

# **L50A/L50AF**

**Multiscanning Color Monitor**

**TECHNICAL SERVICE MANUAL**



## Safety Precaution

### WARNING

Service should not be attempted by anyone unfamiliar with the necessary precautions on this monitor. The followings are the necessary precautions to be observed before servicing.

1. When managing this monitor , cover with shield plate to avoid to scratch on LCD surface.
2. When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as nonmetallic control knobs, insulating covers, shields, isolation resistor capacitor network etc.
3. Before returning the monitor to the customer, always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as signal connectors, terminals, screw heads, metal overlays, control shafts etc, to be sure the monitor is safe to operate without danger of electrical shock.

## General Information

### 1. Description

This 15" LCD color display monitor is operated in R, G, B drive mode input.

### 2. Operating instructions

#### 2-1. Front

Power Switch , Menu, Select, Down, Up, DPMS (Power) LED

#### 2-2. Rear

Input connector (AC & Signal Cable)

#### 2-3. OSD Controls

H/V Position, Clock (H-Size), Clock Phase, Brightness, Contrast, Recall, Color Control, Preset mode, Language, OSD Adjust , Auto Adjust

### 3. Electrical Characteristic

#### 3-1. Power Supply

AC/DC - Input Voltage : 90V~264V  
Input Current : 1.5 A Max  
Input Frequency : 50 ~ 60Hz  
- Output Voltage 12V/5V  
Output Current 2A/2A

#### 3-2. Video Input Signal

Level : 0.7 Vp-p analog signal(at 75 ohm termination to ground)  
Polarity : Positive

#### 3-3. Horizontal Synchronization Signal

Level : TTL High : 2.4V min  
Low : 0.4V max  
Polarity : - or +  
Frequency : 31kHz ~ 68.7kHz  
\*Framelock Mode : 31.0 kHz ~ 60.0kHz

#### 3-4. Vertical Synchronization Signal

Level : TTL High : 2.4V min  
Low : 0.4V max  
Polarity : - or +  
Frequency : 44Hz ~ 87Hz  
\*Framelock Mode : 44Hz ~ 75Hz



# Control Description

Front View



## Support Modes

NO	Resolution	H Frequency (kHz)	V Frequency (Hz)	H Polarity	V Polarity	V Polarity
1	640 x350 *	31.5	70.0	1	0	25.175
2	640 x 400 *	31.5	70.0	0	1	25.420
3	720 x 400 *	31.5	70.1	0	1	28.322
4	640 x 350	37.9	85.1	1	0	31.500
5	640 x 400	37.9	85.1	0	1	31.500
6	720 x 400	37.9	85.0	0	1	35.500
7	640 x 480 *	31.5	59.9	0	0	25.175
8	640 x 480 *	37.9	72.8	0	0	31.500
9	640 x 480	43.3	85.0	0	0	36.000
10	800 x 600 *	35.2	56.3	1	1	36.000
11	800 x 600 *	37.9	60.3	1	1	40.000
12	800 x 600 *	48.1	72.2	1	1	50.000
13	800 x 600 *	46.9	75.0	1	1	49.500
14	800 x 600	53.7	85.1	1	1	56.250
15	832 x 624 *	49.7	74.5	0	0	57.283
16	1024 x 768	35.5	86.9	1	1	44.900(i)
17	1024 x 768 *	48.4	60.0	0	0	65.000
18	1024 x 768 *	56.5	70.1	0	0	75.000
19	1024 x 768 *	60.0	75.0	1	1	78.750
20	1024 x 768	68.7	85.0	1	1	94.500

\* : Framelock Mode Timing

i : Interlace Mode Timing

## Preset Mode Timing

NO.	Resolution	Horizontal Frequency	Refresh rate
1	640 x 350 *	25.175	70.086
2	640 x 400 *	25.420	69.911
3	720 x 400 *	28.322	70.087
4	640 x 350	31.500	85.080
5	640 x 400	31.500	85.080
6	720 x 400	35.500	85.039
7	640 x 480 *	25.175	59.940
8	640 x 480 *	31.500	72.809
9	640 x 480	36.000	85.008
10	800 x 600 *	36.000	56.250
11	800 x 600 *	40.000	60.317
12	800 x 600 *	49.500	75.000
13	800 x 600 *	50.000	72.188
14	800 x 600	56.250	85.061
15	832 x 624 *	57.283	74.550
16	1024 x 768	44.900	86.900
17	1024 x 768 *	65.000	60.004
18	1024 x 768 *	75.000	70.069
19	1024 x 768 *	78.750	75.029
20	1024 x 768	94.500	84.997

\* Framelock Mode Timing

## Video Input Signal

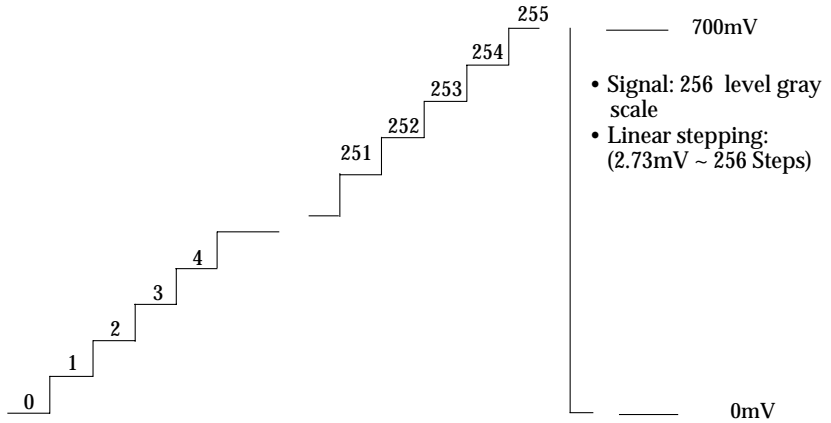
Recommended signal are shown below

- **Video Signal**

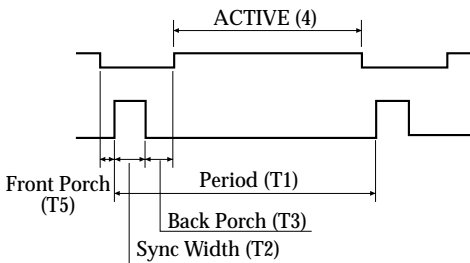
- Video level : 0 to 700mV
- Polarity : positive
- Video Input : RGB separated
- Analog level
- Sync input : H-Sync(TTL level)
- V-Sync (TTL level)

- **Waveform**

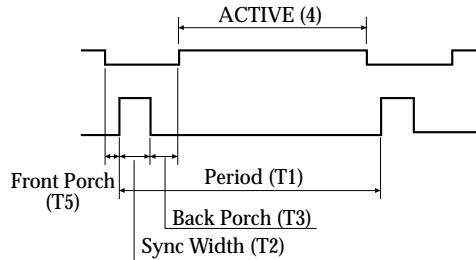
Video input(R.G.B)



- **H-Sync**



- **V-Sync**



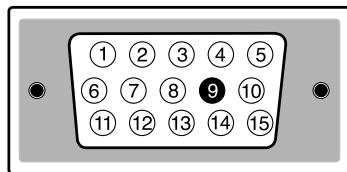
## Video Input Terminal

A 15 Pin D-sub connector is used as the input signal connector  
Pin and input signals are shown in the table below.

### Pin Description

PIN NO.	SIGNAL	SEPARATE SYNC/ DDC 1/2B
1		RED
2		GREEN
3		BLUE
4		GND
5		RETURN
6		RED GROUND
7		GREEN GROUND
8		BLUE GROUND
9		N.C
10		LOGIC GROUND
11		GROUND
12		SDA
13		H-SYNC(TTL)
14		V-SYNC(VCLK)
15		SCL

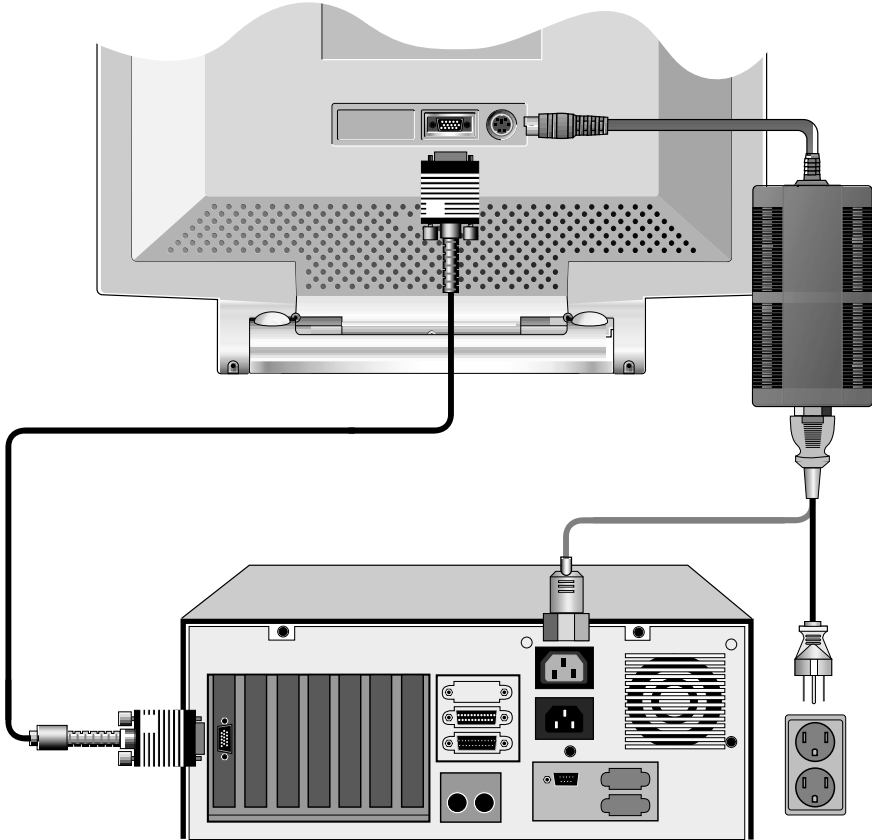
### D-Sub miniature connector



## Connecting with External Equipment

### Cautions

Be sure to turn off the power of your computer before connecting the monitor.



# Theory of Operation

## 1. AC/DC Adapter

Input voltage : 90 ~ 264 Vac, 50/60 Hz  
 Input current : Max 1.5A (Vin : 90Vac , 50Hz)  
 Inrush current : 15A peak (At 115Vac Max . Load)  
 30A peak (At 230Vac Max. Load)  
 Output voltage : 18Vdc (At 115Vac / 230Vac Max , Load)  
 Output current : 2.5Adc (Max. Load)  
 Over Current Protection : 3.0 ~5.0Adc (At 115Vac / 230Vac)

## 2. DC/AC INVERTER

Input voltage : DC 12V  
 Input current : 2.0A(Max)  
 Output current : 15.0mA(Max) , 3.0mA(Min)  
 Frequency(switching) : 40KHz  
 Output power : 4.5W(Max)  
 On/off control voltage : 5.0V

## 3. Video circuit

Input signals are amplified by a preamp TDA9206, then a gain of R.G.B Signal are changed by controlling Color Temperature(OSD Adjust). Amplified video signals are input to the ADC(Analog to Digital Converter) and converted to digital signals. Again,digitized video signals are input to the MX88271(or MX88281:Video Processor), and output to the LCD module as synchronized timing after it execute the function of Zooming, Scaling, Frame Rate Conversion, Brightness, Contrast, Dithering, Gamma compensation etc...

## 4. Clock(H-size)

Clock generator, CXA3106A(PLL Chip), is controlled by MCU.  
 Pixel clock is changed according to each video mode.

## 5. DPMS MODE

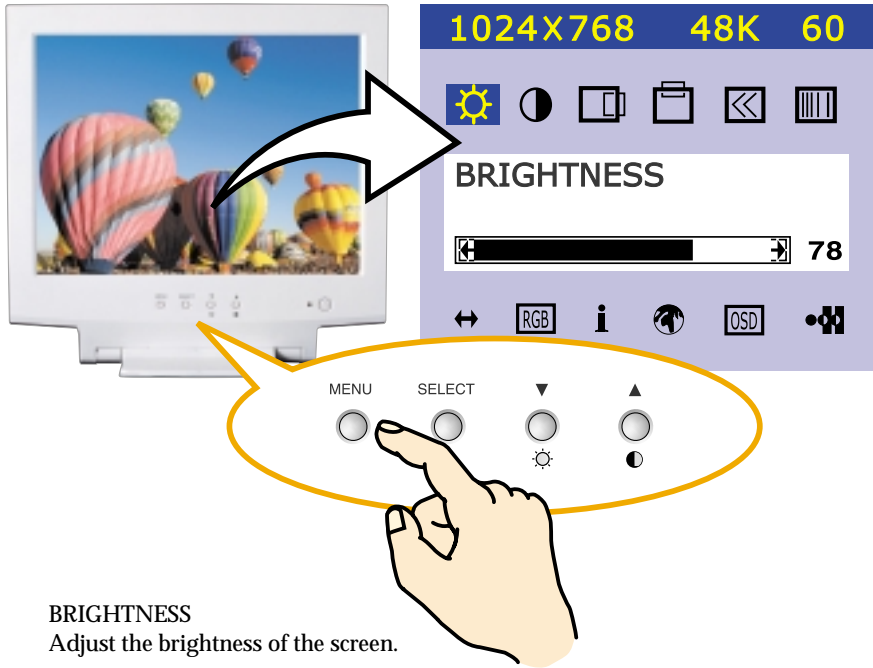
Reference to DPMS files

Status	Signal			Power Consumption	Recovery Time	LED Indicator
	H-Sync	V-Sync	Video			
on	Pulse	Pulse	Active	40W	-	Green
Suspend	Pulse	No Pulse	Blank	Less Than 10W	Within3 Sec	Green/Orange(about 0.5 sec)
off	No Pulse	No Pulse	Blank	Less Than 5W	Within 3 Sec	Orange

## On Screen Controls & LED Indicator

The menu for screen setting adjustment is located in the OSD and can be viewed in one of five languages

OSD feature and main functions are as follows:



**BRIGHTNESS**  
Adjust the brightness of the screen.



**CONTRAST**  
Adjust the contrast of the screen.



**H-POSITION**  
Adjust the horizontal position of the entire screen image.



**V-POSITION**  
Adjust the vertical position of the entire screen image.



**CLOCK (WIDTH)**  
Adjust the horizontal size of the entire screen image.



**CLOCK-PHASE**  
Adjust the noise of the screen image.



**AUTO ADJUST**  
Adjust the shape of screen automatically.



**COLOR CONTROL**  
Color temperature affects the tint of the image. With lower color temperatures the image turns reddish and with higher temperatures bluish.

There are three color settings available: Mode 1(a cool white), Mode 2(a warm white) or USER. With the USER setting you can set individual values for red, green and blue.



#### INFORMATION

Information shows the horizontal and vertical frequency of your display unit. The Information menu lists modes which are preset at the factory and modes which have been defined by user. It also shows you the mode your display unit is currently operating in. you can set the display mode (frequency and refresh rate) in Windows.



#### LANGUAGE

You can select the language in which adjustment menus are displayed. The following languages are available: English, French, German, Italian, Spanish, Swedish, Finnish, Danish, Portuguese and Japanese or Korean.



#### OSD ADJUST

You can adjust the OSD menu's horizontal or vertical position on the screen. You can also adjust display time of the OSD menu from 5 to 50 seconds.



#### TEST PATTERN

Displays internal test pattern.



The Clock Phase may not be optimized when the input timing is not comply with VESA standard timing. In order to get the optimized result of Auto Adjust Function, it is recommended to display bright color image on the entire screen before proceeding Auto Adjust Function.



**Getting Fine Picture**

**Step 1.** At first Display, a full screen, such as, Window's background or "H" character should be achieved by using Editor (ex: Notepad. exe)

**Step 2.** Adjust the screen to the center of the Display(LCD), by using the top and bottom display controls. (i.e.Using V-Position Adjust menu)



**Step 3.** Adjust the screen to the center of the Display(LCD), by using the right and left display controls. (i.e.Using Clock and H-Position adjust menu)



**Step 4.** Adjust the Clock-phase until the "H" Character displays clear.



**Step 5.** Using the Contrast, Brightness, and Color Control menu, set the color to your preference.

**Step 6.** When you finish the adjustment, you can save your settings by pressing on the menu until the OSD screen has disappeared.

**Factory Setting & EEPROM Initialization Method**

**Factory Setting Method**

- Connect the signal cable and power cable to the LCD monitor.
- Press Power switch with pressed MENU key.(Menu key + Power key).
- Then, a User can change the factory setting value in OSD menu.
- Save changed value and Turn off the power s/w.
- Turn on the power, adjust the screen.

## Specification

LCD Module	SIZE	15" Viewable diagonal
	Dot Pitch	0.297mm
	Brightness	180 cd/m <sup>2</sup> (MIN), 200 cd/m <sup>2</sup> (TYP)
	Response Time	40m- sec (Max.)
Input	Signal	R.G.B Analog
	Connector	15 pin D-SUB Connector
SYNC	H-Freq	31.0 kHz~68.7 kHz / 31.0kHz ~ 60.0kHz (Framelock Mode)
	V-Freq	44 Hz ~ 87 Hz / 44.0Hz ~ 75Hz (Framelock Mode)
Display	Area	304(H)X228(V)mm
	Color	16.7M Colors
Resolution		1024X768 @ 85Hz / 1024 X 768 @ 75Hz (Framelock Mode)
Video Bandwidth		94.5MHz Max / 80MHz (Framelock Mode)
User Control & OSD Control		Contrast,Brightness,H-V Position, Clock, Clock Phase,Recall Color Control, Information, Language, OSD Adjust(Position, Display Time), Auto Adjust, Test
Power Management		VESA DPMS Standard
Plug & Play		VESA DDC 1/2B
Safety & Regulation	EMC	FCC CLASS B , CE , VCCI
	Safety	cULus, CE, TUV-GS, SEMKO, DEMKO, FIMKO, NEMKO
	Ergonomi	TCO'99
Temperature	Operating	5 to 35 °C
	Storage	- 5 to 45 °C
Humidity	Operating	30 to 80%(Non-condensing)
	Storage	5 to 90%(Non-condensing)
Weight	unpacked	2.7Kg
	packed	4.0Kg
Dimension(WXHXD mm)		367X353X188.3mm

\* Specification is subject to change without notice for performance improvement.

## Critical Parts Specification

### 1. LCD Module

HT-15X11 - 100 is a AM-TFT active matrix color liquid crystal comprising amorphous silicon TFT attached to each signal electrode, a driving circuit and a backlight.

HT-15X11 - 100 has a built-in backlight display area contains 1024X768 pixels and can display full color (16.7M colors)

Display area	304(H)X228(V)mm
Drive system	AM - TFT
Display color	16.7M Colors
Number of Pixel	1024X768
Pixel arrangement	RGB vertical strip
Pixel pitch	0.297(H)X0.297(V)mm
Weight	1.5Kg
Contrast ratio	200:1
Viewing angle	
Horizontal:	55 degree(3' clock, 9' clock)
Vertical:	35 degree(12' clock) , 60 degree(6' clock)
Response time	40ms(max)
Luminance	180 cd/m <sup>2</sup> (Min) , 200cd/m <sup>2</sup> (Typ)
Signal system	Digital RGB signals, Sync signals(H, V-Sync), Dot clock(DCLK) , DE(Data Enable)
Supply voltage	5.0V
Backlight	Edge light type: Four colt cathode fluorescent lamps With in- verter
Power consumption	1.4W(TYP) without B/L

5) LCDTTL

a. Connector

Part No : 3720101675  
 Supplier P/N : FX8 - 80P - SV  
 Supplier : JST CO

b. Cable Ass'y

Part No : 3043000076  
 Supplier : CARRER

Description: 80 Pin to 80 Pin FPC Cable

Pin No	Symbol	Pin N o	Symbol	Pin No	Symbol
1	GND	28	LBA5	55	LBB3
2	LRA0	29	LBA6	56	GND
3	LRA1	30	LBA7	57	LBB4
4	LRA2	31	GND	58	LBB5
5	LRA3	32	LRB0	59	LBB6
6	GND	33	LRB1	60	LBB7
7	LRA4	34	LRB2	61	GND
8	LRA5	35	LRB3	62	GND
9	LRA6	36	GND	63	LCKA
10	LRA7	37	LRB4	64	GND
11	GND	38	LRB5	65	GND
12	LGA0	39	LRB6	66	LHSYNC
13	LGA1	40	LRB7	67	GND
14	LGA2	41	GND	68	GND
15	LGA3	42	LGB0	69	LDTG
16	GND	43	LGB1	70	LVSYNC
17	LGA4	44	LGB2	71	VCC
18	LGA5	45	LGB3	72	VCC
19	LGA6	46	GND	73	VCC
20	LGA7	47	LGB4	74	VCC
21	GND	48	LGB5	75	VCC
22	LBA0	49	LGB6	76	TEST
23	LBA1	50	LGB7	77	WORD - SEL
24	LBA2	51	GND	78	N.C
25	LBA3	52	LBB0	79	N.C
26	GND	53	LBB1	80	GND
27	LBA4	54	LBB2		

GENERAL PURPOSE APPLICATION.  
SWITCHING APPLICATION.

