PRODUCT SPECIFICATION

MODEL NUMBER	MY035TT23-54R-A01
Description	**3.5"320(RGB)*240+54Pin FPC**
Customer Motherboard number	

Display	PREPARED BY	CHECKED BY	APPROVED BY
SIGNATURE	**WQH**		
DATE	**2015-4-26**		

	SIGNATURE	DATE
CUSTOMER APPROVAL		

深圳市铭阳液晶技术有限公司
Shenzhen MingYang Optoelectronics Co.,Ltd.

深圳市石岩镇料坑村昌亿达 A1 栋四楼
4/F building ,No.1,CangYiDa Technology Park,
MingYang Optoelectronics Shenzhen,china
Tel：0755-33592248 Fax：0755-33592245

Revision Record

VEV NO.	REV DATE	CONTENTS	Note
A	2014-04-26	NEW ISSUE	

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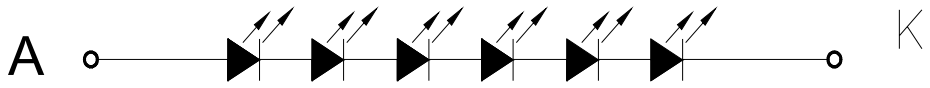
1. General Iinformation

ITEM	STANDARD VALUES	UNITS
LCD type	3.5”TFT	--
Dot arrangement	320（RGB）× 240	dots
Driver IC	HX8238-D00BPD400	--
Module size	76.9(W) ×63.9(H)×3.15(T)	mm
Active area	70.08(W) ×52.56 (H)	mm
Dot pitch	0.219*0.219	mm
Operating temperature	-20~+70	℃
Storage temperature	-30~+80	℃
Back Light	6 White LEDS	--
Weight	TBD	g

2 .Absolute Maximum Ratings

ITEM	Symbol	MIN	MAX	UNITS
Power supply voltage 1	VCC	2.5	3.3	V
Power supply voltage 1	IOVCC	1.65	3.3	V
Operating temperature	Topr	-20	+70	℃
Storage temperature	Tstg	-30	+80	℃
Humidity	RH	---	90%(Max60 °C)	RH

3.Backlight Charasterics



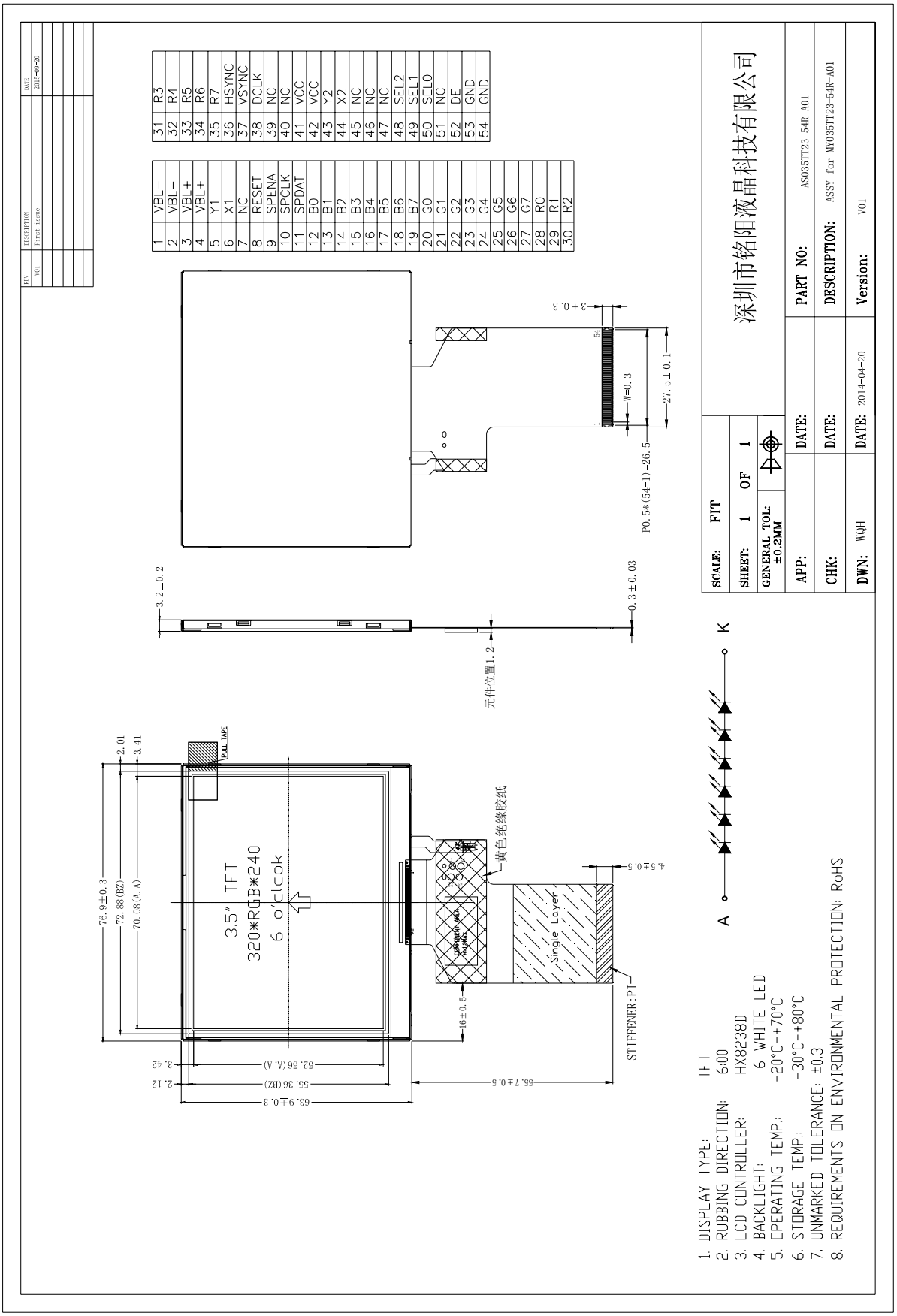
Item	Symbol	MIN	TYP	MAX	UNIT	Test Condition	Note
Supply Voltage	**Vf**	**16.5**	**18**	**19.6**	**V**	**If=20 mA**	**-**
Supply Current	**If**	**-**	**20**	**-**	**mA**	**-**	**-**
Reverse Voltage	**Vr**	**-**	**-**	**5**	**V**	**10uA**	
Power dissipation	**Pd**	**-**	**384**	**-**	**mW**	**-**	
Luminous Intensity fo r LCM		**320**	**360**	**400**	**Cd/m^2**	**If=20 mA**	
Uniformity for LCM	**-**	**80**	**-**	**-**	%	**If=20 mA**	
Life Time	**-**	**50000**	**-**	**-**	**Hr**	**If=20 mA**	**-**
Backlight Color	**White**						

