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**harman/kardon**
**Service Manual**


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# HS 2X0/230

(HS 210 system and HS 280 system)

**2 x 65W 2.1 RECEIVER / HOME CINEMA SYSTEMS**



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NOTE: The HS 210 and HS 280 systems DVD/amplifier units are identical, named "HS 2X0" on the rear panel, but featuring NO NAME-STICKER on the front panel.

The only difference is the loudspeakers included in the system box.

HS 210 comes with a HKTS 30 system in 2.1 configuration

HS 280 comes with a HKTS 60 system in 2.1 configuration.

Please refer to the HKTS 20+30+60 service manual for information on the speakers.

## Introduction

Please register your product on our Web site at [www.harmankardon.com](http://www.harmankardon.com).

Note: You'll need the product's serial number. At the same time, you can choose to be notified about our new products and/or special promotions.

[www.harmankardon.com](http://www.harmankardon.com)

## Thank you for choosing the Harman Kardon® HS 2X0S0/230!

In the years since Harman Kardon invented the high-fidelity receiver, we have taken to heart this philosophy: Bring the joy of home entertainment to as many people as possible, adding performance and ease-of-use features that enhance the experience. With the introduction of the HS series of home-entertainment systems, Harman Kardon offers a complete home-entertainment solution with a wealth of listening and viewing options in one sleek component. Each HS series system also includes a 5.1-channel or 2.1-channel loudspeaker system, a system remote control and all the cables and accessories you need to enjoy movies and music in your own home, when you use them with your television or video display.

To get the maximum enjoyment from your new HS system, we urge you to read this manual thoroughly and refer back to it as you become more familiar with your new system's features and their operation.

If you have any questions about this product, its installation or its operation, please contact your retailer or custom installer, or visit our Web site at [www.harmankardon.com](http://www.harmankardon.com).



**NOTE:** The built-in DVD player is designed and manufactured for compatibility with Region Management Information that is encoded on most DVDs. This player is designed only for playback of discs with Region Code 2 information or discs that do not contain Region Code information. If there is any other Region Code on a disc, it will not play in the HS 2X0S0/230.

## HS 2X0S0/230 Two-Channel DVD Receiver

### Audio Section

- 65 watts x 2 continuous power at 6 ohms (both channels driven), 20Hz – 20kHz, <0.5% THD (total harmonic distortion)

### Audio Modes

- Dolby® Digital
- Dolby Virtual Speaker
- Stereo

### Analog-Audio Inputs

- FM tuner (internal)
- DVD player (internal)
- Two left/right (L/R) line input connectors
- L/R input via SCART

### Analog-Audio Outputs

- Headphone output
- Subwoofer output
- One L/R line output connector

### Digital Audio Inputs

- Two coaxial
- Two optical
- Two USB 2.0 ports

### Digital Audio Outputs

- One coaxial

### Video Inputs

- DVD player (internal)

### Video Outputs

- One HDMI™ (High-Definition Multimedia Interface™) version 1.2
- One S-Video
- One composite video
- S-Video and composite video via SCART

### Speaker Outputs

- Front left and front right

### Control Inputs/Outputs

- Subwoofer trigger output
- Infrared (IR) remote control input
- Infrared (IR) remote control output

### Ease of Use

- On-screen menu system
- Dot-matrix front-panel information display
- Learning remote control (also controls your TV and a video component)

### DVD Player Features

- Region 2 coding
- Plays five-inch (12cm) and 3-inch (8cm) discs
- Video formats supported: DVD, DVD-R, DVD-RW, DVD+R/RW, VCD, SVCD
- Audio formats supported: Dolby Digital, CD, CD-R/RW, MP3, WMA (v7-v8)
- Still-image formats supported: JPEG
- Video upscaling to 720p and 1080p (HDMI output only)
- Progressive-scan video output (HDMI only)
- MP3 bit rates: 32kbps – 320kbps
- WMA bit rates: 16kbps – 192kbps
- JPEG resolution supported: Five megapixels, 5MB file size
- Still-image rotation in 90-degree increments
- Fast Play rates: 2x, 4x, 8x, 16x, 32x
- Slow Play rates: 1x, 2x, 4x, 8x
- Random Play
- Repeat Play: One group/title, one track/chapter, one folder, one disc
- Disc recognition for up to 100 discs
- Playback control for VCDs
- Aspect-ratio adjustment

### SAT TS60 Satellite Speakers (for HS 280)

- One 1" (25mm) CMMD® Lite dome video-shielded tweeter
- Two 3" (75mm) flat-diaphragm, video-shielded, midrange drivers
- 20 ~ 150 watts recommended power

### SAT TS11 Satellite Speakers (for HS 210)

- One 1/2" (12mm) dome, video-shielded tweeter
- Dual 3" (75mm) drivers, video-shielded, midrange
- 10 ~ 120 watts recommended power

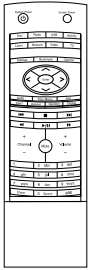
### HKTS200SUB Subwoofer

- 8" (200mm) woofer in a sealed enclosure
- 200 watts RMS amplifier power
- Automatic turn-on and turn-off

### Supplied Accessories (for HS 280)

The following accessory items are supplied with the HS 280 system. If any of these items are missing, please contact Harman Kardon Customer Service via [www.harmankardon.com](http://www.harmankardon.com).

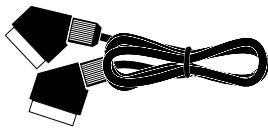
- System remote control



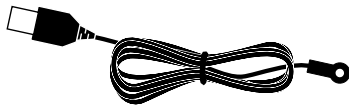
- HDMI cable



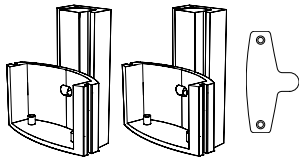
- SCART cable



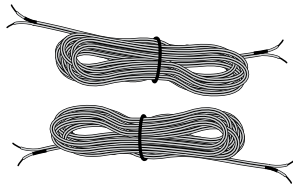
- FM wire antenna



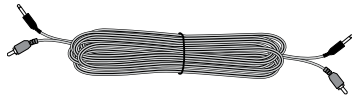
- Two speaker wall-mount brackets



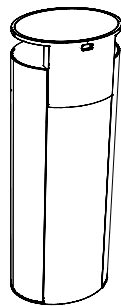
- Two five-meter (16.4-foot) speaker cables



- One combination LFE (low-frequency effects) and trigger cable for connection to the subwoofer



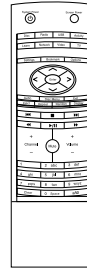
- 2 TS-60 Satellites



### Supplied Accessories (for HS 210)

The following accessory items are supplied with the HS 210 system. If any of these items are missing, please contact Harman Kardon Customer Service via [www.harmankardon.com](http://www.harmankardon.com).

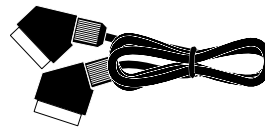
- System remote control



- HDMI cable



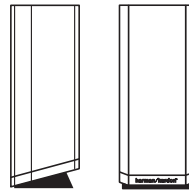
- SCART cable



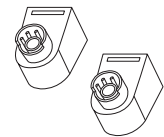
- FM wire antenna



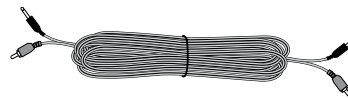
- 2 TS-11 satellite speakers



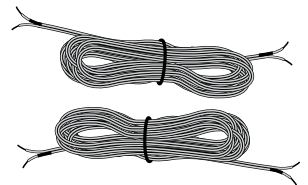
- Two wall-mount brackets



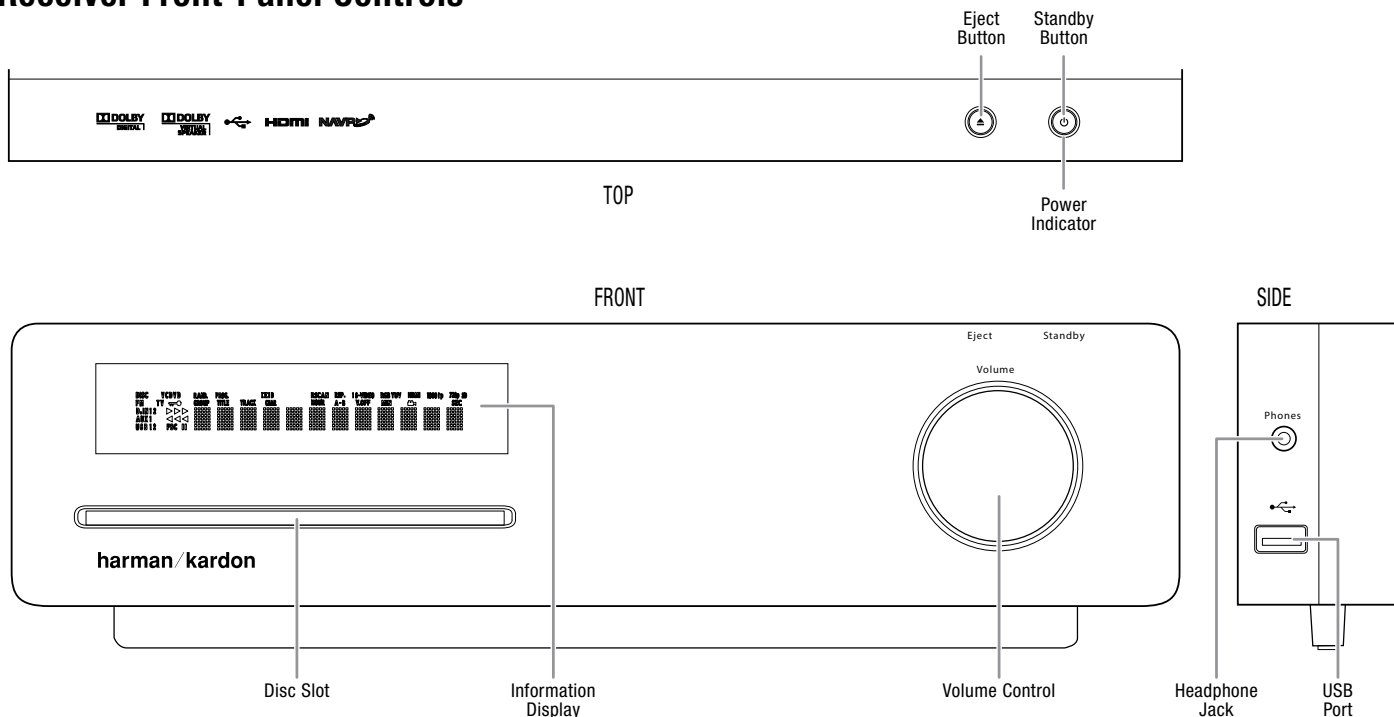
- One combination LFE (low-frequency effects) and trigger cable for connection to the subwoofer



- Two five-meter (16.4-foot) speaker cables



## Receiver Front-Panel Controls



**Disc Slot:** Insert a compatible disc into the slot. The HS 2X0S0/230's disc player will accept five-inch (12cm) and three-inch (8cm) discs.

**Information Display:** Various messages appear on this display in response to commands. In addition, a variety of indicators will light at various times to show the current source, settings or other aspects of the HS 2X0S0/230's status as described throughout this manual. See *Receiver Information Display*, on page 7, for details.

**Volume Control:** Rotate the disc clockwise to raise the volume; rotate counterclockwise to lower the volume. The volume level will appear on the Information Display and on the on-screen menu (if the menu is enabled, see *Preferences – Volume Bar*, on page 20).

**Eject Button (on top of unit):** Press this button to eject a disc from the HS 2X0S0/230's built-in DVD player. Before pressing this button, make sure that no objects are blocking the disc slot. **NOTE:** If you do not remove the ejected disc within 20 seconds, it will automatically re-load back into the DVD player for protection.

**Standby Button (on top of unit):** This button turns the HS 2X0S0/230 on for playback or leaves it in the Standby mode for quick turn-on using this button or the remote control.

**Power Indicator:** This LED (light-emitting diode) surrounds the Standby switch. When the HS 2X0S0/230 is plugged into AC power, the LED turns red to indicate that the HS 2X0S0/230 is in Standby mode (ready to be turned on). When you turn the HS 2X0S0/230 on (by the Standby switch or the remote control), the LED turns white.

**Phones (headphones) Jack (on side of unit):** Insert the 3.5mm stereo mini-connector from a set of headphones into this jack. **NOTE:** When a plug is inserted into the Phones jack, the HS 2X0S0/230's speaker outputs automatically mute; the HDMI audio output, coaxial output and line output remain active.

### USB 2.0 Port (on side of unit):

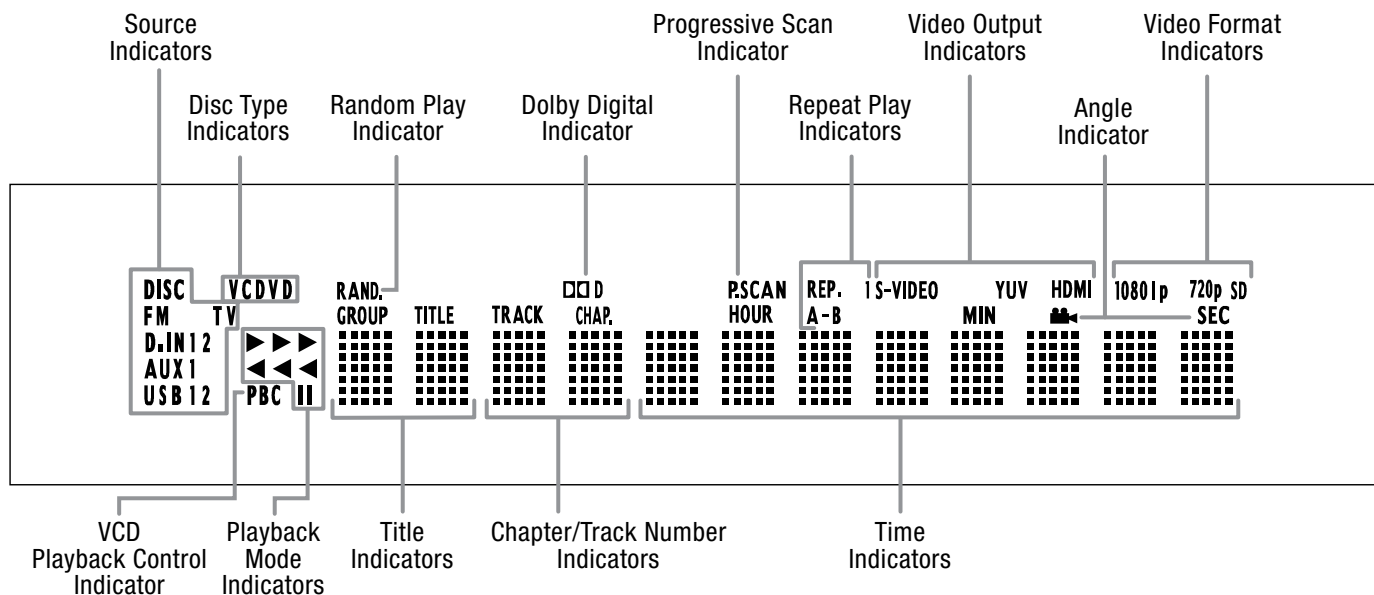
Gently insert a flash drive, card reader, digital camera or other USB device, or a USB Standard-A cable connected to a USB device, to this port.

**IMPORTANT:** DO NOT connect a PC or other USB host/controller to this port, or you may damage both the HS 2X0S0/230 and your other device.

Orient the other device's plug so it fits all the way into the HS 2X0S0/230's USB connector. You may insert or remove the device at any time — there is no installation or ejection procedure.

The HS 2X0S0/230 can play MP3 and Windows Media® Audio WMA audio files that are stored on the device. The HS 2X0S0/230 can also display JPEG-format still-image files.

# Receiver Information Display



**Source Indicators:** Indicate which source is currently playing.

**Disc Type Indicators:** Indicate the type of disc that is currently playing.

**Random Play Indicator:** Indicates that the disc player is in the Random Play mode.

**Dolby Digital Indicator:** Indicates that the soundtrack of the currently-playing disc is Dolby Digital-encoded.

**Progressive Scan Indicator:** Indicates that the disc player is outputting a progressive-scan video signal.

**Repeat Play Indicators:** Indicate that the disc player is in one of the Repeat Play modes: Rep. = repeat all; Rep. 1 = repeat track; A-B = A/B repeat.

**Video Output Indicators:** Indicate which type of video output is currently active.

**Angle Indicator:** Indicates when alternative viewing angles are available on the currently-playing DVD.

**Video Format Indicators:** Indicate which video format is currently playing.

**VCD Playback Control Indicator:** Indicates that the playback-control function is turned on when the HS 2X0S0/230 is playing a VCD.

**Playback Mode Indicators:** Indicate the current disc playback mode:

- ▶ Indicates normal playback.
- ▶▶ Indicates that the disc is in the forward fast-search mode. The video display will indicate the selected speed.
- || Indicates that the disc is paused. The video display will also indicate that the disc is paused.
- ◀◀ Indicates that the disc is in the reverse fast-search mode. The video display will indicate the selected speed.

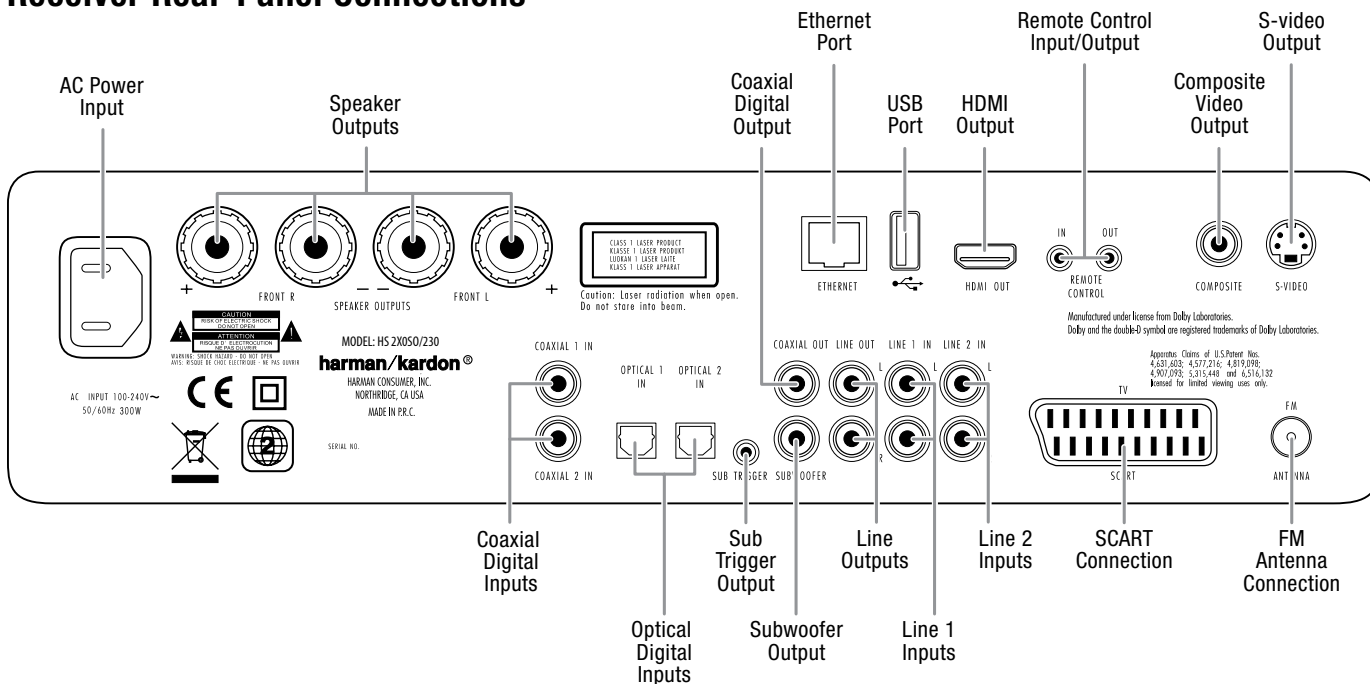
**Title Indicators:** Show the title number of a DVD that is playing.

**Chapter/Track Number Indicators:** Show the current chapter when a DVD is playing; show the current track number when a CD is playing.

**Time Indicators:** Show the running time when a DVD is playing; show elapsed time when a CD is playing.

NOTE: The Title, Chapter/Track Number and Time Indicators will also display the radio station name when Radio is the selected input. When a DVD or CD is playing, the indicators will display various text messages about the disc's status.

## Receiver Rear-Panel Connections



See the *Connections* section, on page 14, for detailed information about making connections.

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

**Speaker Outputs:** Use the speaker wires supplied with the SAT TS60 speakers to connect the satellite speakers to the proper terminals. Be sure to connect the positive (+, colored red) connector on the speaker to the positive (+, colored red and white) connector on the HS 2X0S/230, and the negative (–, colored black) connectors on the speakers to the negative (–, colored black) connectors on the HS 2X0S/230. See *Connecting the Satellite Speakers*, on page 14, for more information about making connections.

**Coaxial Digital Inputs:** Connect the coaxial digital output of an audio-only source component here. The signal may be a Dolby Digital bitstream or a standard PCM digital audio bitstream.

NOTE: Use only one type of digital connection for each source component.

**Optical Digital Inputs:** Connect the optical digital output of an audio-only source component here. The signal may be a Dolby Digital bitstream or a standard PCM digital audio bitstream.

NOTE: Use only one type of digital connection for each source component.

**Coaxial Digital Output:** Connect this output to the coaxial digital input of a digital recording device such as a CD-R or MiniDisc recorder.

**Sub Trigger Output:** Use the black mini-cable connector of the supplied combination LFE and trigger cable to connect this jack to the HKTS200SUB subwoofer's External Trigger Input. See *Connecting the Subwoofer*, on page 15, for more details about making connections.

Whenever the HS 2X0S/230 is turned on, it will send a trigger signal that will turn the subwoofer's amplifier on. Turning the HS 2X0S/230 off removes the trigger signal, and the subwoofer's amplifier will turn off. (This change will occur even when the subwoofer's Power On Mode switch – see page 9 – is in the Auto position.)

**Subwoofer Output:** Use the LFE (purple) connector of the supplied combination LFE and trigger cable to connect this jack to the HKTS200SUB subwoofer's Line-Level In LFE jack. See *Connecting the Subwoofer*, on page 15, for more details about making connections.

**Ethernet Port:** Connect this port to your local area network (LAN) using a CAT 5 RJ45 network cable. See *Connecting to a Local Area Network (LAN)*, on page 17, for details.

**Line Outputs:** Use the Line Outputs to connect to an audio-only recorder, such as a CD-R recorder or tape deck.

**USB 2.0 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, to this port.

IMPORTANT: DO NOT connect a PC or other USB host/controller to this port, or you may damage both the HS 2X0S/230 and the other device. Orient the device's plug so it fits all the way into the HS 2X0S/230's USB connector. You may insert or remove the device at any time – there is no installation or ejection procedure.

The HS 2X0S/230 can display JPEG-format still-image files stored on the device and can also play MP3 and Windows Media® Audio (WMA) files and MPEG4 and AVI video files that are stored on the device.

**Line 1 Input/Line 2 Inputs:** Use these inputs to connect to an audio-only source component (such as a tape deck). Do not connect a turntable to these jacks without a phono preamp.

**HDMI Output (HDMI version 1.2):** If your video display is HDMI-capable, connect it to the HS 2X0S/230's HDMI output for improved video performance. Since the HDMI cable transmits both video and audio to the video display, we recommend that you disable your display's HDMI audio function to take full advantage of the HS 2X0S/230's system's superior audio performance.

IMPORTANT: The HS 2X0S/230 is in compliance with HDCP (High-Definition Copy Protection). A video display must also be HDCP-compliant to be used with the HS 2X0S/230's HDMI output. For best results, we do not recommend HDMI connections in excess of ten feet without a repeater. If your video display has a DVI input, you may use an optional HDMI-to-DVI cable or adapter for the video connection to the display. (The DVI connection is video-only.)

**Remote Control Input/Output:** If the HS 2X0S0/230's front-panel IR sensor is blocked, such as when it is placed inside of a cabinet, connect an external IR receiver (such as the Harman Kardon HE 1000 – not included) to the Remote Control In connector. You can then place the external IR receiver in a location where it can receive the signals from the HS 2X0S0/230 remote control.

You can connect the HS 2X0S0/230's Remote Control Out connector to the remote IR input of a compatible device, allowing it to be controlled through the HS 2X0S0/230 (and through an external IR receiver, if connected). You can even connect several such compatible devices together in "daisy-chain" fashion.

**SCART Connection:** Connect it to a compatible TV or set-top box using the included SCART cable. The SCART cable carries composite (CVBS) video or S-Video from the HS 2X0S0/230 to a TV or set-top box (as well as a control signal for automatically controlling picture aspect ratio and other parameters). It also carries stereo audio from the TV or set-top box back to the HS 2X0S0/230.

**Composite-Video Output:** Connect it to the composite-video input of a TV or video projector.

**S-Video Output:** Connect it to the S-Video input of a TV or video projector.

**FM Antenna Connection:** Connect the supplied FM antenna to this terminal.

## Subwoofer Controls and Connections



**Subwoofer Level Control:** Use this control to adjust the HKTS200SUB subwoofer's volume. Turn clockwise to increase the volume; turn counterclockwise to decrease the volume.

**Bass Boost Switch:** Set this switch to On to enhance the subwoofer's low-frequency performance. Set this switch to Off for normal low-frequency performance.

**Phase Switch:** This switch determines whether the subwoofer driver's piston-like action moves in and out in phase with the satellite speakers. If the subwoofer were to play out of phase with the satellite speakers, the sound waves from the satellite speakers could cancel out the sound waves from the subwoofer, reducing bass performance and sonic impact. This phenomenon depends in part on the relative placement of all the speakers in the room.

Although in most cases the Phase Switch should be left in the Normal position, there is no absolutely correct setting for it. When the subwoofer is properly in phase with the satellite speakers, the sound will be clearer and have maximum impact. It will make percussive sounds like drums, piano and plucked strings sound more lifelike. The best way to set the Phase Switch is to listen to music that you know well and set the switch in the position that gives drums and other percussive sounds maximum impact.

**Power On Mode Switch:** When this switch is set in the Auto position and when the Power switch is set to On, the HKTS200SUB will automatically turn itself On whenever it receives an audio signal. It will enter the standby mode if it receives no audio signal for 20 minutes. When the Power On Mode switch is set in the On position, the subwoofer will remain on whether or not it is receiving an audio signal.

An LED on the subwoofer's top panel indicates whether the subwoofer is in the on or standby mode:

- When the LED is illuminated blue, the subwoofer is turned on.
- When the LED is not illuminated, the subwoofer is in standby mode.

When the Power switch is set to Off, the LED will not be illuminated, no matter what setting the Power On Mode switch is in.

**External Trigger Input Connector:** Use the mini-plug of the supplied combination LFE and trigger cable to connect the External Trigger Input to the trigger output of another compatible component. Whenever the subwoofer detects a trigger signal between 3V and 30V (AC or DC), the subwoofer's amplifier will turn on. The subwoofer's amplifier will turn off after the trigger signal ceases. (This change will occur even when the Power On Mode switch is in the Auto position.)

**Line-Level In LFE Connector:** Use the LFE (purple) connector of the supplied combination LFE and trigger cable to connect the Line-Level In LFE connector to the dedicated subwoofer output of a receiver or preamp/processor. This input bypasses the subwoofer's internal crossover circuitry, so use it only with a subwoofer output that is low-pass filtered. (Check the receiver or preamp/processor's documentation to confirm that its subwoofer output is low-pass filtered.) If your receiver or preamp/processor does not have a dedicated subwoofer output that is low-pass filtered, use the subwoofer's Line-Level In L/R connectors instead.

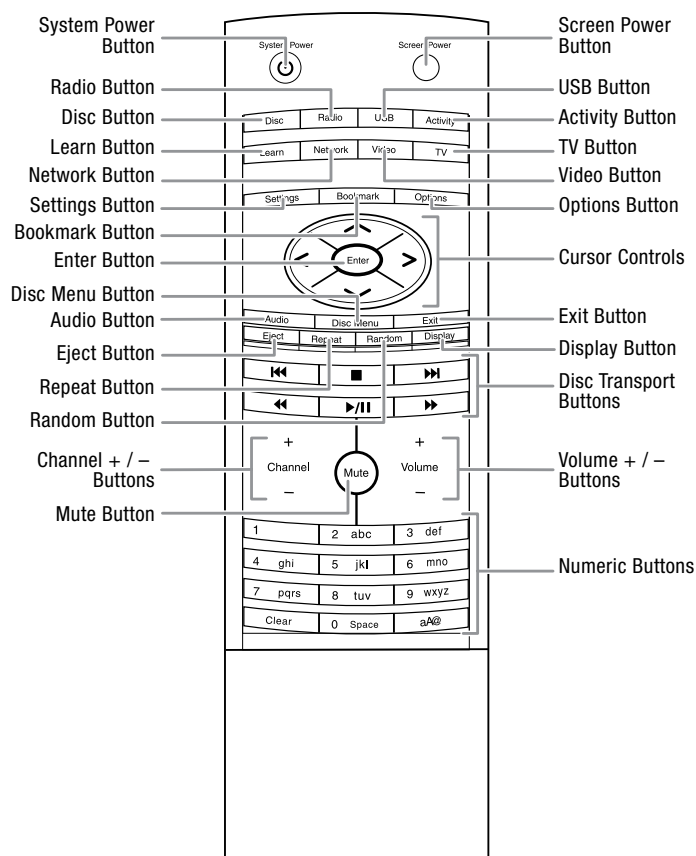
**Line-Level In L/R Connectors:** Use these connectors if your receiver or preamp/processor does not have digital surround-sound decoding or a low-pass-filtered subwoofer output.

- If your receiver or preamp/processor has a separate subwoofer output, use the LFE (purple) connector of the supplied combination LFE and trigger cable to connect the receiver or preamp/processor's subwoofer output to either one of the subwoofer's Line-Level In L/R connectors.
- If your receiver or preamp/processor does not have a separate subwoofer output, use two Y-adapters (not supplied). Connect one adapter's single end to the unit's preamp output for that channel. Connect one of this adapter's dual ends to the main amp input for that channel, and connect the adapter's other dual end to one of the subwoofer's Line-Level In L/R Connectors. Repeat this process with the other Y-adapter, the preamp channel, the main amp input and the subwoofer's other Line-Level In L/R connector.

**Power Switch:** Set this switch in the On position to turn the subwoofer on. The subwoofer will then either be on or in Standby mode, depending on the setting of the subwoofer's Power On Mode switch.

**AC Power Cord:** After you have made and verified all subwoofer and speaker connections described in this manual, plug the Power Cord into an active, unswitched electrical outlet (that is, an outlet not connected to a light switch) for proper operation of the subwoofer. DO NOT plug this cord into the accessory outlets found in some audio components.

## Remote Control Functions



**System Power Button:** Switches the HS 2X0S0/230 into the Standby mode.

**Screen Power Button:** Switches your video display on and off.

**Disc Button:** Selects the HS 2X0S0/230's built-in DVD player as the system's active sound source and plays a disc that has been inserted into the player. Pressing this button also puts the remote control into the disc player control mode. See *Using the DVD Player*, on page 21, for details. NOTE: Pressing this button when the HS 2X0S0/230 is in the Standby mode will switch it on.

**Radio Button:** Selects the HS 2X0S0/230's built-in FM radio as the system's active sound source. Pressing this button also puts the remote control into the control mode for the radio. See *Using the FM Tuner*, on page 23, for details. NOTE: Pressing this button when the HS 2X0S0/230 is in the Standby mode will switch it on.

**USB Button:** Selects a device connected to the front- or rear-panel USB ports as the system's active sound source. The HS 2X0S0/230's on-screen menu system lets you navigate through the files stored on the device. See *Playing Files from USB Devices*, on page 24, for details. NOTE: Pressing this button when the HS 2X0S0/230 is in the Standby mode will switch it on.

**Activity Button:** Switches the on-screen menu to the Activity menu from any other active screen or menu. See *Activity Button*, on page 21, for details. NOTE: Pressing this button when the HS 2X0S0/230 is in the Standby mode will switch it on.

**Learn Button:** Places the remote control in the learning mode. See *Programming the Remote Control*, on page 17, for details.

**Network Button:** Switches to the local area network (LAN) that is connected to the HS 2X0S0/230's rear-panel Network connector. See *Playing Files from Networked Devices*, on page 25, for details. NOTE: Pressing this button when the HS 2X0S0/230 is in the Standby mode will switch it on.

**Video Button:** Puts the remote control into the video-control mode, allowing it to control a video source component with codes that you have programmed into the remote. See *Programming the Remote Control*, on page 17, for details. If you have designated one of the HS 2X0S0/230's analog-audio inputs as a video-component audio input, pressing the Video button will also make that input the system's active sound source. See *Connecting Audio Sources/Line 1, Line 2 In*, on page 16, for details.

**TV Button:** Puts the remote control into the TV-control mode, allowing it to control your TV or video display with codes that you have programmed-into the remote. See *Programming the Remote Control*, on page 17, for details. If you have designated one of the HS 2X0S0/230's analog-audio inputs as the TV-audio input, pressing the TV button will also make that input the system's active sound source. See *Connecting Audio Sources/Line 1, Line 2 In*, on page 16, for details.

**Settings Button:** Displays the HS 2X0S0/230's Settings menu. See *Settings Menu*, on page 19, for details.

**Bookmark Button:** Displays the list of your stored bookmarks for easy access. See *Bookmarks*, on page 21, for details.

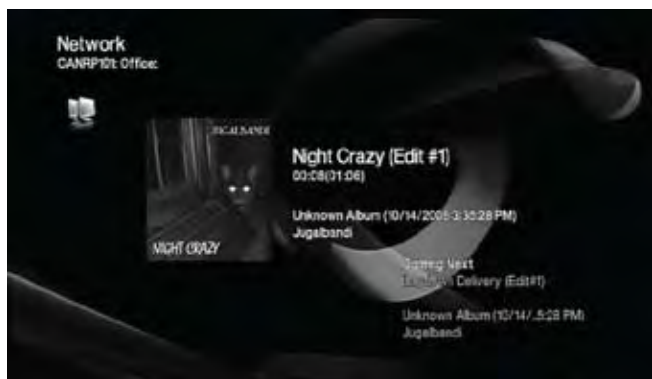
**Options Button:** Displays any available options for a menu item that is selected in the on-screen menu.

**Cursor Controls:** Use these controls – the up cursor, down cursor, left cursor and right cursor – to navigate through items on the on-screen menu.

**Enter Button:** Press it to select items highlighted on the on-screen menu.

**Audio Button:** Lets you select from the different listening modes that are available for the source that you have selected. Pressing the Audio button while you are playing a DVD will display the on-screen audio-mode menu.





If there are other MP3s in the folder with the one that you've selected, the HS 2X0S0/230 will play each one, in order as they appear on the OSD screen.

- To skip to the next or previous MP3 file, press the ►► or ◀◀ button. To pause play, press the ►|| button. To resume play, press the ►|| button again.

- To exit and return to file list screen, press the ■ button.

### Playing Videos

Selecting a video file plays the file. If there are other video files in the folder, the HS 2X0S0/230 will play each one, in order as they appear on the OSD screen.

## Troubleshooting

If your HS 2X0S0/230 system isn't performing the way you think it should, check to see if the problem is covered in this section before calling your dealer or contacting Harman Kardon.

### The receiver won't power up (the Power Indicator is not lit):

- Check that the receiver's AC Power Cord is properly plugged into the receiver's AC Power Input connector.
- Check that the AC power cord is plugged into a working AC outlet and that the AC outlet is not controlled by a switch.

### Sound plays through the HS 2X0S0/230 speakers, but there is no TV picture:

- Check the connection between the receiver and the TV.
- Check that the TV is turned on and is set to the proper input source.
- Confirm that all of the choices made in the Settings: Video menu are correct for your TV.
- If you're using the HDMI connection, be sure that the TV or video display is HDCP-compliant. If the TV is not HDCP-compliant, disconnect the HDMI cable and use the receiver's S-Video or composite-video connection.

### There is no sound coming from the subwoofer:

- Check that the subwoofer's power cord is plugged into a working AC outlet.
- Check that the subwoofer's Power Switch is in the on position.
- Check that the Subwoofer Level Control is not turned all the way down (fully counterclockwise).
- Check the audio connection between the receiver and the subwoofer.
- Check the receiver's Settings: Audio: Subwoofer menu to make sure that the subwoofer volume has not been set at -10dB.

### There is a constant hum in the sound:

- Check that all input cables are plugged all the way into their connectors.
- Check that all cables are at least 3m (9.8 ft.) from fluorescent lights.
- Check that all cable connectors are clean. If necessary, wipe them with a cloth slightly moistened with alcohol.
- Turn the subwoofer's Power switch off. If the hum goes away, there is a ground loop between the subwoofer and the receiver. Plugging the subwoofer's Power Cord into the same AC outlet that the receiver is plugged into should eliminate the ground loop.

### The disc does not play:

- Check that the disc is inserted correctly (label-side up).
- Check that the disc is the correct type: DVD, DVD-R, DVD-RW, DVD+R/RW, VCD, SVCD, CD, CD-R/RW, MP3, WMA (v7 and v8). Other disc types will not play.
- Check that the disc surface is clean and not scratched.

### There is noise or other interference in the picture while the HS 280 is playing a DVD:

- Check that the disc surface is clean and not scratched.
- If you have the receiver's video output connected to your TV through your VCR, the copy-protection program on some DVDs could affect picture quality. Connect the receiver's video output directly to your TV's video input.

### The sound and picture are out of sync:

- Check the Audio: Settings: Delay menu and change the Delay setting to put the sound back in sync with the picture.

### The HS 2X0S0/230 cannot tune in radio stations:

- Check that the FM antenna is correctly connected.
- Adjust the antenna's position. If necessary, use a powered FM antenna or an outdoor FM antenna.

### The receiver does not respond to remote control commands:

- Replace all three of the remote control's batteries with fresh ones, and make sure to install them correctly.
- Hold the remote control closer to the receiver.
- Check that the receiver's remote sensor is in line of sight with the remote control. If necessary, use an optional Harman Kardon HE 1000 external IR receiver.

### The remote does not control programmed components (TV or Video):

- Check that you have pressed the remote's TV or Video button before trying to operate the component.
- Re-learn the component's commands into the remote.

### The ∅ symbol appears on the screen when you press a remote control button:

- The selected function is not permitted at the time the button is pressed.

### The receiver does not respond to commands, or behaves in an erratic way:

- Unplug the receiver's power cord from the AC outlet, wait 30 seconds, then plug it back in.

You can find additional troubleshooting information in the FAQs link on the Support page at [www.harmankardon.com](http://www.harmankardon.com).

# Specifications

## HS 2X0S0/230 Receiver

### Audio Section

Continuous average power, stereo mode (FTC):  
65 watts per channel, 120Hz–20kHz,  
@ <0.3% THD, both channels driven into 6 ohms

Input sensitivity/impedance (line inputs): 240mV/47k ohms

Frequency response @ 1W ( $\pm 3$ dB): 120Hz–20kHz

Transient intermodulation distortion (TIM): <0.2%

### FM Tuner Section

Frequency range: 87.5 – 108.0MHz

Usable sensitivity IHF: 3.0 $\mu$ V/14.7 dBf

Signal-to-noise ratio (mono/stereo): 65dB/60dB

Distortion mono/stereo: 0.3%/0.5%

Stereo separation: 40dB @ 1kHz

Selectivity  $\pm 400$ kHz: 65dB

Image rejection: 40dB

IF rejection: 70dB

### DVD Player Section

Supported disc formats: 5-inch (12cm) or 3-inch (8cm) DVD Video, DVD-Audio, standard-conforming DVD-R, DVD+R, DVD-RW, DVD+RW, VCD, CD, CD-R, CD-RW, MP3 (up to 320kbps bitrate), or WMA (v7-v8) discs

Region code: 2

DVD layers: Single-side/single-layer, single-side/dual-layer, dual-side/dual-layer

Audio formats: Dolby Digital, linear PCM, MP3 (up to 320kbps bit rate), Windows Media 7 or 8

Still-image format: JPEG

Video signal system: NTSC or PAL

Composite-video output: IV p-p/75 ohms, sync negative polarity

S-Video output: Y/luminance: IV p-p/75 ohms, sync negative polarity;  
C/chrominance: 0.3V p-p

Frequency response: DVD (linear PCM): 20Hz–22kHz,  $\pm 1.0$ dB,  
CD: 20Hz–22kHz  $\pm 1.0$ dB

Signal-to-noise ratio: 90dB (A-weighted)

Dynamic range: DVD/CD: 92dB (16-bit)

THD/1kHz: DVD/CD: 0.01%

Wow & flutter: Below measurable limits

### Video Section

Television format: Automatic or PAL (selectable)

Output level/impedance: 1.0Vp-p/75 ohms

Video frequency response: (composite and S-Video) 10Hz–8MHz ( $-3$ dB)

HDMI™ version: 1.2

### General

Power requirement: AC 100–240V ~ 50/60Hz

Power consumption: 300W maximum, 1W standby

Dimensions	Unit	Shipping
Height	98mm (3-7/8 inches)	197mm (7-3/4 inches)
Width	350mm (13-25/32 inches)	484mm (19-1/16 inches)
Depth	280mm (11 inches)	355mm (14 inches)
Weight:	3.5kg (7.7 lb)	6.1kg (13.4 lb)

Depth measurement includes terminal connections. Height measurement includes feet and chassis.

## Speaker System

Frequency response: 45Hz–20kHz ( $-6$ dB)

### SAT TS60 Satellites (for HS 280)

Recommended power: 10 ~ 120 watts

Impedance: 8 ohms nominal

Sensitivity: 86dB @ 2.83V/1 meter

Tweeter: One 19mm (3/4") dome, video-shielded

Midrange: Dual 75mm (3") flat-panel drivers, video-shielded

Dimensions:

Height 299mm (11-25/32 inches)

Width 110mm (4-11/32 inches)

Depth 88mm (3-15/32 inches)

Weight: 1.5kg (3.3 lb)

Height measurement includes removable stands.