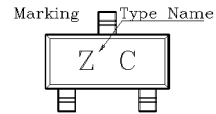
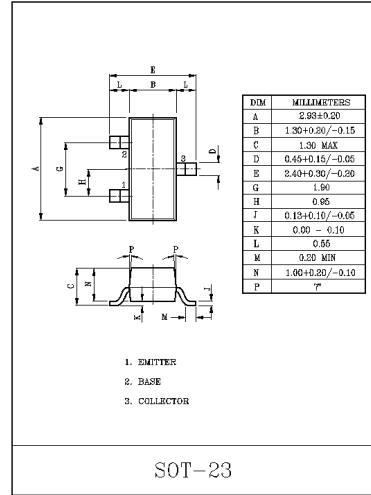
**FEATURES**

- Low Leakage Current  
:  $I_{CEX}=50nA(\text{Max.})$ ,  $I_{BL}=-50nA(\text{Max.})$   
@ $V_{CE}=-30V$ ,  $V_{BE}=-3V$ .
- Excellent DC Current Gain Linearity.
- Low Saturation Voltage  
:  $V_{CE(sat)}=0.3V(\text{Max.})$  @ $I_C=50mA$ ,  $I_B=5mA$ .
- Low Collector Output Capacitance  
:  $C_{ob}=4pF(\text{Max.})$  @ $V_{CB}=5V$ .
- Complementary to 2N3906S.

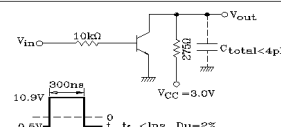
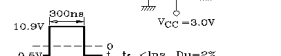
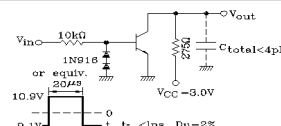
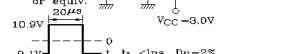
**MAXIMUM RATINGS(T<sub>a</sub>=25°C)**

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	$V_{CBO}$	60	V
Collector-Emitter Voltage	$V_{CEO}$	40	V
Emitter-Base Voltage	$V_{EBO}$	6	V
Collector Current	$I_C$	200	mA
Base Current	$I_B$	50	mA
Collector Power Dissipation	$P_C$ *	350	mW
Junction Temperature	$T_j$	150	°C
Storage Temperature Range	$T_{stg}$	-55~150	°C

\*  $P_C$  : Package Mounted On 99.5% Alumina 10x8x0.6mm



**ELECTRICAL CHARACTERISTICS (Ta=25°C)**

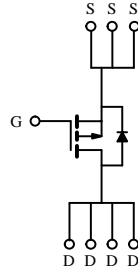
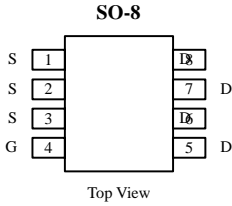
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT			
Collector Cut-off Current	$I_{CEX}$	$V_{CE}=30V, V_{EB}=-3V$	-	-	50	nA			
Base Cut-off Current	$I_{BL}$	$V_{CE}=30V, V_{EB}=-3V$	-	-	-50	nA			
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	60	-	-	V			
Collector-Emitter Breakdown Voltage *	$V_{(BR)CEO}$	$I_C=1mA, I_B=0$	40	-	-	V			
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	6.0	-	-	V			
DC Current Gain *	$h_{FE}(1)$	$V_{CE}=1V, I_C=0.1mA$	40	-	-				
	$h_{FE}(2)$	$V_{CE}=1V, I_C=1mA$	70	-	-				
	$h_{FE}(3)$	$V_{CE}=1V, I_C=10mA$	100	-	300				
	$h_{FE}(4)$	$V_{CE}=1V, I_C=50mA$	60	-	-				
	$h_{FE}(5)$	$V_{CE}=1V, I_C=100mA$	30	-	-				
Collector-Emitter Saturation Voltage *	$V_{CE(sat)1}$	$I_C=10mA, I_B=1mA$	-	-	0.2	V			
	$V_{CE(sat)2}$	$I_C=50mA, I_B=5mA$	-	-	0.3				
Base-Emitter Saturation Voltage *	$V_{BE(sat)1}$	$I_C=10mA, I_B=1mA$	0.65	-	0.85	V			
	$V_{BE(sat)2}$	$I_C=50mA, I_B=5mA$	-	-	0.95				
Transition Frequency	$f_T$	$V_{CE}=20V, I_C=10mA, f=100MHz$	300	-	-	MHz			
Collector Output Capacitance	$C_{ob}$	$V_{CB}=5V, I_E=0, f=1MHz$	-	-	4.0	pF			
Input Capacitance	$C_{ib}$	$V_{BE}=0.5V, I_C=0, f=1MHz$	-	-	8.0	pF			
Input Impedance	$h_{ib}$	$V_{CE}=10V, I_C=1mA, f=1kHz$	1.0	-	10	k $\Omega$			
Voltage Feedback Ratio	$h_{re}$		0.5	-	8.0	x10			
Small-Signal Current Gain	$h_{fe}$		100	-	400				
Collector Output Admittance	$h_{oe}$		1.0	-	40	$\mu S$			
Noise Figure	NF		$V_{CE}=5V, I_C=0.1mA$ $R_g=1k\Omega, f=10Hz\sim 15.7kHz$	-	-	5.0	dB		
Switching Time	Delay Time	$t_d$				-	-	35	nS
	Rise Time	$t_r$				-	-	35	
	Storage Time	$t_{stg}$				-	-	200	
	Fall Time	$t_f$				-	-	50	

\*Pulse Test : Pulse Width  $\leq 300\mu S$ , Duty Cycle  $\leq 2\%$

# P-Channel 30-V (D-S) Rated MOSFET

## Product Summary

V <sub>DS</sub> (V)	r <sub>DS(on)</sub> ( )	I <sub>D</sub> (A)
±30	0.02 @ V <sub>GS</sub> = ±10 V	8.0
	0.035 @ V <sub>GS</sub> = ±4.5 V	6.0



## Absolute Maximum Ratings (T<sub>A</sub> = 25 °C Unless Otherwise Noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V <sub>DS</sub>	±30	V
Gate-Source Voltage	V <sub>GS</sub>	20	
Continuous Drain Current (T <sub>J</sub> = 150 °C) <sup>a</sup>	I <sub>D</sub>	T <sub>A</sub> = 25 °C	A
		T <sub>A</sub> = 70 °C	
Pulsed Drain Current	I <sub>DM</sub>	50	
Continuous Source Current (Diode Conduction) <sup>a</sup>	I <sub>S</sub>	±2.1	
Maximum Power Dissipation <sup>a</sup>	P <sub>D</sub>	T <sub>A</sub> = 25 °C	W
		T <sub>A</sub> = 70 °C	
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	±55 to 150	°C

## Thermal Resistance Ratings

Parameter	Symbol	Limit	Unit
Maximum Junction-to-Ambient <sup>a</sup>	R <sub>thJA</sub>	50	°C/W

Notes

a. Surface Mounted on FR4 Board, t = 10 sec.

Updates to this data sheet may be obtained via facsimile by calling Siliconix FaxBack, 1-408-970-5600. Please request FaxBack document #70149. A SPICE Model data sheet is available for this product (FaxBack document #70544).

## Specifications ( $T_J = 25\text{ C}$ Unless Otherwise Noted)

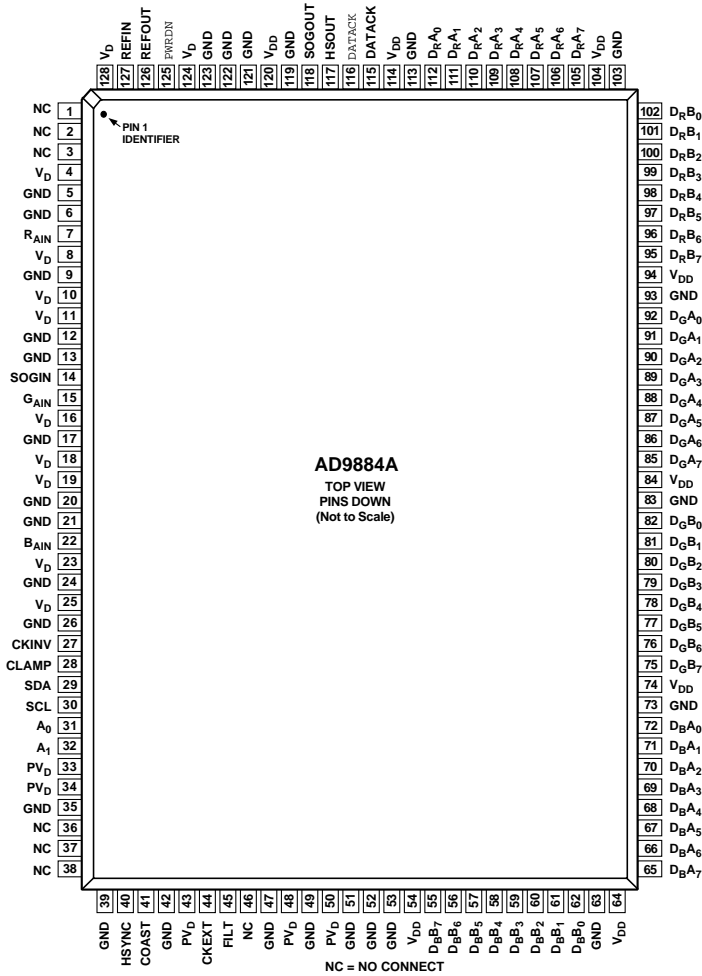
Parameter	Symbol	Test Condition	Min	Typ <sup>a</sup>	Max	Unit
<b>Static</b>						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = \pm 250\text{ A}$	$\pm 1.0$			V
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0\text{ V}, V_{GS} = -20\text{ V}$			100	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = \pm 30\text{ V}, V_{GS} = 0\text{ V}$			$\pm 1$	A
		$V_{DS} = \pm 15\text{ V}, V_{GS} = 0\text{ V}, T_J = 70\text{ C}$			$\pm 5$	
On-State Drain Current <sup>b</sup>	$I_{D(on)}$	$V_{DS} = \pm 5\text{ V}, V_{GS} = \pm 10\text{ V}$	$\pm 40$			A
		$V_{DS} = \pm 5\text{ V}, V_{GS} = \pm 4.5\text{ V}$	$\pm 10$			
Drain-Source On-State Resistance <sup>b</sup>	$r_{DS(on)}$	$V_{GS} = \pm 10\text{ V}, I_D = \pm 8.0\text{ A}$		0.015	0.02	
		$V_{GS} = \pm 4.5\text{ V}, I_D = \pm 5.0\text{ A}$		0.022	0.035	
Forward Transconductance <sup>b</sup>	$g_{fs}$	$V_{DS} = \pm 15\text{ V}, I_D = \pm 8.0\text{ A}$		20		S
Diode Forward Voltage <sup>b</sup>	$V_{SD}$	$I_S = \pm 2.1\text{ A}, V_{GS} = 0\text{ V}$		$\pm 0.75$	$\pm 1.2$	V
<b>Dynamic<sup>a</sup></b>						
Total Gate Charge	$Q_g$	$V_{DS} = \pm 15\text{ V}, V_{GS} = \pm 10\text{ V}, I_D = \pm 4.6\text{ A}$		47	60	nC
Gate-Source Charge	$Q_{gs}$		9.5			
Gate-Drain Charge	$Q_{gd}$		8			
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = \pm 15\text{ V}, R_L = 15\text{ m}\Omega$ $I_D = \pm 1\text{ A}, V_{GEN} = \pm 10\text{ V}, R_G = 6\text{ m}\Omega$		16	30	ns
Rise Time	$t_r$		17	30		
Turn-Off Delay Time	$t_{d(off)}$		75	120		
Fall Time	$t_f$		31	80		
Source-Drain Reverse Recovery Time	$t_{rr}$		$I_F = \pm 2.1\text{ A}, di/dt = 100\text{ A}/\text{s}$		40	

### Notes

- Guaranteed by design, not subject to production testing. Values shown are for Product Revision A.
- Pulse test; pulse width 300s, duty cycle 2%.



PIN CONFIGURATION



PIN FUNCTION DESCRIPTIONS (Continued)

Pin Name	Function
OUTPUTS	
D <sub>RA7-0</sub>	Data Output, Red Channel, Port A
D <sub>RB7-0</sub>	Data Output, Red Channel, Port B
D <sub>GA7-0</sub>	Data Output, Green Channel, Port A
D <sub>GB7-0</sub>	Data Output, Green Channel, Port B
D <sub>BA7-0</sub>	Data Output, Blue Channel, Port A
D <sub>BB7-0</sub>	Data Output, Blue Channel, Port B
	The main data outputs. Bit 7 is the MSB. Each channel has two ports. When the part is operated in Single Channel mode (DEMUX = 0), all data are presented to Port A, and Port B is placed in a high impedance state. Programming DEMUX to 1 establishes Dual Channel mode, wherein alternate pixels are presented to Port A and Port B of each channel. These will appear simultaneously, two pixels presented at the time of every second input pixel, when PAR is set to 1 (parallel mode). When PAR = 0, pixel data appear alternately on the two ports, one new sample with each incoming pixel (interleaved mode)In Dual Channel mode, the first pixel sampled after HSYNC is routed to Port A. The second pixel goes to Port B, the third to A, etc. The delay from pixel sampling time to output is fixed. When the sampling time is changed by adjusting the PHASE register, the output timing is shifted as well. The DATAACK, DATAACK and HSOUT outputs are also moved, so the timing relationship among the signals is maintained.
DATAACK	Data Output Clock
DATAACK	Data Output Clock Complement
	Differential data clock output signals to be used to strobe the output data and HSOUT into external logic. They are produced by the internal clock generator and are synchronous with the internal pixel sampling clock. When the AD9884A is operated in Single Channel mode, the output frequency is equal to the pixel sampling frequency. When operating in Dual Channel mode, the Data Output Clock and the Output Data are presented at one-half the pixel rate. When the sampling time is changed by adjusting the PHASE register, the output timing is shifted as well. The Data, DATAACK, DATAACK and HSOUT outputs are all moved, so the timing relationship among the signals is maintained. Either or both signals may be used, depending on the timing mode and interface design employed.
HSOUT	Horizontal Sync Output
	A reconstructed and phase-aligned version of the HSYNC input. This signal is always active HIGH. By maintaining alignment with DATAACK, DATAACK, and Data, data timing with respect to horizontal sync can always be clearly determined.
SOGOUT	Sync On Green Slicer Output
	The output of the Sync On Green slicer comparator. When SOGIN is presented with a dc-coupled ground-referenced analog graphics signal containing composite sync, SOGOUT will produce a digital composite sync signal. This signal gets no other processing on the AD9884A. The SOG slicer comparator continues to operate when the AD9884A is put into a power-down state.
CONTROL	
SDA	Serial Data I/O
	Bidirectional data port for the serial interface port.
SCL	Serial Interface Clock
	Clock input for the serial interface port.
A <sub>1-0</sub>	Serial Port Address LSBs
	The two least significant bits of the serial port address are set by the logic levels on these pins. Connect a pin to ground to set the address bit to 0. Tie it HIGH (to V <sub>D</sub> through 10k W) to set the address bit to 1. Using these pins, the serial address may be set to any value from 4Ch to 4Fh. Up to four AD9884As may be used on the same serial bus by appropriately setting these bits. They can also be used to change the AD9884A address if a conflict is found with another device on the bus.
PWRDN	Power-Down Control Input
	Bringing this pin LOW puts the AD9884A into a very low power dissipation mode. The output buffers are placed in a high impedance state. The clock generator is stopped. The control register contents are maintained. The Sync On Green Slicer (SOGOUT) and internal reference continue to function.

PIN FUNCTION DESCRIPTIONS (C continued)

Pin Name	Function
<b>ANALOG INTERFACE</b>	
REFOUT	<p><b>Internal Reference Output</b> Output from the internal 1.25 V bandgap reference. This output is intended to drive relatively light loads. It can drive the AD9884A Reference input directly, but should be externally buffered if it is used to drive other loads as well. The absolute accuracy of this output is <math>\pm 4\%</math>, and the temperature coefficient is <math>\pm 50</math> ppm, which is adequate for most AD9884A applications. If higher accuracy is required, an external reference may be employed. If an external reference is used, tie this pin to ground through a 0.1 nF capacitor.</p>
REFIN	<p><b>Reference Input</b> The reference input accepts the master reference voltage for all AD9884A internal circuitry (<math>+1.25</math> V <math>\pm 10\%</math>). It may be driven directly by the REFOUT pin. Its high impedance presents a very light load to the reference source. This pin should be bypassed to Ground with a 0.1 nF capacitor.</p>
FILT	<p><b>External Filter Connection</b> For proper operation, the pixel clock generator PLL requires an external filter. Connect the filter shown in Figure 10 to this pin. For optimal performance, minimize noise and parasitics on this node.</p>
<b>POWER SUPPLY</b>	
V <sub>D</sub>	<p><b>Main Power Supply</b> These pins supply power to the main elements of the circuit. It should be as quiet and filtered as possible.</p>
V <sub>DD</sub>	<p><b>Digital Output Power Supply</b> A large number of output pins (up to 52) switching at high speed (up to 140 MHz) generates a lot of power supply transients (noise). These supply pins are identified separately from the V<sub>D</sub> pins so special care can be taken to minimize output noise transferred into the sensitive analog circuitry. If the AD9884A is interfacing with lower-voltage logic, V<sub>DD</sub> may be connected to a lower supply voltage (as low as 2.5 V) for compatibility.</p>
PV <sub>D</sub>	<p><b>Clock Generator Power Supply</b> The most sensitive portion of the AD9884A is the clock generation circuitry. These pins provide power to the clock PLL and help the user design for optimal performance. The designer should provide "quiet," noise-free power to these pins.</p>
GND	<p><b>Ground</b> The ground return for all circuitry on chip. It is recommended that the AD9884A be assembled on a single solid ground plane, with careful attention to ground current paths. See the Design Guide for details.</p>

# 74LCX14

## Low Voltage Hex Inverter with 5V Tolerant Schmitt Trigger Inputs

### General Description

The LCX14 contains six inverter gates each with a Schmitt trigger input. They are capable of transforming slowly changing input signals into sharply defined, jitter-free output signals. In addition, they have a greater noise margin than conventional inverters.

The LCX14 has hysteresis between the positive-going and negative-going input thresholds (typically 1.0V) which is determined internally by transistor ratios and is essentially insensitive to temperature and supply voltage variations.

The inputs tolerate voltages up to 7V allowing the interface of 5V, 3V and 2.5V systems.

The 74LCX14 is fabricated with advanced CMOS technology to achieve high speed operation while maintaining CMOS low power dissipation.

### Features

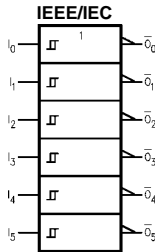
- 5V tolerant inputs
- 2.3V–3.6V  $V_{CC}$  specifications provided
- 6.5 ns  $t_{PD}$  max ( $V_{CC}$  3.3V), 10 A  $I_{CC}$  max
- Power down high impedance inputs and outputs
- 24 mA output drive ( $V_{CC}$  3.0V)
- Implements patented noise/EMI reduction circuitry
- Latch-up performance exceeds 500 mA
- ESD performance:
  - Machine model 2000V
  - Human model 200V

### Ordering Code:

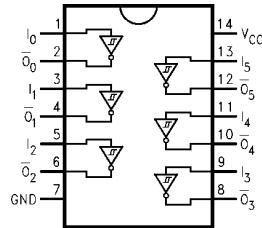
Order Number	Package Number	Package Description
74LCX14M	M14A	14-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-012, 0.150 Narrow
74LCX14SJ	M14D	14-Lead Small Outline Package (SOP), EIAJ TYPE II, 5.3mm Wide
74LCX14MTC	MTC14	14-Lead Thin Shrink Small Outline Package (TSSOP), JEDEC MO-153, 4.4mm Wide

Devices also available in Tape and Reel. Specify by appending the suffix letter "X" to the ordering code.

