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TITLE:

HV550QU2-301 Preliminary Product Specification

BEIJING BOE DISPLAY TECHNOLOGY

SPEC. NUMBER
S8XX-XXXX

PRODUCT GROUP
TFT LCD

REV.
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ISSUE DATE
2013.04.23

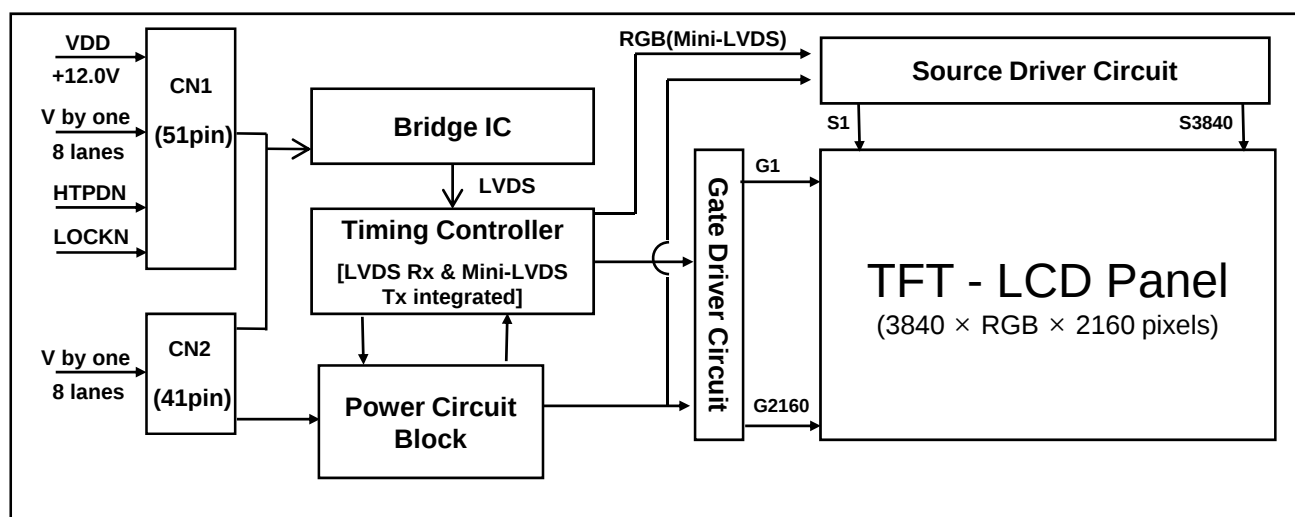
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1.0 GENERAL DESCRIPTION

1.1 Introduction

HV550QU2-301 is a color active matrix TFT LCD open cell using amorphous silicon TFT's (Thin Film Transistors) as an active switching devices. This module has a 54.64 inch diagonally measured active area with WUXGA resolutions (3840 horizontal by 2160 vertical pixel array). Each pixel is divided into RED, GREEN, BLUE dots which are arranged in vertical stripe and this module can display 1.07G colors. The TFT-LCD panel used for this module is adapted for a low reflection and higher color type.



1.2 Features

- V by one interface with 16 lanes
- High-speed response
- Low color shift image quality
- 8-bit + FRC color depth, display 1.07G colors
- High luminance and contrast ratio, low reflection and wide viewing angle
- DE (Data Enable) only mode
- ADS technology is applied for high display quality
- RoHS compliant