### SAT-TS11 Satellites (for HS 210)

Recommended power: 10 ~ 120 watts

Impedance: 8 ohms nominal

Sensitivity: 86dB @ 2.83V/1 meter

Tweeter: One 1/2" (12mm) dome, video-shielded

Midrange: Dual 3" (75mm) drivers, video-shielded

Dimensions:

Height 243mm (9-9/16 inches)

Width 100mm (3-15/16 inches)

Depth 92mm (3-5/8 inches)

Weight: 1kg (2.2 lb)

### HKTS200SUB Subwoofer

Input rating: AC 220–240V~, 50/60Hz, 200W

Amplifier power: 200 watts RMS

Woofer: 8" cone in a sealed enclosure

External trigger input voltage: 3 ~ 30 volts AC/DC

Dimensions (H x W x D):

Height 353mm (13-29/32 inches)

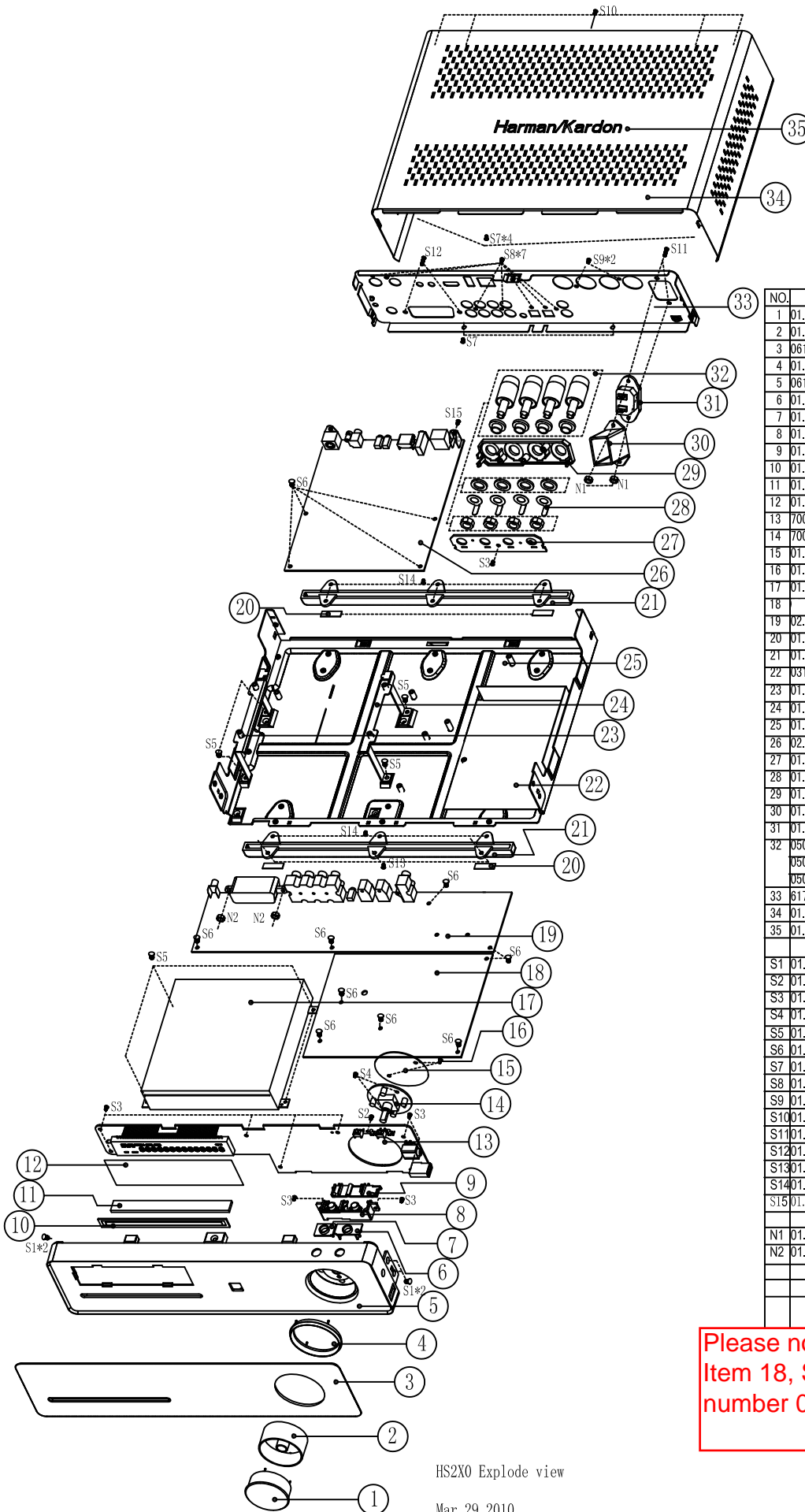
Width 267mm (10-1/2 inches)

Depth 267mm (10-1/2 inches)

Weight: 9kg (19.8 lb)

Height measurement includes the product's feet.

Features, specifications and appearance are subject to change without notice.



HS2X0 Explode view

Mar, 29 2010

NO.	P/N	DESCRIPTION	QTY.
1	01.00.SJ.HS100.E010	HS100—Volume Button	1
2	01.00.SJ.HS100.E008	HS100—volume button lampshade	1
3	0616170100034	HS2X0—Large Lens	1
4	01.00.SJ.HS100.E006	HS100—Volume Button Collar	1
5	0616201100038	HS2X0—front panel	1
6	01.00.SJ.HS200.E005	HS200—Power Indicator lampshade	1
7	01.00.SJ.HS200.E003	HS200—Open button collar	1
8	01.00.SJ.HS200.E002	HS200—2 in 1 Button	1
9	01.00.SJ.HS200.E004	HS200—Button Cover Board	1
10	01.00.DP.JY.E135	Dustproof for Loader LTD-1510	1
11	01.00.DP.HM.E363	High Soft sponge 124*12*2MM	1
12	01.00.SJ.QT.E019	VFD filter 124,5*33,5*0,5mm	1
13	7001200100001	Front Panel Board ass'y 6742C01	1
14	7001200100002	Front Panel Board ass'y 6743C01	1
15	01.00.DP.JY.E249	Insulated PVC HS200-H02	1
16	01.00.SJ.QT.E104	plastic rivet MBL3-2.5	2
17	01.15.JX.EDL05FHH40P	Loader DL-05FH-H40P	1
18			1
19	02.14.HAV0915983C01	AV Board ass'y HAV091-5983C01	1
20	01.00.DP.XJ.E192	Silica gel gasket 50,6*4,2*1,5mm	4
21	01.00.SJ.HS200.E009	HS200—Large Lens	1
22	0311020000020	Insulated PVC HS280-H01	1
23	01.00.WJ.TJ.E1306	HS280-PCB plastic frame (Left)	1
24	01.00.WJ.TJ.HS200.E006	HS280-PCB plastic frame (Right)	1
25	01.00.WJ.TJ.E1304	HS280—chassis	1
26	02.11.HAV06M3627C02	Main Board ass'y HAV06M-3627C02 (EU)	1
27	01.37.PCB.2.E6314C	Speaker Board ass'y 6314C	1
28	01.00.WJ.TJ.HS200.E007	HS200—Connected Piece	4
29	01.00.SJ.HS200.E008	HS200—plastic scaleboard	1
30	01.00.SJ.HS200.E007	HS200—Power Jack Jacket	1
31	01.40.CON.DCZ.E178	AC power Jack WS-044-0	1
32	0504020000002	Speaker Connective Stick—Red	1
	0504020000003	Speaker Connective Stick—Black	2
	0504020000001	Speaker Connective Stick—White	1
33	617090000008	HS2X0—rear panel	1
34	01.00.WJ.TJ.E1481	HS280—top cover	1
35	01.00.SB.E036	Metal logo 100mm "Harman/Kardon"	1
S1	01.00.WJ.JG.E328	Screw 3*6KBTTO	4
S2	01.00.WJ.JG.E011	Screw 1.7*4CBHNI	1
S3	01.00.WJ.JG.E100	Screw 3*8PAHNI	10
S4	01.00.WJ.JG.E085	Screw 3*6KBTNI	2
S5	01.00.WJ.JG.E1044	Screw M3*6.5 (1SZZR-0098J)	8
S6	01.00.WJ.JG.E795	Screw 3*6PWHNI	13
S7	01.00.WJ.JG.E1073	Screw 3*4BBTNI	6
S8	01.00.WJ.JG.E321	Screw 3*8PAHO	7
S9	01.00.WJ.JG.E675	Screw 3*10PAHO	2
S10	01.00.WJ.JG.E403	Screw 3*6PWBTTTO	5
S11	01.00.WJ.JG.E865	Screw 3*12PMHO	2
S12	01.00.WJ.JG.E1083	Screw 3*10PMHO	2
S13	01.00.WJ.JG.E235	Screw 3*8PWBTTNI	3
S14	01.00.WJ.JG.E543	Screw 3*6PWBTTNI	9
S15	01.00.WJ.JG.E909	Screw 3*6BBTTO	1
N1	01.00.WJ.JG.E119	NUT M3	2
N2	01.00.WJ.JG.E119	NUT M3	2

**Please note:**  
 Item 18, SMPS Board Assembly has part number 0209HAV08P6144C2X0.



**HS2X0 Component List**

Item	P/N	Description	Specification	Qty	Location.No.	Note
1	01.00.WJ.TJ.E1304	metals part	HS280-chassis	1	HS280-PT01	0.8mm galvanized sheet, natural color
2	01.00.WJ.TJ.E1481	metals part	HS280-top cover	1	HS280-PT07	0.55mm galvanized and pre-coated sheet, black color
3	617090000008	metals part	HS2X0-rear panel	1	HS280-PT02	EU Version, 0.6mm galvanized sheet
4	01.00.WJ.TJ.E1306	metals part	HS280-PCB bracket(Left)	1	HS280-PT03	1.0mm galvanized sheet
5	01.00.WJ.TJ.HS200.E006	metals part	HS200-PCB bracket(Right)	1	HS200-PT05	
6	01.00.WJ.TJ.HS200.E007	metals part	HS200-Connected Piece for Speaker Jack	4	HS200-PT06	
7	01.00.WJ.TJ.E1307	Heatsink	HS280-Amplifier Heatsink	1	HS280-PT05	Upon the U407 on AV Board
8	01.00.WJ.TJ.E1336	Heatsink	HS280-Power Heatsink	1	HS280-PT04	For SMPS Board
9	01.00.WJ.TJ.E892	Heatsink	35*30*49mm	1	HS200-PT10	For SMPS Board
10	01.00.WJ.TJ.E893	Heatsink	16*12*51MM (The Hole's depth is 18MM)	4	For S503/S504/S505/S506 on SMPS Board	
11	01.00.WJ.TJ.E268	Heatsink	28*28*10mm	1	For U21 on Mainboard	
12	01.00.WJ.TJ.E1379	Heatsink	HS280 Heatsink-2, W24*H11*L23MM,	1	HS280-PT06, For U6,U17 on Mainboard	Aluminium alloy, Oxidation, Black
13	030200000002	Magnetism annulus	F5BRH12*27*5.6-P.W	2	For Amplifier Output Cord	
14	0616201100038	plastic part	HS2X0-front panel	1	HS200-RE01	Antiflaming, ABS,94V0; Black Color and Spray
15	01.00.SJ.HS200.E002	plastic part	HS200-2 in 1 Button	1	HS200-RE02	ABS, Appointed Color and Spray technique
16	01.00.SJ.HS200.E003	plastic part	HS200-Open button collar	1	HS200-RE03	ABS, Appointed Color and Spray technique
17	01.00.SJ.HS100.E006	plastic part	HS100-Volume Button Collar	1	HS100-RE06	ABS, Spray argent color (Same as HS100)
18	01.00.SJ.HS200.E004	plastic part	HS200-Button Cover Board	1	HS200-RE04	ABS, Black
19	01.00.SJ.HS200.E005	plastic part	HS200-Power Indicator lampshade	1	HS200-RE05	transparent ABS+dispersion material
20	01.00.SJ.HS200.E006	plastic part	HS200-pedestal underlay	2	HS200-RE06	transparent PVC
21	01.00.SJ.HS200.E007	plastic part	HS200-Power Jack Jacket	1	HS200-RE07	Antiflaming ABS,94V0, Black
22	01.00.SJ.HS200.E008	plastic part	HS200-plastic scaleboard	1	HS200-RE08	ABS, Black, For Speaker Connected Board
23	0616170100034	plastic part	HS2X0-Large Lens	1	HS200-RE10	Mitsubishi 3mm Black Lens (Include 47mm "harman/kardon" Logo)
24	01.00.SJ.HS100.E010	plastic part	HS100-Volume Button	1	HS100-RE10	Rubber Lacquer Appointed by client
25	01.00.SJ.HS100.E008	plastic part	HS100-volume button lampshade	1	HS100-RE08	Transparent ABS + dispersion material
26	01.00.SJ.1000A.E016	plastic part	1000A-IR receiver support 5.5mm	1		
27	01.00.SJ.QT.E019	VFD filter	124.5*33.5*0.5mm	1		material is as DVD22
28	01.40.CON.DCZ.E178	AC power Jack	WS-044-0	1		EU Version
29	01.00.SB.E036	Metal logo	100mm "Harman/Kardon" Thin Logo	1	For top cover	
30	01.00.DP.JY.E135	Dustproof for Disc tray door of Loder	LTD-1510	1		Black
31	01.00.DP.XJ.E192	Silica gel gasket	50.6*4.2*1.5mm (with #500 glue be single sides glued )	4	For pedestal underlay HS100-H01	
32	0305010000003	Diathermanous Selenium Rubber	Gap Pad VO Ultra Soft,L15*W8*TO.3.single sides glued	1	Between U407 and Amplifier Heatsink on AV board	
33	01.00.DP.HM.E359	sponge	20*10*7MM (with #9448 glue be double sides glued )	2	For VFD(2)	
34	01.00.FZ.QT.153	Astigmatism PVC	φ45.5*φ9.5mm	1	Between volume button and Front Panel Board	
35	01.00.FZ.QT.E253	Mask PVC	φ38.5 (Underside Glued)	1	Inside the volume button	Black PVC
36	01.00.DP.HM.E364	sponge	10*10*7MM (with double sides glued)	1	For IR receiver	
37	01.00.DP.HM.E378	High Soft sponge	124*10*2MM (with Single side glued)	1	paste in front of Disc tray door in the front panel	Black
38	01.00.DD.PM.E271	electric sponge	20*20*10MM	1	Between front panel PCB and plastic part	
39	01.00.FZ.QT.E122	Plastic fastener	12CM	1	For power cord fastness	
40	01.00.DP.QT.E113	Sil-pad	sil-pad 400-3022	1	For Q509 on SMPS Board	
41	0311020000020	Insulated PVC	HS280-H01 (transparency)	1	For SMPS Board	
42	01.00.DP.JY.E249	Insulated PVC	HS200-H02	1	Be buckled above volume button board	
43	01.00.DP.JY.E541	Insulated PVC	22.5*10*0.3mm (with Single side glued)	6	For hamulus of front panel	
44	01.00.WJ.JG.E328	Screw	M3*6KBTTO	5	For front Panel and Left/Right sides of chassis (4), Between two Heatsinks on SMPS Board(1)	
45	01.00.WJ.JG.E543	Screw	M3*6PWBTTNI	9	For pedestal underlay and chassis (9)	
46	01.00.WJ.JG.E235	Screw	M3*8PWBTTNI	5	For front panel and pedestal underlay and chassis(3); For AV Board and Heatsink (2)	
47	01.00.WJ.JG.E011	Screw	M1.7*4CBHNI	1	For Button cover Board and button Board	
48	01.00.WJ.JG.E100	Screw	M3*8PAHNI	10	For front panel and front panel board(9) For plastic scaleboard and Speaker Connected Board (1)	
49	01.00.WJ.JG.E472	Screw	M3*8PBTTNI	7	For ICs and Heatsinks on SMPS Board (7)	
50	01.00.WJ.JG.E085	Screw	M3*6KBTJNI	2	For front panel and volume button board(2)	
51	01.00.WJ.JG.E1044	Screw	1SZZR-0098J(M3*6.5,LG Appointed)	8	For Loader and chassis(4), For PCB Brackets and chassis (4)	
52	01.00.WJ.JG.E795	Screw	M3*6PVMHNI	13	For SMPS Board and chassis (5), For AV Board and chassis (4), For Main Board and PCB brackets (4)	
53	01.00.WJ.JG.E909	Screw	M3*6BBTTO	1	For U type connect piece and rear panel(1)	
54	01.00.WJ.JG.E1073	Screw	M3*4BBTTNI	6	For rear panel and the bottom side of chassis (2), For top cover and bottom side of chassis (4)	
55	01.00.WJ.JG.E321	Screw	M3*8PAHO	7	For output jacks (7)	
56	01.00.WJ.JG.E675	Screw	M3*10PAHO	2	For plastic scaleboard and rear panel (2)	
57	01.00.WJ.JG.E403	Screw	M3*6PWBTTTO	5	For top cover and chassis, top cover and rear panel (5)	
58	01.00.WJ.JG.E865	Screw	M3*12PMHO	2	For AC power socket (2)	
59	01.00.WJ.JG.E1083	Screw	M3*10PMHO	2	For SCART Jack (2)	EU Vision
60	01.00.WJ.JG.E119	Nut	M3	2	For SCART Jack (2)	EU Vision
61	01.00.WJ.JG.E119	Nut	M3	2	For power jack(2)	
62	01.00.WJ.JG.E426	Flat Pad	M3*0.5 W=8	2	For Heatsink and AV Board (2)	
63	01.00.SJ.QT.E104	plastic rivet	MBL3-2.5	2	For Insulated gasket and volume button Board	
64	01.00.WJ.JG.E424	Spring Pad	M3	2	For Heatsink and AV Board (2)	
65	0504020000002	Speaker Terminal Connector	H-HS2 copper Terminal Connector-Red (Surface gilded)	1		
66	0504020000001	Speaker Terminal Connector	H-HS2 copper Terminal Connector-Black (Surface gilded)	2		
67	0504020000003	Speaker Terminal Connector	H-HS2 copper Terminal Connector-White (Surface gilded)	1		
68	01.00.DP.QT.E558	Polyfoam	HS200	1		
69	01.00.BZ.X.B.E511	Accessories box	HS200 340*170*45mm	1	For accessories	White
70	0108020000008	Carton box	HS2X0	1		
71	01.00.YS.FY3.E1600	Safety and Warning instruction manual	Harman/Kardon EU Version	1		
72	01.00.YS.FY3.E1953	Supplement page of Batteries treatment	A4 paper Size	1	12 Kinds of languages, Harman/Kardon	
73	1011000000022	Owner manual	HS2X0(HS280&HS210) EU Version	1		
74	01.00.YS.TZ.T.E068	Laser label	Laser precaution mark	1		
75	01.00.YS.TZ.T.E057	Laser label	Laser precaution guide	1		
76	0431000000010	Remote control	RC-HS280	1		Outsourcing, Black
77	01.14.DX.B.E0007G	Alkaescent battery	GP7#	3		
78	01.00.BZ.D.S.E109	Plastic bag for unit	47*50cm	1	For unit Packing	
79	01.00.BZ.D.Z.E020	Plastic bag	25*35cm	1	For Owner manual Packing	Match for DVD21
80	01.00.BZ.D.Z.E034	Plastic bag	9*27.5CM	1	For Remote Control Packing	
81	01.00.BZ.D.Z.E008	Plastic bag	6*9cm	1	For battery Packing	
82	01.00.BZ.D.H.E002	ROHS bag	11*28cm	1	For power cord packing	
83	01.47.CNT.LJX.5.E211	HDMI Cord	CBADV-S05-2	1		Outsourcing
84	01.47.CNT.ACX.E052	Power Cord	WS-002E+WS-019 HO5VV-F 0.75*2C BK 2M	1		EU Vision
85	01.47.CNT.LJX.5.E058	Connect cable	scart 1.5m	1		EU Vision

**HS2X0 Component List**

Item	P/N	Description	Specification	Qty	Location.No.	Note
86	01.47.CNT.CTX.E016	Antenna	FM-TV-22 (Lead content less than 300PPM)	1		EU Vision
87	01.15.JX.EDL05MHEA	Loader	DL-05MH-H40P(EA)	1		Foryou.Mabuchi EA motor
88	01.47.CNT.LJX.7.E603	Connect cable	VH-3Y Connector-2Y-120mm(Be same side)	1	CN501 on SMPS Board to Power Jack with solder one end	
89	01.47.CNT.LJX.7.E706	Connect cable	VH-3Y Connector-2Y-2Y-60mm(Be same side)	1	CN506 on SMPS Board to CN400(L) on AV Board	
90	0804020100006	Connect cable	NSCL-20090908-01,VH-4Y Connector-4P-80mm(Be same side with color is White, Black, Red and Black)	1	CN406 on AV Board to JP1.JP2 on Speaker Connected Board with solder one end	
91	01.48.BPX.1.E147	Flat cable	1.0*14P*100mmA	2	CN4(A) on Mainboard to CN601(A) on Front Panel Board*1, CN5(D) on Mainboard to CN403(D) on AV board*1	
92	01.48.BPX.1.E148	Flat cable	1.0*8P*100mmA	1	CN2(B) on Mainboard to CN603(B) on Front Panel Board	
93	01.48.BPX.1.E149	Flat cable	1.25*12P*80mmA(T=0.1mm)	1	CN3(C) on Mainboard to CN504(C) on SMPS Board	
94	01.48.BPX.1.E151	Flat cable	1.0*24P*80mmA	1	CN1(E) on Mainboard to CN401(E) on AV Board	
95	01.48.BPX.1.E167	Flat cable	1.0*20P*80mmA	1	CN6(F) on Mainboard to CN404(F) on AV Board	
96	01.48.BPX.1.E153	Flat cable	1.25*14P*70mmA(T=0.1mm)	1	CN503(H) on SMPS Board to CN602(H) on Front Panel Board	
97	01.48.BPX.1.E154	Flat cable	1.0*6P*40mmA	1	CN604(J) on Front Panel Board to CN605(J) on Volume Button Board	
98	01.48.BPX.1.E155	Flat cable	1.25*9P*60mmA(T=0.1mm)	1	CN505(K) on SMPS Board to CN405(K) on AV Board	
99	01.48.BPX.1.E156	Flat cable	1.0*12P*220mmA	1	For Loader and CN9 on Main Board	
100	01.48.BPX.1.E028	Flat cable	0.5*24P*200mmA	1	For Loader and CN2 on Main Board	
101	01.37.PCB.2.E6314C	Speaker Connected Board	6314C	1	2-layers	
102	02.11HAV09M5982C01	Mainboard (semi-manufactured goods)	HAV09M-5982C01 (EU Vision+Hitachi Loader)	1	4-layers	
103	02.14HAV09I5983C01	AV Board (semi-manufactured goods)	HAV09I-5983C01 (EU Vision)	1	2-layers	
104	0219HAV08P6144C2X0	SMPS Board (semi-manufactured goods)	HAV08P-6144	1	2-layers. Power supply board.	
105	7001200100001	Front Panel Board (semi-manufactured goods)	6742C	1	2-layers	
106	7001200100002	Volume Button Board (semi-manufactured goods)	6743C	1	2-layers	

**HS2X0 Component List for Mainboard (5982C)**

Item	P/N	Description	Specification	Qty	Location.No.	Note
1	01.57.R.2.E000J	Resistor, chip	0603-0Ω ±5%	19	R146 R158 R159 R160 R162 R164 R165 (R198) R227 R233 R235 R266 R268 R281 R59 R278 R279 R280 (R291)	
2	01.57.R.2.E020J	Resistor, chip	0603-2Ω±5%	1	R21	
3	01.57.R.2.E100J	Resistor, chip	0603-10Ω±5%	2	(R22) (R92)	
4	01.57.R.2.E220F	Resistor, chip	0603-22Ω±1%	1	R286	
5	01.57.R.2.E220J	Resistor, chip	0603-22Ω±5%	42	R29 R30 R35 (R39) R42 R56 R63 R64 R65 R68 R73 R74 R75 R82 R83 R84 R105 R106 R107 R108 R109 R112 R113 R114 R115 R116 R123 R124 R125 R183 R184 R185 (R224) R195 R246 R40 R78 R79 R141 R186 R190 R196	
6	01.57.R.2.E330J	Resistor, chip	0603-33Ω±5%	6	R55 R57 R60 R143 R208 R259	
7	01.57.R.2.E430J	Resistor, chip	0603-43Ω±5%	1	(R24)	
8	01.57.R.2.E49R9F	Resistor, chip	0603-49.9Ω±1%	10	(R93) (R94) (R95) (R96) (R212) (R213) (R214) (R215) R216 R217	
9	01.57.R.2.E680F	Resistor, chip	0603-68Ω±1%	3	R229 R250 R254	
10	01.57.R.2.E750F	Resistor, chip	0603-75Ω±1%	10	R228 R231 R234 R240 R241 R244 R245 R253 R206 R211	
11	01.57.R.2.E820F	Resistor, chip	0603-82Ω±1%	2	R20 R252	
12	01.57.R.2.E101J	Resistor, chip	0603-100Ω±5%	14	R46 R230 R236 R237 (R238) R264 R265 (R282) (R283) R58 (R151) (R150) R179 R180	
13	01.57.R.2.E271J	Resistor, chip	0603-270Ω±5%	1	(R139)	
14	01.57.R.2.E301J	Resistor, chip	0603-300Ω±5%	1	R178	
15	01.57.R.2.E331J	Resistor, chip	0603-330Ω±5%	3	R45 R103 R104	
16	01.57.R.2.E391J	Resistor, chip	0603-390Ω±5%	1	R134	
17	01.57.R.2.E471J	Resistor, chip	0603-470Ω±5%	3	R156 R157 (R239)	
18	01.57.R.2.E511F	Resistor, chip	0603-510Ω±1%	1	R285	
19	01.57.R.2.E102F	Resistor, chip	0603-1KΩ±1%	1	R19	
20	01.57.R.2.E102J	Resistor, chip	0603-1KΩ±5%	6	(R51) (R52) R61 R62 (R275) R194	
21	01.57.R.2.E152J	Resistor, chip	0603-1.5KΩ±5%	2	(R101) (R102)	
22	01.57.R.2.E162J	Resistor, chip	0603-1.6KΩ±5%	1	R177	
23	01.57.R.2.E182J	Resistor, chip	0603-1.8KΩ±5%	2	(R267) (R269)	
24	01.57.R.2.E222J	Resistor, chip	0603-2.2KΩ±5%	1	(R276)	
25	01.57.R.2.E332J	Resistor, chip	0603-3.3KΩ±5%	2	(R271) (R272)	
26	01.57.R.2.E472J	Resistor, chip	0603-4.7KΩ±5%	32	(R3) (R6) (R7) (R10) (R11) (R13) (R15) R18 R25 R26 R27 R28 R43 (R44) R47 R53 R69 (R71) R72 R85 R86 R87 R88 R89 (R126) (R133) R135 R138 (R182) (R242) R261 R140	
27	01.57.R.2.E103J	Resistor, chip	0603-10KΩ±5%	22	(R91) (R97) (R98) (R99) (R110) (R117) R136 R137 R148 R149 R161 R166 R169 R170 R171 R172 (R197) R218 R219 R220 (R222) R270	
28	01.57.R.2.E123F	Resistor, chip	0603-12KΩ±1%	3	(R2) R37 R155	
29	01.57.R.2.E1212F	Resistor, chip	0603-12.1KΩ±1%	1	(R131)	
30	01.57.R.2.E153J	Resistor, chip	0603-15KΩ±5%	3	R163 R210 R209	
31	01.57.R.2.E203J	Resistor, chip	0603-20KΩ±5%	1	R152	
32	01.57.R.2.E223F	Resistor, chip	0603-22KΩ±1%	1	(R1)	
33	01.57.R.2.E393J	Resistor, chip	0603-39KΩ±5%	1	R167	
34	01.57.R.2.E473J	Resistor, chip	0603-47KΩ±5%	5	R144 R147 R175 R176 R262	
35	01.57.R.2.E104J	Resistor, chip	0603-100KΩ±5%	15	R9 R31 R32 (R33) R34 R38 R49 R66 R67 R90 R192 R203 R205 R207 (R41)	
36	01.57.R.2.E105J	Resistor, chip	0603-1MΩ±5%	2	(R168) (R36)	
37	01.57.R.3.E000J	Resistor, chip	0805-0Ω ±5%	1	R132	
38	01.57.R.3.E4R7J	Resistor, chip	0805-4.7Ω±5%	2	(R154) (R153)	
39	01.57.R.8.EP2204	Resistor, thick film chip network	0603-22Ω*4 ±5%	22	RN2 RN3 RN4 RN5 RN6 RN8 RN10 RN12 RN14 RN24 RN27 RN29 RN30 RN31 RN33 RN34 RN35 RN36 RN37 RN38 RN39 RN40	
40	01.57.R.8.EP3304	Resistor, thick film chip network	0603-33Ω*4 ±5%	8	RN19 RN21 RN22 RN23 RN25 RN26 RN28 RN32	
41	01.57.R.Y.E270	Voltage Dependent Resistor, TDK	AVR-M1608C270MTABB SMD	2	ESD3 ESD2	
42	01.57.R.R.E050	Thermal PTC Resistor, JinKe	JK-MSMD050 SMD	1	PTC1	
43	01.54.CS.2.E150N50V	Capacitor, multilayer ceramic, chip	0603-15P NPO±5%/50V	1	(C241)	
44	01.54.CS.2.E200N50V	Capacitor, multilayer ceramic, chip	0603-20P NPO±5%/50V	6	(C70) (C68) (C119) (C127) (C20) (C21)	
45	01.54.CS.2.E151N50V	Capacitor, multilayer ceramic, chip	0603-150P NPO±5%/50V	2	C128 C129	
46	01.54.CS.2.E681N50V	Capacitor, multilayer ceramic, chip	0603-680P NPO±5%/50V	2	C97 C120	
47	01.54.CS.2.E122X50V	Capacitor, multilayer ceramic, chip	0603-122 X7R±10%/50V	1	C108	
48	01.54.CS.2.E152X50V	Capacitor, multilayer ceramic, chip	0603-152 X7R±10%/50V	1	C123	
49	01.54.CS.2.E332X50V	Capacitor, multilayer ceramic, chip	0603-332 X7R±10%/50V	1	C109	
50	01.54.CS.2.E392X50V	Capacitor, multilayer ceramic, chip	0603-392 X7R±10%/50V	1	(C239)	
51	01.54.CS.2.E103Y50V	Capacitor, multilayer ceramic, chip	0603-103 Y5V 20+80%/50V	6	C3 (C6) (C8) C74 C75 (C111)	
52	01.54.CS.2.E103XT50V	Capacitor, multilayer ceramic, chip	0603-103 X7R±5%/50V	1	(C15)	
53	01.54.CS.2.E223X50V	Capacitor, multilayer ceramic, chip	0603-223 X7R±10%/50V	1	(C76)	

HS2X0 Component List for Mainboard (5982C)

Item	P/N	Description	Specification	Qty	Location.No.	Note
54	01.54.CS.2.E104Y50V	Capacitor, multilayer ceramic, chip	0603-104 Y5V-20+80%/50V	133	C1 (C2) C4 (C5) C7 C9 (C10) C11 (C12) (C13) (C14) (C16) C17 C18 C19 (C22) C23 (C24) C25 C26 C27 (C28) (C29) (C30) (C31) (C32) (C33) (C34) (C35) (C36) (C38) (C40) (C41) (C42) (C43) (C44) C45 (C46) (C47) (C48) (C49) (C50) (C51) (C52) (C53) C54 (C55) (C56) (C57) (C58) C59 C61 (C65) (C66) (C71) (C72) (C73) C79 C82 C83 (C84) (C85) (C86) (C88) (C89) C90 C91 C92 C93 C94 (C96) (C98) C99 (C100) (C101) (C102) C103 (C105) C106 (C107) C110 C112 C113 C114 C115 (C116) (C117) (C118) (C121) (C124) (C125) (C126) C130 C131 C132 C133 (C134) C135 C136 (C138) (C139) (C140) C141 (C142) (C143) (C144) (C145) (C146) (C147) C148 (C149) (C150) (C151) (C152) (C153) (C154) (C155) C160 C163 C164 C165 C166 C167 C168 C169 C170 C171 C172 C173 (C174) C175 C176 C177	
55	01.54.CS.2.E474X10V	Capacitor, multilayer ceramic, chip	0603-474 X7R±10%/10V	1	C122	
56	01.54.CS.2.E105X16V	Capacitor, multilayer ceramic, chip	0603-105 X7R±10%/16V	5	(C60) C62 C63 (C104) C238	
57	01.54.CS.2.E104Y50V	Capacitor, multilayer ceramic, chip	0603-104 Y5V-20+80%/50V	54	C178 (C179) C180 (C181) (C182) (C183) (C184) (C185) (C186) (C187) (C188) (C189) (C190) (C191) (C192) (C193) (C194) C195 (C198) C199 (C200) (C201) (C202) (C203) C204 (C205) (C206) (C207) (C208) (C209) (C210) (C211) (C212) (C213) (C214) (C215) (C216) (C217) (C218) (C219) (C220) (C221) (C222) (C223) (C224) (C225) (C230) C231 C232 C233 (C234) C236 (C237) C240	
58	01.54.CS.2.E475X16V	Capacitor, multilayer ceramic, chip	0603-475 X7R ±10%/16V	1	(C37)	
59	01.54.CS.3.E106X16V	Capacitor, multilayer ceramic, chip	0805-106 X7R±10%/16V	4	C87 C228 C229 C235	
60	01.54.CS.3.E335Y16V	Capacitor, multilayer ceramic, chip	0805-335 Y5V-20+80%/16V	2	C244 C245	
61	01.54.CS.3.E475X16V	Capacitor, multilayer ceramic, chip	0805-475 X7R±10%/16V	1	C243	
62	01.54.CS.B.E1023KV	Capacitor, multilayer ceramic, chip	1812-102/3KV	2	C69 C95	
63	01.35.CC.E120622U10V	Capacitor, multilayer ceramic, chip	ECJMFF1A226Z	1	C64	
64	01.34.CL.D.E100U16VC	Capacitor, AL electrolytic	CD110-10UF/16V 5*11	2	CE12 CE41	
65	01.34.CL.D.E22U16VC	Capacitor, AL electrolytic	CD110-22UF/16V 5*11	6	CE51 CE52 CE56 CE48 CE49 CE50	
66	01.34.CL.D.E47U10VC	Capacitor, AL electrolytic	CD110-47UF/10V 5*11	5	CE3 CE6 CE29 CE46 CE58	
67	01.34.CL.D.E47U16VC	Capacitor, AL electrolytic	CD110-47UF/16V 5*11	3	CE14 CE16 CE17	
68	01.34.CL.D.E100U10VD	Capacitor, AL electrolytic	CD110-100UF/10V 5*12	6	CE1 CE2 CE9 CE47 CE57 CE62	
69	01.34.CL.D.E100U16VC	Capacitor, AL electrolytic	CD110-100UF/16V 5*11	17	CE4 CE10 CE11 CE15 CE18 CE19 CE20 CE21 CE32 CE34 CE37 CE39 CE40 CE42 CE60 CE61 CE63	
70	01.34.CL.D.E220U16VD	Capacitor, AL electrolytic	CD110-220UF/16V 6.3*12	7	CE7 CE8 CE31 CE33 CE35 CE36 CE38	
71	01.34.CL.D.E470U10VD	Capacitor, AL electrolytic	CD110-470UF/10V 6.3*12	1	CE13	
72	01.34.CL.D.E1000U10VE	Capacitor, AL electrolytic	CD110-1000UF/10V 8*14	1	CE30	
73	01.38.FUSE.S.EJK110	Polymer Positive Temperature Coefficient	JK-110(1.1A) SMD	1	PTC3	
74	01.13.L.Z.ESA50	Bead, chip	0603-50Ω	10	FB6 FB23 FB24 FB25 FB16 FB17 FB18 FB20 FB41 FB44	
75	01.13.L.Z.ESA120	Bead, chip	0603-120Ω	1	(FB22)	
76	01.13.L.Z.ESB50	Bead, chip	0805-50Ω	11	FB8 (FB9) FB10 FB11 (FB12) (FB14) FB39 FB19 FB26 FB42 FB43	
77	01.13.L.Z.ESB220	Bead, chip	0805-220Ω	1	FB21	
78	01.13.L.Z.ESC50	Bead, chip	1206-50Ω	4	FB7 FB37 FB38 (FB40)	
79	01.13.L.Z.ED50A	Bead, leaded fixed	50Ω (3.5*6.0*0.8)	10	FB1 FB2 FB3 FB4 FB5 FB13 FB15 FB27 FB35 FB36	
80	01.13.L.L.S.E007	Inductor, multilayer ceramic, chip	0805-10UH SMD	12	(L1) L2 (L3) L4 L5 L6 L8 L9 L10 L11 L13 L14	
81	01.13.L.L.S.E320	Inductor, SMD	SP11048QR-150(15uH/3A) SMD	1	L19	
82	01.13.L.L.S.E242	Inductor, multilayer ceramic, chip, TDK	ACM2012-900-2P SMD	4	L15 L16 L17 L18	
83	01.41.D.PS.EB340LA	Diode	B340LA SMD	1	D1	
84	01.41.D.PD.E5393	Diode	IN5393 DIP	3	D5 D10 D11	
85	01.41.D.PS.ELL4148	Diode	LL4148 SMD	1	D4	
86	01.41.D.PS.EBAV99	Diode	BAV99LT1,SOT23 (or LBAV99L1G,SOT23)	3	D12 D13 D14	
87	01.42.Q.S.E1132	Transistor	2SB1132,SOT89	2	Q5 Q6	
88	01.42.Q.S.ET3904	Transistor	MMBT3904,SOT23	1	Q3	
89	01.42.Q.S.E2N3906	Transistor	2N3906,SOT23	1	Q2	
90	01.42.Q.S.EC8550	Transistor	KTC8550,SOT23	3	Q1 Q4 Q7	
91	01.42.Q.S.E8050	Transistor	KTC8050,SOT23	1	Q10	
92	0218020000007	Crystal Oscillator	7050 OSC-50.000MHz,50.000MHz,-25PPM~+25PPM,3.3V,SMD	1	Y3	
93	01.00.JZ.E27000	Quartz Crystal Unit	27.000MHZ-49S-20P	2	Y2 Y4	
94	01.00.JZ.E24000C	Quartz Crystal Unit	24.000MHZ-49S-20P	1	Y5	
95	01.44.IC.D.EL7805	IC, ST, Voltage Regulator	L7805,TO-220	1	U22	
96	01.46.IC.EK4S561632JUC60	IC, Samsung, SDRAM	K4S561632J-UC60(TSOP54,256M,SMD)	1	U7	
97	01.46.IC.EK4S643232HUC60	IC, Samsung, SDRAM	K4S643232H-UC60(TSOP86,64M,SMD)	1	U31	
98	01.44.IC.S.EA1117V3	IC, AAC, LDO	AZ1117H-3.3,SOT-223	3	U1 U4 U11	
99	01.44.IC.S.EA1117V8	IC, AAC, LDO	AZ1117H-1.8,SOT-223	2	U2 U23	
100	01.44.IC.S.E1117	IC, AAC, LDO	AZ1117H-ADJ,SOT-223	1	U3	
101	01.44.IC.S.EMP1411DH	IC,MPS,Step-Down Converter	MP1411DH,MSOP-10	1	U28	
102	01.46.IC.EAML8218	IC, Amlogic, A/V Processor	AML8218(PQFP-216,SMD)	1	U6	
103	01.46.IC.EFLI2310	IC, ST, Digital Video Format Converter	FLI2310-LF-CF,PQFP-208,SMD	1	U21	
104	01.46.IC.ETMD8809X02	IC, TAMUL, MPEG Processor	TMD8809X02(160-LQFP-2424,SMD)	1	U17	
105	01.46.IC.EK9F1G08UOB	IC, Samsung, Flash	K9F1G08UOB-PCBO SMD,48-TSOP1-1220F	1	U9	firmware burn-in
106	01.46.IC.EW25X16VSSIG	IC, Winbond, Flash	W25X16VSSIG(SOIC-8,SMD)	1	U18	firmware burn-in
107	01.46.IC.EW9812G6GH	IC, Winbond, SDRAM	W9812G6GH-6 SMD,54L-TSOP2-400mil	1	U19	
108	01.44.IC.S.EAM5888	IC, Amtek, Motor Driver	AM5888 SMD,HSOP28	1	U15	
109	01.44.IC.S.EFMS6143	IC, Fairchild, Video Filter Driver	FMS6143CSX_NL(SOIC-8,SMD)	1	U20	
110	01.46.IC.ESI9034CTU	IC, Silicon Image, HDMI Transmitter	SI9034CTU(TQFP-100,SMD)	1	U24	
111	01.44.IC.D.EPC817	IC, Sharp, Photoelectric Coupler	PC817 DIP	1	U14	
112	01.46.IC.EUS92514AEZG	IC, SMSC, USB HUB Controller	USB2514-AEZG(QFN-36,SMD)	1	U32	
113	01.46.IC.ESN74ALVC244PW	IC, TI, Octal Buffer with 3-State outputs	SN74ALVC244PW(TSSOP-20,SMD)	1	U29	
114	01.46.IC.ESN74AUP1G80DCK	IC, TI, D-Type FLIP-FLOP	SN74AUP1G80DCK(SCS-70,SMD)	1	U8	
115	01.46.IC.ELAN8700CAEZG	IC, SMSC, Ethernet Transceiver	LAN8700C-AEZG(QFN-36,SMD)	1	U12	
116	01.44.IC.S.E3522	IC, Analog Tech., Reset Circuit	AAT3522 SMD,SOT-23	1	U5	
117	01.44.IC.S.E0514	IC, Semtech, Low Capacitance TVS Diode Array	RClamp0514M SMD,MSOP-10L	4	U25 U26 U27 U30	
118	01.46.IC.EMK900	IC, Mutek, Licence Chip	MK-900(SOP14,MCU,SMD)	1	U34	Burn code: MK908
119	01.44.IC.S.EFST3257MTC	IC, Fairchild, Multiplexer/Demultiplexer Bus Switch	FST3257MTC SMD	1	U36	FAIRCHILD
120	01.40.CON.DCZ.E316	HDMI Jack	1747981-1 SMD	1	JP7	51UO19S-331N-A SMD
121	01.13.L.R.E135	Ethernet Transforamer	13F-38AN SMD	1	U35	
122	01.40.CON.DDZ.EDSW-30	S-Video Connector	DSW-30	1	JP5	
123	01.40.CON.DCZ.E045	Jack	AV1-8-4-BG	1	JP6	Antiflaming, Yellow Color
124	01.40.CON.DCZ.E857	RJ45 Jack	26LM90-37121-01	1	JP1	Yilian
125	01.40.CON.DCZ.E217	USB Jack	USB-A-05 (ROHS, Mother Set)	1	JP4	
126	01.40.CON.DCZ.E203	IR in/out jack	CKX-3.5-22	2	JP2 JP3	
127	01.40.CON.S10.FPC1.E015	FPC Connector, SMD	FPC-1.0-12P with upward touch	1	CN9	
128	01.40.CON.S13.FPC2.E003	FPC Connector	1.25-12P Vertical Type and Dual Conact	1	CN3	Black
129	01.40.CON.S10.FPC2.E002	FPC Connector	1.0-8P Vertical Type and Dual Conact	1	CN2	Black & Antiflaming
130	01.40.CON.S10.FPC2.E030	FPC Connector	1.0-14P Vertical Type and Dual Conact	2	CN5 CN4	Black
131	01.40.CON.S10.FPC2.E031	FPC Connector	1.0-20P Vertical Type and Dual Conact	1	CN6	Black
132	01.40.CON.S10.FPC2.E003	FPC Connector	1.0-24P Vertical Type and Dual Conact	1	CN1	Black & Antiflaming
133	01.40.CON.S05.E007	FPC connector, SMD	FPC-0.5-24P with upward touch	1	CN10	
134	01.00.WJ.TJ.HS650.E002	Metal Part	HS650DL-U type connect piece	1	H1	
135	01.37.PCB.4.E5982C	PCB Board-Mainboard without components	5982C	1		

