

Specification

TFT-LCD module

Module (型号):	HP096A1302SH
Customer (客户):	
Customer P/N (客户型号):	

If there is no special request from customer, XINRUIMIN GUANGDIANCO.,LTD will not reserve the tooling of the product under the following conditions:
1. There is no response from customer in one years after XINRUIMIN GUANGDIANCO.,LTD submit The samples;
2. There is no order in one years after the latest mass production. And correlated data (include quality record) will be reserved one year more after tooling was discarded.

Approved by (批准):	
Qualified (合格):	Unqualified (不合格):

PREPARED	CHECKED	APPROVED

REVISION RECORD

<u>REV NO</u>	<u>REV DATE</u>	<u>CONTENTS</u>	<u>REMARKS</u>
1.0	2018-1-17	First Release	

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1.0 General Specifications

HP096B1302SH is a color active matrix LCD module incorporating amorphous silicon **TFT** (Thin Film Transistor). It is composed of a color TFT-LCD panel, driver IC, FPC and a back light unit. The module display area contains **160x80** pixels and can display up to **262K** colors. This product accords with RoHS environmental criterion.

Item	Contents	Unit
LCD Type	TFT TRANSMISSIVE	/
Viewing direction	FULL VIEW	O' Clock
Module outline (W x HxD)	14.04X27.95X1.45	mm
Active area (WxH)	10.8X21.7	mm
Number of Dots	160(RGB) x80	/
Driver IC	ST7735S	/
Colors	262K	/
Backlight Type	LED	/
Interface Type	System serial interface	/
Input voltage	2.8	V

2.0 ABSOLUTE MAXIMUM RATINGS

<i>Parameter</i>	<i>Symbol</i>	<i>Min</i>	<i>Max</i>	<i>Unit</i>
Supply voltage for logic	Vcc1,Vcc2	-0.3	4.6	V
Input voltage	Vin	-0.3	VCC+ 0.3	V
Operating temperatur	Top	-10	60	°C
Storage temperature	Tst	-20	70	°C
Humidity	RH	--	90%(Max60C)	RH

