SAMSUNG

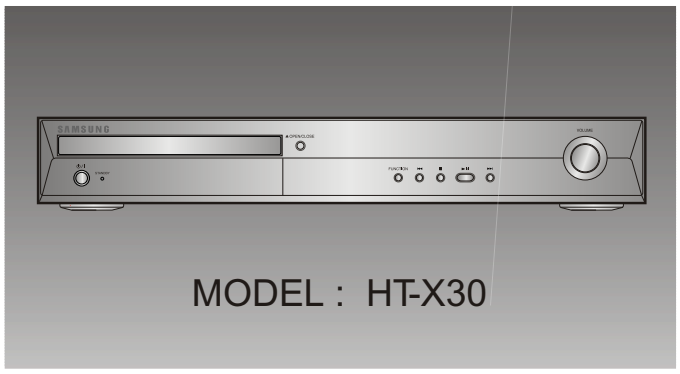
DVD RECEIVER AMP

Basic Model : *HT-X30/X40*

* Application : HT-X30/TX35/KX30/TKX35
HT-X40

SERVICE Manual

DVD RECEIVER AMP SYSTEM



Features

* Multi-Disc Playback & FM Tuner
* DVD-Audio compatible
* USB HOST Function support
* Dolby Pro Logic II
* DTS (Digital Theater Systems)
* TV Screen Saver Function
* Power Saving Function
* Customized TV Screen Display
* Anynet+ Function
* Optional Wireless receiver amplifier

Notice !! You can search for the updated part code through ITSELF web site.
URL; http://itself.sec.samsung.co.kr

INDEX

1. Precautions

Follow these safety, servicing and ESD precautions to prevent damage and protect against potential hazards such as electrical shock and X-rays.

1-1 Safety Precautions

1. Be sure that all of the built-in protective devices are replaced.

2. When reinstalling the chassis and its assemblies, be sure to restore all protective devices, including control knobs and compartment covers.

3. Make sure that there are no cabinet openings through which people--particularly children--might insert fingers and contact dangerous voltages. Such openings include the spacing between the picture tube and the cabinet mask, excessively wide cabinet ventilation slots, and improperly fitted back covers.

4. Design Alteration Warning:
   Never alter or add to the mechanical or electrical design of the unit. Example: Do not add auxiliary audio or video connectors. Such alterations might create a safety hazard. Also, any design changes or additions will void the manufacturer's warranty.

5. Leakage Current Hot Check (Figure 1-1):
   Warning: Do not use an isolation transformer during this test. Use a leakage-current tester or a metering system that complies with American National Standards Institute (ANSI C101.1, *Leakage Current for Appliances*), and Underwriters Laboratories (*UL Publication UL1410, 59.7*).

   With the unit completely reassembled, plug the AC line cord directly into a 120V AC outlet. With the unit's AC switch first in the ON position and then OFF, measure the current between a known earth ground (metal water pipe, etc.) and all exposed metal parts. Examples: Handle brackets, metal cabinets, screwheads and control shafts. The current measured should not exceed 0.5 milliamp. Reverse the power-plug prongs in the AC outlet and repeat.

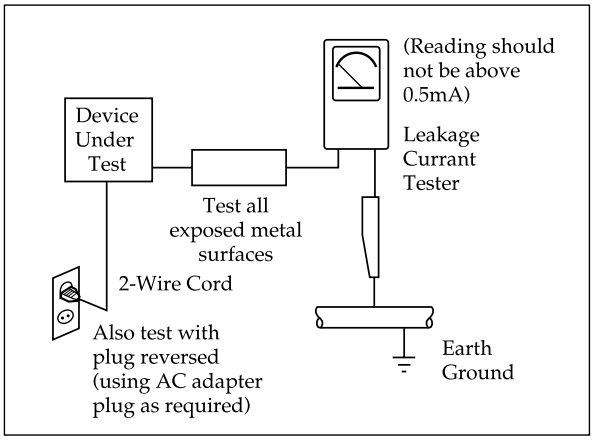


Fig. 1-1 AC Leakage Test

6. Insulation Resistance Cold Check:
   (1) With the unit's AC plug disconnected from the AC source, connect an electrical jumper across the two AC prongs. (2) Set the power switch to ON. (3) Measure the resistance between the shorted AC plug and any exposed metallic parts. Example: Screwheads, antenna, control shafts or handle brackets.

   If any of the exposed metallic parts has a return path to the chassis, the measured resistance should be between 1 and 5.2 megohms. If there is no return path, the measured resistance should be "infinite." If the resistance is outside these limits, a shock hazard might exist. See Figure 1-2

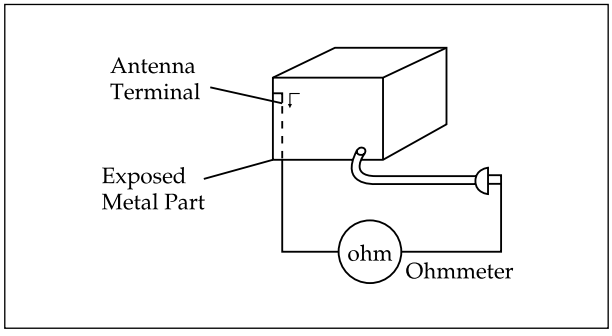


Fig. 1-2 Insulation Resistance Test

1-1 Safety Precautions (Continued)

7. Components, parts and wiring that appear to have overheated or that are otherwise damaged should be replaced with parts that meet the original specifications. Always determine the cause of damage or overheating, and correct any potential hazards

8. Observe the original lead dress, especially near the following areas: Antenna wiring, sharp edges, and especially the AC and high voltage power supplies. Always inspect for pinched, out-of-place, or frayed wiring. Do not change the spacing between components and the printed circuit board. Check the AC power cord for damage. Make sure that no wires or components touch thermally hot parts.

9. Product Safety Notice:
Some electrical and mechanical parts have special safety-related characteristics which might not be obvious from visual inspection. These safety features and the protection they give might be lost if the replacement component differs from the original--even if the replacement is rated for higher voltage, wattage, etc.

10 Components that are critical for safety are indicated in the circuit diagram by shading, ⚠ or ⚠ . Use replacement components that have the same ratings, especially for flame resistance and dielectric strength specifications. A replacement part that does not have the same safety characteristics as the original might create shock, fire or other hazards.

1-2 Servicing Precautions

Warning1: First read the "Safety Precautions" section of this manual. If some unforeseen circumstance creates a conflict between the servicing and safety precautions, always follow the safety precautions.

1. Servicing precautions are printed on the cabinet. Follow them.

2. Always unplug the unit's AC power cord from the AC power source before attempting to: (a) Remove or reinstall any component or assembly, (b) Disconnect an electrical plug or connector, (c) Connect a test component in parallel with an electrolytic capacitor.

3. Some components are raised above the printed circuit board for safety. An insulation tube or tape is sometimes used. The internal wiring may be clamped to prevent contact with thermally hot components. Reinstall all such elements to their original position.

4. After servicing, always check that the screws, components and wiring have been correctly reinstalled. Make sure that the portion around the serviced part has not been damaged.

5. Check the insulation between the blades of the AC plug and accessible conductive parts (examples: metal panels, input terminals and earphone jacks).

6. Insulation Checking Procedure: Disconnect the power cord from the AC source and turn the power switch ON. Connect an insulation resistance meter (500V) to the blades of the AC plug.

   The insulation resistance between each blade of the AC plug and accessible conductive parts (see above) should be greater than 1 megohm.

7. Never defeat any of the B+ voltage interlocks. Do not apply AC power to the unit (or any of its assemblies) unless all solid-state heat sinks are correctly installed.

8. Always connect a test instrument's ground lead to the instrument chassis ground *before* connecting the positive lead; always remove the instrument's ground lead last.

1-3 Precautions for Electrostatically Sensitive Devices (ESDs)

1. Some semiconductor ("solid state") devices are easily damaged by static electricity. Such components are called Electrostatically Sensitive Devices (ESDs). Examples include integrated circuits and some field-effect transistors. The following techniques will reduce the occurrence of component damage caused by static electricity.

2. Immediately before handling any semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground. Alternatively, wear a discharging wrist-strap device. (Be sure to remove it prior to applying power--this is an electric shock precaution.)

3. After removing an ESD-equipped assembly, place it on a conductive surface such as aluminum foil to prevent accumulation of electrostatic charge.

4. Do not use freon-propelled chemicals. These can generate electrical charges that damage ESDs.

5. Use only a grounded-tip soldering iron when soldering or unsoldering ESDs.

6. Use only an anti-static solder removal device. Many solder removal devices are not rated as "anti-static" (these can accumulate sufficient electrical charge to damage ESDs).

7. Do not remove a replacement ESD from its protective package until you are ready to install it. Most replacement ESDs are packaged with leads that are electrically shorted together by conductive foam, aluminum foil or other conductive materials.

8. Immediately before removing the protective material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.

9. Minimize body motions when handing unpackaged replacement ESDs. Motions such as brushing clothes together, or lifting a foot from a carpeted floor can generate enough static electricity to damage an ESD.

1-4 Special Precautions and Warning Labels for Laser Products

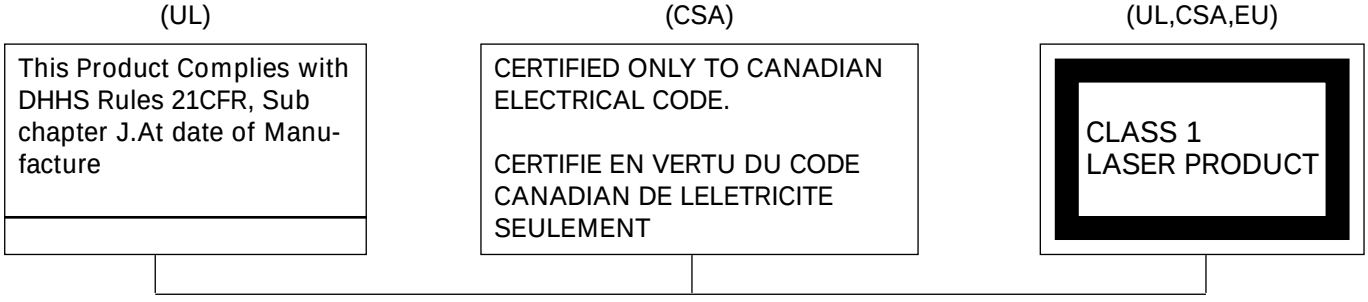


Fig. 1-3 Warning Labels (Location: Enclosure Block)

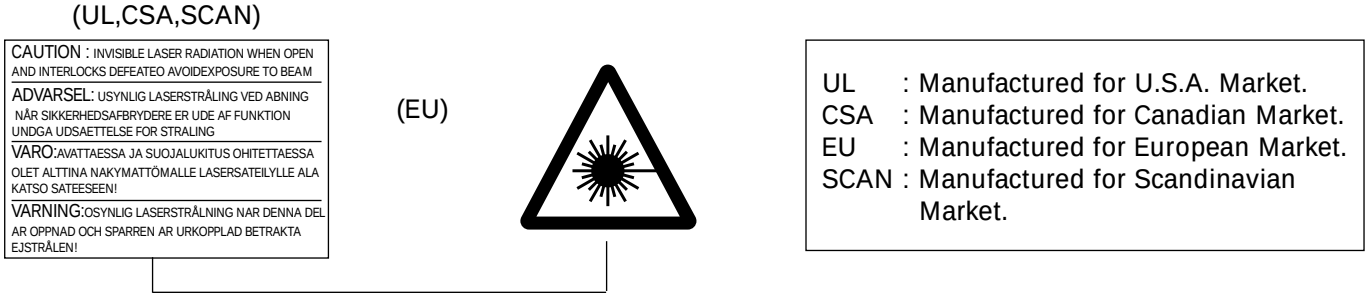


Fig. 1-4 Warning Labels (Location: Disc Clamper, Inner Side of Unit Door or Nearby Unit Chassis)

1-4 Special Precautions and Warning Labels for Laser Products (Continued)

1-4-1 Warnings

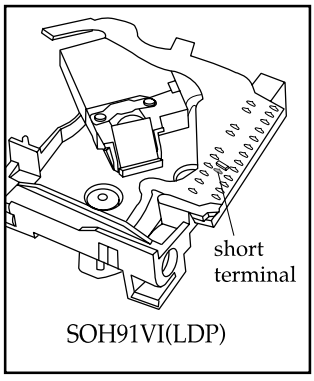
1. When servicing, do not approach the LASER exit with the eye too closely. In case it is necessary to confirm LASER beam emission, be sure to observe from a distance of more than 30 cm from the surface of the objective lens on the optical pick-up block.

2. Do not attempt to handle the objective lens when the DISC is not on the tray.

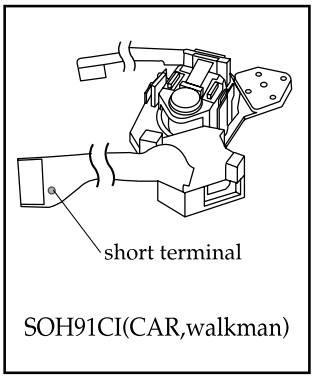
1-4-2 Laser Diode Specifications

Material: GaAs+ GaAlAs
Wavelength: 760-800 nm
Emission Duration: Continuous

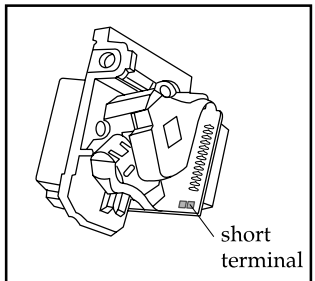
Laser Output: 0.2 mw (measured at a 1.6 mm distance from the objective lens surface on the optical pick-up block.)



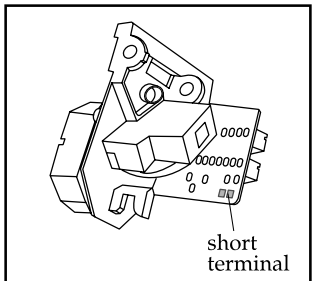
SOH91VI(LDP)



SOH91CI(CAR,walkman)



SOH-A1
(CMS-V10,CMS-V30)



SOH94T4N
(CMS-V10,CMS-V30)

1-4-3 Handling the Optical Pick-up

1. Static electricity from clothing or the body may cause electrostatic breakdown of the laser diode in the Optical Pickup. Follow this procedure:

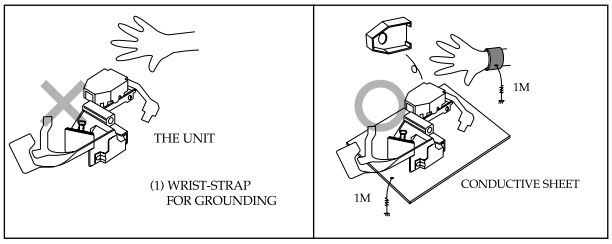
2. Place a conductive sheet on the work bench (i.e., the black sheet used for wrapping repair parts.) Note: The surface of the work bench should be covered by a copper ground plane, which is grounded.

3. The repair technician must wear a wrist strap which is grounded to the copper sheet.

4. To remove the Optical Pickup block: Place the set on the conductive sheet, and momentarily touch the conductive sheet with both hands. (While working, do not allow any electrostatic sources--such as clothes--to touch the unit.)

5. Ground the "Short Terminal" (located on the PCB, inside the Pickup Assembly) before replacing the Pickup. This terminal should be shorted whenever the Pickup Assembly is lifted or moved.

6. After replacing the Pickup, reopen the Short Terminal. See diagrams below:

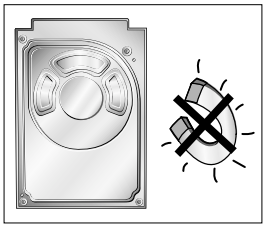


1-5 Special Precautions for HDD

* HDD Data Maintenance Step

1. Since the data on the HDD is weak to mechanical shock, place the HDD in a safe location that is free from mechanical shock once it is removed from the main unit.

2. In order to safe keep the data on the HDD, back up the data before the repair or make sure not to place the HDD near any electrical appliance that generates a strong magnetic field.



2. Product Description

1. Features

	Features
Multi-Disc Playback & FM Tuner	The HT-X30/HT-TX35 combines the convenience of multi-disc playback capability, including DVD-AUDIO, DVD-VIDEO, VCD, CD, MP3-CD, WMA-CD, DivX, CD-R/RW, and DVD-R/RW, with a sophisticated FM tuner, all in a single player.
DVD-Audio compatible	Experience the super high-quality audio performance of DVD-Audio. The on-board 24-bit/192kHz DAC enables this player to deliver exceptional sound quality in terms of dynamic range, low-level resolution and high-frequency detail.
USB HOST Function support	You can connect and play files from external USB storage devices such as MP3 players, USB flash memory, etc. using the Home Theater's USB HOST function.
Dolby Pro Logic II	Dolby Pro Logic II is a new form of multi-channel audio signal decoding technology that improves upon existing Dolby Pro Logic.
DTS (Digital Theater Systems)	DTS is an audio compression format developed by Digital Theater Systems Inc. It delivers full-frequency 5.1 channel sound.
TV Screen Saver Function	The HT-X30/HT-TX35 automatically brightens and darkens your TV screen after 3 minutes in the stop mode. The HT-X30/HT-TX35 automatically switches itself into the power saving mode after 20 minutes in the screen saver mode.
Power Saving Function	The HT-X30/HT-TX35 automatically shuts itself off after 20 minutes in stop mode.
Customized TV Screen Display	The HT-X30/HT-TX35 allows you to select your favorite image during JPEG, DVD or VCD playback and set it as your background wallpaper.
Anynet+ Function	Anynet+ is a function that can be used to operate the main unit using a Samsung TV remote control, by connecting the Home Theater to a SAMSUNG TV using an HDMI Cable. (This is only available with SAMSUNG TVs that support Anynet+.)
Optional Wireless receiver amplifier	Samsung's optional rear-channel wireless module does away with cables running between your DVD receiver and rear-channel speakers. Instead, the rear speakers connect to a compact wireless module that communicates with your DVD receiver.