HS2X0 Component List for AV Board (5983C)

Item	P/N	Description	Specification	Qty	Location.No.	Note
1	01.57.R.1.E000J	Resistor, chip	0402-00±5%	1	4R38	
2	01.57.R.1.E220J	Resistor, chip	0402-220±5%	5	4R31 4R32 4R39 4R40 4R41	
3	01.57.R.1.E101J	Resistor, chip	0402-1000±5%	2	4R33 R425	
4	01.57.R.1.E202J	Resistor, chip	0402-2K0±5%	2	4R29 4R30	
5	01.57.R.1.E472J	Resistor, chip	0402-4.7K0±5%	1	4R53	
6	01.57.R.2.E000J	Resistor, chip	0603-0Ω ±5%	24	4R06 4R08 4R09 4R11 4R12 4R41 R442 R443 R445 4R45 4R46 4R49 R453 R454 R455 R456 R457 R461 R462 R463 R464 4R52 4R51 R449	
7	01.57.R.2.E100J	Resistor, chip	0603-100±5%	4	4R43 4R44 4R46 4R47	
8	01.57.R.2.E561J	Resistor, chip	0603-5600±5%	2	4R17 4R23	
9	01.57.R.2.E750F	Resistor, chip	0603-750±1%	3	4R25 4R20 R427	
10	01.57.R.2.E101J	Resistor, chip	0603-1000±5%	1	R467	
11	01.57.R.2.E111J	Resistor, chip	0603-1100±5%	2	R428 R435	
12	01.57.R.2.E471J	Resistor, chip	0603-4700±5%	6	R472 R477 R479 R481 R483 R485	
13	01.57.R.2.E751F	Resistor, chip	0603-7500±1%	1	R431	
14	01.57.R.2.E221F	Resistor, chip	0805-22001%	2	R436 R401	
15	01.57.R.2.E102J	Resistor, chip	0603-1K0±5%	4	R419 R405 R408 R410	
16	01.57.R.2.E162F	Resistor, chip	0603-1.6K0±1%	1	R415	
17	01.57.R.2.E222J	Resistor, chip	0603-2.2K0±5%	3	4R18 4R26 4R50	
18	01.57.R.2.E332J	Resistor, chip	0603-3.3K0±5%	5	R407 R409 R412 R413 R423	
19	01.57.R.2.E472J	Resistor, chip	0603-4.7K0±5%	2	4R28 4R21	
20	01.57.R.2.E622F	Resistor, chip	0603-6.2K0±1%	1	R429	
21	01.57.R.2.E103J	Resistor, chip	0603-10K0±5%	6	R414 R417 R418 R420 R421 R422	
22	01.57.R.2.E473J	Resistor, chip	0603-47K0±5%	3	4R22 4R27 4R48	
23	01.57.R.2.E104J	Resistor, chip	0603-100K0±5%	7	4R19 4R24 R459 R460 R466 R468 R469	
24	01.57.R.4.E102J	Resistor, chip	1206-1K0±5%	1	R406	
25	01.57.R.4.E202J	Resistor, chip	1206-2K0±5%	2	R403 R404	
26	01.57.R.Y.E270	Voltage Dependent Resistor, TDK	AVR-M1608C270MTABB SMD	8	ESD401 ESD402 ESD405 ESD406 ESD407 ESD408 ESD410 ESD409	
27	01.57.R.C.E220	FIXED CARBON FILM	CR1/2W/T/B220±5%(RT,22Ω,±5%,1/2W,DI P)	2	R438 R437	
28	01.54.CS.1.E103X50V	Capacitor, multilayer ceramic, chip	0402-103 X7R±10%/50V	1	C400	
29	01.54.CS.1.E104X10V	Capacitor, multilayer ceramic, chip	0402-104 X7R ±10%/10V	1	C490	
30	01.54.CS.1.E223X25V	Capacitor, multilayer ceramic, chip	0402-223 X7R±10%/25V	1	C487	
31	01.54.CS.2.E180N50V	Capacitor, multilayer ceramic, chip	0603-18P NPO±5%/50V	2	C415 C416	
32	01.54.CS.2.E270N50V	Capacitor, multilayer ceramic, chip	0603-27P NPO±5%/50V	1	C410	
33	01.54.CS.2.E331N50V	Capacitor, multilayer ceramic, chip	0603-330P NPO±5%/50V	6	C420 C422 C424 C426 C428 C430	
34	01.54.CS.2.E103X50V	Capacitor, multilayer ceramic, chip	0603-103 X7R±10%/50V	9	C432 C440 C441 C442 C443 C479 C483 C484 C486	
35	01.54.CS.2.E104Y50V	Capacitor, multilayer ceramic, chip	0603-104 Y5V-20+80%/50V	25	C401 C402 C407 C408 C411 C414 C417 C431 C433 C434 C435 C436 C437 C438 C439 C444 C445 C446 C447 C480 C481 C482 C485 C402 C403	
36	01.54.CS.2.E104X50V	Capacitor, multilayer ceramic, chip	0603-104 X7R±10%/50V	6	C453 C454 C463 C469 C473 C497	
37	01.54.CS.2.E333X50V	Capacitor, multilayer ceramic, chip	0603-333 X7R±10%/50V	4	(C493) (C494) (C495) (C496)	
38	01.54.CS.2.E473X50V	Capacitor, multilayer ceramic, chip	0603-473 X7R±10%/50V	3	C404 C405 C418	
39	01.54.CS.3.E102N50V	Capacitor, multilayer ceramic, chip	0805-102 NPO±5%/50V	4	(C450) (C459) (C466) (C476)	
40	01.54.CS.3.E103X50V	Capacitor, multilayer ceramic, chip	0805-103 X7R±10%/50V	4	(C451) (C460) (C467) (C477)	
41	01.54.CS.3.E104X50V	Capacitor, multilayer ceramic, chip	0805-104 X7R±10%/50V	4	C458 C465 C474 C475	
42	01.54.CS.3.E475X16V	Capacitor, multilayer ceramic, chip	0805-475 X7R±10%/16V	6	C419 C421 C423 C425 C427 C429	
43	01.54.CS.3.E106X16V	Capacitor, multilayer ceramic, chip	0805-106 X7R±10%/16V	4	C400 C406 C498 C499	
44	01.54.CS.3.E226X6V3	Capacitor, multilayer ceramic, chip	0805-226 X7R±20%/6.3V	1	C405	
45	01.54.CS.4.E104X50V	Capacitor, multilayer ceramic, chip	1206-104 X7R±10%/50V	4	(C448) (C462) (C464) (C478)	
46	01.54.CS.4.E105X50V	Capacitor, multilayer ceramic, chip	1206-105 X7R±10%/50V	4	C461 C468 C470 C471	
47	01.34.CL.D.E10U10VC	Capacitor, AL, electrolytic	CD110-10UF/10V 5*11	2	CE426 CE427	
48	01.34.CL.D.E10U16VC	Capacitor, AL, electrolytic	CD110-10UF/16V 5*11	1	CE421	
49	01.34.CL.D.E47U06V3	Capacitor, AL, electrolytic	470uF/6.3V 6.3*12 ±20% 105°C	1	CE419	
50	01.34.CL.D.E22U16VC	Capacitor, AL, electrolytic	CD110-22UF/16V 5*11	4	CE408 CE414 CE415 CE416	
51	01.34.CL.D.E47U10VC	Capacitor, AL, electrolytic	CD110-47UF/10V 5*11	2	CE425 CE405	
52	01.34.CL.D.E47U25VC1	Capacitor, AL, electrolytic	CD110-47UF/25V 5*11	2	CE417 CE428	
53	01.34.CL.D.E100U10VD	Capacitor, AL, electrolytic	CD110-100UF/10V 5*12	1	CE402	
54	01.34.CL.D.E100U16VC	Capacitor, AL, electrolytic	CD110-100UF/16V 5*11	4	CE418 CE420 CE422 CE423	
55	01.34.CL.D.E330U16VD	Capacitor, AL, electrolytic	CD110-330UF/16V 6.3*12	2	CE411 CE412	
56	01.34.CL.D.E1000U50VH	Capacitor, AL, electrolytic	GF102M0501250A	3	CE400 CE406 CE407	
57	01.33.CT.EA3U310V	Solid Electrolyte Tantalum Chip Capacitor	A-3.3UF-10V	1	CA400	CAPXON Can Replaced by T491A335K016AT
58	01.00.CD.DL.E474100V	Capacitor, polyester film	474J/100V DIP	2	C472 C455	FaLa, XiaMen
59	01.13.L.L.S.E434	Inductor, SMD	CS0603-R27J-S(0603,270NH,±2%,High-frequency,SMD)	1	L405	
60	01.13.L.Z.ESA50	Bead, chip	0603-50Ω	2	FB405 FB406	
61	01.13.L.Z.ESB50	Bead, chip	0805-50Ω	6	FB408 FB411 FB413 FB414 FB415 FB416	
62	01.13.L.Z.ED50A	Bead, leaded fixed	50Ω (3.5*6.0*0.8)	1	FB409	
63	01.13.L.L.D.E127	Magnetic shielding Inductor	983BN-1003-15UH	4	L401 L402 L403 L404	Can Replaced by TH1315-150
64	01.00.JZ.E20250	Quartz Crystal Unit	20.250MHz-495 18P±20PPM	1	Y400	SKJ
65	01.00.JZ.E32768Y	Crystal Oscillator	32.768KHZ 3.3V 5*3.2mm SMD	1	Y403	Can Replaced by 5032 OSC-0.032768MHZ,32.768KHZ,±2 5PPM,3.3V,SMD
66	01.41.D.PS.ELL4148	Diode	LL4148 SMD	2	D400 D401	
67	01.41.D.PS.EBAV99	Diode	BAV99L1 SMD	2	D403 D402	Can Replaced by LBAV99L1G SMD
68	01.42.Q.S.E8050	Transistor	KTC8050 SMD	1	Q400	SOT23
69	01.42.Q.S.EC8550	Transistor	KTC8550 SMD	3	Q404 Q405 Q409	SOT23
70	01.42.Q.S.EDTC343	Transistor	DTC343TK146 SMD	7	Q401 Q402 Q406 Q407 Q408 Q410 Q411	
71	01.44.IC.D.EL7808	IC, ST, LDO	L7808C-V DIP, TO-220	1	U405	
72	01.44.IC.S.EC5FP	IC, Rohm, LDO	BA00HC5FP SMD, T0252-5	1	U404	
73	01.46.IC.EMAP5601ME5900	IC, Micronas, Audio Processor	MAP5601M-E5-900(PMQFP-128-2,SMD)	1	U403	
74	01.46.IC.ETAS5352DDV	IC, TI, Stereo Digital Amplifier	TAS5352DDV(HTSSOP-44,SMD)	1	U407	
75	01.46.IC.ESI4705B20GM	IC, Silicon labs, FM Radio Receiver	SI4705-B20-GM(QFN-36,SMD)	1	U408	
76	01.44.IC.S.EFST3257MTC	IC, Fairchild, Analog Switch	FST3257MTC SMD	1	U411	
77	01.44.IC.S.E3522	IC, Analogic Tech, Reset monitor	AAT3522 SMD,SOT-23	1	U406	
78	01.44.IC.S.EV330	IC, TI, Video Switch	FSAV330 SMD	1	U409	Can Replaced by SGM330A SMD
79	01.46.IC.EW25X80SS	IC, Winbon, Flash	W25X80-SS SMD	1	U410	Can Replaced by A25L080M-F/G, firmware burn-in
80	01.46.IC.E74H04	IC, TI, Hex Inverter	74HCU04 SMD	1	U401	TSSOP14
81	01.40.CON.S13.FPC2.E004	FPC Connector	1.25-9P Vertical Type and Dual Contact	1	CN405	Black
82	01.40.CON.S10.FPC2.E030	FPC Connector	1.0-14P Vertical Type and Dual Contact	1	CN403	Black
83	01.40.CON.S10.FPC2.E031	FPC Connector	1.0-20P Vertical Type and Dual Contact	1	CN404	Black
84	01.40.CON.S10.FPC2.E003	FPC Connector	1.0-24P Vertical Type and Dual Contact	1	CN401	Black & Antiflaming
85	01.40.CON.DCZ.E244	Connector	Vertical VH Connector with four holes and four pins	1	CN406	White & Antiflaming
86	01.40.CON.DCZ.E129	Connector	Vertical VH Connector with three holes and two pins	1	CN400	White & Antiflaming
87	01.43.E011	Jack, Sharp, Fiber optic iuput jack with shutter	GP1FAV51RK0F	2	JP405 JP404	
88	01.40.CON.DCZ.E203	Jack, YuanChang, SUB Tirgger Jack	CKX-3.5-22	1	JP402	
89	01.40.CON.DCZ.E865	Jack	H-AV2-8.4-9PB-14	1	JP406	Antiflaming: The color of two terminals is Orange. Antiflaming: The color is Orange, White, White&White from left to right on top line and Purple, Red, Red&Red from left to right on bottom line.
90	01.40.CON.DCZ.E864	Jack	H-AV8-8.4-13PB-54	1	JP403	
91	01.40.CON.DCZ.E181	Jack, YuanChang, SCART Jack	CS-101	1	JP401	Fully Shield
92	01.57.R.R.E010	Thermal PTC Resistor, JinKe	JK-MSMD010 SMD	1	PTC400	
93	01.40.CON.DCZ.E863	Jack, HongChang, FM Jack	IF-02P	1	ANT401	nickel-plate
94	01.37.PCB.2.E5983C	PCB board-AV Board without components	5983C	1	2-layers	



HS2X0 Component List for SMPS Board (6144C)

Item	P/N	Description	Specification	Qty	Location.No.	Note
1	01.57.R.3.E000J	Resistor, chip	0805-0Ω ±5%	2	R504 R505	
2	01.57.R.3.E100J	Resistor, chip	0805-10Ω±5%	1	R591	
3	01.57.R.3.E220J	Resistor, chip	0805-22Ω±5%	1	R568	
4	01.57.R.3.E330J	Resistor, chip	0805-33Ω±5%	2	R519 R589	
5	01.57.R.3.E470J	Resistor, chip	0805-47Ω±5%	1	R569	
6	01.57.R.3.E101J	Resistor, chip	0805-100Ω±5%	1	R517	
7	01.57.R.3.E471J	Resistor, chip	0805-470Ω±5%	4	R525 R536 R553 R580	
8	01.57.R.3.E102J	Resistor, chip	0805-1KΩ±5%	9	R535 R538 R542 R544 R546 R551 R554 R555 R598	
9	01.57.R.3.E202J	Resistor, chip	0805-2KΩ±5%	2	R541 R537	
10	01.57.R.3.E302F	Resistor, chip	0805-3KΩ±1%	2	R531 R543	
11	01.57.R.3.E362F	Resistor, chip	0805-3.6KΩ±1%	2	R533 R534	
12	01.57.R.3.E472J	Resistor, chip	0805-4.7KΩ±5%	6	R540 R547 R552 R556 R560 R576	
13	01.57.R.3.E103J	Resistor, chip	0805-10KΩ±5%	8	R524 R549 R571 R577 R579 R587 R532 R590	
14	01.57.R.3.E203J	Resistor, chip	0805-20KΩ±5%	3	R592 R593 R594	
15	01.57.R.3.E393F	Resistor, chip	0805-39KΩ±1%	1	R545	
16	01.57.R.3.E513J	Resistor, chip	0805-51KΩ±5%	1	R567	
17	01.57.R.3.E204J	Resistor, chip	0805-200KΩ±5%	1	R566	
18	01.57.R.4.E330J	Resistor, chip	1206-33Ω±5%	1	R522	
19	01.57.R.4.E201J	Resistor, chip	1206-20Ω±5%	1	R526	
20	01.57.R.4.E331F	Resistor, chip	1206-330Ω±1%	4	R583 R584 R585 R586	
21	01.57.R.4.E102J	Resistor, chip	1206-1KΩ±5%	1	R539	
22	01.57.R.4.E103J	Resistor, chip	1206-10KΩ±5%	2	R596 R597	
23	01.57.R.4.E393J	Resistor, chip	1206-39KΩ±5%	2	R520 R514	
24	01.57.R.4.E564J	Resistor, chip	1206-560KΩ±5%	2	R501 R502	
25	01.57.R.4.E305J	Resistor, chip	1206-3MΩ±5%	4	R562 R563 R564 R565	
26	01.57.R.4.E335J	Resistor, chip	1206-3.3MΩ±5%	2	R573 R574	
27	01.57.R.C.ED102	FIXED CARBON FILM	RT1/4W-1KΩ	1	R570	
28	01.57.R.C.EF683	FIXED CARBON FILM	RT1W-68KΩ±5%	1	R530	
29	01.57.R.C.EF104	FIXED CARBON FILM	RT1W-100KΩ ±5%	1	R521	
30	01.57.R.C.EG390	FIXED CARBON FILM	RT2W-39Ω±5%	1	R548	
31	01.57.R.C.EGR39	FIXED CARBON FILM	RT2W-0.39Ω±5%	2	R572,R575	
32	01.57.R.C.EH471	FIXED CARBON FILM	RT3W-470Ω	1	R595	
33	01.57.R.Y.E10K	Voltage Dependent Resistor	10K.471	1	RZ503	
34	01.57.R.R.E5D11	Thermal Dependent Resistor	NTC-5D-11	1	RZ501	
35	01.57.R.C.E60F116	High-Resistance Cermet Resistor	RCR60-1W-11MΩ	2	R558	
36	01.57.R.R.EJK16300	Resettable Fuse, JinKe	JK16 300	1	RZ502	
37	01.54.CS.3.E331N50V	Capacitor, multilayer ceramic, chip	0805-330P NPO±5%/50V	1	C533	
38	01.54.CS.3.E102X50V	Capacitor, multilayer ceramic, chip	0805-102 X7R ±10%/50V	1	C519	
39	01.54.CS.3.E103X50V	Capacitor, multilayer ceramic, chip	0805-103 X7R±10%/50V	1	C534	
40	01.54.CS.3.E473X50V	Capacitor, multilayer ceramic, chip	0805-473 X7R±10%/50V	1	C532	
41	01.54.CS.3.E473X100V	Capacitor, multilayer ceramic, chip	0805-473 X7R±10%/100V	2	C508,C510	
42	01.54.CS.3.E104Y50V	Capacitor, multilayer ceramic, chip	0805-104 Y5V+80-20%/50V	19	C517 C521 C522 C523 C524 C526 C527 C528 C529 C530 C537 C538 C539 C542 C543 C544 C545 C547 C548	
43	01.54.CS.3.E224Y50V	Capacitor, multilayer ceramic, chip	0805-224 Y5V+20+80%/50V	1	C516	
44	01.54.CS.3.E474Y50V	Capacitor, multilayer ceramic, chip	0805-474 Y5V+80-20%/50V	1	C535	
45	01.54.CS.4.E105Y25V	Capacitor, multilayer ceramic, chip	1206-105 Y5V+80-20%/25V	1	C518	
46	01.35.CC.E120610U16V	Capacitor, multilayer ceramic, chip	ECJMFF1C106Z	1	C536	
47	01.00.CD.DL.E223100V	Terylene Capacitor 223/100	V	1	C507	
48	01.00.CD.DS.E10450V	Radial Monolithic Capacitor	104/50V X7R±10% (lead pitch:5.08mm)	1	C531	
49	01.00.CD.JZ.E472630VA	Metallized capacitor	472/630V (lead pitch: 10mm)	1	C509	
50	01.00.CD.JZ.E103630VA	Metallized capacitor	103/630V (lead pitch: 10mm)	2	C505 C515	
51	01.00.CD.JZ.E105400V	Metallized capacitor	105/400V (lead pitch: 15mm)	1	C502	
52	01.00.CD.GY.E8211KV	High-voltage metallized polyester film	821,1KV (lead pitch: 15mm)	1	C520	
53	01.00.CD.GY.E224275V	High-voltage metallized polyester film	224/275V X2 (lead pitch: 15mm)	2	CX502 CX503	
54	01.00.CD.GY.E334275V	High-voltage metallized polyester film	334/275V X2 (lead pitch: 15mm)	1	CX501	
55	01.00.CD.GY.E102400V250V	High-voltage metallized polyester film	102/400V(X1) 250V(Y1) (lead pitch: 10mm)	2	CY503 CY504	
56	01.00.CD.GY.E471400V250V	High-voltage metallized polyester film	471/400V (X1) 250V (Y1) (lead pitch: 10mm)	2	CY501 CY502	
57	01.34.CL.D.EH47U50VD	Capacitor, AL electrolytic	GF470M050E110A	3	EC501 EC503 EC505	CAPXON
58	01.34.CL.D.EH470U16VD	Capacitor, AL electrolytic	GF471M016F115A	2	EC513 EC514	CAPXON
59	01.34.CL.D.E470U25V	Capacitor, AL electrolytic	470UF/25V 8*20 ±20% 105°C Low ESR	8	EC524 EC511 EC525 EC516 EC526 EC521 EC515 EC512	CAPXON
60	01.34.CL.D.E1000U50VH	Capacitor, AL electrolytic	GF102M050J250A	3	EC517 EC519 EC527	CAPXON
61	01.34.CL.D.E1500U50V	Capacitor, AL electrolytic	GF152M050J410A	1	EC518	CAPXON
62	01.34.CL.D.E288220U16VH	Capacitor, AL electrolytic	CD288H-2200UF/16V 13*25	2	EC507 EC508	CAPXON GF222M016I250A
63	01.34.CL.D.E288220U10VH	Capacitor, AL electrolytic	GF222M010G200A	3	EC522 EC506 EC520	CAPXON GF222M010G200A
64	01.34.CL.D.E28868U50	Capacitor, AL electrolytic	KM680M050E110A	1	EC528	CAPXON-KM680M050E110A
65	01.34.CL.D.E270U400VS	Capacitor, AL electrolytic	HP271M400N510AP(270UF,400V,Φ25*51, ±20%,105°C,DIP)	1	EC502	HP271M400N510AP
66	01.13.LL.D.E192	Common Mode Inductor	LCL-303A DIP	2	LF502 LF501	
67	01.13.LL.D.E077	Pulse transformer	LO620-050 DIP	2	L507 L502	
68	01.13.LL.D.E141	Filter inductor	L-200A DIP	1	L508	
69	01.13.LL.D.E018	Common Mode Choke	LCL-471	1	LF503	
70	01.13.LR.E172	Transformer	BCK-ER2893(DIP)	1	T502	
71	01.13.LR.E173	Switching Power Transformer	BCK-ER4204(DIP)	1	T503	
72	01.13.LL.D.E051	Inductor , leaded fixed	LH0608-22UH	3	L504 L505 L506	
73	01.13.L.Z.ED100A	Bead, leaded fixed	100Ω(3.5*6.0*0.8)	1	L511	
74	01.13.L.Z.ED100	Bead, leaded fixed	100Ω(3.5*9.0*0.8-T)	2	L509 L510	F10 RHW3.5*9.0.8-T 0.5W
75	01.41.D.PS.ELL4148	Diode	LL4148 SMD	1	D520	
76	01.41.D.PS.EB540C	Diode	B540C SMD	1	D517	
77	01.41.D.PD.EFR104	Diode	FR104 DIP	4	D506 D505 D503 D512	
78	01.41.D.PD.EHER208G	Diode	HER208G DIP	2	D508 D504	
79	01.41.D.PD.EDQ06	Diode	21DQ06 DIP	1	D513	
80	01.41.D.PD.E21DQ10	Diode	21DQ10 DIP	2	D514 D509	
81	01.41.D.PD.EFCF16A40	Diode	FCF16A40,400V,16A,TO-220,1.25V,30uA,120A,45nS,DIP	2	D516 D515	
82	01.41.D.PD.E2010DN	Diode	FYPF2010DN DIP	1	D510	plastic encapsulation
83	01.41.D.PD.EGBU806	Diode bridge	GBU806 DIP	1	BD501	
84	01.41.D.WS.E18V	Zener Diode	18V	3	Z501 Z502 Z506	
85	01.41.D.WS.EDDZ9707	Zener Diode	DDZ9707-F(20V) SMD	2	Z503 Z504	
86	01.42.Q.S.E8050	Transistor	KTC8050 SMD	1	Q510	
87	01.42.Q.S.EC8550	Transistor	KTC8550 SMD	1	Q511	
88	01.42.Q.S.ET3904	Transistor	MMBT3904 SMD	2	Q504 Q507	SOT23
89	01.42.Q.S.E2N3906	Transistor	2N3906 SMD	1	Q505	SOT23
90	01.42.Q.S.E1037	Transistor	ZSA1037AKR SMD	1	Q513	
91	01.42.Q.S.E5866	Transistor	ZSC5866 SMD	1	Q514	
92	01.44.IC.S.E4835	Mosfet	4F4835 SMD	2	Q503 Q508	Rohm
93	01.44.MOS.S.EDMN3033LSN	Mosfet	DMN3033LSN SMD	1	Q506	
94	01.44.MOS.S.EFDQA13N80	Mosfet	FQA13N80(TO-3PIN DIP)	1	Q509	
95	01.44.IC.D.EFSDM0465REWDTU	IC, Fairchild, Power Switch	FSDM0465REWDTU, TO-220F	1	U503	Fairchild plastic encapsulation
96	01.44.IC.S.EA11173V3	IC, AAC, LDO	AZ1117H-3.3, SOT-23	1	U510	
97	01.44.IC.D.E78R12	IC, Fairchild, Voltage Regulator	KA78R12, TO-220F-4L	1	U514	plastic encapsulation
98	01.44.IC.D.E278R05	IC, Fairchild or ShiBao, Voltage Regulator	KA278R05CTU, TO-220F-4L	1	U511	plastic encapsulation
99	01.44.IC.D.E78R05CTU	IC, Fairchild, Voltage Regulator	KA78R05TSTU, TO-220F-4L	1	U508	
100	01.44.IC.D.EKA7912	IC, Fairchild, Voltage Regulator	KA7912, TO-220	1	U513	
101	01.44.IC.D.ELTV817	IC, LITEON, Photoelectric Coupler	LTV817 DIP	4	U505 U504 U502 U515	
102	01.44.IC.D.EKA431	IC, AAC, Shunt Regulator	KA431.ZTA 0.5% DIP	2	U507 U509	
103	01.44.IC.S.EFAN7602MX	IC, Fairchild/ShiBao, PWM Controller	FAN7602MX SMD	1	U506	
104	01.40.CON.DCZ.E129	Connector	Vertical VH Connector with three holes and two pins	2	CN501 CN506	White & Antiflaming
105	01.38.FUSE.D.E5AL250V3610	Fuse	T5AL/250V(φ3.6*10 dual pins) , In Line Package	1	F501	
106	01.40.CON.S13.FPC2.E005	FPC Connector	1.25-14P Vertical Type and Dual Contact	1	CN503	Black
107	01.40.CON.S13.FPC2.E003	FPC Connector	1.25-12P Vertical Type and Dual Contact	1	CN504	Black
108	01.40.CON.S13.FPC2.E004	FPC Connector	1.25-9P Vertical Type and Dual Contact	1	CN505	Black
109	01.00.WJ.QT.E041	3pins grounding piece	M4	3	G501 G503 G502	
110	01.00.DP.QT.E113	Sil-pad	sil-pad 400-3022	1	For Q509 on SMPS Board	
111	01.37.PCB.2.E6144C	PCB Board-SMPS Board without components	6144C	1	2-layers	

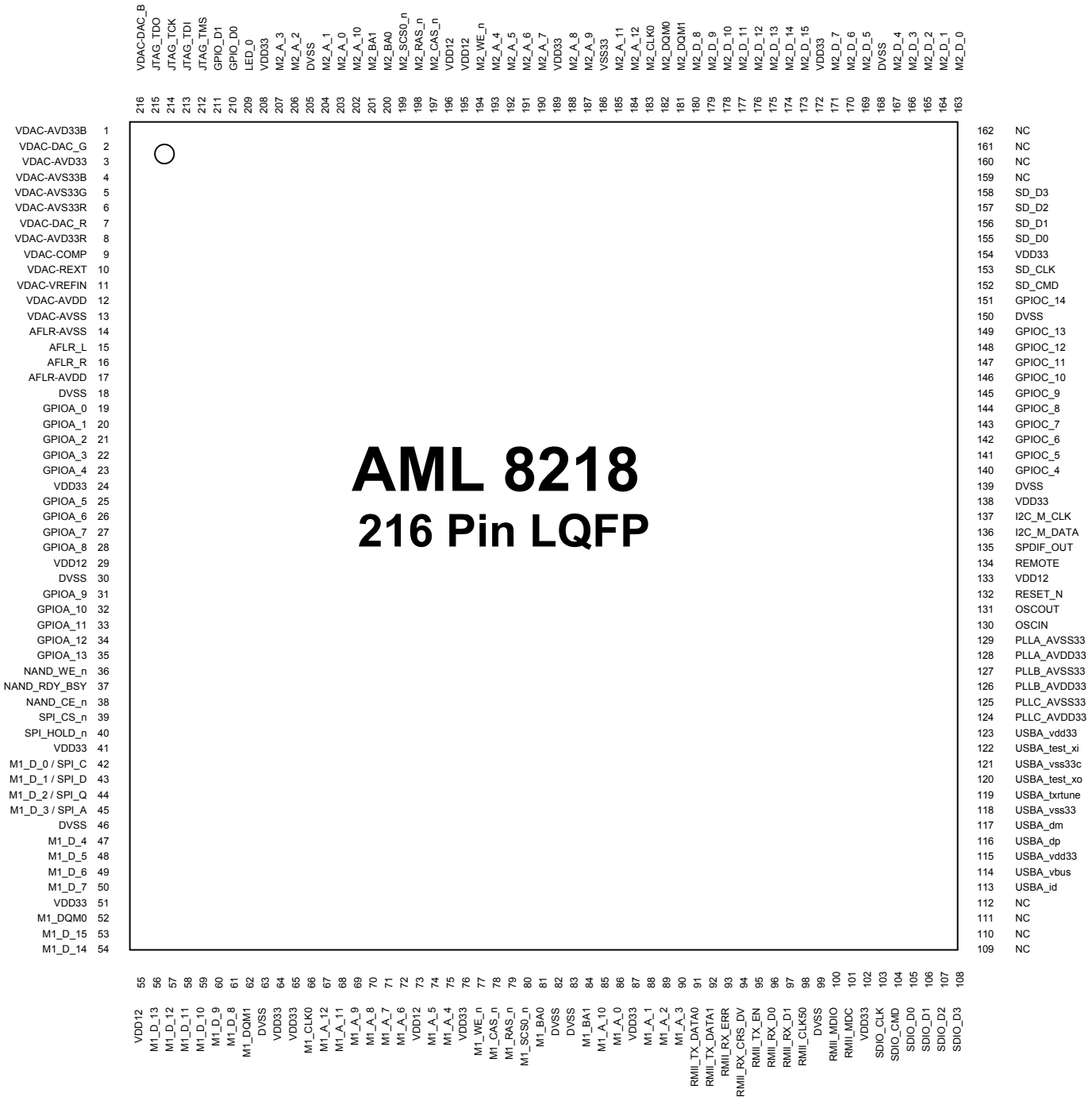
**HS2X0 Component List for Front panel board (6742C)**

Item	P/N	Description	Specification	Qty	Location.No.	Note
1	01.57.R.3.E000J	Resistor, chip	0805-0Ω ±5%	2	(R657) (R659)	
2	01.57.R.3.E1R0J	Resistor, chip	0805-10±5%	2	(FB604) (FB605)	
3	01.57.R.3.E101J	Resistor, chip	0805-1000±5%	5	(R606) (R607) (R638) (R641) (R652)	
4	01.57.R.3.E201J	Resistor, chip	0805-2000±5%	2	(R614) (R647)	
5	01.57.R.3.E471J	Resistor, chip	0805-4700±5%	1	(R605)	
6	01.57.R.3.E511J	Resistor, chip	0805-5100±5%	3	(R615) (R648) (R642)	
7	01.57.R.3.E202J	Resistor, chip	0805-2K0±5%	1	(R608)	
8	01.57.R.3.E472J	Resistor, chip	0805-4.7K0±5%	9	(R609) (R610) (R601) (R603) (R604) (R611) (R612) (R613) (R655)	
9	01.57.R.3.E103J	Resistor, chip	0805-10K0±5%	1	(R637)	
10	01.57.R.3.E153J	Resistor, chip	0805-15K0±5%	2	(R602) (R653)	
11	01.57.R.3.E203J	Resistor, chip	0805-20K0±5%	2	(R636) (R644)	
12	01.57.R.3.E104J	Resistor, chip	0805-100K0±5%	1	(R639)	
13	01.57.R.3.E154J	Resistor, chip	0805-150K0±5%	1	(R643)	
14	01.57.R.4.ER15J	Resistor, chip	1206-0.15Ω±5%	1	(R640)	
15	01.57.R.Y.E270	Voltage Dependent Resistor, TDK	AVR-M1608C270MTABB SMD	6	(ESD601) ESD602 ESD603 ESD605 ESD606 ESD604	
16	01.54.CS.3.E220N50V	Capacitor, multilayer ceramic, chip	0805-22P NPO±5%/50V	2	(C604) (C605)	
17	01.54.CS.3.E300N50V	Capacitor, multilayer ceramic, chip	0805-30P NPO±5%/50V	1	(C620)	
18	01.54.CS.3.E560N50V	Capacitor, multilayer ceramic, chip	0805-56P NPO±5%/50V	2	(C611) (C612)	
19	01.54.CS.3.E123X50V	Capacitor, multilayer ceramic, chip	0805-123 X7R±10%/50V	2	(C624) (C636)	
20	01.54.CS.3.E473X50V	Capacitor, multilayer ceramic, chip	0805-473 X7R±10%/50V	2	(C618) (C626)	
21	01.54.CS.3.E104Y50V	Capacitor, multilayer ceramic, chip	0805-104 Y5V+80-20%/50V	10	(C634) (C606) (C607) (C608) (C627) (C628) (C629) (C630) (C633) (C635)	
22	01.54.CS.3.E225X25V	Capacitor, multilayer ceramic, chip	0805-225 X7R±20%/25V	2	(C603) (C619)	YAGEO
23	01.54.CS.4.E105X50V	Capacitor, multilayer ceramic, chip	1206-105 X7R±10%/50V	2	(C637) (C638)	
24	01.34.CL.D.E10U16VB	Capacitor, AL, electrolytic	CD11X-10UF/16V 4*7	2	EC616 EC617	
25	01.34.CL.D.E47U16VB	Capacitor, AL, electrolytic	CD11X-47UF/16V 5*7	2	EC603 EC601	
26	01.34.CL.D.E47U50VCD	Capacitor, AL, electrolytic	CD110-47UF/50V 6.3*12	2	EC605 EC614	
27	01.34.CL.D.EH47U50VD	Capacitor, AL, electrolytic	GF470M050E110A	1	CE607	
28	01.34.CL.D.EX100U16VB	Capacitor, AL, electrolytic	CD11X-100UF/16V 6.3*7	2	EC602 CE615	
29	01.34.CL.D.E220U6V3B	Capacitor, AL, electrolytic	CD11X-220UF/6.3V 6.3*7	1	EC621	
30	01.34.CL.D.E288330U16VD	Capacitor, AL, electrolytic	CD288H-330UF/16V 8*12	2	EC620 EC604	
31	01.38.FUSE.S.EJK110	Polymer Positive Temperature Coefficient	JK-110(1.1A) SMD	1	PTC601	
32	01.13.L.Z.ESB50	Bead, chip	0805-50Ω	3	(FB601) (FB602) (FB603)	
33	01.00.JZ.E04000	Quartz Crystal Unit	4.000MHZ-49S-22P	1	Y601	
34	0203020000003	Transformer	SPT-EE1316V,EE13,DIP	1	TR3	
35	01.41.D.PS.ELL4148	Diode	LL4148 SMD	4	(D601) (D602) (D603) (D605)	
36	01.41.D.PD.EFR104	Diode	FR104 DIP	2	D606 D608	
37	01.41.D.FD.E1L0392A	LED	1L0392A2W32CM001 DIP	2	LED601 LED602	High light, white and amber
38	01.42.Q.S.EC8550	Transistor	KTC8550 SMD	1	(Q603)	SOT23
39	01.42.Q.S.E8050	Transistor	KTC8050 SMD	1	(Q602)	SOT23
40	01.41.D.WS.E6V2	Zener Diode	6.2V	1	DZ601	DZ601
41	01.44.IC.S.E75711	IC, SANYO, VFD Driver	LC75711NE_QFP64E	1	(U604)	
42	01.46.IC.E78P156G	IC, ELAN, MCU	EM78P156ELM-G SMD	1	U601	firmware burn-in
43	01.44.IC.D.ENCP3063BPG	IC, ONSEMI, 1.5 A, Step-Up/Down/Inverting Switching Regulators	NCP3063BPG DIP	1	(U605)	
44	01.44.IC.D.E38B17	IC, IR receiver	HL38B17 DIP	1	IR601	
45	01.40.CON.S10.FPC2.E030	FPC Connector	1.0-14P, Vertical Type and Dual Conact	1	CN601	Black
46	01.40.CON.S13.FPC2.E005	FPC Connector	1.25-14P, Vertical Type and Dual Conact	1	CN602	Black
47	01.40.CON.S10.FPC2.E002	FPC Connector	1.0-8P, Vertical Type and Dual Conact	1	CN603	Black & Antiflaming
48	01.40.CON.S10.FPC2.E004	FPC Connector	1.0-6P, Vertical Type and Dual Conact	1	CN604	Black & Antiflaming
49	01.39.SW.QC.EDKFC	Touch switch	KFC-A06-05 (Vertical Type) DIP	2	K602 K601	
50	01.40.CON.DCZ.E219	Earphone Jack	CKX-3.5-12	1	J602	
51	01.40.CON.DCZ.E217	USB Jack	USB-A-05 (ROHS, Mother Set)	1	J601	
52	01.16.E1303F	VFD	VFD22-1303F	1	VFD601	
53	0226010000074	PCB Board-Front Panel Board without components	6742C	1		

**HS2X0 Component List for Volume Button board (6743C)**

Item	P/N	Description	Specification	Qty	Location.No.	Note
1	01.57.R.3.E472J	Resistor, chip	0805-4.7K0±5%	3	(R617) (R618) (R616)	
2	01.57.R.3.E181J	Resistor, chip	0805-1800±5%	4	(R622) (R623) (R624) (R625)	
3	01.54.CS.3.E821N50V	Capacitor, multilayer ceramic, chip	0805-820P NPO±5%/50V	2	(C601) (C602)	
4	01.54.CS.3.E104Y50V	Capacitor, multilayer ceramic, chip	0805-104 Y5V+80-20%/50V	1	(C614)	
5	01.42.Q.S.ET3904	Transistor	MMBT3904, SOT23	1	(Q601)	
6	01.42.Q.S.EC8550	Transistor	KTC8550, SOT23	2	(Q604) (Q605)	
7	01.41.D.FD.E1L0545W31B0CC201	LED	1L0545W31B0CC201 Φ5(white) DIP	4	LED603 LED604 LED605 LED606	High light white and astigmatism
8	01.40.CON.S10.FPC2.E036	FPC Connector	1.0-6P Horizontal Type and Dual Conact	1	CN605	Positive Pointer
9	01.36.VR.E20K	Volume encoder, Pulse	ED1612-24-24-HC-F20(2)	1	W601	
10	0226010000075	PCB board-Volume Button Board without components	6743C	1		2-layers

