

harman/kardon

AVR325

A/V DOLBY DIGITAL RECEIVER

SERVICE MANUAL



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ELECTROSTATICALLY SENSITIVE (ES) DEVICES

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

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



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

CAUTION : Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES devices.

PRODUCT SAFETY NOTICE

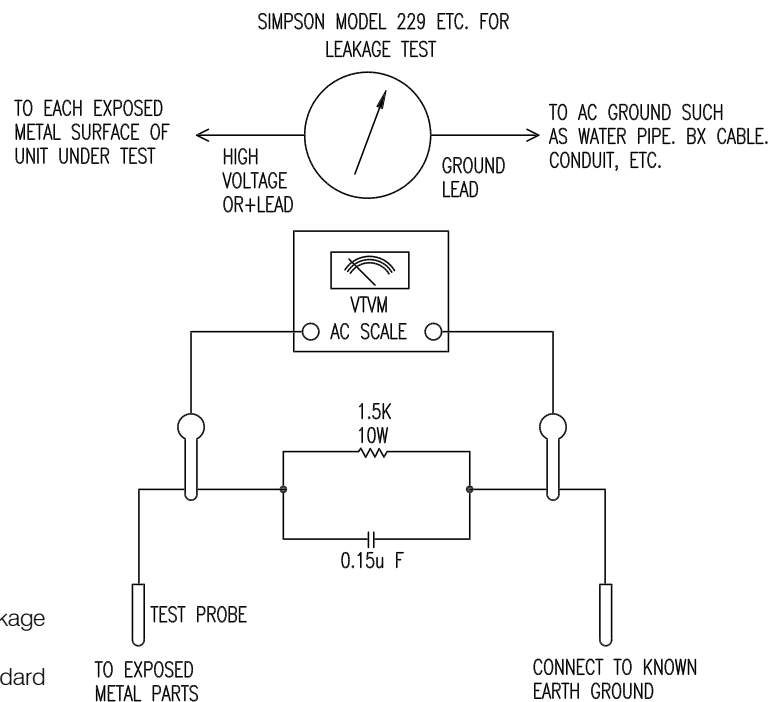
Each precaution in this manual should be followed during servicing.

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

LEAKAGE TEST(FOR SERVICE ENGINEERS IN THE U.S.A)

Before returning the unit to the user, perform the following safety checks :

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the unit.
2. Be sure that any protective devices such as nonmetallic control knobs, insulating fish-papers, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators, etc. Which were removed for the servicing are properly re-installed.
3. Be sure that no shock hazard exists ; check for leakage current using Simpson Model 229 Leakage Tester, standard equipment item No. 21641, RCA Model WT540A or use alternate method as follows : Plug the power cord directly into a 120 volt AC receptacle (do not use an Isolation Transformer for this test). Using two clip leads, connect a 1500 ohms, 10watt Resistor paralleled by a 0.15uF capacitor, in series with all exposed metal cabinet parts and a known earth ground, such as a water pipe or conduit. Use a VTVM or VOM with 1000 ohms per volt, or higher sensitivity to measure the AC voltage drop across the resistor. (See diagram) Move the resistor connection to each exposed metal part having a return path to the chassis (antenna, metal, cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor. (This test should be performed with the 0.35 volt RMS or more is excessive and indicates a potential shock hazard which must be corrected before returning the unit to the owner.



AVR 325 TECHNICAL SPECIFICATIONS

Audio Section

Stereo Mode	
Continuous Average Power (FTC)	
65 Watts per channel, 20Hz–20kHz, @ <0.07% THD, both channels driven into 8 ohms	
Seven-Channel Surround Modes	
Power per Individual Channel	
Front L&R channels:	
50 Watts per channel @ <0.07% THD, 20Hz–20kHz into 8 ohms	
Center channel:	
50 Watts @ <0.07% THD, 20Hz–20kHz into 8 ohms	
Surround (L & R Side, L & R back) channels:	
50 Watts per channel @ <0.07% THD, 20Hz–20kHz into 8 ohms	
Input Sensitivity/Impedance	
Linear (High-Level)	200mV/47k ohms
Signal-to-Noise Ratio (IHF-A)	95dB
Surround System Adjacent Channel Separation	
Pro Logic I/II	40dB
Dolby Digital (AC-3)	55dB
DTS	55dB
Frequency Response	
@ 1W (+0dB, –3dB)	10Hz – 100kHz
High Instantaneous Current Capability (HCC)	±35 Amps
Transient Intermodulation Distortion (TIM)	Unmeasurable
Slew Rate	40V/μsec

FM Tuner Section

Frequency Range	87.5–108.0MHz
Usable Sensitivity	IHF 1.3μV/13.2dB
Signal-to-Noise Ratio	Mono/Stereo 70/68dB
Distortion	Mono/Stereo 0.2/0.3%
Stereo Separation	40dB @ 1kHz
Selectivity	±400kHz, 70dB
Image Rejection	80dB
IF Rejection	90dB

AM Tuner Section

Frequency Range	325–1710kHz
Signal-to-Noise Ratio	45dB
Usable Sensitivity	Loop 500μV
Distortion	1kHz, 50% Mod 0.8%
Selectivity	±10kHz, 30dB

Video Section

Television Format	NTSC
Input Level/Impedance	1Vp-p/75 ohms
Output Level/Impedance	1Vp-p/75 ohms
Video Frequency Response (Composite and S-Video)	10Hz–8MHz (–3dB)
Video Frequency Response (Component Video)	10Hz–50MHz (–3dB)

General

Power Requirement	AC 120V/60Hz
Power Consumption	118W idle, 890W maximum (7 channels driven)
Dimensions	Width 17.3 inches (440mm) Height 6.5 inches (165mm) Depth 17.1 inches (435mm)
Weight	40 lb (18.1kg)

Depth measurement includes knobs, buttons and terminal connections.

Height measurement includes feet and chassis.

All features and specifications are subject to change without notice.

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|||EzSet™ is a trademark of Harman International Industries, Incorporated (patent no. 5,386,478).

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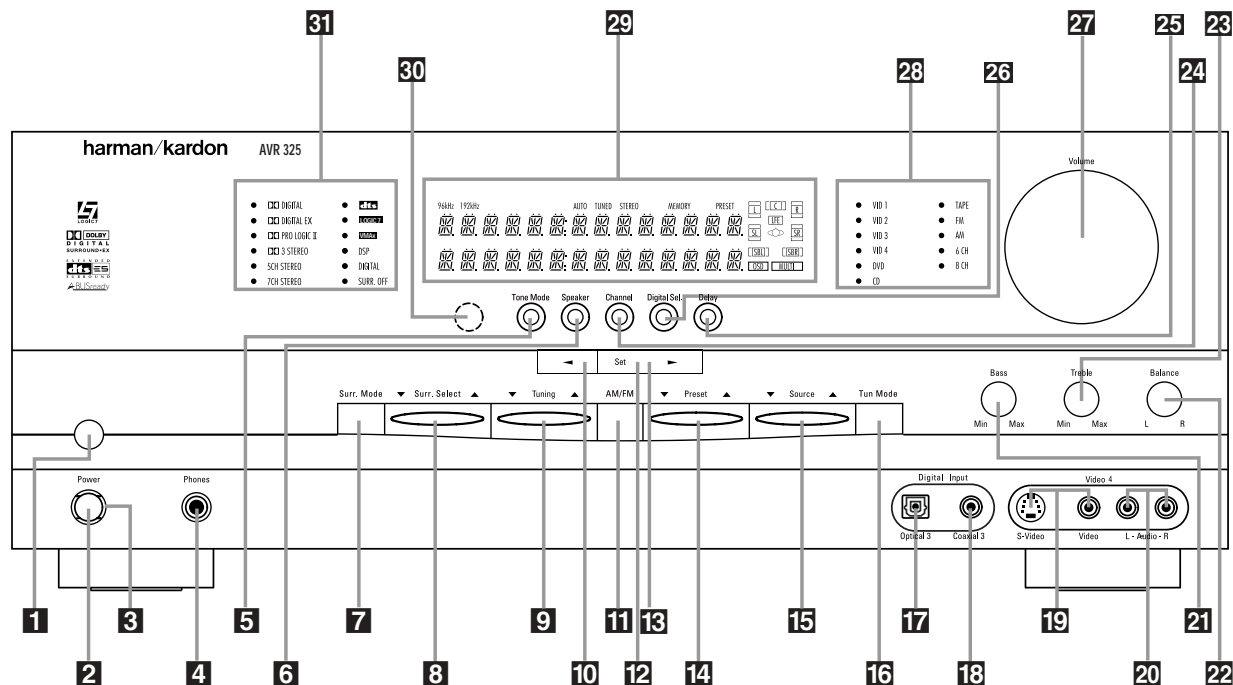
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FRONT-PANEL CONTROLS



- 1** Main Power Switch
- 2** System Power Control
- 3** Power Indicator
- 4** Headphone Jack
- 5** Tone Mode
- 6** Speaker Selector
- 7** Surround Mode Group Selector
- 8** Surround Mode Selector
- 9** Tuning Selector
- 10** ◀ Button
- 11** Tuner Band Selector
- 12** Set Button

1 Main Power Switch: Press this button to apply power to the AVR 325. When the switch is pressed in, the unit is placed in a Standby mode, as indicated by the amber **Power Indicator 3** surrounding the **System Power Control 2**. This button **MUST** be pressed in to operate the unit. To turn the unit off and prevent the use of the remote control, this switch should be pressed until it pops out from the front panel so that the word "OFF" may be read at the top of the switch.

NOTE: This switch is normally left in the "ON" position.

2 System Power Control: When the **Main Power Switch 1** is "ON", press this button to turn on the AVR 325; press it again to turn the unit off. Note that the **Power Indicator 3** surrounding the switch will turn green when the unit is on.

- 13** ▶ Button
- 14** Preset Station Selector
- 15** Input Source Selector
- 16** Tuner Mode Selector
- 17** Optical 3 Digital Input
- 18** Coaxial 3 Digital Input
- 19** Video 4 Video Input Jacks
- 20** Video 4 Audio Input Jacks
- 21** Bass Control
- 22** Balance Control
- 23** Treble Control
- 24** Channel Adjust Selector

3 Power Indicator: This LED will be lit in amber when the unit is in the Standby mode to signal that the unit is ready to be turned on. When the unit is in operation, the indicator will turn green.

4 Headphone Jack: This jack may be used to listen to the AVR 325's output through a pair of headphones. Be certain that the headphones have a standard 1/4" stereo phone plug. The main room speakers will automatically be turned off when the headphone jack is in use.

5 Tone Mode: This button controls the tone control settings, enabling adjustment of the bass and treble boost/cut or the removal of the tone controls from the signal path. The first press of the button displays a **TONE IN** message in the **Main Information Display 29**. If you wish to set the tone controls to "flat," without any treble or bass alteration, press the ◀ or ▶

- 25** Delay Adjust Selector
- 26** Digital Input Selector
- 27** Volume Control
- 28** Input Indicators
- 29** Main Information Display
- 30** Remote Sensor Window
- 31** Surround Mode Indicators

Selector Buttons 10|13 so that **TONE OUT** appears in the **Lower Display Line B**.

6 Speaker Selector: Press this button to begin the process of configuring the AVR 325 for the type of speakers it is being used with. For information on configuring the speaker settings, see page 21.

7 Surround Mode Group Selector: Press this button to select the top-level group of surround modes. Each press of the button will select a major mode grouping in the following order:

▶ Dolby Modes → DTS Digital Modes → VMaX Modes
→ DSP Modes → Stereo Modes → Logic 7 Modes

Once the button is pressed so that the name of the desired surround mode group appears in the on-screen display and in the **Lower Display Line B**, press the **Surround Mode Selector 8** to cycle through the individual modes available. For example,

FRONT - PANEL CONTROLS

press this button to select Dolby modes, and then press the **Surround Mode Selector 8** to choose from the various mode options.

8 Surround Mode Selector: Press this button to select from among the available surround mode options for the major mode group selected. The specific modes will vary based on the number of speakers available, the major mode group and whether the input source is digital or analog. For example, press the **Surround Mode Group Selector 7** to select a major mode grouping such as Dolby or Logic 7, and then press this button to see the specific mode choices that are available. For more information on mode selection, see page 26.

9 Tuning Selector: Press the left side of the button to tune lower-frequency stations and the right side of the button to tune higher-frequency stations. When a station with a strong signal is reached, the **TUNED Indicator 11** will be lit in the **Main Information Display 29**.

10 ◀ Button: When making system configuration changes using the front-panel controls, press this button to scroll left through the available choices for the option being adjusted.

11 Tuner Band Selector: Pressing this button will automatically switch the AVR 325 to the Tuner mode. Pressing it again will switch between the AM and FM frequency bands. (See page 30 for more information on the tuner.)

12 Set Button: When making system configuration changes using the front-panel controls, press this button to enter a setting into the unit's memory.

13 ▶ Button: When making system configuration changes using the front-panel controls, press this button to scroll right through the available choices for the option being adjusted.

14 Preset Station Selector: Press this button to scroll up or down through the list of stations that have been entered into the preset memory. (See pages 30 and 31 for more information on tuner programming.)

15 Input Source Selector: Press this button to change the input by scrolling up or down through the list of input sources.

16 Tuner Mode Selector: Press this button to select Auto or Manual tuning. When the button is pressed so that the **AUTO Indicator J** lights, the tuner will search for the next station with an acceptable signal when the **Tuning Selector 9 21 E** is pressed. When the button is pressed so that the **AUTO Indicator J** is not lit, each press of the **Tuning Selector 9 21 E** will increase the frequency. (See page 30 for more information on using the tuner.) This button may also be used

to switch between Stereo and Mono modes for FM radio reception. When weak reception is encountered, press the button until the **Stereo Indicator H** goes out to switch to Mono reception. Press and hold again to switch back to Stereo mode. (See page 30 for more information on using the tuner.)

17 Optical 3 Digital Input: Connect the optical digital output of an audio or video product to this jack.

18 Coaxial 3 Digital Input: Connect the coaxial digital input of a digital audio product such as a portable audio player or video game to this jack.

19 Video 4 Video Input Jacks: These jacks may be used to connect the video play/out jacks of a video game or portable video product such as a camcorder, video game or digital still camera to your system.

20 Video 4 Audio Input Jacks: These audio/video jacks may be used for connection to the audio play/out jacks of a video game or portable audio/video product such as a camcorder or portable audio player.

21 Bass Control: Use this control to boost or reduce the low-frequency output of the left/right front channels by as much as $\pm 10\text{dB}$. Set this control as you find suitable to adjust to your specific taste or room acoustics.

22 Balance Control: Use this control to change the relative volume for the front left/right channels.

NOTE: When multichannel surround modes are in use, this control should be at the midpoint, or "12 o'clock," position for proper operation.

23 Treble Control: Use this control to boost or reduce the high-frequency output of the left/right front channels by as much as $\pm 10\text{dB}$. Set this control as you find suitable to adjust to your specific taste or room acoustics.

24 Channel Adjust Selector: Press the button to begin the process of adjusting the channel level outputs using the source currently playing through your AVR. For complete information on adjusting the channel output level, see page 31.

25 Delay Adjust Selector: Press this button to begin the process of adjusting the delay settings for Dolby surround modes. See page 23 for more information on delay adjustments.

26 Digital Input Selector: Press this button to begin the process of selecting a digital source for use with the currently selected input. Once the button has been pressed, use the **◀ or ▶ Buttons 10 13** to choose the desired input and then press the **Set Button 12** to enter the setting into the unit's memory. See page 27 for more information on digital audio.

27 Volume Control: Turn this knob clockwise to increase the volume, counterclockwise to decrease the volume. If the AVR 325 is muted, adjusting volume control will automatically release the unit from the silenced condition.

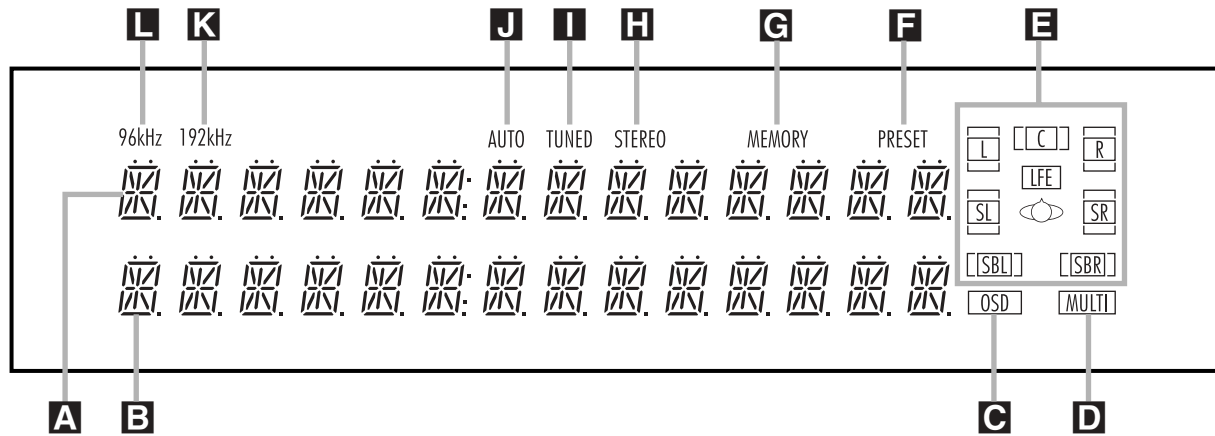
28 Input Indicators: A green LED will light to the left of the input that is currently the input source for the AVR 325.

29 Main Information Display: This display delivers messages and status indications to help you operate the receiver. (See page 7 for a complete explanation of the Information Display.)

30 Remote Sensor Window: The sensor behind this window receives infrared signals from the remote control. Aim the remote at this area and do not block or cover it unless an external remote sensor is installed.

31 Surround Mode Indicators: These LEDs will light to show the surround mode and digital bitstream in use. Note that depending on the specific combination of input sources and surround mode selected, more than one indicator may light. (See page 28 for more information.)

FRONT-PANEL INFORMATION DISPLAY



- A** Upper Display Line
- B** Lower Display Line
- C** OSD Indicator
- D** Multiroom Indicator
- E** Speaker/Channel Input Indicators

- F** PRESET Indicator
- G** MEMORY Indicator
- H** STEREO Indicator
- I** TUNED Indicator
- J** AUTO Indicator

- K** 192kHz Indicator
- L** 96kHz Indicator

A Upper Display Line: Depending on the unit's status, a variety of messages will appear here. In normal operation, the current audio and video input source information will appear on this line.

B Lower Display Line: Depending on the unit's status, a variety of messages will appear here. In normal operation, the current surround mode name will appear on this line.

C OSD Indicator: When the OSD system is in use, this indicator lights to remind you that the other indicators in this display do not function when the On-Screen Display is being used.

D Multiroom Indicator: This indicator lights when the multiroom system is active. It will remain lit when the multiroom system is in use even though the main room system is in the Standby mode and all other indicators are dark. (See page 34 for more information on the Multiroom system.)

E Speaker/Channel Input Indicators: These indicators are multipurpose, indicating either the speaker type selected for each channel or the incoming data-signal configuration. The left, center, right, right surround and left surround speaker indicators are composed of three boxes, while the subwoofer is a single box. The center box lights when a "Small" speaker is selected, and the two outer boxes light when "Large" speakers are selected. When none of the boxes are lit for the center, surround or subwoofer channels, no speaker has been selected for one of those positions. (See page 21 for more informa-

tion on speaker setup.) The letters inside each of the center boxes display the active input channels. For standard analog inputs, only the L and R will light, indicating a stereo input. When a digital source is playing, the indicators will light to display the channels being received at the digital input. When the letters flash, the digital input has been interrupted. (See page 29 for more information on the channel indicators.)

F PRESET Indicator: This indicator lights when the tuner is in use to show that the present number for the current station being listened to appears in the Upper Display Line. (See page 30 for more information on tuner presets.)

G MEMORY Indicator: This indicator flashes when entering presets and other information into the tuner's memory.

H STEREO Indicator: This indicator lights when an FM station is being tuned in stereo.

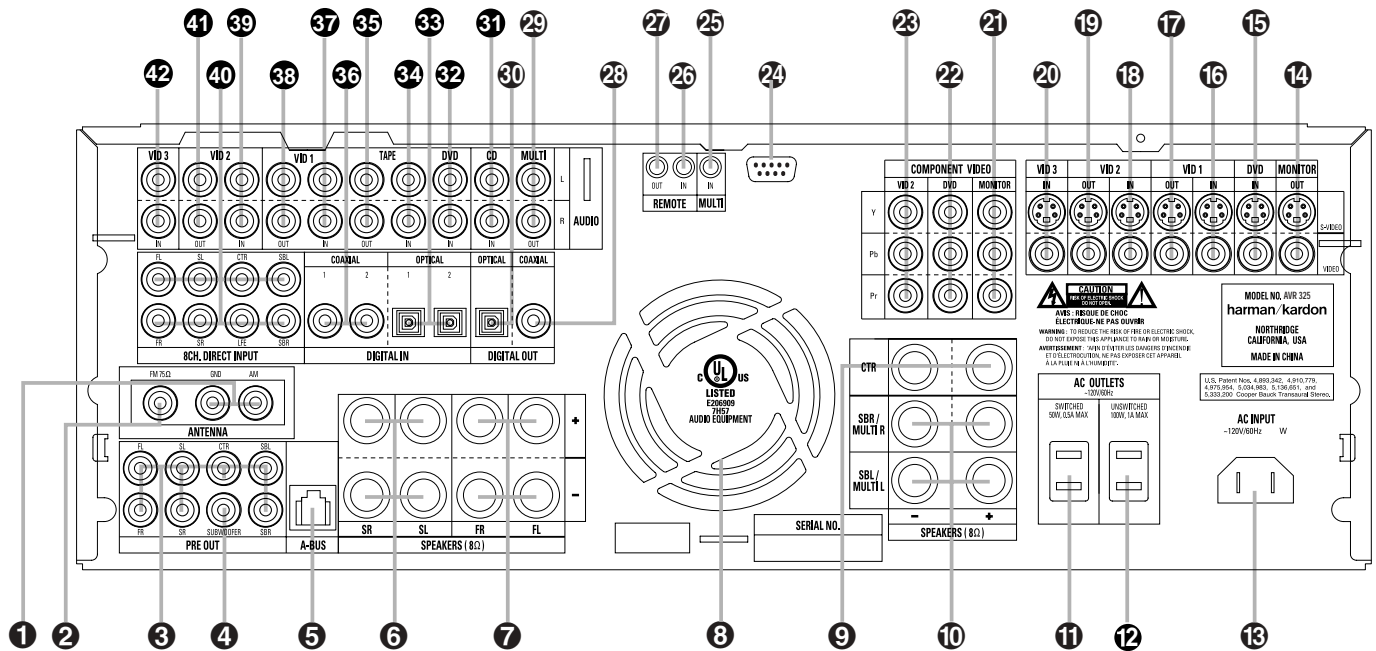
I TUNED Indicator: This indicator lights when a station is being received with sufficient signal strength to provide acceptable listening quality.

J AUTO Indicator: This indicator lights when the tuner's Auto mode is in use.

K 192kHz Indicator: This indicator lights when the input source has a 192kHz bit rate.

L 96kHz Indicator: This indicator lights when the input source has a 96kHz bit rate.

REAR-PANEL CONNECTIONS



- | | | |
|--|---|--|
| <ul style="list-style-type: none"> 1 AM Antenna 2 FM Antenna 3 Preamp Outputs 4 Subwoofer Output 5 A-BUS Connector 6 Surround Speaker Outputs 7 Front Speaker Outputs 8 Fan Vents 9 Center Speaker Outputs 10 Surround Back/Multiroom Speaker Outputs 11 Switched AC Accessory Outlet 12 Unswitched AC Accessory Outlet 13 AC Power Cord Jack 14 Video Monitor Outputs | <ul style="list-style-type: none"> 15 DVD Video Inputs 16 Video 1 Video Inputs 17 Video 1 Video Outputs 18 Video 2 Video Inputs 19 Video 2 Video Outputs 20 Video 3 Video Inputs 21 Component Video Monitor Outputs 22 DVD Component Video Inputs 23 Video 2 Component Video Inputs 24 RS-232 Port 25 Multiroom IR Input 26 Remote IR Input 27 Remote IR Output 28 Coaxial Digital Audio Output | <ul style="list-style-type: none"> 29 Multiroom Audio Outputs 30 Optical Digital Audio Output 31 CD Audio Inputs 32 DVD Audio Inputs 33 Optical Digital Audio Inputs 34 Tape Inputs 35 Tape Outputs 36 Coaxial Digital Audio Inputs 37 Video 1 Audio Inputs 38 Video 1 Audio Outputs 39 Video 2 Audio Inputs 40 8-Channel Direct Inputs 41 Video 2 Audio Outputs 42 Video 3 Audio Inputs |
|--|---|--|

NOTE: To assist in making the correct connections for multichannel input, output and speaker connections, all connection jacks and terminals are color-coded in conformance with the latest CEA standards as follows:

Front Left: White	Center: Green	Composite Video: Yellow
Front Right: Red	Surround Left: Blue	Component Video "Y": Green
	Surround Right: Gray	Component Video "Pr": Red
	Surround Back Left: Brown	Component Video "Pb": Blue
	Surround Back Right: Tan	
	Subwoofer: Purple	
	Digital Audio: Orange	

- 1 AM Antenna:** Connect the AM loop antenna supplied with the receiver to these terminals. If an external AM antenna is used, make connections to the **AM** and **GND** terminals in accordance with the instructions supplied with the antenna.
- 2 FM Antenna:** Connect the supplied indoor (or an optional external) FM antenna to this terminal.
- 3 Preamp Outputs:** Connect these jacks to an optional, external power amplifier for applications where higher power is desired.
- 4 Subwoofer Output:** Connect this jack to the line-level input of a powered subwoofer. If an external subwoofer amplifier is used, connect this jack to the subwoofer amplifier input.
- 5 A-BUS Connector:** Connect this jack to an optional A-BUS-certified remote room keypad or amplifier to extend the multiroom capabilities of your AVR 325. See page 34 for more information on A-BUS.
- 6 Surround Speaker Outputs:** Connect these outputs to the matching + and – terminals on your surround channel speakers. In conformance with the new CEA color-code specification, the blue terminal is the

REAR-PANEL CONNECTIONS

positive, or "+," terminal that should be connected to the red (+) terminal on the Surround Left speaker with older color-coding, while the gray terminal should be connected to the red (+) terminal on the Surround Right speaker with the older color-coding. Connect the black (-) terminal on the AVR to the matching black negative (-) terminals for each surround speaker. (See page 15 for more information on speaker polarity.)

7 Front Speaker Outputs: Connect these outputs to the matching + or - terminals on your left and right speakers. When making speaker connections always make certain to maintain correct polarity by connecting the color-coded (white for front left and red for front right) (+) terminals on the AVR 325 to the red (+) terminals on the speakers and the black (-) terminals on the AVR 325 to the black (-) terminals on the speakers. See page 15 for more information on speaker polarity.

8 Fan Vents: These ventilation holes are the output of the AVR 325's airflow system. To ensure proper operation of the unit and to avoid possible damage to delicate surfaces, make certain that these holes are not blocked and that there is at least three inches of open space between the vent holes and any wooden or fabric surface.

9 Center Speaker Outputs: Connect these outputs to the matching + and - terminals on your center channel speaker. In conformance with the new CEA color-code specification, the green terminal is the positive, or "+," terminal that should be connected to the red (+) terminal on speakers with the older color-coding. Connect the black (-) terminal on the AVR to the black (-) terminal on your speaker. (See page 15 for more information on speaker polarity.)

10 Surround Back/Multiroom Speaker Outputs: These speaker terminals are normally used to power the surround back left/surround back right speakers in a 7.1 channel system. However, they may also be used to power the speakers in a second zone, which will receive the output selected for a multiroom system. To change the output fed to these terminals from the default of the Surround Back speakers to the Multiroom Output, you must change a setting in the Advanced Menu of the OSD system. See page 32 for more information on configuring this speaker output. In normal surround system use, the brown and black terminals are the surround back left channel positive (+) and negative (-) connections and the tan and black terminals are the surround back right positive (+) and negative (-) terminals. For multiroom use, connect the brown and black SBL terminals to the red and black connections on the left remote zone speaker and connect the tan and black SBR terminals to the red and black terminals on the right remote zone speaker.

11 Switched AC Accessory Outlet: These outlets may be used to power any device you wish to have turned on when the AVR 325 is turned on with the **System Power Control Button 2**.

1 Unswitched AC Accessory Outlet: This outlet may be used to power any AC device. The power will remain on at this outlet regardless of whether the AVR 325 is on or off.

NOTE: The total power consumption of all devices connected to the accessory outlets should not exceed 100 watts.

13 AC Power Cord Jack: Connect the AC power cord to this jack when the installation is complete. To ensure safe operation, use only the power cord supplied with the unit. If a replacement is required it must be of the same type and capacity.

14 Video Monitor Outputs: Connect these jacks to the composite or S-Video input of a TV monitor or video projector to view the on-screen menus and the output of any standard video source selected by the receiver's video switcher.

15 DVD Video Inputs: Connect the composite or S-Video outputs of a DVD player or other video source to these jacks.

16 Video 1 Video Inputs: Connect the composite or S-Video PLAY/OUT jacks of a VCR or other video source to these jacks.

17 Video 1 Video Outputs: Connect the composite or S-Video REC/IN jacks of a VCR or other video recording device such as a DVD recorder or PVR to these jacks.

18 Video 2 Video Inputs: Connect the composite or S-Video PLAY/OUT jacks of a VCR or other video source to these jacks.

19 Video 2 Video Outputs: Connect the composite or S-Video REC/IN jacks of a VCR or other video recording device such as a DVD recorder or PVR to these jacks.

20 Video 3 Video Inputs: Connect the composite or S-Video PLAY/OUT jacks of a VCR or other video source to these jacks.

21 Component Video Monitor Outputs: Connect these outputs to the component video inputs of a video projector or monitor. When a source connected to one of the **Component Video Inputs 22-23** is selected, the signal will be sent to these jacks.

22 DVD Component Video Inputs: Connect the Y/Pr/Pb component video outputs of a DVD player to these jacks.

23 Video 2 Component Video Inputs: Connect the Y/Pr/Pb component video outputs of an HDTV set-top converter, satellite receiver or other video source device with component video outputs to these jacks.

24 RS-232 Port: This jack is used to enable the AVR 325 to be controlled by an external computer or programmable remote system that uses RS-232 commands. Due to the complexity of RS-232 connections, we recommend that they be made by a trained and qualified custom installer. See page 16 for more information on the RS-232 control port.

25 Multiroom IR Input: Connect the output of an IR sensor in a remote room to this jack to operate the AVR 325's multiroom control system.

26 Remote IR Input: If the AVR 325's front-panel IR sensor is blocked due to cabinet doors or other obstructions, an external IR sensor may be used. Connect the output of the sensor to this jack.

27 Remote IR Output: This connection permits the IR sensor in the receiver to serve other remote controlled devices. Connect this jack to the "IR IN" jack on Harman Kardon (or other compatible) equipment.

28 Coaxial Digital Audio Output: Connect this jack to the coaxial digital input of a CD-R/RW, MiniDisc or other digital recorder.

29 Multiroom Audio Outputs: Connect these jacks to the optional external audio power amplifier and video distribution system that delivers the source selected for multizone distribution.

30 Optical Digital Audio Output: Connect this jack to the optical digital input connector on a CD-R/RW, MiniDisc or other digital recorder.

31 CD Audio Inputs: Connect these jacks to the analog audio output of a compact disc player or CD changer.

32 DVD Audio Inputs: Connect the left/right analog outputs of a DVD player or other audio source to these jacks.

33 Optical Digital Audio Inputs: Connect the optical digital output from a DVD player, HDTV receiver, the S/P-DIF output of a compatible computer sound card playing MP3 files or streams, LD player or CD player to these jacks. The signal may be a Dolby Digital signal, a DTS signal or a standard PCM digital source.

34 Tape Inputs: Connect these jacks to the PLAY/OUT jacks of an audio recorder.

35 Tape Outputs: Connect these jacks to the RECORD/INPUT jacks of an audio recorder.

REAR-PANEL CONNECTIONS

36 Coaxial Digital Audio Inputs: Connect the coax digital output from a DVD player, HDTV receiver, the S/P-DIF output of a compatible computer sound card playing MP3 files or streams, LD player or CD player to these jacks. The signal may be a Dolby Digital signal, DTS signal or a standard PCM digital source. Do not connect the RF digital output of an LD player to these jacks.

37 Video 1 Audio Inputs: Connect the left/right PLAY/OUT audio output jacks on a VCR or other video source to these jacks.

38 Video 1 Audio Outputs: Connect the left/right REC/IN audio input jacks on a VCR or other video source to these jacks.

39 Video 2 Audio Inputs: Connect the left/right PLAY/OUT audio output jacks on a VCR or other video source to these jacks.

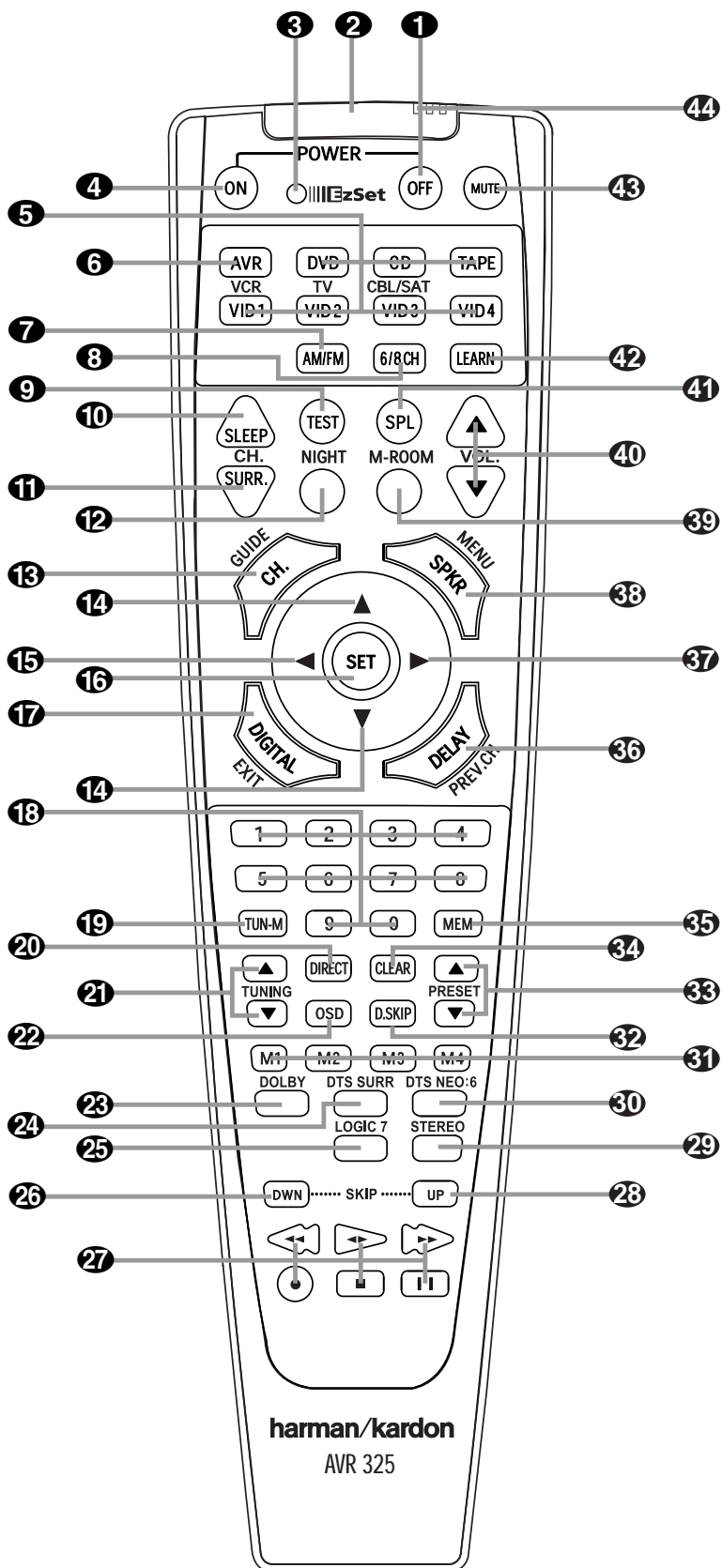
40 8-Channel Direct Inputs: These jacks are used for connection to source devices such as DVD-Audio or SACD players with discrete analog outputs. Depending on the source device in use, all eight jacks may be used, though in many cases only connections to the front left/right, center, surround left/right and LFE (subwoofer input) jacks will be used for standard 5.1 audio signals.

41 Video 2 Audio Outputs: Connect the left/right REC/IN audio input jacks on a VCR or other video source to these jacks.

42 Video 3 Audio Inputs: Connect the left/right PLAY/OUT audio output jacks on a VCR, PVR, cable set-top, satellite receiver, HDTV receiver or other video source to these jacks.

MAIN REMOTE CONTROL FUNCTIONS

- 1 Power Off Button
- 2 IR Transmitter Window
- 3 Program/SPL Indicator
- 4 Power On Button
- 5 Input Selectors
- 6 AVR Selector
- 7 AM/FM Tuner Select
- 8 6-Channel/8-Channel Direct Input
- 9 Test Button
- 10 Sleep Button
- 11 Surround Mode Selector
- 12 Night Mode
- 13 Channel Select Button
- 14 ▲/▼ Buttons
- 15 ◀ Button
- 16 Set Button
- 17 Digital Select
- 18 Numeric Keys
- 19 Tuner Mode
- 20 Direct Button
- 21 Tuning Up/Down
- 22 OSD Button
- 23 Dolby Mode Selector
- 24 DTS Digital Mode Selector
- 25 Logic 7 Mode Select Button
- 26 Skip Down Button
- 27 Transport Controls
- 28 Skip Up Button
- 29 Stereo Mode Select Button
- 30 DTS Neo:6 Mode Select
- 31 Macro Buttons
- 32 Disc Skip Button
- 33 Preset Up/Down
- 34 Clear Button
- 35 Memory Button
- 36 Delay/Prev. Ch.
- 37 ▶ Button
- 38 Speaker Select
- 39 Multiroom
- 40 Volume Up/Down
- 41 SPL Selector
- 42 Learn Button
- 43 Mute
- 44 EzSet Sensor Microphone



NOTE: The function names shown here are each button's feature when used with the AVR 325. Most buttons have additional functions when used with other devices. See pages 40-41 for a list of these functions.

MAIN REMOTE CONTROL FUNCTIONS

IMPORTANT NOTE: The AVR 325's remote may be programmed to control up to eight devices, including the AVR 325. Before using the remote, it is important to remember to press the **Input Selector Button 5** that corresponds to the unit you wish to operate. In addition, the AVR 325's remote is shipped from the factory to operate the AVR 325 and most Harman Kardon CD or DVD players and cassette decks. The remote is also capable of operating a wide variety of other products using the control codes that are part of the remote. Before using the remote with other products, follow the instructions on pages 36–37 to program the proper codes for the products in your system.

It is also important to remember that many of the buttons on the remote take on different functions, depending on the product selected using the Device Control Selectors. The descriptions shown here primarily detail the functions of the remote when it is used to operate the AVR 325. (See page 40 for information about alternate functions for the remote's buttons.)

1 Power Off Button: Press this button to place the AVR 325 or a selected device in the Standby mode. Note that this will turn off the main room functions, but if the Multiroom system is activated, it will continue to function.

2 IR Transmitter Window: Point this window towards the AVR 325 when pressing buttons on the remote to make certain that infrared commands are properly received.

3 Program/SPL Indicator: This three-color indicator is used to guide you through the process of programming the remote or learning commands from a remote into the AVR 325's remote code memory and it is also used as a level indicator when using the remote's EzSet capabilities. (See page 24 for more information on setting output levels, and see page 36 for information on programming the remote.)

4 Power On Button: Press this button to turn on the power to a device selected by pressing one of the **Input Selectors 5**.

5 Input Selectors: Pressing one of these buttons will perform three actions at the same time. First, if the AVR 325 is not turned on, this will power up the unit. Next, it will select the source shown on the button as the input to the AVR 325. Finally, it will change the remote control so that it controls the device selected. After pressing one of these buttons you must press the **AVR Selector Button 6** again to operate the AVR 325's functions with the remote.

6 AVR Selector: Pressing this button will switch the remote so that it will operate the AVR 325's functions. If

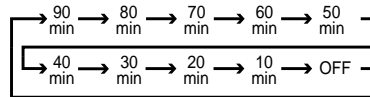
the AVR 325 is in the Standby mode, it will also turn the AVR 325 on.

7 AM/FM Tuner Select: Press this button to select the AVR 325's tuner as the listening choice. Pressing this button when the tuner is already in use will select between the AM and FM bands.

8 6-Channel/8-Channel Direct Input: Press this button to select the device connected to the **8-Channel Direct Inputs 40**. (See page 26 for more information.)

9 Test Button: Press this button to begin the sequence used to calibrate the AVR 325's output levels. (See page 24 for more information on calibrating the AVR 325.)

10 Sleep Button: Press this button to place the unit in the Sleep mode. After the time shown in the display, the AVR 325 will automatically go into the Standby mode. Each press of the button changes the time until turn-off in the following order:



This button is also used to change channels on your TV when the TV is selected.

When the AVR 325 remote is being programmed with the codes to operate another device, this button is also used in the "Auto Search" process. (See page 36 for more information on programming the remote.)

11 Surround Mode Selector: Press this button to cycle through the DSP, VMaX and Stereo surround modes such as Hall, Theater, VMaX Near and Far, and Surround Off. This button is also used to tune channels when the TV is selected using the device **Input Selector 5**. When the AVR 325 remote is being programmed with the codes of another device, this button is also used in the "Auto Search" process. (See page 36 for more information on programming the remote.)

12 Night Mode: Press this button to activate the Night mode. This mode is available in specially encoded digital sources, and it preserves dialogue (center channel) intelligibility at low volume levels.

13 Channel Select Button: This button is used to start the process of setting the AVR 325's output levels to an external source. Once this button is pressed, use the **▲/▼ Buttons 14** to select the channel being adjusted, then press the **Set Button 16**, followed by the **▲/▼ Buttons 14** again, to change the level setting. (See page 31 for more information.)

14 ▲/▼ Buttons: These multipurpose buttons are used to change or scroll through items in the on-

screen menus, make configuration settings such as digital inputs or delay timing, or to select surround modes. When changing a setting, first press the button for the function or setting to be changed (e.g., press the **Surround Mode Selector 11** to select a sound field mode or the **Digital Select Button 17** to change a digital input) and then press one of these buttons to scroll through the list of options or to increase or decrease a setting. The sections in this manual describing the individual features and functions contain specific information on using these buttons for each application.

15 ◀ Button: This button is used to change the menu selection or setting during some of the setup procedures for the AVR 325.

16 Set Button: This button is used to enter settings into the AVR 325's memory. It is also used in the setup procedures for delay time, speaker configuration and channel output level adjustment.

17 Digital Select: Press this button to assign one of the digital inputs **33 36 17 18** to a source. (See page 27 for more information on using digital inputs.)

18 Numeric Keys: These buttons serve as a 10-button numeric keypad to enter tuner preset positions. They are also used to select channel numbers when TV, Cable or SAT has been selected on the remote, or to select track numbers on a CD, DVD or LD player, depending on how the remote has been programmed.

19 Tuner Mode: Press this button when the tuner is in use to select between automatic tuning and manual tuning. When the button is pressed so that the **AUTO Indicator J** goes out, pressing the **Tuning Buttons 21 9 E** will move the frequency up or down in single-step increments. When the FM band is in use, pressing this button when a station's signal is weak will change to monaural reception. (See page 30 for more information.)

20 Direct Button: Press this button when the tuner is in use to start the sequence for direct entry of a station's frequency. After pressing the button, simply press the proper **Numeric Keys 18** to select a station. (See page 30 for more information on the tuner.)

21 Tuning Up/Down: When the tuner is in use, these buttons will tune up or down through the selected frequency band. If the **Tuner Mode Button 19 16** has been pressed so that the **AUTO Indicator J** is illuminated, pressing and holding either of the buttons for three seconds will cause the tuner to seek the next station with acceptable signal strength for quality reception. When the **AUTO Indicator J** is NOT illuminated, pressing these buttons will tune stations in single-step increments. (See page 30 for more information.)

MAIN REMOTE CONTROL FUNCTIONS

- 22 OSD Button:** Press this button to activate the On-Screen Display (OSD) system used to set up or adjust the AVR 325's parameters.
- 23 Dolby Mode Selector:** This button is used to select from among the available Dolby Surround processing modes. Each press of this button will select one of the Dolby Pro Logic II modes or Dolby 3 Stereo. When a Dolby Digital-encoded source is in use, the Dolby Digital mode may also be selected. (See page 28 for the available Dolby surround mode options.)
- 24 DTS Digital Mode Selector:** When a DTS-encoded digital source is selected, each press of this button will scroll through the available DTS modes. The specific choice of modes will vary according to whether or not the source material contains DTS-ES 6.1 Discrete encoding. When a DTS source is not in use, this button has no function. (See page 28 for the available DTS Digital options.)
- 25 Logic 7 Mode Select Button:** Press this button to select from among the available Logic 7 surround modes. (See page 28 for the available Logic 7 options.)
- 26 Skip Down Button:** This button does not have a direct function with the AVR 325, but when used with a compatibly programmed CD or DVD changer it will change to the previous disc in the changer or carousel.
- 27 Transport Controls:** These buttons do not have any functions for the AVR 325, but they may be programmed for the forward/reverse play operation of a wide variety of CD or DVD players, and audio or video cassette recorders. (See page 38 for more information.)
- 28 Skip Up Button:** This button does not have a direct function with the AVR 325, but when used with a compatibly programmed CD or DVD changer it will change the disc currently being played in the changer.
- 29 Stereo Mode Select Button:** Press this button to select a stereo listening mode. The first press of the button places the AVR in a true, two-channel, left/right stereo mode with no surround processing. The next press selects either five-channel stereo or seven-channel stereo, depending on the speaker configuration.
- 30 DTS Neo:6 Mode Select:** Press this button to select a DTS Neo:6 mode. These modes take a two-channel stereo- or matrix surround-encoded source and create a full five-, six- or seven-channel sound field. (See page 28 for the available DTS Neo:6 options.)
- 31 Macro Buttons:** Press these buttons to store or recall a "Macro", which is a preprogrammed sequence of commands stored in the remote. (See page 37 for more information on storing and recalling macros.)
- 32 Disc Skip Buttons:** This button has no direct function for the AVR 325 but is most often used to change to the next disc in a CD or DVD player when the remote is programmed for that type of device. (See page 38 for more information on using the remote with products other than the AVR 325.)
- 33 Preset Up/Down:** When the tuner is in use, press these buttons to scroll through the stations programmed into the AVR 325's memory. When some source devices, such as CD players, VCRs and cassette decks, are selected using the device **Input Selectors 5**, these buttons may function as Chapter Step or Track Advance.
- 34 Clear Button:** Press this button to clear incorrect entries when using the remote to directly enter a radio station's frequency.
- 35 Memory Button:** Press this button to enter a radio station into the AVR 325's preset memory. Once the **MEMORY Indicator G** flashes, you have five seconds to enter a preset memory location using the **Numeric Keys 18**. (See page 30 for more information.)
- 36 Delay/Prev Ch.:** Press this button to begin the process for setting the delay times used by the AVR 325 when processing surround sound. After pressing this button, the delay times are entered by pressing the **Set Button 16** and then using the **▲/▼ Buttons 14** to change the setting. Press the **Set Button 16** again to complete the process. (See page 23 for more information.)
- 37 ► Button:** Press this button to change a setting or selection when configuring many of the AVR 325's settings.
- 38 Speaker Select:** Press this button to begin the process of configuring the AVR 325's bass management system for use with the type of speakers used in your system. Once the button has been pressed, use the **▲/▼ Buttons 14** to select the channel you wish to set up. Press the **Set Button 16** and then select another channel to configure. When all adjustments have been completed, press the **Set Button 16** twice to exit the settings and return to normal operation. (See page 21 for more information.)
- 39 Multiroom:** Press this button to activate the multiroom system or to begin the process of changing the input or volume level for the second zone. (See page 34 for more information on the Multiroom system.)
- 40 Volume Up/Down:** Press these buttons to raise or lower the system volume.
- 41 SPL Selector:** This button activates the AVR 325's EzSet function to quickly and accurately calibrate the AVR 325's output levels. Press and hold the button for three seconds and then release it. Press the **"5" or "7" Numeric Key 18** to indicate whether you are using a 5.1-channel or a 6.1/7.1-channel speaker system with the AVR 325. The test tone will begin circulating, and the **Program/SPL Indicator 3** will change colors. During this sequence, EzSet will automatically adjust the output levels for all channels until they are equal, as shown by the **Program/SPL Indicator 3** lighting green for each channel. Press this button again when the adjustment is complete to turn off the test tone. (See page 24 for more information on EzSet.)
- 42 Learn Button:** Press this button to begin the process of "learning" the codes from another product's remote into the AVR 325's remote. (See page 36 for more information on using the remote's learning function.)
- 43 Mute:** Press this button to momentarily silence the AVR 325 or TV set being controlled, depending on which device has been selected. When the AVR 325 remote is being programmed to operate another device, this button is pressed with the **Input Selector Button 5** to begin the programming process. (See page 36 for more information on programming the remote.)
- 44 EzSet Sensor Microphone:** The sensor microphone for the EzSet microphone is behind these slots. When using the remote to calibrate speaker output levels using EzSet, be sure that you do not hold the remote in a way that covers these slots. (See page 24 for more information on using EzSet.)

INSTALLATION AND CONNECTIONS

System Installation

After unpacking the unit, locating it in a place with adequate ventilation and placing it on a solid surface capable of supporting its weight, you will need to make the connections to your audio and video equipment.

IMPORTANT NOTE: For your personal safety and to avoid possible damage to your equipment and speakers, it is always a good practice to turn off and unplug the AVR and ALL source equipment from the AC output before making any audio or video system connections.

Audio Equipment Connections

We recommend that you use high-quality interconnect cables when making connections to source equipment and recorders to preserve the integrity of the signals.

1. Connect the analog output of a CD player to the **CD Audio Inputs 31**.

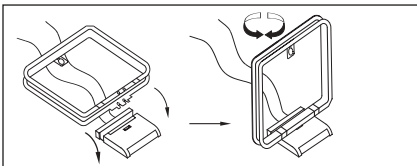
NOTE: When the CD player has both fixed and variable audio outputs, it is best to use the fixed output unless you find that the input to the receiver is so low that the sound is noisy, or so high that it is distorted.

2. Connect the analog Play/Out jacks of a cassette deck, MD, CD-R or other audio recorder to the **Tape Input Jacks 34**. Connect the analog Record/In jacks on the recorder to the **Tape Output Jacks 35** on the AVR 325.

3. Connect the output of any digital sources such as a CD or DVD changer or player, advanced video game, a digital satellite receiver, HDTV tuner or digital cable set-top box or the output of a compatible computer sound card to the **Optical and Coaxial Digital Audio Inputs 33 36 17 18**.

4. Connect the coaxial or optical **Digital Audio Outputs 23 30** on the rear panel of the AVR 325 to the matching digital input connections on a CD-R or MiniDisc recorder.

5. Assemble the AM Loop Antenna supplied with the unit. Connect it to the **AM and GND Screw Terminals 1**.



6. Connect the supplied FM antenna to the **FM (75-ohm) Connection 2**. The FM antenna may be an external roof antenna, an inside powered or wire-lead antenna or a connection from a cable TV system. If the antenna or connection uses 300-ohm twin-lead cable, you must use the 300-ohm-to-75-ohm adapter supplied with the unit to make the connection.

7. Connect the front, center, surround and surround back speaker outputs **6 7 9 10** to the respective speakers.

To ensure that all the audio signals are carried to your speakers without loss of clarity or resolution, we suggest that you use high-quality speaker cable. Many brands of cable are available and the choice of cable may be influenced by the distance between your speakers and the receiver, the type of speakers you use, personal preferences and other factors. Your dealer or installer is a valuable resource to consult in selecting the proper cable.

Regardless of the brand of cable selected, we recommend that you use a cable constructed of multistrand copper with a gauge of 14 or smaller. Remember that in specifying cable, the lower the number, the thicker the cable.

Cable with a gauge of 16 may be used for short runs of less than 10 feet. We do not recommend that you use cables with an AWG equivalent of 18 or higher, due to the power loss and degradation in performance that will occur.

Cables that are run inside walls should have the appropriate markings to indicate listing with UL, CSA or other appropriate testing agency standards. Questions about running cables inside walls should be referred to your installer or a licensed electrician who is familiar with the NEC and/or the applicable local building codes in your area.

When connecting wires to the speakers, be certain to observe proper polarity. Note that the positive (+) terminal of each speaker connection now carries a specific color code, as noted on page 8. However, most speakers still use a red terminal for the positive (+) connection. Connect the "negative" or "black" wire to the same terminal on both the receiver and the speaker.

NOTE: While most speaker manufacturers adhere to an industry convention of using black terminals for negative and red ones for positive, some may vary from this configuration. To ensure proper phase and optimal performance, consult the identification plate on your speaker or the speaker's manual to verify polarity. If you do not know the polarity of your speaker, ask your dealer for advice before proceeding, or consult the speaker's manufacturer.

We also recommend that the length of cable used to connect speaker pairs be identical. For example, use the same length piece of cable to connect the front-left and front-right or surround-left and surround-right speakers, even if the speakers are a different distance from the AVR 325.

8. Connections to a subwoofer are normally made via a line-level audio connection from the **Subwoofer Output 4** to the line-level input of a subwoofer with a built-in amplifier. When a passive subwoofer is used, the connection first goes to a power amplifier, which will be connected to one or more subwoofer speakers. If you are using a powered subwoofer that does not have line-level input connections, follow the instructions furnished with the speaker for connection information.

9. If an external multichannel audio source with 5.1 outputs such as an external digital processor/decoder, DVD-Audio or SACD player is used, connect the outputs of that device to the **8-Channel Direct Inputs 40**.

Video Equipment Connections

Video equipment is connected in the same manner as audio components. Again, the use of high-quality interconnect cables is recommended to preserve signal quality.

1. Connect a VCR's or other video source's audio and video Play/Out jacks to the **Video 1/Video 2 Audio and Video Input Jacks 16 18 37 39** on the rear panel. The Audio and Video Record/In jacks on the VCR should be connected to the **Video 1/Video 2 Audio and Video Output Jacks 17 19 38 41** on the AVR 325.

2. Connect the analog audio and video outputs of a satellite receiver, cable TV converter, television set or any other video source to the **Video 3 Audio and Video Input Jacks 20 42**.

3. Connect the analog audio and video outputs of a DVD or laser disc player to the **DVD Audio and Video Inputs 15 32**.

4. Connect the digital audio outputs of a DVD player, satellite receiver, cable box or HDTV converter to the appropriate **Optical or Coaxial Digital Inputs 33 36 17 18**.

5. Connect the **Video Monitor Output 14** jacks on the receiver to the composite or S-Video input of your television monitor or video projector.

6. If your DVD player and monitor both have component video connections, connect the component outputs of the DVD player to the **DVD Component Video Inputs 22**. Even when component video connections are used, the audio connections should still be made to either the analog **DVD Audio Inputs 32** or any of the **Optical or Coaxial Digital Input Jacks 33 36**.

7. If other devices with component video outputs are available, connect it to the **Video 2 Component Video Inputs 23**. The audio connections for this

INSTALLATION AND CONNECTIONS

device should be made to either the **Video 2 Audio Inputs 39** or any of the **Optical or Coaxial Digital Input Jacks 33 36**.

8. If the component video inputs are used, connect the **Component Video Monitor Outputs 21** to the component video inputs of your TV, projector or display device.

9. If you have a camcorder, video game or other audio/video device that is connected to the AVR on a temporary rather than permanent basis, connect the audio, video and digital audio outputs of that device to the **Front-Panel Inputs 17 18 19 20**. A device connected here is selected as the Video 4 input, and the digital inputs must be assigned to the Video 4 input. (See page 19 for more information on input configuration.)

Video Connection Notes:

- When the component video jacks are used, the on-screen menus are not visible and you must switch to the standard composite or S-Video input on your TV to view them.
- The AVR 325 will accept either standard composite, S-Video or Y/Pr/Pb component video signals. However, it will not convert composite or S signals to component video.
- Component and composite video signals may only be viewed in their native formats.

System and Power Connections

The AVR 325 is designed for flexible use with multi-room systems, external control components and power amplifiers.

Main Room Remote Control Extension

If the receiver is placed behind a solid or smoked glass cabinet door, the obstruction may prevent the remote sensor from receiving commands. In this event, an optional remote sensor may be used. Connect the output of the remote sensor to the **Remote IR Input 25** jack.

If other components are also prevented from receiving remote commands, only one sensor is needed. Simply use this unit's sensor or a remote eye by running a connection from the **Remote IR Output 27** jack to the Remote IR Input jack on Harman Kardon or other compatible equipment.

Multiroom IR Link

The remote room IR receiver should be connected to the AVR 325 via standard coaxial cable. Plug the IR connection cable into the **Multiroom IR Input 25** jack on the AVR 325's rear panel.

If other Harman Kardon compatible source equipment is part of the main room installation, the **Remote IR Output 27** jack on the rear panel should be connected to the IR IN jack on source equipment. This will enable the remote room location to control source equipment functions.

NOTE: All remotely controlled components must be linked together in a "daisy chain". Connect the **IR OUT** jack of one unit to the **IR IN** of the next to establish this chain.

Multiroom Connections

The AVR 325 is equipped with multizone capabilities that allow it to send a separate audio source to the remote zone from the one selected for use in the main room.

Depending on your system's requirement, three options are available for audio connection:

Option 1: Use high-quality, shielded audio interconnect cable from the AVR 325's location to the remote room. In the remote room, connect the interconnect cable to a stereo power amplifier. The amplifier will be connected to the room's speakers. At the AVR 325, plug the audio interconnect cables into the **Multiroom Audio Output 29** jacks on the AVR 325's rear panel.

Option 2: Connect the **Multiroom Audio Output 29** jacks on the AVR 325 to the inputs of an optional stereo power amplifier. Run high-quality speaker wire from the amplifier to the speakers in the remote room.

Option 3: Taking advantage of the AVR 325's built-in seven-channel amplifier, it is possible to use two of the amplifier channels to power speakers in the remote room. When using this option you will not be able to use the full 7.1-channel capabilities of the AVR 325 in the main listening room, but you will be able to add another listening room without additional external power amplifiers. To use the internal amplifiers to power a remote zone, connect the speakers for the remote room location to the **Surround Back/Multiroom Speaker Outputs 10**. Before using the remote room you will need to configure the amplifiers for surround operation by changing a setting in the Advanced Select menu, following the instructions shown on page 32.

NOTE: For all options, you may connect an optional IR sensor in the remote room to the AVR 325 via an appropriate cable. Connect the sensor's cable to the **Multiroom IR Input 25** on the AVR 325 and use the Zone II remote to control the room volume. Alternatively, you may install an optional volume control between the output of the amplifiers and the speakers.

A-BUS® Installation Connections

The AVR 325 is among the very few receivers available today that offer built-in A-BUS Ready® operation. When used with an optional A-BUS keypad or control module, you have all the benefits of remote zone operation without the need for an external power amplifier.

To use the AVR 325 with an approved A-BUS product, simply connect the keypad or module that is in the remote room to the AVR 325 using standard Category 5 wiring that is properly rated for the in-wall use specific to the installation. Terminate the wiring at the receiver end to a standard RJ-45 jack in compliance with the instructions furnished with the A-BUS module.

No further installation or adjustment is needed, as the A-BUS connector on the AVR 325 routes the signals in and out of the keypad to their proper destination for power, signal source and control. The output fed to the A-BUS jack is determined by the AVR 325's multi-room system, and the menus may be used as is.

RS-232 Connections

The AVR 325 includes an RS-232 serial port connection that may be used to control the unit via compatible optional, external keypads or control systems. The physical connection to the AVR 325 from the control device is a standard D-9 connection, but to ensure compatible and proper operation, specific software commands and pin wiring schemes are required. Due to the complexity of RS-232 connections, we recommend that they be made only by trained installers familiar with their use. To obtain additional information on the use of the AVR 325 with RS-232 control, please contact Harman Kardon's customer service department or consult our Web site at www.harmankardon.com.

AC Power Connections

This unit is equipped with two accessory AC outlets. They may be used to power accessory devices, but they should not be used with high-current-draw equipment such as power amplifiers. The total power draw to each outlet may not exceed 100 watts.

The **Switched AC Accessory Outlet 11** will receive power only when the unit is on. This is recommended for devices that have no power switch or a mechanical power switch that may be left in the "ON" position.

NOTE: Many audio and video products go into a Standby mode when they are used with switched outlets, and cannot be fully turned on using the outlet alone without a remote control command.

The **Unswitched AC Accessory Outlet 1** will receive power as long as the unit is plugged into a powered AC outlet.

INSTALLATION AND CONNECTIONS

The AVR 325 features a removable power cord that allows wires to be run to a complex installation so that the unit itself need not be installed until it is ready for connection. When all connections described above have been made, connect the AC power cord to the **AC Power Cord Jack 15**.

The AVR 325 draws significantly more current than other household devices, such as computers, that use removable power cords. For that reason, it is important that only the cord supplied with the unit (or a direct replacement of identical capacity) be used.

Once the power cord is connected, you are almost ready to enjoy the AVR 325's incredible power and fidelity!

TROUBLESHOOTING GUIDE

SYMPTOM	CAUSE	SOLUTION
Unit does not function when Main Power Switch is pushed	<ul style="list-style-type: none"> No AC Power 	<ul style="list-style-type: none"> Make certain AC power cord is plugged into a live outlet Check to see whether outlet is switch-controlled
Display lights, but no sound or picture	<ul style="list-style-type: none"> Intermittent input connections Mute is on Volume control is down 	<ul style="list-style-type: none"> Make certain that all input and speaker connections are secure Press Mute Button 43 Turn up volume control
Unit turns on, but front panel display does not light up	<ul style="list-style-type: none"> Display brightness is turned off 	<ul style="list-style-type: none"> Follow the instructions in the Display Brightness section on page 32 so that the display is set to VFD FULL
No sound from any speaker; light around power switch is red	<ul style="list-style-type: none"> Amplifier is in protection mode due to possible short Amplifier is in protection mode due to internal problems 	<ul style="list-style-type: none"> Check speaker wire connections for shorts at receiver and speaker ends Contact your local Harman Kardon service center
No sound from surround or center speakers	<ul style="list-style-type: none"> Incorrect surround mode Input is monaural Incorrect configuration Stereo or Mono program material 	<ul style="list-style-type: none"> Select a mode other than Stereo There is no surround information from mono sources Check speaker mode configuration The surround decoder may not create center- or rear-channel information from nonencoded programs
Unit does not respond to remote commands	<ul style="list-style-type: none"> Weak batteries in remote Wrong device selected Remote sensor is obscured 	<ul style="list-style-type: none"> Change remote batteries Press the AVR selector Make certain front panel sensor is visible to remote or connect remote sensor
Intermittent buzzing in tuner	<ul style="list-style-type: none"> Local interference 	<ul style="list-style-type: none"> Move unit or antenna away from computers, fluorescent lights, motors or other electrical appliances
Letters flash in the channel indicator display and digital audio stops	<ul style="list-style-type: none"> Digital audio feed paused 	<ul style="list-style-type: none"> Resume play for DVD Check that Digital Input is selected

Processor Reset

In the rare case where the unit's operation or the displays seem abnormal, the cause may involve the erratic operation of the system's memory or microprocessor.