### Logic Symbol



### Connection Diagram



### Pin Descriptions

Pin Names	Description
$I_n$	Inputs
$\bar{O}_n$	Outputs

### Truth Table

Input	Output
A	$\bar{O}$
L	H
H	L

1	MA8	D:031	205
2	MA7	D:00	206
3	MA6	D:030	207
4	VSS	D:01	208
5	MA5	D:028	209
6	MA4	D:02	210
7	MA3	D:028	201
8	MA2	D:03	200
9	MA1	D:027	199
10	MA0	D:04	197
11	BA	D:026	196
12	C SH#	D:025	194
13	C SL#	D:024	193
14	VDI	D:07	192
15	WE#	D:015	191
16	CE	VDI	189
17	CAS#	D:018	188
18	RAS#	D:014	187
19	VSS	VSS1	186
20	R ESET	D:013	185
21	ALE	VSS	184
22	AD7	D:016	183
23	AD6	D:012	181
24	AD5	D:019	180
25	AD4	D:011	179
26	AD3	D:020	178
27	AD2	D:01	177
28	AD1	D:09	176
29	AD0	D:022	175
30	VSS1	D:08	173
31	RD#	D:023	172
32	WE#	D:042	171
33	CS	D:043	170
34	INT#	D:045	169
35	XTALOUT	SDCLK	168
36	XTALIN	VDI	167
37	SCL	VSS	164
38	SDA	D:043	163
39	H SYNC	D:042	161
40	V SYNC	D:041	160
41	AD CVDD0	D:040	159
42	RE0	D:041	158
43	AD CVSS0	VSS1	157
44	REF1	D:042	156
45	REF2	D:043	155
46	AD CVSS1	VSS	154
47	GREEN	D:043	153
48	AD CVDD1	D:042	152
49	AD CVSS2	D:041	151
50	BLUE	VSS1	150
51	AD CVDD2	D:040	149
52		D:045	148
		D:044	147
		D:043	146
		D:042	145
		D:041	144
		D:040	143
		D:039	142
		D:038	141
		D:037	140
		D:036	139
		D:035	138
		D:034	137
		D:033	136
		D:032	135
		D:031	134
		D:030	133
		D:029	132
		D:028	131
		D:027	130
		D:026	129
		D:025	128
		D:024	127
		D:023	126
		D:022	125
		D:021	124
		D:020	123
		D:019	122
		D:018	121
		D:017	120
		D:016	119
		D:015	118
		D:014	117
		D:013	116
		D:012	115
		D:011	114
		D:010	113
		D:009	112
		D:008	111
		D:007	110
		D:006	109
		D:005	108
		D:004	107
		D:003	106
		D:002	105
		D:001	104
		D:000	103
		D:000	102
		D:000	101
		D:000	100
		D:000	99
		D:000	98
		D:000	97
		D:000	96
		D:000	95
		D:000	94
		D:000	93
		D:000	92
		D:000	91
		D:000	90
		D:000	89
		D:000	88
		D:000	87
		D:000	86
		D:000	85
		D:000	84
		D:000	83
		D:000	82
		D:000	81
		D:000	80
		D:000	79
		D:000	78
		D:000	77
		D:000	76
		D:000	75
		D:000	74
		D:000	73
		D:000	72
		D:000	71
		D:000	70
		D:000	69
		D:000	68
		D:000	67
		D:000	66
		D:000	65
		D:000	64
		D:000	63
		D:000	62
		D:000	61
		D:000	60
		D:000	59
		D:000	58
		D:000	57
		D:000	56
		D:000	55
		D:000	54
		D:000	53
		D:000	52
		D:000	51
		D:000	50
		D:000	49
		D:000	48
		D:000	47
		D:000	46
		D:000	45
		D:000	44
		D:000	43
		D:000	42
		D:000	41
		D:000	40
		D:000	39
		D:000	38
		D:000	37
		D:000	36
		D:000	35
		D:000	34
		D:000	33
		D:000	32
		D:000	31
		D:000	30
		D:000	29
		D:000	28
		D:000	27
		D:000	26
		D:000	25
		D:000	24
		D:000	23
		D:000	22
		D:000	21
		D:000	20
		D:000	19
		D:000	18
		D:000	17
		D:000	16
		D:000	15
		D:000	14
		D:000	13
		D:000	12
		D:000	11
		D:000	10
		D:000	9
		D:000	8
		D:000	7
		D:000	6
		D:000	5
		D:000	4
		D:000	3
		D:000	2
		D:000	1
		D:000	0

AURORA SYSTEMS

ASI 300

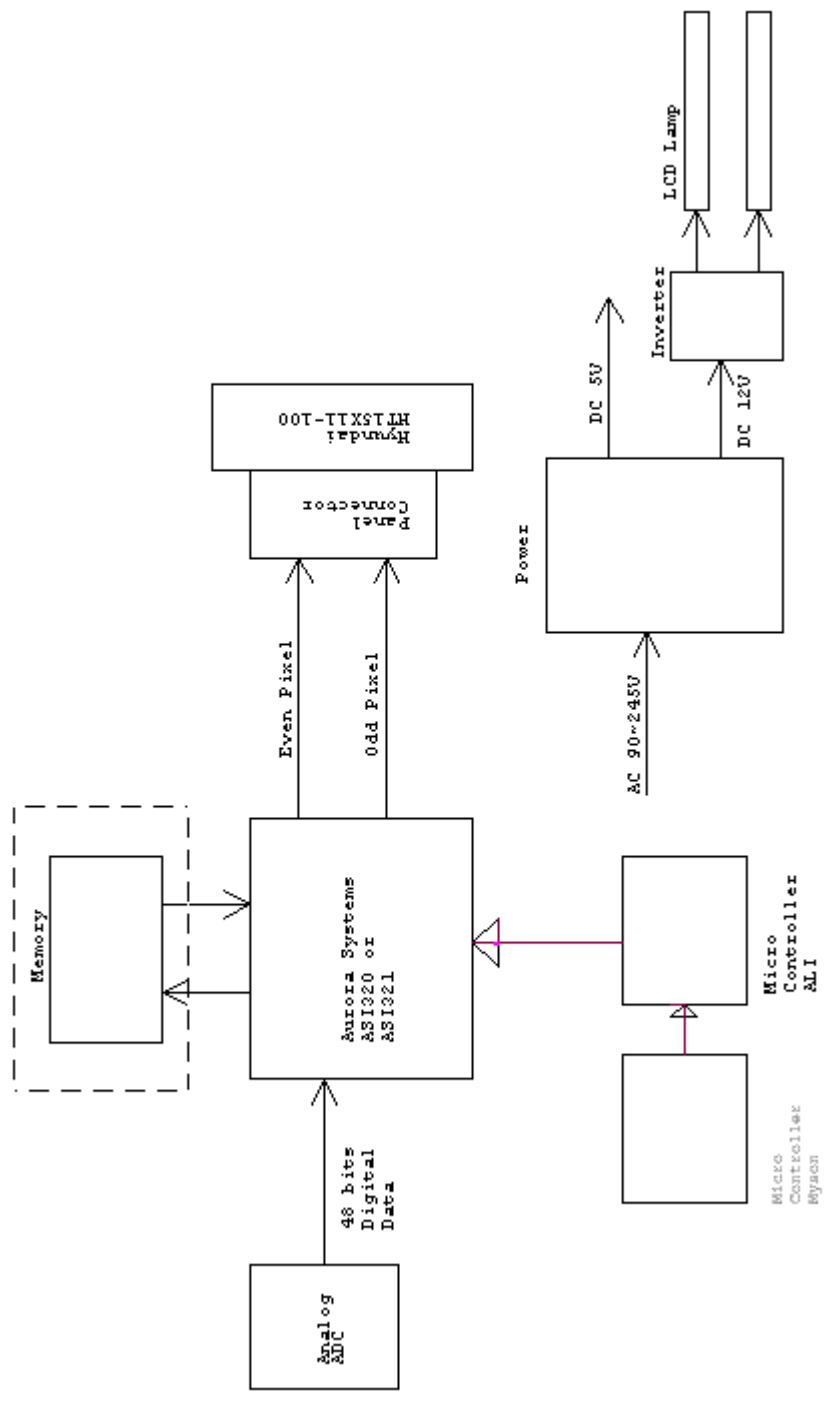
Pin Number	Pin Name	Type	Description	Notes
1	MA[8]	O	Memory Address	8 ma
2	MA[7]	O	Memory Address	8 ma
3	MA[6]	O	Memory Address	8 ma
4	VSS	GND		
5	MA[5]	O	Memory Address	8 ma
6	MA[4]	O	Memory Address	8 ma
7	MA[3]	O	Memory Address	8 ma
8	MA[2]	O	Memory Address	8 ma
9	MA[1]	O	Memory Address	8 ma
10	MA[0]	O	Memory Address	8 ma
11	MA[9]	O	Memory Address	8 ma
12	BA	O	Bank Select	8ma
13	CSH#	O	Chip Select for high Bank	4ma
14	CSL#	O	Chip Select for low Bank	4ma
15	VDD	PWD		
16	WE#	O	Write Enable	8ma
17	CKE	O	Clock Enable	4ma
18	CAS#	O	Column address strobe	8ma
19	RAS#	O	Row address strobe	8ma
20	VSS	GND		
21	RESET	I	System reset	
22	ALE	I	Address latch enable	
23	AD[7]	I/O	System address/data	2 ma
24	AD[6]	I/O	System address/data	2 ma
25	AD[5]	I/O	System address/data	2 ma
26	AD[4]	I/O	System address/data	2 ma
27	AD[3]	I/O	System address/data	2 ma
28	AD[2]	I/O	System address/data	2 ma
29	AD[1]	I/O	System address/data	2 ma
30	AD[0]	I/O	System address/data	2 ma
31	VSS	GND		
32	RD#	I	System read	
33	WE#	I	System write	
34	CS	I	System chip select	
35	INT#	OD	System interrupt	2 ma
36	XTALIN	O	Crystal output	
37	XTALOU	I	Crystal input	
38	SCL	I/OD	I <sup>2</sup> C Serial clock	8ma
39	SDA	I/OD	I <sup>2</sup> C Serial data	8ma
40	HSYNC	I	Horizontal sync input	
41	VSYNC	I	Vertical sync input	
42	ADCVDD0	PWD	Analog VDD	
43	RED		Red terminal	Analog Pad
44	ADCVSS0	GND	Analog VSS	
45	REF1			

46	REF2			
47	ADCVSS1	GND	Analog VSS	
48	GREEN		Green terminal	Analog Pad
49	ADCVDD1	PWD	Analog VDD	
50	ADCVSS2	GND	Analog VSS	
51	BLUE		Blue terminal	Analog Pad
52	ADCVDD2	PWD	Analog VDD	
53	PLLSS0	GND	Analog VSS	
54	LPF		Loop Filter	Analog Pad
55	PLLVDD0	PWD	Analog VDD	
56	PLLVDD1	PWD	Analog VDD	
57	PLLSS1	GND	Analog VSS	
58	PLLVDD2	PWD	Analog VDD	
59	PLLSS2	GND	Analog VSS	
60	NC			
61	NC			
62	PIO [7]	I/O		2 ma
63	PIO [6]	I/O		2 ma
64	PIO[5]	I/O		2 ma
65	PIO[4]	I/O		2 ma
66	PIO[3]	I/O		2 ma
67	NC			
68	PIO[2]	I/O		2 ma
69	PIO[1]	I/O		2 ma
70	PIO[0]	I/O		2 ma
71	PVALID	O	Panel valid data	4 ma
72	PHSYNC	O	Panel Hsync	4 ma
73	PVSYNC	O	Panel Vsync	4 ma
74	PCLK	O	Panel Clock	4 ma
75	VSS	GND		
76	REVEN[0]	O	Red Pixel 0	4 ma
77	REVEN[1]	O	Red Pixel 0	4 ma
78	REVEN[2]	O	Red Pixel 0	4 ma
79	REVEN[3]	O	Red Pixel 0	4 ma
80	REVEN[4]	O	Red Pixel 0	4 ma
81	VSS	GND		
82	REVEN[5]	O	Red Pixel 0	4 ma
83	REVEN[6]	O	Red Pixel 0	4 ma
84	REVEN[7]	O	Red Pixel 0	4 ma
85	GEVEN[0]	O	Green Pixel 0	4 ma
86	GEVEN[1]	O	Green Pixel 0	4 ma
87	GEVEN[2]	O	Green Pixel 0	4 ma
88	GEVEN[3]	O	Green Pixel 0	4 ma
89	GEVEN[4]	O	Green Pixel 0	4 ma
90	GEVEN[5]	O	Green Pixel 0	4 ma
91	GEVEN[6]	O	Green Pixel 0	4 ma
92	VDD	PWD		
93	GEVEN[7]	O	Green Pixel 0	4 ma

94	BEVEN[0]	O	Blue Pixel 0	4 ma
95	VSS	GND		
96	BEVEN[1]	O	Blue Pixel 0	4 ma
97	BEVEN[2]	O	Blue Pixel 0	4 ma
98	BEVEN[3]	O	Blue Pixel 0	4 ma
99	BEVEN[4]	O	Blue Pixel 0	4 ma
100	BEVEN[5]	O	Blue Pixel 0	4 ma
101	BEVEN[6]	O	Blue Pixel 0	4 ma
102	BEVEN[7]	O	Blue Pixel 0	4 ma
103	RODD[0]	O	Red Pixel 1	4 ma
104	RODD[1]	O	Red Pixel 1	4 ma
105	RODD[2]	O	Red Pixel 1	4 ma
106	RODD[3]	O	Red Pixel 1	4 ma
107	RODD[4]	O	Red Pixel 1	4 ma
108	RODD[5]	O	Red Pixel 1	4 ma
109	RODD[6]	O	Red Pixel 1	4 ma
110	RODD[7]	O	Red Pixel 1	4 ma
111	GODD[0]	O	Green Pixel 1	4 ma
112	VDD	PWD		
113	GODD[1]	O	Green Pixel 1	4 ma
114	GODD[2]	O	Green Pixel 1	4 ma
115	GODD[3]	O	Green Pixel 1	4 ma
116	GODD[4]	O	Green Pixel 1	4 ma
117	VSS	GND		
118	GODD[5]	O	Green Pixel 1	4 ma
119	GODD[6]	O	Green Pixel 1	4 ma
120	GODD[7]	O	Green Pixel 1	4 ma
121	BODD[0]	O	Blue Pixel 1	4 ma
122	BODD[1]	O	Blue Pixel 1	4 ma
123	BODD[2]	O	Blue Pixel 1	4 ma
124	BODD[3]	O	Blue Pixel 1	4 ma
125	BODD[4]	O	Blue Pixel 1	4 ma
126	BODD[5]	O	Blue Pixel 1	4 ma
127	BODD[6]	O	Blue Pixel 1	4 ma
128	BODD[7]	O	Blue Pixel 1	4 ma
129	DQ[55]	I/O	Memory Data	4 ma
130	DQ[40]	I/O	Memory Data	4 ma
131	DQ[54]	I/O	Memory Data	4 ma
132	VSS	GND		
133	DQ[41]	I/O	Memory Data	4 ma
134	DQ[53]	I/O	Memory Data	4 ma
135	DQ[42]	I/O	Memory Data	4 ma
136	GND	GND		
137	DQ[52]	I/O	Memory Data	4 ma
138	DQ[43]	I/O	Memory Data	4 ma
139	DQ[51]	I/O	Memory Data	4 ma
140	DQ[44]	I/O	Memory Data	4 ma
141	VDD	PWD		



190	VDD	PWD		
191	DQ[15]	I/O	Memory Data	4 ma
192	DQ[7]	I/O	Memory Data	4 ma
193	DQ[24]	I/O	Memory Data	4 ma
194	DQ[6]	I/O	Memory Data	4 ma
195	DQ[25]	I/O	Memory Data	4 ma
196	DQ[5]	I/O	Memory Data	4 ma
197	DQ[26]	I/O	Memory Data	4 ma
198	DQ[4]	I/O	Memory Data	4 ma
199	DQ[27]	I/O	Memory Data	4 ma
200	DQ[3]	I/O	Memory Data	4 ma
201	DQ[28]	I/O	Memory Data	4 ma
202	VSS	GND		
203	DQ[2]	I/O	Memory Data	4 ma
204	DQ[29]	I/O	Memory Data	4 ma
205	DQ[1]	I/O	Memory Data	4 ma
206	DQ[30]	I/O	Memory Data	4 ma
207	DQ[0]	I/O	Memory Data	4 ma
208	DQ[31]	I/O	Memory Data	4 ma



NUM.	PART NUMBER	LOCATION	DESCRIPTION	REMARK
1	B4204664701		KIT LABEL ,L50A/99 HED	
2	B4204513261B		LABEL ,B/CODE 48KHZ(DIC30)	
3	631633290601		LABEL BACK ,L50A/99 EXP	
4	6316345101		STICKER CABINET ,TCO '99	
5	6316349239		LABEL SHIPPING ,L50A OUT B	
6	632023020701		USER-GUIDE ,CD L50A EXP	
7	632703520101		SHEET , INSTALLING GUIDE ,V*	
8	B4210325201		PACKING ASSY ,L50A HEI	
9	B4209501301C		BAG PE ,MANUAL T0.03	
10	6223066800		HOLDER ,HANDLE TOP	
11	6223066900		HOLDER ,HANDLE BOTTOM	
12	6242027801		SHEET PROTECT TAPE ,HLM150	
13	6243028300		BAG ,PE(ST) CLEAR 14"/15"A	
14	6253110500		CUSHION TOP ,L50A	
15	6253110600		CUSHION BOTTOM ,L50A	
16	6301189300		BOX INNER	
17	B4210325301		LCD MEC.ASSY ,L50A HEI	
18	B4210325401		KIT COVER ,L50A HEI	
19	6201291400		CABINET ,COVER F.ASY L50A	
20	B4214000701A		SPRING COM	
21	6201289000		COVER FRONT ,L50A	
22	6215234500		KNOB TACT ,L50A	
23	6215234600		KNOB POWER ,L50A	
24	6220084000		LENS LED ,L50A	
25	5001000583		SCR-MC ,WAP + MC 2.6*4	
26	5001000585		SCR-MC ,FLT + MC 2*5	
27	5004000198		SCR-TT ,WAP + MC 3X10	
28	5004000203		SCR-TT ,BIN + MC 2X6	
29	6120045700		SHLD-PL MAIN ,L50A	
30	6120048700		SHLD-PL PCB ,L50A	
31	6128010114		WIREET EMI (10X10X150)	
32	6201289100		COVER REAR ,L50A	
33	6201291500		BASE ,STAND ASSY ,L50A HEI	
34	5004000198		SCR-TT ,WAP + MC 3X10	
35	5004000203		SCR-TT ,BIN + MC 2X6	
36	6115023200		HINGE L ,L50A	
37	6115023300		HINGE R ,L50A	
38	6201289200		STAND A ,L50A	
39	6201289300		STAND B ,L50A	
40	6201289400		BAR STAND ,L50A	
41	6215234700		CAP STAND L ,L50A	
42	6215234800		CAP STAND R ,L50A	
43	6261042300		RUBBER FOOT A ,L50A	
44	6261042400		RUBBER FOOT B ,L50A	
45	6261042500		RUBBER SUPPORT ,L50A	

