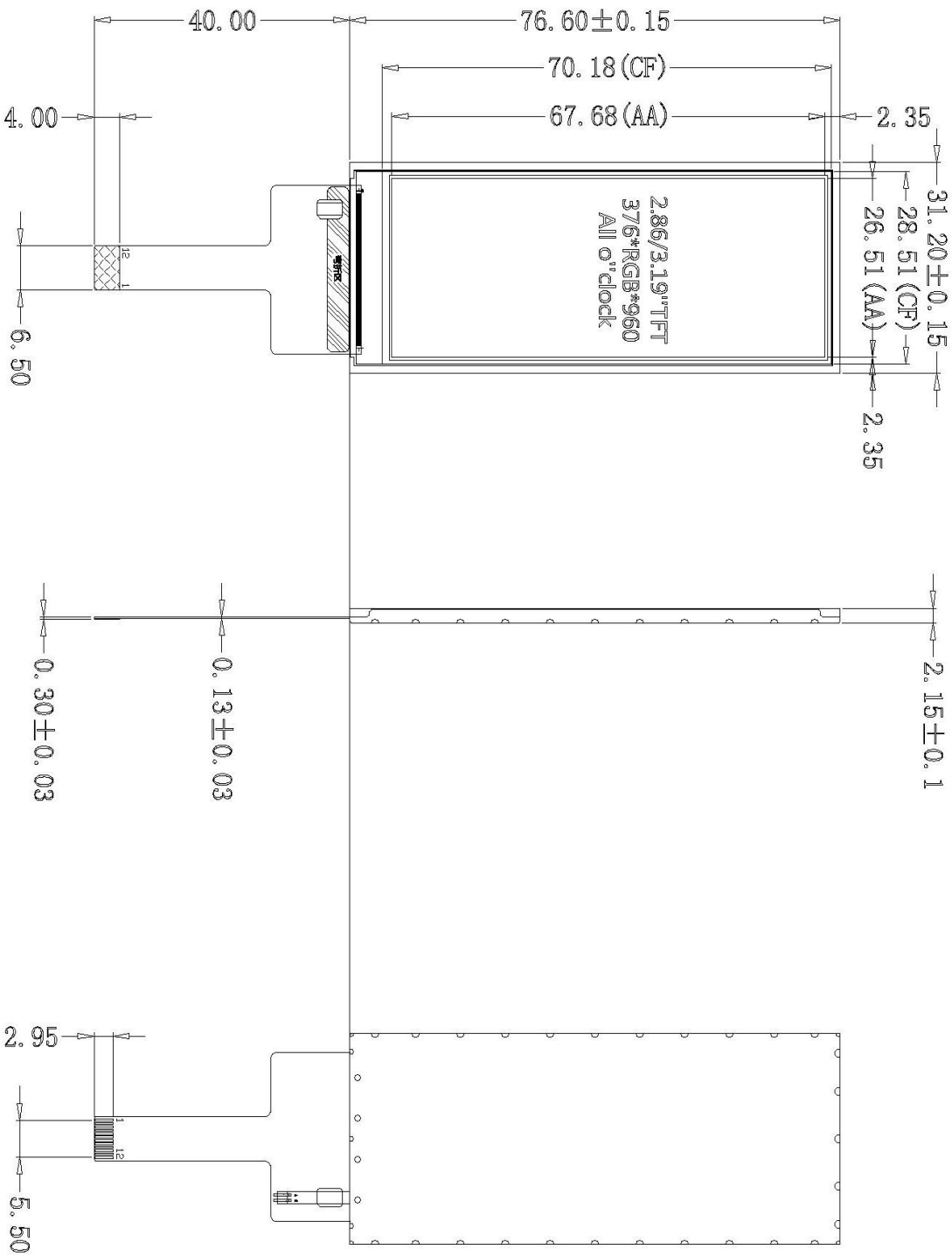
1. General specification

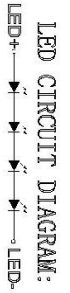
ITEM 项目编号	Standard value 标准值	UNIT 单位
LCD Type 液晶	TFT Transmissive	0.8D
Number of Dots 点阵	376*(RGB)*960	Dots
Pixel Arrangement 像素排列	RGB Stripe	
Active Area 显示区域	**26.51 (W) x 67.88(H)**	mm
Viewing Area 最大可视区域	**28.51 (W) x 70.18 (H)**	mm
Glass Area 玻璃尺寸	/	mm
Viewing Direction 最佳视角	IPS all 0’ CLOCK	
Control 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

NOTES:

