



TFT LCD Preliminary Specification

MODEL NO.:V460H1-PH5

Approved Dv	TVHD
Approved By	LY Chen

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REVISION HISTORY

Version	Date	Page (New)	Section	REVISION HISTORY Description
Ver 1.0	Jun.17, 2009	All	All	Preliminary Specification was first issued.





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1. GENERAL DESCRIPTION

1.1 OVERVIEW

V460H1- PH5 is a 46" TFT Liquid Crystal Display module. This module supports 1920 x 1080 HDTV format and can display true 1.073G colors (10bit/color)..

1.2 CHARACTERISTICS

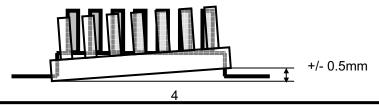
- CHARACTERISTICS	T				
CHARACTERISTICS ITEMS	SPECIFICATIONS				
Screen Diagonal [in]	46				
Pixels [lines]	1920 x 1080				
Active Area [mm]	1018.08(H) x 572.67(V) (46" diagonal)				
Sub -Pixel Pitch [mm]	0.17675(H) x 0.53025(V)				
Pixel Arrangement	RGB vertical stripe				
Weight [g]	TYP. 2560				
Physical Size [mm]	1056.38(W) x 628.52(H) x 2(D) Typ.				
Display Mode	Transmissive mode / Normally black				
Contract Datio	5000:1 Typ.				
Contrast Ratio	(Typical value measured at CMO's module)				
Glass thickness (Array/CF) [mm]	0.7 / 0.7				
Viewing Angle (CD>20)	+88/-88(H),+88/-88(V) Typ.				
Viewing Angle (CR>20)	(Typical value measured at CMO's module)				
	R=(0.643, 0.323)				
	G=(0.287, 0.602)				
Color Chromaticity	B=(0.148, 0.056)				
~ (W=(0.280, 0.290)				
	(Typical value measured at CMO's module)				
Cell Transparency [%]	4.4%Typ.				
Con Hansparency [/0]	(Typical value measured at CMO's module)				
Polarizer (CF side)	Super Wide View Glare coating, 1030.18 (H) x 586.37(w)				
r clanzer (CF side)	Hardness: 3H				
Polarizer (TFT side)	Super Wide View, 1030.18(H) x 586.37(w).				

1.3 MECHANICAL SPECIFICATIONS

Item	Min.	Unit	Note		
Weight	ı	2490	-	g	-
I/F connector mounting position	The mounting in the screen cente		(2)		

Note (1) Please refer to the attached drawings for more information of front and back outline dimensions.

(2) Connector mounting position





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2. ABSOLUTE MAXIMUM RATINGS

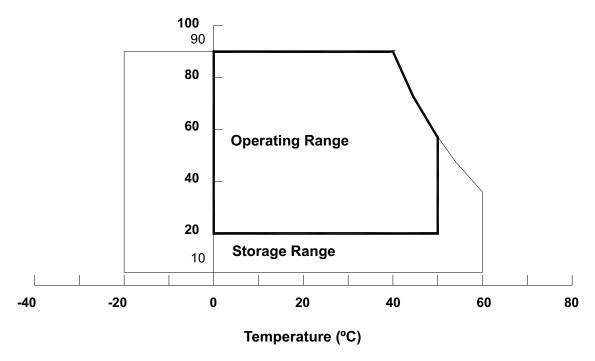
2.1 ABSOLUTE RATINGS OF ENVIRONMENT (BASED ON CMO MODULE V460H1-PH1)

Item	Symbol	Va	Unit	Note	
item	Symbol	Min.	Max.	5	Note
Storage Temperature	T _{ST}	-20	+60	°C	(1), (3)
Operating Ambient Temperature	T _{OP}	0	50	°C	(1), (2), (3)
Altitude Operating	A _{OP}	0	5000	М	(3)
Altitude Storage	A _{ST}	0	12000	М	(3)

Note (1) Temperature and relative humidity range is shown in the figure below.

- (a) 90 %RH Max. (Ta \leq 40 °C).
- (b) Wet-bulb temperature should be 39 °C Max. (Ta > 40 °C).
- (c) No condensation..

Relative Humidity (%RH)



- Note (2) The maximum operating temperature is based on the test condition that the surface temperature of display area is less than or equal to 65 °C with LCD module alone in a temperature controlled chamber. Thermal management should be considered in your product design to prevent the surface temperature of display area from being over 65 °C. The range of operating temperature may degrade in case of improper thermal management in your product design.
- Note (3) The rating of environment is base on LCD module. Leave LCD cell alone, this environment condition can't be guaranteed. Except LCD cell, the customer has to consider the ability of other parts of LCD module and LCD module process.



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2.2 ABSOLUTE RATINGS OF ENVIRONMENT (OPEN CELL)

Storage Condition : With shipping package.

Storage temperature range : 25±5 $^{\circ}$ C Storage humidity range : 50±10%RH

Shelf life : a month

2.3 ELECTRICAL ABSOLUTE RATINGS (OPEN CELL)

Item	Symbol	Value)	Unit	Note
item	Symbol	Min	Max	Offic	
Power Supply Voltage	V_{AA}	-0.3	17.9	V	(1)
Power Supply Voltage	V_{GHP}	-0.3	32.3	V	
Power Supply Voltage	V_{GL}	-5.7	-0.3	V	
Logic Input Voltage	V_{DD}	-0.3	3.4	V	

Note (1) Permanent damage to the device may occur if maximum values are exceeded. Function operation should be restricted to the conditions described under Normal Operating Conditions.



3. ELECTRICAL CHARACTERISTICS

3.1 TFT LCD MODULE

 $(Ta = 25 \pm 2 \, ^{\circ}C)$

Parameter		Symbol	Value			Unit	Note
	ratattietei	Symbol	Min.	Тур.	Max.	Offic	Note
		VGHP	31.3	31.8	32.3	٧	
	Power Supply Voltage	VGL	-5.7	-5.5	-5.3	V	
	r ower Supply Voltage	VAA	17.5	17.7	17.9	V	
			3.2	3.3	3.4	V	
			ı	ı	50	mA	
	Power Supply Current	IGL	ı	-	50	mA	
Power Supply Current		IAA	-	-	1300	mA	
		133V	-	-	2300	mA	
CMOS	Input High Threshold Voltage	VIH	2.7		3.3	V	
interface	Input Low Threshold Voltage	VIL	0		0.7	V	

Note (1) The module should be always operated within the above ranges.

3.2 RSDS CHARACTERISTICS

 $(Ta = -10 \sim +85 \, ^{\circ}C)$

(14 16 166 6)						
Item	Symbol	Condition		Unit		
item	Symbol	Condition	Min	Тур	Max	Offic
DCDC high input Voltage	VDIFFRS	VCMRSDS = +1.2 V	100	200	-	.,
RSDS high input Voltage	DS	(1)	100	200		mV
DCDC low input Voltage	VDIFFRS	VCMRSDS = +1.2 V		200	400	\/
RSDS low input Voltage	DS	(1)	-	-200	-100	mV
RSDS common mode input	VCMRSD	VDIFFRSDS = 200	VCCDIOE	NI-4-(0)	V00D 4.0	
voltage range	S	mV (2)	VSSD+0.5	Note(3)	VSSD-1.2	V
DCDC Input lookage ourrent	IDI	A/BDxxP, A/BDxxN,	10		10	^
RSDS Input leakage current	IDL	A/BCLKP, A/BCLKN	-10	-	10	μA

Note (1) VCMRSDS = (VCLKP + VCLKN)/2 or VCMRSDS = (VDXXP + VDXXN)/2

Note (2) VDIFFRSDS = VCLKP - VCLKN or VDIFFRSDS = VDXXP - VDXXN

Note (3) VCMRSDS = 1.2V(VDDD = 3.3V)



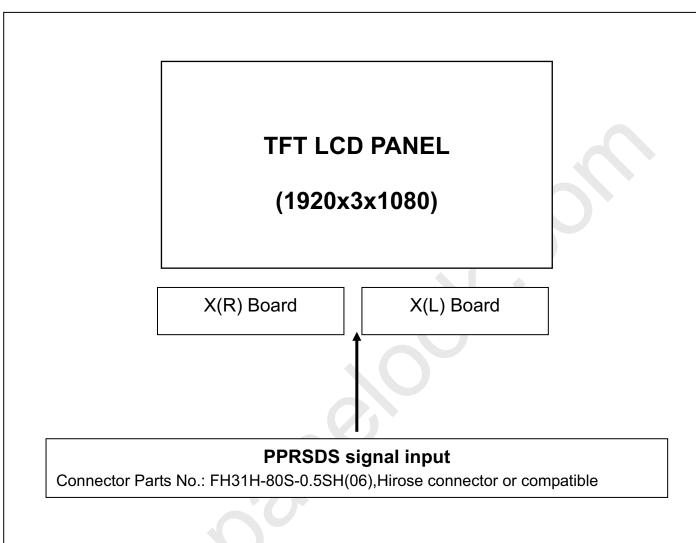


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4. BLOCK DIAGRAM OF INTERFACE

4.1 TFT LCD OPEN CELL





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5. INPUT TERMINAL PIN ASSIGNMENT