# 7. Pin-Out Diagram



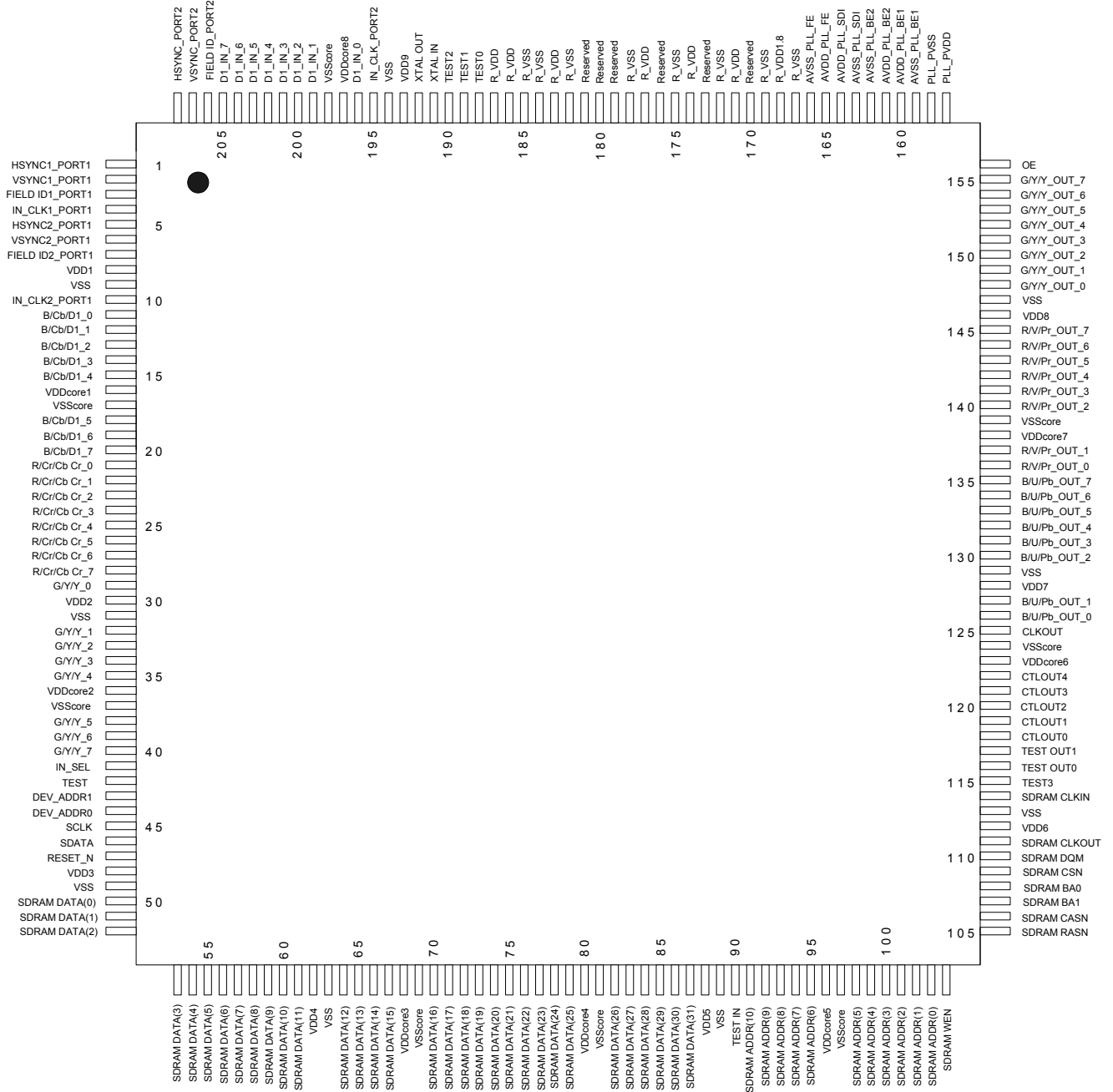


# FLI2310 LF Digital Video Converter Data Sheet

## 3 PIN INFORMATION

### 3.1 Pin Diagram

Figure 3.1: Pinout Information



Package: 208-pin PQFP

PIN ASSIGNMENT

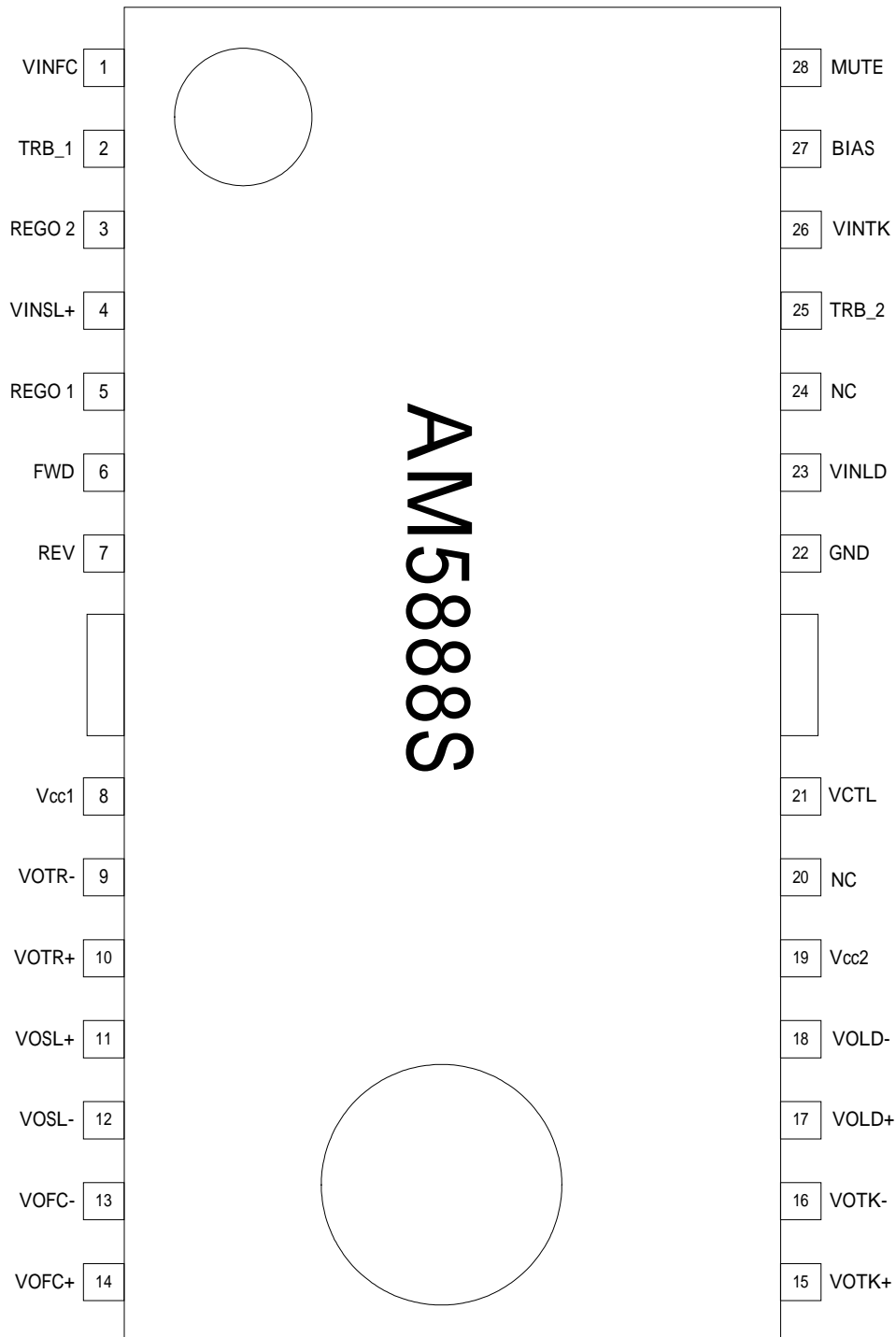
160-PIN				
	160	VDDP5		
	159	USB_DP/P7.2		
	158	USB_DM/P7.1		
	157	VSSP5		
	156	MISO/P2.6		
	155	MOSI/P2.5		
	154	VSSC1		
	153	SPICLK/P2.4		
	152	VDDC1		
	151	SF_CLK/P2.3		
	150	SF_CS/P2.2		
	149	SF_D0/P2.1		
	148	SF_D1/P2.0		
	147	P1.5SF_D2		
	146	P1.4/SF_D3		
	145	P1.3		
	144	P1.2		
	143	P1.1		
	142	P1.0		
	141	VDDP4		
	140	VSSP4		
	139	RTCK/P0.5		
	138	TCK/P0.4		
	137	TMS/P0.3		
	136	TDO/P0.2		
	135	TDI/P0.1		
	134	NTRST/P0.0		
	133	RXD/P0.7		
	132	TXD/P0.6		
	131	IRIN/P7.0		
	130	NRESET		
	129	ADCAIN		
	128	ADCVREF		
	127	ADCVDD33A		
	126	ADCVSS33A		
	125	REF0		
	124	SPO		
	123	SLO		
	122	TRO		
	121	FLO		
MDA4	1		120	ABUFN/DSDR
MDA3	2		119	ABUFF/DSDF
MDA5	3		118	RBIAS
MDA2	4		117	PREF
MDA6	5		116	AFEVSS33A2
MDA1	6		115	AFEVDD33A2
MDA7	7		114	DVDPD
MDA0	8		113	CDPD/KEYSCAN
MDA8	9		112	DVDLD
MDA10	10		111	CDLD
MDA9	11		110	FIN / SLDM
MDA11/P7.3	12		109	EIN / SLDP
BA1_NDCS1	13		108	DIN
BA0	14		107	CIN
NDCS0	15		106	BIN
NRAS	16		105	AIN
DCLK	17		104	RFSUM
VDDP0	18		103	AFEVDD33A1
VSSP0	19		102	EQO
NCAS	20		101	EFMI
NDWE	21		100	AFEVSS33A1
DQM	22		99	DPLLVDDA33
MDB8	23		98	DPLLVSSA33
MDB7	24		97	DPLLLLPF1
MDB9	25		96	DPLLLLPF2
MDB6	26		95	DPLLVDDA12
MDB10	27		94	DPLLVSSA12
MDB5	28		93	PLL1VDD
MDB11	29		92	PLL1VSS
MDB4	30		91	PLL2VDD
MDB12	31		90	PLL2VSS
MDB3	32		89	P6.6
MDB13	33		88	P6.5
MDB2	34		87	XO
MDB14	35		86	XI
MDB1	36		85	VSSP3
MDB15	37		84	VDDP3
MDB0	38		83	P6.4
P3.0	39		82	P6.3
P3.1	40		81	P6.2
		41	VDDP1	
		42	VSSP1	
		43	P3.2	
		44	P3.3	
		45	P3.4	
		46	P3.5	
		47	P3.6	
		48	P3.7	
		49	VDDC0	
		50	SPDIFO/P4.0	
		51	ISDI/P4.1	
		52	PSMCKO/P5.0	
		53	PSBCKO/P5.1	
		54	PSWSO/P5.2	
		55	VSSC0	
		56	PSD04/P5.3	
		57	PSD03/P5.4	
		58	PSD02/P5.5	
		59	PSVDD	
		60	Boot1	
		61	PSVSS	
		62	PSD01/P5.6	
		63	PSD00/P5.7	
		64	Boot0	
		65	DAC4	
		66	DACVSS33A1	
		67	DAC3	
		68	DACVDD33A1	
		69	DAC2	
		70	DAC1	
		71	DACVSS33D	
		72	DAC0	
		73	DACVDD33D	
		74	DACIREF	
		75	DACVREF	
		76	DACCOMP	
		77	ICDAT/P4.2	
		78	ICCLK/P4.3	
		79	V_Sync/P6.0	
		80	H_Sync/P6.1	

TMD8809

(160-LQFP-2424)

Figure 1-5. TMD8809 Pin Assignments (160-LQFP-2424)

● Pin configuration



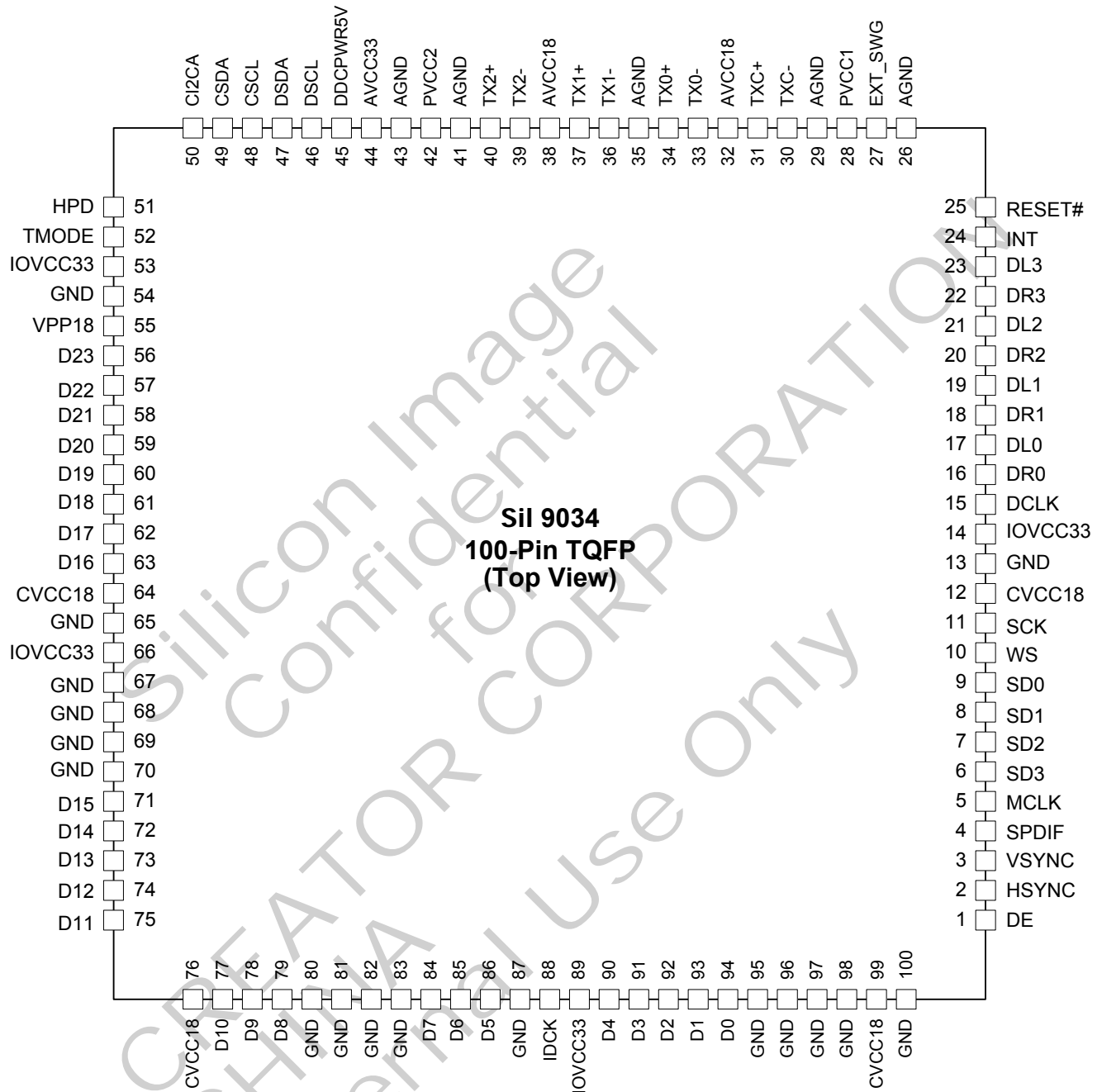
### ● Pin description

PIN No	Pin Name	Function
1	VINFC	Input for focus driver
2	TRB_1	Connect to external transistor base
3	REGO2	Regulator voltage output, connect to external transistor collector
4	VINSL+	Input for the sled driver
5	REGO1	Regulator voltage output, connect to external transistor collector
6	FWD	Tray driver forward input
7	REV	Tray driver reverse input
8	Vcc1	Vcc for pre-drive block and power block of sled and tray
9	VOTR-	Tray driver output (-)
10	VOTR+	Tray driver output (+)
11	VOSL+	Sled driver output (+)
12	VOSL-	Sled driver output (-)
13	VOFC-	Focus driver output (-)
14	VOFC+	Focus driver output (+)
15	VOTK+	Tracking driver output (+)
16	VOTK-	Tracking driver output (-)
17	VOLD+	Spindle driver output (+)
18	VOLD-	Spindle driver output (-)
19	Vcc2	Vcc for power block of spindle, tracking and focus
20	NC	No Connection
21	VCTL	Speed control input of tray driver
22	GND	Ground
23	VINLD	Input for spindle driver
24	NC	No Connection
25	TRB_2	Connect to external transistor base
26	VINTK	Input for tracking driver
27	BIAS	Input for reference voltage
28	MUTE	Input for mute control

Notes) Symbol of + and – (output of drivers) means polarity to input pin.

(For example, if voltage of pin1 is high, pin14 is high.)

### Sii 9034 HDMI Transmitter Pin Diagram



**Figure 1. 100-Pin TQFP Pinout Diagram**





## Chapter 2 Pin Configuration

### 2.1 Package Pin-out Diagram and Signal Table

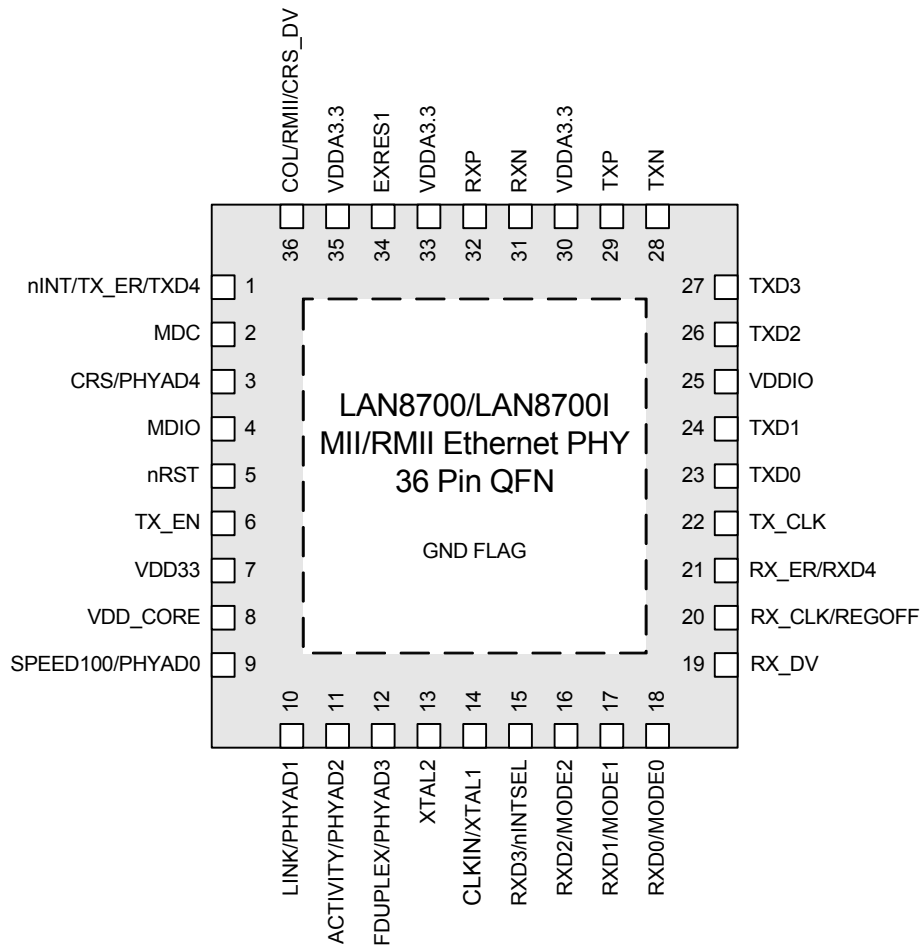
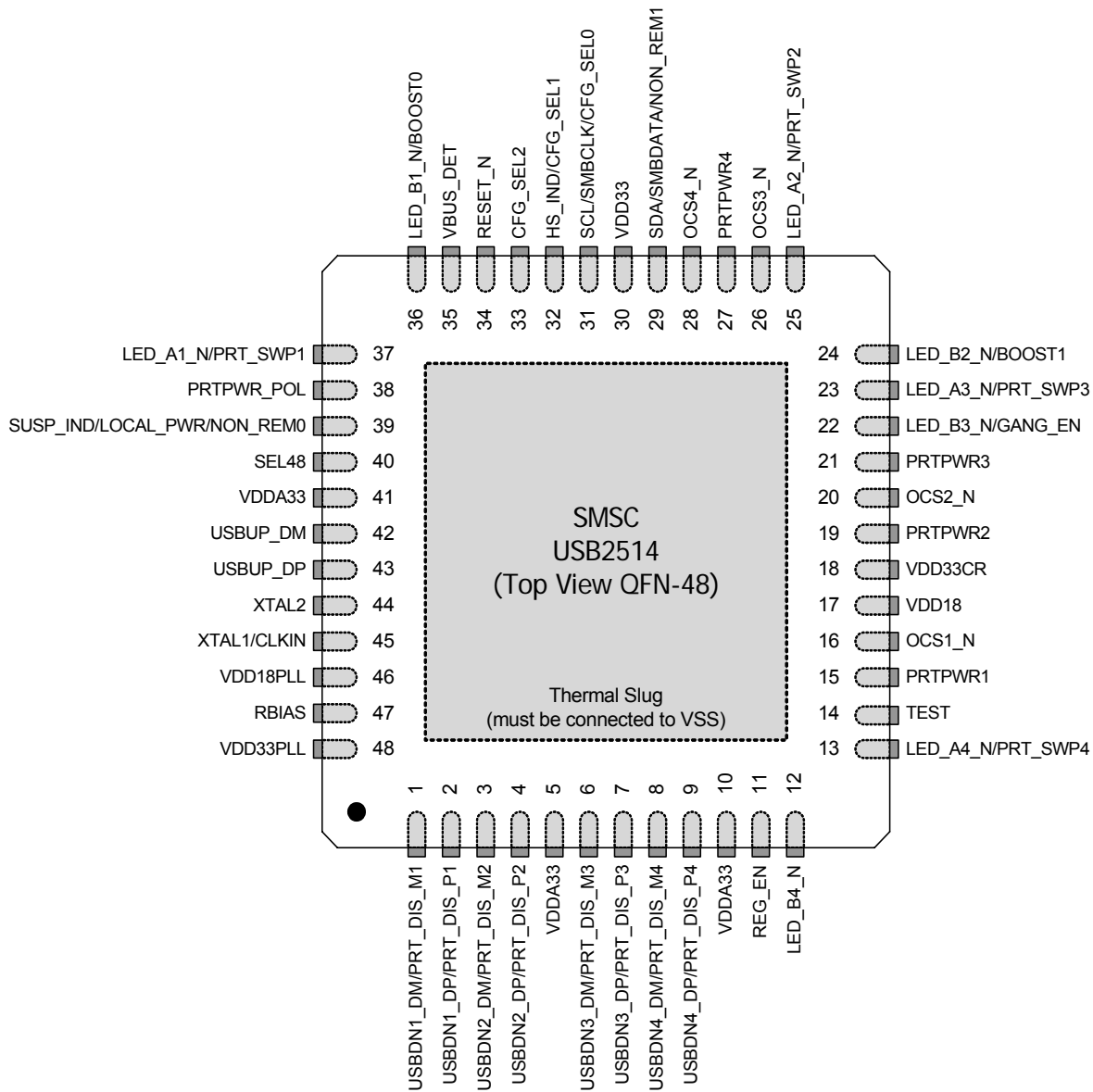


Figure 2.1 Package Pinout (Top View)



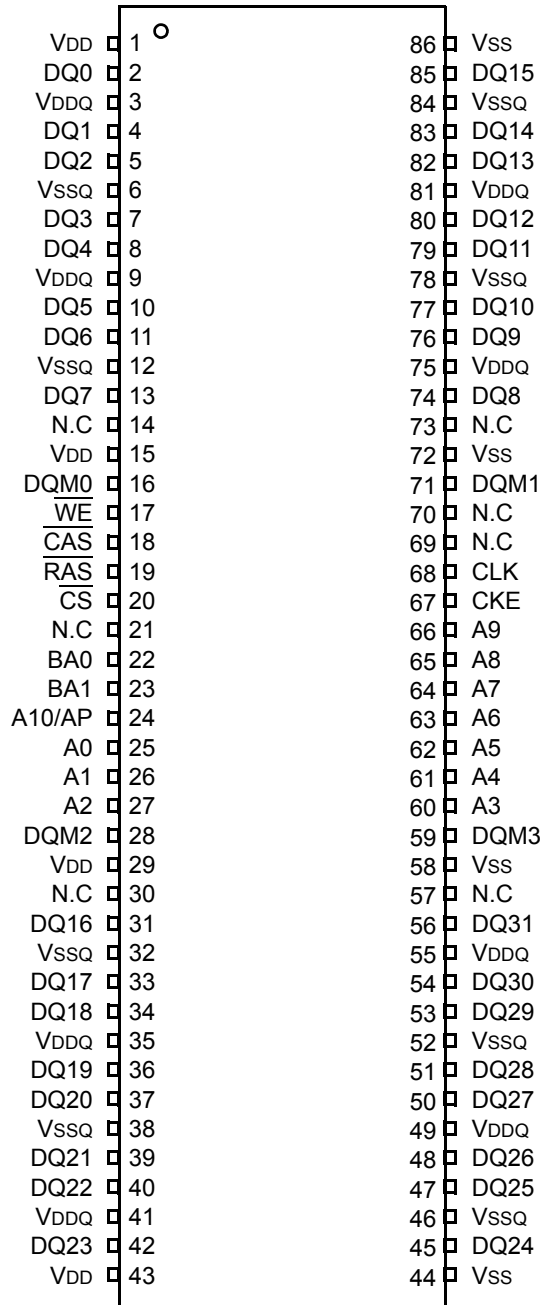
Indicates pins on the bottom of the device.

Figure 1.2 USB2514 48-Pin QFN

# K4S643232H

# SDRAM

## PIN CONFIGURATION (Top view)

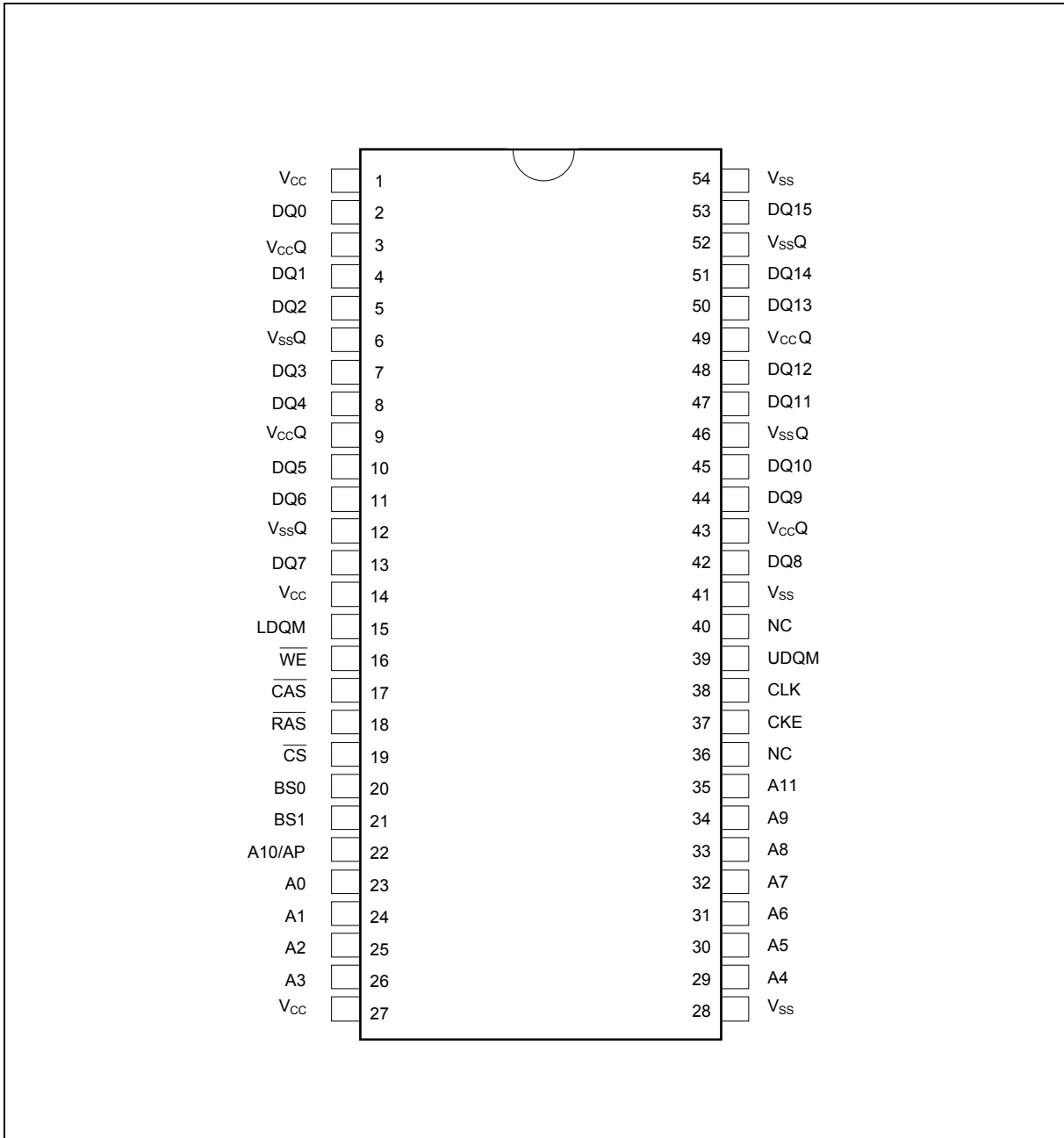


86Pin TSOP (II)  
 (400mil x 875mil)  
 (0.5 mm Pin pitch)

# W9812G6GH



## 4. PIN CONFIGURATION



# W25X16, W25X32, W25X64



## 5. PIN CONFIGURATION PDIP 300-MIL

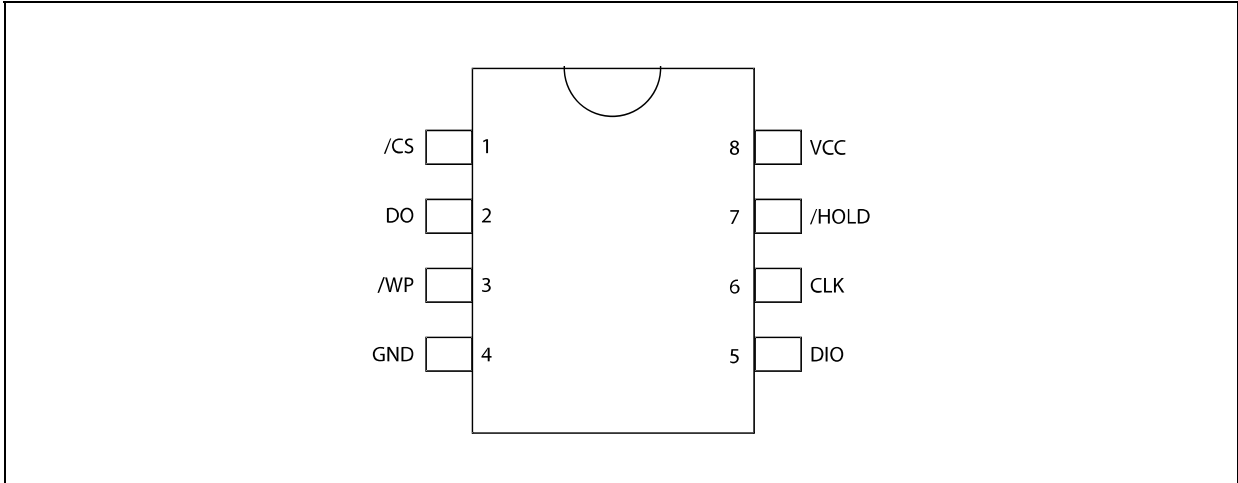


Figure 1c. W25X16, W25X32, W25X64 Pin Assignments, 8-pin PDIP (Package Code DA)

## 6. PIN DESCRIPTION SOIC 208-MIL, PDIP 300-MIL, AND WSON 6X5-MM

PAD NO.	PAD NAME	I/O	FUNCTION
1 /CS		I	Chip Select Input
2 DO		O	Data Output
3 /WP		I	Write Protect Input
4 GND			Ground
5	DIO	I/O	Data Input / Output
6	CLK	I	Serial Clock Input
7 /HOLD		I Hold	Input
8 VCC			Power Supply

# W25X10, W25X20, W25X40, W25X80



### 3. PIN CONFIGURATION SOIC 150-MIL

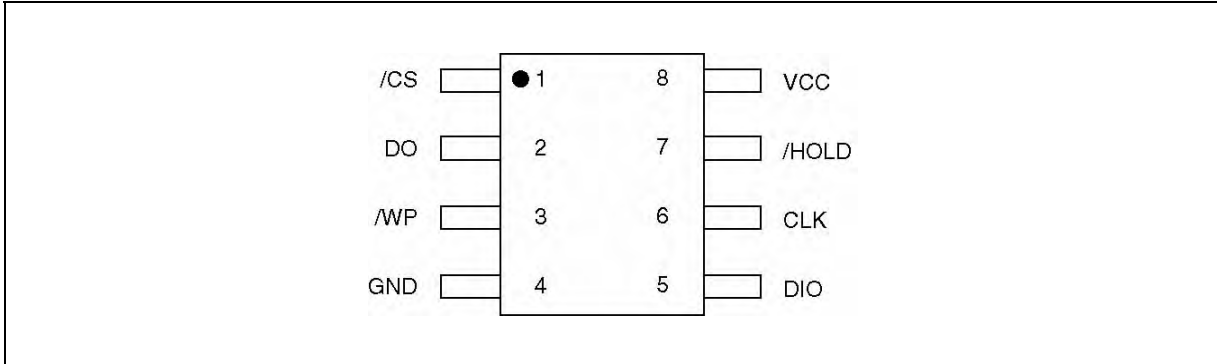


Figure 1a. W25X10, W25X20 and W25X40 Pin Assignments, 8-pin SOIC (Package Code SN)

### 4. PIN CONFIGURATION SOIC 208-MIL

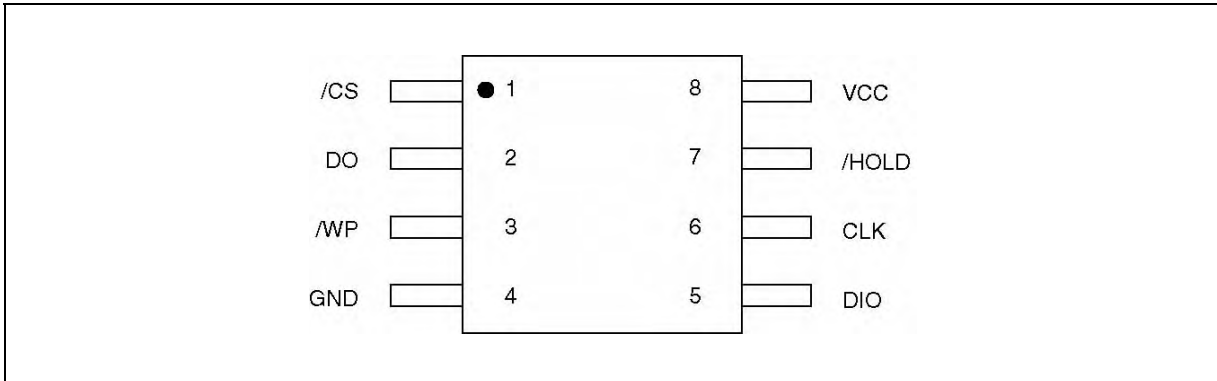


Figure 1b. W25X40 and W25X80 Pin Assignments, 8-pin SOIC (Package Code SS)

### 5. PIN CONFIGURATION PDIP 300-MIL

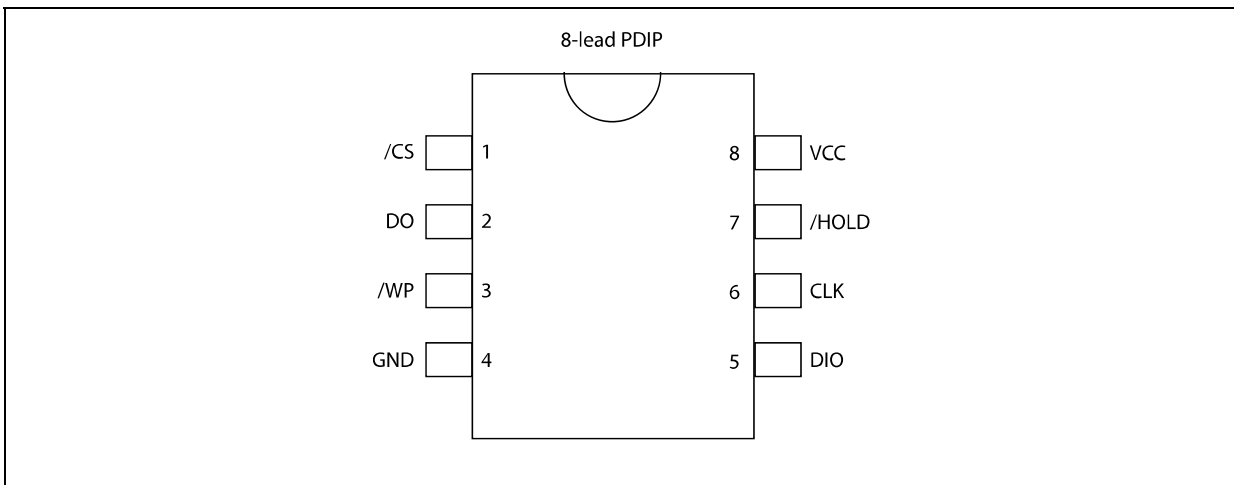


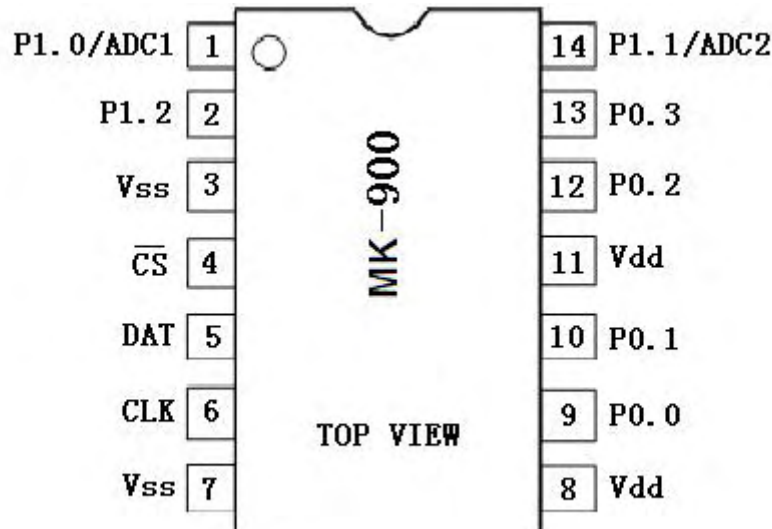
Figure 1c. W25X10, W25X20, W25X40 and W25X80 Pin Assignments, 8-pin PDIP (Package Code DA)

SAMSUNG

MK-900 手册（内部资料）

## MK-900 硬件手册

- 芯片管脚图  
14 脚 SOP



- 芯片管脚说明

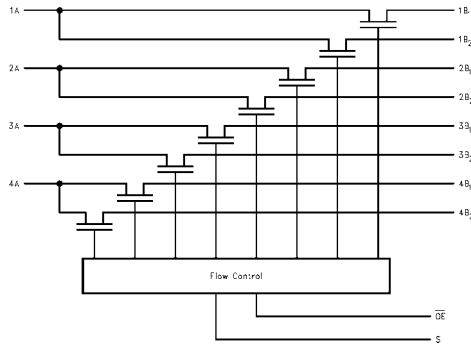
管脚号 MK-900	管脚名	I/O	缓冲器 类型	管脚说明
1	P1.0/ADC1	I/O	TTL SMT	双向输入输出端口, ADC 模拟信号输入
2	P1.2	I	TTL SMT	单向输入端口
3	V <sub>SS</sub>	P	—	地, 0V 参考点
4	/CS	I	TTL SMT	单向输入端口
5	DAT	I/O	TTL SMT	双向输入输出端口, 数据通信端口
6	CLK	I	TTL SMT	单向输入端口, 时钟通信端口
7	V <sub>SS</sub>	P	—	地, 0V 参考点。
8	V <sub>DD</sub>	P	—	电源
9	P0.0	I/O	—	
10	P0.1	I/O	TTL SMT	双向输入输出端口
11	V <sub>DD</sub>	P	—	电源
12	P0.2	I/O	TTL SMT	双向输入输出端口
13	P0.3	I/O	TTL SMT	双向输入输出端口
14	P1.1/ADC2	I/O	TTL SMT	双向输入输出端口, ADC 模拟信号输入

- DC 特性参数

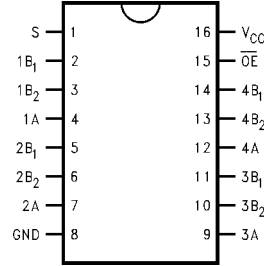
最大标称值 (V<sub>SS</sub> = 0V)

FSAV330

**Logic Diagram**



**Connection Diagram**



**Pin Descriptions**

Pin Name	Description
$\overline{OE}$	Bus Switch Enable
S	Select Input
A	Bus A
B <sub>1</sub> -B <sub>2</sub>	Bus B

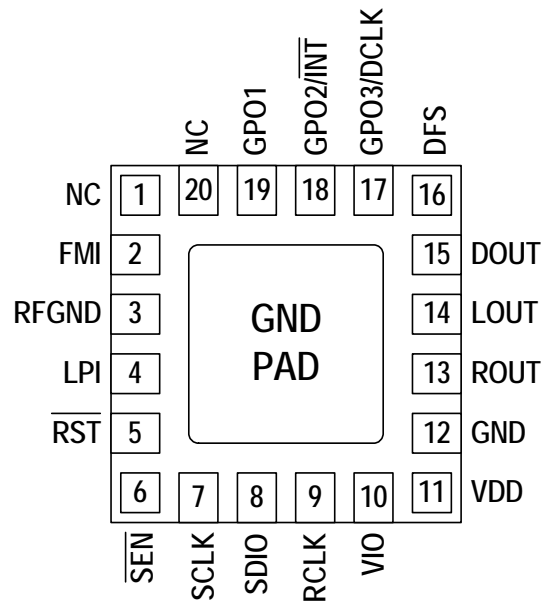
**Truth Table**

S	$\overline{OE}$	Function
X	H	Disconnect
L	L	A = B <sub>1</sub>
H	L	A = B <sub>2</sub>

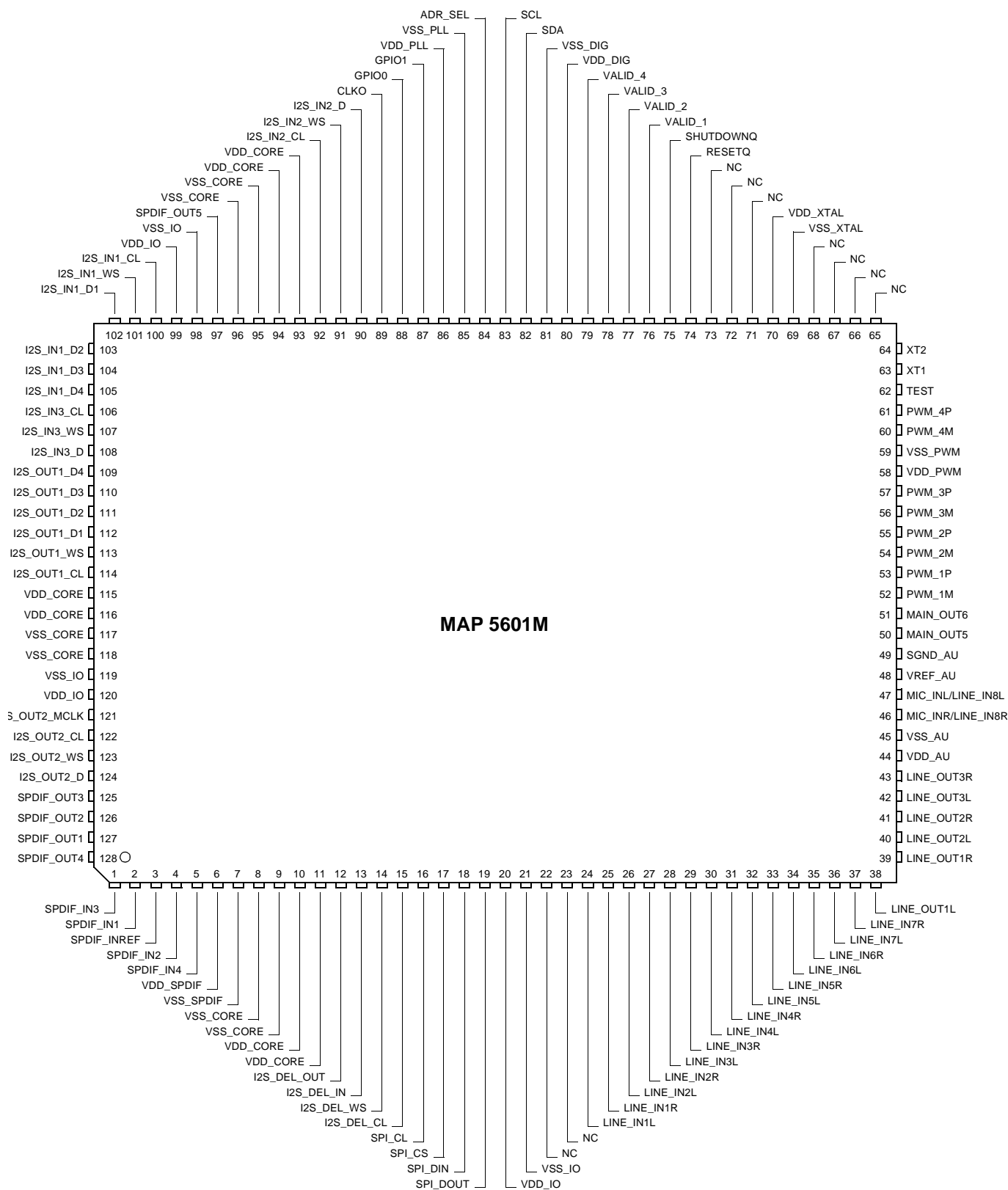


# Si4704/05

## 6. Pin Descriptions: Si4704/05-GM



Pin Number(s)	Name	Description
1, 20	NC	No connect. Leave floating.
2	FMI	FM RF input.
3	RFGND	RF ground. Connect to ground plane on PCB.
4	LPI	Loop antenna RF input.
5	RST	Device reset (active low) input.
6	SEN	Serial enable input (active low).
7	SCLK	Serial clock input.
8	SDIO	Serial data input/output.
9	RCLK	External reference or crystal oscillator input.
10	VIO	I/O supply voltage.
11	VDD	Supply voltage. May be connected directly to battery.
13	ROUT	Right audio analog line output.
14	LOUT	Left audio analog line output.
15	DOUT	Digital audio output data.
16	DFS	Digital frame synchronization.
17	GPO3/DCLK	General purpose output/digital bit synchronous clock or crystal oscillator input.
18	GPO2/INT	General purpose output/interrupt.
19	GPO1	General purpose output.
12, GND PAD	GND	Ground. Connect to ground plane on PCB.



