

COLOR TFT-LCD TV SERVICE MANUAL

MODEL : LT-20AMF

CAUTION !!

BEFORE SERVICING THE TFT-LCD TV,
READ THE SAFETY PRECAUTIONS IN THIS MANUAL.



SAFETY PRECAUTIONS

!! Important Safety Notice !!

Many electrical and mechanical parts in this chassis have special safety-related characteristics.

These parts are identified by in the Schematic Diagram and Replacement Parts List.

It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent Shock, Fire, or other Hazards.

Do not modify the original design without permission of manufacturer.

Leakage Current Hot Check (See below Figure)

Plug the AC cord directly into the AC outlet.

Do not use a line Isolation Transformer during this check.

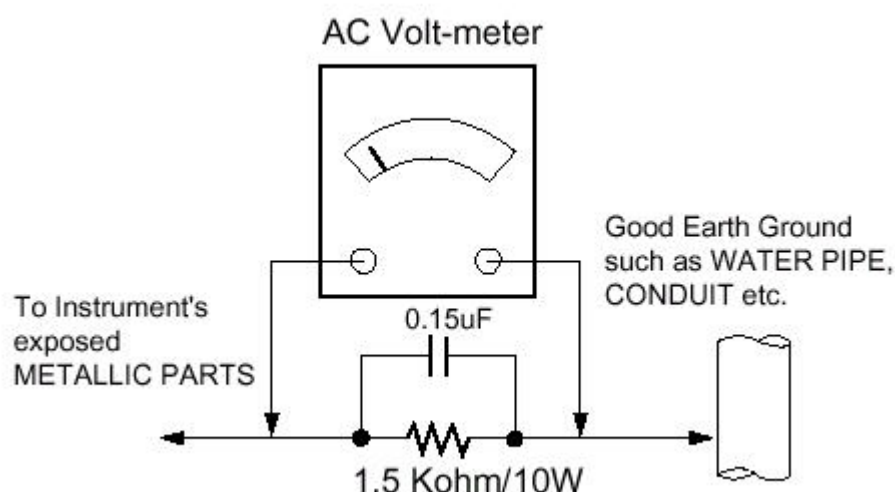
Connect 1.5K/10watt resistor in parallel with a 0.15uF capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.

Measure the AC voltage across the resistor using AC voltmeter with 1000 ohms/volt or more sensitivity.

Reverse plug of the AC cord into the AC outlet and repeat AC voltage measurements for each exposed metallic part. Any voltage measured must not exceed 0.75 volt RMS, which is, corresponds to 0.5mA.

In case any measurement is out of the limits specified, there is possibility of shock hazard and the set must be checked and repaired before it is returned to the customer.

Leakage Current Hot Check circuit



SERVICING PRECAUTIONS

CAUTION!!

Before servicing receivers covered by this service manual, read and follow the SAFETY PRECAUTIONS on page 3 of this publication.

General Servicing Precautions

1. Always unplug the receiver AC power cord from AC power source before;
Removing or reinstalling any component, circuit board module or any other receiver assembly.
Disconnecting or reconnecting any receiver electrical plug or other electrical connection.
Connecting a test substitute in parallel with an electrolytic capacitor in the receiver.

CAUTION!! A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.

2. Do not spray chemicals on or near this receiver or any of its assemblies.
3. Do not defeat any plug/socket voltage interlocks with which receivers covered by this service manual might be equipped.
4. Always connect the test receiver ground lead to the receiver chassis ground before connecting the test receiver positive lead. Always remove the test receiver ground lead last.
5. Do not connect the test fixture ground strap to power supply heatsink in this receiver

Electrostatically Sensitive(ES) Devices

Some semiconductor(solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive(ES) Device. Examples

Circuit Board Foil Repair

Excessive heat applied to the copper foil of any printed circuit board will weaken the adhesive that bonds the foil to the circuit board causing the foil to separate from or "lift-off" the board. The following guidelines and procedures should be followed whenever this condition is encountered.

At IC Connections

To repair a defective copper pattern at IC connections use the following procedure to install a jumper wire on the copper pattern side of the circuit board. (Use this technique only on IC connections.)

1. Carefully remove the damaged copper pattern with a sharp knife. (Remove only as much copper as absolutely necessary.)
2. Carefully scratch away the solder resist and acrylic coating (if used) from the end of the remaining copper pattern.
3. Bend a small "U" in one end of a small gauge jumper wire and carefully crimp it around the IC pin.
4. Route the jumper wire along the path of the out-away copper pattern and let it overlap the previously scraped end of the good copper pattern. Solder the overlapped area and clip off any excess jumper wire.

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SPECIFICATIONS

Note: Specifications and others are subject to change without notice for improvement.

1.Scope.

This document is the specification of 20.1" TFT-LCD Color TV.

2.Power

1) Power requirement

DC 15V / 4.5A

2)AC / DC Adapter.

Input Frequency : 50/60Hz $\pm$ 3Hz

Input Voltage : AC 100V AC 230V ($\pm$ 10%)

Output Voltage : DC 15V

3)Power cord

Use UL listed and CSA certified detachable power cord type ;SVT, 3-conductors, 18AWG
For AC 120V area. Use VDE listed detachable power cord type ;HO5VV-F, 3-conductors,
18AWG for AC 220 240V area.

3.Tuning system

FVS 100

4.Sound output

3W+3Wrms Stereo (Max)

5.Antenna input impedance

VHF / UHF at 75ohm

6.OSD Type (On Screen Display)

Windows type (Center)

7.External in/output

DC Power in, PC/DTV in, COMPONENT, Head Phone out, S-Video in, A/V input,A/V output,
ANT in.

Audio In : 0.4Vrms, over 10K Ω

Video In : 1Vp-p, over 75 Ω

PC/DTV In: 0.7Vp, over 75 Ω

8.Function

CATV/Hyper band

Auto Program

Manual Program

Auto Sleep

Quick view

PSM(Picture Status memory)

SSM(Sound Status memory)

SPECIFICATIONS

9.Receiving RF TV system

NO	Model System	LT-20AMF	/	/
1	PAL-B	X	/	/
2	PAL-G	X	/	/
3	PAL-I, I /I	X	/	/
4	PAL-D	X	/	/
5	PAL-K	X	/	/
6	SECAM-B	X	/	/
7	SECAM-G	X	/	/
8	SECAM-D	X	/	/
9	SECAM-K	X	/	/
10	SECAM-K1	X	/	/
11	SECAM-I (6.0)	X	/	/
12	NTSC-3.58 / 4.5	O	/	/
13	NTSC-3.58 / 5.5	O	/	/
14	NTSC-3.58 / 6.0	O	/	/
15	NTSC-3.58 / 6.5	O	/	/
16	NTSC-3.58 / 4.5(5.0)	O	/	/
17	NTSC-4.43 / 5.5	O	/	/
18	NTSC-4.43 / 6.0	O	/	/
19	NTSC-4.43 / 6.5	O	/	/
20	PAL 5.5 / 60Hz	X	/	/
21	PAL 6.0 / 60Hz	X	/	/
22	PAL 6.5 / 60Hz	X	/	/
23	SECAM 5.5 / 60Hz	X	/	/
24	SECAM 6.0 / 60Hz	X	/	/
25	SECAM 6.5 / 60Hz	X	/	/
26	SECAM L / L'	X	/	/
	TOTAL SYSTEM	8	/	/

SPECIFICATIONS

10. PC Mode Scan Frequency & Timing

1) Scan Freq : H: 31 56 kHz / V: 56 75Hz

2) Preset Timing Chart

Mode	Resolution	H-Freq(Khz)	V-Freq(Khz)
VGA	640x480	31KHZ	60Hz
	640x480	37.9KHz	72Hz
	640x480	37.5KHz	75Hz
	720x400	31.5KHz	70Hz
SVGA	800x600	35.1KHz	56Hz
	800x600	37.9KHz	60Hz
	800x600	48.1KHz	72Hz
	800x600	46.9KHz	75Hz
DTV	1080i		50/60Hz
	720p		50/60Hz
	576p		50Hz
	480p		60Hz

Note!! :

If the set is cold, there may be a small “flicker” when the set is switched on. This is Normal, there is nothing wrong with the set.

if possible, use the VESA 640x480 PC video mode to obtain the best image quality for your LCD TV. If used under the other resolutions, some scaled or processed pictures may appear on the screen.

some dot defects may appear on the screen, like Red, Green or Blue spot. However, this will have no impact or effect on the monitor performance.

11. TFT – LCD Panel Character

1) Feature

Size	: 20.1" Diagonal
LCD Type	: Color Active Matrix TFT
Pixel Pitch	: 0.2125mm(H) x 0.6375mm(V)
Pixel Format	: 640x480 Pixels, RGB Stripe
Active Video Area	: 408mm(H) x 306mm(V)
Surface treatment	: Anti-reflective + Anti-glare coating.
Response Time(Typ)	: 16mS(Typ)
Viewing Angle<CR≥10>	: Hor [Left/Right] → 80Deg (Typ) / 80Deg (Typ), Ver [High(Top)/Low(Bottom)] → 70Deg (Typ) / 70Deg (Typ)
Luminance(Typ)	: 450 cd/m ² (Typ)
Contrast Ratio(Typ)	: 500:1 (Typ)
Display Color	: 16,7M Color
Back Light	: 6 CCFL

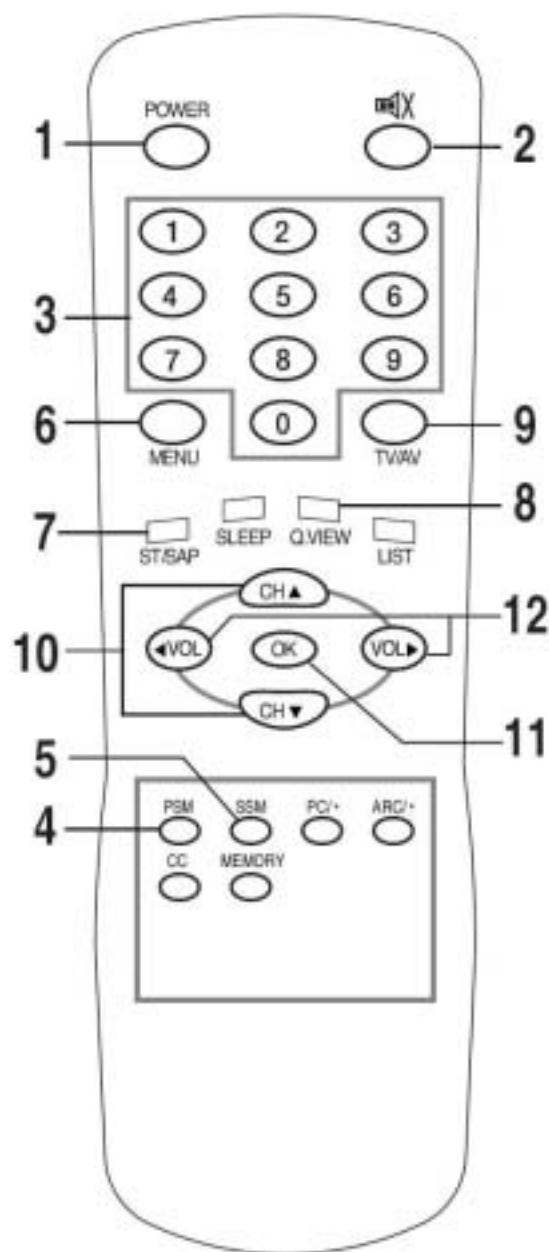
LOCATION OF CONTROL

All the function can be controlled with the remote controller.

Some functions can also adjusted with the buttons on the controls on the TV front panel.

12-1. Remote controller

Note !! : Before you use the remote controller, please install the batteries.



1.POWER:

Turns the TV on from standby or off to standby mode.

2.MUTE:

Turns the sound on and off

3.NUMBER buttons:

Select channel numbers.

4.PSM (Picture Status Memory):

Recalls your preferred picture setting.

5.SSM (Sound Status Memory):

Recalls your preferred sound setting.

6.MENU:

Displays a main menu.

7. ST / SAP:

Selects the MTS-Stereo, Mono and SAP

8.Q.VIEW:

Returns to the previously viewed Programme.

9.TV / AV: Selects TV, COMPONENT, VIDEO, S-VIDEO, RADIO(Only when the set is Radio On.) or PC mode.
/ Clears the menu from the screen.

10.CH ▲▼ (Channel Up/Down):

Selects next channel or a menu item.

11.OK:

Accepts your selection or displays the current mode.

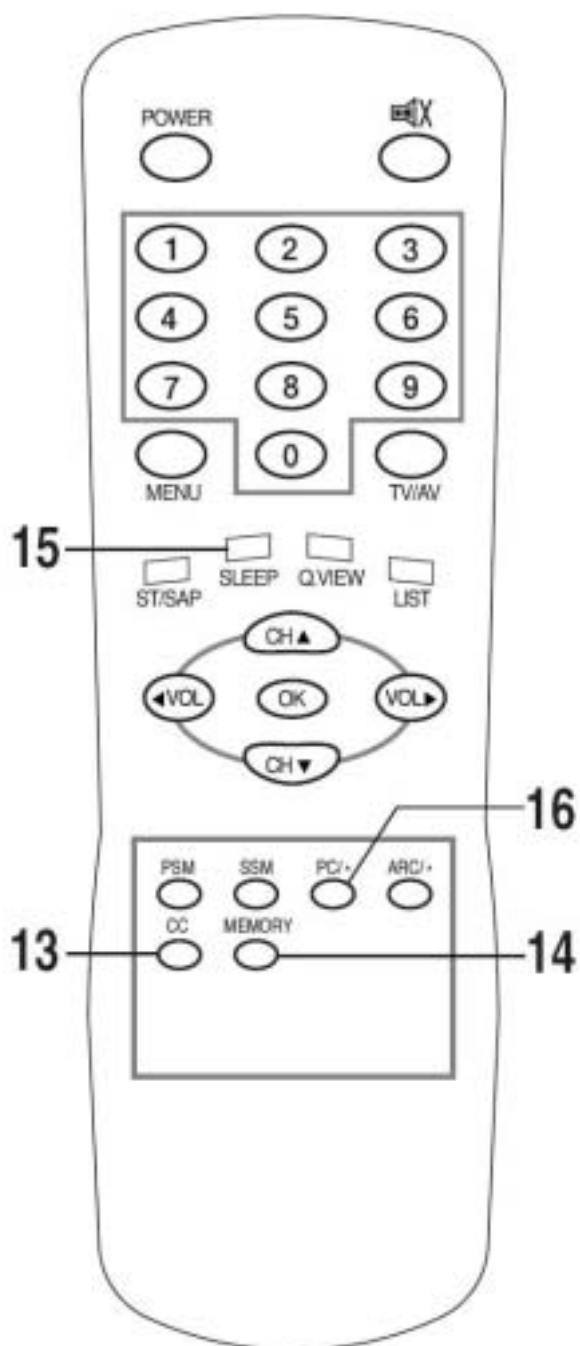
12.VOL (Volume Up/Down):

Adjusts the sound level or a menu Setting.

LOCATION OF CONTROL

12-2. Remote controller

Note !! : Before you use the remote controller, please install the batteries.



13.CC

Sets the caption function.

14.MEMORY

Stores or removes the current channel.

15.SLEEP

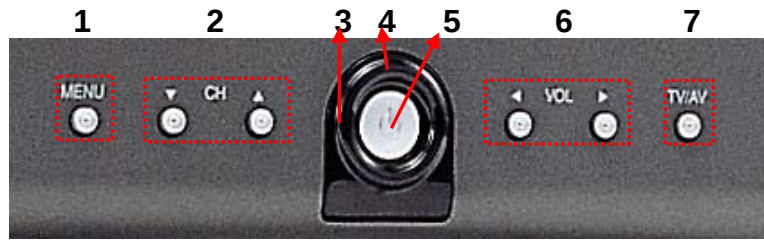
Sets the sleep timer.

16.PC/*

Selects PC mode directly.

LOCATION OF CONTROL

13. Controller of Panel



< FRONT VIEW >

1. MENU

Display a menu.

2. + CH - (Channel Up/Down)

Selects a channel or a menu item

3. POWER INDICATOR

Illuminates red when the TV is in-power standby mode.

Illuminates green when the TV is-switched power on mode.

Illuminates amber when the PC mode is switched power saving mode.

4. ON/OFF

Switches TV set on or off.

5. REMOTE CONTROL SENSOR

Accepts the IR signal of remote controller.

6. + VOL - (Volume Up/Down)

Adjusts the volume.

Adjusts menu settings.

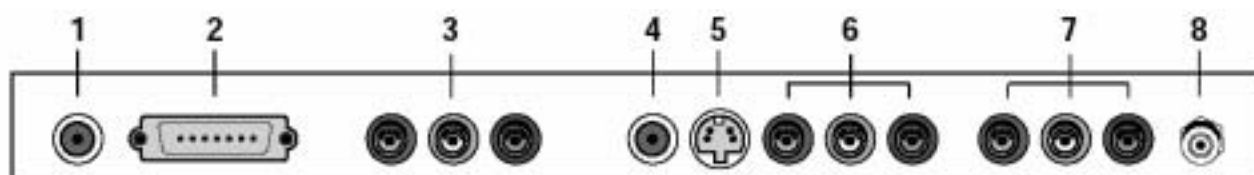
7. TV/AV

Selects input signal source.

Clears the menu from the screen.

EXTERNAL IN / OUTPUT

14. EXTERNAL IN / OUTPUT



1) DC 15V IN

2) PC/DTV INPUT

3) COMPONENT IN

4) H/P(Headphone out)

Connect a headphone to this socket.

5) S-VIDEO IN

Connect the output of an S-VIDEO VCR to the S-VIDEO input.

Connect the audio outputs of an S-VIDEO VCR to the AV-IN audio inputs.

6) AV-IN

Connect the Audio/Video outputs of external equipment to these inputs.

7) AV-OUT

Connect the Audio outputs(L, R) of the set to Audio-IN(L, R) of another display or the amplifier and the Video output of the set to Video IN of another display.