CN1(XL) Connector Pin Assignment

Pin No. Symbol Description Pin No. Symbol Description 1 GND Ground 41 ADOM 1 A-Path RSDS data signal 2 BD1P 4 B-Path RSDS data signal 42 GND Ground 3 BD1M 4 B-Path RSDS data signal 43 GM20 Gamma Power supply 4 GND Ground 44 GM19 Gamma Power supply 5 N.C. No connection 46 GM17 Gamma Power supply 6 N.C. No connection 46 GM17 Gamma Power supply 7 GND Ground 47 GM16 Gamma Power supply 8 BD0P 4 B-Path RSDS data signal 48 GM15 Gamma Power supply 9 BD0M 4 B-Path RSDS data signal 49 GM14 Gamma Power supply 10 AD1P 4 A-Path RSDS data signal 50 GM13 Gamma Power supply 11 AD1M 4 A-Path RSDS data signal 51 GM12	4.1.1 /21.	_,	ior i mi / toolgiiiiiont			
BD1P 4	Pin No.	Symbol	Description	Pin No.	Symbol	Description
3	1	GND	Ground	41	AD0M 1	A-Path RSDS data signal
4 GND Ground 44 GM19 Gamma Power supply 5 N.C. No connection 45 GM18 Gamma Power supply 6 N.C. No connection 46 GM17 Gamma Power supply 7 GND Ground 47 GM16 Gamma Power supply 8 BD0P 4 B-Path RSDS data signal 48 GM15 Gamma Power supply 9 BD0M 4 B-Path RSDS data signal 49 GM14 Gamma Power supply 10 AD1P 4 A-Path RSDS data signal 50 GM13 Gamma Power supply 11 AD1M 4 A-Path RSDS data signal 51 GM12 Gamma Power supply 12 AD0P 4 A-Path RSDS data signal 52 GM11 Gamma Power supply 13 AD0M 4 A-Path RSDS data signal 53 GM10 Gamma Power supply 14 BD1P 3 B-Path RSDS data signal 54 GM9 Gamma Power supply 15 BD1M 3 B-Path RSDS data signal 56	2	BD1P 4	B-Path RSDS data signal	42	GND	Ground
5 N.C. No connection 45 GM18 Gamma Power supply 6 N.C. No connection 46 GM17 Gamma Power supply 7 GND Ground 47 GM16 Gamma Power supply 8 BD0P 4 B-Path RSDS data signal 48 GM15 Gamma Power supply 9 BD0M 4 B-Path RSDS data signal 49 GM14 Gamma Power supply 10 AD1P 4 A-Path RSDS data signal 50 GM13 Gamma Power supply 11 AD1M 4 A-Path RSDS data signal 51 GM12 Gamma Power supply 12 AD0P 4 A-Path RSDS data signal 52 GM11 Gamma Power supply 13 AD0M 4 A-Path RSDS data signal 53 GM9 Gamma Power supply 14 BD1P 3 B-Path RSDS data signal 55 GM8 Gamma Power supply 15 BD1M 3 B-Path RSDS data signal 56 GM7 Gamma Power supply 16 BD0P 3 B-Path RSDS data signal	3	BD1M 4	B-Path RSDS data signal	43	GM20	Gamma Power supply
5 N.C. No connection 45 GM18 Gamma Power supply 6 N.C. No connection 46 GM17 Gamma Power supply 7 GND Ground 47 GM16 Gamma Power supply 8 BD0P 4 B-Path RSDS data signal 48 GM15 Gamma Power supply 9 BD0M 4 B-Path RSDS data signal 49 GM14 Gamma Power supply 10 AD1P 4 A-Path RSDS data signal 50 GM13 Gamma Power supply 11 AD1M 4 A-Path RSDS data signal 51 GM12 Gamma Power supply 12 AD0P 4 A-Path RSDS data signal 52 GM11 Gamma Power supply 13 AD0M 4 A-Path RSDS data signal 53 GM10 Gamma Power supply 14 BD1P 3 B-Path RSDS data signal 54 GM9 Gamma Power supply 15 BD1M 3 B-Path RSDS data signal 56 GM7 Gamma Power supply 16 BD0P 3 B-Path RSDS data signal	4	GND	Ground	44	GM19	Gamma Power supply
7 GND Ground 47 GM16 Gamma Power supply 8 BD0P 4 B-Path RSDS data signal 48 GM15 Gamma Power supply 9 BD0M 4 B-Path RSDS data signal 49 GM14 Gamma Power supply 10 AD1P 4 A-Path RSDS data signal 50 GM13 Gamma Power supply 11 AD1M 4 A-Path RSDS data signal 51 GM12 Gamma Power supply 12 AD0P 4 A-Path RSDS data signal 52 GM11 Gamma Power supply 13 AD0M 4 A-Path RSDS data signal 53 GM10 Gamma Power supply 14 BD1P 3 B-Path RSDS data signal 54 GM9 Gamma Power supply 15 BD1M 3 B-Path RSDS data signal 56 GM7 Gamma Power supply 16 BD0P 3 B-Path RSDS data signal 56 GM7 Gamma Power supply 17 BD0M 3 B-Path RSDS data signal 57 GM6 Gamma Power supply 18 AD1P 3 A-Pa	5	N.C.	No connection	45	GM18	
8 BD0P 4 B-Path RSDS data signal 48 GM15 Gamma Power supply 9 BD0M 4 B-Path RSDS data signal 49 GM14 Gamma Power supply 10 AD1P 4 A-Path RSDS data signal 50 GM13 Gamma Power supply 11 AD1M 4 A-Path RSDS data signal 51 GM12 Gamma Power supply 12 AD0P 4 A-Path RSDS data signal 52 GM11 Gamma Power supply 13 AD0M 4 A-Path RSDS data signal 53 GM10 Gamma Power supply 14 BD1P 3 B-Path RSDS data signal 54 GM9 Gamma Power supply 15 BD1M 3 B-Path RSDS data signal 55 GM8 Gamma Power supply 16 BD0P 3 B-Path RSDS data signal 56 GM7 Gamma Power supply 17 BD0M 3 B-Path RSDS data signal 58 GM5 Gamma Power supply 19 AD1M 3 A-Path RSDS data signal 59 GM4 Gamma Power supply 20 AD0P 3 </td <td>6</td> <td>N.C.</td> <td>No connection</td> <td>46</td> <td>GM17</td> <td>Gamma Power supply</td>	6	N.C.	No connection	46	GM17	Gamma Power supply
9 BD0M 4 B-Path RSDS data signal 49 GM14 Gamma Power supply 10 AD1P 4 A-Path RSDS data signal 50 GM13 Gamma Power supply 11 AD1M 4 A-Path RSDS data signal 51 GM12 Gamma Power supply 12 AD0P 4 A-Path RSDS data signal 52 GM11 Gamma Power supply 13 AD0M 4 A-Path RSDS data signal 53 GM10 Gamma Power supply 14 BD1P 3 B-Path RSDS data signal 54 GM9 Gamma Power supply 15 BD1M 3 B-Path RSDS data signal 56 GM7 Gamma Power supply 16 BD0P 3 B-Path RSDS data signal 56 GM7 Gamma Power supply 17 BD0M 3 B-Path RSDS data signal 57 GM6 Gamma Power supply 18 AD1P 3 A-Path RSDS data signal 58 GM5 Gamma Power supply 20 AD0P 3 A-Path RSDS data signal 60 GM3 Gamma Power supply 21 AD0M 3 </td <td>7</td> <td>GND</td> <td>Ground</td> <td>47</td> <td>GM16</td> <td>Gamma Power supply</td>	7	GND	Ground	47	GM16	Gamma Power supply
9 BD0M 4 B-Path RSDS data signal 49 GM14 Gamma Power supply 10 AD1P 4 A-Path RSDS data signal 50 GM13 Gamma Power supply 11 AD1M 4 A-Path RSDS data signal 51 GM12 Gamma Power supply 12 AD0P 4 A-Path RSDS data signal 52 GM11 Gamma Power supply 13 AD0M 4 A-Path RSDS data signal 53 GM10 Gamma Power supply 14 BD1P 3 B-Path RSDS data signal 54 GM9 Gamma Power supply 15 BD1M 3 B-Path RSDS data signal 56 GM7 Gamma Power supply 16 BD0P 3 B-Path RSDS data signal 56 GM7 Gamma Power supply 17 BD0M 3 B-Path RSDS data signal 57 GM6 Gamma Power supply 18 AD1P 3 A-Path RSDS data signal 58 GM5 Gamma Power supply 20 AD0P 3 A-Path RSDS data signal 60 GM3 Gamma Power supply 21 AD0M 3 </td <td>8</td> <td>BD0P 4</td> <td>B-Path RSDS data signal</td> <td>48</td> <td>GM15</td> <td>Gamma Power supply</td>	8	BD0P 4	B-Path RSDS data signal	48	GM15	Gamma Power supply
11 AD1M 4 A-Path RSDS data signal 51 GM12 Gamma Power supply 12 AD0P 4 A-Path RSDS data signal 52 GM11 Gamma Power supply 13 AD0M 4 A-Path RSDS data signal 53 GM10 Gamma Power supply 14 BD1P 3 B-Path RSDS data signal 54 GM9 Gamma Power supply 15 BD1M 3 B-Path RSDS data signal 55 GM8 Gamma Power supply 16 BD0P 3 B-Path RSDS data signal 56 GM7 Gamma Power supply 17 BD0M 3 B-Path RSDS data signal 57 GM6 Gamma Power supply 18 AD1P 3 A-Path RSDS data signal 58 GM5 Gamma Power supply 19 AD1M 3 A-Path RSDS data signal 59 GM4 Gamma Power supply 20 AD0P 3 A-Path RSDS data signal 60 GM3 Gamma Power supply 21 AD0M 3 A-Path RSDS data signal 61 GM2 Gamma Power supply 22 BD1P 2 <td>9</td> <td>BD0M 4</td> <td></td> <td>49</td> <td>GM14</td> <td>Gamma Power supply</td>	9	BD0M 4		49	GM14	Gamma Power supply