To correct this problem, first unplug the unit from the AC wall outlet and wait at least three minutes. After the pause, reconnect the AC power cord and check the unit's operation. If the system still malfunctions, a system reset may clear the problem.

To clear the AVR 325's entire system memory including tuner presets, output level settings, delay times and speaker configuration data, first put the unit in Standby by pressing the **System Power Control Button 2**.

Next, press and hold the **Surround Mode 7** and the **Tuner Mode Selector 16** buttons for three seconds.

The unit will turn on automatically and display the **RESET** message in the **Main Information Display 29**.

NOTE: Resetting the processor will erase any configuration settings you have made for speakers, output levels, surround modes, digital input assignments as well as the tuner presets. After a reset the unit will be returned to the factory presets, and all settings for these items must be reentered.

If the system is still operating incorrectly, there may have been an electronic discharge or severe AC line interference that has corrupted the memory or microprocessor.

If these steps do not solve the problem, consult an authorized Harman Kardon service center.

harman/kardon

Service Bulletin

Service bulletin # H/K2003-05 Sept. 2003

Warranty labor rate: MAJOR repair

To: All harman/kardon Service Centers

Model: AVR325/AVR525

Subject: Software Upgrade

A software upgrade is possible for the sub Micro CXP82852-375Q (IC12) in models AVR325 and AVR525; units without the upgrade may exhibit the following symptoms:

1) Dolby Digital EX mode only, Delay adjustment, any speaker size selected: Adjusting the delay time at 14 feet or greater for surround back, surround or center channels, may generate a distortion (like a feedback signal) from the *subwoofer output*. Lowering the delay level below 14 feet eliminates the distortion.

2) The Triple Crossover feature: Settings allow a different crossover point to be used for the front left/right, center and surround speakers. If the settings are not configured properly, the user could actually create a frequency notch and “cut out” certain bass frequencies, or, over-enhance bass frequencies by overlapping the X-Over points.

(NOTE: It would be a rare occurrence where symptom #2 would generate a complaint)

AVR325 IC12, (CXP82852-375Q) order and replace with h/k part # **55646260** (CXP82860-390Q).

AVR525 IC12, (CXP82852-377Q) order and replace with h/k part # **55645960** (CXP82860-391Q).

WARNING: FOLLOW PROPER STATIC CONTROL PROCEDURES and use caution during the removal of the DSP board, and during installation of new IC12 to prevent damage.

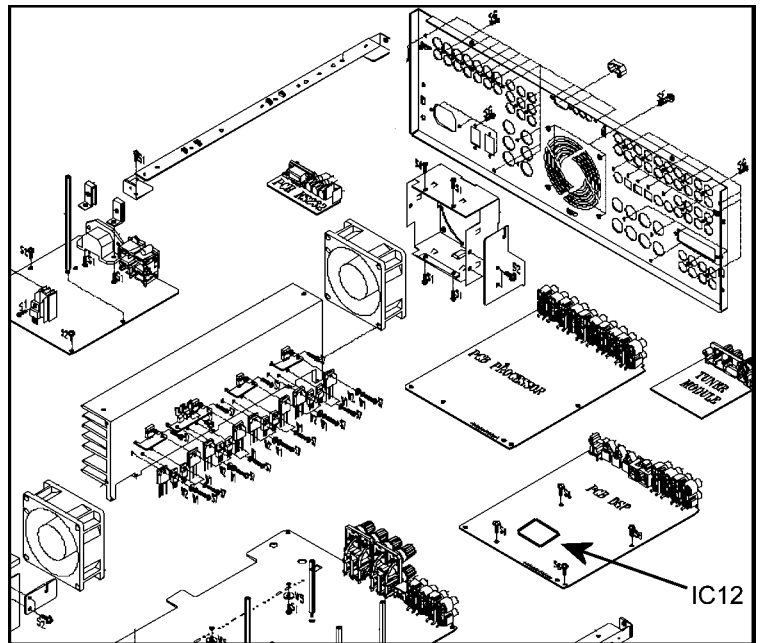
Sub Micro CXP82852-375Q (IC12) is on the DSP board. Remove top cover, Processor board, all Molex connectors and rear screws necessary to access DSP board. Disengage both Processor and DSP PCB from the rear PCB connector by pushing back on the rear board; lift the Processor PCB up and out of the unit. Not all connectors need to be removed – when enough connectors are unplugged, the Processor PCB can be lifted out of the way to access the DSP board.

Disengage the DSP PCB from its rear connector by pushing back on the rear PCB; lift the DSP PCB up and out of the unit.

Locate and replace IC12; See drawing.

After replacement, replace all connectors and screws. **CAUTION:** At the rear screws, if using a power tool, use care and minimum force to avoid damaging the various plastic receptacles.

Test the unit.



Model	Serial Number (120v)	Status	Action
AVR325	All Serial Numbers Affected	Dolby Digital Ex Mode Delay Adjustment Oscillation; Triple Crossover	Change IC12
AVR525	All Serial Numbers Affected	Dolby Digital Ex Mode Delay Adjustment Oscillation; Triple Crossover	Change IC12

harman/kardon

Service Bulletin

Service bulletin # HK2004-04 Rev1 August 2005

Warranty labor rate: MAJOR repair

To: All harman/kardon Service Centers

Model: AVR325, AVR525, AVR430, AVR630

Subject: Rewiring Bias/Fan cables

In the event you receive an AVR325, AVR525, AVR430 or AVR630 with the complaint: “the unit intermittently goes in standby or the fan runs constantly” perform the following modification. Please note other component or connection failures can cause the unit to go in to standby.

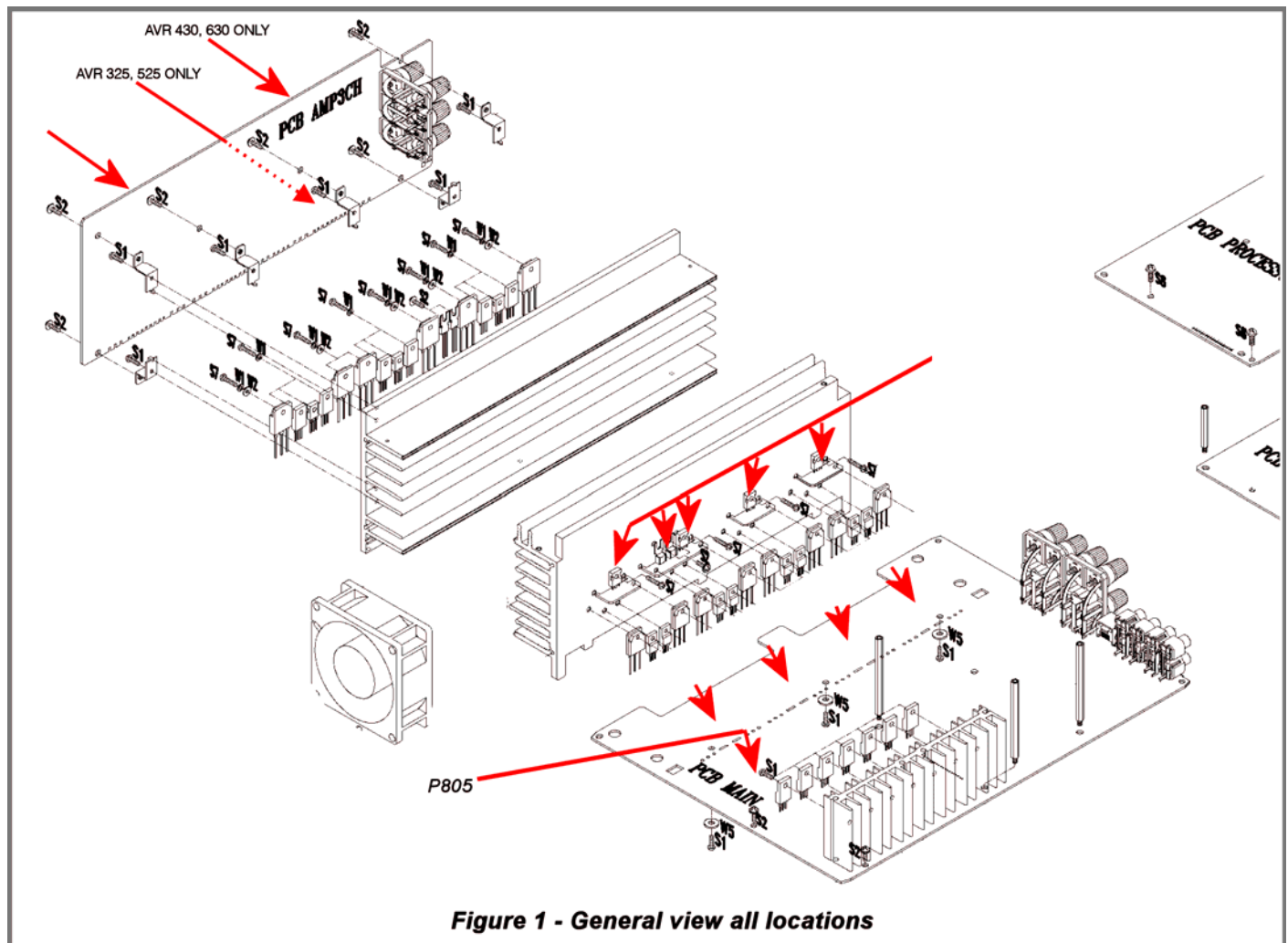
Synopsis: Hard wire Bias/Fan cables (7 cables, 12 connectors) from Bias PCB's to main PCB, surround PCB.
Recheck all bias voltages.

- 1) Remove the top cover
- 2) Remove the DSP and Processor boards.
- 3) Locate and identify Bias cables connecting Bias and Surround PCB's to main PCB:

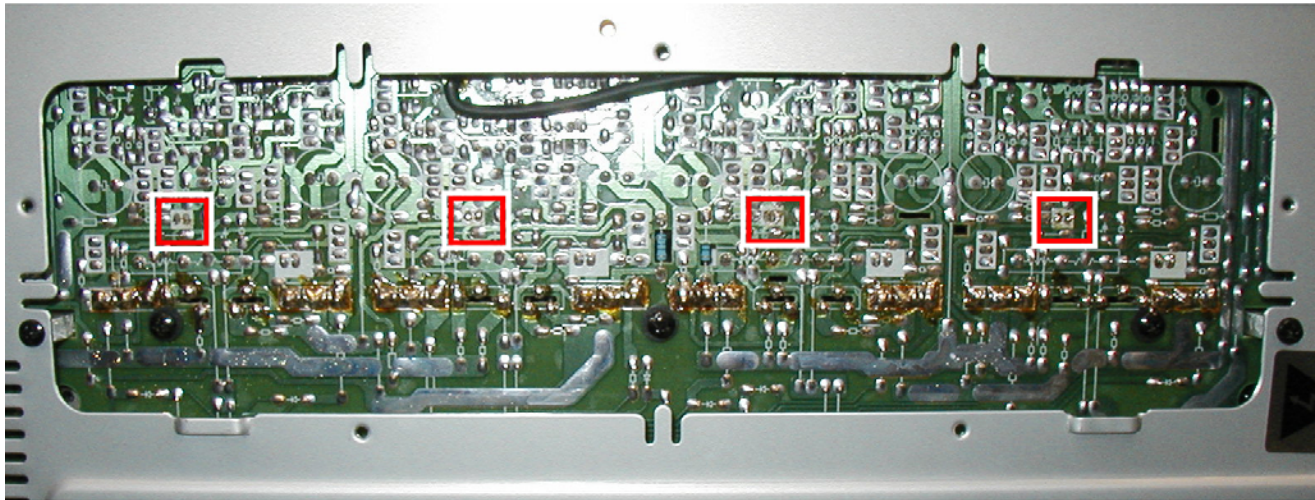
All models MAIN PCB Location: P805, N801, N802, N803, N804

AVR430,630 SURROUND PCB Location: N301,P307 | AVR325,525 SURROUND PCB Location: P307, P310

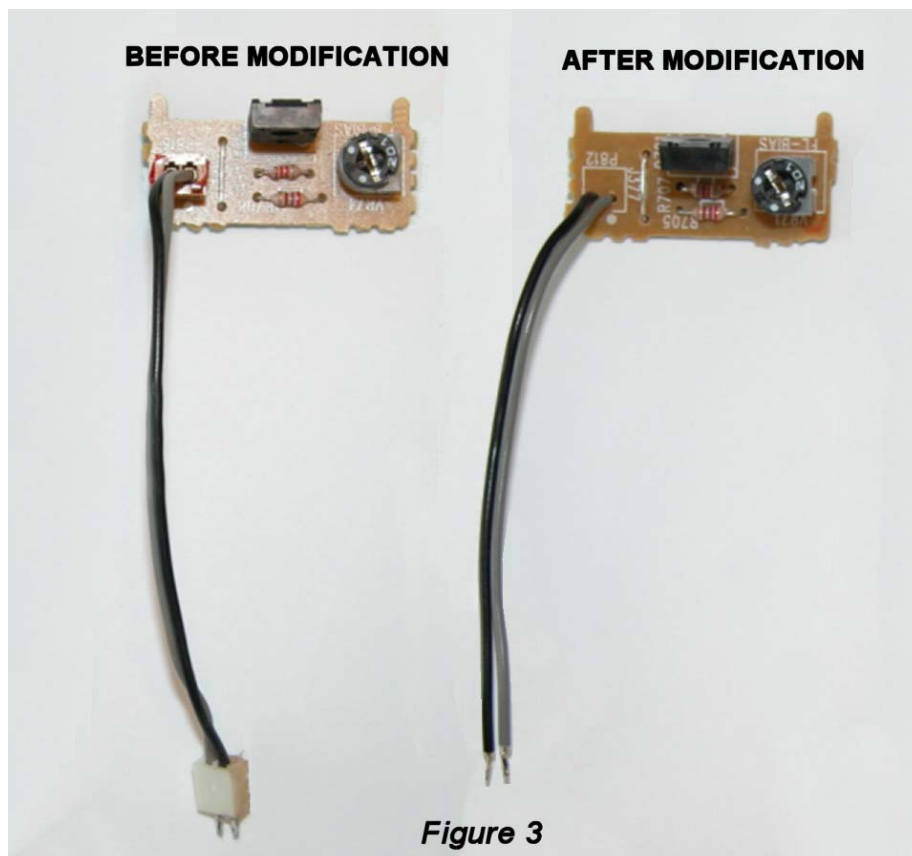
All models BIAS PCB Location: P812, P813, P814, P815, P816



- 4) Unplug each the cable on the Bias PCB, desolder the female plugs, cut the connectors off each wire, strip the insulation 1/8" on each end and solder directly to the PCB assembly in each location.
- 5) For locations N801, N802, N803, N804 on the Main PCB, set the unit on its side and remove the bottom grille. (See Figure 2) Desolder and remove each connector. Cut the connectors off each wire, strip the insulation 1/8" on each end and solder directly to the PCB assembly in each location.
- 6) For location P805 (see Figure 1) on the Main PCB, unplug the cable, carefully cut away the female plug with diagonal cutters on the PCB surface, leaving the three conductors intact. Cut the connector off each wire, strip the insulation 1/8" on each end, slide a piece of shrink tubing on each conductor and solder each wire directly to the three conductors on the PCB. Heat the shrink tubing to complete the connection, and add some silicon seal or similar adherent to affix the wires on the PCB.

*Figure 2***BOTTOM OF MAIN PCB**

Location of N801, N802, N803, N804

*Figure 3*

- 7) Replace the DSP and Processor boards
- 8) Recheck all bias voltages, following the instructions below:

MAIN AMP IDLE CURRENT ADJUSTMENT PROCEDURE
(Set variable resistors for MAIN/SURROUND Board)

Specialized equipment/parts needed:

Variable AC transformer ("Variac" type) to adjust and monitor AC line voltage.

Two pin harness plug to connect DMM to idle current test points, hk part# 55212910NR or equivalent

Conditions:

No Signal; No Load

AC Line Voltage adjust to: 120V/60Hz (120v model) or 230V/50Hz (230v model)

After turning the unit ON for 25 minutes or more to keep the Power/Driver TR at normal temperature, adjust the DC voltage at the two pin connector to the specified value by rotating the variable resistors.

VR71-74 are located on the Bias PCB's.

P801-804 are located on the main PCB just below the Bias PCB's. To guide/seat the two pin harness plug into the sockets, you may have to attach the harness wire to a long blade screwdriver as P801-803 are in a deep recess.

CHANNEL	ADJUSTMENT	MEASUREMENT POINT	VOLTAGE
FRONT L CHAN	VR71	P801	23mV \pm 2mV
FRONT R CHAN	VR74	P804	23mV \pm 2mV
SURROUND L CHAN	VR73	P803	23mV \pm 2mV
SURROUND R CHAN	VR72	P802	23mV \pm 2mV

SURROUND BACK AMP IDLE CURRENT ADJUSTMENT PROCEDURE

Same conditions as above.

After turning the unit ON for 25 minutes or more to keep the Power/Driver TR at normal temperature, adjust the voltage value at the two pin connector to the specified value by rotating the variable resistors.

AVR325-525: VR31,41,51 and P301,308,309 are located at the center of the Surround PCB

AVR430-630: VR31,32,51 and P301,308,309 are located at the top edge of the Surround PCB

CHANNEL	ADJUSTMENT	MEASUREMENT POINT	VOLTAGE
CENTER	AVR325-525 VR41	P308	23mV \pm 2mV
	AVR430-630 VR32	P308	
SURROUND BACK L	VR31	P301	23mV \pm 2mV
SURROUND BACK R	VR51	P309	23mV \pm 2mV

- 9) After 5 minutes, check all voltages again at measurement points and re-adjust if necessary.
- 10) After more 5 minutes, check all voltages again at measurement points and re-adjust if necessary.
- 11) Replace the top cover and test the unit.

Model	Serial Number (120v)	Serial Number (230v)	Status	Action
AVR325	All serial numbers affected	n/a	Unit may shut down or fan may run continuously	Hard wire bias cables to PCB's
AVR525	All serial numbers affected	n/a	Unit may shut down or fan may run continuously	Hard wire bias cables to PCB's
AVR430	TF0001-01000 to TF0001-08116	TF0006-01000 to TF0006-06663	Unit may shut down or fan may run continuously	Hard wire bias cables to PCB's
AVR430	TF0007-08117 and above	TF0007-06664 and above	Modified by Factory	None Required
AVR630	TF0002-01000 to TF0002-11138	TF0007-01000 to TF0007-05650	Unit may shut down or fan may run continuously	Hard wire bias cables to PCB's
AVR630	TF0002-11139 and above	TF0007-05651 and above	Modified by Factory	None Required

harman/kardon**TECH TIPS****Troubleshooting tips and solutions to common service problems**

For models:

TIP# HKTT2003-01 Rev5

AVR7000/7200/7300/8000	AVR10
AVR100/200/300/500	DPR1001
AVR110/210/310/510	DPR1005
AVR120/220/320/520	DPR2005
AVR125/225/325/525	HK3370/3470/3375/3475
AVR130/230/330/430/630	HK3250
AVR135/235/335/435/635	

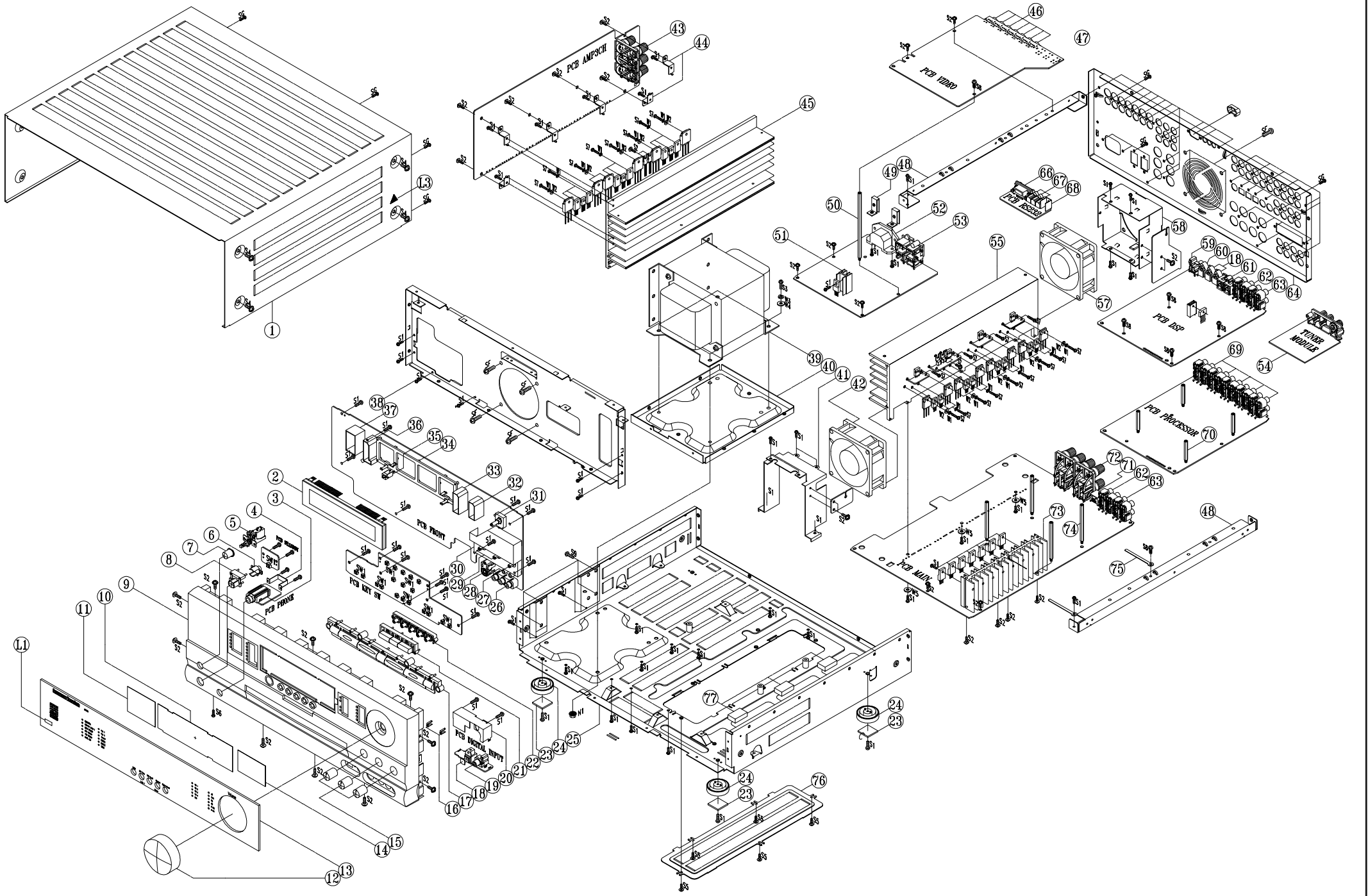
Subject: Backup Memory on AVR/DPR/HK series receivers

In the event of the complaint: “the receiver is losing its memory (any programmed system settings) when the unit is turned off, or after the unit is unplugged (briefly*)”:

Check and replace:

Model	Designator	Location	Description	Part number
AVR10	C712 D709	Front PCB	0.047 Farad 5.5v capacitor and 1N4148 diode	#3439247315 #2058322101
AVR7000	C730	Front PCB	0.047 Farad 5.5v capacitor	# P10790-ND or # J3432147324X
AVR7200	C106	Front PCB	0.047 Farad 5.5v capacitor	# P10790-ND
AVR7300	C657	DSP PCB	0.047 Farad 5.5v capacitor	# H01-CEZXA0479MN-5
AVR8000	C726	Front PCB	0.047 Farad 5.5v capacitor	# 55230310NR or # P10790-ND
AVR100/200	C412	Front PCB	0.047 Farad 5.5v capacitor	# CEGT-B473J-0J0
AVR300	C906	Front PCB	0.1Farad 5.5v capacitor	# J4433210421X or # P10791-ND
AVR500	C906	Front PCB	0.1Farad 5.5v capacitor	# J4433210421X or # P10791-ND
AVR110/210/310/510 AVR120/220/320/520	C216	Front PCB	0.047 Farad 5.5v capacitor	# P10790-ND
AVR125/225	C734,C885	Front PCB	two 0.1F capacitors in parallel	# BCESOHD104
AVR325/525	C106	Front PCB	0.047 Farad 5.5v capacitor	# P10790-ND
AVR130/230/330	BAT1	Front PCB	3.6v Battery	# HABGP40BVH3A3H
AVR135/235/335	BAT1	Front PCB	3.6v Battery	# HGP15BNH3A3H
AVR430/630	C657	DSP PCB	0.047 Farad 5.5v capacitor	# CEZXA0479MN-5
AVR435/635	C557	DSP PCB	0.047 Farad 5.5v capacitor	# H03-CEZXA0479MN-0
DPR1001	BC601	Main PCB	0.1Farad 5.5v capacitor	# CEGT-B104J-0J0
DPR1005/2005	C437	Processor PCB	0.047 Farad 5.5v capacitor	# CEZXA0479MN-5
HK3370/3470	C301	Front PCB	0.1Farad 5.5v capacitor	# CEGT-B104J-0J0
HK3375/3475	C301	Front PCB	0.1Farad 5.5v capacitor	# CEGT-B104J-0J0
HK3250	C712 D709	Front PCB	0.047 Farad 5.5v capacitor and 1N4148 diode	#3439247315 #2058322101

* After approximately two weeks of being disconnected from AC supply, even a normally functioning receiver may lose any programmed settings and switch to default settings. (Four weeks for the DPR1005 & 2005)



APPROVAL	CHECK	DRAWING	DESIGN	MODEL	AVR325	PARTS NAME	EXPLODED VIEW
02.05.22			02.05.22	SCALE	TOLERANCE	PARTS	
				SCALE	LESS:±	INC.	
				UNIT	LESS:±	DWG.	

AVR 325 EXPLODED VIEW PARTS LIST

#	Part Number	Q'ty	Description
1	55178050XX	1	AC PUN COVER TOP
2	55142780NR	1	DISPLAY HNA-15LL01
3	55050690XX	1	CONN-PHJAC 6.35 ST HORZ CKX3-6.35-04 BK 0 0
4	55124350XX	1	AC PUN BRACKET HEADPHONE
5	55178000NR	1	SW PUSH POWER SWITCH 5.0A 250.0V 100MIOHM 1T 2P
6	55178020XX	1	AC MLD BUTTON INDICATOR STAND-BY
7	55177810XX	1	AC DEC BUTTON POWER
8	55177820XX	1	AC DEC BUTTON STANDBY
9	55405770XX	1	AC DEC CABINET PANEL FRONT 325
10	55177800XX	1	AC DEC CRYSTAL FILTER DISPLAY
11	55191560XX	1	AC NON-METAL DIFFUSER 0.2T 62.5*41 WH
12	55177740XX	1	AC DEC KNOB MAIN HIPS 94H
13	55405840XX	1	AC DEC CRYSTAL DISPLAY AVR325
14	55177990XX	1	AC NON-METAL DIFFUSER 0.2T 59.6*41 WH
15	55177750XX	3	AC DEC KNOB TONE
16	55178030XX	2	AC MLD BUTTON INDICATOR VIDEO 4
17	55445260XX	1	AC DEC BUTTON 7 KEY
18	55125440XX	3	D-LEM TOTX178B RD RND CL
19	55175950XX	1	CON PHONO SCKT RCA 1P W/GND JE010003MN
20	55182550XX	1	AC PUN SHIELD DIGITAL ET
21	55445110XX	1	AC DEC BUTTON 3 KEY
22	55445160XX	1	AC DEC BUTTON 5 KEY
23	55174760XX	4	AC FOOT RUBBER ROUND 3.0MM 25.0MM JIS 60 Y DIA
24	55445360XX	4	AC FOOT ASSY ROUND 12.5MM 50MM
25	55406540XX	1	AC CPL CABINET CHASSIS MAIN SECC 1.0T
26	55171510XX	1	CON PHONO SCKT RCA-313P 3 PINS
27	55179910OO	1	PR-ROT 100K0 OHM NON-LINEAR RK14K12400BQ 0 0
28	55113960XX	1	CON DIN SCKT SOCKET CONNECTOR SVHS EST-S408J
29	55179920OO	2	PR-ROT 100K0 OHM NON-LINEAR RK14K12400BR 0 0
30	55177570XX	1	AC PUN SHIELD FENCE TONE
31	55134900NR	1	SWIROT EC16B24204A5 5V 500U0A 10T 3P 0 0
32	55191530XX	1	AC PLASTIC MOLD REFRACTOR B WH
33	55178940XX	1	AC PLASTIC MOLD REFRACTOR E WH
34	55178440XX	1	AC MLD HOLDER FL-GUIDE
35	55155930XX	1	IC-REMOTE RPM6938-RSIP-A3 RECEIVER 38KHZ
36	55177960XX	1	AC NON-METAL DIFFUSER REFLECTOR C WH
37	55178930XX	1	AC PLASTIC MOLD REFRACTOR F WH
38	55406440XX	1	AC CPL CABINET CHASSIS FRONT AVR325
39	55506280NR	1	TF-LAM POWER-TRANSFORMER 120V
40	55406640XX	1	AC PUN COVER TRANS BOTTOM AVR325 --
41	55406840XX	1	AC PUN BRACKET FAN FRONT AVR325
42	55509100XX	1	FAN RDL8025B C185HS10H1910 (WIRE:300MM) 0 A0
43	55436090XX	1	CONN-SPE TERMINAL SPKR 6P SH0611708P FE 19MM 6
44	55168710XX	6	AC PUN BRACKET HEATSINK SECIT RT2250(PAV5005)
45	55406340XX	1	AC METAL HEATSINK(AMP) 3CH AVR325 --
46	55149520XX	7	CON DIN SCKT MIX SOCKET RCA-118JP1S
47	55436080XX	1	CON PHONO SCKT RCA 9P W/GNDCAP JW-4109RS
48	55178170XX	2	AC PUN BRACKET FRAME-GUIDE SECC T1.0
49	55222020XX	2	AC PUN BRACKET AC INLET
50	55407240XX	1	AC METAL STANDOFF HEX MF M4X8 6MMOD 111.2H
51	55176410XX	1	AC METAL HEATSINK 17*15*30 AVR520 --
52	55222010XX	1	CON MAINS INLET A/C INLET 7014-NGP
53	55206550NR	1	CONN-SPE AC OUTLET 2P 110V FE 12.75MM 2 BK 0 0
54	55615050	1	EPR TUNER MODULE KST-M1011MW0-62 AVR325 OEM US,
55	55406240XX	1	AC METAL HEATSINK(MAIN) AVR325 --
56	BLANK		
57	55509110XX	1	FAN RDL8025B C185HS10H1910 (WIRE:400MM) 0 A0
58	55406940XX	1	AC PUN BRACKET FAN REAR AVR325
59	55246370XX	1	CON PHONO SCKT RCA 1P W/GND JE010003LN OG
60	55125440NR	1	D-LEM TOTX178B RD RND CL
61	55191600XX	1	CON PHONO SCKT RCA 2P W/GNDCAP JW-1502SN OO
62	55191420XX	2	CON PHONO SCKT RCA 4P JW-4104RSA
63	55191450XX	2	CON PHONO SCKT RCA 4P JW-4104RSC

64	55405670XX	1	AC CPL REAR PANEL AVR325
65	55554510	1	AC PLASTIC DUST COVER AVR325
66	67472300NR	1	CONN-SPE 87204-6063 SUB D FE 2.77MM 9 -- 1630 A1
67	55176390XX	3	CON PHONO SCKT STEREO JACK JW350S
68	55176420XX	1	AC PUN BRACKET BKT GROUND ET 0.5T AVR520
69	55176330XX	5	CON PHONO SCKT RCA 4P JW4104RS GND
70	55407040XX	4	AC METAL STANDOFF HEX MF M4X8 6MMOD 31.9H --
71	55426050XX	1	JACK-TELE SNAP-IN GOLDEN TELECOM GDL1-8P8C
72	55436070NR	1	CONN-SPE TERMINAL SPKR 8P SH081136JF
73	55176400XX	1	AC METAL HEATSINK REG 118*20*50H
74	55407140XX	4	AC METAL STANDOFF HEX MF M4X8 6MMOD 61.9H --
75	55212250XX	2	CABLE-FIX CLAMP WIRE UL DENNISON 0 0
76	55406740XX	1	AC PUN COVER BOTTOM AVR325
77	55125220XX	3	AC BUFFER PCB

XX	55178960XX	1	AC SPRING PLATE SPRING GND C5212 0.2T
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S1	55127070XX	72	SCREW-ST 3MM 10MM
S2	55127120XX	31	SCREW-ST 3MM 8MM
S3	55309240XX	4	SCREW-BM 4MM 10MM
S4	55127090XX	8	SCREW-ST 4MM 8MM
S5	55127280XX	5	SCREW-ST 3MM 6MM
S6	55164800XX	1	SCREW-ST 3MM 8MM
S7	55178320XX	35	SCREW-ST 3MM 12MM
S8	55231250XX	5	SCREW 4MM 8MM
S9	55178340XX	4	SCREW-ST 4MM 10MM
SG	55135460XX	46	SCREW-ST 3MM 10MM
SF	55453660XX	8	SCREW-ST 5MM 10MM
N1	55309350XX	4	NUT-HEXAGON 4.0MM 5.0MM CIRCULAR EXTERNAL

W1	55127300XX	35	WASHER-SPRING 3
W2	55127310XX	14	WASHER-FLAT 3
W3	55168690XX	4	WASHER-SPRING 4
W4	55131730XX	4	WASHER-FLAT 4
W5	20372500XX	3	WASHER FIBER 3 X 7.9 X 0.8T

AVR325/525 Alignment spec.

rev01.

1. MAIN B'D

: 5 Min. After power on, please set up Bias as below,

Front Left > adjusting VR71, check P801 to 23mV +2mV/- 1mV.

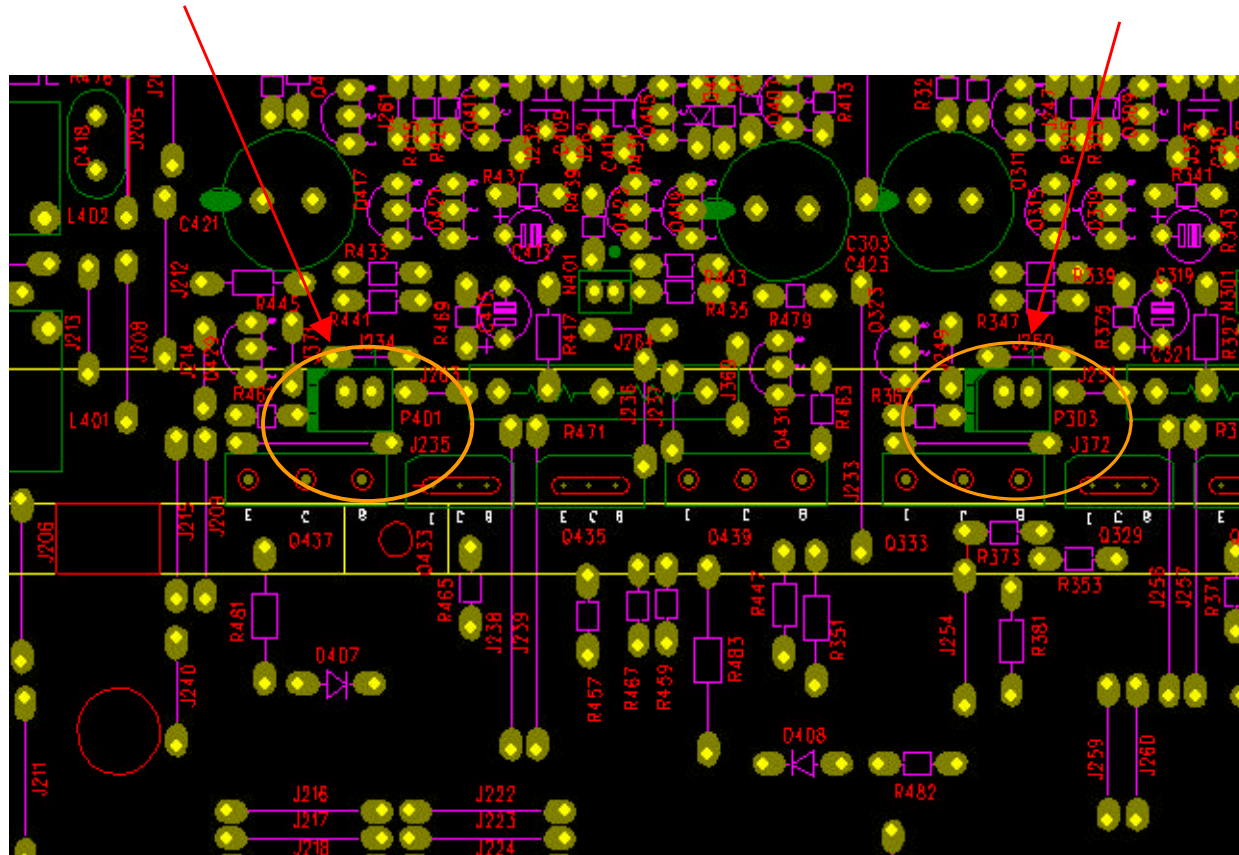
Surr Left > adjusting VR73 check P803 to 23mV +2mv/-1mV.

Front Right > adjusting VR74 check P804 to 23mV +2mV/-1mV.

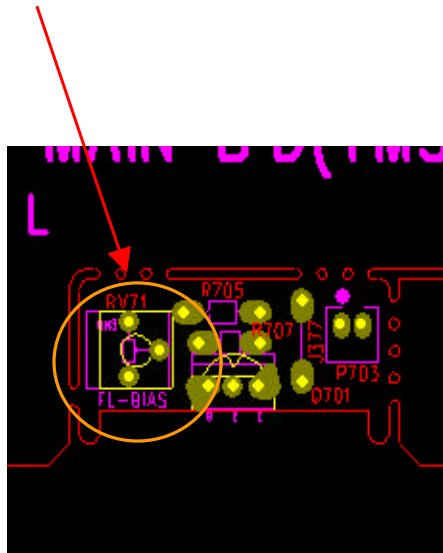
Surr Right > adjusting VR72 check P802 to 23mV +2mV/-1mV.

P801 FRONT L-CH

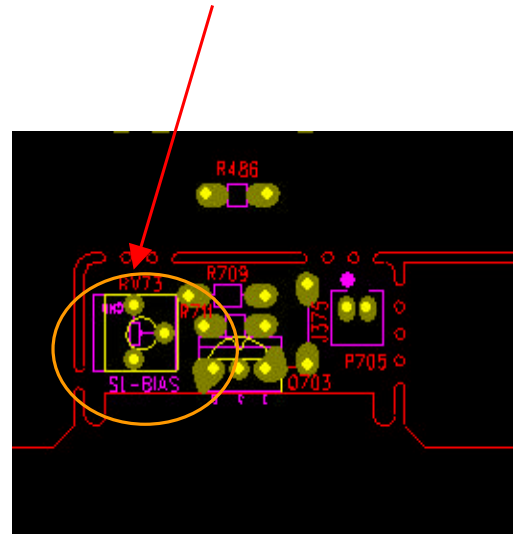
P803 SURROUND L-CH



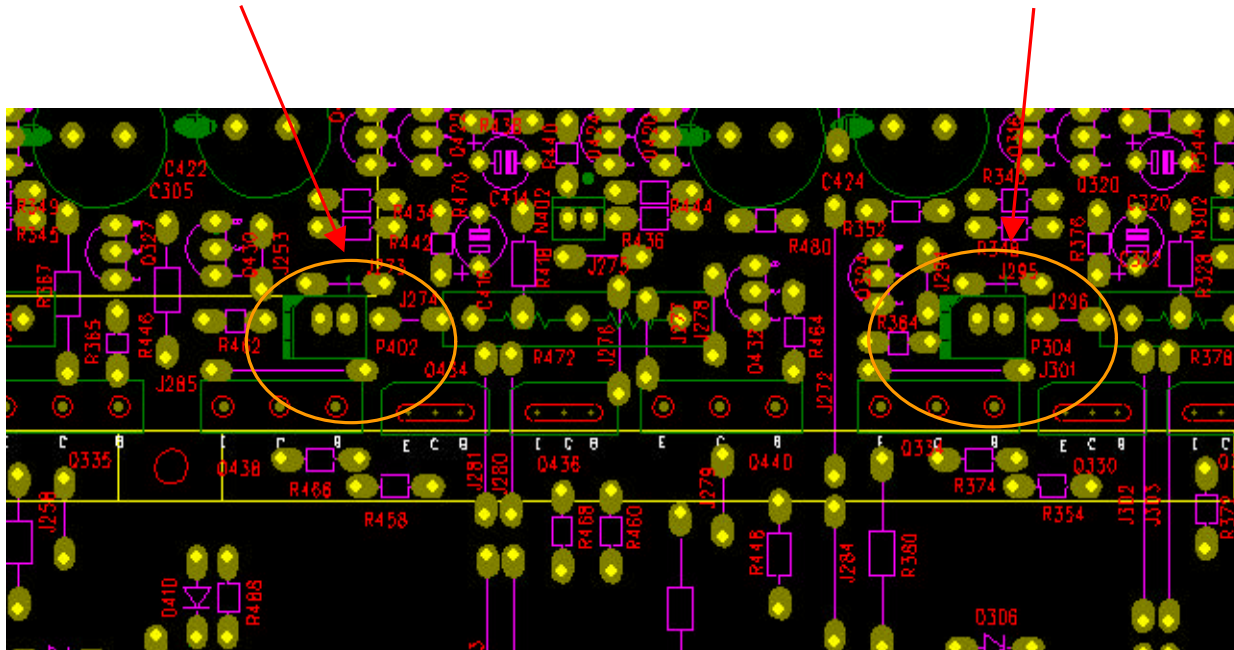
VR71 FRONT L-CH



VR73 SURROUND L-CH

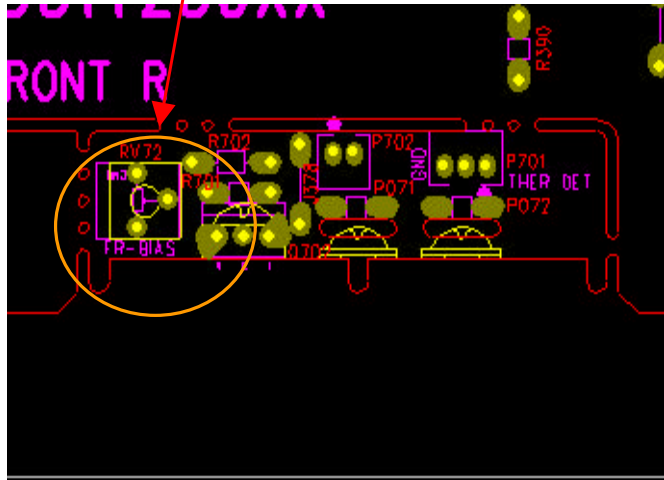


P804 FRONT R-CH

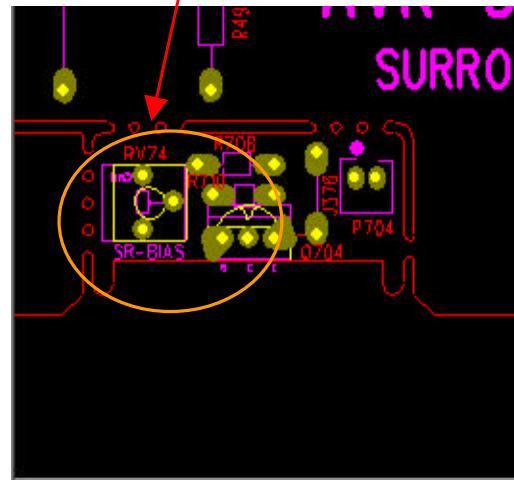


P802 SURROUND R-CH

VR74 FRONT R-CH



VR72 SURROUND R-CH



2. BACK SURROUND B'D

: 5 Min. After power on, please set up Bias as below,

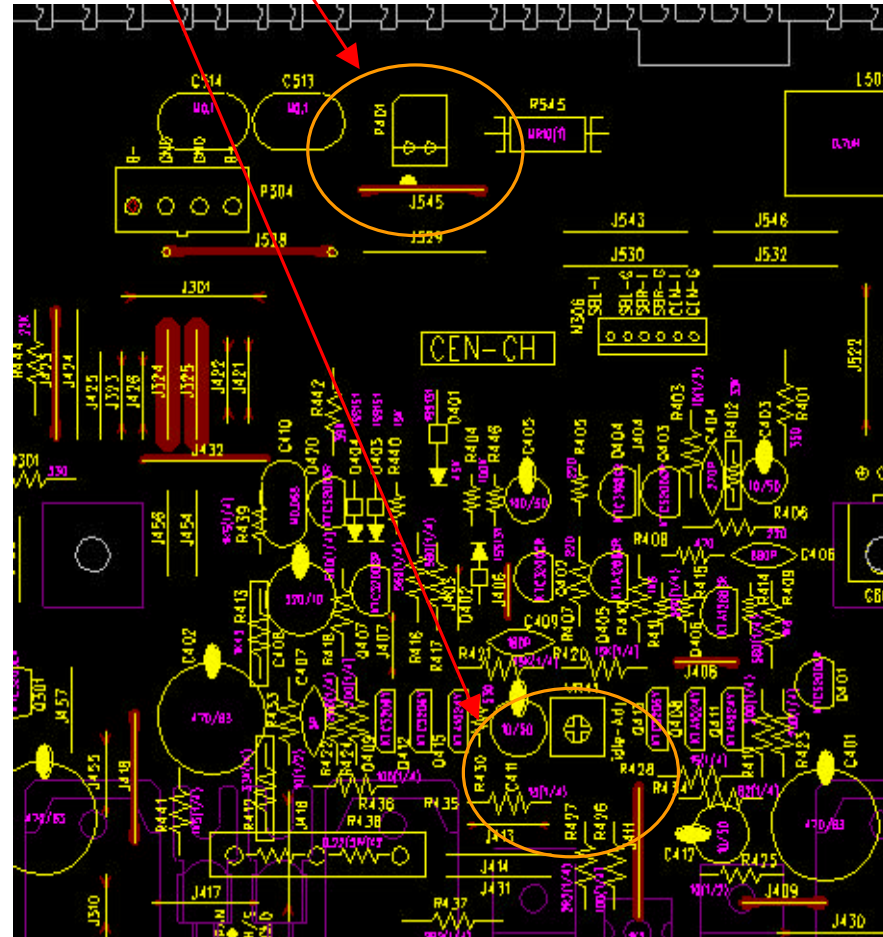
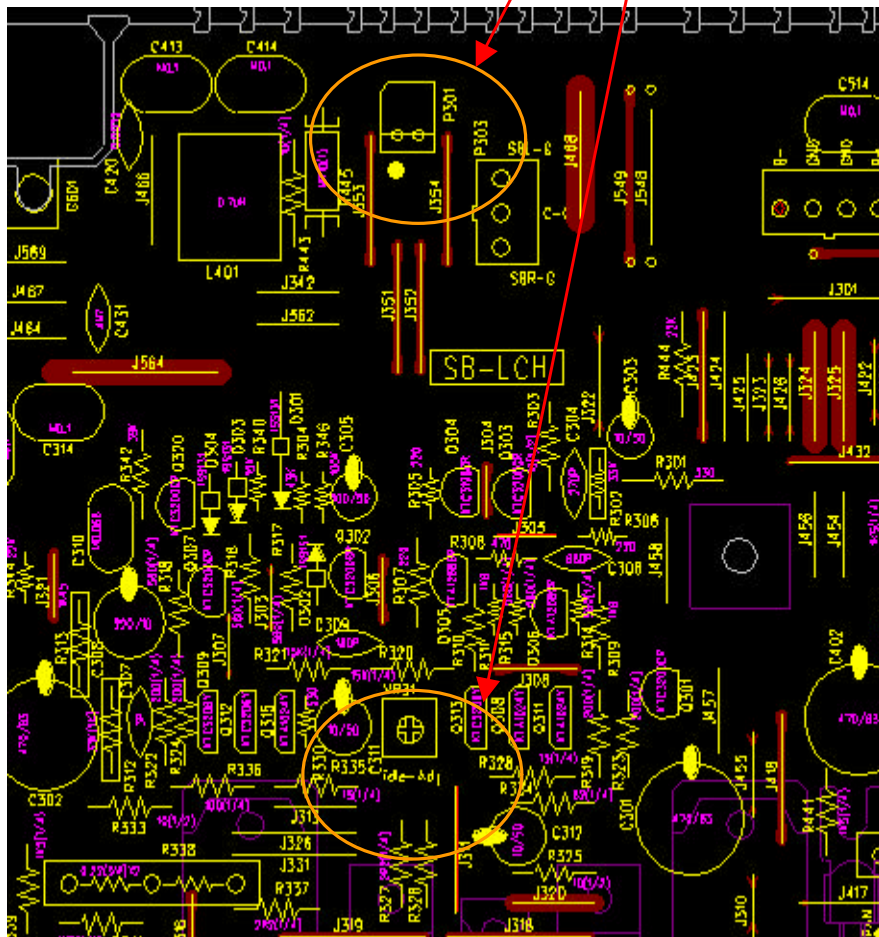
SBL > adjusting VR31 check P301 to 23mV +2mv/-1mV.

Center > adjusting VR41 check P308 to 23mV +2mV/-1mV.

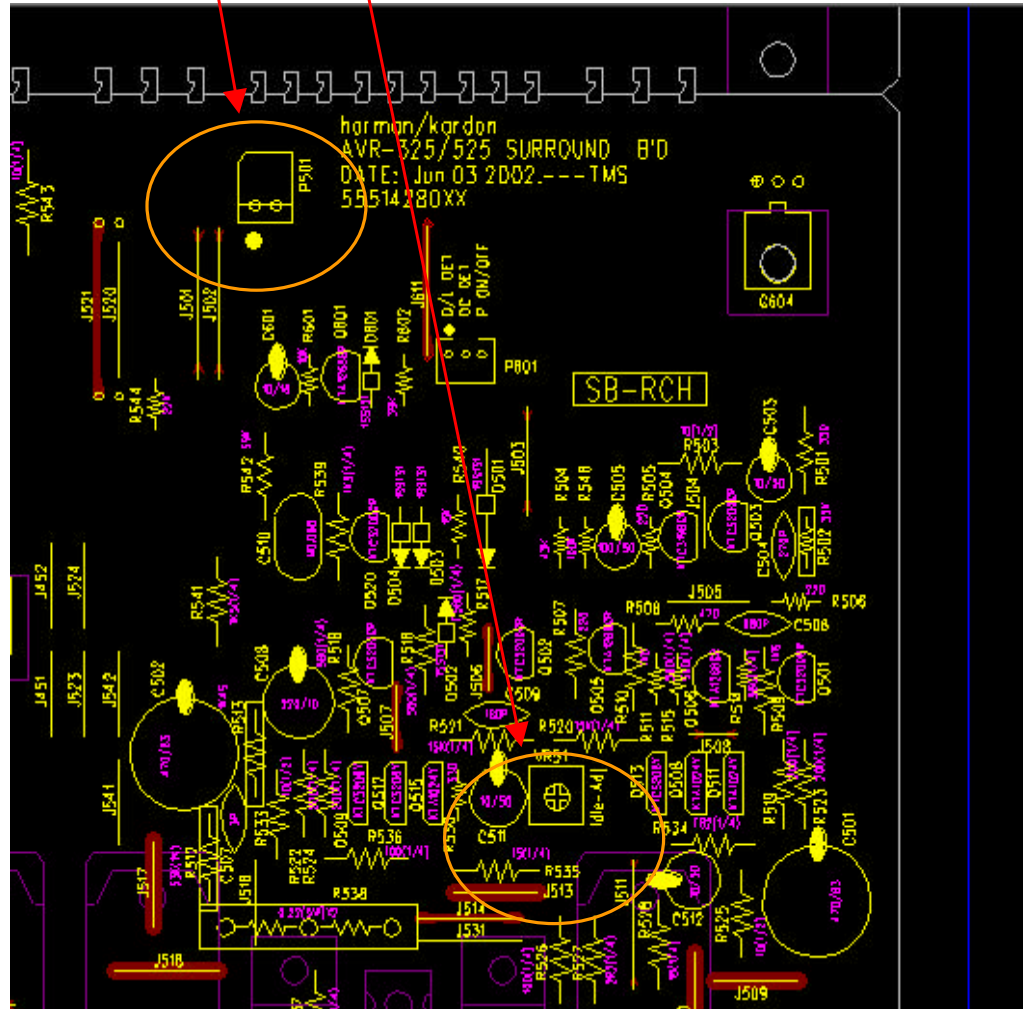
SBR > adjusting VR51 check P309 to 23mV +2mV/-1mV.