1. DISPLAY TYPE:
   Main LCD: 2.86/3.19"TFT, Transmissive
2. OPERATING TEMP: -30° C~80° C
3. STORAGE TEMP : -40° C~90° C
4. MAIN LCD DRIVER: ST7701S
5. BACKLIGHT:4 CHIP-WHITE LED
6. UNSPECIFIED TOLERANCES: ±0.2MM





1	2	3	4	5	6	7	8	9	10	11	12
DON	DOP	GND	CLKN	CLKP	GND	VCI	IOVCC	RESET	GND	K	A

3.MIPI Interface Pin Function

NO.	SYMBOL	Description	
1	DON	**Mipi data signal**	负MIPI差分数据
2	DOP	**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

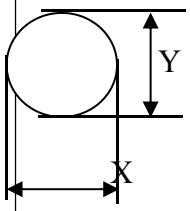
Parameter 参数	Symbol 符号	Min 最小值	Max 最大值	Unit 单位
Supply voltage for logic 逻辑电压	V_{DD}	-0.3	3.6	V
Input voltage for logic 输入电压	V_{IN}	-0.3	3.6	V
Supply current (one LED)背光单灯电流	I_{LED}		20	mA
Operating temperature 工作温度	T_{OP}	-30	+85	°C
Storage temperature 储存温度	T_{ST}	-40	+90	°C

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	VDD	2.5	2.8	3.6	V	VDD
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	

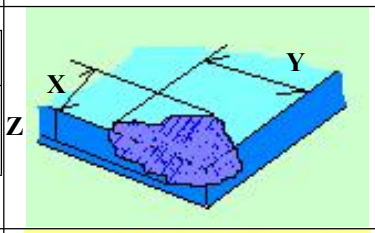
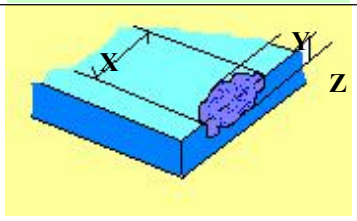
7. OPTICAL CHARACTERISTICS

ITEM 项目		SYMBOL 符号	CONDITIONS 条件	SPECIFICATIONS 参数 MIN 最小	TYP 典型	MAX 最大	UNIT 单位	NOTE 备注
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	X_R		0.614	0.644	0.674		
		Y_R		0.290	0.320	0.350		
	Green 绿色	X_G		0.270	0.300	0.330		
		Y_G		0.540	0.570	0.600		
	Blue 蓝色	X_B		0.104	0.134	0.164		
		Y_B		0.097	0.127	0.157		
	White 白色	X_W		0.267	0.297	0.327		
		Y_W		0.302	0.332	0.362		
Viewing Angle 视角	Hor.	θ_{X+}	Center CR>=10	--	85	--	Deg.	
		θ_{X-}		--	85	--		
	Ver.	θ_{Y+}		--	85	--		
		θ_{Y-}		--	85	--		
Uniformity 均匀度	Un			--	80	--	%	

<table>
<tr><th>Number</th><th>Items</th><th>Criteria (mm)</th></tr>
<tr><td>2.0</td><td>Spot defect
 

Φ=(X+Y)/2</td><td>① light dot（LCD/TP/Polarizer black/white spot , light dot, pinhole, dent, stain）
<table>
<tr><th rowspan="2">Zone
Size (mm)</th><th colspan="3">Acceptable Qty</th><th rowspan="2">亮点类型，可接受范围，点直径小于等于 0.2mm（视距 10mm 以上）</th></tr>
<tr><th>A</th><th>B</th><th>C</th></tr>
<tr><td>Φ≤0.10</td><td colspan="2">Ignore</td><td rowspan="4">Ignore</td></tr>
<tr><td>0.10<Φ≤0.15</td><td colspan="2">3(distance≧10mm)</td></tr>
<tr><td>0.15<Φ≤0.2</td><td colspan="2">1</td></tr>
<tr><td>0.2<Φ</td><td colspan="2">0</td></tr>
</table>
②Dim spot（LCD/TP/Polarizer dim dot, light leakage、dark spot）
<table>
<tr><th rowspan="2">Zone
Size (mm)</th><th colspan="3">Acceptable Qty</th><th rowspan="2">暗点类型，可接受范围，点直径小于等于 0.3mm（视距 10mm 以上）</th></tr>
<tr><th>A</th><th>B</th><th>C</th></tr>
<tr><td>Φ≤0.1</td><td colspan="2">Ignore</td><td rowspan="4">Ignore</td></tr>
<tr><td>0.1<Φ≤0.2</td><td colspan="2">2(distance≧10mm)</td></tr>
<tr><td>0.2<Φ≤0.3</td><td colspan="2">1</td></tr>
<tr><td>Φ＞0.3</td><td colspan="2">0</td></tr>
</table>
③ Polarizer accidented spot
<table>
<tr><th rowspan="2">Zone
Size (mm)</th><th colspan="3">Acceptable Qty</th><th rowspan="2">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）</th></tr>
<tr><th>A</th><th>B</th><th>C</th></tr>
<tr><td>Φ≤0.2</td><td colspan="2">Ignore</td><td rowspan="3">Ignore</td></tr>
<tr><td>0.2<Φ≤0.5</td><td colspan="2">2(distance≧10mm)</td></tr>
<tr><td>Φ>0.5</td><td colspan="2">0</td></tr>
</table></td></tr>
</table>