8) Ant. (Antenna input)

DISASSEMBLY PROCEDURE

15. Deassembly procedure

Preparation of work area

Prior to commencement of service to the LCD TV, ensure that the work space is free from foreign objects.

Damage can occur to the LCD Panel screen when it is placed flat on it's face during any servicing procedure.

Use a clean "padded" surface such as a foam sheet to prevent damage / scratching to the front cabinet mask and LCD Panel screen.

For safety, disconnect all power during the disassembly and re-assembly procedures.



1).Removal of Stand

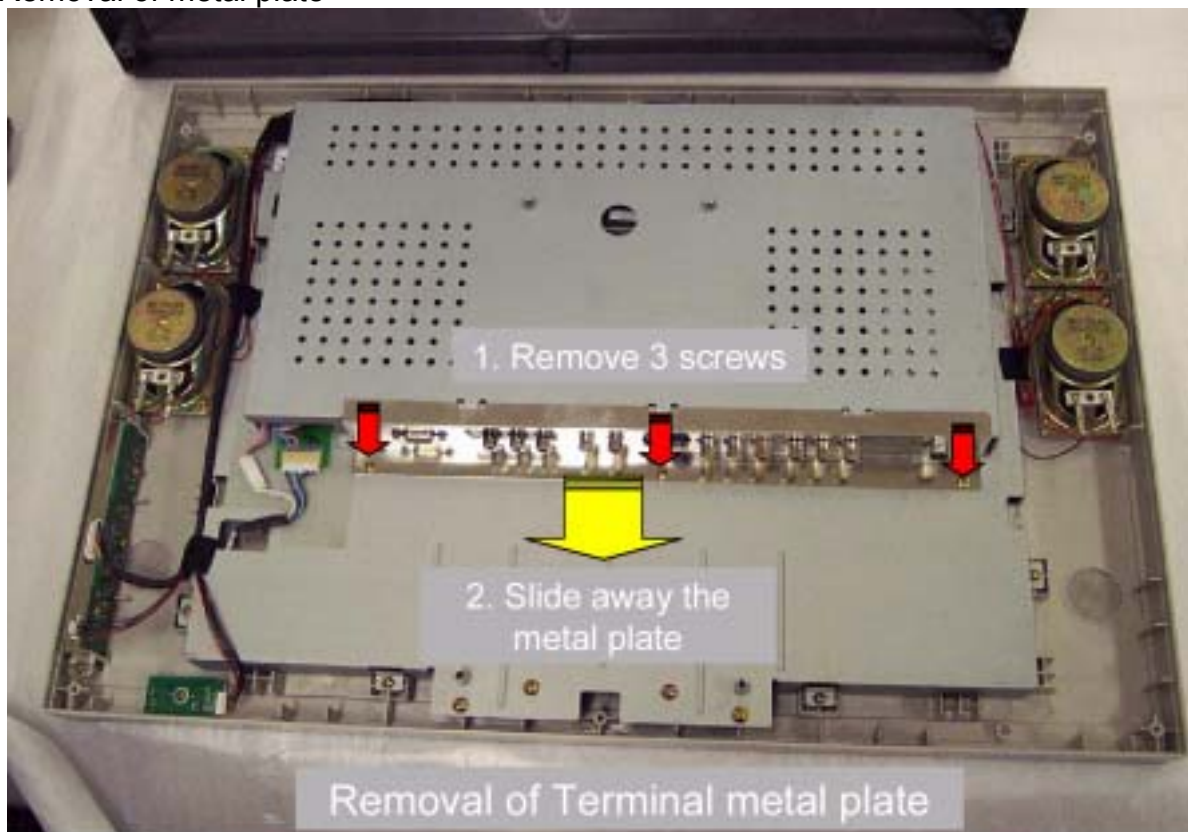


DISASSEMBLY PROCEDURE

2).Removal of Backcover

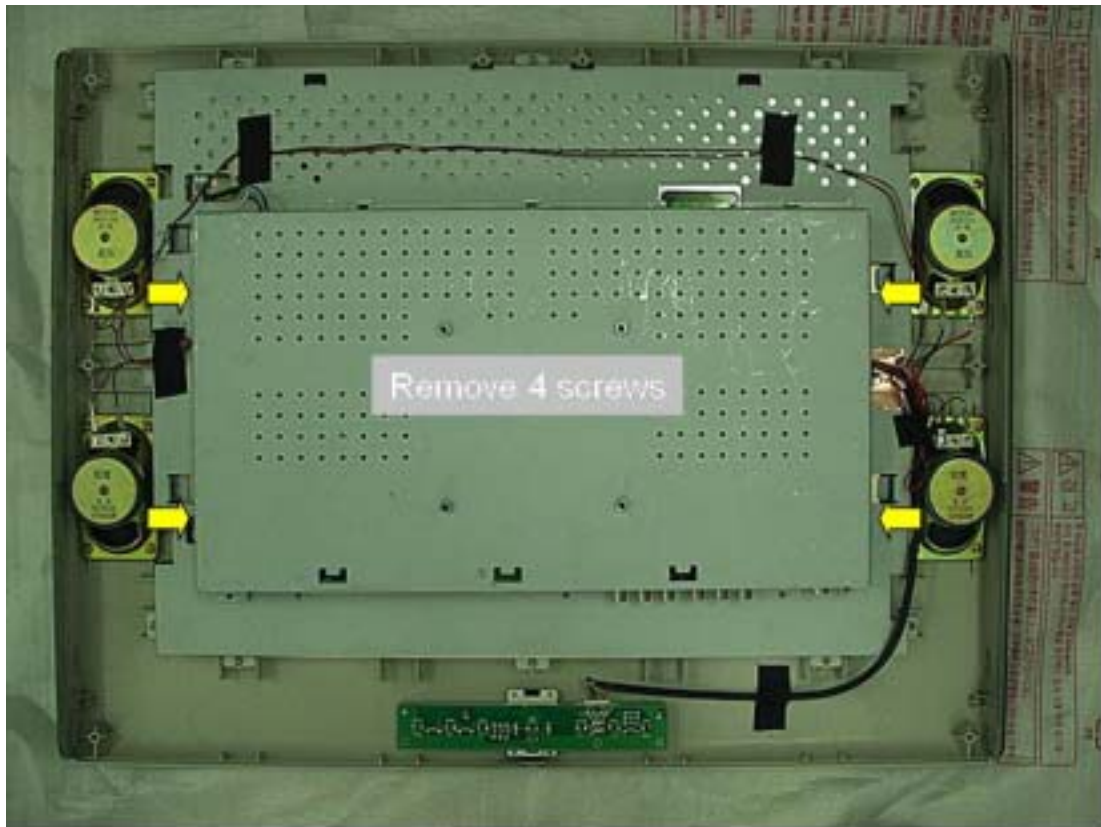


3).Removal of metal plate

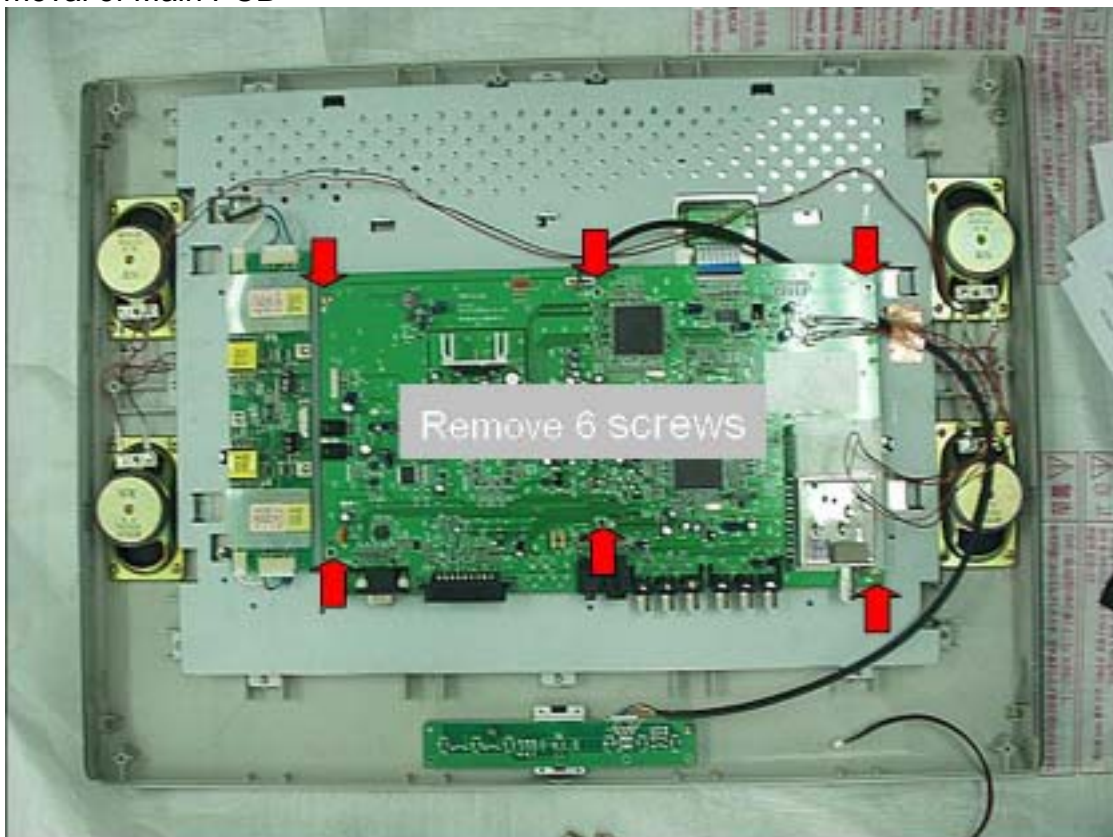


DISASSEMBLY PROCEDURE

4).Removal of metal chassis

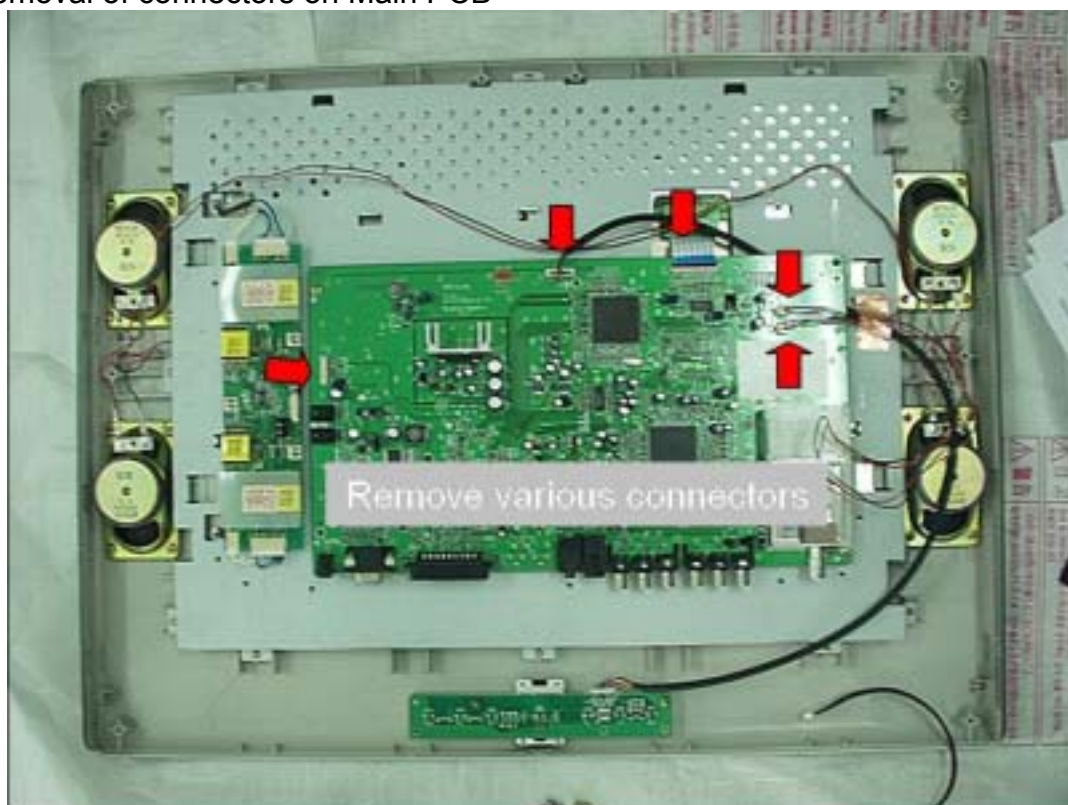


5).Removal of Main PCB

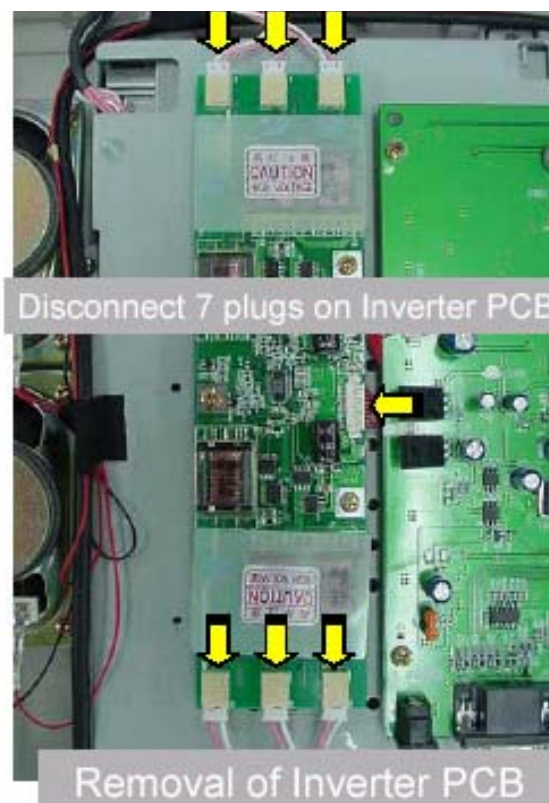


DISASSEMBLY PROCEDURE

6). Removal of connectors on Main PCB

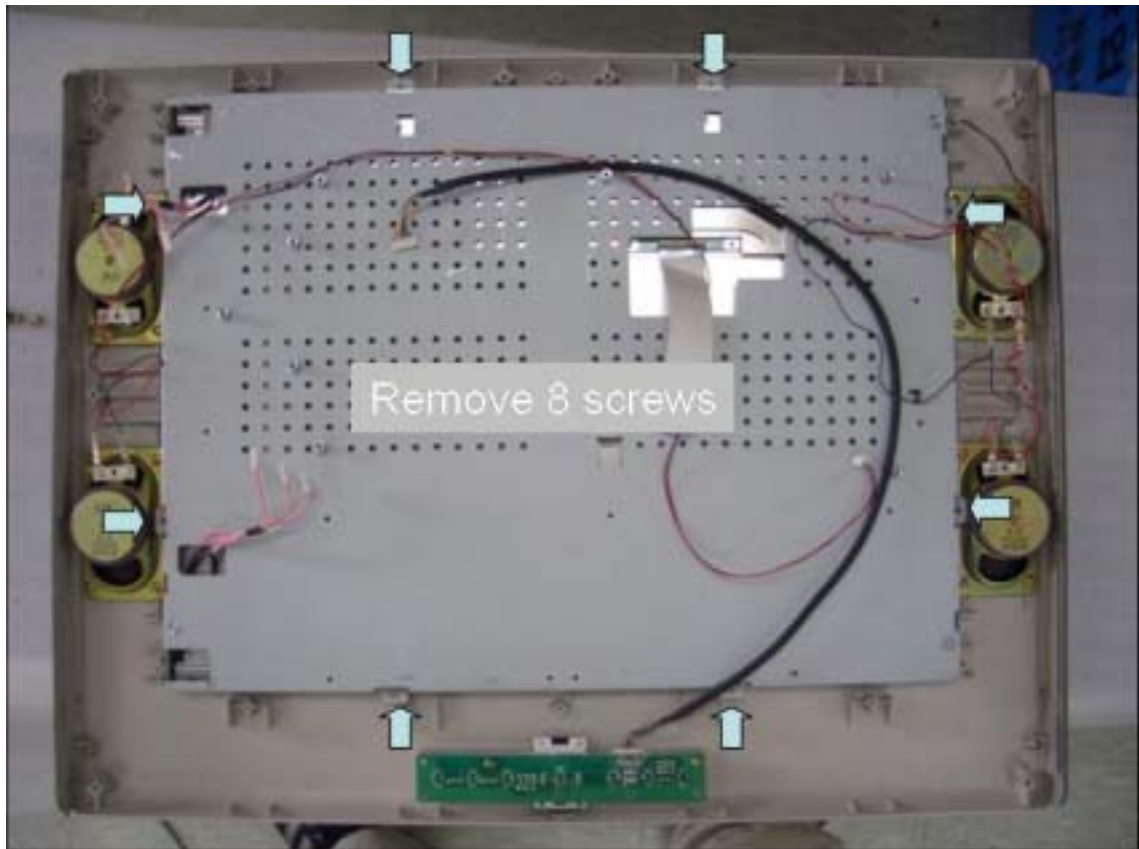


7). Removal of inverter PCB



DISASSEMBLY PROCEDURE

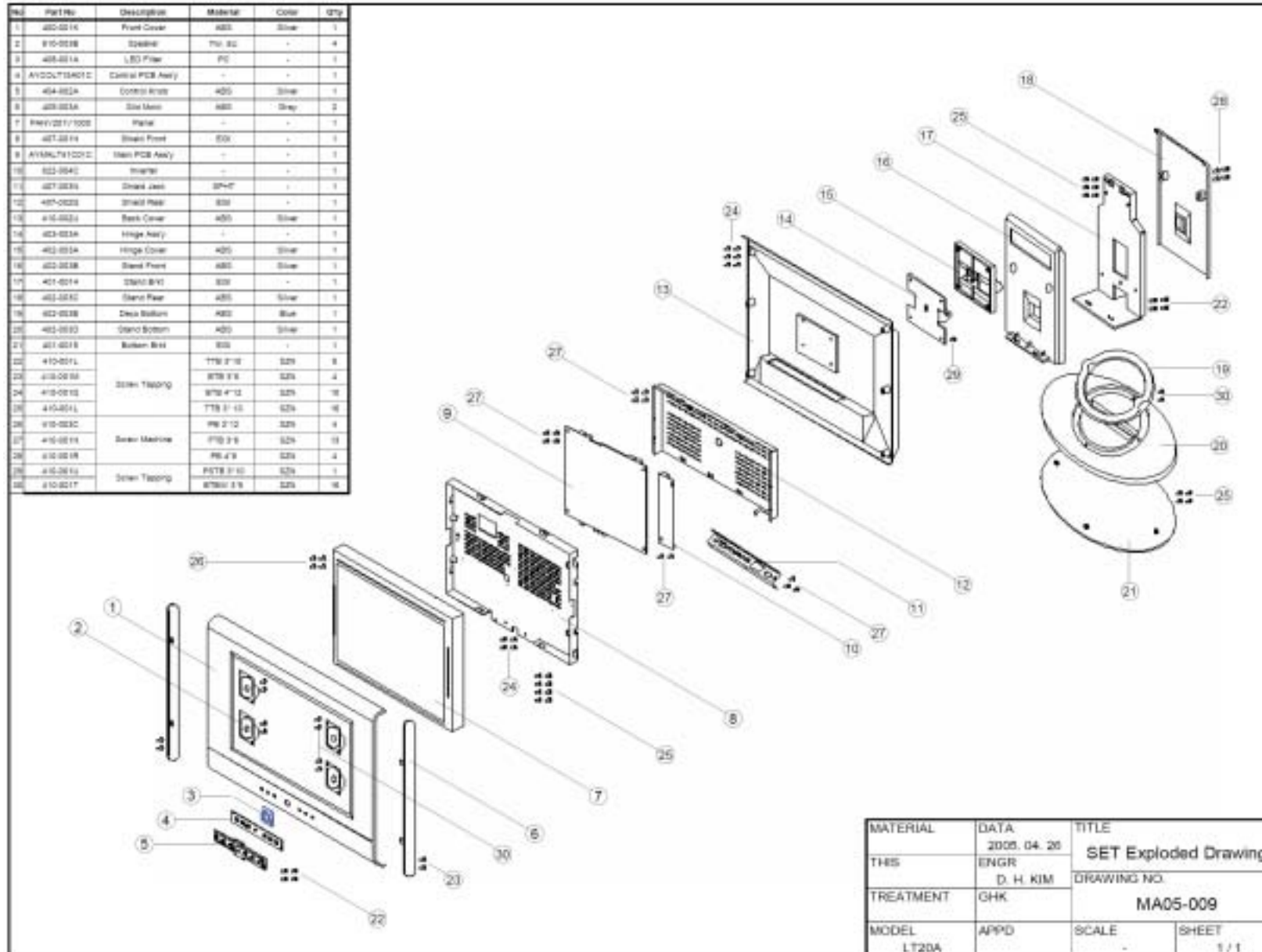
8). Removal of LCD Panel chassis



MECHANICAL EXPLODED VIEW

16.Exploded View

NO	PART NO	Description	Material	Color	Qty
1	400-0016	Front Cover	ABS	Silver	1
2	910-0018	Speaker	PPA, PC	-	4
3	400-0014	LED Filter	PC	-	1
4	AV004710401C	Control PCB Assy	-	-	1
5	404-0024	Control Knob	ABS	Silver	1
6	400-003A	Side Menu	ABS	Gray	2
7	944V201V1000	Panel	-	-	1
8	400-0019	Stand Front	SS	-	1
9	AVMM781001C	Main PCB Assy	-	-	1
10	023-0040	Bracket	-	-	1
11	400-0036	Stand Jack	SP4T	-	1
12	400-0033	Stand Rear	SS	-	1
13	410-0024	Back Cover	ABS	Silver	1
14	400-0034	Hinge Assy	-	-	1
15	400-0034	Hinge Cover	ABS	Silver	1
16	400-0038	Stand Front	ABS	Silver	1
17	401-0014	Stand BKT	SS	-	1
18	400-0030	Stand Rear	ABS	Silver	1
19	000-0038	Deck Bottom	ABS	Black	1
20	400-0030	Stand Bottom	ABS	Silver	1
21	400-0019	Bottom Box	SS	-	1
22	410-0016	Screen Tapping	718 3' 10"	SS	8
23	410-0016		878 3' 6"	SS	4
24	410-0010		878 4' 12"	SS	16
25	410-0011		778 3' 10"	SS	16
26	910-0030	Screen Machine	96 2' 10"	SS	4
27	410-0016		978 3' 6"	SS	16
28	410-0018		96 4' 8"	SS	4
29	410-0010		978 3' 10"	SS	1
30	410-0017	Screen Tapping	878 3' 6"	SS	16



MATERIAL	DATA	TITLE
THIS	2005. 04. 26	SET Exploded Drawing
TREATMENT	ENGR	DRAWING NO.
MODEL	GHK	MA05-009
LT20A	APPD	SCALE
		SHEET
		1 / 1

CIRCUIT DESCRIPTIONS

17. CIRCUIT DESCRIPTIONS

General Description for 20.1" color TFT LCD TV.

The TFT LCD TV described in the followings is based on a Multi TV system, digital control display, 20.1" diagonal. The TFT LCD TV is intended to be a finished product, basically a display device mounted inside an enclosure which will provide the safety requirements. With the exception of LCD Panel, the display device shall be composed entirely of solid state components.

These components shall have a history of reliable service in identity applications and shall be applied in the circuits.

1).SCALER SECTION.

2).VCT 49xy SECTION.

1) SCALER SECTION.

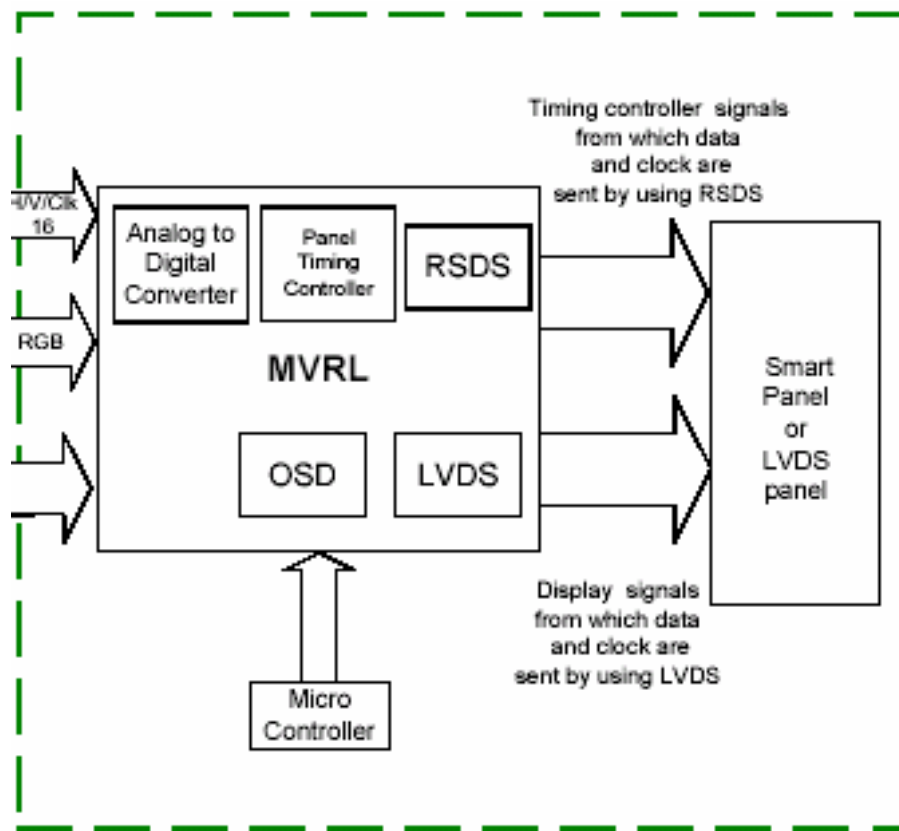
Device : MVRL
Features : Advanced Image Scaling
Automatic Image Optimization
Digital Video processing
Non-linear scaling
On-screen display
8-bit display outputs

1) Description

Designed for both LVDS and Smart Panel with RSDS applications, MVRL is a highly integrated solution that combines a high performance ADC with an advanced image processing controller and timing control circuitry. Using advanced image scaling algorithms, MVRL has intelligently adaptive sub-algorithms that will automatically optimize the display quality for different images the text is sharper and the graphics is smoother. The built-in analog interface includes a 110Mhz 8bit 3-channel ADC, VGA, and PLL, allowing seamless support to resolutions from VGA to SXGA. MVRL includes timing control circuit for handling gate and source driver ICs for SVGA/SXGA TET-LCD panel directly.

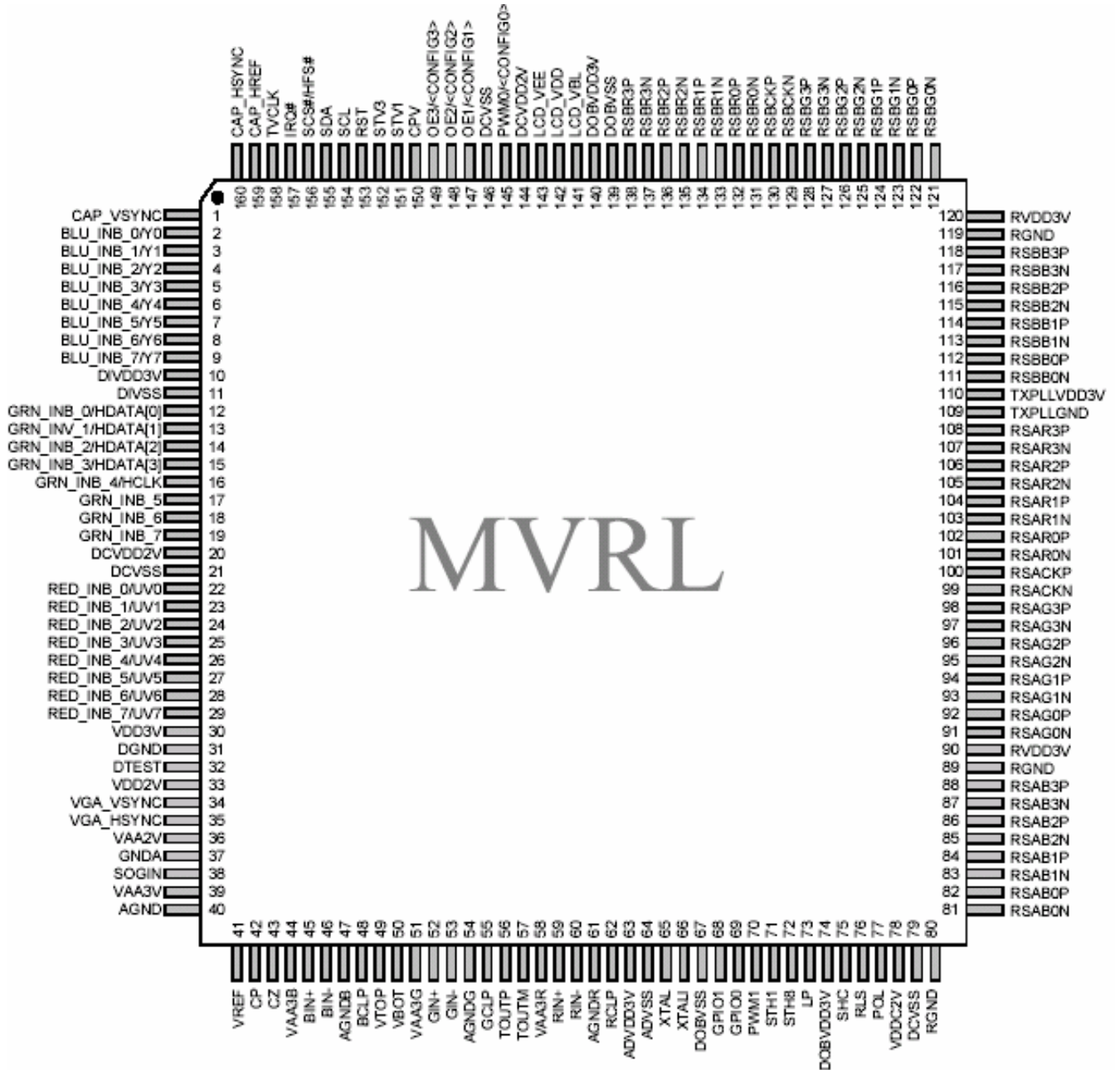
CIRCUIT DESCRIPTIONS

2) Block Diagram.



CIRCUIT DESCRIPTIONS

3) Pin configuration.



CIRCUIT DESCRIPTIONS

4-1) Pin Functions.

Pin No.	Name	Type	Definition
001	CAP_VSYNC	I	Port B Vertical Sync Input
002	BLU_INB_0/Y0	I	Port B Blue Input Bit 0/YUV Data Input Y0
003	BLU_INB_1/Y1	I	Port B Blue Input Bit 1/YUV Data Input Y1
004	BLU_INB_2/Y2	I	Port B Blue Input Bit 2/YUV Data Input Y2