3.0 ELECTRICAL CHARACTERISTICS

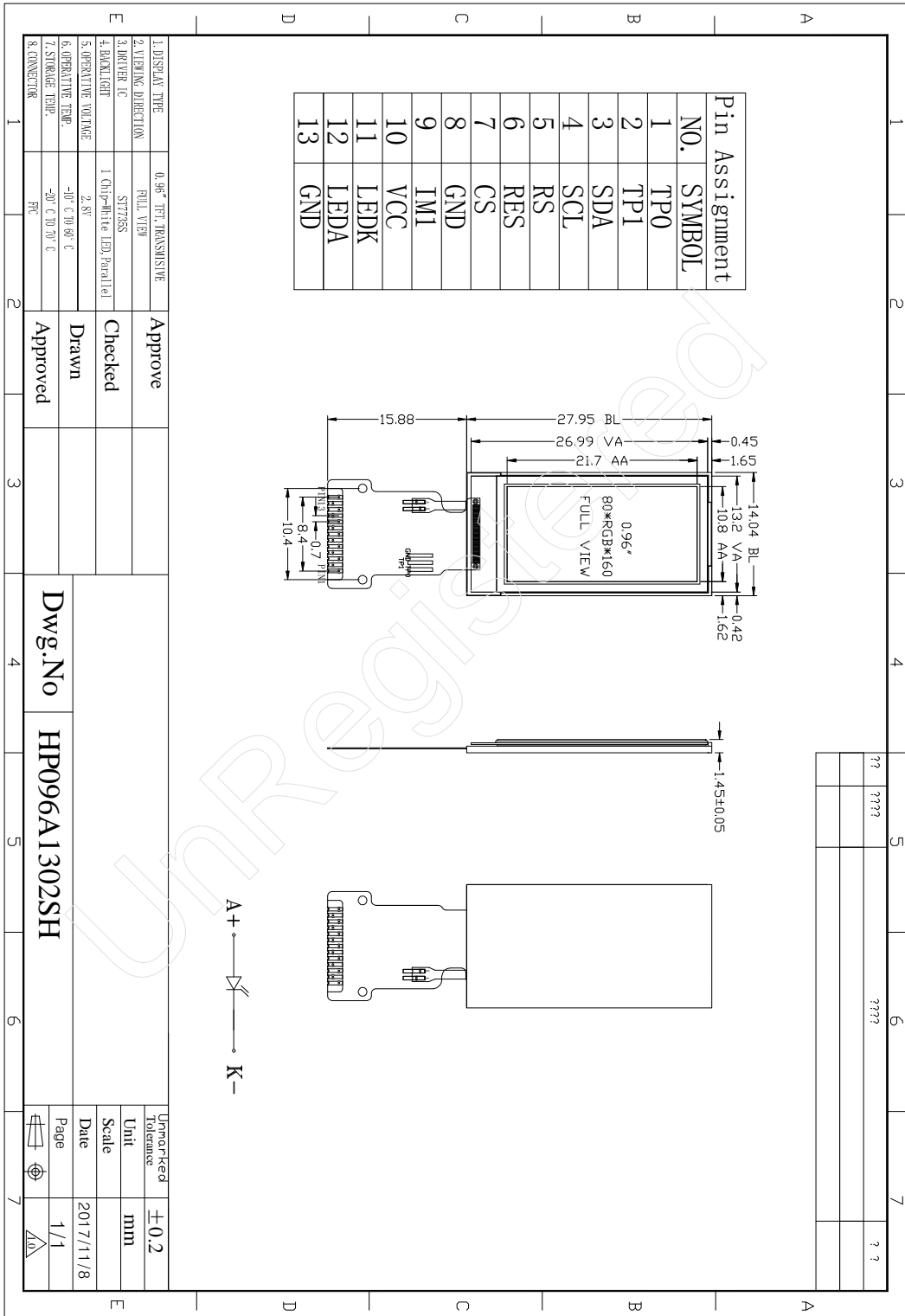
<i>Parameter</i>	<i>Symbol</i>	<i>Min</i>	<i>Typ</i>	<i>Max</i>	<i>Unit</i>
Supply voltage for logic	Vcc -Vss	2.4	2.8	3.2	V
Input Current	Idd	-	9.94	14.91	mA
Input voltage ' H ' level	Vih	0.8 Vcc	--	Vcc	V
Input voltage ' L ' level	Vil	-0.3	0	0.2 Vcc	V
Output voltage ' H ' level	Voh	0.8 Vcc	--	Vcc	V
Output voltage ' L ' level	Vol	0	0	0.2 Vcc	V

4.0 BACKLIGHT CHARACTERISTICS

<i>Item</i>	<i>Symbol</i>	<i>Min</i>	<i>Typ</i>	<i>Max</i>	<i>Unit</i>	<i>Condition</i>
Forward voltage	Vf	2.8	3.0	3.2	V	--
Luminance	Lv	380	400	430	cd/m2	If=15mA
Number of LED	--	1			Piece	--
Connection mode	P	----			--	--

Using condition: constant current driving method If= 15 mA(+/-10%)

5.0 DIMENSIONAL DRAWING



6.0 INTERFACE PIN CONNECTIONS

Pin.No	Symbol	Function
1.	<i>TP0</i>	<i>Connect TP</i>
2.	<i>TP1</i>	<i>Connect TP</i>
3.	<i>SDA</i>	<i>Serial data input pin</i>
4.	<i>SCL</i>	<i>Serial clock input pin</i>
5.	<i>RS</i>	<i>In 4-line SPI, this pin is used as D/CX (data/ command selection)</i>
6.	<i>RESET</i>	<i>This signal will reset the device and it must be applied to properly initialize the chip.(low is active)</i>
7.	<i>CSB</i>	<i>Chip Selection Pin(low enable)</i>
8.	<i>GND</i>	<i>Ground</i>
9.	<i>IM1</i>	<i>8/9BIT system select pin</i>
10.	<i>VCC</i>	<i>Power supply (+2.8)</i>
11.	<i>LEDK</i>	<i>Back light power supply negative</i>
12.	<i>LEDA</i>	<i>Back light power supply positive</i>
13.	<i>GND</i>	<i>Ground</i>