HT-X30

SPEAKER	Speaker system	5.1ch speaker system		
		Front/Center/Rear speaker		Subwoofer speaker
	Impedance	3Ω x 5		3Ω
	Frequency range	145Hz~20KHz		35Hz~155Hz
	Output sound pressure level	86dB/W/M		86dB/W/M
	Rated input	133W		135W
	Maximum input	266W		270W
	Dimensions (W x H x D)	Front/Rear	90 x 168x 95 mm	180 x 320 x 390 mm
		Center	250 x 90 x 95 mm	
	Weights	Front/Rear	0.6 Kg/0.5 Kg	5.5 kg
		Center	0.7 Kg	

HT-TX35

SPEAKER	Speaker system	5.1ch speaker system		
		Front/Center/Rear speaker		Subwoofer speaker
	Impedance	3Ω x 5		3Ω
	Frequency range	140Hz~20KHz		35Hz~160Hz
	Output sound pressure level	82dB/W/M		85dB/W/M
	Rated input	80W		100W
	Maximum input	160W		200W
	Dimensions (W x H x D)	Front	90 x 1145 x 90 mm	198 x 400 x 338 mm
		Rear	90 x 1145 x 90 mm	
		Center	300 x 90 x 92 mm	
	Weights	Front/Rear	3.5Kg/3.2Kg	6.1Kg
		Center	1.2Kg	

3. Accessories

Commodity Photo	Commodity Name	Materials Cord
	**Remote Control**	AH59-01778E
	**FM Antenna**	AH42-00021A

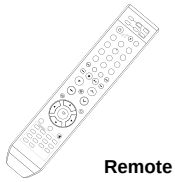
4. Specification Comparison

Model Name	X30	Q20
Year	**2007**	**2006**
OUTPUT	**800W**	**500W**
5.1 CH	**O**	**O**
USB HOST	**O**	**O**
HDMI OUT	**O**	**X**
HDMI CEC	**O**	**X**

3. Product Functions

1. SPK connection

Accessories



Remote Control

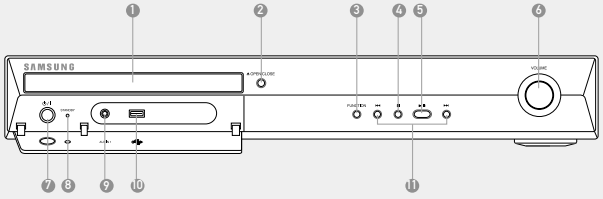
Video Cable

FM Antenna

User's Manual

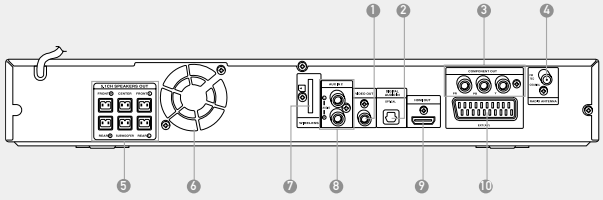
Description

Front Panel



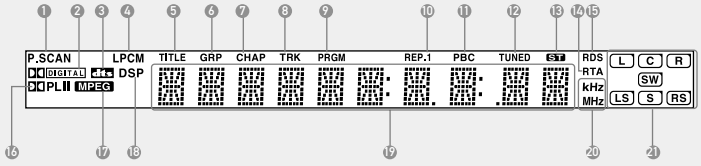
1. Disc Tray
2. Open/Close button
3. Function button
4. Stop (■) button
5. Play/Pause (►II) button
6. Volume Control
7. Power (⏻/I) button
8. Standby indicator
9. AUX IN 1 Connector
10. USB Connector
11. Tuning Up & Skip (►►I) button
    Tuning Down & Skip (I◄◄) button

Rear Panel



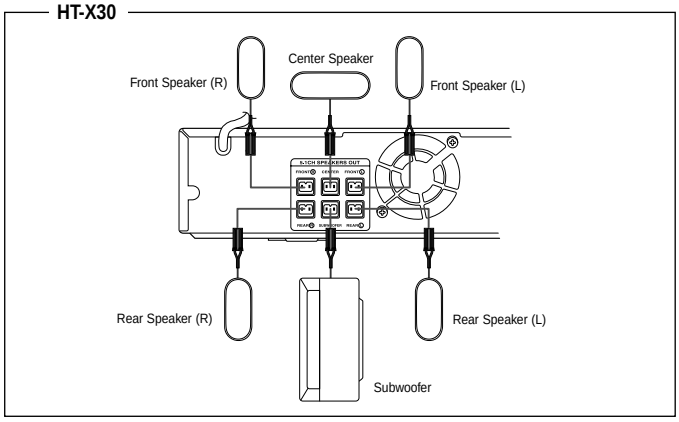
1. Video Output Connector
   Connect the TV's video input jacks (VIDEO IN) to the VIDEO OUT connector.
2. External Digital Optical Input Connector
   Use this to connect external equipment capable of digital output.
3. Component Video Output Connectors
   Connect a TV with component video inputs to these jacks.
4. FM Antenna Connector
5. 5.1 Channel Speaker Output Terminals
6. Cooling Fan
7. TX Card (Wireless) Connector
8. AUX IN 2 Connectors
9. HDMI Output Port
10. SCART Jack
    Connect to a TV with scart input jack.

Display



1. P.SCAN indicator
2. DOLBY DIGITAL indicator
3. DTS Disc indicator
4. LINEAR PCM indicator
5. TITLE indicator
6. GROUP indicator
7. CHAPTER indicator
8. TRACK indicator
9. PROGRAM indicator
10. REPEAT indicator
11. PBC indicator
12. TUNER indicator
13. STEREO indicator
14. RTA indicator
15. RDS indicator
16. PRO LOGIC indicator
17. MPEG indicator
18. DSP indicator
19. System Status Display
20. RADIO FREQUENCY indicator
21. SPEAKER indicator

HT-X30



Position of the DVD Player

- Place it on a stand or cabinet shelf, or under the TV stand.

Front Speakers (L)(R)

- Place these speakers in front of your listening position, facing inwards (about 45°) toward you.
- Place the speakers so that their tweeters will be at the same height as your ear.
- Align the front face of the front speakers with the front face of the center speaker or place them slightly in front of the center speakers.

Center Speaker (C)

- It is best to install it at the same height as the front speakers.
- You can also install it directly over or under the TV.

Selecting the Listening Position

The listening position should be located about 2.5 to 3 times the distance of the TV's screen size away from the TV. Example : For 32" TVs 2~2.4m (6~8feet) For 55" TVs 3.5~4m (11~13feet)

Rear Speakers (SL)(SR)

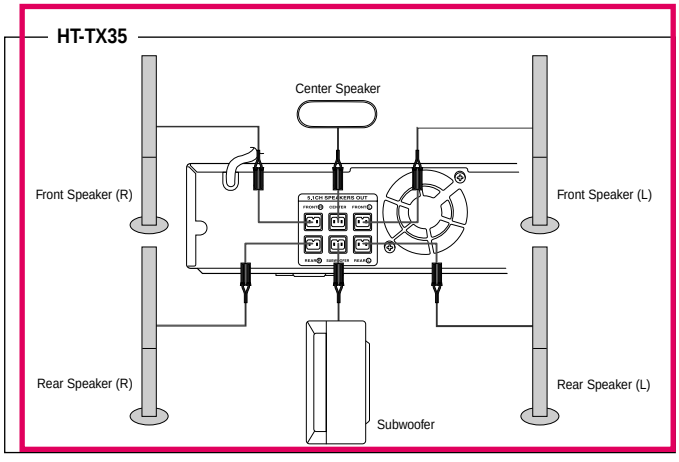
- Place these speakers behind your listening position.
- If there isn't enough room, place these speakers so they face each other.
- Place them about 60 to 90cm (2 to 3feet) above your ear, facing slightly downward.

* Unlike the front and center speakers, the rear speakers are used to handle mainly sound effects and sound will not come from them all the time.

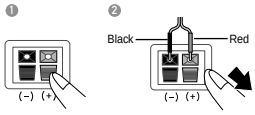
Subwoofer (SW)

- The position of the subwoofer is not so critical. Place it anywhere you like.

HT-TX35



Connecting the Speakers



1 Press down the terminal tab on the back of the speaker.

2 Insert the black wire into the black terminal (–) and the red wire into the red (+) terminal, and then release the tab.

3 Connect the correct color speaker cable to the same color speaker output terminal on the rear of the subwoofer, according to the polarity markings (+/–).

Example : Connect the green center speaker cable to the green center speaker output terminal on the rear of the subwoofer according to the polarity markings (+/–).

- Do not let children play with or near the speakers. They could get hurt if a speaker falls.
- When connecting the speaker wires to the speakers, make sure that the polarity (+/–) is correct.
- Keep the subwoofer speaker out of reach of children so as to prevent children from inserting their hands or alien substances into the duct (hole) of the subwoofer speaker.
- Do not hang on the wall through the duct (hole).

- If you place a speaker near your TV set, screen color may be distorted because of the magnetic field generated by the speaker. If this occurs, place the speaker away from your TV set.

2. Main Functions

Disc Playback

1 Press **OPEN/CLOSE** button to open the disc tray.

2 Load a disc.
- Place a disc gently into the tray with the disc's label facing up.

3 Close the compartment by pressing the **OPEN/CLOSE** button again.
- Playback starts automatically.

➢ To stop playback, press **STOP** button during playback.
- If pressed once, <PRESS PLAY> is displayed and the stop position will be stored in memory.
  If **PLAY/PAUSE (►II)** button or **ENTER** button is pressed, playback resumes from the stop position. (This function works only with DVDs.)
- If pressed twice, <STOP> is displayed, and if **PLAY/PAUSE (►II)** button is pressed, playback starts from the beginning.

➢ To temporarily pause playback, press **PLAY/PAUSE (►II)** button during playback.
- To resume playback, press **PLAY/PAUSE (►II)** button again.

- Avoid getting fingerprints on the writing surface of a disc. It may cause the disc to not read properly.

- Depending on the content of the disc, the initial screen may appear different.
- Any piracy could not be runnable in the player. Otherwise, it violates the CSS recommendations.

What is CSS (Content Scrambling System)?

The CSS is a copy protection device that prevents the content of a DVD from being copied into the HDD of the PC as it is, unlike other media, executable directly from the PC. And it is also a data decryption system that decrypts the key encryption with the encrypted title key (of the DVD title) and the player key (of the DVD player).

Selecting Audio/Subtitle Language

Audio Language Selection Function

1 Press **INFO** button twice.

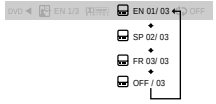
2 Press Cursor ▲, ▼ buttons or numeric buttons to select the desired audio language.
- Depending on the number of languages on a DVD disc, a different audio language (ENGLISH, SPANISH, FRENCH, etc.) is selected each time the button is pressed.

Subtitle Language Selection Function

1 Press **INFO** button twice.

2 Press Cursor ▶ button to move to SUBTITLE ( ) display.

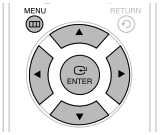
3 Press Cursor ▼ button or numeric buttons to select the desired subtitle.



- To operate this function, you can also press the Select AUDIO or Select SUBTITLE buttons on the remote control.
- Depending on the disc, the Subtitle and Audio Language functions may not be available.

Using Disc Menu

You can use the menus for the audio language, subtitle language, profile, etc.
DVD menu contents differ from disc to disc.



1 In Stop mode, press **MENU** button.
- When playing a VCD (version 2.0), this toggles between <MENU ON> and <MENU OFF>.

2 Press Cursor ▲, ▼ buttons to move to **<DISC MENU>** and then press **ENTER** button.
- When you select Disc Menu and it is not supported by the disc, the <This menu is not supported> message appears on the screen.

3 Press Cursor ▲, ▼, ◀, ▶ buttons to select the desired item.

4 Press **ENTER** button.

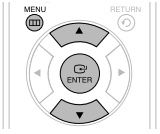
➢ Press **MENU** button to exit the setup screen.

MENU ON/OFF (PBC) Function
When playing a VCD (version 2.0), you can select and view various scenes according to the menu screen.
- MENU ON : This VCD disc is version 2.0. The disc is played back according to the menu screen. Some functions may be disabled. When some functions are disabled, select <MENU OFF> to enable them.
- MENU OFF : This VCD disc is version 1.1. The disc is played back in the same way as with a music CD.

• Disc menu display may be different depending on the disc.

Using the Title Menu

For DVDs containing multiple titles, you can view the title of each movie. Depending on the disc, the availability of this feature may vary.



1 In Stop mode, press **MENU** button.

2 Press Cursor ▲, ▼ button to move to <Title Menu>.

3 Press **ENTER** button.
- The title menu appears.

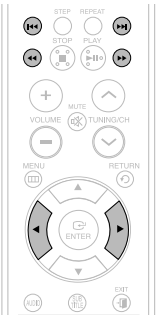
➢ Press **MENU** button to exit the setup screen.

• Title menu display may be different depending on the disc.

3. New Functions

DivX Playback

The functions on this page apply to DivX disc playback.



Skip Forward/Back

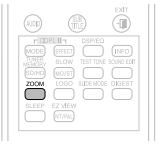
During playback, press the ⏮, ⏭ button.
- Goes to the next file whenever you press ⏭ button, if there are over 2 files in the disc.
- Goes to the previous file whenever you press ⏮ button, if there are over 2 files in the disc.

Fast playback

To play back the disc at a faster speed, press ◀◀ or ▶▶ during playback.
- Each time you press either button, the playback speed will change as follows:
  2x → 4x → 8x → 32x → Normal.

5 Minute Skip function

During playback, press the ◀, ▶ button.
- Playback skips 5 minutes forward whenever you press ▶ button.
- Playback skips 5 minutes back whenever you press ◀ button.

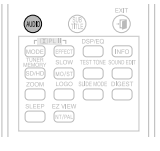


Zoom Function

1 Press **ZOOM** button.
- Each time you press the button, your selection will toggle between <ZOOM X2> and <ZOOM OFF>.

2 Press Cursor ▲, ▼, ◀, ▶ buttons to move to the area you want to enlarge.

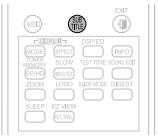
• DivX file can be zoomed only in ZOOM X2 mode.
• DivX files have .Avi file extensions, however, not all .Avi files are DivX and may not be playable in this unit.



Audio Display

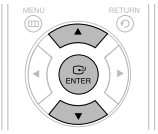
Press the **AUDIO** button.
- If there are multiple audio tracks on a disc, you can toggle between them.
- Each time you press the button, your selection will toggle between <AUDIO (1/N, 2/N ...)> and ✋.

• ✋ is displayed when there is one supported language in the disc.



Subtitle Display

Press the **SUBTITLE** button.
- Each time you press the button, your selection will toggle between <SUBTITLE (1/N, 2/N ...)> and <SUBTITLE OFF>.
- If the disc has only one subtitle file, it will be played automatically.
- See number 2 (Caption Function) below for more details concerning Subtitle usage with DivX discs.



If the disc has more than one subtitle file

If the disc has more than one subtitle file, the default subtitle may not match the movie and you will have to select your subtitle language as follows:

1 In Stop mode, press the ▲, ▼ button, select the desired subtitle ( ) from the TV screen, and then press the **ENTER** button.

2 When you select the desired DivX file from the TV screen, the movie will be played normally.

DivX(Digital internet video eXpress)

DivX is a video file format developed by Microsoft and is based on MPEG4 compression technology to provide audio and video data over the Internet in real-time.
MPEG4 is used for video encoding and MP3 for audio encoding so that the users can watch a movie at near DVD-quality video and audio.

1. Supported Formats
This product only supports the following media formats.If both video and audio formats are not supported, the user may experience problems such as broken images or no sound.

Supported Video Formats

Format	AVI	`WMV
Supported Versions	DivX3.11~DivX5.1, XviD	V1/V2/V3/V7

Supported Audio Formats

Format	MP3	WMA	AC3	DTS
Bit Rate	80~384kbps	56~128kbps	128~384kbps	1.5Mbps
Sampling Frequency	44.1khz		44.1/48khz	44.1khz

- DivX files, including audio and video files, created in the DTS format can only support up to 6Mbps.
- Aspect Ratio: Although default DivX resolution is 640x480 pixels (4:3), this product supports up to 800x600 pixels (16:9). TV screen resolutions higher than 800 will not be supported.
- When you play a disc whose sampling frequency is higher than 48khz or 320kbps, you may experience shaking on the screen during playback.

2. Caption Function
- You must have some experience with video extraction and editing in order to use this feature properly.
- To use the caption function, save the caption file (*.smi) in the same file name as that of the DivX media file (*.avi) within the same folder.
  Example. Root Samsung_007CD1.avi
  Samsung_007CD1.smi
- Up to 60 alphanumeric characters or 30 East Asian characters (2 byte characters such as Korean and Chinese) for the file name.

Setting TV Screen type

Depending on your TV type (Wide Screen or conventional 4:3), you can select the TV's aspect ratio.

1 In Stop mode, press **MENU** button.
2 Press Cursor ▼ button to move to **<Setup>** and then press **ENTER** button.
3 Press Cursor ▼ button to move to **<TV DISPLAY>** and then press **ENTER** button.
4 Press Cursor ▲, ▼ button to select the desired item and then press **ENTER** button.
- Once the setup is complete, you will be taken to the previous screen.

➢ Press **RETURN** button to return to the previous level.
➢ Press **MENU** button to exit the setup screen.

Adjusting the TV Aspect Ratio (Screen Size)

The horizontal to vertical screen size ratio of conventional TVs is 4:3, while that of widescreen and high definition TVs is 16:9. This ratio is called the aspect ratio. When playing DVDs recorded in different screen sizes, you should adjust the aspect ratio to fit your TV or monitor.

For a standard TV, select either <4:3LB> or <4:3PS> option according to personal preference. Select "16:9" if you have a widescreen TV.

WIDE
Select this to view a 16:9 picture in the full-screen mode on your widescreen TV.
- You can enjoy the widescreen aspect.

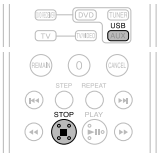
4:3LB (4:3 Letterbox)
Select this to play a 16:9 picture in the letter box mode on a conventional TV.
- Black bars will appear at the top and bottom of the screen.

4:3PS (4:3 Pan&Scan)
Select this to play a 16:9 picture in the pan & scan mode on a conventional TV.
- You can see the central portion of the screen only (with the sides of the 16:9 picture cut off).

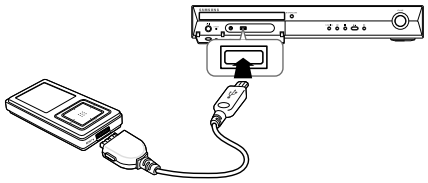
- If a DVD is in the 4:3 ratio, you cannot view it in widescreen.
- Since DVD discs are recorded in various image formats, they will look different depending on the software, the type of TV, and the TV aspect ratio setting.

Playing Media Files using the USB HOST feature

You can enjoy media files such as pictures, movies and music saved in an MP3 player, USB memory or digital camera in high quality video with 5.1 channel home theater sound by connecting the storage device to the USB port of the home theater.



1 Connect the USB device to the USB port on the front of the unit.



2 Press the **FUNCTION** button on the main unit or the **USB** button on the remote control to select the USB mode.
- <USB> appears on the display screen and then disappears.
- USB MENU screen appears on the TV screen and the saved file is played.

3 To stop playback, press the **STOP** (■) button.

➢ Safe USB Removal
To prevent damage to the memory stored in the USB device, perform safe removal before disconnecting the USB cable.
(1) Press the **STOP** (■) button twice in a row.
The display will show **REMOVE USB**.
(2) Remove the USB cable.

Skip Forward/Back

During playback, press the ⏮ ⏭ button.
- When there is more than one file, when you press the ⏭ button, the next file is selected.
- When there is more than one file, when you press the ⏮ button, the previous file is selected.

Fast playback

To play back the disc at a faster speed, press ◀◀ ▶▶ button during playback.
- Each time you press either button, the playback speed will change as follows:
2x → 4x → 8x → 32x → Normal.