005	BLU_INB_3/Y3	I	Port B Blue Input Bit 3/YUV Data Input Y3
006	BLU_INB_4/Y4	I	Port B Blue Input Bit 4/YUV Data Input Y4
007	BLU_INB_5/Y5	I	Port B Blue Input Bit 5/YUV Data Input Y5
008	BLU_INB_6/Y6	I	Port B Blue Input Bit 6/YUV Data Input Y6
009	BLU_INB_7/Y7	I	Port B Blue Input Bit 7/YUV Data Input Y7
010	DIVDD3V	Power	Digital VDD
011	DIVSS	Ground	Digital Ground
012	GRN_INB_0	I	Port B Green Input Bit 0
013	GRN_INB_1	I	Port B Green Input Bit 1
014	GRN_INB_2	I	Port B Green Input Bit 2
015	GRN_INB_3	I	Port B Green Input Bit 3
016	GRN_INB_4	I	Port B Green Input Bit 4
017	GRN_INB_5	I	Port B Green Input Bit 5
018	GRN_INB_6	I	Port B Green Input Bit 6
019	GRN_INB_7/RST0	I	Port B Green Input Bit 7/RST0 from Video decoder
020	DCVDD2V	Power	Digital Core Power 2.5V
021	DCVSS	Ground	Digital Core Ground
022	RED_INB_0/UV0	I	Port B Red Input Bit 0/YUV Data Input UV0
023	RED_INB_1/UV1	I	Port B Red Input Bit 1/YUV Data Input UV1
024	RED_INB_2/UV2	I	Port B Red Input Bit 2/YUV Data Input UV2
025	RED_INB_3/UV3	I	Port B Red Input Bit 3/YUV Data Input UV3
026	RED_INB_4/UV4	I	Port B Red Input Bit 4/YUV Data Input UV4
027	RED_INB_5/UV5	I	Port B Red Input Bit 5/YUV Data Input UV5
028	RED_INB_6/UV6	I	Port B Red Input Bit 6/YUV Data Input UV6
029	RED_INB_7/UV7	I	Port B Red Input Bit 7/YUV Data Input UV7
030	VDD3V	Power	Digital VDD for ADC
031	DGND	Ground	Digital ground for ADC
032	DTEST	O	Digital test output; 2.5V tolerant.
033	VDD2V	Power	2.5V Digital Power for ADC
034	VGA_VSYNC	I	Port A vertical SYNC; 5V tolerant.
035	VGA_HSYNC	I	Port A horizontal SYNC; 5V tolerant.
036	VAA2V	Power	2.5V analog power for PLL.
037	GNDA	Ground	Analog ground for 2.5V power.
038	SOGIN	I	Port A Sync-On-Green input; 3V tolerant.
039	VAA3V	Power	3.3V analog power for PLL.
040	AGND	Ground	Analog ground for PLL.
041	VREF	I	External 2.5V reference voltage; 3V tolerant.
042	CP	I	PLL loop filter for pole; 3V tolerant.
043	CZ	I	PLL loop filter for zero; 3V tolerant.
044	VAA3B	Power	B channel 3.3V analog power.

CIRCUIT DESCRIPTIONS

4-2) Pin Functions.

045	BIN+	I	B channel analog input; 3V tolerant.
046	BIN-	I	B channel analog input; 3V tolerant.
047	AGNDB	Ground	B channel analog ground
048	BCLP	O	B channel internal clamp voltage output; 3V tolerant.
049	VTOP	O	ADC resistor ladder top decoupling capacitor; 3V tolerant.
050	VBOT	O	ADC resistor ladder bottom decoupling capacitor; 3V tolerant.
051	VAA3G	Power	G channel 3.3V analog power.
052	GIN+	I	G channel analog input; 3V tolerant.
053	GIN-	I	G channel analog input; 3V tolerant.
054	AGNDG	Ground	G channel analog ground
055	GCLP	O	G channel internal clamp voltage output; 3V tolerant.
056	TOUTP	O	Differential testing output plus; 3V tolerant.
057	TOUTM	O	Differential testing output minus; 3V tolerant.
058	VAA3R	Power	R channel 3.3V analog power
059	RIN+	I	R channel analog input; 3V tolerant.
060	RIN-	I	R channel analog input; 3V tolerant.
061	AGNDR	Ground	R channel analog ground.
062	RCLP	OUT	R channel internal clamp voltage output. 3V tolerant.
063	ADVDD3V(VDD_PLL)	Power	Display PLL Analog Power
064	ADVSS(VSS_PLL)	Ground	Display PLL Analog Ground
065	XTAL	O	Crystal Out when using 2 pin connect with a crystal.
066	XTALI	I	Crystal Input when using 2 pin connect with a crystal/ Crystal input when it is used as a reference input pin without using a crystal.
067	DOBVSS	Ground	Digital Output Buffer Ground
068	GPIO1	I/O	General Purpose Input/Output
069	GPIO0	I/O	General Purpose Input/Output
070	PWM1	O	Pulse Width Modulation 1
071	STH1	O	Horizontal start pulse L2R
072	STH8	O	Horizontal start pulse R2L
073	LP	O	Load pulse
074	DOBVDD3V	Power	Digital Output Buffer Power
075	SHC	O	For TI only
076	RLS	O	R2L or L2R selection
077	POL	O	Data Polarity
078	DCVDD2V	Power	Digital Core Power
079	DCVSS	Ground	Digital Core Ground
080	RGND	Ground	Ground
081	RSAB0N	O	RSDS port A Blue-color bit 0 differential Negative terminal
082	RSAB0P	O	RSDS port A Blue-color bit 0 differential Positive terminal
083	RSAB1N	O	RSDS port A Blue-color bit 1 differential Negative terminal
084	RSAB1P	O	RSDS port A Blue-color bit 1 differential Positive terminal
085	RSAB2N	O	RSDS port A Blue-color bit 2 differential Negative terminal
086	RSAB2P	O	RSDS port A Blue-color bit 2 differential Positive terminal
087	RSAB3N	O	RSDS port A Blue-color bit 3 differential Negative terminal

CIRCUIT DESCRIPTIONS

4-3) Pin Functions.