P301 VR31 BACK SURROUND L-CH

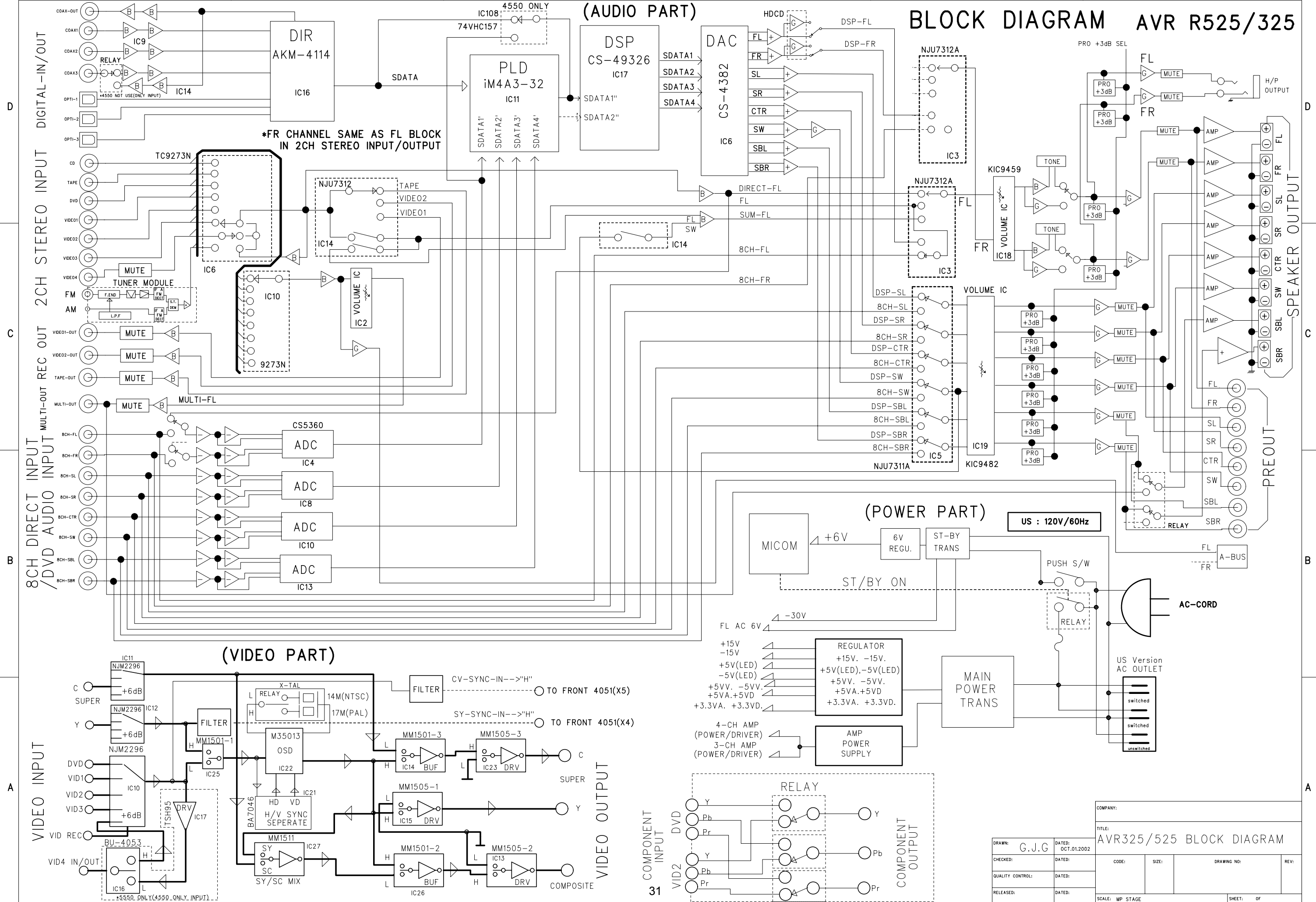
VR41 P308 CENTER-CH



P309 VR51 BACK SURROUND R-CH



BLOCK DIAGRAM AVR R525/325



(VIDEO PART)

(AUDIO PART)

(POWER PART)

D

C

B

A

D

C

B

A

DRAWN: G.J.G		DATED: OCT.01.2002	
CHECKED:		DATED:	
QUALITY CONTROL:		DATED:	
RELEASED:		DATED:	
COMPANY: AVX325/525 BLOCK DIAGRAM			
CODE:	SIZE:	DRAWING NO:	REV:
SCALE: MP STAGE		SHEET: OF	

31

AVR325 Electrical Parts List				
Ref. Designator		Qty		Description
SURROUND PCB				
<i>Capacitors</i>				
C301	13076940AM	1	PC	CE 470U0F +20% 63.0V 85C
C302	13076940AM	1	PC	CE 470U0F +20% 63.0V 85C
C303	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C304	7042839071	1	PC	CC 270P0F +10% -10% 50.0V Y5P
C305	2026907030	1	PC	CE 100U0F +20% 25.0V 85C
C306	4043358071	1	PC	CC 680P0F +10% -10% 50.0V Y5P
C307	2024633071	1	PC	CC 3P0F +0P25F -0P25F 50.0V NPO
C308	2026908030	1	PC	CE 220U0F +20% 10.0V 85C
C309	8043472071	1	PC	CC 180P0F +10% -10% 50.0V Y5P
C310	5517940071	1	PC	CPM 68N0F +5% 63.0V
C311	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C312	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C313	5517936071	1	PC	CPM 100N0F +10% 63.0V
C314	5517936071	1	PC	CPM 100N0F +10% 63.0V
C320	1105558071	1	PC	CC 4N7F +10% -10% 50.0V Y5P
C331	1105556071	1	PC	CC 3N3F +10% -10% 50.0V Y5P
C401	13076940AM	1	PC	CE 470U0F +20% 63.0V 85C
C402	13076940AM	1	PC	CE 470U0F +20% 63.0V 85C
C403	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C404	7042839071	1	PC	CC 270P0F +10% -10% 50.0V Y5P
C405	2026907030	1	PC	CE 100U0F +20% 25.0V 85C
C406	4043358071	1	PC	CC 680P0F +10% -10% 50.0V Y5P
C407	2024633071	1	PC	CC 3P0F +0P25F -0P25F 50.0V NPO
C408	2026908030	1	PC	CE 220U0F +20% 10.0V 85C
C409	8043472071	1	PC	CC 180P0F +10% -10% 50.0V Y5P
C410	5517940071	1	PC	CPM 68N0F +5% 63.0V
C411	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C412	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C413	5517936071	1	PC	CPM 100N0F +10% 63.0V
C414	5517936071	1	PC	CPM 100N0F +10% 63.0V
C420	1105558071	1	PC	CC 4N7F +10% -10% 50.0V Y5P
C431	1105556071	1	PC	CC 3N3F +10% -10% 50.0V Y5P
C501	13076940AM	1	PC	CE 470U0F +20% 63.0V 85C
C502	13076940AM	1	PC	CE 470U0F +20% 63.0V 85C
C503	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C504	7042839071	1	PC	CC 270P0F +10% -10% 50.0V Y5P
C505	2026907030	1	PC	CE 100U0F +20% 25.0V 85C
C506	4043358071	1	PC	CC 680P0F +10% -10% 50.0V Y5P
C507	2024633071	1	PC	CC 3P0F +0P25F -0P25F 50.0V NPO
C508	2026908030	1	PC	CE 220U0F +20% 10.0V 85C
C509	8043472071	1	PC	CC 180P0F +10% -10% 50.0V Y5P
C510	5517940071	1	PC	CPM 68N0F +5% 63.0V
C511	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C512	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C513	5517936071	1	PC	CPM 100N0F +10% 63.0V
C514	5517936071	1	PC	CPM 100N0F +10% 63.0V
C520	1105558071	1	PC	CC 4N7F +10% -10% 50.0V Y5P
C531	1105556071	1	PC	CC 3N3F +10% -10% 50.0V Y5P
C601	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
<i>Semiconductors</i>				
D301	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A

Ref. Designator		Qty		Description
SURROUND PCB				
D302	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D303	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D304	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D401	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D402	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D403	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D404	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D501	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D502	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D503	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D504	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D601	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
Q301	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q302	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q303	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q304	2050808056	1	PC	TR-SLPLF KTC3198BL N 150MIOA
Q305	5523309056	1	PC	TR-SLPLF 2SA1145Y TO-92MOD P -50MIOA -150V
Q306	2064785056	1	PC	TR-SHPLF KTA1268BL P 100MIOA 120V
Q307	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q308	5513326056	1	PC	TR-SLPLF KTA1024 Y P 50MIOA -150V
Q309	5513324056	1	PC	TR-SLPLF KTC3206 Y N 50MIOA 150V
Q311	5513326056	1	PC	TR-SLPLF KTA1024 Y P 50MIOA -150V
Q312	5513324056	1	PC	TR-SLPLF KTC3206 Y N 50MIOA 150V
Q313	5513324056	1	PC	TR-SLPLF KTC3206 Y N 50MIOA 150V
Q314	551332700	1	PC	TR-SHPLF 2SC4137 N 100MIOA 20V
Q315	5513326056	1	PC	TR-SLPLF KTA1024 Y P 50MIOA -150V
Q316	551791900	1	PC	TR-SHPLF 2SA1859A P -2.0A
Q317	551792000	1	PC	TR-SHPLF 2SC4883A N 2.0A
Q318	551791800	1	PC	TR-SHPLF 2SC5358-R N 15.0A
Q319	551791500	1	PC	TR-SHPLF 2SA1986-R P -15.0A
Q320	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q401	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q402	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q403	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q404	2050808056	1	PC	TR-SLPLF KTC3198BL N 150MIOA
Q405	5523309056	1	PC	TR-SLPLF 2SA1145Y TO-92MOD P -50MIOA -150V
Q406	2064785056	1	PC	TR-SHPLF KTA1268BL P 100MIOA 120V
Q407	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q408	5513326056	1	PC	TR-SLPLF KTA1024 Y P 50MIOA -150V
Q409	5513324056	1	PC	TR-SLPLF KTC3206 Y N 50MIOA 150V
Q411	5513326056	1	PC	TR-SLPLF KTA1024 Y P 50MIOA -150V
Q412	5513324056	1	PC	TR-SLPLF KTC3206 Y N 50MIOA 150V
Q413	5513324056	1	PC	TR-SLPLF KTC3206 Y N 50MIOA 150V
Q414	551332700	1	PC	TR-SHPLF 2SC4137 N 100MIOA 20V
Q415	5513326056	1	PC	TR-SLPLF KTA1024 Y P 50MIOA -150V
Q416	551791900	1	PC	TR-SHPLF 2SA1859A P -2.0A
Q417	551792000	1	PC	TR-SHPLF 2SC4883A N 2.0A
Q418	551791800	1	PC	TR-SHPLF 2SC5358-R N 15.0A
Q419	551791500	1	PC	TR-SHPLF 2SA1986-R P -15.0A
Q420	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q501	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q502	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q503	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q504	2050808056	1	PC	TR-SLPLF KTC3198BL N 150MIOA
Q505	5523309056	1	PC	TR-SLPLF 2SA1145Y TO-92MOD P -50MIOA -150V
Q506	2064785056	1	PC	TR-SHPLF KTA1268BL P 100MIOA 120V
Q507	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V

Ref. Designator		Qty		Description
SURROUND PCB				
Q508	5513326056	1	PC	TR-SLPLF KTA1024 Y P 50MIOA -150V
Q509	5513324056	1	PC	TR-SLPLF KTC3206 Y N 50MIOA 150V
Q511	5513326056	1	PC	TR-SLPLF KTA1024 Y P 50MIOA -150V
Q512	5513324056	1	PC	TR-SLPLF KTC3206 Y N 50MIOA 150V
Q513	5513324056	1	PC	TR-SLPLF KTC3206 Y N 50MIOA 150V
Q514	551332700	1	PC	TR-SHPLF 2SC4137 N 100MIOA 20V
Q515	5513326056	1	PC	TR-SLPLF KTA1024 Y P 50MIOA -150V
Q516	551791900	1	PC	TR-SHPLF 2SA1859A P -2.0A
Q517	551792000	1	PC	TR-SHPLF 2SC4883A N 2.0A
Q518	551791800	1	PC	TR-SHPLF 2SC5358-R N 15.0A
Q519	551791500	1	PC	TR-SHPLF 2SA1986-R P -15.0A
Q520	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q601	2064785056	1	PC	TR-SHPLF KTA1268BL P 100MIOA 120V
<i>Resistors</i>				
R301	6044155016	1	PC	RCF 330R0 OHM +5% 250MIOW
R302	3093949016	1	PC	RCF 33K0 OHM +5% 250MIOW
R303	5523281016	1	PC	RMF 10R0 OHM +5% 500MIOW
R304	2046951016	1	PC	RCF 43K0 OHM +5% 250MIOW
R305	2046945016	1	PC	RCF 220R0 OHM +5% 250MIOW
R306	2046945016	1	PC	RCF 220R0 OHM +5% 250MIOW
R307	2046945016	1	PC	RCF 220R0 OHM +5% 250MIOW
R308	5088297016	1	PC	RCF 470R0 OHM +5% 250MIOW
R309	5088299016	1	PC	RCF 1K6 OHM +5% 250MIOW
R310	5088299016	1	PC	RCF 1K6 OHM +5% 250MIOW
R311	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R312	5549851016	1	PC	RMF 33K0 OHM +1% 250MIOW
R313	8043701016	1	PC	RCF 1K8 OHM +5% 250MIOW
R314	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R315	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R316	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R317	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R318	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R319	9057109016	1	PC	RCF 200R0 OHM +5% 250MIOW
R320	5088301016	1	PC	RCF 15K0 OHM +5% 250MIOW
R321	5088301016	1	PC	RCF 15K0 OHM +5% 250MIOW
R322	9057109016	1	PC	RCF 200R0 OHM +5% 250MIOW
R323	9057109016	1	PC	RCF 200R0 OHM +5% 250MIOW
R324	9057109016	1	PC	RCF 200R0 OHM +5% 250MIOW
R325	5523281016	1	PC	RMF 10R0 OHM +5% 500MIOW
R326	5088295016	1	PC	RCF 100R0 OHM +5% 250MIOW
R327	4043891016	1	PC	RCF 2R2 OHM +5% 250MIOW
R328	3093937016	1	PC	RCF 15R0 OHM +5% 250MIOW
R329	8043700016	1	PC	RCF 1K2 OHM +5% 250MIOW
R330	6044155016	1	PC	RCF 330R0 OHM +5% 250MIOW
R333	5523281016	1	PC	RMF 10R0 OHM +5% 500MIOW
R334	1105959016	1	PC	RCF 82R0 OHM +5% 250MIOW
R335	3093937016	1	PC	RCF 15R0 OHM +5% 250MIOW
R336	5088295016	1	PC	RCF 100R0 OHM +5% 250MIOW
R337	4043891016	1	PC	RCF 2R2 OHM +5% 250MIOW
R338	551793400	1	PC	RW 220MIO OHM +5% 5.0W 100PPM/C -100PPM/C
R339	4043563016	1	PC	RCF 1K5 OHM +5% 250MIOW
R340	5088301016	1	PC	RCF 15K0 OHM +5% 250MIOW
R341	4043563016	1	PC	RCF 1K5 OHM +5% 250MIOW
R342	9057113016	1	PC	RCF 39K0 OHM +5% 250MIOW
R343	5524229016	1	PC	RCF 10R0 OHM +5% 250MIOW

Ref. Designator		Qty		Description
SURROUND PCB				
R344	6044158016	1	PC	RCF 22K0 OHM +5% 250MI0W
R345	6044255016	1	PC	RMOF 10R0 OHM +5% 1.0W
R346	3093951016	1	PC	RCF 100K0 OHM +5% 250MI0W
R401	6044155016	1	PC	RCF 330R0 OHM +5% 250MI0W
R402	3093949016	1	PC	RCF 33K0 OHM +5% 250MI0W
R403	5523281016	1	PC	RMF 10R0 OHM +5% 500MI0W
R404	2046951016	1	PC	RCF 43K0 OHM +5% 250MI0W
R405	2046945016	1	PC	RCF 220R0 OHM +5% 250MI0W
R406	2046945016	1	PC	RCF 220R0 OHM +5% 250MI0W
R407	2046945016	1	PC	RCF 220R0 OHM +5% 250MI0W
R408	5088297016	1	PC	RCF 470R0 OHM +5% 250MI0W
R409	5088299016	1	PC	RCF 1K6 OHM +5% 250MI0W
R410	5088299016	1	PC	RCF 1K6 OHM +5% 250MI0W
R411	6044156016	1	PC	RCF 560R0 OHM +5% 250MI0W
R412	5549851016	1	PC	RMF 33K0 OHM +1% 250MI0W
R413	8043701016	1	PC	RCF 1K8 OHM +5% 250MI0W
R414	6044156016	1	PC	RCF 560R0 OHM +5% 250MI0W
R415	6044156016	1	PC	RCF 560R0 OHM +5% 250MI0W
R416	6044156016	1	PC	RCF 560R0 OHM +5% 250MI0W
R417	6044156016	1	PC	RCF 560R0 OHM +5% 250MI0W
R418	6044156016	1	PC	RCF 560R0 OHM +5% 250MI0W
R419	9057109016	1	PC	RCF 200R0 OHM +5% 250MI0W
R420	5088301016	1	PC	RCF 15K0 OHM +5% 250MI0W
R421	5088301016	1	PC	RCF 15K0 OHM +5% 250MI0W
R422	9057109016	1	PC	RCF 200R0 OHM +5% 250MI0W
R423	9057109016	1	PC	RCF 200R0 OHM +5% 250MI0W
R424	9057109016	1	PC	RCF 200R0 OHM +5% 250MI0W
R425	5523281016	1	PC	RMF 10R0 OHM +5% 500MI0W
R426	5088295016	1	PC	RCF 100R0 OHM +5% 250MI0W
R427	4043891016	1	PC	RCF 2R2 OHM +5% 250MI0W
R428	3093937016	1	PC	RCF 15R0 OHM +5% 250MI0W
R429	8043700016	1	PC	RCF 1K2 OHM +5% 250MI0W
R430	6044155016	1	PC	RCF 330R0 OHM +5% 250MI0W
R433	5523281016	1	PC	RMF 10R0 OHM +5% 500MI0W
R434	1105959016	1	PC	RCF 82R0 OHM +5% 250MI0W
R435	3093937016	1	PC	RCF 15R0 OHM +5% 250MI0W
R436	5088295016	1	PC	RCF 100R0 OHM +5% 250MI0W
R437	4043891016	1	PC	RCF 2R2 OHM +5% 250MI0W
R438	551793400	1	PC	RW 220MI0 OHM +5% 5.0W 100PPM/C -100PPM/C
R439	4043563016	1	PC	RCF 1K5 OHM +5% 250MI0W
R440	5088301016	1	PC	RCF 15K0 OHM +5% 250MI0W
R441	4043563016	1	PC	RCF 1K5 OHM +5% 250MI0W
R442	9057113016	1	PC	RCF 39K0 OHM +5% 250MI0W
R443	5524229016	1	PC	RCF 10R0 OHM +5% 250MI0W
R444	6044158016	1	PC	RCF 22K0 OHM +5% 250MI0W
R445	6044255016	1	PC	RMOF 10R0 OHM +5% 1.0W
R446	3093951016	1	PC	RCF 100K0 OHM +5% 250MI0W
R501	6044155016	1	PC	RCF 330R0 OHM +5% 250MI0W
R502	3093949016	1	PC	RCF 33K0 OHM +5% 250MI0W
R503	5523281016	1	PC	RMF 10R0 OHM +5% 500MI0W
R504	2046951016	1	PC	RCF 43K0 OHM +5% 250MI0W
R505	2046945016	1	PC	RCF 220R0 OHM +5% 250MI0W
R506	2046945016	1	PC	RCF 220R0 OHM +5% 250MI0W
R507	2046945016	1	PC	RCF 220R0 OHM +5% 250MI0W
R508	5088297016	1	PC	RCF 470R0 OHM +5% 250MI0W
R509	5088299016	1	PC	RCF 1K6 OHM +5% 250MI0W
R510	5088299016	1	PC	RCF 1K6 OHM +5% 250MI0W

Ref. Designator		Qty		Description
SURROUND PCB				
R511	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R512	5549851016	1	PC	RMF 33K0 OHM +1% 250MIOW
R513	8043701016	1	PC	RCF 1K8 OHM +5% 250MIOW
R514	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R515	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R516	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R517	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R518	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R519	9057109016	1	PC	RCF 200R0 OHM +5% 250MIOW
R520	5088301016	1	PC	RCF 15K0 OHM +5% 250MIOW
R521	5088301016	1	PC	RCF 15K0 OHM +5% 250MIOW
R522	9057109016	1	PC	RCF 200R0 OHM +5% 250MIOW
R523	9057109016	1	PC	RCF 200R0 OHM +5% 250MIOW
R524	9057109016	1	PC	RCF 200R0 OHM +5% 250MIOW
R525	5523281016	1	PC	RMF 10R0 OHM +5% 500MIOW
R526	5088295016	1	PC	RCF 100R0 OHM +5% 250MIOW
R527	4043891016	1	PC	RCF 2R2 OHM +5% 250MIOW
R528	3093937016	1	PC	RCF 15R0 OHM +5% 250MIOW
R529	8043700016	1	PC	RCF 1K2 OHM +5% 250MIOW
R530	6044155016	1	PC	RCF 330R0 OHM +5% 250MIOW
R533	5523281016	1	PC	RMF 10R0 OHM +5% 500MIOW
R534	1105959016	1	PC	RCF 82R0 OHM +5% 250MIOW
R535	3093937016	1	PC	RCF 15R0 OHM +5% 250MIOW
R536	5088295016	1	PC	RCF 100R0 OHM +5% 250MIOW
R537	4043891016	1	PC	RCF 2R2 OHM +5% 250MIOW
R538	551793400	1	PC	RW 220MIO OHM +5% 5.0W 100PPM/C -100PPM/C
R539	4043563016	1	PC	RCF 1K5 OHM +5% 250MIOW
R540	5088301016	1	PC	RCF 15K0 OHM +5% 250MIOW
R541	4043563016	1	PC	RCF 1K5 OHM +5% 250MIOW
R542	9057113016	1	PC	RCF 39K0 OHM +5% 250MIOW
R543	5524229016	1	PC	RCF 10R0 OHM +5% 250MIOW
R544	6044158016	1	PC	RCF 22K0 OHM +5% 250MIOW
R545	6044255016	1	PC	RMOF 10R0 OHM +5% 1.0W
R546	3093951016	1	PC	RCF 100K0 OHM +5% 250MIOW
R601	3093948016	1	PC	RCF 10K0 OHM +5% 250MIOW
R602	9057113016	1	PC	RCF 39K0 OHM +5% 250MIOW
VR31	552503200	1	PC	PR 200R0 OHM +20% 500MIOW
VR41	552503200	1	PC	PR 200R0 OHM +20% 500MIOW
VR51	552503200	1	PC	PR 200R0 OHM +20% 500MIOW
<i>Miscellaneous</i>				
G601	55135980NR	1	PC	TERMLUG GND
G602	55135980NR	1	PC	TERMLUG GND
G603	55135980NR	1	PC	TERMLUG GND
G604	55135980NR	1	PC	TERMLUG GND
G605	55135980NR	1	PC	TERMLUG GND
L301	551795600	1	PC	LFA 1MM 10MM 5 LEFT 0.0MM NONE
L401	551795600	1	PC	LFA 1MM 10MM 5 LEFT 0.0MM NONE
L501	551795600	1	PC	LFA 1MM 10MM 5 LEFT 0.0MM NONE
N306	55504010NR	1	PC	WIRECONASY DL 2.0MM 6P 250MM UL1533 SHIELD 26 1
NJ31	55436090NR	1	PC	CONN-SPE TERMINAL SPKR 6P SH0611708P FE 19MM 6 BK 0 C
P301	55104560	1	PC	CONN 2.5MM 2 MA R NAT 0 0
P303	55171550	1	PC	CON 3.96MM PITCH MOLEX 35313-0310
P304	55175430	1	PC	CON 3.96MM PITCH MOREX 35313-0410
P307	55090080	1	PC	CONN 2.0MM 3 MA ST NAT LW2002P03 0 0
P308	55104560	1	PC	CONN 2.5MM 2 MA R NAT 0 0

Ref. Designator		Qty		Description
SURROUND PCB				
P309	55104560	1	PC	CONN 2.5MM 2 MA R NAT 0 0
P310	55090080	1	PC	CONN 2.0MM 3 MA ST NAT LW2002P03 0 0
PO51	55179640NR	1	PC	POS 100R0 OHM 16.0V
PO52	55505180NR	1	PC	POS 100R0 OHM 16.0V
W301	20925490	1	PC	WCL 080-05-05 UL1007 HOOK-UP 22 80MM BK 5 5 20297640
W302	55583940	1	PC	WCL 230-05-05 UL1007 HOOK-UP 22 230MM BK 5 5 20297640
DSP PCB				
<i>Capacitors</i>				
C1	1013896091	1	PC	CCCFMIC 10N0F +10% -10% 50.0V X7R
C104	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C105	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C106	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C108	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C109	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C112	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C113	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C114	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C115	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C116	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C117	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C118	1105871091	1	PC	CCCFMIN 560P0F +5% -5% 50.0V NPO
C119	1105871091	1	PC	CCCFMIN 560P0F +5% -5% 50.0V NPO
C120	1105871091	1	PC	CCCFMIN 560P0F +5% -5% 50.0V NPO
C121	1105871091	1	PC	CCCFMIN 560P0F +5% -5% 50.0V NPO
C124	1105871091	1	PC	CCCFMIN 560P0F +5% -5% 50.0V NPO
C125	1105871091	1	PC	CCCFMIN 560P0F +5% -5% 50.0V NPO
C126	1105871091	1	PC	CCCFMIN 560P0F +5% -5% 50.0V NPO
C127	1105871091	1	PC	CCCFMIN 560P0F +5% -5% 50.0V NPO
C131	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C132	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C133	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C134	1013863091	1	PC	CCCFMIC 2N7F +10% -10% 50.0V X7R
C135	1013863091	1	PC	CCCFMIC 2N7F +10% -10% 50.0V X7R
C136	1013863091	1	PC	CCCFMIC 2N7F +10% -10% 50.0V X7R
C137	1013863091	1	PC	CCCFMIC 2N7F +10% -10% 50.0V X7R
C138	1013863091	1	PC	CCCFMIC 2N7F +10% -10% 50.0V X7R
C139	1013863091	1	PC	CCCFMIC 2N7F +10% -10% 50.0V X7R
C140	1013863091	1	PC	CCCFMIC 2N7F +10% -10% 50.0V X7R
C141	1013863091	1	PC	CCCFMIC 2N7F +10% -10% 50.0V X7R
C142	2026902030	1	PC	CE 100U0F +20% 16.0V 85C
C143	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C144	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C145	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C146	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C147	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C148	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C149	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C150	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C151	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C152	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C153	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C154	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C155	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C156	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO

Ref. Designator		Qty		Description
DSP PCB				
C157	1013855091	1	PC	CCCFMIC 1N0F +10% -10% 50.0V X7R
C158	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C159	1024427039	1	PC	CE 100U0F +20% 16.0V 85C
C160	1024427039	1	PC	CE 100U0F +20% 16.0V 85C
C161	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C162	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C163	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C164	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C165	2026902030	1	PC	CE 100U0F +20% 16.0V 85C
C166	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C167	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C168	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C169	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C170	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C171	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C172	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C173	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C174	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C175	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C176	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C177	1013855091	1	PC	CCCFMIC 1N0F +10% -10% 50.0V X7R
C178	1024427039	1	PC	CE 100U0F +20% 16.0V 85C
C179	1105871091	1	PC	CCCFMIN 560P0F +5% -5% 50.0V NP0
C180	1105871091	1	PC	CCCFMIN 560P0F +5% -5% 50.0V NP0
C181	1105871091	1	PC	CCCFMIN 560P0F +5% -5% 50.0V NP0
C182	1105871091	1	PC	CCCFMIN 560P0F +5% -5% 50.0V NP0
C183	1105871091	1	PC	CCCFMIN 560P0F +5% -5% 50.0V NP0
C184	1105871091	1	PC	CCCFMIN 560P0F +5% -5% 50.0V NP0
C185	1105871091	1	PC	CCCFMIN 560P0F +5% -5% 50.0V NP0
C186	1105871091	1	PC	CCCFMIN 560P0F +5% -5% 50.0V NP0
C187	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C188	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C189	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C190	1013863091	1	PC	CCCFMIC 2N7F +10% -10% 50.0V X7R
C191	1013863091	1	PC	CCCFMIC 2N7F +10% -10% 50.0V X7R
C192	1013863091	1	PC	CCCFMIC 2N7F +10% -10% 50.0V X7R
C193	1013863091	1	PC	CCCFMIC 2N7F +10% -10% 50.0V X7R
C194	2034206039	1	PC	CE 47U0F +20% 16.0V 85C
C195	1013863091	1	PC	CCCFMIC 2N7F +10% -10% 50.0V X7R
C196	1013863091	1	PC	CCCFMIC 2N7F +10% -10% 50.0V X7R
C197	1013863091	1	PC	CCCFMIC 2N7F +10% -10% 50.0V X7R
C198	1013863091	1	PC	CCCFMIC 2N7F +10% -10% 50.0V X7R
C199	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C2	1013896091	1	PC	CCCFMIC 10N0F +10% -10% 50.0V X7R
C204	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C205	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C206	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C207	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C210	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C211	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C212	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C213	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C214	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C215	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C216	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C217	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C221	1012100039	1	PC	CE 10U0F +20% 16.0V 85C

Ref. Designator		Qty		Description
DSP PCB				
C223	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C224	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C230	20269180AM	1	PC	CE 1M10F +20% 6.3V 85C
C231	20269180AM	1	PC	CE 1M10F +20% 6.3V 85C
C232	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C233	2050652091	1	PC	CCCFMIC 22P0F +5% -5% 50.0V NP0
C236	1013896091	1	PC	CCCFMIC 10N0F +10% -10% 50.0V X7R
C239	20269180AM	1	PC	CE 1M10F +20% 6.3V 85C
C240	20269180AM	1	PC	CE 1M10F +20% 6.3V 85C
C241	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C254	2050652091	1	PC	CCCFMIC 22P0F +5% -5% 50.0V NP0
C255	1013896091	1	PC	CCCFMIC 10N0F +10% -10% 50.0V X7R
C257	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C258	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C267	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C274	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C275	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C276	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C278	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C279	2026885039	1	PC	CE 2U2F +20% 50.0V 85C
C280	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C281	2026883039	1	PC	CE 470N0F +20% 50.0V 85C
C282	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C283	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C284	1012100039	1	PC	CE 10U0F +20% 16.0V 85C
C285	1024427039	1	PC	CE 100U0F +20% 16.0V 85C
C286	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C290	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C291	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C292	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C293	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C296	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C297	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C298	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C299	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C3	2050652091	1	PC	CCCFMIC 22P0F +5% -5% 50.0V NP0
C300	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C301	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C302	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C303	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C304	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C305	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C306	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C307	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C308	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C309	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C310	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C311	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C313	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C314	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C315	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C316	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C317	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C321	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C327	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C328	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C335	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V

Ref. Designator		Qty		Description
DSP PCB				
C336	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C337	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C338	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C339	2067807091	1	PC	CCCFMIC 330P0F +5% -5% 50.0V NP0
C340	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C341	2028806091	1	PC	CCCFMIC 220N0F +80% -20% 16.0V Y5V
C342	2067807091	1	PC	CCCFMIC 330P0F +5% -5% 50.0V NP0
C343	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C344	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C345	2050664091	1	PC	CCCFMIC 220P0F +5% -5% 50.0V NP0
C346	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C347	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C348	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C349	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C350	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C351	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C352	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C4	1013896091	1	PC	CCCFMIC 10N0F +10% -10% 50.0V X7R
C400	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C401	2050652091	1	PC	CCCFMIC 22P0F +5% -5% 50.0V NP0
C500	2050657091	1	PC	CCCFMIC 47P0F +5% -5% 50.0V NP0
C901	1013896091	1	PC	CCCFMIC 10N0F +10% -10% 50.0V X7R
<i>Semiconductors</i>				
D100	2049651085	1	PC	D-SLP 1SS355 35.0V 225MIOA
IC03	55142610MT	1	PC	IC-OPERAMP NJM2068M DUAL OP
IC04	55204160MU	1	PC	IC-CONV CS5360-KS A/D
IC05	55142610MT	1	PC	IC-OPERAMP NJM2068M DUAL OP
IC06	55451460MS	1	PC	IC-CONV CS4382-KQ 8CH D/A
IC07	55142610MT	1	PC	IC-OPERAMP NJM2068M DUAL OP
IC09	55133310MT	1	PC	IC-LOGIC M74HCU04M1R INVERTER HCT
IC12	55519380MS	1	PC	IC-MICROCONT CXP82852-375Q SUB AVR325
IC14	55133310MT	1	PC	IC-LOGIC M74HCU04M1R INVERTER HCT
IC15	55157760KV	1	PC	IC-EPROM AT27LV040A-90JC
IC16	55476130MS	1	PC	IC-SPECFUNC AK4114VQ LQFP48 DIGITAL INTERFACE TRANS
IC17	5512538AMU	1	PC	IC-LOWFREQ CS493263-CL G VERSION DSP
IC19	55142610MT	1	PC	IC-OPERAMP NJM2068M DUAL OP
IC20	55142610MT	1	PC	IC-OPERAMP NJM2068M DUAL OP
IC21	55142610MT	1	PC	IC-OPERAMP NJM2068M DUAL OP
IC22	55142610MT	1	PC	IC-OPERAMP NJM2068M DUAL OP
IC23	55142610MT	1	PC	IC-OPERAMP NJM2068M DUAL OP
IC24	55142610MT	1	PC	IC-OPERAMP NJM2068M DUAL OP
IC28	55125420MT	1	PC	IC-LOGIC 74VHC244MX INVERTER CMOS
IC33	55170220MT	1	PC	IC-LOGIC F/F 74VHC574MX FLIP/FLOP HCMOS
IC34	55170220MT	1	PC	IC-LOGIC F/F 74VHC574MX FLIP/FLOP HCMOS
IC35	55142610MT	1	PC	IC-OPERAMP NJM2068M DUAL OP
IC4	55242890MU	1	PC	IC-LOGIC QUAD 2-INPUT 74VHC157M SOIC16 MULTIPLEXER HCMOS
<i>Resistors</i>				
R1	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R10	1013471091	1	PC	RMGCFMIC 75R0 OHM +5% 62MI5W
R100	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R101	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R102	1013522091	1	PC	RMGCFMIC 47K0 OHM +5% 62MI5W

Ref. Designator		Qty		Description
DSP PCB				
R103	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R104	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R107	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R108	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R109	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R11	1013522091	1	PC	RMGCFMIC 47K0 OHM +5% 62MI5W
R110	1013522091	1	PC	RMGCFMIC 47K0 OHM +5% 62MI5W
R111	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R112	1013596091	1	PC	RMGCFMIC 5K6 OHM +5% 62MI5W
R113	1013596091	1	PC	RMGCFMIC 5K6 OHM +5% 62MI5W
R116	1013596091	1	PC	RMGCFMIC 5K6 OHM +5% 62MI5W
R117	1013596091	1	PC	RMGCFMIC 5K6 OHM +5% 62MI5W
R118	1013493091	1	PC	RMGCFMIC 560R0 OHM +5% 62MI5W
R119	1013579091	1	PC	RMGCFMIC 1K2 OHM +5% 62MI5W
R12	1013493091	1	PC	RMGCFMIC 560R0 OHM +5% 62MI5W
R120	1013579091	1	PC	RMGCFMIC 1K2 OHM +5% 62MI5W
R121	1013493091	1	PC	RMGCFMIC 560R0 OHM +5% 62MI5W
R122	1013493091	1	PC	RMGCFMIC 560R0 OHM +5% 62MI5W
R123	1013579091	1	PC	RMGCFMIC 1K2 OHM +5% 62MI5W
R124	1013579091	1	PC	RMGCFMIC 1K2 OHM +5% 62MI5W
R125	1013493091	1	PC	RMGCFMIC 560R0 OHM +5% 62MI5W
R132	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R133	1013579091	1	PC	RMGCFMIC 1K2 OHM +5% 62MI5W
R134	1013596091	1	PC	RMGCFMIC 5K6 OHM +5% 62MI5W
R135	1013596091	1	PC	RMGCFMIC 5K6 OHM +5% 62MI5W
R136	1013579091	1	PC	RMGCFMIC 1K2 OHM +5% 62MI5W
R137	1013579091	1	PC	RMGCFMIC 1K2 OHM +5% 62MI5W
R138	1013596091	1	PC	RMGCFMIC 5K6 OHM +5% 62MI5W
R139	1013596091	1	PC	RMGCFMIC 5K6 OHM +5% 62MI5W
R14	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R140	1013579091	1	PC	RMGCFMIC 1K2 OHM +5% 62MI5W
R141	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R142	1013522091	1	PC	RMGCFMIC 47K0 OHM +5% 62MI5W
R145	1013593091	1	PC	RMGCFMIC 4K3 OHM +5% 62MI5W
R146	1013593091	1	PC	RMGCFMIC 4K3 OHM +5% 62MI5W
R147	1013593091	1	PC	RMGCFMIC 4K3 OHM +5% 62MI5W
R148	1013593091	1	PC	RMGCFMIC 4K3 OHM +5% 62MI5W
R149	1013593091	1	PC	RMGCFMIC 4K3 OHM +5% 62MI5W
R150	1013593091	1	PC	RMGCFMIC 4K3 OHM +5% 62MI5W
R151	1013593091	1	PC	RMGCFMIC 4K3 OHM +5% 62MI5W
R152	1013593091	1	PC	RMGCFMIC 4K3 OHM +5% 62MI5W
R153	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R154	1013522091	1	PC	RMGCFMIC 47K0 OHM +5% 62MI5W
R155	1013522091	1	PC	RMGCFMIC 47K0 OHM +5% 62MI5W
R156	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R157	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R158	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R159	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R16	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R160	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R161	1013522091	1	PC	RMGCFMIC 47K0 OHM +5% 62MI5W
R162	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R163	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R164	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R165	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R166	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R167	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W

Ref. Designator		Qty		Description
DSP PCB				
R168	1013509091	1	PC	RMGCFMIC 20K0 OHM +5% 62MI5W
R169	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R17	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R170	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R171	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R172	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R173	1013522091	1	PC	RMGCFMIC 47K0 OHM +5% 62MI5W
R174	1013522091	1	PC	RMGCFMIC 47K0 OHM +5% 62MI5W
R175	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R176	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R177	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R178	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R179	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R18	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
R180	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R181	1013596091	1	PC	RMGCFMIC 5K6 OHM +5% 62MI5W
R182	1013596091	1	PC	RMGCFMIC 5K6 OHM +5% 62MI5W
R183	1013596091	1	PC	RMGCFMIC 5K6 OHM +5% 62MI5W
R184	1013596091	1	PC	RMGCFMIC 5K6 OHM +5% 62MI5W
R185	1013509091	1	PC	RMGCFMIC 20K0 OHM +5% 62MI5W
R186	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R187	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R188	1013493091	1	PC	RMGCFMIC 560R0 OHM +5% 62MI5W
R189	1013579091	1	PC	RMGCFMIC 1K2 OHM +5% 62MI5W
R19	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
R190	1013579091	1	PC	RMGCFMIC 1K2 OHM +5% 62MI5W
R191	1013493091	1	PC	RMGCFMIC 560R0 OHM +5% 62MI5W
R192	1013493091	1	PC	RMGCFMIC 560R0 OHM +5% 62MI5W
R193	1013579091	1	PC	RMGCFMIC 1K2 OHM +5% 62MI5W
R194	1013579091	1	PC	RMGCFMIC 1K2 OHM +5% 62MI5W
R195	1013493091	1	PC	RMGCFMIC 560R0 OHM +5% 62MI5W
R196	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R197	1013598091	1	PC	RMGCFMIC 6K8 OHM +5% 62MI5W
R198	1013579091	1	PC	RMGCFMIC 1K2 OHM +5% 62MI5W
R199	1013596091	1	PC	RMGCFMIC 5K6 OHM +5% 62MI5W
R2	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R200	1013596091	1	PC	RMGCFMIC 5K6 OHM +5% 62MI5W
R201	1013579091	1	PC	RMGCFMIC 1K2 OHM +5% 62MI5W
R202	1013579091	1	PC	RMGCFMIC 1K2 OHM +5% 62MI5W
R203	1013596091	1	PC	RMGCFMIC 5K6 OHM +5% 62MI5W
R204	1013596091	1	PC	RMGCFMIC 5K6 OHM +5% 62MI5W
R205	1013579091	1	PC	RMGCFMIC 1K2 OHM +5% 62MI5W
R206	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R208	1013593091	1	PC	RMGCFMIC 4K3 OHM +5% 62MI5W
R209	1013593091	1	PC	RMGCFMIC 4K3 OHM +5% 62MI5W
R21	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R210	1013593091	1	PC	RMGCFMIC 4K3 OHM +5% 62MI5W
R211	1013593091	1	PC	RMGCFMIC 4K3 OHM +5% 62MI5W
R212	1013593091	1	PC	RMGCFMIC 4K3 OHM +5% 62MI5W
R213	1013593091	1	PC	RMGCFMIC 4K3 OHM +5% 62MI5W
R214	1013593091	1	PC	RMGCFMIC 4K3 OHM +5% 62MI5W
R215	1013593091	1	PC	RMGCFMIC 4K3 OHM +5% 62MI5W
R216	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R22	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R224	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R225	1013522091	1	PC	RMGCFMIC 47K0 OHM +5% 62MI5W
R23	1013522091	1	PC	RMGCFMIC 47K0 OHM +5% 62MI5W

Ref. Designator		Qty		Description
DSP PCB				
R233	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R234	1013522091	1	PC	RMGCFMIC 47K0 OHM +5% 62MI5W
R235	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R24	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R242	1013522091	1	PC	RMGCFMIC 47K0 OHM +5% 62MI5W
R243	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R244	1013471091	1	PC	RMGCFMIC 75R0 OHM +5% 62MI5W
R253	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R254	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R255	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R256	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R257	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R258	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R259	1013522091	1	PC	RMGCFMIC 47K0 OHM +5% 62MI5W
R263	1013493091	1	PC	RMGCFMIC 560R0 OHM +5% 62MI5W
R264	1013522091	1	PC	RMGCFMIC 47K0 OHM +5% 62MI5W
R265	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R276	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R277	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R278	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R279	1013471091	1	PC	RMGCFMIC 75R0 OHM +5% 62MI5W
R280	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R281	1013522091	1	PC	RMGCFMIC 47K0 OHM +5% 62MI5W
R282	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R283	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R284	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R285	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R286	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R287	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R296	1013493091	1	PC	RMGCFMIC 560R0 OHM +5% 62MI5W
R3	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R310	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R312	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R313	2074028091	1	PC	RMGCFMIC 3R3 OHM +5% 62MI5W
R314	2074028091	1	PC	RMGCFMIC 3R3 OHM +5% 62MI5W
R319	1013522091	1	PC	RMGCFMIC 47K0 OHM +5% 62MI5W
R320	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R322	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R323	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R324	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R325	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R326	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R327	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R328	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R329	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R330	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R333	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R335	1013483091	1	PC	RMGCFMIC 220R0 OHM +5% 62MI5W
R336	1013483091	1	PC	RMGCFMIC 220R0 OHM +5% 62MI5W
R337	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R347	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R348	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R350	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R352	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R353	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R355	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R356	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W

Ref. Designator		Qty		Description
DSP PCB				
R357	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R359	1013495091	1	PC	RMGCFMIC 680R0 OHM +5% 62MI5W
R360	1013494091	1	PC	RMGCFMIC 620R0 OHM +5% 62MI5W
R362	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R363	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R364	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R365	1013483091	1	PC	RMGCFMIC 220R0 OHM +5% 62MI5W
R366	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R367	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R368	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R369	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R370	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R371	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R372	1013483091	1	PC	RMGCFMIC 220R0 OHM +5% 62MI5W
R373	1013483091	1	PC	RMGCFMIC 220R0 OHM +5% 62MI5W
R374	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R375	1013483091	1	PC	RMGCFMIC 220R0 OHM +5% 62MI5W
R376	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R377	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R378	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R380	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R381	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R382	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R385	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R387	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R388	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R389	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R390	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R391	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R392	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R393	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R394	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R396	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R397	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R398	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R399	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R4	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R400	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R401	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R402	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R403	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R404	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R407	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R408	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R410	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R411	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R412	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R421	1013590091	1	PC	RMGCFMIC 3K3 OHM +5% 62MI5W
R422	1013590091	1	PC	RMGCFMIC 3K3 OHM +5% 62MI5W
R423	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R424	1013508091	1	PC	RMGCFMIC 18K0 OHM +5% 62MI5W
R425	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R428	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R429	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R430	1013590091	1	PC	RMGCFMIC 3K3 OHM +5% 62MI5W
R431	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R432	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W

Ref. Designator		Qty		Description
DSP PCB				
R433	1013590091	1	PC	RMGCFMIC 3K3 OHM +5% 62MI5W
R434	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R5	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R6	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R7	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R8	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R9	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R901	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
R902	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
R903	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
R904	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
R905	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
R907	1013483091	1	PC	RMGCFMIC 220R0 OHM +5% 62MI5W
R908	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R909	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
R910	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
<i>Miscellaneous</i>				
JUM1	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
JUM2	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
JUM3	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
JUM4	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
L100	5512669050	1	PC	FBEAD SURFACE MT 2500OHM FCM2012H-252T02
L101	5512665050	1	PC	FBEAD SURFACE MT 300OHM FCM2012V-301T07
L102	5512665050	1	PC	FBEAD SURFACE MT 300OHM FCM2012V-301T07
L105	5512665050	1	PC	FBEAD SURFACE MT 300OHM FCM2012V-301T07
L106	5512669050	1	PC	FBEAD SURFACE MT 2500OHM FCM2012H-252T02
L109	5512665050	1	PC	FBEAD SURFACE MT 300OHM FCM2012V-301T07
L111	5512669050	1	PC	FBEAD SURFACE MT 2500OHM FCM2012H-252T02
L112	5512669050	1	PC	FBEAD SURFACE MT 2500OHM FCM2012H-252T02
L113	5512669050	1	PC	FBEAD SURFACE MT 2500OHM FCM2012H-252T02
L114	5512665050	1	PC	FBEAD SURFACE MT 300OHM FCM2012V-301T07
L115	5512669050	1	PC	FBEAD SURFACE MT 2500OHM FCM2012H-252T02
L116	5512665050	1	PC	FBEAD SURFACE MT 300OHM FCM2012V-301T07
L117	5512669050	1	PC	FBEAD SURFACE MT 2500OHM FCM2012H-252T02
L118	5512665050	1	PC	FBEAD SURFACE MT 300OHM FCM2012V-301T07
L120	5512669050	1	PC	FBEAD SURFACE MT 2500OHM FCM2012H-252T02
L121	5512669050	1	PC	FBEAD SURFACE MT 2500OHM FCM2012H-252T02
L999	5512665050	1	PC	FBEAD SURFACE MT 300OHM FCM2012V-301T07
N400	55174670	1	PC	CONN 2.0MM 19 MA R NAT SOCKET MOLEX 35237-1910 0 0
N401	551641500	1	PC	WIRECONASY UNIQUE 4P 160MM UL1007 PVC DISCRETE 26 1
N402	55597160NR	1	PC	WIRECONASY DL 2.0MM 15P 110MM UL1533 SHIELD 26 1
N403	55597170NR	1	PC	WIRECONASY DL 2.0MM 3P 110MM UL2547 26 1
N404	55597160NR	1	PC	WIRECONASY DL 2.0MM 15P 110MM UL1533 SHIELD 26 1
NJ71	55191450	1	PC	CON PHONO SCKT RCA 4P JW-4104RSC
NJ72	55191420	1	PC	CON PHONO SCKT RCA 4P JW-4104RSA
NJ73	55191600	1	PC	CON PHONO SCKT RCA 2P W/GND CAP JW-1502SN OO
NJ74	55125430NR	1	PC	D-LEM TORX178B RD RND CL
NJ75	55125430NR	1	PC	D-LEM TORX178B RD RND CL
NJ76	55125440NR	1	PC	D-LEM TOTX178B RD RND CL
NJ77	55246370	1	PC	CON PHONO SCKT RCA 1P W/GND JE010003LN OG
P402	55123320	1	PC	CONN 2.0MM 5 MA ST NAT LW2002P05 0 0
P403	55090050	1	PC	CONN 2.0MM 10 MA ST NAT LW2002P10 0 0
T101	55176540NR	1	PC	TFPULSE TRANSFORMER 110UH FP-110 FERRIT MAGNET
W402	55622850	1	PC	WCL 330-05-05 UL1007 HOOK-UP 16 330MM BK 5 5 55622750
Y100	55126140NR	1	PC	CRESONATOR 10M0 HZ 25.0 OHM 0F

Ref. Designator		Qty		Description
DSP PCB				
Y101	553483500	1	PC	VCXO 12M288 HZ +50 PPM -50 PPM 0 OHM 3.3V
POWER SUPPLY PCB				
<i>Capacitors</i>				
C101	2029347016	1	PC	CC 100N0F +80% -20% 50.0V F
C102	1303935030	1	PC	CE 100U0F +20% 35.0V 85C
C103	1303935030	1	PC	CE 100U0F +20% 35.0V 85C
C104	2026901030	1	PC	CE 47U0F +20% 50.0V 85C
C105	7042852071	1	PC	CC 10N0F +10% -10% 50.0V Y5P
C106	7042852071	1	PC	CC 10N0F +10% -10% 50.0V Y5P
C107	7042852071	1	PC	CC 10N0F +10% -10% 50.0V Y5P
C108	2029347016	1	PC	CC 100N0F +80% -20% 50.0V F
C109	2029347016	1	PC	CC 100N0F +80% -20% 50.0V F
C110	7042852071	1	PC	CC 10N0F +10% -10% 50.0V Y5P
C111	1303935030	1	PC	CE 100U0F +20% 35.0V 85C
C112	13039870AM	1	PC	CE 2MI2F +20% 16.0V 85C
C113	2029347016	1	PC	CC 100N0F +80% -20% 50.0V F
C114	2029347016	1	PC	CC 100N0F +80% -20% 50.0V F
C115	2026884030	1	PC	CE 1U0F +20% 50.0V 85C
C116	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C117	2026884030	1	PC	CE 1U0F +20% 50.0V 85C
C118	55095470NR	1	PC	CC 4N7F +20% -20% 250.0V Y5V
C120	13073530AM	1	PC	CE 470U0F +20% 50.0V 85C
C201	55326560NR	1	PC	CE 6MI8F +20% 63.0V 85C
C202	55326560NR	1	PC	CE 6MI8F +20% 63.0V 85C
C203	5509543071	1	PC	CPM 100N0F +10% 250.0V
C204	5509543071	1	PC	CPM 100N0F +10% 250.0V
C205	5509543071	1	PC	CPM 100N0F +10% 250.0V
CA11	55095460NR	1	PC	CPPMX 100N0F +20% -20%
<i>Semiconductors</i>				
D101	2041506016	1	PC	D-SR 1N4004 400.0V 1.0A
D102	2041506016	1	PC	D-SR 1N4004 400.0V 1.0A
D103	2047534016	1	PC	D-ZENER BZX55B30 30V 500MI0W
D104	2041506016	1	PC	D-SR 1N4004 400.0V 1.0A
D105	2041506016	1	PC	D-SR 1N4004 400.0V 1.0A
D106	2041506016	1	PC	D-SR 1N4004 400.0V 1.0A
D107	2041506016	1	PC	D-SR 1N4004 400.0V 1.0A
D108	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D109	2087388016	1	PC	D-ZENER 1N5236B 7.5V 500MI0W
D110	2041506016	1	PC	D-SR 1N4004 400.0V 1.0A
D111	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D112	2041506016	1	PC	D-SR 1N4004 400.0V 1.0A
D113	2052696016	1	PC	D-ZENER 1N5231B 5.1V 500MI0W
D114	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D115	2041506016	1	PC	D-SR 1N4004 400.0V 1.0A
D201	55179320NR	1	PC	D-BRDLC BRIDGE BU10-04
Q101	2064785056	1	PC	TR-SHPLF KTA1268BL P 100MI0A 120V
Q102	5514267056	1	PC	TR-SLPLF MPSA06 N 500MI0A
IC11	55179250MU	1	PC	IC-REGPOSFXD KIA7805API TO-220IS NORMAL
<i>Resistors</i>				
R101	5518010016	1	PC	RA 3M3 OHM +10% 500MI0W

Ref. Designator		Qty		Description
POWER SUPPLY PCB				
R102	1106757016	1	PC	RCF 1R0 OHM +5% 250MI0W
R103	1106757016	1	PC	RCF 1R0 OHM +5% 250MI0W
R104	3093938016	1	PC	RCF 22R0 OHM +5% 250MI0W
R105	2046946016	1	PC	RCF 2K2 OHM +5% 250MI0W
R106	7043056016	1	PC	RCF 5K6 OHM +5% 250MI0W
R107	1105967016	1	PC	RCF 2K7 OHM +5% 250MI0W
R108	2046946016	1	PC	RCF 2K2 OHM +5% 250MI0W
R109	1105964016	1	PC	RCF 1K0 OHM +5% 250MI0W
R110	3093951016	1	PC	RCF 100K0 OHM +5% 250MI0W
R111	3093948016	1	PC	RCF 10K0 OHM +5% 250MI0W
R112	6044156016	1	PC	RCF 560R0 OHM +5% 250MI0W
R113	2047253016	1	PC	RCF 4R7 OHM +5% 250MI0W
R115	5088301016	1	PC	RCF 15K0 OHM +5% 250MI0W
R116	20330130	1	PC	BCL 0.5MM TIN ANNEALED COPPER 6.0MM 8MM F493
R201	9057113016	1	PC	RCF 39K0 OHM +5% 250MI0W
R202	9057113016	1	PC	RCF 39K0 OHM +5% 250MI0W
R203	3093951016	1	PC	RCF 100K0 OHM +5% 250MI0W
<i>Miscellaneous</i>				
F101	55584080NR	1	PC	FUSULSLWBL 10.0 A 250.0 V
FH10	55170330CM	1	PC	TERMFUSEHLDR FUSE-HOLDER J4210020001X
FH11	55170330CM	1	PC	TERMFUSEHLDR FUSE-HOLDER J4210020001X
G101	55135980NR	1	PC	TERMLUG GND
G102	55135980NR	1	PC	TERMLUG GND
HK11	55176410	1	PC	AC HEATSINK 17*15*30 AVR520 -- ME
N202	55597180NR	1	PC	WIRECONASY DL 3.96MM 3P 140MM UL1007 RIBBON 16 1
N203	55597760NR	1	PC	WIRECONASY DL 3.96MM 4P 160MM UL1007 RIBBON 16 1
N204	55503580NR	1	PC	WIRECONASY DL 2.0MM 3P 650MM UL1007 RIBBON 26 1
N205	55503510NR	1	PC	WIRECONASY DL 2.0MM 3P 280MM UL1007 RIBBON 26 1
NS21	55206550NR	1	PC	CONN-SPE AC OUTLET 2P 110V FE 12.75MM 2 BK 0 0
NS22	55222010	1	PC	CON MAINS INLET A/C INLET 7014-NGP
P201	55171550	1	PC	CON 3.96MM PITCH MOLEX 35313-0310
P206	55146620	1	PC	CONN 2.5MM 7 MA ST NAT 0 0
P207	55123510	1	PC	CON 3.96MM PITCH HEADER 2 POS MOLEX 35328-0210
P208	55123510	1	PC	CON 3.96MM PITCH HEADER 2 POS MOLEX 35328-0210
SK11	55127440NR	1	PC	RELAYPWR 12.0V 270.0OHM 10.0A
TP11	55506180NR	1	PC	TF-LAM ST/BY-TRANSFORMER 120V
	55127070	1	PC	SCREW-ST 3MM 10MM JIS B 1122 J5636140010X 19 0 0
	55127120	2	PC	SCREW-ST 3MM 8MM JIS B 1122 J5636140040X 53 0 0
	55222020	2	PC	AC PUN BRACKET AC INLET SECC 1.0T
MAIN PCB				
<i>Capacitors</i>				
C101	2093665016	1	PC	CC 100P0F +10% -10% 50.0V Y5P
C102	2093665016	1	PC	CC 100P0F +10% -10% 50.0V Y5P
C103	2093665016	1	PC	CC 100P0F +10% -10% 50.0V Y5P
C104	2093665016	1	PC	CC 100P0F +10% -10% 50.0V Y5P
C107	2093665016	1	PC	CC 100P0F +10% -10% 50.0V Y5P
C108	2093665016	1	PC	CC 100P0F +10% -10% 50.0V Y5P
C109	2093665016	1	PC	CC 100P0F +10% -10% 50.0V Y5P
C110	2093665016	1	PC	CC 100P0F +10% -10% 50.0V Y5P
C111	2093665016	1	PC	CC 100P0F +10% -10% 50.0V Y5P
C112	2093665016	1	PC	CC 100P0F +10% -10% 50.0V Y5P
C113	2093665016	1	PC	CC 100P0F +10% -10% 50.0V Y5P

Ref. Designator		Qty		Description
MAIN PCB				
C114	2093665016	1	PC	CC 100P0F +10% -10% 50.0V Y5P
C115	2093665016	1	PC	CC 100P0F +10% -10% 50.0V Y5P
C116	2093665016	1	PC	CC 100P0F +10% -10% 50.0V Y5P
C117	2093665016	1	PC	CC 100P0F +10% -10% 50.0V Y5P
C118	2093665016	1	PC	CC 100P0F +10% -10% 50.0V Y5P
C119	2029347016	1	PC	CC 100N0F +80% -20% 50.0V F
C120	2029347016	1	PC	CC 100N0F +80% -20% 50.0V F
C206	2026907030	1	PC	CE 100U0F +20% 25.0V 85C
C207	2026887030	1	PC	CE 4U7F +20% 50.0V 85C
C208	2026907030	1	PC	CE 100U0F +20% 25.0V 85C
C209	2093665016	1	PC	CC 100P0F +10% -10% 50.0V Y5P
C210	2026884030	1	PC	CE 1U0F +20% 50.0V 85C
C211	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C212	2026729091	1	PC	CCCFMIN 100N0F +80% -20% 50.0V Y5V
C213	2026907030	1	PC	CE 100U0F +20% 25.0V 85C
C214	2026729091	1	PC	CCCFMIN 100N0F +80% -20% 50.0V Y5V
C301	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C302	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C303	13076940AM	1	PC	CE 470U0F +20% 63.0V 85C
C304	13076940AM	1	PC	CE 470U0F +20% 63.0V 85C
C305	13076940AM	1	PC	CE 470U0F +20% 63.0V 85C
C306	13076940AM	1	PC	CE 470U0F +20% 63.0V 85C
C307	2076264016	1	PC	CC 270P0F +10% -10% 50.0V 2B4
C308	2076264016	1	PC	CC 270P0F +10% -10% 50.0V 2B4
C309	2026907030	1	PC	CE 100U0F +20% 25.0V 85C
C310	2026907030	1	PC	CE 100U0F +20% 25.0V 85C
C313	5512607016	1	PC	CC 680P0F +10% -10% 50.0V 2B4
C314	5512607016	1	PC	CC 680P0F +10% -10% 50.0V 2B4
C315	2024633071	1	PC	CC 3P0F +0P25F -0P25F 50.0V NP0
C316	2024633071	1	PC	CC 3P0F +0P25F -0P25F 50.0V NP0
C317	8043472071	1	PC	CC 180P0F +10% -10% 50.0V Y5P
C318	8043472071	1	PC	CC 180P0F +10% -10% 50.0V Y5P
C319	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C320	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C321	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C322	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C323	5517940071	1	PC	CPM 68N0F +5% 63.0V
C324	5517940071	1	PC	CPM 68N0F +5% 63.0V
C325	5517936071	1	PC	CPM 100N0F +10% 63.0V
C326	5517936071	1	PC	CPM 100N0F +10% 63.0V
C327	5517936071	1	PC	CPM 100N0F +10% 63.0V
C328	5517936071	1	PC	CPM 100N0F +10% 63.0V
C329	1105554071	1	PC	CC 2N2F +10% -10% 50.0V Y5P
C330	1105554071	1	PC	CC 2N2F +10% -10% 50.0V Y5P
C331	2026908030	1	PC	CE 220U0F +20% 10.0V 85C
C332	2026908030	1	PC	CE 220U0F +20% 10.0V 85C
C333	2051399016	1	PC	CC 4N7F +20% -20% 16.0V Y5R
C401	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C402	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C403	2076264016	1	PC	CC 270P0F +10% -10% 50.0V 2B4
C404	2076264016	1	PC	CC 270P0F +10% -10% 50.0V 2B4
C405	2026907030	1	PC	CE 100U0F +20% 25.0V 85C
C406	2026907030	1	PC	CE 100U0F +20% 25.0V 85C
C407	2026908030	1	PC	CE 220U0F +20% 10.0V 85C
C408	2026908030	1	PC	CE 220U0F +20% 10.0V 85C
C409	2024633071	1	PC	CC 3P0F +0P25F -0P25F 50.0V NP0
C410	2024633071	1	PC	CC 3P0F +0P25F -0P25F 50.0V NP0

Ref. Designator		Qty		Description
MAIN PCB				
C411	8043472071	1	PC	CC 180P0F +10% -10% 50.0V Y5P
C412	8043472071	1	PC	CC 180P0F +10% -10% 50.0V Y5P
C413	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C414	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C415	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C416	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C417	5517936071	1	PC	CPM 100N0F +10% 63.0V
C418	5517936071	1	PC	CPM 100N0F +10% 63.0V
C419	5517936071	1	PC	CPM 100N0F +10% 63.0V
C420	5517936071	1	PC	CPM 100N0F +10% 63.0V
C421	13076940AM	1	PC	CE 470U0F +20% 63.0V 85C
C422	13076940AM	1	PC	CE 470U0F +20% 63.0V 85C
C423	13076940AM	1	PC	CE 470U0F +20% 63.0V 85C
C424	13076940AM	1	PC	CE 470U0F +20% 63.0V 85C
C425	1105554071	1	PC	CC 2N2F +10% -10% 50.0V Y5P
C426	1105554071	1	PC	CC 2N2F +10% -10% 50.0V Y5P
C429	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C430	5517940071	1	PC	CPM 68N0F +5% 63.0V
C431	5517940071	1	PC	CPM 68N0F +5% 63.0V
C432	2025267030	1	PC	CE 470U0F +20% 10.0V 85C
C433	2044901016	1	PC	CC 10N0F +20% -20% 16.0V Y5S
C434	2051399016	1	PC	CC 4N7F +20% -20% 16.0V Y5R
C501	5509543071	1	PC	CPM 100N0F +10% 250.0V
C502	5509543071	1	PC	CPM 100N0F +10% 250.0V
C503	5509543071	1	PC	CPM 100N0F +10% 250.0V
C504	55180370NR	1	PC	CE 10MI0F +20% 63.0V 85C
C505	55180370NR	1	PC	CE 10MI0F +20% 63.0V 85C
C506	1036482071	1	PC	CPF 47N0F +10% 100.0V
C507	1036482071	1	PC	CPF 47N0F +10% 100.0V
C508	1036482071	1	PC	CPF 47N0F +10% 100.0V
C509	4043313030	1	PC	CE 2MI2F +20% 35.0V 85C
C510	4043313030	1	PC	CE 2MI2F +20% 35.0V 85C
C511	1036482071	1	PC	CPF 47N0F +10% 100.0V
C512	1036482071	1	PC	CPF 47N0F +10% 100.0V
C513	1036482071	1	PC	CPF 47N0F +10% 100.0V
C514	55126160NR	1	PC	CE 6MI8F +20% 16.0V 85C
C515	13039870AM	1	PC	CE 2MI2F +20% 16.0V 85C
C516	1036482071	1	PC	CPF 47N0F +10% 100.0V
C517	13039900NR	1	PC	CE 2MI2F +20% 50.0V 85C
C518	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C519	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C520	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C521	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C522	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C523	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C524	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C526	2026907030	1	PC	CE 100U0F +20% 25.0V 85C
C527	2029347016	1	PC	CC 100N0F +80% -20% 50.0V F
C528	1036482071	1	PC	CPF 47N0F +10% 100.0V
C529	1036482071	1	PC	CPF 47N0F +10% 100.0V
C569	5512607016	1	PC	CC 680P0F +10% -10% 50.0V 2B4
C570	5512607016	1	PC	CC 680P0F +10% -10% 50.0V 2B4
C601	2044901016	1	PC	CC 10N0F +20% -20% 16.0V Y5S
C602	2044901016	1	PC	CC 10N0F +20% -20% 16.0V Y5S

Ref. Designator		Qty		Description
MAIN PCB				
<i>Semiconductors</i>				
D204	5517804016	1	PC	D-ZENER MTZJ 12.0V 500MI0W
D205	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D206	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D207	2052696016	1	PC	D-ZENER 1N5231B 5.1V 500MI0W
D301	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D302	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D303	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D304	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D305	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D306	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D307	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D308	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D401	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D402	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D403	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D404	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D405	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D406	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D407	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D408	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D409	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D410	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D411	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D412	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D501	55179320NR	1	PC	D-BRDLC BRIDGE BU10-04
D502	55179300NR	1	PC	D-BRDLC BRIDGE W2-04F FRONTIER
D503	55125540NR	1	PC	D-BRDLC BU6-04F
D505	55179300NR	1	PC	D-BRDLC BRIDGE W2-04F FRONTIER
IC22	55142610MT	1	PC	IC-OPERAMP NJM2068M DUAL OP
IC51	20832440MU	1	PC	IC-REGPOSF XD KIA7815API NORMAL
IC52	55124020MU	1	PC	IC-REGNEGFXD KIA7915PI NORMAL
IC53	55125450MU	1	PC	IC-REGPOSF XD BA033T NORMAL
IC54	55505780MU	1	PC	IC-REGPOSF XD KIA7824API TO-220IS NORMAL
IC55	55123960MU	1	PC	IC-REGPOSF XD KIA7805API NORMAL
IC56	55123990MU	1	PC	IC-REGNEGFXD KIA7905PI NORMAL
IC57	55179240MU	1	PC	IC-REGULADJ KA337 TO-220
IC59	55094390MU	1	PC	IC-REGPOSF XD KIA7812API NORMAL
Q301	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q302	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q303	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q304	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q305	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q306	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q307	2050808056	1	PC	TR-SLPLF KTC3198BL N 150MIOA
Q308	2050808056	1	PC	TR-SLPLF KTC3198BL N 150MIOA
Q309	5523309056	1	PC	TR-SLPLF 2SA1145Y TO-92MOD P -50MIOA -150V
Q310	5523309056	1	PC	TR-SLPLF 2SA1145Y TO-92MOD P -50MIOA -150V
Q311	2064785056	1	PC	TR-SHPLF KTA1268BL P 100MIOA 120V
Q312	2064785056	1	PC	TR-SHPLF KTA1268BL P 100MIOA 120V
Q313	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q314	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q315	5513326056	1	PC	TR-SLPLF KTA1024 Y P 50MIOA -150V
Q316	5513326056	1	PC	TR-SLPLF KTA1024 Y P 50MIOA -150V
Q317	5513324056	1	PC	TR-SLPLF KTC3206 Y N 50MIOA 150V
Q318	5513324056	1	PC	TR-SLPLF KTC3206 Y N 50MIOA 150V

Ref. Designator		Qty		Description
MAIN PCB				
Q319	5513326056	1	PC	TR-SLPLF KTA1024 Y P 50MIOA -150V
Q320	5513326056	1	PC	TR-SLPLF KTA1024 Y P 50MIOA -150V
Q321	5513324056	1	PC	TR-SLPLF KTC3206 Y N 50MIOA 150V
Q322	5513324056	1	PC	TR-SLPLF KTC3206 Y N 50MIOA 150V
Q323	5513324056	1	PC	TR-SLPLF KTC3206 Y N 50MIOA 150V
Q324	5513324056	1	PC	TR-SLPLF KTC3206 Y N 50MIOA 150V
Q327	5513326056	1	PC	TR-SLPLF KTA1024 Y P 50MIOA -150V
Q328	5513326056	1	PC	TR-SLPLF KTA1024 Y P 50MIOA -150V
Q329	551791900	1	PC	TR-SHPLF 2SA1859A P -2.0A
Q330	551791900	1	PC	TR-SHPLF 2SA1859A P -2.0A
Q331	551792000	1	PC	TR-SHPLF 2SC4883A N 2.0A
Q332	551792000	1	PC	TR-SHPLF 2SC4883A N 2.0A
Q333	551791800	1	PC	TR-SHPLF 2SC5358-R N 15.0A
Q334	551791800	1	PC	TR-SHPLF 2SC5358-R N 15.0A
Q335	551791500	1	PC	TR-SHPLF 2SA1986-R P -15.0A
Q336	551791500	1	PC	TR-SHPLF 2SA1986-R P -15.0A
Q337	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q338	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q401	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q402	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q403	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q404	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q405	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q406	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q407	2050808056	1	PC	TR-SLPLF KTC3198BL N 150MIOA
Q408	2050808056	1	PC	TR-SLPLF KTC3198BL N 150MIOA
Q409	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q410	2064785056	1	PC	TR-SHPLF KTA1268BL P 100MIOA 120V
Q411	5523309056	1	PC	TR-SLPLF 2SA1145Y TO-92MOD P -50MIOA -150V
Q412	5523309056	1	PC	TR-SLPLF 2SA1145Y TO-92MOD P -50MIOA -150V
Q413	2064785056	1	PC	TR-SHPLF KTA1268BL P 100MIOA 120V
Q414	2064785056	1	PC	TR-SHPLF KTA1268BL P 100MIOA 120V
Q415	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q416	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q417	5513326056	1	PC	TR-SLPLF KTA1024 Y P 50MIOA -150V
Q418	5513326056	1	PC	TR-SLPLF KTA1024 Y P 50MIOA -150V
Q419	5513324056	1	PC	TR-SLPLF KTC3206 Y N 50MIOA 150V
Q420	5513324056	1	PC	TR-SLPLF KTC3206 Y N 50MIOA 150V
Q421	5513326056	1	PC	TR-SLPLF KTA1024 Y P 50MIOA -150V
Q422	5513326056	1	PC	TR-SLPLF KTA1024 Y P 50MIOA -150V
Q423	5513324056	1	PC	TR-SLPLF KTC3206 Y N 50MIOA 150V
Q424	5513324056	1	PC	TR-SLPLF KTC3206 Y N 50MIOA 150V
Q425	2055660056	1	PC	TR-SHPLF KTC3200BL N 100MIOA 120V
Q426	2050808056	1	PC	TR-SLPLF KTC3198BL N 150MIOA
Q429	5513324056	1	PC	TR-SLPLF KTC3206 Y N 50MIOA 150V
Q430	5513324056	1	PC	TR-SLPLF KTC3206 Y N 50MIOA 150V
Q431	5513326056	1	PC	TR-SLPLF KTA1024 Y P 50MIOA -150V
Q432	5513326056	1	PC	TR-SLPLF KTA1024 Y P 50MIOA -150V
Q433	551791900	1	PC	TR-SHPLF 2SA1859A P -2.0A
Q434	551791900	1	PC	TR-SHPLF 2SA1859A P -2.0A
Q435	551792000	1	PC	TR-SHPLF 2SC4883A N 2.0A
Q436	551792000	1	PC	TR-SHPLF 2SC4883A N 2.0A
Q437	551791800	1	PC	TR-SHPLF 2SC5358-R N 15.0A
Q438	551791800	1	PC	TR-SHPLF 2SC5358-R N 15.0A
Q439	551791500	1	PC	TR-SHPLF 2SA1986-R P -15.0A
Q440	551791500	1	PC	TR-SHPLF 2SA1986-R P -15.0A
Q441	2050808056	1	PC	TR-SLPLF KTC3198BL N 150MIOA

