harman kardon

Model HS300

INTEGRATED HOME THEATER SYSTEM

DVD/DVD-Audio/DVD±R/RW/CD/CD±R/VCD/SVCD Player
5 X 35W 5.1 CHANNEL A/V RECEIVER

Service Manual

- Contents -

harman/kardon, Inc.

250 Crossways Park Dr.

Released 2006 Woodbury, New York 11797 Rev0 7/2007

Discontinued XXXX

ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field effect transistors and semiconductor "chip" components.

The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge build-up or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical change sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material.)
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

   CAUTION : Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together or your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES devices.

PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing.

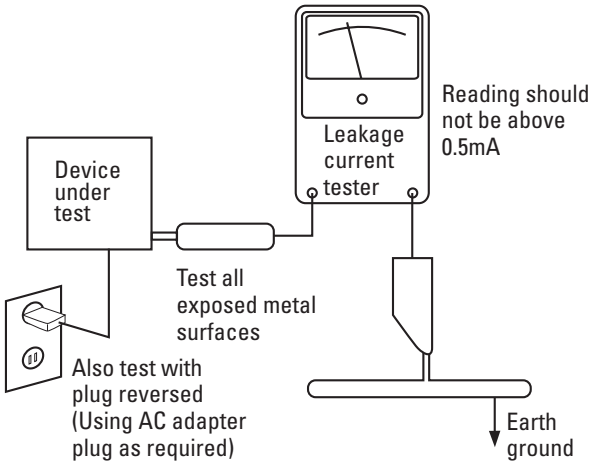
Components identified with the IEC symbol ⚠ in the parts list are special significance to safety. When replacing a component identified with ⚠, use only the replacement parts designated, or parts with the same ratings or resistance, wattage, or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before retuming the product to the customer.

SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed o.5mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

HS 300 TECHNICAL SPECIFICATIONS

DVD Player

Pickup:	Semiconductor laser, wavelength 650nm
Video signal system:	NTSC
Video signal horizontal resolution:	>480 lines (DVD)
Video signal-to-noise ratio:	>60dB (DVD)
Audio frequency response: (Stereo)	DVD (PCM): 20Hz – 22kHz (±1dB) CD (PCM): 20Hz – 20kHz (±1dB)
Audio signal-to-noise ratio:	>80dB (PCM)
Total harmonic distortion:	<0.01% (PCM)
Dynamic range:	DVD (PCM): >85dB (EIAJ, 2kHz) CD: >85dB (EIAJ)

FM Tuner

System:	PLL quartz-locked digital synthesizer system
Tuning range:	87.50 – 108.00MHz
Antenna terminals:	75 Ohms, unbalanced
Intermediate frequency:	10.7MHz

AM Tuner Section

Frequency range:	520 – 1720kHz
Signal-to-noise ratio:	45dB
Usable sensitivity:	Loop 500µV
Distortion:	1kHz, 50% Mod 0.8%
Selectivity:	±10kHz, 30dB

Video Outputs

Component video output:	Y: 1 Vp-p/75 ohms, sync negative polarity Pr: 0.7 Vp-p/75 ohms Pb: 0.7 Vp-p/75 ohms
Composite video output:	1 Vp-p/75 ohms
S-video output:	Y: 1 Vp-p/75 ohms C: NTSC 0.286 Vp-p/75 ohms

HDMI Output

Video: 480p, 720p, 1080i
HDMI Version 1.0-compliant
HDCP Version 1.1-compliant

Audio Section

Amplifer power:	35 Watts per channel, 20Hz – 20kHz, <0.5% THD into 6 ohms
Line output:	1 Vrms, 1 kilohm

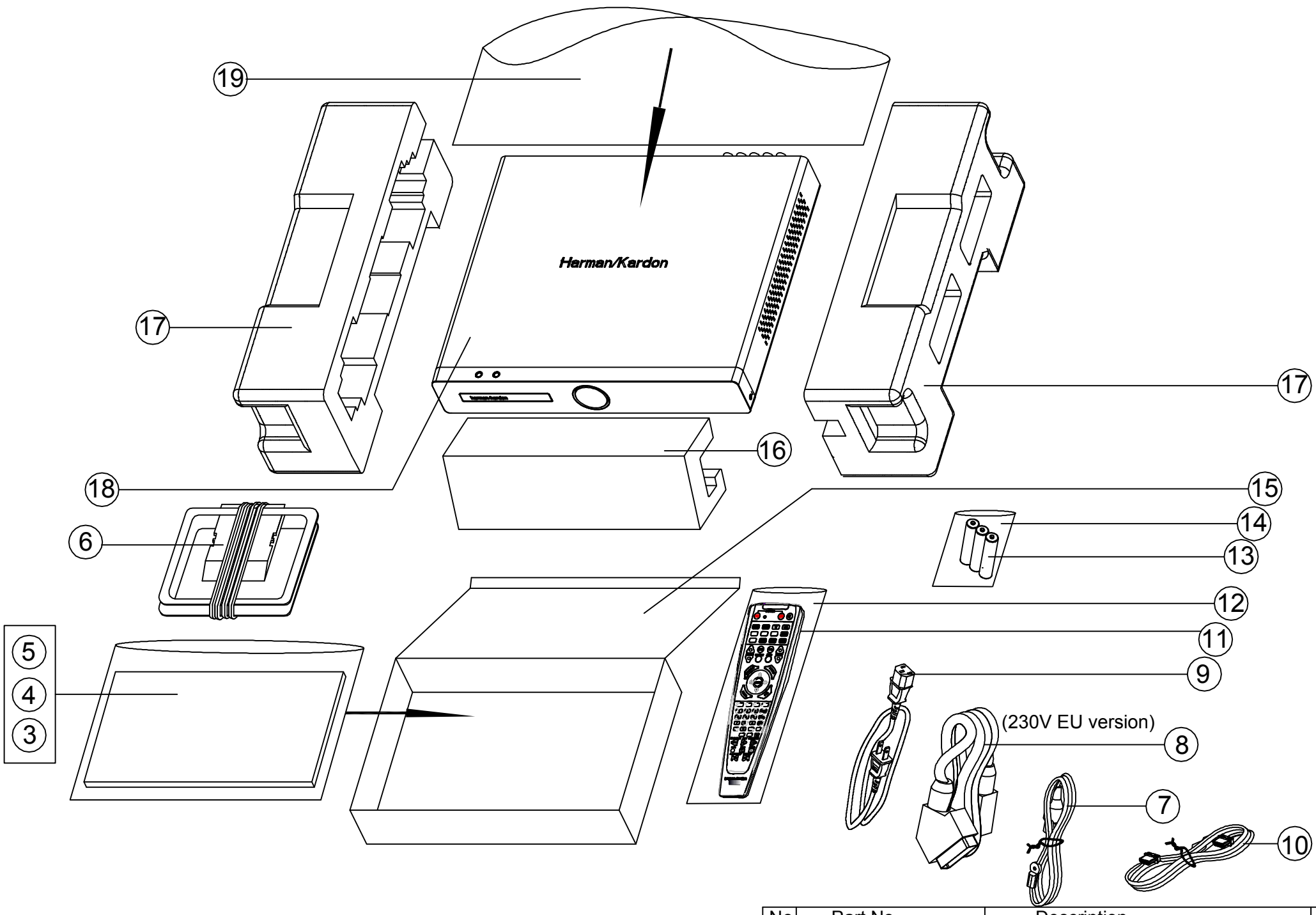
General

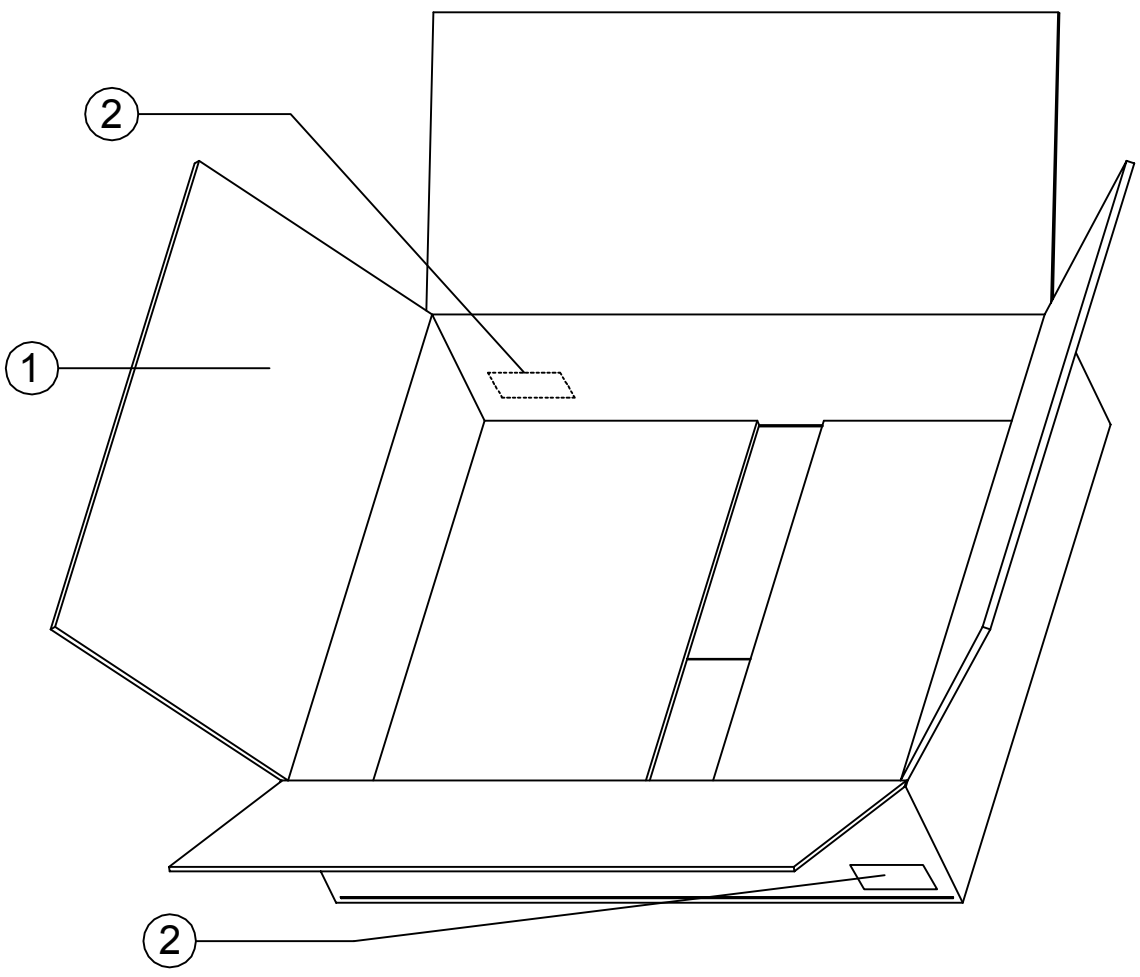
Power requirements:	AC 120V, 50Hz
Power consumption:	3W Standby, 380W Maximum
Dimensions (H x W x D):	3-3/16" x 17-15/16" x 15-3/4"
Weight:	10.6 lb

Depth measurement includes knobs, buttons and terminal connections. Height measurement includes feet and chassis.

All features and specifications are subject to change without notice.

PACKAGE





No.	Part No.	Description	Qty.
1	0100BZXWE237	Carton box HS300 EU version	1
	0100BZXWE238	Carton box HS300 US version	1
2		Barcode label	
3	0100YSSM1E265	Owner manual HS300 US version	1
	0100YSSM1E266	Owner manual HS300 EU version	1
4		Plastic bag for manual 25*35cm	
5	0100YSFY3E468	Safety instruction manual HS300 EU	1
	0100YSFY3E469	Warning card HS300 US version	1
	0100YSFY3E470	Guarantee card HS300 US version	1
6	0147CNTCTXE042	AM antenna AM-300-AWM	1
7	0147CNTCTXE037	FM antenna FM-075	1
	0147CNTCTXE038	FM antennab FM-TV-75-A	1
8	0147CNTLJX5012	SCART cable (230V EU version)	1
9	0147CNTACXE052	AC power cord EU version	1
	0147CNTACXE053	AC power cord US version	1
10	CBADV-19P-19P-2M	HDMI 19P/M to HDMI 19P/M CABLE	1
11	0100RCEHS300	Remote control HS300-RC	1
12		Plastic bag for RC 9*27.5cm	
13		battery	
14		Plastic bag for battery 6*9cm	
15		accessories box	
16		accessories Polyfoam	2
17	0100BZFPE100	Polyfoam HS300- left	
	0100BZFPE101	Polyfoam HS300- right	
18		Main unit	1
19		Plastic bag	

HS300/500 Packing

2006-7-21

FRONT-PANEL CONTROLS

Standby/On Switch: This is an electrical switch that turns the HS 300 on for playback, or leaves it in standby mode for quick turn-on using this switch or the remote control.

Power Indicator: This LED surrounds the Standby/On Switch. When the HS 300 is plugged into AC power, the LED turns amber to indicate that the HS 300 is in Standby mode (ready to be turned on). When the HS 300 is turned on (by pressing the Standby/On Switch or one of the Source Selectors on the remote), the LED turns blue. If this LED ever turns red, immediately unplug the HS 300. Check the speaker-wire connections to make sure no wires are shorting out by touching each other. If the LED remains red, bring the HS 300 to an authorized Harman Kardon service provider.

Open/Close: Press this button to open or close the disc drawer. When the HS 300 is in standby mode, press this button to turn on the HS 300 and open the drawer. Before pressing this button, always make sure no objects are blocking the drawer. Remember to close the door or turn off the HS 300 when you have finished. The door will only close automatically when the unit is turned off.

Volume Control: Turn this knob to raise or lower the volume, which will be shown on screen as an increasing or decreasing row of bars in the Message Display.

Message Display: Various messages appear in this display in response to commands. In addition, a variety of indicators will light at various times to display the current source, playback mode (if appropriate), video settings or other aspects of the HS 300's status as described throughout this manual.

Disc Drawer: This drawer holds a disc that is played in the HS 300. Press the Open/Close button on top of the HS 300 to access it. Be sure to carefully seat all discs in the recess in the drawer tray. Remember to close the drawer when you are finished, as it will not close automatically without turning off the unit.

Headphone Jack: Insert a 1/8" headphone plug into this jack for private listening. An optional adapter is necessary to use 1/4" or other size headphone plugs.

USB 1 Port: Gently insert a flash drive, card reader, digital camera or other USB device, or a USB standard-A cable connected to a USB device, in this port. Be certain to orient the plug's plastic tongue so that it will insert adjacent to the receptacle's tongue, and seat the plug fully. You may insert or remove the device at any time; there is no installation or ejection procedure. The HS 300 is capable of playing MP3 and Windows Media® WMA audio files, and MPEG 2 and uncompressed AVI files that are stored on the device. The HS 300 can also display still-image files, but only in the JPEG format. *Do not* connect a PC or other USB host/controller to this port, or you may damage both the HS 300 and your device.

FRONT-PANEL CONTROLS

NOTE: To make it easier to follow the instructions throughout the manual that refer to this illustration, a copy of this page may be downloaded from the Product Support section at www.harmankardon.com.

REAR-PANEL CONNECTIONS

AM Antenna Terminals: Assemble the AM loop antenna supplied and make sure to connect the white wire to the "AM" terminal and the black wire to the "GND" terminal.

FM Antenna Terminal: Connect the included FM antenna to its terminal.

Front, Center and Surround Speaker Outputs: Use two-conductor speaker wire to connect each set of terminals to the correct speaker. Remember to observe the correct polarity (positive and negative connections). Always connect the positive lead to the colored terminal on the HS 300 and the red terminal on the speaker. Connect the negative lead to the black terminal on both the HS 300 and the speaker. See the Connections section for more information on connecting your speakers.

Subwoofer Output: Connect a powered subwoofer to this jack.

Subwoofer Trigger Output: A 1/8" mini-plug cable is supplied with the speakers included in the HS 300 system. Connect one end of the cable to this jack, and the other end to the trigger input on the subwoofer to automatically turn on the subwoofer whenever the HS 300 system is turned on. The subwoofer's master power switch must be turned on for the trigger turn-on to operate.

USB 2 Port: Gently insert a flash drive, card reader, digital camera or other USB device, or a USB Standard-A cable connected to a USB device, in this port. Be certain to orient the plug's plastic tongue so that it will insert adjacent to the receptacle's tongue, and seat the plug fully. You may insert or remove the device at any time; there is no installation or ejection procedure. The HS 300 is capable of playing MP3 and Windows Media® WMA audio files, and MPEG 2 and uncompressed AVI video files that are stored on the device. The HS 300 can also display still-image files, but only in the JPEG format. *Do not* connect a PC or other USB host/controller to this port, or you may damage both the HS 300 and your device.

HDMI™ Output: HDMI (High-Definition Multimedia Interface™) is a newer type of connection for transmitting digital audio and video signals between devices. If your video display is HDMI-capable, you may connect the HDMI output to your video display for improved video performance. It is recommended that you disable the HDMI audio function of your video display to benefit from the HS 300's multichannel audio processing.

Remote Infrared (IR) Input and Output: When the remote IR sensor on the front panel is blocked, such as when the HS 300 is placed inside a cabinet, connect an optional IR receiver to the Remote IR Input jack for use with the remote control. The Remote IR Output may be connected to the Remote IR Input of a compatible source device (or other product) to enable remote control through the HS 300. When several source devices are used, connect them in "daisy chain" fashion.

Composite and S-Video Monitor Outputs: If your video display is not equipped with component video inputs, connect one of these monitor outputs to the corresponding inputs on your television or video display in order to view the sources. S-video is preferred when available.

Auxiliary Analog Audio Inputs: These jacks may be used to connect an audio-only source component (e.g., tape deck). Do not connect a turntable to these jacks without a phono preamp.

Analog Audio Outputs: These jacks may be used to connect a CDR or another audio-only recorder.

TV Analog Audio Inputs: Depending on how you receive broadcast television, connect the analog audio outputs of your cable television, satellite or HDTV set-top box to these inputs. Connect the video output of any of these devices directly to your video display or television. If you receive television programming using an antenna and tuner built into the television set, connect the TV's analog audio outputs to these jacks to take advantage of the HS 300's high-quality audio performance.

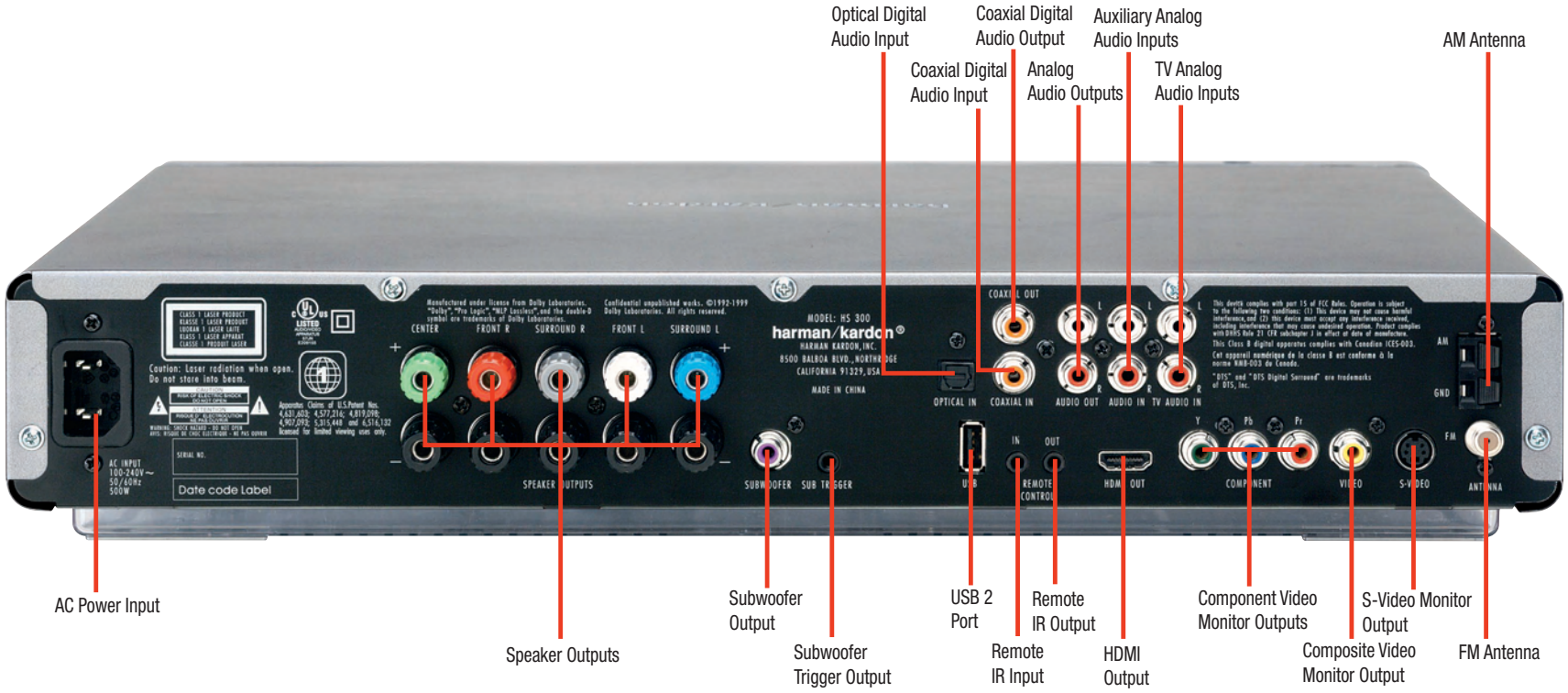
Coaxial and Optical Digital Audio Inputs: If your source has a compatible digital audio output, connect it to one of these jacks. Remember to use only one type of digital audio connection for each source.

Coaxial Digital Audio Output: If you have connected an audio recorder to one of the digital audio inputs, you may connect the coaxial digital audio output to the recorder's input.

Component Video Monitor Outputs: If your television or video display is component-video-capable, you may connect these jacks to the corresponding inputs on your video display.

AC Power Input: After you have made all other connections, plug the AC power cord into this input and into an unswitched outlet.

REAR-PANEL CONNECTIONS



NOTE: To make it easier to follow the instructions throughout the manual that refer to this illustration, a copy of this page may be downloaded from the Product Support section at www.harmankardon.com.

REMOTE CONTROL FUNCTIONS

The HS 300 remote is capable of controlling four devices, including the HS 300 with its internal disc player and tuner, as well as a TV and devices connected to the Auxiliary and Digital Audio Inputs. Each time you wish to use the codes for any component, press the Selector button for that component to change the button functions to the correct codes.

Each Source Selector is used to power on the HS 300, select the source indicated, and switch the remote's mode to operate the source and the HS 300 system, i.e., volume, mute, source selection and on-screen displays. The Source Selectors that operate the HS 300's internal sources, including the DVD player, the tuner and the USB ports, are not programmable. As explained in the Initial Setup section, you may program the TV, Auxiliary and Digital Input Source Selectors to operate any external components you connect to the HS 300.

TV: Selects the source connected to the analog or digital audio input assigned to the TV and switches the remote to operate a television set.

Disc: Selects the HS 300's internal disc player as the source and switches the remote to Disc mode.

Radio: Selects the HS 300's internal tuner as the source and switches the remote to Tuner mode. Additional presses toggle the tuner band between AM and FM.

AUX: Selects the source connected to the Auxiliary analog audio inputs and switches the remote to operate the device.

D-IN: Selects the source connected to the digital audio input assigned to the D-IN source and switches the remote to operate the device.

USB 1: Selects the device connected to the front-panel USB port (on right side of unit) as the source and switches the remote to operate the device using the HS 300's on-screen menu system.

USB 2: Selects the device connected to the rear-panel USB port as the source and switches the remote to operate the device using the HS 300's on-screen menu system.

NOTE: When the remote is switched to USB mode, it does not directly operate the USB device. The device is navigated and controlled indirectly using the HS 300's on-screen menu system.

The Mode button allows you to change the remote's mode to control a different device without selecting that device as a source. This is useful if, for example, you wish to adjust your video display screen (TV mode) while watching a DVD (Disc Mode).

Any given button may have different functions, depending on the remote's mode. Some buttons are labeled with these functions. For example, the Preset Buttons are labeled for use as Picture Up/Down Buttons when viewing JPEGs on a CD or USB device. See Table A8 in the appendix for listings of the different functions for each type of component.

IR Transmitter Lens: As buttons are pressed on the remote, infrared codes are emitted through this lens. Make sure it is pointing toward the component being operated. In Learning mode, the remote receives codes transmitted by your source component's original remote through this lens. The remote is then capable of storing the new code in the memory for a button you select. See the Installation section for more information.

Program Indicator: This LED lights up or flashes in one of three colors as the remote is programmed or operated.

System Power Off Button: Press this button to turn off the HS 300 or another device.

Screen Power On and **Off:** Press these buttons to turn your video display on or off.

Source Selectors: Press one of these buttons to select a source device, which is a section of the HS 300 (DVD player or tuner) or an external component where a playback signal originates, e.g., cable TV, satellite or HDTV tuner. This will also turn on the HS 300 and switch the remote to the codes that operate the source device.

TV/Video: This button has no effect on the receiver, but is used to switch video inputs on the TV.

SAP: This button toggles the SAP (Secondary Audio Program) feature on and off. Some television programs are broadcast with a second audio track, such as a translation into another language, and this button allows you to access that audio.

Mode: This button has no effect on the HS 300, but enables you to switch the remote to another mode so that it operates another device without selecting it as the source. Each press of the Mode button changes the remote's mode in this order: TV, DISC, RADIO, AUX, D-IN, USB 1 and USB 2, and then back to TV again. The corresponding Source Selector will light to indicate the mode.

Presets/Picture Up/Down: When the tuner is the source, these buttons scroll through the preset stations. When the DVD player or USB is the source these buttons scroll through still images stored on a disc or USB device.

Disc Info: Press this button to display the Disc Information screen, which contains detailed information about the current disc.

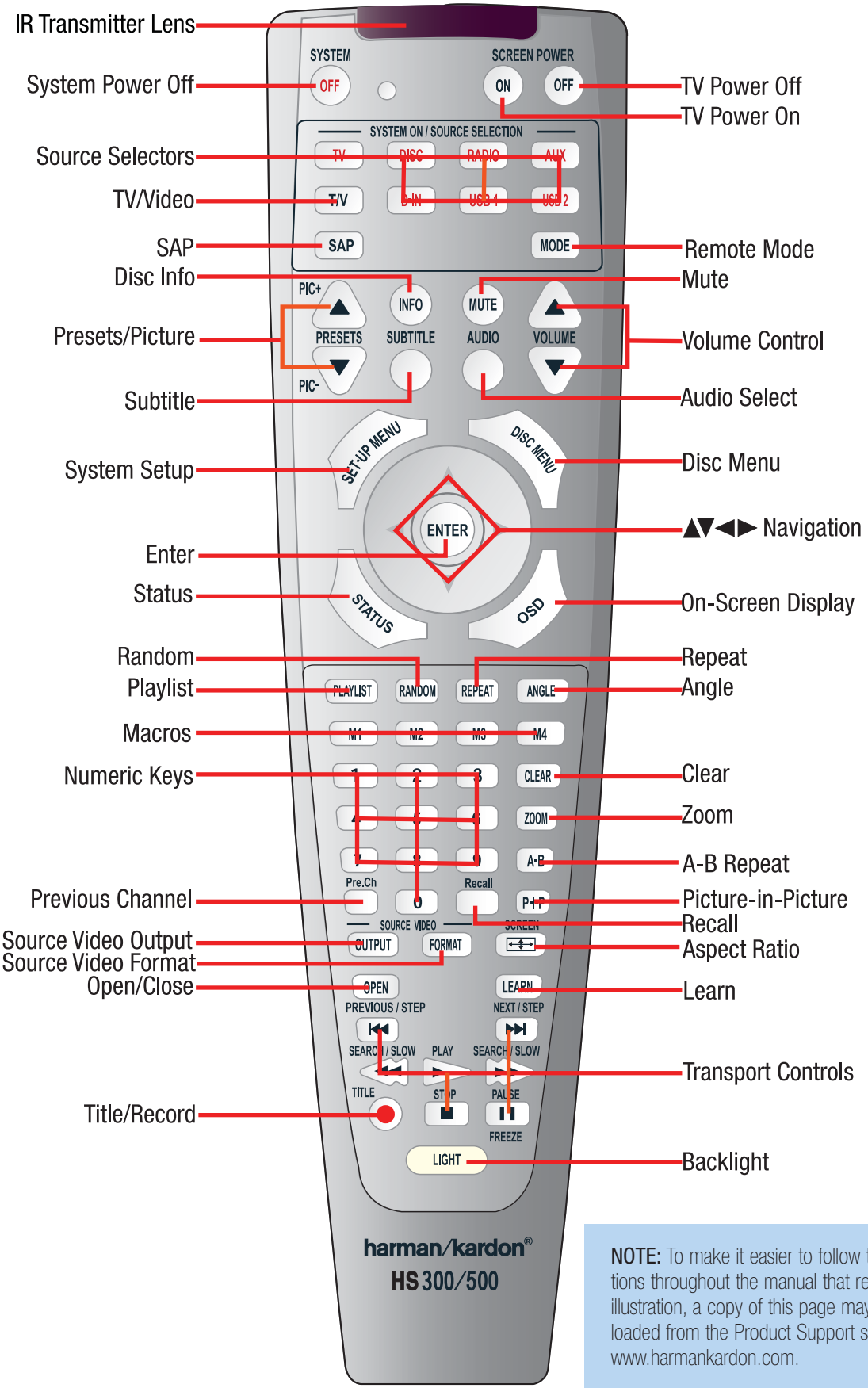
Mute Button: Press this button to mute the HS 300's speaker and headphones outputs temporarily. To end muting, press this button or adjust the volume. Muting also ends when the system is turned off.

Volume Controls: Press these buttons to raise or lower the volume, which will be shown in decibels (dB) in the Message Display.

Subtitle: Press this button while a DVD containing subtitle information is playing to turn subtitles off or select a subtitle language. This setting will only be in effect for the current disc.

NOTE: When you wish to make a recording, if you have programmed the recorder's control codes into the remote, you will need to simultaneously press both the Subtitle button and the Record button to transmit the Record control code.

REMOTE CONTROL FUNCTIONS



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REMOTE CONTROL FUNCTIONS

Audio: Press this button while a DVD is playing to display the current audio track information and to select another audio format.

Setup Menu: Press this button to access the System Setup menu. See the Initial Setup section for more information.

Disc Menu: Press this button while a DVD is playing to view the disc's menu.

Navigation and **Enter Buttons:** These buttons are used together to make selections within the on-screen menu system.

Status: When a DVD or VCD is playing, press this button to view the Status Bar, which contains playback mode information.

On-Screen Display (OSD): Press this button to activate the on-screen menu system.

Playlist: Each press of this button toggles between playback in the disc's original order and play of a previously programmed playlist. Press the Play Button to begin playback.

Random: This button turns on or off random play mode, which plays the tracks on a CD in random order.

Repeat: Press this button repeatedly to cycle through the repeat modes available with the current disc. Repeat may also be used with the tracks stored on a device connected to one of the USB ports. This button is not used to access A-B Repeat mode.

Angle: When a DVD encoded with multiple camera angles is playing and when the Angle Icon appears to indicate that the multiple-angle passage has been reached, press this button to cycle through the various available angles.

This button is also used to rotate still images. Each press rotates the image 90 degrees.

Macros: These buttons may be programmed to execute long command sequences with a single button press. They are useful for programming the command to turn on or off all of your components, or for accessing specialized functions for a different component than you are currently operating.

Numeric Keys: Use these buttons to enter radio station frequencies when using the tuner, or to select station presets. When a disc is playing, you may directly enter a track or chapter number to skip to that section of the disc.

Clear: Press this button to clear a radio station frequency or other number you have started to enter. This button may also be used to clear the on-screen displays. Press and hold this button for 5 seconds to reset the HS 300 to its factory-default settings.

Zoom: When viewing a DVD, VCD or JPEG still image, press this button repeatedly to enlarge the on-screen image by 2x, 3x, 4x or 5x (2x or 3x only for VCDs) before returning to the original size. While enlarged, use the Navigation buttons to explore the image.

A-B Repeat: While a disc is playing, the A-B Repeat function allows you to repeatedly play a passage, which may include several tracks or chapters. Press the button once to select the starting point ("A"), and a second time to select the end of the passage ("B"). Press the button again to end repeat play.

Pre. Ch: This button has no function with the HS 300. However, for many televisions pressing this button returns the TV to the previous channel.

Recall: This button has no function with the HS 300. However, for many televisions pressing this button displays the channel number, time or other information.

Picture-in-Picture: This button has no function with the HS 300. However, for many televisions pressing this button activates the picture-in-picture function for simultaneous viewing of two channels or inputs.

Source Video Output: This button selects the S-video, component video or HDMI output to be used when the internal disc player or a device connected to one of the USB ports is the source. Since the HS 300 cannot output S-video and component video simultaneously, the S-video or YUV (for component video) indicator will light in the front-panel display when that video output has been selected.

Source Video Format: This button selects the upscaled video output resolution (480i, 720p, 1080i) when the internal disc player or a device connected to one of the USB ports is the source. The 720p or 1080i indicator will light in the front-panel display to indicate the upscaled resolution.

Aspect Ratio: This button has no effect on the HS 300, but pressing it adjusts the aspect ratio on some video displays.

Open/Close: Press this button to open or close the disc drawer. If the HS 300 is in standby mode, pressing this button will turn it on.

Learn: The HS 300 remote is capable of "learning" individual IR codes from the original remote that came with your TV or a device that is connected to the Auxiliary or Digital Audio Inputs. See the Installation section for instructions for learning remote codes. There is also a quick reference for learning remote codes on the back of the remote.

Transport Controls: These buttons are used to operate the HS 300's internal disc player. Use the controls to skip forward or reverse by track or chapter; to fast-search forward or reverse; and to play, pause or stop the disc. After pressing the Pause button, the skip buttons may be used to step frame-by-frame through a video presentation, and the fast-search buttons may be used for slow-play.

Title/Record: When used with the internal disc player, this button allows you to select from the titles stored on the disc, which may include "making of" or other featurettes. If you have connected a recorder to the HS 300, this button may be used to make recordings when it is pressed simultaneously with the Subtitle button.

Backlight: Press this button to turn on the backlight to make it easier to see the buttons in a darkened room. The backlight will remain on for a few seconds after your last button press before going out, or you may turn off the backlight by pressing this button again.

CONNECTIONS

There are different types of audio and video connections used to connect the HS 300 to the speakers and video display, and to connect any source devices to the HS 300. To make it easier to keep them all straight, the Consumer Electronics Association (CEA) has established a color-coding standard. Table 1 may be helpful to you as a reference while you set up your system.

Table 1 – Connection Color Guide

Audio Connections		
	Left	Right
Front **(FL/FR)**		
Center **(C)**		
Surround **(SL/SR)**		
Subwoofer **(SUB)**		
Digital Audio Connections		
Coaxial		
Optical	Input	
Video Connections		
Component	Y Pb Pr	
Composite		
S-Video		
HDMI™ Connections		
HDMI		

Types of Connections

This section will briefly review different types of cables and connections that you may use to set up your system.

Speaker Connections

Speaker cables carry an amplified signal from the receiver's speaker terminals to each loudspeaker. Speaker cables generally contain two wire conductors, or leads, inside plastic insulation. The two conductors are usually differentiated in some way, by using different colors, or stripes, or even by adding a ridge to the insulation.

The differentiation is important because each speaker must be connected to the HS 300's speaker-output terminals using two wires, one positive (+) and one negative (–). This is called speaker polarity. It's important to maintain the proper polarity for all speakers in the system. If some speakers have their negative terminals connected to the HS 300's positive terminals, performance can suffer, especially for the low frequencies.

Always connect the positive terminal on the loudspeaker, which is colored red, to the positive terminal on the HS 300, which is colored as shown in the Connection Color Guide (Table 1). Similarly, always connect the black negative terminal on the speaker to the black negative terminal on the HS 300. The wires in the speaker system included with your HS 300 Home Theater System are color-coded with bands.

The HS 300 uses binding-post speaker terminals that can accept banana plugs or bare-wire cables, should you wish to upgrade your system in the future.

Banana plugs are simply plugged into the hole in the middle of the terminal cap. See Figure 1.

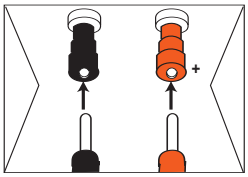

Figure 1 – Binding-Post Speaker Terminals With Banana Plugs

Bare wire cables are installed as follows (see Figure 2):

1. Unscrew the terminal cap until the pass-through hole in the collar is revealed.
2. Insert the bare end of the wire into the hole.
3. Screw the cap back into place until the wire is held snugly.

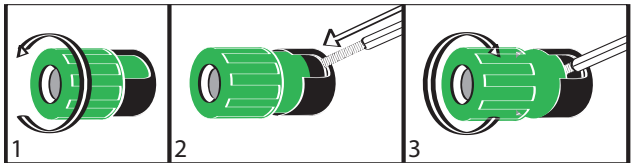

Figure 2 – Binding-Post Speaker Terminals With Bare Wires

Subwoofer

The subwoofer is a specialized type of loudspeaker that is usually connected in a different way. The subwoofer is used to play only the low frequencies (bass), which require much more power than the other speaker channels. In order to obtain the best results, the HS 300 includes a powered subwoofer that contains its own amplifier on board. A line-level (nonamplified) connection is made from the HS 300's Subwoofer Output to a corresponding jack on the subwoofer. See Figure 3.

Although the subwoofer output looks similar to the analog audio jacks used for the various components, it is filtered and only allows the low frequencies to pass. Don't connect this output to your other devices. Although doing so won't cause any harm, performance will suffer.

Figure 3 – Subwoofer

Connecting External Source Devices to the HS 300

The HS 300 is designed to process audio input signals. These signals originate in what are known as "source devices," including the internal DVD/CD player, a DVR (digital video recorder) or other recorder, a tape deck, a game console, a cable or satellite television box, a flash drive or an MP3 player. Although the tuner and disc player are built into the HS 300, they also count as sources, even though no external connections are needed, other than the FM and AM antennas.

In general, separate connections are required for the audio and video portions of the signal. The types of connections used depend upon what's available on the source device, and for video signals, the capabilities of your video display.

INSTALLATION

You are now ready to connect the various components to the HS 300. Before beginning, make sure that all components, including the HS 300, are turned completely off and their power cords are unplugged. **Don't plug any of the power cords back in until you have finished making all of your connections.**

The HS 300 generates heat while it is playing. Select a location that leaves several inches of space on all sides. It is preferable to avoid completely enclosing it inside a cabinet. It is also preferable to stack components on separate shelves rather than directly on top of the HS 300. Some surface finishes are delicate. Try to select a location with a sturdy surface finish.

Step One – Connect the Speakers

If you have not yet done so, place your speakers in the listening room as described in the Speaker Placement section above.

Connect the center, front left, front right, surround left and surround right loudspeakers to the corresponding speaker terminals on the HS 300. Remember to maintain the proper polarity by always connecting the positive and negative terminals on each speaker to the positive and negative terminals on the receiver. Use the Connection Color Guide on page 16 as a reference. See Figure 14.

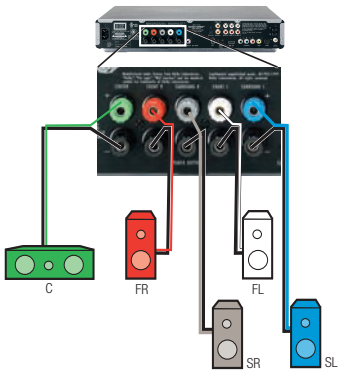

Figure 14 – Speaker Connections

Step Two – Connect the Subwoofer

Connect the Subwoofer Output on the HS 300 to the line-level input on your subwoofer. Use the 1/8-inch mini-plug cable packed with the speaker system to connect the Subwoofer Trigger on the HS 300 to the External Trigger Input on the subwoofer. See Figure 16. The trigger will automatically turn on the subwoofer when the HS 300 is turned on. Consult the owner's guide for the subwoofer for additional information.

Figure 16 – Subwoofer Connection

Step Three – Connect the Antennas

Connect the FM and AM antennas to their terminals. Keep in mind that the AM terminals are polarized. Connect the white lead to the AM terminal and the black lead to the GND terminal.

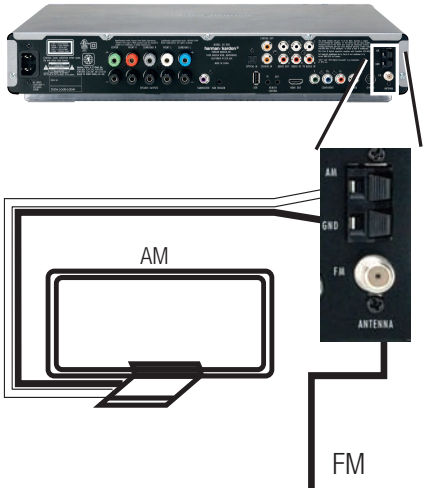

Figure 16 – Antenna Connections

Step Four (Optional) – Connect Any External Source Components

Although the HS 300 already contains an FM/AM tuner and DVD-Audio/Video player on board, you may have other components you would like to use with your home theater system. The HS 300 can accommodate up to two analog audio, two digital audio and two USB devices. You may connect different devices to the digital and analog audio inputs; they are treated as separate sources. You will notice that the HS 300 has no video inputs. Connect each source's video output directly to your television, but connect its audio output to the HS 300 to benefit from the multichannel surround sound. If you wish to make a recording from the disc player, you will only be able to make an analog recording of copy-protected materials, and you will need to connect the video inputs of your recorder to either the composite or S-video output of the HS 300.

When deciding which components to connect to each input, bear in mind that the remote may be programmed to control the device. By default, the Auxiliary input is preprogrammed to operate a VCR or DVR (TiVo), and the digital inputs (D-IN) are preprogrammed to operate a cable or satellite set-top box. Thus, you may want to connect your components accordingly. However, you may reassign the product types when you program the remote, and any compatible component with the correct audio outputs may be connected to any of the sources.

Use the worksheets in the Appendix to note which connections you will use for each of your source devices.

For each source, select a source input (TV, AUX, D-IN). In Table 2 we recommend connecting certain types of sources to certain source inputs to make it easier to program and use the remote control.

Decide which audio connections you will use. If your source has them, use *either* the coaxial digital or the optical digital audio connection.

Table 2 – Recommended Source Component Connections

Device Type	HS 300 Source Input	Audio Connections	Video Connections
VCR, DVR, PVR, TiVo® or other audio/video recorder	• AUX	• Analog inputs and outputs	• Connect recorder's video output directly to video display • For recording, use S-video or composite video output
	• D-IN	• Coaxial input and output	
CDR, MiniDisc, cassette	• AUX	• Analog inputs and outputs	Not required
	• D-IN	• Coaxial input and output	
TV, cable TV, satellite, HDTV or other device that delivers television programs	• TV	• Analog inputs or • Coaxial or Optical input	Not required for television set; connect other device's video output directly to video display
	• D-IN	• Coaxial or Optical input	
Digital camera*, flash drive, hard disc drive or other USB device**	• USB 1 • USB 2	• Side input at front of unit • Rear-panel input	Included in single USB connection

* The HS 300 is only compatible with cameras that output files in the JPEG format.

** The HS 300 is only compatible with video files in the MPEG 2 and AVI formats. *Do not* connect a PC or other "host" USB device to the HS 300's USB ports.

Audio/Video Recorder

Select either the analog or digital audio connections for your recorder. Each connection is treated as a separate source by the HS 300.

If you are using analog audio, connect the analog audio outputs on your recorder to the AUX analog audio inputs on the HS 300, and the AUX analog audio outputs to the analog audio inputs on your recorder. See Figure 17.

Figure 17 – AUX Analog Audio Inputs and Outputs

If you are using the digital audio connections, you will need to use the D-IN coaxial input and output, as there is no optical audio output on the HS 300. See Figure 18.

Figure 18 – D-IN Coaxial Digital Audio Input and Output

When connecting a recorder, be careful to always connect one device's input to the other device's output.

If you would like to record video from the HS 300's internal disc player or a USB device, connect the recorder's S- or composite video input to either the S- or composite video output on the HS 300. When recording from the S-video output, select the S-video output in the Video Setup Menu, as component and S-video outputs are not available simultaneously. Connect *one* video output on the recorder directly to your video display or television.

TV, Cable, Satellite, HDTV

Select either the analog or coaxial or optical digital audio connection for your device. You may select either for the TV source.

If you are using analog audio, connect the analog audio outputs on your TV or set-top box to the TV analog audio inputs on the HS 300. See Figure 19.

Figure 19 – TV Analog Audio Inputs

If you are using digital audio, your TV or set-top box must have a compatible digital audio output, which should be connected to either the Coaxial or Optical Input on the HS 300. See Figure 20. The set-top box should be selected as the D-IN source.

Figure 20 – Coaxial and Optical Digital Audio Inputs

When you select TV as your source input, you may select between the analog audio (line) or either digital audio input.

If you are using a cable or satellite set-top box to receive television broadcasts, connect *one* of its video outputs directly to your video display.

INSTALLATION

Digital Camera, Flash Drive, Hard Disc Drive

The HS 300 is equipped with two independent USB ports for use with USB devices, but not "host" devices, such as your PC. Do not connect your PC to either of the HS 300's USB ports.

The USB 1 port is located on the right side of the HS 300, near the front panel. See Figure 21.

Figure 21 – USB 1 Port

The USB 2 port is located on the rear panel. See Figure 22.

Figure 22 – USB 2 Port

You may connect any USB device, such as a digital camera, flash drive or hard disc drive to either USB port. The HS 300 will automatically recognize any of the following types of files stored on the device: MP3 or WMA audio; MPEG 2 or uncompressed AVI video; JPEG still image. You may navigate the files using the HS 300's on-screen menu system, as explained in the Operation section.

NOTES:

- The HS 300 is not compatible with digital cameras that do not produce images in the JPEG file format.
- There is no special procedure for installing or removing USB devices; simply plug in or remove the device at any time.

Step Five – Connect Video Display

Only video connections should be made between the receiver and your video display (TV), unless your TV is the source for your television programming (see above).

Determine what types of video your display is capable of handling. Remember that HDMI is preferred, followed by component video S-video and then composite video.

Select the best type of video your display is capable of handling, and connect only one of the HS 300's video outputs to your display. See Figure 23.

Figure 23 – Video Outputs

Step Six – Plug In AC Power

Having made all of your wiring connections, it is now time to power up the HS 300. The HS 300 comes with a detachable power cord, which enables you to pre-install all wiring before final installation of the HS 300. Connect the female end of the power cord to the HS 300's AC Input, and plug the other end of the cord into a working, unswitched AC outlet. See Figure 24. If you are using any external components with the HS 300 system, you may plug those into AC power at this time.

Figure 24 – AC Input for Power Cord

Step Seven – Insert Batteries in Remote

The HS 300 remote control uses three AAA batteries (included).

To remove the battery cover located on the back of the remote, firmly press the ridged depression and slide the cover towards the top of the remote.

Insert the batteries as shown in Figure 25, making sure to observe the correct polarity.

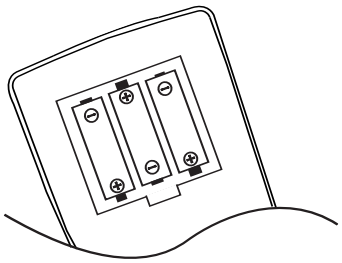

Figure 25 – Remote Battery Compartment

When using the remote, remember to point the lens toward the front panel of the HS 300. Make sure no objects, such as furniture, are blocking the remote's path to the receiver. Bright lights, fluorescent lights and plasma video displays may interfere with the remote's functioning. The remote has a range of about 20 feet, depending on the lighting conditions. It may be used at an angle of up to 30 degrees to either side of the HS 300.

If the remote seems to operate intermittently, or if pressing a button on the remote does not cause one of the source selectors to light up, then make sure the batteries have been inserted correctly, or replace all three batteries with fresh ones.