NUM.	PART NUMBER	LOCATION	DESCRIPTION	REMARK
46	6210088100		PLATE INSULATION IC,1410A	
47	6210105100		PLATE, INSULATION PCB L50A	
48	6253112900		PAD PE FOAM(T=9.0)	
49	6253112901		PAD PE FOAM (T=12)	
50	6261042200		RUBBER STAND L50A	
51	E4205016001		MAIN ASSY,L50A EXP	
52	E4208618101		PCBA MA(T1*),L50A	
53	E4208518101		PCBA MA(I1*),L50A	
54	E4208418111		PCBA MA(A1*),L50A	
55	304100103002		PCB-DOUBLE,L50/HMO MAIN F	
56	3720101675	CN5	CONN-M,FX8-80S-SV 80	
57	2121040045	C1	CAP-C-C,0.1UF 50V Z Y5V 1	
58	CC7FCA1H101J	C10	CAP-C-C,100PF 50V J COG 1	
59	CC7FCA1H180J	C101	CAP-CC,18PF 50V J COG 160	
60	CC7FCA1H180J	C102	CAP-CC,18PF 50V J COG 160	
61	2014700009	C103	CAP-AL-C,47UF 16V M 6352	
62	2014700009	C104	CAP-AL-C,47UF 16V M 6352	
63	2121040045	C105	CAP-C-C,0.1UF 50V Z Y5V 1	
64	2121040045	C106	CAP-C-C,0.1UF 50V Z Y5V 1	
65	2121040045	C107	CAP-C-C,0.1UF 50V Z Y5V 1	
66	2121040045	C108	CAP-C-C,0.1UF 50V Z Y5V 1	
67	2121040045	C109	CAP-C-C,0.1UF 50V Z Y5V 1	
68	2011000006	C11	CAP-AL-C,10UF 16V M 4052	
69	2121040045	C110	CAP-C-C,0.1UF 50V Z Y5V 1	
70	2014700009	C111	CAP-AL-C,47UF 16V M 6352	
71	2014700009	C112	CAP-AL-C,47UF 16V M 6352	
72	2121040045	C113	CAP-C-C,0.1UF 50V Z Y5V 1	
73	2121040045	C114	CAP-C-C,0.1UF 50V Z Y5V 1	
74	2121040045	C115	CAP-C-C,0.1UF 50V Z Y5V 1	
75	2121040045	C116	CAP-C-C,0.1UF 50V Z Y5V 1	
76	2121040045	C117	CAP-C-C,0.1UF 50V Z Y5V 1	
77	2121040045	C118	CAP-C-C,0.1UF 50V Z Y5V 1	
78	2014700009	C119	CAP-AL-C,47UF 16V M 6352	
79	2121040045	C12	CAP-C-C,0.1UF 50V Z Y5V 1	
80	2121040045	C121	CAP-C-C,0.1UF 50V Z Y5V 1	
81	201109000401	C123	CAP-AL-C,1UF 50V M 4052	
82	2014700009	C124	CAP-AL-C,47UF 16V M 6352	
83	2014700009	C125	CAP-AL-C,47UF 16V M 6352	
84	2121040045	C126	CAP-C-C,0.1UF 50V Z Y5V 1	
85	2014700009	C128	CAP-AL-C,47UF 16V M 6352	
86	2014700009	C129	CAP-AL-C,47UF 16V M 6352	
87	2121040045	C13	CAP-C-C,0.1UF 50V Z Y5V 1	
88	2014700009	C130	CAP-AL-C,47UF 16V M 6352	
89	2121040045	C131	CAP-C-C,0.1UF 50V Z Y5V 1	
90	2121040045	C132	CAP-C-C,0.1UF 50V Z Y5V 1	
91	2121040045	C133	CAP-C-C,0.1UF 50V Z Y5V 1	

NUM.	PART NUMBER	LOCATION	DESCRIPTION	REMARK
92	2121040045	C134	CAP-C-C,0.1UF 50V Z Y5V 1	
93	2121040045	C135	CAP-C-C,0.1UF 50V Z Y5V 1	
94	2121040045	C136	CAP-C-C,0.1UF 50V Z Y5V 1	
95	CC7FCA1H180J	C137	CAP-CC,18PF 50V J COG 160	
96	CC7FCA1H180J	C138	CAP-CC,18PF 50V J COG 160	
97	2121040045	C139	CAP-C-C,0.1UF 50V Z Y5V 1	
98	2121040045	C14	CAP-C-C,0.1UF 50V Z Y5V 1	
99	2121040045	C140	CAP-C-C,0.1UF 50V Z Y5V 1	
100	2121040045	C141	CAP-C-C,0.1UF 50V Z Y5V 1	
101	2121040045	C142	CAP-C-C,0.1UF 50V Z Y5V 1	
102	2121040045	C144	CAP-C-C,0.1UF 50V Z Y5V 1	
103	2121040045	C146	CAP-C-C,0.1UF 50V Z Y5V 1	
104	2121040045	C15	CAP-C-C,0.1UF 50V Z Y5V 1	
105	2011000006	C152	CAP-AL-C,10UF 16V M 4052	
106	2121040045	C157	CAP-C-C,0.1UF 50V Z Y5V 1	
107	2011000006	C16	CAP-AL-C,10UF 16V M 4052	
108	2121040045	C164	CAP-C-C,0.1UF 50V Z Y5V 1	
109	2012210007	C168	CAP-AL-C,220UF 25V M 1010	
110	2121040045	C170	CAP-C-C,0.1UF 50V Z Y5V 1	
111	2121040045	C171	CAP-C-C,0.1UF 50V Z Y5V 1	
112	2121040045	C172	CAP-C-C,0.1UF 50V Z Y5V 1	
113	2013310001	C173	CAP-AL-C,330UF 16V M 8010	
114	2121040045	C174	CAP-C-C,0.1UF 50V Z Y5V 1	
115	2013310001	C175	CAP-AL-C,330UF 16V M 8010	
116	2121040045	C176	CAP-C-C,0.1UF 50V Z Y5V 1	
117	2121040045	C177	CAP-C-C,0.1UF 50V Z Y5V 1	
118	2121040045	C18	CAP-C-C,0.1UF 50V Z Y5V 1	
119	2012200005	C184	CAP-AL-C,22UF 16V M 5052	
120	2121040045	C186	CAP-C-C,0.1UF 50V Z Y5V 1	
121	2012200005	C187	CAP-AL-C,22UF 16V M 5052	
122	2121040045	C188	CAP-C-C,0.1UF 50V Z Y5V 1	
123	2012200005	C189	CAP-AL-C,22UF 16V M 5052	
124	2012200005	C190	CAP-AL-C,22UF 16V M 5052	
125	2121040045	C192	CAP-C-C,0.1UF 50V Z Y5V 1	
126	2121040045	C193	CAP-C-C,0.1UF 50V Z Y5V 1	
127	2012200005	C199	CAP-AL-C,22UF 16V M 5052	
128	2124730035	C2	CAP-C-C,0.047UF 50V Z Y5V	
129	2011000006	C20	CAP-AL-C,10UF 16V M 4052	
130	2012200005	C204	CAP-AL-C,22UF 16V M 5052	
131	2121040045	C208	CAP-C-C,0.1UF 50V Z Y5V 1	
132	2121040045	C209	CAP-C-C,0.1UF 50V Z Y5V 1	
133	2121040045	C21	CAP-C-C,0.1UF 50V Z Y5V 1	
134	2121030029	C210	CAP-C-C,0.01UF 50V K X7R	
135	2121040045	C211	CAP-C-C,0.1UF 50V Z Y5V 1	
136	2121030029	C212	CAP-C-C,0.01UF 50V K X7R	
137	2121040045	C213	CAP-C-C,0.1UF 50V Z Y5V 1	

NUM.	PART NUMBER	LOCATION	DESCRIPTION	REMARK
138	2121030029	C214	CAP-C-C,0.01UF 50V K X7R	
139	2121040045	C215	CAP-C-C,0.1UF 50V Z Y5V 1	
140	2121030029	C216	CAP-C-C,0.01UF 50V K X7R	
141	2121040045	C217	CAP-C-C,0.1UF 50V Z Y5V 1	
142	2121030029	C218	CAP-C-C,0.01UF 50V K X7R	
143	2121040045	C219	CAP-C-C,0.1UF 50V Z Y5V 1	
144	2121040045	C22	CAP-C-C,0.1UF 50V Z Y5V 1	
145	2121030029	C220	CAP-C-C,0.01UF 50V K X7R	
146	2121040045	C226	CAP-C-C,0.1UF 50V Z Y5V 1	
147	2121040045	C227	CAP-C-C,0.1UF 50V Z Y5V 1	
148	CC7FCA1H180J	C228	CAP-CC,18PF 50V J COG 160	
149	CC7FCA1H180J	C229	CAP-CC,18PF 50V J COG 160	
150	2011000006	C23	CAP-AL-C,10UF 16V M 4052	
151	2121040045	C230	CAP-C-C,0.1UF 50V Z Y5V 1	
152	2121000029	C231	CAP-C-C,10PF 50V J COG 16	
153	2121000029	C232	CAP-C-C,10PF 50V J COG 16	
154	2121000029	C233	CAP-C-C,10PF 50V J COG 16	
155	2121000029	C234	CAP-C-C,10PF 50V J COG 16	
156	2121000029	C235	CAP-C-C,10PF 50V J COG 16	
157	2121000029	C236	CAP-C-C,10PF 50V J COG 16	
158	2121000029	C237	CAP-C-C,10PF 50V J COG 16	
159	2121000029	C238	CAP-C-C,10PF 50V J COG 16	
160	2121000029	C239	CAP-C-C,10PF 50V J COG 16	
161	2121040045	C24	CAP-C-C,0.1UF 50V Z Y5V 1	
162	2121000029	C240	CAP-C-C,10PF 50V J COG 16	
163	2121000029	C241	CAP-C-C,10PF 50V J COG 16	
164	2121000029	C242	CAP-C-C,10PF 50V J COG 16	
165	2121000029	C243	CAP-C-C,10PF 50V J COG 16	
166	2121000029	C244	CAP-C-C,10PF 50V J COG 16	
167	2121000029	C245	CAP-C-C,10PF 50V J COG 16	
168	2121000029	C246	CAP-C-C,10PF 50V J COG 16	
169	2121000029	C247	CAP-C-C,10PF 50V J COG 16	
170	2121000029	C248	CAP-C-C,10PF 50V J COG 16	
171	2121000029	C249	CAP-C-C,10PF 50V J COG 16	
172	2121040045	C25	CAP-C-C,0.1UF 50V Z Y5V 1	
173	2121000029	C250	CAP-C-C,10PF 50V J COG 16	
174	2121000029	C251	CAP-C-C,10PF 50V J COG 16	
175	2121000029	C252	CAP-C-C,10PF 50V J COG 16	
176	2121000029	C253	CAP-C-C,10PF 50V J COG 16	
177	2121000029	C254	CAP-C-C,10PF 50V J COG 16	
178	2121000029	C255	CAP-C-C,10PF 50V J COG 16	
179	2121000029	C256	CAP-C-C,10PF 50V J COG 16	
180	2121000029	C257	CAP-C-C,10PF 50V J COG 16	
181	2121000029	C258	CAP-C-C,10PF 50V J COG 16	
182	2121000029	C259	CAP-C-C,10PF 50V J COG 16	
183	2121040045	C26	CAP-C-C,0.1UF 50V Z Y5V 1	

NUM.	PART NUMBER	LOCATION	DESCRIPTION	REMARK
184	2121000029	C260	CAP-C-C,10PF 50V J COG 16	
185	2121000029	C261	CAP-C-C,10PF 50V J COG 16	
186	2121000029	C262	CAP-C-C,10PF 50V J COG 16	
187	2121000029	C263	CAP-C-C,10PF 50V J COG 16	
188	2121000029	C264	CAP-C-C,10PF 50V J COG 16	
189	2121000029	C265	CAP-C-C,10PF 50V J COG 16	
190	2121000029	C266	CAP-C-C,10PF 50V J COG 16	
191	2121000029	C267	CAP-C-C,10PF 50V J COG 16	
192	2121000029	C268	CAP-C-C,10PF 50V J COG 16	
193	2121000029	C269	CAP-C-C,10PF 50V J COG 16	
194	2121040045	C27	CAP-C-C,0.1UF 50V Z Y5V 1	
195	2121000029	C270	CAP-C-C,10PF 50V J COG 16	
196	2121000029	C271	CAP-C-C,10PF 50V J COG 16	
197	2121000029	C272	CAP-C-C,10PF 50V J COG 16	
198	2121000029	C273	CAP-C-C,10PF 50V J COG 16	
199	2121000029	C274	CAP-C-C,10PF 50V J COG 16	
200	2121000029	C275	CAP-C-C,10PF 50V J COG 16	
201	2121000029	C276	CAP-C-C,10PF 50V J COG 16	
202	2121000029	C277	CAP-C-C,10PF 50V J COG 16	
203	2121000029	C278	CAP-C-C,10PF 50V J COG 16	
204	2014700009	C279	CAP-AL-C,47UF 16V M 6352	
205	2121040045	C28	CAP-C-C,0.1UF 50V Z Y5V 1	
206	2121040045	C280	CAP-C-C,0.1UF 50V Z Y5V 1	
207	2121040045	C281	CAP-C-C,0.1UF 50V Z Y5V 1	
208	2121000029	C282	CAP-C-C,10PF 50V J COG 16	
209	2121000029	C283	CAP-C-C,10PF 50V J COG 16	
210	2121000029	C284	CAP-C-C,10PF 50V J COG 16	
211	E4001020808J	C285	CAP,CHIP 50V 47PF J 1608	
212	E4001020808J	C286	CAP,CHIP 50V 47PF J 1608	
213	2121000029	C287	CAP-C-C,10PF 50V J COG 16	
214	2121000029	C288	CAP-C-C,10PF 50V J COG 16	
215	2121040045	C29	CAP-C-C,0.1UF 50V Z Y5V 1	
216	CC7FCA1H220J	C290	CAP-CC,22PF 50V J 1608	
217	2121000029	C291	CAP-C-C,10PF 50V J COG 16	
218	2121000029	C292	CAP-C-C,10PF 50V J COG 16	
219	2121000029	C293	CAP-C-C,10PF 50V J COG 16	
220	2126800012	C294	CAP-C-C,68PF 25V J COG 16	
221	2121000029	C295	CAP-C-C,10PF 50V J COG 16	
222	2121000029	C296	CAP-C-C,10PF 50V J COG 16	
223	2121000029	C297	CAP-C-C,10PF 50V J COG 16	
224	2012200005	C298	CAP-AL-C,22UF 16V M 5052	
225	2012200005	C299	CAP-AL-C,22UF 16V M 5052	
226	2121040045	C3	CAP-C-C,0.1UF 50V Z Y5V 1	
227	2121040045	C30	CAP-C-C,0.1UF 50V Z Y5V 1	
228	2121040045	C300	CAP-C-C,0.1UF 50V Z Y5V 1	
229	2121040045	C301	CAP-C-C,0.1UF 50V Z Y5V 1	

NUM.	PART NUMBER	LOCATION	DESCRIPTION	REMARK
230	CC7FCA1H330J	C302	CAP-CC,33PF 50V J 1608	
231	CC7FCA1H330J	C303	CAP-CC,33PF 50V J 1608	
232	CC7FCA1H330J	C304	CAP-CC,33PF 50V J 1608	
233	E4001020808J	C305	CAP,CHIP 50V 47PF J 1608	
234	E4001020808J	C306	CAP,CHIP 50V 47PF J 1608	
235	2121040045	C31	CAP-C-C,0.1UF 50V Z Y5V 1	
236	2011000006	C32	CAP-AL-C,10UF 16V M 4052	
237	2121040045	C33	CAP-C-C,0.1UF 50V Z Y5V 1	
238	2121040045	C34	CAP-C-C,0.1UF 50V Z Y5V 1	
239	2121040045	C35	CAP-C-C,0.1UF 50V Z Y5V 1	
240	2121040045	C36	CAP-C-C,0.1UF 50V Z Y5V 1	
241	2121040045	C37	CAP-C-C,0.1UF 50V Z Y5V 1	
242	2121040045	C38	CAP-C-C,0.1UF 50V Z Y5V 1	
243	2123930009	C39	CAP-C-C,0.039UF 50V K X7R	
244	2121040045	C4	CAP-C-C,0.1UF 50V Z Y5V 1	
245	CK7FXA1H392K	C40	C-CCP 3900P 50V 10 X7R 06	
246	2121040045	C41	CAP-C-C,0.1UF 50V Z Y5V 1	
247	2124730035	C6	CAP-C-C,0.047UF 50V Z Y5V	
248	2121040045	C7	CAP-C-C,0.1UF 50V Z Y5V 1	
249	2014700009	C72	CAP-AL-C,47UF 16V M 6352	
250	2012200005	C73	CAP-AL-C,22UF 16V M 5052	
251	2124730035	C9	CAP-C-C,0.047UF 50V Z Y5V	
252	2011000006	C98	CAP-AL-C,10UF 16V M 4052	
253	2121030029	C99	CAP-C-C,0.01UF 50V K X7R	
254	DTRLS4148	D10	DIODE,CHIP S/W RLS4148	
255	3100100038	D101	DI-AR,KDS226 SMD	
256	3100100038	D102	DI-AR,KDS226 SMD	
257	3100100038	D103	DI-AR,KDS226 SMD	
258	DTRLS4148	D2	DIODE,CHIP S/W RLS4148	
259	3540800043	FB1	COR-CHP,HB-1H3216-700JT	
260	3540800008	FB10	COR-CHP,HB-1M2012-601JT	
261	3540800044	FB12	COR-CHP,HH-1M2012-600JT	
262	3540800008	FB15	COR-CHP,HB-1M2012-601JT	
263	3540800008	FB16	COR-CHP,HB-1M2012-601JT	
264	3540800043	FB17	COR-CHP,HB-1H3216-700JT	
265	3540800043	FB18	COR-CHP,HB-1H3216-700JT	
266	3540800043	FB19	COR-CHP,HB-1H3216-700JT	
267	3540800043	FB2	COR-CHP,HB-1H3216-700JT	
268	3540800043	FB20	COR-CHP,HB-1H3216-700JT	
269	3540800008	FB21	COR-CHP,HB-1M2012-601JT	
270	3540800008	FB22	COR-CHP,HB-1M2012-601JT	
271	3540800008	FB23	COR-CHP,HB-1M2012-601JT	
272	3540800008	FB24	COR-CHP,HB-1M2012-601JT	
273	3540800008	FB25	COR-CHP,HB-1M2012-601JT	
274	3540800008	FB26	COR-CHP,HB-1M2012-601JT	
275	3540800008	FB27	COR-CHP,HB-1M2012-601JT	



NUM.	PART NUMBER	LOCATION	DESCRIPTION	REMARK
276	3540800008	FB28	COR-CHP,HB-1M2012-601JT	
277	3540800008	FB29	COR-CHP,HB-1M2012-601JT	
278	3540800043	FB3	COR-CHP,HB-1H3216-700JT	
279	3540800044	FB30	COR-CHP,HH-1M2012-600JT	
280	3540800044	FB32	COR-CHP,HH-1M2012-600JT	
281	3540800044	FB33	COR-CHP,HH-1M2012-600JT	
282	3540800044	FB34	COR-CHP,HH-1M2012-600JT	
283	3540800044	FB35	COR-CHP,HH-1M2012-600JT	
284	3540800008	FB4	COR-CHP,HB-1M2012-601JT	
285	3540800008	FB5	COR-CHP,HB-1M2012-601JT	
286	3540800008	FB6	COR-CHP,HB-1M2012-601JT	
287	3540800008	FB9	COR-CHP,HB-1M2012-601JT	
288	3500101849	L501	INDUCT-FIX,SI-0403-220 K	
289	3114000127	Q3	FET,SI4435DY SMD	
290	TT2N3904D	Q501	TR,SMD 2N3904D TAPPING	
291	2594709002	RA10	RES-C-NET,47 0.063W J 321	
292	2594709002	RA12	RES-C-NET,47 0.063W J 321	
293	2594709002	RA14	RES-C-NET,47 0.063W J 321	
294	2594709002	RA16	RES-C-NET,47 0.063W J 321	
295	2594709002	RA18	RES-C-NET,47 0.063W J 321	
296	2594709002	RA2	RES-C-NET,47 0.063W J 321	
297	2594709002	RA20	RES-C-NET,47 0.063W J 321	
298	2594709002	RA22	RES-C-NET,47 0.063W J 321	
299	2594709002	RA24	RES-C-NET,47 0.063W J 321	
300	2594709002	RA26	RES-C-NET,47 0.063W J 321	
301	2594709002	RA27	RES-C-NET,47 0.063W J 321	
302	2594709002	RA28	RES-C-NET,47 0.063W J 321	
303	2594709002	RA29	RES-C-NET,47 0.063W J 321	
304	2594709002	RA30	RES-C-NET,47 0.063W J 321	
305	2594709002	RA31	RES-C-NET,47 0.063W J 321	
306	2594709002	RA32	RES-C-NET,47 0.063W J 321	
307	2594709002	RA33	RES-C-NET,47 0.063W J 321	
308	2594709002	RA34	RES-C-NET,47 0.063W J 321	
309	2594709002	RA35	RES-C-NET,47 0.063W J 321	
310	2594709002	RA36	RES-C-NET,47 0.063W J 321	
311	2594709002	RA37	RES-C-NET,47 0.063W J 321	
312	2594709002	RA4	RES-C-NET,47 0.063W J 321	
313	2594709002	RA6	RES-C-NET,47 0.063W J 321	
314	2594709002	RA8	RES-C-NET,47 0.063W J 321	
315	2607509010	R10	RES-C,75 0.063W F 1608	
316	RK1JC0T0221J	R100	RES-C,220 0.063W J 1608	
317	RK1JC0T0472J	R107	RES CHIP 4.7K 5% 1/16W	
318	RK1JC0T0472J	R109	RES CHIP 4.7K 5% 1/16W	
319	RK1JC0T0472J	R110	RES CHIP 4.7K 5% 1/16W	
320	RK1JC0T0472J	R111	RES CHIP 4.7K 5% 1/16W	
321	RK1JC0T0472J	R112	RES CHIP 4.7K 5% 1/16W	