Ref. Designator		Qty		Description
MAIN PCB				
Q442	5513326056	1	PC	TR-SLPLF KTA1024 Y P 50MIOA -150V
Q443	5517923056	1	PC	TR-SLPSWA KRC107M N
Q601	5513329056	1	PC	TR-SLPLF KTD1302 B N 300MIOA 20V
Q602	5513329056	1	PC	TR-SLPLF KTD1302 B N 300MIOA 20V
Q605	2050821056	1	PC	TR-SLPLF KTA1266 Y P 150MIOA
Q606	2050808056	1	PC	TR-SLPLF KTC3198BL N 150MIOA
Q607	2050821056	1	PC	TR-SLPLF KTA1266 Y P 150MIOA
Q608	2050808056	1	PC	TR-SLPLF KTC3198BL N 150MIOA
Q701	551332700	1	PC	TR-SHPLF 2SC4137 N 100MIOA 20V
Q702	551332700	1	PC	TR-SHPLF 2SC4137 N 100MIOA 20V
Q703	551332700	1	PC	TR-SHPLF 2SC4137 N 100MIOA 20V
Q704	551332700	1	PC	TR-SHPLF 2SC4137 N 100MIOA 20V
<i>Resistors</i>				
R101	5088295016	1	PC	RCF 100R0 OHM +5% 250MIOW
R102	5088295016	1	PC	RCF 100R0 OHM +5% 250MIOW
R105	5088295016	1	PC	RCF 100R0 OHM +5% 250MIOW
R106	5088295016	1	PC	RCF 100R0 OHM +5% 250MIOW
R109	5088295016	1	PC	RCF 100R0 OHM +5% 250MIOW
R110	5088295016	1	PC	RCF 100R0 OHM +5% 250MIOW
R113	5088295016	1	PC	RCF 100R0 OHM +5% 250MIOW
R114	5088295016	1	PC	RCF 100R0 OHM +5% 250MIOW
R207	3093951016	1	PC	RCF 100K0 OHM +5% 250MIOW
R209	8043703016	1	PC	RCF 27K0 OHM +5% 250MIOW
R211	1105964016	1	PC	RCF 1K0 OHM +5% 250MIOW
R213	5088295016	1	PC	RCF 100R0 OHM +5% 250MIOW
R214	3093951016	1	PC	RCF 100K0 OHM +5% 250MIOW
R215	5088295016	1	PC	RCF 100R0 OHM +5% 250MIOW
R216	3093951016	1	PC	RCF 100K0 OHM +5% 250MIOW
R217	3093951016	1	PC	RCF 100K0 OHM +5% 250MIOW
R218	3093951016	1	PC	RCF 100K0 OHM +5% 250MIOW
R219	3093951016	1	PC	RCF 100K0 OHM +5% 250MIOW
R220	3093951016	1	PC	RCF 100K0 OHM +5% 250MIOW
R221	5088295016	1	PC	RCF 100R0 OHM +5% 250MIOW
R223	7043060016	1	PC	RCF 51K0 OHM +5% 250MIOW
R224	7043062016	1	PC	RCF 270K0 OHM +5% 250MIOW
R225	3093949016	1	PC	RCF 33K0 OHM +5% 250MIOW
R301	6044155016	1	PC	RCF 330R0 OHM +5% 250MIOW
R302	6044155016	1	PC	RCF 330R0 OHM +5% 250MIOW
R303	3093936016	1	PC	RCF 10R0 OHM +5% 250MIOW
R304	3093936016	1	PC	RCF 10R0 OHM +5% 250MIOW
R305	3093949016	1	PC	RCF 33K0 OHM +5% 250MIOW
R306	3093949016	1	PC	RCF 33K0 OHM +5% 250MIOW
R307	2046951016	1	PC	RCF 43K0 OHM +5% 250MIOW
R308	2046951016	1	PC	RCF 43K0 OHM +5% 250MIOW
R309	3093951016	1	PC	RCF 100K0 OHM +5% 250MIOW
R310	3093951016	1	PC	RCF 100K0 OHM +5% 250MIOW
R311	5088299016	1	PC	RCF 1K6 OHM +5% 250MIOW
R312	5088299016	1	PC	RCF 1K6 OHM +5% 250MIOW
R313	5088299016	1	PC	RCF 1K6 OHM +5% 250MIOW
R314	5088299016	1	PC	RCF 1K6 OHM +5% 250MIOW
R315	5088297016	1	PC	RCF 470R0 OHM +5% 250MIOW
R316	5088297016	1	PC	RCF 470R0 OHM +5% 250MIOW
R317	2046945016	1	PC	RCF 220R0 OHM +5% 250MIOW
R318	2046945016	1	PC	RCF 220R0 OHM +5% 250MIOW
R319	2046945016	1	PC	RCF 220R0 OHM +5% 250MIOW

Ref. Designator		Qty		Description
MAIN PCB				
R320	2046945016	1	PC	RCF 220R0 OHM +5% 250MIOW
R321	2046945016	1	PC	RCF 220R0 OHM +5% 250MIOW
R322	2046945016	1	PC	RCF 220R0 OHM +5% 250MIOW
R323	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R324	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R325	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R326	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R327	5549851016	1	PC	RMF 33K0 OHM +1% 250MIOW
R328	5549851016	1	PC	RMF 33K0 OHM +1% 250MIOW
R329	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R330	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R331	8043701016	1	PC	RCF 1K8 OHM +5% 250MIOW
R332	8043701016	1	PC	RCF 1K8 OHM +5% 250MIOW
R333	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R334	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R335	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R336	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R337	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R338	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R339	9057109016	1	PC	RCF 200R0 OHM +5% 250MIOW
R340	9057109016	1	PC	RCF 200R0 OHM +5% 250MIOW
R341	5088301016	1	PC	RCF 15K0 OHM +5% 250MIOW
R342	5088301016	1	PC	RCF 15K0 OHM +5% 250MIOW
R343	5088301016	1	PC	RCF 15K0 OHM +5% 250MIOW
R344	5088301016	1	PC	RCF 15K0 OHM +5% 250MIOW
R345	9057109016	1	PC	RCF 200R0 OHM +5% 250MIOW
R346	9057109016	1	PC	RCF 200R0 OHM +5% 250MIOW
R347	9057109016	1	PC	RCF 200R0 OHM +5% 250MIOW
R348	9057109016	1	PC	RCF 200R0 OHM +5% 250MIOW
R349	9057109016	1	PC	RCF 200R0 OHM +5% 250MIOW
R350	9057109016	1	PC	RCF 200R0 OHM +5% 250MIOW
R351	5523281016	1	PC	RMF 10R0 OHM +5% 500MIOW
R352	5523281016	1	PC	RMF 10R0 OHM +5% 500MIOW
R353	5088295016	1	PC	RCF 100R0 OHM +5% 250MIOW
R354	5088295016	1	PC	RCF 100R0 OHM +5% 250MIOW
R363	3093937016	1	PC	RCF 15R0 OHM +5% 250MIOW
R364	3093937016	1	PC	RCF 15R0 OHM +5% 250MIOW
R365	3093937016	1	PC	RCF 15R0 OHM +5% 250MIOW
R366	3093937016	1	PC	RCF 15R0 OHM +5% 250MIOW
R367	5523281016	1	PC	RMF 10R0 OHM +5% 500MIOW
R368	5523281016	1	PC	RMF 10R0 OHM +5% 500MIOW
R369	5088295016	1	PC	RCF 100R0 OHM +5% 250MIOW
R370	5088295016	1	PC	RCF 100R0 OHM +5% 250MIOW
R371	4043891016	1	PC	RCF 2R2 OHM +5% 250MIOW
R372	4043891016	1	PC	RCF 2R2 OHM +5% 250MIOW
R373	4043891016	1	PC	RCF 2R2 OHM +5% 250MIOW
R374	4043891016	1	PC	RCF 2R2 OHM +5% 250MIOW
R375	1105959016	1	PC	RCF 82R0 OHM +5% 250MIOW
R376	1105959016	1	PC	RCF 82R0 OHM +5% 250MIOW
R378	551793400	1	PC	RW 220MIO OHM +5% 5.0W 100PPM/C -100PPM/C
R379	551793400	1	PC	RW 220MIO OHM +5% 5.0W 100PPM/C -100PPM/C
R380	4043563016	1	PC	RCF 1K5 OHM +5% 250MIOW
R381	4043563016	1	PC	RCF 1K5 OHM +5% 250MIOW
R382	9057113016	1	PC	RCF 39K0 OHM +5% 250MIOW
R383	9057113016	1	PC	RCF 39K0 OHM +5% 250MIOW
R384	5088301016	1	PC	RCF 15K0 OHM +5% 250MIOW
R385	5088301016	1	PC	RCF 15K0 OHM +5% 250MIOW

Ref. Designator		Qty		Description
MAIN PCB				
R386	4043563016	1	PC	RCF 1K5 OHM +5% 250MIOW
R387	4043563016	1	PC	RCF 1K5 OHM +5% 250MIOW
R388	3093936016	1	PC	RCF 10R0 OHM +5% 250MIOW
R389	3093936016	1	PC	RCF 10R0 OHM +5% 250MIOW
R390	6044158016	1	PC	RCF 22K0 OHM +5% 250MIOW
R391	6044158016	1	PC	RCF 22K0 OHM +5% 250MIOW
R392	6044255016	1	PC	RMOF 10R0 OHM +5% 1.0W
R393	6044255016	1	PC	RMOF 10R0 OHM +5% 1.0W
R401	6044155016	1	PC	RCF 330R0 OHM +5% 250MIOW
R402	6044155016	1	PC	RCF 330R0 OHM +5% 250MIOW
R403	3093949016	1	PC	RCF 33K0 OHM +5% 250MIOW
R404	3093949016	1	PC	RCF 33K0 OHM +5% 250MIOW
R405	5088299016	1	PC	RCF 1K6 OHM +5% 250MIOW
R406	5088299016	1	PC	RCF 1K6 OHM +5% 250MIOW
R407	5088299016	1	PC	RCF 1K6 OHM +5% 250MIOW
R408	5088299016	1	PC	RCF 1K6 OHM +5% 250MIOW
R409	2046945016	1	PC	RCF 220R0 OHM +5% 250MIOW
R410	2046945016	1	PC	RCF 220R0 OHM +5% 250MIOW
R411	2046945016	1	PC	RCF 220R0 OHM +5% 250MIOW
R412	2046945016	1	PC	RCF 220R0 OHM +5% 250MIOW
R413	2046945016	1	PC	RCF 220R0 OHM +5% 250MIOW
R414	2046945016	1	PC	RCF 220R0 OHM +5% 250MIOW
R415	2046951016	1	PC	RCF 43K0 OHM +5% 250MIOW
R416	2046951016	1	PC	RCF 43K0 OHM +5% 250MIOW
R417	5549851016	1	PC	RMF 33K0 OHM +1% 250MIOW
R418	5549851016	1	PC	RMF 33K0 OHM +1% 250MIOW
R419	8043701016	1	PC	RCF 1K8 OHM +5% 250MIOW
R420	8043701016	1	PC	RCF 1K8 OHM +5% 250MIOW
R421	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R422	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R423	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R424	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R425	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R426	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R427	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R428	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R429	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R430	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R431	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R432	6044156016	1	PC	RCF 560R0 OHM +5% 250MIOW
R433	9057109016	1	PC	RCF 200R0 OHM +5% 250MIOW
R434	9057109016	1	PC	RCF 200R0 OHM +5% 250MIOW
R435	9057109016	1	PC	RCF 200R0 OHM +5% 250MIOW
R436	9057109016	1	PC	RCF 200R0 OHM +5% 250MIOW
R437	5088301016	1	PC	RCF 15K0 OHM +5% 250MIOW
R438	5088301016	1	PC	RCF 15K0 OHM +5% 250MIOW
R439	5088301016	1	PC	RCF 15K0 OHM +5% 250MIOW
R440	5088301016	1	PC	RCF 15K0 OHM +5% 250MIOW
R441	9057109016	1	PC	RCF 200R0 OHM +5% 250MIOW
R442	9057109016	1	PC	RCF 200R0 OHM +5% 250MIOW
R443	9057109016	1	PC	RCF 200R0 OHM +5% 250MIOW
R444	9057109016	1	PC	RCF 200R0 OHM +5% 250MIOW
R445	5523281016	1	PC	RMF 10R0 OHM +5% 500MIOW
R446	5523281016	1	PC	RMF 10R0 OHM +5% 500MIOW
R447	5523281016	1	PC	RMF 10R0 OHM +5% 500MIOW
R448	5523281016	1	PC	RMF 10R0 OHM +5% 500MIOW
R457	5088295016	1	PC	RCF 100R0 OHM +5% 250MIOW

Ref. Designator		Qty		Description
MAIN PCB				
R458	5088295016	1	PC	RCF 100R0 OHM +5% 250MIOW
R459	5088295016	1	PC	RCF 100R0 OHM +5% 250MIOW
R460	5088295016	1	PC	RCF 100R0 OHM +5% 250MIOW
R461	3093937016	1	PC	RCF 15R0 OHM +5% 250MIOW
R462	3093937016	1	PC	RCF 15R0 OHM +5% 250MIOW
R463	3093937016	1	PC	RCF 15R0 OHM +5% 250MIOW
R464	3093937016	1	PC	RCF 15R0 OHM +5% 250MIOW
R465	4043891016	1	PC	RCF 2R2 OHM +5% 250MIOW
R466	4043891016	1	PC	RCF 2R2 OHM +5% 250MIOW
R467	4043891016	1	PC	RCF 2R2 OHM +5% 250MIOW
R468	4043891016	1	PC	RCF 2R2 OHM +5% 250MIOW
R469	1105959016	1	PC	RCF 82R0 OHM +5% 250MIOW
R470	1105959016	1	PC	RCF 82R0 OHM +5% 250MIOW
R471	551793400	1	PC	RW 220MI0 OHM +5% 5.0W 100PPM/C -100PPM/C
R472	551793400	1	PC	RW 220MI0 OHM +5% 5.0W 100PPM/C -100PPM/C
R473	3093936016	1	PC	RCF 10R0 OHM +5% 250MIOW
R474	3093936016	1	PC	RCF 10R0 OHM +5% 250MIOW
R475	6044255016	1	PC	RMOF 10R0 OHM +5% 1.0W
R476	6044255016	1	PC	RMOF 10R0 OHM +5% 1.0W
R477	3093936016	1	PC	RCF 10R0 OHM +5% 250MIOW
R478	3093936016	1	PC	RCF 10R0 OHM +5% 250MIOW
R479	3093951016	1	PC	RCF 100K0 OHM +5% 250MIOW
R480	3093951016	1	PC	RCF 100K0 OHM +5% 250MIOW
R481	4043563016	1	PC	RCF 1K5 OHM +5% 250MIOW
R482	5088301016	1	PC	RCF 15K0 OHM +5% 250MIOW
R483	4043563016	1	PC	RCF 1K5 OHM +5% 250MIOW
R484	9057113016	1	PC	RCF 39K0 OHM +5% 250MIOW
R485	3093948016	1	PC	RCF 10K0 OHM +5% 250MIOW
R486	6044158016	1	PC	RCF 22K0 OHM +5% 250MIOW
R487	9057113016	1	PC	RCF 39K0 OHM +5% 250MIOW
R488	4043563016	1	PC	RCF 1K5 OHM +5% 250MIOW
R489	5088301016	1	PC	RCF 15K0 OHM +5% 250MIOW
R490	4043563016	1	PC	RCF 1K5 OHM +5% 250MIOW
R491	9057113016	1	PC	RCF 39K0 OHM +5% 250MIOW
R492	6044158016	1	PC	RCF 22K0 OHM +5% 250MIOW
R493	7043057016	1	PC	RCF 8K2 OHM +5% 250MIOW
R494	20330130	1	PC	BCL 0.5MM TIN ANNEALED COPPER 6.0MM 8MM F841
R497	1105961016	1	PC	RCF 270R0 OHM +5% 250MIOW
R498	8043703016	1	PC	RCF 27K0 OHM +5% 250MIOW
R501	9057113016	1	PC	RCF 39K0 OHM +5% 250MIOW
R502	9057113016	1	PC	RCF 39K0 OHM +5% 250MIOW
R503	3093951016	1	PC	RCF 100K0 OHM +5% 250MIOW
R504	404405500	1	PC	RMOF 3R3 OHM +5% 2.0W
R505	150227100	1	PC	RMOF 10R0 OHM +5% 2.0W
R506	150227100	1	PC	RMOF 10R0 OHM +5% 2.0W
R507	804427700	1	PC	RMOF 2R2 OHM +5% 2.0W
R508	804427800	1	PC	RMOF 4R7 OHM +5% 2.0W
R509	804427800	1	PC	RMOF 4R7 OHM +5% 2.0W
R510	404405500	1	PC	RMOF 3R3 OHM +5% 2.0W
R512	9057109016	1	PC	RCF 200R0 OHM +5% 250MIOW
R513	1105963016	1	PC	RCF 680R0 OHM +5% 250MIOW
R514	404405500	1	PC	RMOF 3R3 OHM +5% 2.0W
R515	804427800	1	PC	RMOF 4R7 OHM +5% 2.0W
R593	5088297016	1	PC	RCF 470R0 OHM +5% 250MIOW
R594	5088297016	1	PC	RCF 470R0 OHM +5% 250MIOW
R601	1105964016	1	PC	RCF 1K0 OHM +5% 250MIOW
R602	3093951016	1	PC	RCF 100K0 OHM +5% 250MIOW

Ref. Designator		Qty		Description
MAIN PCB				
R603	1105964016	1	PC	RCF 1K0 OHM +5% 250MIOW
R604	3093951016	1	PC	RCF 100K0 OHM +5% 250MIOW
R605	3093948016	1	PC	RCF 10K0 OHM +5% 250MIOW
R606	3093948016	1	PC	RCF 10K0 OHM +5% 250MIOW
R607	9057112016	1	PC	RCF 12K0 OHM +5% 250MIOW
R608	3093948016	1	PC	RCF 10K0 OHM +5% 250MIOW
R609	5088295016	1	PC	RCF 100R0 OHM +5% 250MIOW
R610	3093948016	1	PC	RCF 10K0 OHM +5% 250MIOW
R611	3093948016	1	PC	RCF 10K0 OHM +5% 250MIOW
R612	9057112016	1	PC	RCF 12K0 OHM +5% 250MIOW
R613	3093948016	1	PC	RCF 10K0 OHM +5% 250MIOW
R614	5088295016	1	PC	RCF 100R0 OHM +5% 250MIOW
R615	4043891016	1	PC	RCF 2R2 OHM +5% 250MIOW
R616	4043891016	1	PC	RCF 2R2 OHM +5% 250MIOW
R701	8043700016	1	PC	RCF 1K2 OHM +5% 250MIOW
R702	6044155016	1	PC	RCF 330R0 OHM +5% 250MIOW
R705	6044155016	1	PC	RCF 330R0 OHM +5% 250MIOW
R707	8043700016	1	PC	RCF 1K2 OHM +5% 250MIOW
R708	6044155016	1	PC	RCF 330R0 OHM +5% 250MIOW
R709	6044155016	1	PC	RCF 330R0 OHM +5% 250MIOW
R710	8043700016	1	PC	RCF 1K2 OHM +5% 250MIOW
R711	8043700016	1	PC	RCF 1K2 OHM +5% 250MIOW
VR71	553078700	1	PC	PR 200R0 OHM +30% 100MIOW
VR72	553078700	1	PC	PR 200R0 OHM +30% 100MIOW
VR73	553078700	1	PC	PR 200R0 OHM +30% 100MIOW
VR74	553078700	1	PC	PR 200R0 OHM +30% 100MIOW
<i>Miscellaneous</i>				
L301	551795600	1	PC	LFA 1MM 10MM 5 LEFT 0.0MM NONE
L302	551795600	1	PC	LFA 1MM 10MM 5 LEFT 0.0MM NONE
L401	551795600	1	PC	LFA 1MM 10MM 5 LEFT 0.0MM NONE
L402	551795600	1	PC	LFA 1MM 10MM 5 LEFT 0.0MM NONE
N801	551586800	1	PC	WIRECONASY UNIQUE 2 80MM UL1007 PVC DISCRETE 26
N802	551586800	1	PC	WIRECONASY UNIQUE 2 80MM UL1007 PVC DISCRETE 26
N803	551586800	1	PC	WIRECONASY UNIQUE 2 80MM UL1007 PVC DISCRETE 26
N804	551586800	1	PC	WIRECONASY UNIQUE 2 80MM UL1007 PVC DISCRETE 26
N805	55597850NR	1	PC	WIRECONASY DL 2.0MM 8P 180MM UL1533 SHIELD 26 1
N806	55504040NR	1	PC	WIRECONASY DL 2.0MM 15P 350MM UL1533 SHIELD 26 1
N807	55432960NR	1	PC	WIRECONASY DL 2.0MM 3P 210MM UL1007 RIBBON 26 12
N808	551912400	1	PC	WIRECONASY UNIQUE 3P 500MM UL1007 PVC DISCRETE 26 1
N809	55559240NR	1	PC	WIRECONASY DL 2.0MM 3P 250MM UL1007 RIBBON 26 1
NJ11	55191450	1	PC	CON PHONO SCKT RCA 4P JW-4104RSC
NJ12	55191420	1	PC	CON PHONO SCKT RCA 4P JW-4104RSA
NJ13	55426050NR	1	PC	JACK-TELE SNAP-IN GOLDEN TELECOM GDL1-8P8C 8T BK 0 0
NJ14	55436070NR	1	PC	CONN-SPE TERMINAL SPKR 8P SH081136JP FE 19MM 8 -- 0 0
P801	55146560	1	PC	CONN 2.5MM 2 MA ST NAT 0 0
P802	55146560	1	PC	CONN 2.5MM 2 MA ST NAT 0 0
P803	55146560	1	PC	CONN 2.5MM 2 MA ST NAT 0 0
P804	55146560	1	PC	CONN 2.5MM 2 MA ST NAT 0 0
P805	55090080	1	PC	CONN 2.0MM 3 MA ST NAT LW2002P03 0 0
P806	55123310	1	PC	CONN 2.0MM 4 MA ST NAT LW2002P04 0 0
P807	55171550	1	PC	CON 3.96MM PITCH MOLEX 35313-0310
P808	55146630	1	PC	CONN 2.5MM 8 MA ST NAT 0 0
P809	55146560	1	PC	CONN 2.5MM 2 MA ST NAT 0 0
P810	55146560	1	PC	CONN 2.5MM 2 MA ST NAT 0 0
P811	55174630	1	PC	CONN 2.0MM 19 MA ST NAT MOLEX 35336-1910 0 0

Ref. Designator		Qty		Description
MAIN PCB				
P812	55090070	1	PC	CONN 2.0MM 2 MA ST NAT LW2002P0200T 0 0
P813	55090070	1	PC	CONN 2.0MM 2 MA ST NAT LW2002P0200T 0 0
P814	55090080	1	PC	CONN 2.0MM 3 MA ST NAT LW2002P03 0 0
P815	55090070	1	PC	CONN 2.0MM 2 MA ST NAT LW2002P0200T 0 0
P816	55090070	1	PC	CONN 2.0MM 2 MA ST NAT LW2002P0200T 0 0
PO71	55505180NR	1	PC	POS 100R0 OHM 16.0V
PO72	55179640NR	1	PC	POS 100R0 OHM 16.0V
	55127120	4	PC	SCREW-ST 3MM 8MM JIS B 1122 J5636140040X 53 0 0
	55127070	7	PC	SCREW-ST 3MM 10MM JIS B 1122 J5636140010X 19 0 0
F501	555052000	1	PC	FUSTIM 2.0 A 250.0 V 0 A1
F502	555052000	1	PC	FUSTIM 2.0 A 250.0 V 0 A1
F503	555052000	1	PC	FUSTIM 2.0 A 250.0 V 0 A1
F504	555052000	1	PC	FUSTIM 2.0 A 250.0 V 0 A1
F505	555051900	1	PC	FUSTIM 1.0 A 250.0 V 0 A1
F506	555051900	1	PC	FUSTIM 1.0 A 250.0 V 0 A1
G101	55135980NR	1	PC	TERMLUG GND
G102	55135980NR	1	PC	TERMLUG GND
HK11	55176400	1	PC	AC HEATSINK REG 118*20*50H AVR520 -- ME
W801	55310330	1	PC	WCL 110-10-10 UL1007 HOOK-UP 22 110MM RD 10 10 20300350
PROCESSOR PCB				
<i>Capacitors</i>				
C1	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C10	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C100	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C101	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C102	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C103	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C104	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C105	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C106	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C107	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C108	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C109	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C11	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C110	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NP0
C111	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NP0
C112	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C113	5555854030	1	PC	CE 10U0F +20% 16.0V 85C
C114	5555854030	1	PC	CE 10U0F +20% 16.0V 85C
C115	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NP0
C116	5555854030	1	PC	CE 10U0F +20% 16.0V 85C
C117	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NP0
C118	5555854030	1	PC	CE 10U0F +20% 16.0V 85C
C119	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C12	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C120	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C121	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C122	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C123	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C124	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C125	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C126	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C127	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C128	2050668091	1	PC	CCCFMIC 470P0F +5% -5% 50.0V NP0

Ref. Designator		Qty		Description
PROCESSOR PCB				
C129	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C13	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C130	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NP0
C131	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C132	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C133	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C134	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NP0
C135	2050668091	1	PC	CCCFMIC 470P0F +5% -5% 50.0V NP0
C136	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NP0
C137	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NP0
C138	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C139	5555854030	1	PC	CE 10U0F +20% 16.0V 85C
C14	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C140	5555854030	1	PC	CE 10U0F +20% 16.0V 85C
C141	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NP0
C142	5555854030	1	PC	CE 10U0F +20% 16.0V 85C
C143	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NP0
C144	5555854030	1	PC	CE 10U0F +20% 16.0V 85C
C145	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C146	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C147	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C148	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NP0
C149	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C15	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C150	1013862091	1	PC	CCCFMIC 2N2F +10% -10% 50.0V X7R
C151	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C152	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C153	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C154	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NP0
C155	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NP0
C156	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NP0
C157	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NP0
C158	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C159	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C16	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C160	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C161	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NP0
C162	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C163	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NP0
C164	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C165	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C166	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NP0
C167	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NP0
C168	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C169	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C17	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C170	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C171	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NP0
C172	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C173	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NP0
C174	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C175	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C176	4043309030	1	PC	CE 1MI0F +20% 6.3V 85C
C177	4043309030	1	PC	CE 1MI0F +20% 6.3V 85C
C178	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C179	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C18	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640

Ref. Designator		Qty		Description
PROCESSOR PCB				
C180	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C181	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C182	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C183	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C184	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C185	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C186	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C187	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C188	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NPO
C19	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C191	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C192	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C193	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C194	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C195	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C196	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C197	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C198	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C199	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NPO
C2	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C20	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C200	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NPO
C201	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C202	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C203	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NPO
C204	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NPO
C21	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C22	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C23	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C24	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C25	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C26	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C27	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C28	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C29	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C3	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C30	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C31	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C32	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C33	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C34	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C35	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C36	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C37	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C38	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C39	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C4	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C40	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C41	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C42	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C43	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C44	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C45	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C46	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C47	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C48	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C49	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO

Ref. Designator		Qty		Description
PROCESSOR PCB				
C5	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C50	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C51	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C52	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C55	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C56	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C57	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C58	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C59	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C6	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C60	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C61	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C62	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C63	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C64	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C65	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C66	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NPO
C67	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NPO
C68	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NPO
C69	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NPO
C7	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C70	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C71	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C72	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C73	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C78	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C79	555854030	1	PC	CE 10U0F +20% 16.0V 85C
C8	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C80	555854030	1	PC	CE 10U0F +20% 16.0V 85C
C81	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C82	555854030	1	PC	CE 10U0F +20% 16.0V 85C
C83	555854030	1	PC	CE 10U0F +20% 16.0V 85C
C84	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C85	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C86	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C87	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C88	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C89	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C9	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C90	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C91	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C92	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C93	1013862091	1	PC	CCCFMIC 2N2F +10% -10% 50.0V X7R
C94	1013862091	1	PC	CCCFMIC 2N2F +10% -10% 50.0V X7R
C95	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C96	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C97	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C98	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C99	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
Semiconductors				
D1	5550638085	1	PC	D-ZENER UDZS 9.1B 9.1V 200MI0W
D12	5550638085	1	PC	D-ZENER UDZS 9.1B 9.1V 200MI0W
D14	5550638085	1	PC	D-ZENER UDZS 9.1B 9.1V 200MI0W
D15	2049651085	1	PC	D-SLP 1SS355 35.0V 225MI0A
D16	2049651085	1	PC	D-SLP 1SS355 35.0V 225MI0A

Ref. Designator		Qty		Description
PROCESSOR PCB				
D17	2049651085	1	PC	D-SLP 1SS355 35.0V 225MIOA
D18	5550638085	1	PC	D-ZENER UDZS 9.1B 9.1V 200MIOW
D19	5517771085	1	PC	D-ZENER UDZS 5.1 B 5.1V 200MIOW
D2	2049651085	1	PC	D-SLP 1SS355 35.0V 225MIOA
D6	2049651085	1	PC	D-SLP 1SS355 35.0V 225MIOA
D8	5550638085	1	PC	D-ZENER UDZS 9.1B 9.1V 200MIOW
D9	5550638085	1	PC	D-ZENER UDZS 9.1B 9.1V 200MIOW
IC1	55142610MT	1	PC	IC-OPERAMP NJM2068M DUAL OP
IC10	55142750MU	1	PC	IC-SWITCH TC9273N-007 DIP28 ANALOG SWITCH
IC12	55142610MT	1	PC	IC-OPERAMP NJM2068M DUAL OP
IC13	55142610MT	1	PC	IC-OPERAMP NJM2068M DUAL OP
IC14	55506480MT	1	PC	IC-SWITCH NJU7311AM ANALOG SWITCH
IC15	55142610MT	1	PC	IC-OPERAMP NJM2068M DUAL OP
IC16	55142610MT	1	PC	IC-OPERAMP NJM2068M DUAL OP
IC17	55142610MT	1	PC	IC-OPERAMP NJM2068M DUAL OP
IC18	55142720MU	1	PC	IC-LOWFREQ KIC9459F SOP24 TONE/VOL/BAL/MUTE
IC19	55179480MT	1	PC	IC-LOWFREQ TC9482F SOP28 TONE/VOL/BAL/MUTE
IC2	55142720MU	1	PC	IC-LOWFREQ KIC9459F SOP24 TONE/VOL/BAL/MUTE
IC20	55142590MT	1	PC	IC-OPERAMP NJM5532M DUAL OP
IC21	55142610MT	1	PC	IC-OPERAMP NJM2068M DUAL OP
IC22	55142610MT	1	PC	IC-OPERAMP NJM2068M DUAL OP
IC23	55142610MT	1	PC	IC-OPERAMP NJM2068M DUAL OP
IC24	55142610MT	1	PC	IC-OPERAMP NJM2068M DUAL OP
IC25	55142610MT	1	PC	IC-OPERAMP NJM2068M DUAL OP
IC26	55142610MT	1	PC	IC-OPERAMP NJM2068M DUAL OP
IC3	55506490MT	1	PC	IC-SWITCH NJU7312AM ANALOG SWITCH
IC4	55142610MT	1	PC	IC-OPERAMP NJM2068M DUAL OP
IC5	55506480MT	1	PC	IC-SWITCH NJU7311AM ANALOG SWITCH
IC6	55142750MU	1	PC	IC-SWITCH TC9273N-007 DIP28 ANALOG SWITCH
IC7	55142610MT	1	PC	IC-OPERAMP NJM2068M DUAL OP
IC8	55142610MT	1	PC	IC-OPERAMP NJM2068M DUAL OP
IC9	55142610MT	1	PC	IC-OPERAMP NJM2068M DUAL OP
Q1	5513871092	1	PC	TR-SLPSWA KTD1304 N 20V 300MIOA
Q10	5513871092	1	PC	TR-SLPSWA KTD1304 N 20V 300MIOA
Q11	5513871092	1	PC	TR-SLPSWA KTD1304 N 20V 300MIOA
Q12	5513871092	1	PC	TR-SLPSWA KTD1304 N 20V 300MIOA
Q13	5513319092	1	PC	TR-SSD DTA114YKA P 10K0 OHM 47K0 OHM
Q14	5513319092	1	PC	TR-SSD DTA114YKA P 10K0 OHM 47K0 OHM
Q15	5513871092	1	PC	TR-SLPSWA KTD1304 N 20V 300MIOA
Q16	5513871092	1	PC	TR-SLPSWA KTD1304 N 20V 300MIOA
Q17	5513319092	1	PC	TR-SSD DTA114YKA P 10K0 OHM 47K0 OHM
Q18	5513329056	1	PC	TR-SLPLF KTD1302 B N 300MIOA 20V
Q19	5513871092	1	PC	TR-SLPSWA KTD1304 N 20V 300MIOA
Q2	5514267056	1	PC	TR-SLPLF MPSA06 N 500MIOA
Q20	5513319092	1	PC	TR-SSD DTA114YKA P 10K0 OHM 47K0 OHM
Q21	5513319092	1	PC	TR-SSD DTA114YKA P 10K0 OHM 47K0 OHM
Q22	5513329056	1	PC	TR-SLPLF KTD1302 B N 300MIOA 20V
Q23	5513319092	1	PC	TR-SSD DTA114YKA P 10K0 OHM 47K0 OHM
Q24	5513871092	1	PC	TR-SLPSWA KTD1304 N 20V 300MIOA
Q25	5513319092	1	PC	TR-SSD DTA114YKA P 10K0 OHM 47K0 OHM
Q26	5513871092	1	PC	TR-SLPSWA KTD1304 N 20V 300MIOA
Q27	5513871092	1	PC	TR-SLPSWA KTD1304 N 20V 300MIOA
Q28	5513871092	1	PC	TR-SLPSWA KTD1304 N 20V 300MIOA
Q29	5513871092	1	PC	TR-SLPSWA KTD1304 N 20V 300MIOA
Q3	5513319092	1	PC	TR-SSD DTA114YKA P 10K0 OHM 47K0 OHM
Q30	5513871092	1	PC	TR-SLPSWA KTD1304 N 20V 300MIOA
Q31	5513871092	1	PC	TR-SLPSWA KTD1304 N 20V 300MIOA

Ref. Designator		Qty		Description
PROCESSOR PCB				
Q32	5513319092	1	PC	TR-SSD DTA114YKA P 10K0 OHM 47K0 OHM
Q33	5513871092	1	PC	TR-SLPSWA KTD1304 N 20V 300MI0A
Q34	5513319092	1	PC	TR-SSD DTA114YKA P 10K0 OHM 47K0 OHM
Q35	5513319092	1	PC	TR-SSD DTA114YKA P 10K0 OHM 47K0 OHM
Q36	5513871092	1	PC	TR-SLPSWA KTD1304 N 20V 300MI0A
Q37	5513319092	1	PC	TR-SSD DTA114YKA P 10K0 OHM 47K0 OHM
Q38	5513871092	1	PC	TR-SLPSWA KTD1304 N 20V 300MI0A
Q39	5513871092	1	PC	TR-SLPSWA KTD1304 N 20V 300MI0A
Q4	5513318092	1	PC	TR-SSD DTC114YKA N 10K0 OHM 47K0 OHM
Q40	5513871092	1	PC	TR-SLPSWA KTD1304 N 20V 300MI0A
Q41	5513319092	1	PC	TR-SSD DTA114YKA P 10K0 OHM 47K0 OHM
Q42	5513871092	1	PC	TR-SLPSWA KTD1304 N 20V 300MI0A
Q43	5513319092	1	PC	TR-SSD DTA114YKA P 10K0 OHM 47K0 OHM
Q44	5513871092	1	PC	TR-SLPSWA KTD1304 N 20V 300MI0A
Q45	5513871092	1	PC	TR-SLPSWA KTD1304 N 20V 300MI0A
Q46	5513871092	1	PC	TR-SLPSWA KTD1304 N 20V 300MI0A
Q47	5513329056	1	PC	TR-SLPLF KTD1302 B N 300MI0A 20V
Q48	5513335056	1	PC	TR-SLPLF MPSA56 Y P -500MI0A -300V
Q49	5514267056	1	PC	TR-SLPLF MPSA06 N 500MI0A
Q5	5513335056	1	PC	TR-SLPLF MPSA56 Y P -500MI0A -300V
Q50	5513319092	1	PC	TR-SSD DTA114YKA P 10K0 OHM 47K0 OHM
Q54	5513318092	1	PC	TR-SSD DTC114YKA N 10K0 OHM 47K0 OHM
Q58	5513871092	1	PC	TR-SLPSWA KTD1304 N 20V 300MI0A
Q59	5513871092	1	PC	TR-SLPSWA KTD1304 N 20V 300MI0A
Q6	5513329056	1	PC	TR-SLPLF KTD1302 B N 300MI0A 20V
Q7	5513871092	1	PC	TR-SLPSWA KTD1304 N 20V 300MI0A
Q8	5513871092	1	PC	TR-SLPSWA KTD1304 N 20V 300MI0A
Q9	5513871092	1	PC	TR-SLPSWA KTD1304 N 20V 300MI0A
<i>Resistors</i>				
R1	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R10	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R107	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R109	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R11	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R110	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R112	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R113	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R114	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R115	1013517091	1	PC	RMGCFMIC 33K0 OHM +5% 62MI5W
R116	1013517091	1	PC	RMGCFMIC 33K0 OHM +5% 62MI5W
R117	1013517091	1	PC	RMGCFMIC 33K0 OHM +5% 62MI5W
R118	1013517091	1	PC	RMGCFMIC 33K0 OHM +5% 62MI5W
R119	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R12	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R120	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R121	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R122	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R123	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R124	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R125	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R126	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R127	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R128	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R129	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R13	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W

Ref. Designator		Qty		Description
PROCESSOR PCB				
R130	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R131	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R132	1013585091	1	PC	RMGCFMIC 2K0 OHM +5% 62MI5W
R133	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R134	1013503091	1	PC	RMGCFMIC 12K0 OHM +5% 62MI5W
R135	1013503091	1	PC	RMGCFMIC 12K0 OHM +5% 62MI5W
R136	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R137	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R138	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R139	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R14	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R140	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R141	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R142	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R143	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R144	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R145	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R146	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R147	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R148	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R149	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R15	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R150	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R151	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R152	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R153	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R154	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R155	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R156	1013590091	1	PC	RMGCFMIC 3K3 OHM +5% 62MI5W
R157	1013590091	1	PC	RMGCFMIC 3K3 OHM +5% 62MI5W
R158	1013503091	1	PC	RMGCFMIC 12K0 OHM +5% 62MI5W
R159	1013590091	1	PC	RMGCFMIC 3K3 OHM +5% 62MI5W
R16	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R160	1013590091	1	PC	RMGCFMIC 3K3 OHM +5% 62MI5W
R161	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R162	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R163	1013503091	1	PC	RMGCFMIC 12K0 OHM +5% 62MI5W
R164	1013503091	1	PC	RMGCFMIC 12K0 OHM +5% 62MI5W
R165	1013503091	1	PC	RMGCFMIC 12K0 OHM +5% 62MI5W
R166	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R167	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R168	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R169	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R17	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R170	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R171	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R172	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R173	1013498091	1	PC	RMGCFMIC 820R0 OHM +5% 62MI5W
R174	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R175	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R176	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R177	1013593091	1	PC	RMGCFMIC 4K3 OHM +5% 62MI5W
R178	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R179	1013593091	1	PC	RMGCFMIC 4K3 OHM +5% 62MI5W
R18	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R180	1013498091	1	PC	RMGCFMIC 820R0 OHM +5% 62MI5W
R181	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W

Ref. Designator		Qty		Description
PROCESSOR PCB				
R183	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R184	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R185	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R186	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R188	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R189	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R19	1013517091	1	PC	RMGCFMIC 33K0 OHM +5% 62MI5W
R191	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R192	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R193	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R194	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R195	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R196	1013503091	1	PC	RMGCFMIC 12K0 OHM +5% 62MI5W
R197	1013465091	1	PC	RMGCFMIC 47R0 OHM +5% 62MI5W
R198	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R2	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R20	1013517091	1	PC	RMGCFMIC 33K0 OHM +5% 62MI5W
R200	1013582091	1	PC	RMGCFMIC 1K5 OHM +5% 62MI5W
R201	1013465091	1	PC	RMGCFMIC 47R0 OHM +5% 62MI5W
R202	1013582091	1	PC	RMGCFMIC 1K5 OHM +5% 62MI5W
R203	1013503091	1	PC	RMGCFMIC 12K0 OHM +5% 62MI5W
R204	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R205	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R207	1013591091	1	PC	RMGCFMIC 3K6 OHM +5% 62MI5W
R208	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R209	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R21	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R210	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R211	1013553091	1	PC	RMGCFMIC 470K0 OHM +5% 62MI5W
R212	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R213	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R214	1013508091	1	PC	RMGCFMIC 18K0 OHM +5% 62MI5W
R215	1013591091	1	PC	RMGCFMIC 3K6 OHM +5% 62MI5W
R216	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R217	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R218	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R22	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R220	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R221	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R222	1013591091	1	PC	RMGCFMIC 3K6 OHM +5% 62MI5W
R223	1013508091	1	PC	RMGCFMIC 18K0 OHM +5% 62MI5W
R224	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R226	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R227	1013553091	1	PC	RMGCFMIC 470K0 OHM +5% 62MI5W
R228	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R229	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R23	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R230	1013591091	1	PC	RMGCFMIC 3K6 OHM +5% 62MI5W
R231	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R232	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R233	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R234	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R235	1013582091	1	PC	RMGCFMIC 1K5 OHM +5% 62MI5W
R236	1013517091	1	PC	RMGCFMIC 33K0 OHM +5% 62MI5W
R237	1013582091	1	PC	RMGCFMIC 1K5 OHM +5% 62MI5W
R238	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R239	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W

Ref. Designator		Qty		Description
PROCESSOR PCB				
R24	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R240	1013595091	1	PC	RMGCFMIC 5K1 OHM +5% 62MI5W
R241	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R242	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R243	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R244	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R245	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R246	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R247	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R248	1013601091	1	PC	RMGCFMIC 9K1 OHM +5% 62MI5W
R249	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R25	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R250	1013595091	1	PC	RMGCFMIC 5K1 OHM +5% 62MI5W
R251	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R252	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R253	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R254	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R255	1013585091	1	PC	RMGCFMIC 2K0 OHM +5% 62MI5W
R256	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R257	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R258	1013553091	1	PC	RMGCFMIC 470K0 OHM +5% 62MI5W
R259	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R26	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R261	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R262	1013508091	1	PC	RMGCFMIC 18K0 OHM +5% 62MI5W
R263	1013584091	1	PC	RMGCFMIC 1K8 OHM +5% 62MI5W
R264	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R265	1013517091	1	PC	RMGCFMIC 33K0 OHM +5% 62MI5W
R266	1013517091	1	PC	RMGCFMIC 33K0 OHM +5% 62MI5W
R267	1013517091	1	PC	RMGCFMIC 33K0 OHM +5% 62MI5W
R268	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R269	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R27	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R270	1013585091	1	PC	RMGCFMIC 2K0 OHM +5% 62MI5W
R271	1013508091	1	PC	RMGCFMIC 18K0 OHM +5% 62MI5W
R272	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R274	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R275	1013553091	1	PC	RMGCFMIC 470K0 OHM +5% 62MI5W
R276	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R277	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R278	1013585091	1	PC	RMGCFMIC 2K0 OHM +5% 62MI5W
R279	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R28	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R280	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R281	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R282	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R283	1013595091	1	PC	RMGCFMIC 5K1 OHM +5% 62MI5W
R284	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R285	1013595091	1	PC	RMGCFMIC 5K1 OHM +5% 62MI5W
R286	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R287	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R288	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R289	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R29	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R290	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R292	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R293	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W

Ref. Designator		Qty		Description
PROCESSOR PCB				
R294	1013585091	1	PC	RMGCFMIC 2K0 OHM +5% 62MI5W
R295	1013508091	1	PC	RMGCFMIC 18K0 OHM +5% 62MI5W
R296	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R298	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R299	1013553091	1	PC	RMGCFMIC 470K0 OHM +5% 62MI5W
R3	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R30	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R300	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R301	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R302	1013585091	1	PC	RMGCFMIC 2K0 OHM +5% 62MI5W
R303	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R304	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R305	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R306	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R307	1013595091	1	PC	RMGCFMIC 5K1 OHM +5% 62MI5W
R308	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R309	1013595091	1	PC	RMGCFMIC 5K1 OHM +5% 62MI5W
R31	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R310	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R311	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R312	1013595091	1	PC	RMGCFMIC 5K1 OHM +5% 62MI5W
R313	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R314	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R315	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R316	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R317	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R318	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R319	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R32	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R320	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R321	1013517091	1	PC	RMGCFMIC 33K0 OHM +5% 62MI5W
R322	1013505091	1	PC	RMGCFMIC 15K0 OHM +5% 62MI5W
R323	1013505091	1	PC	RMGCFMIC 15K0 OHM +5% 62MI5W
R324	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R325	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R326	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R327	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R329	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R33	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R334	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R335	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R336	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R337	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R34	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R343	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R344	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R345	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R346	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R347	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R348	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R349	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R35	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R350	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R351	1013592091	1	PC	RMGCFMIC 3K9 OHM +5% 62MI5W
R352	1013592091	1	PC	RMGCFMIC 3K9 OHM +5% 62MI5W
R353	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R354	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W

Ref. Designator		Qty		Description
PROCESSOR PCB				
R355	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R356	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R357	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R358	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R359	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R36	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R360	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R361	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R362	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R363	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R364	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R365	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R366	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R367	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R368	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R369	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R37	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R370	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R371	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R372	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R373	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R374	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R375	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R38	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R39	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R4	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R40	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R41	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R42	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R43	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R44	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R45	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R46	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R47	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R48	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R49	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R5	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R50	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R51	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R52	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R53	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R54	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R55	1013517091	1	PC	RMGCFMIC 33K0 OHM +5% 62MI5W
R56	1013517091	1	PC	RMGCFMIC 33K0 OHM +5% 62MI5W
R57	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R58	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R59	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R6	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R60	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R61	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R62	1013517091	1	PC	RMGCFMIC 33K0 OHM +5% 62MI5W
R63	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R64	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R65	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R66	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R67	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R68	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W

Ref. Designator		Qty		Description
PROCESSOR PCB				
R69	1013595091	1	PC	RMGCFMIC 5K1 OHM +5% 62MI5W
R7	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R70	1013595091	1	PC	RMGCFMIC 5K1 OHM +5% 62MI5W
R71	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R73	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R74	1013517091	1	PC	RMGCFMIC 33K0 OHM +5% 62MI5W
R75	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R76	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R77	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R78	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R79	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R8	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R83	1013517091	1	PC	RMGCFMIC 33K0 OHM +5% 62MI5W
R85	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R86	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R87	1013517091	1	PC	RMGCFMIC 33K0 OHM +5% 62MI5W
R89	1013517091	1	PC	RMGCFMIC 33K0 OHM +5% 62MI5W
R9	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R90	1013517091	1	PC	RMGCFMIC 33K0 OHM +5% 62MI5W
R91	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R92	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R93	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R94	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R95	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R96	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R97	1013517091	1	PC	RMGCFMIC 33K0 OHM +5% 62MI5W
<i>Miscellaneous</i>				
GND1	55135980NR	1	PC	TERMLUG GND
SK1	55506590NR	1	PC	RELAYSGNL 12.0V 960.0OHM 3.0A
J10	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J11	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J12	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J23	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J24	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J25	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J26	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J31	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J34	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J38	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J39	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J40	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J41	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J7	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J8	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J9	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
N2	55174670	1	PC	CONN 2.0MM 19 MA R NAT SOCKET MOLEX 35237-1910 0 0
NJ51	55176330	1	PC	CON PHONO SCKT RCA 4P JW4104RS GND
NJ52	55176330	1	PC	CON PHONO SCKT RCA 4P JW4104RS GND
NJ53	55176330	1	PC	CON PHONO SCKT RCA 4P JW4104RS GND
NJ54	55176330	1	PC	CON PHONO SCKT RCA 4P JW4104RS GND
NJ55	55176330	1	PC	CON PHONO SCKT RCA 4P JW4104RS GND
P1	55090080	1	PC	CONN 2.0MM 3 MA ST NAT LW2002P03 0 0
P10	55123340	1	PC	CONN 2.0MM 8 MA ST NAT LW2002P08 0 0
P11	55090080	1	PC	CONN 2.0MM 3 MA ST NAT LW2002P03 0 0
P12	55123310	1	PC	CONN 2.0MM 4 MA ST NAT LW2002P04 0 0

Ref. Designator		Qty		Description
PROCESSOR PCB				
P13	55090080	1	PC	CONN 2.0MM 3 MA ST NAT LW2002P03 0 0
P3	55123310	1	PC	CONN 2.0MM 4 MA ST NAT LW2002P04 0 0
P4	55123330	1	PC	CONN 2.0MM 6 MA ST NAT LW2002P06 0 0
P5	55090050	1	PC	CONN 2.0MM 10 MA ST NAT LW2002P10 0 0
P6	55123380	1	PC	CONN 2.0MM 15 MA ST NAT LW2002P15 0 0
P7	55123380	1	PC	CONN 2.0MM 15 MA ST NAT LW2002P15 0 0
P8	55230480	1	PC	CONN 1.25MM 31 FE ST BK 00-6216-131-821-808 0 0
P9	55123380	1	PC	CONN 2.0MM 15 MA ST NAT LW2002P15 0 0
VIDEO PCB				
<i>Capacitors</i>				
C100	2026908030	1	PC	CE 220U0F +20% 10.0V 85C
C101	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C102	2026908030	1	PC	CE 220U0F +20% 10.0V 85C
C103	2026908030	1	PC	CE 220U0F +20% 10.0V 85C
C104	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C105	2026908030	1	PC	CE 220U0F +20% 10.0V 85C
C106	2026908030	1	PC	CE 220U0F +20% 10.0V 85C
C107	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C108	2026908030	1	PC	CE 220U0F +20% 10.0V 85C
C109	2026908030	1	PC	CE 220U0F +20% 10.0V 85C
C110	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C111	2026908030	1	PC	CE 220U0F +20% 10.0V 85C
C112	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C113	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C114	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C115	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C116	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C117	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C118	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C119	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C120	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C121	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C122	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C123	2050668091	1	PC	CCCFMIC 470P0F +5% -5% 50.0V NP0
C124	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C125	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C126	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C127	20330130	1	PC	BCL 0.5MM TIN ANNEALED COPPER 6.0MM 8MM
C128	2026884030	1	PC	CE 1U0F +20% 50.0V 85C
C129	20330130	1	PC	BCL 0.5MM TIN ANNEALED COPPER 6.0MM 8MM F2082
C130	2025267030	1	PC	CE 470U0F +20% 10.0V 85C
C131	2025267030	1	PC	CE 470U0F +20% 10.0V 85C
C132	2025267030	1	PC	CE 470U0F +20% 10.0V 85C
C133	2025267030	1	PC	CE 470U0F +20% 10.0V 85C
C134	2025267030	1	PC	CE 470U0F +20% 10.0V 85C
C135	2025267030	1	PC	CE 470U0F +20% 10.0V 85C
C136	2026908030	1	PC	CE 220U0F +20% 10.0V 85C
C137	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C138	2026908030	1	PC	CE 220U0F +20% 10.0V 85C
C151	2026902030	1	PC	CE 100U0F +20% 16.0V 85C
C152	2026908030	1	PC	CE 220U0F +20% 10.0V 85C
C153	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C154	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C155	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0

Ref. Designator		Qty		Description
VIDEO PCB				
C156	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C157	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C158	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C159	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C160	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C161	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C162	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C163	2050654091	1	PC	CCCFMIC 10P0F +0P5F -0P5F 50.0V NP0
C164	2026884030	1	PC	CE 1U0F +20% 50.0V 85C
C165	2026896030	1	PC	CE 330N0F +20% 50.0V 85C
C166	2026884030	1	PC	CE 1U0F +20% 50.0V 85C
C167	1013862091	1	PC	CCCFMIC 2N2F +10% -10% 50.0V X7R
C168	2026894030	1	PC	CE 100U0F +20% 10.0V 85C
C169	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C170	1013839091	1	PC	CCCFMIC 560P0F +10% -10% 50.0V X7R
C171	8043459071	1	PC	CC 22P0F +5% -5% 50.0V NP0
C172	2026894030	1	PC	CE 100U0F +20% 10.0V 85C
C173	1013896091	1	PC	CCCFMIC 10N0F +10% -10% 50.0V X7R
C174	8043459071	1	PC	CC 22P0F +5% -5% 50.0V NP0
C175	4043335071	1	PC	CC 18P0F +5% -5% 50.0V NP0
C176	2026884030	1	PC	CE 1U0F +20% 50.0V 85C
C177	2050656091	1	PC	CCCFMIC 33P0F +5% -5% 50.0V NP0
C178	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C180	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C181	1013896091	1	PC	CCCFMIC 10N0F +10% -10% 50.0V X7R
C183	7042852071	1	PC	CC 10N0F +10% -10% 50.0V Y5P
C184	2026885030	1	PC	CE 2U2F +20% 50.0V 85C
C185	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C186	2026894030	1	PC	CE 100U0F +20% 10.0V 85C
C187	1013896091	1	PC	CCCFMIC 10N0F +10% -10% 50.0V X7R
C188	2026902030	1	PC	CE 100U0F +20% 16.0V 85C
C189	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C190	2026902030	1	PC	CE 100U0F +20% 16.0V 85C
C191	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C192	2026902030	1	PC	CE 100U0F +20% 16.0V 85C
C193	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C194	2026902030	1	PC	CE 100U0F +20% 16.0V 85C
C195	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C196	2026894030	1	PC	CE 100U0F +20% 10.0V 85C
C197	1013896091	1	PC	CCCFMIC 10N0F +10% -10% 50.0V X7R
C198	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C199	2026908030	1	PC	CE 220U0F +20% 10.0V 85C
C200	2067807091	1	PC	CCCFMIC 330P0F +5% -5% 50.0V NP0
C201	2026885030	1	PC	CE 2U2F +20% 50.0V 85C
C202	2026725071	1	PC	CC 22N0F +10% -10% 50.0V Z5R
C203	2026908030	1	PC	CE 220U0F +20% 10.0V 85C
C204	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C205	2026908030	1	PC	CE 220U0F +20% 10.0V 85C
C206	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C248	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C251	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
C252	20330130	1	PC	BCL 0.5MM TIN ANNEALED COPPER 6.0MM 8MM
C253	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
C254	20330130	1	PC	BCL 0.5MM TIN ANNEALED COPPER 6.0MM 8MM
C255	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
C256	20441240	1	PC	BCL 0.5MM TIN ANNEALED COPPER 7.5MM 8MM
C257	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W

Ref. Designator		Qty		Description
VIDEO PCB				
C258	20330130	1	PC	BCL 0.5MM TIN ANNEALED COPPER 6.0MM 8MM F210C
C289	2026908030	1	PC	CE 220U0F +20% 10.0V 85C
C291	2026902030	1	PC	CE 100U0F +20% 16.0V 85C
C292	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C293	2026902030	1	PC	CE 100U0F +20% 16.0V 85C
C294	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C295	2026908030	1	PC	CE 220U0F +20% 10.0V 85C
C311	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C313	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
Semiconductors				
D100	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D101	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D102	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D104	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
D106	2049651085	1	PC	D-SLP 1SS355 35.0V 225MI0A
D107	2049651085	1	PC	D-SLP 1SS355 35.0V 225MI0A
D109	2049651085	1	PC	D-SLP 1SS355 35.0V 225MI0A
D110	2049651085	1	PC	D-SLP 1SS355 35.0V 225MI0A
D115	7043654016	1	PC	D-SLP 1N4148 100.0V 150E-3A
IC10	55125370MT	1	PC	IC-SWITCH NJM2296 SOP16 VIDEO
IC11	55125370MT	1	PC	IC-SWITCH NJM2296 SOP16 VIDEO
IC12	55125370MT	1	PC	IC-SWITCH NJM2296 SOP16 VIDEO
IC13	55489850MT	1	PC	IC-VIDEOPROC MM1505XNRE AMPLIFIER&DRIVER
IC14	55489680MT	1	PC	IC-VIDEOPROC MM1501XNRE AMPLIFIER&DRIVER
IC15	55489850MT	1	PC	IC-VIDEOPROC MM1505XNRE AMPLIFIER&DRIVER
IC18	20361320MU	1	PC	IC-REGPOSF XD KIA7806PI NORMAL
IC19	20718660MT	1	PC	IC-LOGIC BU4094BF SHIFT REGISTER CMOS
IC20	20718660MT	1	PC	IC-LOGIC BU4094BF SHIFT REGISTER CMOS
IC21	40440440MU	1	PC	IC-LIN BA7046 2856 A0 MU
IC22	55179610MU	1	PC	IC-SPECFUNC M35013 OSD
IC23	55489850MT	1	PC	IC-VIDEOPROC MM1505XNRE AMPLIFIER&DRIVER
IC25	55489680MT	1	PC	IC-VIDEOPROC MM1501XNRE AMPLIFIER&DRIVER
IC26	55489680MT	1	PC	IC-VIDEOPROC MM1501XNRE AMPLIFIER&DRIVER
IC27	55489750MT	1	PC	IC-VIDEOPROC MM1511XNRE AMPLIFIER&DRIVER
Q100	5513325056	1	PC	TR-SLPLF 2SC1740S R N 150MI0A 50V
Q101	5510193056	1	PC	TR-SLPLF 2SA933ASR P -3.0A -20V
Q102	5513319092	1	PC	TR-SSD DTA114YKA P 10K0 OHM 47K0 OHM
Q103	5513319092	1	PC	TR-SSD DTA114YKA P 10K0 OHM 47K0 OHM
Q104	5510193056	1	PC	TR-SLPLF 2SA933ASR P -3.0A -20V
Q105	5513321056	1	PC	TR-SLPLF DTC114YSA N 100MI0A
Q107	5513321056	1	PC	TR-SLPLF DTC114YSA N 100MI0A
Q110	5513321056	1	PC	TR-SLPLF DTC114YSA N 100MI0A
Q111	5510193056	1	PC	TR-SLPLF 2SA933ASR P -3.0A -20V
Q112	5513325056	1	PC	TR-SLPLF 2SC1740S R N 150MI0A 50V
Resistors				
R100	1013471091	1	PC	RMGCFMIC 75R0 OHM +5% 62MI5W
R101	1013470091	1	PC	RMGCFMIC 68R0 OHM +5% 62MI5W
R102	1013471091	1	PC	RMGCFMIC 75R0 OHM +5% 62MI5W
R103	1013471091	1	PC	RMGCFMIC 75R0 OHM +5% 62MI5W
R104	1013470091	1	PC	RMGCFMIC 68R0 OHM +5% 62MI5W
R105	1013471091	1	PC	RMGCFMIC 75R0 OHM +5% 62MI5W
R106	1013471091	1	PC	RMGCFMIC 75R0 OHM +5% 62MI5W
R107	1013470091	1	PC	RMGCFMIC 68R0 OHM +5% 62MI5W

Ref. Designator		Qty		Description
VIDEO PCB				
R108	1013471091	1	PC	RMGCFMIC 75R0 OHM +5% 62MI5W
R109	1013471091	1	PC	RMGCFMIC 75R0 OHM +5% 62MI5W
R110	1013470091	1	PC	RMGCFMIC 68R0 OHM +5% 62MI5W
R111	1013471091	1	PC	RMGCFMIC 75R0 OHM +5% 62MI5W
R112	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R113	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R114	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R115	1013471091	1	PC	RMGCFMIC 75R0 OHM +5% 62MI5W
R116	1013470091	1	PC	RMGCFMIC 68R0 OHM +5% 62MI5W
R117	1013471091	1	PC	RMGCFMIC 75R0 OHM +5% 62MI5W
R118	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R119	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R120	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R121	1013471091	1	PC	RMGCFMIC 75R0 OHM +5% 62MI5W
R122	1013470091	1	PC	RMGCFMIC 68R0 OHM +5% 62MI5W
R123	1013471091	1	PC	RMGCFMIC 75R0 OHM +5% 62MI5W
R124	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R125	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R126	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R127	1013470091	1	PC	RMGCFMIC 68R0 OHM +5% 62MI5W
R128	1013470091	1	PC	RMGCFMIC 68R0 OHM +5% 62MI5W
R129	1013470091	1	PC	RMGCFMIC 68R0 OHM +5% 62MI5W
R130	1105964016	1	PC	RCF 1K0 OHM +5% 250MI0W
R131	1105964016	1	PC	RCF 1K0 OHM +5% 250MI0W
R132	1105964016	1	PC	RCF 1K0 OHM +5% 250MI0W
R133	1105964016	1	PC	RCF 1K0 OHM +5% 250MI0W
R134	1105964016	1	PC	RCF 1K0 OHM +5% 250MI0W
R135	1105964016	1	PC	RCF 1K0 OHM +5% 250MI0W
R136	1013471091	1	PC	RMGCFMIC 75R0 OHM +5% 62MI5W
R137	1013471091	1	PC	RMGCFMIC 75R0 OHM +5% 62MI5W
R138	1013470091	1	PC	RMGCFMIC 68R0 OHM +5% 62MI5W
R146	1013503091	1	PC	RMGCFMIC 12K0 OHM +5% 62MI5W
R147	1013503091	1	PC	RMGCFMIC 12K0 OHM +5% 62MI5W
R148	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R149	1013553091	1	PC	RMGCFMIC 470K0 OHM +5% 62MI5W
R150	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R151	1013553091	1	PC	RMGCFMIC 470K0 OHM +5% 62MI5W
R152	1013562091	1	PC	RMGCFMIC 1M0 OHM +10% 62MI5W
R153	1013538091	1	PC	RMGCFMIC 150K0 OHM +5% 62MI5W
R154	5088303016	1	PC	RCF 150K0 OHM +5% 250MI0W
R155	1013562091	1	PC	RMGCFMIC 1M0 OHM +10% 62MI5W
R156	1013476091	1	PC	RMGCFMIC 120R0 OHM +5% 62MI5W
R157	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
R158	1013542091	1	PC	RMGCFMIC 220K0 OHM +5% 62MI5W
R159	1013598091	1	PC	RMGCFMIC 6K8 OHM +5% 62MI5W
R160	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R161	1105964016	1	PC	RCF 1K0 OHM +5% 250MI0W
R162	1105964016	1	PC	RCF 1K0 OHM +5% 250MI0W
R163	1105964016	1	PC	RCF 1K0 OHM +5% 250MI0W
R165	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R166	1013517091	1	PC	RMGCFMIC 33K0 OHM +5% 62MI5W
R167	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R168	1013470091	1	PC	RMGCFMIC 68R0 OHM +5% 62MI5W
R169	1013600091	1	PC	RMGCFMIC 8K2 OHM +5% 62MI5W
R170	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
R171	1013538091	1	PC	RMGCFMIC 150K0 OHM +5% 62MI5W
R172	1013517091	1	PC	RMGCFMIC 33K0 OHM +5% 62MI5W