12 ADOP 4 A-Path RSDS data signal 52 GM11 Gamma Power supply 13 ADOM 4 A-Path RSDS data signal 53 GM10 Gamma Power supply 14 BD1P 3 B-Path RSDS data signal 54 GM9 Gamma Power supply 15 BD1M 3 B-Path RSDS data signal 55 GM8 Gamma Power supply 16 BD0P 3 B-Path RSDS data signal 56 GM7 Gamma Power supply 17 BD0M 3 B-Path RSDS data signal 58 GM6 Gamma Power supply 18 AD1P 3 A-Path RSDS data signal 58 GM5 Gamma Power supply 19 AD1M 3 A-Path RSDS data signal 59 GM4 Gamma Power supply 20 AD0P 3 A-Path RSDS data signal 60 GM3 Gamma Power supply 21 AD0M 3 A-Path RSDS data signal 61 GM2 Gamma Power supply 22 BD1P 2 B-Path RSDS data signal 63 GND Ground 24 BD0P 2 <t< td=""><td>10</td><td>AD1P 4</td><td>A-Path RSDS data signal</td><td>50</td><td>GM13</td><td>Gamma Power supply</td></t<>	10	AD1P 4	A-Path RSDS data signal	50	GM13	Gamma Power supply
13 AD0M 4 A-Path RSDS data signal 53 GM10 Gamma Power supply 14 BD1P 3 B-Path RSDS data signal 54 GM9 Gamma Power supply 15 BD1M 3 B-Path RSDS data signal 55 GM8 Gamma Power supply 16 BD0P 3 B-Path RSDS data signal 56 GM7 Gamma Power supply 17 BD0M 3 B-Path RSDS data signal 57 GM6 Gamma Power supply 18 AD1P 3 A-Path RSDS data signal 58 GM5 Gamma Power supply 19 AD1M 3 A-Path RSDS data signal 59 GM4 Gamma Power supply 20 AD0P 3 A-Path RSDS data signal 60 GM3 Gamma Power supply 21 AD0M 3 A-Path RSDS data signal 62 GM1 Gamma Power supply 22 BD1P 2 B-Path RSDS data signal 63 GND Ground 24 BD0P 2 B-Path RSDS data signal 65 CKV Scan driver clock 26 AD1P 2	11	AD1M 4	A-Path RSDS data signal	51	GM12	Gamma Power supply
13 AD0M 4 A-Path RSDS data signal 53 GM10 Gamma Power supply 14 BD1P 3 B-Path RSDS data signal 54 GM9 Gamma Power supply 15 BD1M 3 B-Path RSDS data signal 55 GM8 Gamma Power supply 16 BD0P 3 B-Path RSDS data signal 56 GM7 Gamma Power supply 17 BD0M 3 B-Path RSDS data signal 57 GM6 Gamma Power supply 18 AD1P 3 A-Path RSDS data signal 58 GM5 Gamma Power supply 19 AD1M 3 A-Path RSDS data signal 60 GM3 Gamma Power supply 20 AD0P 3 A-Path RSDS data signal 60 GM3 Gamma Power supply 21 AD0M 3 A-Path RSDS data signal 62 GM1 Gamma Power supply 22 BD1P 2 B-Path RSDS data signal 62 GM1 Gamma Power supply 23 BD1M 2 B-Path RSDS data signal 63 GND Ground 24 BD0P 2 <td< td=""><td>12</td><td>AD0P 4</td><td>A-Path RSDS data signal</td><td>52</td><td>GM11</td><td>Gamma Power supply</td></td<>	12	AD0P 4	A-Path RSDS data signal	52	GM11	Gamma Power supply
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16 BDOP 3 B-Path RSDS data signal 56 GM7 Gamma Power supply 17 BD0M 3 B-Path RSDS data signal 57 GM6 Gamma Power supply 18 AD1P 3 A-Path RSDS data signal 58 GM5 Gamma Power supply 19 AD1M 3 A-Path RSDS data signal 59 GM4 Gamma Power supply 20 AD0P 3 A-Path RSDS data signal 60 GM3 Gamma Power supply 21 AD0M 3 A-Path RSDS data signal 61 GM2 Gamma Power supply 22 BD1P 2 B-Path RSDS data signal 62 GM1 Gamma Power supply 23 BD1M 2 B-Path RSDS data signal 63 GND Ground 24 BD0P 2 B-Path RSDS data signal 64 TP1 RSDS data latch 25 BD0M 2 B-Path RSDS data signal 65 CKV Scan driver output enable 1 27 AD1M 2 A-Path RSDS data signal 67 OE2 Scan driver output enable 2 28 GND	14	BD1P 3	B-Path RSDS data signal	54	GM9	Gamma Power supply
17 BD0M 3 B-Path RSDS data signal 57 GM6 Gamma Power supply 18 AD1P 3 A-Path RSDS data signal 58 GM5 Gamma Power supply 19 AD1M 3 A-Path RSDS data signal 59 GM4 Gamma Power supply 20 AD0P 3 A-Path RSDS data signal 60 GM3 Gamma Power supply 21 AD0M 3 A-Path RSDS data signal 61 GM2 Gamma Power supply 22 BD1P 2 B-Path RSDS data signal 62 GM1 Gamma Power supply 23 BD1M 2 B-Path RSDS data signal 63 GND Ground 24 BD0P 2 B-Path RSDS data signal 64 TP1 RSDS data latch 25 BD0M 2 B-Path RSDS data signal 65 CKV Scan driver clock 26 AD1P 2 A-Path RSDS data signal 67 OE2 Scan driver output enable 1 27 AD1M 2 A-Path RSDS data signal 67 OE2 Scan driver output enable 2 28 GND	15	BD1M 3	B-Path RSDS data signal	55	GM8	
18AD1P 3A-Path RSDS data signal58GM5Gamma Power supply19AD1M 3A-Path RSDS data signal59GM4Gamma Power supply20AD0P 3A-Path RSDS data signal60GM3Gamma Power supply21AD0M 3A-Path RSDS data signal61GM2Gamma Power supply22BD1P 2B-Path RSDS data signal62GM1Gamma Power supply23BD1M 2B-Path RSDS data signal63GNDGround24BD0P 2B-Path RSDS data signal64TP1RSDS data latch25BD0M 2B-Path RSDS data signal65CKVScan driver clock26AD1P 2A-Path RSDS data signal66OE1Scan driver output enable 127AD1M 2A-Path RSDS data signal67OE2Scan driver output enable 228GNDGround68STVScan driver start pulse29A CLKPData driver clock69GNDGround30A CLKMData driver clock70VDDLogic Power supply31GNDGround71VDDLogic Power supply32AD0P 2A-Path RSDS data signal72VDDADriver Power supply34BD1P 1B-Path RSDS data signal74VCMVCM Power supply35BD1M 1B-Path RSDS data signal75VCMDriver Power supply36BD0P 1B-Path RSDS data signal76VGLDriver Power sup	16	BD0P 3	B-Path RSDS data signal	56	GM7	Gamma Power supply
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20ADOP 3A-Path RSDS data signal60GM3Gamma Power supply21ADOM 3A-Path RSDS data signal61GM2Gamma Power supply22BD1P 2B-Path RSDS data signal62GM1Gamma Power supply23BD1M 2B-Path RSDS data signal63GNDGround24BD0P 2B-Path RSDS data signal64TP1RSDS data latch25BD0M 2B-Path RSDS data signal65CKVScan driver clock26AD1P 2A-Path RSDS data signal66OE1Scan driver output enable 127AD1M 2A-Path RSDS data signal67OE2Scan driver output enable 228GNDGround68STVScan driver start pulse29A CLKPData driver clock69GNDGround30A CLKMData driver clock70VDDLogic Power supply31GNDGround71VDDLogic Power supply32AD0P 2A-Path RSDS data signal72VDDADriver Power supply33AD0M 2A-Path RSDS data signal73VDDADriver Power supply34BD1P 1B-Path RSDS data signal74VCMVCM Power supply35BD1M 1B-Path RSDS data signal75VCMDriver Power supply36BD0P 1B-Path RSDS data signal76VGLDriver Power supply38AD1P 1A-Path RSDS data signal77VGLDriver Power	18	AD1P 3	A-Path RSDS data signal	58	GM5	
21ADOM 3A-Path RSDS data signal61GM2Gamma Power supply22BD1P 2B-Path RSDS data signal62GM1Gamma Power supply23BD1M 2B-Path RSDS data signal63GNDGround24BD0P 2B-Path RSDS data signal64TP1RSDS data latch25BD0M 2B-Path RSDS data signal65CKVScan driver clock26AD1P 2A-Path RSDS data signal66OE1Scan driver output enable 127AD1M 2A-Path RSDS data signal67OE2Scan driver output enable 228GNDGround68STVScan driver output enable 229A CLKPData driver clock69GNDGround30A CLKMData driver clock70VDDLogic Power supply31GNDGround71VDDLogic Power supply32AD0P 2A-Path RSDS data signal72VDDADriver Power supply33AD0M 2A-Path RSDS data signal73VDDADriver Power supply34BD1P 1B-Path RSDS data signal74VCMVCM Power supply35BD1M 1B-Path RSDS data signal75VCMDriver Power supply36BD0P 1B-Path RSDS data signal76VGLDriver Power supply37BD0M 1B-Path RSDS data signal77VGLDriver Power supply38AD1P 1A-Path RSDS data signal78VGHDriver P	19	AD1M 3	A-Path RSDS data signal	59	GM4	Gamma Power supply