Compatible Devices

1. USB devices that support USB Mass Storage v1.0. (USB devices that operate as a removable disc in Windows (2000 or later) without additional driver installation.)
2. MP3 Player: HDD and flash type MP3 players.
3. Digital camera: Cameras that support USB Mass Storage v1.0.
   - Cameras that operate as a removable disc in Windows (2000 or later) without additional driver installation.
4. USB HDD and USB Flash Drive: Devices that support USB2.0 or USB1.1.
   - You may experience a difference in playback quality when you connect a USB1.1 device.
   - For a USB HDD, make sure to connect an auxiliary power cord to the USB HDD for proper operation.
5. USB card Reader: One slot USB card reader and Multi slot USB card reader.
   - Depending on the manufacturer. the USB card reader may not be supported.
   - If you install multiple memory devices into a multi card reader, you may experience problems.
6. If you use a USB extension cable, the USB device might not be recognized.

Supported Formats

	File name	File extension	Bit rate	Version	Pixel	Sampling Frequency
Still Picture	JPG	JPG .JPEG	–	–	640x480	–
Music	MP3	.MP3	80~384kbps	–	–	44.1kHz
	WMA	.WMA	56~128kbps	V8	–	44.1kHz
Movie	VCD	MPG.MPEG .DAT	1.5Mbps	VCD1.1,VCD2.0	320x480	44.1KHz
	WMV	.WMV	4Mbps	V1,V2,V3,V7	720x480	44.1KHz~48KHz
	DivX	.AVI,.ASF	4Mbps	DivX3.11~DivX5.1,Xvid	720x480	44.1KHz~48KHz

- CBI (Control/Bulk/Interrupt) is not supported.
- Digital Cameras that use PTP protocol or require additional program installation when connected to a PC are not supported.
- A device using NTFS file system is not supported. (Only FAT 16/32 (File Allocation Table 16/32) file system is supported.)
- Some MP3 players, when connected to this product,may not operate depending on the sector size of their file system.
- The USB HOST function is not supported if a product that transfers media files by its manufacturer-specific program is connected.
- Does not operate with Janus enabled MTP (Media Transfer Protocol) devices.
- **The USB host function of this product does not support all USB devices. For information on the supported devices, see page 66.**

4. Adjustments

DVD flash Initialization & Update

. Checking out MICOM & MPEG flash Version

1) Play DVD-DISC or CD-DISC,
2) Press 'MENU' button on the Remote Control,
3) Press '8', '9', '5' one by one, then press 'ENTER'

. DVD flash Initialization & Update (firmware)

1) Prepare DISC-CD ,DVD or the USB device that contains HEX file for Update.
2) Play the DISC or connect the USB cable,
   then 'Updating' will appear on the screen, then Power will go on and out.
3) Then DISC-TRAY will OPEN, then remove DISC or take off USB cable,
   making Unit 'NO DISC' state'.
4) Press 'STOP' button of Main Unit 5 seconds more,
   Display Indicator shows 'INITIALIZE' then Power go out.
5) Initialization complete.

Connecting USB

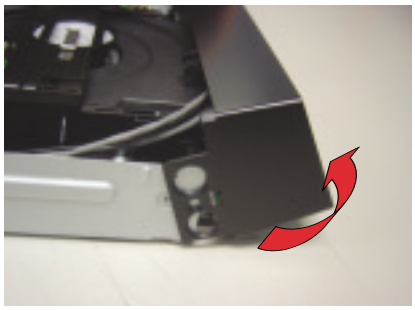
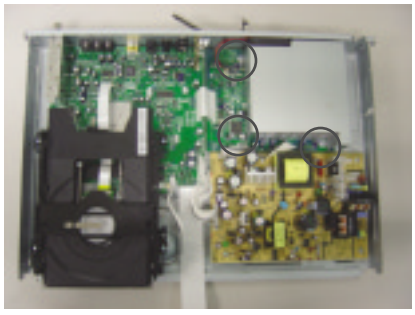
TV Display(On Updating)

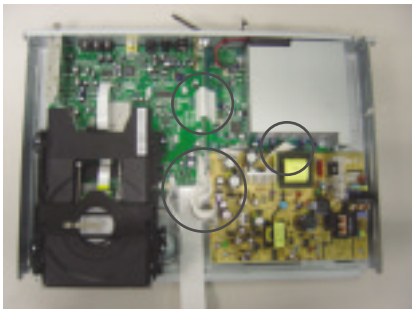
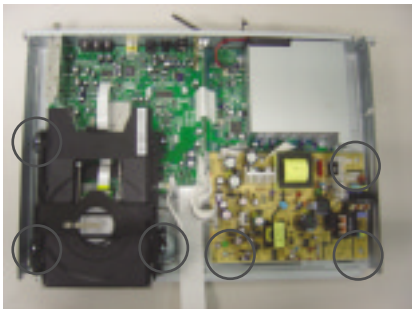
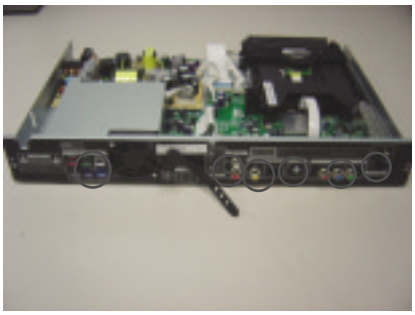
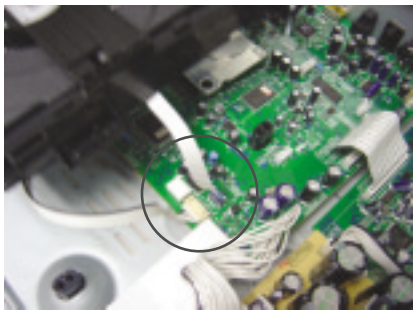
Update start

5. How to disassemble

* CAUTIONS

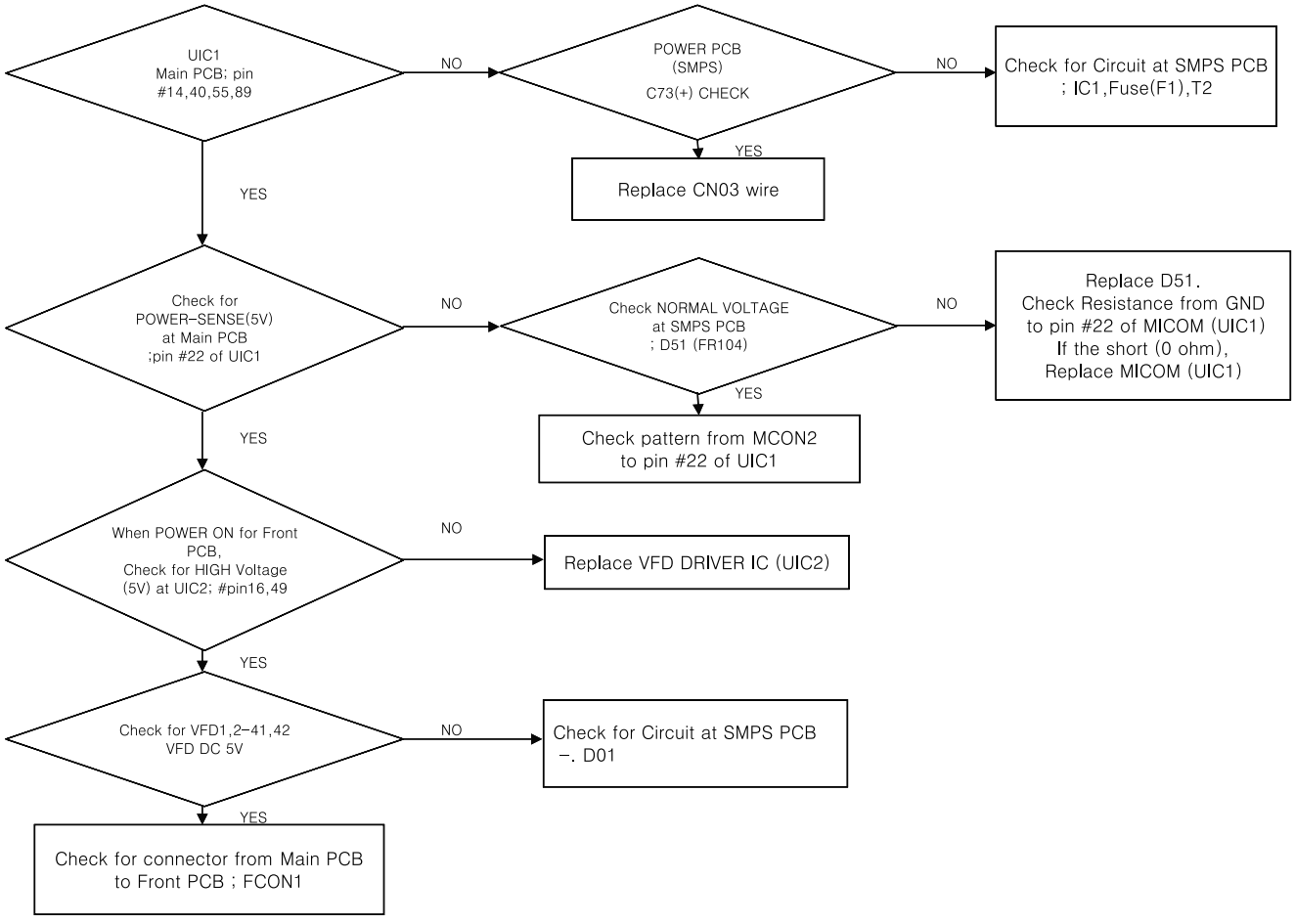
1. To avoid damage to the product, follow the disassembly method in the Service Manual.
2. As some Semiconductor devices are very sensitive to static,
   ensure that all procedures are adhered to when handling ESD's.

Disassembling	Picture
1. Remove 2 screws on each side and 2 screws in the rear. and remove the cabinet-top.	 
2. Remove 2 screws on the left,right side. Lift and pull out the cabinet front.	
3. Remove the wire connected to the cabinet front.	
4. Remove the bracket amp. by unfastening 3 screws.	

Disassembling	Picture
5. Remove the wires between PCBs.	
6. Remove the screws on the PCBs.	
7. Remove the remaining screws in the rear.	
8. Remove the MECHA and then the wire.	
9. Disassembly is complete.	

6. TroubleShooting

1. Main



Actions to take when Protection is enabled

▣ Locating a PBA that causes Protection.

1. Protection Conditions

1> The PVDD voltage (CN02) for SMPS is higher or lower than normal.
Normal: PVDD (CN02): 28 V ~ 31 V

2> The Power Stage is over-current (Over-output and SPK Short).

3> The temperature of the Power Stage is more than or equal to 150℃ (Thermal Protection).

4> The 2nd voltage is short and open.

2. Locating Protection Point

1> You can determine whether the AMP is faulty before proceeding with disassembly.
(The AC cord is not connected to an outlet.)

2> Locating after disassembly

☞ Measuring resistance with a tester

◆ X30 Family

F/C/R-Ch. : Approx. 10kΩ

S-Woofer : Approx. 5kΩ

※ When the resistance measurement is considerably lower than the above values, it indicates that the AMP-PCB is faulty.

Check if each connector wire and cable is properly plugged in.
→ If unsure, remove the wire and cable, and plug them in again.

Remove J3 (9-pin wire) from the PBA.
→ Check if Protection is enabled upon power-on.
→ Check the voltage between the PVDD and GND terminals (29.5V ~ 31V or 12V ~ -12V)
* NG->SMPS Replacement

Remove J7 (28-pin cable) from the PBA.
→ Check if Protection is enabled upon power-on.
→ AMP-PCB Fault (Identify a cause)
NG->Amp PBA Repair and Replacement

Check each voltage for CN3 and other wires.
→ Check if Protection is enabled upon power-on.
→ 1> Check the power for SMPS.
2> If SMPS is ok, check the MPEG.
3> Main (Jack) PCB and power line fault (Identify a cause)
※ For the Main PCB, check its voltage to identify a cause, rather than considering replacement.

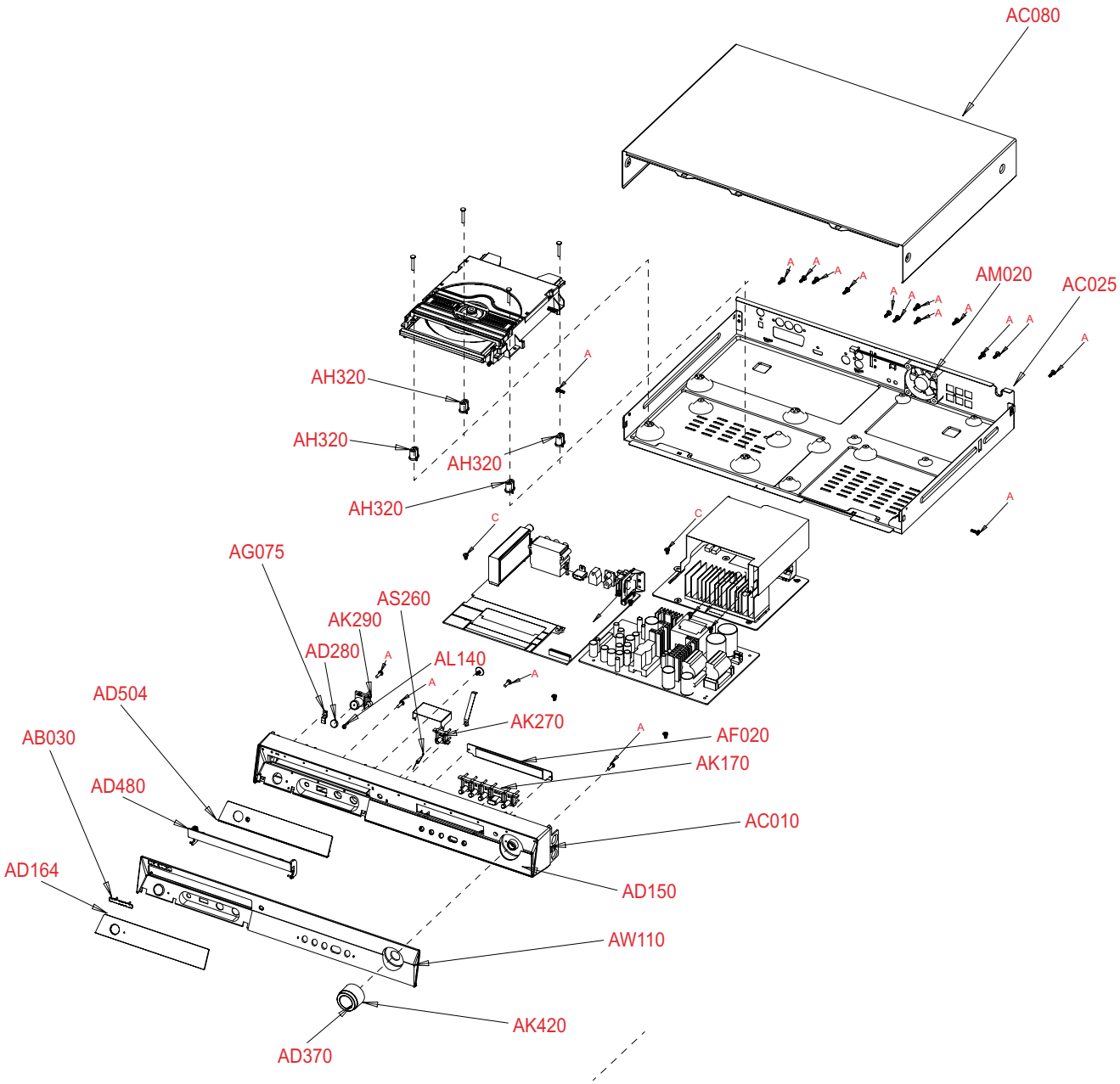
If the voltage for CN3 is not normal, remove the CON-Wire from the body and recheck the voltage for SMPS.
-> If faulty, replace SMPS.

PCB Marking Rule

NO	SMPS↔MAIN
1	M_8V
2	M8_GND
3	D_5V
4	D_5V
5	+ 3.3V
6	+ 3.3V
7	DGND
8	DGND
13	P_SENS
14	P_ON
11	MICOM 5.6V
12	U_GND
12	+ VFD
11	-VFD
15	-VP

7.Exploded Views and Parts List

1. Total Exploded View



2. Parts List

Location	CODE NO.	NAME	SPEC	Q'ty [EA]
	AH97-01831A	ASSY DVD DECK-SDM-D1FL	BASIC-TYPE,CMS-S75RBL,SDM-D1FL	1
AH320	AH61-02320A	HOLDER-MECHA	HT-X30,ABS 94HB,-,-,-,BLK,-	4
	AH64-02320B	DOOR-TRAY	MM-KT8,ABS,-,-,-,-,-,-	1
AC025	AH64-03790H	CABINET-BOTTOM REAR	HT-X30/KOR,SECC,T0.6,W430,-,-,-,EUR	1
AC080	AH64-03791C	CABINET-TOP	HT-Q20,PCM,0.5T,-,-,-,-,-	1
AS260	AH61-02122B	SPRING ETC-DOOR	-,SUS304,-,-,-,-,-,-,Q9,-,-	1
AG075	AH61-02321A	GUIDE-DOOR	HT-X30,ABS 94HB,-,-,-,BLK,-	1
AF020	AH63-01327A	FILTER-VFD	HT-X30,PMMA 94HB,-,-,-,VIOLET,-	1
AB030	AH64-03746A	BADGE-SAMSUNG-35	ALL,AL,-,-,-,-,-,SAMSUNG	1
AC010	AH64-04192B	CABINET-FRONT	HT-X30,HIPS,T2.5,-,-,-,-,-	1
AW110	AH64-04193F	WINDOW-FRONT	HT-TX35/EUR,PMMA,-,-,-,-,-,-	1
AD164	AH64-04194C	DECORATION-HIDDEN	HT-X30/EUR,ABS,T2.0,-,-,-,-,-	1
AD150	AH64-04195C	DECORATION-FRONT	HT-X30/EXP,ABS,T2.0,-,-,-,-,-	1
AD280	AH64-04196B	DECORATION-POWER	HT-X30,ABS,-,-,-,-,-,CR PLANTING	1
AD480	AH64-04198B	DOOR-CD	HT-X30,PMMA SMOKE,T2.0,-,-,-,-,-	1
AD504	AH64-04199B	DOOR-HIDDEN	HT-X30,ABS,T2.0,-,-,-,-,BLACK SPRAY	1
AK290	AH64-04200A	KNOB-POWER	HT-X30,ABS 94HB,-,-,-,-,MILKY,-,-	1
AK270	AH64-04201A	KNOB-OPEN	HT-X30,ABS 94HB,-,-,-,-,BLK,-,-	1
AK170	AH64-04202B	KNOB-FUNCTION	HT-X30,ABS,-,-,-,-,-,-,-	1
AL140	AH67-00452A	LENS-POWER	HT-X30,PMMA 94HB,MILKY,-,-,-,-	1
AD370	AH64-04197B	DECORATION-VOLUME	HT-X30,ABS,-,-,-,-,-,CR PLANTING	1
AK420	AH64-04203B	KNOB-VOLUME	HT-X30,ABS,-,-,-,-,-,-,SPRAY	1
AM020	AH31-00039B	MOTOR FAN	C151BK10A2430,RDM5015S	1
A	6003-000276	SCREW-TAPTITE	BH,+,-,B,M3,L10,ZPC(WHT),SWRCH18A,-	18
B	6003-000279	SCREW-TAPTITE	BH,+,-,B,M3,L20,ZPC(WHT),SWRCH18A,-	4
C	6003-001561	SCREW-TAPTITE	BH,+,-,B,M3,L6,ZPC(WHT),SWRCH18A,RF	8