**Fig. 4–6:** MAP 5601M in PMQFP128-2 package



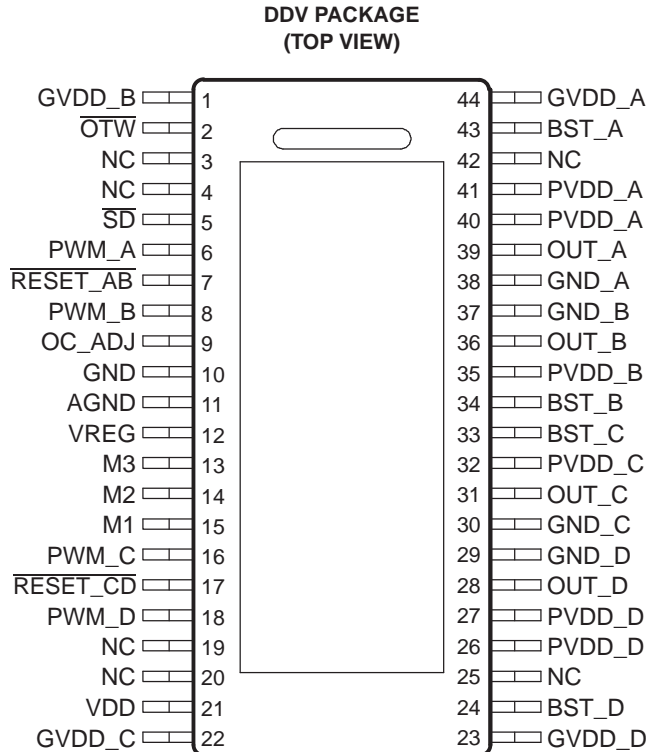
These devices have limited built-in ESD protection. The leads should be shorted together or the device placed in conductive foam during storage or handling to prevent electrostatic damage to the MOS gates.

## GENERAL INFORMATION

### Terminal Assignment

The TAS5352 is available in a thermally enhanced 44-pin HTSSOP PowerPad™ package (DDV)

This package contains a thermal pad that is located on the top side of the device for convenient thermal coupling to the heatsink.

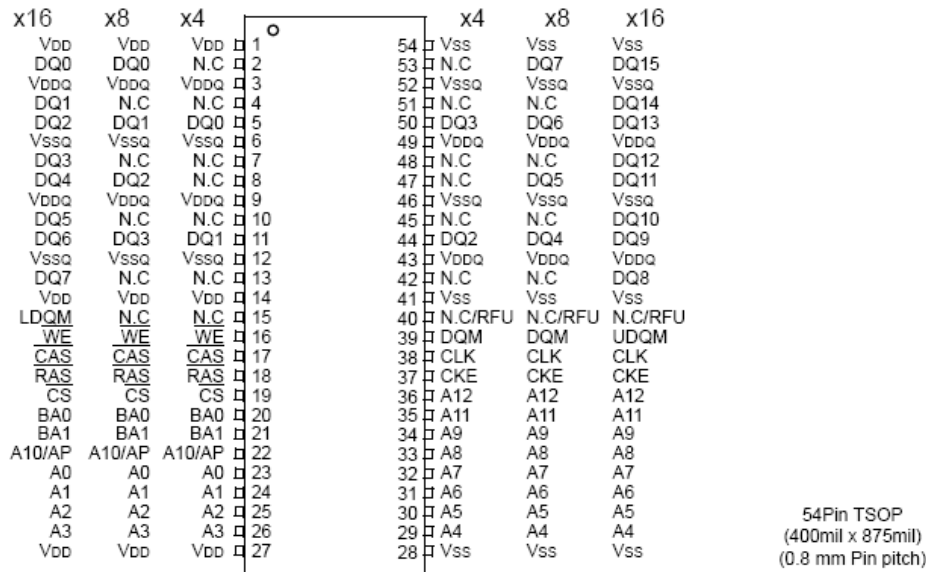


P0016-02

K4S561632J

Synchronous DRAM

6.0 Pin Configuration (Top view)

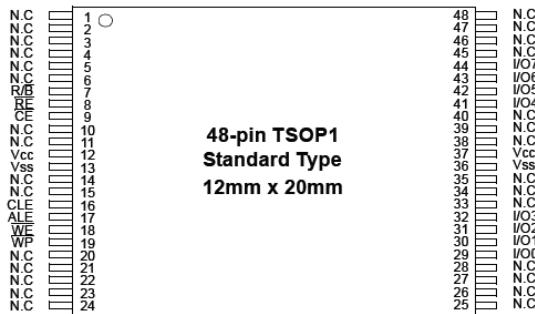


K9F1G08U0B

FLASH MEMORY

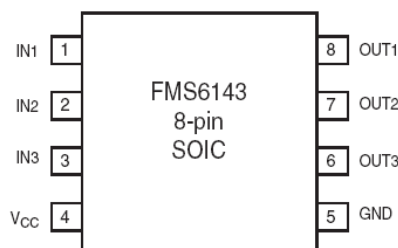
PIN CONFIGURATION (TSOP1)

K9F1G08U0B-PCB0/PIB0



FMS6143

Pin Configurations

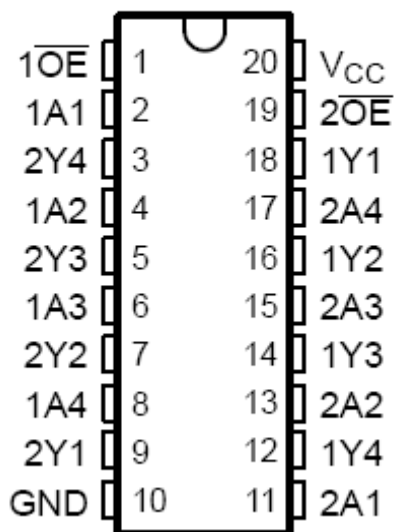


Pin Assignments

Pin#	Pin	Type	Description
1	IN1	Input	Video input, Channel 1
2	IN2	Input	Video input, Channel 2
3	IN3	Input	Video input, Channel 3
4	V <sub>CC</sub>	Input	+5V supply, do not float
5	GND	Output	Must be tied to ground, do not float
6	OUT3	Output	Filtered output, Channel 3
7	OUT2	Output	Filtered output, Channel 2
8	OUT1	Output	Filtered output, Channel 1

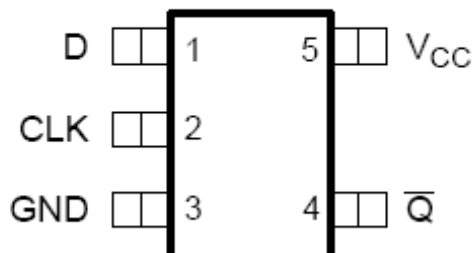
# SN74ALVC244

DGV, DW, NS, OR PW PACKAGE  
(TOP VIEW)

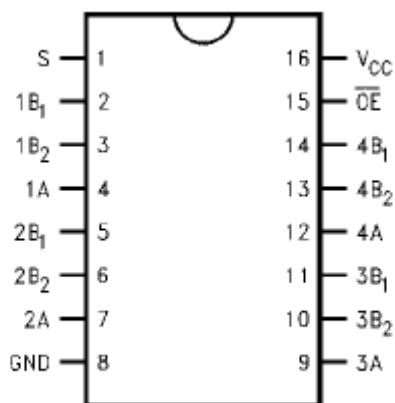


# SN74AUP1G80

DCK PACKAGE  
(TOP VIEW)



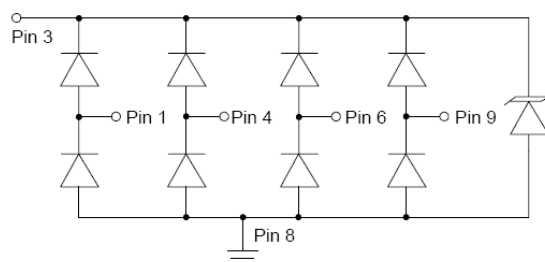
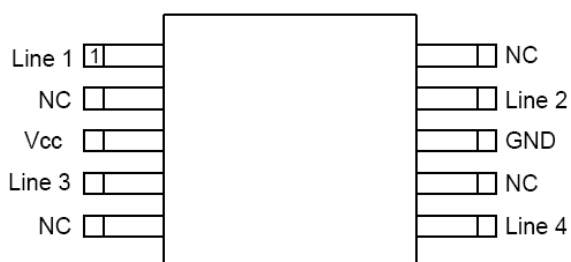
# FST3257



Pin Name	Description
$\overline{OE}$	Bus Switch Enable
S	Select Input
A	Bus A
B <sub>1</sub> -B <sub>2</sub>	Bus B

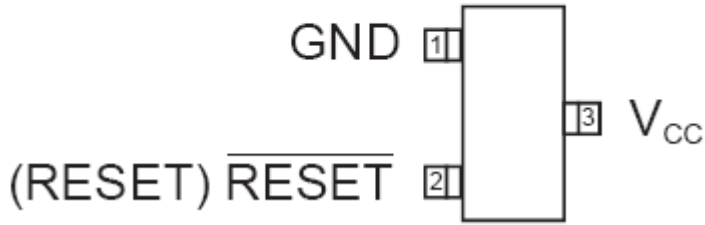
S	$\overline{OE}$	Function
X	H	Disconnect
L	L	A = B <sub>1</sub>
H	L	A = B <sub>2</sub>

# RClamp0514M

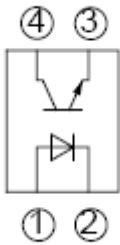


# AAT3520/2/4

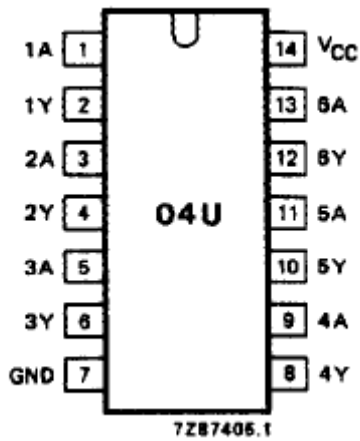
**SOT-23  
(Top View)**



# PC817



# 74HCU04



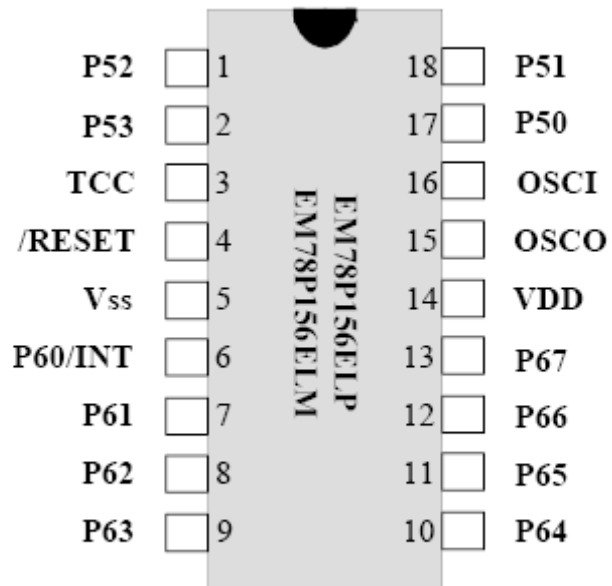
**FUNCTION TABLE**

INPUT	OUTPUT
nA	nY
L	H
H	L

**Note**

- 1. H = HIGH voltage level  
L = LOW voltage level

# EM78P156



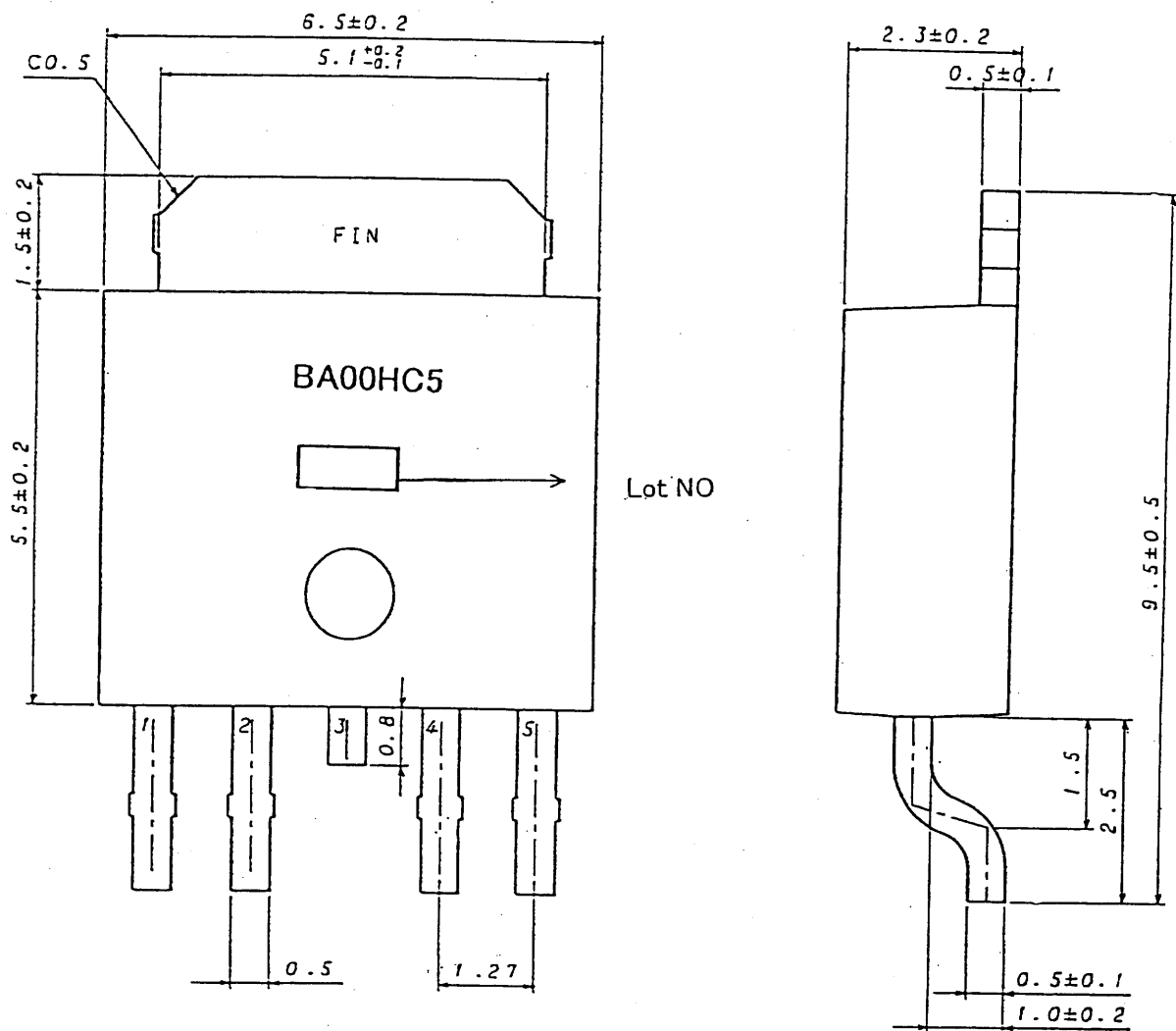


PRODUCTS  
半導体集積回路

TYPE  
BA00HC5FP

PAGE  
4/10

○外形図



(UNIT:mm)

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

図-1 外形図 (プラスチックモールド)

ROHM CO., LTD.