NUM.	PART NUMBER	LOCATION	DESCRIPTION	REMARK
322	RK1JC0T0000J	R115	RES-C,0 0.063W J 1608	
323	RK1JC0T0330J	R116	RES-C,33 0.063W J 1608	
324	RK1JC0T0472J	R117	RES CHIP 4.7K 5% 1/16W	
325	RK1JC0T0472J	R118	RES CHIP 4.7K 5% 1/16W	
326	RK1JC0T0103J	R119	RES-C,10K 0.063W J 1608	
327	RK1JC0T0472J	R120	RES CHIP 4.7K 5% 1/16W	
328	RK1JC0T0472J	R121	RES CHIP 4.7K 5% 1/16W	
329	RK1JC0T0102J	R124	RES-C,1K 0.063W J 1608	
330	RK1JC0T0103J	R126	RES-C,10K 0.063W J 1608	
331	RK1JC0T0103J	R127	RES-C,10K 0.063W J 1608	
332	RK1JC0T0102J	R128	RES-C,1K 0.063W J 1608	
333	RK1JC0T0472J	R129	RES CHIP 4.7K 5% 1/16W	
334	2607509010	R13	RES-C,75 0.063W F 1608	
335	RK1JC0T0472J	R130	RES CHIP 4.7K 5% 1/16W	
336	RK1JC0T0470J	R131	RES-C,47 0.063W J 1608	
337	RK1JC0T0000J	R132	RES-C,0 0.063W J 1608	
338	RK1JC0T0470J	R133	RES-C,47 0.063W J 1608	
339	RK1JC0T0470J	R134	RES-C,47 0.063W J 1608	
340	RK1JC0T0331J	R135	RES CHIP 330 5% 1/16W	
341	RK1JC0T0331J	R136	RES CHIP 330 5% 1/16W	
342	RK1JC0T0105J	R137	RES-C,1M 0.063W J 1608	
343	RK1JC0T0472J	R138	RES CHIP 4.7K 5% 1/16W	
344	RK1JC0T0000J	R139	RES-C,0 0.063W J 1608	
345	RK1JC0T0000J	R14	RES-C,0 0.063W J 1608	
346	RK1JC0T0000J	R142	RES-C,0 0.063W J 1608	
347	RK1JC0T0471J	R144	RES-C,470 0.063W J 1608	
348	RK1JC0T0102J	R18	RES-C,1K 0.063W J 1608	
349	RK1JC0T0102J	R19	RES-C,1K 0.063W J 1608	
350	RK1JC0T0102J	R20	RES-C,1K 0.063W J 1608	
351	RK1JC0T0151J	R21	RES CHIP 150 5% 1/16W	
352	RK1JC0T0151J	R23	RES CHIP 150 5% 1/16W	
353	RK1JC0T0102J	R24	RES-C,1K 0.063W J 1608	
354	2603301016	R25	RES-C,3.3K 0.063W F 1608	
355	RK1JC0T0221J	R26	RES-C,220 0.063W J 1608	
356	RK1JC0T0102J	R31	RES-C,1K 0.063W J 1608	
357	RK1JC0T0102J	R32	RES-C,1K 0.063W J 1608	
358	RK1JC0T0102J	R33	RES-C,1K 0.063W J 1608	
359	RK1JC0T0101J	R34	RES-C,100 0.063W J 1608	
360	RK1JC0T0101J	R35	RES-C,100 0.063W J 1608	
361	RK1JC0T0101J	R36	RES-C,100 0.063W J 1608	
362	2607509010	R4	RES-C,75 0.063W F 1608	
363	2602008003	R501	RES-C,2 0.125W J 3216	
364	2602008003	R502	RES-C,2 0.125W J 3216	
365	2602008003	R503	RES-C,2 0.125W J 3216	
366	RK1JC0T0472J	R504	RES CHIP 4.7K 5% 1/16W	
367	RK1JC0T0102J	R505	RES-C,1K 0.063W J 1608	

NUM.	PART NUMBER	LOCATION	DESCRIPTION	REMARK
368	RK1JC0T0470J	R64	RES-C,47 0.063W J 1608	
369	RK1JC0T0102J	R65	RES-C,1K 0.063W J 1608	
370	RK1JC0T0102J	R66	RES-C,1K 0.063W J 1608	
371	RK1JC0T0105J	R68	RES-C,1M 0.063W J 1608	
372	RK1JC0T0102J	R70	RES-C,1K 0.063W J 1608	
373	RK1JC0T0102J	R71	RES-C,1K 0.063W J 1608	
374	RK1JC0T0102J	R72	RES-C,1K 0.063W J 1608	
375	RK1JC0T0102J	R73	RES-C,1K 0.063W J 1608	
376	RK1JC0T0105J	R75	RES-C,1M 0.063W J 1608	
377	RK1JC0T0102J	R79	RES-C,1K 0.063W J 1608	
378	RK1JC0T0330J	R8	RES-C,33 0.063W J 1608	
379	RK1JC0T0472J	R82	RES CHIP 4.7K 5% 1/16W	
380	RK1JC0T0472J	R83	RES CHIP 4.7K 5% 1/16W	
381	RK1JC0T0103J	R86	RES-C,10K 0.063W J 1608	
382	RK1JC0T0511J	R87	RES-C,510 0.063W J 1608	
383	RK1JC0T0102J	R89	RES-C,1K 0.063W J 1608	
384	RK1JC0T0331J	R99	RES CHIP 330 5% 1/16W	
385	3202001505	U1	IC-TTL,74LCX14M14A S01	
386	3203000879	U11	IC-MEMO,S524C80D81-SCB0 S	
387	3203000745	U12	IC-MEMO,24LC211/SN S01	
388	3200001478	U13	IC-LIN,KIA7042AF S0T	
389	3203000757	U17	IC-MEMO,HY57V161610BTC-10	
390	3203000757	U18	IC-MEMO,HY57V161610BTC-10	
391	3205001364	U19	IC-U,MTV212M64U LCC MTP	
392	3721100621	U19	CONN-F,PLL-44-PPS-T-M 44	
393	3200001402	U2	IC-LIN,AD9884AKS-100 QFP	
394	3200001392	U21	IC-LIN,RC1117-3.3 S0T	
395	3200001392	U22	IC-LIN,RC1117-3.3 S0T	
396	3200001392	U23	IC-LIN,RC1117-3.3 S0T	
397	3205001363	U6	IC-U,ASI320 QFP HIMALAYAS	
398	3205001365	U8	IC-U,M6759 LCC MTP	
399	3721100621	U8	CONN-F,PLL-44-PPS-T-M 44	
400	3530200505	Y2	VIB-QUARTZ,SX-1 SMD 14.31	
401	3530200591	Y3	VIB-QUARTZ,SMD-16MHZ 18PF	
402	3530200537	Y4	VIB-QUARTZ,SX-1 12MHZ SMD	
403	3101000376	ZD1	DI-ZN,ZO2W6.2V SMD	
404	3101000376	ZD2	DI-ZN,ZO2W6.2V SMD	
405	3101000376	ZD6	DI-ZN,ZO2W6.2V SMD	
406	3101000376	ZD7	DI-ZN,ZO2W6.2V SMD	
407	372010138801	CN1	CONN-M,SMAW200-06P	
408	372010138701	CN2	CONN-M,SMAW200-05P	
409	3721101054	CN3	CONN-F,DSUB 15P 3R ST 7.5	
410	372110067501	CN4	CONN-F,MINI DIN ROUND 6P	
411	3010700732		CONTRO B/D OSD ASSY,L50A	
412	304300007601		PCB-FLEX,HLM-1500A FPC CB	
413	3610200087		PWR-LIN-SPPLY,CC92HM	



NUM.	PART NUMBER	LOCATION	DESCRIPTION	REMARK
414	3610400236		INVERTER,DC/AC	⚠
415	3725005077		CONN-A, INVER CBL 6P-8P L5	
416	3330500220		LCD,15"HT15X11-200	
417	3758000200		CBL-PWR,MW WALL 1.8MT EUR	
418	3758500425		CBL-SGN,7PAI 1.5M 2C MW S	
419	630118940001		BOX CTN,SW-3 L50A HEI	
420	630118950001		BOX OUTER,SW-3 L50A HEI	

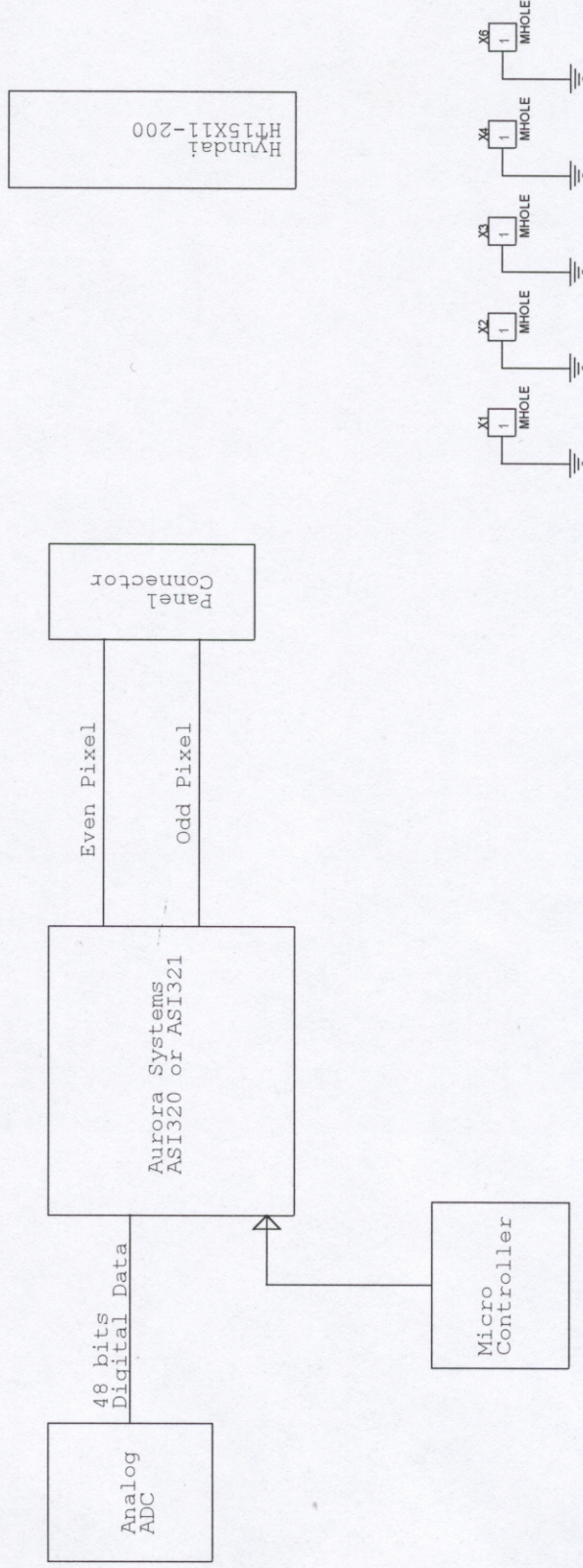


MODEL : L50A

CHSSIS NO : C-1505

Date: 09/04/2000

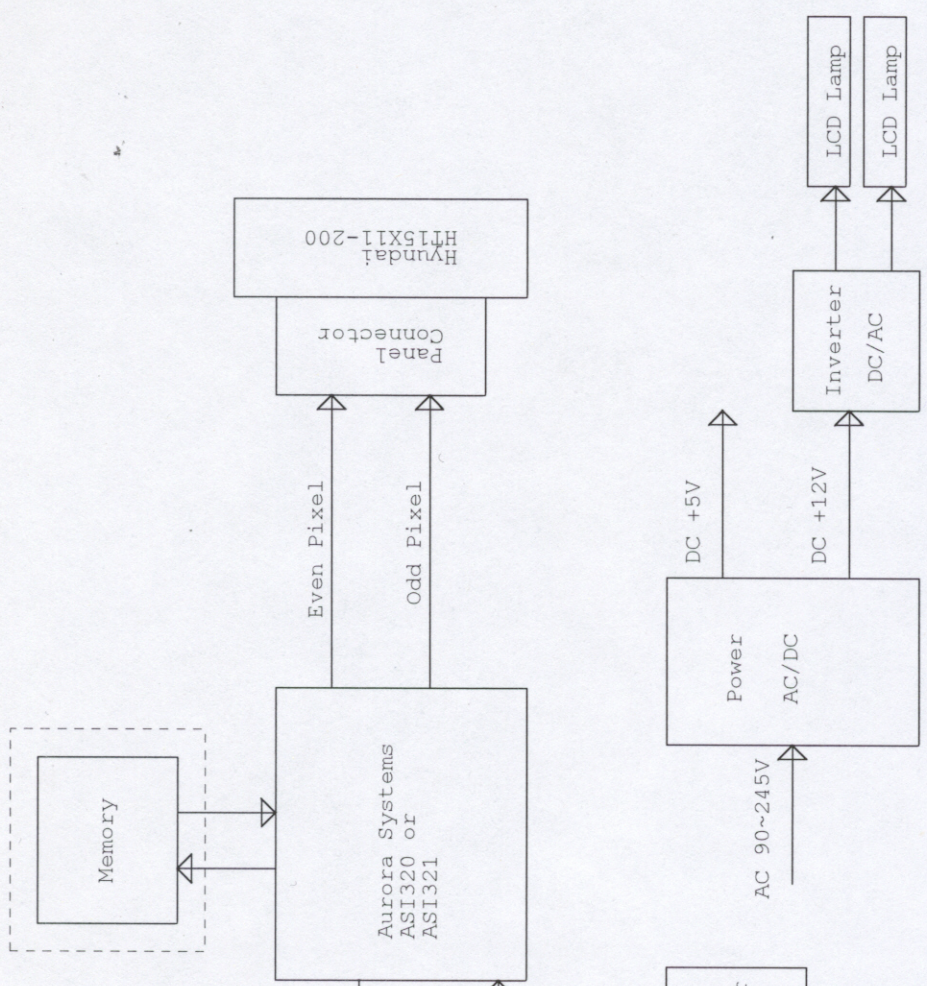
Last Modified: 09/04/2000 Y.C.CHOI



Schematic Num.: 2000-0007-05  
 PCB Bare Board - 2000-00007-03  
 Assembly Version- 2000-00006-30  
 Assembly Drawing - 2000-00006-15  
 Programming Version : V 1.0

DOC NO. E2008530	REV NO. A	DESCRIPT DWN	SIGNATURE Y. C. CHOI	DATE 2000.09.04	NSP	SHT NO. 1
TITLE <b>L50A</b>			CHK I. Y. EOM	2000.09.04		1
			APP J. S. KANG	2000.09.04		1



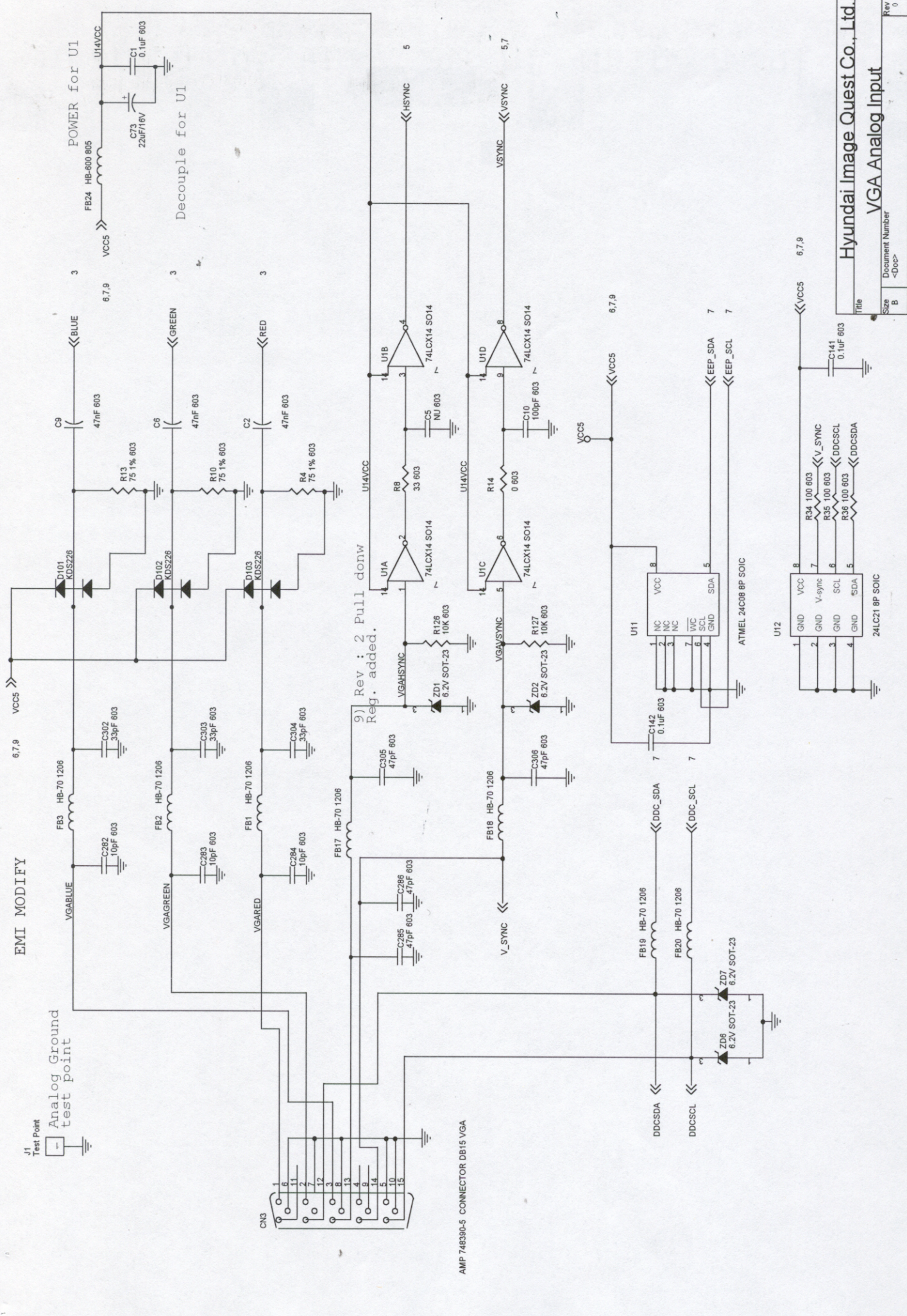


DOC NO.	REVNO.	DESCRIPTION	SIGNATURE	DATE	NSP	SHT NO.
E2008341	A	DWN	Y. C. CHOI	2000.09.04		1 / 1
L50A /		CHK	I. Y. EOM	2000.09.04		
BLOCK		APP	J. S. KANG	2000.09.04		
DIAGRAM						