8. Electrical Parts List

******* HT-X30 Parts List *******

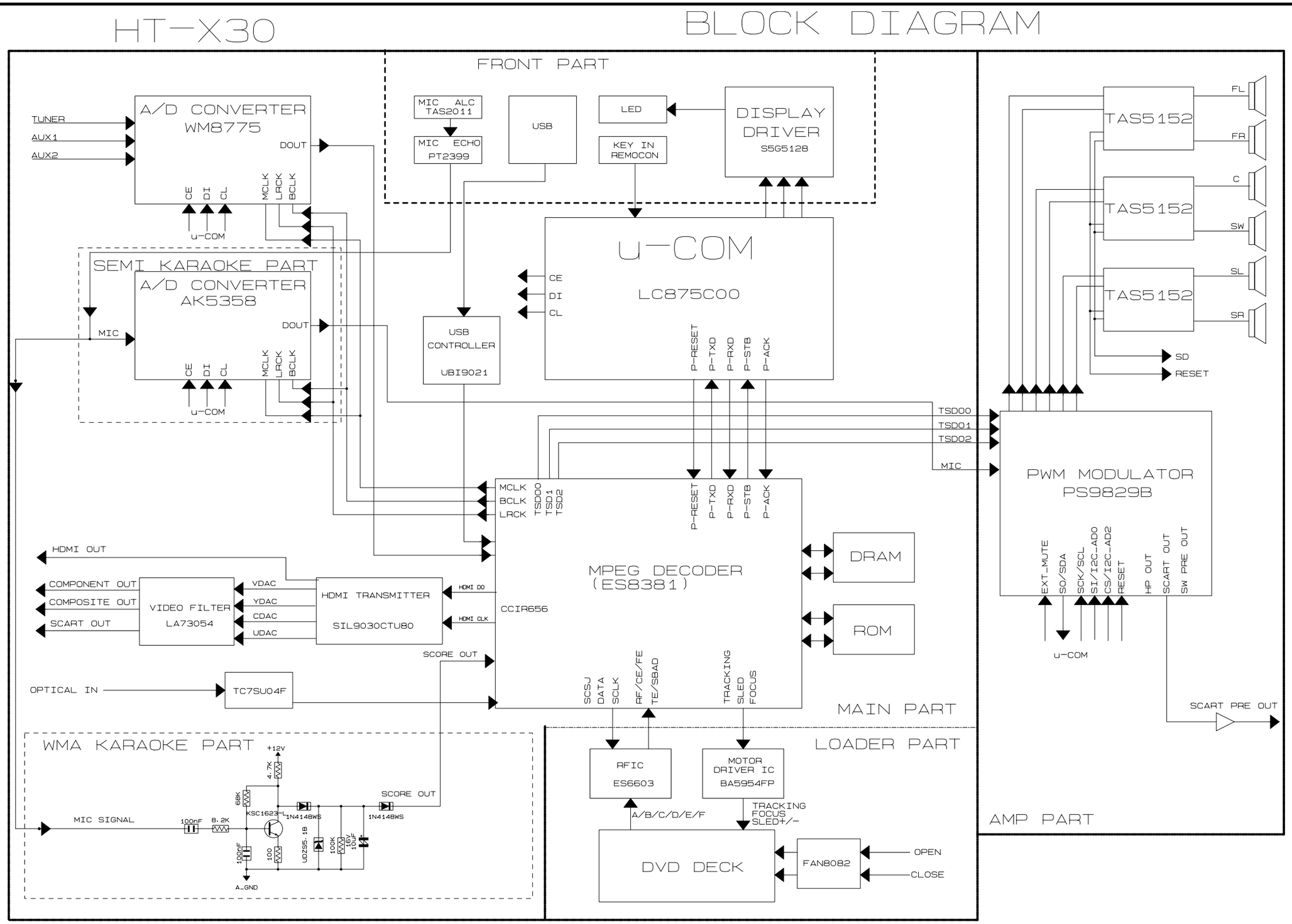
Location no.	Code no.	Description & Specification	Remarks
AC18	2401-000480	C-AL;10uF,20%,50V,GP,TP,5x11,5	
AC2L	2203-000531	C-CER,CHIP;2.7nF,10%,50V,X7R,1608	
AC3L	2203-000815	C-CER,CHIP;0.033nF,5%,50V,C0G,1608	
AIC3	1002-001392	IC-A/D CONVERTER;WM8775EDS,24BIT,SSOP,28	
AJ1	3722-001588	JACK-PHONE;7P,3.6PI,AG,BLK,-	
AMP-P	AH41-01031B	PCB-AMP;HT-X30,PENO;,2,-,-,-,-,-,-,AMP	
AR1	2007-000130	R-CHIP;39Kohm,5%,1/10W,TP,1608	
BC3	2203-001607	C-CER,CHIP;0.22nF,5%,50V,NP0,1608	
BRKE	AH61-02125A	BRACKET-X-READY;HT-Q20,SPTE 0.5T,-,-,-,-	
C1	2203-000783	C-CER,CHIP;0.33nF,5%,50V,C0G,1608	
C12RR	2203-001634	C-CER,CHIP;33nF,10%,50V,X7R,1608	
C15SW	2203-005249	C-CER,CHIP;100nF,10%,50V,X7R,1608	
C16RL	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608	
C19FL	2203-002793	C-CER,CHIP;1000nF,+80-20%,25V,Y5V,2012	
C2	2401-000303	C-AL;100uF,20%,25V,GP,TP,6.3x11,5	
C22FR	2203-000787	C-CER,CHIP;0.33NF,5%,50V,C0G,TP,2012	
C24FL	2401-002300	C-AL;47•ÏF,20%,50V,GP,TP,6.3x11,5mm	
C37RR	2305-000407	C-FILM,LEAD-PEF;470nF,5%,100V,TP,-,5mm	
C8C	2401-004106	C-AL;680uF,20%,50V,-,BK,12.5 x 35,5	
CEC46	2401-000240	C-AL;100uF,20%,10V,GP,TP,5x11,5	
CECJ1	3708-000303	CONNECTOR-FPC/FFC/PIC;6P,1.25MM,STRAIGHT	
CECX1	2802-001179	RESONATOR-CERAMIC;4MHZ,0.5%,BK,8X3X5.5MM	
CEIC1	AK09-00140A	IC MICOM;-,MC80F0316,-,5V,4MHz,-,-,-,32	
CEIC2	1103-001333	IC-EEPROM;24C08A,1Kx8Bit,SOP,8P,5x4mm,-,	
CEIC3	1203-002425	IC-POSI.FIXED REG.;AP1117,SOT-223,3P,138	
CEIC4	0505-001679	FET-SILICON;FDC6301N,N,25V,0.22A,5OHM,0.	
CER10	2007-000081	R-CHIP;2.7Kohm,5%,1/10W,TP,1608	
CER10	2007-000093	R-CHIP;20Kohm,5%,1/10W,TP,1608	
CER10	2007-000122	R-CHIP;1.2Kohm,5%,1/10W,TP,1608	
CER3	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	
CER9	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	
CN1	3708-002023	CONNECTOR-FPC/FFC/PIC;6P,1MM,SMD-S,TIN,N	
CN2	3711-005155	HEADER-BOARD TO CABLE;BOX,5P,1R,2MM,SMD-	
CN3	3708-001765	CONNECTOR-FPC/FFC/PIC;24P,0.5mm,SMD-S,SN	
CN5	3711-000471	HEADER-BOARD TO CABLE;3WALL,4P,1R,2mm,ST	
EBD13	3301-001069	BEAD-SMD;120ohm,1.6x0.8x0.8mm,200mA,TP,	
EMR3	2007-000694	R-CHIP;3.3ohm,5%,1/8W,TP,2012	
ESD3	0406-001128	DIODE-TVS;MLVS-0603-E08,50V,-,-	
FC1	2203-000979	C-CER,CHIP;47nF,10%,50V,X7R,TP,2012	
FC4	2401-001975	C-AL;47uF,20%,16V,GP,TP,5x11mm,5mm	
FC6	2401-000651	C-AL;2.2uF,20%,50V,GP,TP,4x7,5	
FCON1	3708-000454	CONNECTOR-FPC/FFC/PIC;22P,1.25MM,STRAIGH	
FCON2	3711-002807	HEADER-BOARD TO CABLE;BOX,6P,1R,2mm,STRA	
FCW2	AH39-00936A	WIRE HARNESS;HT-X30,6P,2mm,200mm,UL,6P,2	
FCW3	AH39-00938A	CONNECT WIRE;HT-X30,2547,UL,7P,630mm,RED	
FJ1	3406-001047	SWITCH-ROTARY;5V DC,0.5mA,-,12mm	
FJ1	3711-000820	HEADER-BOARD TO CABLE;BOX,2P,1R,2.5MM,ST	
FQ3	0501-000422	TR-SMALL SIGNAL;KTA1273,PNP,-30V,-30V,-2	
FQ4	0504-000128	TR-DIGITAL;-,NPN,200MW,22K/22K,SOT-23,TP	
FR1	2001-000022	R-CARBON(S);33OHM,5%,1/2W,AA,TP,2.4X6.4M	
FR12	2001-000020	R-CARBON(S);22OHM,5%,1/2W,AA,TP,2.4X6.4M	
FR16	2007-000572	R-CHIP;220ohm,5%,1/8W,TP,2012	
FR2	2007-000123	R-CHIP;1.5Kohm,5%,1/10W,TP,1608	
FR21	2007-000094	R-CHIP;22Kohm,5%,1/10W,TP,1608	
FR22	2007-000023	R-CHIP;120ohm,5%,1/8W,TP,2012	
FR3	2001-001165	R-CARBON(S);56OHM,5%,1/2W,AA,TP,2.4X6.4M	
FR4	2007-000124	R-CHIP;2.2Kohm,5%,1/10W,TP,1608	
FR7	2007-000134	R-CHIP;33Kohm,5%,1/10W,TP,1608	
FZD2	0403-001064	DIODE-ZENER;RLZ5.1B,4.94-5.2V,500mW,LL-3	
H/S	AH62-00062G	HEAT SINK-TR;HT-DS400,AL EXTR,-,-,-,-,-,	
H/S_P	AH62-00157A	HEAT SINK	
HC2	2401-001508	C-AL;47uF,20%,16V,GP,TP,6.3x5,5	
HC20	2203-005065	C-CER,CHIP;1000nF,+80-20%,10V,Y5V,1608	
HC28	2401-000042	C-AL;100uF,20%,16V,GP,TP,6.3x7,5	
HD1	0401-001090	DIODE-SWITCHING;1SS355,80V,100MA,SOD-323	
HD100	0402-000309	DIODE-RECTIFIER;1SR154-400,400V,1A,SOD-1	
HL10	2901-001302	FILTER-EMI SMD;20V,0.3A,-,-,2.0x1.2x1.3m	
HOLDE	AH61-02117A	HOLDER-IC;HT-Q20,ABS+GF,-,-,-,-,COMMON P	
HQ1	0505-000110	FET-SILICON;2N7002,N,60V,115mA,7.5ohm,0.	
HR28	2007-000075	R-CHIP;220ohm,5%,1/10W,TP,1608	
HR32	2007-000079	R-CHIP;1.8Kohm,5%,1/10W,TP,1608	
HR40	2007-000729	R-CHIP;300ohm,5%,1/10W,TP,1608	
HR51	2007-002899	R-CHIP;10ohm,1%,1/10W,TP,1608	
HR52	2007-000643	R-CHIP;270ohm,5%,1/10W,TP,1608	
HR53	2007-000116	R-CHIP;120ohm,5%,1/10W,TP,1608	
HR56	2007-000097	R-CHIP;47Kohm,5%,1/10W,TP,1608	
IC1	1204-002539	IC-PAL/NTSC DECODER;ES8381FCC,PQFP,256P,	
IC10	0801-002683	IC-CMOS LOGIC;74HCT245,TRANSCEIVER,TSSOP	
IC11	1003-001450	IC-MOTOR DRIVER;BA5954FM,SOP,28P,300MIL,	
IC12	1003-001508	IC-MOTOR DRIVER;FAN8082DTF,SOP,8P,200MIL	
IC13	1201-001842	IC-OP AMP;TL3472CD,SO,TP,8P,-,DUAL,-,PAL	
IC14	0801-002518	IC-CMOS LOGIC;74LCX157,2-INPUT MULTIPLEX	
IC1CW	1201-002236	IC-AUDIO AMP;TAS5152,PSOP3,36P,15.9x11mm	
IC3	0904-002088	IC-USC;UBI9022,8Bit,QFP,48P,9x9mm,48M	
IC31	1205-003165	IC-TRANSMITTER;ES7120T,TQFP,80P,12x12mm,	
IC4	1105-001573	IC-DRAM;K4S281632,-,128Mbit,8Mx16Bit,T	
IC5	1107-001505	IC-FLASH MEMORY;49BV162AT,16Mbit,1Mx16/2	
J3	AH39-00854A	WIRE HARNESS;HT-Q20,-,1007,9P,130mm,-,AW	
JK7	3701-001314	CONNECTOR-HDMI;19P,2R,FEMALE,SMD-A,AU	
JP6	AH37-00005A	JACK-RCA;1P,S-440B,YELLOW,-,SHIELD PLAT	
L1SW	2702-001130	INDUCTOR-RADIAL;10uH,10%,19x15.8mm	
L4RR	AH27-00055A	COIL CHOKE;DBF-1310A,HT-DS600,10uH,-,-,2	
LED1	0601-001238	LED;ROUND,RED,3.1mm,697nm,3.8x5.2m	
LED2	0601-001432	LED;ROUND,BLUE,3mm,455nm	
MAIN	AH41-01029A	PCB MAIN;HT-X30,penol,2,-,1.6T,197*197,	
MC1	2401-000243	C-AL;100uF,20%,10V,GP,TP,6.3x5,5	
MC12	2007-000092	R-CHIP;15Kohm,5%,1/10W,TP,1608	
MC19	2203-000646	C-CER,CHIP;0.024NF,5%,50V,C0G,TP,1608	
MC20	2203-000440	C-CER,CHIP;1nF,10%,50V,X7R,1608	
MC21	2203-001083	C-CER,CHIP;0.0050nF,0.1pF,50V,NP0,1608	
MC23	2203-000681	C-CER,CHIP;0.027nF,5%,50V,C0G,1608	
MC3	2203-000384	C-CER,CHIP;0.015nF,5%,50V,C0G,1608	
MC33	2401-002042	C-AL;220uF,20%,10V,GP,TP,6.3x11,5	
MC34	2203-000626	C-CER,CHIP;0.022nF,5%,50V,C0G,1608	
MC48	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,1608	
MC52	2203-000062	C-CER,CHIP;47nF,+80-20%,50V,Y5V,1608	
MC6	2401-000407	C-AL;10UF,20%,16V,GP,TP,3.5X5,2.5	
MC68	2402-001198	C-AL,SMD;330UF,20%,6.3V,GP,TP,6.6X6.6X7	
MC71	2203-001086	C-CER,CHIP;0.0050nF,0.25pF,50V,NP0,1608	
MCON1	3708-001086	CONNECTOR-FPC/FFC/PIC;28P,1.25MM,STRAIGH	
MCON1	3711-000452	CONNECTOR-HEADER;BOX,3P,1R,2mm,STRAIGHT,	
MCON1	3711-004110	HEADER-BOARD TO CABLE;3WALL,12P,1R,2MM,S	
MCON2	3710-001422	SOCKET-BOARD TO CABLE;12P,1R,2mm,ANGLE,S	
MCON2	AH39-00855A	WIRE HARNESS;HT-Q20,-,1007,15P,110mm,-,A	
MCON2	3709-001287	CONNECTOR-CARD SLOT;10P,1.5mm,SMD-A,AU10	

Location no.	Code no.	Description & Specification	Remarks
MCON3	3708-001033	CONNECTOR-FPC/FFC/PIC;22P,1.25MM,STRAIGH	
MCON6	3708-000448	CONNECTOR-FPC/FFC/PIC;6P,1.25MM,STRAIGHT	
MCON8	AH40-00130A	TUNER;KST-MW104FV1-E50LCE,HT-Q40,FM,	
MIC1	1204-002627	IC-MODULATOR;PS9829B,LQFP,100P,14x14mm,P	
MIC2	AH14-10004R	IC-CMOS LOGIC;M74HCU04,-,SOP,14P,-,-,TAP	
ML23	3301-001495	BEAD-SMD;120ohm,2012,2500mA,TP,115ohm/1	
ML8	2703-000185	INDUCTOR-SMD;3.3uH,10%,2012	
MR117	2007-000076	R-CHIP;330ohm,5%,1/10W,TP,1608	
MR131	2007-000118	R-CHIP;390ohm,5%,1/10W,TP,1608	
MR2	2007-000072	R-CHIP;47ohm,5%,1/10W,TP,1608	
MR36	2007-000109	R-CHIP;1Mohm,5%,1/10W,TP,1608	
MR53	2007-000113	R-CHIP;33ohm,5%,1/10W,TP,1608	
MR71	2011-000475	R-NET;33ohm,5%,1/16W,L,CHIP,8P,TP,32	
MR8	2007-000052	R-CHIP;10Kohm,1%,1/10W,TP,1608	
MX1	2801-004354	CRYSTAL-UNIT;12.288MHZ,30PPM,ATS-49/U,18	
NC6	2401-001020	C-AL;3.3UF,20%,50V,GP,TP,4X7,5	
NC7	2401-000048	C-AL;47uF,20%,25V,GP,TP,5x11,5	
NC8	2401-001164	C-AL;33uF,20%,16V,GP,TP,5x11mm,5mm	
NIC1	1201-000163	IC-OP AMP;4560,SOP,8P,173MIL,DUAL,100V/m	
NQ3	0501-000010	TR-SMALL SIGNAL;KSC1008,NPN,800mW,TO-92,	
NR15	2007-000103	R-CHIP;120Kohm,5%,1/10W,TP,1608	
OPIC1	0603-001205	OPTIC TRANSMITTER;5V,13.2Mb/s,-,-,-,-	
PC5	2401-000118	C-AL;1000uF,20%,10V,GP,TP,10x12.5,5	
PC7	2401-001364	C-AL;470uF,20%,16V,GP,TP,10x12.5,5	
PC9	2401-001102	C-AL;330uF,20%,16V,GP,TP,8x11.5mm,5	
PCB-F	AH41-01030A	PCB-FRONT;HT-X30,penol,2,-,1.6T,197*247,	
PIC7	1203-002935	IC-POSI.ADJUST REG.;AIC1117ACE,TO-252,3P	
PQ2	0501-000407	TR-SMALL SIGNAL;KSD471A-Y,NPN,800mW,TO-9	
PQ3	0501-000002	TR-SMALL SIGNAL;KSA812,PNP,150MW,SOT-23,	
PQ6	0504-000156	TR-DIGITAL;KSR2103,PNP,200MW,22K/22K,SOT	
PR10	2001-000027	R-CARBON;100OHM,5%,1/4W,AA,TP,2.4X6.4MM	
PS300	AH59-01804B	SPEAKER SYSTEM;PS-X30,-,-,-,-,-,-,XFU,5.	
Q5	0501-000632	TR-SMALL SIGNAL;2SB1197K,PNP,200mW,SOT-2	
R11SW	2007-002425	R-CHIP;1ohm,5%,1/10W,TP,1608	
R150	2007-000941	R-CHIP;47Kohm,5%,1/8W,TP,2012	
R2FL	2007-000312	R-CHIP;10ohm,5%,1/4W,TP,3216	
R46	2007-000253	R-CHIP;1.5ohm,5%,1/4W,TP,3216	
R5RL	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	
R9C	2007-000462	R-CHIP;18ohm,5%,1/8W,TP,2012	
RC14	2401-000804	C-AL;220uF,20%,16V,GP,TP,8x9mm,5	
RC17	2203-000280	C-CER,CHIP;0.01nF,0.5pF,50V,C0G,1608	
RC19	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	
RC28	2203-001652	C-CER,CHIP;470nF,+80-20%,16V,Y5V,1608	
RC35	2401-001355	C-AL;470uF,20%,10V,GP,TP,8x11.5mm,5	
RC40	2203-001126	C-CER,CHIP;0.68nF,10%,50V,X7R,1608	
RC44	2203-002398	C-CER,CHIP;22nF,10%,50V,X7R,1608	
RC47	2203-000888	C-CER,CHIP;4.7nF,10%,50V,X7R,1608	
RC49	2203-005015	C-CER,CHIP;150nF,+80-20%,16V,Y5V,1608	
RC51	2401-001938	C-AL;22uF,20%,25V,GP,TP,5x11mm,5mm	
RD2	0407-000116	DIODE-ARRAY;DAP202K,80V,100mA,CK2-3,SOT-	
REM_E	0609-001189	MODULE REMOCON;HORIZONTAL,16.4MM,TR	
RESQ1	1203-003526	IC-VOL. DETECTOR;KIA7029AP,TO-92,3P,4.58	
RR16	2007-001179	R-CHIP;8.2Kohm,5%,1/10W,TP,1608	
RR20	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	
RR24	2007-000458	R-CHIP;18Kohm,5%,1/10W,TP,1608	
RR33	2007-000120	R-CHIP;680ohm,5%,1/10W,TP,1608	
RR37	2007-000091	R-CHIP;12Kohm,5%,1/10W,TP,1608	
RR40	2007-000483	R-CHIP;1OHM,5%,1/8W,TP,2012	
RR51	2007-000098	R-CHIP;56Kohm,5%,1/10W,TP,1608	
RR52	2007-000077	R-CHIP;470ohm,5%,1/10W,TP,1608	
RR67	2007-000308	R-CHIP;10ohm,5%,1/8W,TP,2012	
RR83B	2007-000106	R-CHIP;220Kohm,5%,1/10W,TP,1608	