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1.3 Application ● Home Alone Multimedia TFT-LCD TV ● Display Terminals for Control System ● Ultra High Definition TV(UHD TV) ● AV application Products 1.4 General Specification < Table 1. General Specifications > <table> <tr> <th>Parameter</th><th>Specification</th><th>Unit</th><th>Remark</th></tr> <tr> <td>Active area</td><td>1209.6(H) × 680.4(V)</td><td>mm</td><td></td></tr> <tr> <td>Number of pixels</td><td>3840(H) × 2160(V)</td><td>pixels</td><td></td></tr> <tr> <td>Pixel pitch</td><td>315(H) × 315(V)</td><td>μm</td><td></td></tr> <tr> <td>Pixel arrangement</td><td>Pixels RGB Vertical stripe</td><td></td><td></td></tr> <tr> <td>Display colors</td><td>1.07G (8bits + FRC)</td><td>colors</td><td></td></tr> <tr> <td>Display mode</td><td>Transmission mode, Normally Black</td><td></td><td></td></tr> <tr> <td>Open Cell Transmittance</td><td>4.5 (Typ.)</td><td>%</td><td>At center point with BOE BLU</td></tr> <tr> <td>Weight</td><td>TBD. (Typ.)</td><td>gram</td><td></td></tr> <tr> <td>Power Consumption</td><td>TBD. (Typ.)</td><td>Watt</td><td></td></tr> <tr> <td>Surface Treatment</td><td>Haze 1%</td><td></td><td></td></tr> </table>				Parameter	Specification	Unit	Remark	Active area	1209.6(H) × 680.4(V)	mm		Number of pixels	3840(H) × 2160(V)	pixels		Pixel pitch	315(H) × 315(V)	μm		Pixel arrangement	Pixels RGB Vertical stripe			Display colors	1.07G (8bits + FRC)	colors		Display mode	Transmission mode, Normally Black			Open Cell Transmittance	4.5 (Typ.)	%	At center point with BOE BLU	Weight	TBD. (Typ.)	gram		Power Consumption	TBD. (Typ.)	Watt		Surface Treatment	Haze 1%		
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2.0 ABSOLUTE MAXIMUM RATINGS

The followings are maximum values which, if exceed, may cause faulty operation or damage to the unit. The operational and non-operational maximum voltage and current values are listed in Table 2.

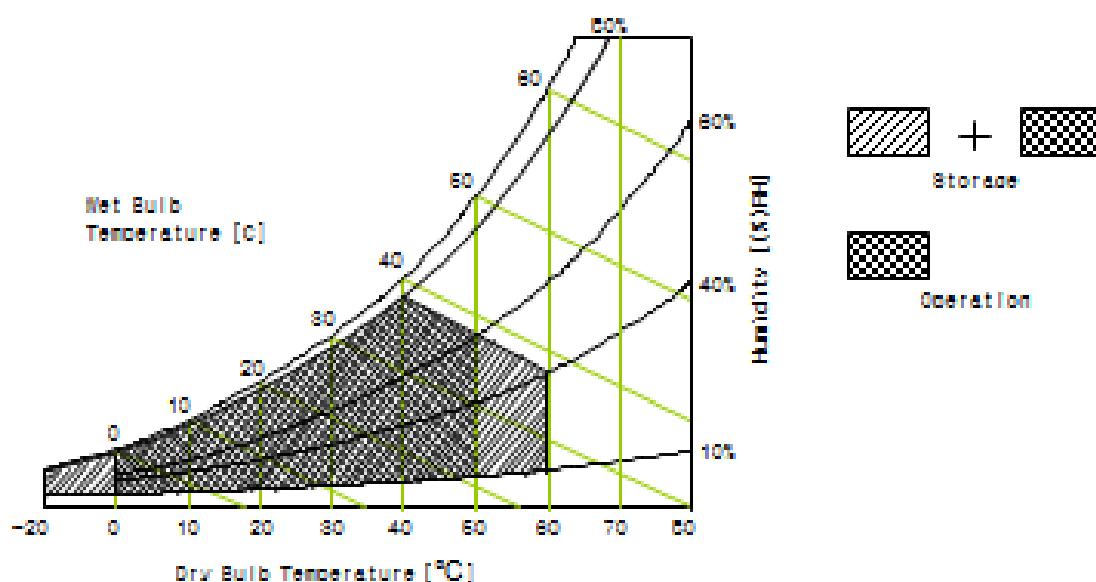
< Table 2. Open Cell Electrical Specifications >

[VSS=GND=0V]

Parameter	Symbol	Min.	Max.	Unit	Remark
Power Supply Voltage	VDD	VSS-0.3	13.5	V	Ta = 25 °C
Operating Temperature	T _{OP}	0	+50	°C	Note 1
	T _{SUR}	0	+60	°C	
Storage Temperature	T _{ST}	-20	+60	°C	
Operating Ambient Humidity	Hop	10	80	%RH	
Storage Humidity	Hst	10	80	%RH	

Note 1 : Temperature and relative humidity range are shown in the figure below.