088	RSAB3P	O	RSDS port A Blue-color bit 3 differential Positive terminal
089	RGND	Ground	
090	RVDD3V	Power	
091	RSAG0N	O	RSDS port A Green-color bit 0 differential Negative terminal
092	RSAG0P	O	RSDS port A Green-color bit 0 differential Positive terminal
093	RSAG1N	O	RSDS port A Green-color bit 1 differential Negative terminal
094	RSAG1P	O	RSDS port A Green-color bit 1 differential Positive terminal
095	RSAG2N	O	RSDS port A Green-color bit 2 differential Negative terminal
096	RSAG2P	O	RSDS port A Green-color bit 2 differential Positive terminal
097	RSAG3N	O	RSDS port A Green-color bit 3 differential Negative terminal
098	RSAG3P	O	RSDS port A Green-color bit 3 differential Positive terminal
099	RSACKN	O	RSDS port A Clock Negative terminal
100	RSACKP	O	RSDS port A Clock Positive terminal
101	RSAR0N	O	RSDS port A Red-color bit 0 differential Negative terminal
102	RSAR0P	O	RSDS port A Red-color bit 0 differential Positive terminal
103	RSAR1N	O	RSDS port A Red-color bit 1 differential Negative terminal
104	RSAR1P	O	RSDS port A Red-color bit 1 differential Positive terminal
105	RSAR2N	O	RSDS port A Red-color bit 2 differential Negative terminal
106	RSAR2P	O	RSDS port A Red-color bit 2 differential Positive terminal
107	RSAR3N	O	RSDS port A Red-color bit 3 differential Negative terminal
108	RSAR3P	O	RSDS port A Red-color bit 3 differential Positive terminal
109	TXPLL GND	Ground	
110	TXPLL VDD3V	Power	
111	RSBB0N	O	RSDS port B Blue-color bit 0 differential Negative terminal
112	RSBB0P	O	RSDS port B Blue-color bit 0 differential Positive terminal
113	RSBB1N	O	RSDS port B Blue-color bit 1 differential Negative terminal
114	RSBB1P	O	RSDS port B Blue-color bit 1 differential Positive terminal
115	RSBB2N	O	RSDS port B Blue-color bit 2 differential Negative terminal
116	RSBB2P	O	RSDS port B Blue-color bit 2 differential Positive terminal
117	RSBB3N	O	RSDS port B Blue-color bit 3 differential Negative terminal
118	RSBB3P	O	RSDS port B Blue-color bit 3 differential Positive terminal
119	RGND	Ground	
120	RVDD3V	Power	
121	RSBG0N	O	RSDS port B Green-color bit 0 differential Negative terminal
122	RSBG0P	O	RSDS port B Green-color bit 0 differential Positive terminal
123	RSBG1N	O	RSDS port B Green-color bit 1 differential Negative terminal
124	RSBG1P	O	RSDS port B Green-color bit 1 differential Positive terminal
125	RSBG2N	O	RSDS port B Green-color bit 2 differential Negative terminal
126	RSBG2P	O	RSDS port B Green-color bit 2 differential Positive terminal
127	RSBG3N	O	RSDS port B Green-color bit 3 differential Negative terminal
128	RSBG3P	O	RSDS port B Green-color bit 3 differential Positive terminal
129	RSBCKN	O	RSDS port B Clock Negative terminal
130	RSBCKP	O	RSDS port B Clock Positive terminal
131	RSBR0N	O	RSDS port B Red-color bit 0 differential Negative terminal
132	RSBR0P	O	RSDS port B Red-color bit 0 differential Positive terminal
133	RSBR1N	O	RSDS port B Red-color bit 1 differential Negative terminal
134	RSBR1P	O	RSDS port B Red-color bit 1 differential Positive terminal
135	RSBR2N	O	RSDS port B Red-color bit 2 differential Negative terminal
136	RSBR2P	O	RSDS port B Red-color bit 2 differential Positive terminal

CIRCUIT DESCRIPTIONS

4-4) Pin Functions.

137	RSBR3N	O	RSDS port B Red-color bit 3 differential Negative terminal
138	RSBR3P	O	RSDS port B Red-color bit 3 differential Positive terminal
139	DOBVSS	Ground	Digital Output Buffer Ground
140	DOBVDD3V	Power	Digital Output Buffer Power
141	LCD_VBL	O	LCD Panel VBL Backlight Control
142	LCD_VDD	O	LCD Panel VDD Source Control
143	INV2/LCD_VEE	O	Odd data inversion / LCD Panel VEE Control
144	DCVDD2V		
145	PWM0/<CONFIG0>	O/I	Pulse Width Modulation 0 / Configuration Pin 2(I2C Slave Address Bit 0)
146	DCVSS	Ground	Ground
147	OE1/<CONFIG1>	O/I	Output Enable 1 / Configuration Pin 2(I2C Slave Address Bit 1)
148	OE2/<CONFIG2>	O/I	Output Enable 2 / Configuration Pin 2(I2C Slave Address Bit 2)
149	OE3/<CONFIG3>	O/I	Output Enable 3 / Configuration Pin 3(I2C Slave Address Bit 3)
150	CPV	I	Vertical Clock Pulse
151	STV1	O	Vertical Start Pulse U2D
152	STV3	O	Vertical Start Pulse D2U
153	RST	I	System Reset
154	SCL	I/O	Host Interface Serial Clock
155	SDA	I/O	Host Interface Serial Data
156	SCS#/HFS#	I	Serial Chip Select
157	IRQ#	O	Interrupt To Host
158	TVCLK	I	Port B Clock Input
159	CAP_HREF	I	Port B Horizontal Active Qualifier
160	CAP_HSYNC	I	Port B Horizontal Sync Input

CIRCUIT DESCRIPTIONS

2) MCU SECTION.

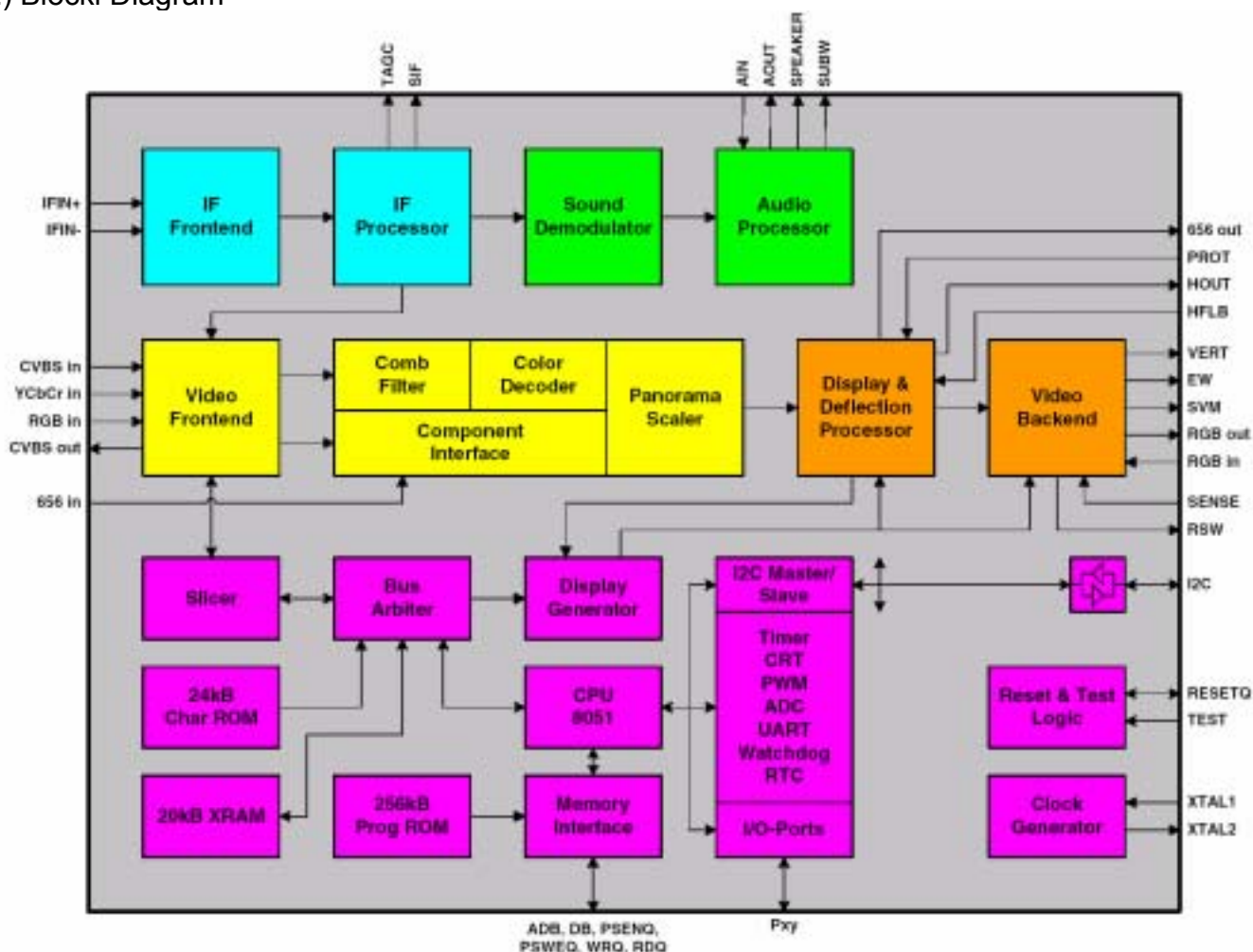
Device : VCT 49xy
 Features : Built-in teletext decoder.
 8051 compatible.
 Internal ROM type.

1) Description

The VCT 49xyl, VCT 48xyl is an IC family of high-quality single-chip TV processors. Modular design and deep-submicron technology allow the economic integration of features in all classes of single-scan TV sets.

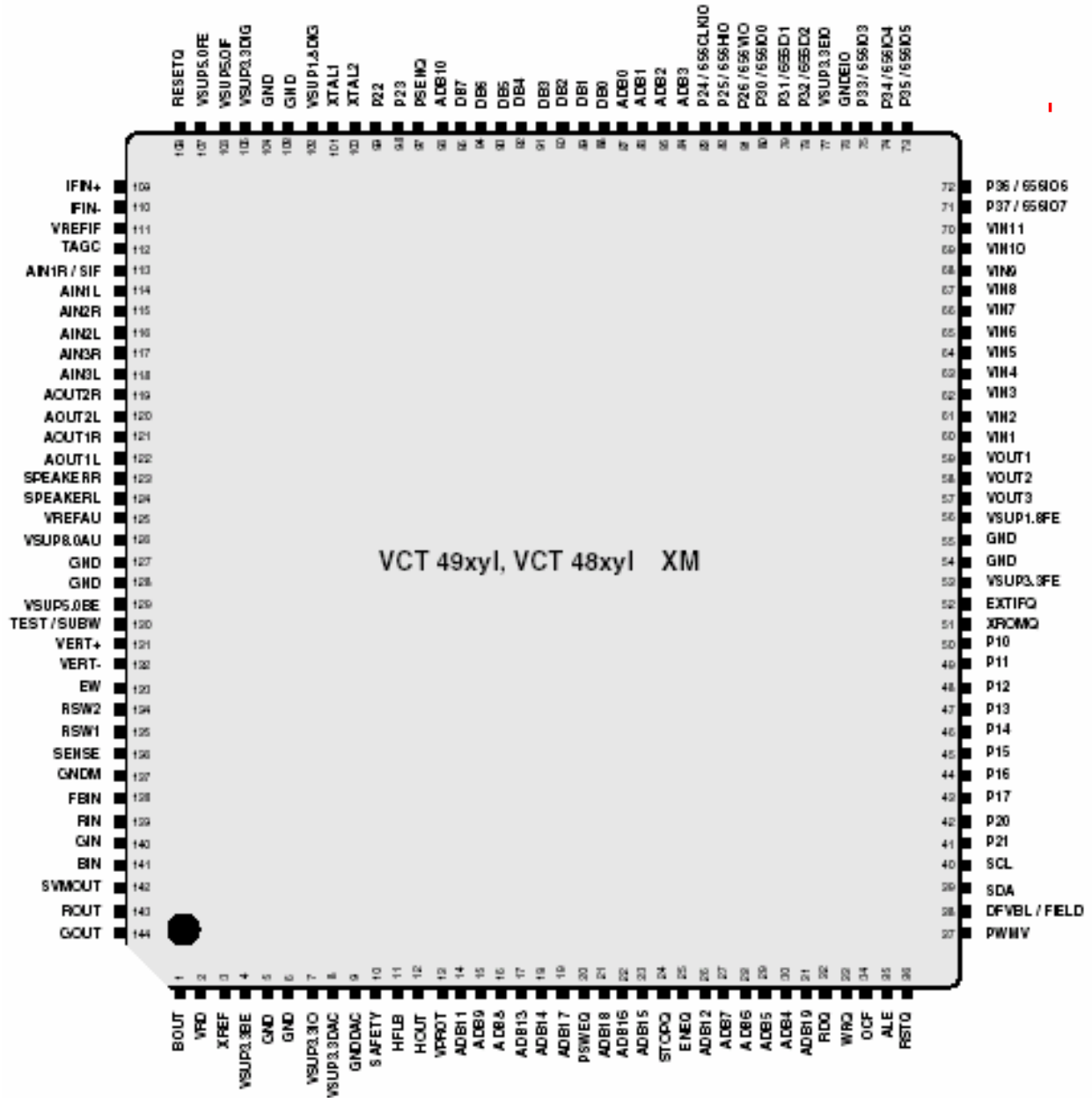
The VCT 49xyl, VCT 48xyl family is based on functional blocks contained and approved in existing products like DRX 396xA, MSP 34x5G, VSP 94x7B, DDP 3315C, and SDA 55xx.

2) Block Diagram



CIRCUIT DESCRIPTIONS

3) Pin configuration.



CIRCUIT DESCRIPTIONS

4-1) Pin(Port) Functions

PSSDIP88-1 PY	Pin No.		Pin Name	Type	Connection (If not used)	Short Description
	PSSDIP88-1 PZ	PMOP144-2 XM				
1	88	128	GND	SUPPLY	OBL	Ground Platform
2	87	129	VSUP5.0BE	SUPPLY	OBL	Supply Voltage Analog Video Back-end, 5.0 V
3	86	130	TEST / SUBW	IN OUT	GND	Test Input, reserved for Test Subwoofer Output
4	85	131	VERT+	OUT	GND	Differential Vertical Sawtooth Output
5	84	132	VERT-	OUT	GND	Differential Vertical Sawtooth Output
6	83	133	EW	OUT	GND	Vertical Parabola Output
7	82	134	RSW2	OUT	LV	Range Switch 2 Output
8	81	135	RSW1	OUT	LV	Range Switch 1 Output
9	80	136	SENSE	IN	GND	Sense ADC Input
10	79	137	GNDM	IN	GND	Reference Ground for Sense ADC
11	78	138	FBIN	IN	GND	Fast Blank Input, Back-end
12	77	139	RIN	IN	GND	Analog Red Input, Back-end
13	76	140	GIN	IN	GND	Analog Green Input, Back-end
14	75	141	BIN	IN	GND	Analog Blue Input, Back-end
15	74	142	SVMOUT	OUT	VSUP5.0BE	Scan Velocity Modulation Output
16	73	143	ROUT	OUT	VSUP5.0BE	Analog Red Output
17	72	144	GOUT	OUT	VSUP5.0BE	Analog Green Output
18	71	1	BOUT	OUT	VSUP5.0BE	Analog Blue Output
19	70	2	VRD		OBL	Reference Voltage for RGB DACs
20	69	3	XREF		OBL	Reference Current for RGB DACs
21	68	4	VSUP3.3BE	SUPPLY	OBL	Supply Voltage Analog Video Back-end, 3.3 V
22	67	5	GND	SUPPLY	OBL	Ground Platform
23	66	6	GND	SUPPLY	OBL	Ground Platform
24	65	7	VSUP3.3IO	SUPPLY	OBL	Supply Voltage I/O Ports, 3.3 V
25	64	8	VSUP3.3DAC	SUPPLY	OBL	Supply Voltage Video DACs, 3.3 V
26	63	9	GNDDAC	SUPPLY	OBL	Ground Video DACs
27	62	10	SAFETY	IN	GND	Safety Input