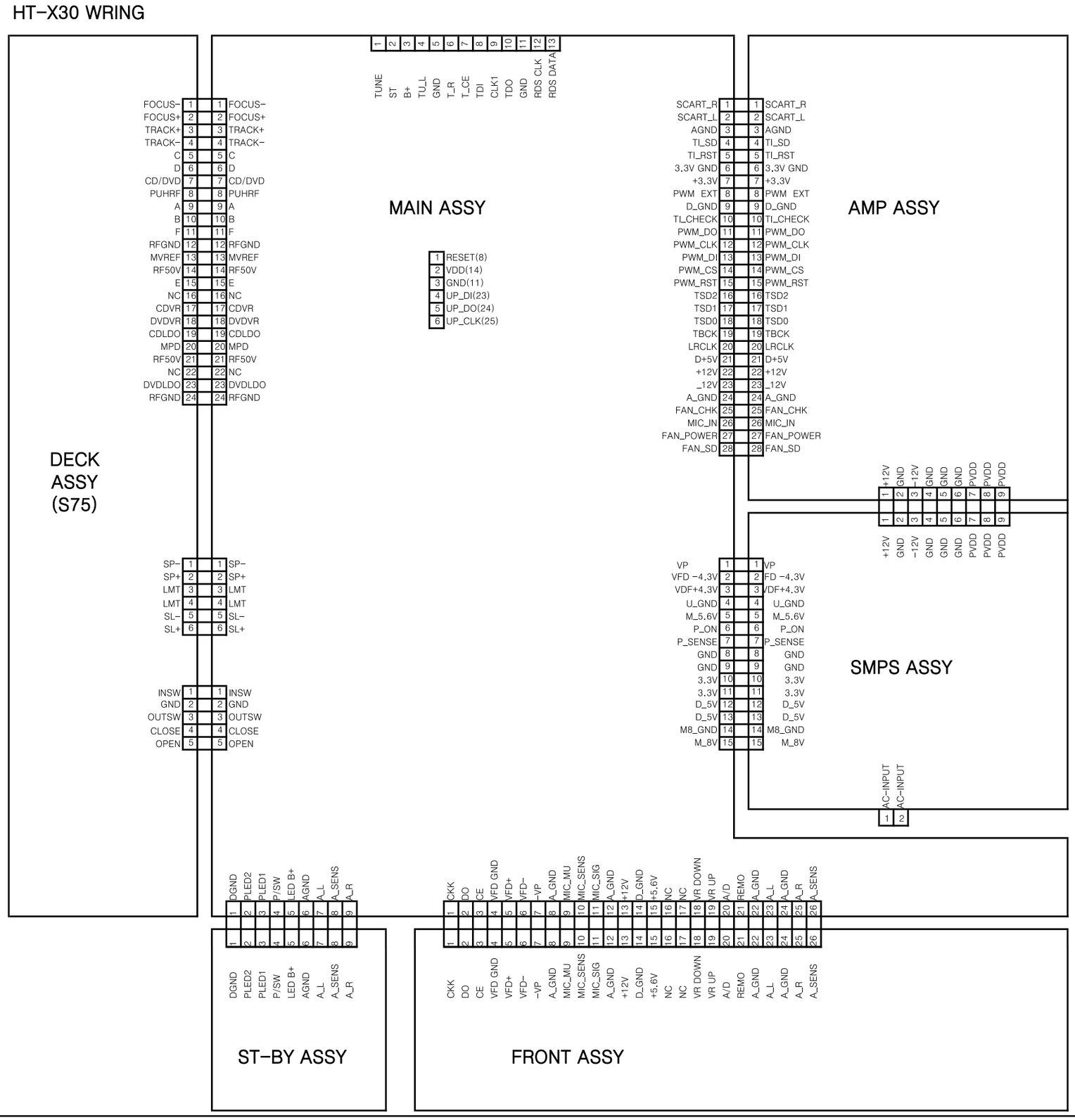
Location no.	Code no.	Description & Specification	Remarks
RR92	2007-000102	R-CHIP;100Kohm,5%,1/10W,TP,1608	
SC6L	2203-000998	C-CER,CHIP;0.047nF,5%,50V,C0G,1608	
SCREW	6003-000276	SCREW-TAPTITE;BH,+,-,B,M3,L10,ZPC(WHT),S	
SL1L	2703-000404	INDUCTOR-SMD;220uH,10%,3225	
SPK1	3716-001243	TERMINAL-BLOCK;-,12P,14mm,-,-	
SW5	3404-000165	SWITCH-TACT;12V,50mA,160gf,6x6mm,SPST	
UC1	2401-001952	C-AL;4.7uF,20%,50V,GP,TP,5x7mm,5mm	
UC17	2203-000972	C-CER,CHIP;47nF,10%,16V,X7R,1608	
UC3	2409-000123	C-EDL;47000uF,4uA,5.5V,-,BK,-,5mm	
UC57	2401-003221	C-AL;100uF,20%,16V,GP,TP,8X5,2.5	
UC58	2401-000485	C-AL;10UF,20%,50V,GP,TP,6.3X5MM,2.5	
UC6	2401-000759	C-AL;220nF,20%,50V,GP,TP,5x11mm,5mm	
UC62	2203-000236	C-CER,CHIP;0.1nF,5%,50V,C0G,1608	
UC64	2203-000975	C-CER,CHIP;47nF,10%,25V,X7R,TP,1608,-	
UD10	0401-001099	DIODE-SWITCHING;1N4148WS,75V,150mA,SOD-3	
UD11	0404-000156	DIODE-SCHOTTKY;RB441Q,40V,350MA,DO-34,TP	
UIC1	0903-001405	IC-MICROCONTROLLER;LC87F5CC8A,8Bit,QFP,1	
UIC2	1003-001708	IC-VFD;S5G5128A,LQFP,64P,1063MIL,-,-,	
UR15	2007-001010	R-CHIP;51Kohm,5%,1/10W,TP,1608	
UR2	2007-000402	R-CHIP;150ohm,5%,1/10W,TP,1608	
UR25	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	
UR53	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	
USB	3722-002313	JACK-USB;4P/1C,AU30U,BLK,STRAIGHT,A TYP	
VC11	2401-000414	C-AL;10uF,20%,16V,GP,TP,4x7,5	
VC20	2401-000918	C-AL;22uF,20%,16V,GP,-,6.3x7,5	
VC38	2401-001092	C-AL;330uF,20%,10V,GP,-,8x11.5,2.5m	
VFD	AH07-00188A	VF DISPLAY;HNV-12SN02T,HT-Q20,104.14X16.	
VFD-H	AH61-02114A	HOLDER-VFD;HT-Q20,ABS,-,-,-,-,-	
VIC1	1204-001978	IC-VIDEO PROCESS;LA73054,-,36P,-,SSOP,7V	
VJ4	3722-002283	JACK-SCART;21P+3P,-,SN,BLK,-	
VJ5	3722-002042	JACK-PIN;2P/2C,NI,WHT/RED,ANGLE	
VJP2	2007-000029	R-CHIP;0ohm,5%,1/8W,TP,2012	
VL20	2703-000275	INDUCTOR-SMD;33UH,10%,2012	
VL27	2703-002238	INDUCTOR-SMD;1UH,5%,2012	
VQ10	0504-000152	TR-DIGITAL;KSR2101,PNP,200mW,4.7K/4.7K,S	
VQ11	0501-002184	TR-SMALL SIGNAL;KTD1304,NPN,200mW,SOT-23	
VQ7	0501-000341	TR-SMALL SIGNAL;KSC1623-L,NPN,200mW,SOT-	
VR38	2007-000082	R-CHIP;3.3Kohm,5%,1/10W,TP,1608	
VR39	2007-000119	R-CHIP;560ohm,5%,1/10W,TP,1608	
VR62	2007-000309	R-CHIP;10ohm,5%,1/10W,TP,1608	
VR8	2007-001167	R-CHIP;75ohm,5%,1/10W,TP,1608	
VR9	2007-000125	R-CHIP;3.9Kohm,5%,1/10W,TP,1608	
X1	2801-004284	CRYSTAL-SMD;27MHZ,10PPM,28-AAN,20PF,30OH	
X2	2801-003863	CRYSTAL-UNIT;48MHz,30ppm,28-AAA,18pF,80o	
XD4	0401-001110	DIODE-SWITCHING;-,80V,100MA,SOD-523,TP	
X-TAL	2802-001174	RESONATOR-CERAMIC;10MHZ,0.5%,BK,8X3.5X3M	
ZD1	0403-001062	DIODE-ZENER;UDZ4.7B,4.55-4.75V,200MW,SOD	
AH61-02325A		BRACKET-AMP;HT-X30,SECC,T0.5,-,-,-,-	
6502-001048		CABLE CLAMP;DACW130,-,T1.0,PE,BLK	
AH39-40001V		CABLE-AUDIO CABLE;-,-,1P-1P,3000mm,-,-,-	
AH42-00021A		ANT FM T;T18011F-1,75 ohm,1800mm	
AH39-00257F		CBF-POWER CORD;MAX980,-,CP2,250V,2.5A,18	
3809-001955		CABLE-FLAT;-,80C,180MM,22P,1.25mm,-	
AH92-02678A		ASSY PCB-FRONT;HT-X30EUROPE,HT-X30EUROPE	
AH44-00148A		SMPS;HT-X30,ORTP-616,AC/DC,800W(Aud	
AH69-01875B		MASTER CARTON;HT-X30/EXP,PEPER,-,-,-,-,-	
AH92-02682A		ASSY PCB-MAIN;HT-X30EUROPE,HT-X30EUROPE,	
AH92-02694A		ASSY PCB-AMP;HT-X30EUROPE,HT-X30EUROPE,-	
AH97-02155A		ASSY DVD DECK-SDM D1FL;BASIC-TYPE,CMS-S7	