EMI MODIFY

J1 Test Point  
Analog Ground test point



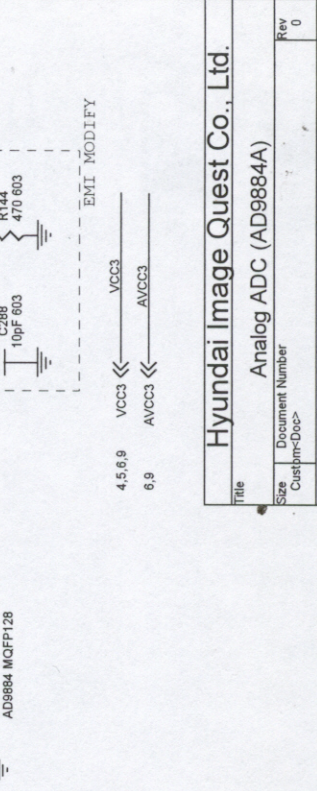
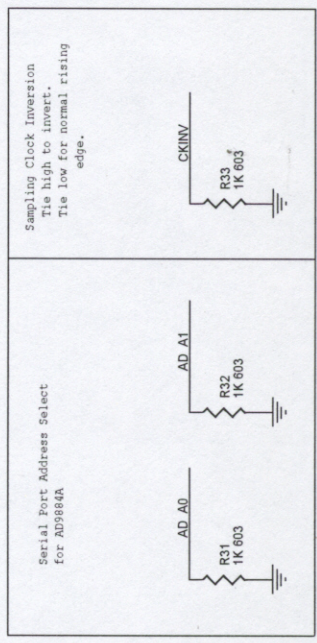
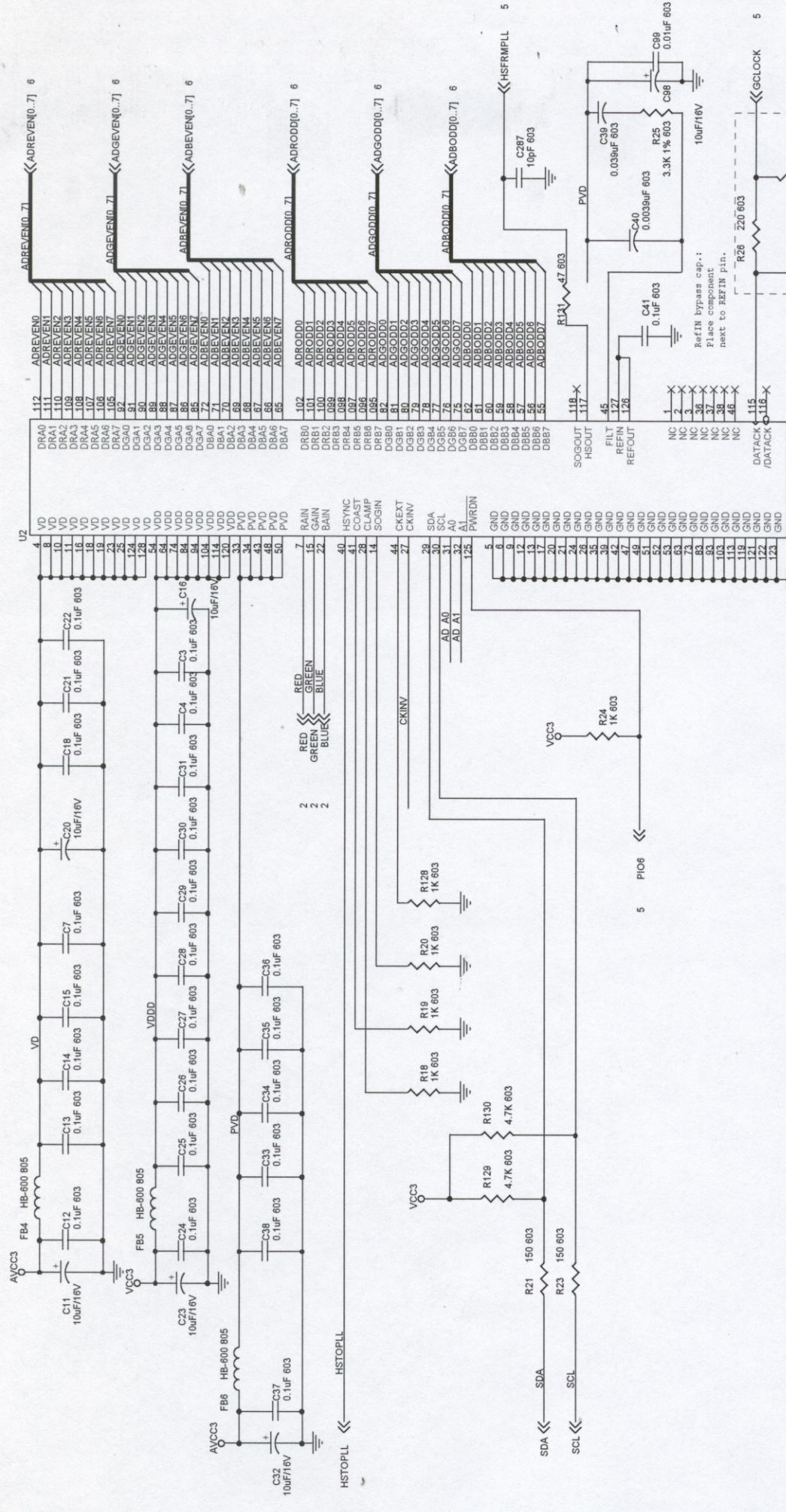
9) Rev : 2 Pull down  
Reg. added.

AMP 748390-5 CONNECTOR DB15 VGA

Hyundai Image Quest Co., Ltd.  
VGA Analog Input

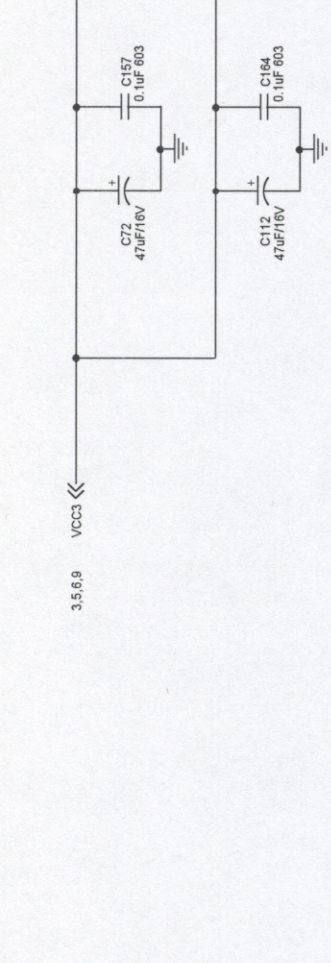
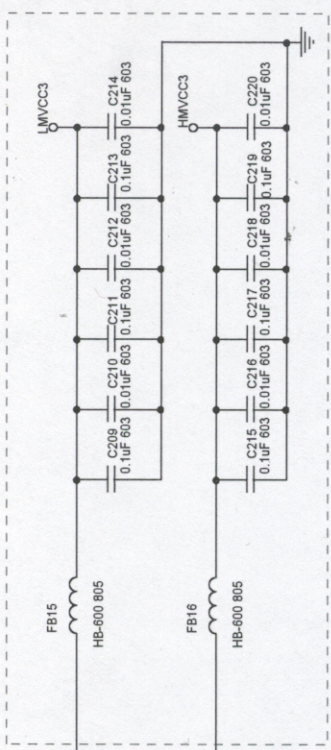
Title \_\_\_\_\_  
Size B \_\_\_\_\_  
Document Number \_\_\_\_\_  
Date: 2000. 09. 04  
Sheet 2 of 9  
Rev 0



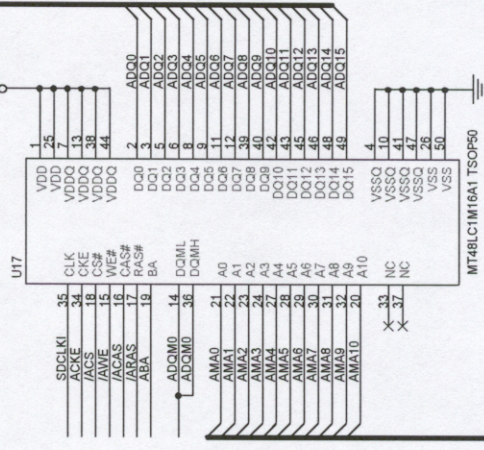
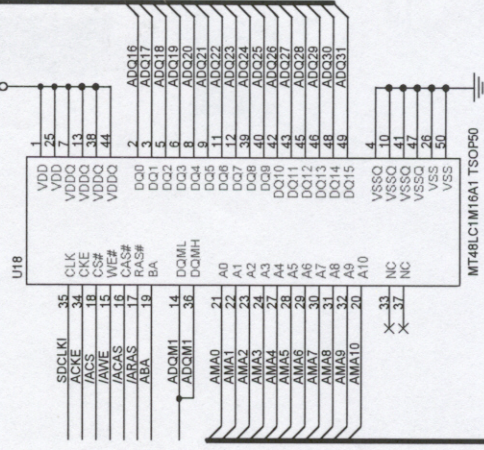


112	ADREVEN0..71	ADREVEN0..71	6
111	ADREVEN1	ADREVEN1	6
110	ADREVEN2	ADREVEN2	6
108	ADREVEN3	ADREVEN3	6
106	ADREVEN4	ADREVEN4	6
105	ADREVEN5	ADREVEN5	6
104	ADREVEN6	ADREVEN6	6
103	ADREVEN7	ADREVEN7	6
102	ADREVEN8	ADREVEN8	6
101	ADREVEN9	ADREVEN9	6
100	ADREVEN10	ADREVEN10	6
99	ADREVEN11	ADREVEN11	6
98	ADREVEN12	ADREVEN12	6
97	ADREVEN13	ADREVEN13	6
96	ADREVEN14	ADREVEN14	6
95	ADREVEN15	ADREVEN15	6
94	ADREVEN16	ADREVEN16	6
93	ADREVEN17	ADREVEN17	6
92	ADREVEN18	ADREVEN18	6
91	ADREVEN19	ADREVEN19	6
90	ADREVEN20	ADREVEN20	6
89	ADREVEN21	ADREVEN21	6
88	ADREVEN22	ADREVEN22	6
87	ADREVEN23	ADREVEN23	6
86	ADREVEN24	ADREVEN24	6
85	ADREVEN25	ADREVEN25	6
84	ADREVEN26	ADREVEN26	6
83	ADREVEN27	ADREVEN27	6
82	ADREVEN28	ADREVEN28	6
81	ADREVEN29	ADREVEN29	6
80	ADREVEN30	ADREVEN30	6
79	ADREVEN31	ADREVEN31	6
78	ADREVEN32	ADREVEN32	6
77	ADREVEN33	ADREVEN33	6
76	ADREVEN34	ADREVEN34	6
75	ADREVEN35	ADREVEN35	6
74	ADREVEN36	ADREVEN36	6
73	ADREVEN37	ADREVEN37	6
72	ADREVEN38	ADREVEN38	6
71	ADREVEN39	ADREVEN39	6
70	ADREVEN40	ADREVEN40	6
69	ADREVEN41	ADREVEN41	6
68	ADREVEN42	ADREVEN42	6
67	ADREVEN43	ADREVEN43	6
66	ADREVEN44	ADREVEN44	6
65	ADREVEN45	ADREVEN45	6
64	ADREVEN46	ADREVEN46	6
63	ADREVEN47	ADREVEN47	6
62	ADREVEN48	ADREVEN48	6
61	ADREVEN49	ADREVEN49	6
60	ADREVEN50	ADREVEN50	6
59	ADREVEN51	ADREVEN51	6
58	ADREVEN52	ADREVEN52	6
57	ADREVEN53	ADREVEN53	6
56	ADREVEN54	ADREVEN54	6
55	ADREVEN55	ADREVEN55	6
54	ADREVEN56	ADREVEN56	6
53	ADREVEN57	ADREVEN57	6
52	ADREVEN58	ADREVEN58	6
51	ADREVEN59	ADREVEN59	6
50	ADREVEN60	ADREVEN60	6
49	ADREVEN61	ADREVEN61	6
48	ADREVEN62	ADREVEN62	6
47	ADREVEN63	ADREVEN63	6
46	ADREVEN64	ADREVEN64	6
45	ADREVEN65	ADREVEN65	6
44	ADREVEN66	ADREVEN66	6
43	ADREVEN67	ADREVEN67	6
42	ADREVEN68	ADREVEN68	6
41	ADREVEN69	ADREVEN69	6
40	ADREVEN70	ADREVEN70	6
39	ADREVEN71	ADREVEN71	6
38	ADREVEN72	ADREVEN72	6
37	ADREVEN73	ADREVEN73	6
36	ADREVEN74	ADREVEN74	6
35	ADREVEN75	ADREVEN75	6
34	ADREVEN76	ADREVEN76	6
33	ADREVEN77	ADREVEN77	6
32	ADREVEN78	ADREVEN78	6
31	ADREVEN79	ADREVEN79	6
30	ADREVEN80	ADREVEN80	6
29	ADREVEN81	ADREVEN81	6
28	ADREVEN82	ADREVEN82	6
27	ADREVEN83	ADREVEN83	6
26	ADREVEN84	ADREVEN84	6
25	ADREVEN85	ADREVEN85	6
24	ADREVEN86	ADREVEN86	6
23	ADREVEN87	ADREVEN87	6
22	ADREVEN88	ADREVEN88	6
21	ADREVEN89	ADREVEN89	6
20	ADREVEN90	ADREVEN90	6
19	ADREVEN91	ADREVEN91	6
18	ADREVEN92	ADREVEN92	6
17	ADREVEN93	ADREVEN93	6
16	ADREVEN94	ADREVEN94	6
15	ADREVEN95	ADREVEN95	6
14	ADREVEN96	ADREVEN96	6
13	ADREVEN97	ADREVEN97	6
12	ADREVEN98	ADREVEN98	6
11	ADREVEN99	ADREVEN99	6
10	ADREVEN100	ADREVEN100	6
9	ADREVEN101	ADREVEN101	6
8	ADREVEN102	ADREVEN102	6
7	ADREVEN103	ADREVEN103	6
6	ADREVEN104	ADREVEN104	6
5	ADREVEN105	ADREVEN105	6
4	ADREVEN106	ADREVEN106	6
3	ADREVEN107	ADREVEN107	6
2	ADREVEN108	ADREVEN108	6
1	ADREVEN109	ADREVEN109	6
0	ADREVEN110	ADREVEN110	6



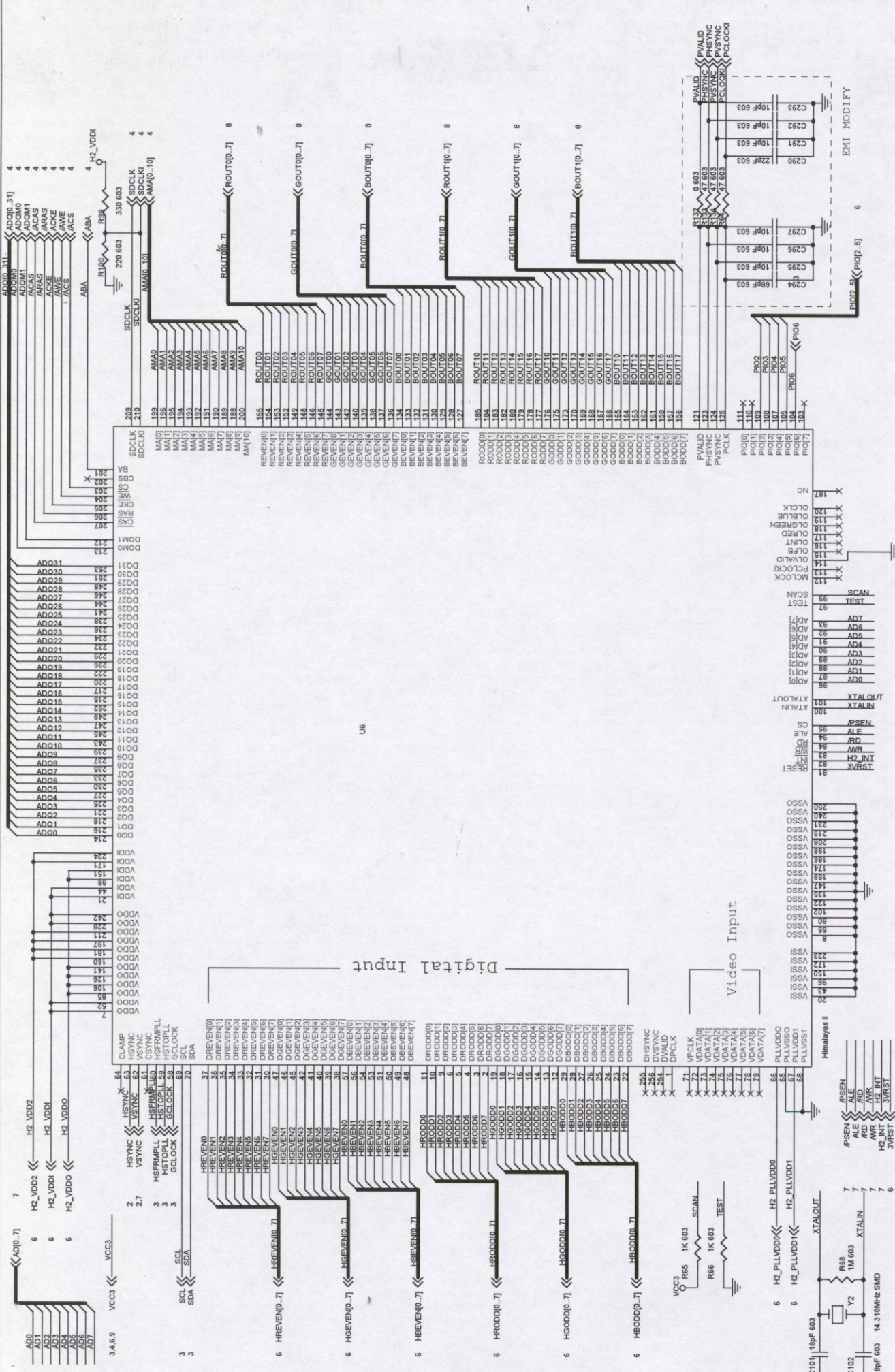


5 ADQ0.311



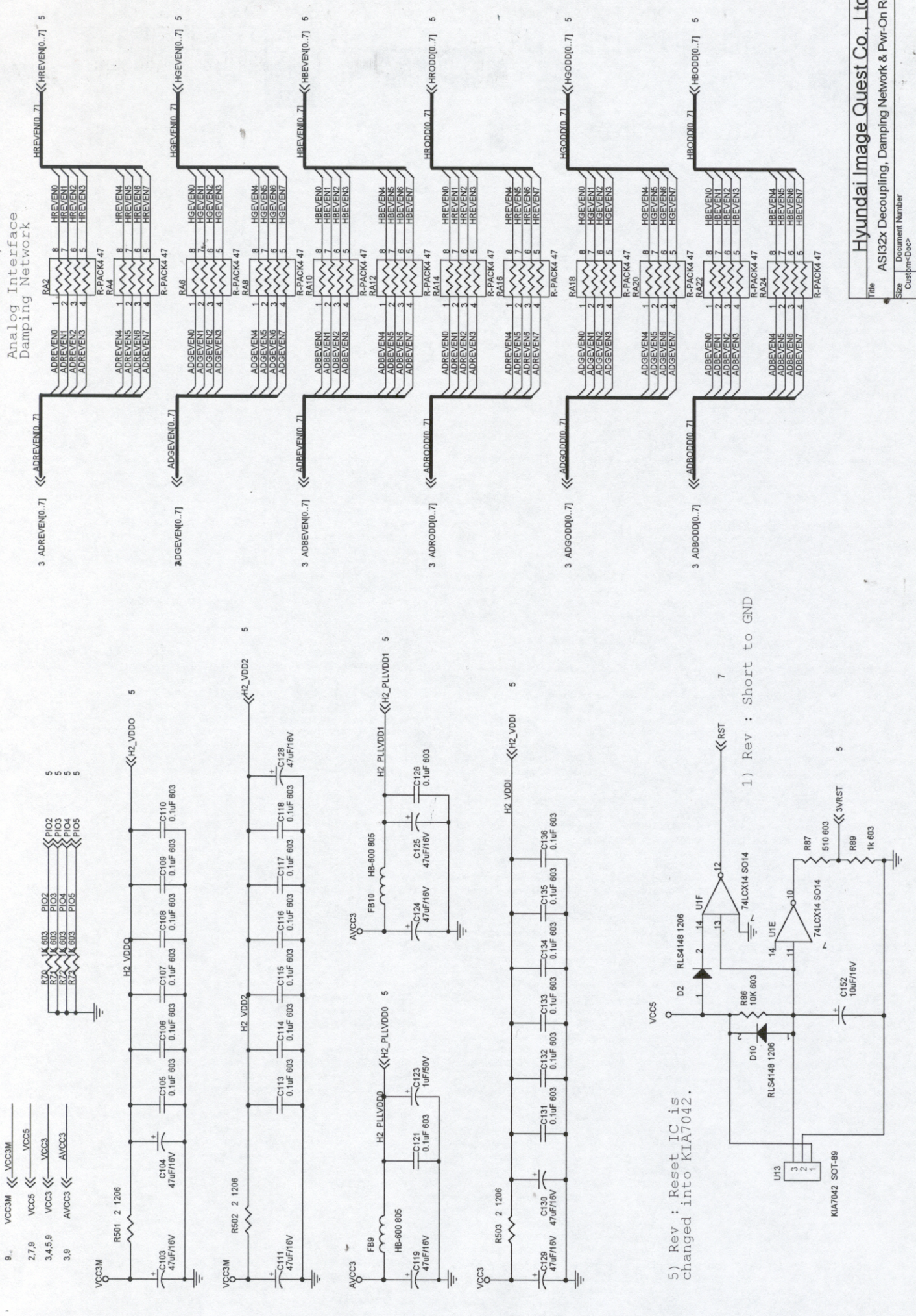
- 5 ADQM0
- 5 ADQM1
- 5 SDCLKI
- 5 SDCLK
- 5 /ACAS
- 5 /ARAS
- 5 /ACKE
- 5 /AWFE
- 5 /ACS
- 5 ABA