CIRCUIT DESCRIPTIONS

4-2) Pin(Port) Functions

PSSDIP88-1 PY	Pin No.		Pin Name	Type	Connection (If not used)	Short Description
	PSSDIP88-1 PZ	PMOFP144-2 XM				
28	61	11	HFLB	IN	HOUT	Horizontal Flyback Input
29	60	12	HOUT	OUT	LV	Horizontal Drive Output
30	59	13	VPROT	IN	GND	Vertical Protection Input
–	–	37	PWMV	OUT	LV	PWM Vertical Output
–	–	38	DFVBL	OUT	LV	Dynamic Focus Vertical Blanking Output
31	58	39	SDA	IN/OUT	OBL	I ² C Bus Data Input/Output
32	57	40	SCL	IN/OUT	OBL	I ² C Bus Clock Input/Output
33	56	41	P21	IN/OUT	LV	Port 2, Bit 1 Input/Output
34	55	42	P20	IN/OUT	LV	Port 2, Bit 0 Input/Output
35	54	43	P17	IN/OUT	LV	Port 1, Bit 7 Input/Output
36	53	44	P16	IN/OUT	LV	Port 1, Bit 6 Input/Output
37	52	45	P15	IN/OUT	LV	Port 1, Bit 5 Input/Output
38	51	46	P14	IN/OUT	LV	Port 1, Bit 4 Input/Output
39	50	47	P13	IN/OUT	LV	Port 1, Bit 3 Input/Output
40	49	48	P12	IN/OUT	LV	Port 1, Bit 2 Input/Output
41	48	49	P11	IN/OUT	LV	Port 1, Bit 1 Input/Output
42	47	50	P10	IN/OUT	LV	Port 1, Bit 0 Input/Output
43	46	53	VSUP3.3FE	SUPPLY	OBL	Supply Voltage Analog Video Front-end, 3.3 V
44	45	54	GND	SUPPLY	OBL	Ground Platform
45	44	55	GND	SUPPLY	OBL	Ground Platform
46	43	56	VSUP1.8FE	SUPPLY	OBL	Supply Voltage Analog Video Front-end, 1.8 V
47	42	57	VOU3	OUT	LV	Analog Video 3 Output
48	41	58	VOU2	OUT	LV	Analog Video 2 Output
49	40	59	VOU1	OUT	LV	Analog Video 1 Output
50	39	60	VIN1	IN	GND	Analog Video 1 Input
51	38	61	VIN2	IN	GND	Analog Video 2 Input
52	37	62	VIN3	IN	GND	Analog Video 3 Input
53	36	63	VIN4	IN	GND	Analog Video 4 Input
54	35	64	VIN5	IN	GND	Analog Video 5 Input
55	34	65	VIN6	IN	GND	Analog Video 6 Input
56	33	66	VIN7	IN	GND	Analog Video 7 Input
57	32	67	VIN8	IN	GND	Analog Video 8 Input
58	31	68	VIN9	IN	GND	Analog Video 9 Input

CIRCUIT DESCRIPTIONS

4-3) Pin(Port) Functions

PSSDI988-1 PY	Pin No.		Pin Name	Type	Connection (If not used)	Short Description
	PSSDI988-1 PZ	PMQFP144-2 XM				
59	30	69	VIN10	IN	GND	Analog Video 10 Input
60	29	70	VIN11	IN	GND	Analog Video 11 Input
61	28	98	P23	IN/OUT	LV	Port 2, Bit 3 Input/Output
62	27	99	P22	IN/OUT	LV	Port 2, Bit 2 Input/Output
63	26	100	XTAL2	OUT	OBL	Analog Crystal Output
64	25	101	XTAL1	IN	OBL	Analog Crystal Input
65	24	102	VSUP1.8DIG	SUPPLY	OBL	Supply Voltage Digital Core, 1.8 V
66	23	103	GND	SUPPLY	OBL	Ground Platform
67	22	104	GND	SUPPLY	OBL	Ground Platform
68	21	105	VSUP3.3DIG	SUPPLY	OBL	Supply Voltage Digital Core, 3.3 V
69	20	106	VSUP5.0IF	SUPPLY	OBL	Supply Voltage IF ADC, 5.0 V
70	19	107	VSUP5.0FE	SUPPLY	OBL	Supply Voltage Analog IF Front-end, 5.0 V
71	18	108	RESETQ	IN/OUT	OBL	Reset Input/Output
72	17	109	IFIN+	IN	VREF _{IF}	Differential IF Input
73	16	110	IFIN-	IN	VREF _{IF}	Differential IF Input
74	15	111	VREFIF		OBL	Reference Voltage, IF ADC
75	14	112	TAGC	OUT	LV	Tuner AGC Output
76	13	113	AIN1R / SIF	IN/OUT	GND	Analog Audio 1 Input, Right Analog 2nd Sound IF Output
77	12	114	AIN1L	IN	GND	Analog Audio 1 Input, Left
78	11	115	AIN2R	IN	GND	Analog Audio 2 Input, Right
79	10	116	AIN2L	IN	GND	Analog Audio 2 Input, Left
-	-	117	AIN3R	IN	GND	Analog Audio 3 Input, Right
-	-	118	AIN3L	IN	GND	Analog Audio 3 Input, Left
-	-	119	AOUT2R	OUT	LV	Analog Audio 2 Output, Right
-	-	120	AOUT2L	OUT	LV	Analog Audio 2 Output, Left
80	9	-	AIN3R / AOUT2R	IN / OUT	LV	Analog Audio 3 Input, Right Analog Audio 2 Output, Right
81	8	-	AIN3L / AOUT2L	IN / OUT	LV	Analog Audio 3 Input, Left Analog Audio 2 Output, Left
82	7	121	AOUT1R	OUT	LV	Analog Audio 1 Output, Right
83	6	122	AOUT1L	OUT	LV	Analog Audio 1 Output, Left
84	5	123	SPEAKERR	OUT	LV	Analog Loudspeaker Output, Right
85	4	124	SPEAKERL	OUT	LV	Analog Loudspeaker Output, Left

CIRCUIT DESCRIPTIONS

4-4) Pin(Port) Functions

PSSDIP88-1 PY	Pin No.		Pin Name	Type	Connection (If not used)	Short Description
	PSSDIP88-1 PZ	PMQFP144-2 XM				
-	-	15	ADB9	OUT	LV	Address Bus 9 Output
-	-	16	ADB8	OUT	LV	Address Bus 8 Output
-	-	27	ADB7	OUT	LV	Address Bus 7 Output
-	-	28	ADB6	OUT	LV	Address Bus 6 Output
-	-	29	ADB5	OUT	LV	Address Bus 5 Output
-	-	30	ADB4	OUT	LV	Address Bus 4 Output
-	-	84	ADB3	OUT	LV	Address Bus 3 Output
-	-	85	ADB2	OUT	LV	Address Bus 2 Output
-	-	86	ADB1	OUT	LV	Address Bus 1 Output
-	-	87	ADB0	OUT	LV	Address Bus 0 Output
-	-	88	DB0	IN/OUT	LV	Data Bus 0 Input/Output
-	-	89	DB1	IN/OUT	LV	Data Bus 1 Input/Output
-	-	90	DB2	IN/OUT	LV	Data Bus 2 Input/Output
-	-	91	DB3	IN/OUT	LV	Data Bus 3 Input/Output
-	-	92	DB4	IN/OUT	LV	Data Bus 4 Input/Output
-	-	93	DB5	IN/OUT	LV	Data Bus 5 Input/Output
-	-	94	DB6	IN/OUT	LV	Data Bus 6 Input/Output
-	-	95	DB7	IN/OUT	LV	Data Bus 7 Input/Output
-	-	32	RDQ	OUT	LV	Data Read Enable Output
-	-	33	WRQ	OUT	LV	Data Write Enable Output
-	-	34	OCF	OUT	LV	Opcode Fetch Output
-	-	35	ALE	OUT	LV	Address Latch Enable Output
-	-	36	RSTQ	OUT	LV	Internal CPU Reset Output
-	-	97	PSENQ	OUT	LV	Program Store Enable Output
-	-	20	PSWEQ	OUT	LV	Program Store Write Enable Output
-	-	51	XROMQ	IN	OBL	External ROM Enable Input
-	-	52	EXTIFQ	IN	LV	Enable External Interface Input
-	-	24	STOPQ	IN	LV	Stop CPU Input
-	-	25	ENEQ	IN	LV	Enable Emulation Input

CIRCUIT DESCRIPTIONS

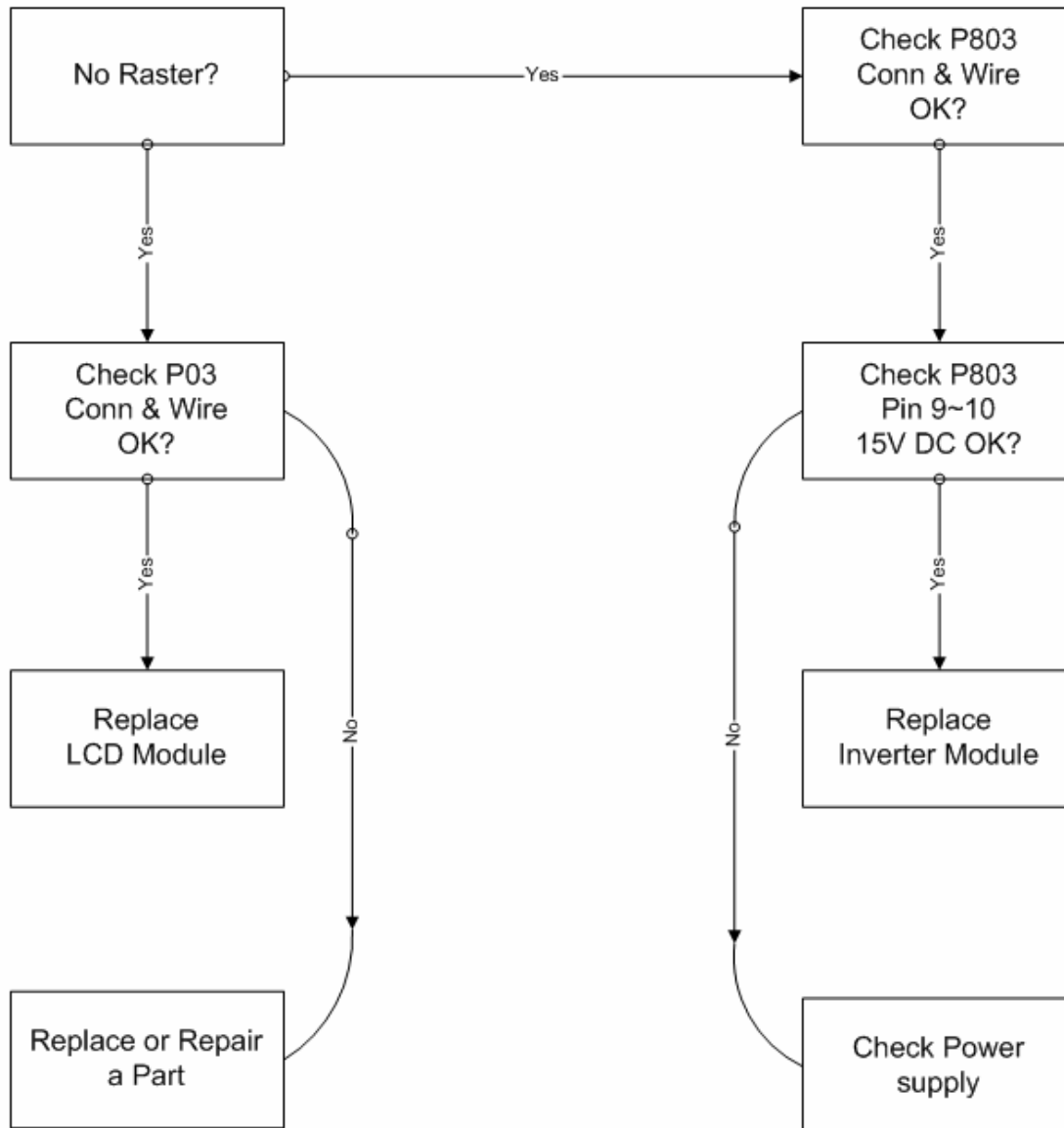
4-5) Pin(Port) Functions

PSSDIP88-1 PY	Pin No.		Pin Name	Type	Connection (If not used)	Short Description
	PSSDIP88-1 PZ	PMQFP144-2 XM				
86	3	125	VREFAU		OBL	Reference Voltage, Audio
87	2	126	VSUP8.0AU	SUPPLY	OBL	Supply Voltage Analog Audio, 8.0 V
88	1	127	GND	SUPPLY	OBL	Ground Platform
-	-	71	P37 / 656IO7	IN/OUT	LV	Port 3, Bit 7 Input/Output Digital 656 Bus 7 Input/Output
-	-	72	P36 / 656IO6	IN/OUT	LV	Port 3, Bit 6 Input/Output Digital 656 Bus 6 Input/Output
-	-	73	P35 / 656IO5	IN/OUT	LV	Port 3, Bit 5 Input/Output Digital 656 Bus 5 Input/Output
-	-	74	P34 / 656IO4	IN/OUT	LV	Port 3, Bit 4 Input/Output Digital 656 Bus 4 Input/Output
-	-	75	P33 / 656IO3	IN/OUT	LV	Port 3, Bit 3 Input/Output Digital 656 Bus 3 Input/Output
-	-	76	GNDEIO	SUPPLY	OBL	Ground Extended I/O Ports
-	-	77	VSUP3.3EIO	SUPPLY	OBL	Supply Voltage Extended I/O Ports, 3.3 V
-	-	78	P32 / 656IO2	IN/OUT	LV	Port 3, Bit 2 Input/Output Digital 656 Bus 2 Input/Output
-	-	79	P31 / 656IO1	IN/OUT	LV	Port 3, Bit 1 Input/Output Digital 656 Bus 1 Input/Output
-	-	80	P30 / 656IO0	IN/OUT	LV	Port 3, Bit 0 Input/Output Digital 656 Bus 0 Input/Output
-	-	81	P26 / 656VIO	IN/OUT	LV	Port 2, Bit 6 Input/Output Digital 656 Vsync Input/Output
-	-	82	P25 / 656HIO	IN/OUT	LV	Port 2, Bit 5 Input/Output Digital 656 Hsync Input/Output
-	-	83	P24 / 656CLKIO	IN/OUT	LV	Port 2, Bit 4 Input/Output Digital 656 Clock Input/Output
-	-	31	ADB19	OUT	LV	Address Bus 19 Output
-	-	21	ADB18	OUT	LV	Address Bus 18 Output
-	-	19	ADB17	OUT	LV	Address Bus 17 Output
-	-	22	ADB16	OUT	LV	Address Bus 16 Output
-	-	23	ADB15	OUT	LV	Address Bus 15 Output
-	-	18	ADB14	OUT	LV	Address Bus 14 Output
-	-	17	ADB13	OUT	LV	Address Bus 13 Output
-	-	26	ADB12	OUT	LV	Address Bus 12 Output
-	-	14	ADB11	OUT	LV	Address Bus 11 Output
-	-	96	ADB10	OUT	LV	Address Bus 10 Output