Step Eight – Program Sources Into the Remote

The HS 300 remote is capable of controlling not only the HS 300, but it may also be programmed to control many brands and models of VCRs, cable boxes, satellite receivers, cassette decks and TVs.

It may help to think of the remote as a book with pages. Each page represents the button functions for a different device. In order to access the functions for a particular device, you first need to turn to that page. This is done by pressing the Source Selector buttons to access the codes for the devices programmed into the remote. There is no "page" specifically set aside for the HS 300's system functions. Instead, the volume and audio controls are always active, and the functions for the internal disc player and tuner are active when those sources are selected.

INSTALLATION STEPS

At the factory, the codes to operate the HS 300 are preprogrammed. If you have other source devices in your system, follow these steps to program the correct codes into the remote.

1. Using the codes in Tables A9–A13 of the Appendix, look up the product type (e.g., TV, cable TV box) and the brand name of your source. The number(s) listed are potential candidates for the correct code set for your particular device.

2. Turn on your source device.

3. By default, the AUX Source Selector is assigned device type VCR/Tivo, and the D-IN Source Selector is assigned device type CBL/SAT. However, you may reassign the device type of either Source Selector.

   To program the device type for the AUX or D-IN Source Selector:

   a) Press and hold the Source Selector for at least three seconds until the Program Indicator LED flashes in green. The Source Selector button will also light up in red, and will then flash once, twice or three times to indicate the current device assignment (refer to Table 3).

   b) To change the device assignment, within five seconds hold down the Mode button on the remote while pressing the Numeric Key corresponding to the desired device type.

   c) Release and press the Source Selector button to record the entry.

Table 3 – Device Types for AUX and D-IN Source Selectors

Device Type	Indicated by Flashes	Numeric Key to Select
Tape	One	1
VCR/TiVo	Two	2
CBL/SAT	Three	3
Default (VCR/TiVo for AUX; CBL/SAT for D-IN)	Ten (or many fast flashes)	0

NOTE: The TV Source Selector is programmable, but its device type may not be changed. Since the Disc and Radio Source Selectors control the HS 300 itself, they are not programmable. USB devices are also controlled using the HS 300's menu system, and these Source Selectors are also not programmable.

4. To program a particular product into the TV, AUX or D-IN Source Selector, press and hold the Source Selector and the Mute Button simultaneously until the Program Indicator flashes in amber, then release. See Figure 26.

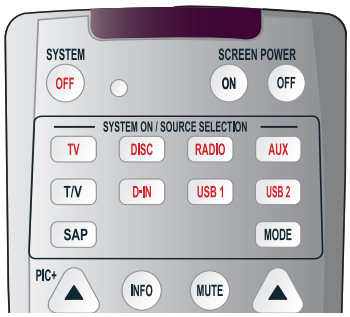

Figure 26 – Source Selectors

5. Enter a three-digit code from Step 1 above.

   a) If the device turns off, then press the Source Selector again to accept the code, and it will flash. The remote will exit Program mode.

   b) If the device does not turn off, try entering another code. If you run out of codes, you may search through all of the codes in the remote's library for that product type by pressing the ▲ or ▼ button repeatedly until the device turns off. When the device turns off, enter the code by pressing the Source Selector, which will flash. The remote then exits Program mode.

NOTE: When you have entered a valid three-digit product code, the Program Indicator LED will flash in green. However, if you enter an invalid product code, the Program Indicator LED will flash in red. You may then enter another code.

6. Once you have accepted a code, it's a good idea to try using some other functions to control the device. Sometimes manufacturers use the same Power code for several different models, while other codes will vary. You may wish to repeat this process until you've programmed a satisfactory code set that operates most of the functions you frequently use. You will be able to program individual codes into the buttons on the HS 300 remote by "learning" them from the original component's remote as explained in Step 8 below.

7. You may find out which code number you have programmed by pressing and holding the Source Selector and Mute Button simultaneously to enter Program mode. Then press the Enter Button, and the Program Indicator LED will flash in green in the code sequence. One flash represents "1", two blinks for "2", and so forth. A series of many fast flashes represents "0". Record the codes programmed for each device in Table 4.

Table 4 – Remote Control Codes

Source Input	Product Type	Remote Control Code
AUX		
D-IN		
TV	TV	

8. After you have programmed a code set to operate a device, test the functions to see which ones may be missing or not operating correctly. You may "learn" individual key codes if you have the device's original remote control by following this procedure:

INSTALLATION

a) Place the two remotes so that their IR transmitters face each other end to end, separated by about one inch. See Figure 27. The HS 300 remote's transmitter also serves as an IR receiver during the learning process.

Figure 27 – HS 300 and Original Remote Head-to-Head

b) Place the HS 300 remote in Learning mode by simultaneously pressing and holding the Source Selector you wish to learn a code for and the Learn buttons until the Program Indicator flashes in amber, then release. See Figure 28.

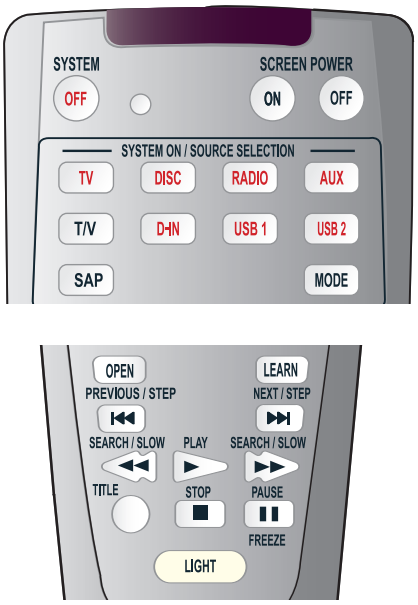

Figure 28 – Learning Remote Commands

c) Press and hold the button on the HS 300 remote you wish to program with the new code until the Program Indicator remains steadily lit in amber, then release it.

d) Press and hold the button on the device's original remote whose code you wish to "learn" until the Program Indicator flashes in green, then release it.

e) You may program additional buttons by repeating steps c) and d). To exit Learning mode, press the Learn button once. If you prefer, you may wait for the remote to "time out" and exit Learning mode on its own, but this will take about thirty seconds.

NOTE: The following buttons on the remote are not programmable, and are not subject to learning new codes: System Off, all of the Source Selectors, Mode, Subtitle, Audio, Status, Source Video Output, Source Video Format, Learn and Light. If you learn a code into a Macro key, you will not be able to program a Macro into that key, as the learned code will take priority.

If you are unable to locate a code set that correctly operates your source device, you may still connect the source to the HS 300 and operate it using the device's original remote control. Alternatively, you may wish to consider purchasing Harman Kardon's optional TC 30 activity-based remote, which is programmed by accessing a large database of product codes on the Internet. The TC 30 is also capable of "learning" codes from your device's original remote.

Most of the button labels on the remote describe the button's function when used to control the HS 300. However, the button may perform a very different function when used to control another device. Refer to the Remote Control Function List, Table A9 in the Appendix, for a list of each button's functions with the various product types.

If you wish, you may program Macros, which are preprogrammed code sequences that execute many code commands with a single button press. You may also program "punch-through" codes, which allow the remote to operate the volume, channel or transport controls of another device without having to switch the remote to the mode for that device. See pages 55 through 56 for instructions on these advanced programming functions.

If you make a mistake in programming your remote and you wish to completely reset it to its factory defaults, follow this procedure:

1. Simultaneously press any Source Selector and the "0" Numeric Key until the Program Indicator LED flashes in amber, and release.
2. Enter the numeric code "333".
3. The Program Indicator LED will light steadily in green, indicating that it is resetting the remote. Do not press any buttons while the LED is lit green. When it goes dark, the remote has been completely reset.

Step Nine – Turn On the HS 300

Plugging the HS 300 into AC power places it in Standby mode, which is indicated by the Power Indicator (surrounding the Standby/On Switch) turning amber.

There are several ways in which the HS 300 may be turned on from Standby mode.

a) Press the Standby/On Switch on the top panel. See Figure 29.

Figure 29 – Standby/On Switch on Top Panel

b) Press the Open/Close Button on the top panel. See Figure 30.

Figure 30 – Open/Close Button

Pressing the Open/Close Button will also select the Disc Player as the source input, and open the disc drawer.

c) Using the remote, press any one of these buttons: TV, DISC, RADIO, D-IN, USB 1 or USB 2, the HS 300 will select that source. See Figure 31.

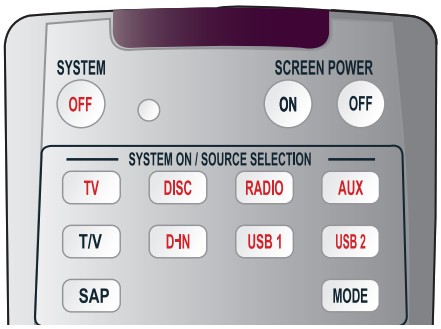

Figure 31 – Source Selectors

NOTE: Any time you press one of the Input Selectors on the remote (i.e., TV, DISC, RADIO, AUX, D-IN, USB 1 or USB 2), the remote will switch modes so that it will transmit the codes programmed to operate that device.

INITIAL SETUP

Before you begin enjoying your new home theater, a few adjustments should be made to configure the system.

Make sure that you have connected a video display to one of the video monitor outputs. When you turn on your display and the HS 300, you should see the HS 300's splash screen. The last-used source will be selected. If it was the Disc Player, the HS 300 will determine whether a disc is loaded and, if so, begin play. If not, the splash screen will remain. For other sources the corresponding screen will be displayed.

Using the On-Screen Menu System

The HS 300 uses two types of menu screens: Setup menus and Source menus.

Press the Setup Menu button on the remote to display the System Setup menu. See Figures 32 and 33.

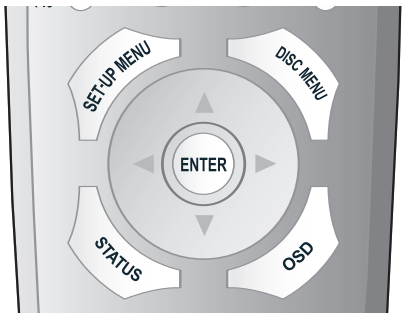

Figure 32 – Setup Menu Button

Figure 33 – System Setup Menu Screen

All of the HS 300's menu screens follow the same basic format.

The top line is the Main Menu line. The first six selections correspond to the source inputs. Selecting one of these menus also selects that source. The last item is the Setup menu that is used to configure the HS 300's system settings.

The HS 300 displays instructions at the bottom of the screen to guide you in making your selections. When adjusting a setting, available options will appear below the instructions line.

On the left side of the screen are navigation icons that may be used to access the submenus or display information. Use the Navigation buttons on the remote to highlight an icon, and press the Enter button to select or deselect it. When the icon is selected, it will look like a button that has been pressed in. When it is deselected, it looks like a button in the out position.

Most of the screen contains the various configuration settings, with the current setting displayed to the right. Use the Navigation buttons to highlight a setting. See Figure 34.

Figure 34 – Selecting a Setting

Press the Enter Button to make changes to the setting. The screen's appearance will change to alert you that you are affecting the system configuration. The selected setting line will remain fully lit, and the setting itself will change from a button to plain text with arrows on both sides. The remaining setting lines on the screen will dim. On the options line at the bottom of the screen, the current setting will be highlighted as a button. Use the ◀/▶ buttons to scroll through the options list. As various options are highlighted at the bottom of the screen, the new setting will appear on the setting line. See Figure 35.

Figure 35 – Choosing a New Option for a Setting

Press the Enter Button when the desired setting is highlighted, and use the ▲/▼ buttons to select another setting line.

When you have made all desired adjustments to the current submenu, use the Navigation buttons to highlight the icon for the next submenu, and press the Enter Button to switch to that submenu.

When you have finished adjusting all settings, press the OSD button (but not the Setup Menu button) to clear the menu from the display. See Figure 32.

Step One – System Setup

In this step you will configure some basic system settings using the System Setup submenu. Press the Setup Menu button and the Enter button as explained above to access the settings in this submenu. Your screen should look similar to the one shown in Figure 33.

DISPLAY LANGUAGE: This setting selects the language that will be used for the HS 300's OSD menus and other system messages. The default is English, but you may select French, Spanish, German or Italian.

PREFERRED SUBTITLE LANGUAGE: This setting selects the language used for the display of subtitles. The default setting is OFF, to play discs without subtitles. To set the player so that subtitles will always play in a specific language when they are available, select from the choices shown.

If you do not find your preferred language in the options list, you may select a preferred language by first pressing the ◀/▶ Buttons so that UNKNOWN or OTHER is highlighted in the options list. Press the Enter Button, and you will be prompted to enter a four-digit language code. See Figure 34. Select the code for the desired language from the list in Table A14 in the Appendix, and use the Numeric Keys to enter the code, then press the Enter Button.

Figure 36 – Entering a Code for a Subtitle Language

This procedure selects a preferred subtitle language, but it will only be available when the disc being played contains that language. The list of subtitles available on any given disc is always shown on the disc jacket, usually at the bottom of the back cover. The subtitles may also be switched on or off, or a new language selected during playback using the Subtitle Button.

If you have selected a subtitle language and subtitles do not appear on screen, press the Subtitle Button to display the Subtitle banner. Press the Enter button to display the subtitle language options available on the disc. Use the ◀/▶ Buttons to select the desired option, and press the Enter button. Then use the ◀/▶ buttons to navigate to the Done button, and press Enter to clear the banner from the screen.

If subtitles still do not appear, press the Disc Menu Button to make sure that subtitling has been selected in the disc's menu system. See Figure 32.

> **NOTE:** Due to the variations in how DVD discs are authored, the subtitle languages displayed by the HS 300 may not accurately reflect the actual languages available on the disc. It is recommended that subtitles be selected using the disc's menu.

PANEL TIME-OUT: This setting allows you to select the length of time the Front-Panel Display remains lit during disc playback (as some people find the front-panel display distracting while a movie is playing). You may program the HS 300 to refresh the front-panel display only when a button is pressed on the remote or front panel, and to turn the display off again after either five or 20 seconds. When the display is off, the blue Power Indicator will remain lit to remind you that the unit is turned on. When the Panel Time-Out setting is set to "Off," the display remains lit at all times.

STATUS BAR TIME-OUT: This setting selects the timeout interval for the on-screen Status Bar that appears at the top of your video screen when the Status Button is pressed while a disc is playing. During DVD playback, the status bar shows the current title and chapter, playback mode, the elapsed or remaining time in the current chapter or title, a setting to adjust the time display, and a temperature bar for the time display.

You may program the status bar to remain on screen for either five or 20 seconds after the Status Button is pressed. When OFF is selected, the timeout is disabled, and the status bar will remain on the screen until the Status Button or Clear Button is pressed. We strongly recommend programming the Status Bar to disappear on its own to avoid burning its image into a plasma or CRT display.

PARENTAL CONTROL: The HS 300's password system allows you to restrict viewing of certain materials that may not be suitable for younger members of the household by requiring the viewer to enter a password to view those materials. The system is based on rating information encoded in some DVDs that classifies materials into eight levels, roughly corresponding to the Motion Picture Association of America (MPAA) voluntary ratings system:

Level 1G: Corresponds to the MPAA's "G" (General Audiences) rating, and is considered suitable for all viewers.

Level 2: Intermediate level between the "PG" and "G" ratings.

Level 3PG: Corresponds to the MPAA's "PG" (Parental Guidance) rating.

Level 4PG13: Corresponds to the MPAA's "PG-13" (Parental Guidance and 13 years old) rating.

Level 5: Intermediate level between the "R" and "PG-13" ratings.

Level 6PG-R: Corresponds to the MPAA's "R" (Restricted) rating.

Level 7NC17: Corresponds to the MPAA's "NC-17" (17 years and older) rating.

Level 8Adult: All DVDs, including adult materials, can be played.

Off: Any DVD may be viewed without entering the password.

The HS 300 is shipped from the factory with the parental control system unlocked (no password is required to view any DVD), and with the password set to the four-digit code "8888." To activate the system, highlight the Parental Control Setting on the SYSTEM SETUP submenu, and press the Enter Button. You will be prompted to enter the four-digit password. See Figure 37.

Figure 37 – Parental Control

INITIAL SETUP

If you have entered the password correctly, the ratings levels will be displayed on the options line. See Figure 38.

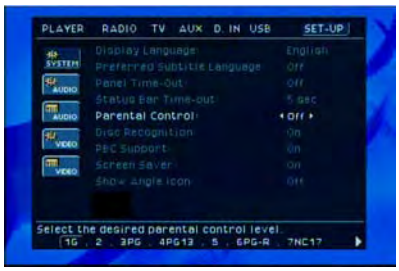

Figure 38 – Parental Control Ratings

Scroll to the left or right to select a rating, or to display additional options, including Off and New Password. See Figure 39.

Figure 39 – Additional Parental Control Ratings

The first time you use the HS 300, it is recommended that you scroll to the New Password setting and press the Enter Button to enter a new password. Use the Numeric Keys to enter your new password once at the New Password prompt, and a second time at the Confirm Password prompt. See Figures 40 and 41. The HS 300 will return to the screen shown in Figure 38, and you may then change the Ratings Setting. Once you press the Enter Button and return to the SYSTEM SETUP submenu, the new password will take effect.

Figure 40 – Enter New Password

Figure 41 – Confirm New Password

DISC RECOGNITION: The setting for the Disc Recognition feature, when turned on, allows you to stop a DVD-Video disc, remove it from the player, play another disc, and then resume playback of the original disc at a later time from the point at which you paused. When a previously played disc is reinserted in the HS 300, you will be presented with an on-screen status message asking whether you wish to start playback from the beginning of the disc or resume at the point where you left off. Even when the setting is activated, you must press the Stop Button either once (Resume mode) or twice (Stop mode), but not the Pause Button. The unit may be turned off between discs. The HS 300 can store the information for up to 100 DVDs at a time.

PBC SUPPORT: This setting controls the activation of PBC (Play Back Control) Support for VCD discs. If you plan to play VCD discs, which are a CD-ROM-based format that predates DVD, we recommend that the setting be turned ON. However, with PBC enabled, the Repeat Track, Repeat Disc and Random functions may not be available for VCDs.

> NOTE: The PBC indicator will light in the front-panel display any time a VCD encoded with playback control is loaded, regardless of whether the PBC Support setting has been activated.

SCREEN SAVER: The HS 300 offers a Screen Saver option to protect your TV or video display from damage that may occur if the player is left turned on with the same still image for a period of time, as there is a possibility that the image may be "burned" into some display devices. This is particularly important for plasma displays and some CRT devices. Set Screen Saver to ON so that the HS 300 will run the screen saver when no action has been detected for two minutes. Press a desired command key on the front panel or remote to "wake" the HS 300 and resume normal operation.

> IMPORTANT NOTE: If the screen cursor is left either on the Main title line (without selecting a source or the Setup menus) or on one of the navigation icons on the left side of the screen, the screen saver will not be activated. Moreover, some discs, such as DVD-Audio discs and JPEG discs, can leave a still image displayed indefinitely. Use caution in both of these situations to avoid causing burn-in on your video display.

SHOW ANGLE ICON: Some DVDs are programmed with multiple-angle capability, allowing you to view the same scene from a different camera angle. Normally, the angle icon will be displayed on screen at the beginning of those sections of the disc to inform you that you may press the Angle Button to change to a different view. The front-panel Angle indicator will remain lit for the duration of the sequence containing multiple camera angles. If you find the appearance of the icon on-screen distracting, select the Show Angle Icon setting in the System submenu, and set it to OFF.

> NOTE: When the on-screen angle icon is disabled, the front-panel Angle indicator will also be disabled.

Step Two – Audio Setup

In this step you may make adjustments to the audio settings using the Audio Setup submenu.

Use the ◀/▶ Buttons to move the cursor to the submenu icons on the left side of the screen, and then use the ▲/▼ buttons to highlight the Audio Setup icon, which has a picture of a gear on it. See Figure 42. Press the Enter Button, and then use the Navigation Buttons to move the cursor to the settings on the Audio Setup submenu.

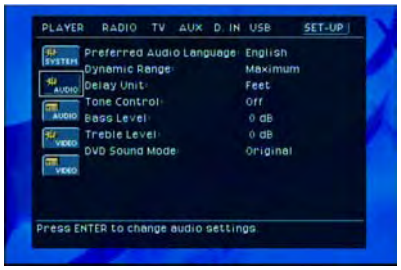

Figure 42 – Audio Setup Submenu

PREFERRED AUDIO LANGUAGE: This setting is used to select the default language that will be used for program playback. The factory default setting is English, but you may choose French, Spanish, German or Italian by making a selection from the options list as explained in the Using the On-Screen Menus section. To select a language other than those shown, select UNKNOWN (or OTHER) from the options list and press the Enter Button. You will be prompted to enter a four-digit language code. Look up the code for the desired language in the Language Code List, Table A14 in the Appendix.

This procedure selects a preferred audio program language, but it will only be available when the disc being played contains that language. The list of languages available on any given disc is always shown on the disc jacket, usually at the bottom of the back cover. The audio playback language may also be changed during playback using the Audio Select Button, but any changes made will only be effective during playback of that disc.

> **NOTE:** The Audio Select Button is also used to change the disc's audio output format, e.g., Dolby Digital 5.1 versus Dolby Digital 2.0.

DYNAMIC RANGE: This setting allows you to take advantage of the Night-mode encoding present on some Dolby Digital recordings to reduce the volume of louder passages while maintaining intelligibility of quieter passages. This allows you to listen to programs at a level that allows the full impact of a soundtrack to be heard at a volume that is lower than you might otherwise use to avoid disturbing others. The HS 300 accomplishes this by compressing the audio to a greater or lesser degree, depending on which setting you choose. Three options are available:

- **MAXIMUM** does not make any changes to the original playback, and should be used when the volume setting in the listening room may be as loud as you desire.
- **MEDIUM** applies a moderate amount of compression so that louder passages are a little bit quieter.
- **MINIMUM** applies more compression so that louder passages are much softer.

Feel free to experiment with the settings at any time.

DELAY UNIT: This setting selects the unit of distance used for calculating delay times when the AUDIO ADJUSTMENTS submenu is activated. The default unit is feet, but you may select meters.

TONE CONTROL: This setting determines whether the Tone Controls are activated. When OFF is selected, the audio output is run "flat" with no tone cut or boost. When ON is selected, the tone control settings made in the next two adjustments are applied.

BASS LEVEL: When the Tone Control setting (above) is ON, you may boost or cut the amount of bass (low frequency) by up to ±6dB.

TREBLE LEVEL: When the Tone Control setting (above) is ON, you may boost or cut the amount of treble (high frequency) by up to ±6dB.

DVD SOUND MODE: This setting selects the surround mode that will be used when a DVD is playing. (To set the surround mode option for another input, such as "TV," "Digital In," "AUX" or the tuner, go to the specific menu for that input.) The factory default is ORIGINAL, which will play back DVDs in the format output from the disc, such as Dolby Digital or DTS. When only two-channel audio is available on the disc, such as for a CD, you may select Stereo (no surround sound), or one of the Dolby Pro Logic II modes (Movie, Music or original Dolby Pro Logic).

Step Three – Configure Speakers

Although the HS 300 is custom-designed to be used specifically with the loudspeakers that are included in your system, a few adjustments need to be made to insure optimum performance in your particular listening room.

You will need to measure the distance from each of the five main speakers to the listening position. If you use the metric system, return to the Audio Setup submenu and change the Delay Unit setting from its default of FEET to METER.

You may find it convenient to record the measurements in Table A3 in the Appendix before entering them into the HS 300.

> **NOTE:** The HS 300 is designed to accommodate speaker placements of up to 15 feet from the listening position. If you have placed your speakers further from the listening position, move them closer.

Before you begin to make the audio adjustments, select test program material, either a test DVD you have purchased, or a movie or music selection you are familiar with. For best results, you may wish to also purchase a sound-pressure level (SPL) meter to assist you in setting the output levels correctly. If you use an SPL meter, set it to the C-Weighting, Slow scale, and adjust the HS 300 volume control until the meter measures 75dB. If you don't have an SPL meter, you may set the output levels "by ear".

INITIAL SETUP

Use the ◀/▶ Buttons to move the cursor to the submenu icons on the left side of the screen, and then use the ▲/▼ buttons to highlight the Audio Adjustments icon, which has a picture of a set of slide switches on it. See Figure 43. Press the Enter Button, and then use the Navigation Buttons to move the cursor to the settings on the Audio Adjustments submenu.

Figure 43 – Audio Adjustments Submenu

DELAY SETTINGS: The delay settings indicate the distance from each speaker to the listening position. Although ideally you placed all of your speakers in a circle equidistant from the listening position, we recognize that it isn't always practical to do so. This setting enables the HS 300 to delay the signal from some speakers by up to 16 mS to compensate.

You will notice that the delay settings are set in tandem for the front left and right speaker pair, and for the surround left and right speaker pair. Changing the settings for either speaker in these pairs also affects that setting for the other speaker in that pair. For this reason, it is important to place both speakers in each pair at about the same distance from the listening position.

Use the Navigation buttons to highlight the distance for each speaker, and press the Enter button to change it. Use the ◀/▶ Buttons to scroll through the available settings.

NOTE: There is no delay setting for the subwoofer. Low-frequency sound waves by their nature are not noticeably affected by the distances in a typical listening room.

OUTPUT LEVEL SETTINGS: Output level adjustment is a key part of the configuration process for any surround sound system. The goal is to set the output levels so that all channels sound equally loud at the listening position. This is important because movie directors adjust the loudness of each channel in the recording to produce a desired sound presentation. Usually the director reduces the loudness, or even the presence, of information in the surround channels so as not to distract the viewer from the main action taking place on screen. If the test tones on your test disc sound as loud in the rear speakers as they do coming from the other speakers, the HS 300 is performing correctly.

In many cases the factory default setting of 0dB should accomplish that. However, in some cases the specifics of your listening room may require some adjustments.

To adjust the output levels, first insert a disc with test tones or content you are familiar with, and that has a reasonably even level without many dynamic changes.

If you are using an SPL meter with a disc containing test tones, adjust the level of each channel so that the meter reads 75dB. If you don't have a meter or a test disc, adjust the levels until all channels sound equally loud. Make sure not to use a surround sound-encoded disc for this process, or the surround channels will be set too high.

Use the Navigation Buttons to highlight the level setting for the front left channel. Press the Enter Button to display the available settings, which range from –6 dB to +6dB, and use the ◀/▶ Buttons to scroll through them until you are satisfied with the level setting for that channel. Press the Enter button to select the setting, and use the Navigation Buttons to select the next channel. Repeat the procedure to enter the output level offset, if needed, that brings all of the channels to the same output volume. You may need to repeat this procedure more than once to accurately set the levels.

Step Four – Video Setup

In this step you will make a few adjustments to insure that the video signal is output in a way that is compatible with your video display.

Use the ◀/▶ Buttons to move the cursor to the submenu icons on the left side of the screen, and then use the ▲/▼ buttons to highlight the Video Setup icon that has a picture of a gear on it. See Figure 44. Press the Enter Button, and then use the Navigation Buttons to move the cursor to the settings on the Video Setup submenu.

Figure 44 – Video Setup Submenu

ASPECT RATIO: This setting selects the aspect ratio of video programming. Your choice should be made according to the shape of your video display and your personal preferences. Three choices are available:

- 16:9: If you have a widescreen (16:9) display, or a display that has a widescreen mode, choose this setting. The HS 300 will adjust the output for widescreen movies so that they fill the entire screen in the proper aspect ratio. However, a disc recorded in the 4:3 aspect ratio will appear as a boxed image in the center, with black or gray bars on the left and right side of the screen. If the widescreen option is chosen and a widescreen movie is played on a conventional 4:3 aspect ratio set, the image will be distorted due to vertical compression.
- 4:3 Letterbox: If you have a standard, 4:3 aspect ratio video display, choose this setting to see the entire frame of the movie as it is recorded on the disc without any image cutoff at the left and right sides. While this allows widescreen movies to be shown in their entirety, they will occupy a smaller portion of the screen and black "letterbox" bars may appear at the top and bottom of the screen.

- **4:3 PanScan:** If you have a standard, 4:3 aspect ratio video display and prefer to view widescreen movies without the black bars at the top and bottom of the screen, choose this option. However, since most DVDs do not contain special "pan/scan" coding that keeps the action in the frame, you may find that while the image will fill the screen, the vertical spread will cause it to be cropped at the left and right side.

SCAN TYPE: This setting allows you to select between progressive and interlaced scanning for the Component Video Outputs to maximize the image resolution for the type of video display in use. The output at the S-video and Composite Video Outputs will always be standard-rate video that is compatible with any television set or video display.

Two choices are available:

- **Progressive:** Select this option if you have a video display that is compatible with input sources of 480p or greater. Displays labeled as "HDTV Ready," including virtually all large-screen LCD and plasma displays, are compatible with progressive scan.
- **Interlaced:** Select this option when you are using an older video display that has Y/Pr/Pb component inputs, but which is not capable of displaying high scan rate, or "HD," signals.

> **NOTE:** Changing the Scan Type setting from Interlaced to Progressive will automatically change the Video Output setting from S-video to Component.

VIDEO OUTPUT: The HS 300 is not designed to output both S-video and component video signals simultaneously, and this setting selects between them. If you have connected the HS 300's component video outputs to your video display and are not seeing a picture, this setting may be the problem. In that case, you may adjust this setting without viewing the on-screen menu by pressing the Source Video Output button on the remote repeatedly.

VIDEO MODE: This setting only affects the HDMI and Component Video Outputs, and it controls how the video signals are optimized for progressive-scan display.

In most cases, the "automatic" mode is your best choice, as it senses whether the disc being played was originally recorded on video or shot on film. However, in some cases you may wish to compensate for errors in the disc authoring that occur when the frame rate is not properly maintained when films are converted to video. Three choices are available:

- **Auto:** This is the recommended setting, as it lets the HS 300 analyze the signals from the DVD and adjust the output accordingly.
- **Movie:** Choose this option for optimal playback of material that was shot on film, even though you are viewing it on video via a DVD.
- **Video:** Choose this option for optimal playback of material that was shot directly to video, such as concerts and sports programming.

VIDEO RESOLUTION: This setting displays the characteristics of the video output signal. When the HS 300 is connected to a video display using the HDMI Output, the display sends information to the HS 300 that indicates the highest video resolution it is capable of handling, and the HS 300 automatically sets the video output to match it. That resolution is displayed here, and may also be indicated by the corresponding indicator in the front-panel display. You may use this setting to manually select a lower video output resolution. Changes made here remain active until the HS 300 or the display is turned off. When either is turned off, and then on again, the HS 300 will revert to the default setting transmitted by the display. Make sure your video display is capable of handling the HS 300's HDMI output signal.

This setting also may be used to adjust the resolution of the component video output signal. If you wish to increase the resolution to 480p or better, make sure your video display device is capable of properly displaying the signal.

Do not attempt to change this setting from 480i to the progressive or high-definition settings (480p, 720p or 1080i) when the Composite or S-video Output is in use.

You may also access this setting by repeatedly pressing the Source Video Format button on the remote.

Step Five – Video Adjustments

In this step you may adjust five key parameters of the video signal to compensate for differences between HS 300 and other video sources. You may use either the HS 300's built-in color bar test signal or a test disc as the standard for the adjustments. To ensure that your system is properly optimized, we strongly recommend that you adjust your video display using the display's own controls before making any changes to the HS 300's output. Once the display is properly calibrated with all settings on the HS 300 set to their midpoint, use the controls on this menu to fine tune the HS 300's output.

Due to the nature of these settings, the navigation is somewhat different from the HS 300's other menus and controls. The menu itself is called up in the same way as the other menus. Use the ◀/▶ Buttons to move the cursor to the submenu icons on the left side of the screen, and then use the ▲/▼ buttons to highlight the Video Adjustments icon that has a picture of a set of slide switches on it. Press the Enter Button, and the video adjustments will appear as a banner at the top of the screen. See Figure 45.

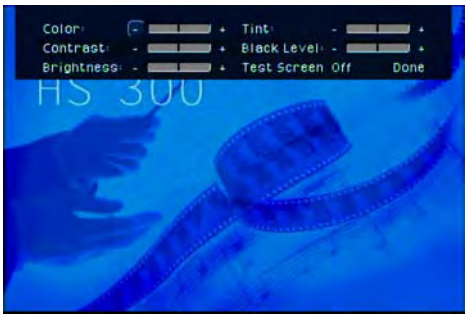

Figure 45 – Video Adjustments Banner

INITIAL SETUP

To change any of the video adjustments shown at the top of the screen, use the Navigation Buttons to highlight the "+" to the right of a parameter name to increase the setting, or "–" to the left of a parameter name to decrease the setting. Then press the Enter Button to change the value as shown by the number of lines to the left or right of the center line in the temperature bar for the parameter.

When only the dark center line is shown with no blue lines, the setting is at the default midpoint value.

When adjusting the Black Level setting, only two adjustments are available:

"0 to 100" provides a full black level setting, which is indicated by the bar at the midpoint

"7.5 to 100" or "full," which complies with standards for video with "setup"

Changes to any of the settings may be made with a test disc or broadcast signal playing, or you may use the internal test screen by using the Navigation Buttons to highlight the word OFF next to the TEST SCREEN line. Press the Enter Button and the setting will change to ON. A special combination test screen, including both color bars and gray scale along with 100% black and white fields, will be displayed. See Figure 46. To recall the video controls, press the OSD Button. Navigate the settings to make any necessary changes.

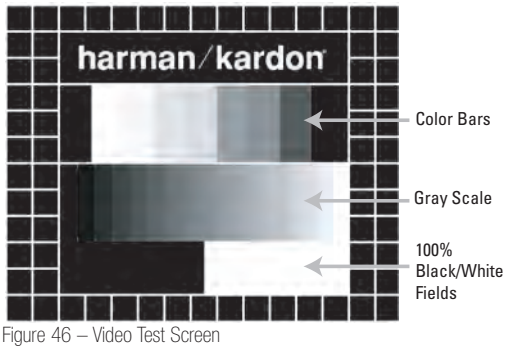

Figure 46 – Video Test Screen

With the test screen showing on your video display, the following adjustments may be made:

- The proper color intensity setting on your TV.
- Proper color adjustments using the color bars, which should be (left to right) black, white, yellow, cyan (turquoise), green, magenta, red, blue, black.
- The proper color transition, seen as sharp separation of the bars.
- The performance of the color circuits in your TV (with "Video" signals); bar edges should show no vertical crawling dots.

With the gray scale and the black/white fields below the color bars, the brightness and contrast of your screen can be adjusted.

Brightness Adjustment

1. Turn down the color control on your TV until the color bars are visible in black and white.
2. Adjust the contrast to the lowest level where you still can see all bars within the gray scale in the test picture separately and clearly.
3. Adjust the brightness so that the bars in the gray scale are all visible. The bar farthest to the left has to be as black as possible rather than gray but the next gradation must clearly be distinct from it. All the bars in the gray scale should be gradually and evenly changing from black to white, left to right.

Contrast Adjustment

1. Adjust the contrast on your TV until you see a bright white bar in the lower right corner of the screen and a deep-dark-black bar to the left. The optimal contrast setting will depend on your preference and the surrounding light in the TV room.
2. If the brightness of the white bar no longer increases when the contrast is turned up or the borders of the white "harman/kardon" letters on top bloom (overlight) into the black areas (drastically decreasing the sharpness of the type), the contrast has been turned up too much. Reduce the contrast until these effects disappear and the video still looks realistic.
3. If you are watching TV with customary surrounding daylight, adjust the contrast so that a normal video picture has about the same look as the surroundings in your room. That way the eye is relaxed when watching the TV picture. This contrast setting may be reduced when the surrounding light is dimmed, thereby usually improving the sharpness of a video significantly.
4. The gray scale in the middle line needs to have the same clear difference between each bar as before the contrast adjustment. If not, go back to "Brightness Adjustment" and repeat Step 3 and then "Contrast Adjustment," making only minor adjustments each time for optimization.

Color and Tint Adjustment

1. When the brightness and contrast are set optimally, adjust the color control to the level of your preference. Set the level where the colors look strong but still natural, not overdone. If the color level is too high, depending on the TV, some of the bars will seem wider or the color intensity will not increase while the control is turned up. Then the color control must be reduced again. Ultimately, you also should test the color intensity with a video – e.g., pictures of natural faces, flowers, fruit and vegetables, and other common natural articles for an optimal setting of the color intensity.
2. Use the large white bar below the gray scale to tweak the warmth of the picture. Every viewer has a preference as to how the glow of the picture should be. Some prefer a little colder picture, some a warmer glow. The Tint function and the white bar can be used to control this. Adjust the Tint to the level where you feel the white color has the tone you prefer.

Step Six – Configure Sources

This is the last step in the configuration process. It is necessary so that the correct inputs are selected as you use various sources with your HS 300.

> **NOTE:** If you have not connected any devices to the TV or D-IN input jacks on the HS 300, then you may skip this step. You are now ready to begin enjoying the finest in home entertainment using your HS 300 system. Turn to the Operation section to learn how to make the most of the many features of the HS 300.

Select the TV, AUX or D-IN source either by pressing its Source Selector on the remote (see Figure 47), or by pressing the OSD button and using the ◀/▶ Buttons to select the source from the list at the top of the screen. See Figure 48 for the screen for the TV source.

Figure 47 – Source Selectors

Figure 48 – TV Source Menu

Press the Enter Button to access the TV menu settings, and use the ▼ Button to select the Audio Input setting. Press the Enter Button to display the input options: Coaxial or Optical (digital audio) or Line (analog audio). Use the ◀/▶ buttons to select the input to which you connected your TV's audio output, and press the Enter Button.

You may also select a surround mode for this source at the Audio setting line, and you may adjust the volume level for this source at the Level Adjustment setting line, but it is not necessary to make these adjustments now. These settings only apply to the TV source.

To configure the D-IN (Digital Input) source, use the Navigation Buttons to highlight D-IN on the top line, and press the Enter Button to access the settings for the D-IN source. See Figure 49.

Figure 49 – Digital Input (D-IN) Source Menu

Use the ▼ Button to select the Digital Input setting line, and press the Enter Button to view the options of Coaxial or Optical digital audio input. Select the input to which you have connected the source device you wish to listen to, and press the Enter Button.

You may also select a surround mode for this source at the Audio setting line, and you may adjust the volume level for this source at the Level Adjustment setting line, but it is not necessary to make these adjustments now. These settings only apply to the D-IN source.

You are now ready to begin enjoying the finest in home entertainment with your HS 300 home theater system!

OPERATION

Now that you have installed and configured your system components, you are ready to begin enjoying your home theater system.

Turning On the HS 300

When you have plugged in the HS 300, the Power Indicator surrounding the power switch should light up in amber. This indicates that the HS 300 is in Standby mode and is ready to be turned on. See Figure 50

Figure 50 – Power Indicator and Standby/On Switch

There are several ways in which the HS 300 may be turned on:

a) Press the Standby/On Switch on the top panel. See Figure 50.

b) Press the Open/Close Button on the top panel. See Figure 50.

c) Using the remote, press any one of these buttons: TV, DISC, RADIO, AUX, D-IN, USB 1 or USB 2. See Figure 51.

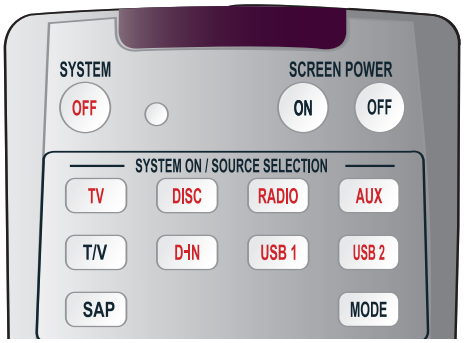

Figure 51 – Source Selectors

NOTE: Any time you press one of the remote's Source Selectors (i.e., TV, DISC, RADIO, AUX, D-IN, USB 1 or USB 2), the remote will switch modes so that it will transmit the codes programmed to operate that device.

To turn the HS 300 off, press either the Standby/On Switch on the top panel, or press the System OFF Button on the remote. See Figure 51. When the HS 300 is unplugged, any settings you have programmed, including system configuration and preset radio stations, will be preserved for up to four weeks.

Volume Control

The volume may be adjusted either by turning the knob on the front panel (clockwise to increase volume or counterclockwise to decrease volume), or by pressing the Volume Control Buttons on the remote. See Figure 52. The volume is displayed as a negative number of decibels (dB) below the 0dB reference point. Unlike some volume controls on other products, 0dB is the maximum volume for the HS 300. Although it's physically possible to turn the volume to a higher level, doing so may damage your hearing and your speakers. For certain more dynamic audio materials, even 0dB may be too high, allowing for damage to equipment.

Figure 52 – Volume Controls

The HS 300 is designed to reproduce audio with a minimum amount of distortion. This clarity may lead you to think that your hearing and the equipment can handle higher volumes. We urge caution with regard to volume levels.

Mute Function

To temporarily mute all speakers and the headphones, press the Mute Button on the remote. See Figure 53. Any recording in progress will not be affected. The MUTE message will appear briefly in the display. To restore normal audio, either press the Mute Button again, or adjust the volume. Turning off the HS 300 will also end muting.

Figure 53 – Mute Button

Tone Controls

You may boost or cut either the treble or the bass frequencies by up to 6dB.

The tone controls are adjusted using the Audio Setup submenu as described in Step Two of the Initial Setup section.

Press the Setup Menu button on the remote, and use the Navigation Buttons to highlight the Audio Setup menu icon on the left side of the screen (has picture of a gear). Press the Enter Button to view the Audio Setup menu, and use the Navigation Buttons to highlight the Tone Control setting. To adjust the tone controls, the Tone Control setting must be ON. The Bass and Treble controls may then be boost or cut as desired. See Figure 42.

If you wish to remove the tone controls from the circuit for "flat" response without losing bass or treble settings for future use, set the Tone Control to OFF.

NOTE: The HS 300 does not have a conventional balance control. The settings made using the Audio Adjustments submenu as explained in Step Three of the Initial Setup section compensate for any special acoustic characteristics of your room or speakers, and we recommend that you leave the settings as they are after you have completed the configuration process. It is possible to manually adjust the levels of the left and right channels –

decreasing one and increasing the other by the same amount – using the Audio Adjustments submenu. This achieves the same effect as using a balance control.

Headphones

Plug the 1/8" plug on a pair of headphones into the headphone jack on the right side of the HS 300 for private listening.

Figure 54 – Headphone Jack

The HS 300 cannot accommodate a 1/4" headphone plug without an adapter (not included). Using the headphones output mutes the speakers.

Source Selection

Most of the time you may find it convenient to select a source by pressing its Source Selector on the remote. See Figure 51.

Pressing a Source Selector not only selects that source as the HS 300's input, but also turns on the HS 300 if it is in Standby mode, and switches the remote to the mode that operates the source.

NOTE: Press the Mode button on the remote to switch it to operate another device without changing the source selection for the HS 300. See Figure 55.

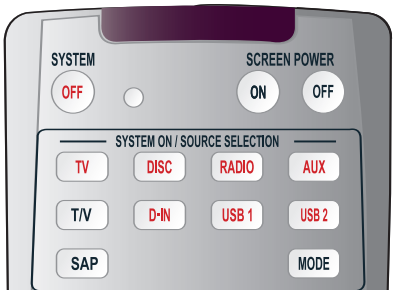

Figure 55 – Mode Button on Remote

When the source is selected, the HS 300 will make the following selections as appropriate to the source:

1. For the TV and D-IN sources, the HS 300 will select the correct analog or digital audio input. See Step Six of the Initial Setup section for more information on configuring the audio input.
2. For all sources, the HS 300 will select the correct audio, or surround sound, mode. The Audio Mode setting is adjusted using the Source submenu for the RADIO, TV, AUX and D-IN sources. The adjustment is called DVD Sound Mode for the Disc Player, and is adjusted using the System Audio Setup submenu. There is no surround sound processing available for materials on USB devices, and they are always played in their original formats.
3. For the TV, AUX and D-IN sources, the HS 300 will adjust the audio level (volume) for that source only, based on the setting in the Source submenu.

NOTE: Pressing the Open/Close button always causes the HS 300 to select the Disc Player as the source.

The following sections describe the operation of the internal disc player and tuner, as well as the other sources.

OPERATION

USING THE HS 300 DISC PLAYER

Thanks to advanced digital technology, the HS 300 features an internal DVD-Audio/Video disc player within its low-profile chassis. Although you may previously have owned a CD or DVD player, we recommend you take a few minutes to learn the specifics of operating the HS 300 disc player. You also may want to take a moment now to review the glossary terms in the back of the manual to familiarize yourself with the terminology used to describe DVD players.

Playback Basics

In some respects disc playback is the same for all types of discs. We suggest you read through the basic instructions, and then read the sections pertaining to the various disc types.

Disc Handling Precautions

• To keep the disc clean, handle the disc by its edge. Do not touch the surface. See Figure 56.

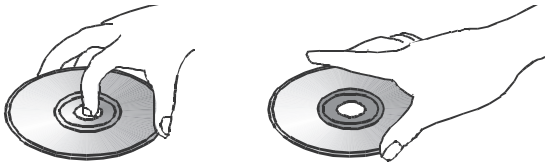

Figure 56 – How to Handle a Disc

- Do not stick paper or tape on the disc. If there is glue (or a similar substance) on the disc, remove the glue completely before using the disc.
- Do not expose the disc to direct sunlight or sources such as hot air ducts, or leave it in a car parked in direct sunlight, as there can be a considerable rise in temperature inside the car.
- After playing, store the disc in its case.
- Do not write on the label side with a ball-point pen or other sharp writing utensil.
- Be careful not to drop or bend the disc.

Disc Cleaning Precautions

- Before playing, clean the disc with a cleaning cloth. Wipe the disc from the center out.
- Do not use solvents such as benzene, thinner, commercially available cleaners or anti-static spray intended for vinyl LPs.

Disc Loading Precautions

- Do not load more than one disc on disc tray.
- Do not place a disc on the tray upside down.
- Do not try to close the disc tray when the disc is not positioned or centered properly.

Loading Discs

To load discs in the HS 300, first turn it on by pressing in the Standby/On Switch or the Open/Close button on the top panel or the DISC button on the remote. The Power Indicator is amber when the unit is connected to an AC power source, and it turns blue when the HS 300 is turned on.

Next, if you have not already done so, press the Open/Close Button so that the disc tray opens.

Hold the disc by the edge, and gently place it into the disc drawer, making certain that the disc is properly seated in the tray's insert. If the disc is not correctly centered, you may damage both the disc and the player when the drawer closes. When loading discs, please note the following:

- The HS 300 will play discs with the following logos as well as most DVD-RW or DVD+RW discs and most WMA and JPEG discs, including Kodak Picture CDs, but not Kodak Photo CDs. DO NOT attempt to play another type of disc.

- The HS 300 will only display video in the NTSC format. Although the PAL format is generally used in Europe and other regions of the world outside North America, some music or other DVDs are available in PAL with a Region Code of "0," which means they may be played on any DVD player around the world. The HS 300 will automatically detect the PAL format, and make the necessary conversions so that the video may be displayed on an NTSC TV. PAL discs bearing a Region Code other than "0" or "1" may not be played on the HS 300.
- Playback capability for CD-RW, DVD-RW, DVD-R, DVD+RW or DVD+R discs will vary according to the quality of the disc. On some occasions it is possible that these discs may not play on the HS 300. This does not indicate any problem with the HS 300.
- The HS 300 will only play discs that are coded for Region 1 or discs that are open to being played in all regions (Region Code "0"). Discs that contain a Region Code of 2, 3, 4, 5 or 6 (as noted by a number inside a world map logo on the disc's jacket) will not play.
- Both 5-inch (12cm) and 3-inch (8cm) discs may be used.

- Load CDs or DVD-Audio discs, with the label side up.
- When loading DVD-Video discs with printed labels, load them label side up. If the disc contains both standard and high-definition (not HD-DVD or Blu-ray Disc) versions of the program, make sure the desired label faces up.
- Some DVD-Video discs are double-sided. The title information for these will be printed on the inner ring of the disc, very close to the center hole. The title for the side you wish to play should be facing up.