4.Optical Characteristics

Optical Characteristics

	Item		Symbol	Condition	Specification			Unit
					Min.	Typ.	Max.	
Backlight On (Transmissive Mode)	Transmittance (without Polarizer)		*T(%)*	Normally viewing angle Θx=Θy =0º	-	7.4	-	%-
	Contrast ratio		*CR*		200	300	-	
	Response time		*TR*			15	30	ms
			TF	-		35	50	
	Color Chromaticity (CIE1931)	White	*XW*		0.282	0.312	0.342	
			YW		0.319	0.349	0.379	
		Red	*XR*		0.609	0.639	0.669	
			YR		0.314	0.344	0.374	
		Green	*XG*		0.264	0.294	0.324	
			YG		0.557	0.587	0.617	
		Blue	*XB*		0.102	0.132	0.162	
			YB		0.106	0.136	0.166	
	Viewing angle	Horizontal	θx+	Center CR≥ 10		45	-	deg
			θx-			45	-	
		Vertical	θy+			15	-	
			θy-			35	-	

5.ExternalDimensions



1	VBL-
2	VBL-
3	VBL+
4	VBL+
5	Y1
6	X1
7	NC
8	RESET
9	SPENA
10	SPCLK
11	SPDAT
12	B0
13	B1
14	B2
15	B3
16	B4
17	B5
18	B6
19	B7
20	G0
21	G1
22	G2
23	G3
24	G4
25	G5
26	G6
27	G7
28	R0
29	R1
30	R2

31	R3
32	R4
33	R5
34	R6
35	R7
36	HSYNC
37	VSYNC
38	DCLK
39	NC
40	NC
41	VCC
42	VCC
43	Y2
44	X2
45	NC
46	NC
47	NC
48	SEL2
49	SEL1
50	SEL0
51	NC
52	DE
53	GND
54	GND