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BD1M 2 B-Path RSDS data signal 63 GND Ground BD0P 2 B-Path RSDS data signal 64 TP1 RSDS data latch BD0P 2 B-Path RSDS data signal 65 CKV Scan driver clock BD0M 2 B-Path RSDS data signal 66 OE1 Scan driver output enable 1 A-Path RSDS data signal 67 OE2 Scan driver output enable 1 A-Path RSDS data signal 67 OE2 Scan driver output enable 2 BGND Ground 68 STV Scan driver start pulse BGND Ground 68 STV Scan driver start pulse BGND Ground 69 GND Ground A CLKM Data driver clock 69 GND Ground CHM Data driver clock 70 VDD Logic Power supply BGND Ground 71 VDD Logic Power supply A-Path RSDS data signal 72 VDDA Driver Power supply A-Path RSDS data signal 73 VDDA Driver Power supply A-Path RSDS data signal 74 VCM VCM Power supply BD1P 1 B-Path RSDS data signal 75 VCM VCM Power supply BD1M 1 B-Path RSDS data signal 76 VGL Driver Power supply BD0M 1 B-Path RSDS data signal 77 VGL Driver Power supply A-Path RSDS data signal 78 VGH Driver Power supply A-Path RSDS data signal 77 VGL Driver Power supply A-Path RSDS data signal 78 VGH Driver Power supply A-Path RSDS data signal 78 VGH Driver Power supply A-Path RSDS data signal 78 VGH Driver Power supply A-Path RSDS data signal 79 VGH Driver Power supply BD1M 1 A-Path RSDS data signal 79 VGH Driver Power supply	21	AD0M_3	A-Path RSDS data signal	61	GM2	Gamma Power supply
24BD0P 2B-Path RSDS data signal64TP1RSDS data latch25BD0M 2B-Path RSDS data signal65CKVScan driver clock26AD1P 2A-Path RSDS data signal66OE1Scan driver output enable 127AD1M 2A-Path RSDS data signal67OE2Scan driver output enable 228GNDGround68STVScan driver start pulse29A CLKPData driver clock69GNDGround30A CLKMData driver clock70VDDLogic Power supply31GNDGround71VDDLogic Power supply32AD0P 2A-Path RSDS data signal72VDDADriver Power supply33AD0M 2A-Path RSDS data signal73VDDADriver Power supply34BD1P 1B-Path RSDS data signal74VCMVCM Power supply35BD1M 1B-Path RSDS data signal75VCMVCM Power supply36BD0P 1B-Path RSDS data signal76VGLDriver Power supply37BD0M 1B-Path RSDS data signal77VGLDriver Power supply38AD1P 1A-Path RSDS data signal78VGHDriver Power supply39AD1M 1A-Path RSDS data signal79VGHDriver Power supply	22	BD1P_2	B-Path RSDS data signal	62	GM1	Gamma Power supply
25BD0M 2B-Path RSDS data signal65CKVScan driver clock26AD1P 2A-Path RSDS data signal66OE1Scan driver output enable 127AD1M 2A-Path RSDS data signal67OE2Scan driver output enable 228GNDGround68STVScan driver output enable 229A CLKPData driver clock69GNDGround30A CLKMData driver clock70VDDLogic Power supply31GNDGround71VDDLogic Power supply32AD0P 2A-Path RSDS data signal72VDDADriver Power supply33AD0M 2A-Path RSDS data signal73VDDADriver Power supply34BD1P 1B-Path RSDS data signal74VCMVCM Power supply35BD1M 1B-Path RSDS data signal75VCMVCM Power supply36BD0P 1B-Path RSDS data signal76VGLDriver Power supply37BD0M 1B-Path RSDS data signal77VGLDriver Power supply38AD1P 1A-Path RSDS data signal78VGHDriver Power supply39AD1M 1A-Path RSDS data signal79VGHDriver Power supply	23	BD1M_2	B-Path RSDS data signal	63	GND	Ground
26AD1P 2A-Path RSDS data signal66OE1Scan driver output enable 127AD1M 2A-Path RSDS data signal67OE2Scan driver output enable 228GNDGround68STVScan driver start pulse29A CLKPData driver clock69GNDGround30A CLKMData driver clock70VDDLogic Power supply31GNDGround71VDDLogic Power supply32AD0P 2A-Path RSDS data signal72VDDADriver Power supply33AD0M 2A-Path RSDS data signal73VDDADriver Power supply34BD1P 1B-Path RSDS data signal74VCMVCM Power supply35BD1M 1B-Path RSDS data signal75VCMVCM Power supply36BD0P 1B-Path RSDS data signal76VGLDriver Power supply37BD0M 1B-Path RSDS data signal77VGLDriver Power supply38AD1P 1A-Path RSDS data signal78VGHDriver Power supply39AD1M 1A-Path RSDS data signal79VGHDriver Power supply	24	BD0P_2	B-Path RSDS data signal	64	TP1	RSDS data latch
27AD1M 2A-Path RSDS data signal67OE2Scan driver output enable 228GNDGround68STVScan driver start pulse29A CLKPData driver clock69GNDGround30A CLKMData driver clock70VDDLogic Power supply31GNDGround71VDDLogic Power supply32AD0P 2A-Path RSDS data signal72VDDADriver Power supply33AD0M 2A-Path RSDS data signal73VDDADriver Power supply34BD1P 1B-Path RSDS data signal74VCMVCM Power supply35BD1M 1B-Path RSDS data signal75VCMVCM Power supply36BD0P 1B-Path RSDS data signal76VGLDriver Power supply37BD0M 1B-Path RSDS data signal77VGLDriver Power supply38AD1P 1A-Path RSDS data signal78VGHDriver Power supply39AD1M 1A-Path RSDS data signal79VGHDriver Power supply	25	BD0M_2	B-Path RSDS data signal	65	CKV	Scan driver clock
28GNDGround68STVScan driver start pulse29A CLKPData driver clock69GNDGround30A CLKMData driver clock70VDDLogic Power supply31GNDGround71VDDLogic Power supply32ADOP 2A-Path RSDS data signal72VDDADriver Power supply33AD0M 2A-Path RSDS data signal73VDDADriver Power supply34BD1P 1B-Path RSDS data signal74VCMVCM Power supply35BD1M 1B-Path RSDS data signal75VCMVCM Power supply36BD0P 1B-Path RSDS data signal76VGLDriver Power supply37BD0M 1B-Path RSDS data signal77VGLDriver Power supply38AD1P 1A-Path RSDS data signal78VGHDriver Power supply39AD1M 1A-Path RSDS data signal79VGHDriver Power supply	26	AD1P_2	A-Path RSDS data signal	66	OE1	Scan driver output enable 1
28GNDGround68STVScan driver start pulse29A CLKPData driver clock69GNDGround30A CLKMData driver clock70VDDLogic Power supply31GNDGround71VDDLogic Power supply32ADOP 2A-Path RSDS data signal72VDDADriver Power supply33AD0M 2A-Path RSDS data signal73VDDADriver Power supply34BD1P 1B-Path RSDS data signal74VCMVCM Power supply35BD1M 1B-Path RSDS data signal75VCMVCM Power supply36BD0P 1B-Path RSDS data signal76VGLDriver Power supply37BD0M 1B-Path RSDS data signal77VGLDriver Power supply38AD1P 1A-Path RSDS data signal78VGHDriver Power supply39AD1M 1A-Path RSDS data signal79VGHDriver Power supply	27	AD1M_2	A-Path RSDS data signal	67	OE2	Scan driver output enable 2
30A CLKMData driver clock70VDDLogic Power supply31GNDGround71VDDLogic Power supply32AD0P 2A-Path RSDS data signal72VDDADriver Power supply33AD0M 2A-Path RSDS data signal73VDDADriver Power supply34BD1P 1B-Path RSDS data signal74VCMVCM Power supply35BD1M 1B-Path RSDS data signal75VCMVCM Power supply36BD0P 1B-Path RSDS data signal76VGLDriver Power supply37BD0M 1B-Path RSDS data signal77VGLDriver Power supply38AD1P 1A-Path RSDS data signal78VGHDriver Power supply39AD1M 1A-Path RSDS data signal79VGHDriver Power supply	28	GND		68	STV	Scan driver start pulse
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36BD0P 1B-Path RSDS data signal76VGLDriver Power supply37BD0M 1B-Path RSDS data signal77VGLDriver Power supply38AD1P 1A-Path RSDS data signal78VGHDriver Power supply39AD1M 1A-Path RSDS data signal79VGHDriver Power supply						
38 AD1P 1 A-Path RSDS data signal 78 VGH Driver Power supply 39 AD1M 1 A-Path RSDS data signal 79 VGH Driver Power supply	36	BD0P_1		76	VGL	
38AD1P 1A-Path RSDS data signal78VGHDriver Power supply39AD1M 1A-Path RSDS data signal79VGHDriver Power supply	37	BD0M 1	B-Path RSDS data signal	77	VGL	Driver Power supply
	38	AD1P 1	A-Path RSDS data signal	78	VGH	
	39	AD1M 1	A-Path RSDS data signal	79	VGH	Driver Power supply
	40		A-Path RSDS data signal	80	GND	Ground