9. Block Diagram

1. Block

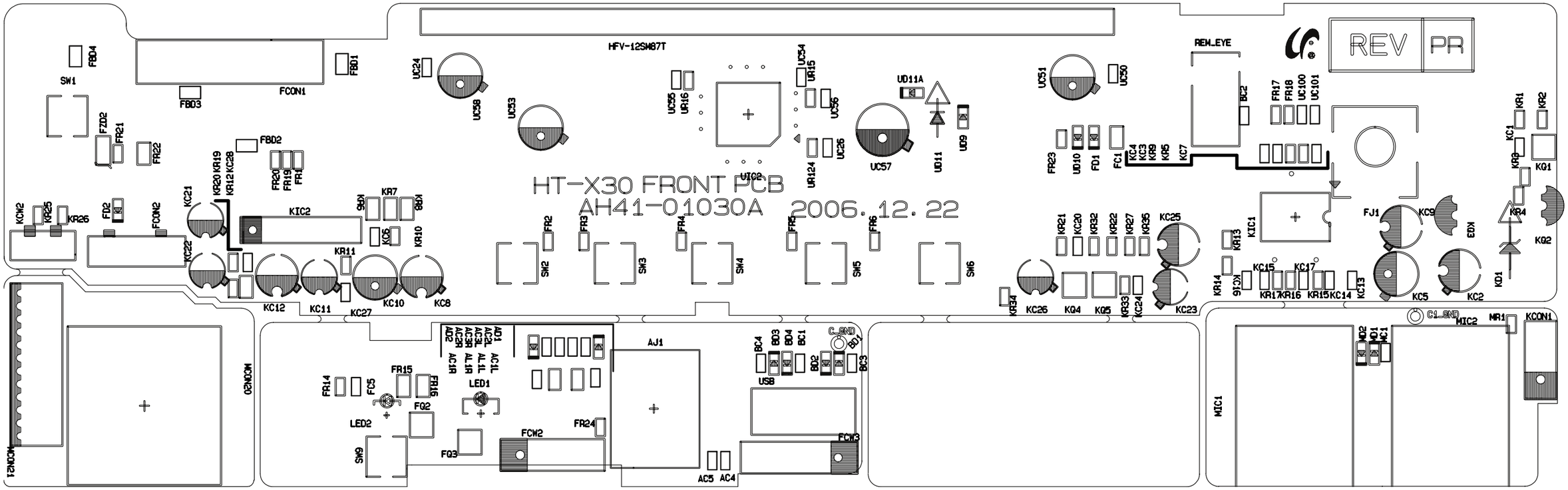


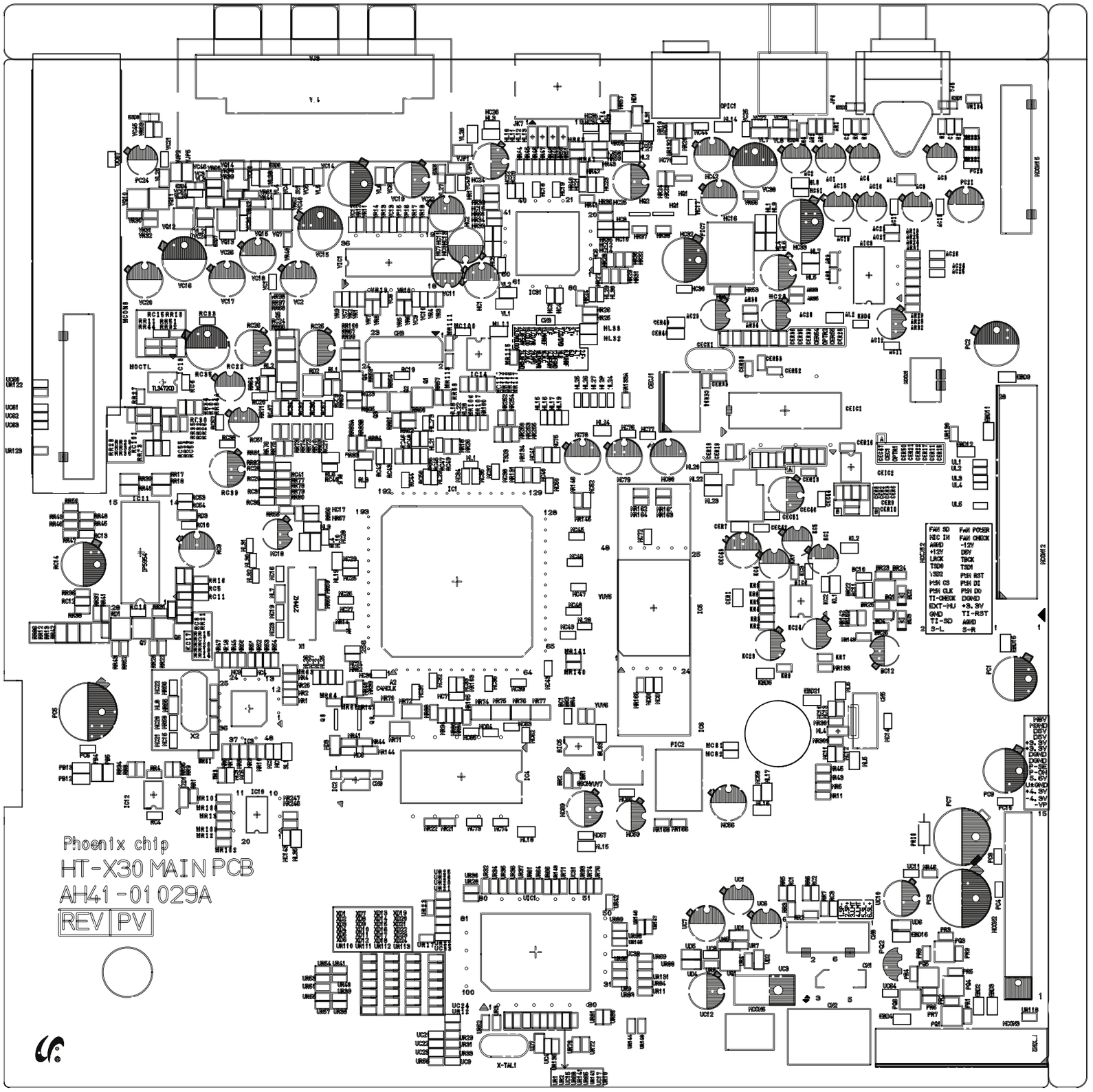
10. Wiring Diagram

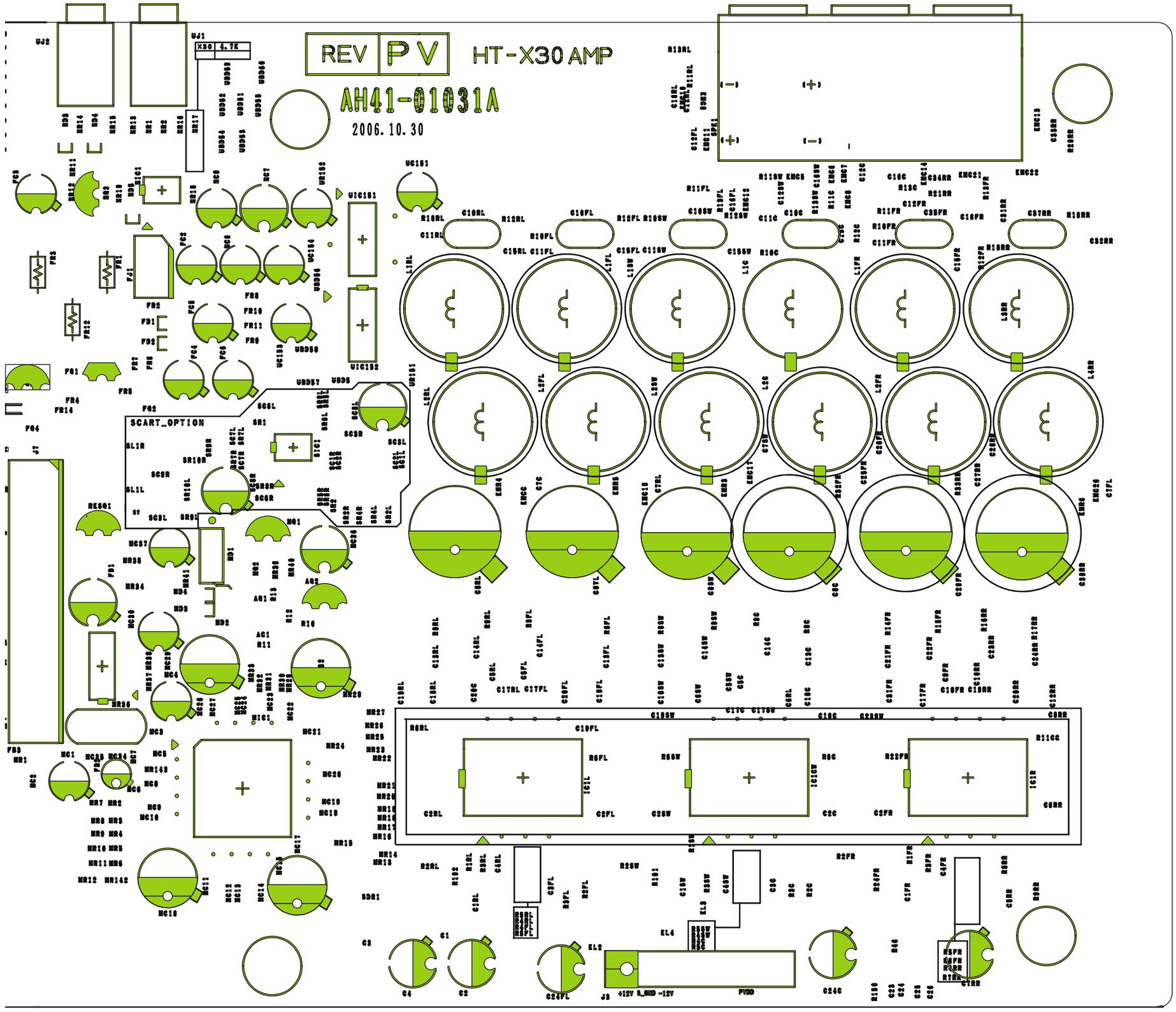


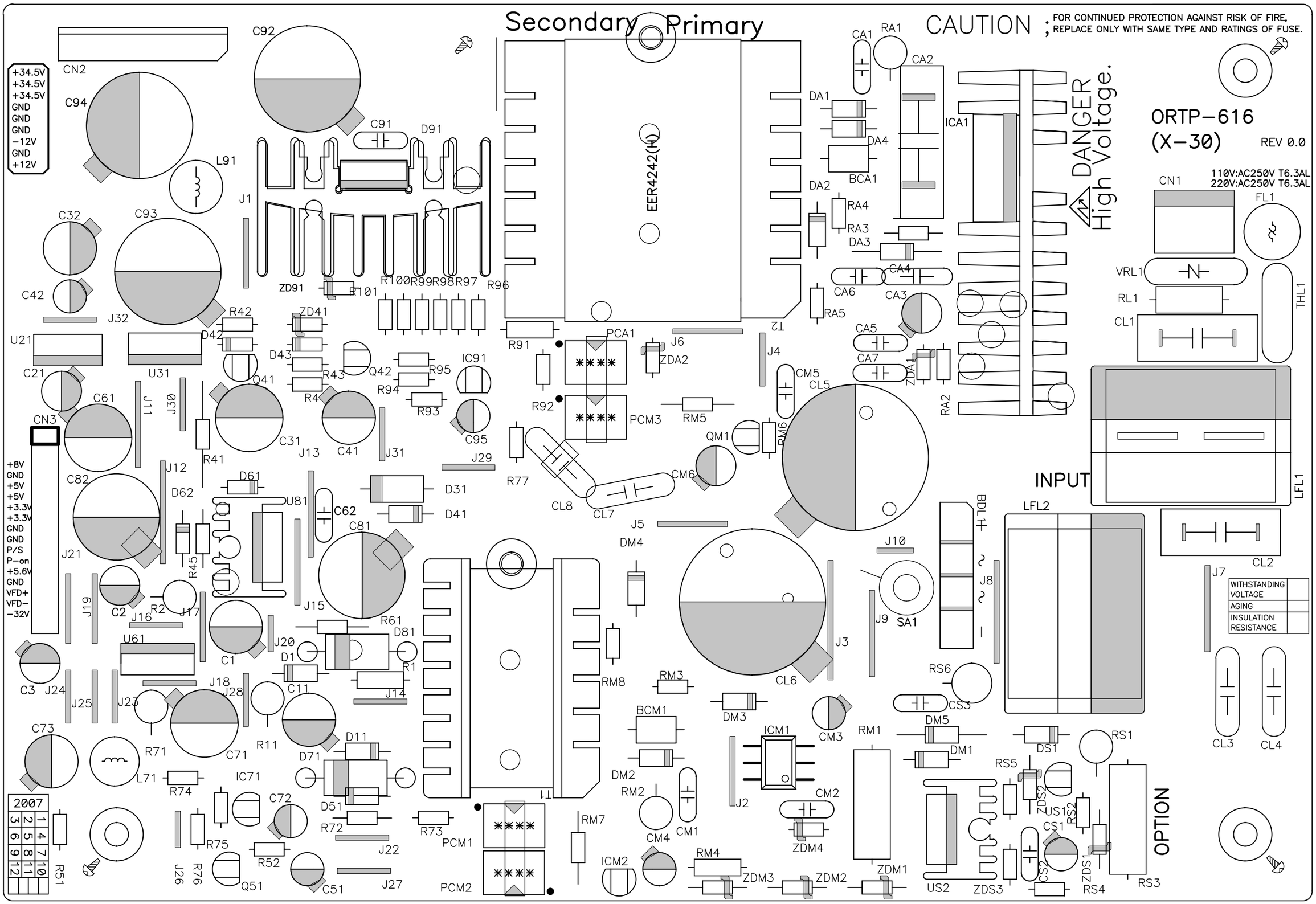
11. PCB Diagram

1. PCB FRONT

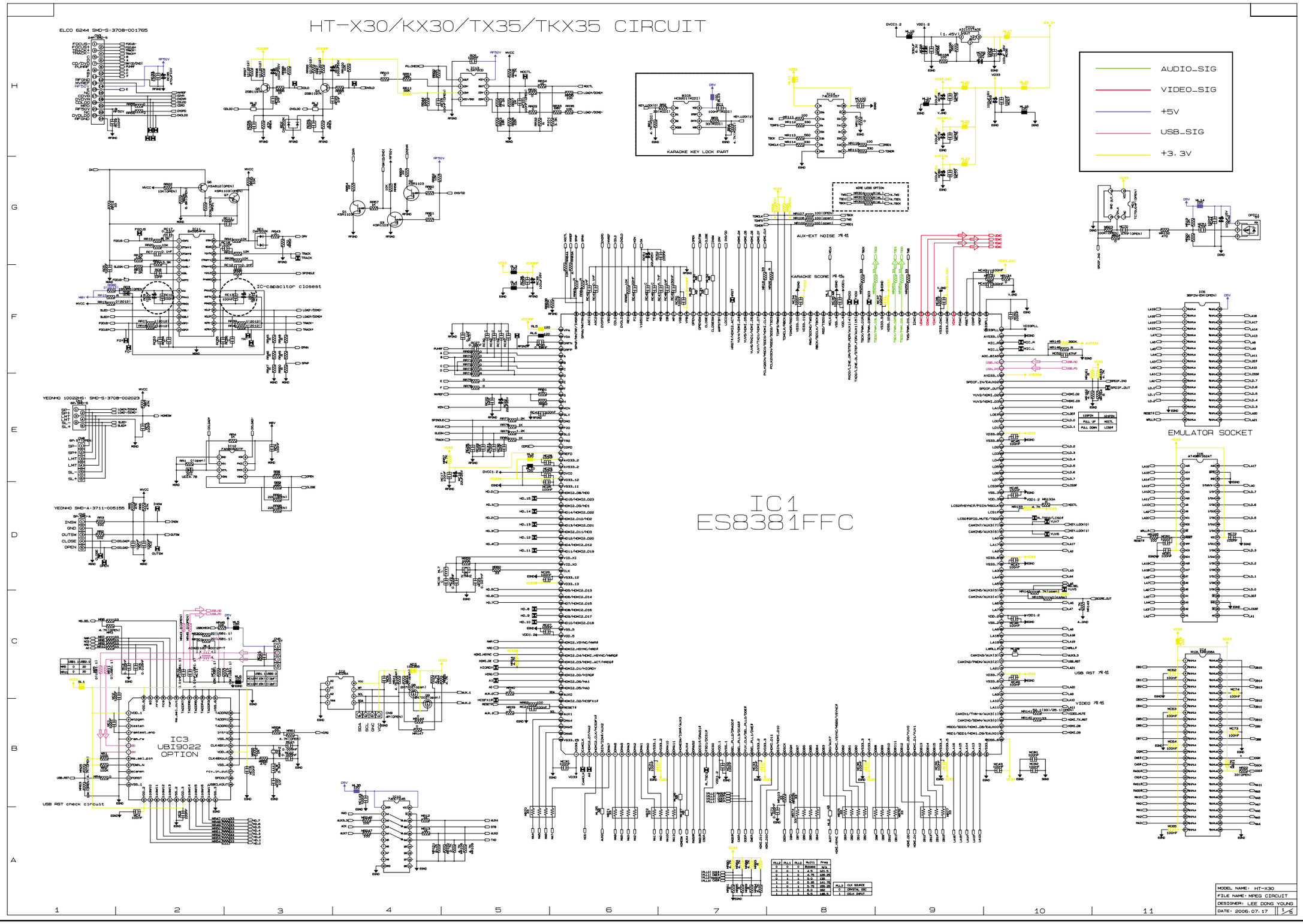



Phoenix chip
HT-X30 MAIN PCB
AH41-01029A
REV PV

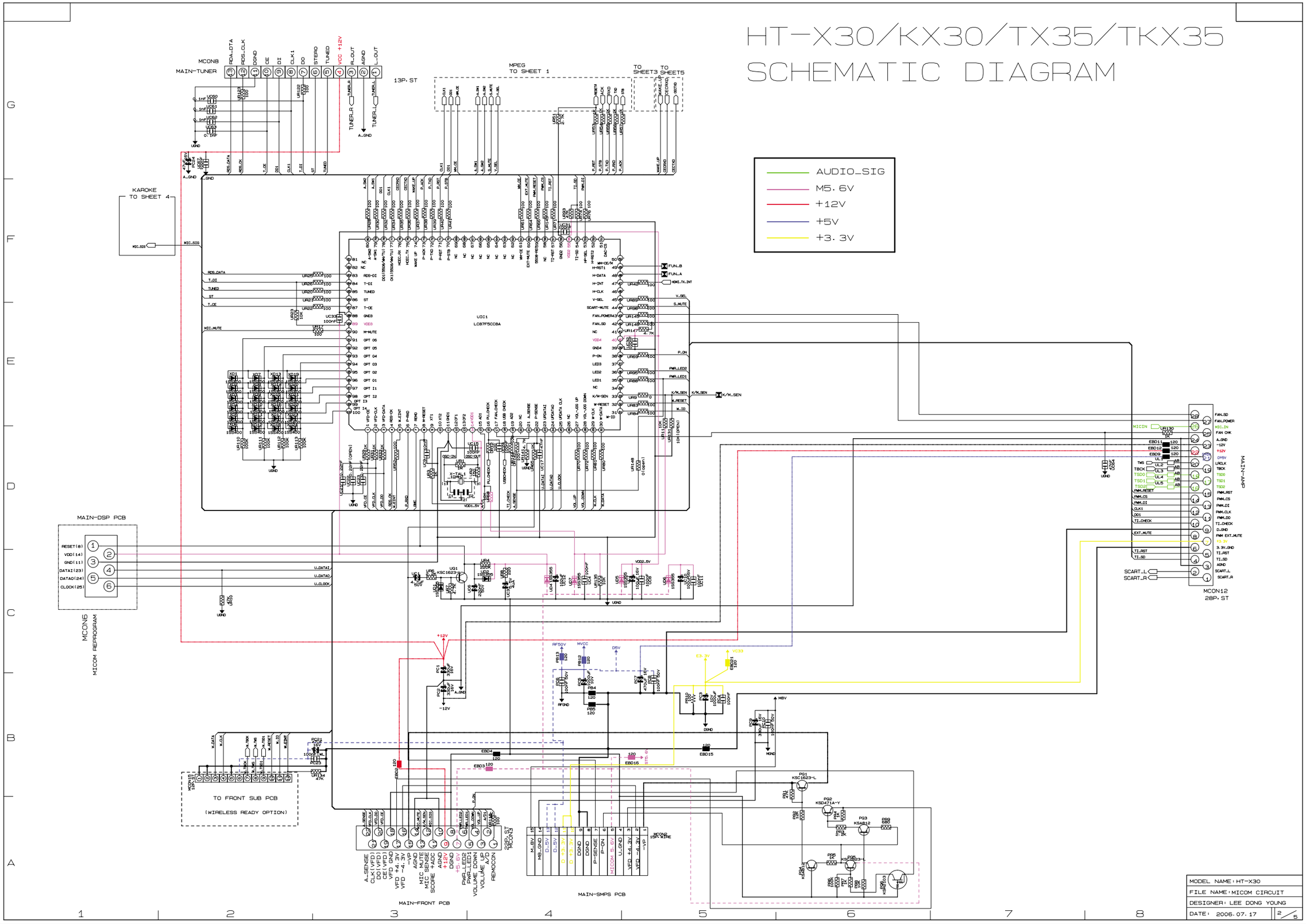

REV PV
HT-X30 AMP
AH41-01031A
2006.10.30
SCART_OPTION


Secondary
Primary
CAUTION ; FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE AND RATINGS OF FUSE.
DANGER High Voltage.
ORTP-616
(X-30)
REV 0.0
110V:AC250V T6.3AL
220V:AC250V T6.3AL
INPUT
OPTION
EER4242(H)
+34.5V
+34.5V
+34.5V
GND
GND
GND
-12V
GND
+12V
+8V
GND
+5V
+5V
+3.3V
+3.3V
GND
GND
P/S
P-on
+5.6V
GND
VFD+
VFD-
-32V
WITHSTANDING VOLTAGE
AGING
INSULATION RESISTANCE
2007
CN1
CN2
CN3
FL1
VRL1
RL1
CL1
THL1
LFL1
LFL2
CL2
CL3
CL4
SA1
BDL1
PCA1
PCM1
PCM2
PCM3
ICA1
BCA1
ICM1
ICM2
BCM1
T1
T2
IC71
IC91
QM1
Q41
Q42
Q51
U21
U31
U61
U81
J32
ZD91
ZD41
ZDA1
ZDA2
ZDM1
ZDM2
ZDM3
ZDM4
ZDS1
ZDS2
ZDS3
US1
US2
L71
L91
U11
U12
U13
U14
U15
U16
U17
U18
U19
U20
U21
U22
U23
U24
U25
U26
U27
U28
U29
U30
U31
J1
J2
J3
J4
J5
J6
J7
J8
J9
J10
J11
J12
J13
J14
J15
J16
J17
J18
J19
J20
J21
J22
J23
J24
J25
J26
J27
J28
J29
J30
J31
C1
C2
C3
C11
C21
C31
C32
C41
C42
C51
C61
C62
C71
C72
C73
C81
C82
C91
C92
C93
C94
C95
D1
D11
D31
D41
D42
D43
D51
D61
D62
D71
D81
D91
R1
R2
R4
R11
R41
R42
R43
R45
R51
R52
R61
R71
R72
R73
R74
R75
R76
R77
R91
R92
R93
R94
R95
R96
R97
R98
R99
R100
R101
RA1
RA2
RA3
RA4
RA5
RM1
RM2
RM3
RM4
RM5
RM6
RM7
RM8
RS1
RS2
RS3
RS4
RS5
RS6
CA1
CA2
CA3
CA4
CA5
CA6
CA7
CM1
CM2
CM3
CM4
CM5
CM6
CL5
CL6
CL7
CL8
CS1
CS2
CS3
DA1
DA2
DA3
DA4
DM1
DM2
DM3
DM4
DM5
DS1