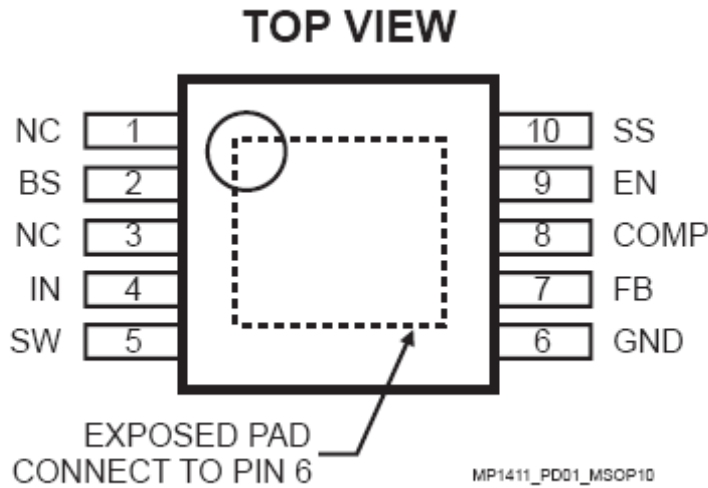
REV. : A

SPECIFICATION No. : TSZ02201-BA00HC5FP-1-1

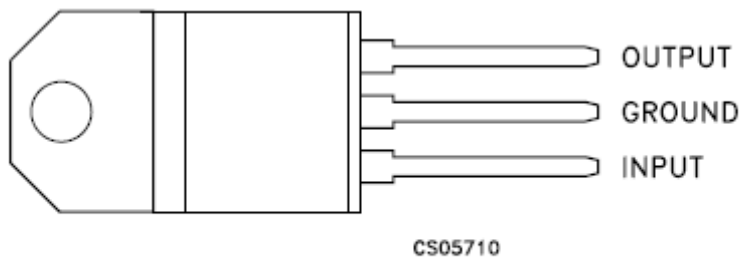




**MP1411 – 2A, 18V, 380KHz STEP-DOWN CONVERTER**



**L7800 SERIES**

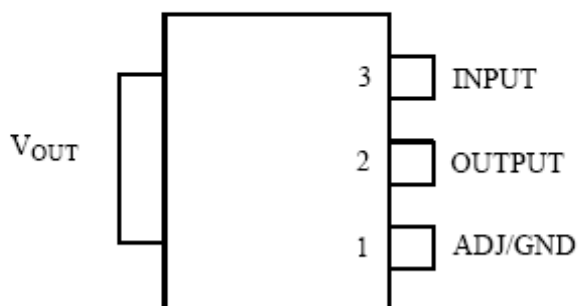


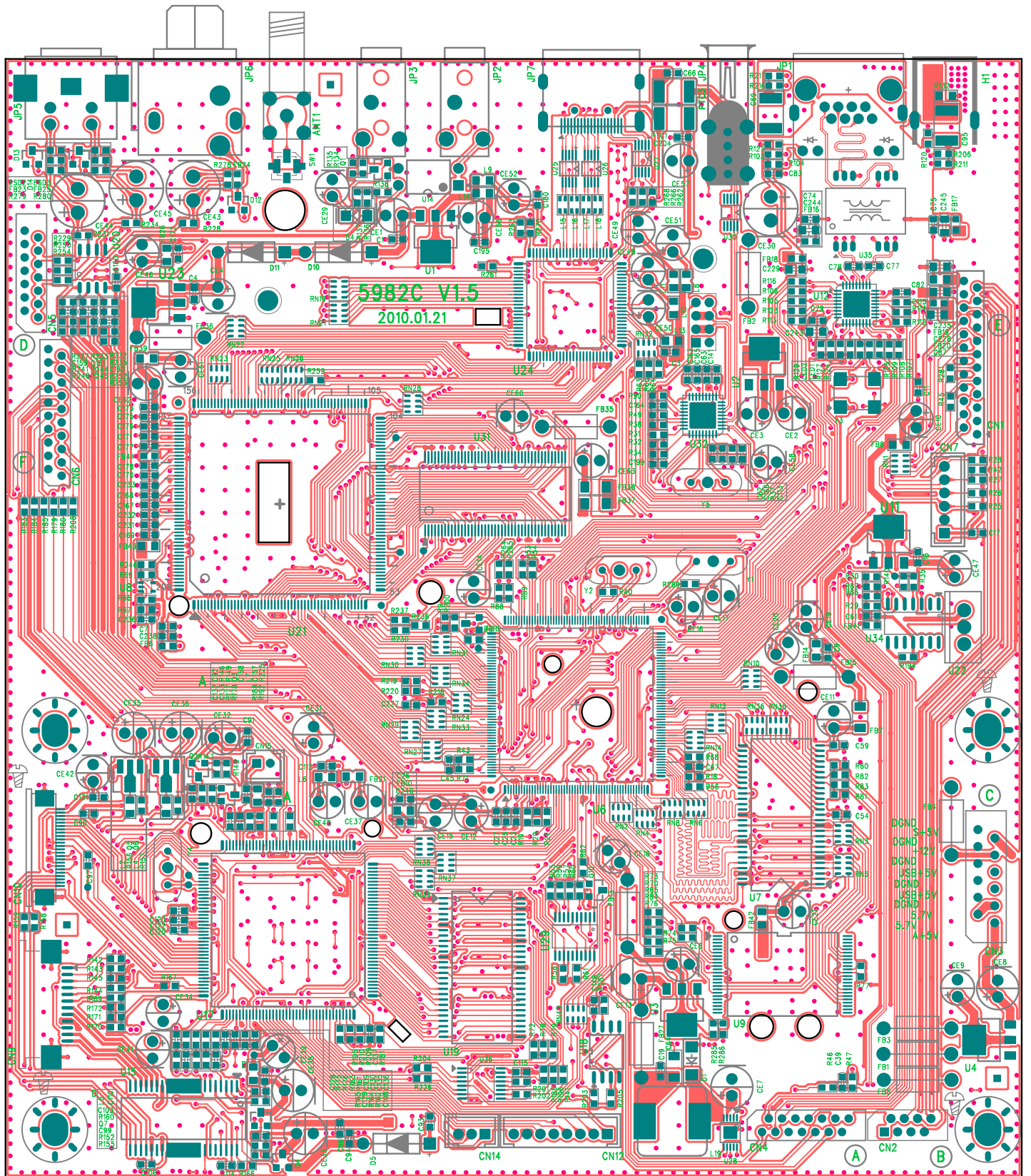
**TO-220 (Any Type)**

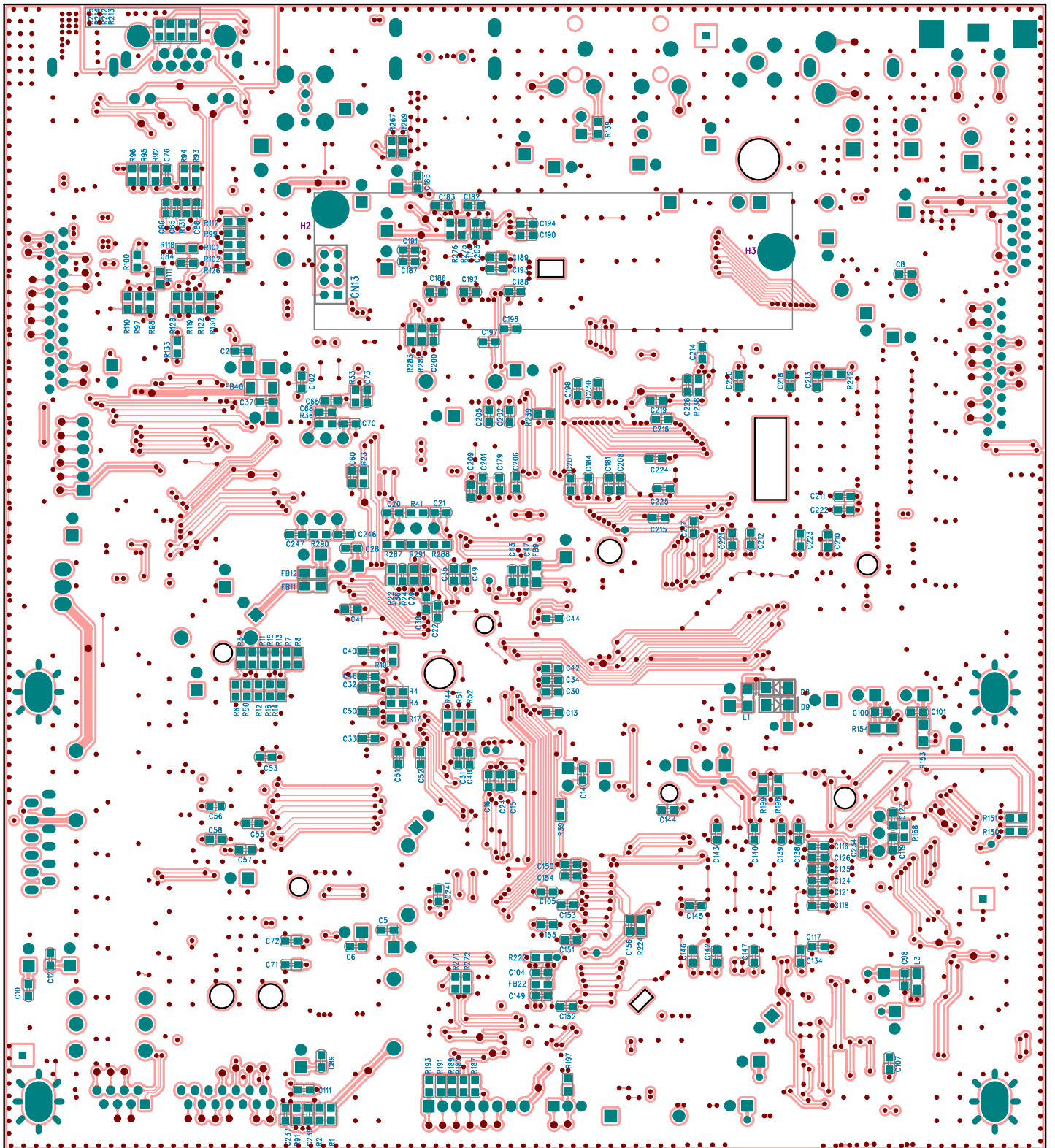
**1A LOW DROPOUT LINEAR REGULATOR**

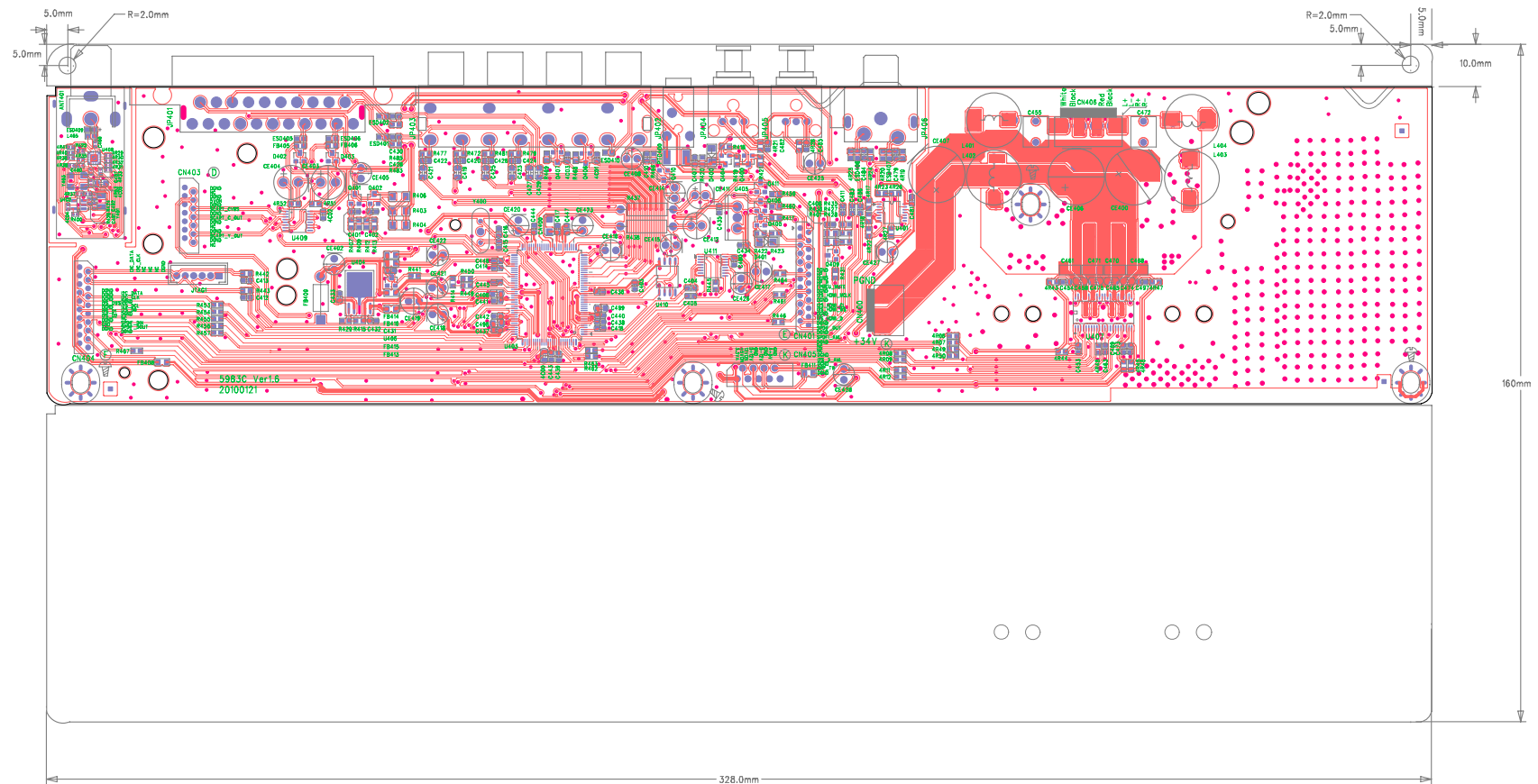
**AZ1117**

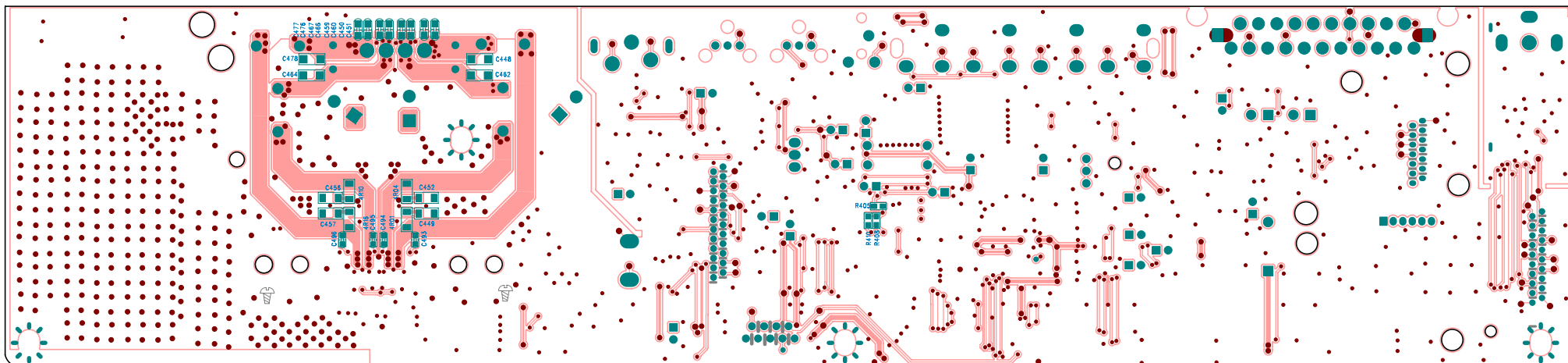
**H Package  
 (SOT-223)**

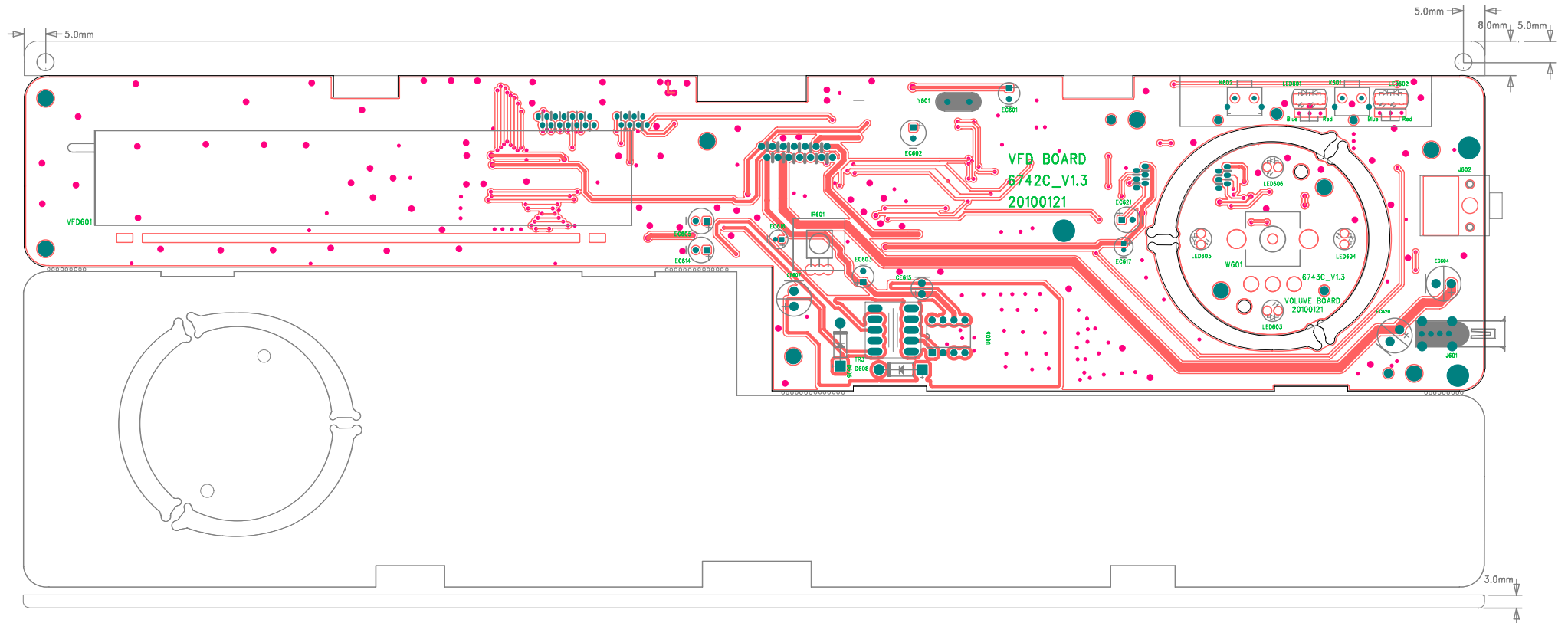


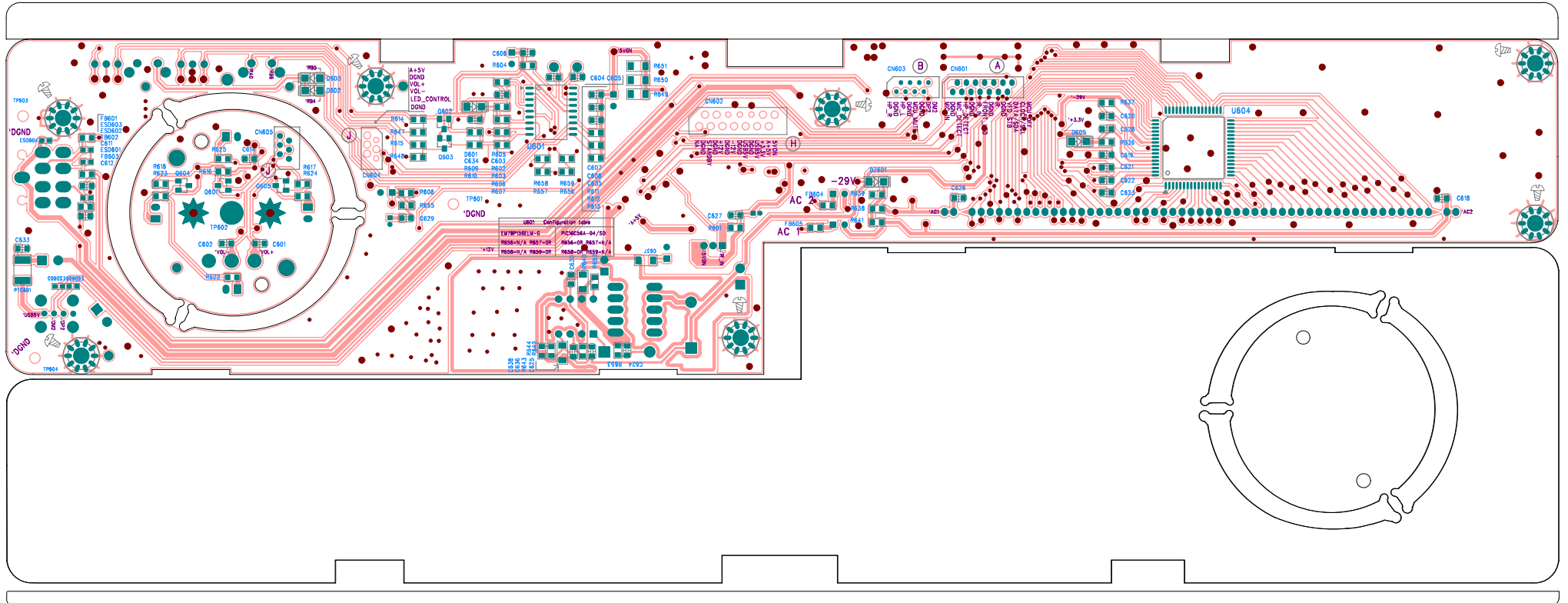


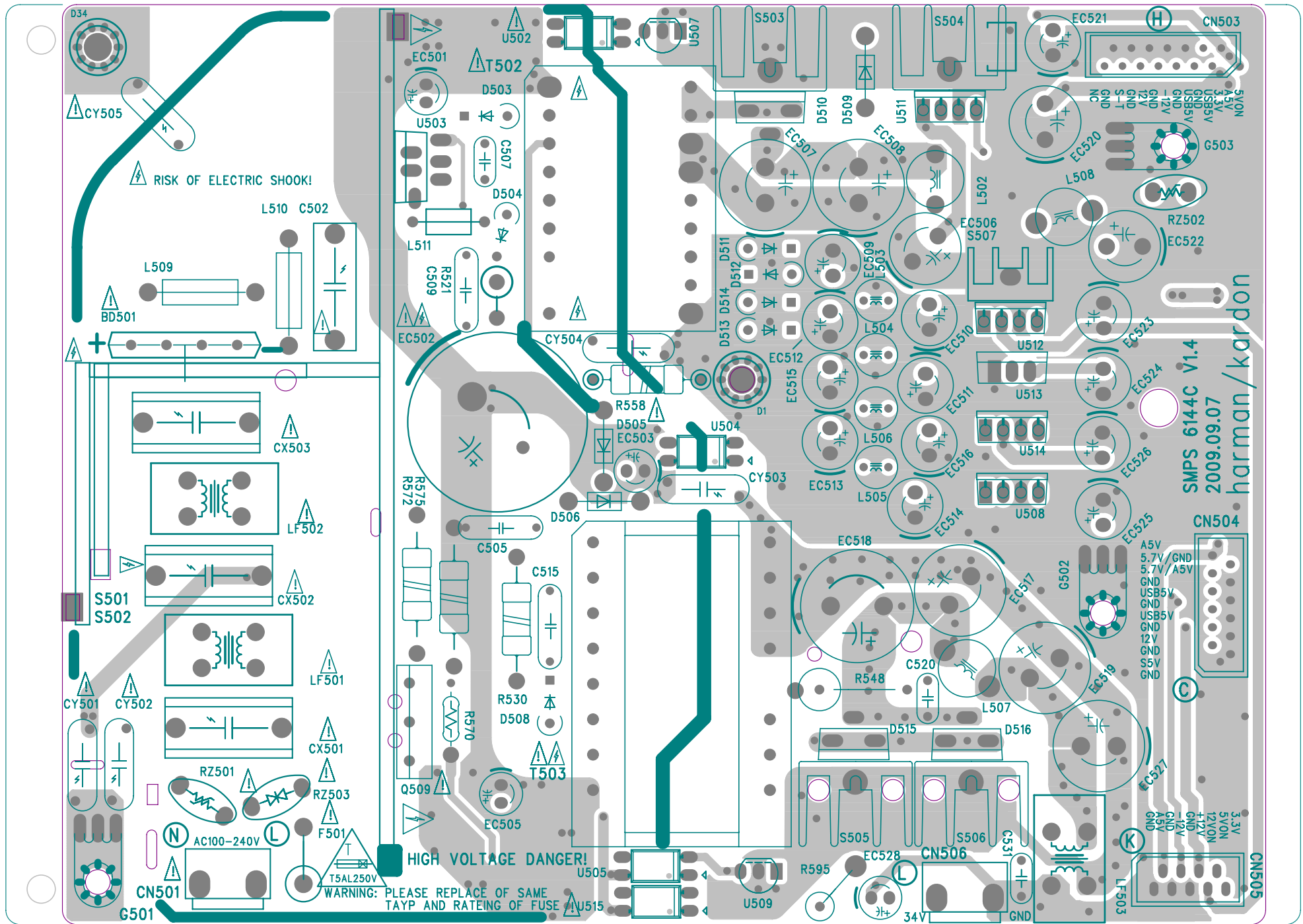




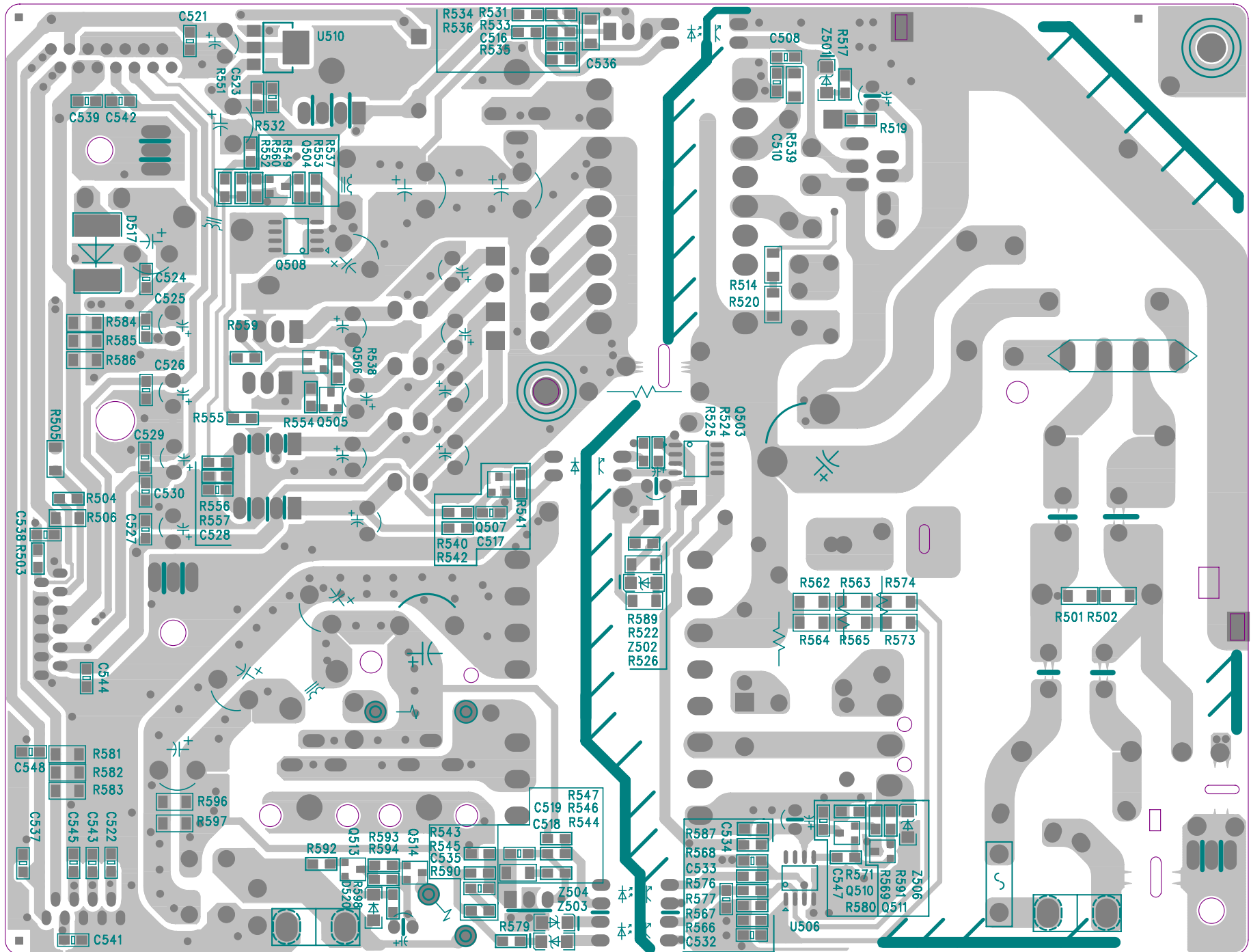


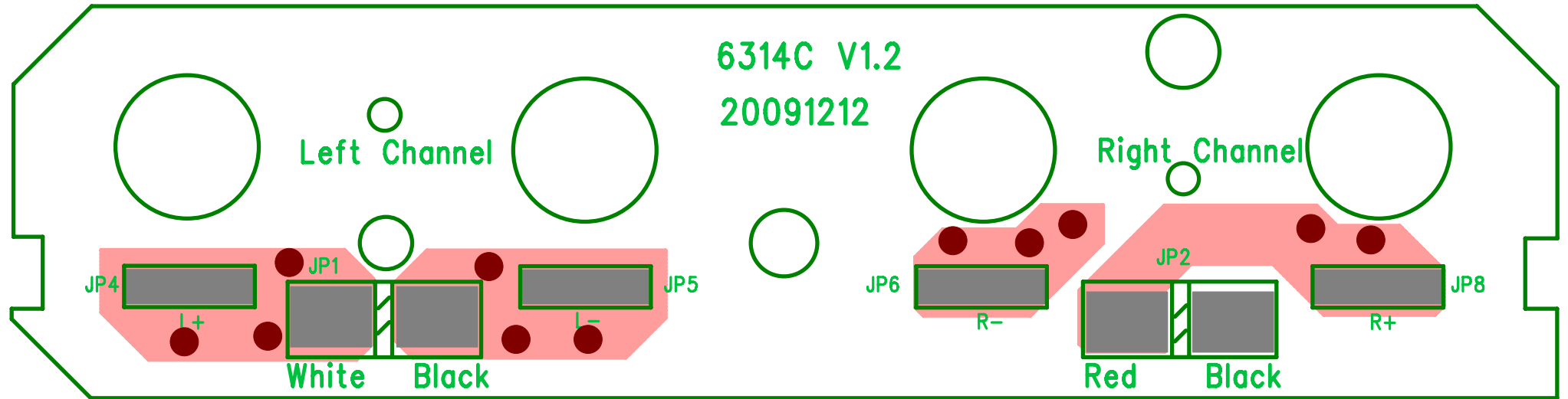


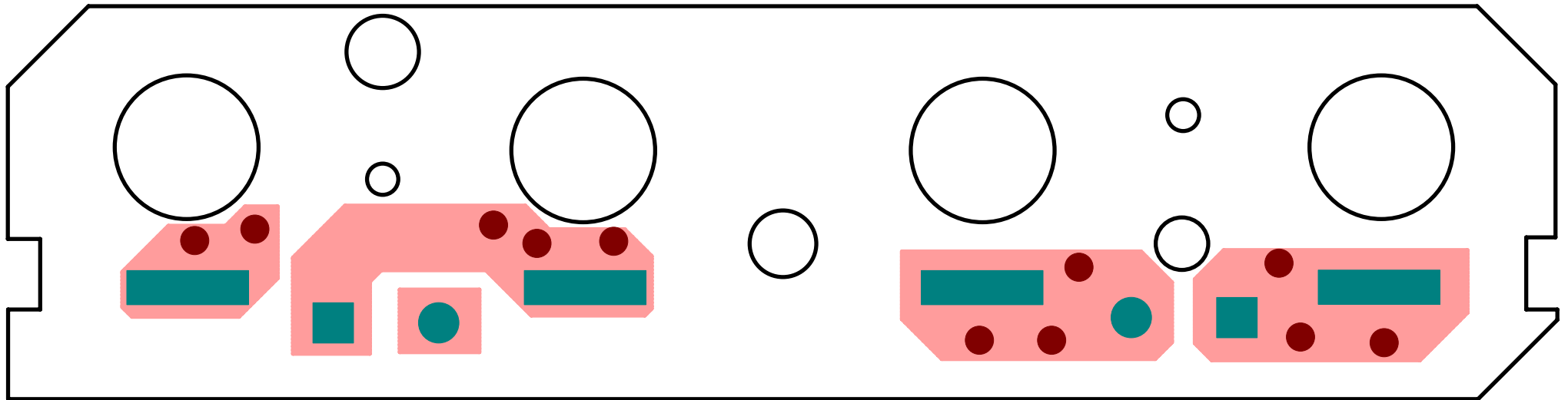




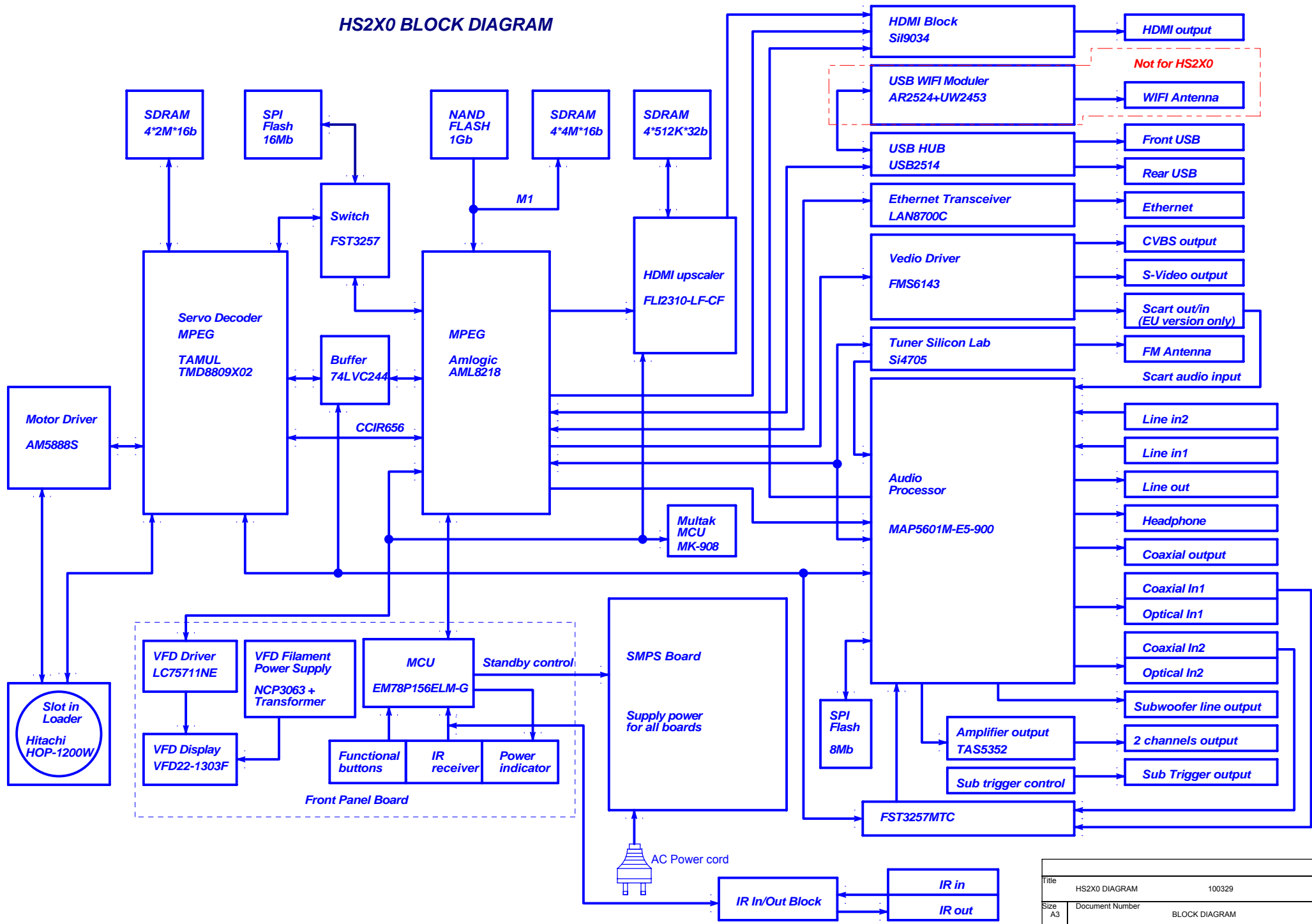




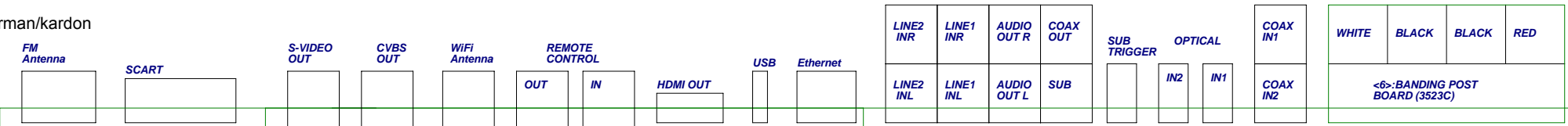




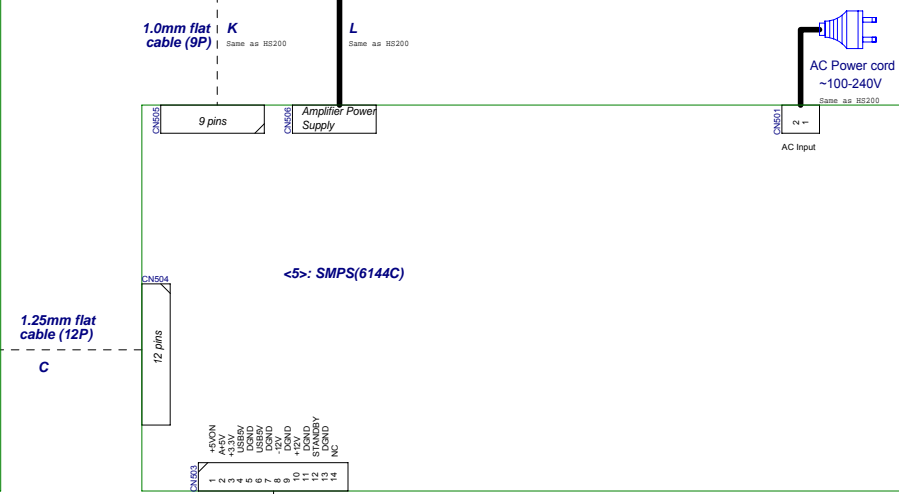
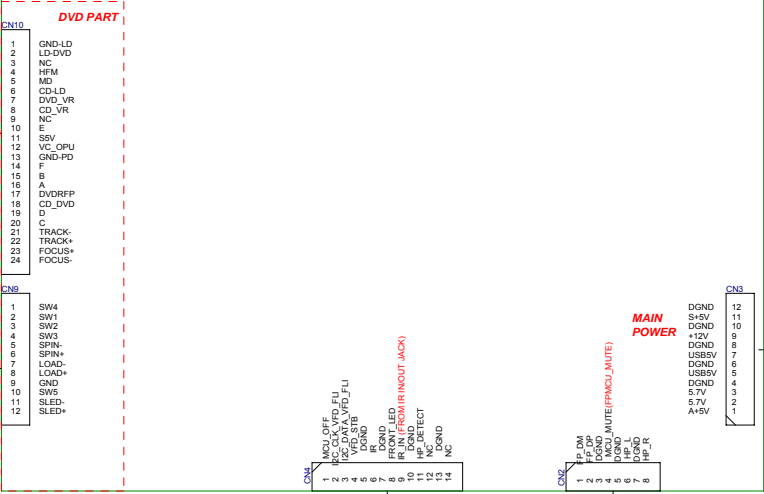
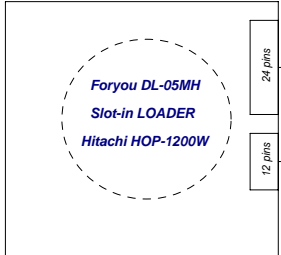
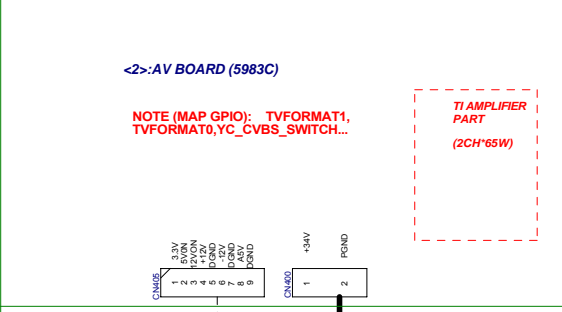
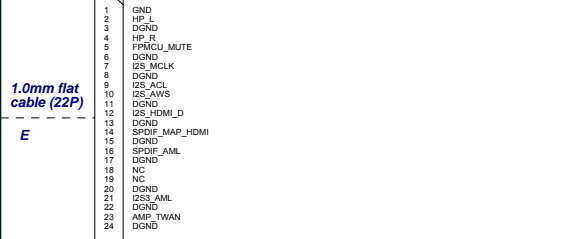
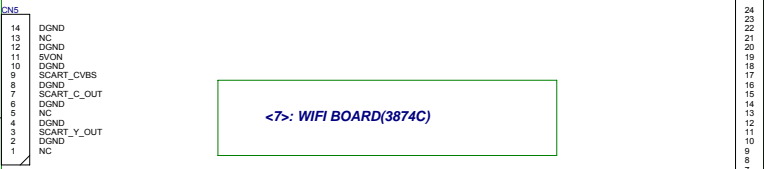
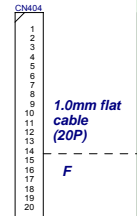
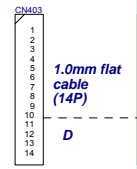
### HS2X0 BLOCK DIAGRAM



Title		HS2X0 DIAGRAM		100329	
Size	A3	Document Number	BLOCK DIAGRAM		Rev
Date:	Monday, March 29, 2010	Sheet	1	of	21

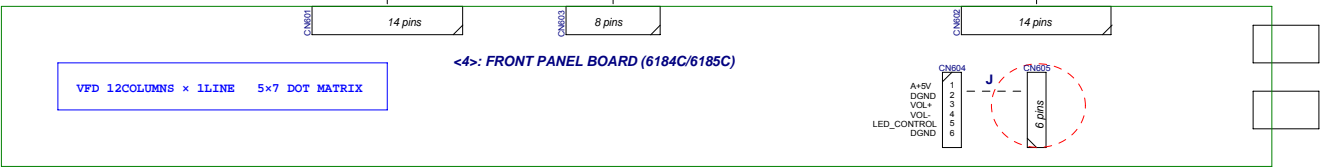


HS 2X0/230 Service Manual



HS2X0 CNT REF NO. ASSIGNMENT

SMPS 6144C: from 500-599
Front panel board 6184C/6185C: from 600-699
Main board 5982C: from 1-399
AV board 5983C: from 400-499(4R..)



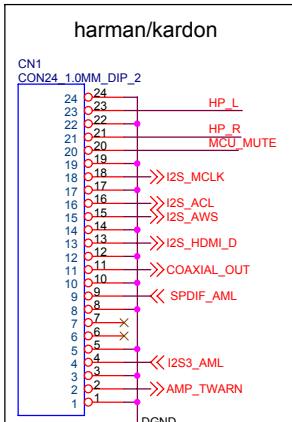
File	HS2X0 Wiring DIAGRAM_20090304		
Size	Document Number	Rev	1.2
A2	Wiring Diagram		
Date	Monday, March 29, 2010	Sheet	20 of 20

NO.	REVISION DATE	REV	harman/kardon	REVISION HISTORY	HS 2X0/230 Service Manual
1	July 8, 2008 Hitachi version EV1	1.0	<ul style="list-style-type: none"> <li>1. R3 -&gt; ON, R7 on-&gt;off, R8 off-&gt;on</li> <li>2. U11 -&gt; OFF, U10 -&gt; ON</li> <li>3. R71 R72 R78 R79 -&gt; ON</li> <li>4. U21 Pin9 GND -&gt; VCC and add R31=4.7K</li> <li>5. Change R162 from 4.7K to 0R</li> <li>6. Crrct spindle signals by swap them.</li> <li>7. Add pull-up resistors onto I2C</li> <li>8. Change to high speed logic device SN74LVC2G04DCKR for 50MHz crystal.</li> <li>9. Delete YUV output, reassign the output AML_CVBS, AML_Y and AML_C.</li> <li>10. Delete analog conversion chip TVP7000, add FLI2310 to convey the signal between AML8218 and SiI9034, add reset signal of U6.158</li> <li>11. Delete SDRAM2 of U6, and change the SDRAM1to 256M capability, reassign the HDMI output of AML8218.</li> <li>12. Delete the SDIO interface for WiFi, replace it with USB Hub and USB interface WiFi.</li> <li>13. Delete U11, not useful.</li> <li>14. Reassign the IEC958 output from U6.135 to U6.141.</li> <li>15. Delete HYNC. VSYNC, FID signals of 5029, and pin77 78 81 leave float.</li> <li>16. Repalce SN74ALVCH16827-DGG with SN74ALVC244PW, and move to AML8218 page. delete Video buffer page</li> </ul>	<ul style="list-style-type: none"> <li>17. SPI modification: (1) Change I2C_DATAS from p1.0 to p5.3, delete the connection between p5.3 and SPI_FAIL_, SPI_FAIL connect 1K ohm and then to GND. (2) Change SPI_CONTROL_CLK_ from p1.2 to p1.0, leave p1.2 vacant. (3) Change P1.5 from sip_sop to spi_ack (4) Delete the connection between buffer 1Y2, 1Y3 and RN43.2, RN43.3; connect RN43.2, RN43.3 to GND. NANDFLASH modification: (1) R8 -&gt; OFF, R7 -&gt; ON (2) Pull 4.7Kohm from R73 to U11.8, left of R85 connect to NAND_VCC3</li> <li>18. Change net name of PIN32 33 on AML8218, from VSYNC, HSYNC to SPI_FAIL, SPI_SOP, and pull down 1Kohm resistor to GND, delete SPI_FAIL and SPI_SOP of 5029</li> <li>19. AML8218 and S5L5029 share 27MHz clock.</li> <li>20. Move MCU_OFF from pin212 to pin 108, pin212 change to I2S3_AMCLK, I2S3_AMCLK and I2S_HDMI_MCLK connect to I2S_MCLK then to CN1.18, I2S_AML_CL and I2S_HDMI_CL connect to I2S_ACL then to CN1.16, I2S_AML_WS and I2S_HDMI_WS connect to I2S_AWS then to CN1.15, delete CN1.7 and CN1.6 net I2S_AML_WS and I2S_AML_CL</li> <li>21. Delete the crystal of AML8218 on USB port.</li> <li>22. Delete CE13</li> <li>23. Divide the 27M clock into 13.5M for FL2310 and add D-trigger.</li> </ul>	
2	Dec 18, 2008 EV2	1.1	<ul style="list-style-type: none"> <li>1. Pin13,17,19 of USB2514 must be connected to GND</li> <li>2. Change C68, C70 to 20p</li> <li>3. R91 -&gt; 1.5K, R140 -&gt; 1.2K</li> <li>4. R50 -&gt; N/A</li> <li>5. Move R7 value to R6, NOR FLASH</li> <li>6. C237 -&gt; R262 = 22R</li> <li>7. Correct USB data signal and WIFI PORT1, PORT2</li> <li>8. Change the power supply of U8 to 3.3V</li> <li>9. In debug mode, R42 shoud be N/A</li> <li>10. Change SDRAM to Samsung brand, modify the data signals between SDRAM and flash.</li> <li>11. Add WIFI antenna connection</li> <li>12. Change the data signal of SDRAM.</li> </ul>	<ul style="list-style-type: none"> <li>13. Add R266 and R268 onto I2C of HDMI</li> <li>14. Move I2C of VFD from GPIOC_2,3 to GPIOC_19,18; I2C of HDMI from GPIOC_19,18 to GPIOC_2,3; FLI2310 share I2C with VFD</li> <li>15. Add pull-up resistor onto DATA, CLK of I2C</li> <li>16. SPI DMA modification: RN40 pin 6 connect 15p to GND RN40 pin 2 connect 3.3k resistor to 3.3V RN40 pin 3 connect 3.3k resistor to 3.3V</li> <li>17. R59 -&gt; 0R</li> <li>18. Add a resistor 1K between pin8 and vcc of MK900.</li> <li>19. Add pull-up resistor to CS of MK900</li> <li>20. ADD DC/DC convertor, reassign power for chips.</li> <li>21. Modify the connector between mainboard and SMPS board</li> </ul>	
3	Mar 10, 2009 EV3 DV1	1.2	<ul style="list-style-type: none"> <li>1. Add pull-up R71 to HP_DETECT</li> <li>2. Replace the intergrated network connector with discrete connector.</li> <li>3. Separate the analog power supply for FLI2310</li> <li>4. Modify the burning signal of servo flash U18, add switch FST3257.</li> <li>5. Modify the reset signal for samsung chip to AML8218.</li> <li>6. Delete R181, C137</li> <li>7. Delete crystal of FLI2310, nor flash of AML8218, EEPROM of S5L5029</li> <li>8. Delete optional capacitor for clock between s5l5029 and AML8218, choose resistor to connect.</li> <li>9. Add 12MHz crystal for AML8218</li> </ul>	<ul style="list-style-type: none"> <li>10. Modify the core power supply for AML8218 with DC/DC.</li> <li>11. Enhance the core power supply of AML8218.</li> <li>12. Modify the video output capacitors and resistors, add clamp diodes on them, to improve the performance.</li> <li>13. Change R252 to 82R</li> <li>14. Change C119 and C127 to 20pF.</li> <li>15. Add optional clock net for AML8218.</li> <li>16. R5 -&gt; OFF, R6 -&gt; ON</li> <li>17. rn1 -&gt; N/A</li> </ul>	
4	Aug 15, 2009 DV2	1.3	<ul style="list-style-type: none"> <li>1. Modify 50MHz crytal to 50MHz active crytal.</li> <li>2. Enlarge the capacitor to 1000uF for USB5V power supply, improve HDD noise plugging in.</li> <li>3. Add PTC3.</li> </ul>	<ul style="list-style-type: none"> <li>4. Change R58 to 100R, to improve the wave of SPDIF input.</li> <li>5. Change R179 R180 to 100R, to improve CD player noise.</li> <li>6. Change C15 from Y5V to X7R, to improve the video performance stability.</li> </ul>	
5	Dec 12, 2009 PV	1.4	<ul style="list-style-type: none"> <li>1. RFSUM C97(102) -&gt; 681</li> <li>2. RFEQO C120(561) -&gt; 681</li> <li>3. FOD R175(2.2k) -&gt; 47k, R165(30k) -&gt; 0, C128(222) -&gt;151</li> <li>4. TRD R176(2.2k) -&gt;47k, R164(43k) -&gt; 0, C129(222) -&gt;151</li> <li>5. SLD R163(20k) -&gt;15k</li> <li>6. DVD VR: R150 - 100 ohm - pin78 P4.3</li> <li>7. CD VR: R151 - 100 ohm - pin81 P6.2</li> </ul>		
6	Jan 22, 2010 MP	1.5	<ul style="list-style-type: none"> <li>1. R229, R250, R254 -&gt; 68R</li> </ul>		

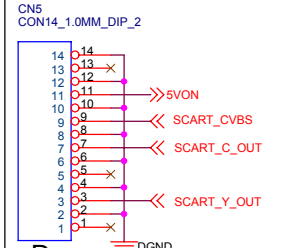
Title		
HS2X0 MAIN BOARD - 100309		
Size	Document Number	Rev
A3	5982Y	1.0
Date:	Tuesday, March 09, 2010	Sheet 1 of 1

NO.	REVISION DATE	REV	REVISION HISTORY
1	June 05, 2008 TI version EV1	1.0	1. Add 25V note to C491 and C492. 2. Delete AM tuner circuit. 3. Modify SCART output from RGB to YC. 4. Add E5 version to MAP4601. 5. R459, R460 -> ON 6. Delete net I2S_3_DVD 7. R415 -> 1.6K, adjust volage to 1.01V 8. 4R48 -> 47K, 7A for current limited. 9. Reset SPDIF_IN parameters. 10. Delete AMP_TWARN connection on MAP4601, connect this net to mainboard 11. Add pull-up resistor to net VALID.
2	Jul 22, 2008 EV1	1.1	1. In order to synchro clock, TUNER, ALM8218, HDMI, MAP commonly use same AMCLK, BCK and WS. 2. Delete nets I2S_AML_CL, I2S_AML_WS, change I2S_HDMI_MCLK to I2S_MCLK, change I2S_HDMI_CL to I2S_ACL, change I2S_HDMI_WS to I2S_AWS 3. Invert the input signals twice in the 74HC158. 4. Correct the BAV99 package. 5. Change the optical-coaxial combined terminal to discrete components. 6. Add CE406 CE407 to improve THD+N performance.
3	Dec 23, 2008 EV2	1.2	1. 4R31, 4R32 -> 22R 2. Connect pin106, pin107, pin90, pin91 to nets. 3. Add EEPROM for AC3 decode. 4. Change 78I08 to L7808. 5. Swap and correct the net name of optical1 and optical2. 6. Confirm the tuner chip part number is Si4705.
4	Mar 09, 2009 DV1	1.3	1. Comfirm the MAP part number is MAP5601-E5-900 for our use. 2. R431 -> 750R, R436-> 220R, Q409 -> BC847. 3. Modify the crystal circuit for Si4705 4. Correct the phase of AMPLIFIER OUT R+-. 5. Change the PWM2 output to PWM4 in MAP. 6. Add CE408 to improve plop noise in Harman subwoofer during power on. 7. Q406, Q407, Q410 -> ON
5	Sep 03, 2009 DV2	1.4	1. Replace 74HC158 with FST3257 2. Coaxial output modification, to meet the spectification of IEC60958.
6	Dec 12, 2009 PV	1.5	1. Only layout changed, to improve CD player noise.
7	Jan 21, 2009 MP1	1.6	

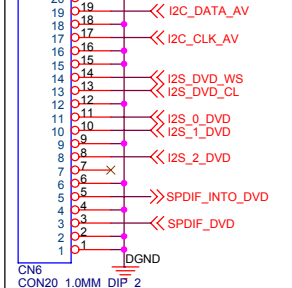
Title HS2X0 AV BOARD - 100309		
Size A3	Document Number 5983Y	Rev 1.0
Date: Tuesday, March 09, 2010		Sheet 1 of 1



**E TO AV BOARD**

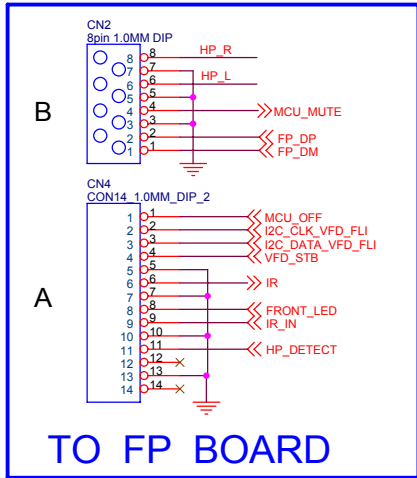


**D TO AV BOARD**

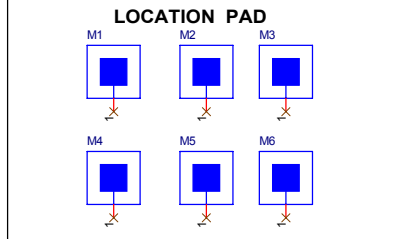
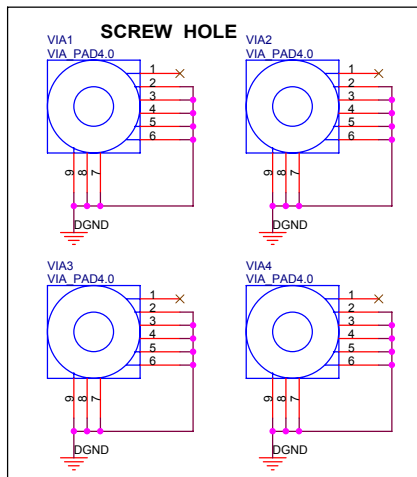


**F TO AV BOARD**

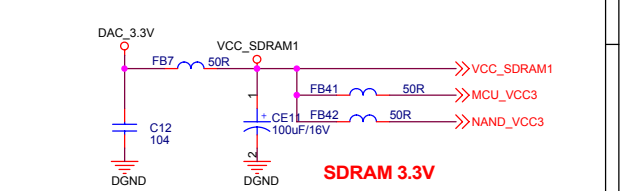
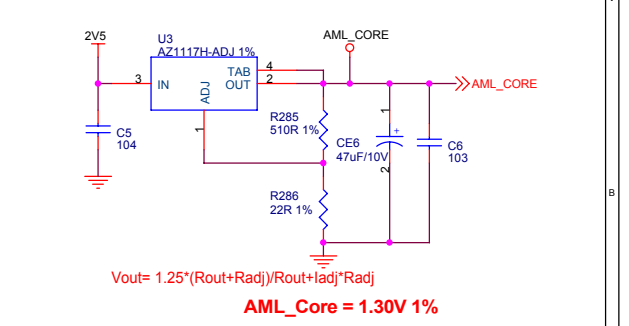
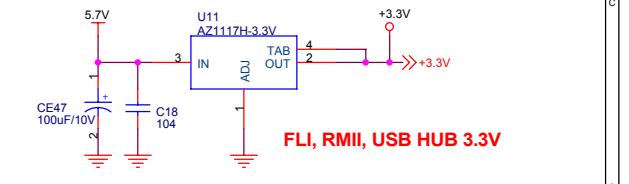
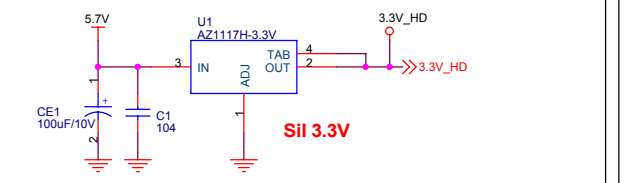
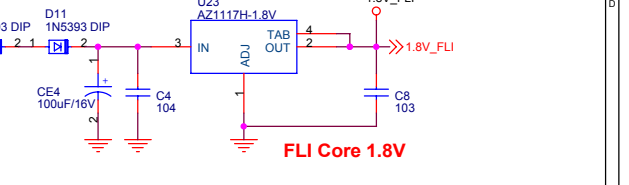
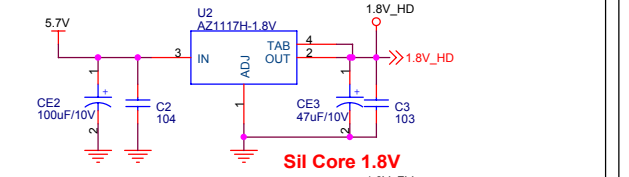
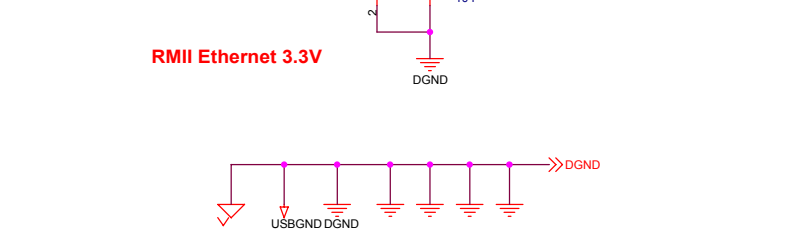
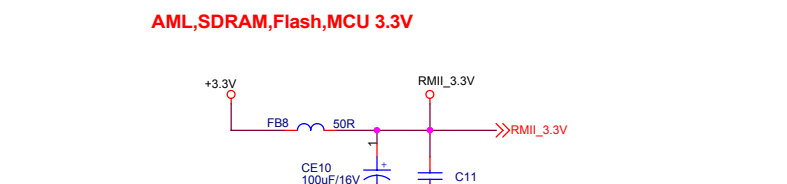
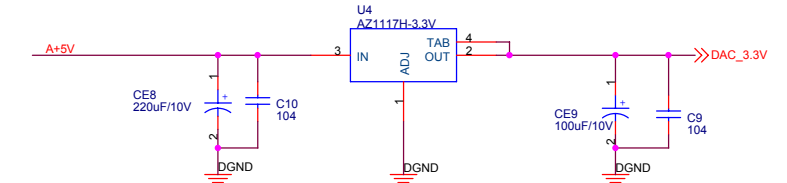
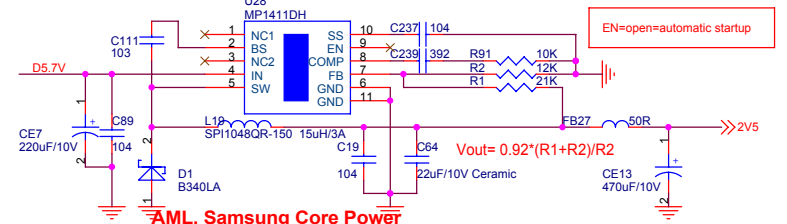
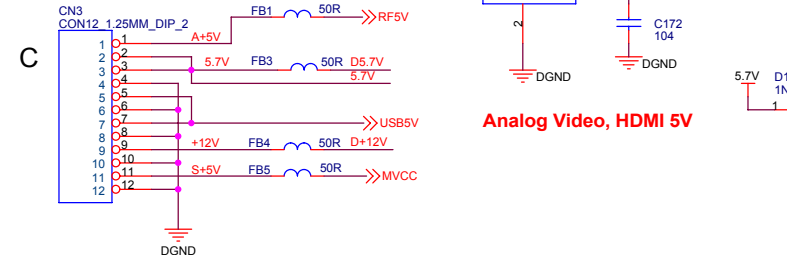
**TO AV BOARD**



**TO FP BOARD**

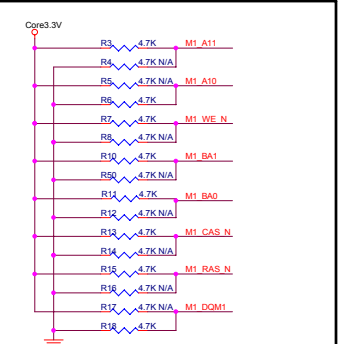


### POWER INPUT FROM EXTERNAL POWER BOARD



Title		
HS2X0 MAIN BOARD - 090718		
Size	Document Number	Rev
A3	Harman/Kardon - 5982Y	1.5
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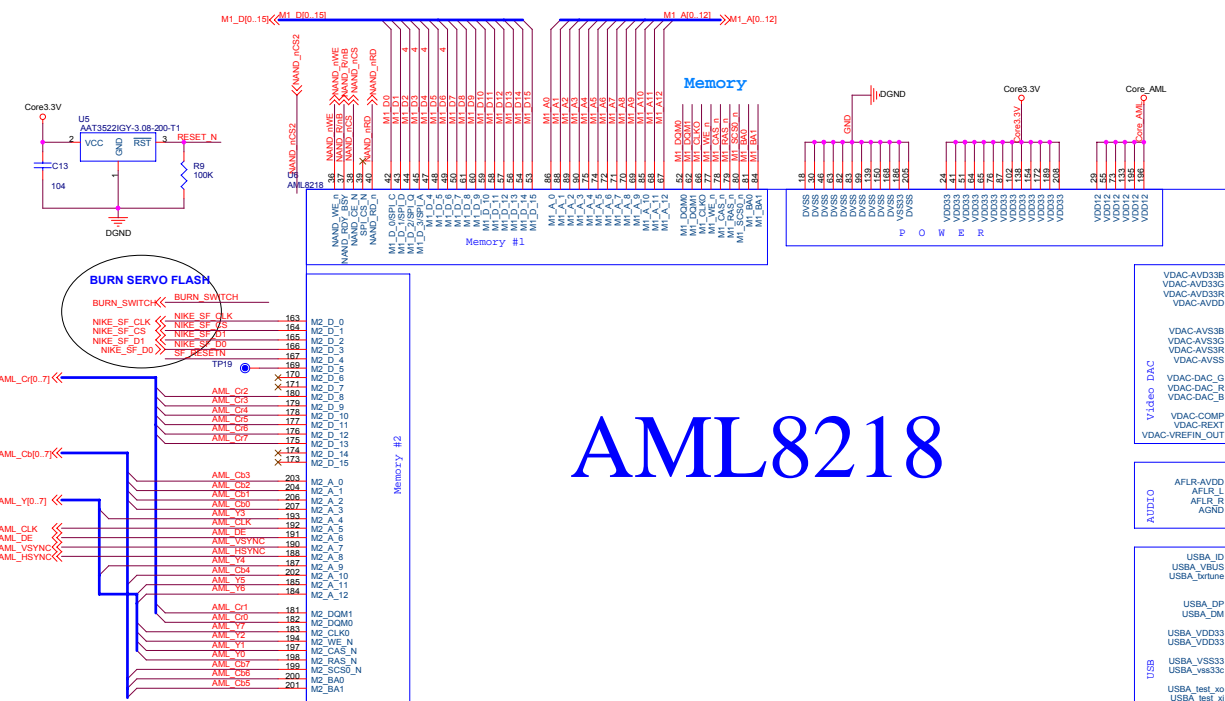




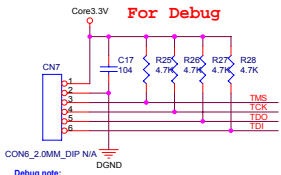
**Power On Configuration:**

M1_A11	SPI Boot Location	H:M1_* pins	L: NAND_* pins
M1_A10	JTAG	H: JTAG Enable	L: GPIO
M1_WE_N	Boot From	H: NAND	L: NOR
M1_BAT	SORAM2 Configuration	H: No SORAM2	L: Use M2_* for SORAM2
M1_BA0	NAND Location From	H: M1_* pins	L: M2_* pins
M1_CAS_N	NAND Flash Page Size	H: 2048 Byte	L: 512 Byte
M1_RAS_N	NAND Set Row Address	H: 3ALE	L: 2ALE
M1_DQM1	Bit Of Flash	H: 16Bit	L: 8Bit

Note:  
The NAND flash can only boot from M1\_\* pins.  
The SPI flash can boot from M1\_\* pins or NAND\_\* pins.  
AML8218 boot from NAND Flash is default.