Ref. Designator		Qty		Description
VIDEO PCB				
R173	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R174	1013470091	1	PC	RMGCFMIC 68R0 OHM +5% 62MI5W
R180	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
R186	1013536091	1	PC	RMGCFMIC 120K0 OHM +5% 62MI5W
R187	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
R188	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R189	1013592091	1	PC	RMGCFMIC 3K9 OHM +5% 62MI5W
R200	1013485091	1	PC	RMGCFMIC 270R0 OHM +5% 62MI5W
R251	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
R252	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
R253	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
R254	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
<i>Miscellaneous</i>				
SK10	55489950NR	1	PC	RELAYPWR 5.0V 178.0OHM
SK11	55489950NR	1	PC	RELAYPWR 5.0V 178.0OHM
SK12	55489950NR	1	PC	RELAYPWR 5.0V 178.0OHM
J101	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J105	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J108	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J112	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J113	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J125	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J126	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J132	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J134	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J135	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J198	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J199	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J202	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J203	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J234	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J257	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J301	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J307	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J308	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J309	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J310	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J315	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J316	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J317	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
L100	5517950018	1	PC	LFBEAD 80.582OHM 100M0HZ FB-30 HC-3580
L101	5517950018	1	PC	LFBEAD 80.582OHM 100M0HZ FB-30 HC-3580
L102	5517950018	1	PC	LFBEAD 80.582OHM 100M0HZ FB-30 HC-3580
L103	5516884016	1	PC	LF 47U0H +10% 5.8 OHM 70MI0A
L104	5516884016	1	PC	LF 47U0H +10% 5.8 OHM 70MI0A
L105	5516884016	1	PC	LF 47U0H +10% 5.8 OHM 70MI0A
L106	5516884016	1	PC	LF 47U0H +10% 5.8 OHM 70MI0A
L107	5517935016	1	PC	LF 22U0H +10% 3.4 OHM 130.0A
L108	5517935016	1	PC	LF 22U0H +10% 3.4 OHM 130.0A
L110	5516884016	1	PC	LF 47U0H +10% 5.8 OHM 70MI0A
N601	55548950NR	1	PC	WIRECONASY DL 2.0MM 10P 380MM UL1007 RIBBON 26 1
N602	55174670	1	PC	CONN 2.0MM 19 MA R NAT SOCKET MOLEX 35237-1910 0 0
NJ91	55436080	1	PC	CON PHONO SCKT RCA 9P W/GNDCAP JW-4109RS RD,RD,RD,BU,BU,BU,GN,GN,GN
NJ92	55149520	1	PC	CON DIN SCKT MIX SOCKET RCA-118JP1S

Ref. Designator		Qty		Description
VIDEO PCB				
NJ93	55149520	1	PC	CON DIN SCKT MIX SOCKET RCA-118JP1S
NJ94	55149520	1	PC	CON DIN SCKT MIX SOCKET RCA-118JP1S
NJ95	55149520	1	PC	CON DIN SCKT MIX SOCKET RCA-118JP1S
NJ96	55149520	1	PC	CON DIN SCKT MIX SOCKET RCA-118JP1S
NJ97	55149520	1	PC	CON DIN SCKT MIX SOCKET RCA-118JP1S
NJ98	55149520	1	PC	CON DIN SCKT MIX SOCKET RCA-118JP1S
P600	55123330	1	PC	CONN 2.0MM 6 MA ST NAT LW2002P06 0 0
P601	55090060	1	PC	CONN 2.0MM 7 MA ST NAT LW2002P07 0 0
P602	55174630	1	PC	CONN 2.0MM 19 MA ST NAT MOLEX 35336-1910 0 0
P603	55174630	1	PC	CONN 2.0MM 19 MA ST NAT MOLEX 35336-1910 0 0
Y100	552522500	1	PC	FILQZ 17M734475 HZ +30 PPM 30K0 OHM PARALLEL 22P0 F
Y101	551794700	1	PC	FILQZ 14M31818 HZ +30 PPM 30K0 OHM PARALLEL 22P0 F
KEY PCB				
<i>Capacitors</i>				
C140	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C141	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C142	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C143	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C144	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NP0
C220	1013879091	1	PC	CCCFMIC 22N0F +80% -20% 50.0V Y5V
C221	1013879091	1	PC	CCCFMIC 22N0F +80% -20% 50.0V Y5V
C222	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C600	2025183039	1	PC	CE 1U0F +20% 50.0V 85C
C601	2025183039	1	PC	CE 1U0F +20% 50.0V 85C
C602	2025183039	1	PC	CE 1U0F +20% 50.0V 85C
C603	2025183039	1	PC	CE 1U0F +20% 50.0V 85C
C604	2025183039	1	PC	CE 1U0F +20% 50.0V 85C
C605	2025205039	1	PC	CE 100U0F +20% 6.3V 85C
C606	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C900	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C901	1013862091	1	PC	CCCFMIC 2N2F +10% -10% 50.0V X7R
C902	1013862091	1	PC	CCCFMIC 2N2F +10% -10% 50.0V X7R
C903	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
<i>Semiconductors</i>				
D600	2049651085	1	PC	D-SLP 1SS355 35.0V 225MIOA
D601	2049651085	1	PC	D-SLP 1SS355 35.0V 225MIOA
D602	2049651085	1	PC	D-SLP 1SS355 35.0V 225MIOA
D800	55179330NR	1	PC	D-LEM RED/GREEN 5 RD RND CL
D900	2049651085	1	PC	D-SLP 1SS355 35.0V 225MIOA
D901	2049651085	1	PC	D-SLP 1SS355 35.0V 225MIOA
IC60	55179630NR	1	PC	PHOTCOUP PC-17T1 PHOTOCOUPLER DIP4
IC61	55179630NR	1	PC	PHOTCOUP PC-17T1 PHOTOCOUPLER DIP4
IC62	55197900MU	1	PC	IC-SPECFUNC UPD4721 DRIVERS/RECEIVERS CMOS RS-232C
Q600	5517922056	1	PC	TR-SLPSWA KRA107M P
Q601	5517922056	1	PC	TR-SLPSWA KRA107M P
Q800	5513318092	1	PC	TR-SSD DTC114YKA N 10K0 OHM 47K0 OHM
<i>Resistors</i>				
R172	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R201	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R202	1013579091	1	PC	RMGCFMIC 1K2 OHM +5% 62MI5W

Ref. Designator		Qty		Description
KEY PCB				
R203	1013582091	1	PC	RMGCFMIC 1K5 OHM +5% 62MI5W
R204	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R205	1013588091	1	PC	RMGCFMIC 2K7 OHM +5% 62MI5W
R206	1013590091	1	PC	RMGCFMIC 3K3 OHM +5% 62MI5W
R207	1013596091	1	PC	RMGCFMIC 5K6 OHM +5% 62MI5W
R208	1013600091	1	PC	RMGCFMIC 8K2 OHM +5% 62MI5W
R209	1013508091	1	PC	RMGCFMIC 18K0 OHM +5% 62MI5W
R211	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R212	1013579091	1	PC	RMGCFMIC 1K2 OHM +5% 62MI5W
R213	1013582091	1	PC	RMGCFMIC 1K5 OHM +5% 62MI5W
R214	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R215	1013588091	1	PC	RMGCFMIC 2K7 OHM +5% 62MI5W
R216	1013590091	1	PC	RMGCFMIC 3K3 OHM +5% 62MI5W
R217	1013596091	1	PC	RMGCFMIC 5K6 OHM +5% 62MI5W
R218	1013600091	1	PC	RMGCFMIC 8K2 OHM +5% 62MI5W
R219	1013508091	1	PC	RMGCFMIC 18K0 OHM +5% 62MI5W
R220	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R221	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R600	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R601	1013592091	1	PC	RMGCFMIC 3K9 OHM +5% 62MI5W
R602	1013465091	1	PC	RMGCFMIC 47R0 OHM +5% 62MI5W
R603	1013522091	1	PC	RMGCFMIC 47K0 OHM +5% 62MI5W
R604	1013465091	1	PC	RMGCFMIC 47R0 OHM +5% 62MI5W
R605	1013485091	1	PC	RMGCFMIC 270R0 OHM +5% 62MI5W
R606	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R607	1013522091	1	PC	RMGCFMIC 47K0 OHM +5% 62MI5W
R608	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R609	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R800	1013495091	1	PC	RMGCFMIC 680R0 OHM +5% 62MI5W
R801	1013495091	1	PC	RMGCFMIC 680R0 OHM +5% 62MI5W
R802	1013481091	1	PC	RMGCFMIC 180R0 OHM +5% 62MI5W
R803	1013481091	1	PC	RMGCFMIC 180R0 OHM +5% 62MI5W
<i>Miscellaneous</i>				
L102	5512669050	1	PC	FBEAD SURFACE MT 2500OHM FCM2012H-252T02
L103	5512669050	1	PC	FBEAD SURFACE MT 2500OHM FCM2012H-252T02
L600	5512669050	1	PC	FBEAD SURFACE MT 2500OHM FCM2012H-252T02
L601	5512669050	1	PC	FBEAD SURFACE MT 2500OHM FCM2012H-252T02
L602	5512669050	1	PC	FBEAD SURFACE MT 2500OHM FCM2012H-252T02
L603	5512669050	1	PC	FBEAD SURFACE MT 2500OHM FCM2012H-252T02
L900	5516884016	1	PC	LF 47U0H +10% 5.8 OHM 70MI0A
N702	551758000	1	PC	WIRECONASY UNIQUE 8P 100MM UL1007 PVC DISCRETE 26 1
N703	551758200	1	PC	WIRECONASY UNIQUE 5P 100MM UL1007 PVC DISCRETE 26 1
N741	55504170NR	1	PC	WIRECONASY DL 2.0MM 5P 800MM UL1007 RIBBON 26 1
N790	55503280NR	1	PC	WIRECONASY DL 2.0MM 3P 600MM UL1007 RIBBON 26 1
NJ60	55176390	1	PC	CON PHONO SCKT STEREO JACK JW350S
NJ61	55176390	1	PC	CON PHONO SCKT STEREO JACK JW350S
NJ62	55176390	1	PC	CON PHONO SCKT STEREO JACK JW350S
NJ63	5554510NR	1	PC	CONN-SPE 87204-6063 WITH DUST COVER FE 2.77MM 9 -- 0 0
NJ64	55125430NR	1	PC	D-LEM TORX178B RD RND CL
NJ65	55175950	1	PC	CON PHONO SCKT RCA 1P W/GND JE010003MN
NJ66	55050690	1	PC	CONN-PHJAC 6.35 ST HORZ CKX3-6.35-04 BK 0 0
P760	55123310	1	PC	CONN 2.0MM 4 MA ST NAT LW2002P04 0 0
P761	55123310	1	PC	CONN 2.0MM 4 MA ST NAT LW2002P04 0 0
P780	55123310	1	PC	CONN 2.0MM 4 MA ST NAT LW2002P04 0 0
P791	55090070	1	PC	CONN 2.0MM 2 MA ST NAT LW2002P0200T 0 0

Ref. Designator		Qty		Description
KEY PCB				
BK60	55176420	1	PC	AC PUN BRACKET BKT GROUND ET 0.5T AVR520 --
BK61	55182550	1	PC	AC PUN SHIELD DIGITAL ET
S200	55145270KX	1	PC	SWITACT VERTICAL TACTILE F/B 50MI0A 12.0V 500MI0OHM 1T 1P
S201	55145270KX	1	PC	SWITACT VERTICAL TACTILE F/B 50MI0A 12.0V 500MI0OHM 1T 1P
S202	55145270KX	1	PC	SWITACT VERTICAL TACTILE F/B 50MI0A 12.0V 500MI0OHM 1T 1P
S203	55145270KX	1	PC	SWITACT VERTICAL TACTILE F/B 50MI0A 12.0V 500MI0OHM 1T 1P
S204	55145270KX	1	PC	SWITACT VERTICAL TACTILE F/B 50MI0A 12.0V 500MI0OHM 1T 1P
S205	55145270KX	1	PC	SWITACT VERTICAL TACTILE F/B 50MI0A 12.0V 500MI0OHM 1T 1P
S206	55145270KX	1	PC	SWITACT VERTICAL TACTILE F/B 50MI0A 12.0V 500MI0OHM 1T 1P
S207	55145270KX	1	PC	SWITACT VERTICAL TACTILE F/B 50MI0A 12.0V 500MI0OHM 1T 1P
S208	55145270KX	1	PC	SWITACT VERTICAL TACTILE F/B 50MI0A 12.0V 500MI0OHM 1T 1P
S209	55145270KX	1	PC	SWITACT VERTICAL TACTILE F/B 50MI0A 12.0V 500MI0OHM 1T 1P
S211	55145270KX	1	PC	SWITACT VERTICAL TACTILE F/B 50MI0A 12.0V 500MI0OHM 1T 1P
S212	55145270KX	1	PC	SWITACT VERTICAL TACTILE F/B 50MI0A 12.0V 500MI0OHM 1T 1P
S213	55145270KX	1	PC	SWITACT VERTICAL TACTILE F/B 50MI0A 12.0V 500MI0OHM 1T 1P
S214	55145270KX	1	PC	SWITACT VERTICAL TACTILE F/B 50MI0A 12.0V 500MI0OHM 1T 1P
S215	55145270KX	1	PC	SWITACT VERTICAL TACTILE F/B 50MI0A 12.0V 500MI0OHM 1T 1P
S216	55145270KX	1	PC	SWITACT VERTICAL TACTILE F/B 50MI0A 12.0V 500MI0OHM 1T 1P
S217	55145270KX	1	PC	SWITACT VERTICAL TACTILE F/B 50MI0A 12.0V 500MI0OHM 1T 1P
S218	55145270KX	1	PC	SWITACT VERTICAL TACTILE F/B 50MI0A 12.0V 500MI0OHM 1T 1P
S219	55145270KX	1	PC	SWITACT VERTICAL TACTILE F/B 50MI0A 12.0V 500MI0OHM 1T 1P
S220	55145270KX	1	PC	SWITACT VERTICAL TACTILE F/B 50MI0A 12.0V 500MI0OHM 1T 1P
W100	552133600	1	PC	WIRECONASY UNIQUE 1P 300MM UL1007 PVC DISCRETE 22 1
W900	552133600	1	PC	WIRECONASY UNIQUE 1P 300MM UL1007 PVC DISCRETE 22 1
FRONT PCB				
<i>Capacitors</i>				
C100	1013842091	1	PC	CCCFMIC 820P0F +10% -10% 50.0V X7R
C101	1013842091	1	PC	CCCFMIC 820P0F +10% -10% 50.0V X7R
C102	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C103	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C104	2026901030	1	PC	CE 47U0F +20% 50.0V 85C
C105	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C106	551343600	1	PC	CM 47MI0F +80% -20% 5.5V 70C
C107	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C108	2026895030	1	PC	CE 100N0F +20% 50.0V 85C
C109	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C110	2026901030	1	PC	CE 47U0F +20% 50.0V 85C
C111	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C112	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C113	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C114	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C115	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C116	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C117	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C118	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C119	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C122	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C123	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C124	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C125	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C126	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C127	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C128	2050659091	1	PC	CCCFMIC 100P0F +5% -5% 50.0V NPO
C129	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V

Ref. Designator		Qty		Description
FRONT PCB				
C130	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C131	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C132	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C133	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C134	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C135	1036482071	1	PC	CPF 47N0F +10% 100.0V
C136	1036482071	1	PC	CPF 47N0F +10% 100.0V
C137	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C138	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C139	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C140	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C141	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C142	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C143	2026888030	1	PC	CE 10U0F +20% 50.0V 85C
C144	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
C300	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C301	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C302	3093623071	1	PC	CC 100P0F +5% -5% 50.0V NP0
C303	3093623071	1	PC	CC 100P0F +5% -5% 50.0V NP0
C304	8043459071	1	PC	CC 22P0F +5% -5% 50.0V NP0
C305	8043459071	1	PC	CC 22P0F +5% -5% 50.0V NP0
C306	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C307	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C308	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C309	2026783030	1	PC	CE 47U0F +20% 16.0V 85C 20251640
C310	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C311	1500213030	1	PC	CE 10U0F +20% 16.0V 85C
C312	5517937071	1	PC	CPM 18N0F +5% 100.0V
C313	5517937071	1	PC	CPM 18N0F +5% 100.0V
C314	55179410NR	1	PC	CPM 82N0F +5% 100.0V
C315	55179410NR	1	PC	CPM 82N0F +5% 100.0V
C316	5517939071	1	PC	CPM 3N3F +5% 100.0V
C317	5517939071	1	PC	CPM 3N3F +5% 100.0V
C318	5517937071	1	PC	CPM 18N0F +5% 100.0V
C319	5517937071	1	PC	CPM 18N0F +5% 100.0V
C320	2028804091	1	PC	CCCFMIC 100N0F +80% -20% 16.0V Y5V
<i>Semiconductors</i>				
D100	2049651085	1	PC	D-SLP 1SS355 35.0V 225MIOA
D101	2049651085	1	PC	D-SLP 1SS355 35.0V 225MIOA
D102	2049651085	1	PC	D-SLP 1SS355 35.0V 225MIOA
D103	2049651085	1	PC	D-SLP 1SS355 35.0V 225MIOA
D104	2049651085	1	PC	D-SLP 1SS355 35.0V 225MIOA
D105	2049651085	1	PC	D-SLP 1SS355 35.0V 225MIOA
D106	2049651085	1	PC	D-SLP 1SS355 35.0V 225MIOA
D108	2041506016	1	PC	D-SR 1N4004 400.0V 1.0A
D110	2049651085	1	PC	D-SLP 1SS355 35.0V 225MIOA
D111	2049651085	1	PC	D-SLP 1SS355 35.0V 225MIOA
D112	2049651085	1	PC	D-SLP 1SS355 35.0V 225MIOA
D113	2049651085	1	PC	D-SLP 1SS355 35.0V 225MIOA
D114	2049651085	1	PC	D-SLP 1SS355 35.0V 225MIOA
D115	2049651085	1	PC	D-SLP 1SS355 35.0V 225MIOA
D116	2049651085	1	PC	D-SLP 1SS355 35.0V 225MIOA
D117	2049651085	1	PC	D-SLP 1SS355 35.0V 225MIOA
D118	20329450	1	PC	BCL 0.6MM TIN ANNEALED COPPER 25.0MM 8MM
D119	2049651085	1	PC	D-SLP 1SS355 35.0V 225MIOA

Ref. Designator		Qty		Description
FRONT PCB				
D120	2041506016	1	PC	D-SR 1N4004 400.0V 1.0A
D200	20329450	1	PC	BCL 0.6MM TIN ANNEALED COPPER 25.0MM 8MM F245C
D700	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D701	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D702	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D703	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D704	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D705	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D706	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D707	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D708	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D709	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D710	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D711	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D712	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D713	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D714	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D715	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D716	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D717	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D718	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D719	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D720	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D721	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D722	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D723	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D724	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D725	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D726	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D727	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D728	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D730	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D731	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D732	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D733	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D734	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D735	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D736	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D737	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D738	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D739	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D740	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D741	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D742	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D743	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D744	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D745	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D746	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D747	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D748	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D749	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D750	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D751	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D752	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
D753	55199400NR	1	PC	D-LEM CT-3SGTA GN RND 3.0 CL 60M0CD
IC10	55519410MS	1	PC	IC-MICROCONT CXP82860-374Q MAIN AVR325
IC11	20718660MT	1	PC	IC-LOGIC BU4094BF SHIFT REGISTER CMOS

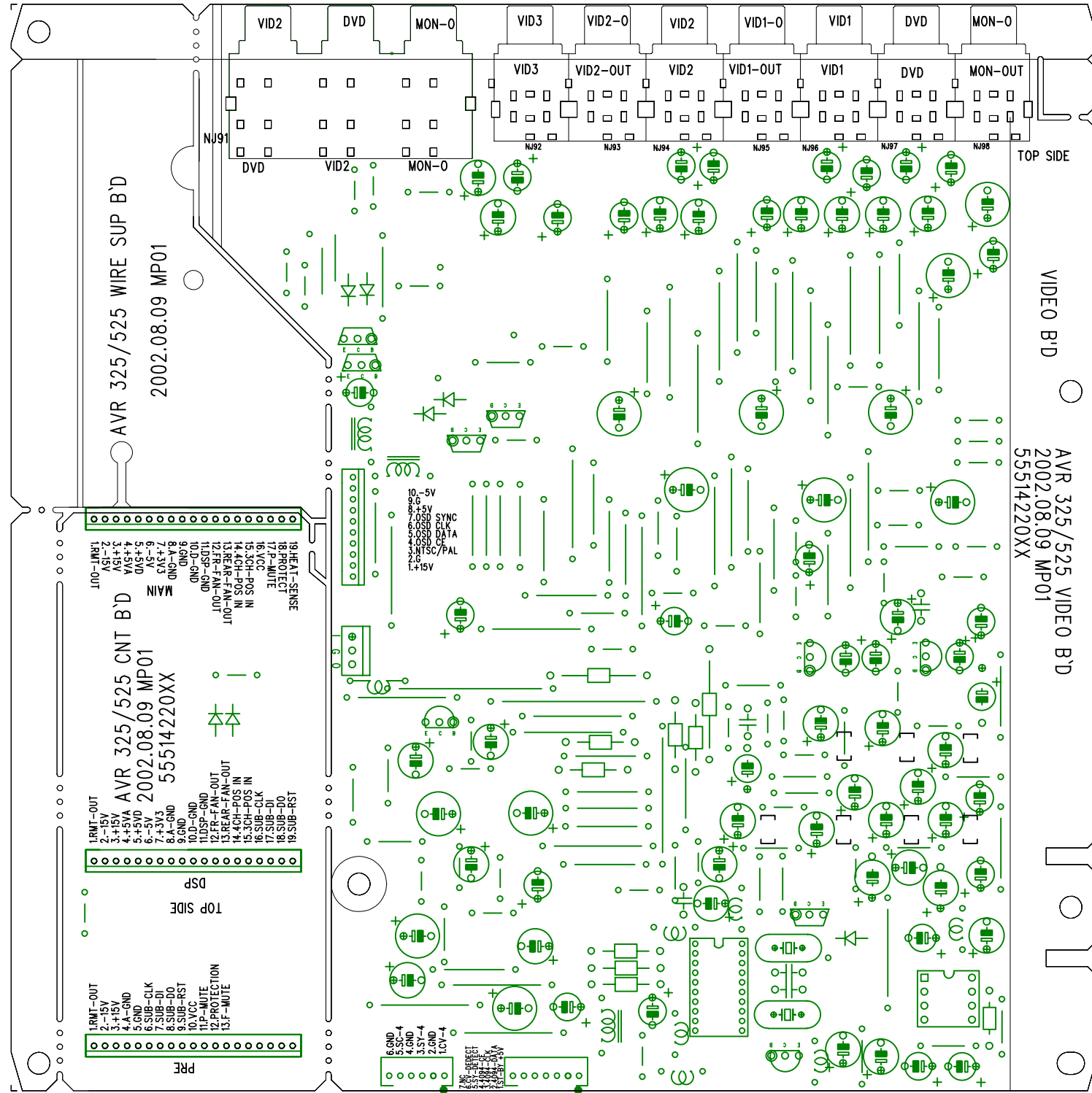
Ref. Designator		Qty		Description
FRONT PCB				
IC12	20718660MT	1	PC	IC-LOGIC BU4094BF SHIFT REGISTER CMOS
IC13	20718660MT	1	PC	IC-LOGIC BU4094BF SHIFT REGISTER CMOS
IC14	20718660MT	1	PC	IC-LOGIC BU4094BF SHIFT REGISTER CMOS
IC15	55087180MT	1	PC	IC-LOGIC BU4051BCF MULTIPLEXER HCT
IC16	55179630NR	1	PC	PHOTCOUP PC-17T1 PHOTOCOUPLER DIP4
IC30	55142240MU	1	PC	IC-OPERAMP NJM2068DD DUAL OP
Q100	5514267056	1	PC	TR-SLPLF MPSA06 N 500MIOA
Q106	5513321056	1	PC	TR-SLPLF DTC114YSA N 100MIOA
Q107	5513321056	1	PC	TR-SLPLF DTC114YSA N 100MIOA
Q108	5513321056	1	PC	TR-SLPLF DTC114YSA N 100MIOA
Q109	5513321056	1	PC	TR-SLPLF DTC114YSA N 100MIOA
Q110	5513321056	1	PC	TR-SLPLF DTC114YSA N 100MIOA
Q111	5513318092	1	PC	TR-SSD DTC114YKA N 10K0 OHM 47K0 OHM
Q112	5513318092	1	PC	TR-SSD DTC114YKA N 10K0 OHM 47K0 OHM
Q114	5513318092	1	PC	TR-SSD DTC114YKA N 10K0 OHM 47K0 OHM
Q115	5513318092	1	PC	TR-SSD DTC114YKA N 10K0 OHM 47K0 OHM
Q116	5517922056	1	PC	TR-SLPSWA KRA107M P
Q700	5513333092	1	PC	TR-SSD DTC114TKA N 10K0 OHM
Q701	5513333092	1	PC	TR-SSD DTC114TKA N 10K0 OHM
Q702	5513333092	1	PC	TR-SSD DTC114TKA N 10K0 OHM
Q703	5513333092	1	PC	TR-SSD DTC114TKA N 10K0 OHM
Q704	5513333092	1	PC	TR-SSD DTC114TKA N 10K0 OHM
Q705	5513333092	1	PC	TR-SSD DTC114TKA N 10K0 OHM
Q706	5513333092	1	PC	TR-SSD DTC114TKA N 10K0 OHM
Q707	5513333092	1	PC	TR-SSD DTC114TKA N 10K0 OHM
Q708	5513333092	1	PC	TR-SSD DTC114TKA N 10K0 OHM
Q709	5513333092	1	PC	TR-SSD DTC114TKA N 10K0 OHM
Q710	5513333092	1	PC	TR-SSD DTC114TKA N 10K0 OHM
Q711	5513333092	1	PC	TR-SSD DTC114TKA N 10K0 OHM
Q712	5513333092	1	PC	TR-SSD DTC114TKA N 10K0 OHM
Q713	5513333092	1	PC	TR-SSD DTC114TKA N 10K0 OHM
Q714	5513333092	1	PC	TR-SSD DTC114TKA N 10K0 OHM
Q715	5513333092	1	PC	TR-SSD DTC114TKA N 10K0 OHM
Q716	5513333092	1	PC	TR-SSD DTC114TKA N 10K0 OHM
Q717	5513333092	1	PC	TR-SSD DTC114TKA N 10K0 OHM
Q718	5513333092	1	PC	TR-SSD DTC114TKA N 10K0 OHM
Q719	5513333092	1	PC	TR-SSD DTC114TKA N 10K0 OHM
Q720	5513333092	1	PC	TR-SSD DTC114TKA N 10K0 OHM
Q721	5513333092	1	PC	TR-SSD DTC114TKA N 10K0 OHM
Q722	5513333092	1	PC	TR-SSD DTC114TKA N 10K0 OHM
<i>Resistors</i>				
R100	1013529091	1	PC	RMGCFMIC 68K0 OHM +5% 62MI5W
R101	1013529091	1	PC	RMGCFMIC 68K0 OHM +5% 62MI5W
R102	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R103	1013441091	1	PC	RMGCFMIC 10R0 OHM +5% 62MI5W
R104	1013522091	1	PC	RMGCFMIC 47K0 OHM +5% 62MI5W
R105	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R106	1013600091	1	PC	RMGCFMIC 8K2 OHM +5% 62MI5W
R108	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R119	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R120	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R121	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R122	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R123	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R124	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W

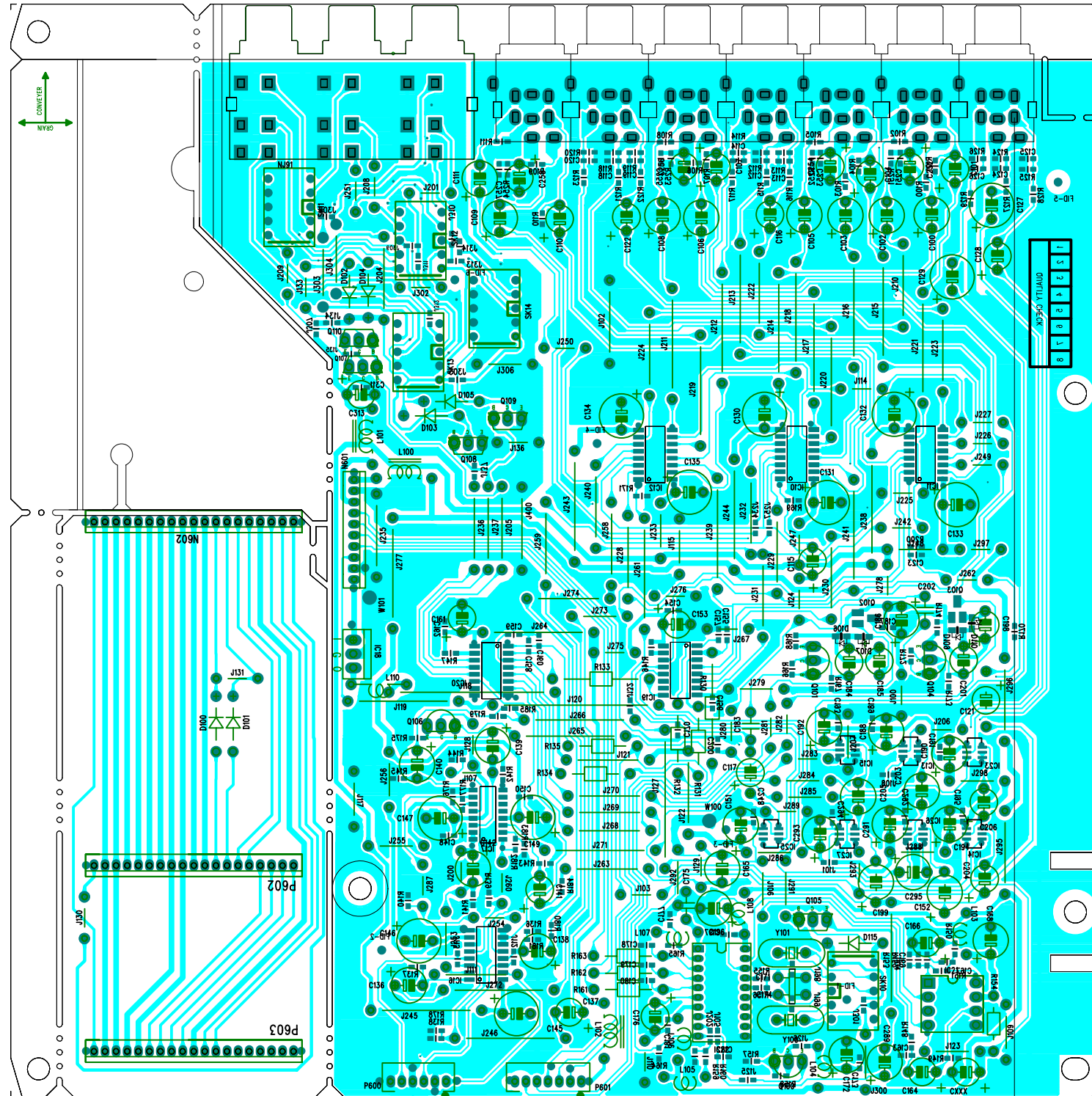
Ref. Designator		Qty		Description
FRONT PCB				
R125	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R128	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R129	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R130	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R131	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R132	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R133	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R134	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R135	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R136	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R137	1013594091	1	PC	RMGCFMIC 4K7 OHM +5% 62MI5W
R138	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R140	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R141	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R142	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R145	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R146	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R147	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R148	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R149	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R150	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R151	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R152	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R153	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R154	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R155	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R156	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R157	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R158	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R159	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R160	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R161	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R162	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R163	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R164	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R165	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R166	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R167	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R168	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R169	1013474091	1	PC	RMGCFMIC 100R0 OHM +5% 62MI5W
R170	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
R171	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
R173	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R174	1013501091	1	PC	RMGCFMIC 10K0 OHM +5% 62MI5W
R175	5088297016	1	PC	RCF 470R0 OHM +5% 250MI0W
R176	1013522091	1	PC	RMGCFMIC 47K0 OHM +5% 62MI5W
R177	1013592091	1	PC	RMGCFMIC 3K9 OHM +5% 62MI5W
R180	4043567016	1	PC	RCF 47K0 OHM +5% 250MI0W
R302	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R303	1013577091	1	PC	RMGCFMIC 1K0 OHM +5% 62MI5W
R304	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R305	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R306	1013562091	1	PC	RMGCFMIC 1M0 OHM +10% 62MI5W
R307	1013562091	1	PC	RMGCFMIC 1M0 OHM +10% 62MI5W
R308	1013522091	1	PC	RMGCFMIC 47K0 OHM +5% 62MI5W
R309	1013522091	1	PC	RMGCFMIC 47K0 OHM +5% 62MI5W
R310	1013483091	1	PC	RMGCFMIC 220R0 OHM +5% 62MI5W

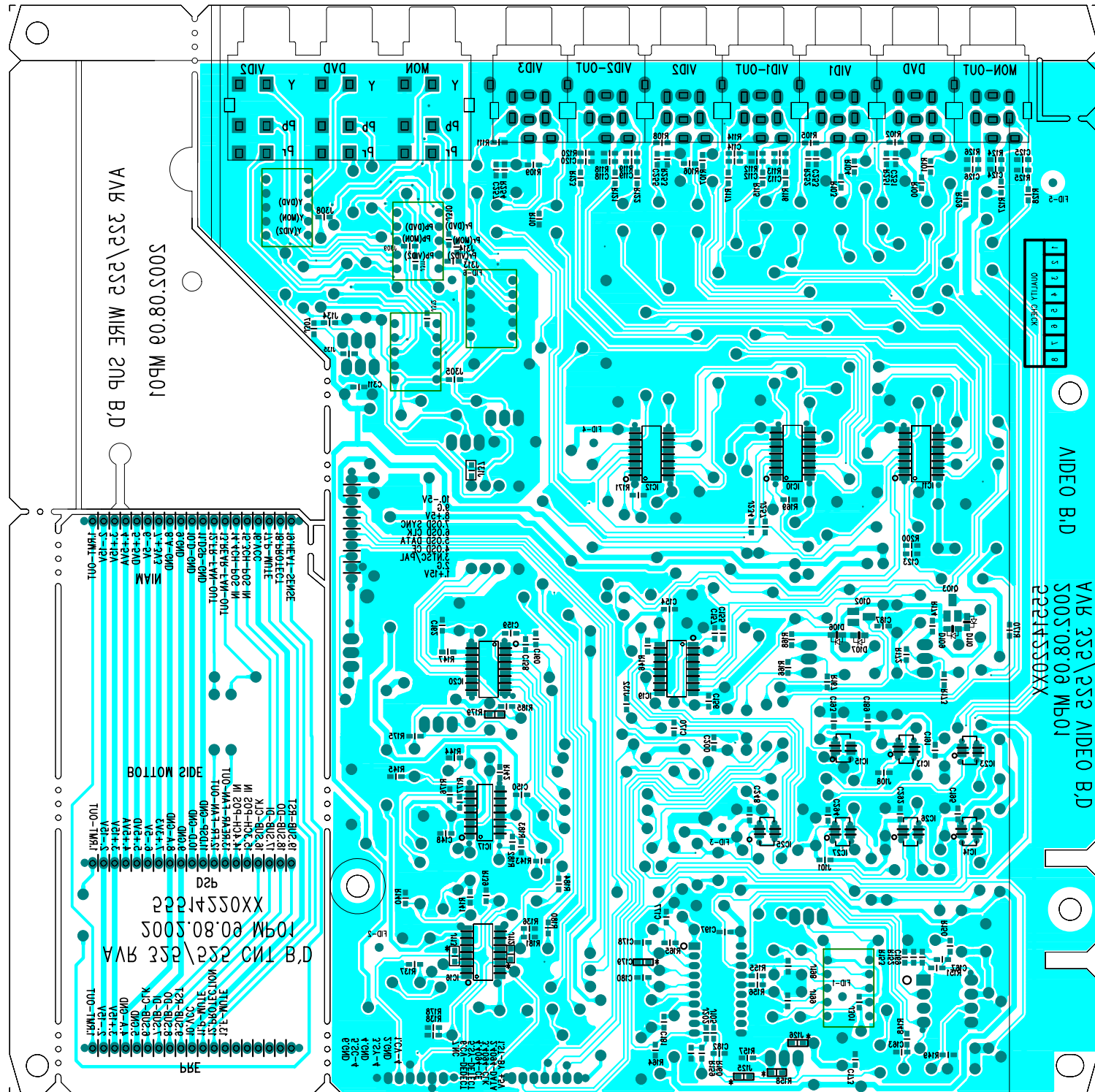
Ref. Designator		Qty		Description
FRONT PCB				
R311	1013483091	1	PC	RMGCFMIC 220R0 OHM +5% 62MI5W
R312	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R313	1013491091	1	PC	RMGCFMIC 470R0 OHM +5% 62MI5W
R314	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R315	1013534091	1	PC	RMGCFMIC 100K0 OHM +5% 62MI5W
R316	1013512091	1	PC	RMGCFMIC 22K0 OHM +5% 62MI5W
R317	1013512091	1	PC	RMGCFMIC 22K0 OHM +5% 62MI5W
R318	1013592091	1	PC	RMGCFMIC 3K9 OHM +5% 62MI5W
R319	1013592091	1	PC	RMGCFMIC 3K9 OHM +5% 62MI5W
R320	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R321	1013586091	1	PC	RMGCFMIC 2K2 OHM +5% 62MI5W
R322	1013495091	1	PC	RMGCFMIC 680R0 OHM +5% 62MI5W
R323	1013495091	1	PC	RMGCFMIC 680R0 OHM +5% 62MI5W
R700	1013465091	1	PC	RMGCFMIC 47R0 OHM +5% 62MI5W
R701	1013465091	1	PC	RMGCFMIC 47R0 OHM +5% 62MI5W
R702	1013465091	1	PC	RMGCFMIC 47R0 OHM +5% 62MI5W
R703	1013465091	1	PC	RMGCFMIC 47R0 OHM +5% 62MI5W
R704	1013465091	1	PC	RMGCFMIC 47R0 OHM +5% 62MI5W
R705	1013465091	1	PC	RMGCFMIC 47R0 OHM +5% 62MI5W
R706	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R707	1013465091	1	PC	RMGCFMIC 47R0 OHM +5% 62MI5W
R709	1013465091	1	PC	RMGCFMIC 47R0 OHM +5% 62MI5W
R711	1013465091	1	PC	RMGCFMIC 47R0 OHM +5% 62MI5W
R713	1013465091	1	PC	RMGCFMIC 47R0 OHM +5% 62MI5W
R715	1013465091	1	PC	RMGCFMIC 47R0 OHM +5% 62MI5W
R717	1013465091	1	PC	RMGCFMIC 47R0 OHM +5% 62MI5W
R718	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R720	1013465091	1	PC	RMGCFMIC 47R0 OHM +5% 62MI5W
R722	1013465091	1	PC	RMGCFMIC 47R0 OHM +5% 62MI5W
R724	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R725	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R726	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R727	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R728	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R729	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R730	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R731	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R732	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R733	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R734	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R735	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R736	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R737	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R738	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R739	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R740	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R741	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R742	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R743	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R744	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R745	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
R746	1013478091	1	PC	RMGCFMIC 150R0 OHM +5% 62MI5W
RM10	55155930MU	1	PC	IC-REMOTE RPM6938-RSIP-A3 RECEIVER 38KHZ
RV10	55134900NR	1	PC	SWIROT EC16B24204A5 5V 500U0A 10T 3P 0 0
RV30	551799200	1	PC	PR-ROT 100K0 OHM NON-LINEAR RK14K12400BR 0 0
RV31	551799200	1	PC	PR-ROT 100K0 OHM NON-LINEAR RK14K12400BR 0 0
RV32	551799100	1	PC	PR-ROT 100K0 OHM NON-LINEAR RK14K12400BQ 0 0

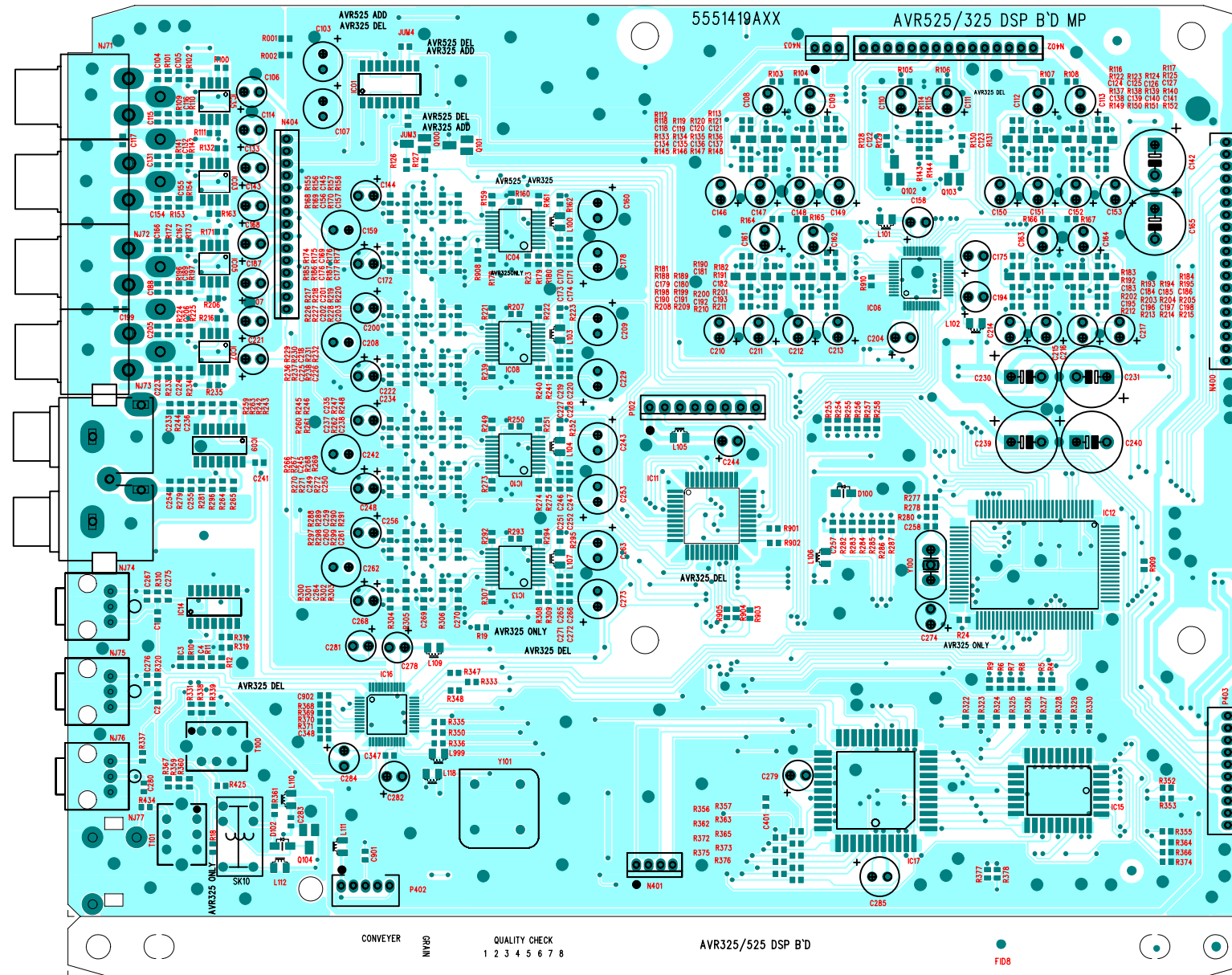
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FRONT PCB				
<i>Miscellaneous</i>				
DP10	55142780NR	1	PC	DISPLAY HNA-15LL01
W100	552133600	1	PC	WIRECONASY UNIQUE 1P 300MM UL1007 PVC DISCRETE 22 1
W101	552133600	1	PC	WIRECONASY UNIQUE 1P 300MM UL1007 PVC DISCRETE 22 1
W102	552133600	1	PC	WIRECONASY UNIQUE 1P 300MM UL1007 PVC DISCRETE 22 1
Y100	55126140NR	1	PC	CRESONATOR 10M0 HZ 25.0 OHM 0F
J177	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J178	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J179	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J180	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J181	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J182	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J183	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J184	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J185	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J186	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J187	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J188	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J189	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J190	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J191	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J192	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J193	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J194	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J195	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J196	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J197	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J198	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J200	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J201	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J202	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J203	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J208	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J215	5517938016	1	PC	LF 4U7H +10% 1.7 OHM 190.0A
J310	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J400	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
J401	1032875091	1	PC	RMGCFMIC 0 OHM +0% 62MI5W
L100	5517938016	1	PC	LF 4U7H +10% 1.7 OHM 190.0A
L101	5517938016	1	PC	LF 4U7H +10% 1.7 OHM 190.0A
N102	552131400	1	PC	WIRECONASY UNIQUE 4P 220MM UL1007 PVC DISCRETE 26 1
N103	5555914A0	1	PC	WIRECONASY DL 2.0MM 4P 650MM UL1007 RIBBON 26 1
N104	55596550NR	1	PC	WIRECONASY DL 2.0MM 10P 580MM UL1533 SHIELD 26 1
N105	556813800	1	PC	WIRECONASY UNIQUE 7P 480MM UL1007 PVC DISCRETE 26 1
N106	55558760NR	1	PC	WIRECONASY DL 2.0MM 9P 450MM UL1007 RIBBON 26 1
N107	55510380NR	1	PC	WIRECONASY UNIQUE 4 600MM UL1533 SHIELD 26 1
N108	55558740NR	1	PC	WIRECONASY DL 2.0MM 6P 550MM UL1533 SHIELD 26 1
N109	551758800	1	PC	WIRECONASY UNIQUE 2P 100MM UL1007 PVC DISCRETE 26 1
N110	5550306A0	1	PC	WIRECONASY DL 2.5MM 7P 400MM UL1007 RIBBON 24 1
N111	552132300	1	PC	WIRECONASY UNIQUE 4P 100MM UL1007 PVC DISCRETE 26 1
NJ80	55171510	1	PC	CON PHONO SCKT RCA-313P 3 PINS
NJ81	55113960	1	PC	CON DIN SCKT SOCKET CONNECTOR SVHS EST-S408J
P100	55123320	1	PC	CONN 2.0MM 5 MA ST NAT LW2002P05 0 0
P101	55123340	1	PC	CONN 2.0MM 8 MA ST NAT LW2002P08 0 0
P103	55230490	1	PC	CONN 1.25MM 31 FE R BK 00-6216-031-120-808 0 0
FN10	55177570	1	PC	AC PUN SHIELD FENCE TONE
	55505880NR	1	PC	FFC CABLE 25MM 600MM 31 PIN FROM FRONT TO PROC PCB

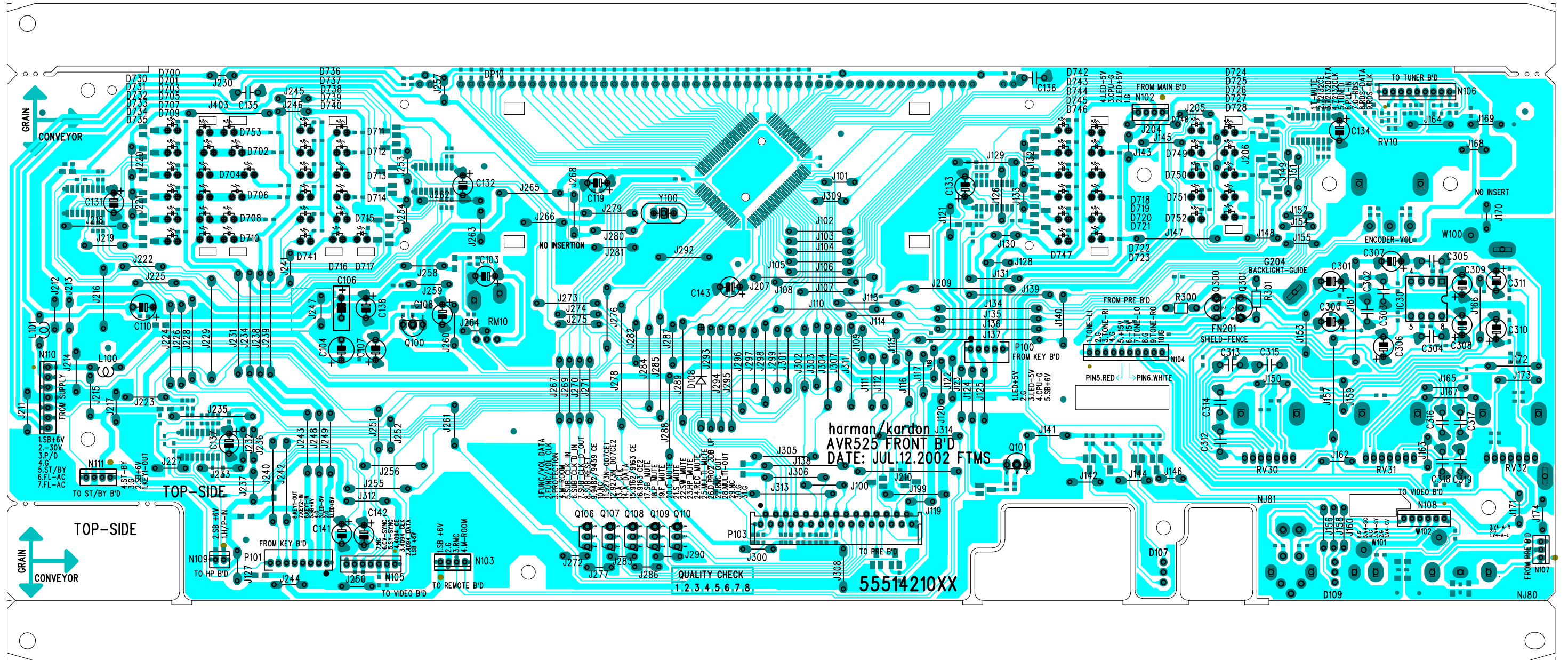
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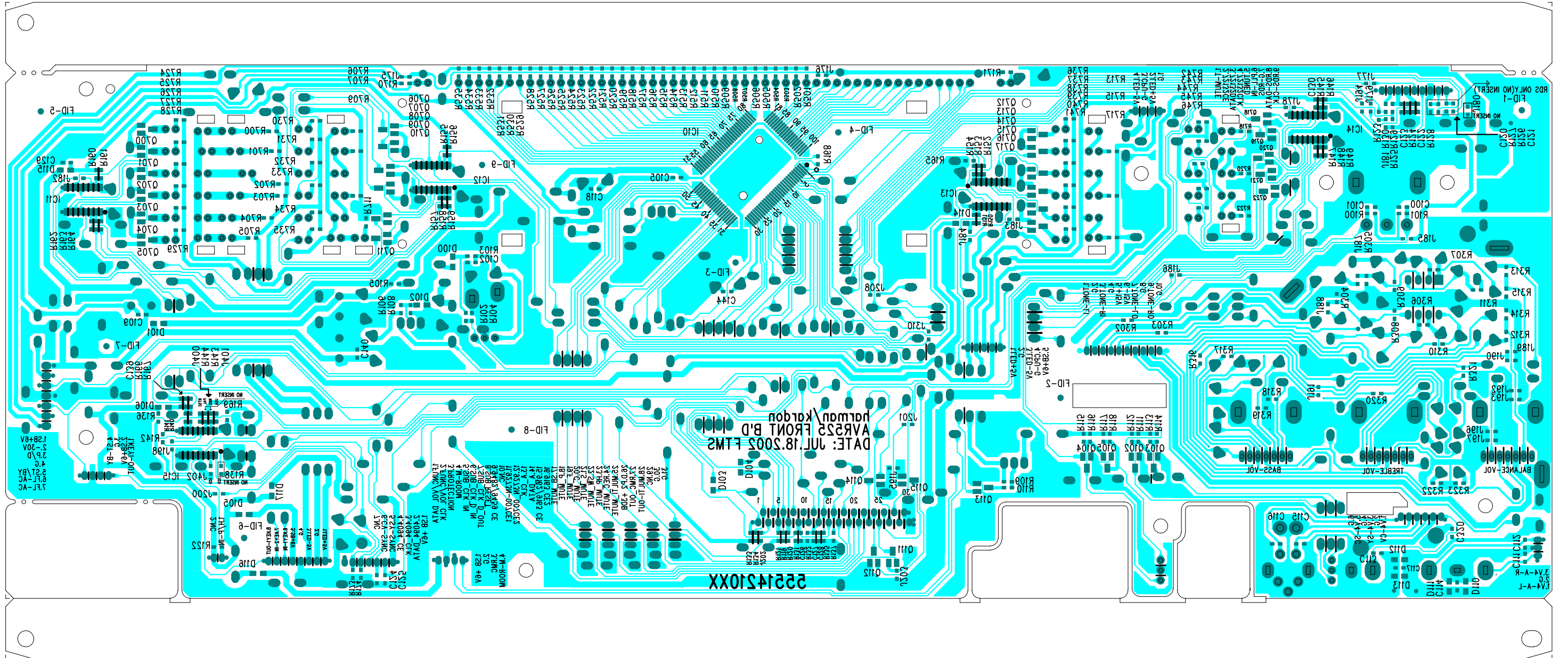


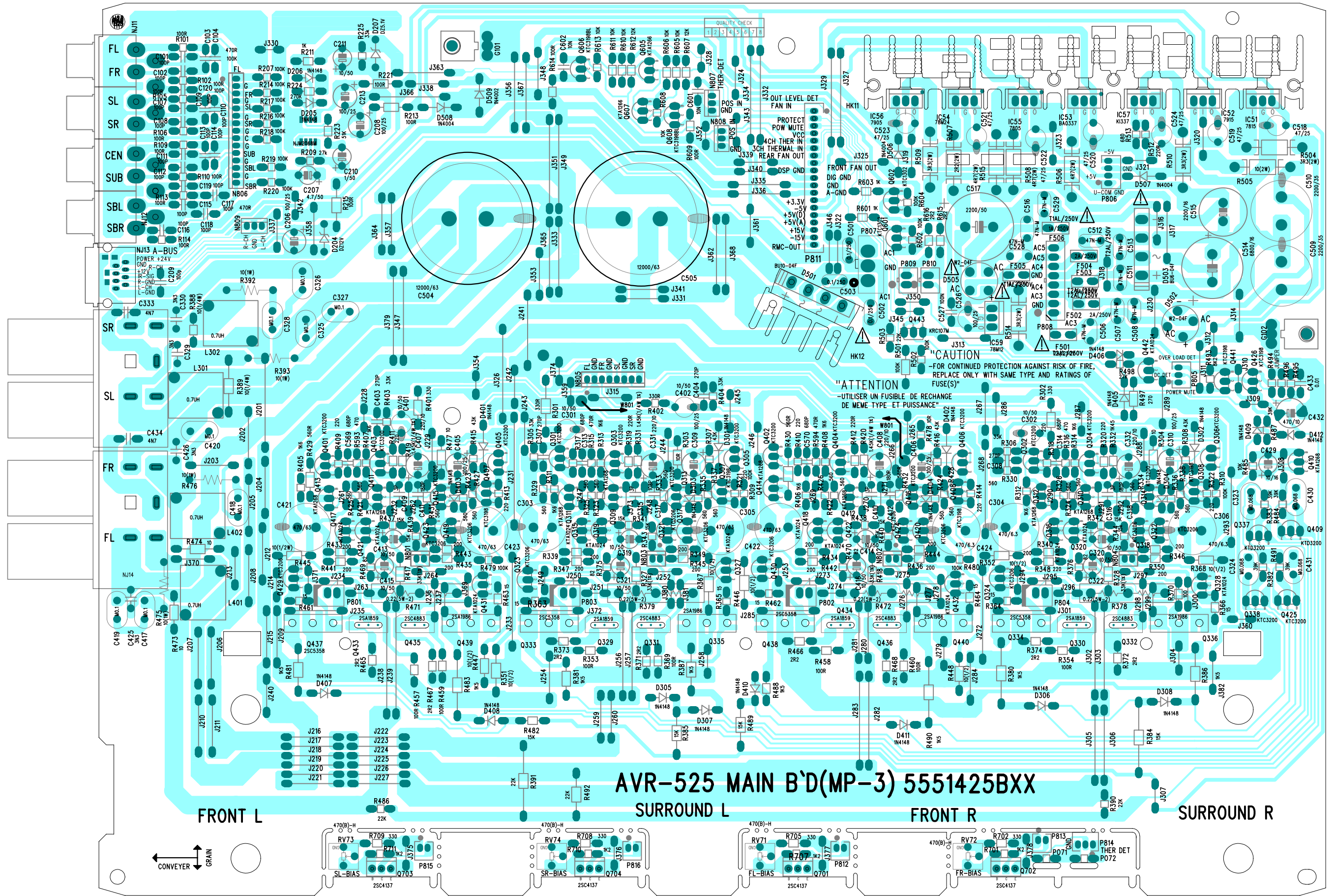


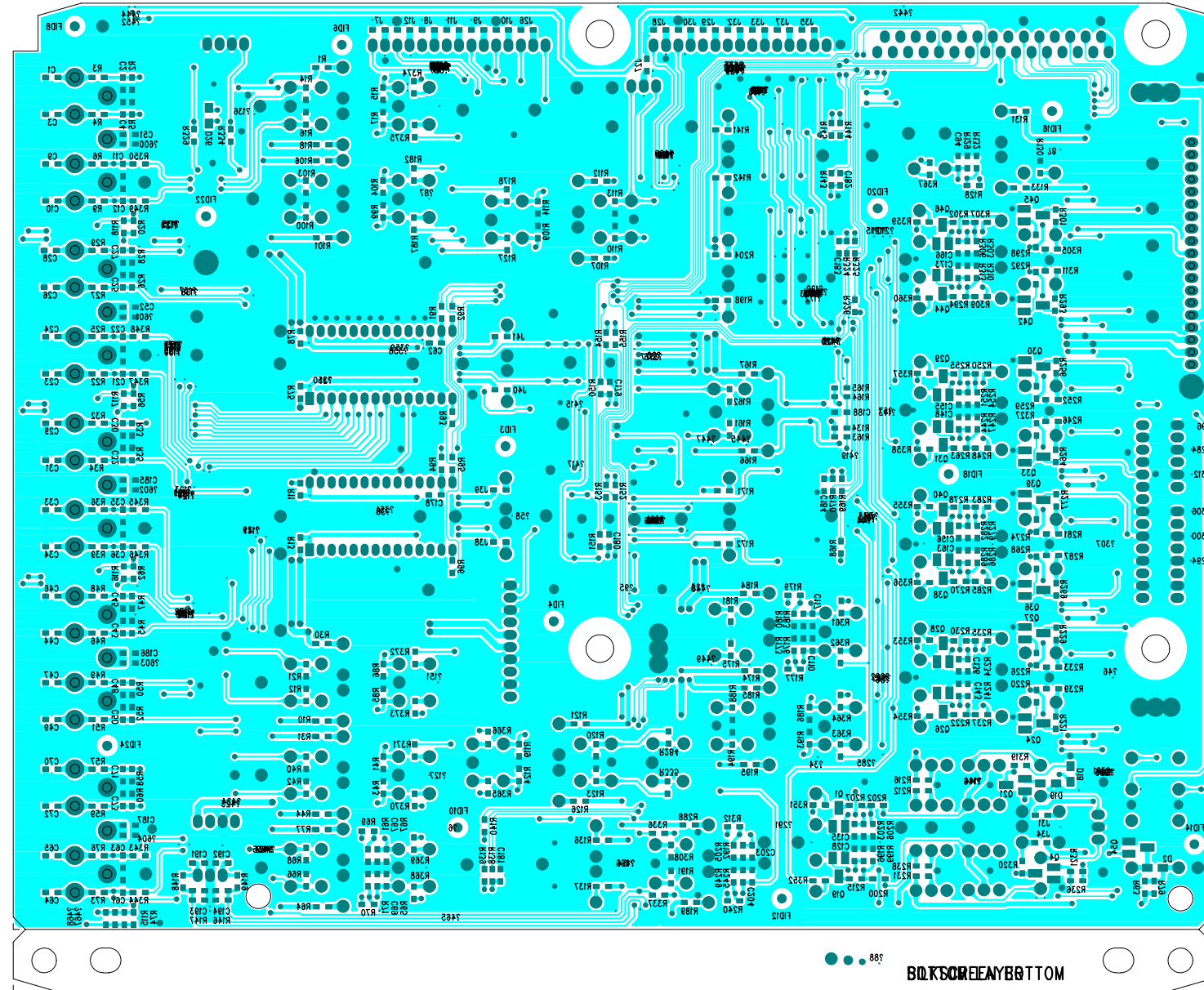


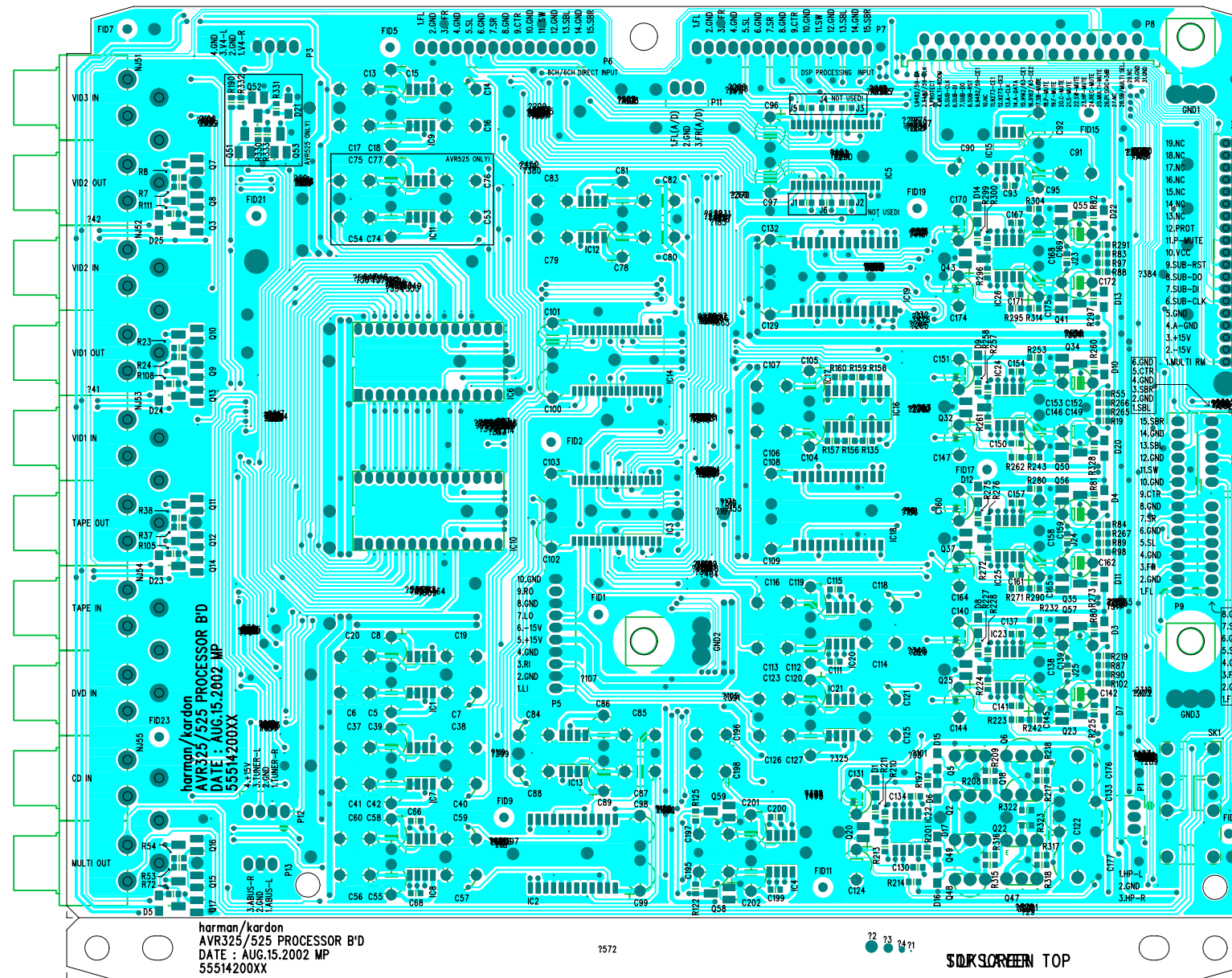


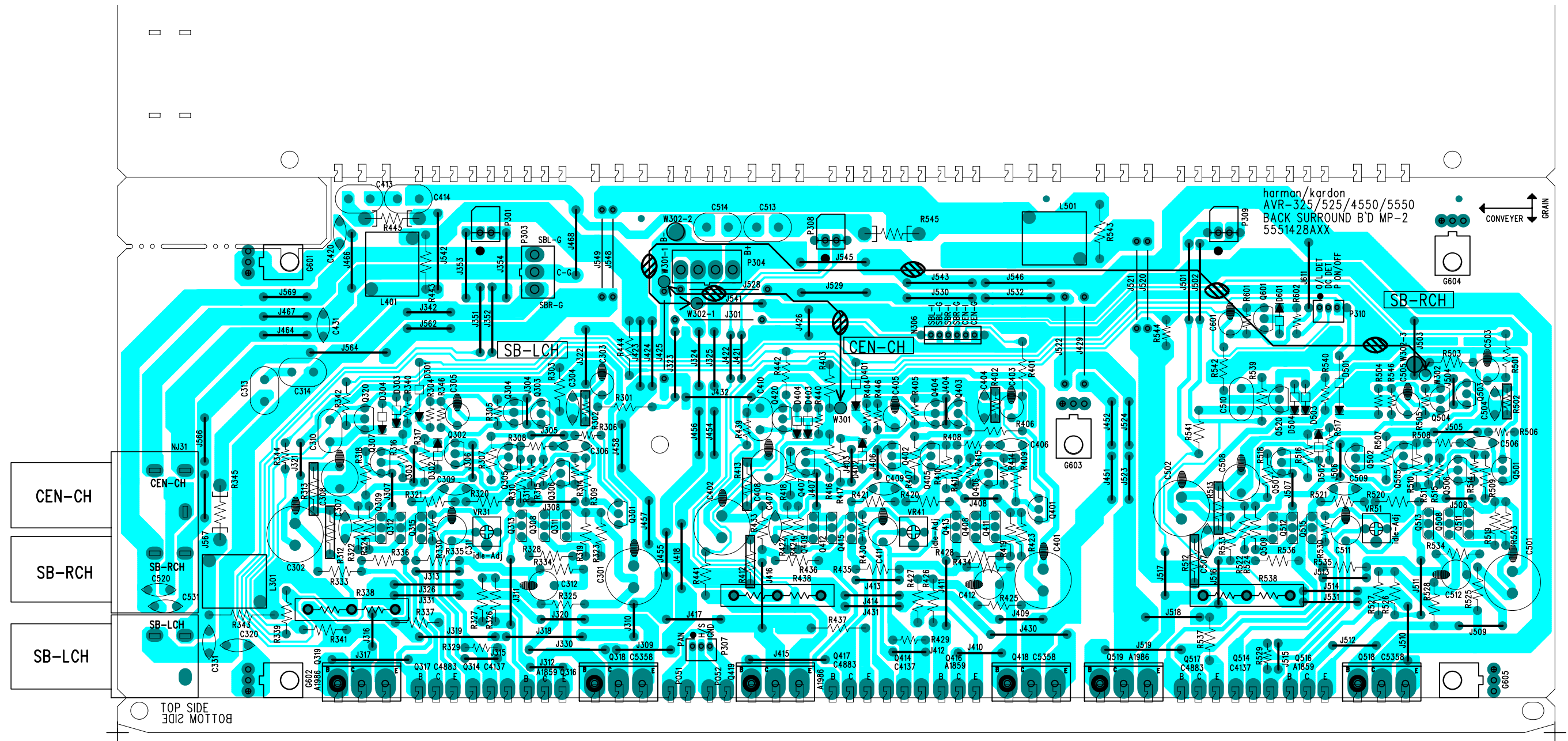








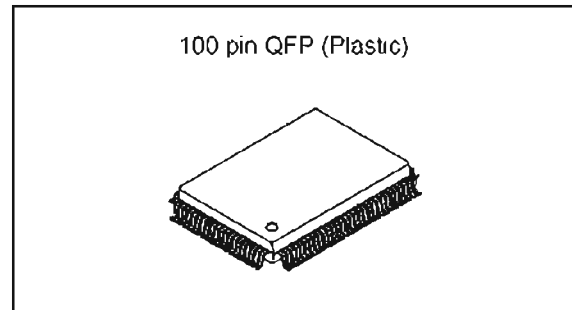




SONY**CXP82832/82840/82852/82860****CMOS 8-bit Single Chip Microcomputer****Description**

The CXP82832/82840/82852/82860 is a CMOS 8-bit single chip microcomputer integrating on a single chip an A/D converter, serial interface, timer/counter, time base timer, capture timer/counter, fluorescent display panel controller/driver, remote control reception circuit, and PWM output besides the basic configurations of 8-bit CPU, ROM, RAM, and I/O port.