REV	DESCRIPTION	DATE
V01	First Issue	2015-09-20

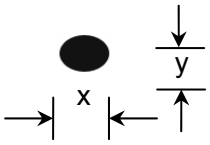
6. Interface Description

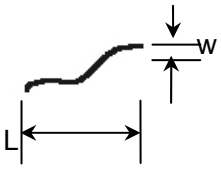
PIN NO.	PIN NAME	DESCRIPTION
1	VBL-	POWER SUPPLY FOR LED BACKLIGHT CATHODE INPUT
2	VBL-	POWER SUPPLY FOR LED BACKLIGHT CATHODE INPUT
3	VBL+	POWER SUPPLY FOR LED BACKLIGHT ANODE INPUT
4	VBL+	POWER SUPPLY FOR LED BACKLIGHT ANODE INPUT
5	Y1	NC
6	X1	NC
7	NC	NC
8	RESET	RESET SIGNAL
9	SPENA	REGISTER SELECT SIGNAL
10	SPCLK	SERIALCLOCK
11	SPDAT	READ SIGNAL AND READ DATA.
12~19	B0~B7	Blue Data
20~27	G0~G7	Green Data
28~35	R0~R7	Red Data
36	HSYNC	Line synchronizing signal for RGB interface operation
37	VSYNC	Frame synchronizing signal for RGB interface operation
38	DCLK	Dot clock signal for RGB interface operation
39	NC	NC
40	NC	NC
41	VCC	POWER SUPPLY FOR LCD
42	VCC	POWER SUPPLY FOR LCD
43	Y2	NC
44	X2	NC
45	NC	NC
46	NC	NC
47	NC	NC
48	SEL2	Interface Mode SELECT
49	SEL1	Interface Mode SELECT
50	SEL0	Interface Mode SELECT
51	NC	TOUCH PANEL PIN
52	DE	Dat input enable
53	GND	SYSTEM GROUND
54	GND	SYSTEM GROUND

7. Reliability Test Conditions And Methods

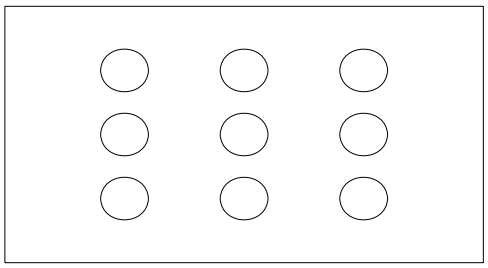
NO	Item	Condition	Method
1	High / Low Temperature Storage	60℃/-20℃ 500hrs	Check and record every 96Hrs
2	High / Low Temperature Life	50℃/-10℃ 500hrs (operating mode)	Check and record every 96Hrs
3	High Temperature、High Humidity Operating	40℃ 90% RH, 120Hrs	Check and record every 48hrs
4	Thermal Shock	-30℃(30Min) ⟶ 25℃(5Min) ⟶ 80℃(30Min) (conversion time, : 5 sec) 20 cycles	Each 10 cycles end , check
5	Vibration	10Hz~55Hz~10Hz Amplitude: 1.5mm 2hrs for each direction(X,Y,Z)	Each direction end, Check the Appearance and Electrical Characteristics
6	Static Electricity	Gap mood: ±1KV~±8KV (10 times air discharge with positive/negative voltage voltage gap : 1kv) Touch mood: ±1KV~±2KV	Each discharge end, Check the Electrical Characteristics
7	Slump	Free faller movement for each side、cording、angle (75cm High、 6 sides、2 angle、2 cording)	End

8.Inspection Standard

<table>
<tr><td>No</td><td>Item</td><td>Criterion</td><td></td></tr>
<tr><td>01</td><td>Outline Dimension</td><td>In accord with drawing</td><td></td></tr>
<tr><td>02</td><td>Position-finding Dimension Assemble Dimension</td><td>In accord with drawing</td><td></td></tr>
<tr><td rowspan="2">03</td><td rowspan="2">LCD black spots, white spots (Round type)</td><td>Round type: non display
 

Unit : mm
<table><tr><td>Dimension</td><td>Qualified Quantity</td></tr><tr><td>D≤0.1</td><td>Ignore</td></tr><tr><td>0.1＜D≤0.15</td><td>3</td></tr><tr><td>0.15＜D≤0.25</td><td>2</td></tr><tr><td>D＞0.25</td><td>0</td></tr></table></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td rowspan="2">04</td><td rowspan="2">LCD black spots, white spots (Line Style)</td><td> 

Unit : mm
<table><tr><td>Length</td><td>Width</td><td>Qualified Quantity</td></tr><tr><td>-</td><td>≤0.02</td><td>Ignore</td></tr><tr><td>≤3</td><td rowspan="2">0.02＜W≤0.03</td><td>2</td></tr><tr><td></td><td></td></tr><tr><td>≤2</td><td>0.03＜W≤0.05</td><td>1</td></tr><tr><td>-</td><td>D＞0.05</td><td>According to circle</td></tr></table></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td>05</td><td>LCD Scratch 、 Threadlike Fiber</td><td>Same to NO.3 circle
sightline and surface of LCD is vertical
(2)Same to NO.3 line style</td><td></td></tr>
</table>