Wet bulb temperature should be 39 °C max. and no condensation of water.





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3.0 ELECTRICAL SPECIFICATIONS

3.1 TFT LCD Open Cell

< Table 3. Open Cell Electrical Specifications >

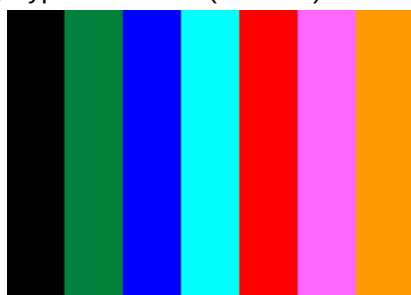
[Ta =25±2 °C]

Parameter		Symbol	Values			Unit	Remark
			Min	Typ	Max		
Power Supply Input Voltage		VDD	10.8	12	13.2	Vdc	
Power Supply Ripple Voltage		VRP		TBD		mV	
Power Supply Current		IDD	-	TBD		mA	Note 1
Power Consumption		PDD		TBD		Watt	
Rush current		IRUSH	-	TBD		A	Note 2
V by One Interface	Differential Input High Threshold Voltage	VLVTH		+50		mV	
	Differential Input Low Threshold Voltage	VLVTL		-50		mV	
	Common Input Voltage	VLVC		0.82		V	
CMOS Interface	Input High Threshold Voltage	VIH	2.7	-	3.3	V	
	Input Low Threshold Voltage	VIL	0	-	0.6	V	

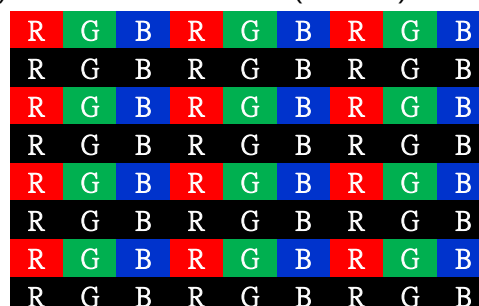
Note 1 : The supply voltage is measured and specified at the interface connector of LCM.

The current draw and power consumption specified is for VDD=12.0V,

a) Typ : Color Test (L0/L255)



b) Max : Horizontal 1 Line (L0/L255)



Note 2 : The duration of rush current is about 2ms and rising time of Power Input is 1ms(min)

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4.0 INTERFACE CONNECTION

4.1 Module Input Signal & Power (1)

- V by One CN (51Pin) Connector : FW05010-51(FOOSUNG)/TBD(巨铖) or Equivalent.

< Table 4. Open Cell Input Connector Pin Configuration >

Pin No	Symbol	Description	Pin No	Symbol	Description
1	VDD	Power Supply +12.0V	21	NC	No Connection
2	VDD	Power Supply +12.0V	22	NC	No Connection
3	VDD	Power Supply +12.0V	23	NC	No Connection
4	VDD	Power Supply +12.0V	24	NC	No Connection
5	VDD	Power Supply +12.0V	25	HTPDN	Hot plug detect
6	VDD	Power Supply +12.0V	26	LOCKN	Lock detect
7	VDD	Power Supply +12.0V	27	GND	Ground
8	VDD	Power Supply +12.0V	28	Rx0n	V-by-One HS Data Lane 0
9	VDD	Power Supply +12.0V	29	Rx0p	V-by-One HS Data Lane 0
10	VDD	Power Supply +12.0V	30	GND	Ground
11	VDD	Power Supply +12.0V	31	Rx1n	V-by-One HS Data Lane 1
12	VDD	Power Supply +12.0V	32	Rx1p	V-by-One HS Data Lane 1
13	VDD	Power Supply +12.0V	33	GND	Ground
14	VDD	Power Supply +12.0V	34	Rx2n	V-by-One HS Data Lane 2
15	NC	No Connection	35	Rx2p	V-by-One HS Data Lane 2
16	GND	Ground	36	GND	Ground
17	GND	Ground	37	Rx3n	V-by-One HS Data Lane 3
18	GND	Ground	38	Rx3p	V-by-One HS Data Lane 3
19	GND	Ground	39	GND	Ground
20	NC	No Connection			