After a disc is properly loaded, press the Open/Close Button to close the disc drawer. After the drawer closes, you will see the READING message in the Main Information Display to alert you to the fact that the unit is determining the type of disc (DVD-Video, DVD-Audio, CD, VCD, JPEG, WMA or MP3) and is reading the data for track, chapter, title and other information about the disc.

Once the disc's data has been read, the type of disc will be displayed by the Disc-Type Indicator in the front-panel display. If the disc is a DVD, CD or VCD2.0 disc, it will automatically begin playing. The disc's track and timing information and other relevant data will appear in the Main Information Display.

Any time a control button is pressed, an icon will appear in the upper right corner of the screen to indicate the player's action. These icons include the standard transport modes (play, stop, pause, forward and reverse fast and slow search, track skip), the opening or closing of the disc drawer, or the prohibit icon (Ø) if the command action is not available at that time or for that disc. As explained in more detail below, pressing the Status Button displays the Status Banner for DVDs, and pressing the Info Button displays the Player submenu.

- When a DVD is detected, playback will automatically begin and the screen will show the program or the disc's menu, depending on how the disc was created.
- If a CD is detected, playback will begin automatically.
- If the disc contains MP3, WMA or JPEG files, or if it is a VCD without playback control, the Player Information display will appear. See Figure 57. To play one of these files, use the Navigation Buttons to select a folder and press the Enter Button to open it. Use the Navigation Buttons to select a file for playback, and press the Enter Button to begin play.

Figure 57 – Player Information Screen (JPEG/WMA Disc)

- VCD2.0 discs will begin play automatically, similar to a conventional audio CD. Not all VCDs will play on the HS 300. VCDs containing raw MPEG files will not play.

If a disc is already in the drawer when the unit is turned on, it will begin playing. If the disc was stopped using the Resume function, playback will begin from the point where it was stopped. If the disc was stopped by pressing the Stop Button twice, the disc will begin playing from its beginning. If the Disc Recognition feature was turned on in the System Setup menu (see Figure 33), a screen will appear asking you whether to begin playback from the beginning of the disc, or from the point where playback was stopped during the last viewing session. See Figure 58.

Figure 58 – Disc-Recognition Resume Screen

Playback Features for DVD and CD Discs

See Figure 59 for reference to the transport controls described below.

Figure 59 – Transport Controls

- To momentarily pause playback and freeze the current picture frame on a DVD, press the Pause Button. To resume playback after pressing the Pause button, press the Play Button.
- To move forward or backward through the tracks on a DVD-Audio disc or CD, or the chapters on a DVD, press the Previous/Next Buttons on the remote.
- To move forward or backward through the DVD or CD disc being played at fast speed, press the Search Forward/Reverse Buttons. Once one of these buttons is pressed, the fast search will continue until the Play Button is pressed. Each additional press of the Search Forward/Reverse Buttons will cycle through the five available fast-search speeds. The speed will be indicated by the number of filled-in triangles that appear in the upper right corner of the screen.

OPERATION

NOTE: Fast search is available when DVD-Audio, MP3 and WMA discs are playing. Search speeds available may vary for different types of discs.

- When a DVD is playing, you may move forward or backward through the disc in slow motion by first pressing the Pause Button and then pressing the Search/Slow Forward or Search/Slow Reverse Buttons. Each additional press of the buttons will cycle the player through one of the five forward or reverse slow-play speeds, as indicated by the number of filled-in triangles appearing in the upper right corner of the screen. Press the Play Button to resume normal playback.

NOTE: There is no audio playback during fast or slow-forward or -reverse play. This is normal for DVDs, as surround processors cannot process the digital audio streams during slow modes. Slow-play is available for VCDs, but not for audio CDs, MP3s or WMAs. Slow-play speeds may vary for different types of discs.

- To advance frame by frame while a DVD is playing, first press the Pause Button, then press the Skip/Step (Previous) or Skip/Step (Next) button repeatedly. Press the Pause or Play Button to resume normal play. Frame-by-frame movement in reverse is not available.

NOTE: Playback of a disc with 96kHz/24-bit audio requires the use of circuitry normally used for other features. Accordingly, Slow Play Reverse and Step Advance features are not available with these discs.

- When a camera icon appears on screen, or the Angle Indicator appears on the front panel, it indicates that there is multiple-angle information on the disc being played. To change the angle, press the Angle Button repeatedly until the desired angle view appears. An on-screen banner message will appear to indicate the angle view in use.

- To illuminate the buttons on the remote control so that they may be seen in low-light conditions, press the Light Button.

The availability of the Zoom, Repeat, Repeat A-B and Random functions depends on the type of disc. In addition, the availability of the Player Information screens and Status Bar vary from one disc type to another. These features are described in the following sections describing play-back of DVDs, CDs, MP3s, WMAs, JPEGs and VCDs. Programming playlists is explained after the section on VCDs.

DVD PLAYBACK

Using a DVD's Menu

One of the unique features of the DVD system is that it offers a producer the opportunity to include a wide range of features on a disc, including multiple language tracks; subtitles in a variety of languages; special information such as movie trailers and cast information; and other customized information. In addition, producers may divide a movie or program into chapters that allow for quick access to specific parts of the program. These chapters may be accompanied by thumbnail pictures of a scene from the specific chapter to help you select the desired spot on the disc.

When a disc is playing, press the Disc Menu Button to pause the playback and display the disc's menu. As there are no hard rules about style and contents for DVD menus, the way they appear on the screen and the information they contain will vary from one disc to another. However, the following general rules apply to most menus:

- You may move through the options on a menu with the Navigation Buttons, as the disc's programming allows. The option selected will typically be highlighted in a certain color or inside an outline box.
- To select a highlighted option, which may either play a portion of the disc or move to a submenu, press the Enter Button.
- On some discs, when you select the DVD menu during the playback of a movie, the disc will return to the point in the program where the menu was selected by offering a "Play Movie" option. Press the Enter Button or Play Button to resume play. However, not all discs offer this feature, and selecting the menu while playing a movie may mean that you will have to go back to either the beginning of the program or the start of a chapter. This feature is out of the control of the HS 300, as it is set by the disc's internal programming.

IMPORTANT NOTE ON DVD PLAYBACK

The HS 300 is capable of all the features and options covered by the DVD standards. However, not all discs will function identically, and some discs will not have many of the features of the DVD system. For example, most current DVD discs do not take advantage of the multiple-angle feature.

When you press a button and the player displays the "Feature Prohibited" icon "Ø", this is an indication that the disc has not been programmed for that feature. In addition, it is common for the producers of DVD discs to block the use of certain functions during only some parts of a disc. For example, many discs prohibit the use of fast-play buttons or prohibit access to the Chapter Menu display during the playback of copyright notices, studio logos, movie credits or trailers.

Zoom

The HS 300's advanced digital video processing circuits include a Zoom feature that allows you to enlarge the image of a DVD, VCD or JPEG for closer examination of a particular part of the picture. Four steps of enlargement are available.

Figure 60 – Zoom Button

- To use the Zoom feature, press the Zoom Button while a disc is playing or paused. See Figure 60. Each press of the button will increase the zoom-in effect. When you have zoomed through all four steps (two steps of enlargement for VCDs), the picture will return to normal size.
- When the zoom feature is activated, you may use the Navigation Buttons to explore the enlarged picture once the information box with the zoom ratio and playback time no longer appears on the screen.
- Some discs are created in a way that prevents the Zoom feature from operating. In addition, the Zoom feature will not operate on disc menus and may not operate on subtitles.

Playback Resume

The HS 300 offers a "Resume" feature for DVD playback that is different from the conventional "Stop" function you may be used to on CD players. When the Stop Button is pressed once, the disc will stop and Resume will appear briefly in the upper right corner of the video screen and in the Main Information Display. While the Resume feature is active, the disc's position is entered into the unit's memory so that when the Play Button is pressed to resume playback, the program will continue at the point where it was when the Stop Button was pressed. To completely stop playback, press the Stop Button twice.

You may resume a DVD (Audio or Video), CD, VCD with Playback Control, MP3 or JPEG disc after placing the HS 300 in Standby mode. Resume will not operate for WMA files or for VCDs that do not have playback control.

Disc Recognition

When the Disc Recognition feature is turned on in the **SYSTEM SETUP** menu, you may press the Stop Button either once (to enter Resume mode) or twice (to enter Stop mode) and remove the DVD from the player. Even if you turn the HS 300 off, the next time you insert that DVD, you will be presented with the option of either starting playback from the beginning, or resuming playback at the point at which you stopped previously. The HS 300 can recognize up to 100 DVDs total.

OPERATION

Player Information Menu

The HS 300's Player Information menu displays disc information and enables you to program playback modes. Press the Info Button to display the Player Information menu. See Figure 61.

Figure 61 – Player Information Screen (Info Button)

The Player Information menu has three submenus, which may be accessed by using the Navigation Buttons to highlight the submenu's icon, and pressing the Enter Button to select it. These submenus are different from the Setup menus in that many items are for display only and cannot be changed using the menu system.

PLAYBACK INFO Submenu: This submenu displays basic disc and playback mode information. See Figure 62. Access it either by pressing the OSD button, or by highlighting the Info icon with the lower case "i" (see Figure 61) and selecting it twice.

Figure 62 – Player Information Screen (OSD Button)

Disc: This line displays the disc type, such as DVD-Video.

Audio: The current audio track will be displayed here. You may navigate to this line, press the Enter button, and use the ◀/▶ buttons to scroll through the available audio tracks, which are usually the available surround sound formats or audio languages. You may also change this setting by repeatedly pressing the Audio button on the remote.

Playlist: This line indicates whether playback will occur in the disc's order, or following a programmed playlist.

Repeat: This line displays the current repeat mode, or Off if Repeat mode is not active.

Random: Random play is not available for DVDs.

Subtitle: You may select from the subtitles available on the disc at this line.

The disc's contents are displayed below this basic information.

The top line shown in the contents section of Figure 62 is the current title. Move the cursor to highlight this line and press the Enter button to view a list of all the titles on the disc. Select any title and press Enter to expand it and view the chapter list for that title. Select a chapter and press the Enter button to begin play of that chapter.

The arrow(s) at the lower left of the screen enable you to advance forward or backward through the contents of the disc a page at a time.

PROGRAM submenu: The Program submenu displays the play order of each title or chapter, depending on the current view, and allows you to edit the order. See the section on Programming Play Lists below for more information.

Figure 63 – Disc Info Submenu

DISC INFO Submenu: This submenu displays detailed information about the disc content (see Figure 63). You will not be able to make any changes to the items on this submenu. However, you may use the Video Setup submenu to change the HS 300 player settings for video aspect ratio or scan type.

Disc: This line displays the disc type.

Disc ID: If the disc is encoded with an identification label, it will appear here.

Aspect Ratio: This line displays the aspect ratio of the video content on the disc, and the format in which it is being played back according to the setting established in the VIDEO SETUP submenu. Some discs may contain two versions of the same program with a widescreen aspect ratio on one side of the disc, and a standard aspect ratio on the other.

Video Standard: The disc's format is shown here. For Region 1 players, this will normally be NTSC, although some DVDs that are open region (playable in all regions) may be in the PAL format. The HS 300 will convert the video to the NTSC format used by your television.

Scan Type: This line displays whether the video program on the DVD was recorded with a progressive- or interlaced-scan rate. It also displays how the program is being played back, based on the setting established in the VIDEO SETUP submenu.

Audio Resolution: This line displays the sample rate and bit rate for the current audio format.

Audio Format: This line displays the current audio track, such as Dolby Digital 5.1 or linear PCM.

Video Bit Rate: This line displays the video bit rate up to the maximum of 10 Mbps. This indication will vary as a disc is played in response to changes in the amount of compression that was applied to the video signal when the disc was created. Thus, as shown in Figure 63, when the disc is stopped or paused, this line will remain blank.

Audio Bit Rate: This line displays the audio bit rate up to the maximum of 5 Mbps.

When you have finished viewing the Player menus, press the Info, OSD or Clear Button to remove the displays from the screen and return to normal play.

On-Screen Status Display

When a DVD is playing, you may press the Status Button at any time to view a quick summary of the disc's playback status. The Status Bar not only gives you a snapshot of the unit's current state, it also provides an easy way to select a different group, title, chapter or track, or use the time search feature. See Figure 64.

Figure 64 – Status Bar

- **Group/Title:** For DVD-Video discs, this displays the current title number. For DVD-Audio discs, the group number is shown.
- **Chapter:** For DVD-Video discs, this shows the current chapter. For DVD-Audio discs, the current track is shown.
- **Play Mode Icon:** This displays the current play mode icon; e.g., Play ▶, Pause ❙❙, Stop ■.
- **Time Display:** This section of the display shows the time corresponding to the type of display indicated in the Time Display Type. The Time Search function enables you to start playback at any point in the program. Use the ◀/▶ Navigation Buttons to highlight this display. You may then use the Numeric Keys to enter the numbers corresponding to the time on the disc at which you wish play to commence. After you enter the last digit, there will be a momentary delay before the digit appears while the HS 300 locates the selected time position, then play will begin.
- **Time Display Type:** This section identifies the type of information in the Time Display section of the display. Use the Navigation Buttons to select this setting, and each subsequent press of the Enter Button will change the time display from Title Elapsed, to Title Remaining, to Chapter Elapsed to Chapter Remaining, and cycle back to Title Elapsed. The time displayed on screen and in the front-panel Information Display will change accordingly. For DVD-Audio discs, the time display options are Group Elapsed, Group Remaining, Track Elapsed and Track Remaining.
- **Time Bar:** This display is a graphic representation of the time elapsed for the title being played. As the disc plays, the number of bars will increase to reflect approximately what percentage of the title has been played thus far.

Titles and Groups

To select a title or group, first press the Status Button so that the Status Display appears. The Current Title or Group will be highlighted in a blue box. Press the Enter Button and arrows will appear on either side of the current title or group number, enabling you to either use the Numeric Keys to enter the desired title/group or to use the ◀/▶ Navigation Buttons to scroll through the available title/group numbers. Press the Enter Button again to begin playing the new title or group. See Figure 65.

Figure 65 – Selecting a Title

If a "ø" icon appears when you attempt to select a new title (group), this is an indication that the disc does not allow the title (group) to be changed in this manner, even though a list of numbers will appear. This is a function of the way the disc was created and is not a flaw in the HS 300.

For some discs, you may press the Title or Audio Button during playback to change the current title or group. Other discs will switch to the disc menu, and some discs may simply restart play from the beginning of the current title or group. This is a function of how the disc was authored, and does not reflect a problem with the HS 300.

Chapters and Tracks

To select a chapter for DVD-Video discs or a track for DVD-Audio discs, first press the Status Button so that the Status Display appears. Next, press the ▶ Navigation Button so that the Current Chapter or Track Number is highlighted. Press the Enter Button and arrows will appear on either side of the current chapter or track number, enabling you to either use the Numeric Keys to enter the desired chapter/track or to use the ◀/▶ Navigation Buttons to scroll through the available chapter/track numbers. Press the Enter Button again to begin playing the new chapter or track.

To select a specific chapter or track on a DVD at any time during playback, simply press the number corresponding to the chapter or track you wish to view using the Numeric Keys. You may also move one by one through the chapters or tracks at any time by pressing the Skip Reverse (Previous)/Skip Forward (Next) Buttons.

OPERATION

Audio Soundtracks

Many DVDs contain more than one audio soundtrack. On many discs, you will find multiple languages, while others will offer a choice of different audio formats or mixes (e.g., Dolby Digital or DTS), while some will also contain commentary from the director or stars. The default audio language is set in the Audio Setup menu.

To change the audio soundtrack, press the Audio Select Button to display the Audio banner and show the current audio soundtrack configuration. See Figure 66.

Figure 66 – Audio Status Bar

Each press of the Audio Select Button will change the current audio soundtrack. Alternatively, press the Enter Button to enable you to scroll through the choices of available soundtracks. See Figure 67.

Figure 67 – Selecting an Audio Track

When the desired selection appears, press the ◀/▶ Navigation Buttons so that Done is highlighted, and then press the Enter Button to remove the banner display and return to normal playback.

NOTES ON AUDIO TRACKS:

- Not all discs contain multiple audio soundtrack choices. Check the information on back of the disc jacket to see what audio languages or format options are available.
- Some DVDs do not allow direct selection of the audio track during playback. For these discs, you must change the audio soundtrack using the disc's menu system. Press the Disc Menu Button to display the disc's menu and then use the Navigation Buttons to make your selection following the navigation scheme of the individual disc.
- When you change the audio soundtrack or language with the Audio Select Button on the remote control as shown above, you only override the audio language setting established in the Audio Setup menu for the disc currently being played. The unit will revert to its default setting with the next disc.

Subtitles (DVD-Video Discs Only)

Many DVDs contain one or more subtitle languages. The default subtitle language is set in the System Setup menu, but you may also turn the subtitles on or off, or change the language at any time during a disc's playback. To change the subtitle language or turn the subtitles on or off, press the Subtitle Button to display the Subtitle banner and show the current configuration. Each press of either the Subtitle Button will change the current subtitle language, or turn subtitling off. Or you may press the Enter Button and scroll through the available choices. When your desired selection appears, press the ◀/▶ Navigation Buttons until Done is highlighted and then press the Enter Button to remove the banner display and return to normal playback.

NOTE: Due to the variations in how DVD discs are authored, subtitle languages displayed by the HS 300 may not accurately reflect the actual languages available on the disc. It is recommended that subtitles be selected using the disc's menu.

Angles (DVD-Video Discs Only)

Some DVDs contain multiple-angle views, which allow the disc's creators to provide different camera views of the same scene. In many cases the disc will alert you to the presence of multiple angles by showing a camera icon or other indication, but in any case where multiple-angle material is available, if the Show Angle Icon setting in the System Setup menu has been set to On, the Multiple Angle Icon will appear on screen briefly at the beginning of the passage where multiple camera angles are available, and the Angle Indicator will light in the front panel Information Display for the entire duration of the passage.

If the Show Angle Icon setting has been set to Off, neither the on-screen nor front-panel icons will appear at any time, although you may still change the camera angle as described below if you are familiar with the presentation.

When multiple angle views are available, press the Angle Button to change the view. See Figure 68. The current angle number and total available angles will be displayed in the upper right corner of the screen. Each press of the Angle Button will change the current camera angle. Wait a brief moment for the angle status bar to disappear from view on its own. If you press the Angle Button during a section where multiple views are not available, the prohibit icon will appear.

Figure 68 – Angle Button

Repeat Play

The HS 300 offers several repeat functions that allow you to take advantage of the capacity of the unit for unattended playback. Press the Repeat button once to display the Repeat/Random Status Bar on-screen. See Figure 69. Press the Repeat Button again to cycle through the options, or press the Enter Button and scroll through the options:

Figure 69 – Repeat/Random Status Bar

- **Repeat 1:** Repeats the DVD chapter or DVD-Audio track currently being played until the disc is manually stopped. The Repeat ("Rep.") and 1 indicators will light in the front-panel display.
- **Repeat Title or Group:** This mode repeats the title or group currently being played until the disc is manually stopped. The Repeat ("Rep.") indicator will light in the front-panel display.

A-B Repeat Play

The Repeat A-B function allows you to select any portion of a DVD-Video disc and have it repeat continually until stopped.

To initiate a Repeat A-B playback sequence, follow these steps while a disc is playing:

Figure 70 – A-B Repeat Button

1. Press the A-B Repeat Button (see Figure 70) on the remote when you want to choose the beginning point; the Status Bar will appear on screen, and "REPEAT A-" will appear next to the playback mode indicator. The "A" indicator will light in the front-panel display.
2. Press the A-B Repeat Button again to choose the end point. Repeat A-B has been set, and the A-B section will be played continuously.
3. Press the A-B Repeat Button on the remote again to cancel Repeat A-B mode.

OPERATION

CD PLAYBACK

Many functions of the HS 300 operate the same way for CD playback as for DVD play; however, there are some important differences. When a CD is loaded, the HS 300 will automatically display the Player Information menu. See Figure 71. Status banners are not available during CD play. Features unique to CD play are described in this section.

Figure 71 – CD Player Information Screen

Player Information Menu

The HS 300's Player Information menu displays disc information and enables you to program playback modes. If it is not already on screen, press the Info Button to display the Player Information menu. See Figure 71.

The Player Information menu has two submenus, Playback Info and Program, which may be accessed by using the Navigation Buttons to highlight the submenu's icon, and pressing the Enter Button to select.

Playback Info Submenu: This submenu displays basic disc and playback mode information. See Figure 71.

Disc: This line displays the disc type, such as CD.

Audio: This line displays the type of audio recorded on the disc, usually Stereo for CDs.

Playlist: You may choose to play the tracks in order as they appear on the disc, or you may program a playlist containing some or all of the tracks in the order in which you wish to hear them. This line indicates which of these two modes has been selected.

Repeat: With this line highlighted, press the Enter Button or the Repeat Button to activate Repeat mode. Each press will change the repeat mode from Repeat 1 (repeat one track) to Repeat All (repeat all tracks on the disc) to Repeat Off. Repeat A-B is not selected using this setting.

Random: With this line highlighted, press the Enter Button or the Random Button to activate Random play mode, in which the tracks on the disc are played in random order. Each press will toggle between turning Random play on or off.

Time: This line indicates the time display mode (Track Elapsed, Track Remaining, Disc Elapsed, Disc Remaining), with the time displayed to the right. Press the Enter Button to enable scrolling through the time display options, and press the Enter Button again to make your selection.

Time Search Function: While the disc is in Play mode, you may begin playback from a specific time in the track or disc by navigating until the time is highlighted. Use the Numeric Keys to enter the desired start time, remembering to enter leading zeros. For example, if you wish to begin play at one minute and thirty seconds into the current track, enter "0-0-1-3-0." After you enter the last digit, there will be a momentary delay before the digit appears while the HS 300 locates the selected time position, then play will begin.

Track List: A list of tracks on the disc will appear. Use the Navigation Buttons to scroll through the list. Press the Enter Button or the Play Button while a track is highlighted to begin play. If the disc contains more tracks than there is room to display at once, a page down arrow will appear in the lower left corner of the screen. Highlight it and press the Enter button to view the next page of track listings. On subsequent pages a page up arrow will also appear.

Figure 72 – CD Program Screen

Program Submenu: This submenu lets you program a playlist. See Figure 72. It looks similar to the Player Information submenu, but adds a column to the right of the track list for indicating the play order. See the section on Programming a Play List for more information. When you have finished viewing the Player menus, press the OSD or Clear Button to remove the displays from the screen.

Tracks

To select a track, make sure the Player Information menu is on screen. Press the Info or OSD Button to activate it if necessary. Next, press the Navigation Buttons so that the Track is highlighted, and press the Enter Button to begin playing the new track.

During playback, you may move one by one through the chapters at any time by pressing the Skip Reverse (Previous)/Skip Forward (Next) Buttons. When you press the Previous or Skip Reverse button once, the player will return to the start of the current track. Additional presses of either button will step back through the available tracks, one at a time. See Figure 73.

Figure 73 – Skip Reverse (Previous) and Skip Forward (Next) Buttons

NOTE: When a JPEG, MP3 or Windows Media disc is playing, a special screen will appear. See the section describing those types of discs for more information.

Repeat Play

The HS 300 offers several repeat functions for CDs that allow you to take advantage of the capacity of the unit for unattended playback:

- **Repeat Program:** Repeats the current playlist if Programmed Order has been selected at the Playlist setting.
- **Repeat 1 Track:** For CDs, VCDs, MP3s and WMAs, repeats the track or file currently being played until the disc is manually stopped. The Repeat and 1 indicators will light in the front-panel display.
- **Repeat Disc:** For CDs, VCDs, MP3s, WMAs and JPEGs, repeats the entire disc until play is manually stopped. The Repeat indicator will light in the front-panel display.
- **Repeat Folder:** For MP3s, WMAs and JPEGs, repeats all tracks within the current folder until play is manually stopped. The Repeat indicator will light in the front-panel display.
- **Repeat A-B:** Repeats any selected portion of the disc until the disc is manually stopped (see below for more information).

Each press of the Repeat Button (see Figure 74) cycles through the available Repeat options (except Repeat A-B). In addition, the Repeat setting in the Player Information menu will change.

Figure 74 – Repeat Button

A-B Repeat Play

The Repeat A-B function allows you to select any portion of a CD and have it repeat continually until the unit is manually stopped.

To initiate a Repeat A-B playback sequence, follow these steps while a disc is playing:

1. Press the A-B Repeat Button on the remote (see Figure 70) when you want to choose the beginning point; the Repeat A- icon appears on the Repeat line of the Player Information menu to indicate the beginning of the passage to be repeated.
2. Press the A-B Repeat Button again to choose the end point. Repeat A-B has been set, and the A-B section will be played continuously.
3. Press the A-B Repeat Button again to cancel Repeat A-B mode.

Random Play

The Random Play function will play all of the tracks on a CD in a random order, as selected by the HS 300. Once the HS 300 has played all of the tracks on the disc once, it will stop.

Select the random mode by pressing the Random Button on the remote. See Figure 75. Each press of the Random Button will toggle the setting between “Off” and “On”, meaning that the remaining tracks on the disc will be played in random order.

The Random Indicator in the Front-Panel Information Display will light when the Random setting is on.

Figure 75 – Random Button

OPERATION

MP3, WINDOWS MEDIA AND JPEG PLAYBACK

The HS 300 will recognize data on CD-ROM discs and USB devices recorded in the MP3, Windows Media 9 (WMA) or JPEG formats, including images stored on Kodak® Picture CDs. You may also play discs with more than one of the three formats.

The specific file types that may be played on the HS 300 are:

- **MP3 Files:** MP3 is a popular audio compression format that was developed by the Motion Picture Experts Group as part of the MPEG-1 video compression format. Depending on the specific MP3 encoder used, file size is greatly reduced so that you store many more songs on one compact disc than in the standard audio CD format. MP3 is also used to download audio files to computers for home use. In order to play an MP3 file on the HS 300, the disc may not contain any encryption or coding that prevents playback. Always be certain that you have, or have purchased, the proper rights or authorization before creating a CD-ROM with MP3 or any other codec format.
- **WMA Files:** WMA (Windows Media Audio) is an audio compression format developed by the Microsoft® Corporation for use with its Windows Media Player. WMA files may be created with greater compression than MP3 without sacrificing audio quality so that even more songs may be recorded on a disc. There have been a number of versions of Windows Media, and the HS 300 is compatible only with files that end in the "wma" extension and that were recorded using the Windows Media Series 9 encoding, but only up to 320kbps.
- **JPEG Files**: "JPEG" is the acronym used to identify image files recorded according to specifications established by Joint Photographic Experts Group for compressing still images. Identified by the file extension "jpg" when they are recorded on most computers, JPEG files may be created by a digital still camera and then edited and "burned" to a disc in your personal computer, recorded on a CD-ROM disc from film images by a photo processor, or scanned from printed photos into your personal computer and then burned onto a CD-ROM. You may also connect a digital camera directly to one of the HS 300's USB ports, if the camera is equipped with a USB connection, and if it stores its images in the JPEG format.

Discs containing MP3, WMA or JPEG files are navigated and controlled a little differently from standard DVDs and CDs. When a disc containing one or more of these types of files is loaded in the HS 300, the Player Information menu screen will appear. See Figure 76.

Figure 76 – Player Information Screen (JPEG/WMA Disc)

This screen will display a list of the main folders contained on the disc The elapsed time will appear in the upper right corner of the screen. It isn't possible to change the time display, and the Time Search function is not available.

MP3 or WMA Disc Playback

MP3 and WMA discs may contain 200 tracks or even more. To get the best overview about all tracks on the disc and their names and to select them comfortably, use the on-screen display rather than the front-panel display. The front-panel display will only show the number and the elapsed time of the track being played.

The supported bit rate for WMA files is between 64kbps and 320kbps. The supported bit rate for MP3 files is between 32kbps and 320kbps.

- To select a folder (if any), press the Navigation Buttons until the desired folder name is highlighted, then press the Enter Button.
- To select a track, press the Navigation Buttons until the desired track name is highlighted.

To start play of the selected track, press the Enter or Play Button.

During MP3/WMA playback, some of the standard CD/DVD playback controls operate in their normal fashion (refer to Figure 59):

- You may skip forward to the next track on the disc by pressing the Skip/Next Button.
- You may skip back to the previous track on the disc by pressing the Skip/Prev Button *twice*.
- Press the Pause Button to momentarily stop playback. Press the Play Button to resume play. Press the Stop Button to enter stop mode.
- Press the Search Forward or Search Reverse buttons, for fast search of a track. Press the Play ▶, Pause ❙❙ or Stop Button ■ to end fast play.
- Slow-play is not available during MP3/WMA playback.
- You may play an MP3 or WMA disc in random mode by adjusting the Random setting in the Player Information submenu. You may also access the Random function while an MP3 or WMA disc is playing by pressing the Random Button. See Figure 75.
- The Repeat function may be accessed during playback of an MP3 or WMA disc by pressing the Repeat Button on the remote. See Figure 74. Repeatedly press the Repeat Button to scroll through the options of Repeat 1 (repeat one file), Repeat All (repeat all files) or Repeat Folder (repeat all files within the current folder). The next press will turn the repeat function off. Repeat A-B is not available during MP3/WMA playback.

NOTES ON MP3 AND WMA PLAYBACK

- During playback, the front-panel display and the time indicator on the screen above the list will show the elapsed time of the track being played. Other time display options are not available with MP3/WMA playback.
- The HS 300 is only compatible with standard MP3- and WMA-encoded discs. Other compressed audio formats used for Internet audio downloads will not play on the HS 300.

- Due to the differences in various versions of the MP3 and WMA formats, and the many differences between the CD-R machines used to record discs on a computer, it is possible that some discs may not play on the HS 300 even though they will work on a computer. This is normal and does not indicate a fault with the unit.
- When a multisession disc with both standard CD audio and MP3 or WMA content is in use, the HS 300 will play only the CD audio sections of the disc. Track numbers will be visible in the display, but the files will not be decoded.
- If a disc containing MP3, WMA and/or JPEG files is created in more than one session, the HS 300 may not recognize files added during the later sessions, especially if the disc was finalized after the first session.
- When a disc with multiple folders is playing, only tracks from one folder can be displayed and played at a time. Select the desired folder and press the Play Button or Enter Button to start the first track. To see and play tracks from other folders, you must first select the root folder using the Navigation Buttons, and press the Enter Button to open or close that folder. You may then navigate an open folder and select the desired folder. Press the Enter Button to open the folder, and select the desired track. Then press the Play Button.
- Only stereo-audio playback is available for MP3 and WMA discs.
- Programmed playlists are not available for MP3/WMA discs.
- Use the Navigation Buttons to select the DISC INFO Submenu icon on the left side of the screen, and press the Enter Button to view it. If the disc contains ID3 tag information, then the current MP3 track information – song title, artist, album, year, genre, and any comments – for WMA and JPEG files, only the file name will appear.

JPEG Playback

The HS 300 is capable of recognizing JPEG still-image files and displaying them. When a disc or folder containing JPEG files is loaded, the JPEG Disc-Type Indicator will light in the Main Information Display. The disc will immediately begin displaying the images on the disc in order.

When viewing JPEG images, the Angle Button may be used to rotate the image. With the image onscreen, press the Angle Button once to display the current orientation of the image, usually +0. Press the Angle Button again to rotate the image clockwise 90 degrees. Each additional press of the Angle Button will continue to rotate the image clockwise by 90 degrees.

You may use the Zoom Button to enlarge a JPEG image, and the Navigation Buttons to explore the enlarged image.

You may view thumbnails of the images in the selected folder by pressing the Disc Menu Button. When the images appear on screen, you may use the Navigation Buttons to move the picture frame until the desired image is selected. Press the Enter Button to display a full-size view of that image. See Figure 77.

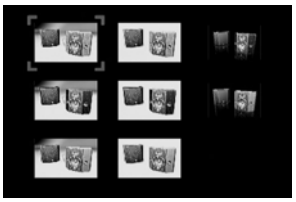

Figure 77 – Thumbnail Image Menu

Simultaneous Playback

When MP3 audio files are stored on the same disc as the JPEG still-image files, you may simultaneously play the audio and view the still images. To access each set of folders, i.e., audio and still-image, select both the Music and Picture icons on the left side of the screen. See Figure 78. Each click on one of the icons selects or deselects the relevant folders for listening or viewing. For WMA files, you may only select one of the icons at a time, as simultaneous playback is not available for JPEG and WMA files.

Figure 78 – Simultaneous Playback

NOTE: High-resolution images may not display correctly during simultaneous playback due to the HS 300's memory limitations.

Slide Shows

If several JPEG still-image files are available in the selected folder, the HS 300 will display them in turn automatically as a "slide show." You may program the amount of time each still image remains on screen using the Picture setting in the Player Information menu. See Figure 79. Select from a viewing time of 15, 30 or 45 seconds, or when simultaneous playback with MP3 audio files is desired, you may program the HS 300 to synchronize display of the still images to the audio track by selecting the Follow Audio Track option.

Figure 79 – Picture Viewing Time

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VCD PLAYBACK

VCD, a video-playback format that predates DVD, is based on a different compression format than DVD and uses a recording method that is similar to CD. Although the DVD has, for the most part, replaced VCD as a format, the HS 300 offers VCD playback so that you may play your existing library of VCD discs, or home movies that you have recorded as VCDs on your computer.

There are two versions of the VCD format: an early version which is simply called "VCD" and a later version with Playback Control that's called "Version 2.0" or "PBC." The HS 300 is compatible with both forms of VCD, although playback will vary according to which version is used and the specific way in which the disc was created.

Even though VCD discs provide video, because the format is based on CD technology, the playback functions for a VCD disc are similar to CD. To play a VCD disc, place it in the HS 300 as you would do with any other CD or DVD disc. The unit takes a few seconds to read the disc's contents; the VCD Disc Type Indicator in the front-panel display will light and the disc will begin playing.

Keep in mind that the exact level of functionality for any VCD will vary widely and it is ultimately determined by the way the disc was created, not by the HS 300, particularly if the disc has been created under VCD Version 2.0 with Playback Control (see "Playback Control").

NOTE: VCDs that contain only raw MPEG files will not play in the HS 300.

When playing VCD discs, most standard DVD/CD playback controls are used, including Play, Stop, Pause, Resume, Track Skip Forward and Reverse, Slow Forward, Step Forward and Fast Forward. The Reverse Search and Step Reverse functions are not available with VCDs.

With VCDs, you have access to information on the disc playing by pressing the Info Button on the remote. The availability of the Repeat and Random functions will depend on whether PBC Support has been activated using the System Setup Submenu. With PBC Support on, Repeat and Random will not be available.

Repeat A-B is always available. Simply press the Repeat A-B Button once at the beginning of the passage to be repeated, again at the end of the passage, and a third time to cancel Repeat A-B mode.

Status Bar

When playing VCD discs, it is possible to access the disc's features using the Status Bar. Press the Status Button to view it.

The Status Bar will appear the same as for DVDs (see Figure 80), except that the current track number will be shown, rather than the title, and there is no chapter display. You may select the track number and change it to skip to another track. You may also begin play from a specific time marker by selecting the numeric time display and entering the desired starting point using the Numeric Keys. You may also change the time display from Track Elapsed, to Track Remaining, to Disc Elapsed, to Disc Remaining, and back to Track Elapsed, just as with DVDs. The elapsed time will appear as a graphic temperature bar, with additional lines added as more of the track or disc is played.

Figure 80 – VCD Status Bar

Zoom

The Zoom function is available for VCDs by pressing the Zoom Button. Repeatedly pressing this button will cycle through the possible settings of 1x, 2x and 3x zoom, as shown in the upper right corner of the screen. After the enlargement indication disappears from view, you may explore the image using the Navigation Buttons.

Playback Control

VCD discs made under the Revision 2.0 specification will usually offer PBC playback control. The PBC Indicator in the front display will turn on automatically with any VCD when the disc is played. With PBC, you can select titles and navigate the disc as with DVDs. However, the access to some functions may be prohibited by PBC playback control; in that case, the prohibit icon will appear on screen.

When a VCD is made without PBC, the disc can be controlled the same as an audio CD, but direct track access by entering a number is not possible without opening the Status Bar. With PBC, many discs include chapter selection menus that are similar to those found on DVDs. However, on VCD discs, the disc menu (if any) is accessed and controlled differently than on DVDs.

- Play will start with the first track (which may be an intro), then proceed to the VCD menu (if any) automatically.
- The Next (Skip Forward) command will skip to the VCD menu from the intro (Track 1) directly.
- Once the menu options appear on the screen, make your selection by pressing the Numeric Keys that correspond to your desired choice. The desired selection will begin playing automatically.
- Direct number entry without any VCD menu shown on-screen has no effect – even when the Status Bar is on.

The Disc Menu Button used during DVD playback is not used for VCD playback. Use of functions when PBC is on will vary according to the disc type. Note that if the disc was created with Playback Control (PBC) it is not possible to change track numbers directly.

PROGRAMMING A PLAYLIST

You may program a playlist for any type of disc except for VCDs by following these steps:

1. If the disc is playing press the Stop button. Playlists may only be programmed in Stop mode.

2. If the Player Information screen is not visible, press the OSD button to display it. Make sure to press the Program icon on the left side of the screen so that you may view the column indicating the play order of the tracks, chapters or titles. Navigate until the Disc List setting is highlighted. See Figure 81.

Figure 81 – Program Submenu

3. Press the Enter Button and select the Clear Program option, which clears all tracks from the playlist. See Figure 82.

Figure 82 – Clearing Play-Order List

4. The simplest way to program your playlist is to scroll down to each track in the desired playlist order. Press the Enter Button and select the Add option. Remember to stay in the Play Order column. If you press Enter while the track name is highlighted, the HS 300 will simply play that track.

See Figure 83, in which the user scrolled to Track 5 in the list, pressed the Enter Button to program it, and selected the Add option. Track 5 was automatically programmed as the next track in the playlist. Since the playlist was empty, Track 5 was programmed to play first.

Figure 83 – Adding a Track to the Playlist

5. Repeat Step 4 to add as many tracks as you desire to your playlist. You need not add all tracks on the disc.

> **NOTE:** If you select a track that was already added to the play-list and add it again, it will not repeat. Instead it will be moved to the end of the playlist. If you wish to repeat a track during programmed play, use the Repeat functions.

6. Navigate to the Disc list column heading and select the Prg list option to view the tracks in programmed play order. You will notice that the tracks have automatically been reordered, and that any gaps in the play order have been filled. See Figure 84.

Figure 84 – Programmed Playlist

7. To play your programmed play list, navigate to the Playlist setting near the top of the screen. Select it, and choose the Programmed order option. See Figure 85.

Figure 85 – Playlist Setting

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Alternatively, press the Playlist Button to toggle the Playlist setting between Disc and Programmed order. See Figure 86.

Figure 86 – Playlist Button

9. Press the Play button to begin play.

Editing a Programmed Playlist

You may edit your playlist by following these steps:

1. If the disc is playing press the Stop button. Playlists may only be programmed or edited in Stop mode.
2. If the Player Information screen is not visible, press the OSD button to display it. Make sure to press the Program icon on the left side of the screen so that you may view the play order column, and navigate until the Prg List setting is highlighted. See Figure 87. Select it and change it to the Disc List option so that you may view all tracks on the disc.

Figure 87 – Viewing a Programmed Playlist

3. Scroll to the play order number for the track you wish to edit, and select it. See Figure 88.

Figure 88 – Editing a Track Within a Playlist

a) To move the selected track to the end of the playlist, select the Add option.

b) To move the selected track to a different position in the playlist, scroll to the option that shows three dashed lines. Use the Numeric Keys to enter the desired order in the playlist, and press the Enter button.

c) To delete the track from the playlist, select the Clear option.

d) If you wish to add a track that was not previously programmed into your playlist, then scroll to its play order number, select it and program it into the list using either option a) to add it to the end of the list or option b) to program it to a specific place in the list. See Figure 89.

Figure 89 – Adding a New Track to an Existing Playlist

Canceling A Programmed Playlist

If you wish to play the tracks in the original order in which they appear on the disc, navigate to the Playlist setting and select the Disc's order option. Your playlist will be saved, and you may play the tracks in programmed order by changing the Playlist setting.

To clear a programmed playlist from the HS 300's memory, follow one of these procedures:

1. Navigate to the heading of the play-order column (either Disc list or Prg list) and select it. Choose the Clear Program option.
2. Open the disc drawer. When you close it, even if the same disc is loaded, the playlist will have been cleared.

USING THE HS 300 TUNER

Select the HS 300 tuner as the source either by pressing the RADIO button on the remote, which will also turn on the system if it is in Standby mode, or by pressing the OSD button to access the menu for the current source. Use the ◀/▶ Navigation Buttons to highlight RADIO and press Enter to select it. The Radio screen will appear as shown in Figure 90.

Figure 90 – Radio (Tuner) Screen

The screen contains the following information:

AUDIO: This setting is used to select the audio surround mode.

STATION NAME: If you have selected the RDS (Radio Data Service) display by selecting its icon on the left side of the screen, this line will display any identifier transmitted by the radio station. Press the RDS icon to deselect it and remove the Station Name line from view.

#: The HS 300's tuner includes a total of 60 preset station locations, 30 for each band (AM or FM), which may be viewed on screen. The numeric column on the left side of the station list indicates the preset number for each station. The first time you select the tuner as the source you will see a default list of presets. Most likely these stations are not in use in your area. You may select the # symbol at the head of this column and you will be presented with the following options (see Figure 91):

Auto Preset: Select this option to have the HS 300 automatically scan for stations with acceptable signal strength. Each station found will be added as a preset.

Clear List: Select this option to clear the list of presets.

Restore Default List: Select this option to reset the presets to the factory default list.

Figure 91 – Programming Presets

Station: The Station column lists your preset stations by name. Press the Enter Button to listen to the highlighted station, and press the Enter Button again when the proper name of the station is shown on the Station Name line to capture the station's name, if it is being transmitted as an RDS signal and if you have selected RDS display using the icon.

Frequency: Unlike other tuners you may have used previously, the HS 300 is tuned using the preset locations. You may select a preset station to listen to as described above, or you may tune a new frequency for that preset using the Frequency column.

NOTE: Changing the frequency so that you may listen to a different station permanently changes the preset for that location. If you wish to listen to a new station, we recommend that you scroll down to an unused preset location, or one which you don't wish to listen to before tuning to a new frequency.

To tune a new frequency:

1. Highlight the frequency of an unused preset, or a preset you no longer wish to save.

2. Tune to the new frequency in one of three ways:

   Auto Tuning: If the Tuning icon on the left side of the screen is depressed so that the word AUTO appears, then the tuner is in auto tuning mode. Use the Forward or Reverse Search/Slow Buttons on the remote (see Figure 92) to scan to a higher or lower frequency. Press the Search Button once, and the tuner will scan until it finds a station of acceptable signal strength. To stop scanning without finding such a station, press the opposite-direction Search Button.

Figure 92 – Tuning a Radio Station

   Manual Tuning: If the Tuning icon on the left side of the screen is deselected so that the word MANUAL appears, then the tuner is in manual tuning mode. The HS 300 defaults to auto tuning mode; thus you may find it necessary to select manual tuning mode first. Use the Forward or Reverse Search/Slow Buttons on the remote (see Figure 92) to tune to a higher or lower frequency by one frequency increment at a time (0.1MHz for FM, or 10kHz for AM).

   Direct Tuning: If you know the frequency of the station you wish to listen to, use the Numeric Keys to enter it, and it will be tuned immediately. You must enter digits for all places in the frequency for it to be accepted; e.g., if you wish to tune to station 92.3 FM, enter 9 – 2 – 3 – 0.

To switch between the AM and FM bands, navigate to the tuner band selector icon on the left side of the screen. Press the Enter Button until the desired band appears on the icon. Alternatively, press the Radio button on the remote repeatedly to toggle between the bands.

Deselect the Info icon on the left side of the screen to remove the Audio and Station Name lines from view, enabling you to view a few more presets at a time on screen.

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Select a preset station by following one of these steps:

1. With the cursor anywhere on the screen *except* in the Frequency column, use the Numeric Keys to directly enter the desired preset number, and press the Enter Button to begin listening to that station. Remember to first select the desired tuner band.

2. With the cursor anywhere on the screen use the Preset Buttons on the remote to scroll through the list of stations. The Preset Up Button will navigate to a higher-numbered preset, and the Preset Down Button navigates to a lower-numbered preset. However, the cursor will appear to travel in the wrong direction, as the preset stations list is numbered in increasing order down the screen.

3. With any station highlighted, use the ▲/▼ Navigation Buttons to scroll through the list of presets, and press Enter to tune the highlighted station. Use the Navigation Buttons to highlight the large Page Up and Page Down icons when visible on the left side of the screen. Each press of either icon will skip one page of preset stations.

NOTE: Be aware that the screen saver may not activate itself when the tuner is in operation. After selecting the desired station, you may wish to turn off your video display to avoid "burn-in." You will still be able to use the Search and Preset buttons, as well as the Numeric Keys, to tune a new station or preset, which will be displayed on the HS 300's front panel.

SELECTING AN EXTERNAL SOURCE

As explained in the Installation and Initial Setup sections, you may connect the audio outputs of an external source device, such as a cable television set-top box, to any of the HS 300's analog or digital inputs. You may select any one of the three source inputs: TV, AUX (Auxiliary) or D-IN (Digital Input).

Select the source in one of two ways:

1. Press the correct Source Selector on the remote. If the HS 300 is in Standby mode, this will turn it on.
2. Press the OSD button and use the ◀/▶ Buttons to highlight the source in the list at the top of the screen. Press the Enter Button to select the source, and its menu screen will be displayed. Press the OSD button to clear the menu from view.

TV Source

When you highlight TV at the top of the screen, the screen shown in Figure 93 will appear.

Figure 93 – TV Source Screen

Press the Enter Button to select TV as the source input, and to access the menu settings.

Audio: Use this setting to select a surround mode.

Audio Input: Use this setting to select either the Coaxial or Optical Digital or TV Analog Audio input, depending on which input the TV source device is connected to.

Level Adjustment: This setting allows you to adjust the volume independently for this source.

Press the OSD button to clear this menu from the screen.

Auxiliary Source

When you highlight AUX at the top of the screen, the screen shown in Figure 94 will appear.

Figure 94 – AUX Source Screen

Press the Enter Button to select AUX as the source input, and to access the menu settings.

Audio: Use this setting to select a surround mode.

Level Adjustment: This setting allows you to adjust the volume independently for this source.

NOTE: There is no setting for selection of the audio input for this source. Only the Auxiliary analog audio input is available.

Press the OSD button to clear this menu from the screen.

Digital Input Source

When you highlight D-IN at the top of the screen, the screen shown in Figure 95 will appear.

Figure 95 – D-IN Source Screen

Press the Enter Button to select D-IN as the source input, and to access the menu settings.

Digital Input: Use this setting to select either the coaxial or optical digital audio input, depending on which input the source device is connected to. If you have used the coaxial input for the TV source, then connect the D-IN source device to the optical input, and select that input here.

Audio: Use this setting to select a surround mode.

Level Adjustment: This setting allows you to adjust the volume independently for this source.

Press the OSD button to clear this menu from the screen.

Recording

Two-channel analog and digital audio signals are normally available at the Coaxial Digital and Analog Audio recording outputs. Thus, to make a recording, you need only make sure to connect your audio recorder to

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the appropriate output jacks, insert blank media and make sure the recorder is turned on and recording while the source is playing.

NOTES:

1. Analog audio signals are not converted to digital form, and digital audio signals are not converted to analog audio form. However, you may record a coaxial digital audio source using the digital audio output.
2. Only PCM digital audio signals are available for recording. Proprietary formats such as Dolby Digital and DTS may not be recorded using the digital audio connection, although, if the source is connected using the analog audio connections, an analog recording may be made.
3. To activate recording using the HS 300 remote, if you have programmed your recorder's codes, press the title and subtitle buttons simultaneously.
4. Please make certain that you are aware of any copyright restrictions on any material you record. Unauthorized duplication of copyrighted materials is prohibited by federal law.