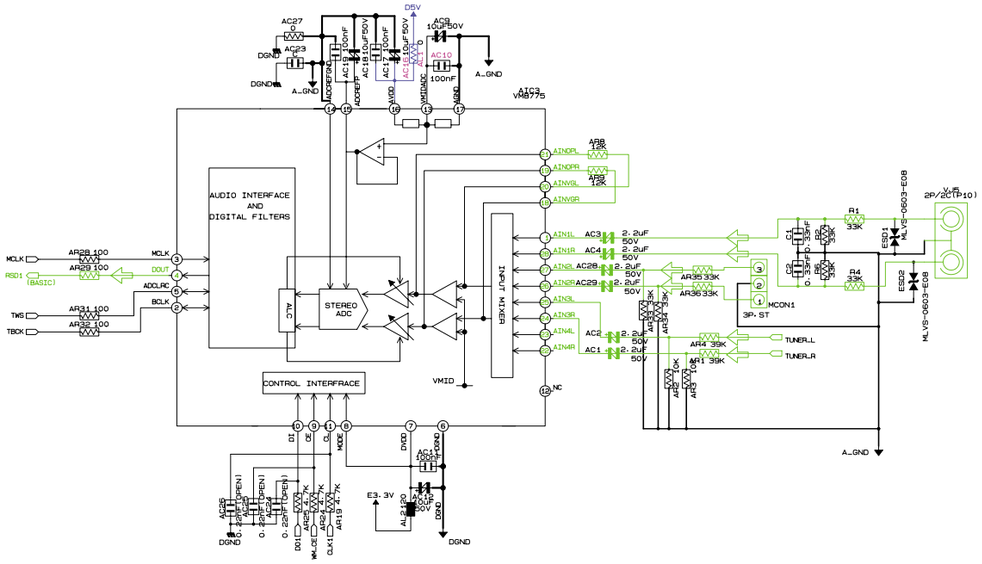
1-1. MAIN

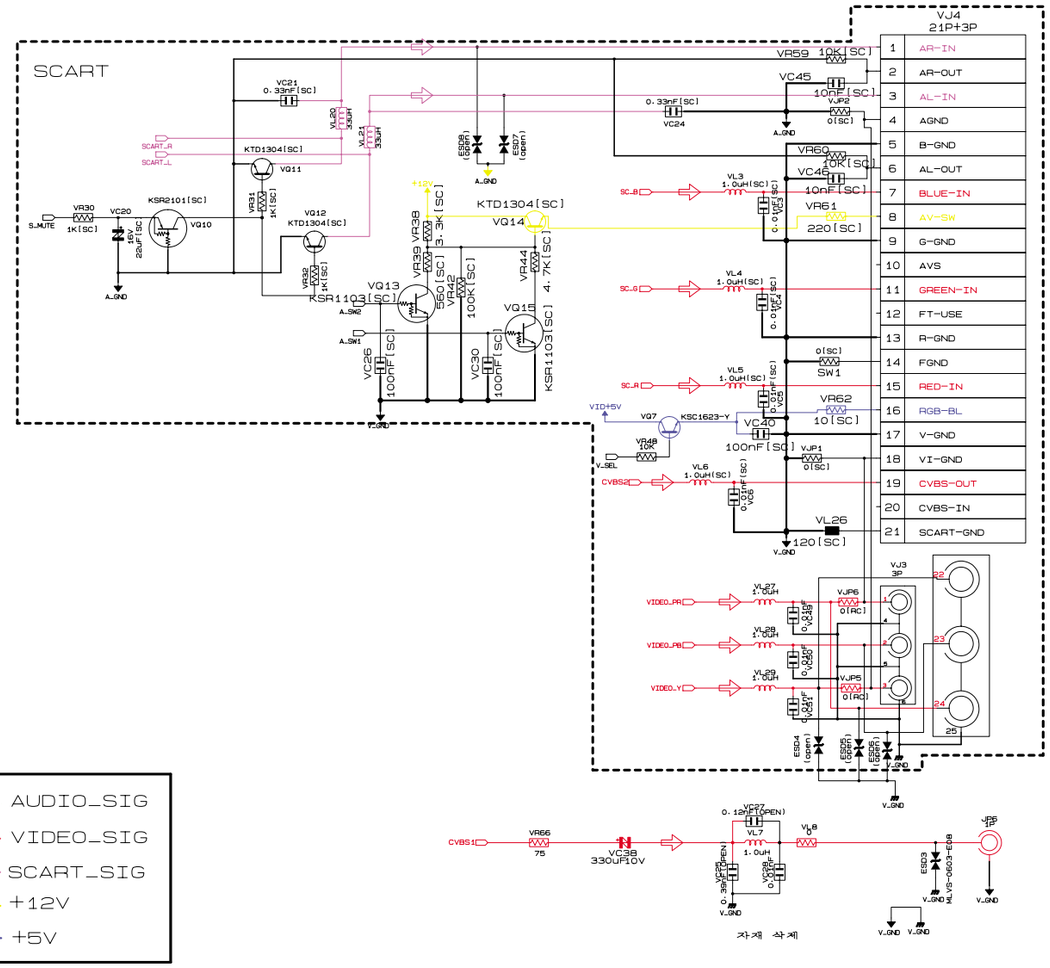

HT-X30/KX30/TX35/TKX35 CIRCUIT
AUDIO_SIG
VIDEO_SIG
+5V
USB_SIG
+3.3V
IC1
ES8381FFC
KARAOKE KEY LOCK PART
IC-capacitor closest
IC3
UBI9022
OPTION
USB RST check circuit
EMULATOR SOCKET
KARAOKE SCORE
AUX-EXT NOISE
USB RST 개선
VIDEO 개선
MODEL NAME: HT-X30
FILE NAME: MPEG CIRCUIT
DESIGNER: LEE DONG YOUNG
DATE: 2006.07.17

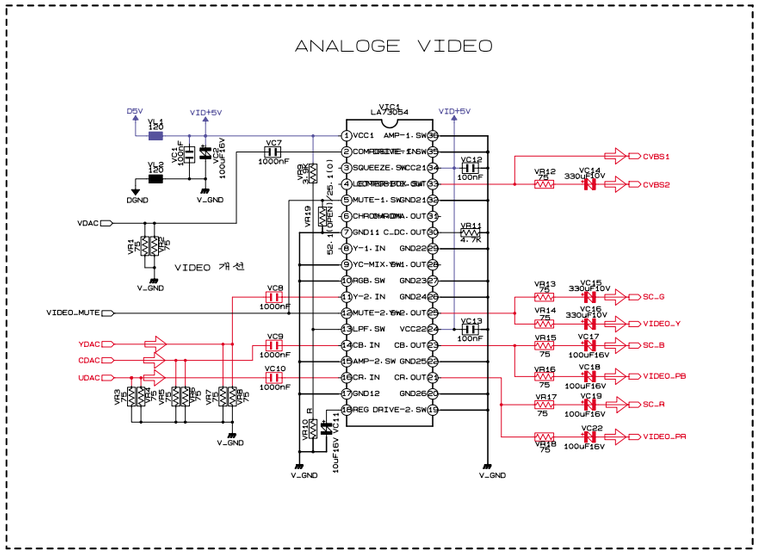
HT-X30/KX30/TX35/TKX35
SCHEMATIC DIAGRAM



HT-X30/KX30/TX35/TKX35 CIRCUIT



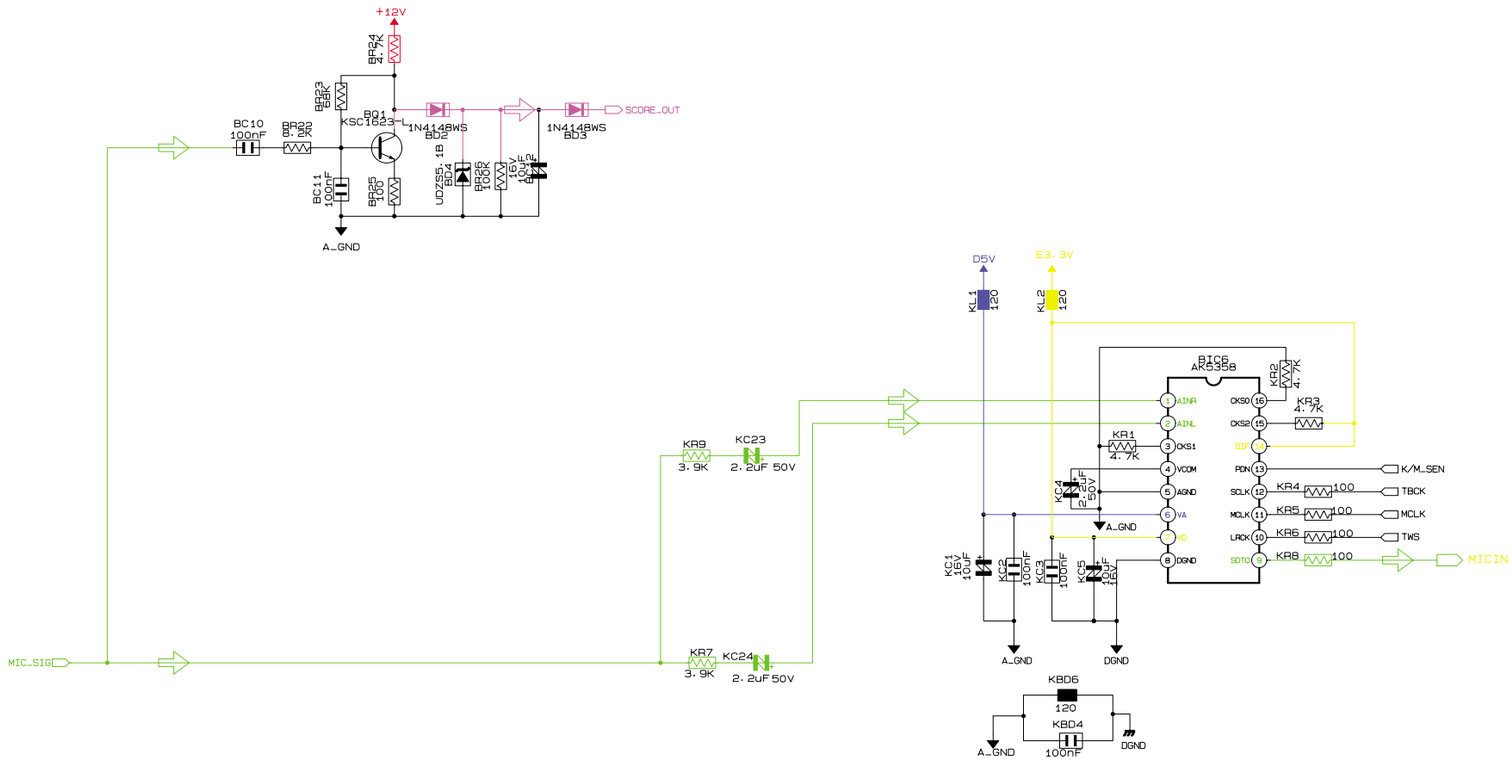




AUDIO_SIG
VIDEO_SIG
SCART_SIG
+12V
+5V

MODEL NAME :	HT-X30
FILE NAME :	AUX/VIDEO CIRCUIT
DESIGNER :	LEE DONG YOUNG
DATE :	2006.07.17
	3/5

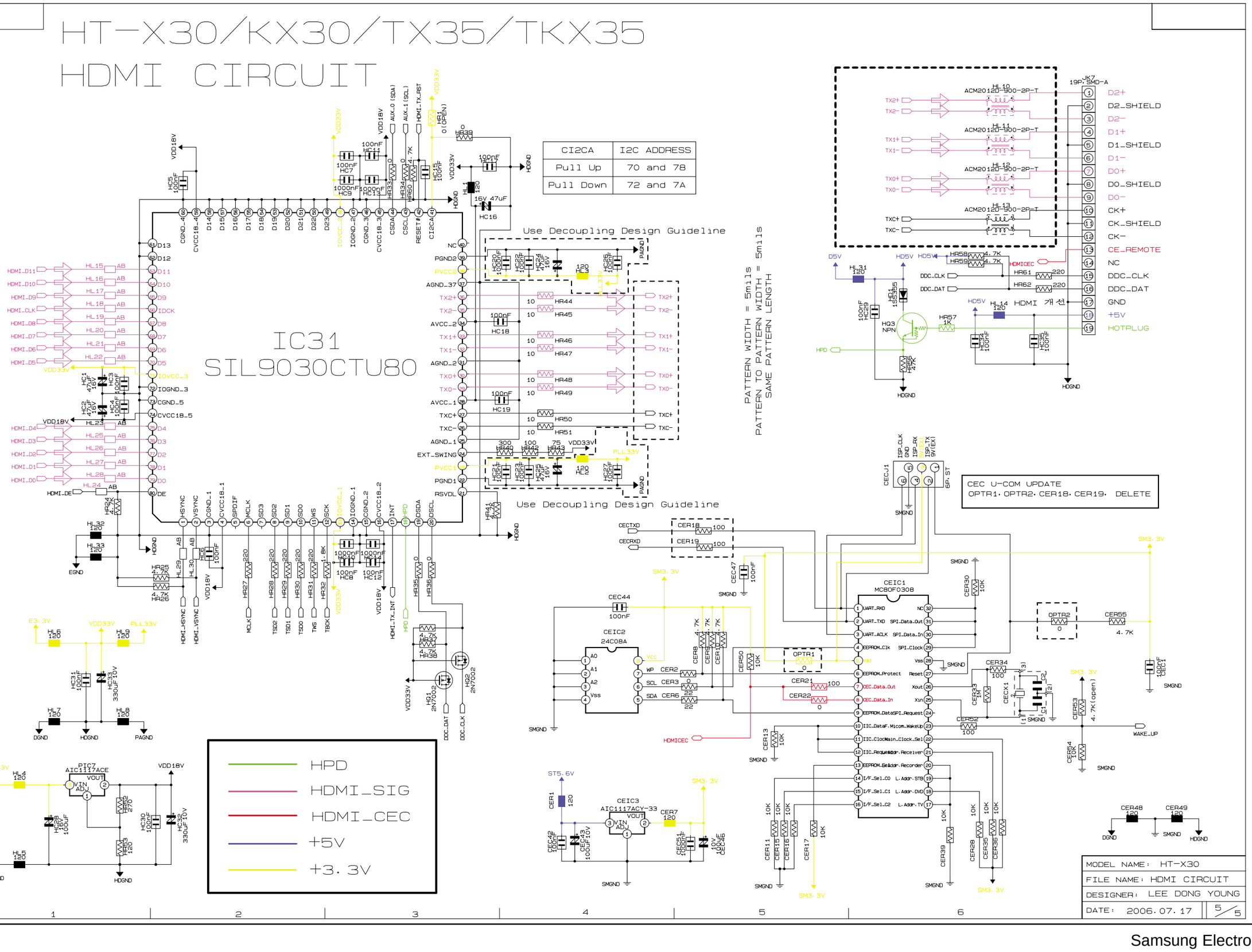
MIC PART(X30/KX30/TX35/TKX35)