TROUBLE SHOOTING

18-1.Troble Shooting

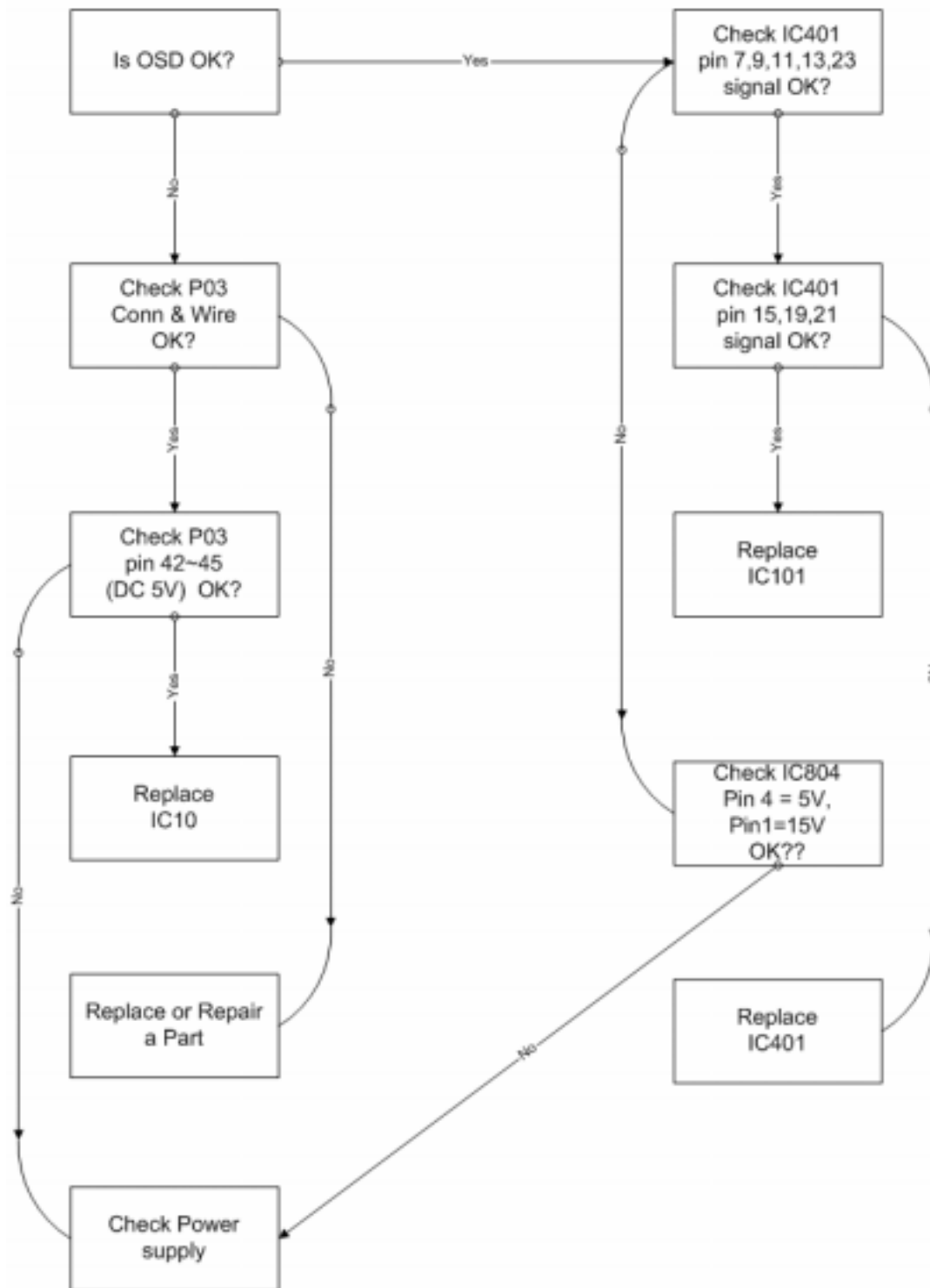
1.No Raster



TROUBLE SHOOTING

18-2.Troble Shooting

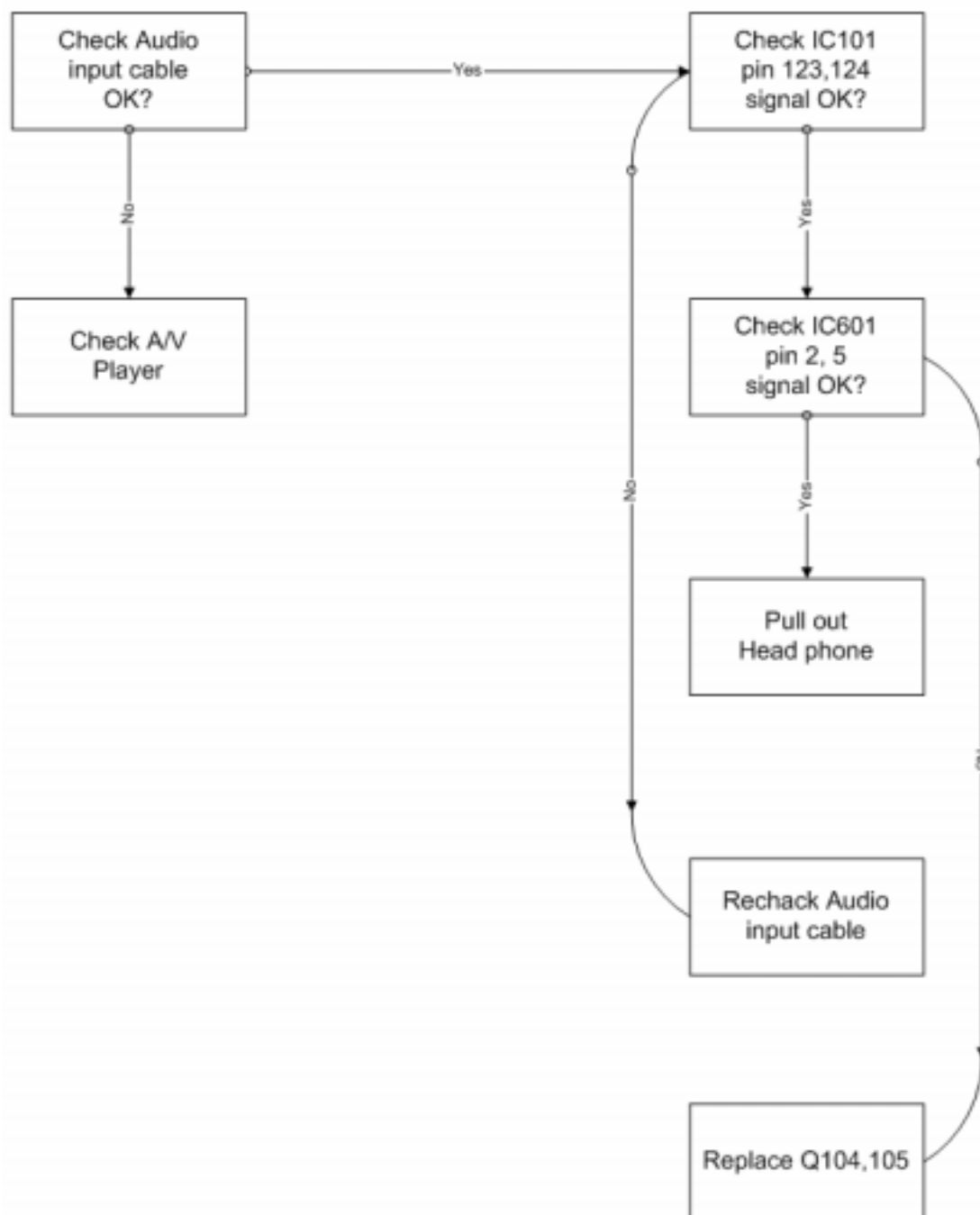
2.No Picture & Sound OK



TROUBLE SHOOTING

18-3.Troble Shooting

3.No sound & Picture OK



ADJUSTMENT INSTRUCTION WITH SVC MODE

19-1.SVC mode data Adjustment

NOTE!! When the EEPROM(IC103) has been replaced, the SVC data should be restored as the function of individual system and specification.

[Enter and exit SVC mode]

Note: Into the SVC mode, Initialize with default data.

- 1) Press 5 Seconds MENU buttons on both TV set and Remote Controller at the same time to get into SVC mode.
- 2) Press the PR ▲▼ button several times to find SVC Data.
- 3) Input the corresponding SVC data referring to Table below with the VOL , key.
- 4) Press TV/AV button to exit SVC mode

19-2. Factory outgoing setting. (into the SVC mode)

Main menu	Change value	Sub menu	Change value
(Panel)	20		
(Model)	(M)		
(TV White Balance)		SYSTEM	M/N
Option 1	Option 1 Sub - menu	China/Australia	No
Audio Options		AV1	YUV2
(DRX)	(Sub - menu)	Text	WEST EU
(NVM Edit)	(Sub - menu)	Top	YES
(Reset TV - set)	(Sub - menu)	VPS/PDC	YES
		Data Service	Text
		ATS Delay Time	60
	Audio Options Sub - menu	M	42
		BG/I/DK	21
		NICAM	26
		FM Radio	10
		Scart Volume	118
		Surround	0
		Mute if no carrier	Yes
		High Deviation	No
		DUAL	No
		MONO	No
		STEREO	Yes
		GAME	No

Warning: Do not change the “()” item...

INSPECTION INSTRUCTION

20. Supplied Accessories

Note: Make Sure the following accessories are provided with Product.

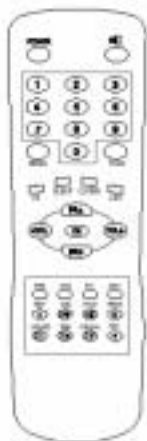
1. AC/DC adaptor



2. AC Cord



3. Remote controller



4. Batteries (type AAA)

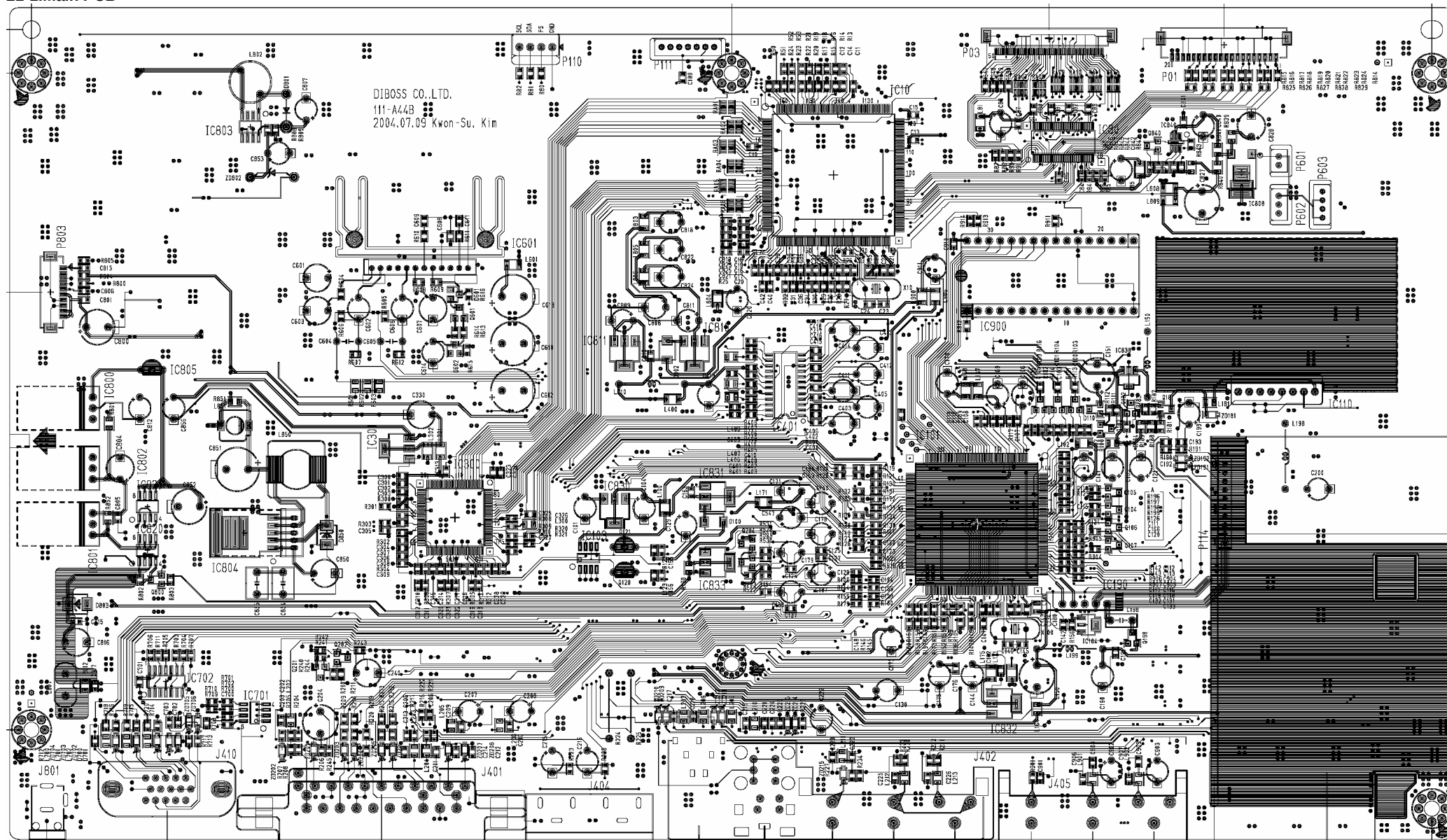


5. Owner's manual



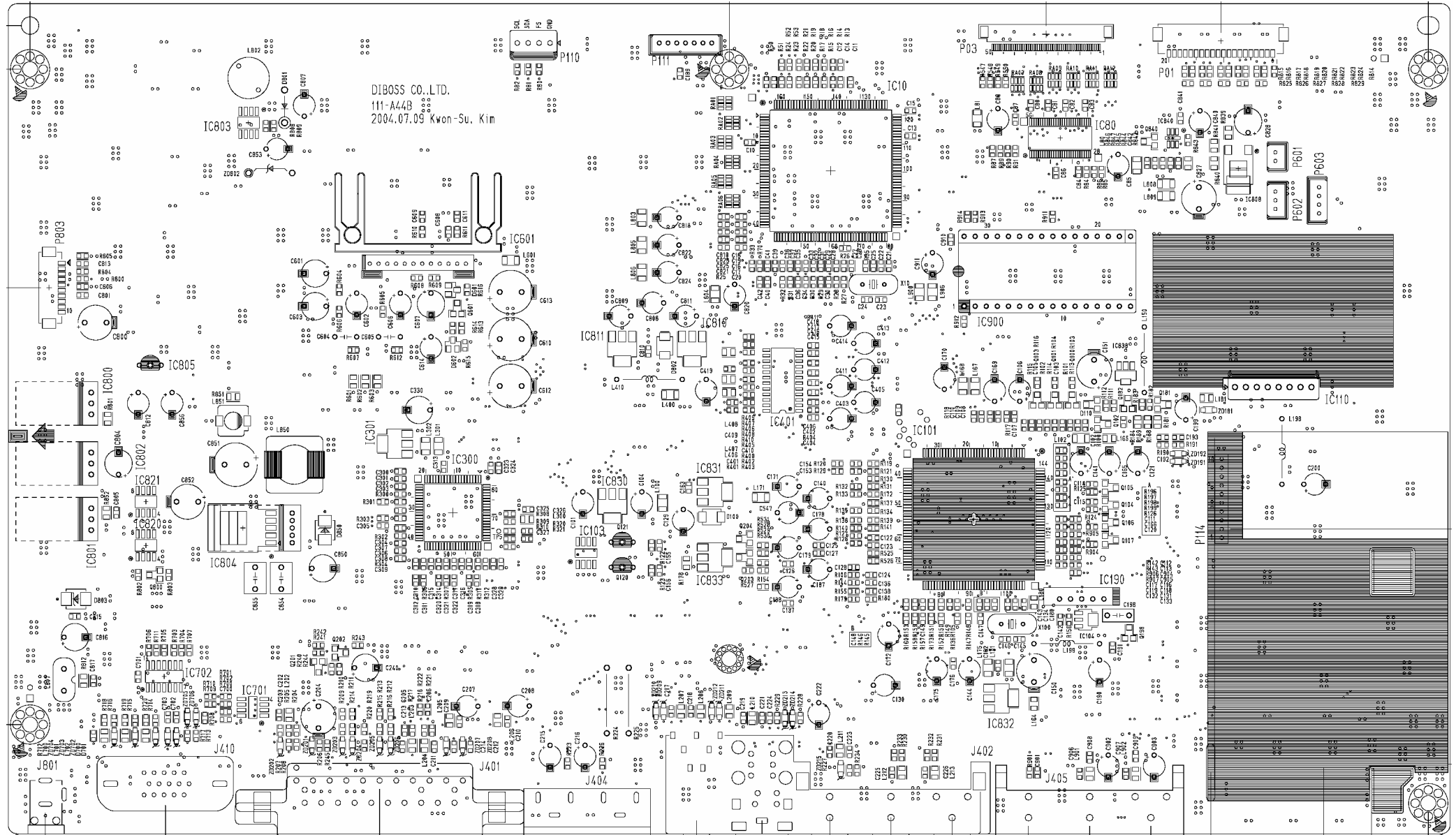
PCB LAYOUT

21-1.Main PCB



PCB LAYOUT

21-2. Main PCB



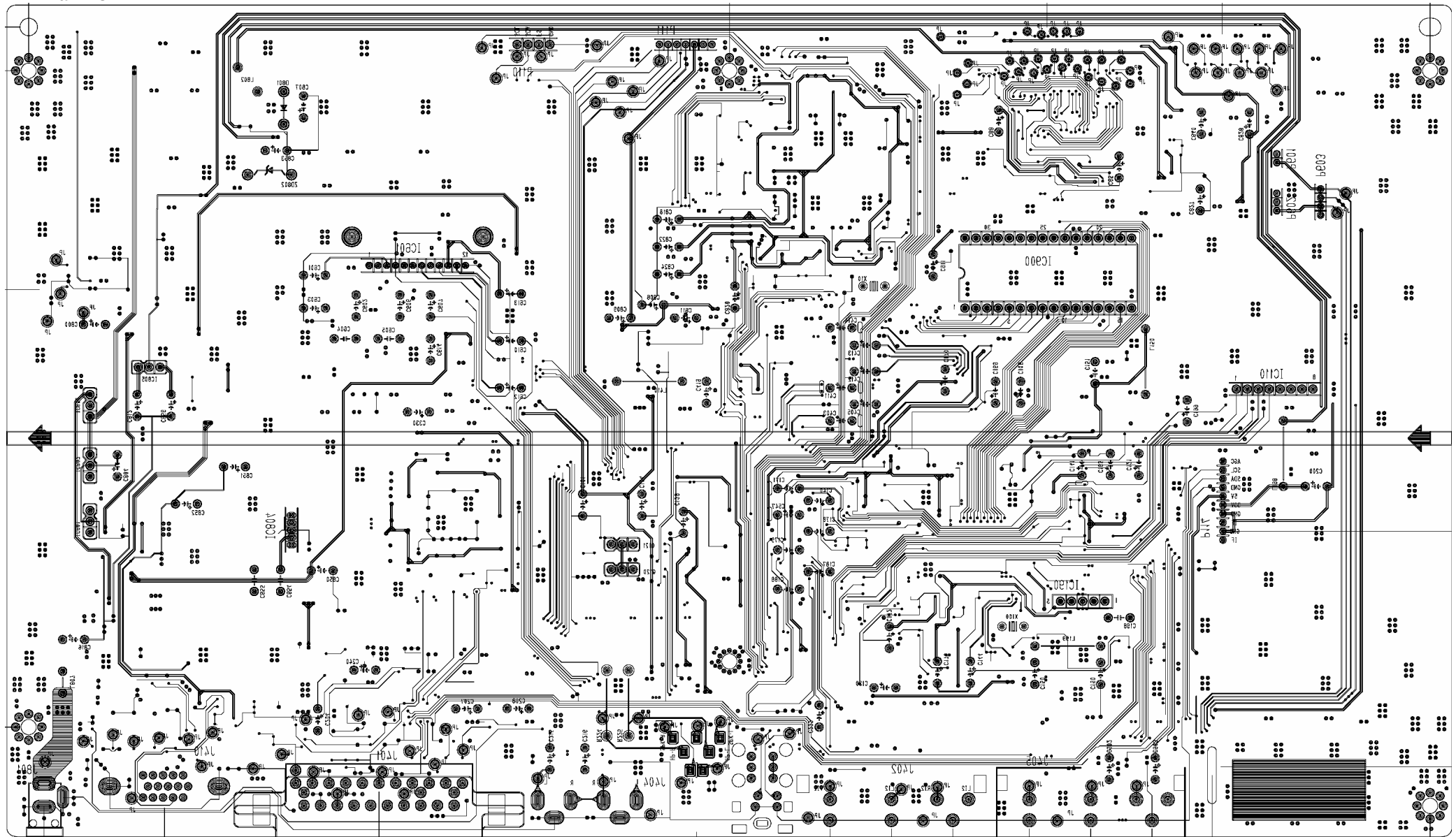
PCB LAYOUT

21-3. Main PCB



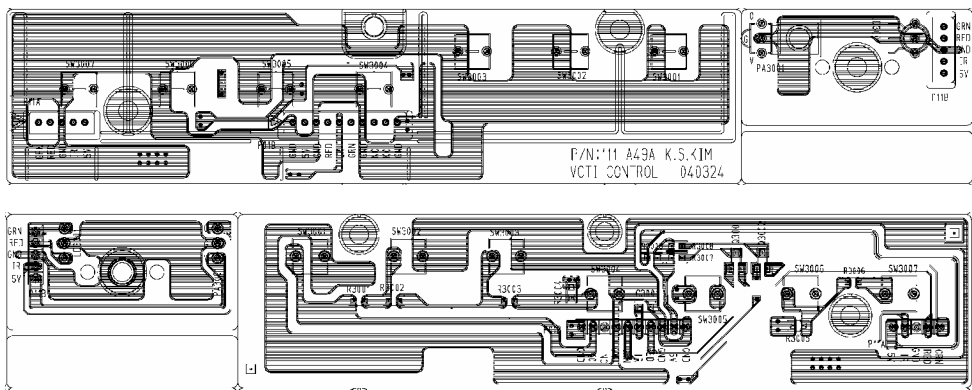
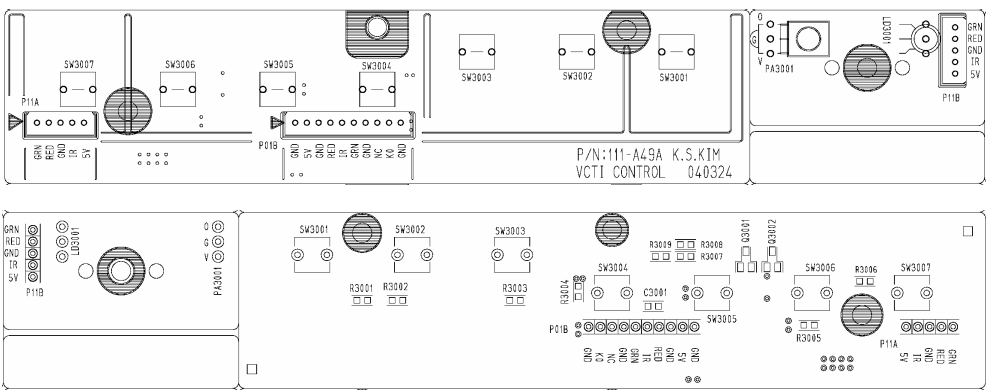
PCB LAYOUT