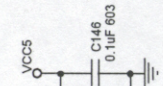




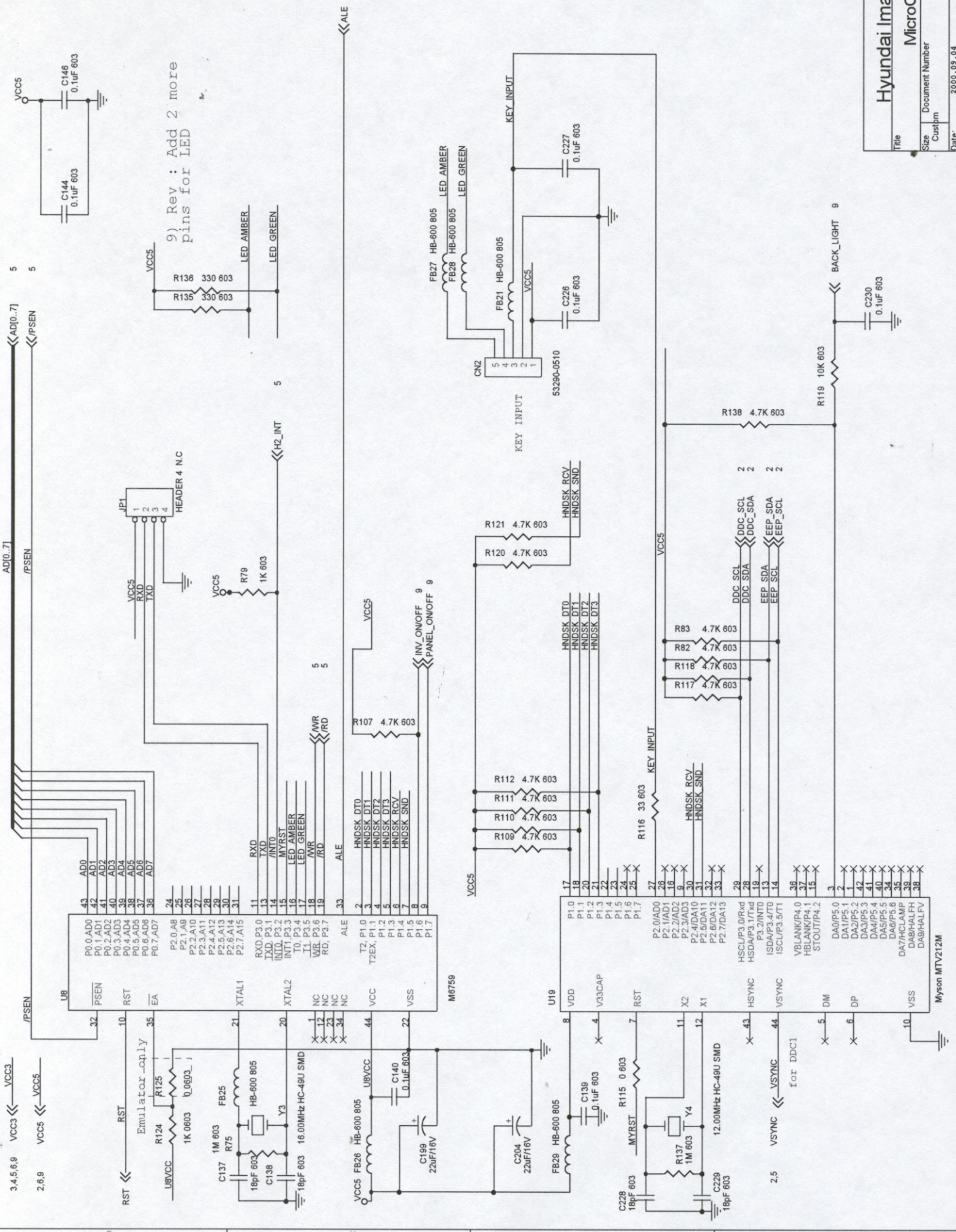
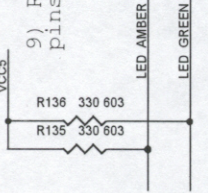
Analog Interface  
Damping Network





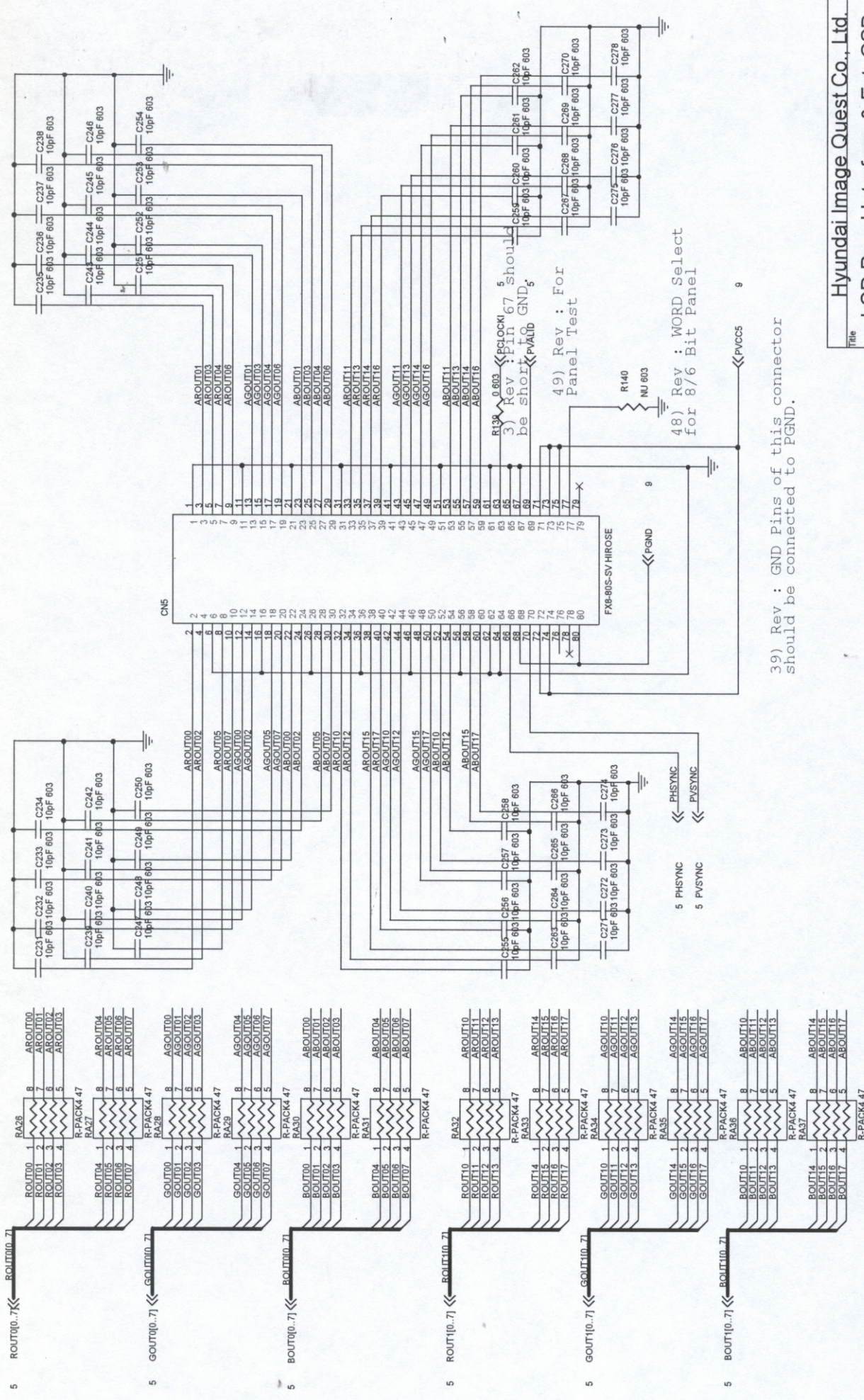


9) Rev : Add 2 more pins for LED





Panel Output  
Damping  
Network

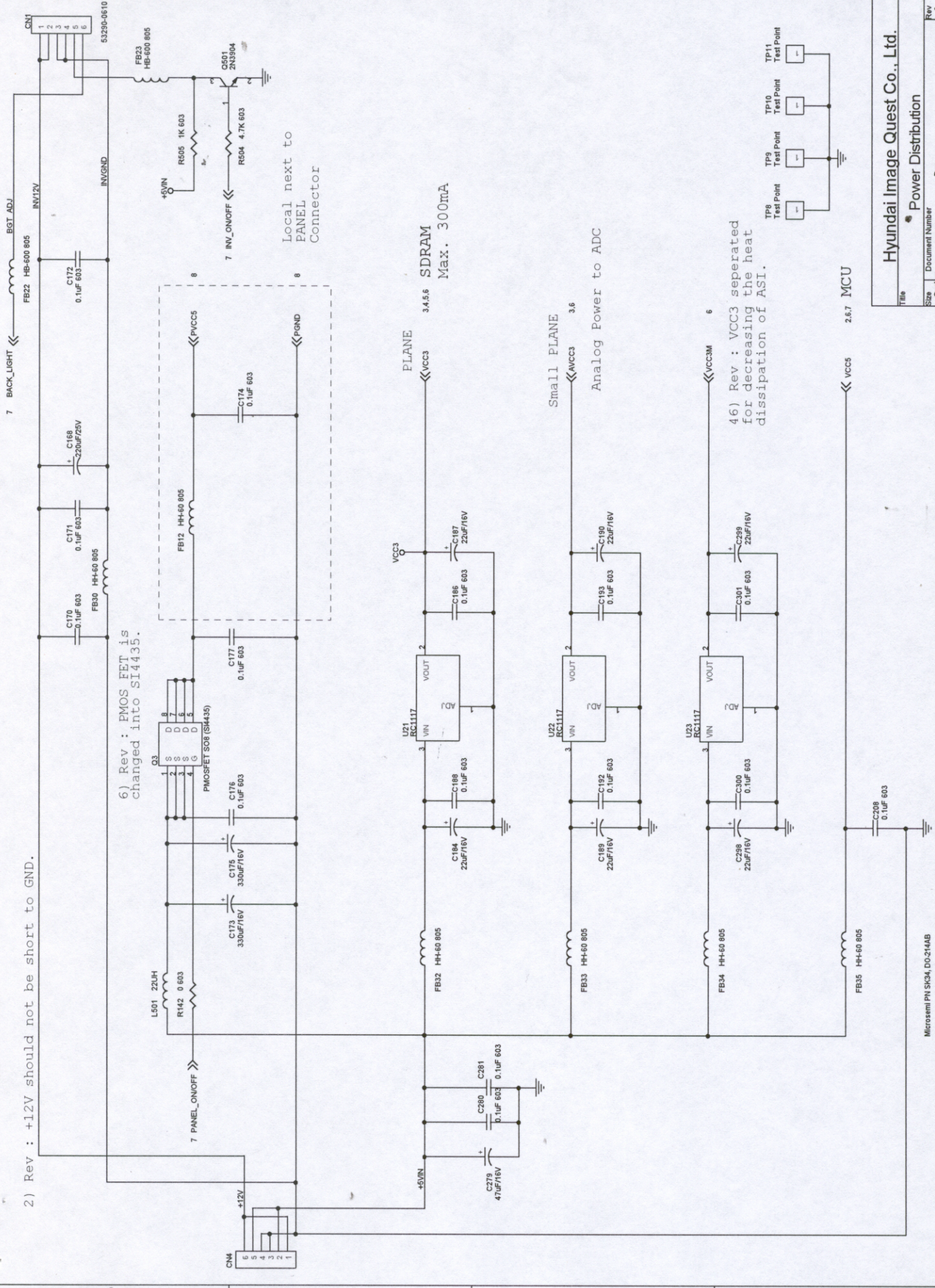


39) Rev: GND Pins of this connector should be connected to PGND.



2) Rev : +12V should not be short to GND.

6) Rev : PMOS FET is changed into SI4435.



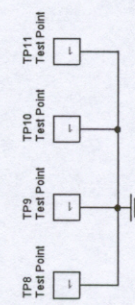
Local next to PANEL Connector

3.45.6 SDRAM Max. 300mA

3.6 Analog Power to ADC

46) Rev : VCC3 separated for decreasing the heat dissipation of ASI.

2.6.7 MCU

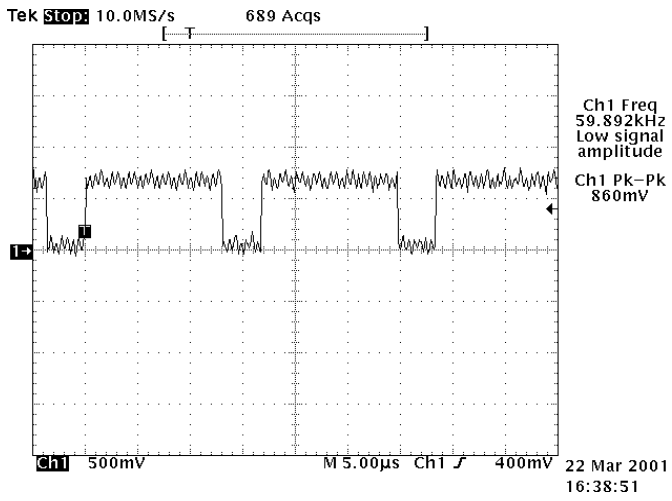


Hyundai Image Quest Co., Ltd.	
File	Power Distribution
Size	Document Number
Clash	Doc
Date:	2020.09.04
Sheet	9 of 9
Rev	0

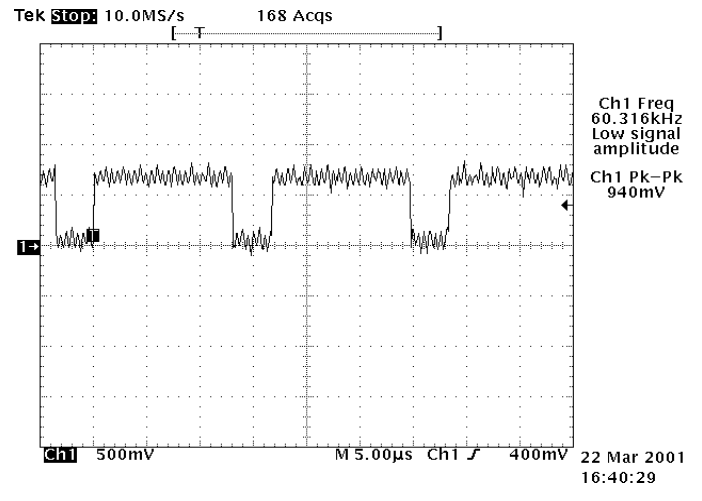
Microsemi PN S1K4\_DO-214AB

Symptom	Check(YES)	Action(NO)
No Power	◆ Check on 5V and 12V at Output Voltage of Power Adaptor	⊙ Change Power Adaptor
Screen is Black with no Back light	◆ Check on 5V at On/Off pin of Inverter ◆ Check on 0V ~ 4V at PWM pin of Inverter ◆ Check on 12V pin of Inverter ◆ Check on H-sync and V-sync  ◆ Check on P_clk at pin #125 of Scaler(U6)	⊙ Check on pin #8 of MCU(U8) ⊙ Check on pin #3 of MUC(U19) ⊙ Change Inverter ⊙ Check on pin #1,#5,#4,#8 of U1 ⊙ Check on pin #40 of ADC(U2) ⊙ Check on pin #62, #63 of Scaler(U6)
Bad Video	◆ Display the R.G.B 64 Gray of Pattern ◆ Check on R line If R Video is bad	⊙ Check on RA2, RA4, RA14,RA16 ⊙ Check on pin #7,#15,#22 of ADC(U2) ⊙ Check on Pin #1 of D-sub
Gabarge Display	◆ Check on connecting of FPC Cable	⊙ Change FPC Cable ⊙ Change 80 pin connector of Main B/D ⊙ Change LCD Panel
Mottle screen, V-BAR, H-BAR, White Dot		⊙ Change LCD Panel
No Video	◆ Check on Communication state of MCU (U8,U19) ◆ Check on H/V Sync  ◆ Check on P_clk at pin #125 of Scaler(U6) ◆ Check on G-Clock	⊙ Check on pin #28,#29 of MCU(U19)  ⊙ Check on pin #1,#5,#4,#8 of U1 ⊙ Check on pin #40 of ADC(U2) ⊙ Check on Pin #62,#63 of Scaler(U6)  ⊙ Check on #115 pin of ADC(U2)
H/V Size H/V Position Error	◆ Check on Preset Timing ◆ Check on G-Clock ◆ Check on cold solder at pin of ADC(U2)	⊙ Check on pin #115 of ADC(U2)
LED Green & No Video	◆ Check on connecting of FPC Cable ◆ Check on Backlight	⊙ Reconnect Collectly FPC Cable with Main B/D and Panel
LED Amber & No Video	◆ Check on In/Output of ADC(U2)  ◆ Check on H/V Sync	⊙ Check on Pin #7,#15,#22 at Input side of ADC(U2) ⊙ Check on Output data of ADC(U2) ⊙ Check on pin #1,#5,#4,#8 of U1 ⊙ Check on pin #40 of ADC(U2)
separate screen or rocking screen at Preset Mode Timing	◆ Check on Connect Point at PLL Side of ADC (U2)	⊙ Check on Pin #33,#34,#43,#45,#48, #50 of ADC(U2)

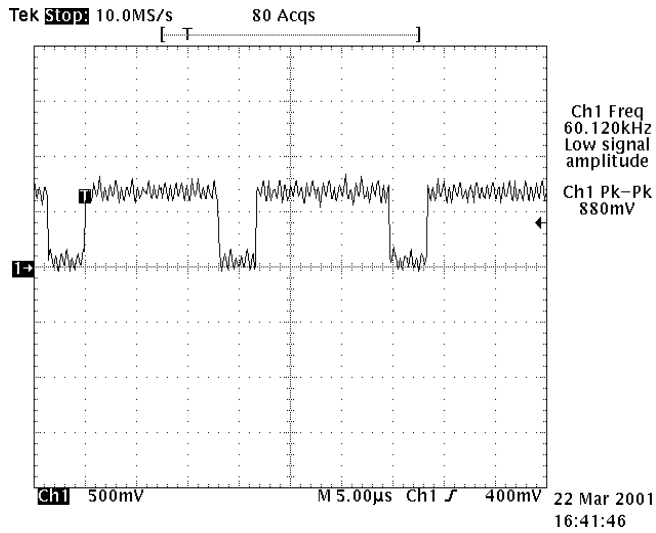




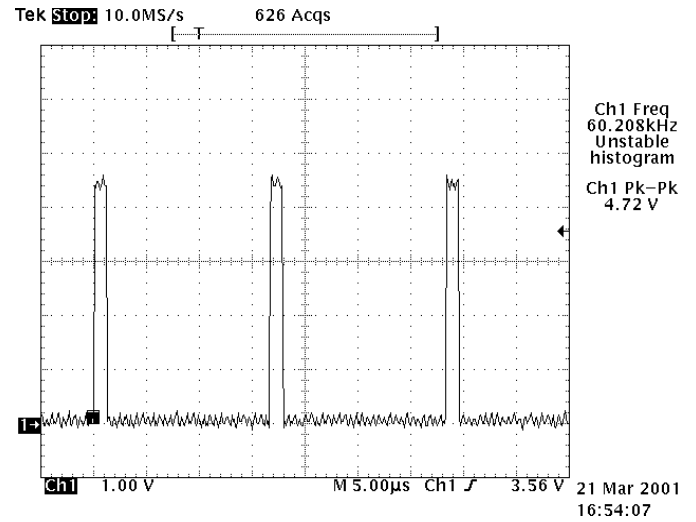
Pin #7 of ADC (U2)



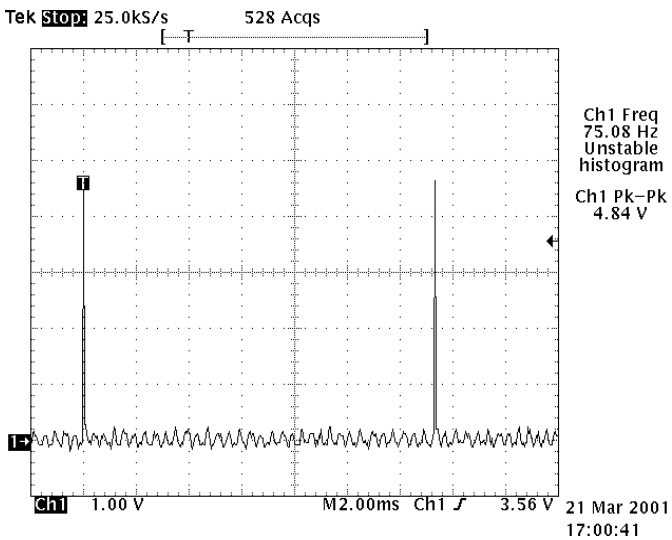
Pin #15 of ADC (U2)