USB Source

The HS 300 is equipped with two USB ports, located on the front right side (USB 1) and the rear (USB 2) of the unit. See Figure 96.

Figure 96 – Front and Rear USB ports

You may insert or remove a client USB device at any time. *Do* not connect a host USB device, such as a personal computer, to either USB port. Doing so may damage the HS 300 or the computer, which would not be covered under warranty.

The USB source device is controlled on-screen. See Figure 97.

Figure 97 – USB Menu Screen

Many of the elements of the screen are similar to the Disc Player Information screen used to navigate CDs.

Disc: Identifies the type of files found on the device.

Time: The time appears in the upper right corner of the screen. It is for display only, and the time-search function is not available.

Audio: This setting allows you to select a surround mode.

Playlist: This setting cannot be changed for USB devices, as programmed play is not available.

Repeat: This setting allows you to repeat play of one track, one folder of files or to turn off repeat play.

Random: Random play is not available for USB devices.

Picture: If there are JPEG still-image files stored on the device, you may select the amount of time each remains on-screen – 15, 30 or 45 seconds. There is no option for simultaneous playback of JPEG and MP3 or other audio files.

You may remove the above lines from view by highlighting the Info icon on the left side of the screen. Pressing the Enter Button to deselect it.

Navigate the files stored on the device as you would the tracks on a CD. Press the Enter Button to expand or collapse a folder, and use the ▲/▼ buttons to scroll through the files. Press the Enter Button to play the highlighted file.

Select the ID3 icon on the left side of the screen to display additional information about the current file, if it has been encoded. ID3 tag information is for display only, and no settings on that screen may be changed.

You may select which types of files on the device are available at any time by selecting the Music, Picture and/or Movie icon. You may select up to three file types at the same time, but at least one file type will always be selected.

- **MPEG 2 files:** MPEG stands for the Motion Pictures Expert Group, which defines digital audio/video standards. The MPEG 2 format is a method of compressing video presentations, and is the standard generally used for television broadcasting and DVD, with some minor modifications appropriate to each type of use.
- **AVI (Audio Video Interleave) files:** The AVI format was developed by Microsoft Corporation to contain media files. AVI files can be quite large, and a number of compression techniques have been developed. Due to the lack of standardization among these compression programs, the HS 300 is not able to play compressed AVI files. Because enthusiasts have adopted a variety of techniques for adding features to the AVI format, it is possible that any particular AVI file will not be compatible with the HS 300.

TROUBLESHOOTING GUIDE

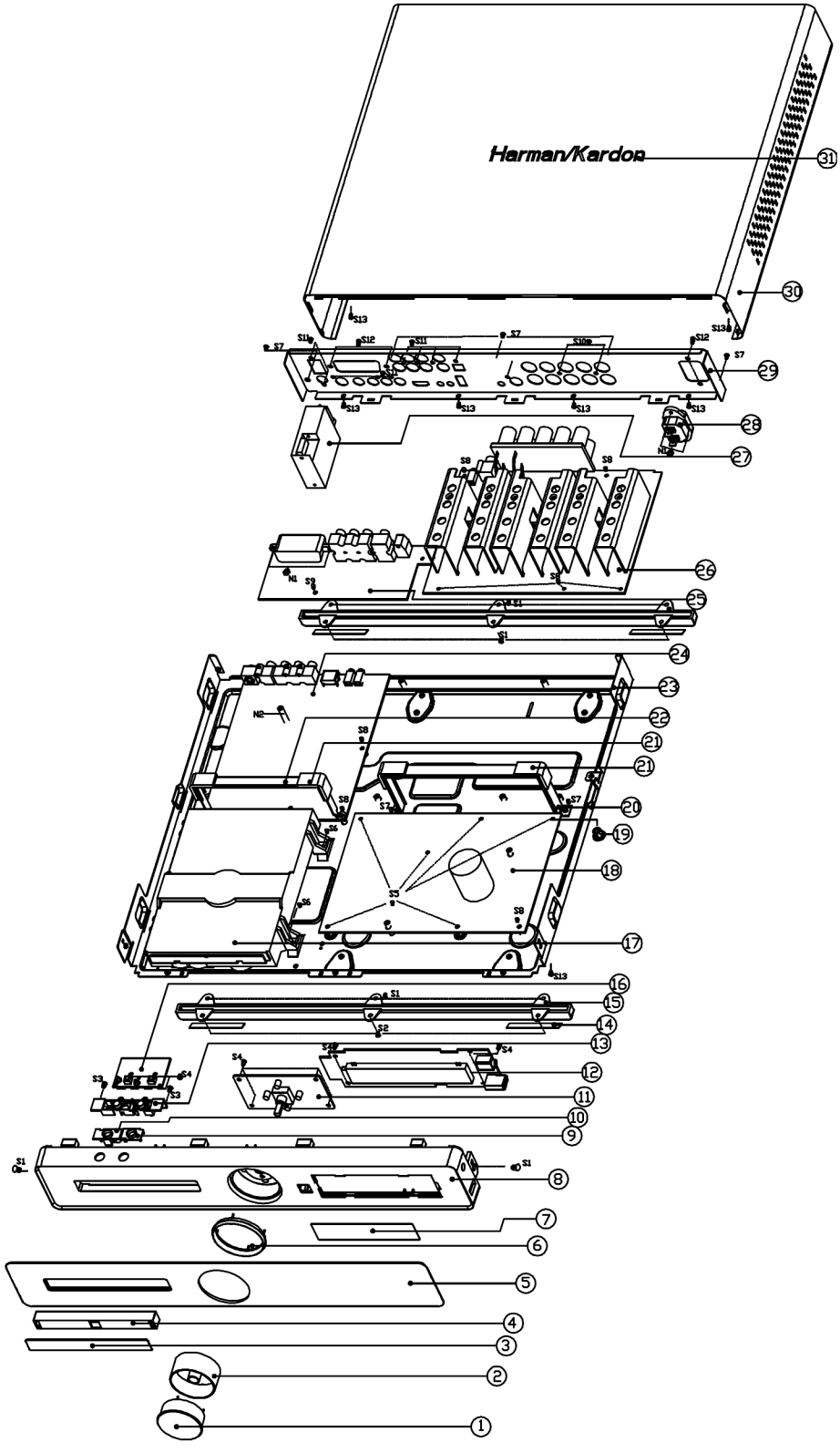
SYMPTOM	CAUSE	SOLUTION
Unit does not function when Main Power Switch is pushed	• No AC Power	• Make certain AC power cord is plugged into a live outlet • Check to see whether outlet is switch-controlled
Display lights, but no sound or picture	• Intermittent input connections • **Mute** is on • Volume control is down	• Make certain that all input and speaker connections are secure • Press **Mute Button** • Turn up volume control
No sound from any speaker; light around power switch is red	• Amplifier is in protection mode due to possible short • Amplifier is in protection mode due to internal problems	• Check speaker wire connections for shorts at receiver and speaker ends • Contact your local Harman Kardon service center
No sound from surround or center speakers	• Incorrect surround mode • Input is monaural • Incorrect configuration • Stereo or Mono program material	• Select a mode other than Stereo • There is no surround information from mono sources • Check speaker-mode configuration in Audio Adjustments submenu • The surround decoder may not create center- or rear-channel information from nonencoded programs
Unit does not respond to remote commands	• Weak batteries in remote • Wrong device selected • Remote sensor is obscured	• Change remote batteries • Press the correct selector • Make certain front panel sensor is visible to remote or connect an optional remote sensor
Intermittent buzzing in tuner	• Local interference	• Move unit or antenna away from computers, fluorescent lights, motors or other electrical appliances
No picture	• Intermittent connections • Wrong input • Progressive Scan output selected • HDMI Output is connected to a video display that is not HDCP-compliant • Wrong video output setting	• Check all video connections. • Check input selection of TV or video display. • Use Progressive Scan mode only with compatible TV. Press Source Video Format Button to toggle to the correct resolution. • The HDMI Output may not be used with video displays that are not HDCP-compliant. Unplug the cable and select another audio and video connection • S- and component video are not available simultaneously. Press Source Video Output Button to toggle to the correct video output.
Disc does not play	• Disc loaded improperly • Incorrect disc type • Invalid Region Code • Rating is above parental control setting	• Load disc label-side up; align the disc with the guides and place it in its proper position. • Check to see that the disc is CD, CD-R, CD-RW, VCD, MP3, WMA, JPEG, DVD-R/RW, DVD+R/RW (standard-conforming), DVD-Audio or DVD-Video; other types will not play. • Use Region 1 or Open Region (0) disc only. • Enter password to override or change rating settings
No sound	• Intermittent connections • Incorrect audio input selection for external source • DVD disc is in fast or slow mode	• Check all audio connections. • Make sure audio input selection matches physical connection. • There is no audio playback on DVD discs during fast or slow modes.
Picture is distorted or jumps during fast forward or reverse play	• MPEG-2 decoding	• It is a normal artifact of DVD playback for pictures to jump or show some distortion during rapid play.

TROUBLESHOOTING GUIDE

SYMPTOM	CAUSE	SOLUTION
Some remote buttons do not operate during DVD play; prohibited symbol Ø appears	• Function not permitted at this time	• With most discs, some functions are not permitted at certain times (e.g., Track Skip) or at all (e.g., direct audio track selection).
The OSD menu is in a foreign language	• Incorrect OSD language	• Change the display language selection in the System Setup menu.
The Ø symbol appears	• Requested function not available at this time	• Certain functions may be disabled by the DVD itself during some passages of a disc.
Picture is displayed in the wrong aspect ratio	• Incorrect match of aspect-ratio settings to disc	• Change aspect-ratio settings.
Disc will not copy to VCR	• Copy protection	• Many DVDs are encoded with copy protection to prevent copying to VCR.
Password not accepted.	• Incorrect password being used or password has been forgotten	• Stop play of disc and clear all displays from screen. Press and hold Clear Button until the display blinks. This resets the password and all settings to their defaults. You will need to reenter all audio, video and system settings.
Disc Drawer remains open indefinitely	• Drawer does not close automatically	• Press Open/Close button or turn off HS 300 to close disc drawer.
Screen Saver not activated	• Screen saver will not activate when cursor is on top main title line of OSD, or in column of icons on left side of screen	• Move cursor to main disc information or playlist area to avoid burn-in on plasma and CRT displays.
Front-panel PBC indicator remains list even when PBC setting is Off in System Setup menu	• PBC indicator reflects disc encoding, not HS 300 status	• This is normal behavior.
Pressing Setup Menu button during disc playback displays Player Information menu	• This is normal behavior when activating OSD during disc playback	• Press Setup Menu button a second time to view System Setup menu.
Cannot program playlist	• Programmed play is not available for all disc types	• Programmed play is available only for CDs, DVD-Audio and Video discs, MP3s, WMAs and JPEGs. Programmed play is not available for VCD discs or for files stored on a USB device.
	• HS 300 must be in Stop mode to program a playlist	• Stop play of disc before programming a playlist.

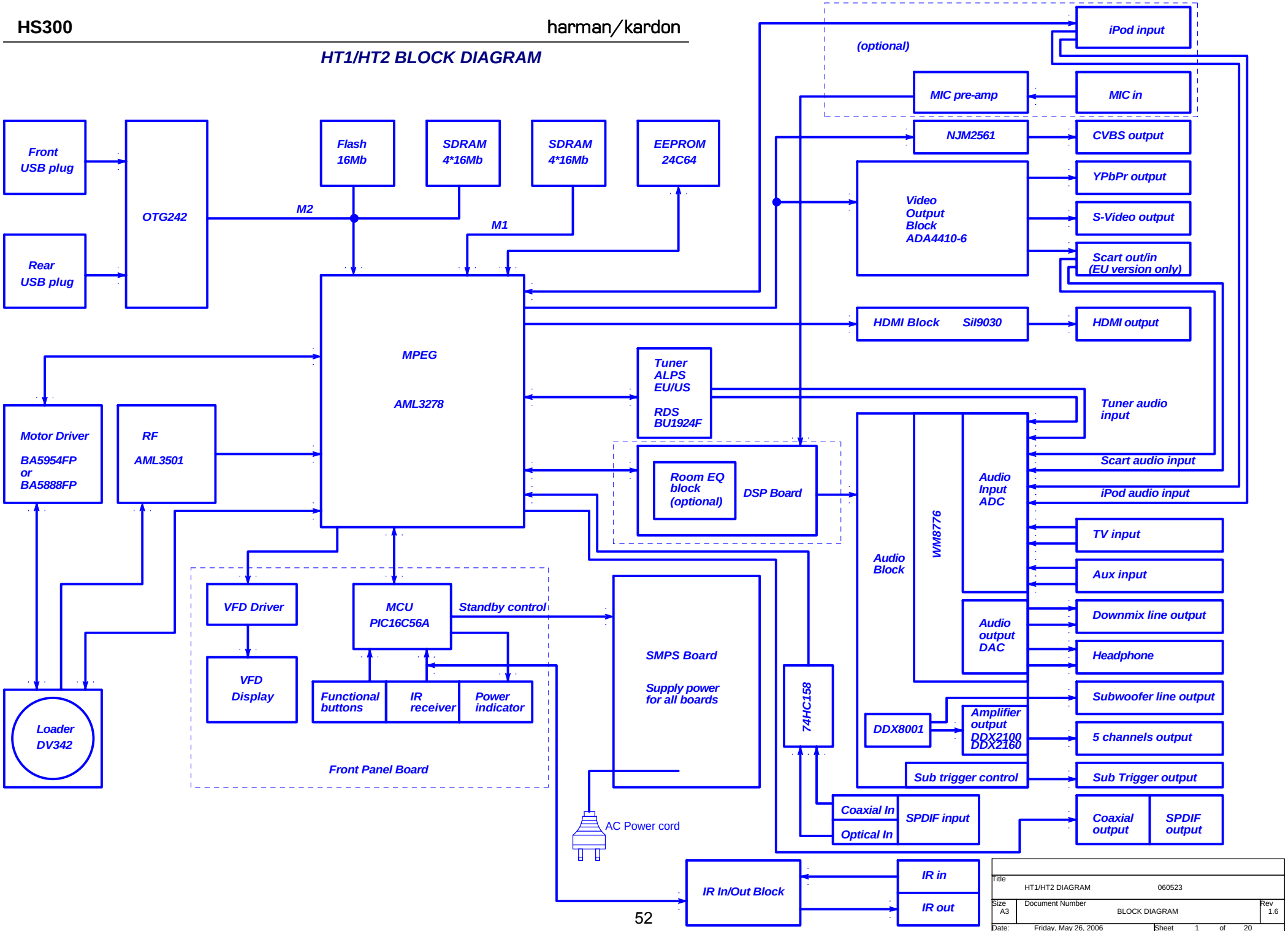
In addition to the items shown above, additional information on troubleshooting possible problems with your HS 300, or installation-related issues, may be found in the list of "Frequently Asked Questions" which is located in the Product Support section of our Web site at www.harmankardon.com.

EXPLODED VIEW



No.	P/N	Description	Qty.
1	0100SJHS100E010	HS300 volume button	1
2	0100SJHS100E008	HS300 volume button lampshade	1
3	0100SJHS100E012	HS300 len for tray door	1
	0100SBE035	Metal logo 47mm"Harman/kardon"	1
4	0100SJHS100E009	HS300 disc tray door	1
5	0100SJHS300E002	HS300 len for VFD for HS300	1
	01.00.SB.E054	Metal logo HS300 for HS300	1
6	0100SJHS100E006	HS300 volume chamfer	1
7	0100SJQTE019	VFD filter 124.5*33.5*0.5mm	1
8	0100SJHS300E001	HS300 front panel	1
9	0100SJHS100E005	HS300 Open/Close button collar	1
10	0100SJHS100E007	HS300 power indicator lampshade	1
11	0215HAV06K1820C01	volume Front panel board ass'y	1
12	0215HAV06K1819C01	VFD Front panel board ass'y	1
13	0100SJHS100E003	HS300 2 in 1 button	1
14	01.00.DP.XJ.E192	Silica gel underlay 50.6*4.2*1.5mm	4
15	0100SJHS100E011	HS300 pedestal underlay	2
16	0215HAV06K1822C01	Front panel board ass'y	1
17	01.15.JX.DV342	Loader DV342 loader(Sanyo laser)	1
18	0219HAV06P1806C02	SMPS board ass'y	1
19	0100SJQT.E005	PCB plastic frame Φ7*8mm	6
20	01.00.WJ.TJ.E544	HS300-top cover support	1
21	01.00.DP.HM.E317	Soft sponge 50*12*4MM	4
22	01.00.WJ.TJ.E798	HS300-mainboard-top cover support	1
23	0100WJTJE583	HS300-chassis	1
24	0211HAV06M1802C01	Mainboard ass'y for US EU	1
25	0214HAV06I1804C02	Outputboard ASS'Y	1
26	0217HAV06A1805C02	Amplifier ASS'Y	1
27	01.49.E07	Tuner module TFCF1E806A (US version)	1
	0149E11	Tuner module TFCF1E804A (EU version)	1
28	0140CONDCZE178	AC power socket WS-044-0	1
29	01.00.WJ.TJ.E584	HS300-rear panel(FOR HS300 EU)	1
	0100WJTJE585	HS300-rear panel(FOR HS300 US)	1
30	0100WJTJE416	HS300-top cover	1
31	0100SBE036	100mm"Metal logo"Harman/kardon"	1
S1	01.00.WJ.JG.E620	Screw 3*8KBTTNI	11
S2	01.00.WJ.JG.E623	Screw 3*8KBTTNI	3
S3	01.00.WJ.JG.E101	Screw 3*8PWAHC	2
S4	01.00.WJ.JG.E622	Screw 3*6PAHC	11
S5	01.00.WJ.JG.E621	Screw 3*13PWMTTC	6
S6	01.00.WJ.JG.E619	Screw 3*8PWBTTC	4
S7	0100WJJGE629	Screw 3*6PWBTTNI W=7	7
S8	01.00.WJ.JG.E631	Screw 3*6PWMHC W=7	9
	01.00.WJ.JG.E144	Screw 3*8PMHC	2
S9	01.00.WJ.JG.E713	Screw 3*6PMHNI	1
s10	01.00.WJ.JG.E627	Screw 3*10PAHO	2
S11	01.00.WJ.JG.E626	Screw 3*8PAHO	9
S12	0100WJJGE632	Screw 3*10PMHO for us version	4
	01.00.WJ.JG.E632	Screw 3*10PMHO for EU version	2
S13	0100WJJGE628	Screw 3*4RBTTNI	8
N1	0100WJJGE633	Nut M3 for us version	4
	01.00.WJ.JG.E633	Nut M3 for EU version	2
N2	01.00.WJ.JG.E547	hexagonal screw/Nut M3*20.5	1

HT1/HT2 BLOCK DIAGRAM



Title	HT1/HT2 DIAGRAM	060523
Size A3	Document Number BLOCK DIAGRAM	Rev 1.6
Date: Friday, May 26, 2006	Sheet 1 of 20	

HS300 Electrical Parts List				
Part Number	Description		Qty	Reference Designator
Main Board 1802C				
Resistors				
01.57.R.2.E000J	Resistor, chip	0603-0Ω ±5%	12	R9 R10 R45 R49 (R70) R71 R81 R181 R154 R166 R175 R187
01.57.R.2.E100J	Resistor, chip	0603-10Ω±5%	3	R132 R156 R158
01.57.R.2.E200J	Resistor, chip	0603-20Ω±5%	4	R42 R43 R61 R62
01.57.R.2.E220J	Resistor, chip	0603-22Ω±5%	10	R29 R30 (R31) R32 (R33) R34 (R35) R36 (R37) R38
01.57.R.2.E330J	Resistor, chip	0603-33Ω±5%	13	R47 R124 R125 R126 R127 R145 R146 R151 R153 R155 R142 R147 R149
01.57.R.2.E680F	Resistor, chip	0603-68Ω ±1%	1	R99
01.57.R.2.E750F	Resistor, chip	0603-75Ω±1%	17	R97 R98 R100 R101 R102 R103 R104 R105 R106 R107 R108 R109 R110 R111 R114 R116 R117
01.57.R.2.E101J	Resistor, chip	0603-100Ω±5%	6	R6 (R120) (R121) R130 (R133) R139
01.57.R.2.E151J	Resistor, chip	0603-150Ω±5%	2	R179 R150
01.57.R.2.E201J	Resistor, chip	0603-200Ω±5%	1	R8
01.57.R.2.E221J	Resistor, chip	0603-220Ω±5%	5	R19 R136 R137 R138 R140
01.57.R.2.E271J	Resistor, chip	0603-270Ω±5%	1	R173
01.57.R.2.E301J	Resistor, chip	0603-300Ω±5%	1	R7
01.57.R.2.E391J	Resistor, chip	0603-390Ω±5%	1	R167
01.57.R.2.E4751F	Resistor, chip	0603-475Ω 1%	1	R141
01.57.R.2.E821J	Resistor, chip	0603-820Ω±5%	1	R183
01.57.R.2.E102J	Resistor, chip	0603-1KΩ±5%	3	R20 R26 R77
01.57.R.2.E122J	Resistor, chip	0603-1.2KΩ±5%	2	R80 R83
01.57.R.2.E152J	Resistor, chip	0603-1.5KΩ±5%	2	R79 R86
01.57.R.2.E182J	Resistor, chip	0603-1.8KΩ±5%	2	R160 R161
01.57.R.2.E202J	Resistor, chip	0603-2KΩ±5%	8	R13 R14 R15 R16 R18 R41 R87 R92
01.57.R.2.E302J	Resistor, chip	0603-3KΩ±5%	2	(R188) (R189)
01.57.R.2.E332J	Resistor, chip	0603-3.3KΩ±5%	1	R69
01.57.R.2.E392J	Resistor, chip	0603-3.9KΩ±5%	3	R44 R46 R52
01.57.R.2.E472J	Resistor, chip	0603-4.7KΩ±5%	16	R5 R27 R74 R96 R131 R135 R168 R170 R178 R190 R191 R192 R162 R163 R185 R186
01.57.R.2.E512J	Resistor, chip	0603-5.1KΩ±5%	1	R50
01.57.R.2.E682J	Resistor, chip	0603-6.8KΩ±5%	1	R40
01.57.R.2.E752J	Resistor, chip	0603-7.5KΩ±5%	1	R88
01.57.R.2.E103J	Resistor, chip	0603-10KΩ±5%	26	R21 R24 R25 R28 R39 R55 R56 R64 R65 (R66) (R67) (R68) R75 R76 R78 R82 R89 R122 R123 R128 R129 R171 R172 R182 R143 R144
01.57.R.2.E123F	Resistor, chip	0603-12KΩ±1%	2	R48 (R72)
01.57.R.2.E153J	Resistor, chip	0603-15KΩ±5%	2	R17 R91
01.57.R.2.E223J	Resistor, chip	0603-22KΩ±5%	2	R84 R85
01.57.R.2.E273J	Resistor, chip	0603-27KΩ±5%	1	R90
01.57.R.2.E333J	Resistor, chip	0603-33KΩ±5%	1	R53
01.57.R.2.E393J	Resistor, chip	0603-39KΩ±5%	1	R51
01.57.R.2.E473J	Resistor, chip	0603-47KΩ±5%	5	R22 R54 R93 R95 R165
01.57.R.2.E104J	Resistor, chip	0603-100KΩ±5%	3	R57 R58 R63
01.57.R.2.E105J	Resistor, chip	0603-1MΩ±5%	1	R73
01.57.R.3.E2R0J	Resistor, chip	0805-2Ω±5%	2	R59 R60
01.57.R.8.EP0004	Resistor, thick film chip network	0Ω*4 ±5%	2	RN1 RN2
01.57.R.8.EP1004	Resistor, thick film chip network	10Ω*4 ±5%	1	RN4
01.57.R.8.EP4724	Resistor, thick film chip network	4.7KΩ*4 ±5%	1	RN3
01.57.R.C.EG180	Fixed carbon film	RT2W-18Ω	1	R176
01.57.R.8.EP3304	Resistor, thick film chip network	33Ω*4 ±5%	7	RN6 RN7 RN8 RN9 RN10 RN11 RN12

Part Number	Description		Qty	Reference Designator
Main Board 1802C				
Capacitors				
01.54.CS.2.E3P3N	Capacitor,multilayer ceramic, chip	0603-3.3P NPO±0.25%/50V	1	C192
01.54.CS.2.E6P8N	Capacitor,multilayer ceramic, chip	0603-6.8P NPO±0.25PF/50V	4	(C146) (C147) (C64) (C65)
01.54.CS.2.E200N	Capacitor,multilayer ceramic, chip	0603-20P NPO±5%/50V	4	C139 C140 C141 C142
01.54.CS.2.E330N	Capacitor,multilayer ceramic, chip	0603-33P NPO±5%/50V	2	(C161) (C164)
01.54.CS.2.E101N	Capacitor,multilayer ceramic, chip	0603-100P NPO±5%/50V	1	C112
01.54.CS.2.E181N	Capacitor,multilayer ceramic, chip	0603-180P NPO±5%/50V	1	C116
01.54.CS.2.E221N	Capacitor,multilayer ceramic, chip	0603-220P NPO±5%/50V	3	C84 C87 (C115)
01.54.CS.2.E271N	Capacitor,multilayer ceramic, chip	0603-270P NPO±5%/50V	1	C162
01.54.CS.2.E391N	Capacitor,multilayer ceramic, chip	0603-390P NPO±5%/50V	1	(C129)
01.54.CS.2.E471X	Capacitor,multilayer ceramic, chip	0603-470P X7R±10%/50V	4	(C82) (C86) C90 C103
01.54.CS.2.E561N	Capacitor,multilayer ceramic, chip	0603-560P NPO±5%/50V	1	C163
01.54.CS.2.E681X	Capacitor,multilayer ceramic, chip	0603-680P X7R±10%/50V	4	C105 C106 C108 C111
01.54.CS.2.E102X	Capacitor,multilayer ceramic, chip	0603-102 X7R±10%/50V	8	C91 C94 C97 C98 C99 (C109) C118 C119
01.54.CS.2.E152X	Capacitor,multilayer ceramic, chip	0603-152 X7R±10%/50V	1	(C19)
01.54.CS.2.E272X	Capacitor,multilayer ceramic, chip	0603-272 X7R±10%/50V	1	(C20)
01.54.CS.2.E332X	Capacitor,multilayer ceramic, chip	0603-332 X7R±10%/50V	3	C113 C114 C120
01.54.CS.2.E472X	Capacitor,multilayer ceramic, chip	0603-472 X7R±10%/50V	2	(C88) (C107)
01.54.CS.2.E103Y	Capacitor,multilayer ceramic, chip	0603-103 Y5V-20+80%/50V	1	(C8)
01.54.CS.2.E153Y	Capacitor,multilayer ceramic, chip	0603-153 Y5V-20+80%/50V	1	C100
01.54.CS.2.E183X	Capacitor,multilayer ceramic, chip	0603-183 X7R±10%/50V	2	C168 (C169)
01.54.CS.2.E223X	Capacitor,multilayer ceramic, chip	0603-223 X7R±10%/50V	4	C16 C117 C127 C136
01.54.CS.2.E683X	Capacitor,multilayer ceramic, chip	0603-683 X7R±10%/50V	1	C121
01.54.CS.2.E104Y	Capacitor,multilayer ceramic, chip	0603-104 Y5V-20+80%/50V	134	C6 (C7) C9 C10 (C11) C12 C13 (C14) (C15) (C17) (C18) (C21) (C22) C23 (C24) C25 (C26) (C27) (C28) (C29) (C30) C31 (C32) (C33) (C34) (C35) (C36) (C37) (C38) (C39) C40 C41 C42 (C43) (C44) (C45) (C46) (C47) (C48) (C49) (C50) (C51) (C52) (C53) (C54) (C55) (C56) (C57) (C58) (C59) (C60) (C61) C62 (C63) C66 (C67) (C68) (C69) (C70) (C71) (C72) (C73) (C74) (C75) (C76) (C77) C78 (C79) (C80) C81 C83 C85 (C89) (C92) (C93) (C95) C96 C101 C102 C104 (C110) (C122) (C123) C124 (C125) (C126) (C128) (C130) (C131) (C132) (C133) (C134) (C135) C137 C138 C143 (C144) C148 C149 (C150) C151 (C152) (C153) (C154) (C155) (C156) (C157) (C158) (C159) (C160) C165 C166 C167 (C187) (C190) (C170) (C171) (C172) (C173) (C174) (C175) (C176) (C177) C178 C179 (C180) (C181) C182 C183 C184 C185 C186 C188 C189
01.54.CS.2.E105Y16V	Capacitor,multilayer ceramic, chip	0603-105 Y5V-20+80%/16V	7	(C0) (C194) (C195) (C196) (C197) (C198) (C199)
01.34.CL.D.E2U216VC	Capacitor, AL.electrolytic	CD110-2.2UF/16V 5*11	1	EC37
01.34.CL.D.E10U10VC	Capacitor, AL.electrolytic	CD110-10UF/10V 5*11	4	EC41 EC42 EC46 EC47
01.34.CL.D.E10U16VC	Capacitor, AL.electrolytic	CD110-10UF/16V 5*11	3	EC4 EC25 EC51
01.34.CL.D.E22U16VC	Capacitor, AL.electrolytic	CD110-22UF/16V 5*11	3	EC43 EC44 EC45
01.34.CL.D.E33U10VC	Capacitor, AL.electrolytic	CD110-33UF/10V 5*11	1	EC27
01.34.CL.D.E47U10VC	Capacitor, AL.electrolytic	CD110-47UF/10V 5*11	11	EC3 EC5 EC6 EC7 EC8 EC9 EC10 EC11 EC16 EC17 EC50
01.34.CL.D.E47U16VC	Capacitor, AL.electrolytic	CD110-47UF/16V 5*11	5	EC18 EC19 EC22 EC23 EC52
01.34.CL.D.E47U25VC1	Capacitor, AL.electrolytic	CD110-47UF/25V 5*11	1	EC39
01.34.CL.D.E100U10VD	Capacitor, AL.electrolytic	CD110-100UF/10V 5*12	8	EC2 EC13 EC14 EC15 EC26 EC35 EC36 EC49

Part Number	Description		Qty	Reference Designator
Main Board 1802C				
01.34.CL.D.E100U25VD	Capacitor, AL.electrolytic	CD110-100UF/25V 6.3*12	1	EC38
01.34.CL.D.E100U16VC	Capacitor, AL.electrolytic	CD110-100UF/16V 5*11	9	EC1 EC12 EC20 EC21 EC24 EC33 EC40 EC53 EC48
01.34.CL.D.E220U10VD	Capacitor, AL.electrolytic	CD110-220UF/10V 5*12	4	EC28 EC29 EC31 EC32
01.34.CL.D.E220U16VD	Capacitor, AL.electrolytic	CD110-220UF/16V 6.3*12	1	EC34
01.34.CL.D.EV1500U6V3S	Capacitor, AL.electrolytic	CD110-1500UF/6.3V 8*17	1	EC30
Semiconductors				
01.41.D.PS.ELL4148	Diode	LL4148 SMD	8	D4 D5 D6 D11 D12 D13 D14 D15
01.41.D.PD.E5393	Diode	IN5393 DIP	6	D1 D2 D3 D8 D9 D10
01.42.Q.S.E1132	Transistor	2SB1132 SMD SOT89	2	Q1 Q6
01.42.Q.S.E3018	Transistor	2SK3018T106 SMD UMT3	3	Q2 Q5 Q9
01.42.Q.S.E2N3904	Transistor	2N3904 SMD	2	Q3 Q4
01.42.Q.S.EC8550	Transistor	KTC8550 SMD	1	Q10
01.44.IC.S.EC5FP	IC,Rohm ,Voltage Regulator	BA00HC5FP SMD Rohm T0252-5	1	U1
01.46.IC.E7414	IC, Philips, Hex inverting Schmitt trigger	74HCT14 SMD	1	U2
01.44.IC.S.E24C64	IC, Atmel, EEPROM	AT24C64-2.7 SMD (burn-in firmware US version）Atmel SO8	1	U3
01.44.IC.S.E3278	IC, Amlogic, decoder	AML3278 SMD Amlogic PQFP256LD	1	U4
01.44.IC.S.E9536	IC,Xilinx ,CPLD	XC9536XL-10VQ44C SMD (burn-in firmware on board) Xilinx VQFP44	1	U5
01.44.IC.S.E16400B	IC, ISSI, SDRAM	IS42S16400B-6T SMD ISSI TSOP54	2	U7 U8
01.44.IC.S.E29LV160DB	IC, AMD, Flash memory	AM29LV160DB-90EC SMD (burn-in firmware US version）AMD TSOP48	1	U9
01.44.IC.S.E6208F	IC, Rohm, Motor driver	BA6208F SMD Rohm SOP8	1	U10
01.44.IC.S.E5888	IC, Rohm, Actuator driver	BA5888FP SMD Rohm HSOP28	1	U11
01.44.IC.S.E3501	IC, Amlogic, RF Processor	AML3501 SMD Amlogic TSSOP48	1	U12
01.44.IC.S.ELM358M	IC, Fairchild, Dual Op-amp	LM358M SMD SMT SO8	3	U6 U13 U28
01.44.IC.S.E2561	IC,JRC,Low Voltage Video Amplifier contained LPF circuit	NJM2561F1 SMD JRC MTP6	1	U14
01.44.IC.S.E4410	IC,Analog Devices,Integrated Video Filter	ADA4410-6 SMD AD CP-32-3	1	U15
01.44.IC.S.E0514	IC,Semtech ,ESD protection device	RClamp0514M SMD Semtech MSOP-10L	4	U16 U24 U25 U26
01.44.IC.S.E242L	IC,TransDimension Inc.,USB host controller	TDOTG242LP SMD Amlogic LQFP-64	1	U17
01.44.IC.S.E1924	IC, Rohm, RDS decoder	BU1924F SMD Rohm SOP16	1	U18
01.44.IC.D.EL7809	IC, NS, Voltage Regulator (-9v)	L7809 DIP TO220	1	U19
01.44.IC.D.E78L05	IC, NS, Voltage Regulator (+5v)	78L05 DIP TO-92	1	U20
01.44.IC.D.EPC817	IC, Sharp, Photoelectric Coupler	PC817 DIP Sharp	1	U27
01.44.IC.D.EL7805	IC, NS, Voltage Regulator (+5v)	L7805 DIP TO220	1	U32
01.44.IC.S.E9030A	IC,Silicon Image,HDMI PanelLink transmitter	SiI9030CTU SMD TQFP80	1	U21
01.44.IC.S.E1117H	IC,Advanced Analog Circuits Corporation, Voltage Regulator	AZ1117H-5.0 SMD SOT223	1	U29
01.44.IC.S.EA11171V8	IC,Advanced Analog Circuits Corporation, Voltage Regulator	AZ1117H-1.8 SMD SOT223	1	U23
01.44.IC.S.EA11173V3	IC,Advanced Analog Circuits Corporation, Voltage Regulator	AZ1117H-3.3 SMD SOT223	1	U30
01.44.IC.S.E672T	IC,NEC,level shift device	UPA672T SMD NEC SC-70	1	U31
Miscellaneous				
01.13.L.L.S.E018	Inductor, multilayer ceramic, chip	1206-10UH	2	L1 L2
01.13.L.L.S.E144	Inductor, multilayer ceramic, chip	0603-47nH(MLG1608B47NJT000)	1	FB53
01.13.L.R.E068	Tuner 19k filter	EJ219 TOKO	2	B1 B2
01.13.L.L.S.E136	Inductor, chip	ACM2012-900-2P (TDK)	4	L3 L4 L5 L6
01.40.CON.DCZ.E316	Jack,HDMI	1747981-1 SMD 51UO19S-331N-A	1	J4
01.40.CON.DCZ.E045	Jack,YuanChang,video output	AV1-8.4-8G,yellow,fireproof	1	J2
01.57.R.Y.E270	Zinc oxide varistor, for ESD	AVR-M1608C270MTABB SMD （TDK）	2	ESD1 ESD2
01.00.JZ.E2700C	Fundamental. Oscillator	27.00MHZ with 3.3v(basic frequency)	1	Y1
01.00.JZ.E06000A	Fundamental. Oscillator	6.000MHZ-49S-6.8P (basic frequency)	1	Y2
01.00.JZ.E4332	Fundamental. Oscillator	4.332MHz-49S-20P Basic frequency	1	Y3

Part Number	Description		Qty	Reference Designator
Main Board 1802C				
01.13.L.Z.ESA50	Bead, chip	0603-50Ω	25	FB16 FB18 FB20 FB22 FB23 FB24 FB25 FB26 FB27 FB28 FB29 FB30 FB31 FB32 FB33 FB35 FB36 FB37 FB38 FB39 FB40 FB47 (FB48) FB49 FB52
01.13.L.Z.ESB50	Bead, chip	0805-50Ω	12	FB1 FB7 FB9 FB11 (FB13) FB19 FB5 FB42 FB43 FB44 FB45 FB46
01.13.L.Z.E102YN	Bead, chip	PBY160808T-102Y-N	1	R174
Bead, leaded fixed	Bead, leaded fixed	50Ω（3.5*6.0*0.8）	11	FB3 FB4 FB6 FB8 FB10 FB12 FB14 FB15 FB17 FB34 FB41
01.57.R.R.E050	Resettable Fuse	JK-MSMD050 SMD JinKe PTC	1	PTC1
01.40.CON.DDZ.EDSW-6	Jack,S-video output	DSW-6	1	J1
01.40.CON.DCZ.E293	Jack,YuanChang,component output	AV3-8.4-14/PB-left green,middle blue,right red,fireproof	1	J3
01.40.CON.DCZ.E217	Jack,BaiChuanHe,USB input	USB-A-05,environmental protection	1	J7
01.40.CON.DCZ.E203	Jack,YuanChang,headphone output	CKX-3.5-22	2	J5 J6
01.40.CON.DPH.E020	connector	PH-4A ,in-line package,fireproof	1	CN14
01.40.CON.DPH.E024	connector	PH-5A,in-line package,fireproof	2	CN1 CN6
01.40.CON.DPH.E028	connector	PH-6A ,in-line package,fireproof	2	CN2 CN17
01.40.CON.DPH.E002	connector	PH-10A ,in-line package,fireproof	1	CN9
01.40.CON.DPH.E047	connector	PH-13A ,in-line package,fireproof	1	CN5
01.40.CON.S10.FPC2.E030	FPC connector	1.0-14P,in-line package w double touch,blk	1	CN13
01.40.CON.S10.FPC2.E024	FPC connector	1.0-14P,in-line package w double touch,blk	1	CN7
01.40.CON.S10.FPC2.E031	FPC connector	1.0-14P,in-line package w double touch,blk	1	CN11
01.40.CON.DCZ.E062	FPC double line connector	1.25-11P ,in-line package	1	CN12
01.40.CON.S13.FPC2.E020	FPC double line connector	1.25-18P,in-line package w single touch,wht	1	CN4
01.40.CON.S05.E007	Connector,chip	FPC-0.5-24P,with upside touch	1	CN3
Audio Input/Ouput Board 1804C				
Resistors				
01.57.R.2.E000J	Resistor, chip	0603-0Ω ±5%	1	R356
01.57.R.2.E100J	Resistor, chip	0603-10Ω±5%	1	R353
01.57.R.2.E561J	Resistor, chip	0603-560Ω±5%	1	R379
01.57.R.2.E750J	Resistor, chip	0603-75Ω±5%	1	R378
01.57.R.2.E111J	Resistor, chip	0603-110Ω±5%	1	R343
01.57.R.2.E151J	Resistor, chip	0603-150Ω±5%	1	R342
01.57.R.2.E221J	Resistor, chip	0603-220Ω±5%	1	R341
01.57.R.2.E331J	Resistor, chip	0603-330Ω±5%	3	R321 R328 R344
01.57.R.2.E681J	Resistor, chip	0603-680Ω±5%	2	R320 R327
01.57.R.2.E1781F	Resistor, chip	0603-1.78KΩ±1%	2	R319 R329
01.57.R.2.E222J	Resistor, chip	0603-2.2KΩ±5%	4	R304 R312 R364 R380
01.57.R.2.E332J	Resistor, chip	0603-3.3KΩ±5%	5	R310 R313 R315 R316 R317
01.57.R.2.E472J	Resistor, chip	0603-4.7KΩ±5%	3	R300 R305 R352
01.57.R.2.E4752F	Resistor, chip	0603-4.75KΩ 1%	4	R323 R324 R336 R337
01.57.R.2.E512J	Resistor, chip	0603-5.1KΩ±5%	2	R354 R355
01.57.R.2.E752F	Resistor, chip	0603-7.5KΩ 1%	2	R326 R332
01.57.R.2.E103J	Resistor, chip	0603-10KΩ±5%	25	R301 R302 R303 R307 R309 R311 R322 R325 R330 R331 R333 R339 R340 R345 R346 R347 R350 R351 R359 R360 R363 R365 R382 R361 R362
01.57.R.2.E473J	Resistor, chip	0603-47KΩ±5%	3	R334 R335 R381
01.57.R.2.E104J	Resistor, chip	0603-100KΩ±5%	1	R349
01.57.R.3.E222J	Resistor, chip	0805-2.2KΩ±5%	6	(R366) (R368) R(370) (R372) (R374) (R376)
01.57.R.3.E103J	Resistor, chip	0805-10KΩ±5%	6	(R367) (R369) (R371) (R373) (R375) (R377)
01.57.R.C.ED151	Fixed carbon film	RT1/4W-150Ω	1	R314
01.57.R.C.ED102	Fixed carbon film	RT1/4W-1KΩ	2	R306 R308

Part Number	Description		Qty	Reference Designator
Audio Input/Ouput Board 1804C				
Capacitors				
01.54.CS.2.E200N	Capacitor,multilayer ceramic, chip	0603-20P NPO±5%/50V	2	C300 C303
01.54.CS.2.E470N	Capacitor,multilayer ceramic, chip	0603-47P NPO±5%/50V	2	C325 C326
01.54.CS.3.E101N	Capacitor,multilayer ceramic, chip	0805-100P NPO±5%/50V	2	C306 C314
01.54.CS.2.E101N	Capacitor,multilayer ceramic, chip	0603-100P NPO±5%/50V	2	C317 C318
01.54.CS.3.E681N	Capacitor,multilayer ceramic, chip	0805-680P NPO±5%/50V	2	C307 C311
01.54.CS.3.E102N	Capacitor,multilayer ceramic, chip	0805-102 NPO±5%/50V	2	C305 C310
01.54.CS.2.E104Y	Capacitor,multilayer ceramic, chip	0603-104 Y5V-20+80%/50V	15	C308 C309 C312 C313 C315 C316 C319 C320 C322 C324 C327 C328 C301 C302 C304
01.34.CL.D.E10U16VC	Capacitor, AL.electrolytic	CD110-10UF/16V 5*11	12	EC304 EC305 EC312 EC315 EC316 EC318 EC320 EC322 EC300 EC301 EC306 EC308
01.34.CL.D.E47U16VC	Capacitor, AL.electrolytic	CD110-47UF/16V 5*11	4	EC302 EC303 EC307 EC310
01.34.CL.D.E47U25VC1	Capacitor, AL.electrolytic	CD110-47UF/25V 5*11	2	EC313 EC314
01.34.CL.D.E100U16VC	Capacitor, AL.electrolytic	CD110-100UF/16V 5*11	1	EC323
01.34.CL.D.E220U16VD	Capacitor, AL.electrolytic	CD110-220UF/16V 6.3*12	2	EC309 EC311
Semiconductors				
01.41.D.PS.ELL4148	Diode	LL4148 SMD	9	D300 D301 D302 D303 D304 D305 D306 D307 D308
01.42.Q.S.E8050	Transistor	KTC8050 SMD SOT23	2	Q300 Q302
01.42.Q.S.EC8550	Transistor	KTC8550 SMD SOT23	3	Q301 Q303 Q311
01.42.Q.S.E343	Transistor	DTC343TK SMD SMT3	7	Q307 Q308 309 Q310 Q304 Q305 Q306
01.44.IC.S.E833	IC,NS,Dual Audio Operational Amplifier	LM833M SMD	1	U301
01.44.IC.S.E8776	IC, Wolfson, Stereo CODEC with 5 Channel I/P Multiplexer	WM8776SEFT SMD Wolfson TQFP48	1	U302
01.44.IC.S.E74HC158	IC, TI, Data selectors	74HC158 SMD（TI or TOSHIBA） SOP16	1	U303
01.46.IC.E74H04	IC,Philips,hex inverter	74HCU04 SMD TSSOP14	1	U304
Miscellaneous				
01.40.CON.S10.FPC2.E030	FPC connector	1.0-14P,in-line package with double side touch ,black)	1	CN301
01.40.CON.S10.FPC2.E031	FPC connector	1.0-20Pin-line package with double side touch ,black)	1	CN302
01.40.CON.DPH.E002	connector	PH-10A ,fireproof	1	CN303
01.40.CON.DPH.E020	connector	PH-4A fireproof	1	CN304
01.43.E004	Jack, Fiber optic output jack with shutter	GP1FA513RZ	1	J305
01.40.CON.DCZ.E218	Jack, YuanChang, Coaxial output jack	AV2-8.4-9/PB,orange color with shield	1	J304
01.40.CON.DCZ.E242	Jack,YuanChang,audio input & output,TV input	AV6-8.4-7/PB ,fireproof,down red and up white	1	J302
01.40.CON.DCZ.E181	SCART JACK	CS-101 with shield	1	J301
01.57.R.Y.E270	Zinc oxide varistor, for ESD	AVR-M1608C270MTABB	6	ESD300 ESD301 ESD302 ESD303 ESD304 ESD305
01.13.L.Z.ESA50	Bead, chip	0603-50Ω	8	FB306 FB307 FB300 FB301 FB302 FB303 FB304 FB305
Amplifier Board 1805C				
Resistors				
01.57.R.2.E000J	Resistor, chip	0603-0Ω ±5%	4	R405 R406 R407 R408
01.57.R.2.E151J	Resistor, chip	0603-150Ω±5%	1	R443
01.57.R.2.E271J	Resistor, chip	0603-270Ω±5%	1	R403
01.57.R.2.E102J	Resistor, chip	0603-1KΩ±5%	1	R413
01.57.R.2.E152J	Resistor, chip	0603-1.5KΩ±5%	1	R412
01.57.R.2.E332J	Resistor, chip	0603-3.3KΩ±5%	3	R404 R411 R416
01.57.R.2.E103J	Resistor, chip	0603-10KΩ±5%	7	R409 R410 R414 R415 R440 R441 R442
01.57.R.2.E473J	Resistor, chip	0603-47KΩ±5%	1	R419