The CXP82832/82840/82852/82860 also provides sleep/stop function that enables lower power consumption.

**Structure**

Silicon gate CMOS IC

Features

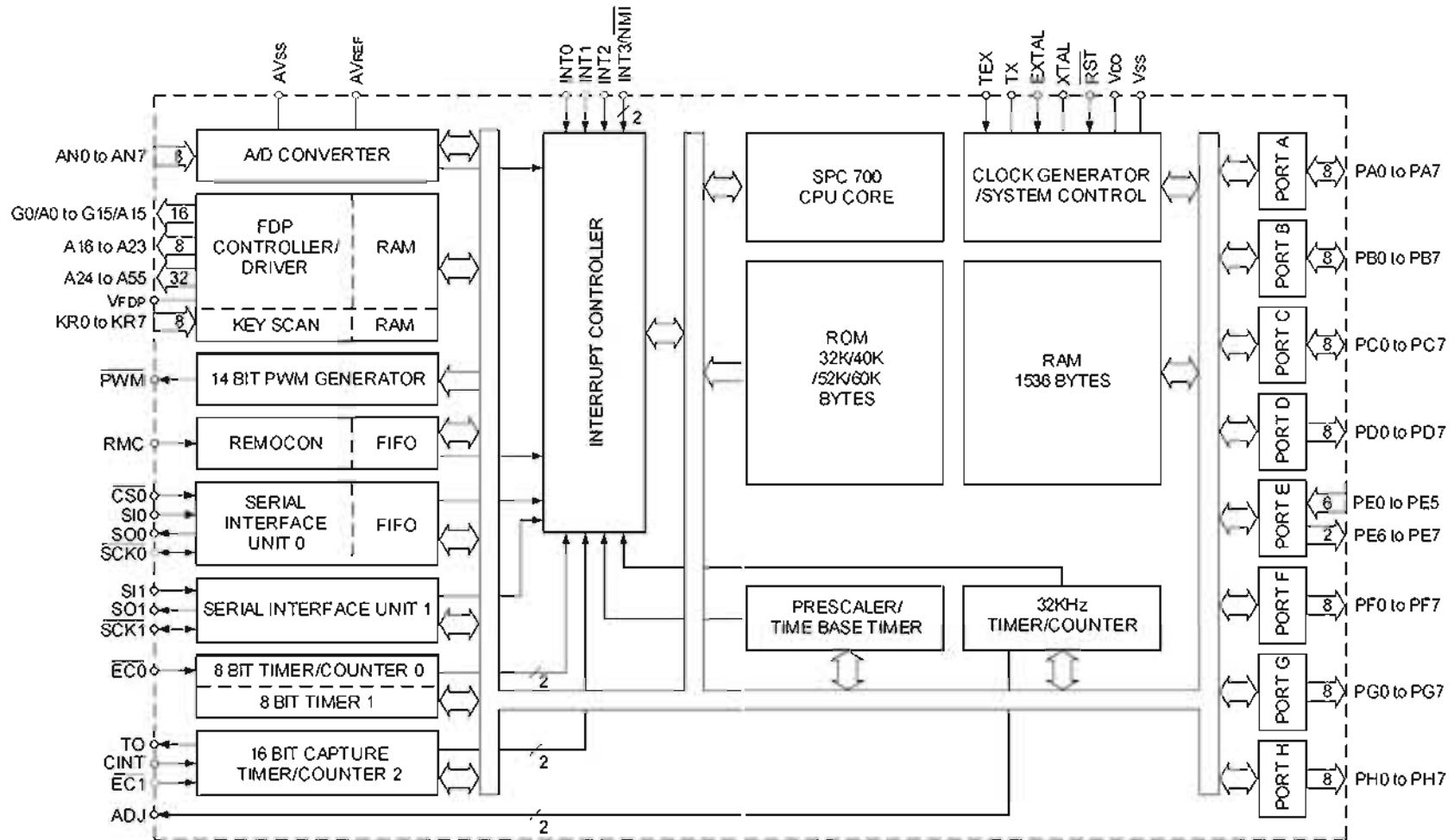
- Wide-range instruction system (213 instructions) to cover various types of data
 - 16-bit arithmetic/multiplication and division/boolean bit operation instructions
- Minimum instruction cycle
 - 400ns at 10MHz operation
 - (122μs at 32kHz operation)
- Incorporated ROM capacity
 - 32K bytes (CXP82832)
 - 40K bytes (CXP82840)
 - 52K bytes (CXP82852)
 - 60K bytes (CXP82860)
- Incorporated RAM capacity
 - 1536 bytes (including fluorescent display area)
- Peripheral functions
 - A/D converter
 - 8 bits, 8 channels, successive approximation method
 - (Conversion time of 32μs/10MHz)
 - Serial interface
 - 8-bit, 8-stage FIFO incorporated
 - (Auto transfer for 1 to 8 bytes), 1 channel
 - 8-bit clock synchronized type, 1 channel
 - Timers
 - 8-bit timer, 8-bit timer/counter, 19-bit time base timer
 - 16-bit capture timer/counter, 32kHz timer/counter
 - Fluorescent display panel controller/driver
 - Supports the universal grid fluorescent display panel.
 - High voltage drive output port of 56 pins (40V)
 - Maximum of 640 segments display possible
 - Display timing number of 1 to 20
 - Dimmer function
 - Incorporated pull-down resistor (Mask option)
 - Hardware key scan function (Maximum of 16 × 8 key matrix supportable)
 - Remote control reception circuit
 - 8-bit pulse measurement counter, 6-stage FIFO
 - PWM output
 - 14 bits, 1 channel
- Interruption
 - 16 factors, 15 vectors, multi-interruption possible
- Standby mode
 - SLEEP/STOP
- Package
 - 100-pin plastic QFP
- Piggyback/evaluation chip
 - CXP82800 100-pin ceramic QFP

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Block Diagram



CXP82832/82840/82852/82860



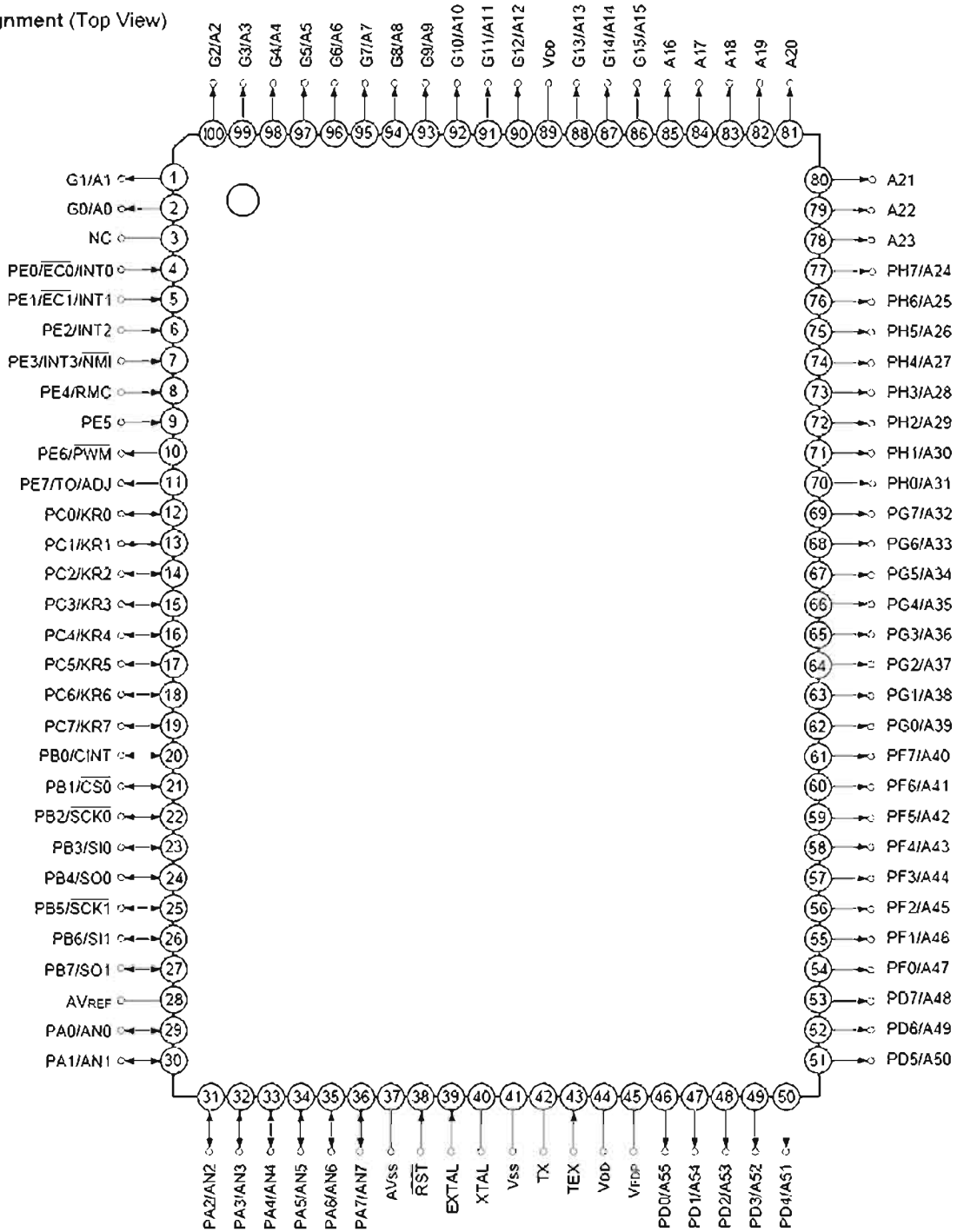
CMOS 8-Bit Single Chip Microcomputer IC

CXP82860

SONY

CXP82832/82840/82852/82860

Pin Assignment (Top View)



- Note)** 1. NC (Pin 3) must be connected to V_{DD}.
 2. V_{DD} (Pins 44 and 89) must be connected to V_{DD}.

Pin code	I/O	Functions		
PA0/AN0 to PA7/AN7	I/O/ Analog input	(Port A) 8-bit I/O port. I/O can be set in a unit of single bits. Incorporation of the pull-up resistor can be set through the software in a unit of 4 bits. (8pins)	Analog inputs to A/D converter. (8 pins)	
PB0/CINT	I/O/Input	(Port B) 8-bit I/O port. I/O can be set in a unit of single bits. Incorporation of the pull-up resistor can be set through the software in a unit of 4 bits. (8 pins)	Capture input to 16-bit timer/counter.	
PB1/ $\overline{CS0}$	I/O/Input		Chip select input for serial interface (CH0).	
PB2/ $\overline{SCK0}$	I/O/I/O		Serial clock I/O (CH0).	
PB3/SI0	I/O/Input		Serial data input (CH0).	
PB4/SO0	I/O/Output		Serial data output (CH0).	
PB5/ $\overline{SCK1}$	I/O/I/O		Serial clock I/O (CH1).	
PB6/SI1	I/O/Input		Serial data input (CH1).	
PB7/SO1	I/O/Output		Serial data output (CH1).	
PC0/KR0 to PC7/KR7 AVR325	I/O/Input	(Port C) 8-bit I/O port. I/O can be set in a unit of single bits. Can drive 12mA sync current. Incorporation of the pull-up resistor can be set through the software in a unit of 4 bits. (8 pins)	Serves as key return inputs when operating key scan with fluorescent display panel (FDP) segment signal. (8 pins) harman/kardon	
PD0/A55 to PD7/A48	Output/Output	(Port D) 8-bit output port. (8 pins)	FDP segment signal (anode connection) outputs.	
PE0/INT0/ $\overline{EC0}$	Input/Input/Input	(Port E) 8-bit port. Lower 6 bits are for inputs; upper 2 bits are for outputs. (8 pins)	Inputs for external interruption request. (4 pins)	External event inputs for timer/counter. (2 pins)
PE1/INT1/ $\overline{EC1}$	Input/Input/Input			Non-maskable interruption request input.
PE2/INT2	Input/Input		Remote control reception circuit input.	
PE3/INT3/ NMI	Input/Input/Input		14-bit PWM output.	
PE4/RMC	Input/Input		Output for the 16-bit timer/counter rectangular waves, and 32kHz oscillation frequency division.	
PE5	Input			
PE6/ \overline{PWM}	Output/Output			
PE7/TO/ADJ	Output/Output/ Output			
PF0/A47 to PF7/A40	Output/Output	(Port F) 8-bit output port. (8pins)	FDP segment signal (anode connection) outputs.	

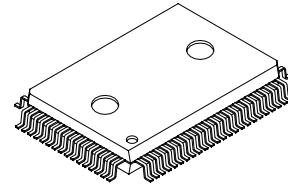
Pin code	I/O	Functions	
PG0/A39 to PG7/A32	Output/Output	(Port G) 8-bit output port. (8 pins)	FDP segment signal (anode connection) outputs. (8 pins)
PH0/A31 to PH7/A24	Output/Output	(Port H) 8-bit output port. (8 pins)	FDP segment signal (anode connection) outputs. (8 pins)
A16 to A23	Output	FDP segment signal (anode connection) outputs. (8 pins)	
G0/A0 to G15/A15	Output/Output	Outputs for FDP timing signals (grid connection)/segment signals (anode connection). (16 pins)	
V _{FDP}		FDP voltage supply when incorporated pull-down (PD) resistor is set by mask option.	
EXTAL	Input	Crystal connectors for system clock oscillation. When the clock is supplied externally, input to EXTAL; opposite phase clock should be input to XTAL.	
XTAL	Output		
TEX	Input	Crystal connectors for 32kHz timer/counter clock oscillation. For usage as event input, input to TEX, and open TX.	
TX	Output		
$\overline{\text{RST}}$	Input	Low-level active, system reset	
NC		NC. Under normal operation, connect to V _{DD} .	
AV _{REF}	Input	Reference voltage input for A/D converter.	
AV _{SS}		A/D converter GND.	
V _{DD}		V _{CC} supply.	
V _{SS}		GND.	

SONY**CXP82532/82540****CMOS 8-bit Single Chip Microcomputer****Description**

The CXP82532/82540 microcomputer is composed of a CPU, ROM RAM, and I/O ports. These chips feature many other high-performance circuits in a single-chip CMOS design, including an A/D converter, serial interface, timer/counter, time-base timer, capture timer/counter, fluorescent display controller/driver, remote control receiver.

This device also includes a power-on reset function and sleep/stop functions which can be used to achieve low power consumption.

80 pin QFP (Plastic)

**Features**

- Instruction set which supports a wide array of data types
 - 213 types of instructions which include 16-bit calculations, multiplication and division arithmetic, and boolean bit operations.
- Minimum instruction cycle 400ns for 10MHz operation
- On-chip ROM 32K bytes (CXP82532)
 40K bytes (CXP82540)
- On-chip RAM 1120 bytes (Including fluorescent display data area)
- Peripheral functions:
 - A/D converter 8-bit, 8-channel, successive approximation system
(conversion time 32 μ s/10MHz)
 - Serial interface On-chip 8-bit, 8-stage FIFO (1 to 8 bytes auto transfer) 1 channel
8-bit clock synchronized 1 channel
 - Timers 8-bit timer
8-bit timer/counter
19-bit time-base timer
16-bit capture timer/counter
 - Fluorescent display controller/driver Maximum of 336 segment display available
1 to 16 digits dynamic display
Dimmer function
High voltage tolerance output (40V)
On-chip pull-down resistor (Mask option)
 - Remote control receiver circuit On-chip noise elimination circuit
On-chip 6 stage FIFO 8-bit pulse measurement counter
- Interrupts 14 factors, 15 vectors multi-interruption possible
- Standby mode Sleep/stop
- Package 80-pin plastic QFP
- Piggyback/evaluator CXP82500 80-pin ceramic QFP

Structure

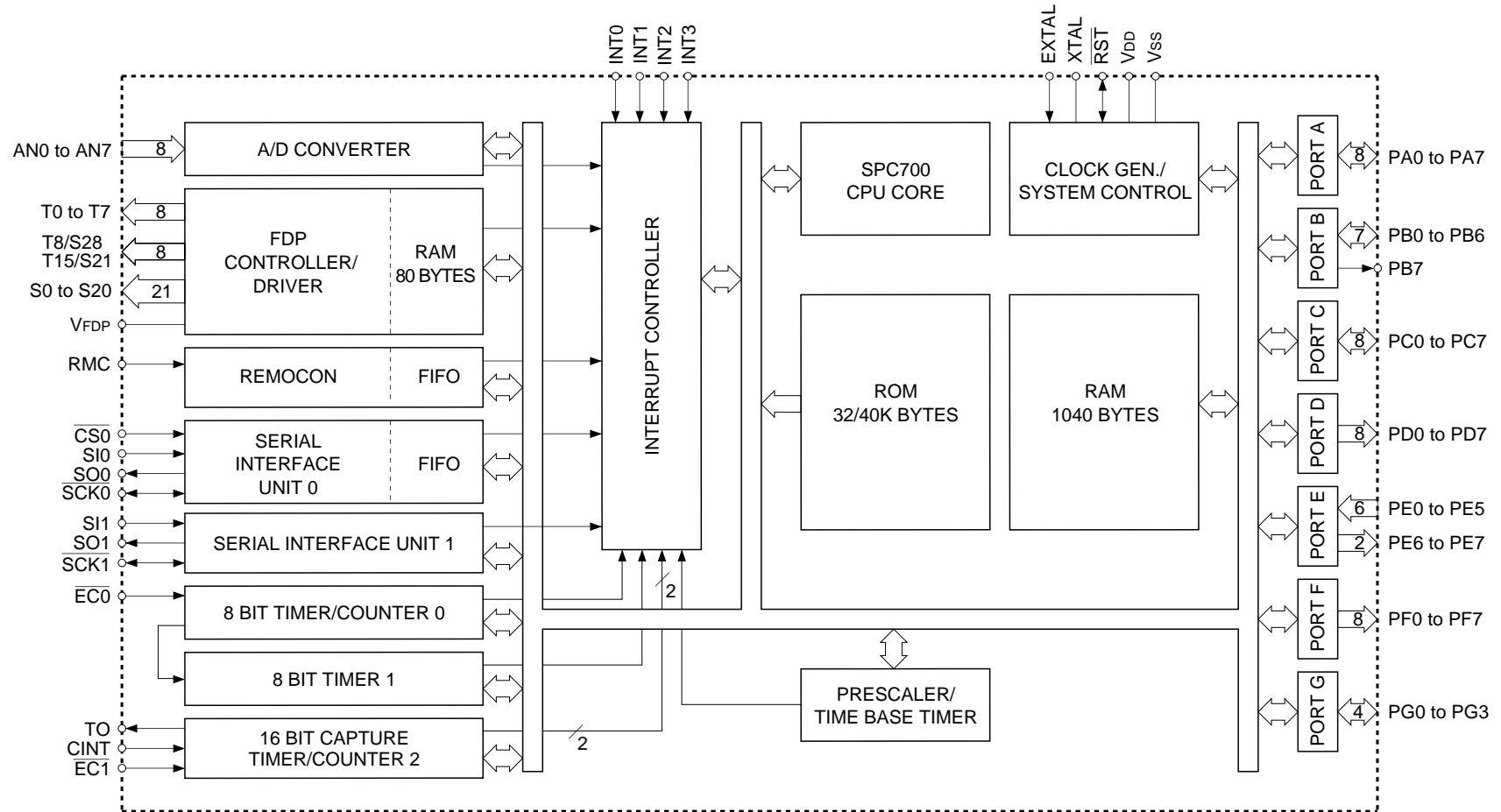
Silicon gate CMOS IC

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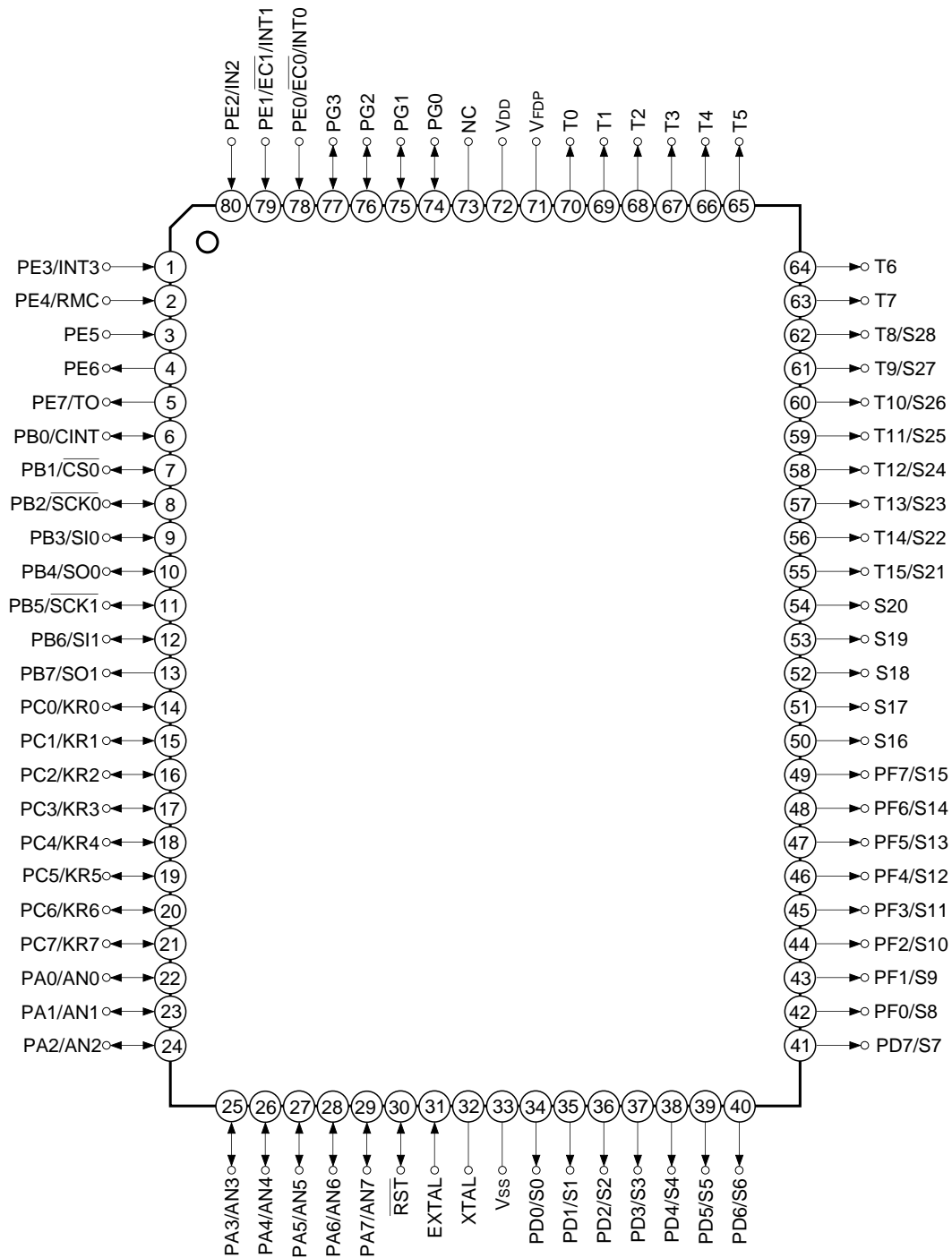
Block Diagram

SONY

CXP82532/82540



Pin Assignment (Top View)



Note) NC (Pin 73) is always connected to V_{DD}.

Pin Description

Symbol	I/O	Description	
PA0/AN0 to PA7/AN7	I/O/Analog input	(Port A) 8-bit port; single bit addressable. (8 pins)	Analog input to A/D converter. (8 pins)
PB0/CINT	I/O/Input	(Port B) Single bit addressable from amongst lower 7 bits; highest bit (PB7) dedicated to output. (8 pins)	External capture input for 16-bit timer/counter.
PB1/ $\overline{CS0}$	I/O/Input		Chip select input for serial interface (CH0).
PB2/ $\overline{SCK0}$	I/O/I/O		Serial clock (CH0) input/output.
PB3/SI0	I/O/Input		Serial data (CH0) input.
PB4/SO0	I/O/Output		Serial data (CH0) output.
PB5/ $\overline{SCK1}$	I/O/I/O		Serial clock (CH1) input/output.
PB6/SI1	I/O/Input		Serial data (CH1) input.
PB7/SO1	Output/Output		Serial data (CH1) output.
PC0/KR0 to PC7/KR7	I/O/Input		(Port C) 8-bit port; single bit addressable. Can provide 12mA sink current. (8 pins)
PE0/INT0/ $\overline{EC0}$	Input/Input/Input	(Port E) 8-bit port with lower 6 bits dedicated to input and upper 2 bits dedicated to output. (8 pins)	Input for external interrupt requests. (4 pins)
PE1/INT1/ $\overline{EC1}$	Input/Input/Input		
PE2/INT2	Input/Input		Input for remote control receiver circuit.
PE3/INT3	Input/Input		
PE4/RMC	Input/Input		
PE5	Input		Output pin for 16-bit timer/counter rectangular waveform.
PE6	Output		
PE7/TO	Output/Output		
PG0 to PG3	I/O	(Port G) 4-bit input/output port; single bit addressable. (4 pins)	
PF0/S8 to PF7/S15	Output/Output	(Port F) 8-bit dedicated output port. (8 pins)	Segment signal output for FDP.
S16 to S20	Output	Segment signal output for FDP.	
T8/S28 to T15/S21	Output/Output	Dual purpose output for FDP timing and segment signals.	
T0 to T7	Output	Timing signal output for FDP.	
PD0/S0 to PD7/S7	Output/Output	(Port D) 8-bit dedicated output port. (8 pins)	Segment signal output for FDP.

Symbol	I/O	Description
V _{FDP}		Provides voltage for FDP when on-chip resistor is selected under mask option.
EXTAL	Input	Connection for system clock oscillation crystal. When using an external clock, input normal signal to EXTAL and reverse phase signal to the XTAL pin.
XTAL	Output	
$\overline{\text{RST}}$	I/O	System reset, active "L". The $\overline{\text{RST}}$ pin is an input/output pin which outputs a "L" level from the on-chip power-on reset circuit when the power is turned on. (Mask option)
NC		NC pin is always connected to V _{DD} .
V _{DD}		Positive power supply pin.
V _{SS}		GND

DATA SHEET

NEC

MOS INTEGRATED CIRCUIT
 μ PD4721

RS-232 LINE DRIVER/RECEIVER AT 3.3 V/5 V

The μ PD4721 is a high-breakdown voltage silicon gate CMOS line driver/receiver based on the EIA/TIA-232-E standard. The internal DC/DC converter can switch between multiple voltages, realizing the allowing it to operate with a single +3.3 V or +5 V power supply. It also provides standby function.

This IC incorporates 2 driver circuits and 2 receiver circuits. An RS-232 interface circuit can be easily configured by connecting 5 capacitors externally.

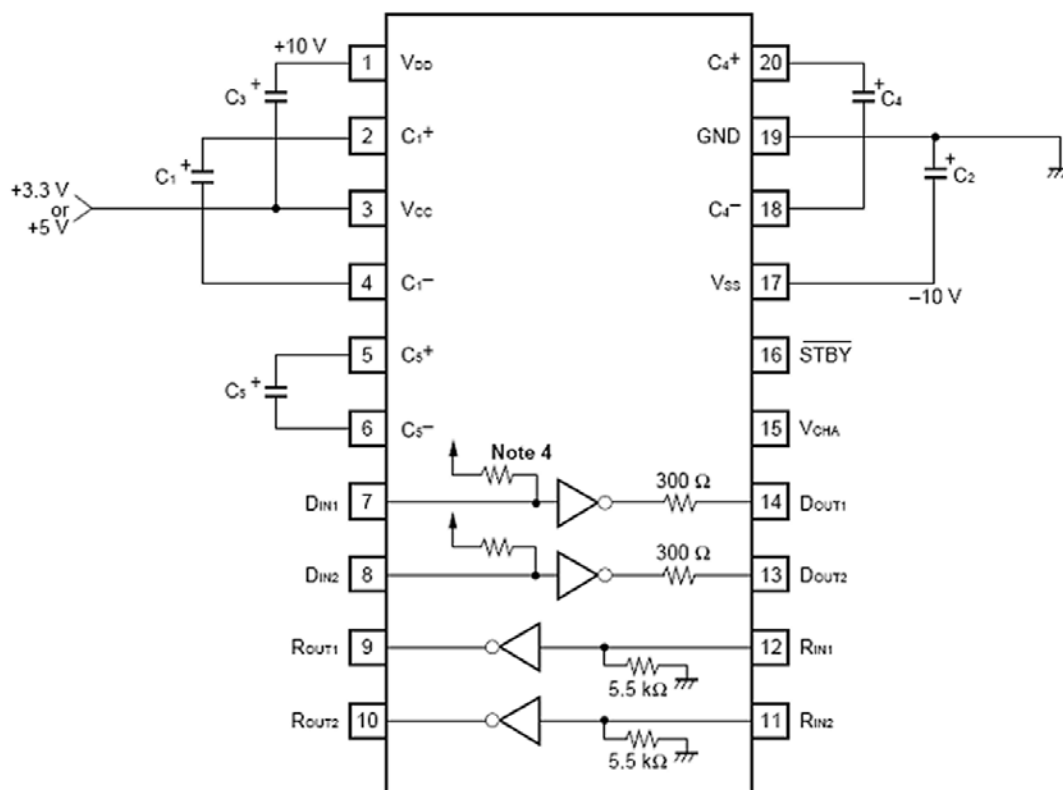
FEATURES

- Conforms to EIA/TIA-232-E (former name, RS-232C) standards
- Selectable +3.3 V/+5 V single power supply (selected by V_{CHA} pin)
- By setting the standby pin to a low level (standby mode), circuit current can be reduced. At such times, the driver output is in a high-impedance state.

ORDERING INFORMATION

Part number	Package
μ PD4721GS-GJG	20-pin plastic SSOP (300 mil)

BLOCK DIAGRAM/PIN CONFIGURATION (Top View)



- Note 1.** V_{DD} and V_{SS} are output pins stepped up internally. These pins should not be loaded directly.
- 2.** Capacitors C_1 to C_5 with a breakdown voltage of 20 V or higher are recommended. And it is recommended to insert the capacitor that is 0.1 μ F to 1 μ F between V_{CC} and GND.
- 3.** If V_{CHA} is kept low level (in 5 V mode), capacitor C_5 is not necessary.
- 4.** The pull-up resistors at driver input are active resistors.

Truth Table

Driver

\overline{STBY}	D_{IN}	D_{OUT}	Remarks
L	×	Z	Standby mode (DC/DC converter is stopped)
H	L	H	Space level output
H	H	L	Mark level output

Receiver

\overline{STBY}	R_{IN}	R_{OUT}	Remarks
L	×	H	Standby mode (DC/DC converter is stopped)
H	L	H	Mark level input
H	H	L	Space level input

3 V \leftrightarrow 5 V switching ^{Note 5}

V_{CHA}	Operating mode
L	5 V mode (double step-up)
H	3 V mode (3 times step-up)

H: high-level, L: low-level, Z: high-impedance, ×: H or L

Note 5. When switching V_{CHA} , standby mode must be selected ($\overline{STBY} = L$).

mitsumi

Video Switch · 75Ω driver · Y/C mix MM1501

Video Switch · 75Ω driver · Y/C mix Monolithic IC MM1501 Series

Outline

This IC extends the series of ICs for video/audio signal switching, with a 2-input 1-output single video switch, video signal/chroma signal 75Ω driver, and Y/C mixing circuit in one small package (SOT-26).

Features

- (1) Low power consumption achieved.
- (2) Low power supply voltage realized.
- (3) Frequency bandwidth without 75Ω driver: 10MHz with 75Ω driver: 7MHz
- (4) Cross talk 70dB When 4.43MHz
- (5) With SAG measures pin (75Ω driver and Y/C mix driver)

Package

- SOT-26A (with 75Ω driver)
- SOT-26B (without 75Ω driver)

Applications

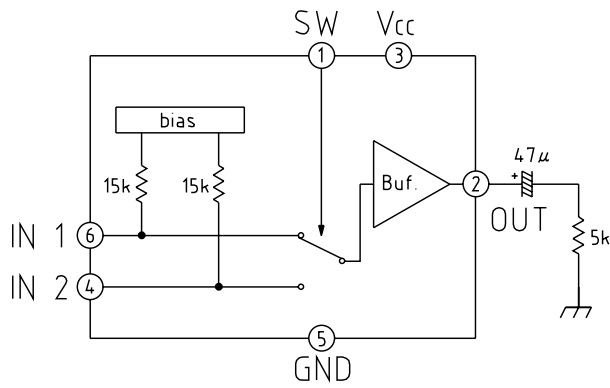
- (1) TV
- (2) VTR
- (3) Video camera
- (4) Digital still camera
- (5) Other visual equipment

Line-up

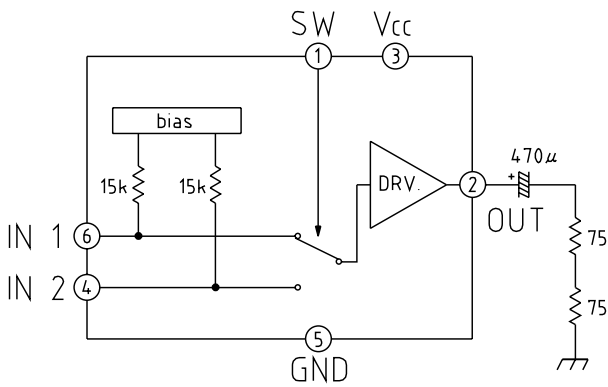
Functions	Model Name	Input	Output	Clamp	6dB amp	75Ω driver	SAG measures pin	Power supply voltage
Switch	MM1501	2	1	×	×	×	×	4.5~13.0V
	MM1502			×	○	×	×	4.5~13.0V
	MM1503			○	×	×	×	4.5~13.0V
	MM1504			○	○	×	×	4.5~13.0V
	MM1505			×	×	○	×	4.5~13.0V
	MM1506			×	○	○	×	4.5~13.0V
	MM1507			○	×	○	×	4.5~13.0V
	MM1508			○	○	○	×	4.5~13.0V
Driver	MM1509	1	1	×	○	○	○	4.5~13.0V
	MM1510			○	○	○	○	4.5~13.0V
Y/C mix	MM1511	1	1	○/×	×	×	×	4.5~13.0V
	MM1512			○/×	○	○	○	4.5~13.0V

Block Diagram

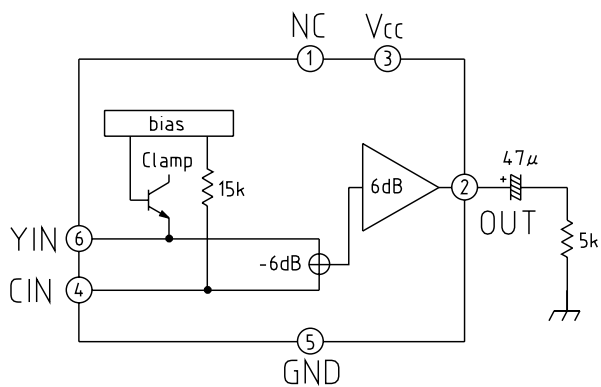
■ MM1501



■ MM1505



■ MM1511



Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Rating	Unit	
Storage temperature	T _{STG}	-40~+125	°C	
Operating temperature	T _{OPR}	-30~+75	°C	
Power supply voltage	V _{CC}	15	V	
Allowable loss	When alone	P _d	200	mW
	When mounted on board	P _d	350 (★)	mW

*Board size 100mm×100mm t=1.6

Recommended Operating Conditions

Item	Symbol	Rating	Unit
Power supply voltage	V _{CC}	4.5~13	V

Electrical Characteristics (Except where noted otherwise, Ta=25°C, V_{CC}=5V)

■ MM1501

Item	Symbol	Measurement conditions	Min.	Typ.	Max.	Unit
Consumption current	I _{CC}	Refer to measurement procedures		3.7	4.8	mA
Input pin voltage	V _{IN}	No-signal, no-load	2.70	2.90	3.10	V
Output pin voltage	V _{OUT}	No-signal, no-load		2.15		V
Voltage gain	G _V	Refer to measurement procedures	-0.5	0	+0.5	dB
Frequency characteristic	f _c	Refer to measurement procedures	-1	0	+1	dB
Differential gain	V _{CC} =9V DG	Refer to measurement procedures	-3	0	+3	%
Differential phase	V _{CC} =9V DP	Refer to measurement procedures	-3	0	+3	deg
Total harmonic distortion ratio	THD	Refer to measurement procedures		0.03	0.3	%
Output dynamic range	V _D	Refer to measurement procedures	3.5	3.8		V
Output offset voltage	V _{OFF}	Refer to measurement procedures			±15	mV
Cross talk	C _T	Refer to measurement procedures		-70	-60	dB
SW input voltage H	V _{IH}	Refer to measurement procedures	2.1			V
SW input voltage L	V _{IL}	Refer to measurement procedures			0.7	V
Input impedance	Z _i			15		kΩ
Output impedance	Z _o			75		Ω

■ MM1502

Item	Symbol	Measurement conditions	Min.	Typ.	Max.	Unit
Consumption current	I _{CC}	Refer to measurement procedures		4.7	6.1	mA
Input pin voltage	V _{IN}	No-signal, no-load	1.70	1.90	2.10	V
Output pin voltage	V _{OUT}	No-signal, no-load		2.10		V
Voltage gain	G _V	Refer to measurement procedures	5.5	6.0	6.5	dB
Frequency characteristic	f _c	Refer to measurement procedures	-1	0	+1	dB
Differential gain	V _{CC} =9V DG	Refer to measurement procedures	-3	0	+3	%
Differential phase	V _{CC} =9V DP	Refer to measurement procedures	-3	0	+3	deg
Total harmonic distortion ratio	THD	Refer to measurement procedures		0.03	0.3	%
Output dynamic range	V _D	Refer to measurement procedures	3.5	3.8		V
Output offset voltage	V _{OFF}	Refer to measurement procedures			±30	mV
Cross talk	C _T	Refer to measurement procedures		-70	-60	dB
SW input voltage H	V _{IH}	Refer to measurement procedures	2.1			V
Sw input voltage L	V _{IL}	Refer to measurement procedures			0.7	V
Input impedance	Z _i			15		kΩ
Output impedance	Z _o			12		Ω

MITSUMI

Video Switch · 75Ω driver · Y/C mix MM1501

■ MM1503

Item	Symbol	Measurement conditions	Min.	Typ.	Max.	Unit
Consumption current	I _{CC}	Refer to measurement procedures		3.3	4.3	mA
Input pin voltage	V _{IN}	No-signal, no-load	1.80	2.00	2.20	V
Output pin voltage	V _{OUT}	No-signal, no-load		1.25		V
Voltage gain	G _V	Refer to measurement procedures	-0.5	0	+0.5	dB
Frequency characteristic	f _c	Refer to measurement procedures	-1	0	+1	dB
Differential gain	DG	Refer to measurement procedures	-3	0	+3	%
Differential phase	DP	Refer to measurement procedures	-3	0	+3	deg
Total harmonic distortion ratio	THD	Refer to measurement procedures		0.03	0.3	%
Output dynamic range	V _D	Refer to measurement procedures	2.6	2.9		V
Output offset voltage	V _{OFF}	Refer to measurement procedures			±15	mV
Cross talk	C _T	Refer to measurement procedures		-70	-60	dB
SW input voltage H	V _{IH}	Refer to measurement procedures	2.1			V
SW input voltage L	V _{IL}	Refer to measurement procedures			0.7	V
Input impedance	Z _O			75		Ω

■ MM1504

Item	Symbol	Measurement conditions	Min.	Typ.	Max.	Unit
Consumption current	I _{CC}	Refer to measurement procedures		4.4	5.7	mA
Input pin voltage	V _{IN}	No-signal, no-load	1.20	1.40	1.60	V
Output pin voltage	V _{OUT}	No-signal, no-load		1.25		V
Voltage gain	G _V	Refer to measurement procedures	5.5	6.0	6.5	dB
Frequency characteristic	f _c	Refer to measurement procedures	-1	0	+1	dB
Differential gain	DG	Refer to measurement procedures	-3	0	+3	%
Differential phase	DP	Refer to measurement procedures	-3	0	+3	deg
Total harmonic distortion ratio	THD	Refer to measurement procedures		0.03	0.3	%
Output dynamic range	V _D	Refer to measurement procedures	2.6	2.9		V
Output offset voltage	V _{OFF}	Refer to measurement procedures			±30	mV
Cross talk	C _T	Refer to measurement procedures		-70	-60	dB
SW input voltage H	V _{IH}	Refer to measurement procedures	2.1			V
SW input voltage L	V _{IL}	Refer to measurement procedures			0.7	V
Input impedance	Z _O			12		Ω

■ MM1505

Item	Symbol	Measurement conditions	Min.	Typ.	Max.	Unit
Consumption current	I _{CC}	Refer to measurement procedures		6.5	8.5	mA
Input pin voltage	V _{IN}	No-signal, no-load	2.35	2.55	2.75	V
Output pin voltage	V _{OUT}	No-signal, no-load		2.55		V
Voltage gain	G _V	Refer to measurement procedures	-0.5	0.0	0.5	dB
Frequency characteristic	f _c	Refer to measurement procedures	-1	0	+1	dB
Differential gain	V _{CC=9V} DG	Refer to measurement procedures	-3	0	+3	%
Differential phase	V _{CC=9V} DP	Refer to measurement procedures	-3	0	+3	deg
Output dynamic range	V _D	Refer to measurement procedures	2.6	3.0		V
Output offset voltage	V _{OFF}	Refer to measurement procedures			±15	mV
Cross talk	C _T	Refer to measurement procedures		-70	-60	dB
SW input voltage H	V _{IH}	Refer to measurement procedures	2.1			V
SW input voltage L	V _{IL}	Refer to measurement procedures			0.7	V
Input impedance	Z _i			15		kΩ

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Video Switch · 75Ω driver · Y/C mix MM1501

■ MM1509

Item	Symbol	Measurement conditions	Min.	Typ.	Max.	Unit
Consumption current	I _{CC1}	Refer to measurement procedures		6.3	8.2	mA
Current consumption for PS	I _{CC2}	Refer to measurement procedures		20	30	μA
PS input voltage L	V _{PSL}	Refer to measurement procedures			0.3	V
PS input voltage H	V _{PSH}	Refer to measurement procedures	1.8			V
Input pin voltage	V _{IN}	No-signal, no-load	1.75	1.95	2.15	V
Output pin voltage	V _{OUT}	No-signal, no-load		2.35		V
Voltage gain	G _V	Refer to measurement procedures	5.5	6.0	6.5	dB
Frequency characteristic	f _c	Refer to measurement procedures	-1	0	+1	dB
Differential gain	V _{CC=9V} DG	Refer to measurement procedures	-3	0	+3	%
Differential phase	V _{CC=9V} DP	Refer to measurement procedures	-3	0	+3	deg
Output dynamic range	V _D	Refer to measurement procedures	2.9	3.2		V
Input impedance	Z _i			15		kΩ

■ MM1510

Item	Symbol	Measurement conditions	Min.	Typ.	Max.	Unit
Consumption current	I _{CC1}	Refer to measurement procedures		6.4	8.3	mA
Current consumption for PS	I _{CC2}	Refer to measurement procedures		20	30	μA
PS input voltage L	V _{PSL}	Refer to measurement procedures			0.3	V
PS input voltage H	V _{PSH}	Refer to measurement procedures	1.8			V
Input pin voltage	V _{IN}	No-signal, no-load	1.15	1.35	1.55	V
Output pin voltage	V _{OUT}	No-signal, no-load		1.15		V
Voltage gain	G _V	Refer to measurement procedures	5.5	6.0	6.5	dB
Frequency characteristic	f _c	Refer to measurement procedures	-1	0	+1	dB
Differential gain	DG	Refer to measurement procedures	-3	0	+3	%
Differential phase	DP	Refer to measurement procedures	-3	0	+3	deg
Output dynamic range	V _D	Refer to measurement procedures	2.6	3.0		V

■ MM1511

Item	Symbol	Measurement conditions	Min.	Typ.	Max.	Unit
Consumption current	I _{CC}	Refer to measurement procedures		4.4	5.7	mA
Y input pin voltage	V _{YIN}	No-signal, no-load	2.00	2.20	2.40	V
C input pin voltage	V _{CIN}	No-signal, no-load	1.85	2.05	2.25	V
Output pin voltage	V _{OUT}	No-signal, no-load		1.15		V
Voltage gain	G _V	Refer to measurement procedures	-0.5	0	6.5	dB
Frequency characteristic	f _c	Refer to measurement procedures	-1	0	+0.5	dB
Differential gain	DG	Refer to measurement procedures	-3	0	+3	%
Differential phase	DP	Refer to measurement procedures	-3	0	+3	deg
Y output dynamic range	V _{DY}	Refer to measurement procedures	2.6	2.9		V
C output dynamic range	V _{DC}	Refer to measurement procedures	2.0			V
C input impedance	Z _i			15		kΩ
Output impedance	Z _o			25		Ω

MITSUMI

Video Switch · 75Ω driver · Y/C mix MM1501

■ MM1512

Item	Symbol	Measurement conditions	Min.	Typ.	Max.	Unit
Consumption current	I _{CC}	Refer to measurement procedures		6.9	9.0	mA
Y input pin voltage	V _{YIN}	No-signal, no-load	1.95	2.15	2.35	V
C input pin voltage	V _{CIN}	No-signal, no-load	1.80	2.00	2.20	V
Output pin voltage	V _{OUT}	No-signal, no-load		1.10		V
Voltage gain	G _V	Refer to measurement procedures	5.5	6.0	6.5	dB
Frequency characteristic	f _c	Refer to measurement procedures	-1	0	+1	dB
Differential gain	DG	Refer to measurement procedures	-3	0	+3	%
Differential phase	DP	Refer to measurement procedures	-3	0	+3	deg
Y output dynamic range	V _{DY}	Refer to measurement procedures	2.6	2.9		V
C output dynamic range	V _{DC}	Refer to measurement procedures	2.0			V
C input impedance	Z _i			15		kΩ

Measurement Procedures

■ MM1501~MM1508

· Switch Status

Item	Symbol	Switch status		
		S1	S2	S3
Consumption current	I _{CC}	2	2	2
Voltage gain	G _V	1	2	2
		2	1	1
Frequency characteristic	f _c	1	2	2
		2	1	1
Differential gain	DG	1	2	2
		2	1	1
Differential phase	DP	1	2	2
		2	1	1

Item	Symbol	Switch status		
		S1	S2	S3
Total harmonic distortion ratio	THD	1	2	2
		2	1	1
Output dynamic range	V _D	1	2	2
		2	1	1
Output offset voltage	V _{OFF}	2	2	2
		2	2	1
Cross talk	C _T	1	2	1
		2	1	2
SW input voltage H	V _{IH}	2	2	1
SW input voltage L	V _{IL}			

·Measurement Procedures (MM1501 ~ MM1504)

Consumption current	I _{CC}	Connect a DC ammeter to V _{CC} pin and measure. Hereafter, short the ammeter to use.
Voltage gain	G _V	Input a 2.0V _{P-P} (1.0V _{P-P} for MM1502 and MM1504), 100kHz sine wave to SG1. If TP1 voltage is V ₁ and TP3 voltage is V ₂ , find G _V using the following formula: $G_V = 20\text{LOG} (V_2/V_1) \text{ dB}$
Frequency characteristic	f _c	In the above G _V measurement, if TP3 voltage at 10MHz is V ₃ , find f _c as follows: $f_c = 20\text{LOG} (V_3/V_2) \text{ dB}$
Differential gain	DG	Input a 2.0V _{P-P} (1.0V _{P-P} for MM1502 and MM1504) staircase to SG1 and measure differential gain at TP3. APL = 10 ~ 90%
Differential phase	DP	The same as for DG, but measure differential phase.
Total harmonic distortion ratio	THD	Input a 2.5V _{P-P} (1.25V _{P-P} for MM1502, MM1504), 1kHz sine wave to SG1, connect a distortion factor meter to TP3 and measure.
Output dynamic range	V _D	Input a 100kHz sine wave to SG1. Change the amplitude of the sine wave, and measure V _D , the maximum amplitude under THD 1%, at TP3.
Output offset voltage	V _{OFF}	Measure the DC voltage difference of each switch status at TP2.
Cross talk	C _T	VC1 = 2.1V and VC2 = 0.7V. Input a 2.0V _{P-P} , 4.43MHz sine wave to SG1, and operate SW3. If TP3 voltage when there is an output signal on the OUT pin is V ₄ , and when there is no signal TP3 voltage is V ₅ , then find C _T by the following formula: $C_T = 20\text{LOG} (V_5/V_4) \text{ dB}$
SW input voltage	V _I	Impress an optional DC voltage on TP5 and TP6. Gradually increase from VC1 = 0V. When TP6 voltage is output on TP2, TP4 voltage is V _{IH} . Gradually lower from VC1 = V _{CC} , and when TP5 voltage is output on TP2, TP4 voltage is V _{IL} .

· Measurement Procedures (MM1505 ~ MM1508)

Consumption current	I_{CC}	Connect a DC ammeter to V_{CC} pin and measure. Hereafter, short the ammeter to use.
Voltage gain	G_V	Input a 2.0V _{P-P} (1.0V _{P-P} for MM1506 and MM1508), 100kHz sine wave to SG1. If TP1 voltage is V_1 and TP3 voltage is V_2 , find G_V using the following formula: $G_V = 20\text{LOG} (V_2/V_1) \text{ dB}$
Frequency characteristic	f_c	In the above G_V measurement, if TP3 voltage at 7MHz is V_3 , find f_c as follows: $f_c = 20\text{LOG} (V_3/V_2) \text{ dB}$
Differential gain	DG	Input a 2.0V _{P-P} (1.0V _{P-P} for MM1506 and MM1508) staircase to SG1 and measure differential gain at TP3. $\text{APL} = 10 \sim 90\%$
Differential phase	DP	The same as for DG, but measure differential phase.
Output dynamic range	V_D	Input a 100kHz sine wave to SG1. Change the amplitude of the sine wave, and measure V_D , the maximum amplitude under THD 1%, at TP3.
Output offset voltage	V_{OFF}	Measure the DC voltage difference of each switch status at TP2.
Cross talk	C_T	$V_{C1} = 2.1\text{V}$ and $V_{C2} = 0.7\text{V}$. Input a 2.0V _{P-P} , 4.43MHz sine wave to SG1, and operate SW3. If TP3 voltage when there is an output signal on the OUT pin is V_4 , and when there is no signal TP3 voltage is V_5 , then find C_T by the following formula: $C_T = 20\text{LOG} (V_5/V_4) \text{ dB}$
SW input voltage	V_I	Impress an optional DC voltage on TP6 and TP7. Gradually increase from $V_{C1} = 0\text{V}$. When TP7 voltage is output on TP2, TP5 voltage is V_{IH} . Gradually lower from $V_{C1} = V_{CC}$, and when TP6 voltage is output on TP2, TP5 voltage is V_{IL} .

■ MM1511 ~ MM1512

· Switch Status

Item	Symbol	Switch status	
		S1	S2
Consumption current	I_{CC}	2	2
Voltage gain	G_V	1	2
		2	1
Frequency characteristic	f_c	1	2
		2	1

Item	Symbol	Switch status	
		S1	S2
Differential gain	DG	3	1
Differential phase	DP	3	1
Y output dynamic range	V_{DY}	2	1
C output dynamic range	V_{DC}	3	1

· Measurement Procedures

Consumption current	I_{CC1}	Connect a DC ammeter to the V_{CC} pin and measure. Hereafter, short the ammeter to use.
Voltage gain	G_V	Input a 2.0V _{P-P} (1.0V _{P-P} for MM1512), 100kHz sine wave to SG1. If TP1 voltage is V_1 and TP2 voltage is V_2 , find G_V by the following formula: $G_V = 20\text{LOG} (V_2/V_1) \text{ dB}$
Frequency characteristic	f_c	In the above G_V measurement, if TP2 voltage at 10MHz (7MHz for MM1512) is V_3 , find f_c by the following formula. $f_c = 20\text{LOG} (V_3/V_2) \text{ dB}$
Differential gain	DG	Input a 2.0V _{P-P} (1.0V _{P-P} for MM1512) to SG1, input a chroma signal to SG2, and measure differential gain at TP2. $\text{APL} = 10 \sim 90\%$
Differential phase	DP	The same as for DG, but measure differential phase.
Y output dynamic range	V_{DY}	Input a 100kHz sine wave to SG1. Measure V_{DY} , the maximum amplitude under THD 1%, at TP2.
C output dynamic range	V_{DC}	Input an APL 50% luminance signal to SG1 and input a chroma signal to SG2. Change the chroma signal amplitude and measure V_{DC} , the maximum amplitude where there is no waveform distortion at TP2.


CS4382

114 dB, 192 kHz 8-Channel D/A Converter

Features

- 24-Bit Conversion
- Up to 192 kHz Sample Rates
- 114 dB Dynamic Range
- -100 dB THD+N
- Supports PCM and DSD Data Formats
- Selectable Digital Filters
- Volume Control with Soft Ramp
 - 1 dB Step Size
 - Zero Crossing Click-Free Transitions
- Dedicated DSD inputs
- Low Clock Jitter Sensitivity
- Simultaneous Support for Two Synchronous Sample Rates for DVD Audio
- μ C or Stand-Alone Operation

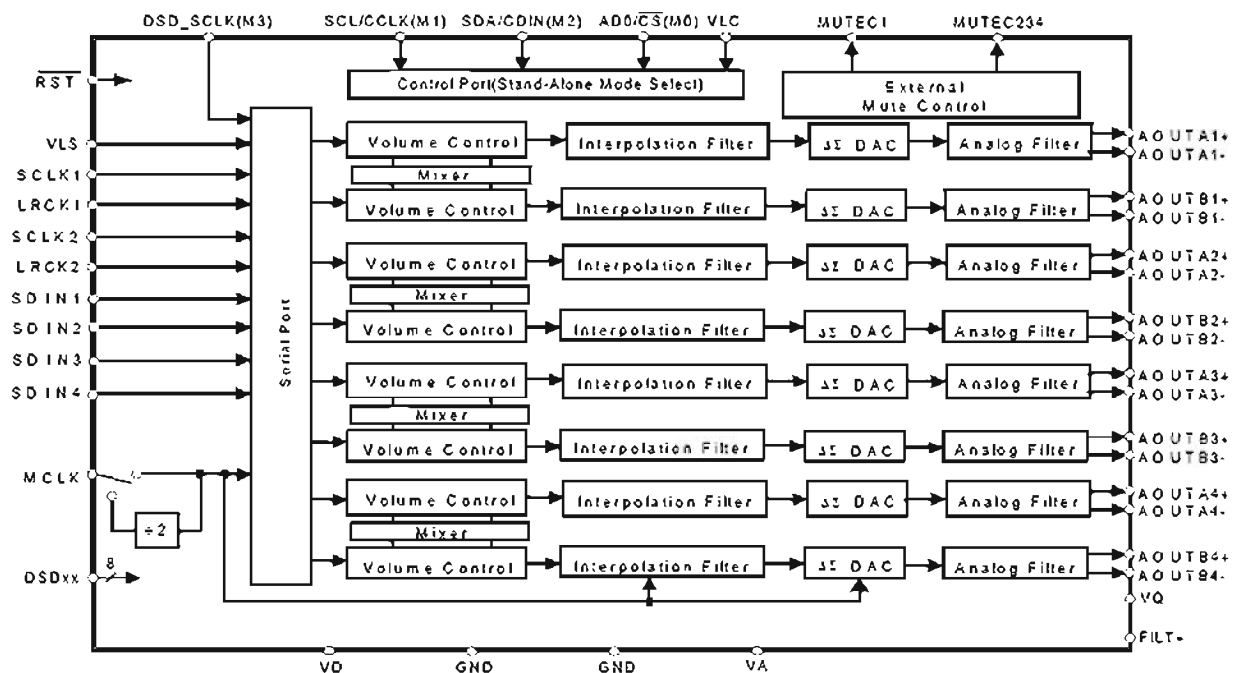
Description

The CS4382 is a complete 8-channel digital-to-analog system including digital interpolation, fifth-order delta-sigma digital-to-analog conversion, digital de-emphasis, volume control and analog filtering. The advantages of this architecture include: ideal differential linearity, no distortion mechanisms due to resistor matching errors, no linearity drift over time and temperature and a high tolerance to clock jitter.