Issued Date: Jun. 17, 2009 Model No.: V460H1-PH5

Preliminary

CN2(XR) Connector Pin Assignment

Pin No. Symbol Description Pin No. Symbol Description	on the first of th									
2 VGH Driver Power supply 42 BD0P 6 B-Path RSDS data signal 3 VGH Driver Power supply 43 BD0M 6 B-Path RSDS data signal 4 VGL Driver Power supply 44 AD1P 6 A-Path RSDS data signal 5 VGL Driver Power supply 45 AD1M 6 A-Path RSDS data signal 6 VCM VCM Power supply 46 AD0P 6 A-Path RSDS data signal 7 VCM VCM Power supply 47 AD0M 6 A-Path RSDS data signal 8 VDDA Driver Power supply 48 BD1P 5 B-Path RSDS data signal 9 VDDA Driver Power supply 49 BD1M 5 B-Path RSDS data signal 10 VDD Logic Power supply 51 BD0M 5 B-Path RSDS data signal 11 VDD Logic Power supply 51 BD0M 5 B-Path RSDS data signal 12 GND Ground 52 GND Ground 13 VSCM VSCM Power supply	Pin No.	Symbol	Description	Pin No.	Symbol	Description				
3	1	GND	Ground	41	BD1M 6	B-Path RSDS data signal				
4 VGL Driver Power supply 44 AD1P 6 A-Path RSDS data signal 5 VGL Driver Power supply 45 AD1M 6 A-Path RSDS data signal 6 VCM VCM Power supply 46 AD0P 6 A-Path RSDS data signal 7 VCM VCM Power supply 47 AD0M 6 A-Path RSDS data signal 8 VDDA Driver Power supply 48 BD1P 5 B-Path RSDS data signal 9 VDDA Driver Power supply 50 BD0P 5 B-Path RSDS data signal 10 VDD Logic Power supply 51 BD0M 5 B-Path RSDS data signal 11 VDD Logic Power supply 51 BD0M 5 B-Path RSDS data signal 12 GND Ground 52 GND Ground 13 VSCM VSCM Power supply 53 GM20 Gamma Power supply 14 TP1 RSDS data latch 54 GM19 Gamma Power supply 15 STV Scan driver clock 56	2	VGH	Driver Power supply	42	BD0P 6	B-Path RSDS data signal				
5 VGL Driver Power supply 45 AD1M 6 A-Path RSDS data signal 6 VCM VCM Power supply 46 AD0P 6 A-Path RSDS data signal 7 VCM VCM Power supply 47 AD0M 6 A-Path RSDS data signal 8 VDDA Driver Power supply 48 BD1P 5 B-Path RSDS data signal 9 VDDA Driver Power supply 50 BD0P 5 B-Path RSDS data signal 10 VDD Logic Power supply 50 BD0P 5 B-Path RSDS data signal 11 VDD Logic Power supply 51 BD0M 5 B-Path RSDS data signal 12 GND Ground 52 GND Ground 13 VSCM VSCM Power supply 53 GM20 Gamma Power supply 14 TP1 RSDS data latch 54 GM19 Gamma Power supply 15 STV Scan driver start pulse 55 GM18 Gamma Power supply 16 CKV Scan driver clock 56	3	VGH	Driver Power supply	43	BD0M 6	B-Path RSDS data signal				
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7 VCM VCM Power supply 47 AD0M 6 A-Path RSDS data signal 8 VDDA Driver Power supply 48 BD1P 5 B-Path RSDS data signal 9 VDDA Driver Power supply 49 BD1M 5 B-Path RSDS data signal 10 VDD Logic Power supply 50 BD0P 5 B-Path RSDS data signal 11 VDD Logic Power supply 51 BD0M 5 B-Path RSDS data signal 12 GND Ground 52 GND Ground 13 VSCM VSCM Power supply 53 GM20 Gamma Power supply 14 TP1 RSDS data latch 54 GM19 Gamma Power supply 15 STV Scan driver start pulse 55 GM18 Gamma Power supply 16 CKV Scan driver olock 56 GM17 Gamma Power supply 17 OE2 Scan driver olock 56 GM15 Gamma Power supply 18 OE1 Scan driver olock 56 GM15	5	VGL	Driver Power supply	45	AD1M 6	A-Path RSDS data signal				
8 VDDA Driver Power supply 48 BD1P 5 B-Path RSDS data signal 9 VDDA Driver Power supply 49 BD1M 5 B-Path RSDS data signal 10 VDD Logic Power supply 50 BD0P 5 B-Path RSDS data signal 11 VDD Logic Power supply 51 BD0M 5 B-Path RSDS data signal 12 GND Ground 52 GND Ground 52 GND Ground 13 VSCM VSCM Power supply 53 GM20 Gamma Power supply 14 TP1 RSDS data latch 54 GM19 Gamma Power supply 15 STV Scan driver start pulse 55 GM18 Gamma Power supply 16 CKV Scan driver start pulse 55 GM18 Gamma Power supply 17 OE2 Scan driver output enable 2 57 GM16 Gamma Power supply 18 OE1 Scan driver output enable 2 57 GM16 Gamma Power supply 19 GND Ground 59 GM14 Gamma Power supply 20 BD1P 8 B-Path RSDS data signal 60 GM13 Gamma Power supply 21 BD1M 8 B-Path RSDS data signal 61 GM12 Gamma Power supply 22 BD0P 8 B-Path RSDS data signal 62 GM11 Gamma Power supply 23 BD0M 8 B-Path RSDS data signal 63 GM10 Gamma Power supply 24 AD1P 8 A-Path RSDS data signal 64 GM9 Gamma Power supply 25 AD1M 8 A-Path RSDS data signal 65 GM8 Gamma Power supply 26 AD1P 8 A-Path RSDS data signal 65 GM8 Gamma Power supply 27 AD0M 8 A-Path RSDS data signal 66 GM7 Gamma Power supply 28 GND Ground 68 GM7 Gamma Power supply 29 C CLKP Data driver clock 69 GM4 Gamma Power supply 30 C CLKM Data driver clock 69 GM4 Gamma Power supply 31 GND Ground 71 GM2 Gamma Power supply 32 BD1P 7 B-Path RSDS data signal 72 GM1 Gamma Power supply 33 BD1M 7 B-Path RSDS data signal 74 AD1P 5 A-Path RSDS data signal 73 GND Gamma Power supply 34 BD0P 7 B-Path RSDS data signal 75 AD1M 5 A-Path RSDS data signal 75 AD1M 5 A-Path RSDS data signal 76 GND Gamma Power supply 38 BD1P 7 B-Path RSDS data signal 75 AD1M 5 A-Path RSDS data signal 75 AD1M 5 A-Path RSDS data signal 77 N.C. No connection 37 AD1M 7 A-Path RSDS data signal 77 N.C. No connection	6	VCM	VCM Power supply	46	AD0P 6	A-Path RSDS data signal				
9 VDDA Driver Power supply 49 BD1M 5 B-Path RSDS data signal 10 VDD Logic Power supply 50 BD0P 5 B-Path RSDS data signal 11 VDD Logic Power supply 51 BD0M 5 B-Path RSDS data signal 12 GND Ground 52 GND Ground 13 VSCM VSCM Power supply 53 GM20 Gamma Power supply 14 TP1 RSDS data latch 54 GM19 Gamma Power supply 15 STV Scan driver start pulse 55 GM18 Gamma Power supply 16 CKV Scan driver clock 56 GM17 Gamma Power supply 17 OE2 Scan driver output enable 2 57 GM16 Gamma Power supply 18 OE1 Scan driver output enable 1 58 GM15 Gamma Power supply 19 GND Ground 59 GM14 Gamma Power supply 20 BD1P 8 B-Path RSDS data signal 60	7	VCM	VCM Power supply	47	AD0M 6	A-Path RSDS data signal				
10	8	VDDA	Driver Power supply	48	BD1P 5	B-Path RSDS data signal				
11	9	VDDA	Driver Power supply	49	BD1M 5	B-Path RSDS data signal				
12 GND Ground 52 GND Ground 13 VSCM VSCM Power supply 53 GM20 Gamma Power supply 14 TP1 RSDS data latch 54 GM19 Gamma Power supply 15 STV Scan driver start pulse 55 GM18 Gamma Power supply 16 CKV Scan driver clock 56 GM17 Gamma Power supply 17 OE2 Scan driver output enable 2 57 GM16 Gamma Power supply 18 OE1 Scan driver output enable 1 58 GM15 Gamma Power supply 19 GND Ground 59 GM14 Gamma Power supply 20 BD1P 8 B-Path RSDS data signal 60 GM13 Gamma Power supply 21 BD1M 8 B-Path RSDS data signal 61 GM12 Gamma Power supply 22 BD0P 8 B-Path RSDS data signal 62 GM11 Gamma Power supply 23 BD0M 8 B-Path RSDS data signal 64 <t< td=""><td>10</td><td>VDD</td><td>Logic Power supply</td><td>50</td><td>BD0P 5</td><td>B-Path RSDS data signal</td></t<>	10	VDD	Logic Power supply	50	BD0P 5	B-Path RSDS data signal				
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15STVScan driver start pulse55GM18Gamma Power supply16CKVScan driver clock56GM17Gamma Power supply17OE2Scan driver output enable 257GM16Gamma Power supply18OE1Scan driver output enable 158GM15Gamma Power supply19GNDGround59GM14Gamma Power supply20BD1P 8B-Path RSDS data signal60GM13Gamma Power supply21BD1M 8B-Path RSDS data signal61GM12Gamma Power supply22BD0P 8B-Path RSDS data signal62GM11Gamma Power supply23BD0M 8B-Path RSDS data signal63GM10Gamma Power supply24AD1P 8A-Path RSDS data signal64GM9Gamma Power supply25AD1M 8A-Path RSDS data signal65GM8Gamma Power supply26AD0P 8A-Path RSDS data signal66GM7Gamma Power supply27AD0M 8A-Path RSDS data signal67GM6Gamma Power supply28GNDGround68GM5Gamma Power supply29C CLKPData driver clock69GM4Gamma Power supply30C CLKMData driver clock70GM3Gamma Power supply31GNDGround71GM2Gamma Power supply32BD1P 7B-Path RSDS data signal72GM1Gamma Power supply<	13	VSCM	VSCM Power supply	53	GM20	Gamma Power supply				
16CKVScan driver clock56GM17Gamma Power supply17OE2Scan driver output enable 257GM16Gamma Power supply18OE1Scan driver output enable 158GM15Gamma Power supply19GNDGround59GM14Gamma Power supply20BD1P 8B-Path RSDS data signal60GM13Gamma Power supply21BD1M 8B-Path RSDS data signal61GM12Gamma Power supply22BD0P 8B-Path RSDS data signal62GM11Gamma Power supply23BD0M 8B-Path RSDS data signal63GM10Gamma Power supply24AD1P 8A-Path RSDS data signal64GM9Gamma Power supply25AD1M 8A-Path RSDS data signal65GM8Gamma Power supply26AD0P 8A-Path RSDS data signal66GM7Gamma Power supply27AD0M 8A-Path RSDS data signal67GM6Gamma Power supply28GNDGround68GM5Gamma Power supply29C CLKPData driver clock69GM4Gamma Power supply30C CLKMData driver clock69GM4Gamma Power supply31GNDGround71GM2Gamma Power supply32BD1P 7B-Path RSDS data signal72GM1Gamma Power supply33BD1M 7B-Path RSDS data signal74AD1P 5A-Path RSDS data signal	14	TP1	RSDS data latch	54	GM19	Gamma Power supply				
17 OE2 Scan driver output enable 2 57 GM16 Gamma Power supply 18 OE1 Scan driver output enable 1 58 GM15 Gamma Power supply 19 GND Ground 59 GM14 Gamma Power supply 20 BD1P 8 B-Path RSDS data signal 60 GM13 Gamma Power supply 21 BD1M 8 B-Path RSDS data signal 61 GM12 Gamma Power supply 22 BD0P 8 B-Path RSDS data signal 62 GM11 Gamma Power supply 23 BD0M 8 B-Path RSDS data signal 63 GM10 Gamma Power supply 24 AD1P 8 A-Path RSDS data signal 64 GM9 Gamma Power supply 25 AD1M 8 A-Path RSDS data signal 65 GM8 Gamma Power supply 26 AD0P 8 A-Path RSDS data signal 66 GM7 Gamma Power supply 27 AD0M 8 A-Path RSDS data signal 67 GM6 Gamma Power supply 28 GND Ground 68 GM5 Gamma Power supply 29 C CLKP Data driver clock 69 GM4 Gamma Power supply 30 C CLKM Data driver clock 70 GM3 Gamma Power supply 31 GND Ground 71 GM2 Gamma Power supply 32 BD1P 7 B-Path RSDS data signal 72 GM1 Gamma Power supply 33 BD1M 7 B-Path RSDS data signal 73 GND Ground 34 BD0P 7 B-Path RSDS data signal 75 AD1M 5 A-Path RSDS data signal 36 AD1P 7 A-Path RSDS data signal 76 N.C. No connection	15	STV	Scan driver start pulse	55	GM18	Gamma Power supply				
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19GNDGround59GM14Gamma Power supply20BD1P_8B-Path RSDS data signal60GM13Gamma Power supply21BD1M 8B-Path RSDS data signal61GM12Gamma Power supply22BD0P 8B-Path RSDS data signal62GM11Gamma Power supply23BD0M 8B-Path RSDS data signal63GM10Gamma Power supply24AD1P 8A-Path RSDS data signal64GM9Gamma Power supply25AD1M 8A-Path RSDS data signal65GM8Gamma Power supply26AD0P 8A-Path RSDS data signal66GM7Gamma Power supply27AD0M 8A-Path RSDS data signal67GM6Gamma Power supply28GNDGround68GM5Gamma Power supply29C CLKPData driver clock69GM4Gamma Power supply30C CLKMData driver clock70GM3Gamma Power supply31GNDGround71GM2Gamma Power supply32BD1P 7B-Path RSDS data signal72GM1Gamma Power supply33BD1M 7B-Path RSDS data signal73GNDGround34BD0P 7B-Path RSDS data signal74AD1P 5A-Path RSDS data signal36AD1P 7A-Path RSDS data signal75AD1M 5A-Path RSDS data signal36AD1P 7A-Path RSDS data signal76N.C.No connection <td>17</td> <td>OE2</td> <td>Scan driver output enable 2</td> <td>57</td> <td>GM16</td> <td> Gamma Power supply </td>	17	OE2	Scan driver output enable 2	57	GM16	 Gamma Power supply 				