06	POL	It is not admissible that POL is beyond the edge of glass, else, unqualified. It is essential that POL is over the 50 percent of width of frame , else ,unqualified. According to the drawing in case of special definition.		
07	Brightness	In accord with product specification	Drive condition is according to specification Measure location is in Follow Picture 3、Adjust brightness instrument tozero , burrow against the surface of LCD , press “measure” , record when the display is steady. (YOKOGAWA-3298)	
			 Measure location	
08	CR (Max)	According to specification	According to product specification Measure instrument (DMS-501)	
09	Response time	According to specification	According to product specification Measure instrument (DMS-501)	
10	Viewing angle	According to specification	According to product specification Measure instrument (DMS-501)	
11	Vibration、Ring	Compare with the sample customer supply	Compare with the sample customer supply when assemble	

9 . Handling Precautions

9.1 Mounting method

The LCD panel of SC LCD LCD module consists of two thin glass plates with polarizes which easily be damaged. And since the module in so constructed as to be fixed by utilizing fitting holes in the printed circuit board.

Extreme care should be needed when handling the LCD modules.

9.2 Caution of LCD handling and cleaning

When cleaning the display surface, Use soft cloth with solvent [recommended below] and wipe lightly

- Isopropyl alcohol
- Ethyl alcohol

Do not wipe the display surface with dry or hard materials that will damage the polarizer surface.

Do not use the following solvent:

- Water
- Aromatics

Do not wipe ITO pad area with the dry or hard materials that will damage the ITO patterns

Do not use the following solvent on the pad or prevent it from being contaminated:

- Soldering flux
- Chlorine (Cl) , Salfur (S)

If goods were sent without being sili8con coated on the pad, ITO patterns could be damaged due to the corrosion as time goes on.

If ITO corrosion happen by miss-handling or using some materials such as Chlorine (Cl), Salfur (S) from customer, Responsibility is on customer.

9.3 Caution against static charge

The LCD module use C-MOS LSI drivers, so we recommended that you:

Connect any unused input terminal to Vdd or Vss, do not input any signals before power is turned on, and ground your body, work/assembly areas, assembly equipment to protect against static electricity.

9.4 packing

- Module employ LCD elements and must be treated as such.
- Avoid intense shock and falls from a height.
- To prevent modules from degradation, do not operate or store them exposed direct to sunshine or high temperature/humidity

9.5 Caution for operation

- It is an indispensable condition to drive LCD's within the specified voltage limit since the higher voltage then the limit cause the shorter LCD life.
- An electrochemical reaction due to direct current causes LCD's undesirable deterioration, so that the use of direct current drive should be avoided.
- Response time will be extremely delayed at lower temperature then the operating temperature range and on the other hand at higher temperature LCD's how dark color in them. However those phenomena do not mean malfunction or out of order with LCD's, which will come back in the specified operation temperature.
- If the display area is pushed hard during operation, some font will be abnormally displayed but it resumes normal condition after turning off once.
- A slight dew depositing on terminals is a cause for electro-chemical reaction resulting in terminal open circuit.

Usage under the maximum operating temperature, 50%Rh or less is required.

9.6 storage

In the case of storing for a long period of time for instance, for years for the purpose or replacement use, the following ways are recommended.

- Storage in a polyethylene bag with the opening sealed so as not to enter fresh air outside in it . And with no desiccant.
- Placing in a dark place where neither exposure to direct sunlight nor light's keeping the storage temperature range.
- Storing with no touch on polarizer surface by the anything else.
  [It is recommended to store them as they have been contained in the inner container at the time of delivery from us

9.7 Safety

- It is recommendable to crash damaged or unnecessary LCD's into pieces and wash off liquid crystal by either of solvents such as acetone and ethanol, which should be burned up later.
- When any liquid leaked out of a damaged glass cell comes in contact with your hands, please wash it off well with soap and water

10. Precaution For Use

10.1

A limit sample should be provided by the both parties on an occasion when the both parties agreed its necessity. Judgment by a limit sample shall take effect after the limit sample has been established and confirmed by the both parties.

10.2

On the following occasions, the handing of problem should be decided through discussion and agreement between responsible of the both parties.

- When a question is arisen in this specification
- When a new problem is arisen which is not specified in this specifications
- When an inspection specifications change or operating condition change in customer is reported to SC LCD , and some problem is arisen in this specification due to the change
- When a new problem is arisen at the customer's operating set for sample evaluation in the customer site.

11 Packing Method

To Be Determined