<table>
<tr><td></td><td>Line defect (LCD/TP /Polarizer black/white line, scratch, stain)</td><td>
<table>
<tr><td rowspan="2">Width(mm)</td><td rowspan="2">Length(mm)</td><td colspan="3">Acceptable Qty</td><td rowspan="2">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</td></tr>
<tr><td>A</td><td>B</td><td>C</td></tr>
<tr><td>Φ≤0.03</td><td>Ignore</td><td colspan="2">Ignore</td><td rowspan="3">Ignore</td><td rowspan="3"></td></tr>
<tr><td>0.03<W≤0.05</td><td>L≤3.0</td><td colspan="2">N≤2</td></tr>
<tr><td>0.05<W≤0.08</td><td>L≤2.0</td><td colspan="2">N≤2</td></tr>
<tr><td>0.08<W</td><td colspan="4">Define as spot defect</td><td></td></tr>
</table>
</td></tr>
<tr><td>3.0</td><td>Polarizer Bubble</td><td>
<table>
<tr><td rowspan="2">Zone
Size (mm)</td><td colspan="3">Acceptable Qty</td><td rowspan="2">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）</td></tr>
<tr><td>A</td><td>B</td><td>C</td></tr>
<tr><td>Φ≤0.2</td><td colspan="2">Ignore</td><td rowspan="4">Ignore</td><td rowspan="4"></td></tr>
<tr><td>0.2<Φ≤0.4</td><td colspan="2">2(distance≧10mm)</td></tr>
<tr><td>0.4<Φ≤0.6</td><td colspan="2">1</td></tr>
<tr><td>0.6<Φ</td><td colspan="2">0</td></tr>
</table>
</td></tr>
<tr><td>4.0</td><td>SMT</td><td colspan="2">According to IPC-A-610C class Ⅱ standard . Function defect and missing part are major defect ,the others are minor defect.</td></tr>
<tr><td></td><td></td><td>TP bubble/ accidented spot</td><td>
<table>
<tr><td rowspan="2">Size
Φ(mm)</td><td colspan="3">Acceptable Qty</td><td rowspan="2">TP 点可接受范围，点直径小于等于 0.3mm</td></tr>
<tr><td>A</td><td>B</td><td>C</td></tr>
<tr><td>Φ≤0.1</td><td colspan="2">Ignore</td><td rowspan="4">Ignore</td><td rowspan="4"></td></tr>
<tr><td>0.1<Φ≤0.2</td><td colspan="2">2</td></tr>
<tr><td>0.2<Φ≤0.3</td><td colspan="2">1</td></tr>
<tr><td>0.3<Φ</td><td colspan="2">0</td></tr>
</table>
</td></tr>
<tr><td></td><td></td><td>Assembly deflection</td><td>beyond the edge of backlight ≤0.15mm</td></tr>
</table>

<table>
<tr>
<td rowspan="3">5.0</td>
<td rowspan="3">TP
Related</td>
<td>Newton
Ring</td>
<td>Newton Ring area>1/3 TP area
NG
Newton Ring area≤1/3 TP area
OK</td>
<td> 
</td>
</tr>
<tr>
<td>TP corner
broken
X：length
Y：width
Z：height</td>
<td>
<table>
<tr><th>X</th><th>Y</th><th>Z</th></tr>
<tr><td>X≤3.0mm</td><td>Y≤3.0mm</td><td>Z<LCD thickness</td></tr>
</table>
*
Circuitry broken is not allowed.
</td>
<td> 
</td>
</tr>
<tr>
<td>TP edge
broken
X：length
Y：width
Z：height</td>
<td>
<table>
<tr><th>X</th><th>Y</th><th>Z</th></tr>
<tr><td>X≤6.0mm</td><td>Y≤2.0mm</td><td>Z<LCD thickness</td></tr>
</table>
* Circuitry broken is not allowed.
</td>
<td> 
</td>
</tr>
</table>