BD1P 8 B-Path RSDS data signal 60 GM13 Gamma Power supply BD1M 8 B-Path RSDS data signal 61 GM12 Gamma Power supply BD0P 8 B-Path RSDS data signal 62 GM11 Gamma Power supply BD0M 8 B-Path RSDS data signal 63 GM10 Gamma Power supply AD1P 8 A-Path RSDS data signal 64 GM9 Gamma Power supply AD1P 8 A-Path RSDS data signal 65 GM8 Gamma Power supply AD1M 8 A-Path RSDS data signal 65 GM8 Gamma Power supply AD1M 8 A-Path RSDS data signal 66 GM7 Gamma Power supply AD0M 8 A-Path RSDS data signal 67 GM6 Gamma Power supply AD0M 8 A-Path RSDS data signal 67 GM6 Gamma Power supply AD0M 8 A-Path RSDS data signal 68 GM5 Gamma Power supply AD0M 8 A-Path RSDS data signal 69 GM4 Gamma Power supply AD1M Ground 68 GM5 Gamma Power supply AD2 C CLKP Data driver clock 69 GM4 Gamma Power supply AD3 C CLKM Data driver clock 70 GM3 Gamma Power supply AD3 GROD Ground 71 GM2 Gamma Power supply AD3 GROD Ground 71 GM2 Gamma Power supply AD4 GAMMA POWER Supply AD5 GROUND GROUND GROUND AD6 GROUND GROUND AD6 GROUND AD7 B-Path RSDS data signal 72 GM1 Gamma Power supply AD6 GROUND AD7 B-Path RSDS data signal 74 AD1P 5 A-Path RSDS data signal AD1P 7 A-Path RSDS data signal 75 AD1M 5 A-Path RSDS data signal AD1P 7 A-Path RSDS data signal 76 N.C. No connection	18	OE1	Scan driver output enable 1	58	GM15	Gamma Power supply				
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22BD0P 8B-Path RSDS data signal62GM11Gamma Power supply23BD0M 8B-Path RSDS data signal63GM10Gamma Power supply24AD1P 8A-Path RSDS data signal64GM9Gamma Power supply25AD1M 8A-Path RSDS data signal65GM8Gamma Power supply26AD0P 8A-Path RSDS data signal66GM7Gamma Power supply27AD0M 8A-Path RSDS data signal67GM6Gamma Power supply28GNDGround68GM5Gamma Power supply29C CLKPData driver clock69GM4Gamma Power supply30C CLKMData driver clock70GM3Gamma Power supply31GNDGround71GM2Gamma Power supply32BD1P 7B-Path RSDS data signal72GM1Gamma Power supply33BD1M 7B-Path RSDS data signal73GNDGround34BD0P 7B-Path RSDS data signal74AD1P 5A-Path RSDS data signal35BD0M 7B-Path RSDS data signal75AD1M 5A-Path RSDS data signal36AD1P 7A-Path RSDS data signal76N.C.No connection37AD1M 7A-Path RSDS data signal77N.C.No connection	20	BD1P_8	B-Path RSDS data signal	60	GM13	Gamma Power supply				
23BD0M 8B-Path RSDS data signal63GM10Gamma Power supply24AD1P 8A-Path RSDS data signal64GM9Gamma Power supply25AD1M 8A-Path RSDS data signal65GM8Gamma Power supply26AD0P 8A-Path RSDS data signal66GM7Gamma Power supply27AD0M 8A-Path RSDS data signal67GM6Gamma Power supply28GNDGround68GM5Gamma Power supply29C CLKPData driver clock69GM4Gamma Power supply30C CLKMData driver clock70GM3Gamma Power supply31GNDGround71GM2Gamma Power supply32BD1P 7B-Path RSDS data signal72GM1Gamma Power supply33BD1M 7B-Path RSDS data signal73GNDGround34BD0P 7B-Path RSDS data signal74AD1P 5A-Path RSDS data signal35BD0M 7B-Path RSDS data signal75AD1M 5A-Path RSDS data signal36AD1P 7A-Path RSDS data signal76N.C.No connection37AD1M 7A-Path RSDS data signal77N.C.No connection	21	BD1M_8	B-Path RSDS data signal	61	GM12	Gamma Power supply				
24AD1P 8A-Path RSDS data signal64GM9Gamma Power supply25AD1M 8A-Path RSDS data signal65GM8Gamma Power supply26AD0P 8A-Path RSDS data signal66GM7Gamma Power supply27AD0M 8A-Path RSDS data signal67GM6Gamma Power supply28GNDGround68GM5Gamma Power supply29C CLKPData driver clock69GM4Gamma Power supply30C CLKMData driver clock70GM3Gamma Power supply31GNDGround71GM2Gamma Power supply32BD1P 7B-Path RSDS data signal72GM1Gamma Power supply33BD1M 7B-Path RSDS data signal73GNDGround34BD0P 7B-Path RSDS data signal74AD1P 5A-Path RSDS data signal35BD0M 7B-Path RSDS data signal75AD1M 5A-Path RSDS data signal36AD1P 7A-Path RSDS data signal76N.C.No connection37AD1M 7A-Path RSDS data signal77N.C.No connection	22	BD0P_8	B-Path RSDS data signal	62	GM11	Gamma Power supply				
25AD1M 8A-Path RSDS data signal65GM8Gamma Power supply26AD0P 8A-Path RSDS data signal66GM7Gamma Power supply27AD0M 8A-Path RSDS data signal67GM6Gamma Power supply28GNDGround68GM5Gamma Power supply29C CLKPData driver clock69GM4Gamma Power supply30C CLKMData driver clock70GM3Gamma Power supply31GNDGround71GM2Gamma Power supply32BD1P 7B-Path RSDS data signal72GM1Gamma Power supply33BD1M 7B-Path RSDS data signal73GNDGround34BD0P 7B-Path RSDS data signal74AD1P 5A-Path RSDS data signal35BD0M 7B-Path RSDS data signal75AD1M 5A-Path RSDS data signal36AD1P 7A-Path RSDS data signal76N.C.No connection37AD1M 7A-Path RSDS data signal77N.C.No connection	23	BD0M_8	B-Path RSDS data signal	63	GM10	Gamma Power supply				
26AD0P 8A-Path RSDS data signal66GM7Gamma Power supply27AD0M 8A-Path RSDS data signal67GM6Gamma Power supply28GNDGround68GM5Gamma Power supply29C CLKPData driver clock69GM4Gamma Power supply30C CLKMData driver clock70GM3Gamma Power supply31GNDGround71GM2Gamma Power supply32BD1P 7B-Path RSDS data signal72GM1Gamma Power supply33BD1M 7B-Path RSDS data signal73GNDGround34BD0P 7B-Path RSDS data signal74AD1P 5A-Path RSDS data signal35BD0M 7B-Path RSDS data signal75AD1M 5A-Path RSDS data signal36AD1P 7A-Path RSDS data signal76N.C.No connection37AD1M 7A-Path RSDS data signal77N.C.No connection	24	AD1P_8	A-Path RSDS data signal	64	GM9	Gamma Power supply				
27AD0M 8A-Path RSDS data signal67GM6Gamma Power supply28GNDGround68GM5Gamma Power supply29C CLKPData driver clock69GM4Gamma Power supply30C CLKMData driver clock70GM3Gamma Power supply31GNDGround71GM2Gamma Power supply32BD1P 7B-Path RSDS data signal72GM1Gamma Power supply33BD1M 7B-Path RSDS data signal73GNDGround34BD0P 7B-Path RSDS data signal74AD1P 5A-Path RSDS data signal35BD0M 7B-Path RSDS data signal75AD1M 5A-Path RSDS data signal36AD1P 7A-Path RSDS data signal76N.C.No connection37AD1M 7A-Path RSDS data signal77N.C.No connection	25	AD1M_8	A-Path RSDS data signal	65	GM8	Gamma Power supply				
28GNDGround68GM5Gamma Power supply29C CLKPData driver clock69GM4Gamma Power supply30C CLKMData driver clock70GM3Gamma Power supply31GNDGround71GM2Gamma Power supply32BD1P 7B-Path RSDS data signal72GM1Gamma Power supply33BD1M 7B-Path RSDS data signal73GNDGround34BD0P 7B-Path RSDS data signal74AD1P 5A-Path RSDS data signal35BD0M 7B-Path RSDS data signal75AD1M 5A-Path RSDS data signal36AD1P 7A-Path RSDS data signal76N.C.No connection37AD1M 7A-Path RSDS data signal77N.C.No connection	26	AD0P_8	A-Path RSDS data signal	66	GM7	Gamma Power supply				
29C CLKPData driver clock69GM4Gamma Power supply30C CLKMData driver clock70GM3Gamma Power supply31GNDGround71GM2Gamma Power supply32BD1P 7B-Path RSDS data signal72GM1Gamma Power supply33BD1M 7B-Path RSDS data signal73GNDGround34BD0P 7B-Path RSDS data signal74AD1P 5A-Path RSDS data signal35BD0M 7B-Path RSDS data signal75AD1M 5A-Path RSDS data signal36AD1P 7A-Path RSDS data signal76N.C.No connection37AD1M 7A-Path RSDS data signal77N.C.No connection	27	AD0M_8	A-Path RSDS data signal	67	GM6	Gamma Power supply				
30C CLKMData driver clock70GM3Gamma Power supply31GNDGround71GM2Gamma Power supply32BD1P 7B-Path RSDS data signal72GM1Gamma Power supply33BD1M 7B-Path RSDS data signal73GNDGround34BD0P 7B-Path RSDS data signal74AD1P 5A-Path RSDS data signal35BD0M 7B-Path RSDS data signal75AD1M 5A-Path RSDS data signal36AD1P 7A-Path RSDS data signal76N.C.No connection37AD1M 7A-Path RSDS data signal77N.C.No connection	28	GND	Ground	68	GM5	Gamma Power supply				
31GNDGround71GM2Gamma Power supply32BD1P 7B-Path RSDS data signal72GM1Gamma Power supply33BD1M 7B-Path RSDS data signal73GNDGround34BD0P 7B-Path RSDS data signal74AD1P 5A-Path RSDS data signal35BD0M 7B-Path RSDS data signal75AD1M 5A-Path RSDS data signal36AD1P 7A-Path RSDS data signal76N.C.No connection37AD1M 7A-Path RSDS data signal77N.C.No connection	29	C_CLKP	Data driver clock	69	GM4	Gamma Power supply				
32BD1P 7B-Path RSDS data signal72GM1Gamma Power supply33BD1M 7B-Path RSDS data signal73GNDGround34BD0P 7B-Path RSDS data signal74AD1P 5A-Path RSDS data signal35BD0M 7B-Path RSDS data signal75AD1M 5A-Path RSDS data signal36AD1P 7A-Path RSDS data signal76N.C.No connection37AD1M 7A-Path RSDS data signal77N.C.No connection	30	C_CLKM	Data driver clock	70	GM3	Gamma Power supply				
33BD1M 7B-Path RSDS data signal73GNDGround34BD0P 7B-Path RSDS data signal74AD1P 5A-Path RSDS data signal35BD0M 7B-Path RSDS data signal75AD1M 5A-Path RSDS data signal36AD1P 7A-Path RSDS data signal76N.C.No connection37AD1M 7A-Path RSDS data signal77N.C.No connection		GND	Ground	71	GM2	Gamma Power supply				
34BD0P 7B-Path RSDS data signal74AD1P 5A-Path RSDS data signal35BD0M 7B-Path RSDS data signal75AD1M 5A-Path RSDS data signal36AD1P 7A-Path RSDS data signal76N.C.No connection37AD1M 7A-Path RSDS data signal77N.C.No connection	32	BD1P_7	B-Path RSDS data signal	72	GM1	Gamma Power supply				
35BD0M 7B-Path RSDS data signal75AD1M 5A-Path RSDS data signal36AD1P 7A-Path RSDS data signal76N.C.No connection37AD1M 7A-Path RSDS data signal77N.C.No connection		BD1M_7	B-Path RSDS data signal		GND					
36AD1P 7A-Path RSDS data signal76N.C.No connection37AD1M 7A-Path RSDS data signal77N.C.No connection	34	BD0P_7	B-Path RSDS data signal	74	AD1P_5	A-Path RSDS data signal				
37 AD1M 7 A-Path RSDS data signal 77 N.C. No connection	35	BD0M_7	B-Path RSDS data signal	75	AD1M_5	A-Path RSDS data signal				
	36	AD1P_7	A-Path RSDS data signal	76	N.C.	No connection				
38 ADDP 7 A-Path RSDS data signal 78 ADDP 5 A-Path RSDS data signal	37	AD1M_7	A-Path RSDS data signal	77	N.C.	No connection				
30 Abot 7 A-1 dil 11000 data signal 10 Abot 5 A-1 dil 11000 data signal	38	AD0P 7	A-Path RSDS data signal	78	AD0P_5	A-Path RSDS data signal				
39 AD0M 7 A-Path RSDS data signal 79 AD0M 5 A-Path RSDS data signal	39	ADOM 7	A-Path RSDS data signal	79	AD0M_5	A-Path RSDS data signal				
40 BD1P 6 B-Path RSDS data signal 80 GND Ground	40	BD1P 6	B-Path RSDS data signal	80	GND	Ground				