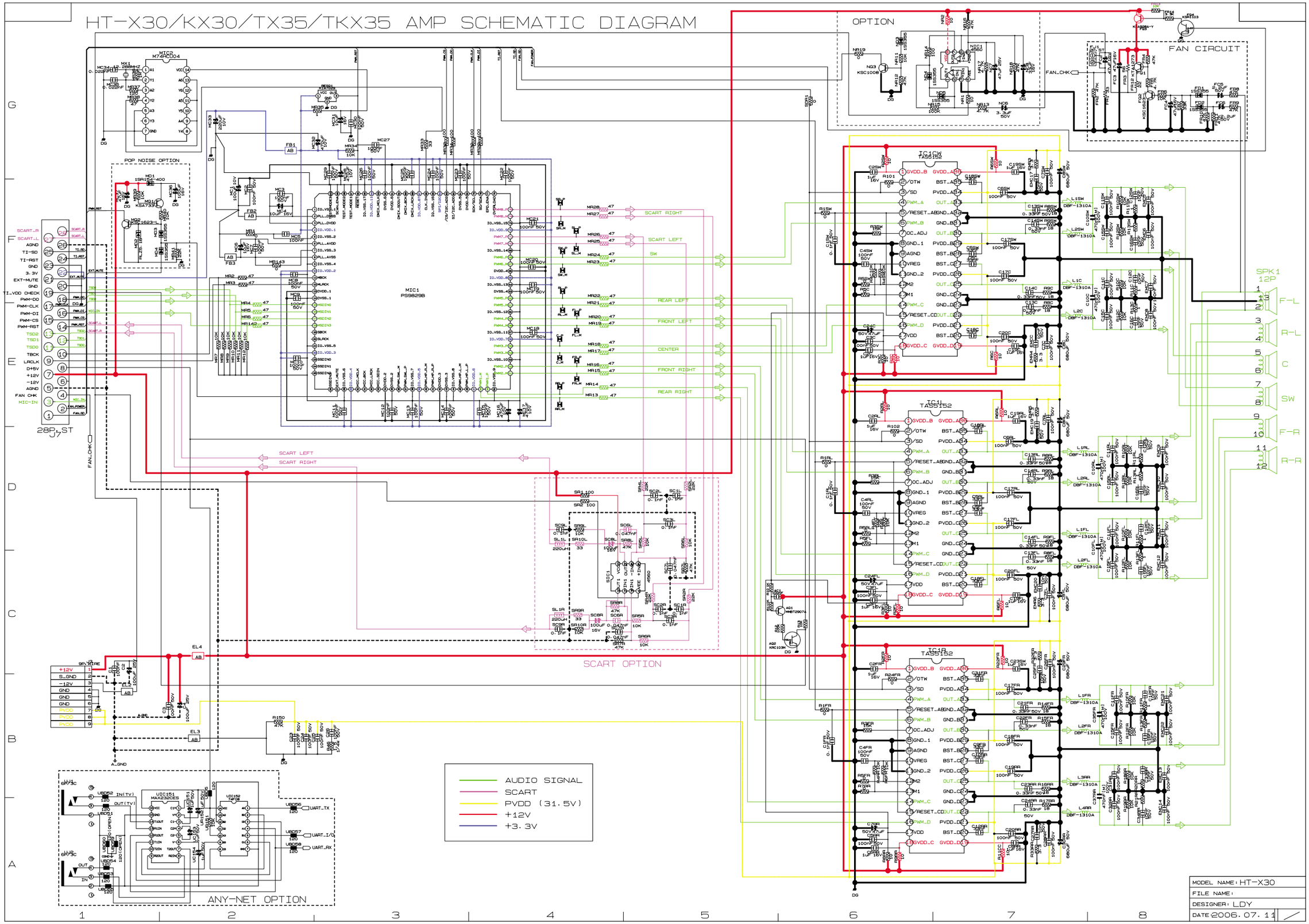


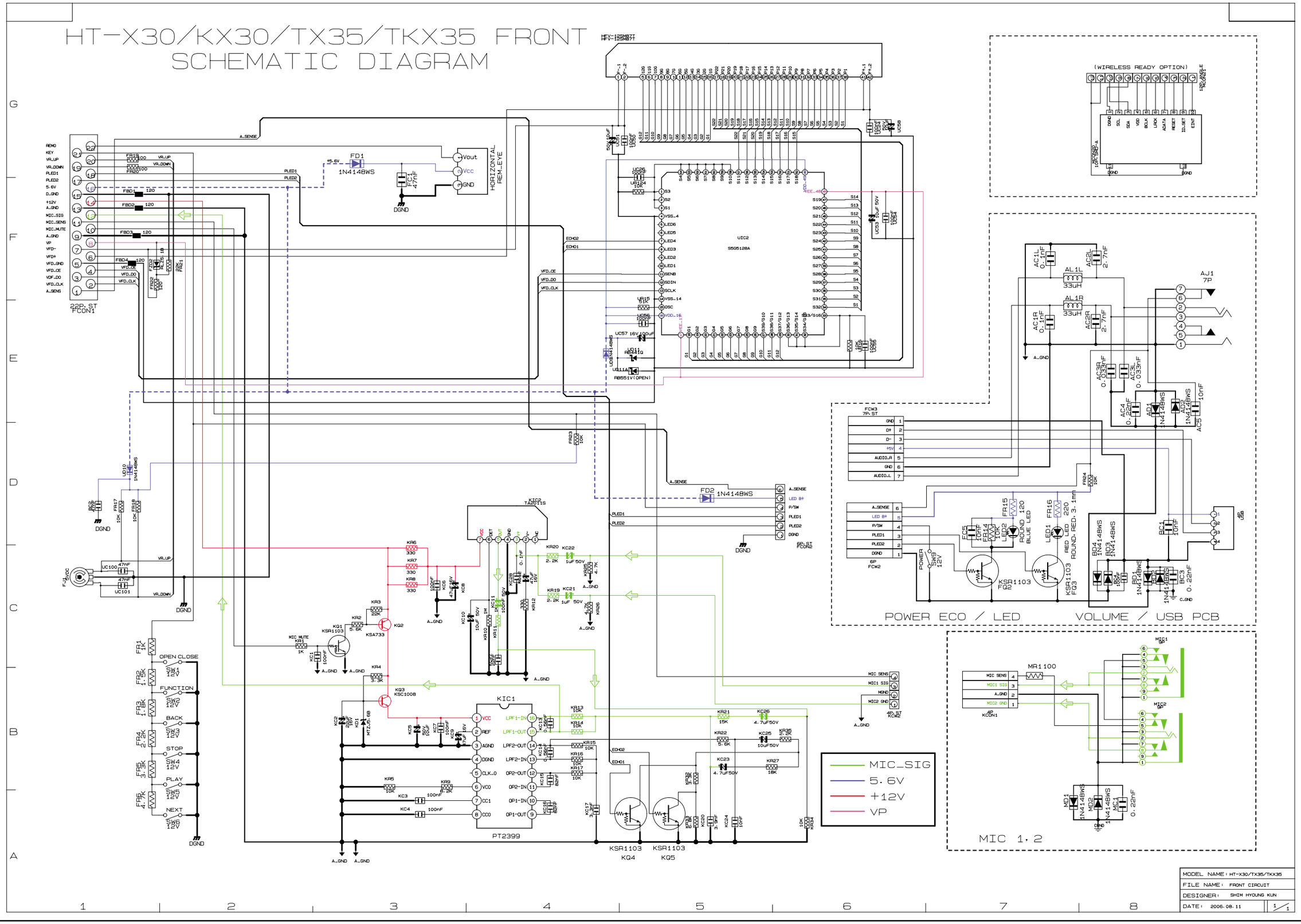
MIC_SIG
SCORE_OUT
+12V
+5V
+3.3V

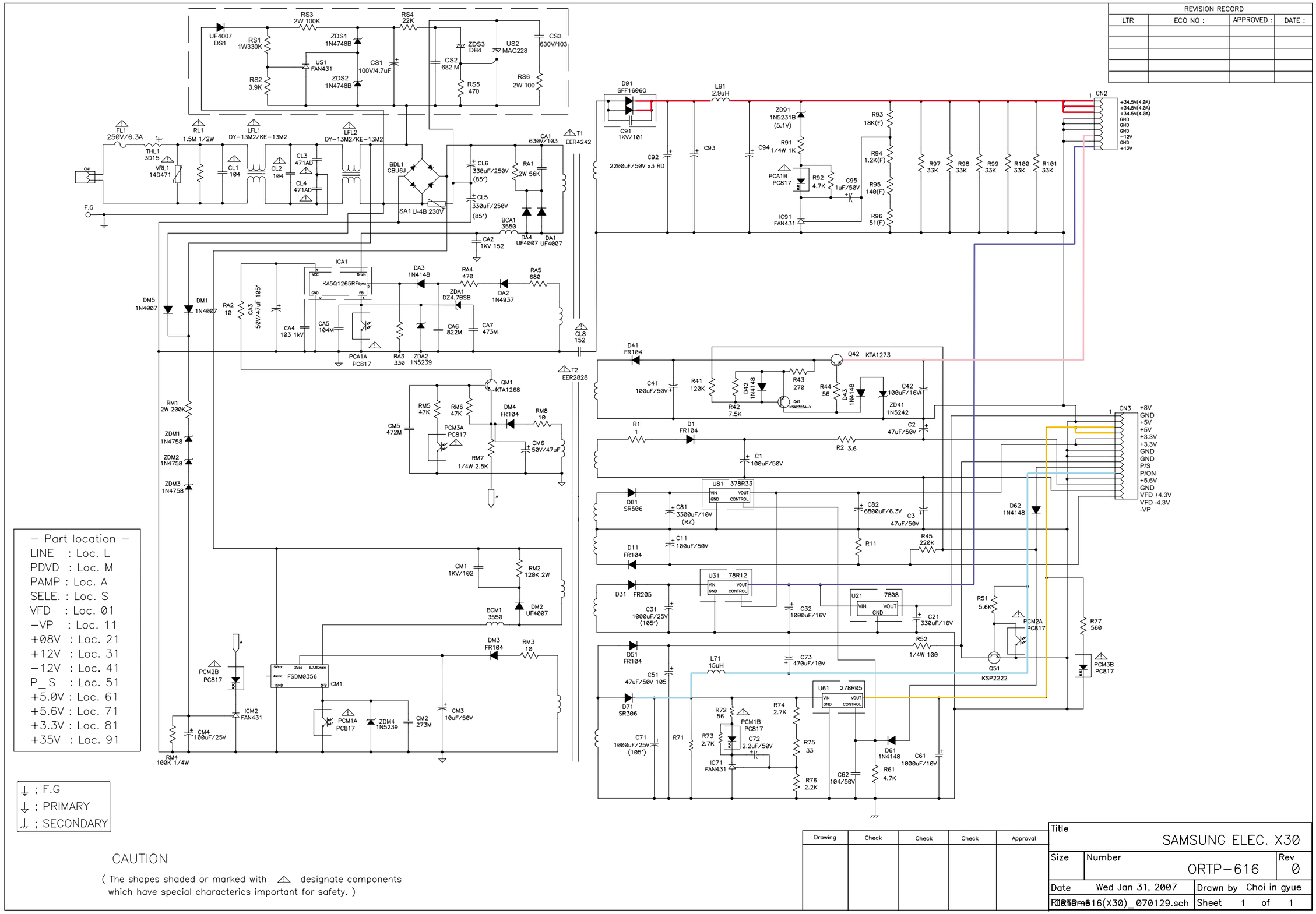
MODEL NAME :	HT-X30
FILE NAME :	SEMI/MIDI KARAOKE CIRCUIT
DESIGNER :	LEE DONG YOUNG
DATE :	2006.07.17
	4/5

HT-X30/KX30/TX35/TKX35
HDMI CIRCUIT



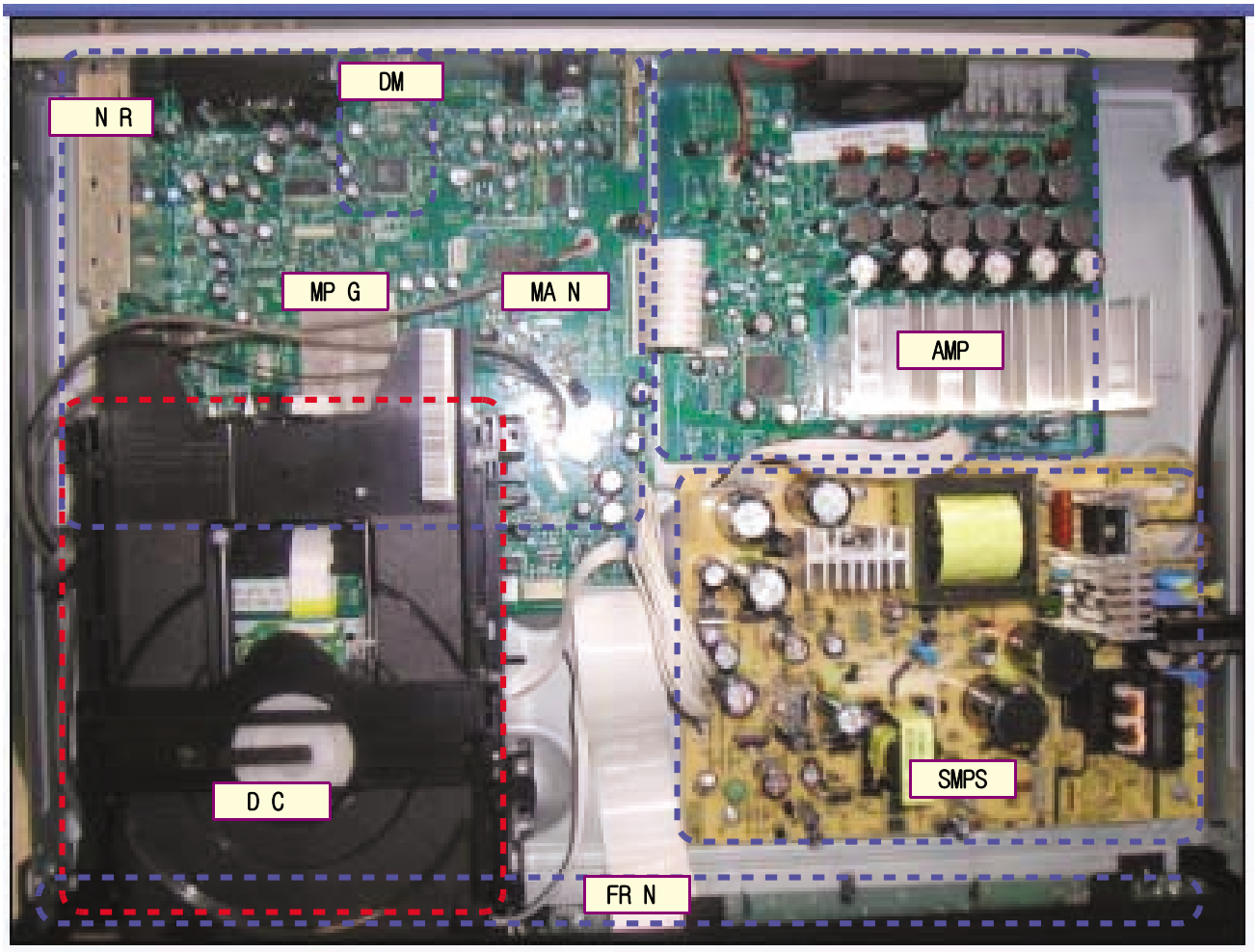

HT-X30/KX30/TX35/TKX35 AMP SCHEMATIC DIAGRAM
OPTION
FAN CIRCUIT
FAN_CHK
POP NOISE OPTION
MIC1
PS9823B
TC1CW
TAS5152
TC1F
TC1R
SCART RIGHT
SCART LEFT
SW
REAR LEFT
FRONT LEFT
CENTER
FRONT RIGHT
REAR RIGHT
SCART OPTION
ANY-NET OPTION
UART_TX
UART_I/O
UART_RX
SPK1
12P
F-L
R-L
C
SW
F-R
R-R
28P_ST
9P_WIRE
AUDIO SIGNAL
SCART
PVDD (31.5V)
+12V
+3.3V
MODEL NAME: HT-X30
FILE NAME:
DESIGNER: LDY
DATE: 2006. 07. 11


HT-X30/KX30/TX35/TKX35 FRONT
SCHEMATIC DIAGRAM
HEV-1SSM87T
(WIRELESS READY OPTION)
UIC2
S5651128A
PT2399
KIC1
POWER ECO / LED
VOLUME / USB PCB
MIC 1.2
MIC_SIG
5.6V
+12V
VP
MODEL NAME : HT-X30/TX35/TKX35
FILE NAME : FRONT CIRCUIT
DESIGNER : SHIM HYOUNG KUN
DATE : 2006.08.11


REVISION RECORD
LTR
ECO NO :
APPROVED :
DATE :
RS3 2W 100K
RS4 22K
UF4007 DS1
RS1 1W330K
ZDS1 1N4748B
ZDS3 DB4
US2 MAC228
CS3 630V/103
US1 FAN431
CS1 100V/4.7uF
CS2 682 M
RS2 3.9K
ZDS2 1N4748B
RS5 470
RS6 2W 100
FL1 250V/6.3A
RL1 1.5M 1/2W
LFL1 DY-13M2/KE-13M2
LFL2 DY-13M2/KE-13M2
THL1 3D15
VRL1 14D471
CL1 104
CL2 104
CL3 471AD
CL4 471AD
BDL1 GBU6J
CL6 330uF/250V (85')
CL5 330uF/250V (85')
SA1 U-4B 230V
CA1 630V/103
T1 EER4242
RA1 2W 56K
BCA1 3550
DA4 UF4007
DA1 UF4007
CA2 1KV 152
F.G
ICA1
KA5Q1265RF
DA3 1N4148
RA4 470
ZDA1 DZ4.7BSB
DA2 1N4937
RA5 680
DM5 1N4007
DM1 1N4007
RA2 10
CA3 50V/47uF 105'
CA4 103 1kV
CA5 104M
CA6 822M
CA7 473M
CL8 152
PCA1A PC817
RA3 330
ZDA2 1N5239
T2 EER2828
QM1 KTA1268
RM5 47K
RM6 47K
DM4 FR104
RM8 10
CM5 472M
PCM3A PC817
RM7 1/4W 2.5K
CM6 50V/47uF
RM1 2W 200K
ZDM1 1N4758
ZDM2 1N4758
ZDM3 1N4758
CM1 1KV/102
RM2 120K 2W
BCM1 3550
DM2 UF4007
DM3 FR104
RM3 10
PCM2B PC817
FSDM0356
ICM1
ICM2 FAN431
PCM1A PC817
ZDM4 1N5239
CM2 273M
CM3 10uF/50V
CM4 100uF/25V
RM4 100K 1/4W
D91 SFF1606G
L91 2.9uH
C91 1KV/101
C92 2200uF/50V x3 RD
C93
ZD91 1N5231B (5.1V)
R91 1/4W 1K
C94
PCA1B PC817
R92 4.7K
C95 1uF/50V
IC91 FAN431
R93 18K(F)
R94 1.2K(F)
R95 140(F)
R96 51(F)
R97 33K
R98 33K
R99 33K
R100 33K
R101 33K
CN2
+34.5V(4.0A)
+34.5V(4.0A)
+34.5V(4.0A)
GND
GND
GND
-12V
GND
+12V
D41 FR104
C41 100uF/50V
R41 120K
D42 1N4148
Q42 KTA1273
R43 270
R44 56
D43 1N4148
C42 100uF/16V
R42 7.5K
Q41 KSA2328A-Y
ZD41 1N5242
R1 1
D1 FR104
C2 47uF/50V
R2 3.6
C1 100uF/50V
U81 378R33
D81 SR506
C81 3300uF/10V (RZ)
C82 6800uF/6.3V
C3 47uF/50V
D62 1N4148
C11 100uF/50V
R11
R45 220K
D11 FR104
U31 78R12
D31 FR205
C31 1000uF/25V (105')
C32 1000uF/16V
U21 780B
C21 330uF/16V
R51 5.6K
PCM2A PC817
R77 560
R52 1/4W 100
Q51 KSP2222
PCM3B PC817
D51 FR104
C51 47uF/50V 105
L71 15uH
C73 470uF/10V
U61 278R05
D71 SR306
C71 1000uF/25V (105')
R71
R72 56
PCM1B PC817
R73 2.7K
C72 2.2uF/50V
IC71 FAN431
R74 2.7K
R75 33
R76 2.2K
D61 1N4148
C61 1000uF/10V
R61 4.7K
C62 104/50V
CN3
+8V
GND
+5V
+5V
+3.3V
+3.3V
GND
GND
P/S
P/ON
+5.6V
GND
VFD +4.3V
VFD -4.3V
-VP
– Part location –
LINE : Loc. L
PDVD : Loc. M
PAMP : Loc. A
SELE. : Loc. S
VFD : Loc. 01
–VP : Loc. 11
+08V : Loc. 21
+12V : Loc. 31
–12V : Loc. 41
P_S : Loc. 51
+5.0V : Loc. 61
+5.6V : Loc. 71
+3.3V : Loc. 81
+35V : Loc. 91
; F.G
; PRIMARY
; SECONDARY
CAUTION
(The shapes shaded or marked with ⚠ designate components which have special characterics important for safety.)
Drawing
Check
Check
Check
Approval
Title
SAMSUNG ELEC. X30
Size
Number
ORTP-616
Rev
0
Date
Wed Jan 31, 2007
Drawn by
Choi in gyue
File
ORTP-616(X30)_070129.sch
Sheet
1
of
1

13. Circuit Board Description

1. Circuit Layout and Functions (HT-X30)



Blo k ype	Main Fun ions	Remarks
SMPS	AC Po er erminal and M C M Po er - he po er supplied ia he AC ord is ransferred o he Main Po er rans ia Pro e ion Cir ui s Fuse aris or e . in SMPS S and- y s a e . - When he AC ord is onne ed o an ou le S and- y dri e po er is supplied from SMPS o he Main Se for normal opera ion upon po er-on. Conne or Spe ifi a ions M : he C po er ha dri es he pen/Close of he M C A ray and Roule e /-. P-S NS : A erminal ha uses Po er-Sense o de e he her he AC ord is onne ed o an ou le . he S NS erminal should e se o in order o e re ogni ed y M C M for po er-on of he S Approx. 5 . P/ N: f he P W R- N erminal de e s P/S NS in M C M and po ers on he S his po er dri es SMPS o supply all po er o he Main PCB Approx. 5 . M C M5. :M C M 5. : ssues logi dri e po er for he Main M C M and FD Dri er C and urns on he Red D Approx. 5. . P: he nega i e dri e po er for he FD Dri er C Approx. -3 FDDC: Dri e Po er for he Filamen in FD Approx. . for ea h erminal upon po er-on D 5 : M C A Digi al Po er AD Con er er WM 5 Dri e Po er	- F S F1 : A - AR S R R1 :10D 1

Blo k ype	Main Fun ions	Remarks
MA N-PCB	Main M C M Se ion - 10 M s illa or - C : Shared y PS B WM 5 and uner. - Da a: Shared y PS B WM 5 S5G51 A and uner. a k PCB Se ion Con rol Se ion rela ed o arious ideo - npu : Audio 1 / Digi al N - u pu : Composi e / Componen /P /Pr e . DM Con rol C C Se ions - S 1 O X- C MC OF03 M C M	
FR N -PCB	Fron PCB Se ion - Con rols opera ion of he fron panel in luding FD dri e and D opera ion R M C N opera ion and Body eys opera ion. FD and FD Dri er C Cir ui - urns on he Red D upon s and- y and he Blue D upon po er-on. - Configures o her AD ir ui s s i hes . olume Cir ui - urns on he olume Blue D upon po er-on and opera es he Dimmer n/ ff Remo on.	

Blo k ype	Main Fun ions	Remarks
AMP-PCB	AMP Dri e Se ion - he 1 S da a from he MP G is inpu o he Modula or rou ed for PWM u y hannel and hen for analog ou pu ia he AMP C in he Full Bridge me hod. - mplemen s hannels of 133 W per a single AS515 C. Pro e ion Cir ui - De e s an a normal eha ior in ea h AMP C and sends an aler o he -SD M C M Por A i e o . - Pro e ion pera ion ypes Shor Cir ui : When a shor ir ui o urs e een /- SP u pu s or e een SP u pu s and Chassis. C er-Curren Pro e ion : When ex essi e urren is indu ed o u pu . er- empera ure Pro e ion : f he empera ure of he C un ion ex eeds 15 5 i should e kep ypi ally elo 1 5 . o e er his op ion is no ena led no . nder- ol age Pro e ion : Should e kep a o e he P hreshold. Fan Dri e Se ion - Si e: RDM5015S - o -le el pera ion: pon po er-on 1 po er is issued o opera e he Fan a lo le el. Fan Dri e ol age: Approx. .5 Fan Speed: Approx. 3 RPM Max.	
MP GP-PCB	MP G Dri e Se ion - S 3 1 - mplemen s DP D S DD and D D-A D .	