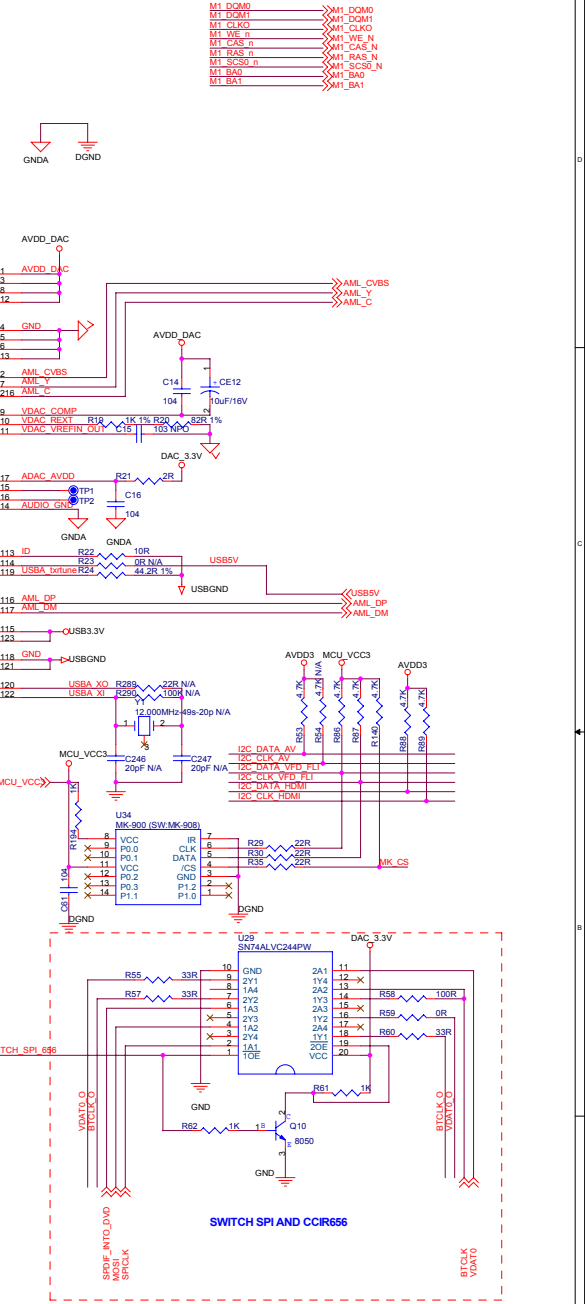
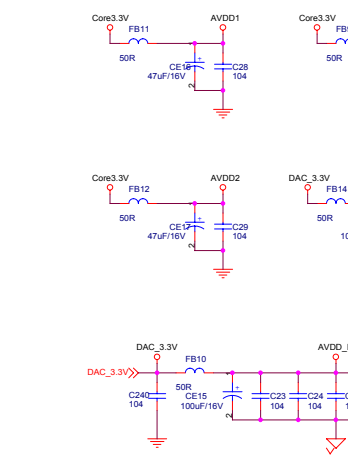


# AML8218

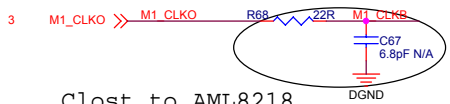
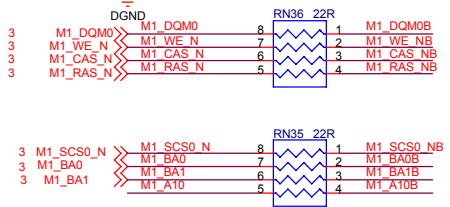
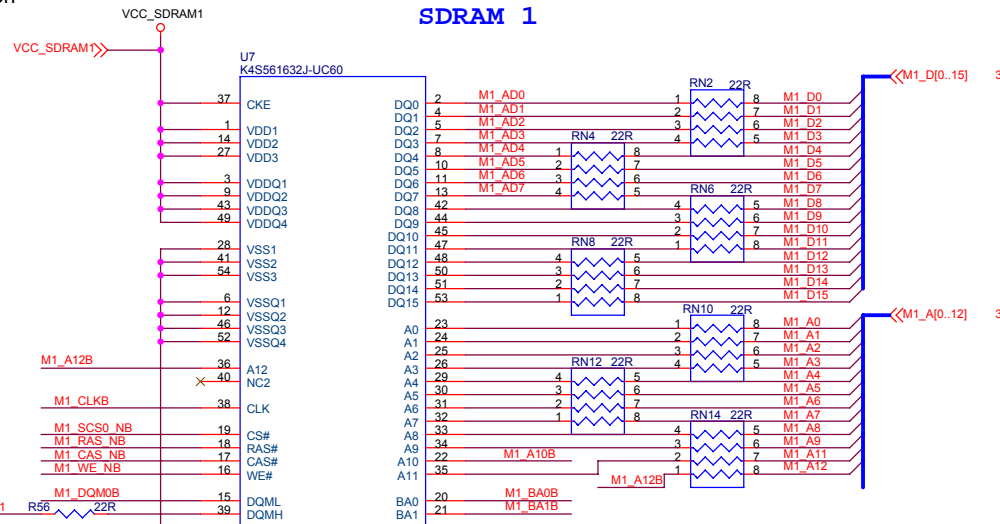


Debug note:

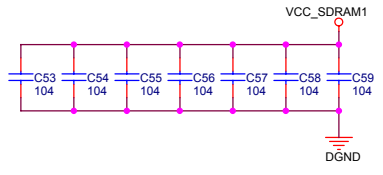
	R42 22R	RN1 22R	R5 4.7K	R6 4.7K
Debug	N/A	N/A	Yes	N/A
Normal	Yes	N/A	N/A	Yes



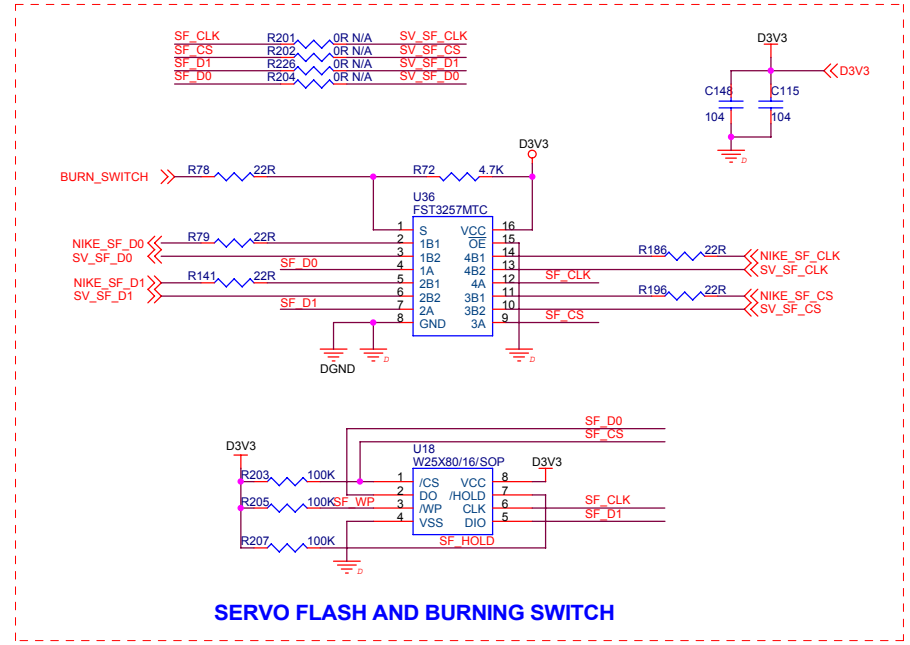
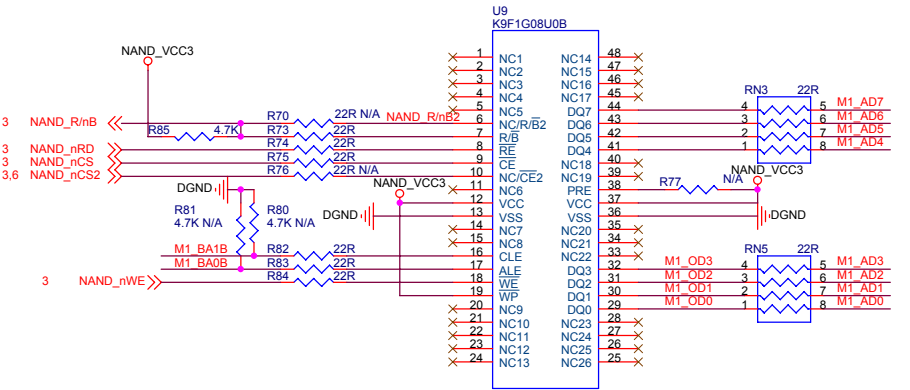
### SDRAM 1



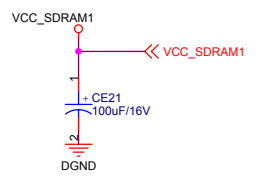
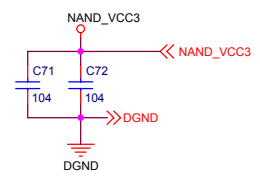
Clot to AML8218



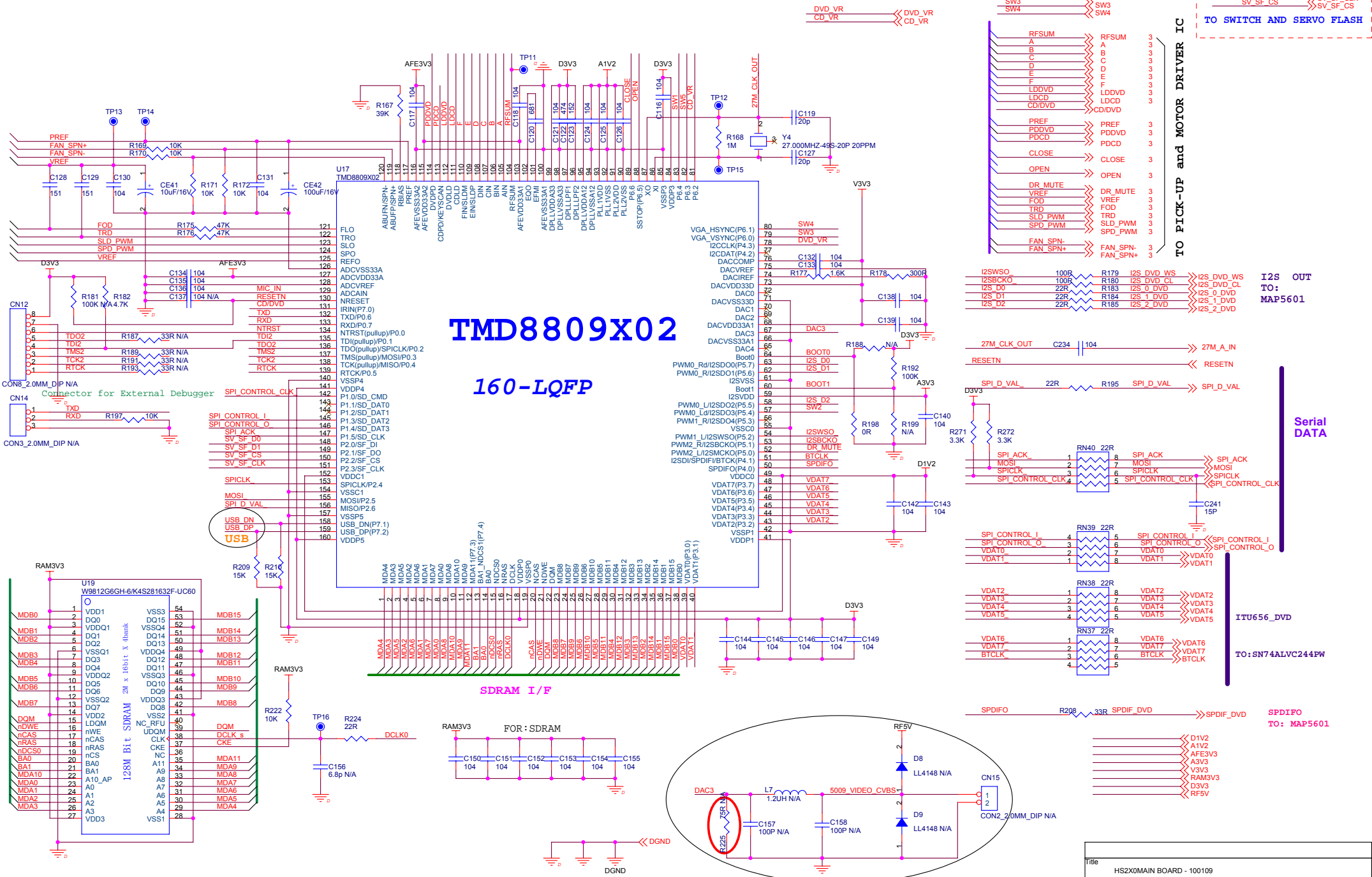
### NAND FLASH



### SERVO FLASH AND BURNING SWITCH



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HS2X0 MAIN BOARD - 090805		
Size	Document Number	Rev
A3	Harman/Kardon - 5982Y	1.5
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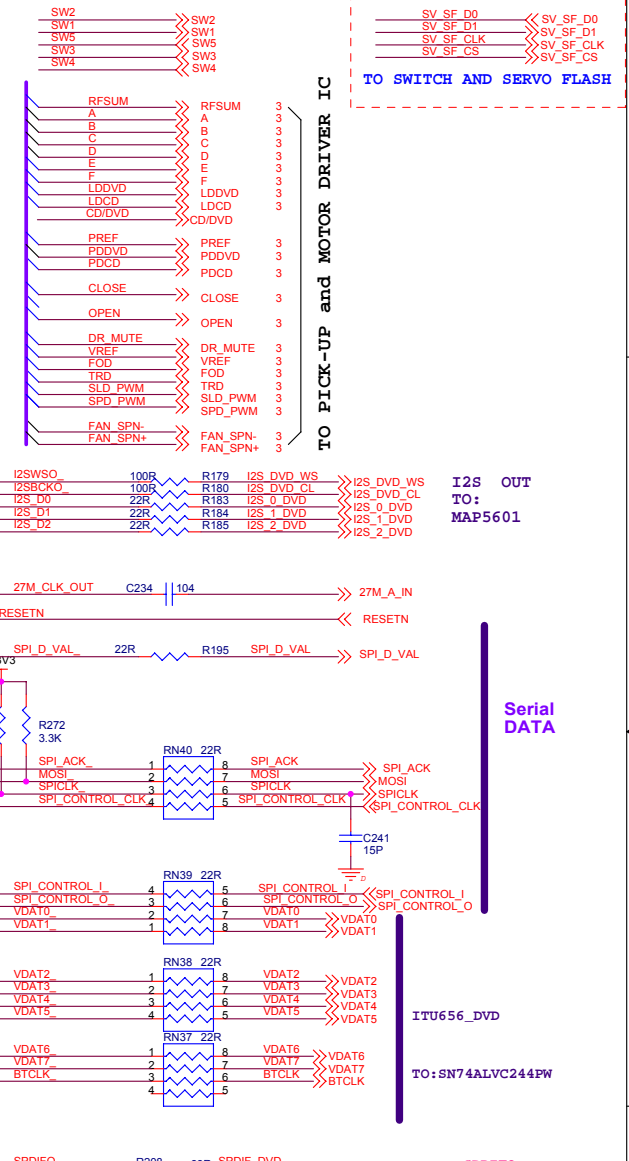


**TMD8809X02**  
**160-LQFP**

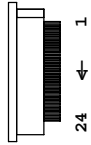
**SDRAM I/F**

**FOR : SDRAM**

**ADD 5029 CVBS TEST CIRCUIT**

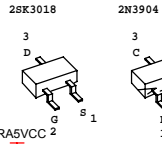


Title		HS2X0MAIN BOARD - 100109
Size	Document Number	Harman/Kardon - 5982Y
Custom	Date:	Monday, March 29, 2010
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Rev	1.5	

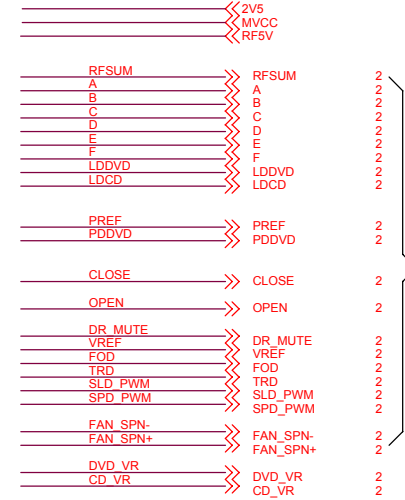
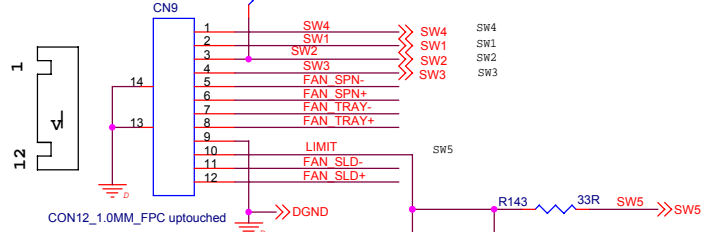
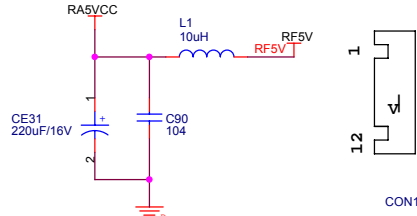
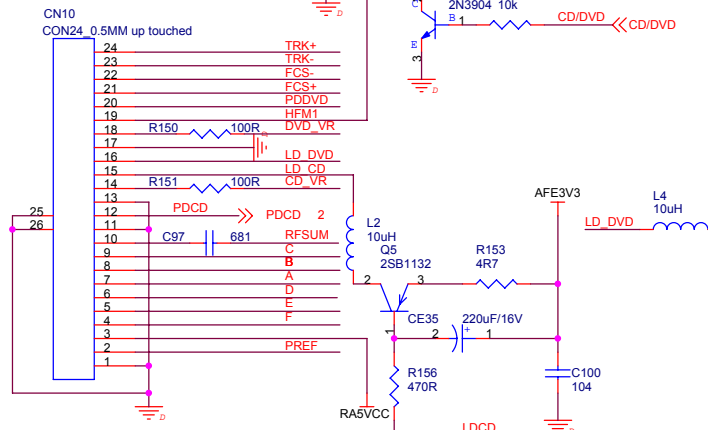


FFC CONNECTOR

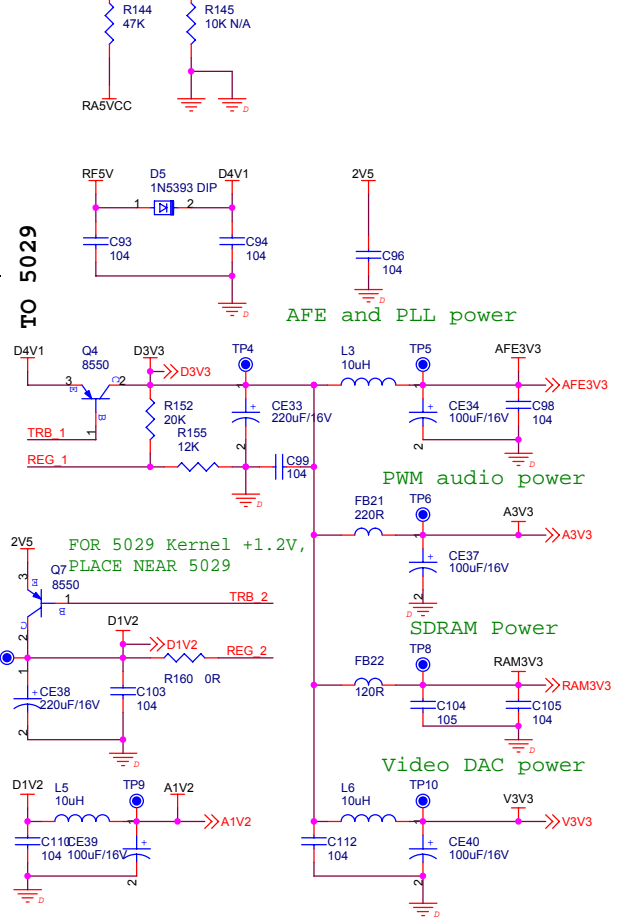
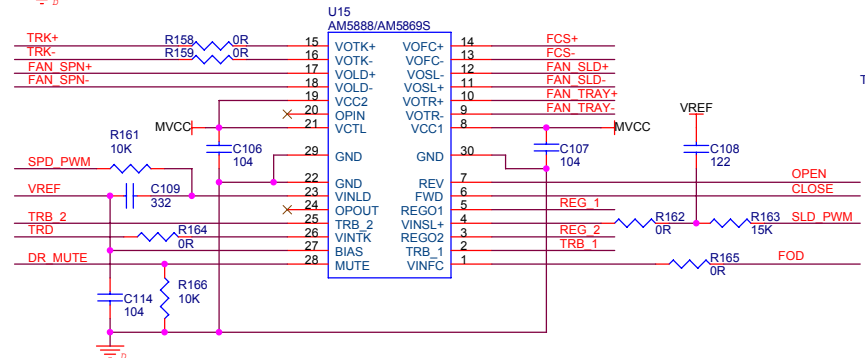
For DL6/HD65/1200X



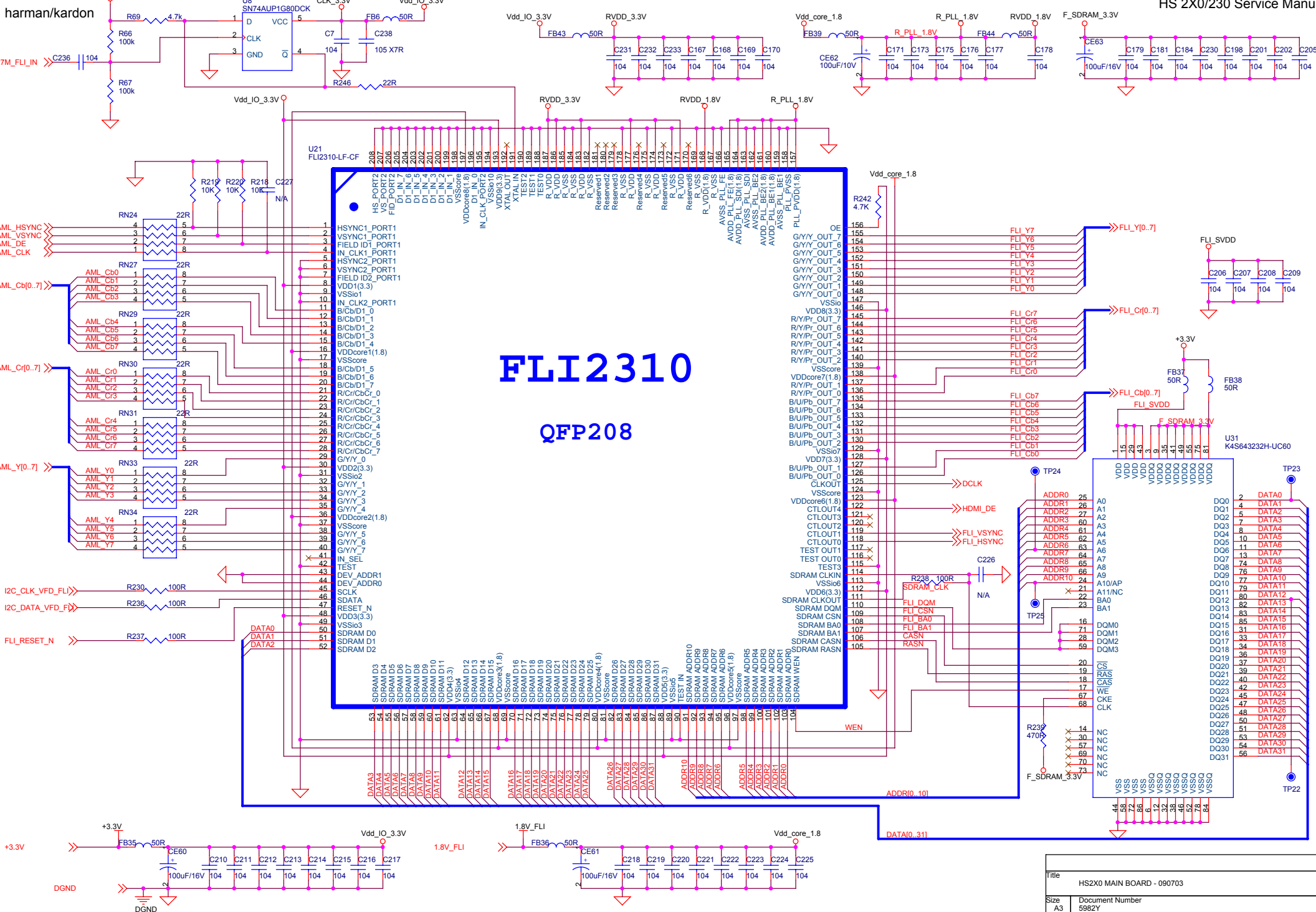
For HITACHI 1200W P/U



TO 5029



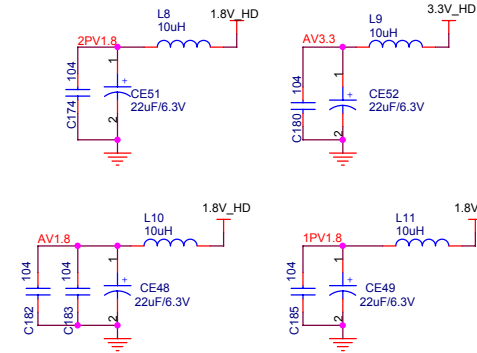
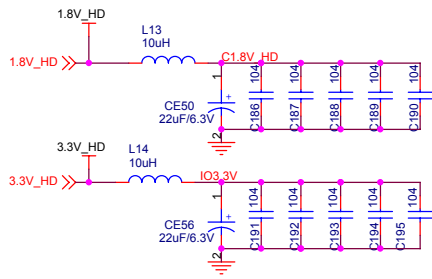
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HS2X0 MAIN BOARD - 100109		
Size	Document Number	Rev
Custom	5982Y	1.5
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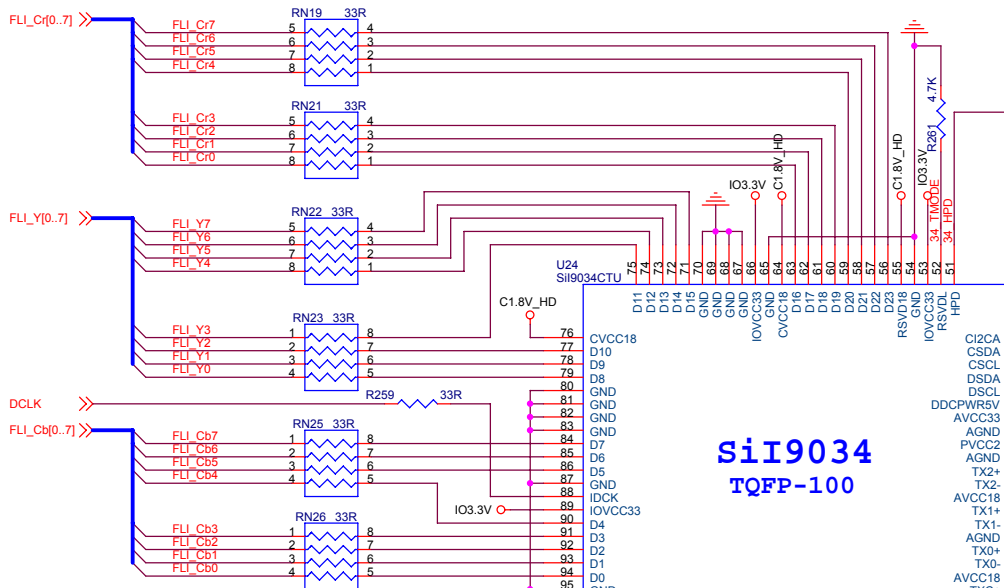
# FLI2310

## QFP208

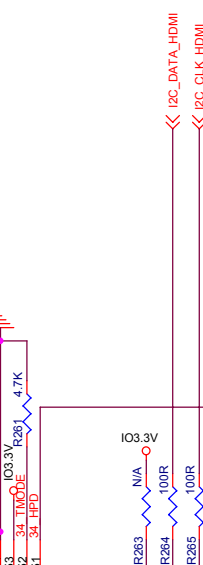
Title	HS2X0 MAIN BOARD - 090703		
Size	A3	Document Number	5982Y
Date:	Monday, March 29, 2010	Sheet	06 of 10



### POWER PART

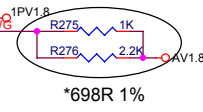


## SiI9034 TQFP-100

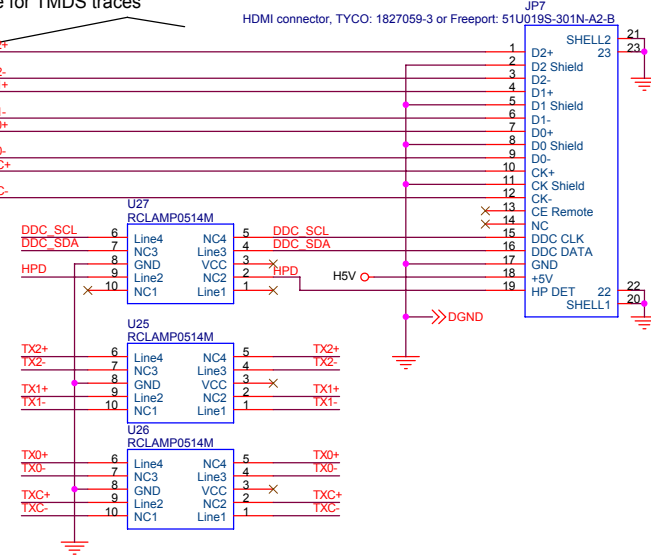


LAYOUT: 100 ohm differential impedance for TMD5 traces

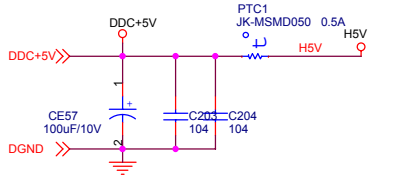
LAYOUT: Place TVS diodes & chokes together & close to connector



\*698R 1%



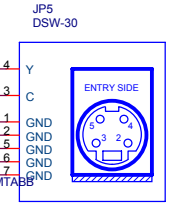
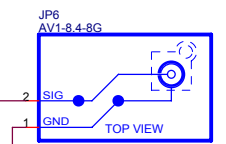
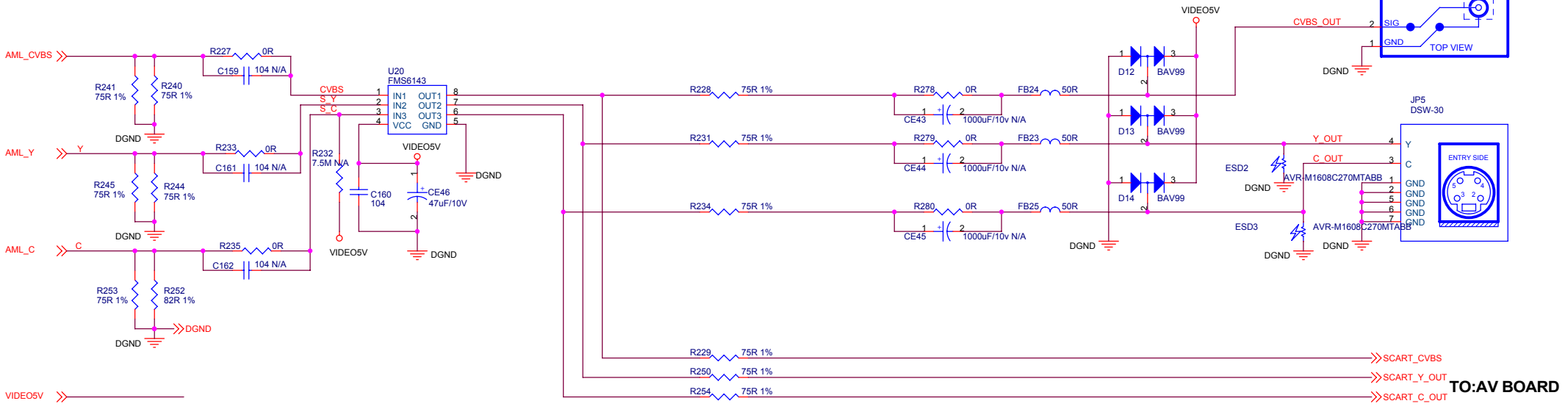
HDMI I2S\_IN  
SiI9034  
FROM: MAP5601



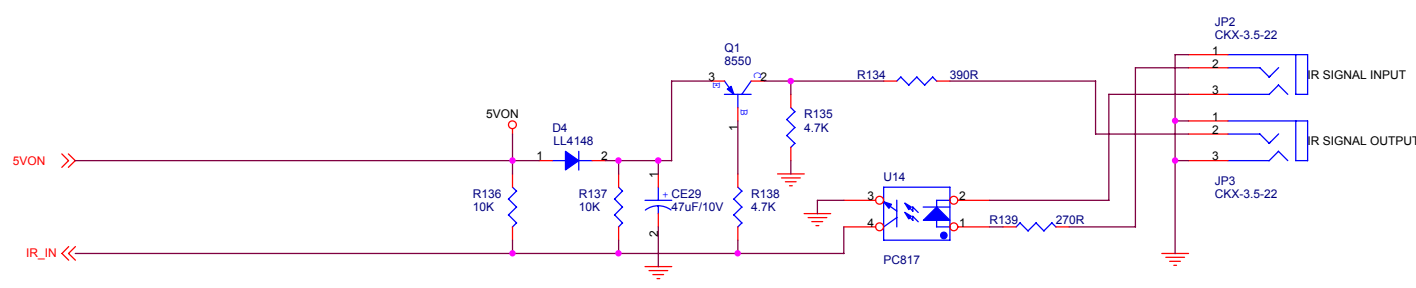
Title			HS2X0 MAIN BOARD - 090703
Size	Document Number	Rev	
A3	5982Y	1.5	
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Nike-216Pin FM6143 IN1 (CVBS) ->Y/G  
 Nike-256Pin FM6143 IN1 (CVBS) ->CVBS

harman/kardon



TO:AV BOARD  
 SCART\_CVBS  
 SCART\_Y\_OUT  
 SCART\_C\_OUT



Title		
HS2X0 MAIN BOARD - 090805		
Size	Document Number	Rev
A3	Harman/Kardon - 5982Y	1.5
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R99 digital communication mode  
 EMPTY is MII mode  
 PULL UP is RMII mode

If pull up by AML8218 maybe  
 needn't solder R101 & R102

R100 internal regulator mode  
 EMPTY is Enabled internal Regulator  
 PULL UP is Disabled internal Regulator

Mode2	Model	Mode0	
RMII_MODE2	RMII_RXD1	RMII_RXD0	
1	1	1	111 All capable
1	0	1	110 Power Down Mode (DEFAULT)
1	0	0	101 Repeater Mode
0	1	0	100 100Base-TX Half Duplex Advertised
0	1	1	011 100Base-TX Full Duplex Auto Negotiate
0	1	0	010 100Base-TX Half Duplex Auto Negotiate
0	0	1	001 10Base-T Full Duplex Auto Negotiate
0	0	0	000 10Base-T Half Duplex Auto Negotiate

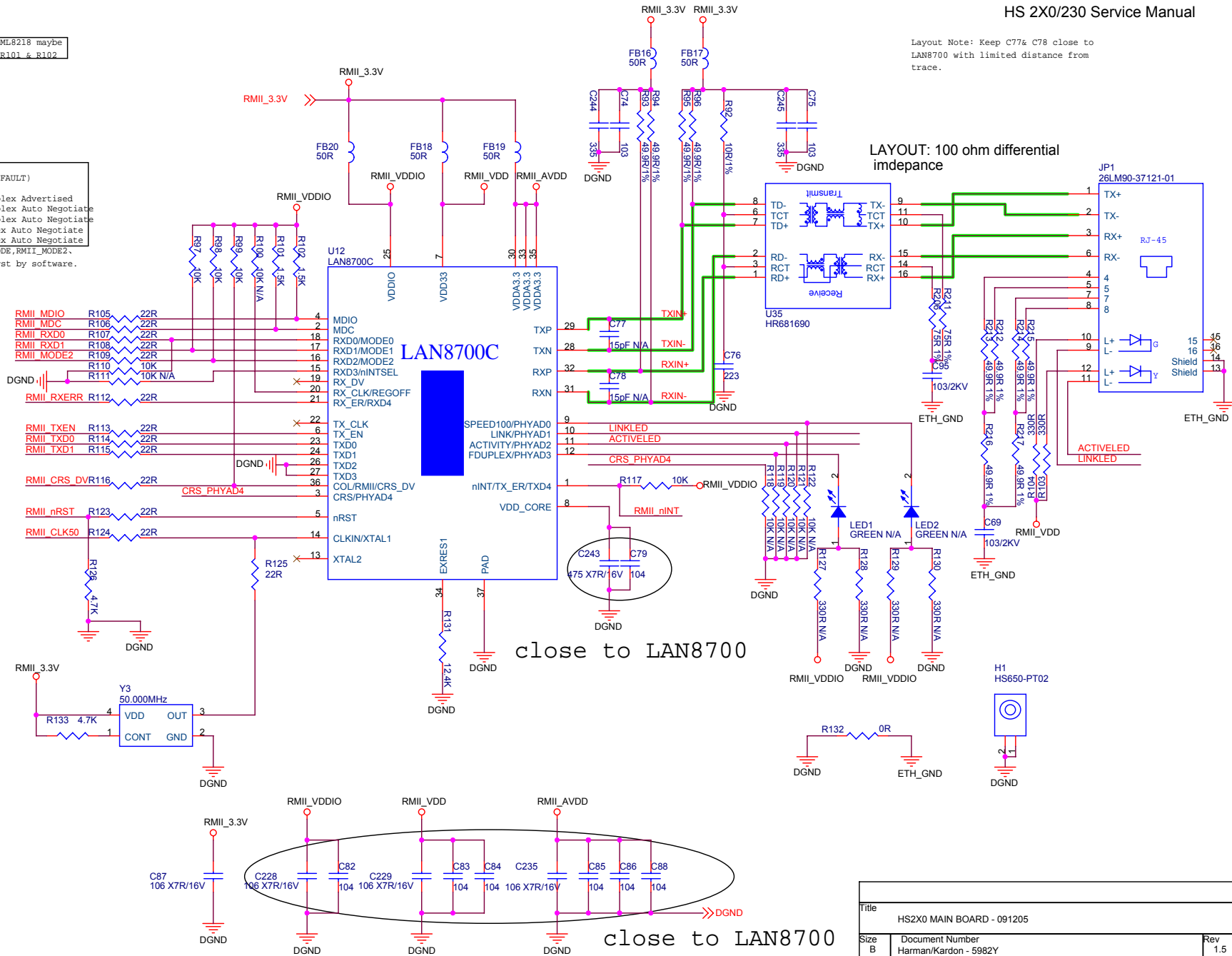
NOTE: The default is Power Down Mode. As using other MODE, RMII\_MODE2, RMII\_RXD1, RMII\_RXD0 should be configured as GPIO first by software. Please refer to LAN8700 for detail.

R111 pin 1 mode  
 EMPTY is nINT  
 PULL UP is TXER/TXD4

FROM: AML8218

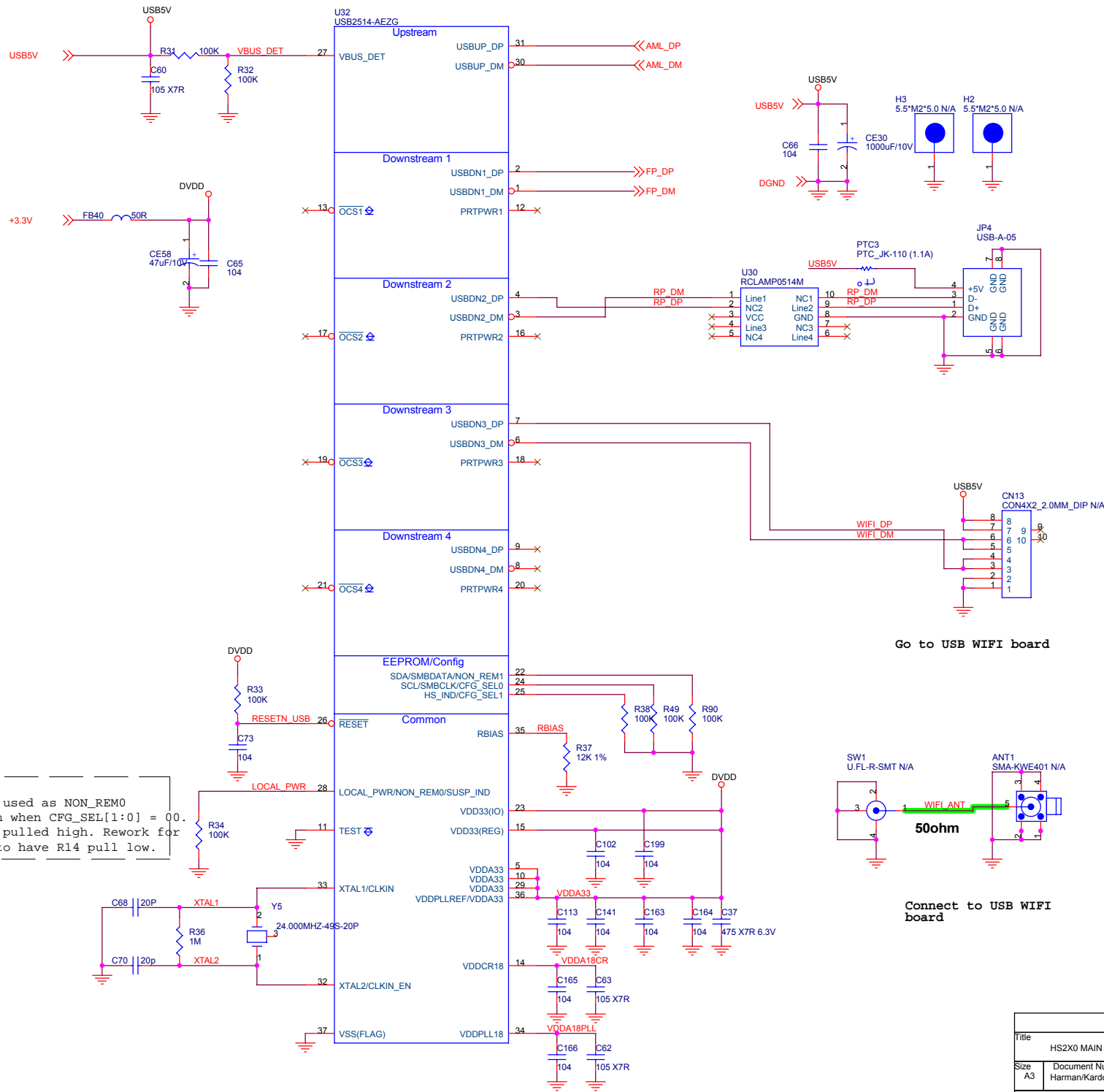
- RMII\_MDIO >> RMII\_MDIO
- RMII\_MDC >> RMII\_MDC
- RMII\_RXD0 >> RMII\_RXD0
- RMII\_RXD1 >> RMII\_RXD1
- RMII\_MODE2 >> RMII\_MODE2
- RMII\_RXERR >> RMII\_RXERR
- RMII\_TXEN >> RMII\_TXEN
- RMII\_TXD0 >> RMII\_TXD0
- RMII\_TXD1 >> RMII\_TXD1
- RMII\_CRSDV >> RMII\_CRSDV
- RMII\_nRST >> RMII\_nRST
- RMII\_CLK50 >> RMII\_CLK50
- RMII\_nINT >> RMII\_nINT

Layout Note: Keep C77& C78 close to LAN8700 with limited distance from trace.