Note (1) C_CN1 \ 2 Connector Part No.: FH31H-80S-0.5SH(06), Hirose



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6. OPTICAL CHARACTERISTICS

6.1 TEST CONDITIONS

Item	Symbol	Value	Unit		
Ambient Temperature	Та	25±2	°C		
Ambient Humidity	На	50±10	%RH		
Supply Voltage	V_{CC}	12V	V		
Input Signal	According to typical value in "3. ELECTRICAL CHARACTERISTICS"				
Lamp Current	lL	10.5±0.3	mA		
Oscillating Frequency (Inverter)	F_W	46±3	KHz		
Vertical Frame Rate	Fr	120	Hz		

6.2 OPTICAL SPECIFICATIONS

The relative measurement methods of optical characteristics are shown in 7.2. The following items should be measured under the test conditions described in 7.1 and stable environment shown in Note (6).

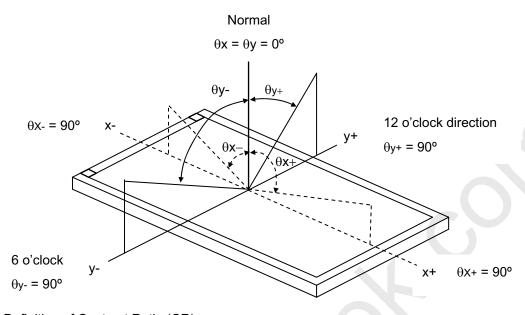
			scribed in 7.1 and stable				· ,	NI. t.
Ite	em	Symbol	Condition	Min.	Тур.	Max.	Unit	Note
Contrast Ratio		CR		3800	5000	-	-	Note (2)
Response Tim	e	Gray to gray		-	4.5	8	ms	Note (3)
Center Lumina	ance of White	L _c		450	500	-	cd/ m ²	Note (4)
White Variation	า	δW		-	-	1.3	-	Note (7)
Cross Talk		СТ		-	-	4	%	Note (5)
	Red	Rx	$\theta_x = 0^\circ, \ \theta_Y = 0^\circ$		0.634	Typ.+	-	Note (6)
		Ry	Viewing angle at		0.323		-	
	Green	Gx	normal direction		0.287		-	
Color		Gy		Тур	0.602		-	
Color Chromaticity	Blue	Bx		0.03	0.148	0.03	-	Note (6)
Chilomaticity		Ву			0.056		-	
		Wx			0.280		-	
	White	Wy			0.290		-	
11/2	Color Gamut				72	-	%	NTSC
Viewing Angle	I I a wiss a suit of	θ^{x} +	CR≥20	80	88	-	- Deg.	Note (1)
	Horizontal	θ _x -		80	88	-		
	\/ort: 1	θ _Y +		80	88	-		
	Vertical	θ _Y -		80	88	-		



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Note (1) Definition of Viewing Angle (θx , θy):

Viewing angles are measured by Eldim EZ-Contrast 160R



Note (2) Definition of Contrast Ratio (CR):

The contrast ratio can be calculated by the following expression.

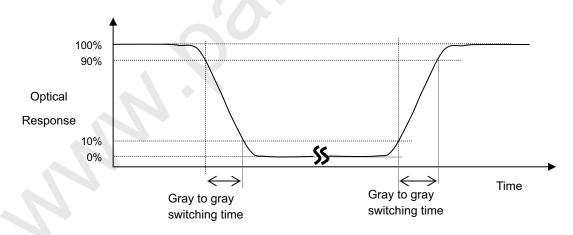
Contrast Ratio (CR) = L1023 / L0

L1023: Luminance of gray level 1023

L 0: Luminance of gray level 0

CR = CR (5), where CR (X) is corresponding to the Contrast Ratio of the point X at the figure in Note (7)

Note (3) Definition of Gray to Gray Switching Time:



The driving signal means the signal of luminance 0%, 20%, 40%, 60%, 80%, 100%.

Gray to gray average time means the average switching time of luminance 0%,20%, 40%, 60%, 80%, 100% to each other.



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Note (4) Definition of Luminance of White (L_C):

Measure the luminance of gray level 1023 at center point.

 $L_C = L$ (5), where L (x) is corresponding to the luminance of the point X at the figure in Note (7).