Part Number	Description		Qty	Reference Designator
Amplifier Board 1805C				
01.57.R.4.E6R2J	Resistor, chip	1206-6.2Ω±5%	10	R430 R431 R432 R433 R434 R435 R436 R437 R438 R439
01.57.R.4.E100J	Resistor, chip	1206-10Ω±5%	10	R420 R421 R422 R423 R424 R425 R426 R427 R428 R429
01.57.R.3.E102J	Resistor, chip	0805-1KΩ±5%	2	R418 R445
01.57.R.3.E103J	Resistor, chip	0805-10KΩ±5%	3	R446 R444 (R449)
Capacitors				
01.54.CS.2.E270N	Capacitor,multilayer ceramic, chip	0603-27P NPO±5%/50V	1	C407
01.54.CS.2.E101N	Capacitor,multilayer ceramic, chip	0603-100P NPO±5%/50V	1	C405
01.54.CS.2.E221N	Capacitor,multilayer ceramic, chip	0603-220P NPO±5%/50V	1	C424
01.54.CS.2.E102X	Capacitor,multilayer ceramic, chip	0603-102 X7R±10%/50V	1	C404
01.54.CS.2.E153Y	Capacitor,multilayer ceramic, chip	0603-153 Y5V-20+80%/50V	1	C400
01.54.CS.2.E104Y	Capacitor,multilayer ceramic, chip	0603-104 Y5V-20+80%/50V	18	C421 C422 C426 C427 C428 C429 C430 C415 C431 C432 C433 C434 C435 C436 C437 C438 C439 C440
01.54.CS.3.E104Y	Capacitor,multilayer ceramic, chip	0805-104 Y5V+80-20%/50V	38	(C402) (C403) (C408) (C410) (C413) (C414) (C416) (C417) (C418) (C419) (C420) C461 C462 C463 C464 C465 C488 C466 C467 C468 C469 C470 C495 C471 C472 C473 C474 C475 C476 C477 C478 C401 C443 C445 C448 C450 C497 C499
01.54.CS.3.E102N	Capacitor,multilayer ceramic, chip	0805-102 NPO±5%/50V	10	(C484) (C485) (C486) (C487) (C489) (C490) (C491) (C492) (C493) (C494)
01.54.CS.2.E122X	Capacitor,multilayer ceramic, chip	0603-122 X7R±10%/50V	1	C425
01.54.CS.4.E681N	Capacitor,multilayer ceramic, chip	1206-680P NPO±5%/50V	10	C451 C452 C453 C454 C455 C456 C457 C458 C459 C460
01.33.CT.EC1U50V	Solid Electrolyte Tantalum Chip Capacitor	C-1UF-50V	6	C442 C444 C447 C449 C496 C498
01.33.CT.EB22U10V	Solid Electrolyte Tantalum Chip Capacitor	B-22UF-10V	2	C412 C423
01.00.CD.JZ.E474	Box-type metallized polyester film capacitor	474J 100V FaLa in XiaMen	5	C479 C480 C481 C482 C483
01.34.CL.D.E10U25VC1	Capacitor, AL.electrolytic	CD288H-10UF/25V 5*11	1	EC402
01.34.CL.D.EH100U16VD	Capacitor, AL.electrolytic	CD288H-100UF/16V 5*12	2	EC403 EC404
01.34.CL.D.E1000U50VH	Capacitor, AL.electrolytic	CD288H-1000UF/50V 13*25	3	EC405 EC406 EC407
01.34.CL.D.EH47U25VD	Capacitor, AL.electrolytic	CD288H-47UF/25V 5*12	2	EC400 EC401
Semiconductors				
01.41.D.PS.ELL4148	Diode	LL4148 SMD	3	D400 D401 D402
01.42.Q.S.E343	Transistor	DTC343TK SMD SMT3	1	Q400
01.42.Q.S.EC8550	Transistor	KTC8550 SMD SOT23	1	Q401
01.42.Q.S.E8050	Transistor	KTC8050 SMD SOT23	1	(Q402)
01.44.IC.S.E2160	IC, Apogee, Power Device	DDX2160 SMD	3	U403 U404 U405
01.44.IC.S.E8001	IC, Apogee, Digital Audio Processor	DDX8001 SMD TQFP64	1	U402
01.44.IC.S.EAAT3522IGY	IC, Analogic, Microprocessor Reset Circuit	AAT3522IGY-3.08-200-T1 SMD SOT23	1	U401
01.44.IC.S.E2068	IC, JRC, Dual Op-amp	NJM2068M SMD SO8	1	U406
01.44.IC.S.E9161A	IC, RichTek, Voltage Regulator	RT9161A-33CG SMD SMT	1	U400
Miscellaneous				
01.40.CON.DCZ.E129	connector	Vertical VH three holes two pins(white,upright,fireproof)	1	CN403
01.40.CON.S10.FPC2.E024	FPC connector	1.0-16P(upright with double side touch,black)	1	CN401
01.40.CON.DCZ.E172	Jack,sub output	AV1-8.4-6G(purple,fireproof)	1	J402
01.40.CON.DCZ.E325	Jack,sub output	WP10-23-3PB (up green red grey white blue,down black)	1	J403
01.40.CON.DPH.E024	Connector	PH-5A ,fireproof	1	CN402

Part Number	Description		Qty	Reference Designator
Amplifier Board 1805C				
01.40.CON.DCZ.E203	Headphone jack	CKX-3.5-22	1	J401
01.57.R.R.E010	Resettable Fuse	JK-MSMD010 SMD JinKe PTC	1	PTC400
01.13.L.L.D.E082	Inductor	NFE61PT101Z1H9L 2606 Murata	1	FL400
01.13.L.Z.ESB50	Bead, chip	0805-50Ω	2	L401 (L413)
01.13.L.Z.ESB300	Bead, chip	0805-300Ω	2	L402 L403
01.13.L.L.D.E127	Magnetic shielding Inductor	983BN-1003-15UH HuaJian in ShanTou（TOKO）	10	L400 L404 L405 L406 L407 L408 L409 L410 L411 L412
SMPS Power Supply Board 1806C				
Resistors				
01.57.R.3.E4R7J	Resistor, chip	0805-4.7Ω±5%	1	R517
01.57.R.3.E100J	Resistor, chip	0805-10Ω±5%	1	R529
01.57.R.3.E220J	Resistor, chip	0805-22Ω±5%	3	R518 R522 R520
01.57.R.3.E330J	Resistor, chip	0805-33Ω±5%	1	R501
01.57.R.3.E101J	Resistor, chip	0805-100Ω±5%	1	R515
01.57.R.3.E221J	Resistor, chip	0805-220Ω±5%	1	R523
01.57.R.3.E471J	Resistor, chip	0805-470Ω±5%	2	R532 R561
01.57.R.3.E511J	Resistor, chip	0805-510Ω±5%	1	R556
01.57.R.3.E102J	Resistor, chip	0805-1KΩ±5%	14	R551 R553 R557 R555 R563 R580 R581 R565 R566 R540 R567 R568 R587 R536
01.57.R.3.E222J	Resistor, chip	0805-2.2KΩ±5%	2	R541 R560
01.57.R.3.E302F	Resistor, chip	0805-3KΩ±1%	2	R552 R559
01.57.R.3.E362F	Resistor, chip	0805-3.6KΩ±1%	1	R558
01.57.R.3.E472J	Resistor, chip	0805-4.7KΩ±5%	9	R516 R519 R521 R547 R548 R550 R562 R585 R589
01.57.R.3.E4992F	Resistor, chip	0805-4.99KΩ±1%	1	R525
01.57.R.3.E103J	Resistor, chip	0805-10KΩ±5%	8	R510 R531 R570 R571 R583 R543 R535 R596
01.57.R.3.E133J	Resistor, chip	0805-13K±5%	1	R506
01.57.R.3.E203J	Resistor, chip	0805-20KΩ±5%	1	R544
01.57.R.3.E303F	Resistor, chip	0805-30KΩ ±1%	1	R549
01.57.R.3.E513J	Resistor, chip	0805-51K±5%	1	R564
01.57.R.3.E473J	Resistor, chip	0805-47KΩ±5%	2	R588 R546
01.57.R.3.E6043F	Resistor, chip	0805-60.4KΩ ±1%	1	R509
01.57.R.3.E683J	Resistor, chip	0805-68KΩ±5%	1	R511
01.57.R.3.E8253F	Resistor, chip	0805-82.5KΩ ±1%	1	R569
01.57.R.3.E104J	Resistor, chip	0805-100KΩ±5%	2	R505 R539
01.57.R.3.E4124F	Resistor, chip	0805-412KΩ ±1%	2	R526 R545
01.57.R.3.E105J	Resistor, chip	0805-1MΩ±5%	1	R586
01.57.R.4.E101J	Resistor, chip	1206-100Ω±5%	2	R597 R598
01.57.R.4.E103J	Resistor, chip	1206-10KΩ±5%	1	R599
01.57.R.4.E564J	Resistor, chip	1206-560KΩ ±5%	2	R528 R572
01.57.R.C.ED473	Fixed carbon film	RT1/4W-47KΩ	1	R527
01.57.R.J.ED3752F	Cermet Resistor	RJ1/4W-375KΩ±1%	2	R514 R513
01.57.R.J.ED3572F	Cermet Resistor	RJ1/4W-357KΩ ±1%	2	R503 R504
01.57.R.J.ED2492F	Cermet Resistor	RJ1/4W-249KΩ ±1%	2	R507 R508
01.57.R.C.ED102	Fixed carbon film	RT1/4W-1KΩ	1	R573
01.57.R.C.EF101	Fixed carbon film	RT1W-100Ω	3	R533 R534 R595
01.57.R.C.EF104	Fixed carbon film	RT1W-100KΩ	1	R530
01.57.R.C.EHR3	Fixed carbon film	RT3W-0.3Ω	3	R574 R502 R524
01.57.R.C.EH300	Fixed carbon film	RT3W-300Ω	1	R582
01.57.R.Y.E10K	Zinc oxide varistor	10K.471	1	RZ503
01.57.R.R.E8R210	Thermal resistor	8R210 DIP	2	RZ501 RZ502
01.57.R.C.40E515	High-Resistance Cermet Resistor	RI40-1/2W-5.1MΩ	2	two in series at R575
Capacitors				
01.54.CS.3.E101N	Capacitor,multilayer ceramic, chip	0805-100P NPO±5%/50V	3	C529 C523 C530
01.54.CS.3.E151N	Capacitor,multilayer ceramic, chip	0805-150P NPO±5%/50V	1	C509
01.54.CS.3.E221N	Capacitor,multilayer ceramic, chip	0805-220P NPO±5%/50V	1	C508
01.54.CS.3.E331N	Capacitor,multilayer ceramic, chip	0805-330P NPO±5%/50V	1	C513
01.54.CS.3.E471N	Capacitor,multilayer ceramic, chip	0805-470P NPO±5%/50V	1	C507

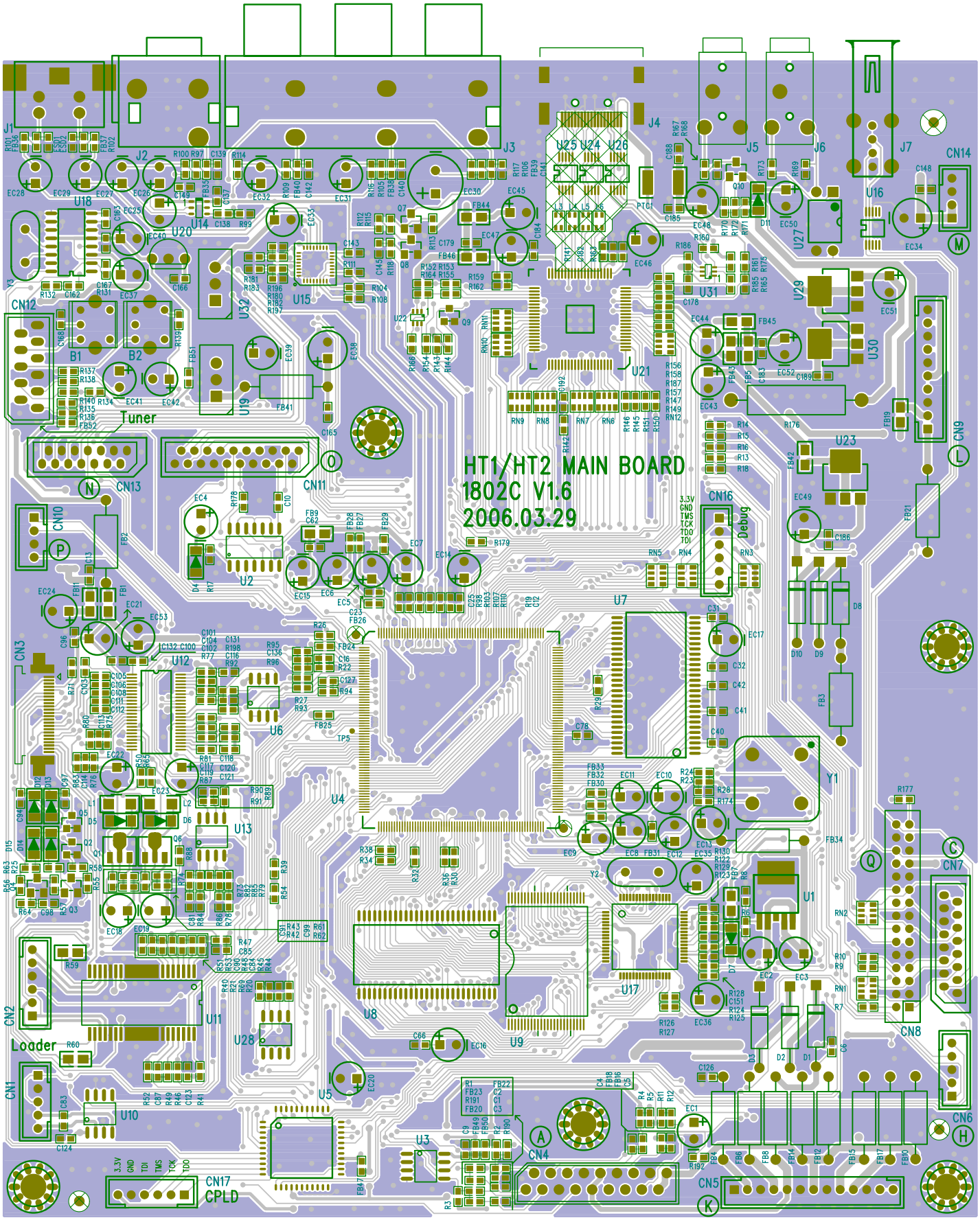
Part Number	Description		Qty	Reference Designator
SMPS Power Supply Board 1806C				
01.54.CS.3.E102X	Capacitor,multilayer ceramic, chip	0805-102 X7R ±10%/50V	1	C511
01.54.CS.3.E152X	Capacitor,multilayer ceramic, chip	0805-152 X7R±10%/50V	1	C510
01.54.CS.3.E332Y	Capacitor,multilayer ceramic, chip	0805-332 Y5V	1	C527
01.54.CS.3.E153X	Capacitor,multilayer ceramic, chip	0805-153 X7R±10%/50V	1	C514
01.54.CS.3.E473X100V	Capacitor,multilayer ceramic, chip	0805-473 X7R±10%/100V	2	C517 C528
01.54.CS.3.E104Y	Capacitor,multilayer ceramic, chip	0805-104 Y5V+80-20%/50V	4	C524 C525 C526 C522
01.54.CS.3.E474Y	Capacitor,multilayer ceramic, chip	0805-474 Y5V+80-20%/50V	3	C504 C506 C536
01.54.CS.3.E105X25V	Capacitor,multilayer ceramic, chip	0805-105 X7R±10%/25V	3	C505 C512 C538
01.35.CC.E12064U725V	Capacitor,multilayer ceramic, chip	1206-4.7UF-25V	1	C535
01.54.CS.4.E474	Capacitor,multilayer ceramic, chip	1206-474	1	C534
01.00.CD.DL.E223100V	Dacron terylene condenser	223/100V	1	C533
01.00.CD.DS.E10450V	Monolithic Ceramic Capacitor	104/50V X7R±10% (pin space 5.08)	1	C521
01.00.CD.GY.E334275V	High-voltage metallized polyester film	334/275V X2(pin space15/pin length 4)	1	C502
01.00.CD.JZ.E104630V	Metallized capacitor	104/630V	1	C515
01.00.CD.JZ.E472630VA	Metallized capacitor	472/630V(pin space10)	1	C518
01.00.CD.GY.E2211KV	High-voltage metallized polyester film	221/1KV	1	C537
01.00.CD.GY.E4711KV	High-voltage metallized polyester film	471/1KV	2	C519 C520
01.00.CD.GY.E224275V	High-voltage metallized polyester film	224/275V X2(pin space15/pin length 5.5)	2	C501 C503
01.00.CD.GY.E102400V250V	High-voltage metallized polyester film	102/400V(X1) 250V(Y1) (pin space10/pin longth 16)	2	CY1 CY2
01.00.CD.GY.E222400V250V	High-voltage metallized polyester film	222/400V(X1) 250V(Y1)(pin space10/pin longth 16)	2	CY501 CY502
01.00.CD.JZ.E47463V	Box-type metallized polyester film capacitor	474/63V	1	C516
01.34.CL.D.E1U50VC1	Capacitor, AL.electrolytic	CD288H-1UF/50V 5*11	2	EC509 EC531
01.34.CL.D.E28810U50VD	Capacitor, AL.electrolytic	CD288H-10UF/50V 5*12	2	EC527 EC530
01.34.CL.D.EH47U50VD	Capacitor, AL.electrolytic	CD288H-47UF/50V 6.3*12	1	EC503
01.34.CL.D.E288100U25VD	Capacitor, AL.electrolytic	CD288H-100UF/25V 6.3*12	5	EC510 EC511 EC514 EC518 EC528
01.34.CL.D.EH470U16VD	Capacitor, AL.electrolytic	CD288H-470UF/16V 8*12	2	EC515 EC516
01.34.CL.D.E288470U25VE	Capacitor, AL.electrolytic	CD288H-470UF/25V 8*14	5	EC513 EC517 EC523 EC504 EC522
01.34.CL.D1000U16V	Capacitor, AL.electrolytic	CD288H-1000UF/16V 10*17	2	EC521 EC525
01.34.CL.D.E1000U50VH	Capacitor, AL.electrolytic	CD288H-1000UF/50V 13*25	3	EC505 EC506 EC507
01.34.CL.D.E288220U10VH	Capacitor, AL.electrolytic	CD288H-2200UF/10V 10*20	2	EC520 EC526
01.34.CL.D.E220U450VK	Capacitor, AL.electrolytic	CD294-220UF/450V 30*40	1	EC502
Semiconductors				
01.41.D.PD.EIN4001	Diode	IN4001 DIP	3	D501 D502 D503
01.41.D.PS.ELL4148	Diode	LL4148 SMD 0.5W	7	D512 D513 D523 D524 D528 D529 D530
01.41.D.PD.EFR104	Diode	FR104 DIP	3	D506 D507 D516
01.41.D.PD.EHER208G	Diode	HER208G DIP	2	D519 D527
01.41.D.PD.EDQ06	Diode	21DQ06 DIP	1	D515
01.41.D.PD.E21DQ10	Diode	21DQ10 DIP	1	D514
01.41.D.PD.EIN5819	Diode	IN5819 DIP	1	D525
01.41.D.PD.E2010DN	Diode, Fairchild	FYPF2010DN DIP	2	D518 D526
01.41.D.PD.E308	Diode	HER308 DIP	2	D508 D509
01.41.D.PD.E30U20S	Diode, Fairchild	FFPF30U20STU DIP	4	D510 D511 D521 D522
01.41.D.WD.E5V6	Zener diode,DIP	5.6V	1	Z509
01.41.D.WD.E9V1	Zener diode,DIP	9.1V	1	Z508
01.41.D.WD.E16V	Zener diode,DIP	16V	5	Z502 Z501 Z504 Z506 Z505
01.41.D.WS.E15V	Zener diode,SMD	15V 0.5W	2	Z503 Z511
01.41.D.PD.E1560	Diode, Fairchild	ISL9R1560PF2 DIP	1	D504
01.41.D.PD.ED10XB60	Diode	D10XB60 DIP SHINDENGEN	1	DB501
01.41.D.PD.EP6KE200A	Diode	P6KE200A DIP	1	Z510
01.42.Q.S.E2N3904	Transisitor	2N3904 SMD SOT23	3	Q505 Q507 Q511
01.42.Q.S.E2N3906	Transisitor	2N3906 SMD SOT23	2	Q506 Q509
01.44.IC.S.E4835	IC, Anachip, P-channel MOSFET	AF4835 SMD	2	Q502 Q510
01.44.IC.S.E2302	IC, Anachip, N-channel MOSFET	AF2302 SMD	1	Q508
01.44.IC.D.E460C	IC,Fairchild,Power MOSFET	IRFP460C DIP	3	Q501 Q503 Q504
01.44.IC.D.E278R05	IC, Fairchild, Voltage Regulator (+5v)	KA278R05CTU DIP Or PQ05RD21	1	U514
01.44.IC.D.E7913	IC, Fairchild, Voltage Regulator (-12v)	KA7912 DIP	1	U512
01.44.IC.D.EBA033	IC, Fairchild, Voltage Regulator	BA033BCO DIP	1	U509

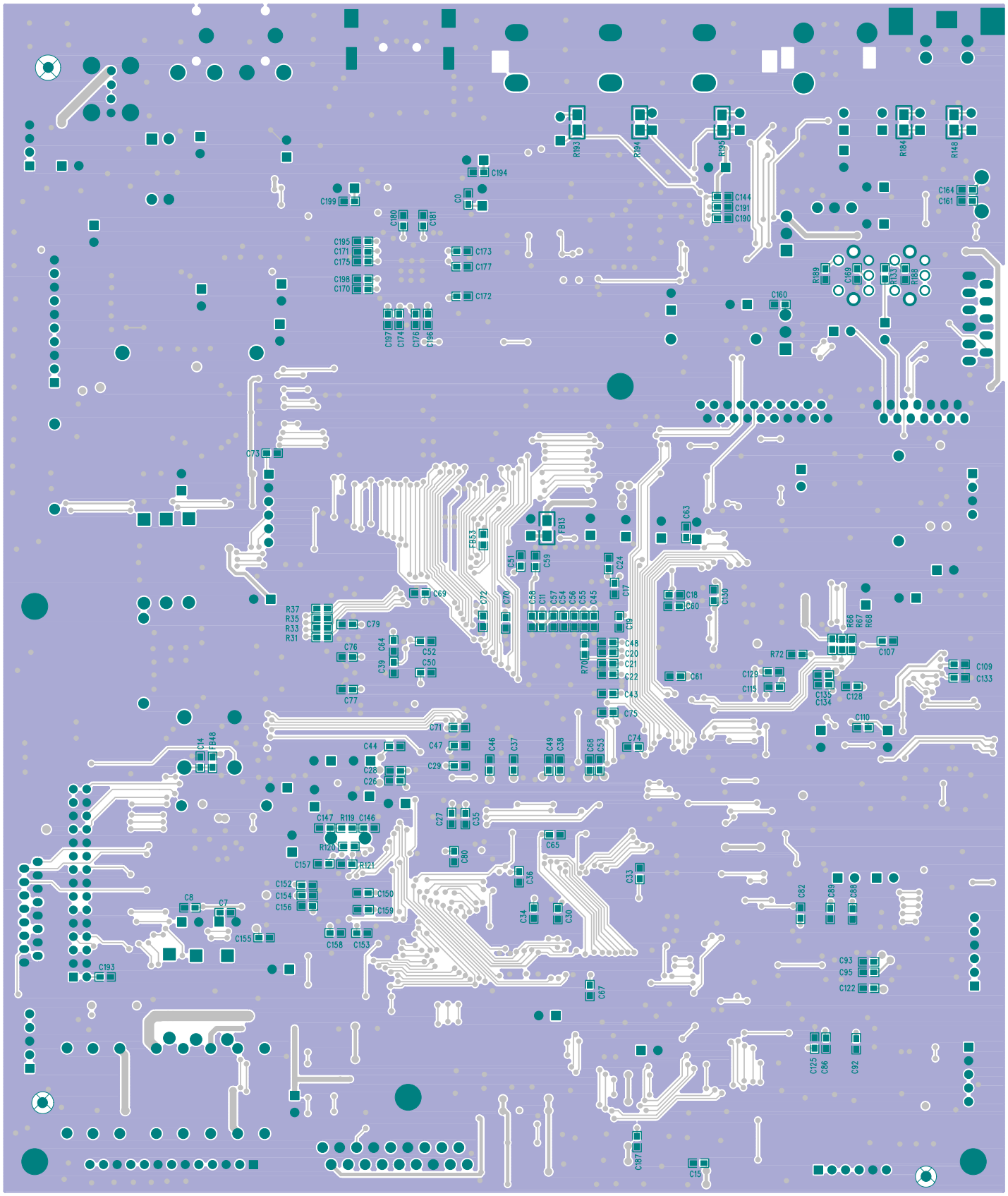
Part Number	Description		Qty	Reference Designator
SMPS Power Supply Board 1806C				
01.44.IC.D.E78R05	IC, Fairchild, Voltage Regulator (+5v)	KA78R05STU DIP	1	U508
01.44.IC.D.E78R12	IC, Fairchild, Voltage Regulator (+12v)	KA78R12 DIP	1	U507
01.44.IC.D.EKA431	IC,Fairchild,Programmable Shunt Regulator	KA431LZTA 0.5% DIP	2	U511 U513
01.44.IC.D.E817	IC, Sharp, Photoelectric Coupler	H11A817B DIP	3	U502 U504 U505
01.44.IC.S.E324	IC,NS, Quad Op-amp	LM324 SMD	1	U506
01.44.IC.S.EL4800	IC,Fairchild,Power Factor Correction and PWM Controller Combo	ML4800 SMD	1	U501
01.44.IC.D.E07652	IC,Fairchild,Power Switch	FSDM07652RBWDTU DIP	1	U503
Miscellaneous				
01.40.CON.DCZ.E129	Connector	Vertical VH three holes two pins （white color, upright,fireproof)	2	CN501 CN506
01.40.CON.DTJ.E008	Connector	TJC3-4A ,fireproof	1	CN508
01.40.CON.DTJ.E011	Connector	TJC3-5A ,fireproof	1	CN505
01.40.CON.DTJ.E012	Connector	TJC3-6A ,fireproof	1	CN503
01.40.CON.DTJ.E002	Connector	TJC3-13A ,fireproof	1	CN504
01.40.CON.DCZ.E131	Fuse Holder	BLX-2A Fireproof	1	for F501
01.38.FUSE.D.E315AL	Fuse	T3.15AL/250V	1	F501
01.13.L.R.E103	Transformer	BCK-ER2855	1	T502
01.13.L.R.E097	Transformer	BCK-EE1325	1	T503
01.13.L.R.E104	Transformer	BCK-ER4201	1	T501
01.00.FZ.QT.E231	Manganin wires	φ0.8 length φ0.8*15MM	2	R591 R592
01.00.WJ.QT.E041	Three pins metal pad	M4	4	A1 A2 A3 A4
01.57.R.R.EJK16300	Resettable Fuse	JK16 300	1	RZ504
01.13.L.L.D.E143	step-up inductor	L-ER4201 DIP	1	L501
01.13.L.L.D.E144	storage inductor	L-ER3501 DIP	1	L502
01.13.L.L.D.E145	Filter inductor	L-100A DIP	1	L503
01.13.L.L.D.E141	Filter inductor	L-200A DIP	2	L511 L509
01.13.L.L.D.E171	Common Mode Choke	LCL-471A	1	L504
01.13.L.L.D.E002	Filter inductor	LH0608-20UH	3	L505 L507 L510
01.13.L.L.D.E146	EMI Filter inductor	LCL-ET2812 DIP	2	L512 L513
Front Panel Board 1819C				
Resistors				
01.57.R.3.E000J	Resistor, chip	0805-0Ω ±5%	2	(R645) (R646)
01.57.R.3.E101J	Resistor, chip	0805-100Ω±5%	2	(R606) (R607)
01.57.R.3.E471J	Resistor, chip	0805-470Ω±5%	1	(R605)
01.57.R.3.E472J	Resistor, chip	0805-4.7KΩ±5%	6	(R601) (R603) (R604) (R611) (R612) (R613)
01.57.R.3.E103J	Resistor, chip	0805-10KΩ±5%	1	(R637)
01.57.R.3.E153J	Resistor, chip	0805-15KΩ±5%	1	(R602)
01.57.R.3.E203J	Resistor, chip	0805-20KΩ±5%	1	(R636)
01.57.R.4.E301J	Resistor, chip	1206-300Ω±5%	3	(R649) (R650) (R651)
Capacitors				
01.54.CS.3.E220N	Capacitor,multilayer ceramic, chip	0805-22P NPO±5%/50V	2	(C604) (C605)
01.54.CS.3.E300N	Capacitor,multilayer ceramic, chip	0805-30P NPO±5%/50V	1	(C620)
01.54.CS.3.E560N	Capacitor,multilayer ceramic, chip	0805-56P NPO±5%/50V	2	(C611) (C612)
01.54.CS.3.E473X	Capacitor,multilayer ceramic, chip	0805-473 X7R±10%/50V	2	(C618) (C626)
01.54.CS.3.E104Y	Capacitor,multilayer ceramic, chip	0805-104 Y5V+80-20%/50V	9	(C606) (C607) (C608) (C627) (C628) (C629) (C630) (C633) (C635)
01.54.CS.3.E225Y	Capacitor,multilayer ceramic, chip	0805-225 Y5V-20+80%/16V	2	(C603) (C619)
01.34.CL.D.E10U16VB	Capacitor, AL.electrolytic	CD11X-10UF/16V 4*7	2	EC616 EC617
01.34.CL.D.E47U16VB	Capacitor, AL.electrolytic	CD11X-47UF/16V 5*7	2	EC601 EC620
01.34.CL.D.EX100U16VB	Capacitor, AL.electrolytic	CD11X-100UF/16V 6.3*7	1	EC602
Semiconductors				
01.41.D.PS.ELL4148	Diode	LL4148 SMD	2	(D601) (D605)

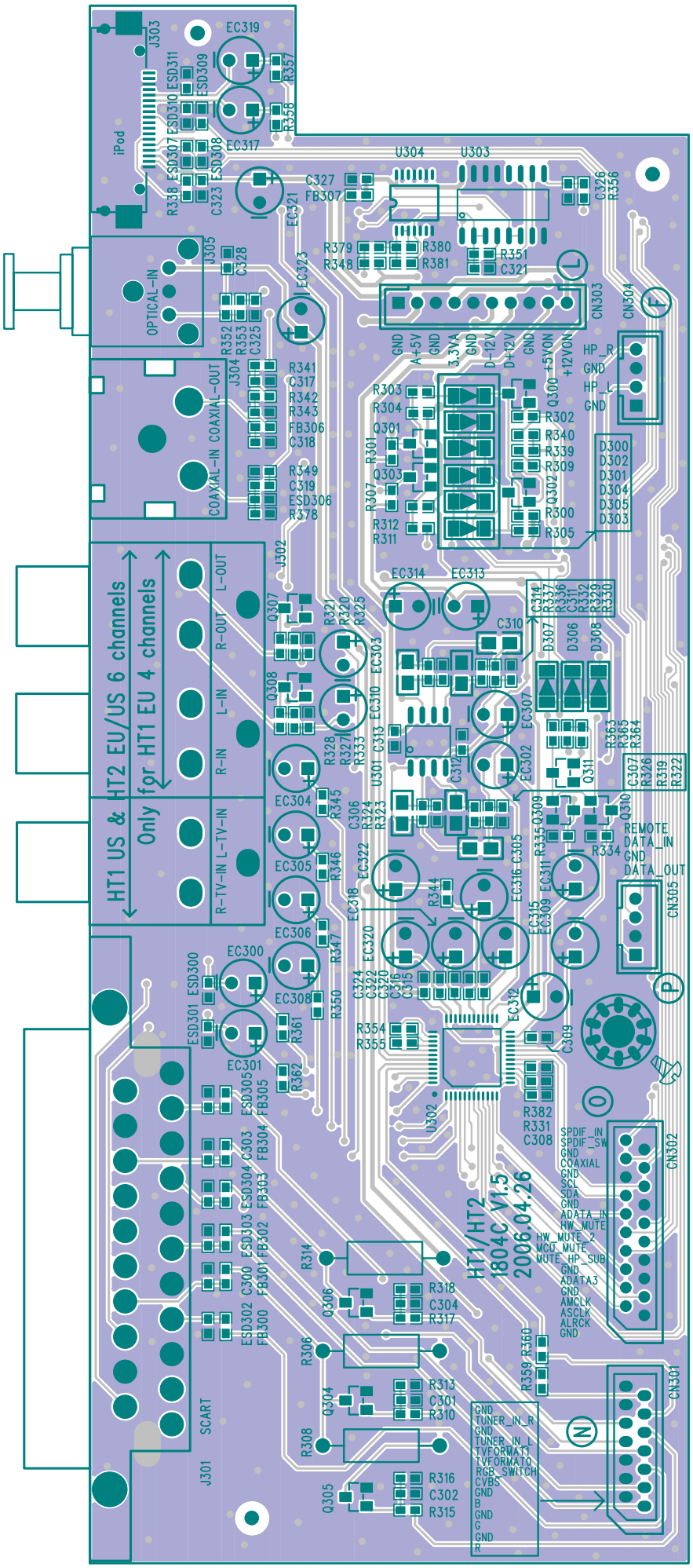
Part Number	Description		Qty	Reference Designator
Front Panel Board 1819C				
01.44.IC.S.E75710	IC,VFD driver	LC75710NE SMD QFP64E	1	(U604)
01.44.IC.S.E0514	IC,Semtech ,ESD protection device	RClamp0514M SMD Semtech MSOP-10L	1	(U602)
01.44.IC.D.E16C56A	IC, Microchip, MCU	PIC16C56A-04/P Burn-in firmware	1	U601
Miscellaneous				
01.16.E1303F	VFD	VFD22-1303F JingDongFang In ZheJiang	1	VFD601
01.00.JZ.E04000	Fundamental. Oscillator	4.000MHZ-49S-22P	1	Y601
01.44.IC.D.E38B17	IR receiver	HL38B17(IR receiver)DIP	1	IR601
01.40.CON.DCZ.E219	Headphone Jack	CKX-3.5-12 YuanChang	1	J602
01.40.CON.DCZ.E217	USB Jack	USB-A-05 BaiChuangHe	1	J601
01.40.CON.DPH.E020	Connector	PH-4A, fireproof	1	CN605
01.40.CON.DPH.E024	Connector	PH-5A , fireproof	1	CN603
01.40.CON.DPH.E028	Connector	PH-6A, fireproof	1	CN602
01.40.CON.DPH.E032	Connector	PH-7A , fireproof	1	CN606
01.40.CON.DPH.E038	Connector	PH-9A, fireproof	1	CN611
01.40.CON.S13.FPC2.E020	FPC double line connector	1.25-18P,in-line package with single side touch ,white	1	CN601
01.57.R.Y.E270	Zinc oxide varistor, for ESD	AVR-M1608C270MTABB	1	(ESD601)
01.13.L.Z.ESB50	Bead, chip	0805-50Ω	3	(FB601) (FB602) (FB603)
Front Panel Board 1820C				
Resistors				
01.57.R.3.E101J	Resistor, chip	0805-100Ω±5%	2	(R638) (R641)
01.57.R.3.E181J	Resistor, chip	0805-180Ω±5%	4	(R622) (R623) (R624) (R625)
01.57.R.3.E222J	Resistor, chip	0805-2.2KΩ±5%	1	(R644)
01.57.R.3.E472J	Resistor, chip	0805-4.7KΩ±5%	2	(R617) (R618)
01.57.R.3.E103J	Resistor, chip	0805-10KΩ±5%	3	(R640) (R642) (R643)
01.57.R.3.E104J	Resistor, chip	0805-100KΩ±5%	1	(R639)
01.57.R.4.E153J	Resistor, chip	1206-15KΩ±5%	3	(R652) (R653) (R654)
01.54.CS.3.E821N	Capacitor,multilayer ceramic, chip	0805-820P NPO±5%/50V	2	(C601) (C602)
01.54.CS.3.E123X	Capacitor,multilayer ceramic, chip	0805-123 X7R±10%/50V	1	(C625)
01.54.CS.3.E104Y	Capacitor,multilayer ceramic, chip	0805-104 Y5V+80-20%/50V	1	(C614)
01.54.CS.3.E105Y	Capacitor,multilayer ceramic, chip	0805-105 Y5V-20+80%/16V	1	(C624)
01.34.CL.D.E47U16VB	Capacitor, AL.electrolytic	CD11X-47UF/16V 5*7	1	EC603
01.34.CL.D.E47U50VCD	Capacitor, AL.electrolytic	CD110-47UF/50V 6.3*12	11	EC605 EC606 EC607 EC608 EC609 EC610 EC611 EC612 EC613 EC614 EC615
01.41.D.PS.ELL4148	Diode	LL4148 SMD	9	(D606) (D607) (D608) (D609) (D610) (D611) (D612) (D613) (D614)
01.42.Q.S.EC8550	Transistor	KTC8550 SMD SOT23	2	(Q604) (Q605)
01.41.D.WD.E6V2	Zener Diode,DIP	6.2V	1	DZ601
01.36.VR.E20K	Volume encoder ,pulse	ED1612-24-24-HC-F20(2) ChangTaiEr	1	W601
01.41.D.FD.EHZFBA65018	LED,blue color	HZFBA65018CP Φ5 DIP High light blue	4	LED603 LED604 LED605 LED606
01.44.IC.S.E9022	IC, NS, Vacuum Fluorescent Display Filament Driver	LM9022 SMD	1	(U605)
01.40.CON.DPH.E038	Connector	PH-9A ,fireproof	1	CN609
Front Panel Board 1822C				
01.57.R.3.E201J	Resistor, chip	0805-200Ω±5%	2	(R614) (R647)
01.57.R.3.E511J	Resistor, chip	0805-510Ω±5%	2	(R615) (R648)
01.57.R.3.E472J	Resistor, chip	0805-4.7KΩ±5%	2	(R609) (R610)
01.54.CS.3.E104Y	Capacitor,multilayer ceramic, chip	0805-104 Y5V+80-20%/50V	1	(C634)
01.41.D.PS.ELL4148	Diode	LL4148 SMD	2	(D602) (D603)
01.42.Q.S.E8050	Transistor	KTC8050 SMD SOT23	1	(Q602)
01.42.Q.S.EC8550	Transistor	KTC8550 SMD SOT23	1	(Q603)
01.39.SW.QC.ED665	Touch switch	6*6*5	2	K602 K601
01.41.D.FD.E503	LED,blue&orange color	HFT503CPB0(high lighT LED two color)	2	LED601 LED602
01.40.CON.DPH.E060	Connector	PH-7A ,fireproof,lie-down	1	CN607

HS300 Mechanical Parts List					
Part Number	**Description**	**Specification**	**Qty**	**Location**	**Note**
0100WJTJE583	HS300 metal part	HS300-chassis	1	HS300-PT01	
0100WJTJE416	HS300 metal part	HS300-top cover	1	HS300-PT02	
0100WJTJE584	HS300 metal part	HS300-rear panel(EU)	1	HS300-PT03	EU version
0100WJTJE585	HS300 metal part	HS300-rear panel(US)	1	HS300-PT03	US version
0100WJTJE544	HS300 metal part	HS300-top cover support	1	HS300-PT04	
0100WJTJE798	HS300 metal part	HS300-mainboard-top cover support	1	HS300-PT05	
0100SJHS300E001	HS300 plastic part	HS300－front panel	1	HS300-RE01	
0100SJHS100E003	HS300 plastic part	HS300－2 in 1 button	1	HS300-RE03	
0100SJHS100E005	HS300 plastic part	HS300－Open/Close button collar	1	HS300-RE05	
0100SJHS100E006	HS300 plastic part	HS300－volume chamfer	1	HS300-RE06	
0100SJHS100E007	HS300 plastic part	HS300－power indicator lampshade	1	HS300-RE07	Transparent ABS + astigmatism liquid
0100SJHS100E008	HS300 plastic part	HS300－volume button lampshade	1	HS300-RE08	Transparent ABS + astigmatism liquid
0100SJHS100E009	HS300 plastic part	HS300－disc tray door	1	HS300-RE09	Light black
0100SJHS100E010	HS300 plastic part	HS300－volume button	1	HS300-RE10	
0100SJHS100E011	HS300 plastic part	HS300－pedestal underlay	2	HS300-RE11	Transparent PC
0100SJHS100E012	HS300 plastic part	HS300－len for tray door（2mm width）	1	HS300-RE12	
0100SJHS300E002	HS300 plastic part	HS300-len for VFD（3mm width）	1	HS300-RE02	
0100FZQT153	Astigmatism PVC	Φ45.5*Φ9.5mm	1	Between volume button and PCB	
0100SJQTE019	VFD filter	124.5*33.5*0.5mm	1		
0140CONDCZE178	AC power socket	WS-044-0	1		
0100SBE035	Metal logo	47mm"Harman" super slim logo	1	Stick on the len for tray door	
0100SBE036	Metal logo	100mm"Harman" super slim logo	1	Stick on the top cover	
0100SBE054	Metal logo	HS300 super slim logo	1		
01.15.JX.DV342	Loader	DV342 loader (Sanyo laser)	1		
0149E11	Tuner module	TFCF1E806A	1		EU version
01.49.E07	Tuner module	TFCF1E804A	1		US version
0100WJJGE628	Screw	3*4RBTTNI (lead-free)	8	For rear panel and chassis(4),top cover and chassis(4)	
0100WJJGE629	Screw	3*6PWBTTNI W=7 (lead-free)	7	For top cover and chassis with rear panel(5),top cover support and chassis(2)	
0100WJJGE632	Screw	3*10PMHO (lead-free)	3	For IC and SQR7 on SMPS(1),and AC power socket(2)	
0100WJJGE632	Screw	3*10PMHO (lead-free)	2	For SCART output port	EU version
0100WJJGE633	Nut	M3 (lead-free)	2	For SCART output port	EU version
0100WJJGE633	Nut	M3 (lead-free)	3	For IC and SQR7 on SMPS(1),and AC power socket(2)	
0100FZQTE187	Mask PVC	Φ38.5 (bottom with glue)black PVC	1	Stick inside the volume button	
0147CNTLJX7E026	Connect cable	2.0-5Y-5Y-260mm-B(UL20080 28AWG)	1	Connect loader and CN1 on mainboard	
0147CNTLJX7E125	Connect cable	2.0-6Y-6Y-350mm-B(UL20080 28AWG)	1	Connect loader and CN2 on mainboard	
0147CNTLJX7E357	Connect cable	2.0-7Y-7Y-220MM -A	1	Connect CN606 on 1819C and CN607 on 1822C	

HS300 Mechanical Parts List					
Part Number	**Description**	**Specification**	**Qty**	**Location**	**Note**
0147CNTLJX7E176	Connect cable	2.54-2.0-6Y-310mm-B	1	Connect CN503 on SMPS and CN602 on 1819C （B）	
0147CNTLJX7E358	Connect cable	2.54-2.0-4Y-210mm-A	1	Connect CN508 on SMPS and CN14 on mainboard（M）	
0147CNTLJX7E054	Connect cable	2.0-10Y-10Y-70mm-A	1	Connect CN9 on mainboard （L） and CN303 on output board（L）	
0147CNTLJX7E312	Connect cable	2.54-2.0-13Y-120mm-B	1	Connect CN509 on SMPS and CN5 on mainboard (K)	
0147CNTLJX7E180	Connect cable	2.54-2.0-5Y-80mm-B	1	Connect CN505 on SMPS and CN402 on amplifier (I)	
0147CNTLJX7E420	Connect cable	VH-3Y-2Y-2Y-610mm-A(with magnetism annulus)	1	Connect CN506 on SMPS and CN403 on amplifier（J）	cable wrap magnetism annulus in one circuit,and the length from magnetism annulus to another end is 120mm（one cable length 610mm, another 300mm）
0147CNTLJX7E401	Connect cable	VH-3Y-2Y-330mm-B(with magnetism annulus)	1	Connect power socket and SMPS	140mm from magnetism annulus to another solder end
0147CNTLJX7E361	Connect cable	2.0-4Y-4Y-580MM-A（with shield）	1	Connect CN605 on 1819C and CN304 on outputboard（F）	
0147CNTLJX7E402	Connect cable	2.0-5Y-5Y-480MM-A（red,black,white,black shield,green）	1	Connect CN603 on 1819C (H) and CN6 on mainboard（H）(with shield , order on mainboard from fist pin:red,black,white,black shield,green)	
0147CNTLJX7E052	Connect cable	2.0-9Y-9Y-70mm-A	1	Connect CN609 on 1802C (E) and CN611 on 1819C (E)	
0148BPX1E109	Flat cable	1.0*20P*60mmA	1	Connect CN11 on mainboard (O) and CN302 on mainboard（O）	
0148BPX1E108	Flat cable	1.0*14P*60mmA	1	Connect CN13 on mainboard (N) and CN301on outputboard (N)	
0148BPX1E107	Flat cable	1.25*18P*380mmA	1	Connect CN601 on 1819C (A) and CN4 on mainboard (A)	
0148BPX1E103	Flat cable	1.0*16P*70mmA	1	Connect CN7 on mainboard (C) and CN401 on amplifier (C)	
0148BPX1E085	Flat cable	1.25*11P*70mmA	1	Connect tuner module and CN12 on mainboard	
0148BPX2E041	Flat cable	0.5*24P*270mmB	1	Connect loader and CN3 on mainboard	