Title			HS2X0 MAIN BOARD - 091205		
Size	Document Number		Harman/Kardon - 5982Y		
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Rev		1.5			





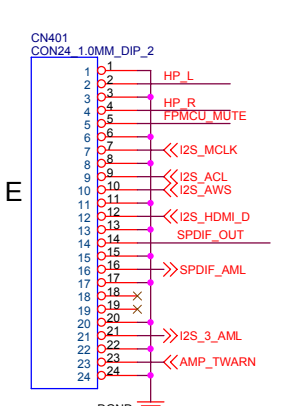
NOTE: Pin 28 is used as NON\_REM0 strapping option when CFG\_SEL[1:0] = 00. The PCB has R14 pulled high. Rework for revision A1 is to have R14 pull low.

Go to USB WIFI board

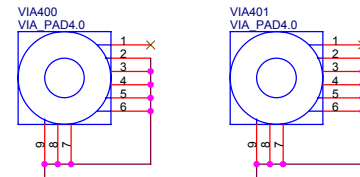
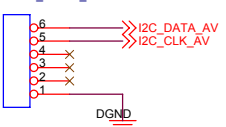
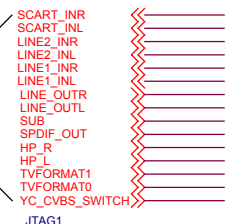
Connect to USB WIFI board

Title		
HS2X0 MAIN BOARD - 091212		
Size	Document Number	Rev
A3	Harman/Kardon - 5982Y	1.5
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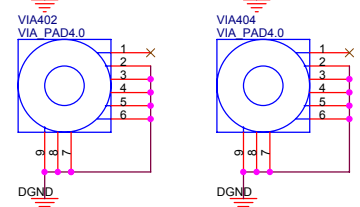
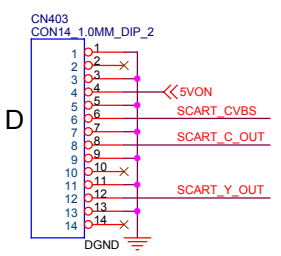
harman/kardon



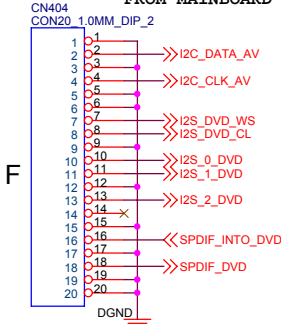
FROM MAP



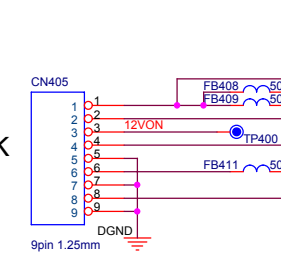
FROM MAINBOARD



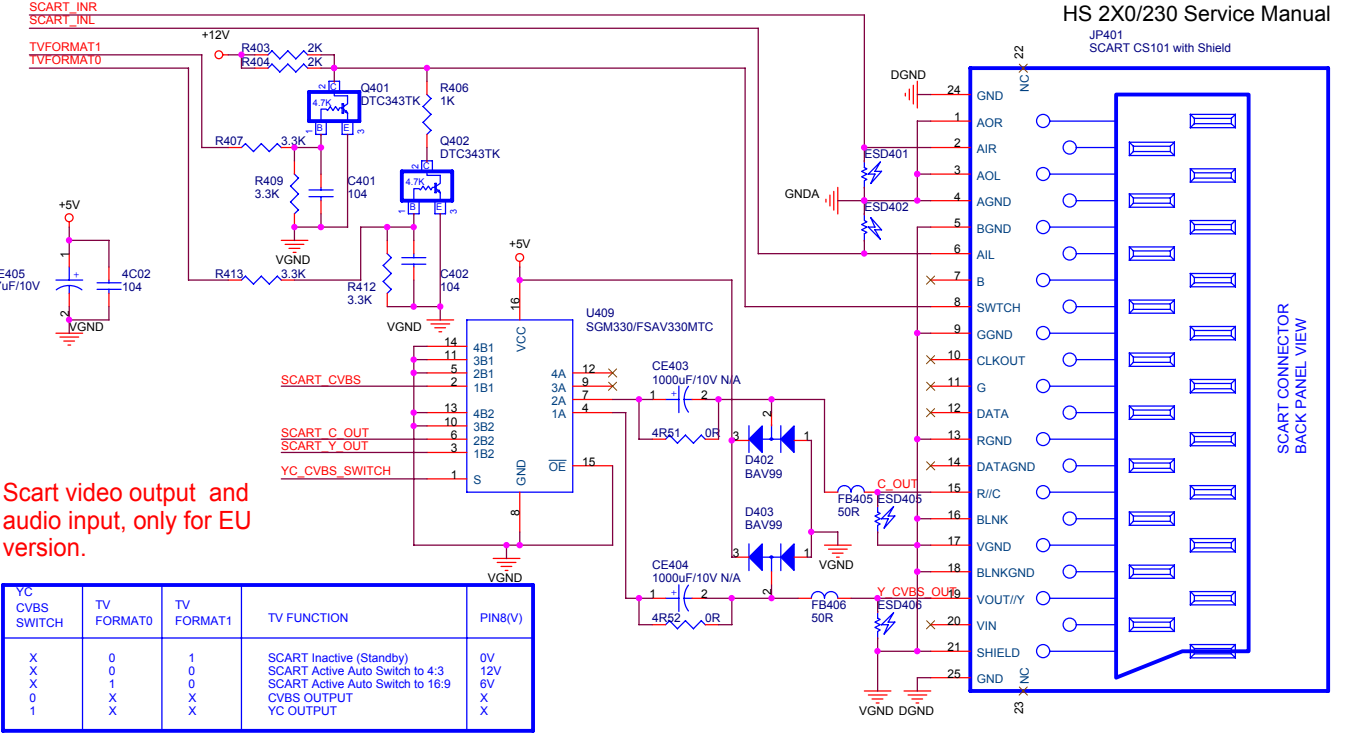
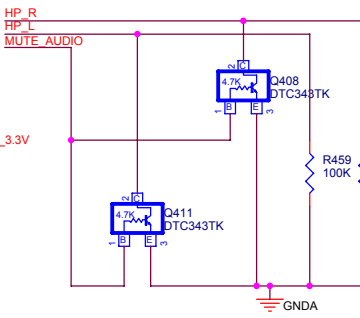
FROM MAINBOARD



FROM MAINBOARD

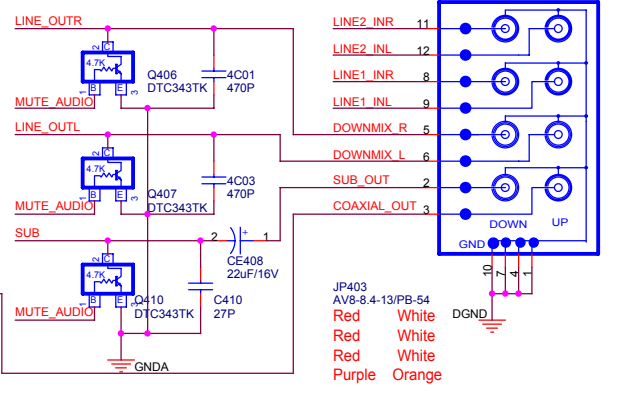
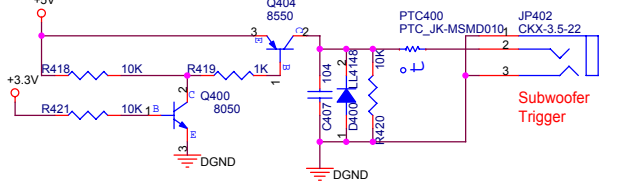
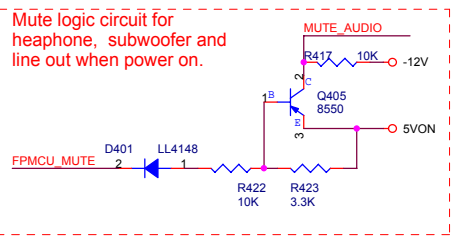


FROM SMPS BOARD



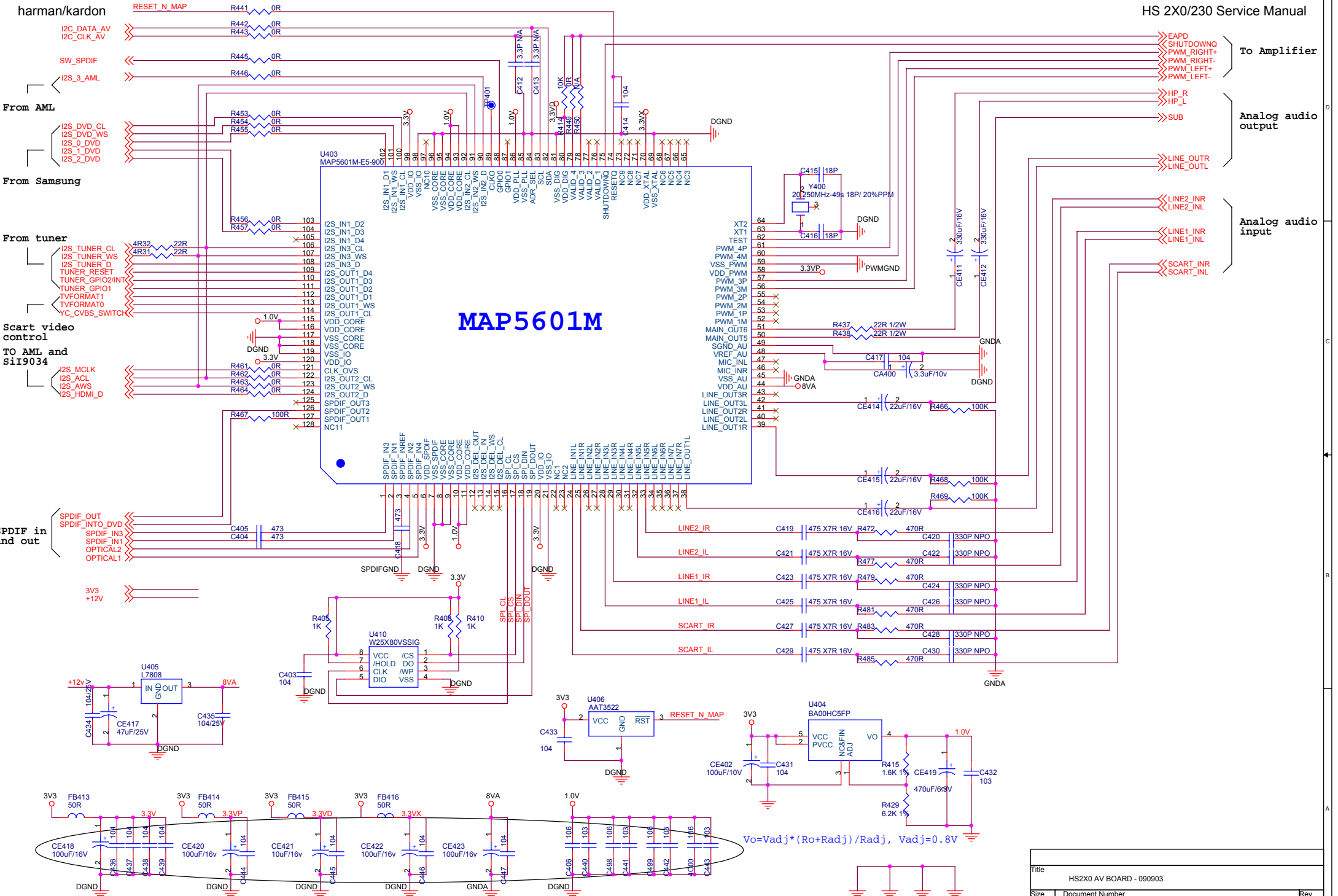
Scart video output and audio input, only for EU version.

YC CVBS SWITCH	TV FORMAT0	TV FORMAT1	TV FUNCTION	PIN8(V)
X	0	1	SCART Inactive (Standby)	0V
X	0	0	SCART Active Auto Switch to 4:3	12V
X	1	0	SCART Active Auto Switch to 16:9	6V
0	X	X	CVBS OUTPUT	X
1	X	X	YC OUTPUT	X



Coaxial output requests:  
75ohm Z = 0.5Vpp  
High Z =1Vpp

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HS2X0 AV BOARD - 091205		
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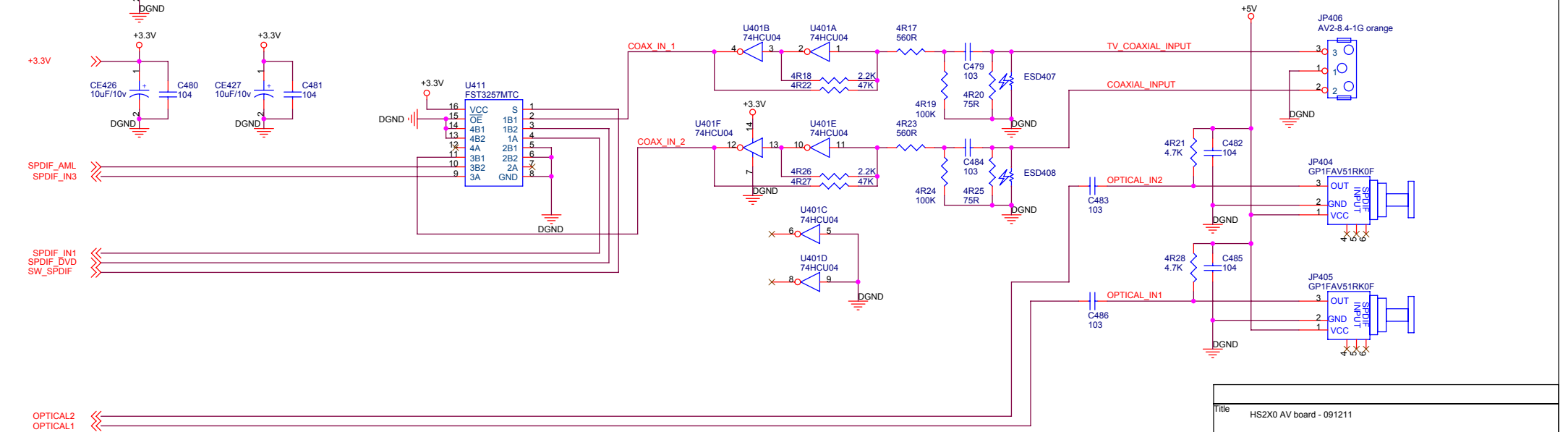
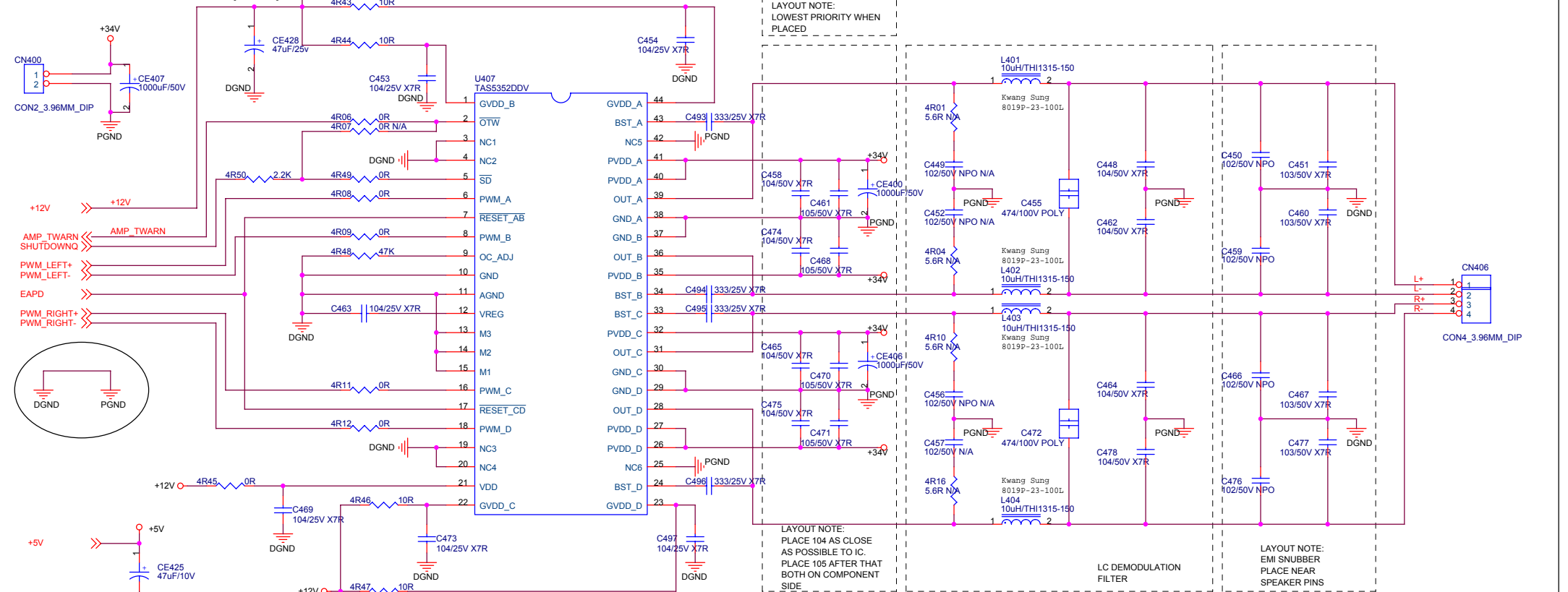
**MAP5601M**

- To Amplifier
  - EAPD
  - SHUTDOWNQ
  - PWM\_RIGHT+
  - PWM\_RIGHT-
  - PWM\_LEFT+
  - PWM\_LEFT-
- Analog audio output
  - HP\_R
  - HP\_L
  - SUB
- Analog audio input
  - LINE2\_INR
  - LINE2\_INL
  - LINE1\_INR
  - LINE1\_INL
  - SCART\_INR
  - SCART\_INL

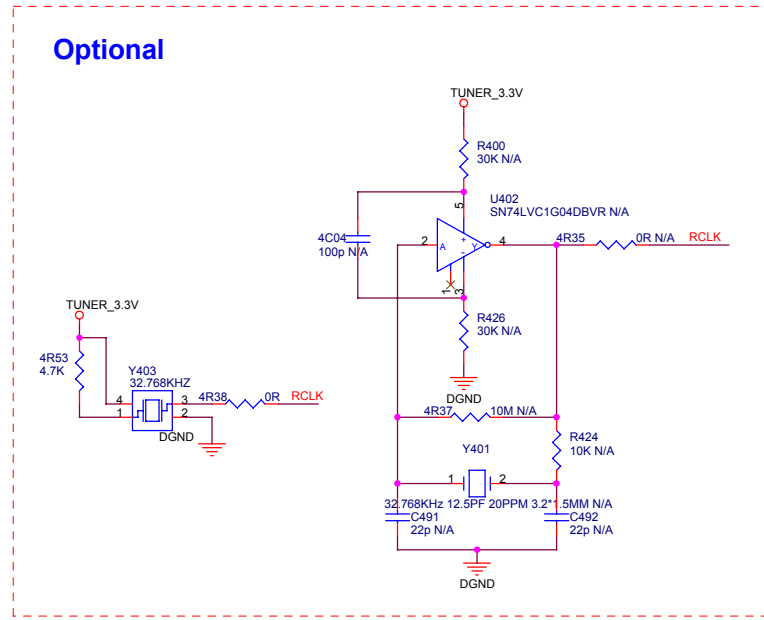
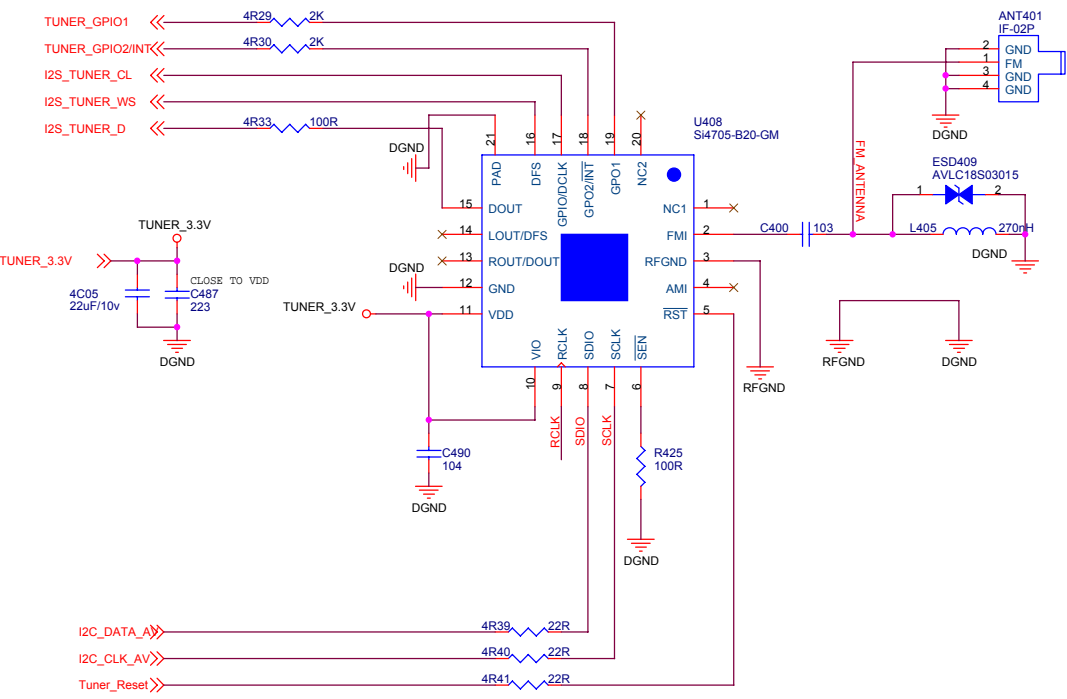
$$V_o = V_{adj} * (R_o + R_{adj}) / R_{adj}, \quad V_{adj} = 0.8V$$

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# POWER OUTPUT STAGE (BTL)

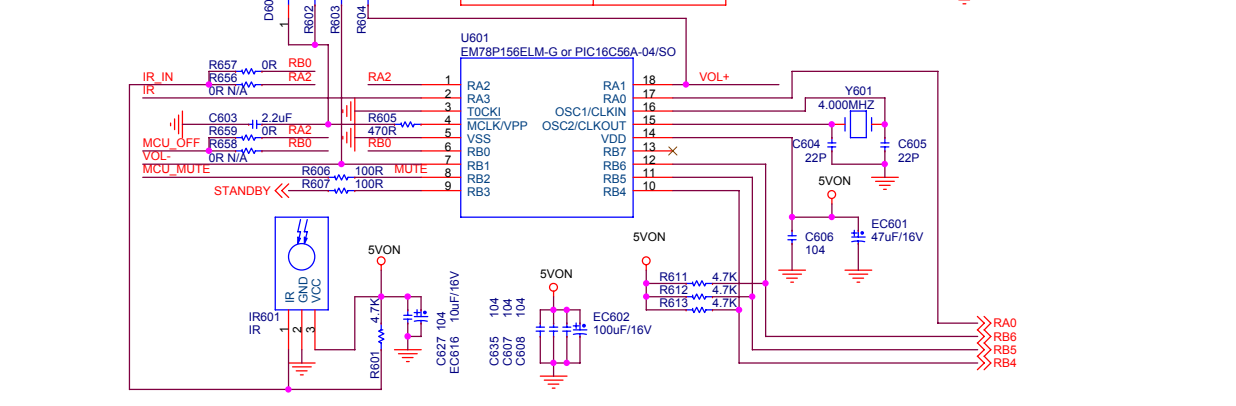
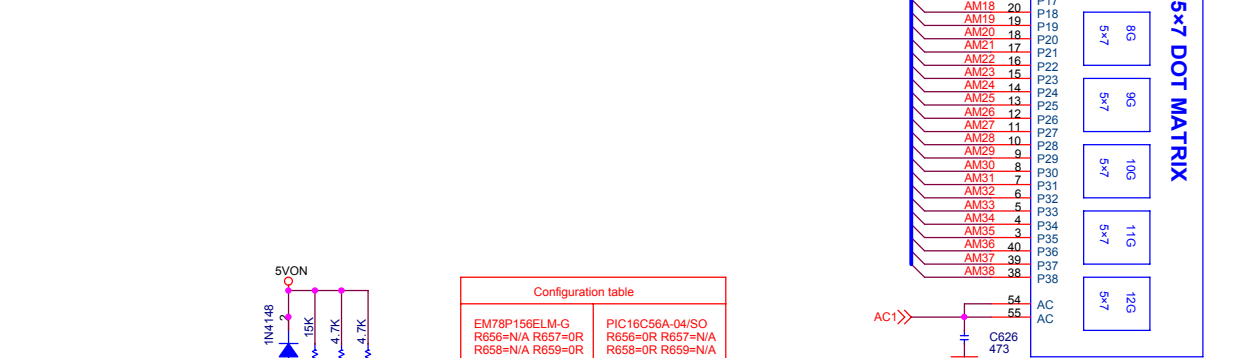
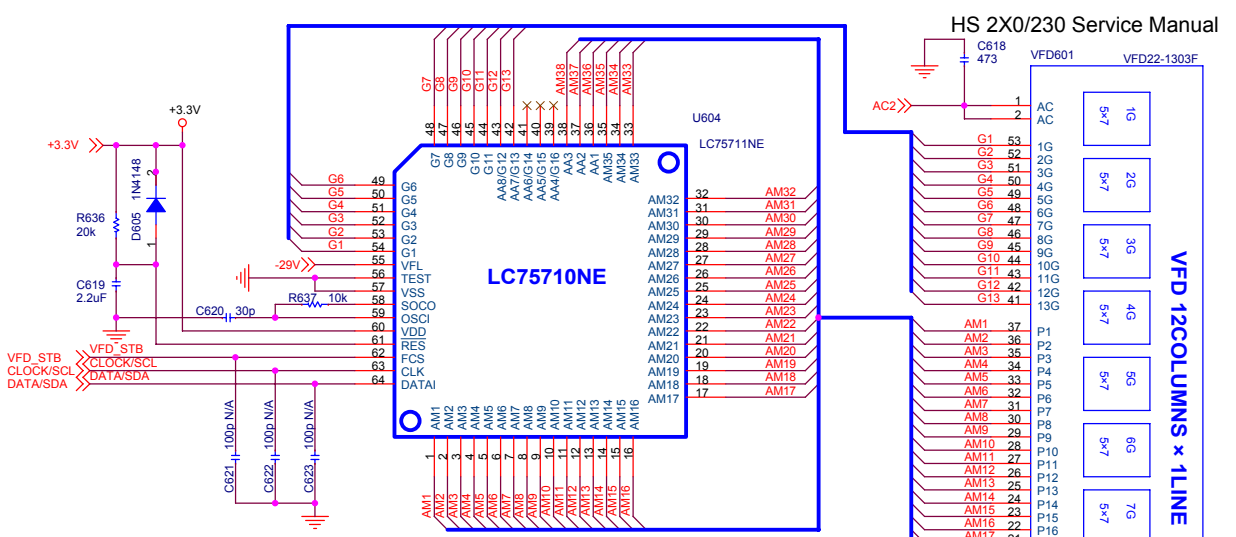
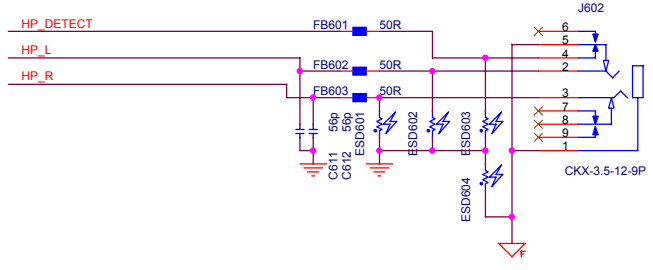
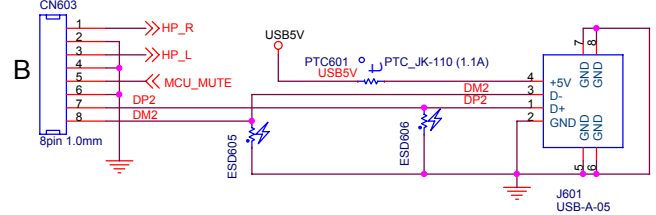
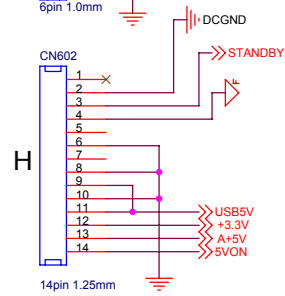
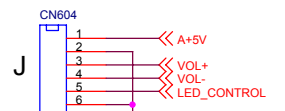
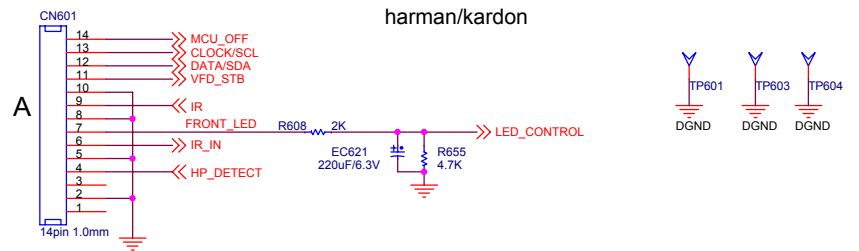


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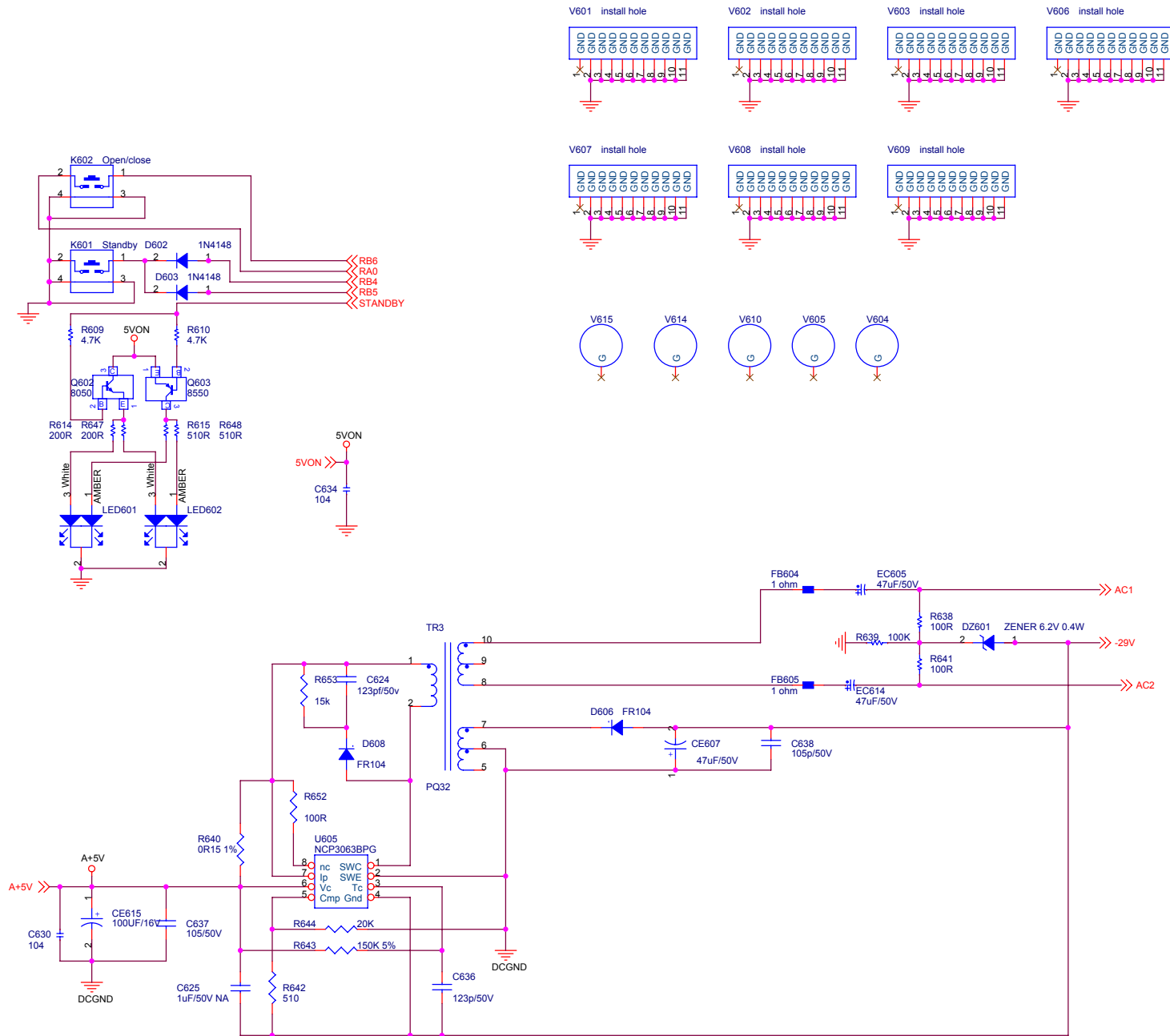


1. Place C487 close to VDD pin.
2. All grounds connect directly to GND plane on PCB.
3. Pins 1 and 20 are no connects, leave floating.
4. To ensure proper operation and receiver performance, follow the guidelines in "AN383: Si47xx 3 mm x 3 mm QFN Universal Layout Guide." Silicon Laboratories will evaluate schematics and layouts for qualified customers.
5. Pin 2 connects to the FM antenna interface, and pin 4 connects to the AM antenna interface.
6. RFGND should be locally isolated from GND.
7. Place Si4704/05 as close as possible to antenna jack and keep the FMI and AMI traces as short as possible.
8. 4R29,4R30->2K; 4R33->600R; C487->22nF, C490->100nF  
Y4->32.768; C491,C492->22pF .
9. ESD closed to C400 for Layout pcb when ESD capacitance >1pF .

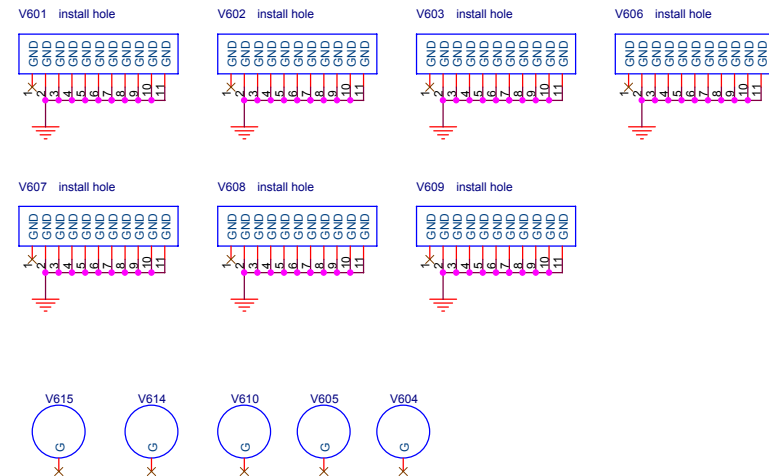
Title		
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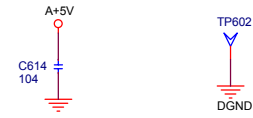
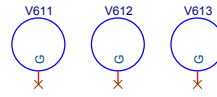
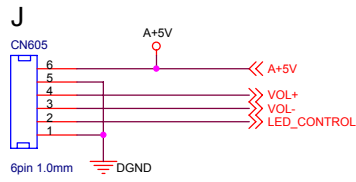
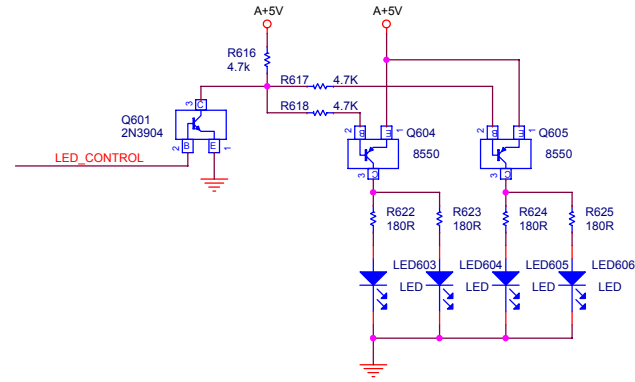
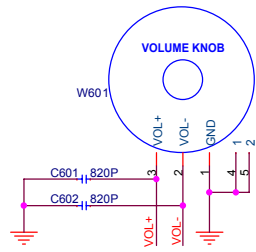
Title			HS2X0 FR0NT PANEL: VFD BOARD 0901121
Size	Document Number	Rev	
A3	6742C	17	1.3
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Function describe: supply power for VFD and VFD driver.

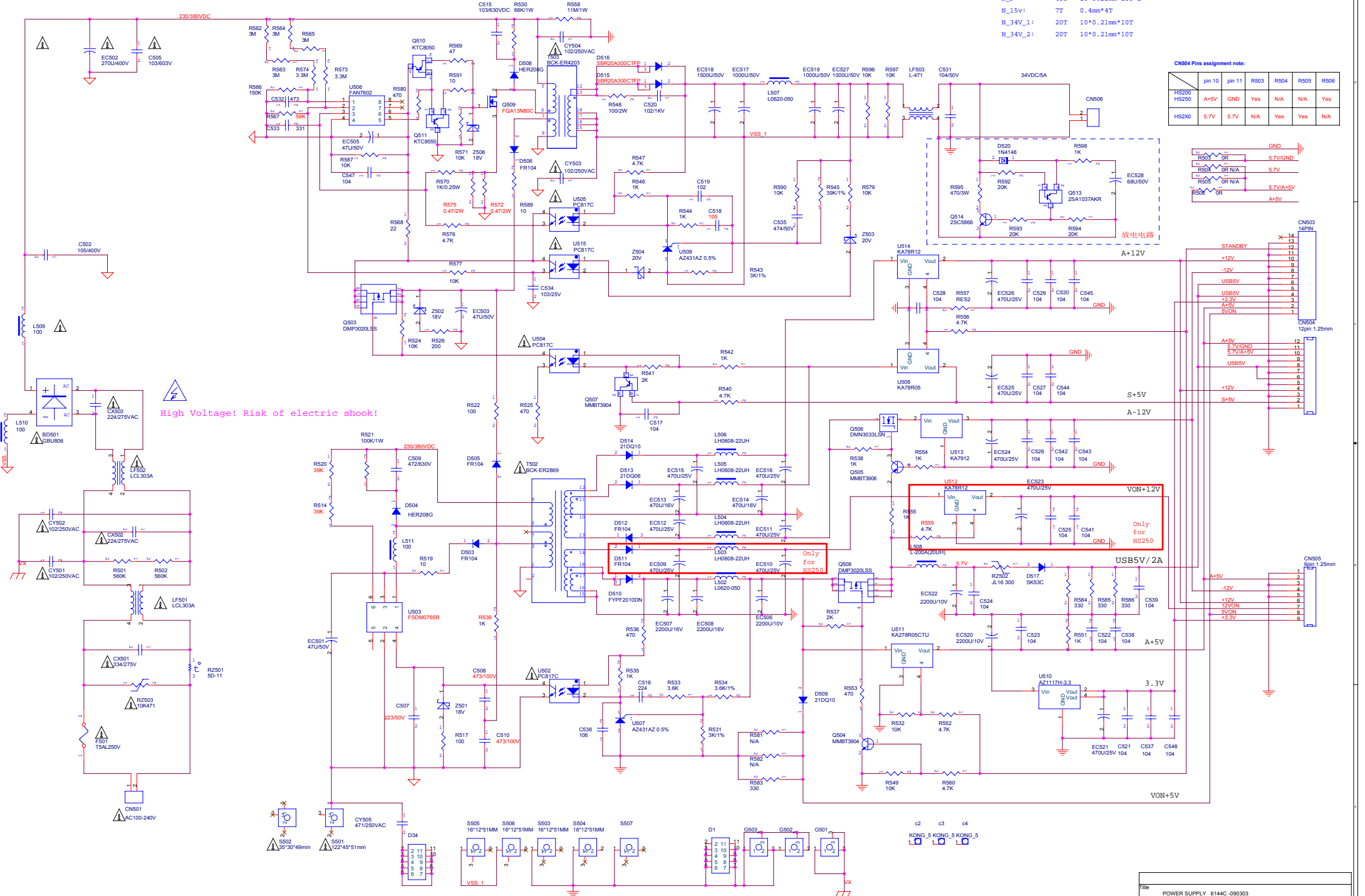


Title		
HS2X0 FRONT PANEL: VFD BOARD 090905		
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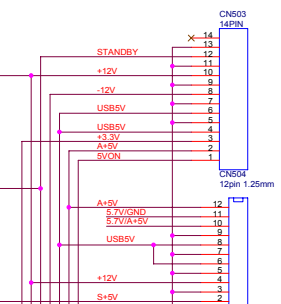
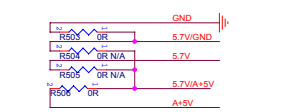
Title		
HS2X0 FRONt PANEL: VFD BOARD 090825		
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CN504 Pins assignment note:

	pin 10	pin 11	R503	R504	R505	R506
HS200	A+5V	GND	Yes	N/A	N/A	Yes
HS250	5.7V	5.7V	N/A	Yes	Yes	N/A



High Voltage! Risk of electric shock!

Only for HS250

Only for HS250

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