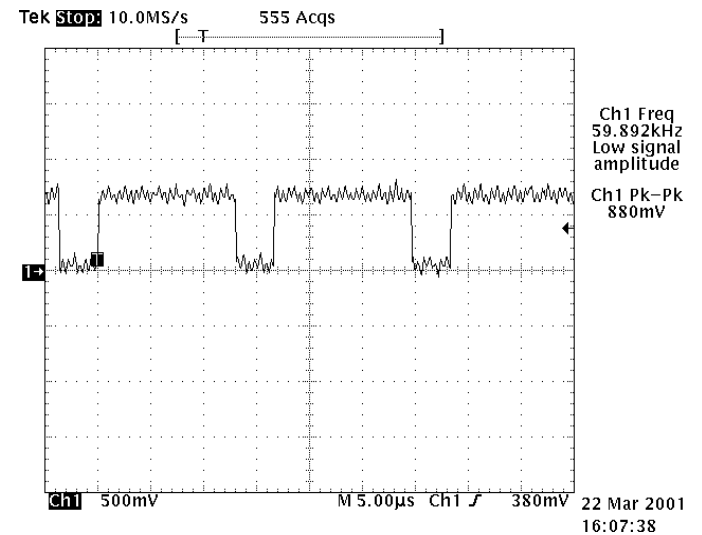
Pin #22 of ADC (U2)



H-sync

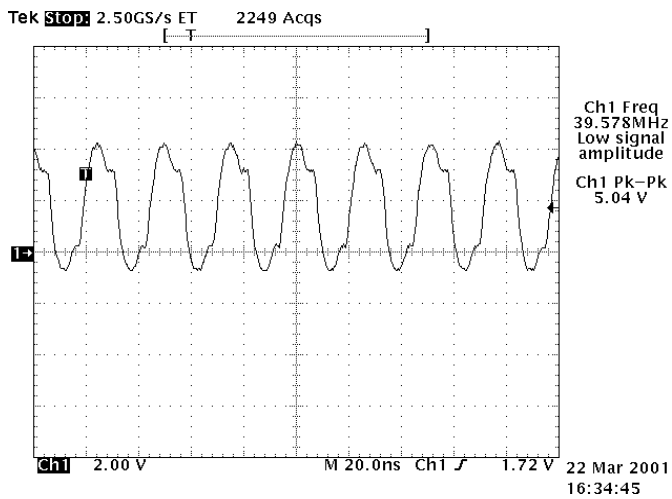


V-sync

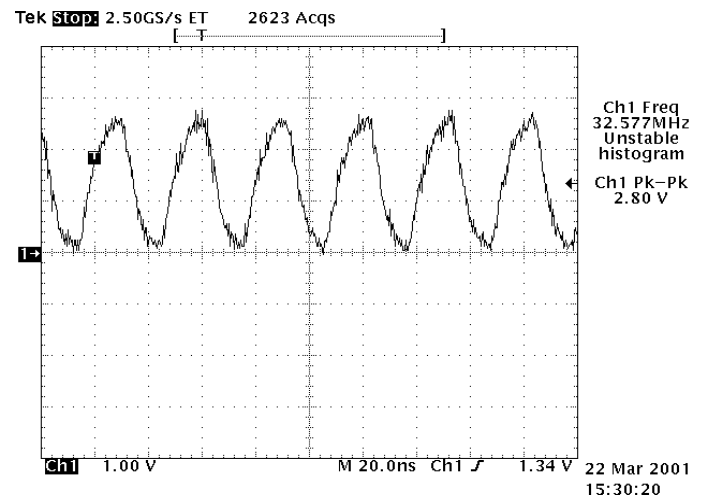


D-sub #1 (Red)

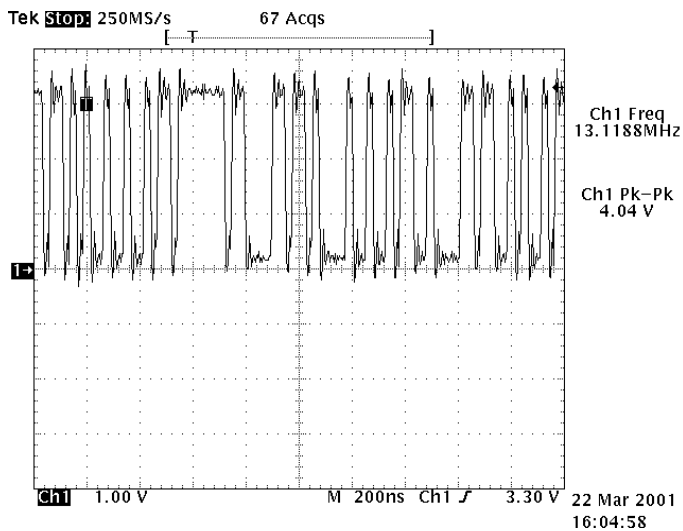




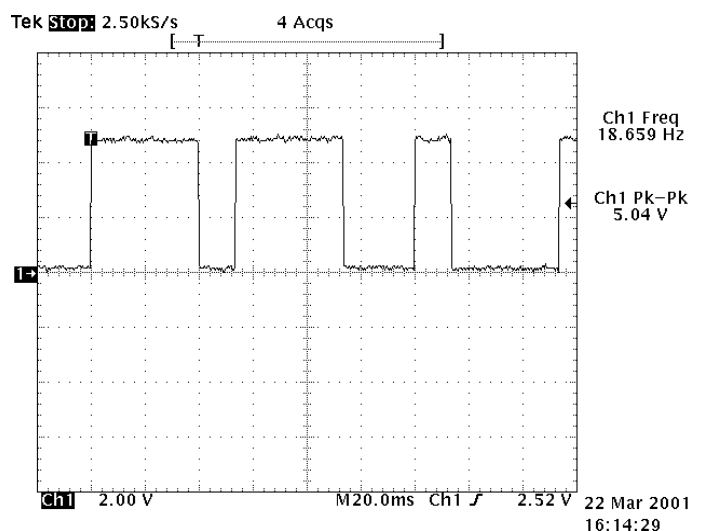
Pin #115 of of DAC (U2) -> G-clock



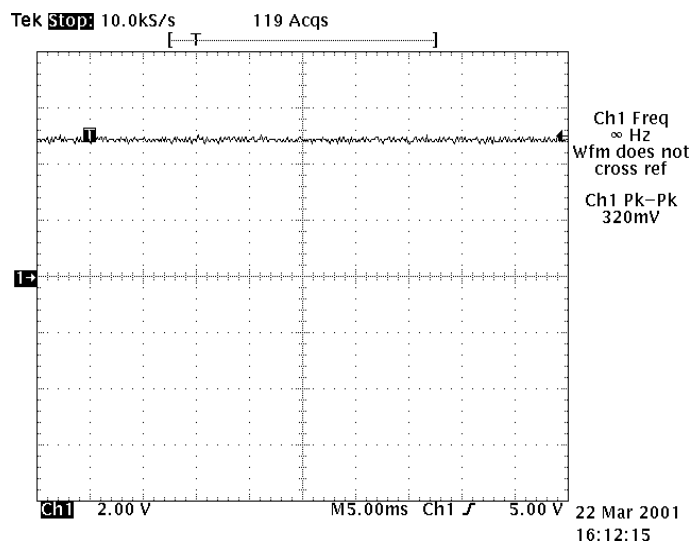
Pin #125 of Scaler(U2) -> P-clock



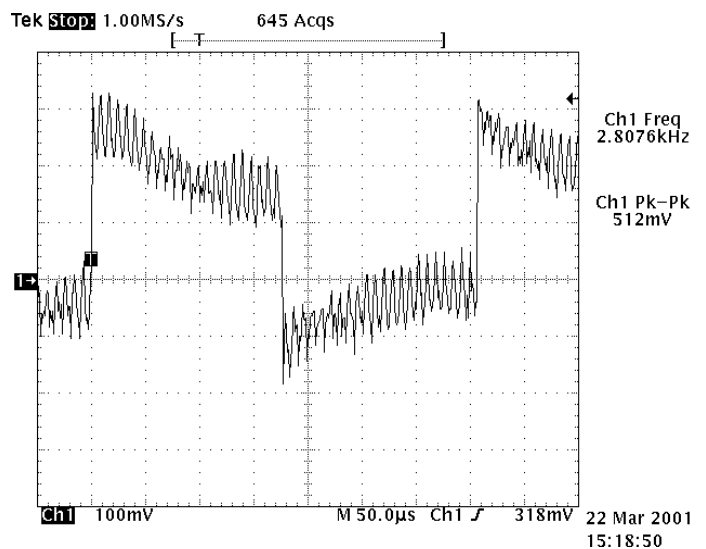
RA4 (R data)



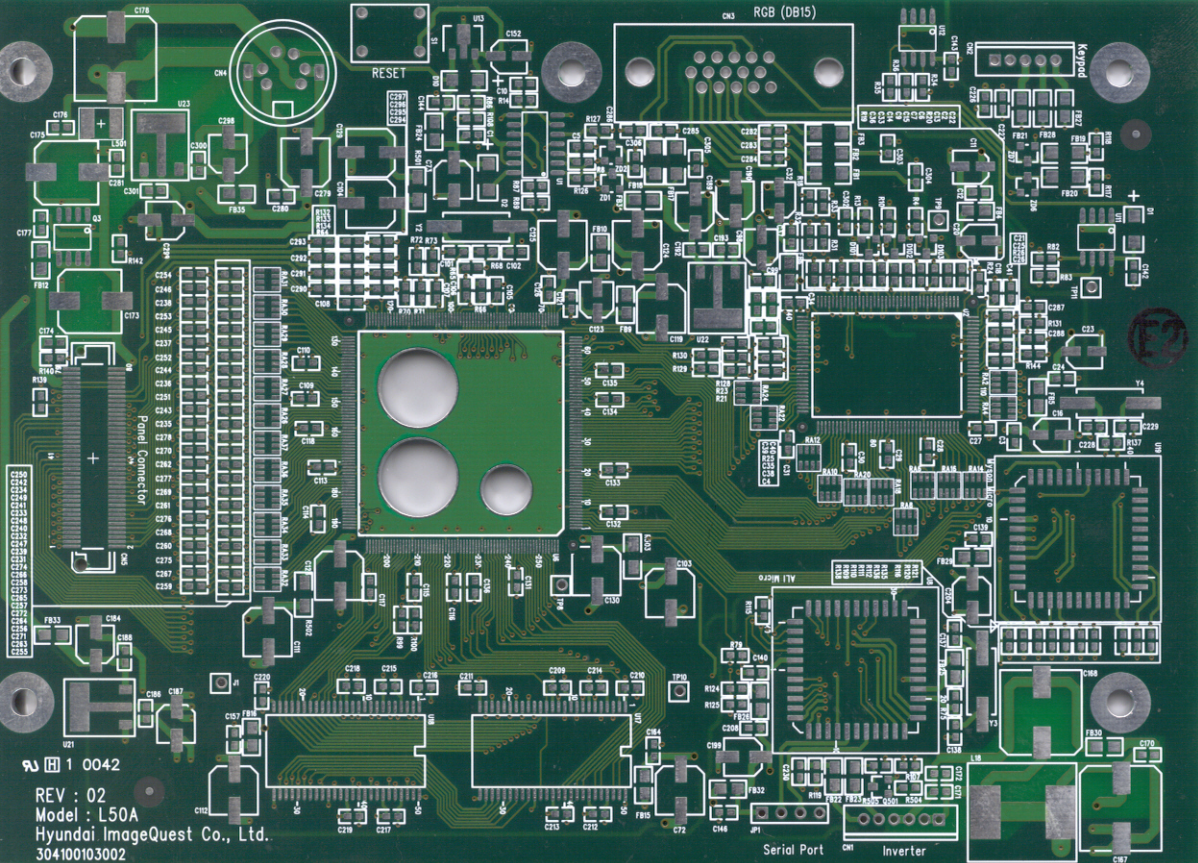
Pin #28 of MCU(U19)



Pin #29 of MCU(U19)



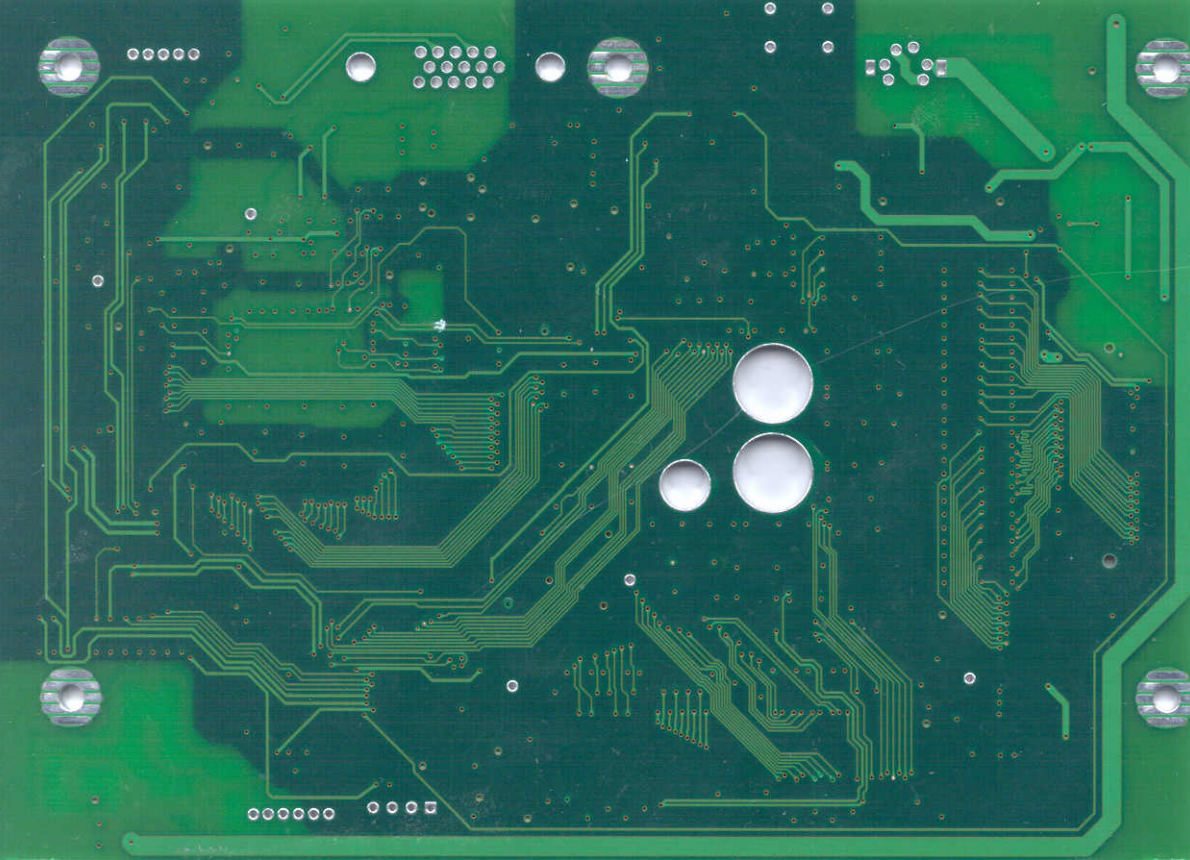
Pin #3 of MCU (U19)

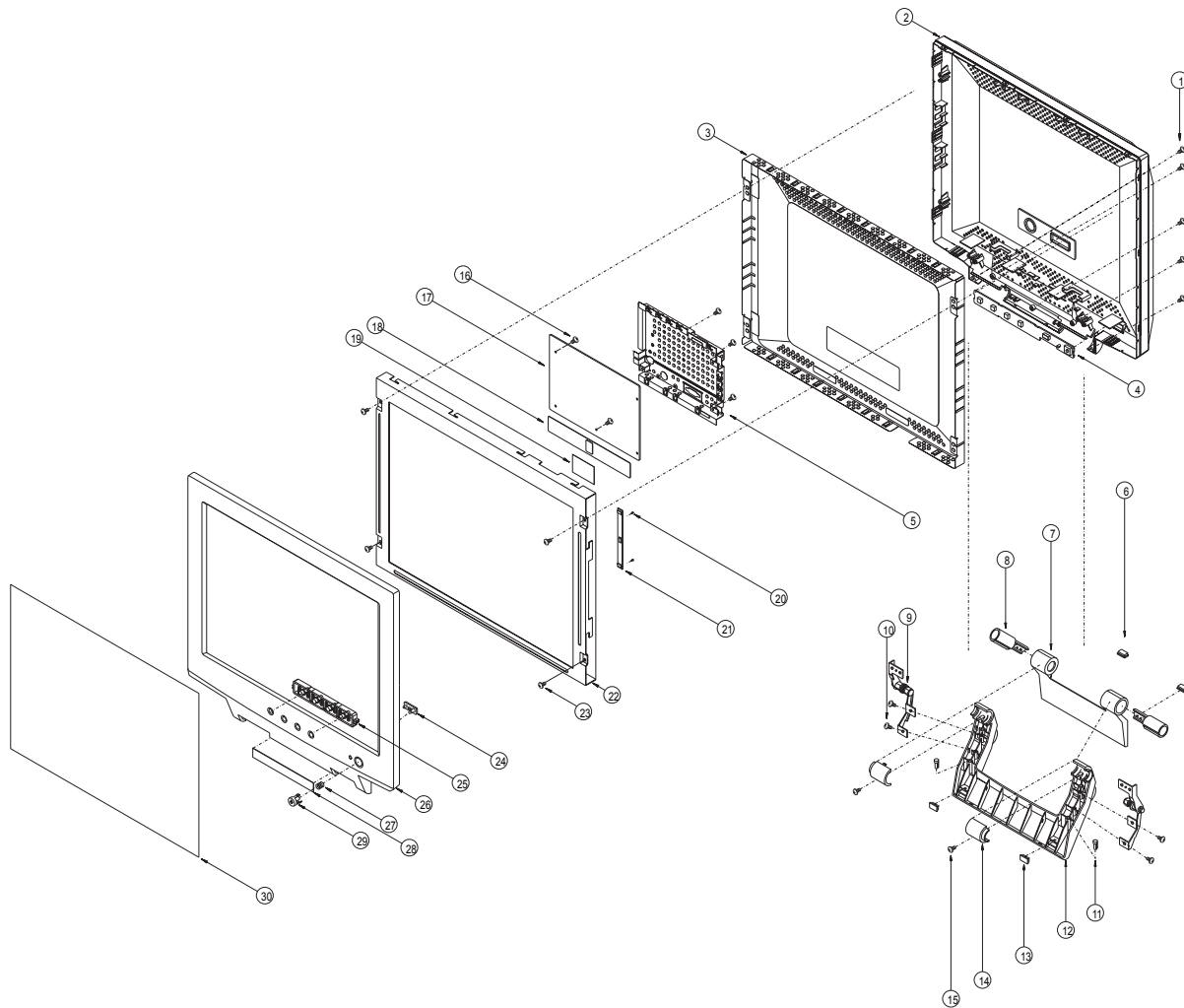


1 0042

REV : 02  
Model : L50A  
Hyundai ImageQuest Co., Ltd.  
304100103002

Serial Port Inverter





NO	PART NO	PART NAME	DESCRIPTION	QTY	REMARK
30	6242027801	SHEET PROTECT	PET T=0.1	1	
29	6215234600	KNOB POWER	ABS 94 HB	1	
28	6261042200	RUBBER STAND	SILICON	1	
27	B4214000701A	SPRING COM	SUS	1	
26	6201289000	COVER FRONT	ABS 94 HB	1	
25	6215234500	KNOB TACT	ABS 94 HB	1	
24	6220084000	LENS LED	PMMA	1	
23	5004000198	SCREW	WAP TT 3*10	4	
22	3330500220	15" FT15X11-200		1	15" MODULE
21	3610400236	INVERTER PCB	FR-4	1	
20	5001000585	SCREW	FLT MC 2*5	2	
19	6210088100	INSULATION IC	PET T=0.1	1	
18	6210105100	INSULATION PCB	PET T=0.3	1	
17	3041001030	MAIN PCB	FR-4	1	
16	5001000583	SCREW	WAP MC 2.6*4	5	
15	5004000203	SCREW	TT 2*6	2	
14	6215234700/4800	CAP STAND L/R	HIPS 94 HB	1/1	
13	6261042400	RUBBER FOOT B	CR	2	
12	6201289300	STAND B	HIPS 94 HB	1	
11	6261042600	SUPPPORT RUBBER	SILICON	2	
10	5004000198	SCREW	WAP TT 3*10	4	
9	6115023200/3300	HINGE LEFT/RIGHT	SUS T=1.2	1/1	
8	6201289400	BAR STAND	HIPS 94 HB	2	
7	6201289200	STAND A	HIPS 94 HB	1	
6	6261042300	RUBBER FOOT A	CR	2	
5	6120049100	SHIELD PCB	SPT E T=0.3	1	
4	3010700732	CONTROL PCB	FR-1	1	
3	6120045700	SHIELD MAIN	SPT E T=0.3	1	
2	6201289100	COVER REAR	ABS 94 HB	1	
1	5004000203	SCREW	TT 2*6	5	

DESIGN	FLOWN	CHECKED	APPROVED	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	SCALE	TITLE	REV	
J.J.LEE			J.S.KIM	ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE	1:1	EXPLODED VIEW	A	
				L50A	A2	DWG NO.	B4210007401A	
							SHEET	1/1