HT1/HT2 MAIN BOARD
1802C V1.6
2006.03.29
Tuner
Loader
CPLD
Debug




HT1 US & Only for HT1 EU 4 channels
HT2 EU/US 6 channels
L-OUT
R-OUT
L-IN
R-IN
R-TV-IN L-TV-IN
OPTICAL-IN
COAXIAL-IN COAXIAL-OUT
iPod
SCART
HT1/HT2
1804C V1.5
2006.04.26
REMOTE
DATA_IN
GND
DATA_OUT
HP_R
GND
HP_L
GND
SPDIF_IN
SPDIF_SW
GND
COAXIAL
GND
SCL
SDA
GND
ADATA_IN
HW_MUTE
HW_MUTE_2
MCU_MUTE
MUTE_HP_SUB
GND
ADATA3
GND
AMCLK
ASCLK
ALRCK
GND
GND
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TVFORMAT0
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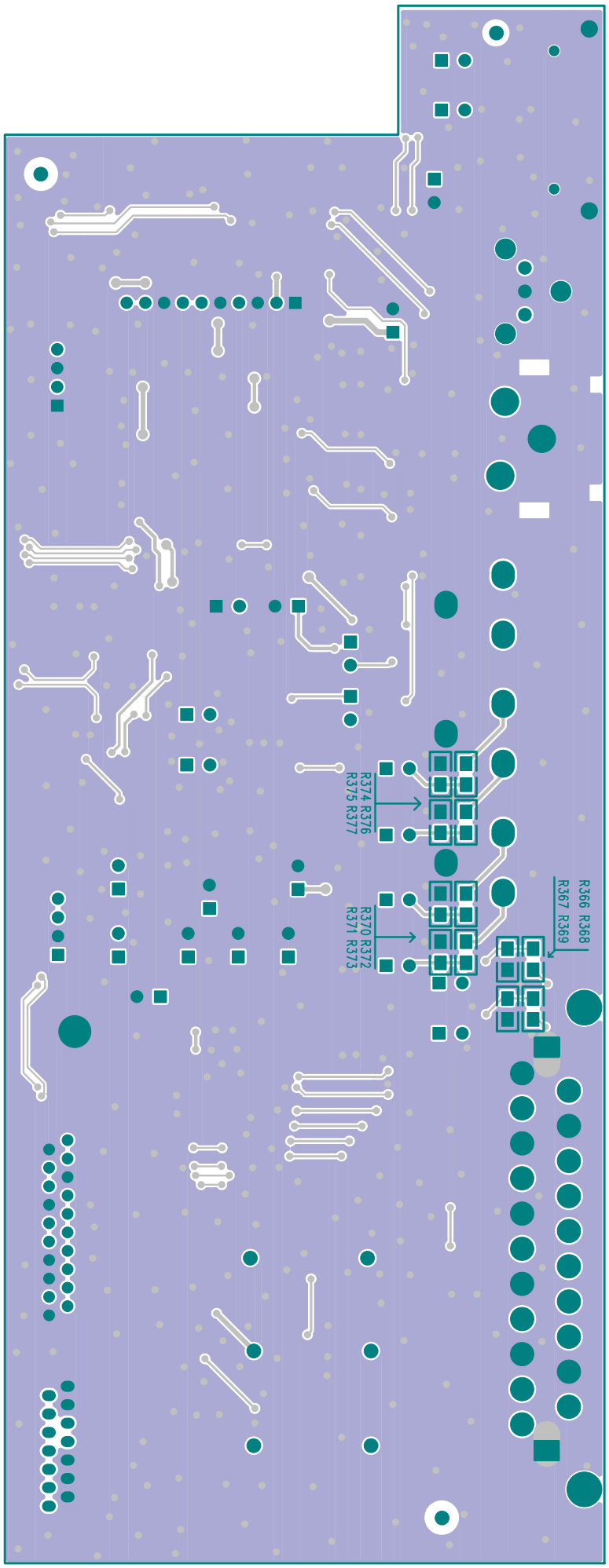
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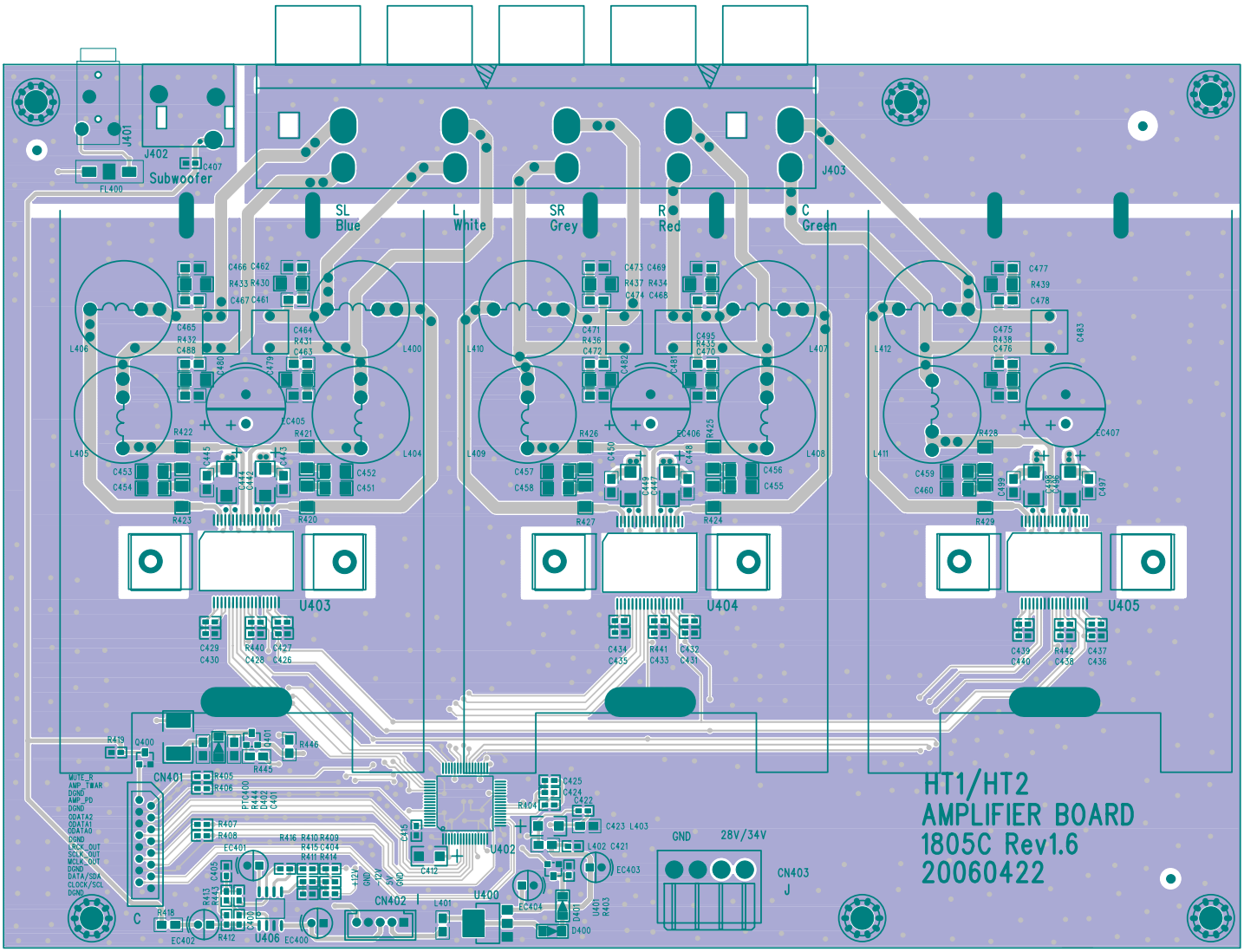
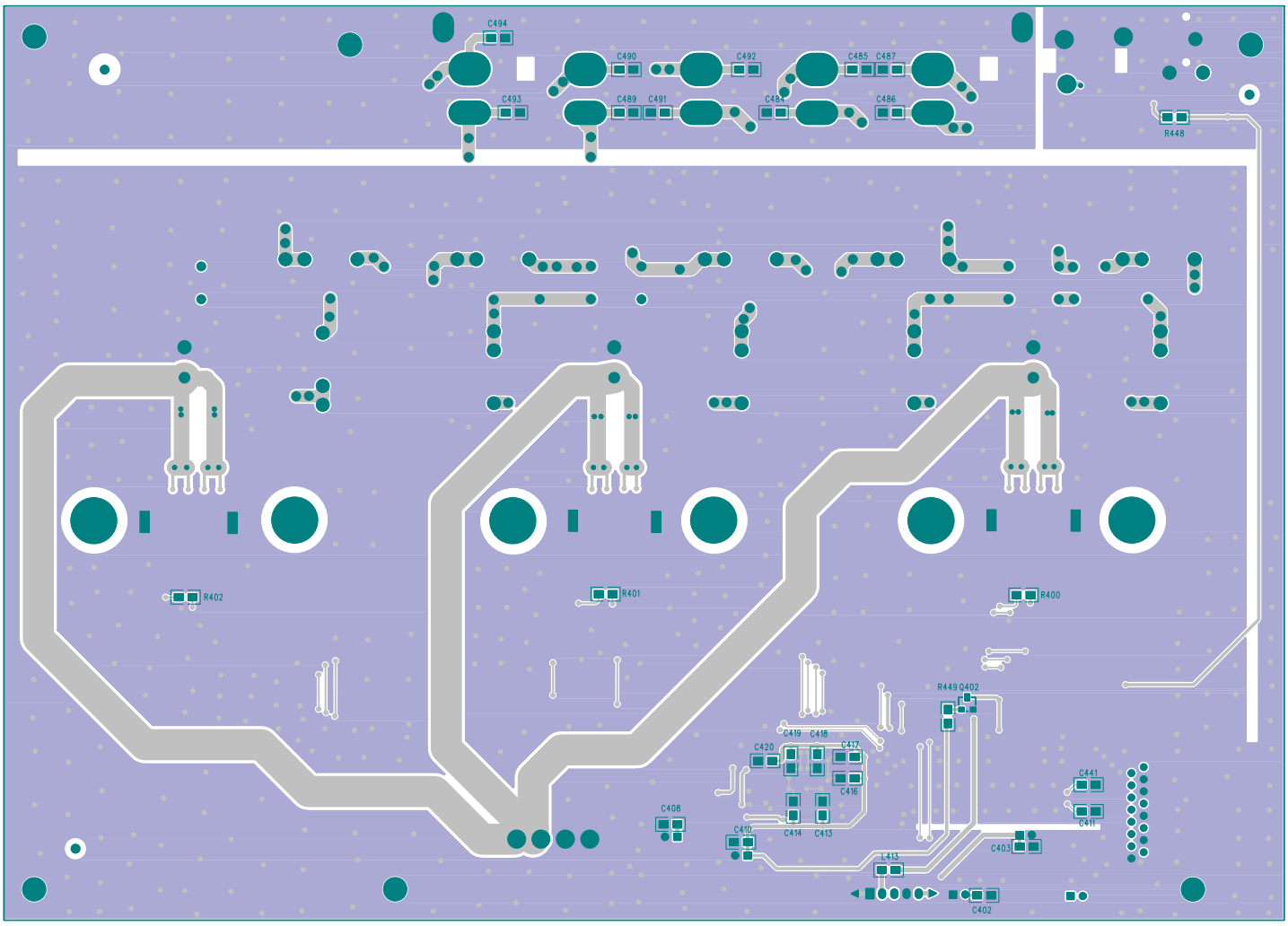
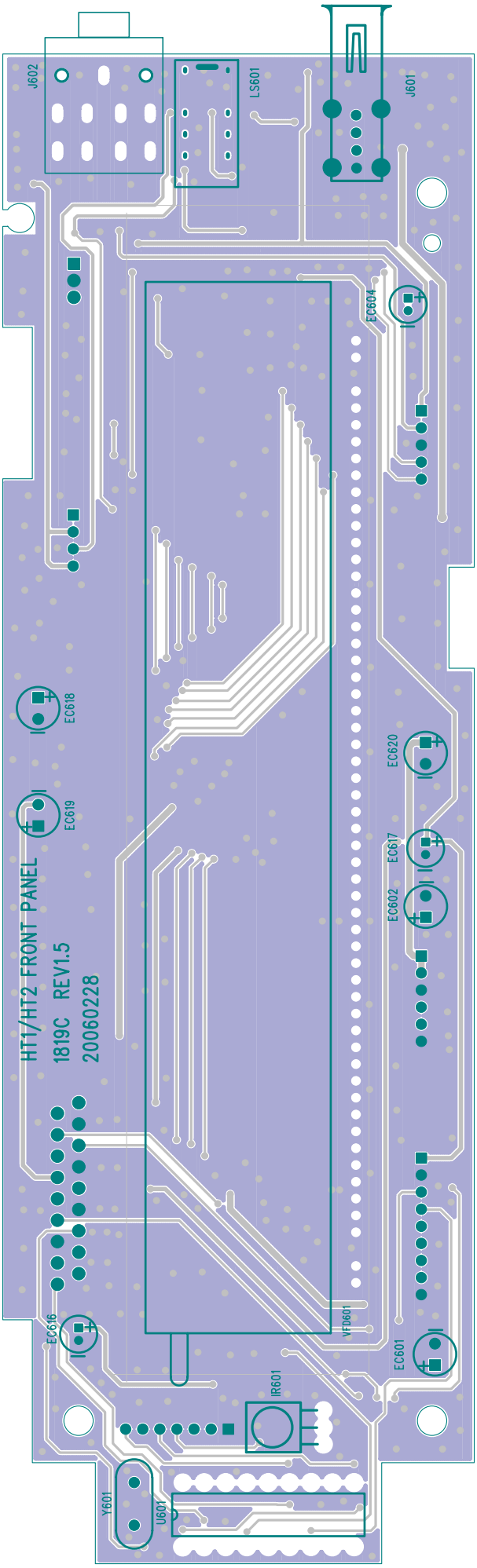
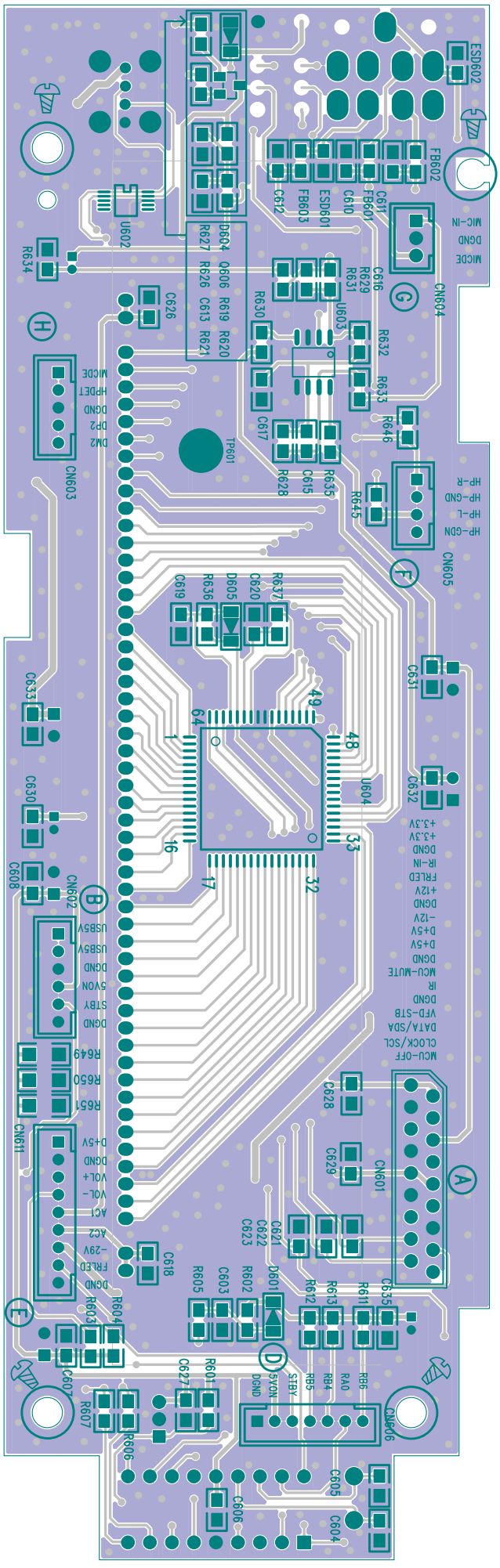
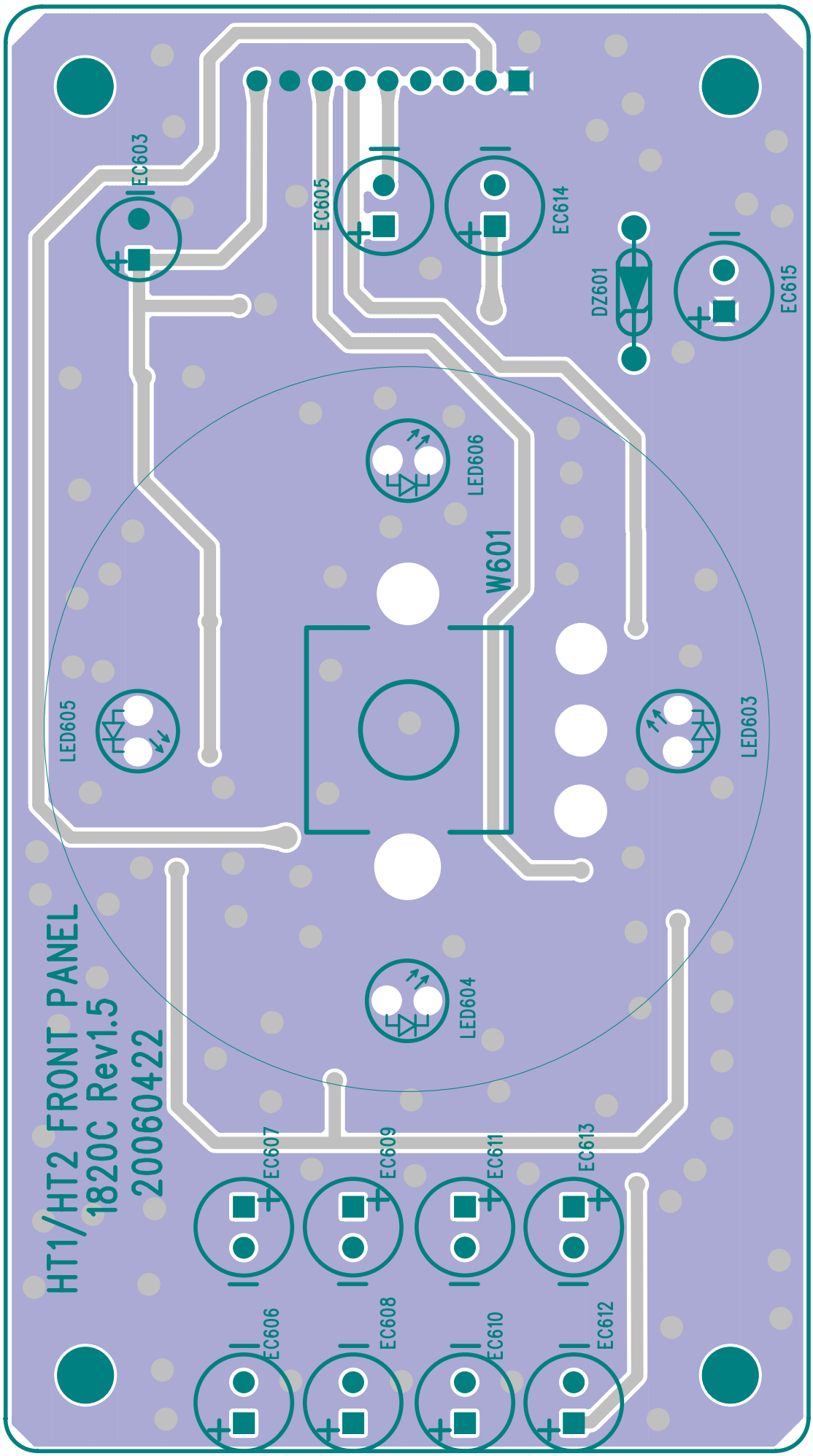
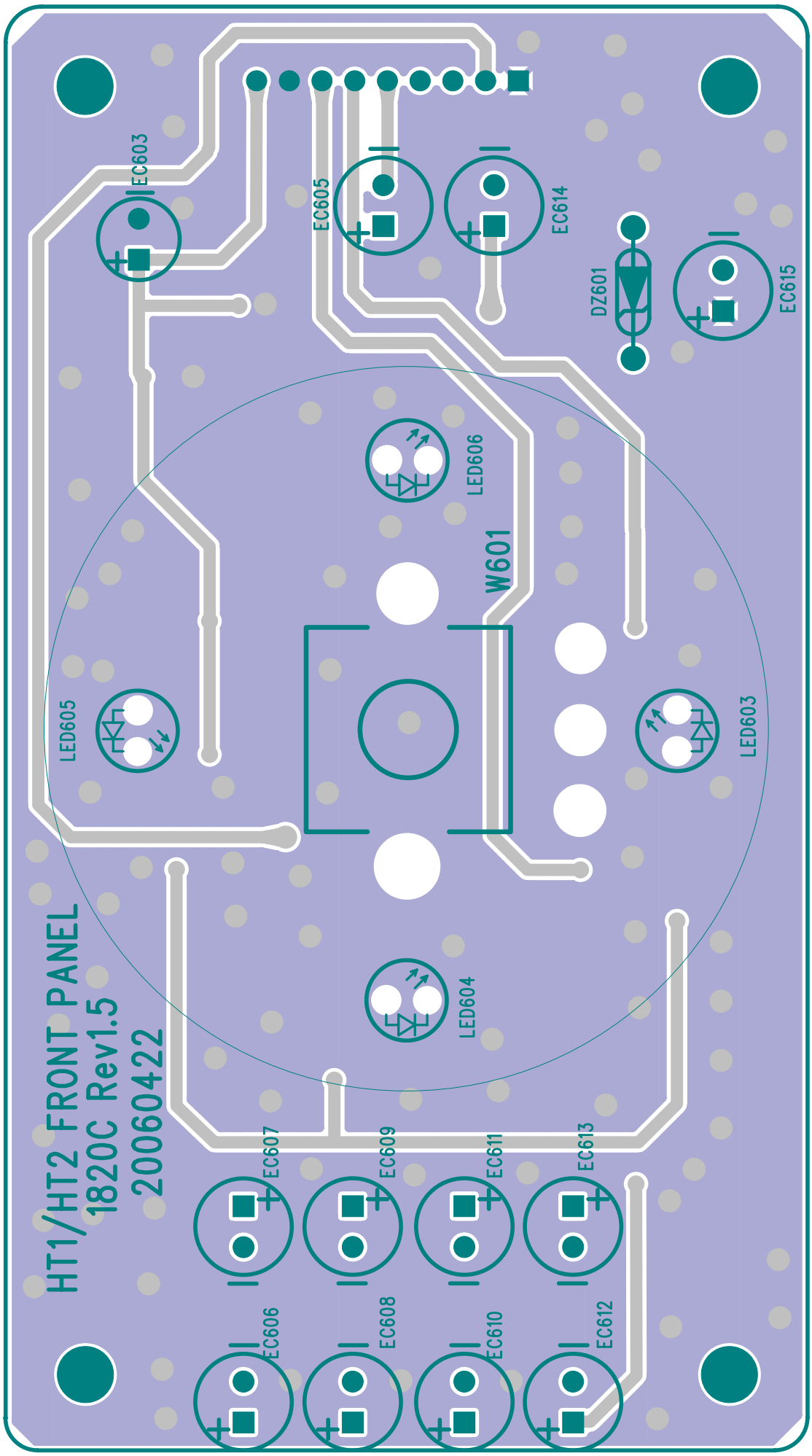

J401
J402
Subwoofer
C407
FL400
J403
SL
Blue
L
White
SR
Grey
R
Red
C
Green
U403
U404
U405
U402
U400
U406
CN401
CN402
CN403
GND
28V/34V
HT1/HT2
AMPLIFIER BOARD
1805C Rev1.6
20060422

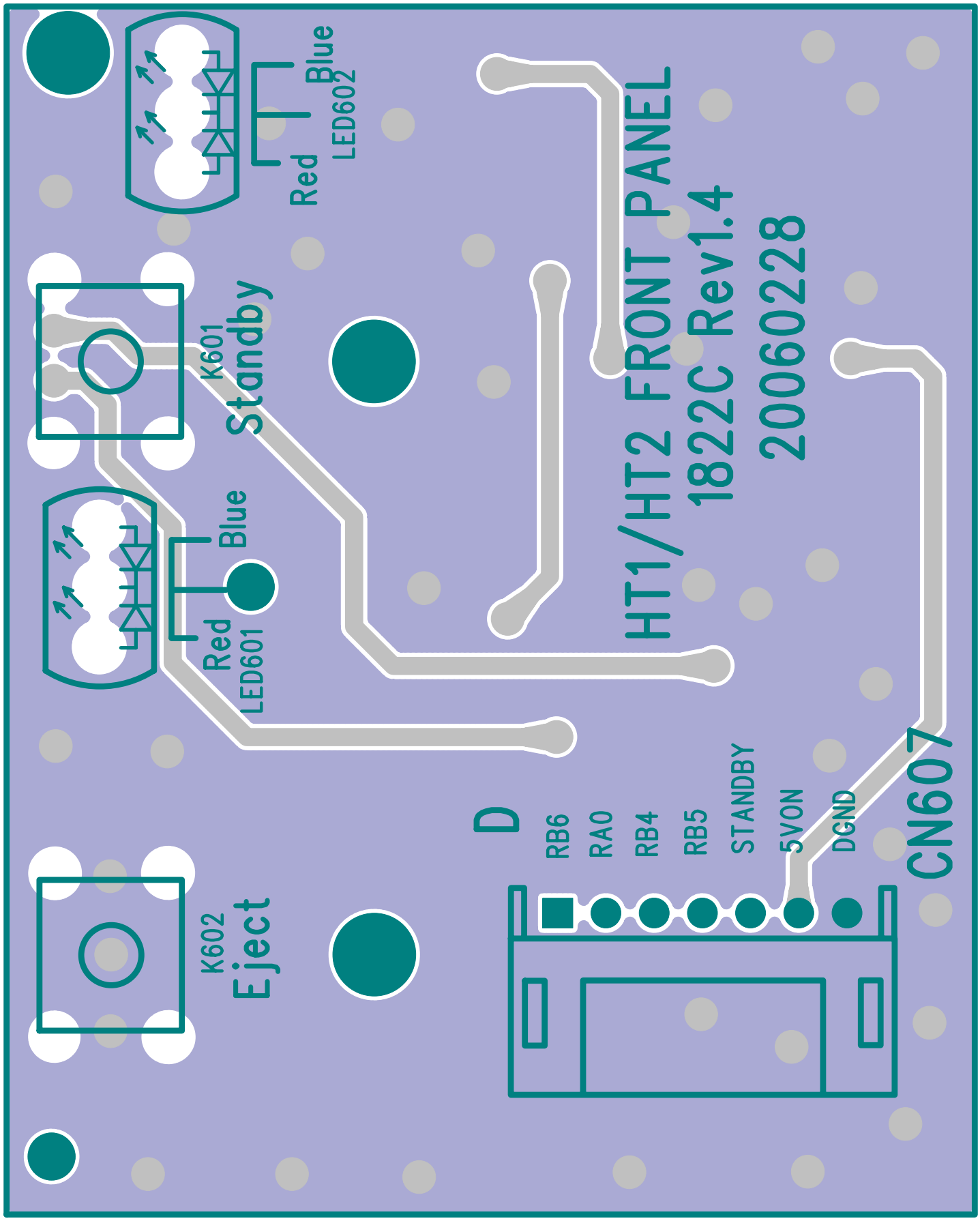

C494
C490
C492
C485
C487
C493
C489
C491
C484
C486
R448
R402
R401
R400
R449
Q402
C419
C418
C420
C417
C416
C408
C410
C414
C413
C441
C411
C403
L413
C402

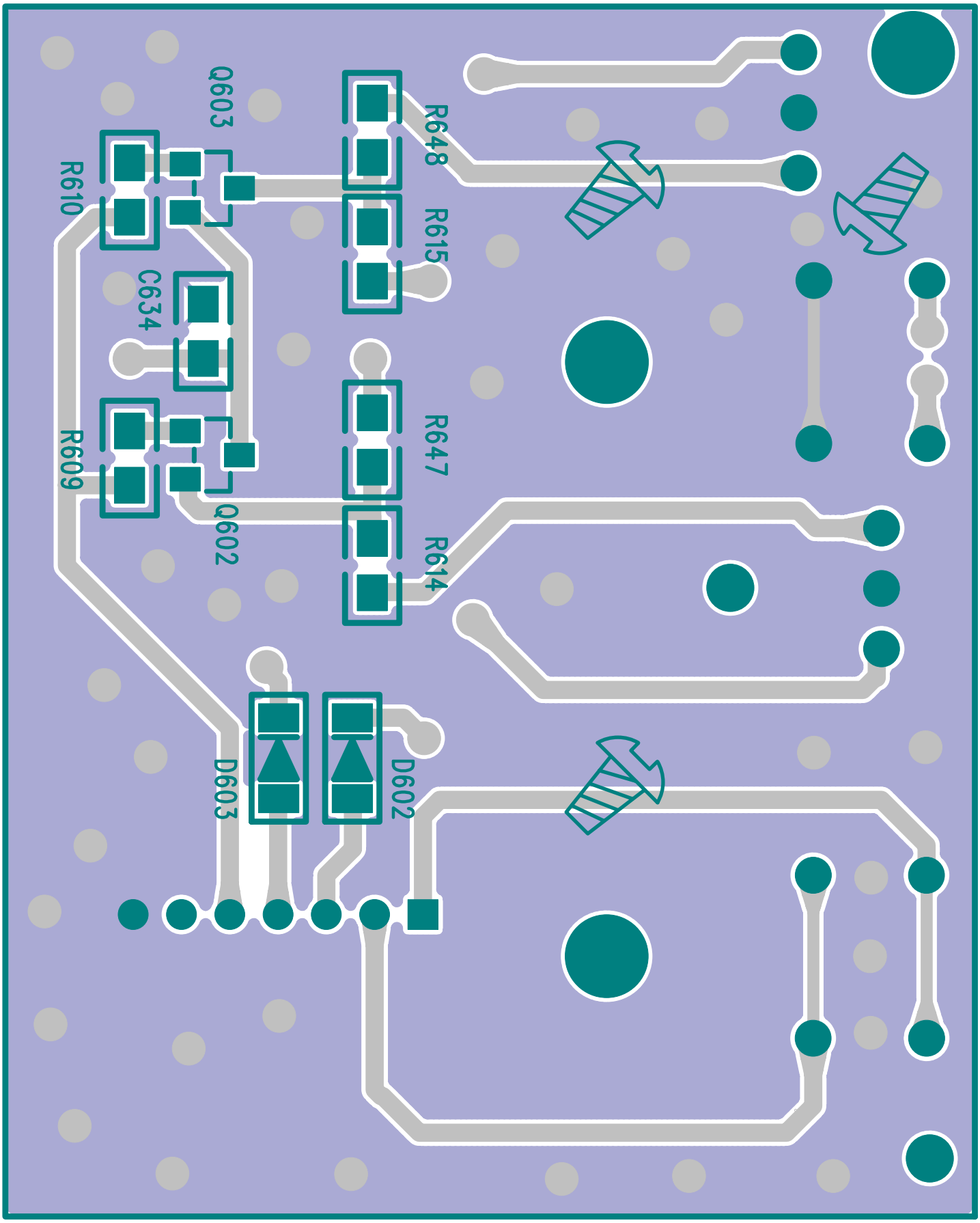

J602
LS601
J601
EC604
EC618
EC619
EC620
EC617
EC602
HT1/HT2 FRONT PANEL
1819C REV1.5
20060228
EC616
VFD601
EC601
IR601
Y601
U601

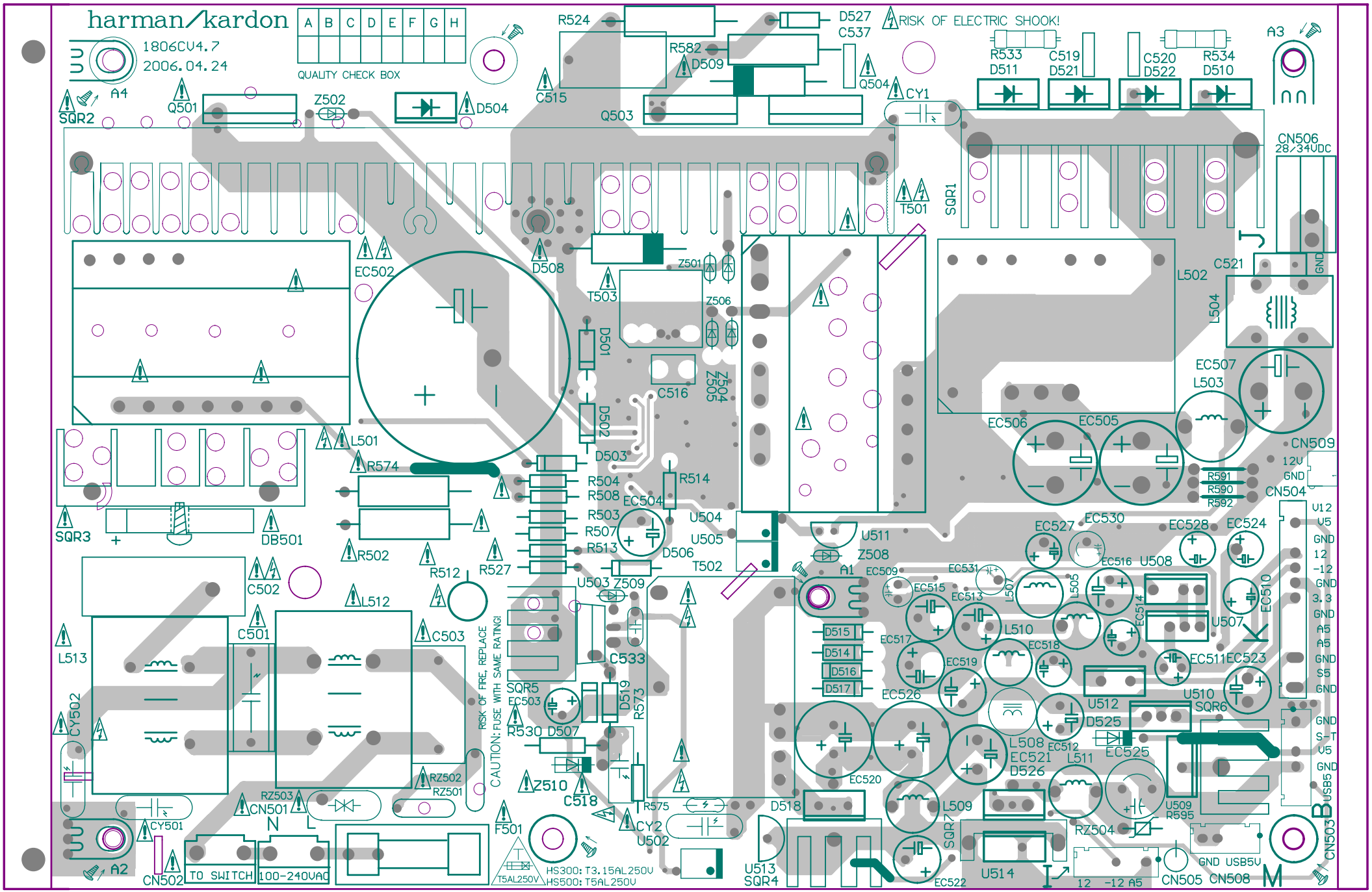


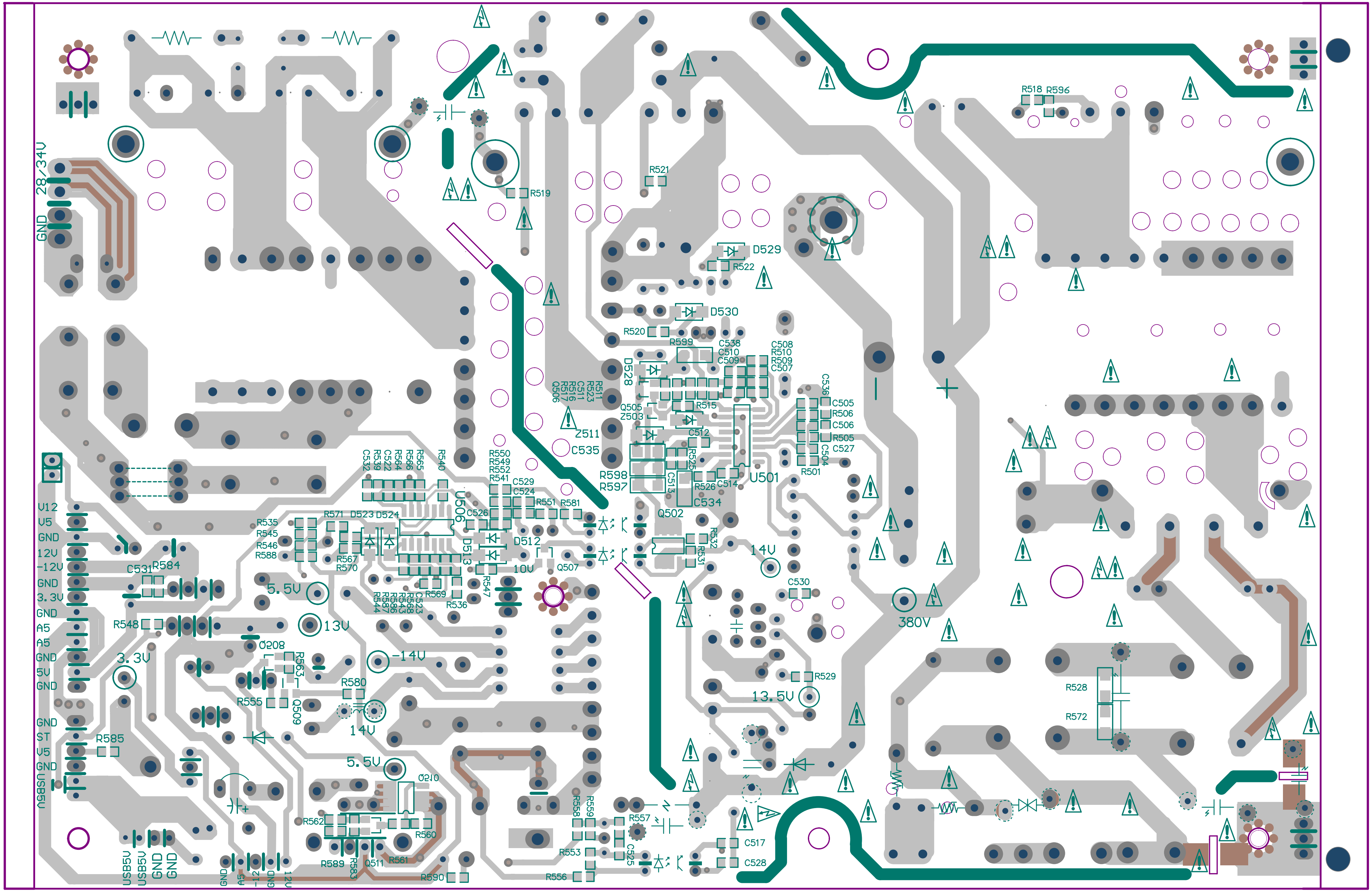

HT1/HT2 FRONT PANEL
1820C Rev1.5
20060422
EC603
EC605
EC614
DZ601
EC615
LED606
W601
LED605
LED603
LED604
EC607
EC609
EC611
EC613
EC606
EC608
EC610
EC612


HT1/HT2 FRONT PANEL
1820C Rev1.5
20060422
EC603
EC605
EC614
DZ601
EC615
LED606
W601
LED605
LED603
LED604
EC607
EC609
EC611
EC613
EC606
EC608
EC610
EC612


HT1/HT2 FRONT PANEL
1822C Rev1.4
20060228
LED602
Red
Blue
K601
Standby
LED601
Red
Blue
K602
Eject
D
RB6
RA0
RB4
RB5
STANDBY
5VON
DGND
CN607

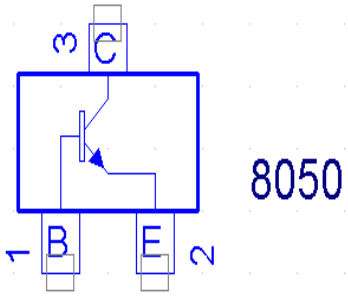

Q603
R610
C634
R609
Q602
R648
R615
R647
R614
D603
D602


harman/kardon
1806CV4.7
2006.04.24
QUALITY CHECK BOX
A B C D E F G H
RISK OF ELECTRIC SHOOK!
CAUTION: FUSE WITH SAME RATING!
RISK OF FIRE, REPLACE
TO SWITCH
100-240VAC
HS300: T3.15AL250V
HS500: T5AL250V
GND USB5V

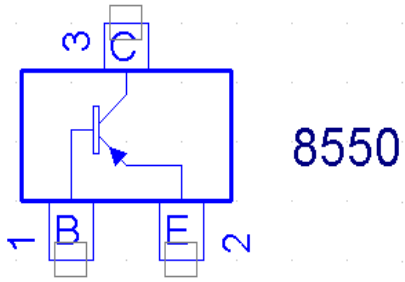

28/34V
GND
V12
V5
GND
12V
-12V
GND
3.3V
GND
A5
A5
GND
5V
GND
GND
ST
V5
GND
USB5V
5.5V
13V
3.3V
-14V
14V
5.5V
10V
14V
13.5V
380V
D529
D530
D528
D512
D513
U501
U506
Q502
Q507
Q509
Q510
Q511
Z511
Z503
C535
C534
R598
R597
R518
R596
R521
R519
R522
R520
R599
R501
R529
R528
R572
R548
R555
R580
R585
R562
R560
R561
R589
R590
R553
R556
R557
C517
C528
C530
C531
R584
D523
D524
R571
R535
R545
R546
R588
R567
R570
R569
R536
R547
R551
R581
C529
C524
C526
C505
R506
C506
R505
C527
C508
R510
R509
C507
C538
C510
C509
R515
C512
C514
R526

Pinouts For HS300 & HS500

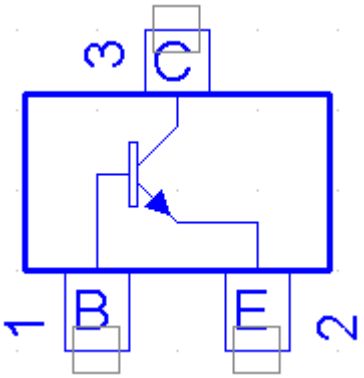
8050, NPN Transistor, SMD



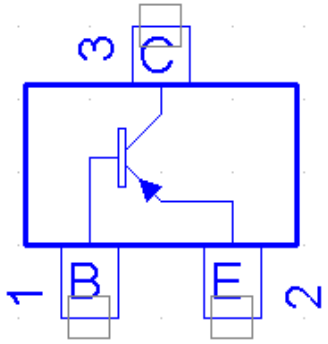
8550, PNP Transistor, SMD



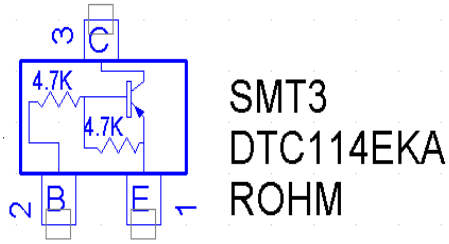
2N3904, NPN Transistor, SMD



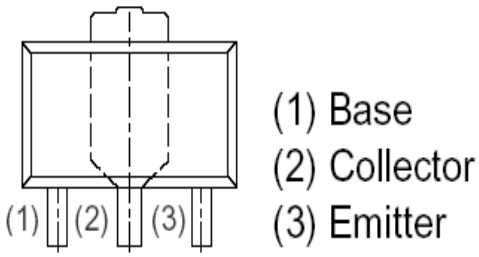
2N3906,PNP Transistor, SMD



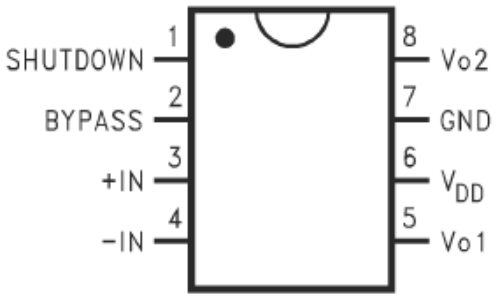
DTC343TK, NPN Transistor, SMD



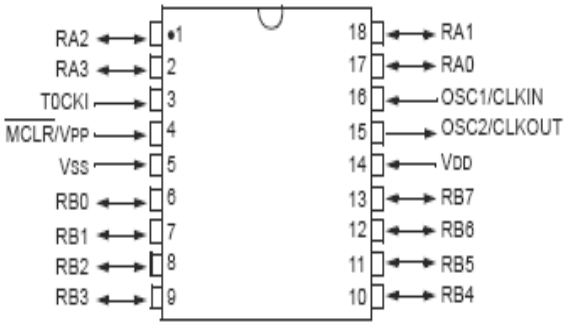
2SB1132 ,Medium Power Transistor, SMD



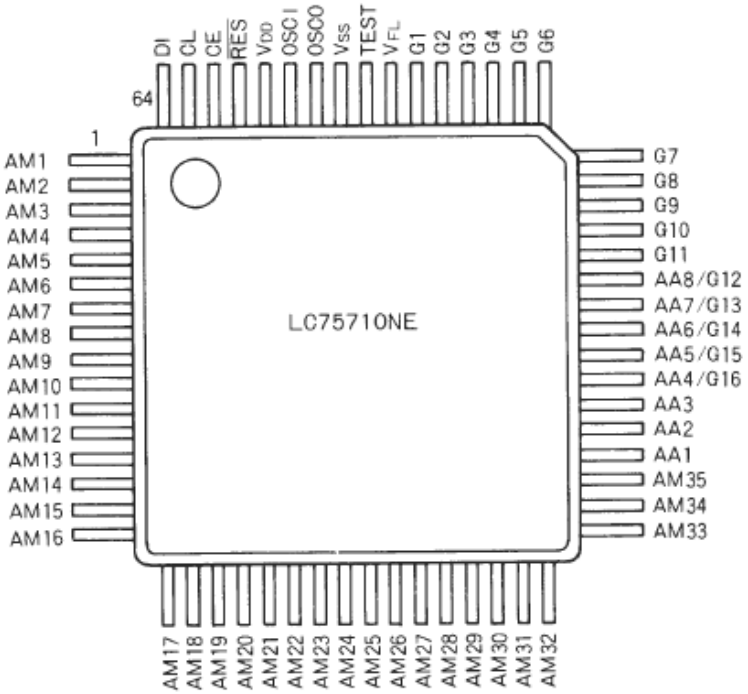
LM9022, Vacuum Fluorescent Display Filament Drive, SMD