21-4. Main PCB

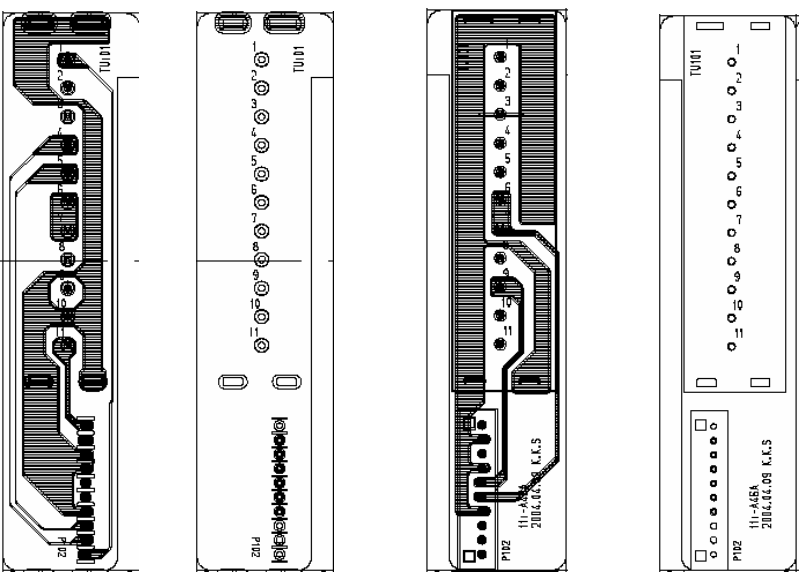


PCB LAYOUT

21-5. Control PCB



21-6. Tuner PCB



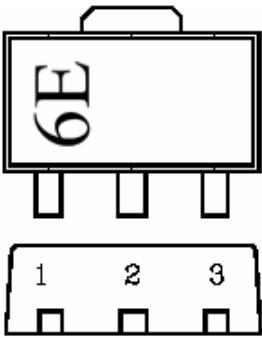
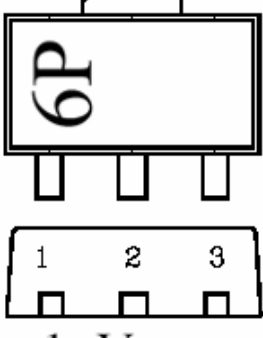
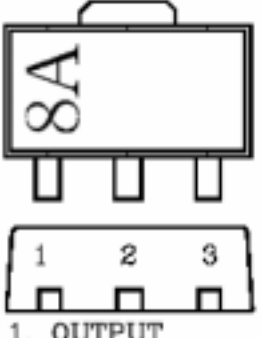
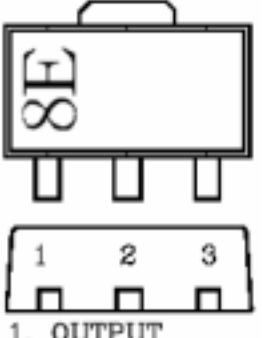
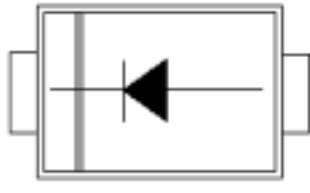
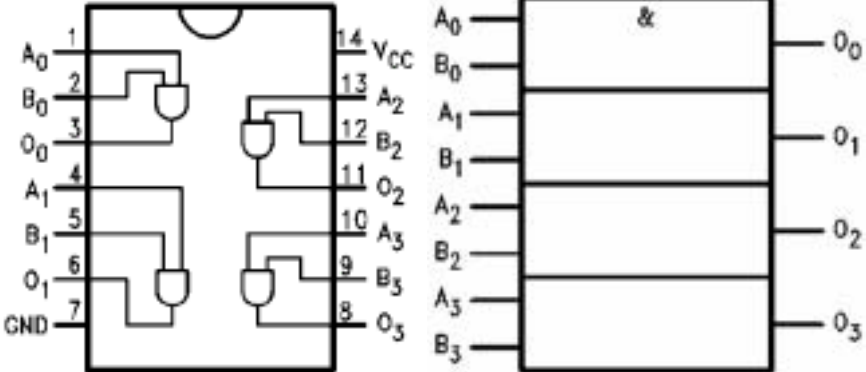
PART APPEARANCE

22-1.Part appearance

NPN TR Marking 3. COLLECTOR hFE Rank Lot No. Type Name AL 2. BASE 1. EMITTER C3875S	PNP TR Marking 3. COLLECTOR hFE Rank Lot No. Type Name AS 2. BASE 1. EMITTER A1504S	NPN TR Marking 3. COLLECTOR hFE Rank Lot No. Type Name NB 2. BASE 1. EMITTER C102S									
NPN TR 1. EMITTER 2. COLLECTOR 3. BASE C3198	N-Ch FET 1. SOURCE 2. GATE 3. DRAIN 2N7000	DRIVE 1 N.C. 2 N.C. 3 V_{IN} 4 8 FB 7 N.C. 6 N.C. 5 GND BLOCKING OSCILLATOR Regulator for Tuning Voltage									
Voltage Reg 3 V_{IN} 2 V_{OUT} 1 GND Metal Tab V_{out} LC33V or LD33V (LD1117)	PWM Buck DC/DC Converter 5 SD 4 FB 3 Gnd 2 Output 1 V_{IN} Metal Tab GND TO263-5L <table><tr><td>V_{IN}</td><td>Operating voltage input</td></tr><tr><td>Output</td><td>Switching output</td></tr><tr><td>Gnd</td><td>Ground</td></tr><tr><td>FB</td><td>Output voltage feedback control</td></tr><tr><td>SD</td><td>ON/OFF Shutdown</td></tr></table> AP1501	V_{IN}	Operating voltage input	Output	Switching output	Gnd	Ground	FB	Output voltage feedback control	SD	ON/OFF Shutdown
V_{IN}	Operating voltage input										
Output	Switching output										
Gnd	Ground										
FB	Output voltage feedback control										
SD	ON/OFF Shutdown										
16Kb /2Kb NC / E0 1 NC / E1 2 NC / E2 3 VSS 4 8 V_{CC} 7 $\overline{WC}$ 6 SCL 5 SDA EEPROM 24C16W ,24C02W	S₁ G₁ S₂ G₂ D₁ D₂ Top View Dual FET SI4925										

PART APPEARANCE

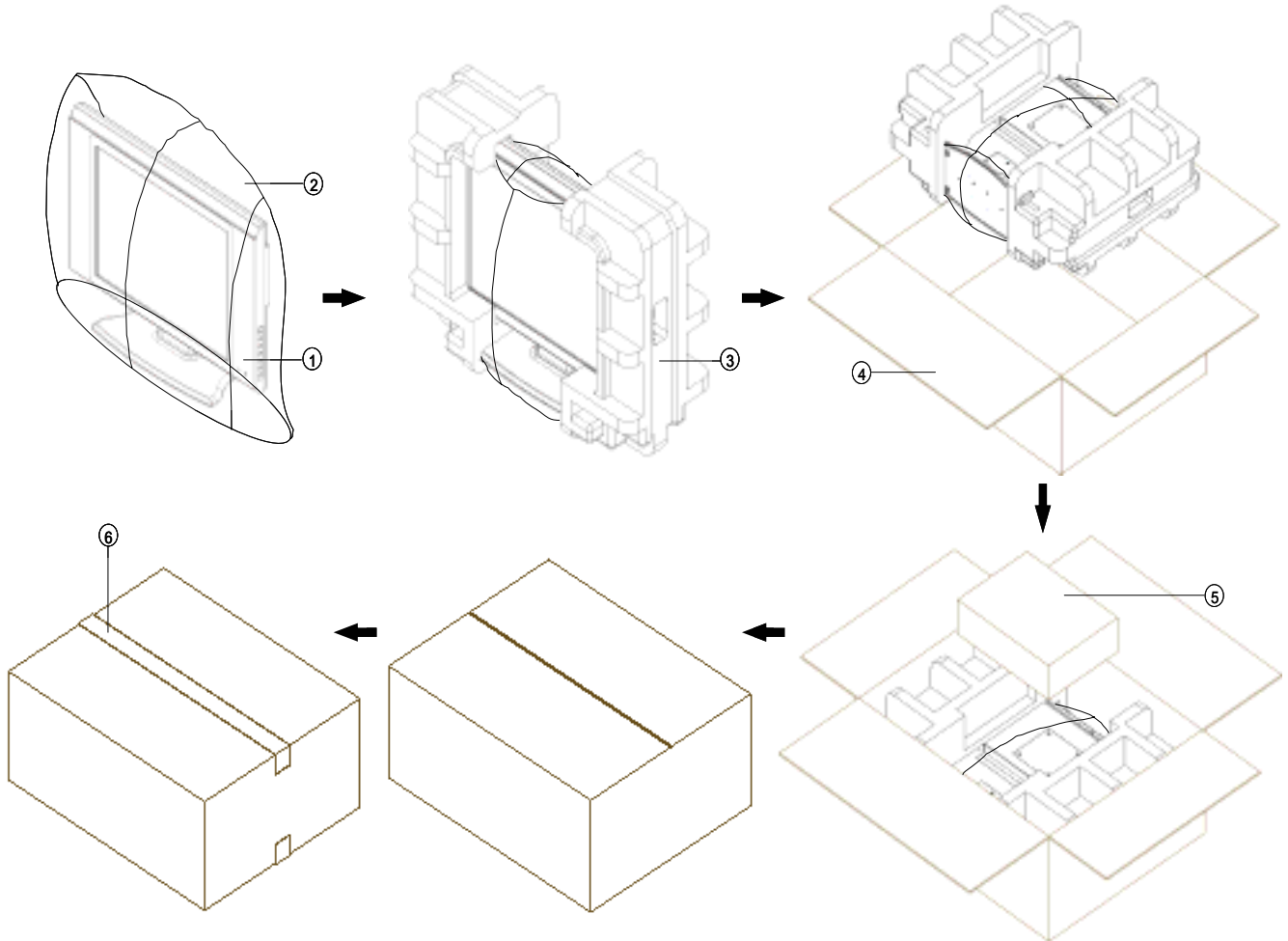
22-2. Parts Appearance

 1. V_{CC} 2. GND 3. OUT Voltage Detector KIA7027AF	 1. V_{CC} 2. GND 3. OUT Voltage Detector KIA7042AF	 1. OUTPUT 2. COMMON(CASE) 3. INPUT Voltage Reg KIA78L05F	 1. OUTPUT 2. COMMON(CASE) 3. INPUT Voltage Reg KIA78L09F
 Schottky Rectifier B340	 TTL LOGIC IC 74F08		

PACKING INSTRUCTION

23.Packing instruction

NO	PART NO	DESCRIP TION	MATERKAL	COLOR	QTY
1	-	20" LCD COLOR TV	-	-	1
2	321-003A	POLY VINLY	PE	-	1
3	310-012 A,B	PACKING L,R	EPS	WHITE	1
4	300-008M	GIFT BOX	PAPER	-	1
5	300-003J	ACCESSORY BOX	PAPER	-	1
6	499-002A	TAPE OPP	-	-	1700mm



REPLACEMENT PART LIST

24-1.Parts List (Assemble process)

Level	P/N	DESCRIPTION	FUNCTION	Qty
1	300-008U	20A/E MODEL,NO BRAND	BOX, CARTON	1
1	310-005A	201 LCD COLOR TV	PACKING, TOP	1
1	310-006A	201 LCD COLOR TV	PACKING, BOTTOM	1
1	320-001A	ACCESSORY PACKING	BAG, VINYL	1
1	321-003A	201 A/E SET PACKING	BAG, PACKING	1
1	400-001K	20A CH, SILVER/GRAY	COVER, FRONT	1
1	401-002U	201,IPS/CMO,SILVER	COVER, BACK	1
1	404-002A	15/17/20, L/KEY, SIL	BLOCK KNOB	1
1	405-003A	20.1", GRAY	SIDE MOLD	2
1	407-001N	20.1 CMO,PANEL C/SHD	SHIELD, FRONT	1
1	407-002G	20 IPS, A/E TOOL	SHIELD, REAR	1
1	407-003N	20.1" A/E,CMO, YUV	SHIELD, JACK	1
1	408-001A	15/17/20",A/D FILTER	FILTER, LED	1
1	410-001L	TTB 3*10	SCREW	16
1	410-001M	BTB 3*6	SCREW	4
1	410-001N	FTB 3*6	SCREW	19
1	410-001Q	BTB 4*12	SCREW	8
1	410-001R	PB 4*8	SCREW	4
1	410-002D	TTBW 3*6	SCREW	16
1	410-003C	PB 3*12 - SZN	SCREW	4
1	490-001Z	7ITS-FK 12-4-80-13	FORM, SHIELD	1
1	490-011B	7ITS-FK 19-11-150-13	FORM, SHIELD	1
1	490-011N	MK-10-11-30-11	FORM, SHIELD	3
1	491-001A	W40mm,L20mm, COPPER	TAPE, CONDUCTIVE	2
1	499-001C	W:20mm	TAPE, OPP	50
1	499-002A	W:70mm	TAPE, OPP	3000
1	499-004A	W:20mm, L:30m	TAPE, ACETATE	280
1	500-027N	20AMF,NOBRAND,	OWNERS MANUAL	1
1	501-001W	LATIN,SPANISH,COMMON	LABEL, WARNING	1
1	501-0030	SILVER/BLACK	LABEL,SERIAL	2
1	501-017L	SANYO,15/20,45mm	STICKER, LOGO	1
1	501-102B	LT-20AMF,ARDWSAF0	LABEL, ID	1
1	509-021A	SANYO,15/20	LABEL, BRAND	2
1	510-011J	NO BRAND,CH,ARC	REMOCON	1
1	520-001A	1.5V, AAA SIZE	BATTERY	2
1	610-003B	7W, 8 OHM	SPEAKER	4
1	620-002A	15V, 4.5A H&E	AC/DC ADAPTER(WEEE)	1
1	621-001C	125V,3P,KKP-30(USA)	POWER CORD	1
1	622-004C	201, FIF2066-35A	INVERTER, CMO	1
1	626-002C	IVORY,1.8M,15P,SHORT	CABLE, PC RGB	1
1	AYCOLT15A01C	A/D,15/17/20,VCTI	CONTROL PCB ASSY	1
1	AYMALT41C01C	201 VCTI YUV NTSC	MAIN PCB ASSY	1
1	AYSTLT20A01A	201 A-MODEL,SIL/GRA	STAND ASSY	1
1	CON02P200A0Q	20 SPK,2P,530MM	LEAD ASSY	1
1	CON02P350ACB	201, 2P 3EA 65mm	LEAD ASSY	1
1	CON03P200A0V	201 SPK, 3P 850MM	LEAD ASSY	1
1	CON07P200AAT	201, 7P 640MM	LEAD ASSY	1
1	CON10P125AAC	104 INVT,10P 70MM	LEAD ASSY, CASIO	1
1	CON50P050AA2	201 CMO,50P 130MM-/-	LEAD ASSY	1
1	PANV201V1000	201,CMO,V201V1	PANEL, LCD COLOR	1

REPLACEMENT PART LIST

24-2.Parts List (Main PCB)

	P/N	PART NAME	DESCRIPTION	Q,TY	CIRCUIT NO
1	0ICKE78080AD	KIA7808AP	IC, KIA7808	1	IC800
1	0ICKE78120AD	KIA7812API	KIA7812API	1	IC802
1	0JAPK014A00D	PMJ014A	Jack, A/V+HP+SVHS	1	J402
1	0JAPK6054BBD	PJ6054B	Jack, AV 3-PIN	1	J405
1	0LRSM00100BD	SMC103	Inductor, 1mH	1	L802
1	0XTKI120000D		Crystal, 12MHZ	1	X10
1	0XTKI202500D		Crystal, 20.25MHz	1	X100
1	1JADM231000D	DS231-115	Jack, DC-Power	1	J801
1	AYHSLA4282IB		GR, HEAT SINK MANUAL	1	IC605
1	WAFLG04250SD	GIL-G-4P-S3T2	Pin wafer, 4-PIN	1	P110
1	WAFML07200SD		Pin wafer, 7-PIN, STRAIGHT	1	P111
1	WAFYH02200SD	SMW200-02	Pin wafer, 2-PIN	1	P601
1	WAFYH03200SD	SMW200-03	Pin wafer, 3-PIN	1	P602
1	WAFYH10200SD	WAFER, PIN	10-PIN, P2.0mm STRAIGHT	1	P114

