

# PRODUCT SPECIFICATION



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

Display	PREPARED BY	CHECKED BY	APPROVED BY
SIGNATURE	<b>WQH</b>		
DATE	<b>2015-4-26</b>		

	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



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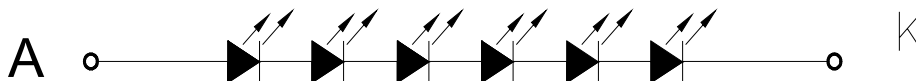
**1. General information**

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	°C
Storage temperature	-30~+80	°C
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	°C
Storage temperature	Tstg	-30	+80	°C
Humidity	RH	---	90%(Max60 °C)	RH

**3.Backlight Characterics**



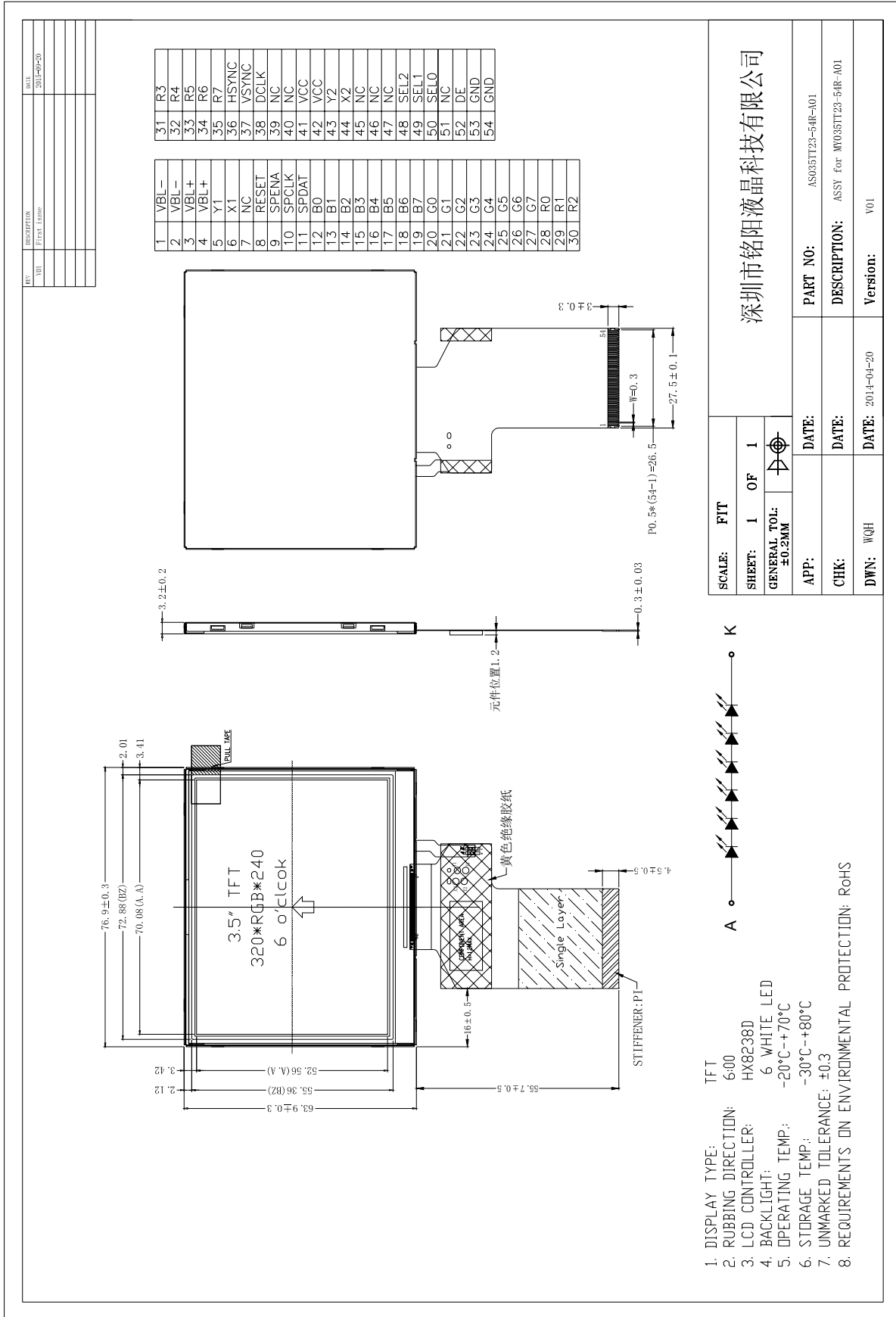
Item	Symbol	MIN	TYP	MAX	UNIT	Test Condition	Note
Supply Voltage	Vf	16.5	18	19.6	V	If=20 mA	-
Supply Current	If	-	20	-	mA	-	-
Reverse Voltage	Vr	-	-	5	V	10uA	
Power dissipation	Pd	-	384	-	mW	-	
Luminous Intensity for LCM		320	360	400	Cd/m <sup>2</sup>	If=20 mA	
Uniformity for LCM	-	80	-	-	%	If=20 mA	
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 $\Theta_x = \Theta_y = 0^\circ$	-	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	$\theta_{x+}$	Center $CR \geq 10$		45	-	deg
			$\theta_{x-}$			45	-	
		Vertical	$\theta_{y+}$			15	-	
$\theta_{y-}$					35	-		