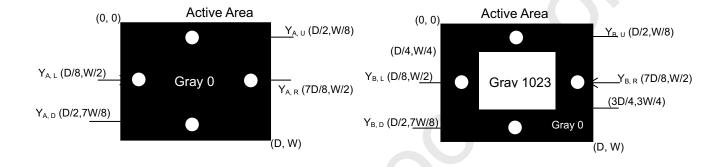
Note (5) Definition of Cross Talk (CT):

$$CT = | Y_B - Y_A | / Y_A \times 100 (\%)$$

Where:

Y_A = Luminance of measured location without gray level 204 pattern (cd/m²)

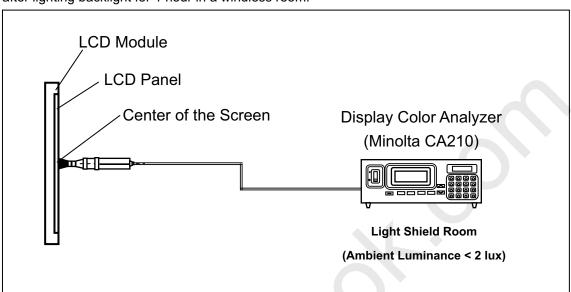
Y_B = Luminance of measured location with gray level 1023 pattern (cd/m²)





Note (6) Measurement Setup:

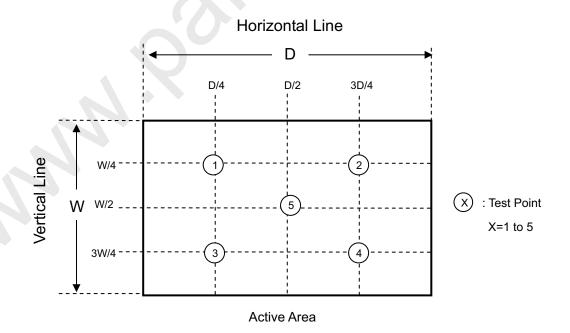
The LCD module should be stabilized at given temperature for 1 hour to avoid abrupt temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after lighting backlight for 1 hour in a windless room.



Note (7) Definition of White Variation (δW):

Measure the luminance of gray level 1023 at 5 points

 $\delta W = Maximum [L (1), L (2), L (3), L (4), L (5)] / Minimum [L (1), L (2), L (3), L (4), L (5)]$





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7. DEFINITION OF LABELS

7.1 OPEN CELL LABEL

The barcode nameplate is pasted on each open cell as illustration for CMO internal control.



7.2 CARTON LABEL

The barcode nameplate is pasted on each box as illustration, and its definitions are as following explanation



(a) Model Name: V460H1-PH5

(b) Carton ID: CMO internal control

(c) Quantities: 8



8. PACKAGING

8.1 PACKING SPECIFICATIONS

- (1) 8 LCD TV Panels / 1 Box
- (2) Box dimensions :1238 (L) X 842 (W) X 240(H)
- (3) Weight: approximately 38Kg (8 panels per box)

8.2 PACKING METHOD

Figures 9-1 and 9-2 are the packing method

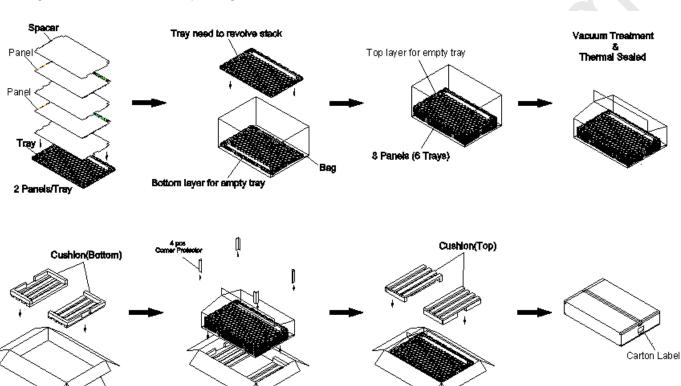
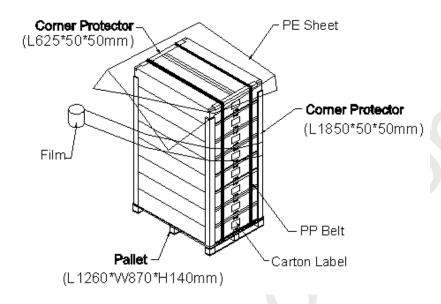


Figure.9-1 packing method



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Sea & Land Transportation Gross: 319kg



Air Transportation Gross: 243kg

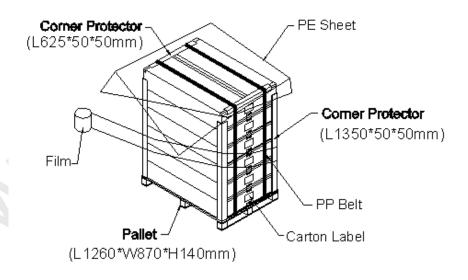


Figure.9-2 packing method



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9. PRECAUTIONS

9.1 ASSEMBLY AND HANDLING PRECAUTIONS

- (1) Do not apply rough force such as bending or twisting to the product during assembly.
- (2) To assemble backlight or install module into user's system can be only in clean working areas. The dust and oil may cause electrical short or worsen the polarizer.
- (3) It's not permitted to have pressure or impulse on the module because the LCD panel will be damaged.
- (4) Always follow the correct power sequence when the product is connecting and operating. This can prevent damage to the CMOS LSI chips during latch-up.
- (5) Do not pull the I/F connector in or out while the module is operating.
- (6) Use a soft dry cloth without chemicals for cleaning, because the surface of polarizer is very soft and easily scratched.
- (7) It is dangerous that moisture come into or contacted the product, because moisture may damage the product when it is operating.
- (8) High temperature or humidity may reduce the performance of module. Please store this product within the specified storage conditions.
- (9) When ambient temperature is lower than 10°C may reduce the display quality. For example, the response time will become slowly.

9.2 SAFETY PRECAUTIONS

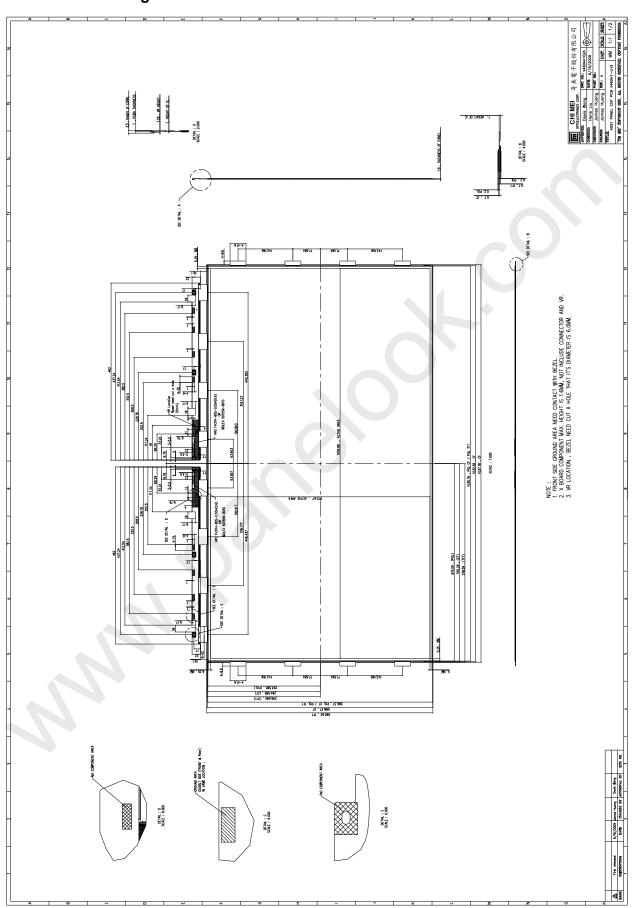
- (1) If the liquid crystal material leaks from the panel, it should be kept away from the eyes or mouth. In case of contact with hands, skin or clothes, it has to be washed away thoroughly with soap.
- (2) After the product's end of life, it is not harmful in case of normal operation and storage.





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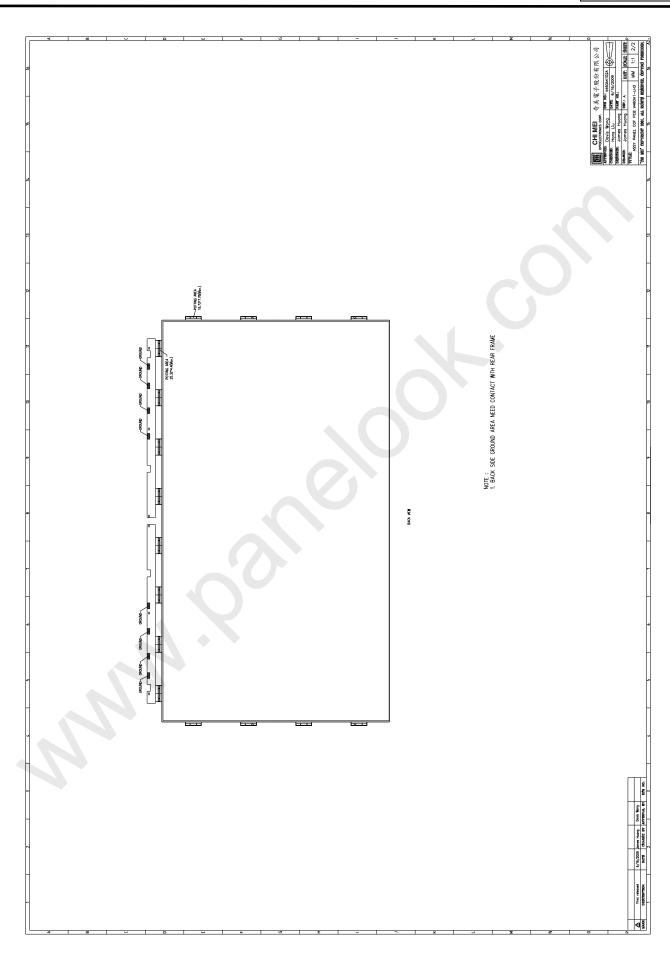
10. Mechanical Drawing







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