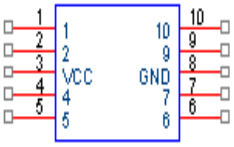
PIC16C56A, MCU, DIP



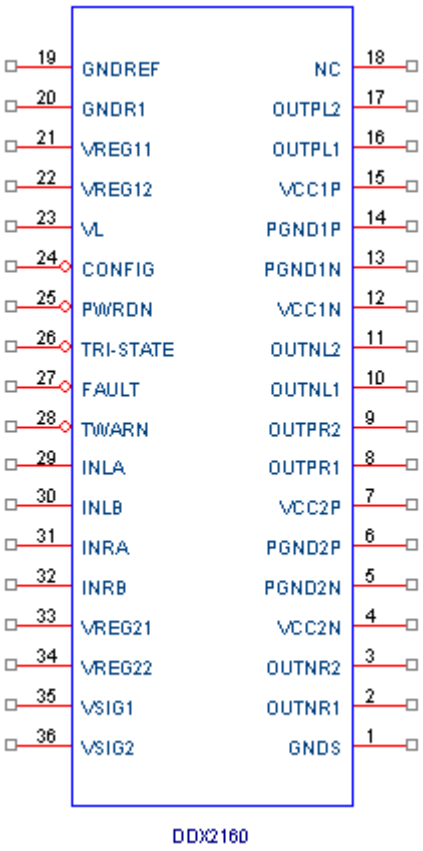
LC75710NE, VFD driver, SMD



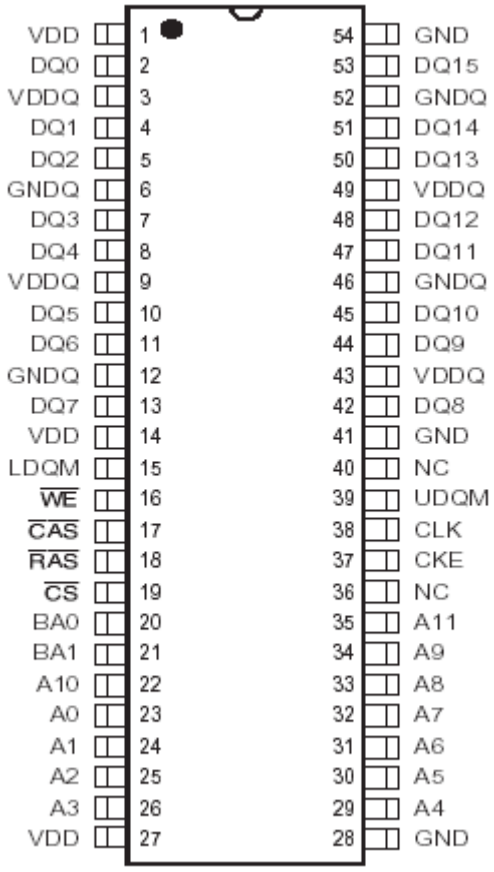
RCLamp0514M , ESD Element, SMD



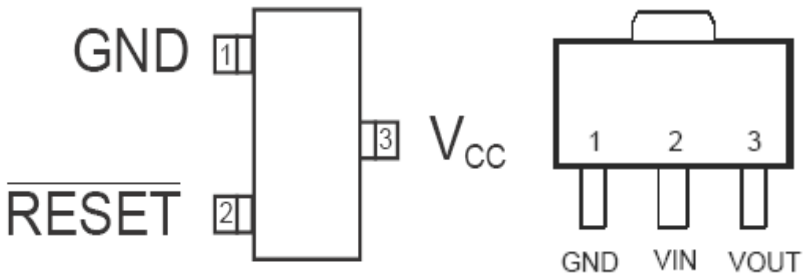
DDX2160, Power Device, SMD



IS42S16400B-6T, SDRAM, SMD

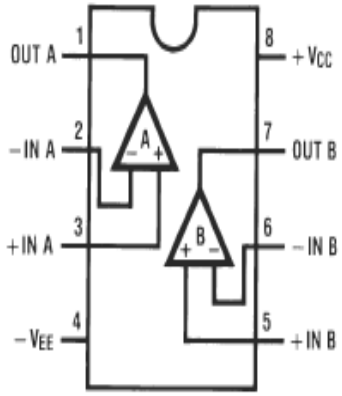


AAT3522IGY-3.08,
Microprocessor Reset Circuit, SMD

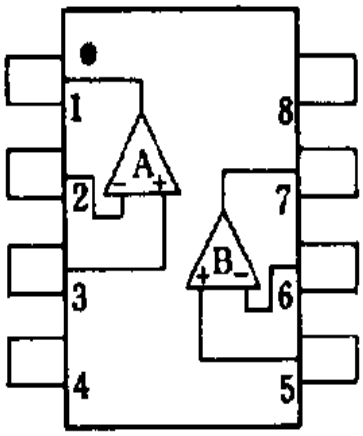


RT9161/A-33, Voltage Regulator, SMD

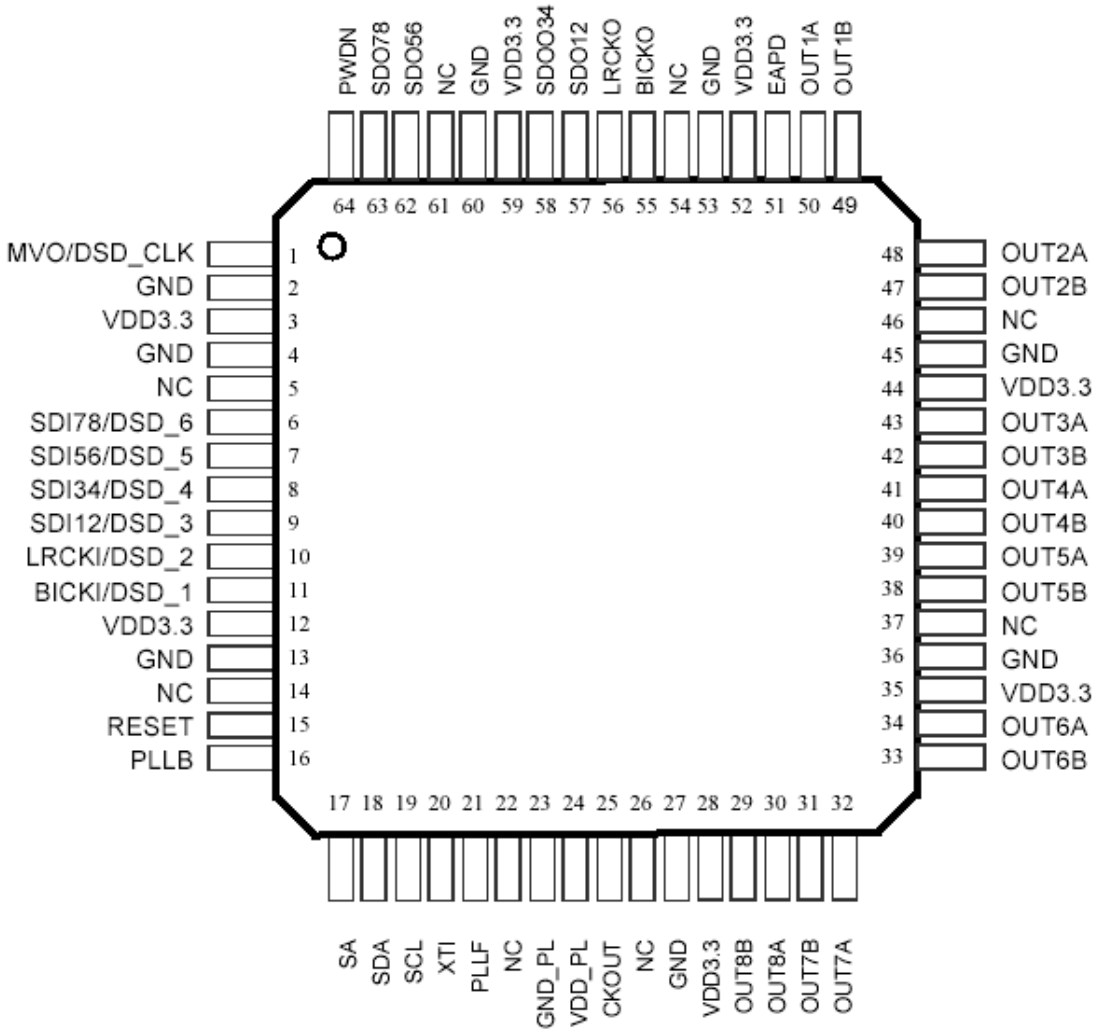
LM833M, pre-amp, SMD



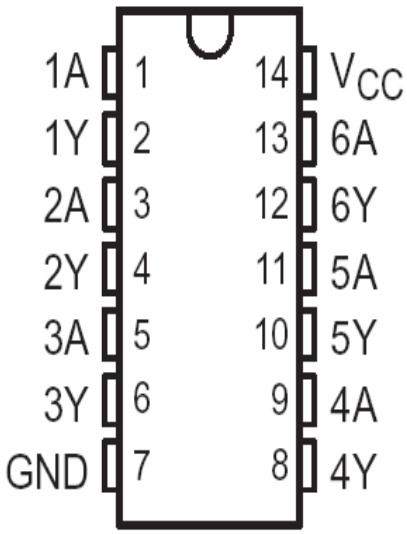
NJM2068M, pre-amp, SMD



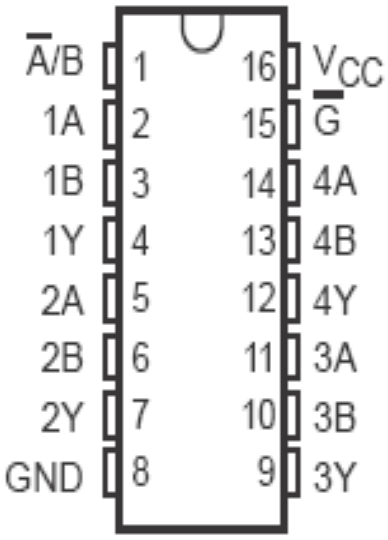
DDX8001, Digital Audio Processor, SMD



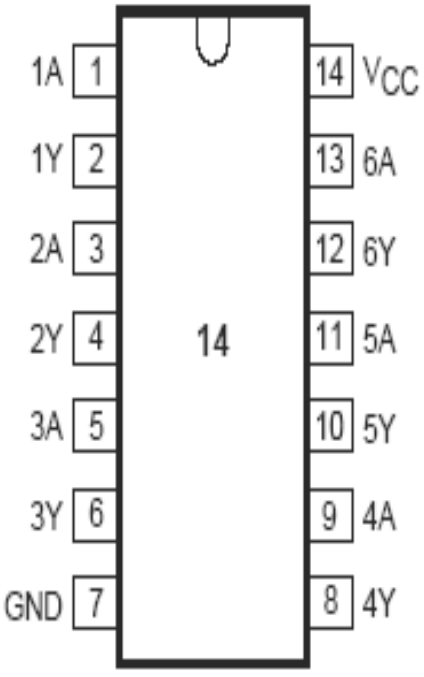
74HCU04, Hex inverter, SMD



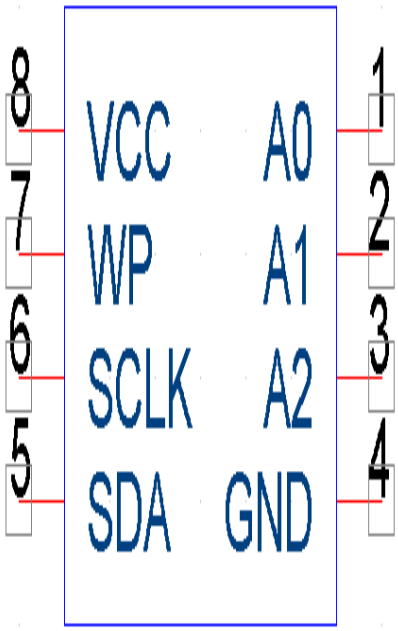
74HC158 ,data selectors, SMD



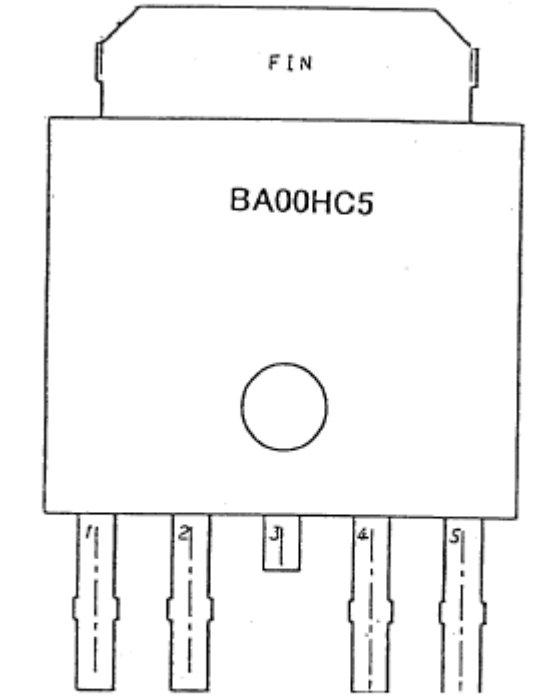
74HCT14, Hex inverting Schmitt trigger, SMD



AT24C64, EEPROM, SMD

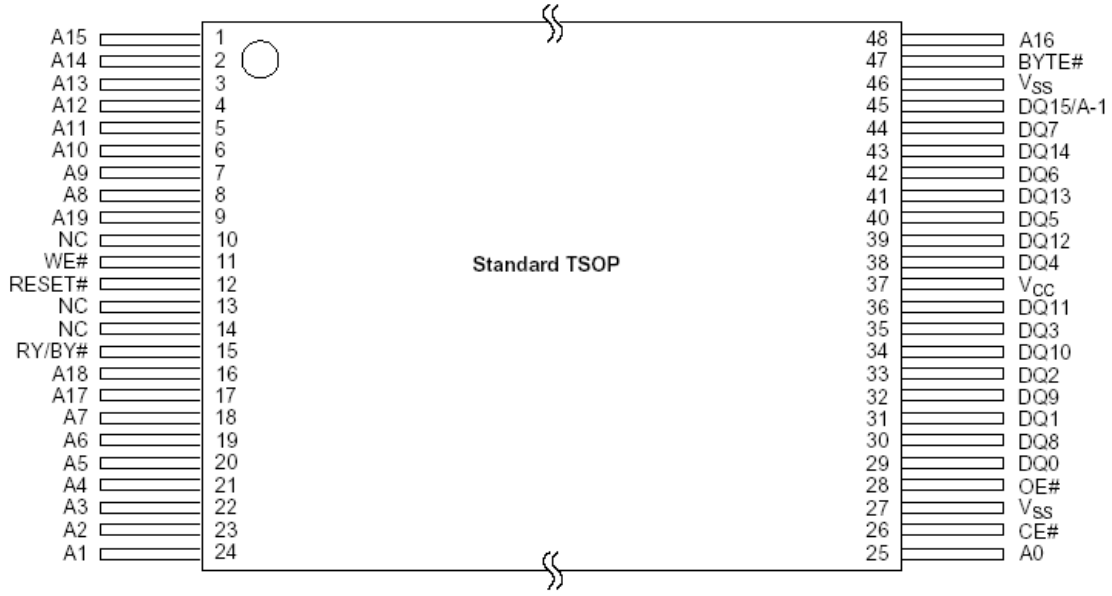


BA00HC5FP, Lower Power Device , SMD

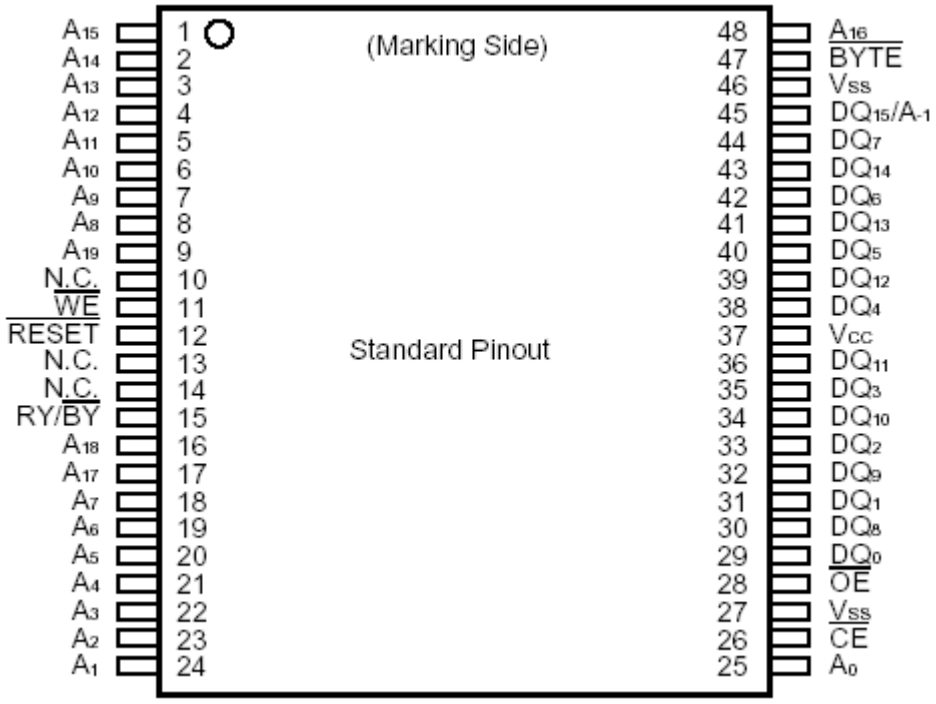


1 Pin	:	ADJ	4 Pin	:	Vo
2 Pin	:	PVcc	5 Pin	:	Vcc
3 Pin	:	N.C.	FIN	:	GND

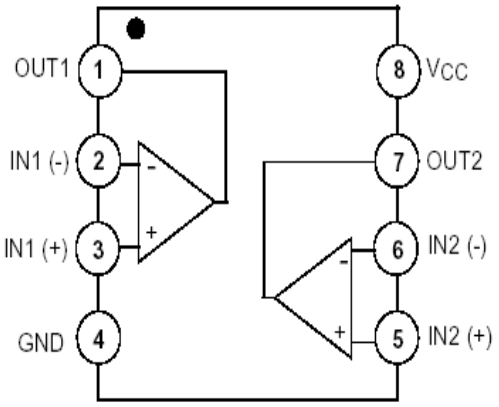
AM29LV160DB-90EC, flash, SMD



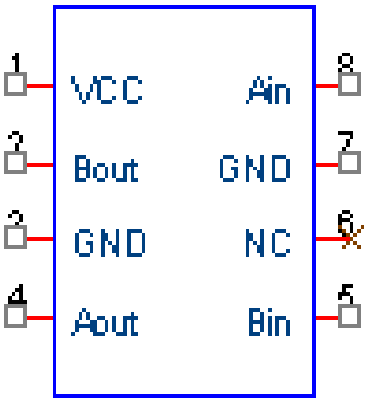
MBM29LV160BE-70P, flash, SMD



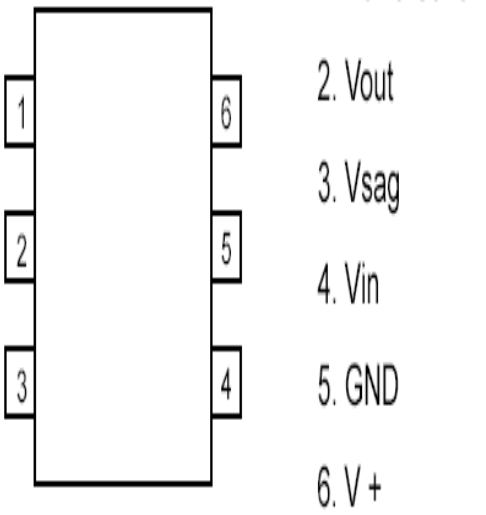
LM358,Dual Operational Amplifier,SMD



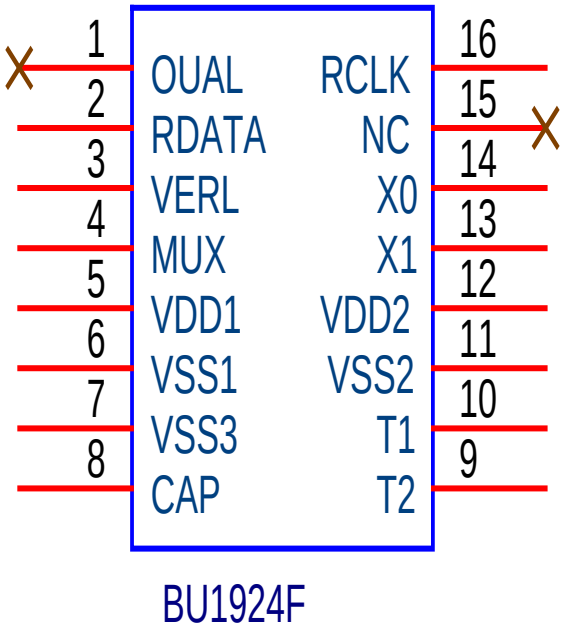
BA6208F, motor driver, SMD



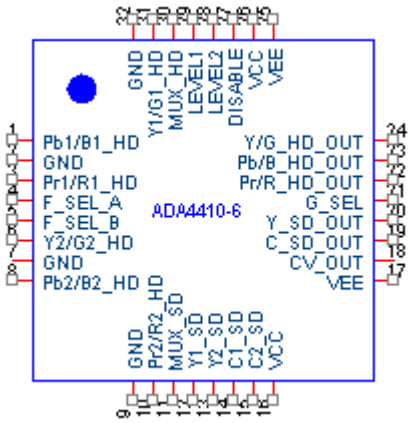
NJM2561F1,LOW VOLTAGE VIDEO AMPLIFIER ,SMD



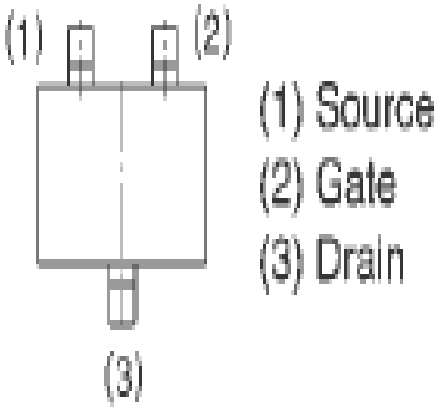
BU1924, RDS decoder, SMD



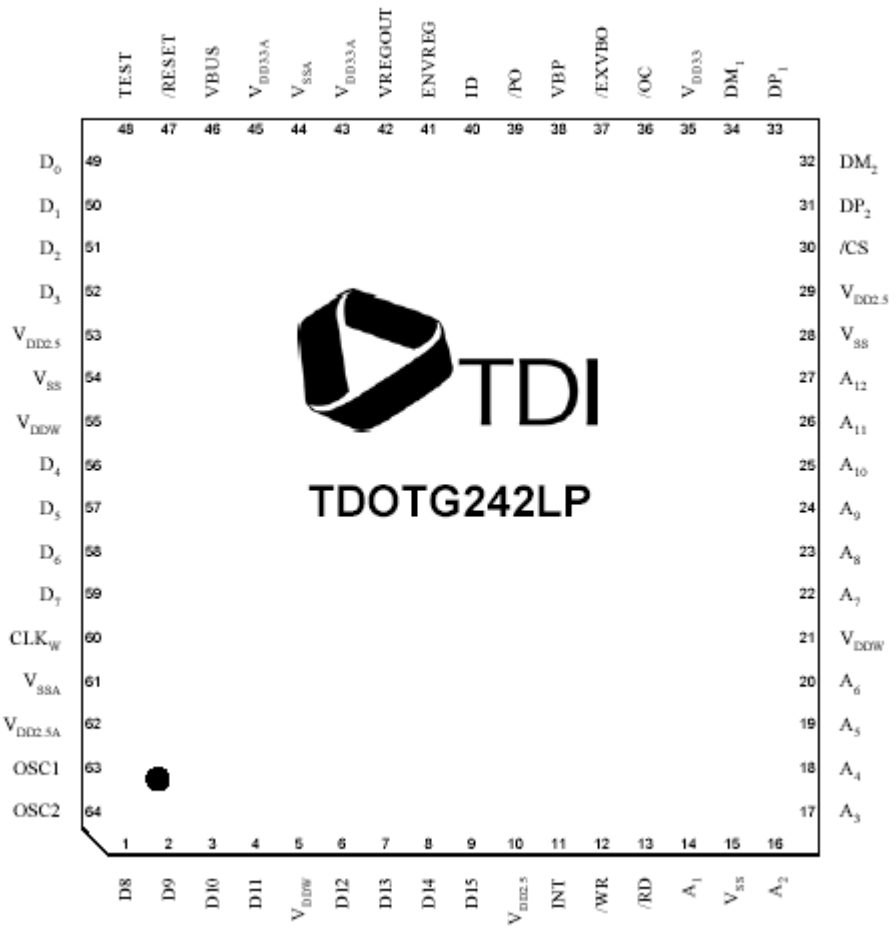
ADA4410-6, Video Buffer, SMD



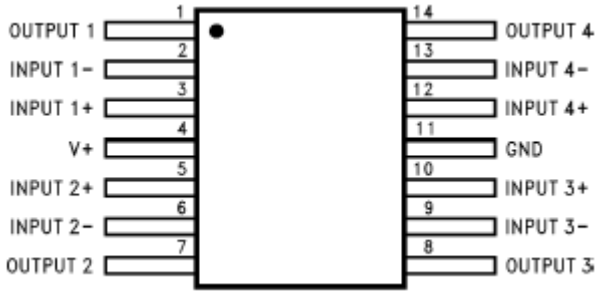
2SK3018, Silicon N-channel MOSFET, SMD



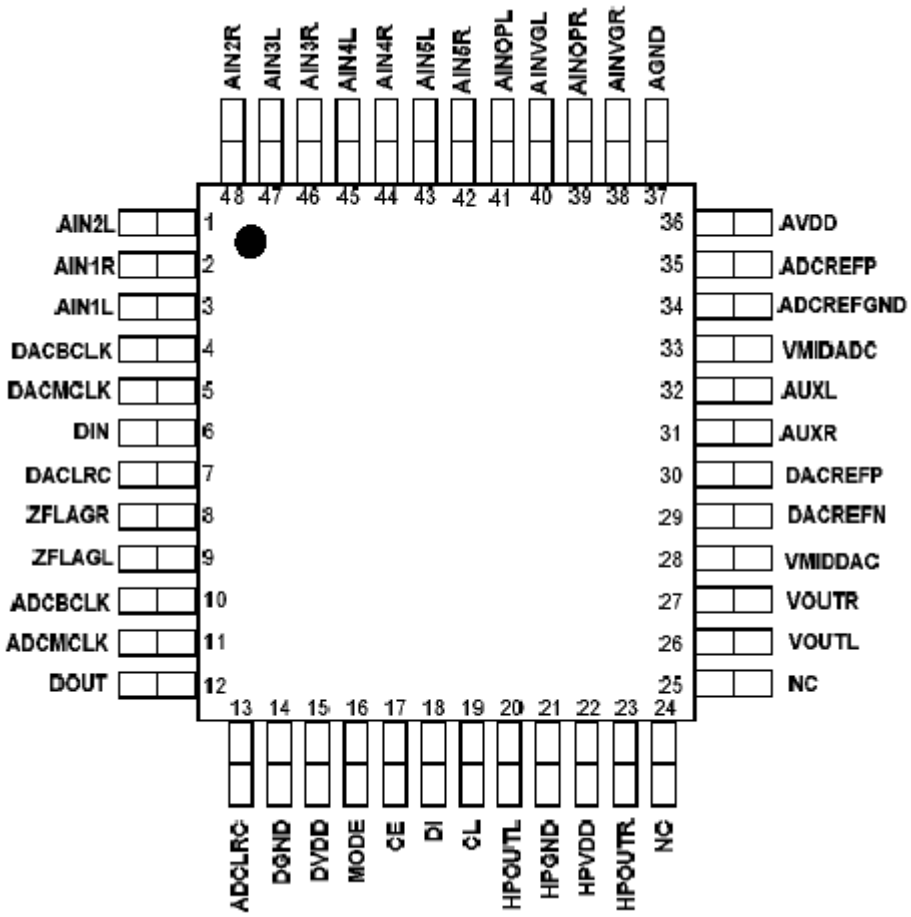
TDOTG242LP ,USB decoder, SMD



LM324, Dual Operational Amplifier, SMD

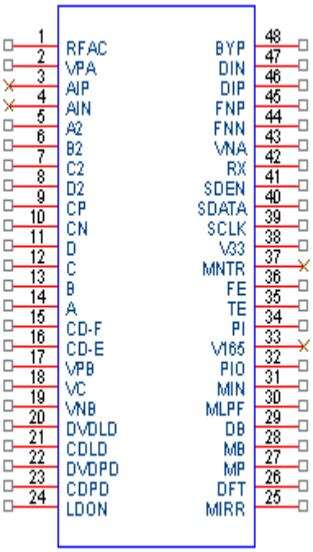


WM8776SEFT ,Audio ADC & DAC, SMD

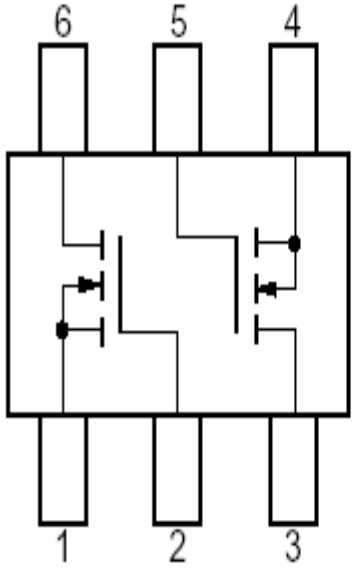


XC9536XL , High Performance CPLD, SMD

AML3501,DVD/CD RF processor, SMD

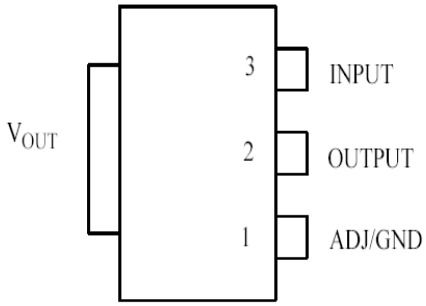


UPA672T , N-channel MOSFET , SMD

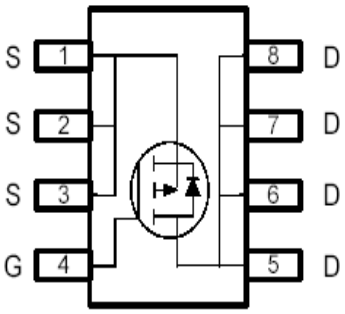


1. Source 1 (S1)
2. Gate 1 (G1)
3. Drain 2 (D2)
4. Source 2 (S2)
5. Gate 2 (G2)
6. Drain 1 (D1)

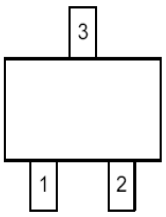
AZ1117H-(1.8 &3.3 &5.0)
Low Dropout linear regulator ,SMD



AF4835
P-channel power MOSFET, SMD



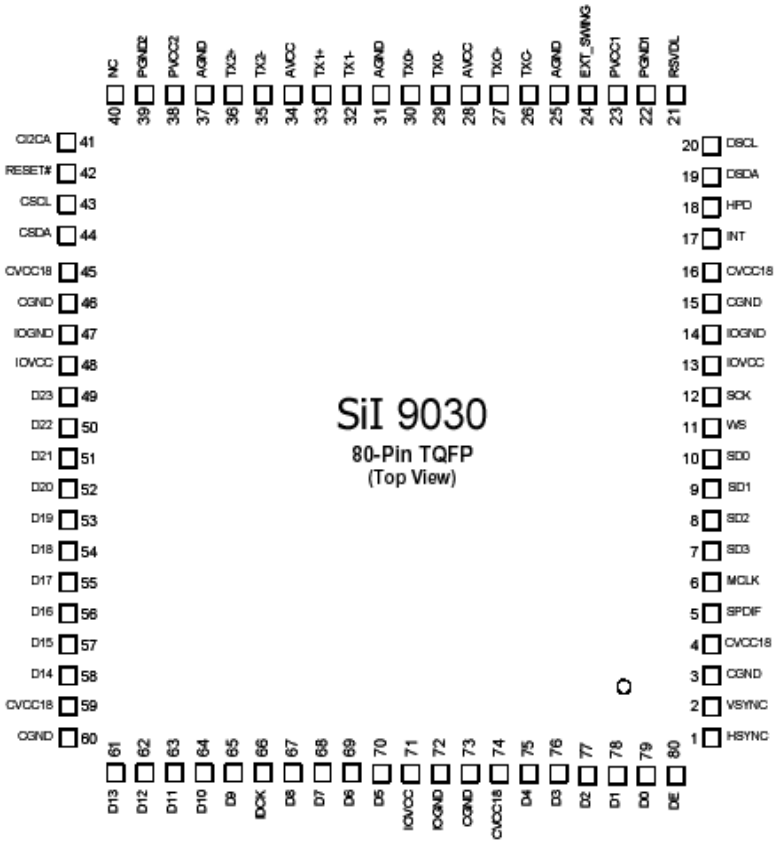
AF2302, N-channel MOSFET , SMD



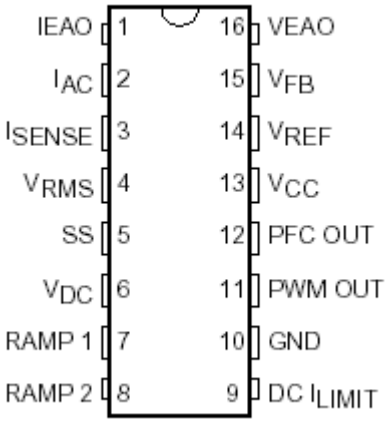
(Top View)

1. G
2. S
3. D

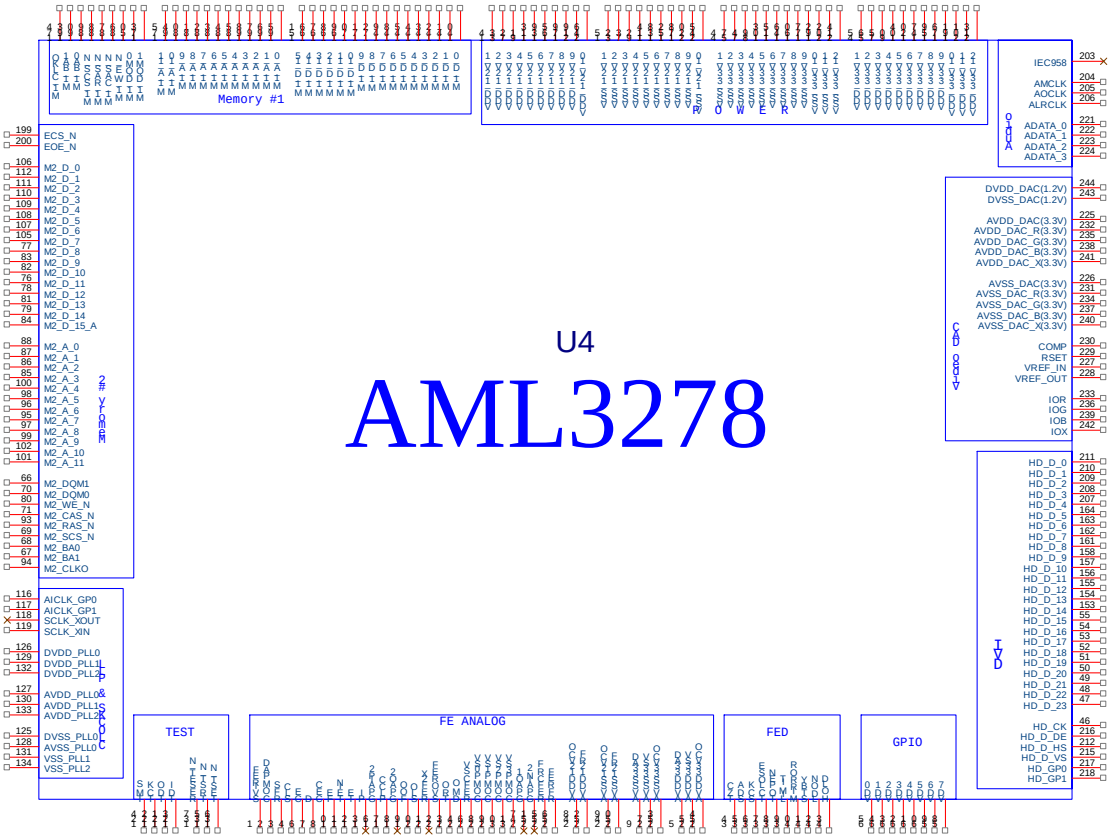
SiI9030CTU , DMI panelLink cinema transmitter, SMD



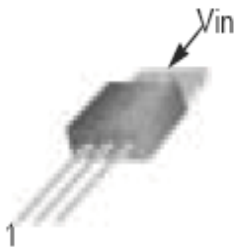
ML4800,power factor conection and PWM controller combo, SMD



AML3278 ,decoder, SMD

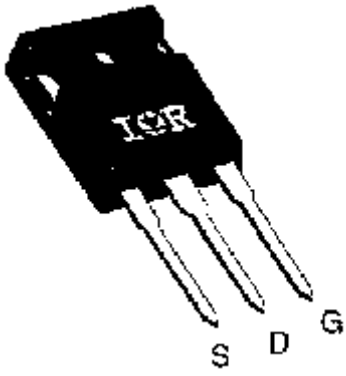


L7912 or LM7912, Voltage Regulator, TO-220

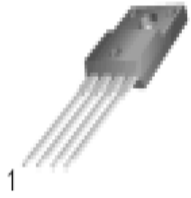


1. GND 2. Input 3. Output

IRFP460C ,Power MOSFET, TO-247

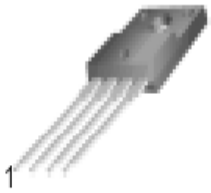


KA278R05C Voltage Regulator, TO-220F-4L



1.Vin 2. Vo 3. GND 4. Vdis

KA78R05C Voltage Regulator, TO-220F-4L



1. Vin 2. Vo 3. GND 4. Vdis

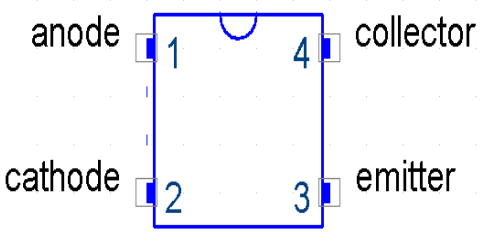
KA78R12 Voltage Regulator, TO-220F-4L

1. Vin 2. Vo 3. GND 4. Vdis

KA431, Precision Adjustable Voltage Regulator, TO-92

1. Ref 2. Anode 3. Cathode

PC817, Photoelectric Coupler, DIP



L7809, Voltage Regulator, TO-220

1. Input 2. GND 3. Output

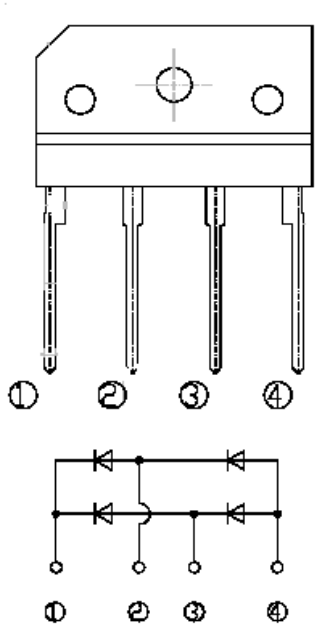
LM7805, Voltage Regulator, TO-220

1. Input 2. GND 3. Output

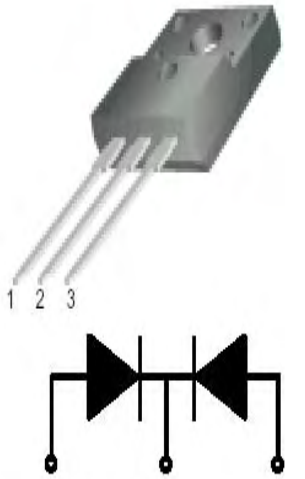
78L05, Voltage Regulator, TO-92

1. Output 2. GND 3. Input

D10XB60, Bridge Rectifiers, In-line Package

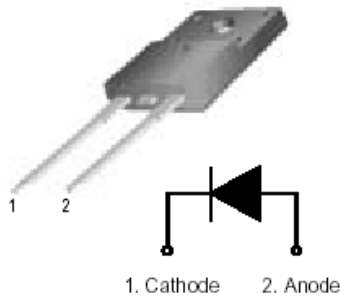


FYPF2010DN
Schottky barrier rectifiers, TO-220F

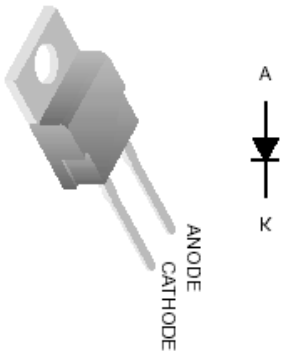


1. Anode 2.Cathode 3. Anode

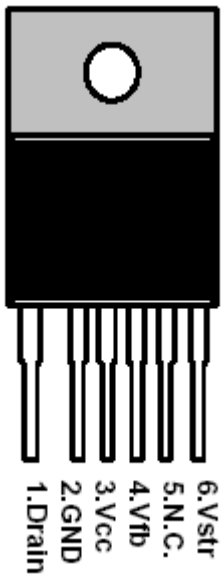
FFPF30U20STU,ultra fast recovery
Power rectifier, TO-220F



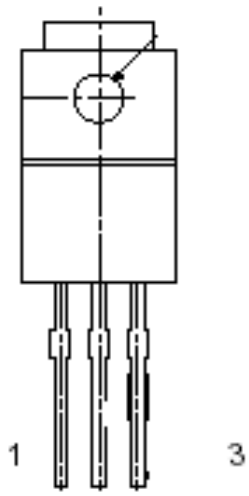
ISL9R1560PF2
ultrasoft recovery rectifier TO-220

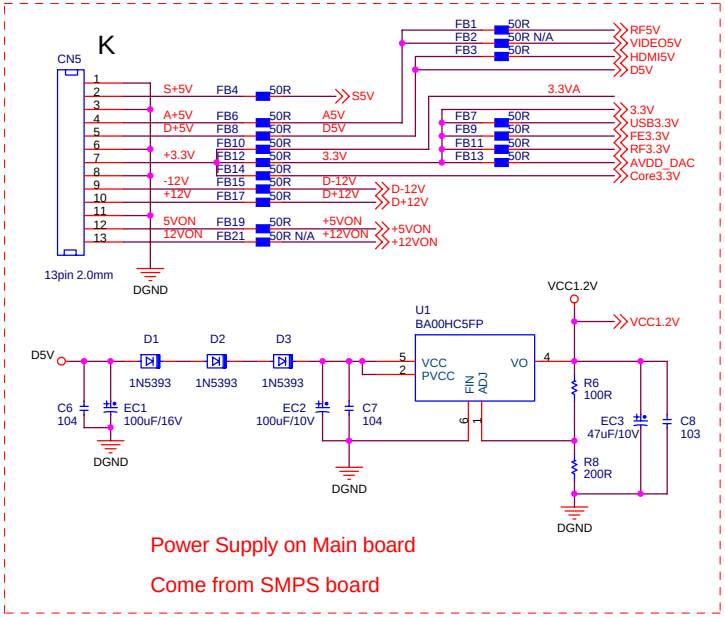


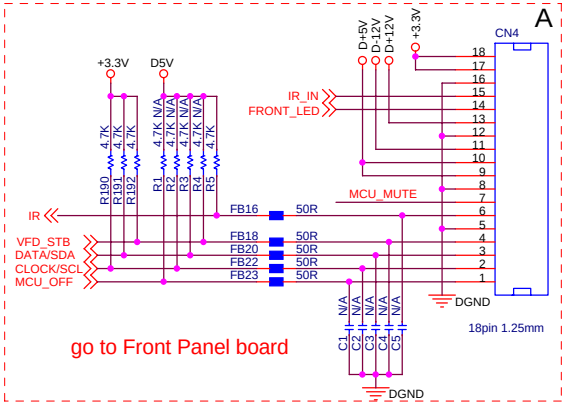
FSDM07652R,green mode Fairchild,
power switch, TO-220F

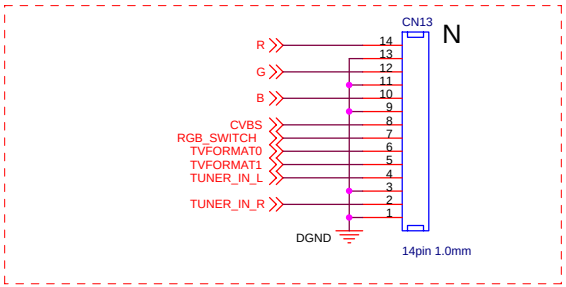


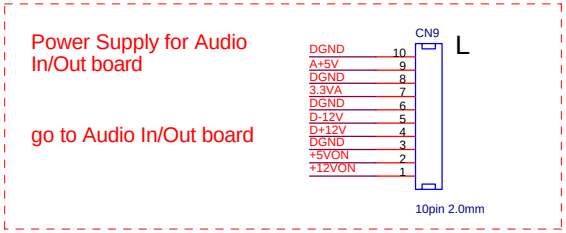
BA033BCO
Low Dropout voltage regulator, TO-220Fp