LCM 检验标准

1. 目的

1.1 规范 LCM 成品的检验项目以及判断标准，保证产品出货能满足客户需求。

2. 范围

2.1 适用于民芳公司 LCM 产品的检验（客户有特殊要求的依客户要求）。

3. 权责

3.1 IQC 负责按照此规范进行检验

3.2 QE 负责本规范之标准制定

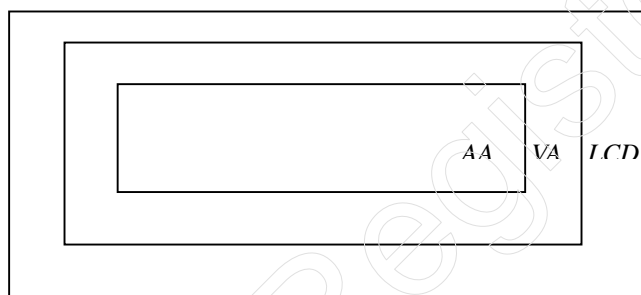
3.3 品质经理负责本标准之批准

4. 工具、设备、资料

测试架、样机、样品、限度样板、点线菲林卡、卡尺

5. 内容

LCM 区域定义：

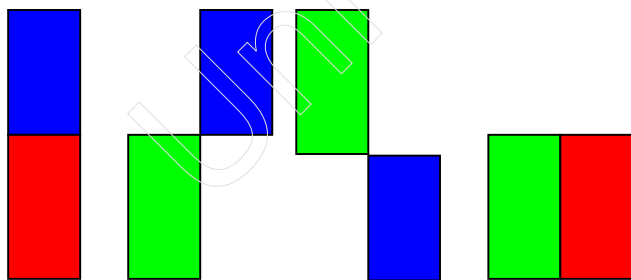


AA区域：显示区（A区）

VA区域：可视区域（B区）

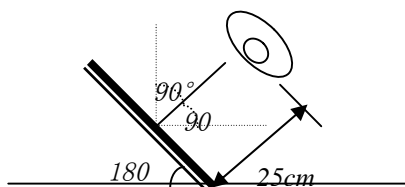
LCD区域：视区外围（装机后看不到此区域）（C区）

连续点定义：(Nearby dot definition)



5.1 外观检查

检验工具：对照菲林；放大镜、游标卡尺、无尘布、

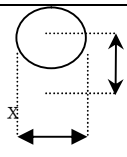
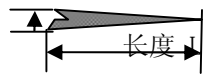


检验环境：在环境光度为 600~800LUX(20~40W 日光灯)的条件下，人眼与被检测面距离为 25~35cm，观察角度要求产品改变 $\pm 90^\circ$ 角，观察时间为 $10S \pm 5 S$ (如上图)

外观检验区域：从画面显示往外 0.5MM 区域。即绿色区域 (含) 以内，如图所示：



5.2 具体判定标准如下:

检验项目		外观检验标准	
点缺陷定义		点缺陷尺寸 Φ 的定义 $\Phi = (x+y) / 2$	
线缺陷定义		定义: 宽度 W	
LCD部分			
黑点、白点、LCD 表面异物、偏光片下污点		尺寸 (mm)	允许数量
		$\Phi \leq 0.1$	忽略
		$0.10 < \Phi \leq 0.15$	在AA、VA区可接收2个 (间距大于10mm)
		$0.15 < \Phi \leq 0.20$	在AA、VA区可接收1个
		$0.20 < \Phi$	0
亮点、PIXEL坏点、暗点 需开机时才看到的		$\Phi \leq 0.10$	忽略
		$0.10 < \Phi < 0.15$	在AA、VA区可接收2个 (间距大于10mm)
		$0.15 < \Phi \leq 0.20$	1
		$\Phi > 0.20$	0
连续亮点		0	连续亮点不可有
偏光片偏位		偏光片必须完全覆盖显示区	
FPC部分			
FPC断脚、折痕、刮伤		断脚不允许、折痕不可有锐角、死折。线路区刮伤不可有	
连接器引脚变形、氧化		不可接受	
元件贴片不良		少件、贴片反、元件错、不可接受	
元件偏位		偏移超过元件的50%拒收	
B/L部分			
B/L	异物、黑点、白点、	$\Phi \leq 0.1$	忽略
		$0.10 < \Phi \leq 0.15$	在AA、VA区可接收2个 (间距大于10mm)
		$0.15 < \Phi \leq 0.20$	在AA、VA区可接收1个
		$0.20 < \Phi$	0
背光灯不良		少亮、偏暗、颜色不一致、导光板脏污、破损等不良	
钢板、胶框架		变形、生锈、不可接受	