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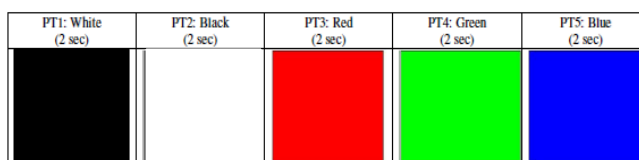
Pin No	Symbol	Description	Pin No	Symbol	Description
40	Rx4n	V-by-One HS Data Lane 4	46	Rx6n	V-by-One HS Data Lane 6
41	Rx4p	V-by-One HS Data Lane 4	47	Rx6p	V-by-One HS Data Lane 6
42	GND	Ground	48	GND	Ground
43	Rx5n	V-by-One HS Data Lane 5	49	Rx7n	V-by-One HS Data Lane 7
44	Rx5p	V-by-One HS Data Lane 5	50	Rx7p	V-by-One HS Data Lane 7
45	GND	Ground	51	GND	Ground

Notes : NC(Not Connected) : This pins are only used for BOE internal operations.

Rear view of LCM



BIST Pattern



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4.1 Module Input Signal & Power (2)

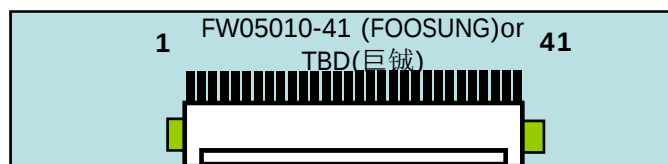
- V by One CN (41Pin) Connector : FW05010-41(FOOSUNG)/TBD(巨铖) or Equivalent.

< Table 5. Open Cell Input Connector Pin Configuration >

Pin No	Symbol	Description	Pin No	Symbol	Description
1	GND	Ground	22	GND	Ground
2	Rx8n	V-by-One HS Data Lane 8	23	Rx15n	V-by-One HS Data Lane 15
3	Rx8p	V-by-One HS Data Lane 8	24	Rx15p	V-by-One HS Data Lane 15
4	GND	Ground	25	GND	Ground
5	Rx9n	V-by-One HS Data Lane 9	26	NC	No Connection
6	Rx9p	V-by-One HS Data Lane 9	27	3D_SYNC_I	Shutter Glass Sync Input Signal
7	GND	Ground	28	3D_SYNC_O	Shutter Glass Sync Signal
8	Rx10n	V-by-One HS Data Lane 10	29	3D_EN	3D_EN Signal
9	Rx10p	V-by-One HS Data Lane 10	30	NC	No Connection
10	GND	Ground	31	NC	No Connection
11	Rx11n	V-by-One HS Data Lane 11	32	NC	No Connection
12	Rx11p	V-by-One HS Data Lane 11	33	NC	No Connection
13	GND	Ground	34	NC	No Connection
14	Rx12n	V-by-One HS Data Lane 12	35	NC	No Connection
15	Rx12p	V-by-One HS Data Lane 12	36	NC	No Connection
16	GND	Ground	37	NC	No Connection
17	Rx13n	V-by-One HS Data Lane 13	38	NC	No Connection
18	Rx13p	V-by-One HS Data Lane 13	39	NC	No Connection
19	GND	Ground	40	SCL	I ² C Clock
20	Rx14n	V-by-One HS Data Lane 14	41	SDA	I ² C Data
21	Rx14p	V-by-One HS Data Lane 14			

Notes : NC(Not Connected) : This pins are only used for BOE internal operations.

Rear view of LCM



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