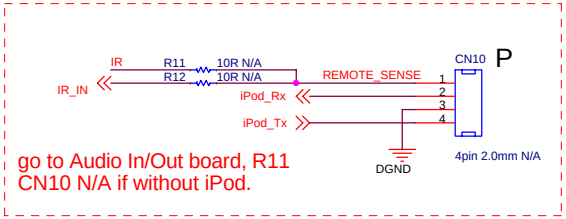


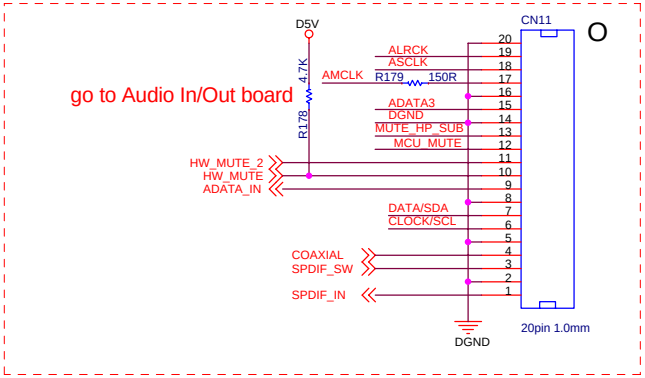


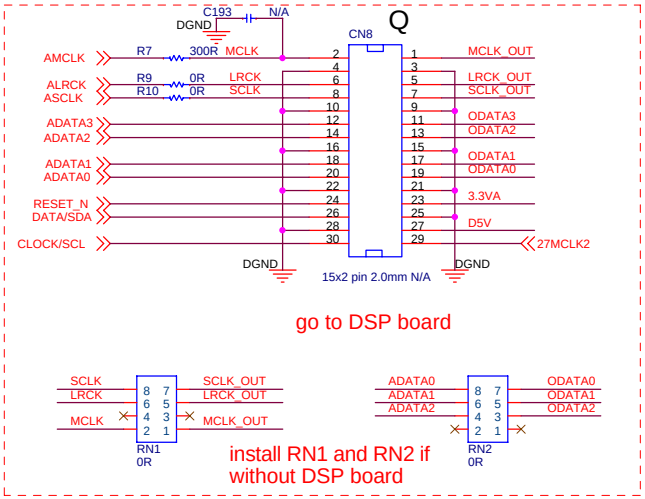


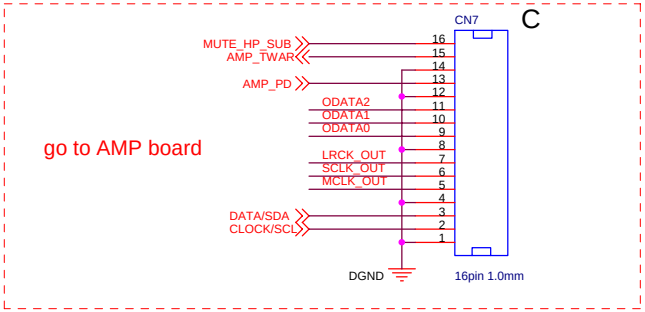


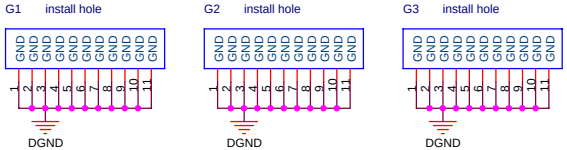




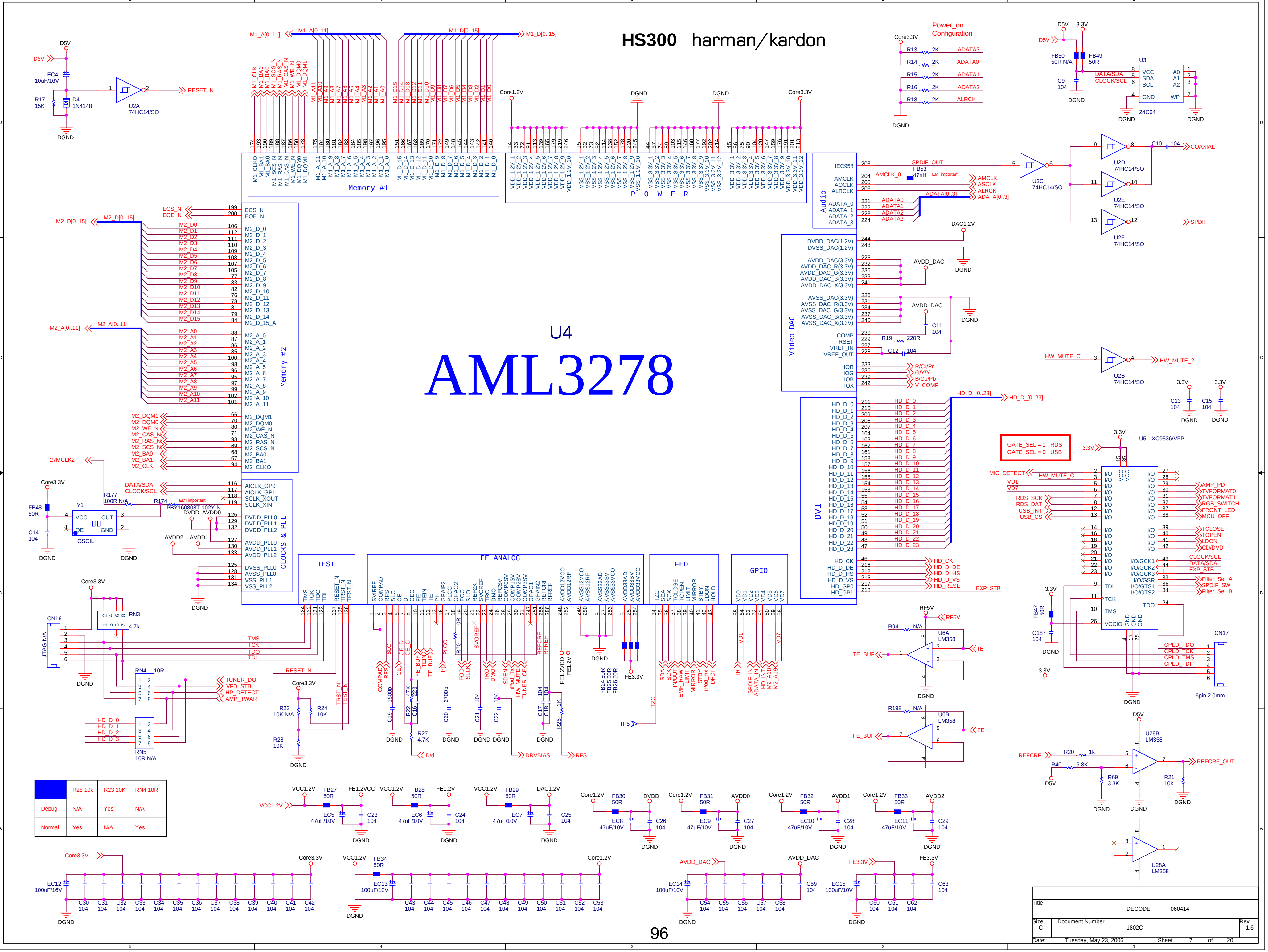




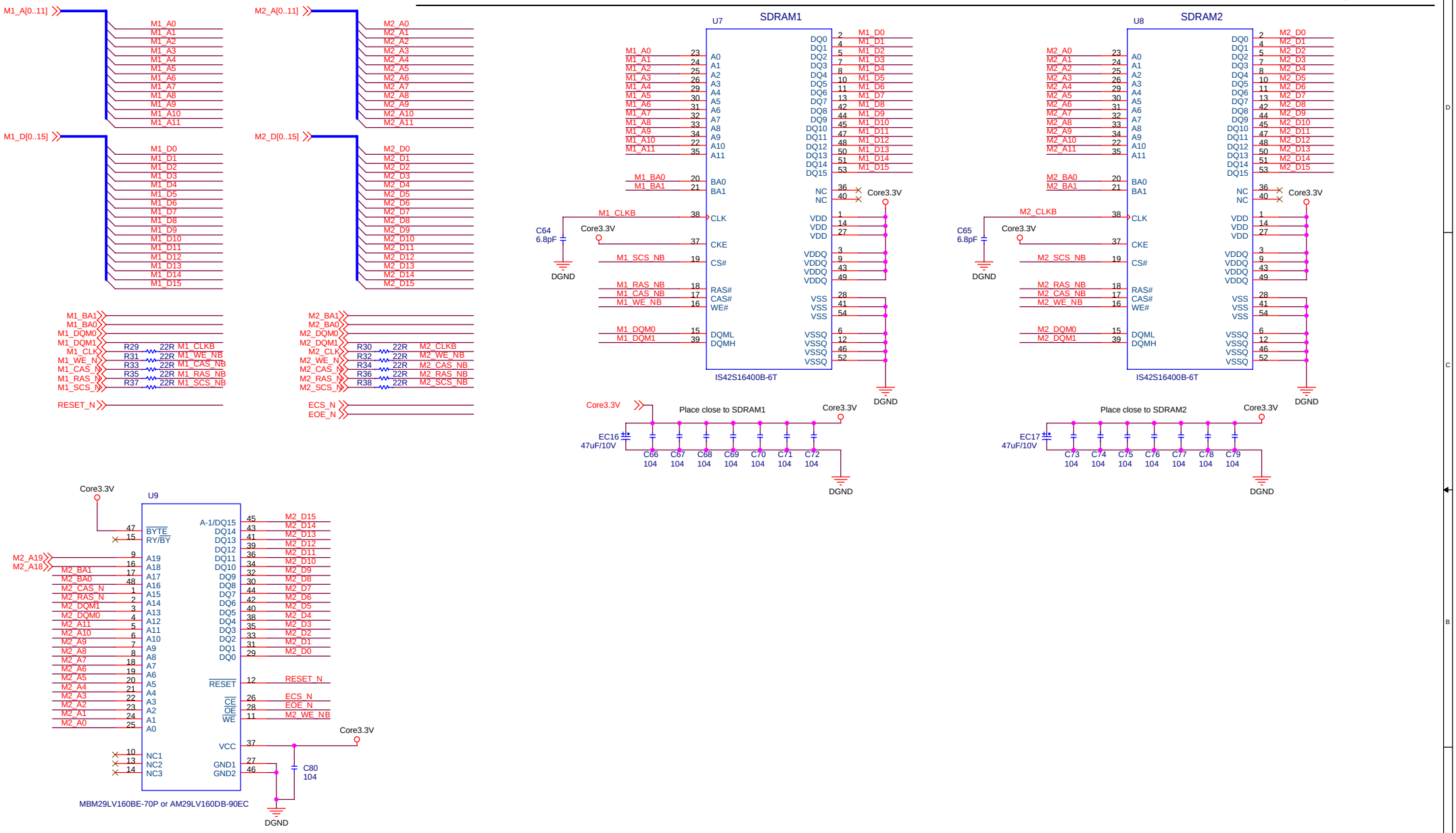




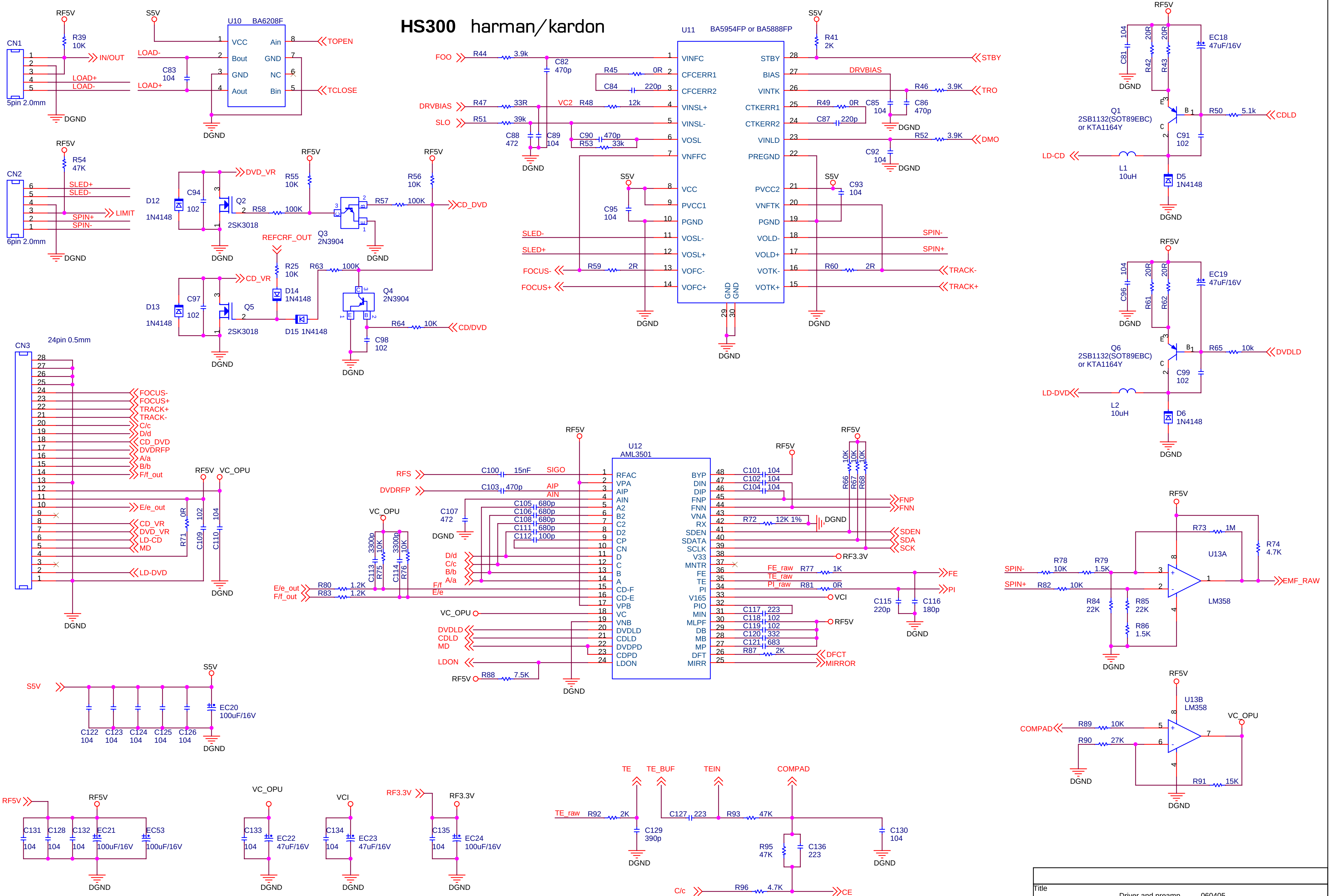
Title	Power and connector 060407	
Size A3	Document Number 1802C	Rev 1.6
Date: Tuesday, May 23, 2006	Sheet 6 of 20	



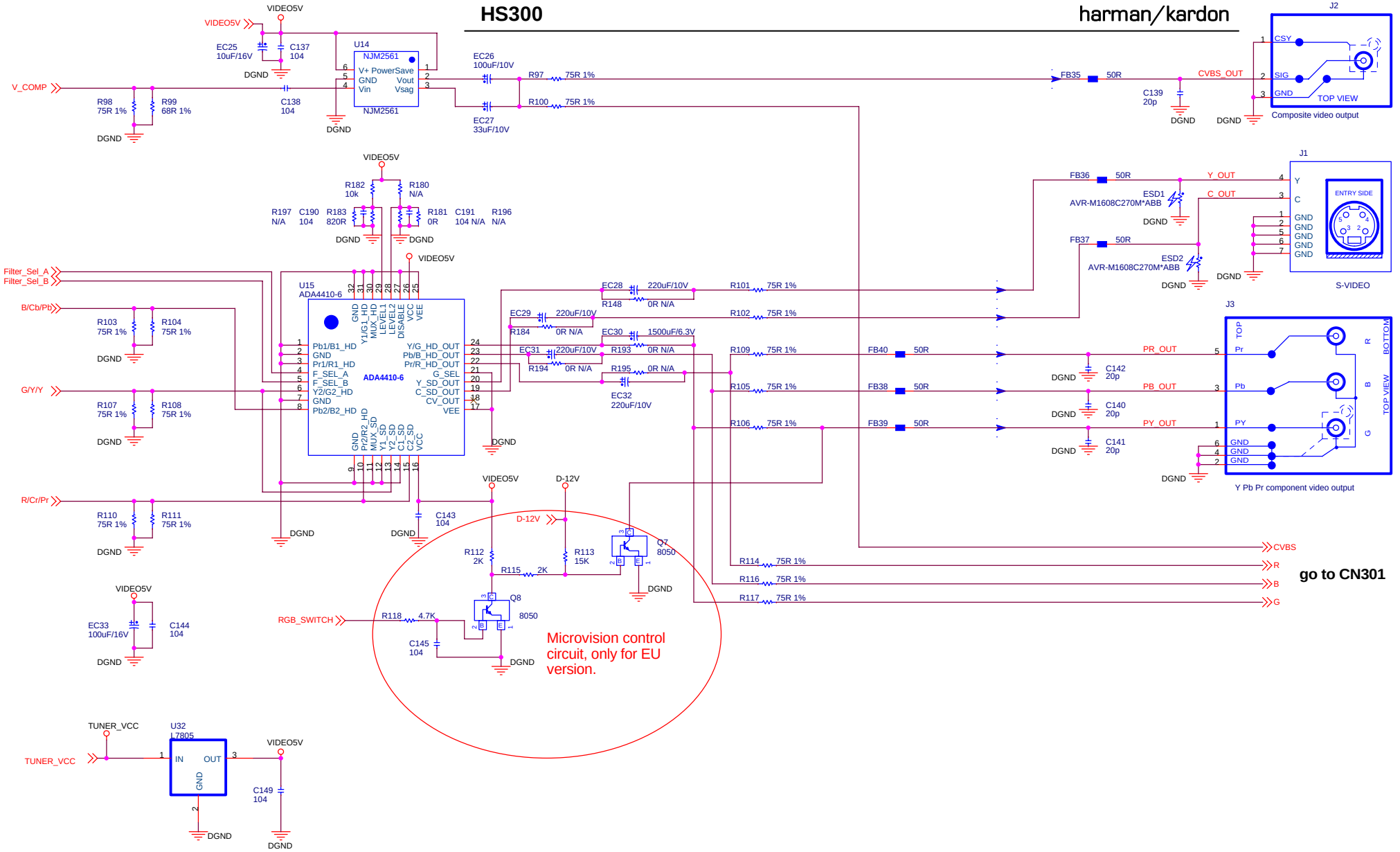
	R28 10k	R23 10K	RN4 10R
Debug	N/A	Yes	N/A
Normal	Yes	N/A	Yes



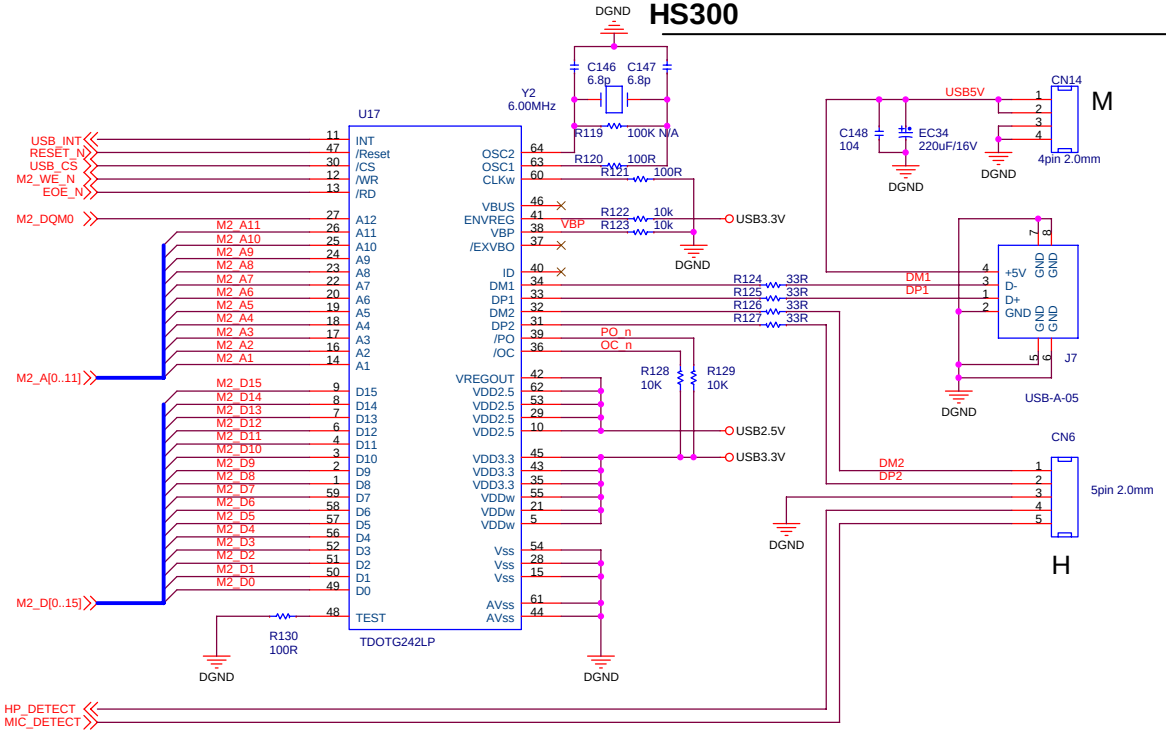
Title	SDRAM and FLASH 050830	
Size A3	Document Number 1802C	Rev 1.6
Date: Tuesday, May 23, 2006	Sheet 8 of 20	

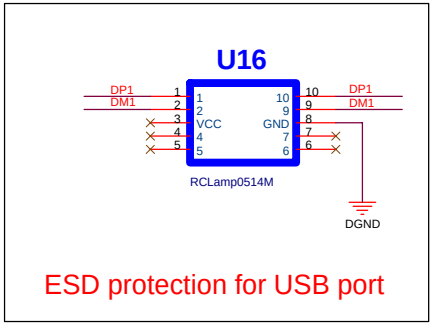


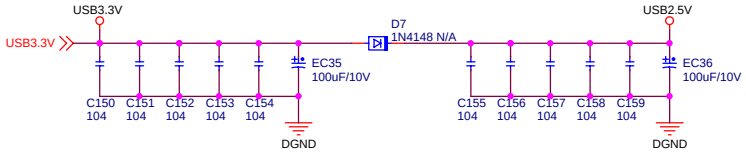
Title	Driver and preamp 060405
Size A3	Document Number 1802C
Rev	1.6
Date: Tuesday, May 23, 2006	Sheet 9 of 20

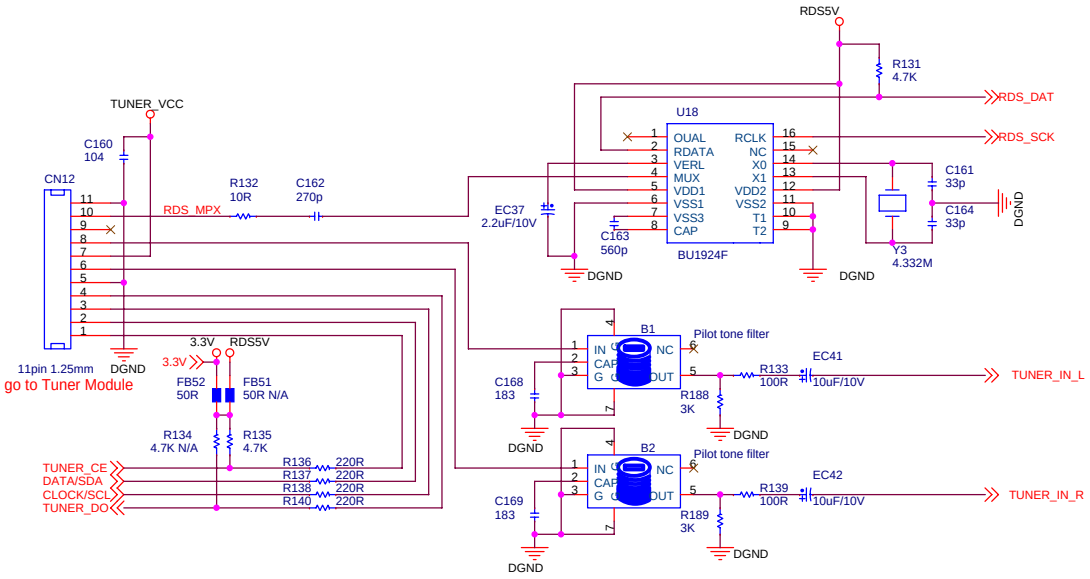


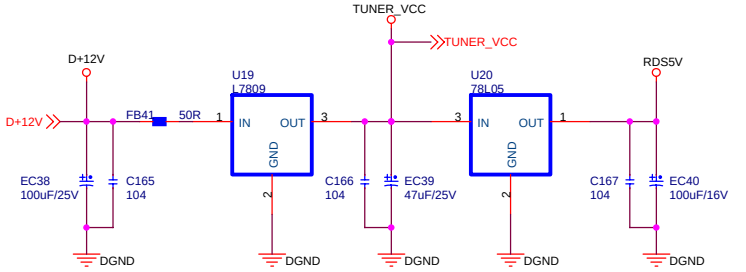
Title	VIDEO OUTPUT	060405
Size A3	Document Number 1802C	Rev 1.6
Date: Tuesday, May 23, 2006	Sheet 10 of 20	





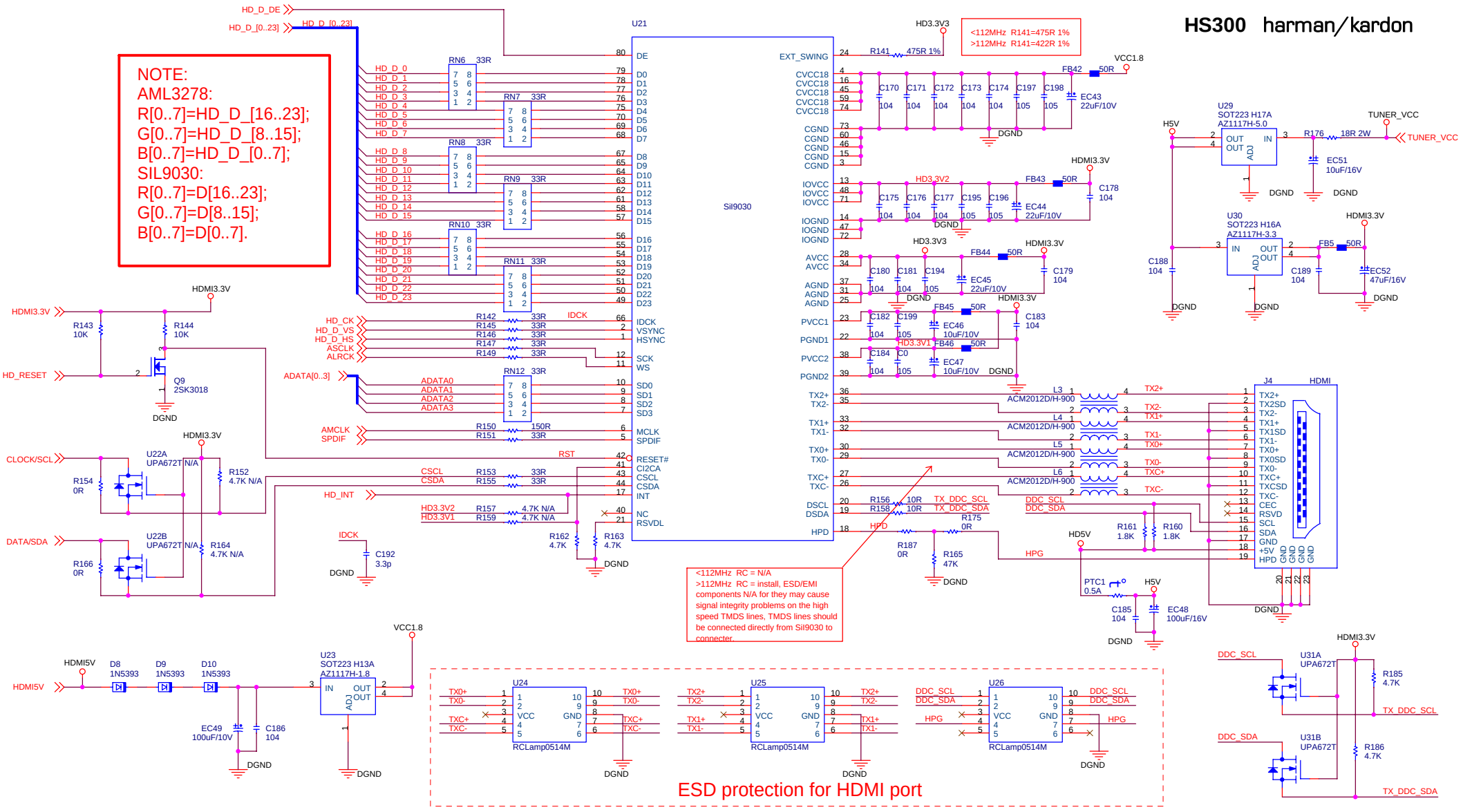






Title	USB and Tuner 060414	
Size A3	Document Number 1802C	Rev 1.6
Date: Tuesday, May 23, 2006	Sheet 11 of 20	

NOTE:
AML3278:
R[0..7]=HD_D_[16..23];
G[0..7]=HD_D_[8..15];
B[0..7]=HD_D_[0..7];
SIL9030:
R[0..7]=D[16..23];
G[0..7]=D[8..15];
B[0..7]=D[0..7].



<112MHz RC = N/A
>112MHz RC = install, ESD/EMI components N/A for they may cause signal integrity problems on the high speed TMDS lines, TMDS lines should be connected directly from Sil9030 to connecter.

Title	HDMI and IR In/Out 060420		
Size A3	Document Number 1802C		Rev 1.6
Date: Saturday, May 27, 2006	Sheet 12 of 20		

HS300 harman/kardon

RGB SWITCH	TV FORMAT0	TV FORMAT1	TV FUNCTION	PIN8(V)	PIN16(V)
X	0	1	SCART Inactive (Standby)	0V	X
X	0	0	SCART Active Auto Switch to 4:3 Aspect Ratio	12V	X
X	1	0	SCART Active Auto Switch to 16:9 Aspect Ratio	6V	X
0	X	X	RGB	X	1-3V
1	X	X	CVBS	X	0-0.4V

Mute logic circuit for main L&R analog output

Mute logic circuit for headphone and subwoofer

Scart video output and audio input, only for EU version, don't install in US version.

only for EU version
R361 R362 and

Analog audio output & input

Digital audio input/output

Coaxial output

Coaxial input

iPod

Fiber Optic RX Module

Title	HT1/HT2 AUDIO IN/OUT BOARD	060526
Size A3	Document Number 1804C	Rev 1.5
Date: Friday, May 26, 2006	Sheet 13 of 20	

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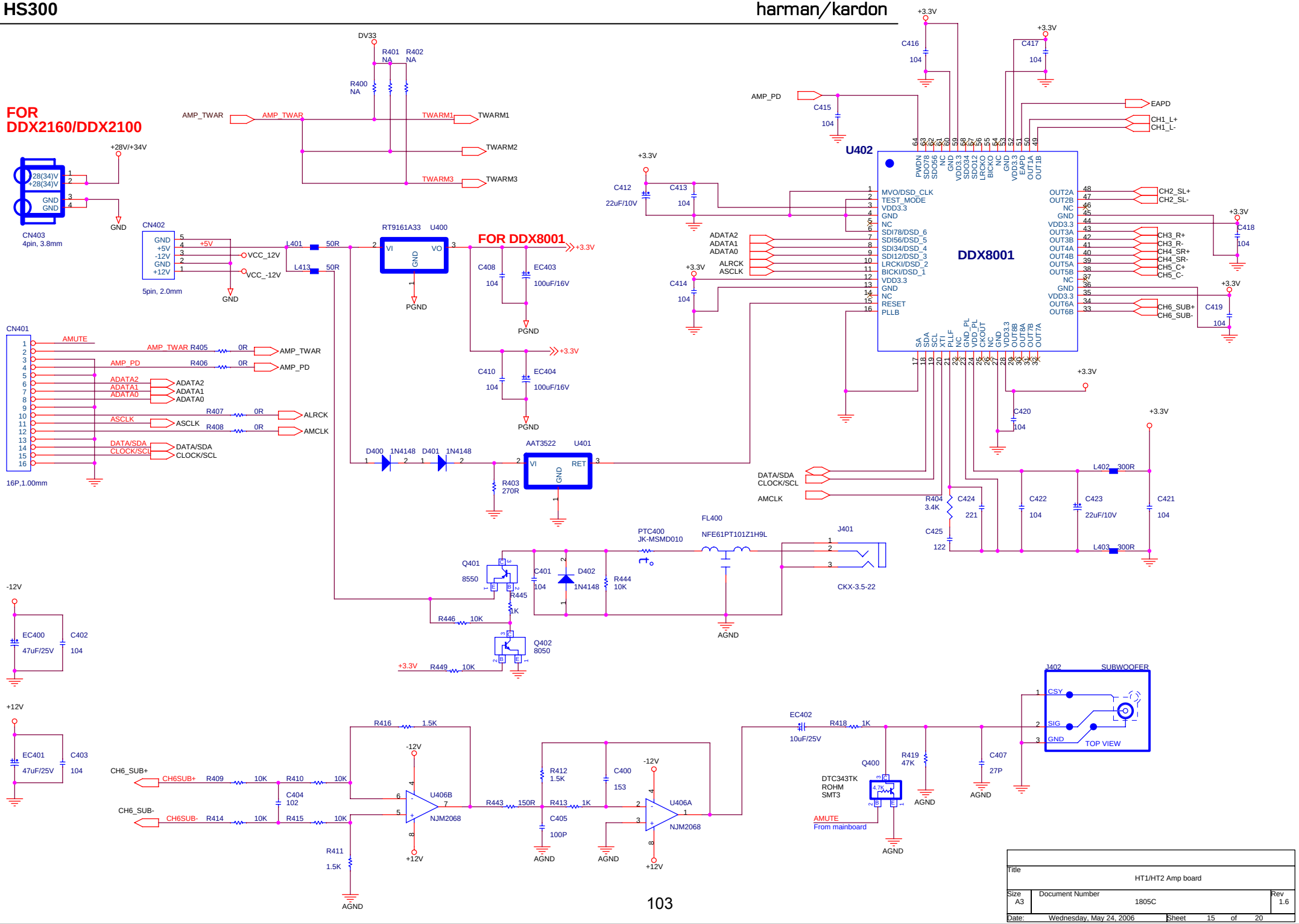
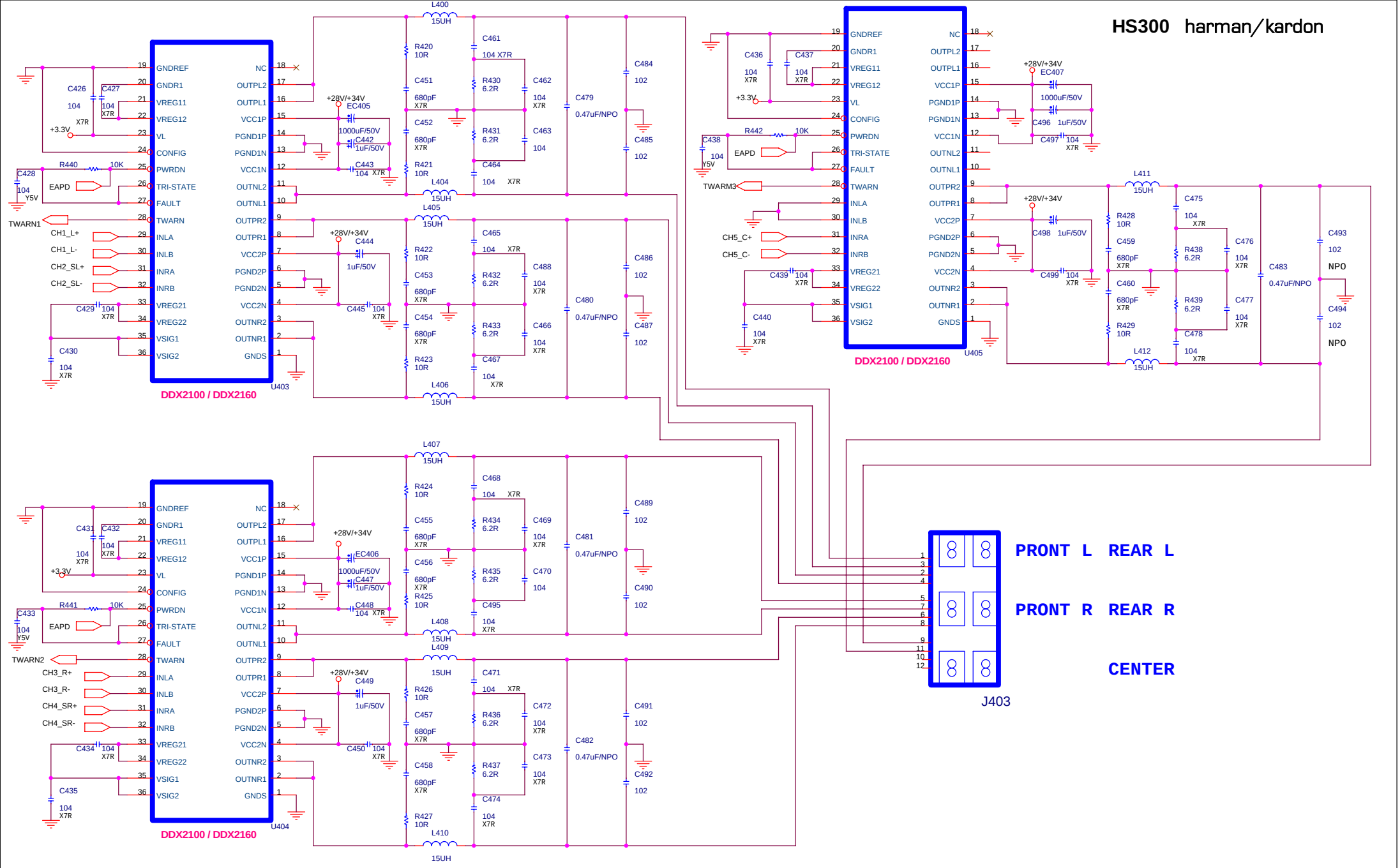
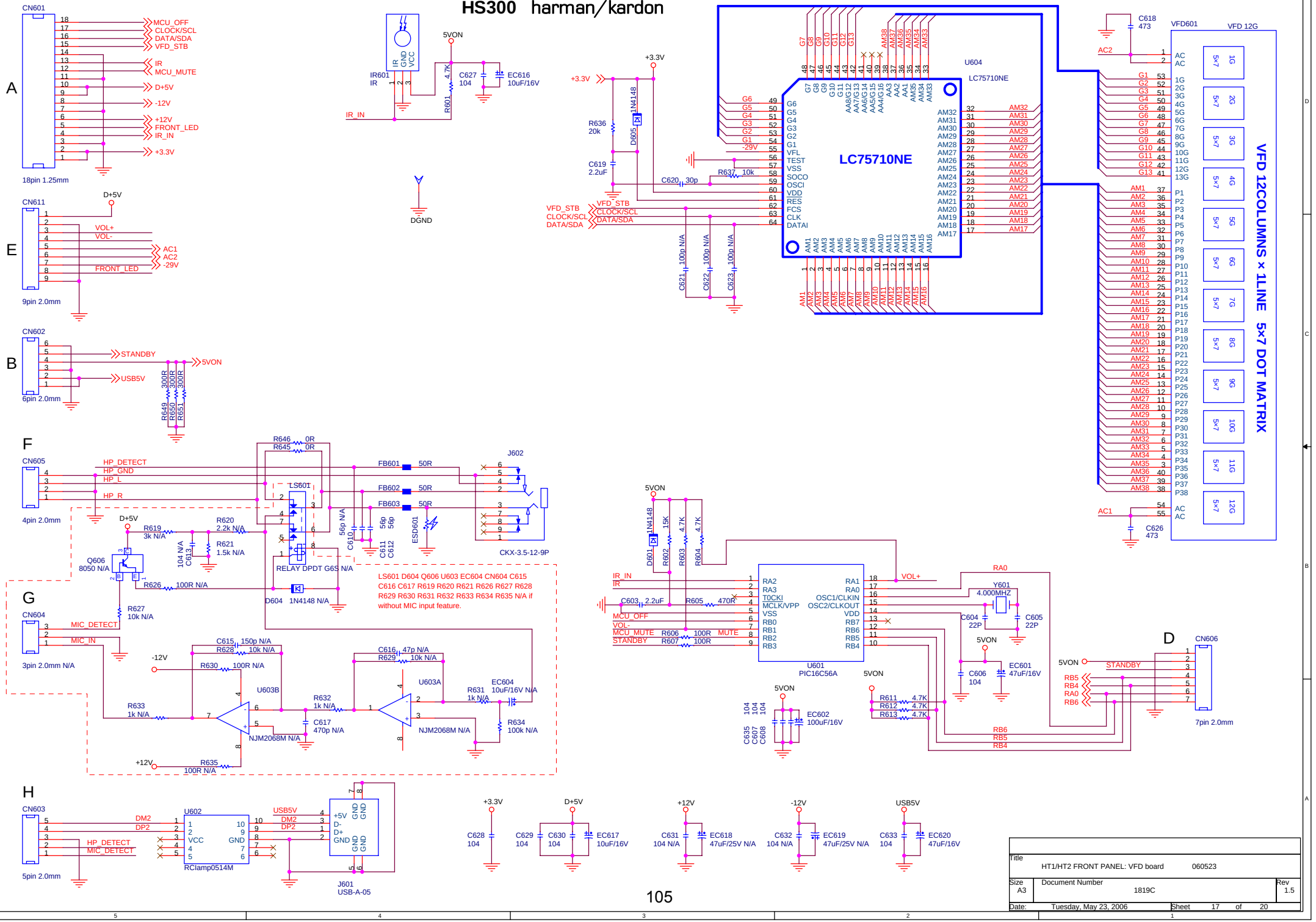


Title	HT1/HT2 Amp board	
Size A3	Document Number 1805C	Rev 1.6
Date: Wednesday, May 24, 2006	Sheet 15 of 20	

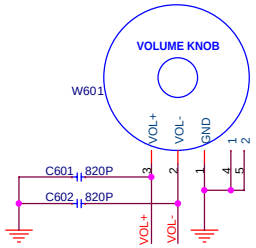


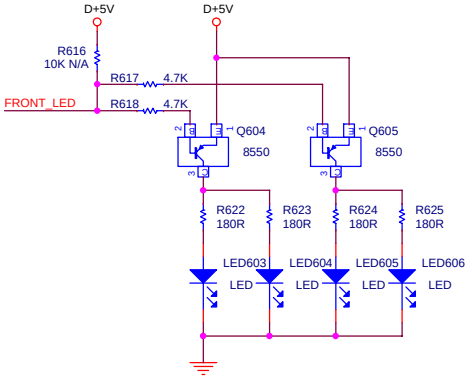
Title	HT1/HT2 Amp board		
Size A3	Document Number 1805C		Rev 1.6
Date: Wednesday, May 24, 2006	Sheet 16 of 20		

HS300 harman/kardon

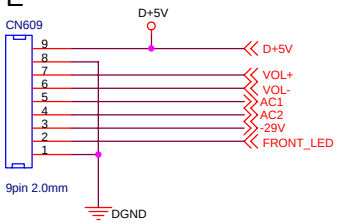


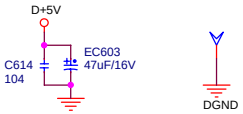
Title	HT1/HT2 FRONT PANEL: VFD board 060523		
Size A3	Document Number 1819C		Rev 1.5
Date: Tuesday, May 23, 2006	Sheet 17 of 20		

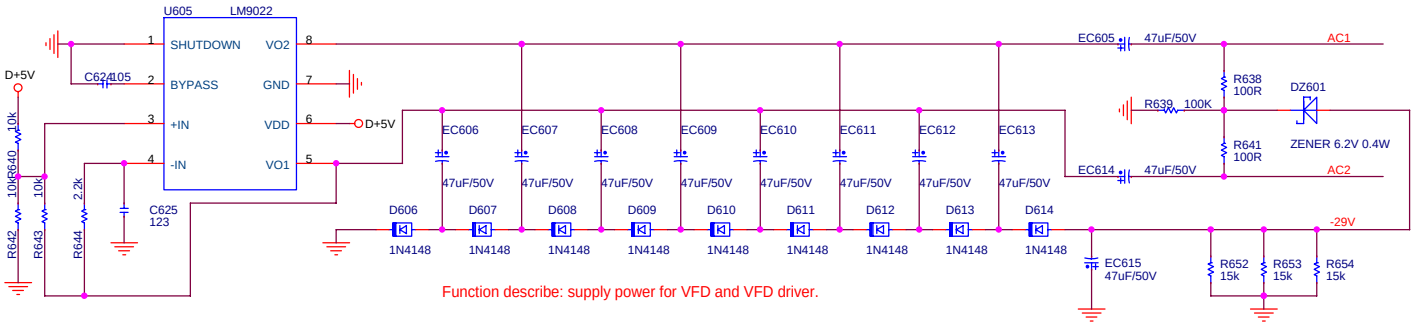




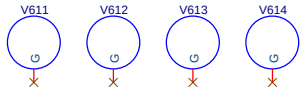
E



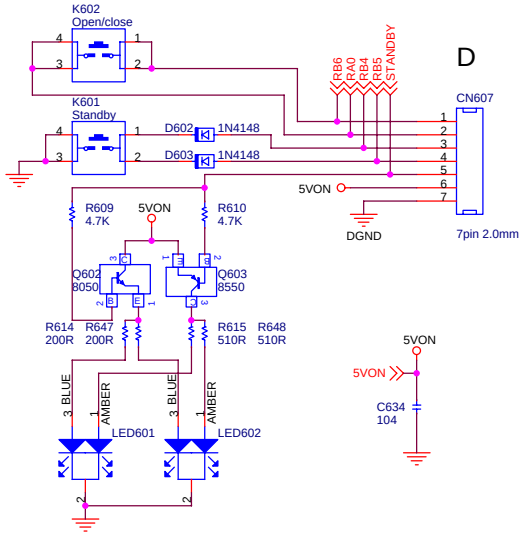


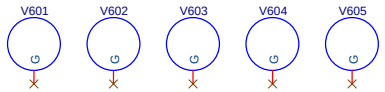


Function describe: supply power for VFD and VFD driver.

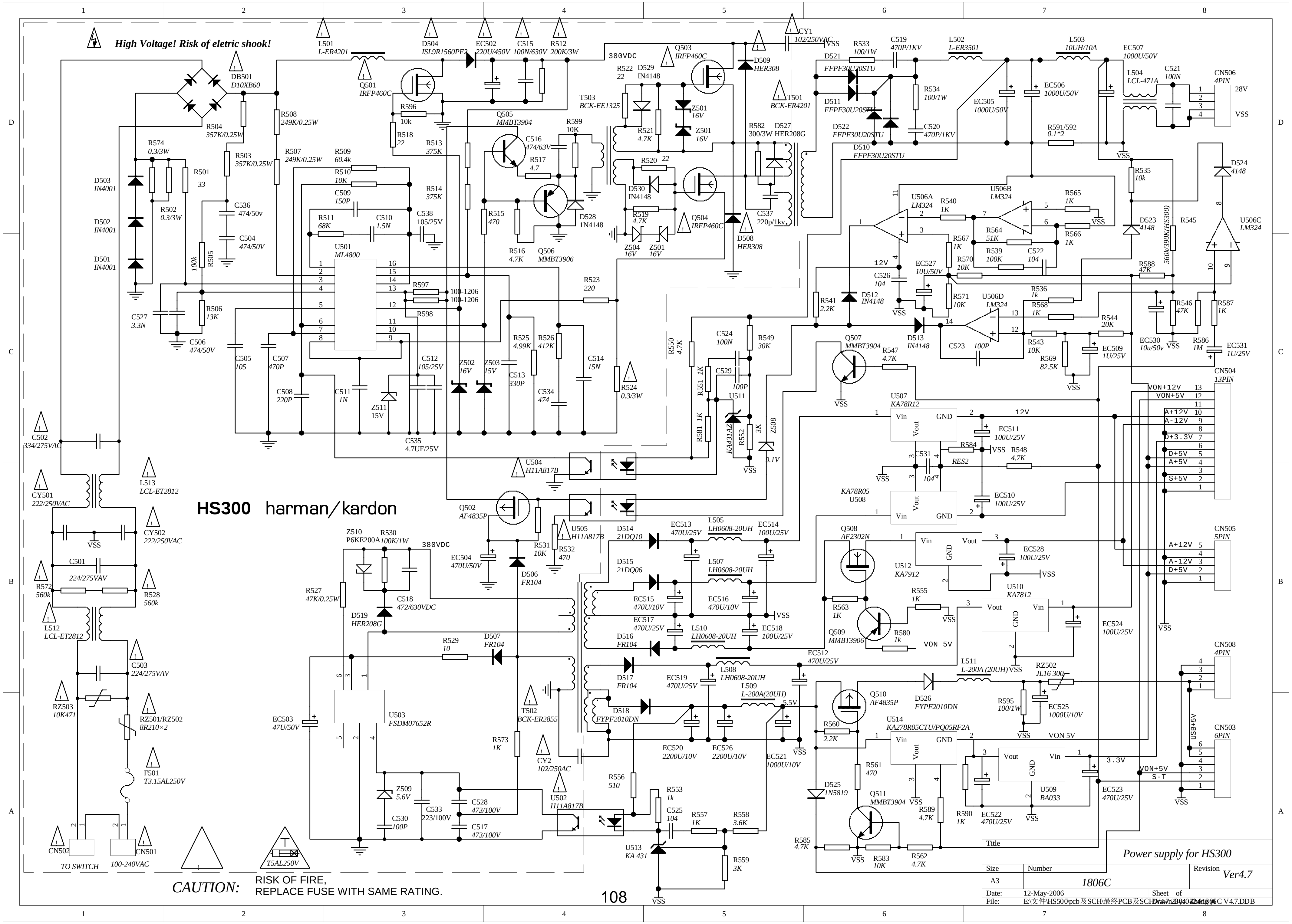


Title	HT1/HT2 FRONT PANEL: Volume board 060405	
Size A3	Document Number 1820C	Rev 1.5
Date: Tuesday, May 23, 2006	Sheet 18 of 20	

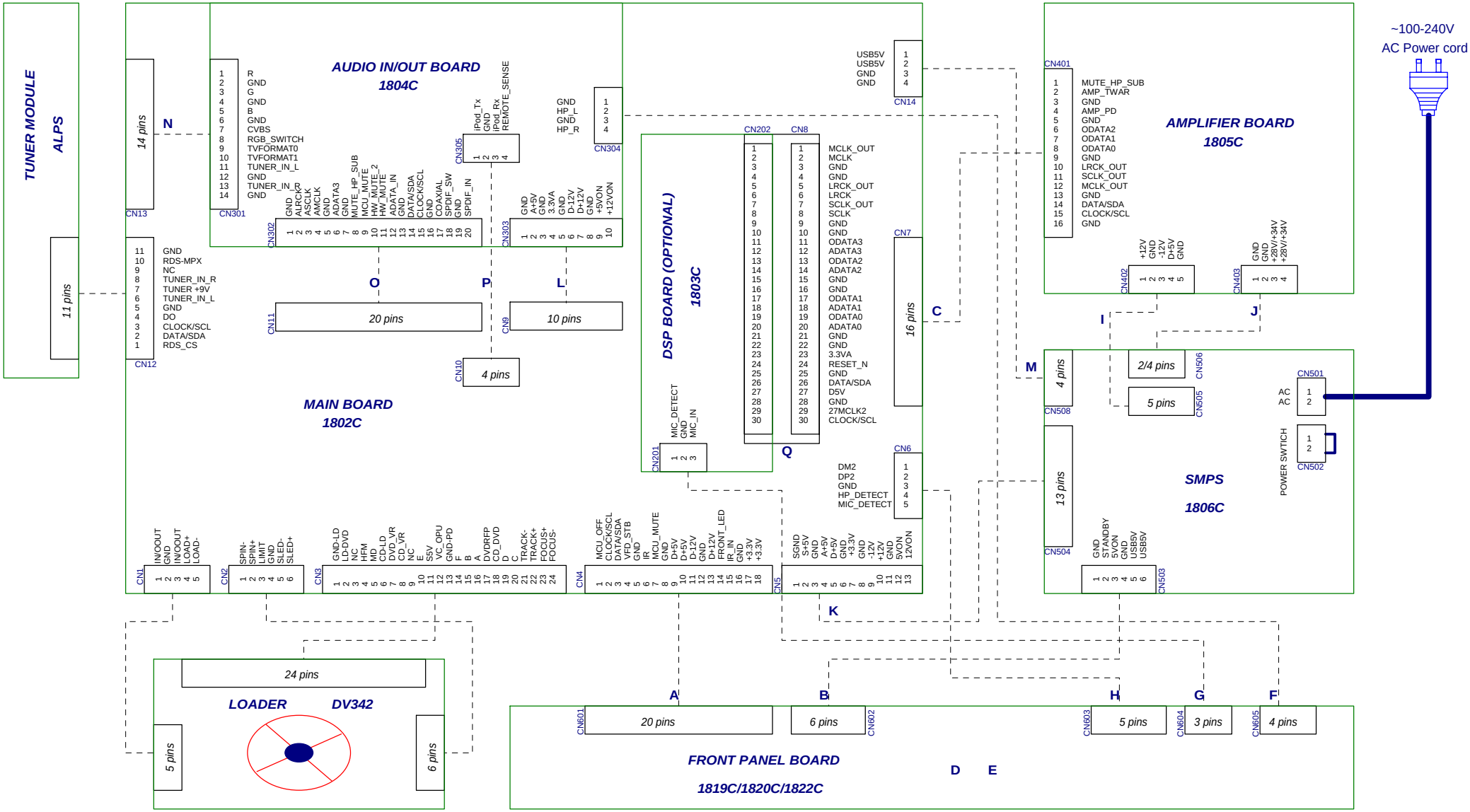




Title	HT1/HT2 FRONT PANEL: Standby board 060228	
Size A3	Document Number 1822C	Rev 1.3
Date: Tuesday, May 23, 2006	Sheet 20 of 20	


High Voltage! Risk of eletric shook!
HS300 harman/kardon
380VDC
TO SWITCH
100-240VAC
T5AL250V
CAUTION: RISK OF FIRE, REPLACE FUSE WITH SAME RATING.
Title
Power supply for HS300
Size A3
Number 1806C
Revision Ver4.7
Date: 12-May-2006
Sheet of
File:

HT1/HT2 WIRING DIAGRAM



HT1/HT2 CNT REF NO. ASSIGNMENT	
1802C: from 1	1805C: from 400
1803C: from 200	1806C: from 500
1804C: from 300	1819C/1820C/1822C: from 600

Title	HT1/HT2 DIAGRAM	060228	
Size A3	Document Number WIRING DIAGRAM		Rev 1.6
Date: Friday, May 26, 2006	Sheet 2 of 20		