# 5.ExternalDimensions



## 6. Interface Description

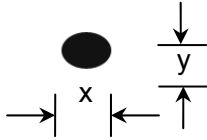
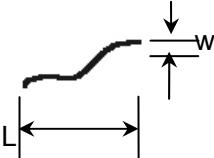
PIN NO.	PIN NAME	DESCRIPTION
1	VBL-	POWER SUPPLY FOR LED BACKLIGHT CATHODE INPUT
2	VBL-	POWER SUPPLY FOR LED BACKLIGHT CATHODE INPUT
3	VBL+	POWER SUPPLY FOR LED BACKLIGHT ANODE INPUT
4	VBL+	POWER SUPPLY FOR LED BACKLIGHT ANODE INPUT
5	Y1	NC
6	X1	NC
7	NC	NC
8	RESET	RESET SIGNAL
9	SPENA	REGISTER SELECT 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

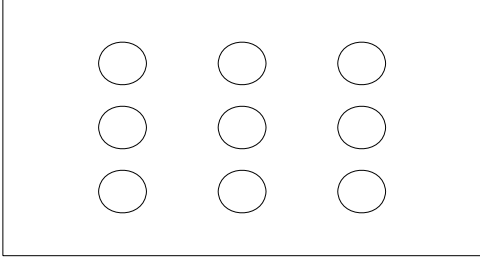
NO	Item	Condition	Method
1	High / Low Temperature Storage	60°C/-20°C 500hrs	Check and record every 96Hrs
2	High / Low Temperature Life	50°C/-10°C 500hrs (operating mode)	Check and record every 96Hrs
3	High Temperature、High Humidity Operating	40°C 90% RH, 120Hrs	Check and record every 48hrs
4	Thermal Shock	-30°C(30Min) → 25°C(5Min) → 80°C(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

No	Item	Criterion															
01	Outline Dimension	In accord with drawing															
02	Position-finding Dimension Assemble Dimension	In accord with drawing															
03	LCD black spots, white spots (Round type)	<p>Round type: non display</p> <p>Unit : mm</p>  <table border="1"> <thead> <tr> <th>Dimension</th> <th>Qualified Quantity</th> </tr> </thead> <tbody> <tr> <td><math>D \leq 0.1</math></td> <td>Ignore</td> </tr> <tr> <td><math>0.1 &lt; D \leq 0.15</math></td> <td>3</td> </tr> <tr> <td><math>0.15 &lt; D \leq 0.25</math></td> <td>2</td> </tr> <tr> <td><math>D &gt; 0.25</math></td> <td>0</td> </tr> </tbody> </table>	Dimension	Qualified Quantity	$D \leq 0.1$	Ignore	$0.1 < D \leq 0.15$	3	$0.15 < D \leq 0.25$	2	$D > 0.25$	0					
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$D \leq 0.1$	Ignore																
$0.1 < D \leq 0.15$	3																
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04	LCD black spots, white spots (Line Style)	<p>Unit : mm</p>  <table border="1"> <thead> <tr> <th>Length</th> <th>Width</th> <th>Qualified Quantity</th> </tr> </thead> <tbody> <tr> <td>-</td> <td><math>\leq 0.02</math></td> <td>Ignore</td> </tr> <tr> <td><math>\leq 3</math></td> <td rowspan="2"><math>0.02 &lt; W \leq 0.03</math></td> <td>2</td> </tr> <tr> <td><math>\leq 2</math></td> <td><math>0.03 &lt; W \leq 0.05</math></td> <td>1</td> </tr> <tr> <td>-</td> <td><math>D &gt; 0.05</math></td> <td>According to circle</td> </tr> </tbody> </table>	Length	Width	Qualified Quantity	-	$\leq 0.02$	Ignore	$\leq 3$	$0.02 < W \leq 0.03$	2	$\leq 2$	$0.03 < W \leq 0.05$	1	-	$D > 0.05$	According to circle
Length	Width	Qualified Quantity															
-	$\leq 0.02$	Ignore															
$\leq 3$	$0.02 < W \leq 0.03$	2															
$\leq 2$		$0.03 < W \leq 0.05$	1														
-	$D > 0.05$	According to circle															
05	LCD Scratch、Threadlike Fiber	Same to NO.3 circle sightline and surface of LCD is vertical (2)Same to NO.3 line style															

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06	POL	<p>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.</p>	
07	Brightness	In accord with product specification	<p>Drive condition is according to specification                  Measure location is in Follow Picture                  3、 Adjust brightness instrument to zero , burrow against the surface of LCD , press “measure” , record when the display is steady. (YOKOGAWA-3298)</p>
			 <p style="text-align: center;">Measure location</p>
08	CR (Max)	According to specification	<p>According to product specification                  Measure instrument ( DMS-501 )</p>
09	Response time	According to specification	<p>According to product specification                  Measure instrument ( DMS-501 )</p>
10	Viewing angle	According to specification	<p>According to product specification                  Measure instrument ( DMS-501 )</p>
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 is 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) , Sulfur (S)

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

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

### 9.3 Caution against static charge

The LCD module uses C-MOS LSI drivers, so we recommend 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 employs 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 directly 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 than the limit causes 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 than the operating temperature range and on the other hand at higher temperature LCD's show 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**