The CS4382 accepts PCM data at sample rates from 4 kHz to 192 kHz, DSD audio data, and operates over a wide power supply range. These features are ideal for multi-channel audio systems including DVD players, SACD players, AV receivers, digital TV's and VCR's, mixing consoles, effects processors, set-top boxes, and automotive audio systems.

ORDERING INFORMATION

CS4382-KQZ, Lead Free	-10 to 70 °C	48-pin LQFP
CS4382-BQ	-40 to 85 °C	48-pin LQFP
CDB4382		Evaluation Board

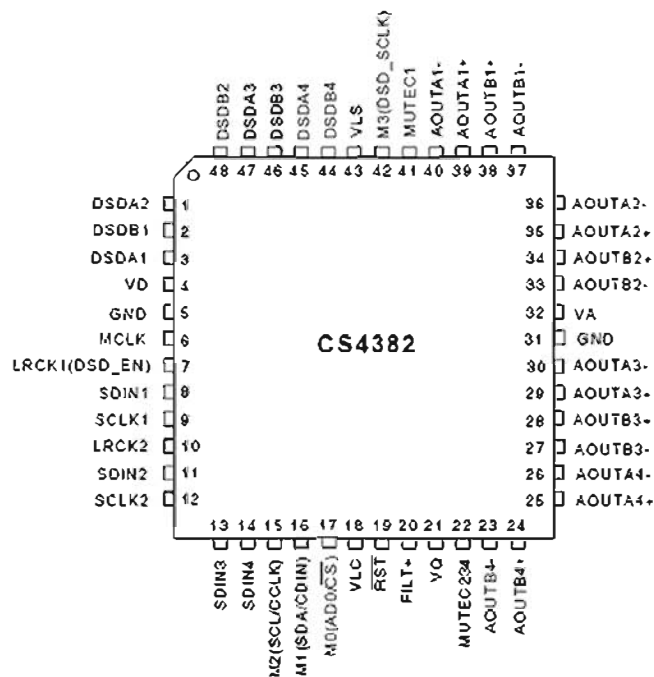


Preliminary Product Information

This document contains information for a new product. Cirrus Logic reserves the right to modify this product without notice.



4. PIN DESCRIPTION



Pin Name	#	Pin Description
VD	4	Digital Power (Input) - Positive power supply for the digital section. Refer to the Recommended Operating Conditions for appropriate voltages.
GND	5 31	Ground (Input) - Ground reference. Should be connected to analog ground.
MCLK	6	Master Clock (Input) - Clock source for the delta-sigma modulator and digital filters. Table 5 illustrates several standard audio sample rates and the required master clock frequency.
LRCK1 LRCK2	7 10	Left Right Clock (Input) - Determines which channel, Left or Right, is currently active on the serial audio data line. The frequency of the left/right clock must be at the audio sample rate, F_s .
SDIN1 SDIN2 SDIN3 SDIN4	8 11 13 14	Serial Audio Data Input (Input) - Input for two's complement serial audio data.
SCLK1 SCLK2	9 12	Serial Clock (Input) - Serial clock for the serial audio interface.
VLC	18	Control Port Power (Input) - Determines the required signal level for the control port. Refer to the Recommended Operating Conditions for appropriate voltages.
RST	19	Reset (Input) - The device enters a low power mode and all internal registers are reset to their default settings when low.
FILT+	20	Positive Voltage Reference (Output) - Positive reference voltage for the internal sampling circuits. Requires the capacitive decoupling to analog ground, as shown in the Typical Connection Diagram.
VQ	21	Quiescent Voltage (Output) - Filter connection for internal quiescent voltage. VQ must be capacitively coupled to analog ground, as shown in the Typical Connection Diagram. The nominal voltage level is specified in the Analog Characteristics and Specifications section. VQ presents an appreciable source impedance and any current drawn from this pin will alter device performance. However, VQ can be used to bias the analog circuitry assuming there is no AC signal component and the DC current is less than the maximum specified in the Analog Characteristics and Specifications section.



CS4382

Pin Name	#	Pin Description
MUTE _{C1}	41	Mute Control (Output) - The Mute Control pins go high during power-up initialization, reset, muting, power-down or if the master clock to left/right clock frequency ratio is incorrect. These pins are intended to be used as a control for external mute circuits to prevent the clicks and pops that can occur in any single supply system. The use of external mute circuits are not mandatory but may be desired for designs requiring the absolute minimum in extraneous clicks and pops.
MUTE _{C234}	22	
AOUTA1 +,-	39, 40	Differential Analog Output (Output) - The full scale differential analog output level is specified in the Analog Characteristics specification table.
AOUTB1 +,-	38, 37	
AOUTA2 +,-	35, 36	
AOUTB2 +,-	34, 33	
AOUTA3 +,-	29, 30	
AOUTB3 +,-	28, 27	
AOUTA4 +,-	25, 26	
AOUTB4 +,-	24, 23	
VA	32	Analog Power (Input) - Positive power supply for the analog section. Refer to the Recommended Operating Conditions for appropriate voltages.
VLS	43	Serial Audio Interface Power (Input) - Determines the required signal level for the serial audio interface. Refer to the Recommended Operating Conditions for appropriate voltages.

Control Port Definitions

SCL/CCLK	15	Serial Control Port Clock (Input) - Serial clock for the serial control port. Requires an external pull-up resistor to the logic interface voltage in I ² C mode as shown in the Typical Connection Diagram.
SDA/CDIN	16	Serial Control Data (Input/Output) - SDA is a data I/O line in I ² C mode and requires an external pull-up resistor to the logic interface voltage, as shown in the Typical Connection Diagram. CDIN is the input data line for the control port interface in SPI mode.
AD0/ $\overline{\text{CS}}$	17	Address Bit 0 (I²C) / Control Port Chip Select (SPI) (Input) - AD0 is a chip address pin in I ² C mode; $\overline{\text{CS}}$ is the chip select signal for SPI format.

Stand-Alone Definitions

M0	17	Mode Selection (Input) - Determines the operational mode of the device as detailed in Tables 6 and 7.
M1	16	
M2	15	
M3	42	

DSD Definitions

DSD_SCLK	42	DSD Serial Clock (Input) - Serial clock for the Direct Stream Digital audio interface.
DSD_EN	7	DSD-Enable (Input) - When held at logic '1' the device will enter DSD mode (Stand-Alone mode only).
DSDA1	3	Direct Stream Digital Input (Input) - Input for Direct Stream Digital serial audio data.
DSDB1	2	
DSDA2	1	
DSDB2	48	
DSDA3	47	
DSDB3	46	
DSDA4	45	
DSDB4	44	

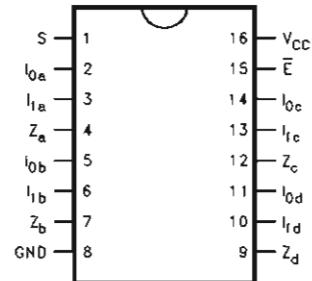
74VHC157MX

Quad 2-Input Multiplexer

Pin Configuration

Pin Names	Description
I_{0a} – I_{0d}	Source 0 Data Inputs
I_{1a} – I_{1d}	Source 1 Data Inputs
\bar{E}	Enable Input
S	Select Input
Z_a – Z_d	Outputs

Connection Diagram



Truth Table

Inputs				Outputs
\bar{E}	S	I_0	I_1	Z
H	X	X	X	L
L	H	X	L	L
L	H	X	H	H
L	L	L	X	L
L	L	H	X	H

H = HIGH Voltage Level
L = LOW Voltage Level
X = Immaterial

Functional Description

The VHC157 is a quad 2-input multiplexer. It selects four bits of data from two sources under the control of a common Select input (S). The Enable input (\bar{E}) is active-LOW. When \bar{E} is HIGH, all of the outputs (Z) are forced LOW regardless of all other inputs. The VHC157 is the logic implementation of a 4-pole, 2-position switch where the position of the switch is determined by the logic levels supplied to the Select input. The logic equations for the outputs are shown below:

$$Z_a = \bar{E} \cdot (I_{1a} \cdot S + I_{0a} \cdot \bar{S})$$

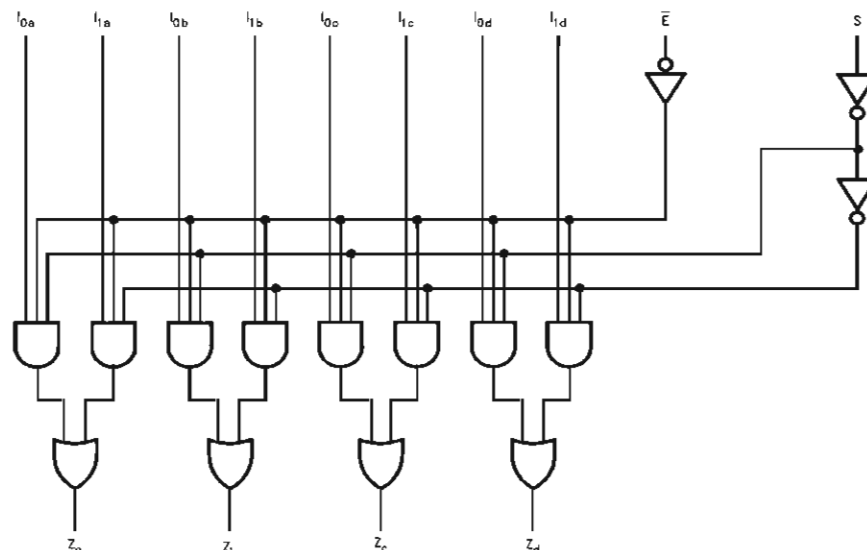
$$Z_b = \bar{E} \cdot (I_{1b} \cdot S + I_{0b} \cdot \bar{S})$$

$$Z_c = \bar{E} \cdot (I_{1c} \cdot S + I_{0c} \cdot \bar{S})$$

$$Z_d = \bar{E} \cdot (I_{1d} \cdot S + I_{0d} \cdot \bar{S})$$

A common use of the VHC157 is the moving of data from two groups of registers to four common output busses. The particular register from which the data comes is determined by the state of the Select input. A less obvious use is as a function generator. The VHC157 can generate any four of the sixteen different functions of two variables with one variable common. This is useful for implementing gating functions.

Logic Diagram



Please note that this diagram is provided only for the understanding of logic operations and should not be used to estimate propagation delays.



November 1992
Revised April 1999

74VHC244

Octal Buffer/Line Driver with 3-STATE Outputs

General Description

The VHC244 is an advanced high speed CMOS octal bus buffer fabricated with silicon gate CMOS technology. It achieves high speed operation similar to equivalent Bipolar Schottky TTL while maintaining the CMOS low power dissipation. The VHC244 is a non-inverting 3-STATE buffer having two active-LOW output enables. These devices are designed to be used as 3-STATE memory address drivers, clock drivers, and bus oriented transmitter/receivers.

An input protection circuit ensures that 0V to 7V can be applied to the input pins without regard to the supply voltage. This device can be used to interface 5V to 3V systems and two supply systems such as battery back up. This cir-

cuit prevents device destruction due to mismatched supply and input voltages.

Features

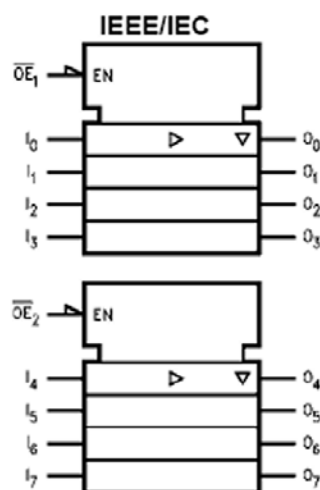
- High Speed: $t_{PD} = 3.9\text{ns}$ (typ) at $V_{CC} = 5\text{V}$
- High noise immunity: $V_{NIH} = V_{NIL} = 28\% V_{CC}$ (min)
- Power down protection is provided on all inputs
- Low noise: $V_{OLP} = 0.6\text{V}$ (typ)
- Low power dissipation: $I_{CC} = 4\ \mu\text{A}$ (max) @ $T_A = 25^\circ\text{C}$
- Pin and function compatible with 74HC244

Ordering Code:

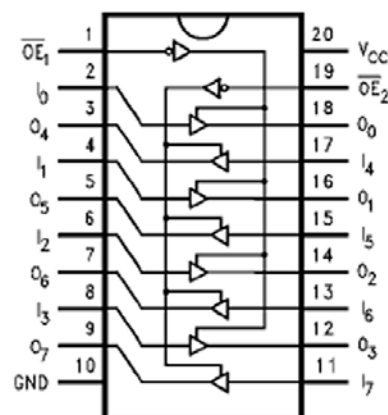
Order Number	Package Number	Package Description
74VHC244M	M20B	20-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-013, 0.300" Wide
74VHC244SJ	M20D	20-Lead Small Outline Package (SOP), EIAJ TYPE II, 5.3mm Wide
74VHC244MTC	MTC20	20-Lead Thin Shrink Small Outline Package (TSSOP), JEDEC MO-153, 4.4mm Wide
74VHC244N	N20A	20-Lead Plastic Dual-In-Line Package (PDIP), JEDEC MS-001, 0.300" Wide

Surface mount packages are also available on Tape and Reel. Specify by appending the suffix letter "X" to the ordering code.

Logic Symbol



Connection Diagram



Pin Descriptions

Pin Names	Description
$\overline{OE}_1, \overline{OE}_2$	3-STATE Output Enable Inputs
I_0-I_7	Inputs
O_0-O_7	3-STATE Outputs

Truth Tables

Inputs		Outputs (Pins 12, 14, 16, 18)
\overline{OE}_1	I_n	
L	L	L
L	H	H
H	X	Z

Inputs		Outputs (Pins 3, 5, 7, 9)
\overline{OE}_2	I_n	
L	L	L
L	H	H
H	X	Z

H = HIGH Voltage Level
 L = LOW Voltage Level
 I = Immaterial
 Z = High Impedance

74VHC574

OCTAL D-TYPE FLIP FLOP WITH 3 STATE OUTPUTS NON INVERTING

- HIGH SPEED:
- $f_{MAX} = 180 \text{ MHz (TYP.) at } V_{CC} = 5\text{V}$
- LOW POWER DISSIPATION:
 $I_{CC} = 4 \mu\text{A (MAX.) at } T_A = 25^\circ\text{C}$
- HIGH NOISE IMMUNITY:
 $V_{NIH} = V_{NIL} = 28\% V_{CC} \text{ (MIN.)}$
- POWER DOWN PROTECTION ON INPUTS
- SYMMETRICAL OUTPUT IMPEDANCE:
 $|I_{OH}| = |I_{OL}| = 8 \text{ mA (MIN.)}$
- BALANCED PROPAGATION DELAYS:
 $t_{PLH} \approx t_{PHL}$
- OPERATING VOLTAGE RANGE:
 $V_{CC}(\text{OPR}) = 2\text{V to } 5.5\text{V}$
- PIN AND FUNCTION COMPATIBLE WITH 74 SERIES 574
- IMPROVED LATCH-UP IMMUNITY
- LOW NOISE: $V_{OLP} = 0.9\text{V (MAX.)}$

DESCRIPTION

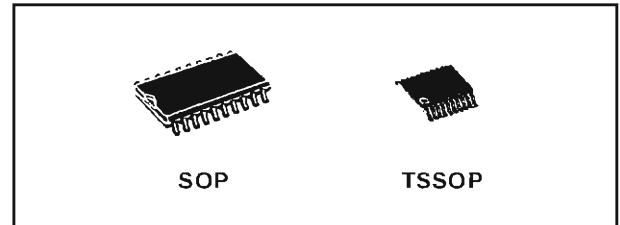
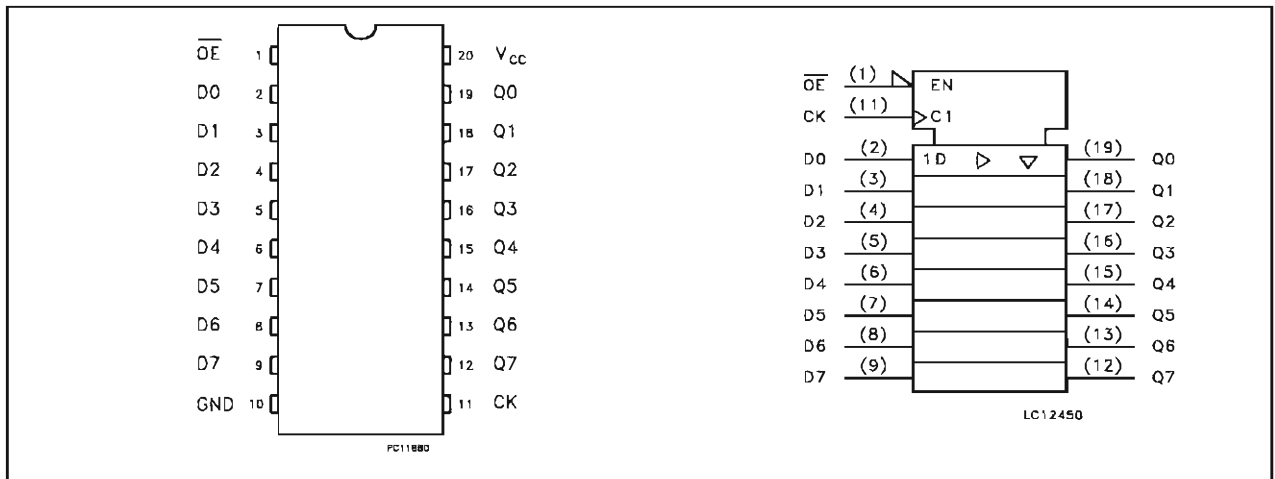
The 74VHC574 is an advanced high-speed CMOS OCTAL D-TYPE FLIP FLOP with 3 STATE OUTPUTS NON INVERTING fabricated with sub-micron silicon gate and double-layer metal wiring C²MOS technology.

These 8 bit D-Type flip-flop is controlled by a clock input (CK) and an output enable input (\overline{OE}).

On the positive transition of the clock, the Q outputs will be set to the logic states that were setup at the D inputs.

While the (\overline{OE}) input is low, the 8 outputs will be in a normal logic state (high or low logic level) and

PIN CONNECTION AND IEC LOGIC SYMBOLS



ORDER CODES

PACKAGE	TUBE	T & R
SOP	74VHC574M	74VHC574MTR
TSSOP		74VHC574TTR

while high level the outputs will be in a high impedance state.

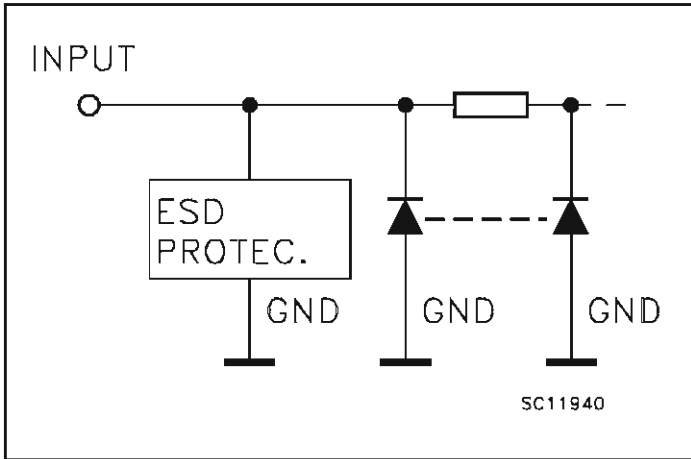
The Output control does not affect the internal operation of flip flop; that is, the old data can be retained or the new data can be entered even while the outputs are off.

Power down protection is provided on all inputs and 0 to 7V can be accepted on inputs with no regard to the supply voltage. This device can be used to interface 5V to 3V.

All inputs and outputs are equipped with protection circuits against static discharge, giving them 2KV ESD immunity and transient excess voltage.

74VHC574

INPUT EQUIVALENT CIRCUIT



PIN DESCRIPTION

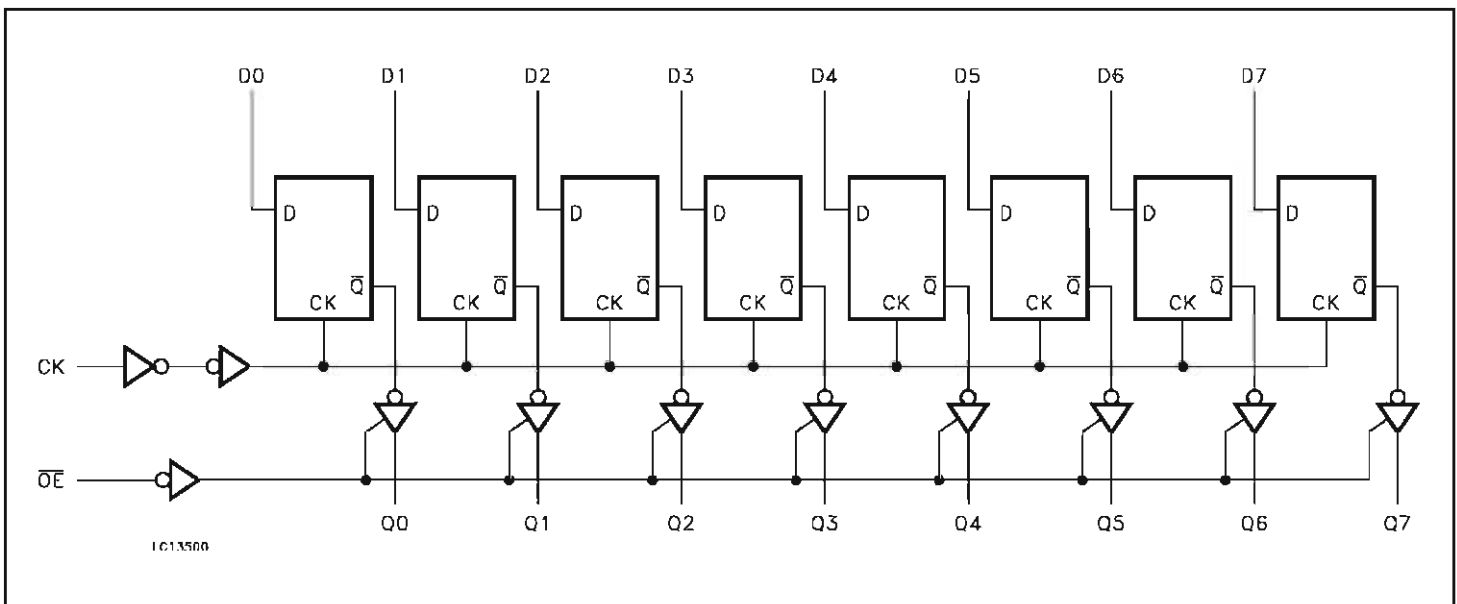
PIN No	SYMBOL	NAME AND FUNCTION
1	\overline{OE}	3-State Output Enable Input (Active LOW)
2, 3, 4, 5, 6, 7, 8, 9	D0 to D7	Data Inputs
12, 13, 14, 15, 16, 17, 18, 19	Q0 to Q7	3-State Outputs
11	CK	Clock Input (LOW-to-HIGH Edge Triggered)
10	GND	Ground (0V)
20	V _{CC}	Positive Supply Voltage

TRUTH TABLE

INPUTS			OUTPUT
\overline{OE}	CK	D	Q
H	X	X	Z
L		X	NO CHANGE
L		L	L
L		H	H

X : Don't Care
Z : High Impedance

LOGIC DIAGRAM

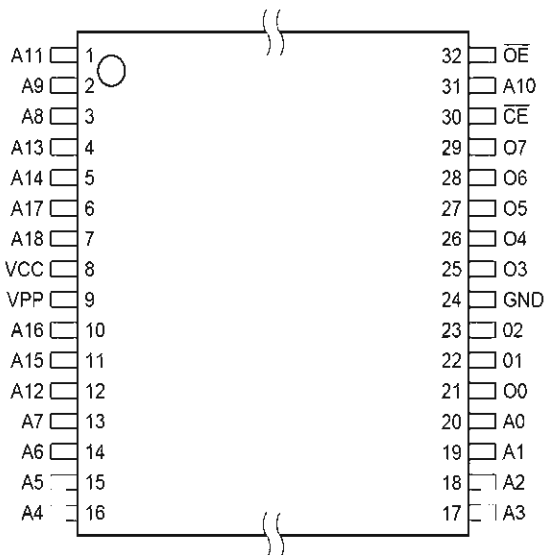
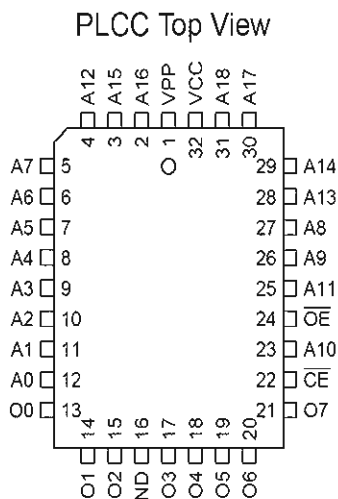


This logic diagram has not be used to estimate propagation delays

4Megabit Low Voltage OPT EPROM AT27LV040A

TSOP, VSOP Top View

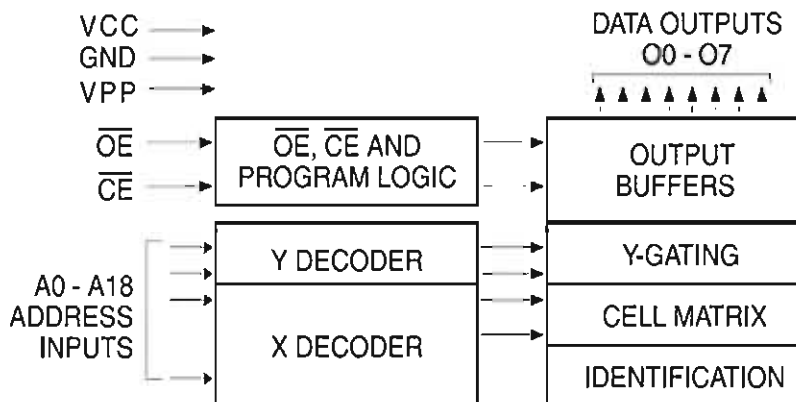
Type 1



Pin Configuration

Pin Name	Function
A0 - A18	Addresses
O0 - O7	Outputs
\overline{CE}	Chip Enable
\overline{OE}	Output Enable

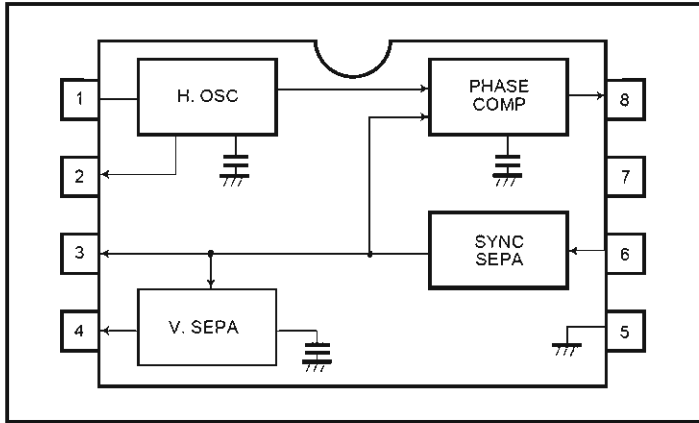
Block Diagram



BA7046/BA7046F

SYNC Separator IC with AFC

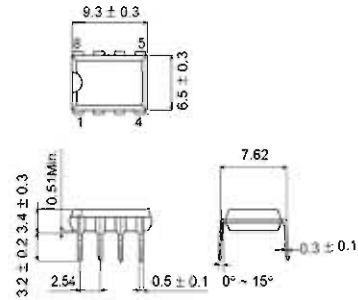
● Block diagrams



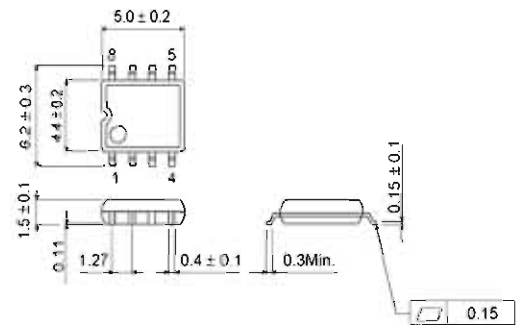
● Pin descriptions

Pin No.	Function
1	Horizontal oscillator resistor
2	H _b output
3	SYNC output (open collector)
4	V _D output
5	GND
6	Video input
7	Power supply
8	Phase comparator output

BA7046



BA7046F



● Input / output circuits

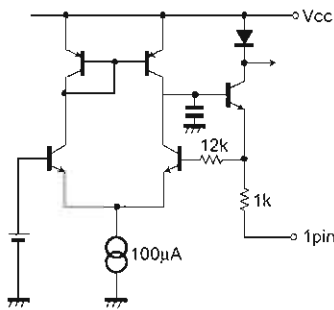


Fig. 1

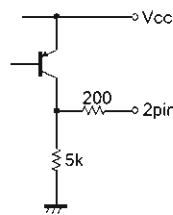


Fig. 2

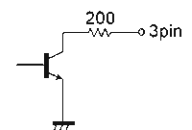


Fig. 3

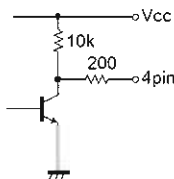


Fig. 4

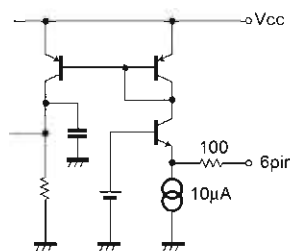


Fig. 5

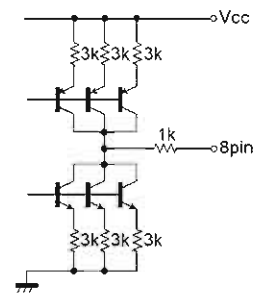
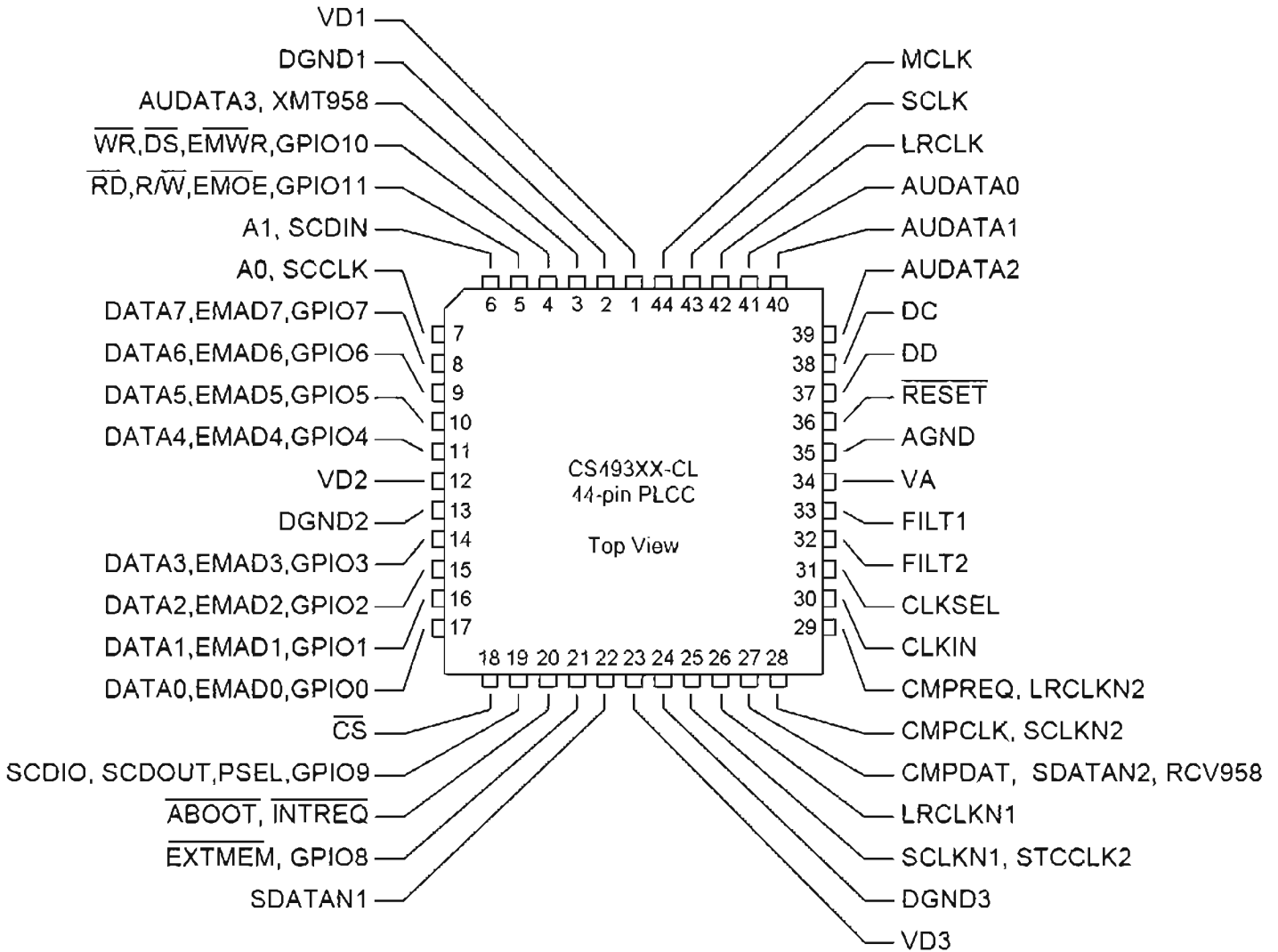


Fig. 6

24-Bit Multi Standard
Audio DSP Decoder

CS493263



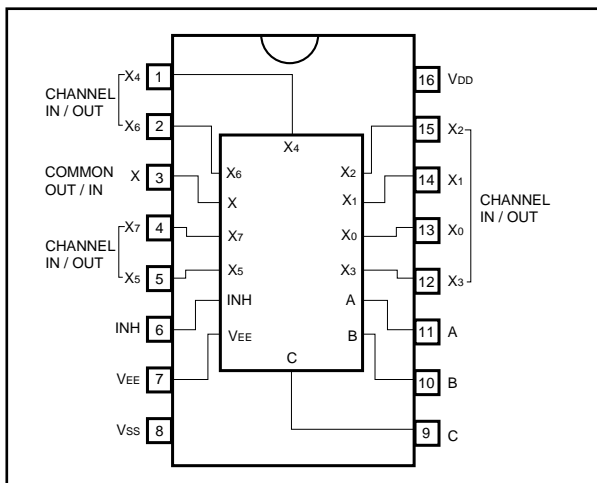
8-channel analog multiplexer / demultiplexer

BU4051BC / BU4051BCF / BU4051BCFV

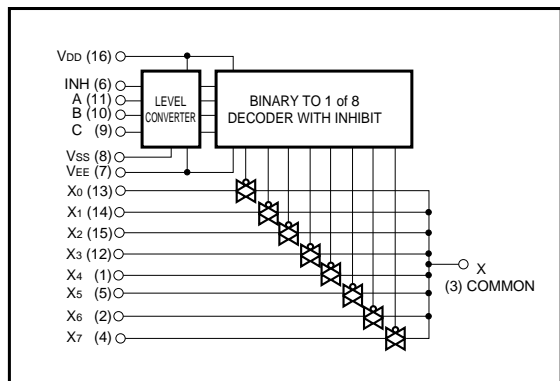
The BU4051BC, BU4051BCF and BU4051BCFV are analog multiplexers / demultiplexers which use three-input digital signals for control via an 8-channel analog switch.

These products feature high on / off output voltage ratio and low crosstalk between analog switches.

●Block diagram



●Logic circuit diagram



●Truth table

INH	A	B	C	ON SWITCH
L	L	L	L	X ₀
L	H	L	L	X ₁
L	L	H	L	X ₂
L	H	H	L	X ₃
L	L	L	H	X ₄
L	H	L	H	X ₅
L	L	H	H	X ₆
L	H	H	H	X ₇
H	X	X	X	NONE

X: Irrelevant

8-bit compatible shift / store register

BU4094BC / BU4094BCF / BU4094BCFV

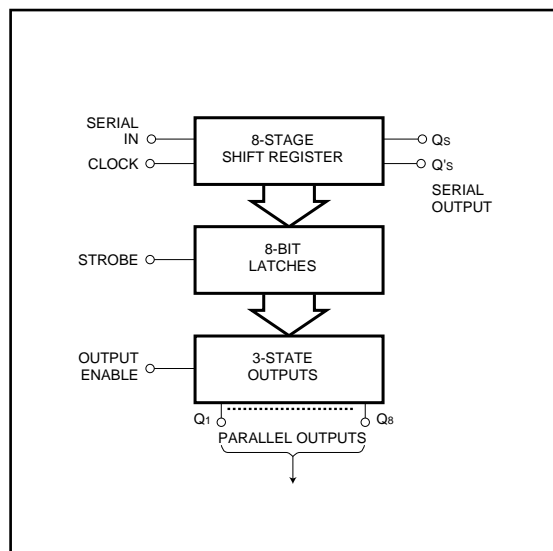
The BU4094BC, BU4094BCF, and BU4094BCFV are shift / store registers, each consisting of an 8-bit register and an 8-bit latch.

As the data in the shift register can be latched by an asynchronous strobe input, it is possible to hold the output in the data transfer mode.

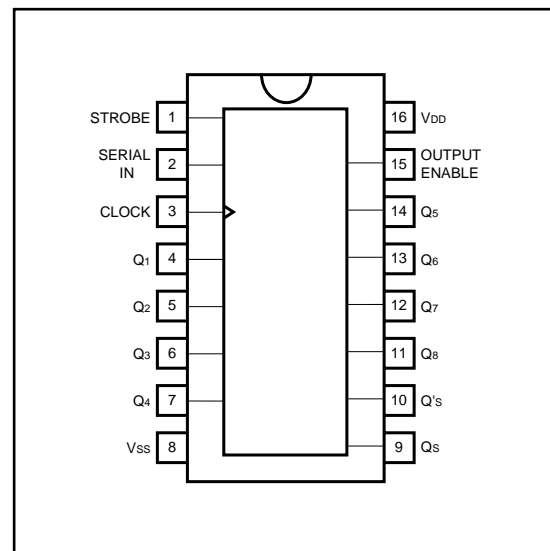
The tri-state parallel output can be connected directly with an 8-bit bus line.

These registers are suitable for in-line / parallel data conversion, data receivers and other similar applications.

●Logic circuit diagram



●Block diagram



●Truth table

CLOCK	OUTPUT ENABLE	STROBE	SERIAL IN	Parallel output		Serial output	
				Q ₁	Q _n	Q _s	Q' _s
\downarrow	H	H	L	L	Q _{n-1}	Q ₇	NC
\downarrow	H	H	H	H	Q _{n-1}	Q ₇	NC
\downarrow	H	L	X	NC	NC	Q ₇	NC
\downarrow	L	X	X	Z	Z	Q ₇	NC
\uparrow	H	X	X	NC	NC	NC	Q _s
\uparrow	L	X	X	Z	Z	NC	Q _s

NC: No Change Z: High Impedance X: Irrelevant

M74HCU04

HEX INVERTER (SINGLE STAGE)

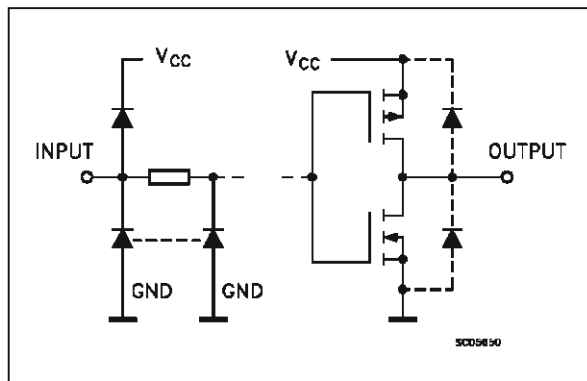
DESCRIPTION

The M54/74HCU04 is a high speed CMOS HEX INVERTER (SINGLE STAGE) fabricated in silicon gate C²MOS technology. It has the same high speed performance of LSTTL combined with true CMOS low power consumption.

As the intrnal circuit is composed of a single stage inverter, it can be used in crystal oscillator.

All inputs are equipped with circuits against static discharge and transient excess voltage.

INPUT AND OUTPUT EQUIVALENT CIRCUIT



PIN DESCRIPTION

PIN No	SYMBOL	NAME AND FUNCTION
1, 3, 5, 9, 11, 13	1A to 6A	Data Inputs
2, 4, 6, 8, 10, 12	1Y to 6Y	Data Outputs
7	GND	Ground (0V)
14	Vcc	Positive Supply Voltage

B1R
(Plastic Package)

F1R
(Ceramic Package)

M1R
(Micro Package)

C1R
(Chip Carrier)

ORDER CODES :
 M54HCU04F1R M74HCU04M1R
 M74HCU04B1R M74HCU04C1R

PIN CONNECTIONS (top view)

NC =
No Internal
Connection


CS5360

24-Bit Stereo A/D Converter for Digital Audio

Features

- 24 Bit Conversion
- 105 dB Dynamic Range
- -95 dB THD+N
- 128X Oversampling
- Fully Differential Inputs
- Linear Phase Digital Anti-Alias Filtering
 - 21.7 kHz passband ($F_s = 48\text{kHz}$)
 - 85 dB stop band attenuation
 - 0.0025 dB pass band ripple
- High Pass Filter - DC Offset Removal
- Peak Signal Level Detector
 - High Resolution and Bar Graph Modes
- Pin Compatible with CS5334 and CS5335

Description

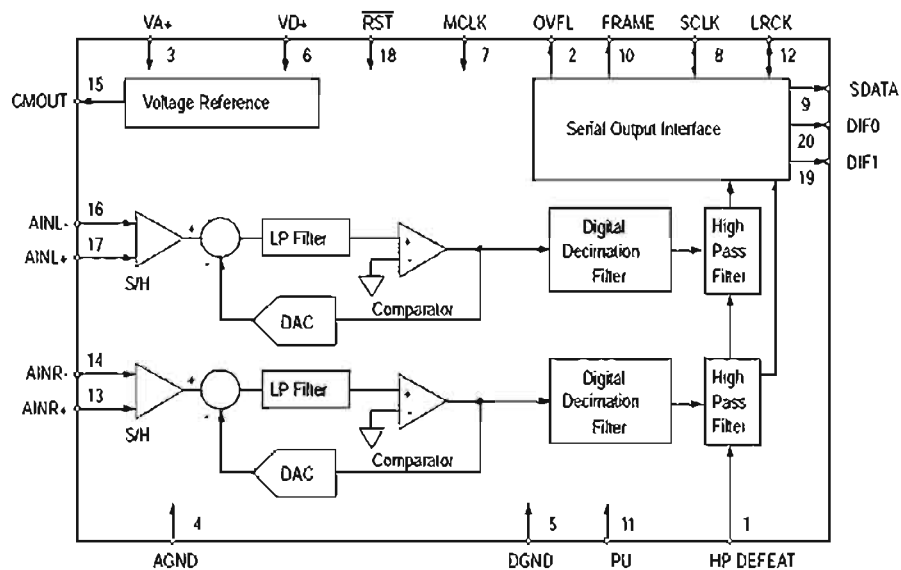
The CS5360 is a 2-channel, single +5 V supply, 24-bit analog-to-digital converter for digital audio systems. The CS5360 performs sampling, analog-to-digital conversion and anti-alias filtering, generating 24-bit values for both left and right inputs in serial form. The output word rate can be up to 50 kHz per channel.

The CS5360 uses 4th-order, delta-sigma modulation with 128X oversampling followed by digital filtering and decimation, which removes the need for an external anti-alias filter. This ADC uses a differential architecture which provides excellent noise rejection.

The CS5360 has a filter passband to 21.7 kHz. The filter has linear phase, 0.0025 dB passband ripple, and >85 dB stopband rejection. An on-chip high pass filter is also included to remove DC offsets.

ORDERING INFORMATION

CS5360-KS	-10° to 70°C	20-pin Plastic SSOP
CS5360-BS	-40° to 85°C	20-pin Plastic SSOP





CS5360

5. PIN DESCRIPTIONS

High Pass Filter Defeat	HPDEFEAT	1	20	DIF0	Digital Interface Format 0
Overflow	OVFL	2	19	DIF1	Digital Interface Format 1
Analog Power	VA+	3	18	$\overline{\text{RST}}$	Reset
Analog Ground	AGND	4	17	AINL+	Non-Inverting Left Channel Input
Digital Ground	DGND	5	16	AINL-	Inverting Left Channel Input
Digital Power	VD+	6	15	CMOUT	Common Mode Output
Master Clock	MCLK	7	14	AINR-	Inverting Right Channel Input
Serial Data Clock	SCLK	8	13	AINR+	Non-Inverting Right Channel Input
Serial Data Output	SDATA	9	12	LRCK	Left / Right Clock
Frame Signal	FRAME	10	11	PU	Peak Update

High Pass Filter Defeat - HP DEFEAT

Pin 1, Input

Function

A high logic level on this pin disables the digital high pass filter. A low logic level on this pin enables the high pass filter.

Overflow - $\overline{\text{OVFL}}$

Pin 2, Input

Function

Overflow indicates analog input overrange, for both the Left and Right channels, since the last update request on the PEAK UPDATE (PU) pin. A value of 1 in the register indicates an overrange condition. The left channel information is output on $\overline{\text{OVFL}}$ during the left channel portion of LRCK. The right channel information is available on $\overline{\text{OVFL}}$ during the right channel portion of LRCK. The registers are updated with a high to low transition on the PEAK UPDATE pin. A 47 k Ω pull-down resistor on this pin will set the CS5360 in Master Mode.

Positive Analog Power - VA+

Pin 3, Input

Function:

Positive analog supply. Nominally +5 volts.

Analog Ground - AGND

Pin 4, Input

Function:

Analog ground reference.

DGND - Digital Ground

Pin 5, Input

Function:

Digital ground reference.



CS5360

Positive Digital Power - VD+*Pin 6, Input**Function:*

Positive digital supply. Nominally +5 volts.

Master Clock - MCLK*Pin 7, Input**Function:*

Clock source for the delta-sigma modulator sampling and digital filters. In Master Mode, the frequency of this clock must be 256x the output sample rate, F_s . In Slave Mode, the frequency of this clock must be either 256x, 384x or 512x F_s .

Serial Data Clock - SCLK*Pin 8, Input/Output**Function:*

Clocks the individual bits of the serial data out from the SDATA pin. The relationship between LRCK, SCLK and SDATA is controlled by DIF0 and DIF1. In Master Mode, SCLK is an output clock with a frequency of 64x the output sample rate, F_s . In Slave Mode, SCLK is an input.

Serial Data Output - SDATA*Pin 9, Output**Function:*

Two's complement MSB-first serial data of 24 bits is output on this pin. Included in the serial data output is the 8-bit Input Signal Level Bits. The data is clocked out via the SCLK clock and the channel is determined by LRCK. The relationship between LRCK, SCLK and SDATA is controlled by DIF0 and DIF1.

Peak Update - PU*Pin 11, Input**Function:*

Transfers the Peak Signal Level contents of the Active Registers to the Output Registers on a high to low transition on this pin. This transition will also reset the Active register.

Frame Signal - FRAME*Pin 10, Output**Function:*

Frames the Peak Signal Level (PSL) Bits. FRAME goes high coincident with the leading edge of the first PSL bit and falls coincident with the trailing edge of the last PSL bit as shown in Figures 8-10. A 47 k Ω pull-down resistor on this pin will set the Peak Signal Level Monitoring format to "Bar Graph" mode.

Left/Right Clock - LRCK*Pin 12, Input/Output**Function:*

LRCK determines which channel, left or right, is to be output on SDATA. The relationship between LRCK, SCLK and SDATA is controlled by DIF0 and DIF1. Although the outputs for each channel are transmitted at different times, Left/Right pairs represent simultaneously sampled analog inputs. In Master Mode, LRCK is an output clock whose frequency is equal to the output sample rate, F_s . In Slave Mode, LRCK is an input clock whose frequency must be equal to F_s .



CS5360

Differential Right Channel Analog Input - AINR+, AINR-*Pin 13 and Pin 14, Input**Function:*

Analog input connections of the right channel differential inputs. Typically 2 Vrms differential (1Vrms for each input pin) for a full-scale analog input signal.

Common Mode Output - CMOUT*Pin 15, Output**Function:*

This output, nominally 2.2 V, can be used to bias the analog input circuitry to the common mode voltage of the CS5360. CMOUT is not buffered and the maximum current is 10 μ A.

Differential Left Channel Analog Input - AINL+, AINL-*Pin 16 and Pin 17, Input**Function:*

Analog input connections of the left channel differential inputs. Typically 2 Vrms differential (1Vrms for each input pin) for a full-scale analog input signal.

Reset - $\overline{\text{RST}}$ *Pin 18, Input**Function:*

A low logic level on this pin activates Reset.

Digital Interface Format - DIF0, DIF1*Pins 19 and 20, Input**Function:*

These two pins select one of 3 digital interface formats or power-down. The format determines the relationship between SCLK, LRCK and SDATA. The formats are detailed in Figures 8-10.

TOSHIBA

TC4051BP/BF/BFN/BFT, TC4052BP/BF/BFN/BFT, TC4053BP/BF/BFN/BFT

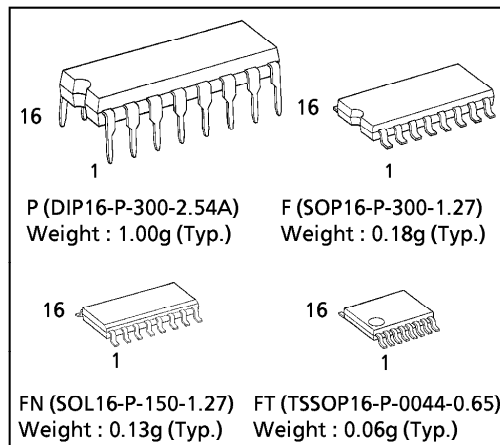
TOSHIBA CMOS DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TC4051BP, TC4051BF, TC4051BFN, TC4051BFT
 TC4052BP, TC4052BF, TC4052BFN, TC4052BFT
 TC4053BP, TC4053BF, TC4053BFN, TC4053BFT

TC4051B SINGLE 8-CHANNEL MULTIPLEXER / DEMULTIPLEXER
 TC4052B DIFFERENTIAL 4-CHANNEL MULTIPLEXER / DEMULTIPLEXER
 TC4053B TRIPLE 2-CHANNEL MULTIPLEXER / DEMULTIPLEXER

(Note) The JEDEC SOP (FN) is not available in Japan.

TC4051B, TC4052B and TC4053B are multiplexers with capabilities of selection and mixture of analog signal and digital signal. TC4051B has 8 channels configuration. TC4052B has 4 channel×2 configuration and TC4053B has 2 channel×3 configuration. The digital signal to the control terminal turns "ON" the corresponding switch of each channel, with large amplitude ($V_{DD}-V_{EE}$) can be switched by the control signal with small logical amplitude ($V_{DD}-V_{SS}$). For example, in the case of $V_{DD}=5V$, $V_{SS}=0V$ and $V_{EE}=-5V$, signals between $-5V$ and $+5V$ can be switched from the logical circuit with single power supply of 5 volts. As the ON-resistance of each switch is low, these can be connected to the circuits with low input impedance.

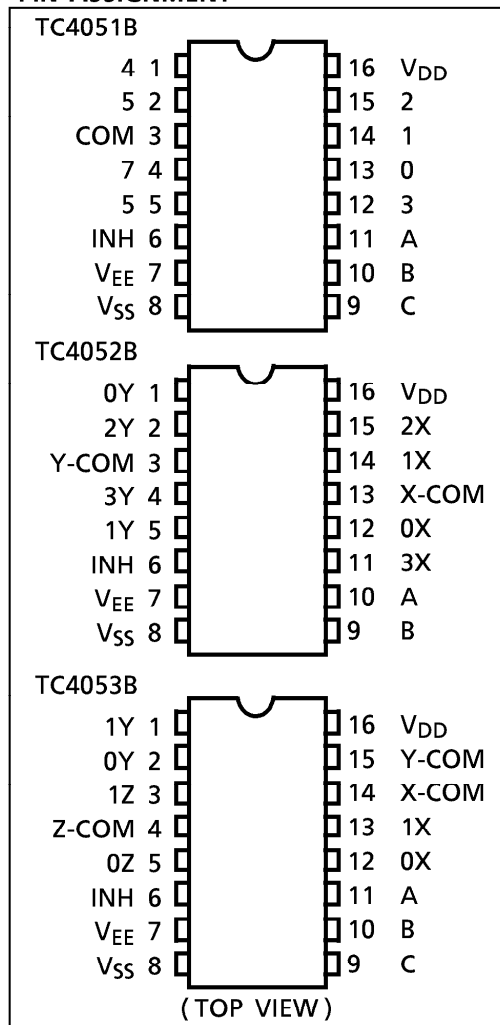
**MAXIMUM RATINGS**

CHARACTERISTIC	SYMBOL	RATING	UNIT
DC Supply Voltage	$V_{DD}-V_{SS}$	-0.5~20	V
DC Supply Voltage	$V_{DD}-V_{EE}$	-0.5~20	V
Control Input Voltage	V_{CIN}	$V_{SS}-0.5\sim V_{DD}+0.5$	V
Switch I/O Voltage	V_I/V_O	$V_{EE}-0.5\sim V_{DD}+0.5$	V
Control Input Current	I_{CIN}	±10	mA
Potential difference across I/O during ON	V_I-V_O	-0.5~0.5	V
Power Dissipation	P_D	300 (DIP) / 180 (SOIC)	mW
Operating Temperature Range	T_{opr}	-40~85	°C
Storage Temperature Range	T_{stg}	-65~150	°C

TRUTH TABLE

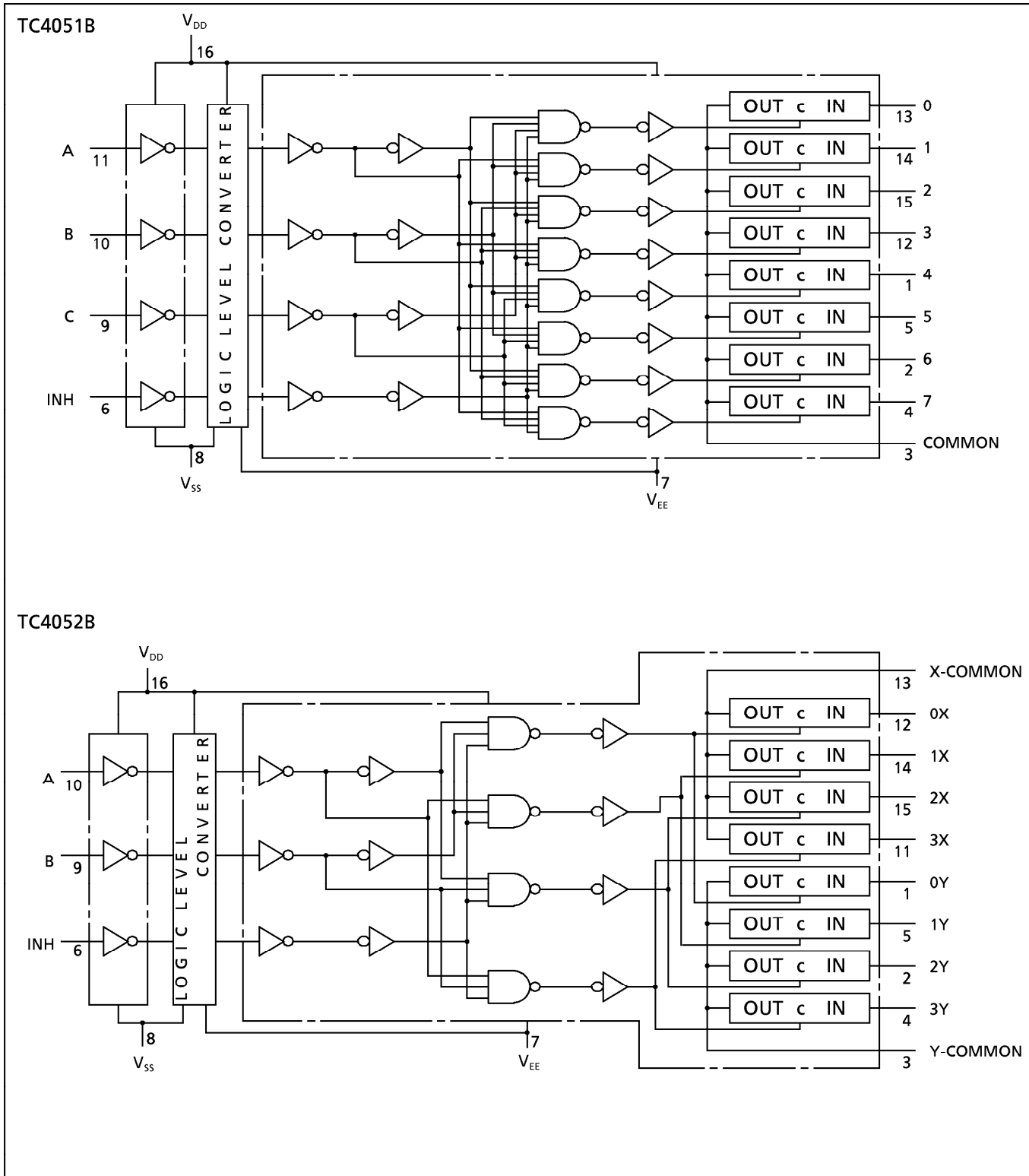
CONTROL INPUTS				"ON" CHANNEL		
INHIBIT	C△	B	A	TC4051B	TC4052B	TC4053B
L	L	L	L	0	0X, 0Y	0X, 0Y, 0Z
L	L	L	H	1	1X, 1Y	1X, 0Y, 0Z
L	L	H	L	2	2X, 2Y	0X, 1Y, 0Z
L	L	H	H	3	3X, 3Y	1X, 1Y, 0Z
L	H	L	L	4	—	0X, 0Y, 1Z
L	H	L	H	5	—	1X, 0Y, 1Z
L	H	H	L	6	—	0X, 1Y, 1Z
L	H	H	H	7	—	1X, 1Y, 1Z
H	*	*	*	NONE	NONE	NONE

* : Don't Care △ Except TC4052B

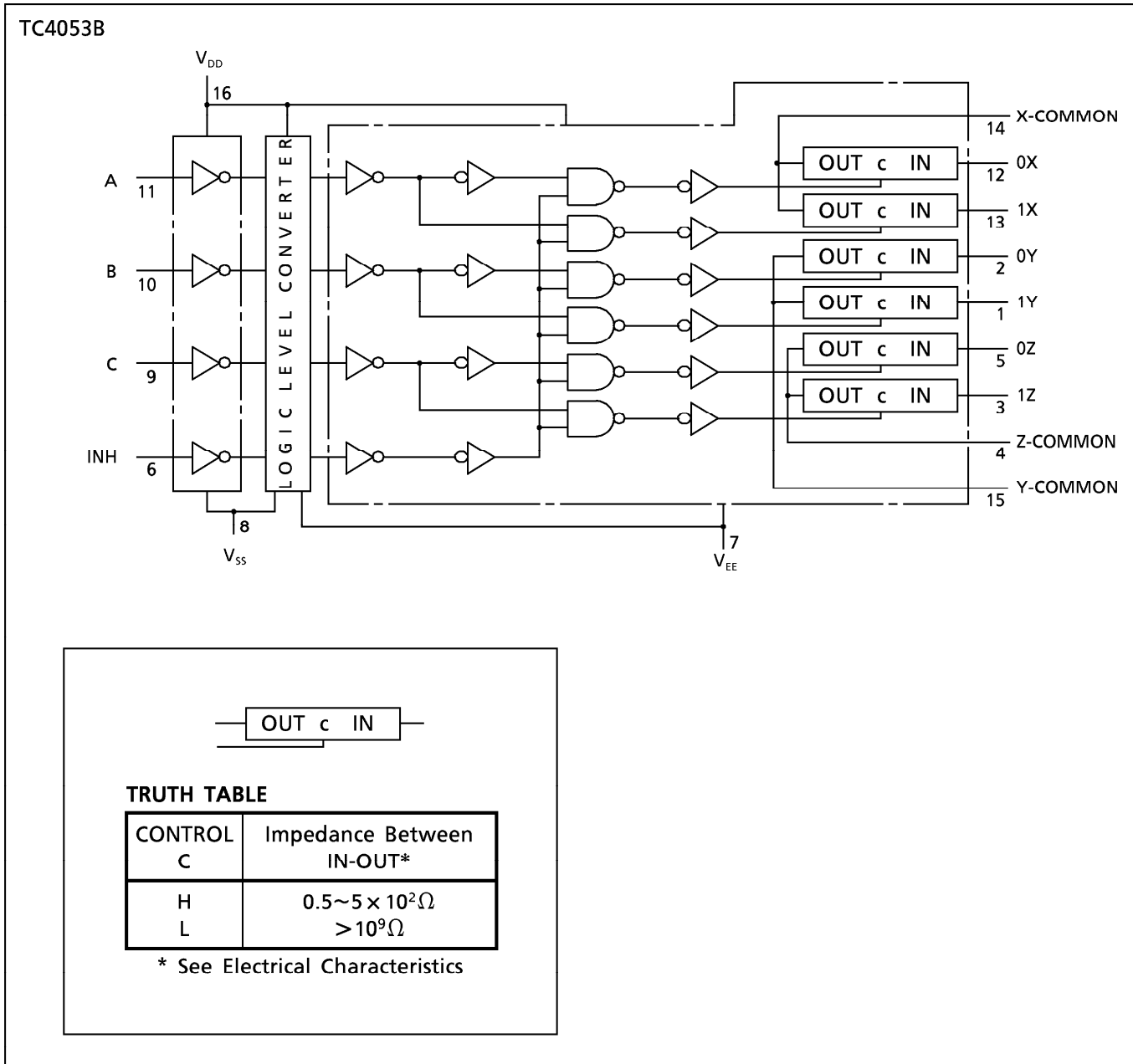
PIN ASSIGNMENT

961001EBA2

LOGIC DIAGRAM



LOGIC DIAGRAM



MITSUBISHI MICROCOMPUTERS

M35012-XXXSP, M35013-XXXSP

SCREEN CHARACTER and PATTERN DISPLAY CONTROLLERS

DESCRIPTION

The M35012-XXXSP and M35013-XXXSP are TV screen display control IC which can be used to display information such as program schedules, the date and messages on the TV screen.