GRLT41CM001E		GR, PC MANUAL			
	P/N	VENDOR P/N	DESCRIPTION	Q,TY	CIRCUIT NO
1	0JADM15RF00D	DAH-15RF-4B4	Jack, D-SUB	1	J410

GRLT41CM001J		GR, TUNER' MANUAL NTSC			
	P/N	VENDOR P/N	DESCRIPTION	Q,TY	CIRCUIT NO
1	111-A46A		PCB 20FLF Tuner PCB	1	
1	0TULGH017FBD	TAEW-H017F	Tuner	1	
1	1SFEPX6965MD	X6965M	SAW FILTER	1	IC190
1	WAFYH10200AD	BMH200-10R	Pin wafer, 10-Pin	1	P102

GRLT41CM001G		GR, DTV MANUAL			
	P/N	VENDOR P/N	DESCRIPTION	Q,TY	CIRCUIT NO
1	0JAPK6063C0D	PJ6063	Jack, YUV	1	J401
1	0JAPK6035J2D	PJ6035J2	Jack, YUV SOUND	1	J404

GRLT41CA001A		GR, COMMON AUTO			
	P/N	VENDOR P/N	DESCRIPTION	Q,TY	CIRCUIT NO
2	0CESS010HMTR	0CE105CK638	Capacitor, AL.E 1UF	2	C902,C903
2	0CESS100CMTR	CESSL1C100M0511AD	Capacitor, AL.E 10UF 16V	17	C141,C144,C150,C165,C169,C171,C172,C818,C820,C822,C824,C85,C88,C140,C170,C175,C853,
2	0CESS101CMTR	CESSL1C101M0611AD	Capacitor, AL.E 100UF 16V	4	C601,C547,C607,C603,
2	0CESS101EMTR	CESSL1E101M0611AD	Capacitor, AL.E 100UF 25V	3	C816,C850,C804
2	0CESS221CMTR	CESSL1C221M0611AD	Capacitor, AL.E 220UF 16V	4	C151,C827,C852,C190
2	0CESS221EMTR	CESSL1E221M0611AD	Capacitor, AL.E 220UF 25V	1	C800
2	0CESS2R2HMTR	CESSL1H2R2M0511AA	Capacitor, AL.E 2.2UF 50V	4	C179,C606,C222,C602
2	0CESS3R3HMTR	CESSL1H3R3M0511AD	Capacitor, AL.E 3.3UF 50V	2	C121,C200
2	0CESS470CMTR	CESSL1C470M0511AD	Capacitor, AL.E 47UF 16V	14	C101,C104,C130,C412,C413,C414,C419,C808,C809,C811,C614,C812,C856,C840,

REPLACEMENT PART LIST

24-3.Parts List (Main PCB)

2	0CESS471CMTR		Capacitor, AL.E 470UF 16V	1	C851,
2	0CESS471EMTR	0CE477CH618	Capacitor, AL.E 470UF 25V	3	C610,C612,C613,
2	0CESS4R7HMTR	CESSL1H4R7M0511AD	Capacitor, AL.E 4.7UF 50V	2	C106,C807
2	0CQSS103KKTR		Capacitor, MYLER	2	C604,C605;
2	0LASS220HKTA	AL04 TB 220K	Inductor, axial 22uH	4	L150,L198,L199,L410
2	0LBSS3580RTR	BFD-3580R2F	Bead, Radial 1UH	1	L807
2	0RDSS121HJTA	DR1/2WJ121	Resistor, RD 120 ohm	2	R224,R225;
2	1DDSKEU1Z0TA	EU1Z (MAKER: SANKEN)	Diode, axial EU1Z	1	D801
2	1DZSSHZT33TA	DIODE, ZENER AXIAL	33V	1	ZD802;
2	1ICFC2N700TR	2N7000TA	IC, 2N7000	2	Q120,Q121;

GRLT41CA001E		GR, PC AUTO			
	P/N	VENDOR P/N	DESCRIPTION	Q,TY	CIRCUIT NO
2	0CESS470CMTR	CESSL1C470M0511AD	Capacitor, AL.E 47UF 16V	3	C403,C405,C411,

GRLT41CA001G		GR, DTV AUTO			
	P/N	VENDOR P/N	DESCRIPTION	Q,TY	CIRCUIT NO
2	0CESS470CMTR	CESSL1C470M0511AD	Capacitor, AL.E 47UF 16V	1	C330
2	0CESS010HMTR	0CE105CK638	Capacitor, AL.E 1UF	2	C215,C216

GRLT41CS001A		GR, COMMON SMD			
	P/N	VENDOR P/N	DESCRIPTION	Q,TY	CIRCUIT NO
3	0CHSS080DCTS	8P	Capacitor, chip 8PF	1	C220;
3	0CHSS100DJTS	CL10C100DBNC	Capacitor, chip 10PF	1	C703;
3	0CHSS101DJTS	CL10C101JBNC	Capacitor, chip 100PF	4	C155,C156,C906,C907
3	0CHSS102DKTS	CL10B102KBNC	Capacitor, chip 1000PF	9	C20,C112,C113,C114,C115, C901,C163,C904,C905,
3	0CHSS103DKTS	CL10B103KBNC	Capacitor, chip 0.01UF	17	C27,C28,C31,C32,C34, C35,C37,C38,C192,C410, C192,C193,C416,C417,C418, C217,C218,
3	0CHSS104DZTS	CL10F104ZANC	Capacitor, chip 0.1UF	55	C80,C81,C82,C83,C84, C86,C87,C608,C609,C611, C815,C841,C842,C10,C11, C12,C13,C14,C15,C16, C17,C18,C19,C21,C22, C25,C29,C33,C39,C42, C107,C111,C120,C123,C124, C125,C127,C128,C133,C134, C142,C143,C166,C180,C801, C810,C819,C821,C823,C825, C191,C189,C805,C806,C813
3	0CHSS105DZTS	CL10F105ZPNC	Capacitor, chip 1UF	1	C409;
3	0CHSS151DJTS	CL10C151JBNC	Capacitor, chip 150PF	1	C40;
3	0CHSS152DKTS	CL10B152KBNC	Capacitor, chip 1500PF	1	C176
3	0CHSS220DJTS	CL10C220JBNC	Capacitor, Chip, 22PF	2	C23,C24,
3	0CHSS330DJTS	CL10C330JBNC	Capacitor, chip 33PF	2	C145,C146,
3	0CHSS331DJTS	CL10C331JBNC	Capacitor, chip 330PF	2	C153,C154;
3	0CHSS334DZTS		Capacitor, chip 0.33UF	6	C116,C117,C118,C119,C131, C132,
3	0CHSS393DKTS	CL10B393KANC	Capacitor, chip 0.039UF	1	C41

REPLACEMENT PART LIST

24-4.Parts List (Main PCB)

3	0CHSS471DJTS	CL10C471JBNC	Capacitor, chip 470PF	16	C108,C109,C110,C122,C149, C205,C162,C205,C206,C209, C210,C225,C226,C402,C908, C909
3	0CHSS472DKTS	CL10B472KBNC	Capacitor, chip 4700PF	3	C26,C30,C36,
3	0CHSS560DJTS	CL10C560JBNC	Capacitor, chip 56PF	1	C223
3	0DHKEKDS181S	KDS181, DIODE	Diode, chip KDS181	2	D601,D602
3	0DHKEKDS226S	KDS226, DIODE	Diode, chip KDS226	1	D110;
3	0DSSCB340ATS	B340A	DIODE, SCHOTTKY CHIP	1	D850
3	0ICKE7027FTS	KIA7027AF	IC, KA7027	1	IC104
3	0ICKE78L5FTS	78L05	IC, KIA78L05F	1	IC838
3	0ICVI4925DTS	IC, MOSFET CHIP	DUAL P-CHANNEL 30V MOSFET	2	IC820,IC821
3	0LBSS101DJTS	CIM21U101	Bead, chip 100 ohm 2012	5	L207,L208,L209,L212,L213
	0LBSS121EJTS	CIM21J121NE	Bead, chip 120 ohm 2012	3	L406,L407,L408
3	0LBSS601FJTS	CIM31J601	Bead, chip 600 ohm 3216	15	L80,L81,L601,L100,L101, L102,L167,L168,L171,L175, L803,L804,L805,L806,L809,
3	0LHSS100EKTS		Inductor, Chip 10UH, 2012	3	L165,L164,L180
3	0LHSS120EJTS	CIL10Y120KNC	Inductor, Chip 12UH, 2012	3	L211,L901,L902
3	0LRSL10100BS	SMD12128.5	Inductor, SMD, 33UH	1	L850,
3	0RHSS000DJTS	RC1608J000CS	Resistor, chip 0 ohm	12	C224,R14,R118,R127,R128, R402,R407,R526,R805,R199, R86,R87
3	0RHSS000EJTS	RC2012J000CS	Resistor, chip 0 OHM	9	R601,R602,R603,R839,R841, R851,R842,R852,L210
3	0RHSS100DJTS	RC1608J100CS	Resistor, chip 10 ohm	1	R712,
3	0RHSS101DJTS	RC1608J101CS	Resistor, chip 100 ohm	36	R120,R129,R130,R131,R132, R133,R135,R138,R139,R140, R141,R142,R143,R145,R146, R147,R148,R149,R150,R151, R153,R159,R160,R179,R180, R401,R409,R845,R825,R826, R827,R828,R829,R400,R405, R406
3	0RHSS102DJTS	RC1608J102CS	Resistor, chip 1K	10	R15,R18,R19,R117,R609, R615,R803,R847,R906,R907,;
3	0RHSS103DJTS	RC1608J103CS	Resistor, chip 10K	5	R20,R530,R616,R802,R190
3	0RHSS104DJTS	RC1608J104CS	Resistor, chip 100K	1	R808;
3	0RHSS105DJTS	RC1608J105CS	Resistor, chip 1M	1	R26;
3	0RHSS122DJTS	RC1608J122CS	Resistor, chip 1.2K	1	R809,
3	0RHSS152DJTS	RC1608J152CS	Resistor, chip 1.5K	1	R70
3	0RHSS151DJTS	RC1608J151CS	Resistor, chip 150 ohm	13	R23,R24,R27,R29,R31, R51,R100,R101,R102,R113, R114,R115,R613,
3	0RHSS182DJTS	RC1608J182CS	Resistor, chip 1.8K	1	R531
3	0RHSS202DJTS	RC1608J202CS	Resistor, chip 2K	1	R408;
3	0RHSS220DJTS	RC1608J220CS	Resistor, chip 22 ohm	16	R25,R80,R81,R82,R85, R89,R90,R91,R111,R547, R548,R549,R550,R701,R702, R800
3	0RHSS223DJTS	RC1608J223CS	Resistor, chip 22K	2	R137,R156;
3	0RHSS271DJTS	RC1608J271CS	Resistor,chip 270	3	R103,R104,R116;
3	0RHSS272DJTS	RC1608J272CS	Resistor, chip 2.7K	1	R112;
3	0RHSS273DJTS	RC1608J273CS	Resistor, chip 27K	1	R529
3	0RHSS331DJTS	RC1608J331CS	Resistor, chip 330 ohm	1	R227

REPLACEMENT PART LIST

24-5.Parts List (Main PCB)

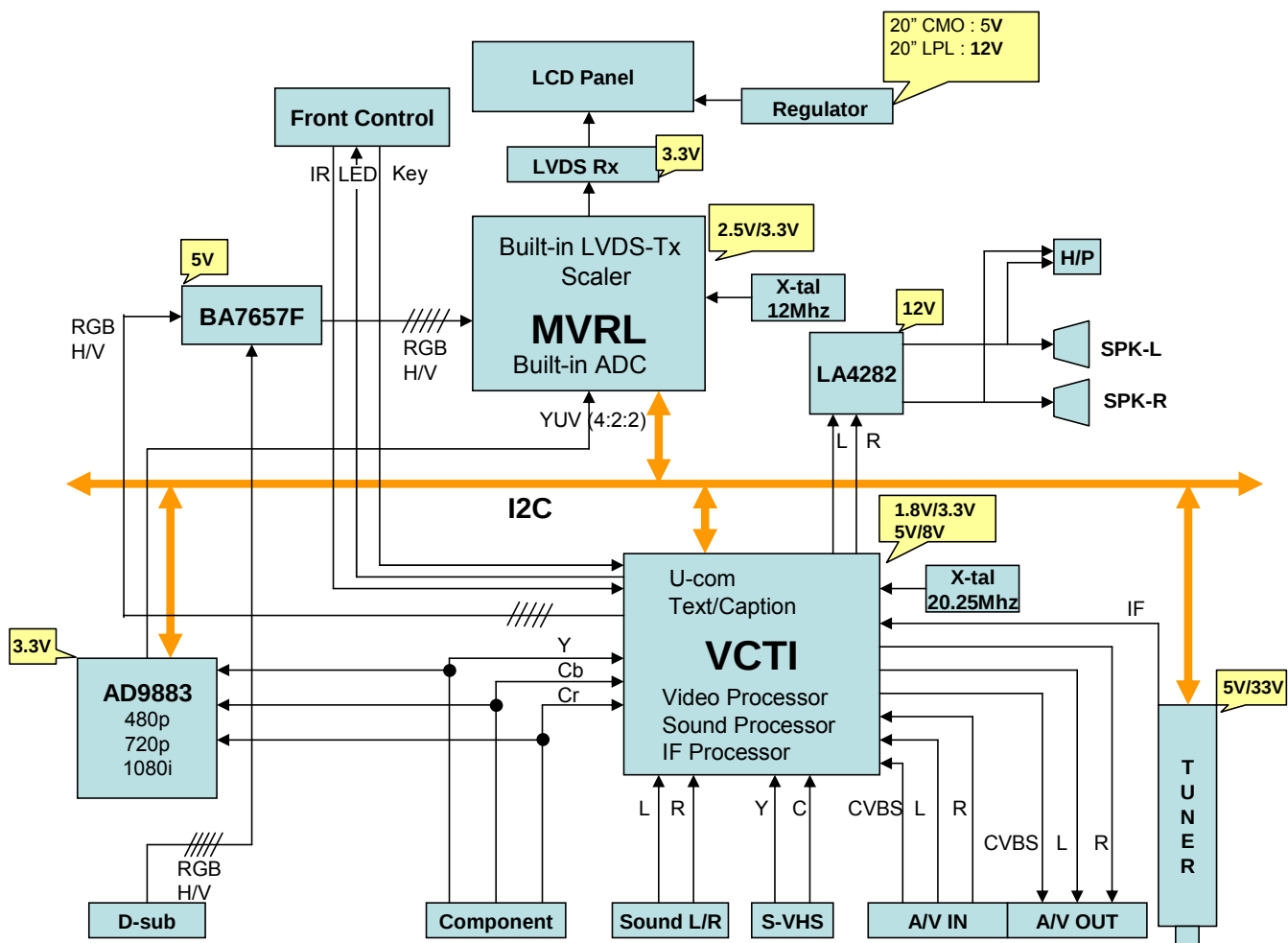
3	1ICPH74F08TS	N74F08D	IC, 74F08	1	IC702
3	1ICST24C02WS	24C02W	IC, 24C02	1	IC701

GRLT41CS001G		GR, DTV SMD			
	P/N	VENDOR P/N	DESCRIPTION	Q,TY	CIRCUIT NO
3	0CHSS030DCTS	CL10C030CBNC	Capacitor, chip 3PF	1	C326
3	0CHSS102DKTS	CL10B102KBNC	Capacitor, chip 1000PF	1	C322
3	0CHSS104DZTS	CL10F104ZANC	Capacitor, chip 0.1UF	20	C300,C301,C302,C303,C306,C307,C308,C309,C310,C313,C314,C315,C316,C317,C323,C324,C325,C327,C328,C329
3	0CHSS473DKTS	CL10B473KANC	Capacitor, chip 0.047UF	3	C311,C318,C320,
3	0LBSS260DJTS	CIB21P260NE	Bead, chip 26 ohm 2012	1	L300
3	0LBSS601FJTS	CIM31J601	Bead, chip 600 ohm 3216	2	L301,L302,
3	0RHSS000DJTS	RC1608J000CS	Resistor, chip 0 ohm	6	R221,R222,R204,R304,R308,R310
3	0RHSS103DJTS	RC1608J103CS	Resistor, chip 10K	1	R300
3	0RHSS220DJTS	RC1608J220CS	Resistor, chip 22 ohm	7	R207,R305,R306,R307,R309,R311,R312
3	0RHSS474DJTS	RC1608J474CS	Resistor, chip 470K	2	R223,R226
3	0RHSS750DJTS	RC1608J750CS	Resistor, chip 75 ohm	3	C211,C213,R208
3	0RYSS330FJTS	RP164PJ330CS	Resistor, Array chip 3216	4	RA01,RA02,RA05,RA06
3	1DZSC5231BTS	MMSZ5231BS	Zener diode, chip 5.1V	1	ZD202
3	1ICMS9883CBS	MST9883C-110	IC, MST9883C	1	IC300
3	1ICSTLD33TTS	LD1117S33TR	LD1117S33TR-3.3V	1	IC301

GRLT41CS001C		GR, COMPONENT SMD			
	P/N	VENDOR P/N	DESCRIPTION	Q,TY	CIRCUIT NO
3	0RHSS000DJTS	RC1608J000CS	Resistor, chip 0 ohm	6	R221,R222,R204,R144,R154,R155
3	0RHSS750DJTS	RC1608J750CS	Resistor, chip 75 ohm	3	C211,C213,R208
3	0RHSS220DJTS	RC1608J220CS	Resistor, chip 22 ohm	1	R207
3	1DZSC5231BTS	MMSZ5231BS	Zener diode, chip 5.1V	1	ZD202
3	0RHSS474DJTS	RC1608J474CS	Resistor, chip 470K	2	R223,R226
3	0CHSS104DZTS	CL10F104ZANC	Capacitor, chip 0.1UF	3	C136,C137,C138,

BLOCK DIAGRAM

25. Block Diagram



CONNECTION DIAGRAM

26. Connection diagram