The differences among M35012-XXXSP and M35013-XXXSP are noted below.

The descriptions that follow describe the M35013-XXXSP unless otherwise noted.

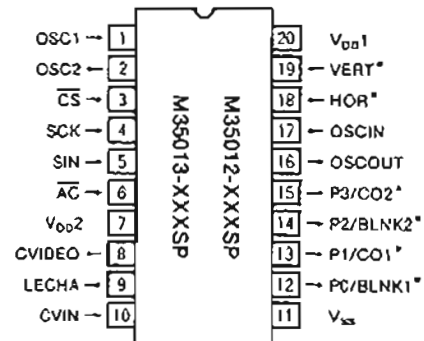
Type name	M35012-XXXSP	M35013-XXXSP
Characters available	256	128
Data input	16 bits serial input	8 bits serial input
Exclusion function	Exclusion 1 and 2 function	Exclusion 1 function
CONT7F function	Normal/7F ₁₆ writing mode	Normal/7F ₁₆ writing mode

For M35013-001SP and M35012-001SP that are standard ROM version of M35013-XXXSP and M35012-XXXSP respectively, the I/O polarity of pin and the character pattern are also mentioned.

FEATURES

- Screen composition..... 24 columns X 10 lines
- Number of characters displayed..... 240 (Max.)
- Character composition 12 X 18 dot matrix
- Characters available
 - M35013-XXXSP..... 128 characters
 - M35012-XXXSP..... 256 characters
- Character sizes available ... 4 (horizontal) X 4 (vertical)
- Display locations available
 - Horizontal direction 62 locations
 - Vertical direction..... 64 locations
- Blinking Character units
 - Cycle : approximately 1 second, or approximately 0.5 seconds
 - Duty : 25%, 50%, or 75%
- Data Input
 - M35013-XXXSP..... By the 8-bit serial input function
 - M35012-XXXSP..... By the 16-bit serial input function
- Coloring
 - Background coloring (composite video signal)
- Blanking
 - Total blanking (14 X 18 dots)
 - Border size blanking
 - Character size blanking
- Synchronization signal
 - Composite synchronization signal generation (PAL, NTSC, M-PAL)
- Synchronized separation circuit..... Built-in
- 4 output ports (2 digital lines)
- Oscillation stop function
 - Be possible to stop the oscillation for display and for synchronized signal generation

PIN CONFIGURATION (TOP VIEW)



Outline 20P4B

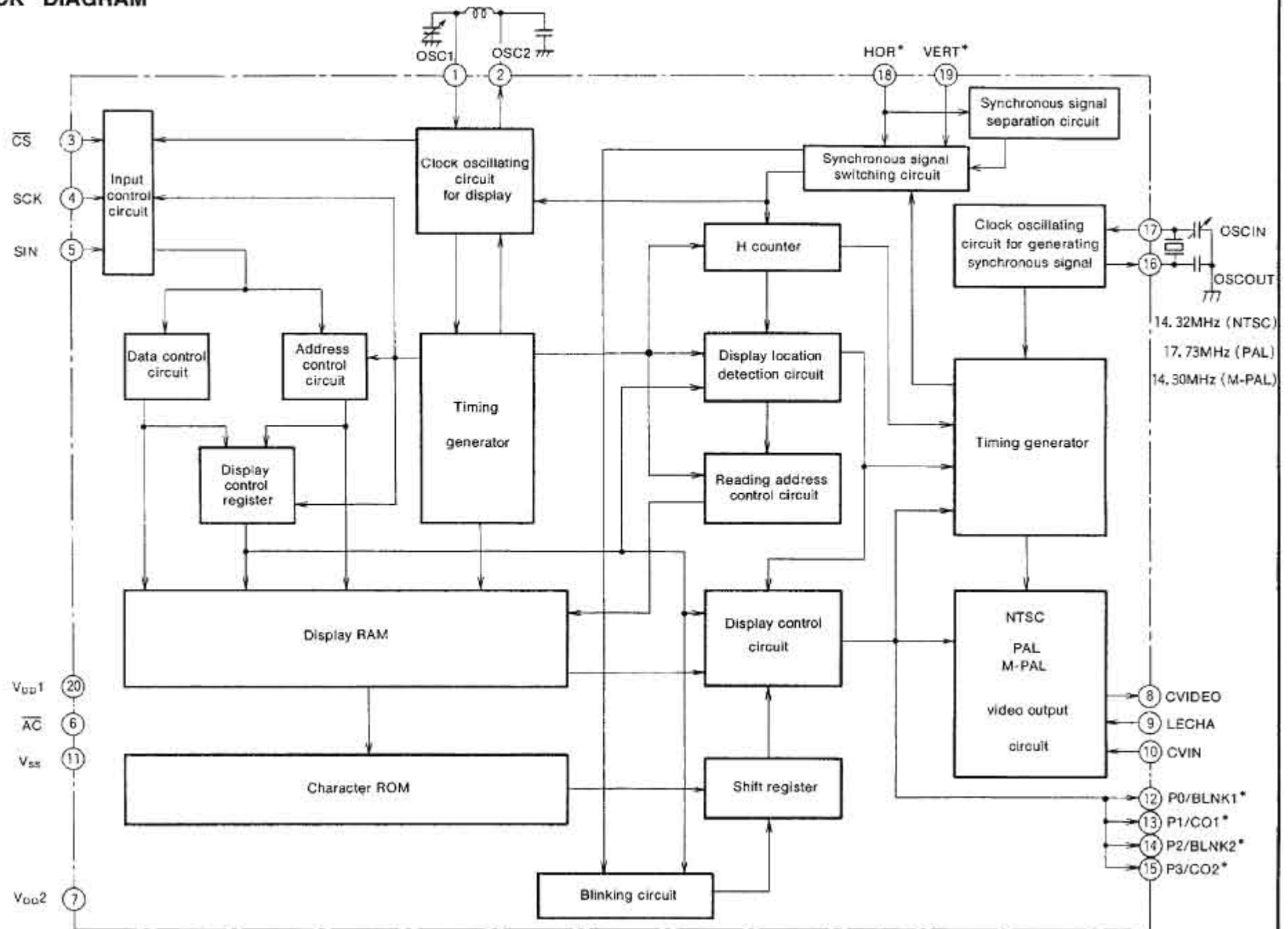
Note : The pins remarked "*" are selectable the input or output polarity when the character ROM masked.

- Exclusion function
 - M35013-XXXSP..... 1
 - M35012-XXXSP..... 2
- Reversed character display function

APPLICATION

TV, VCR, Camcorder

MITSUBISHI MICROCOMPUTERS

M35012-XXXSP, M35013-XXXSP**SCREEN CHARACTER and PATTERN DISPLAY CONTROLLERS****BLOCK DIAGRAM**

Note: The pins remarked "*" are selectable the input or output polarity when the character ROM masked.

MITSUBISHI MICROCOMPUTERS M35012-XXXSP, M35013-XXXSP

SCREEN CHARACTER and PATTERN DISPLAY CONTROLLERS

PIN DESCRIPTION

Pin Number	Symbol	Pin name	Input /Output	Function
1	OSC1	Pins for attachment of external oscillator circuit	Input	There are the pins for attaching an external display oscillator circuit. The standard oscillation frequency is approximately 7MHz. This oscillation frequency determines the horizontal position of the display on the TV screen and the width of the characters.
2	OSC2		Output	
3	\overline{CS}	Chip select input	Input	This is the chip select pin, and when serial data transmission is being carried out, it goes to "L". Hysteresis input. Includes built-in pull-up resistor.
4	SCK	Serial clock input	Input	When \overline{CS} pin is "L", SIN serial data is taken in when SCK rises. Hysteresis input. Built-in pull-up resistor is included.
5	SIN	Serial data input	Input	This is the pin for serial input of data and addresses for the display control register and the display data memory. Hysteresis input. Includes built-in pull-up resistor.
6	\overline{AC}	Auto-clear input	Input	When "L", this pin resets the internal IC circuit. Hysteresis input. Includes built-in pull-up resistor.
7	V_{DD2}	Power pin	—	Please connect to +5V with the analog circuit power pin.
8	CVIDEO	Composite video signal output	Output	This is the output pin for composite video signals. It outputs 2V _{pp} composite video signals. In superimpose mode, character output etc. is superimposed on the external composite video signals from CVIN.
9	LECHA	Character level input	Input	This is the input pin which determines the "white" character color level in the composite video signal.
10	CVIN	Composite video signal input	Input	This is the input pin for external composite video signals. In superimpose mode, character output etc. is superimposed on these external composite video signals.
11	V_{SS}	Earthing pin	—	Please connect to GND using circuit earthing pin.
12	P0	Port P0 output	Output	This pin can be toggled between port pin output and BLNK1* (character background) signal output. Polarity can be selected when the character ROM is masked.
13	P1	Port P1 output	Output	This pin can be toggled between port pin output and CO1* (character) signal output. Polarity can be selected when the character ROM is masked.
14	P2	Port P2 output	Output	This pin can be toggled between port pin output and BLNK2* (character background) signal output. Polarity can be selected when the character ROM is masked.
15	P3	Port P3 output	Output	This pin can be toggled between port pin output and CO2* (character) signal output. Polarity can be selected when the character ROM is masked.
16	OSCOU	Pins for attachment of external oscillator circuit for synchronization signal generation	Output	These are the pins for attaching an external oscillator circuit for generating the synchronization signal. An oscillation of 14.32MHz is needed for NTSC, 17.73MHz is needed for PAL and 14.30MHz is needed for M-PAL.
17	OSCIN		Input	
18	HOR*	Horizontal synchronization signal input	Input	This pin inputs the horizontal synchronization signal. Hysteresis input. Polarity can be selected when the character ROM is masked.
19	VERT*	Vertical synchronization signal input	Input	This pin inputs the vertical synchronization signal. Hysteresis input. Polarity can be selected when the character ROM is masked.
20	V_{DD1}	Power pin	—	Please connect to +5V with the digital circuit power pin.

Note : The pins remarked "*" are selectable the input or output polarity when the character ROM masked.

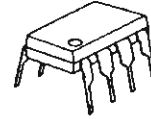
NJM2068

LOW-NOISE DUAL OPERATIONAL AMPLIFIER

■ GENERAL DESCRIPTION

The NJM2068 is a high performance, low noise dual operational amplifier. This amplifier features popular pin-out, superior noise performance, and superior total harmonic distortion. This amplifier also features guaranteed noise performance with substantially higher gain-bandwidth product and slew rate, which far exceeds that of the 4558 type amplifier. The specially designed low noise input transistors allow the NJM2068 to be used in very low noise signal processing applications such as audio preamplifiers and servo error amplifier.

■ PACKAGE OUTLINE



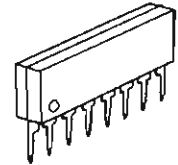
NJM2068D



NJM2068M



NJM2068V

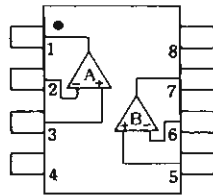


NJM2068L

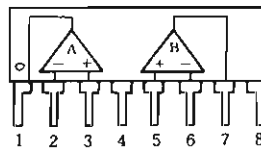
■ FEATURES

- Operating Voltage ($\pm 4V \sim \pm 18V$)
- Low Total Harmonic Distortion (0.001% typ.)
- Low Noise Voltage (FLAT+JISA, $0.56\mu V$ typ.)
- High Slew Rate ($6V/\mu s$ typ.)
- Unity Gain Bandwidth (27MHz @ $f=10kHz$)
- Package Outline DIP8, DMP8, SIP8, SSOP8
- Bipolar Technology

■ PIN CONFIGURATION



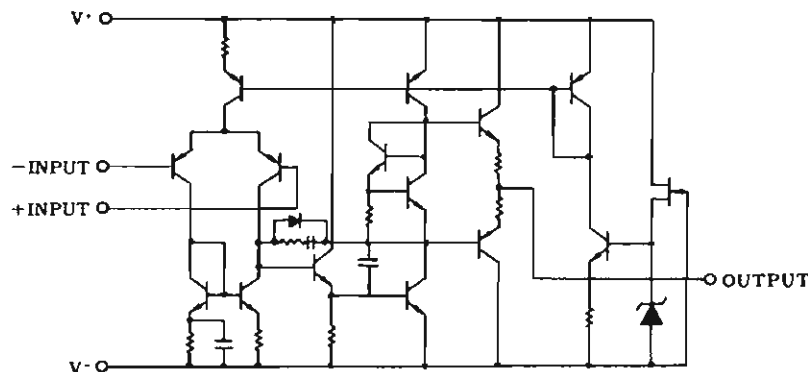
NJM2068D
NJM2068M
NJM2068V



NJM2068L

- PIN FUNCTION**
- 1.A OUTPUT
 - 2.A -INPUT
 - 3.A +INPUT
 - 4.V⁻
 - 5.B +INPUT
 - 6.B -INPUT
 - 7.B OUTPUT
 - 8.V⁺

■ EQUIVALENT CIRCUIT (1/2 Shown)



5-INPUT 3-OUTPUT VIDEO SW

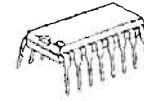
■GENERAL DESCRIPTION

The NJM2296 is a 5-input 3-output video switch.

Its switches select one from five signals received from VTR, TV, TV GAME and others.

This IC is designed for audio items, such as AV amplifier and receivers, and others

■PACKAGE OUTLINE



NJM2296D

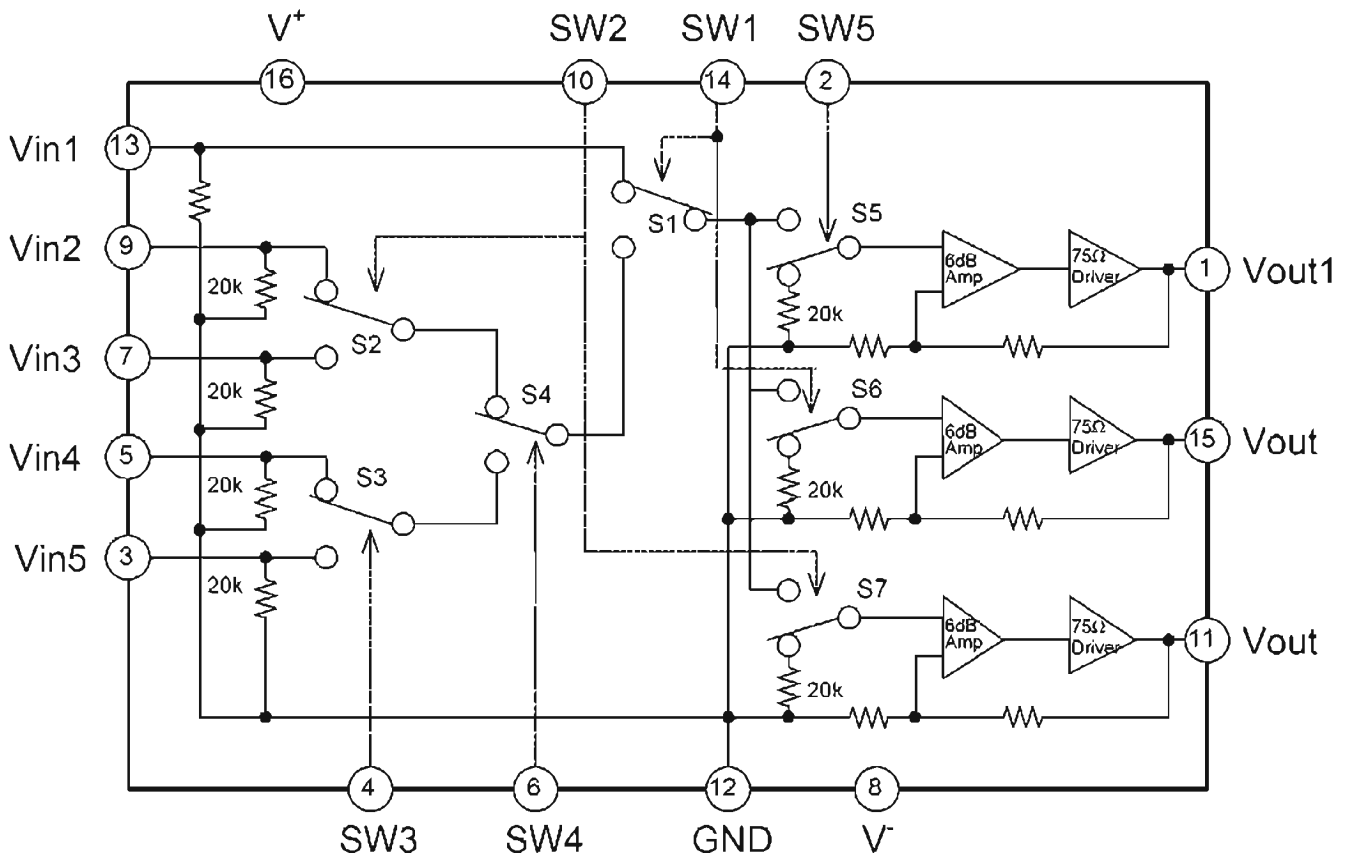


NJM2296M

■FEATURES

- 5-input 3-output
- Operating Voltage ± 4.0 to $\pm 6.5V$
- Operating Current $\pm 31mA$ typ. at $V_{cc} = \pm 5V$
- Crosstalk $-65dB$ typ.
- Internal 6dB Amplifier
- Internal 75Ω Driver
- Bipolar Technology
- Package Outline DIP16, DMP16

■BLOCK DIAGRAM





NJM5532

LOW-NOISE DUAL OPERATIONAL AMPLIFIER

■ GENERAL DESCRIPTION

The NJM5532 is a high performance dual low noise operational amplifier. Compared to the standard dual operational amplifiers, such as the NJM1458, it shows better noise performance, improved output drive capability, and considerably higher small-signal and power bandwidths.

This makes the device especially suitable for application in high quality and professional audio equipment, instrumentation, control circuits, and telephone channel amplifiers. The op amp is internally compensated for gains equal to one if very low noise is of prime importance, version be used which has guaranteed NJM5532DD it is recommended that the noise specifications.

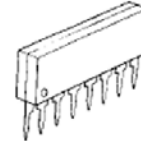
■ PACKAGE OUTLINE



NJM5532D



NJM5532M

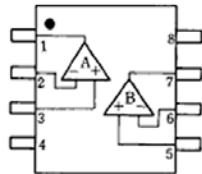


NJM5532L

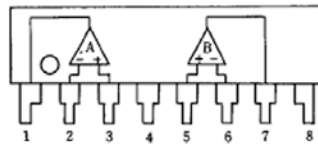
■ FEATURES

- Operating Voltage ($\pm 3V \sim \pm 20V$)
- Small Signal Bandwidth (10MHz typ.)
- Output Drive Capability ($600\Omega, 10V_{rms}$ typ.)
- Input Noise Voltage ($5nV/\sqrt{Hz}$ typ.)
- Power Bandwidth (140kHz typ.)
- Slew Rate ($8V/\mu s$ typ.)
- Package Outline DIP8, DMP8, SIP8
- Bipolar Technology

■ PIN CONFIGURATION



NJM5532D
NJM5532M



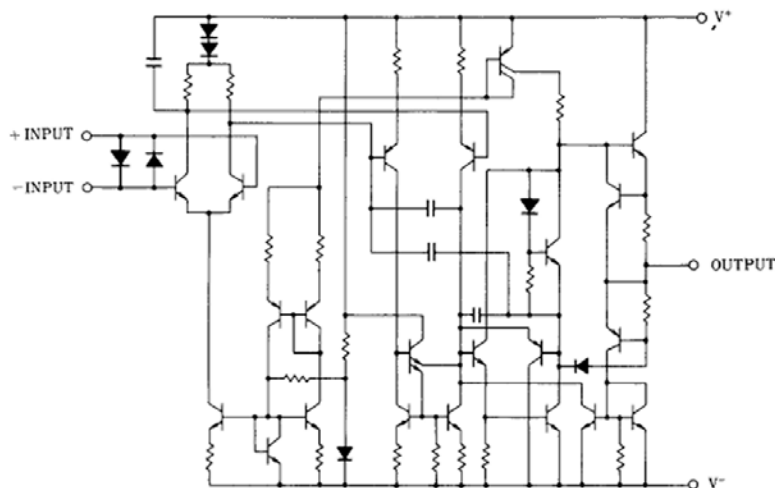
NJM5532L

PIN FUNCTION

- 1.A OUTPUT
- 2.A -INPUT
- 3.A +INPUT
- 4.V⁻
- 5.B +INPUT
- 6.B -INPUT
- 7.B OUTPUT
- 8.V⁺

■ EQUIVALENT CIRCUIT

(1/2 Shown)





NJU7311A

ANALOG FUNCTION SWITCH

■ GENERAL DESCRIPTION

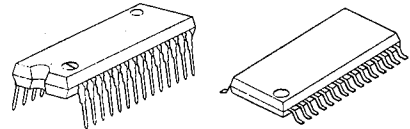
The NJU7311A is a hexad 2-channel and dual 1-channel analog function switch, especially suitable for input selector of audio equipments.

The high break down voltage analog switch controlled by 14-bit serial data based on logic operating voltage (5V) can ON and OFF of $\pm 15V$ signal.

The analog switch is realized superior linearity of on-resistance in all voltage range, low distortion and wide dynamic range.

Furthermore, the both of single and dual power supply application provides easy designing.

■ PACKAGE OUTLINE



NJU7311AL

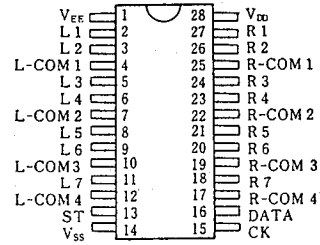
NJU7311AM

6

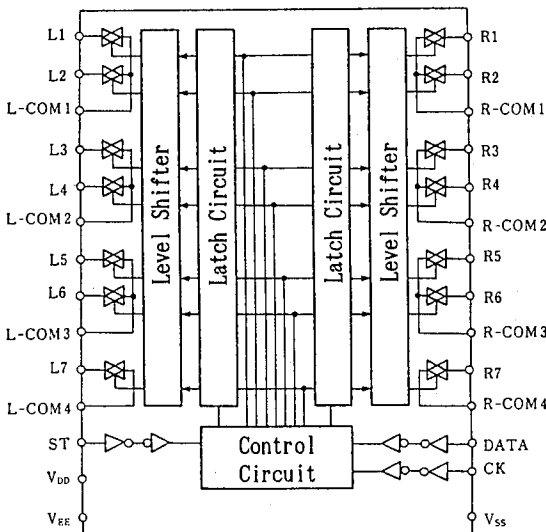
■ FEATURES

- Analog switch: hexad 2 channel and dual 1 channel.
- High Break Down Voltage $\pm 15V$.
- Low Distortion ----- THD: 0.002% (typ).
- Superior Linearity of ON Resistance.
- Serial Data Control.
- Package Outline SDIP 28 / DMP 30
- C-MOS Technology

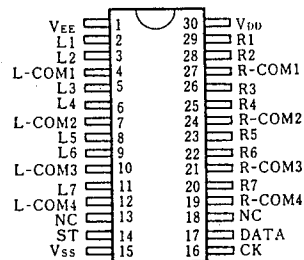
■ PIN CONFIGURATION



■ BLOCK DIAGRAM



NJU7311AL



NJU7311AM



NJU7311A

■ TERMINALS DESCRIPTION

No.		SYMBOL	FUNCTIONS	No.		SYMBOL	FUNCTIONS
DIP	DMP			DIP	DMP		
1	1	V _{EE}	Negative Voltage Supply	15	16	CK	Clock input
2	2	L1	Analog switch input/output	16	17	DATA	Data input
3	3	L2		17	19	R-COM4	R7 Common
4	4	L-COM1	L1, L2 Common	18	20	R7	Analog switch input/output
5	5	L3	Analog switch input/output	19	21	R-COM3	R5, R6 Common
6	6	L4		20	22	R6	Analog switch input/output
7	7	L-COM2	L3, L4 Common	21	23	R5	
8	8	L5	Analog switch input/output	22	24	R-COM2	R3, R4 Common
9	9	L6		23	25	R4	Analog switch input/output
10	10	L-COM3	L5, L6 Common	24	26	R3	
11	11	L7	Analog switch input/output	25	27	R-COM1	R1, R2 Common
12	12	L-COM4		L7 Common	26	28	R2
13	14	ST	Chip enable	27	29	R1	
14	15	V _{SS}	GND	28	30	V _{DD}	Positive voltage supply

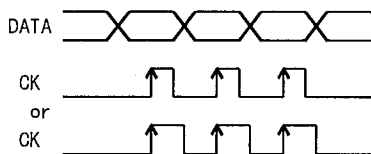
■ FUNCTIONAL DESCRIPTION

(1) Timing of DATA, CK, ST

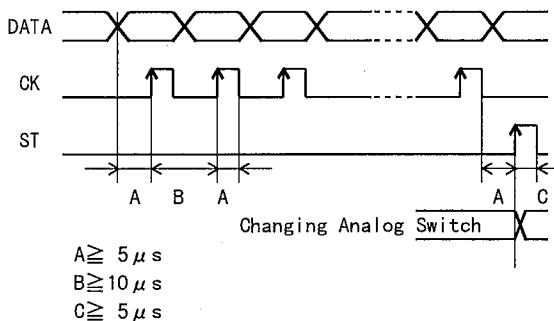
The Serial Input Data is input to internal shift register sequentially synchronized by clock signal rising edge input from CK terminal (100 kHz max.).

The Serial Input Data in the shift register is transferred to latch circuit and renew by synchronized rising edge of Chip enable signal input from ST terminal.

(Timing Chart)

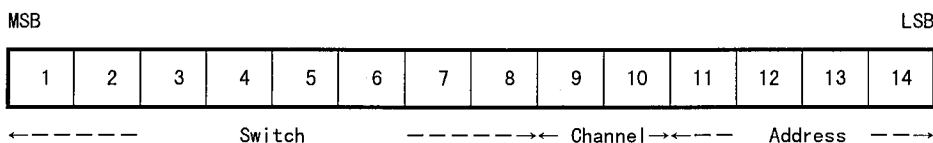


(Detailed Timing)



(2) Data Format

The 14-bit serial data strings format from MSB to LSB are 8-bit analog switch control data, 2-bit right and left channel selection data and 4-bit address data.





NJU7312A

ANALOG FUNCTION SWITCH

■ GENERAL DESCRIPTION

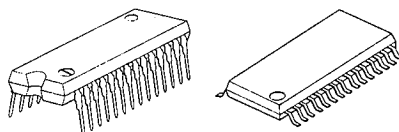
The NJU7312A is a quad 3-channel and dual 2-channel analog function switch, especially suitable for input selector of audio equipments.

The high break down voltage analog switch controlled by 14-bit serial data based on logic operating voltage (5V) can ON and OFF of $\pm 15V$ signal.

The analog switch is realized superior linearity of on-resistance in all voltage range, low distortion and wide dynamic range.

Furthermore, the both of single and dual power supply application provides easy designing.

■ PACKAGE OUTLINE



NJU7312AL

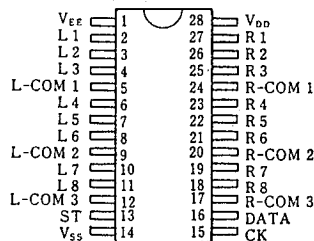
NJU7312AM

6

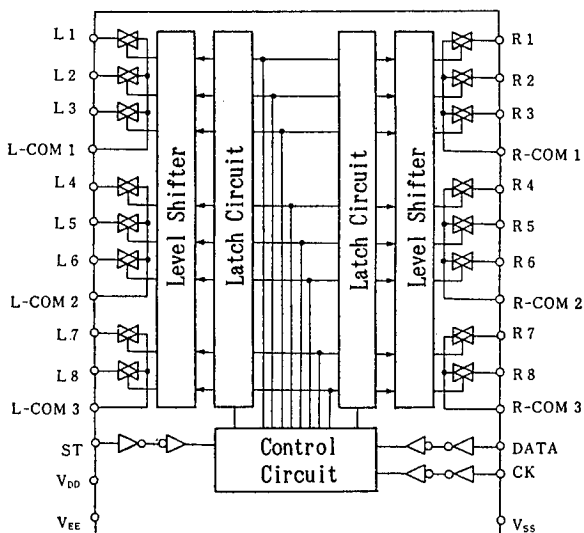
■ FEATURES

- Analog switch: quad 3 channel and dual 2 channel.
- High Break Down Voltage ----- $\pm 15V$.
- Low Distortion ----- THD: 0.002% (typ).
- Superior Linearity of ON Resistance.
- Serial Data Control.
- Package Outline SDIP 28 / DMP 30
- C-MOS Technology

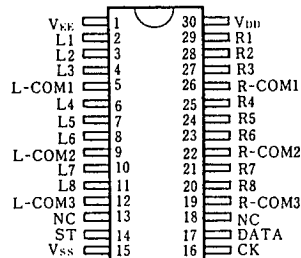
■ PIN CONFIGURATION



■ BLOCK DIAGRAM



NJU7312AL



NJU7312AM



NJU7312A

■ TERMINALS DESCRIPTION

No.		SYMBOL	FUNCTIONS	No.		SYMBOL	FUNCTIONS
DIP	DMP			DIP	DMP		
1	1	V _{EE}	Negative Voltage Supply	15	16	CK	Clock input
2	2	L1	Analog switch input/output	16	17	DATA	Data input
3	3	L2		17	19	R-COM3	R7, L8 Common
4	4	L3		18	20	R8	Analog switch input/output
5	5	L-COM1		19	21	R7	
6	6	L4	Analog switch input/output	20	22	R-COM2	R4, R5, R6 Common
7	7	L5		21	23	R6	Analog switch input/output
8	8	L6		22	24	R5	
9	9	L-COM2	L4, L5, L6 Common	23	25	R4	
10	10	L7	Analog switch input/output	24	26	R-COM1	R1, R2, R3 Common
11	11	L8		25	27	R3	Analog switch input/output
12	12	L-COM3	L7, L8 Common	26	28	R2	
13	14	ST	Chip enable	27	29	R1	
14	15	V _{SS}	GND	28	30	V _{DD}	Positive voltage supply

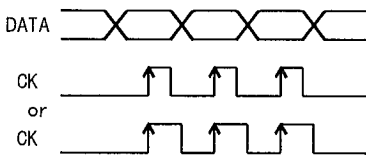
■ FUNCTIONAL DESCRIPTION

(1) Timing of DATA, CK, ST

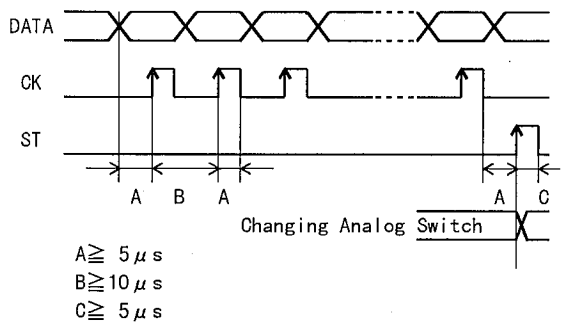
The Serial Input Data is input to internal shift register sequentially synchronized by clock signal rising edge input from CK terminal(100 kHz max.).

The Serial Input Data in the shift register is transferred to latch circuit and renew by synchronized rising edge of Chip enable signal input from ST terminal.

(Timing Chart)

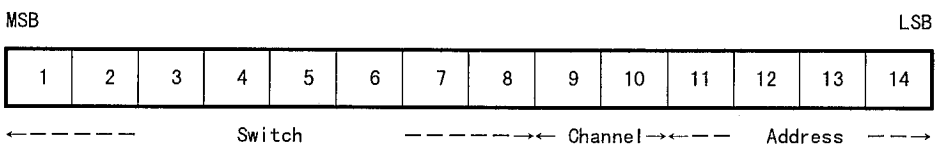


(Detailed Timing)



(2) Data Format

The 14-bit serial data strings format from MSB to LSB are 8-bit analog switch control data, 2-bit right and left channel selection data and 4-bit address data.



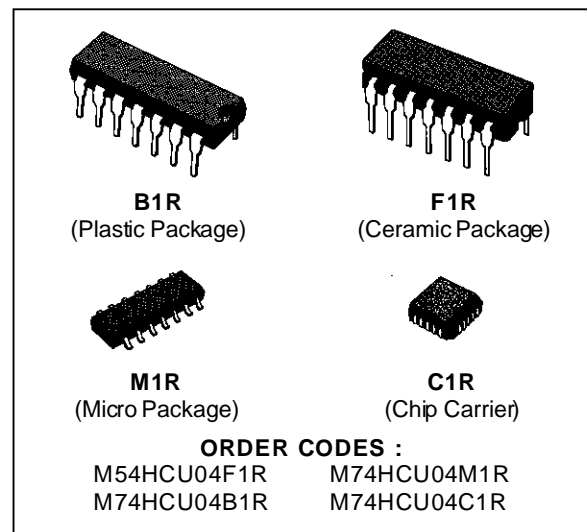


M54HCU04

M74HCU04

HEX INVERTER (SINGLE STAGE)

- HIGH SPEED
 $t_{PD} = 5 \text{ ns}$ (TYP.) AT $V_{CC} = 5 \text{ V}$
- LOW POWER DISSIPATION
 $I_{CC} = 1 \mu\text{A}$ (MAX.) AT $T_A = 25 \text{ }^\circ\text{C}$
- HIGH NOISE IMMUNITY
 $V_{NIH} = V_{NIL} = 10\% V_{CC}$ (MIN.)
- OUTPUT DRIVE CAPABILITY
 10 LSTTL LOADS
- SYMMETRICAL OUTPUT IMPEDANCE
 $|I_{OH}| = I_{OL} = 4 \text{ mA}$ (MIN.)
- BALANCED PROPAGATION DELAYS
 $t_{PLH} = t_{PHL}$
- WIDE OPERATING VOLTAGE RANGE
 V_{CC} (OPR) = 2 V TO 6 V
- PIN AND FUNCTION COMPATIBLE WITH
 54/74LS04



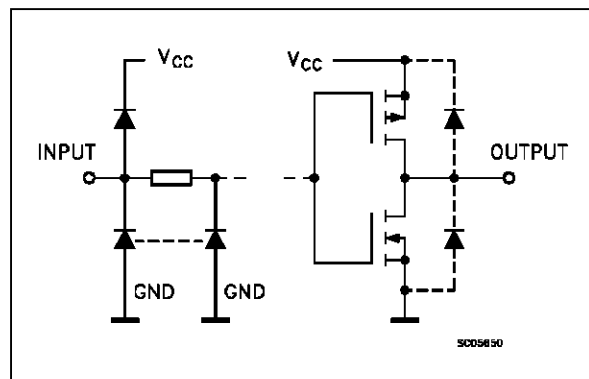
DESCRIPTION

The M54/74HCU04 is a high speed CMOS HEX INVERTER (SINGLE STAGE) fabricated in silicon gate C^2 MOS technology. It has the same high speed performance of LSTTL combined with true CMOS low power consumption.

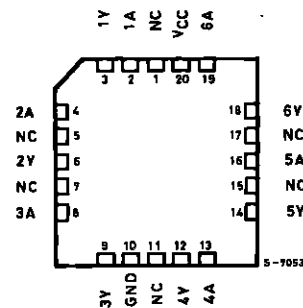
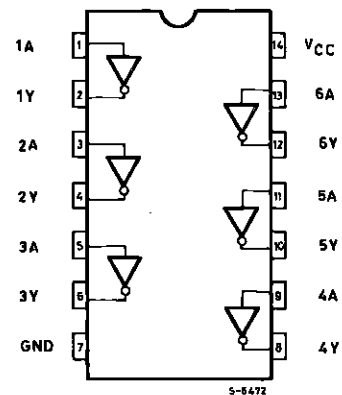
As the intrnal circuit is composed of a single stage inverter, it can be used in crystal oscillator.

All inputs are equipped with circuits against static discharge and transient excess voltage.

INPUT AND OUTPUT EQUIVALENT CIRCUIT



PIN CONNECTIONS (top view)



NC =
No Internal
Connection



AK4114

High Feature 192kHz 24bit Digital Audio Interface Transceiver

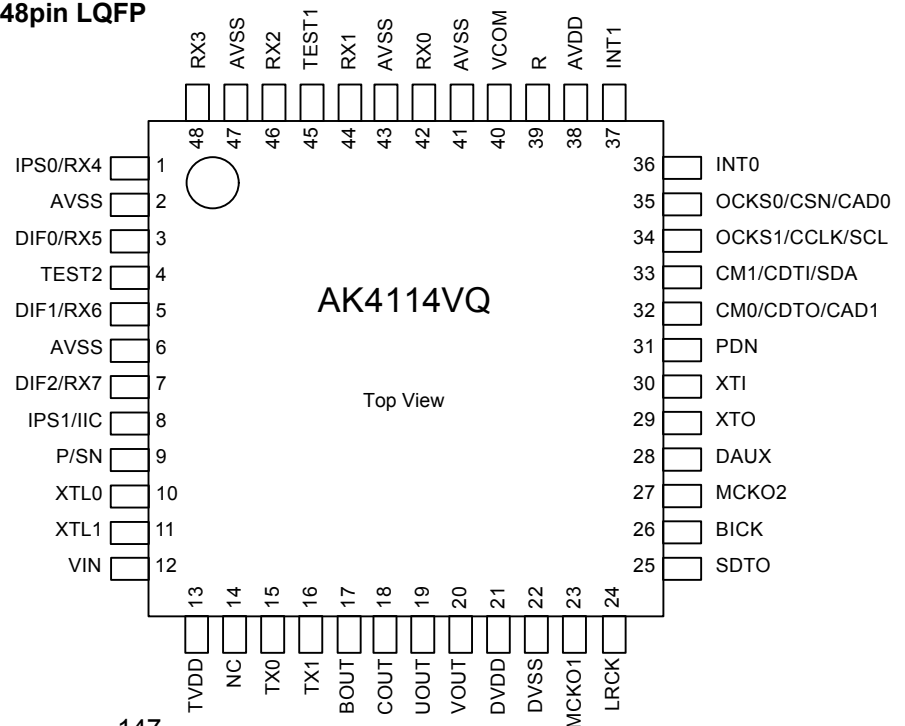
GENERAL DESCRIPTION

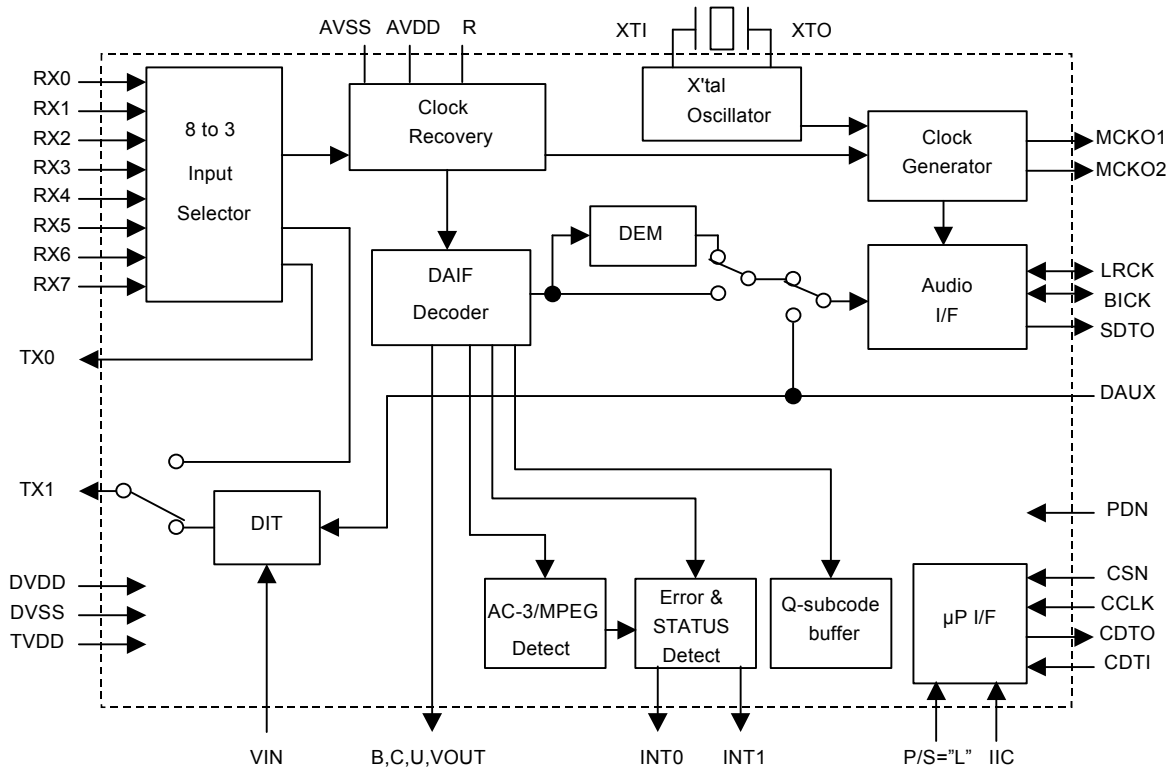
The AK4114 is a digital audio transceiver supporting 192kHz, 24bits. The channel status decoder supports both consumer and professional modes. The AK4114 can automatically detect a Non-PCM bit stream. When combined with the multi channel codec (AK4527B or AK4529), the two chips provide a system solution for AC-3 applications. The dedicated pins or a serial μ P I/F can control the mode setting. The small package, 48pin LQFP saves the system space.

*AC-3 is a trademark of Dolby Laboratories.

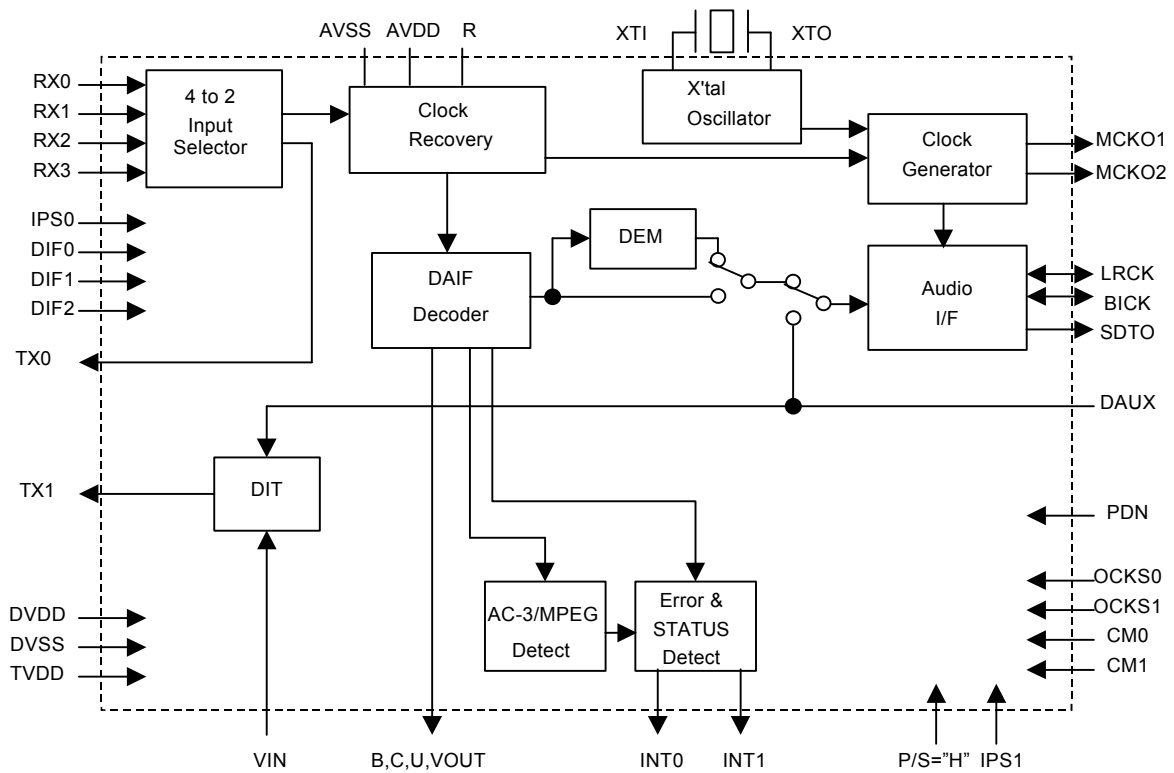
FEATURES

- AES3, IEC60958, S/PDIF, EIAJ CP1201 Compatible
- Low jitter Analog PLL
- PLL Lock Range : 32kHz to 192kHz
- Clock Source: PLL or X'tal
- 8-channel Receiver input
- 2-channel Transmission output (Through output or DIT)
- Auxiliary digital input
- De-emphasis for 32kHz, 44.1kHz, 48kHz and 96kHz
- Detection Functions
 - Non-PCM Bit Stream Detection
 - DTS-CD Bit Stream Detection
 - Sampling Frequency Detection (32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz)
 - Unlock & Parity Error Detection
 - Validity Flag Detection
- Up to 24bit Audio Data Format
- Audio I/F: Master or Slave Mode
- 40-bit Channel Status Buffer
- Burst Preamble bit Pc and Pd Buffer for Non-PCM bit stream
- Q-subcode Buffer for CD bit stream
- Serial μ P I/F
- Two Master Clock Outputs: 64fs/128fs/256fs/512fs
- Operating Voltage: 2.7 to 3.6V with 5V tolerance
- Small Package: 48pin LQFP
- Ta: -10 to 70°C





Serial Control Mode



Parallel Control Mode

PIN/FUNCTION

No.	Pin Name	I/O	Function
1	IPS0	I	Input Channel Select 0 Pin in Parallel Mode
	RX4	I	Receiver Channel 4 Pin in Serial Mode (Internal biased pin)
2	NC(AVSS)	I	No Connect No internal bonding. This pin should be connected to AVSS.
	DIF0	I	Audio Data Interface Format 0 Pin in Parallel Mode
3	RX5	I	Receiver Channel 5 Pin in Serial Mode (Internal biased pin)
	TEST2	I	TEST 2 pin This pin should be connect to AVSS.
5	DIF1	I	Audio Data Interface Format 1 Pin in Parallel Mode
	RX6	I	Receiver Channel 6 Pin in Serial Mode (Internal biased pin)
6	NC(AVSS)	I	No Connect No internal bonding. This pin should be connected to AVSS.
	DIF2	I	Audio Data Interface Format 2 Pin in Parallel Mode
7	RX7	I	Receiver Channel 7 Pin in Serial Mode (Internal biased pin)
	IPS1	I	Input Channel Select 1 Pin in Parallel Mode
8	HC	I	IIC Select Pin in Serial Mode. “L”: 4-wire Serial, “H”: IIC Parallel/Serial Select Pin
	P/SN	I	“L”: Serial Mode, “H”: Parallel Mode
10	XTL0	I	X'tal Frequency Select 0 Pin
11	XTL1	I	X'tal Frequency Select 1 Pin
12	VIN	I	V-bit Input Pin for Transmitter Output
13	TVDD	I	Input Buffer Power Supply Pin, 3.3V or 5V
14	NC	I	No Connect No internal bonding. This pin should be open or connected to DVSS.
15	TX0	O	Transmit Channel (Through Data) Output 0 Pin
16	TX1	O	When TX bit = “0”, Transmit Channel (Through Data) Output 1 Pin. When TX bit = “1”, Transmit Channel (DAUX Data) Output Pin (Default).
	BOUT	O	Block-Start Output Pin for Receiver Input “H” during first 40 frames.
18	COUT	O	C-bit Output Pin for Receiver Input
19	UOUT	O	U-bit Output Pin for Receiver Input
20	VOUT	O	V-bit Output Pin for Receiver Input
21	DVDD	I	Digital Power Supply Pin, 3.3V
22	DVSS	I	Digital Ground Pin
23	MCKO1	O	Master Clock Output 1 Pin
24	LRCK	I/O	Channel Clock Pin
25	SDTO	O	Audio Serial Data Output Pin
26	BICK	I/O	Audio Serial Data Clock Pin
27	MCKO2	O	Master Clock Output 2 Pin
28	DAUX	I	Auxiliary Audio Data Input Pin
29	XTO	O	X'tal Output Pin
30	XTI	I	X'tal Input Pin

PIN/FUNCTION (Continued)

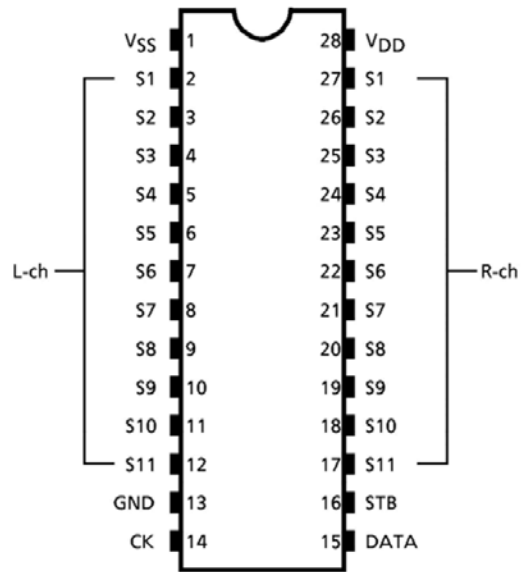
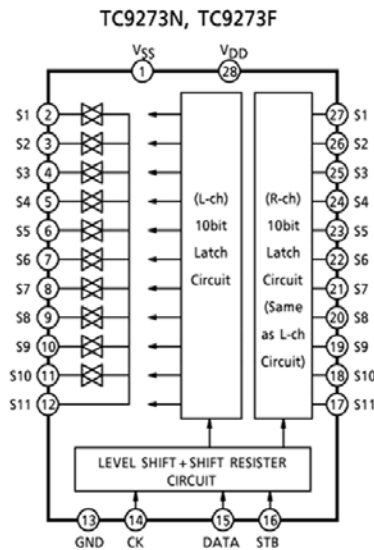
No.	Pin Name	I/O	Function
31	PDN	I	Power-Down Mode Pin When "L", the AK4114 is powered-down and reset.
	CM0	I	Master Clock Operation Mode 0 Pin in Parallel Mode
32	CDTO	O	Control Data Output Pin in Serial Mode, IIC= "L".
	CAD1	I	Chip Address 1 Pin in Serial Mode, IIC= "H".
	CM1	I	Master Clock Operation Mode 1 Pin in Parallel Mode
33	CDTI	I	Control Data Input Pin in Serial Mode, IIC= "L".
	SDA	I/O	Control Data Pin in Serial Mode, IIC= "H".
	OCKS1	I	Output Clock Select 1 Pin in Parallel Mode
34	CCLK	I	Control Data Clock Pin in Serial Mode, IIC= "L"
	SCL	I	Control Data Clock Pin in Serial Mode, IIC= "H"
	OCKS0	I	Output Clock Select 0 Pin in Parallel Mode
35	CSN	I	Chip Select Pin in Serial Mode, IIC="L".
	CAD0	I	Chip Address 0 Pin in Serial Mode, IIC= "H".
36	INT0	O	Interrupt 0 Pin
37	INT1	O	Interrupt 1 Pin
38	AVDD	I	Analog Power Supply Pin, 3.3V
39	R	-	External Resistor Pin 18k Ω +/-1% resistor should be connected to AVSS externally.
40	VCOM	-	Common Voltage Output Pin 0.47 μ F capacitor should be connected to AVSS externally.
41	AVSS	I	Analog Ground Pin
42	RX0	I	Receiver Channel 0 Pin (Internal biased pin) This channel is default in serial mode.
43	NC(AVSS)	I	No Connect No internal bonding. This pin should be connected to AVSS.
44	RX1	I	Receiver Channel 1 Pin (Internal biased pin)
45	TEST1	I	TEST 1 pin. This pin should be connected to AVSS.
46	RX2	I	Receiver Channel 2 Pin (Internal biased pin)
47	NC(AVSS)	I	No Connect No internal bonding. This pin should be connected to AVSS.
48	RX3	I	Receiver Channel 3 Pin (Internal biased pin)

Note 1. All input pins except internal biased pins should not be left floating.

TC9273N

CMOS Digital IC

BLOCK DIAGRAM



PIN FUNCTION (Left channel / right channel)

PIN No.			SYMBOL	PIN NAME	FUNCTION AND OPERATION	NOTE
TC9273N / F	TC9274N	TC9274F				
1	1	40	V _{SS}	Negative power supply pin	Dual power supply $V_{DD} = 8.0 \sim 17V$ $GND = 0V$ $V_{SS} = -8.0 \sim -17V$	—
13	20	16	GND	Digital ground pin		
28	42	38	V _{DD}	Positive power supply pin		
2 / 27	2 / 41	41 / 37	S1	Input / output pins	Analog switch input pins. 	—
3 / 26	3 / 40	42 / 36	S2			
4 / 25	4 / 39	43 / 35	S3			
5 / 24	5 / 38	44 / 34	S4			
6 / 23	6 / 37	1 / 33	S5			
7 / 22	7 / 36	2 / 32	S6			
8 / 21	8 / 35	3 / 31	S7			
9 / 20	9 / 34	4 / 30	S8			
10 / 19	10 / 33	5 / 29	S9			
11 / 18	11 / 32	6 / 28	S10			
—	13 / 30	8 / 26	S12			
—	14 / 29	9 / 25	S13			
—	15 / 28	10 / 24	S14			
—	16 / 27	11 / 23	S15			
—	17 / 26	12 / 22	S16			
—	18 / 25	13 / 21	S17			
—	19 / 24	14 / 20	S18			
—	—	17 / 39	NC			
14	21	16	CK	Clock input pin	Clock input for data transfer	Low threshold value input pins
15	22	18	DATA	Data input pin	Serial data input for setting switches	
16	23	19	STB	Strobe input pin	Strobe input for data writing	

TOSHIBA**TC9482N/F**

TOSHIBA CMOS DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

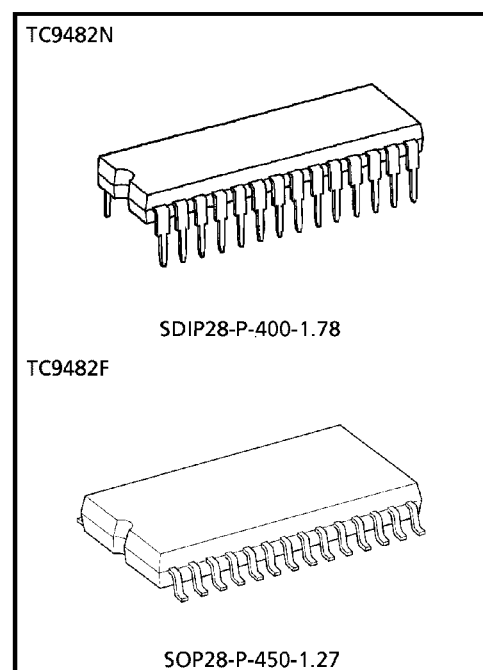
TC9482N, TC9482F

SYSTEM ELECTRONIC VOLUME CONTROL

The TC9482N and TC9482F are six-channel electronic volume control ICs developed for Hi-Fi audio equipment. Since all six channels can be individually controlled, the devices are optimum for audio equipment with multiple outputs.

FEATURES

- Sound volume can be controlled in 97 steps from 0 to -95dB or up to an infinite level in 1dB increments.
- Incorporating six channels of volume control circuits, the device allows independent volume control.
- Can operate with a single or dual power supplies.
- Can control up to 4 chips on the same bus by using chip select input.
- Built-in interface for 5-V microcomputers.
- Thanks to its polysilicon resistor, the device allows you to configure a low-distortion, high-performance volume control system.
- Two packages supported: 28-pin shrink DIP and 28-pin flat package.

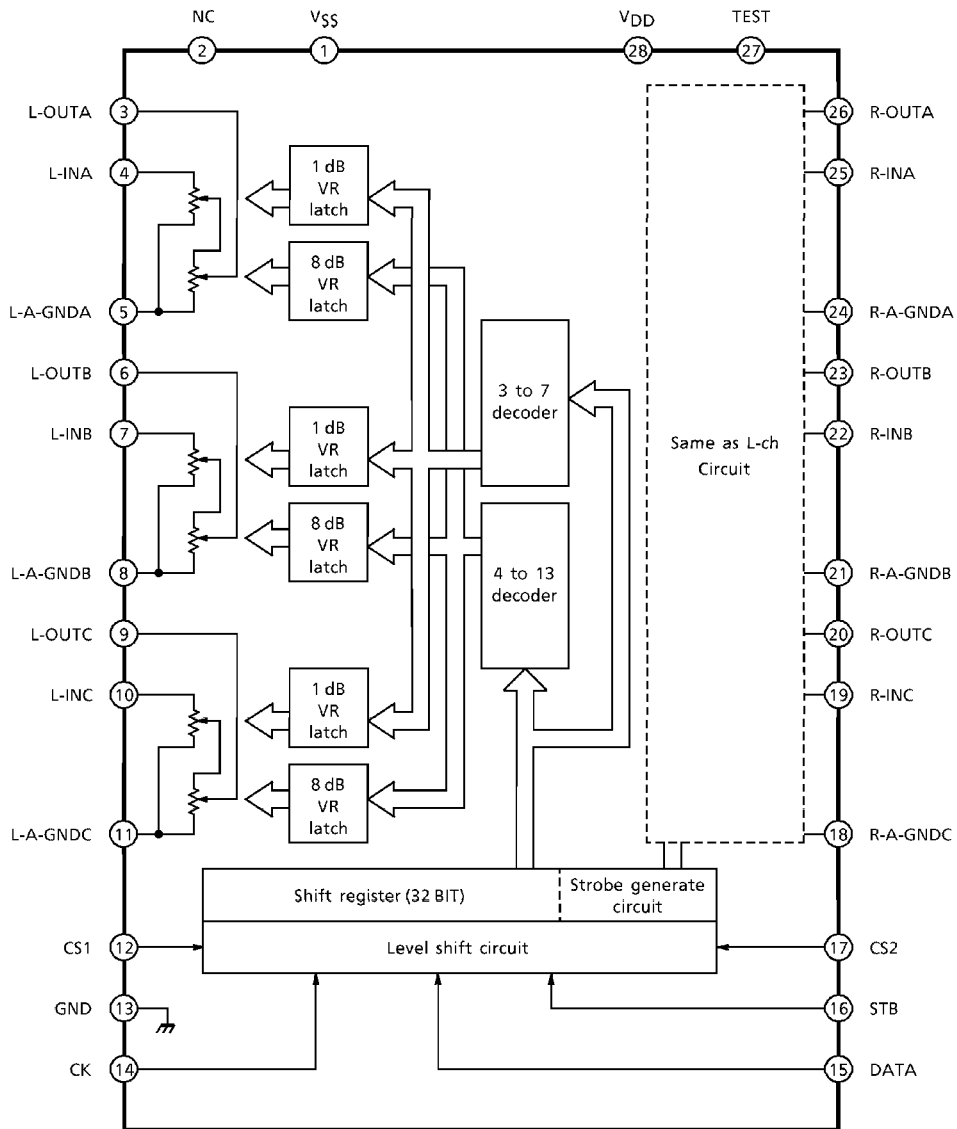


Weight
 SDIP28-P-400-1.78 : 2.2 g (Typ.)
 SOP28-P-450-1.27 : 0.8 g (Typ.)

PIN CONNECTIONS

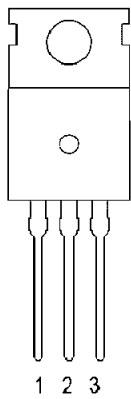
V _{SS}	1	28	V _{DD}
NC	2	27	TEST
L-OUTA	3	26	R-OUTA
L-INA	4	25	R-INA
L-A-GNDA	5	24	R-A-GNDA
L-OUTB	6	23	R-OUTB
L-INB	7	22	R-INB
L-A-GNDB	8	21	R-A-GNDB
L-OUTC	9	20	R-OUTC
L-INC	10	19	R-INC
L-A-GNDC	11	18	R-A-GNDC
CS1	12	17	CS2
GND	13	16	STB
CK	14	15	DATA

BLOCK DIAGRAM



3-Terminal 1.5A Negative Adjustment Regulator IC

KA337

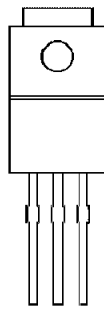


1 2 3

- 1) Adjustment
- 2) Input
- 3) Output

Low Saturation Voltage Type 3-Pin Regulator IC

BA033T

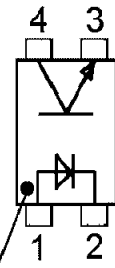


1 2 3

- 1 Vcc
- 2 Ground
- 3 Out

Photocoupler IC

PC-17T1

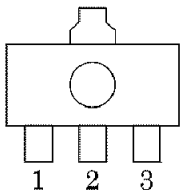


1 2

Anode Mark

POSITIVE REGULATORS VARIOUS STYLES 7805, 7806, 7812, 7815, 7824

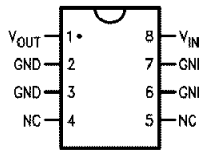
SOT-89



- 1. OUT
- 2. GND
- 3. IN

1 2 3

SO-8 Plastic (M)
(Narrow Body)

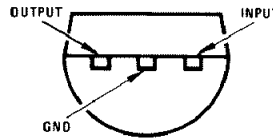


Top View

- 1. IN
- 2. GROUND
- 3. OUT

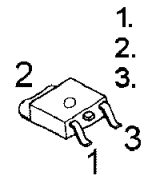
1 2 3

(TO-92)
Plastic Package (Z)



Bottom View

TO-252

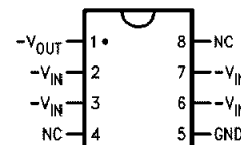


- 1. IN
- 2. GRD
- 3. OUT

1 2 3

NEGATIVE REGULATORS VARIOUS STYLES 7905, 7915

SO-8 Plastic (Narrow Body)

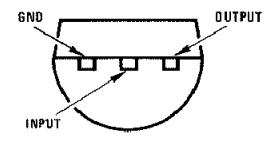


Top View

- 1. GROUND
- 2. IN
- 3. OUT

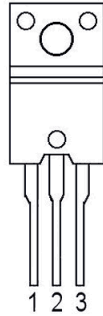
1 2 3

TO-92 Plastic Package (Z)



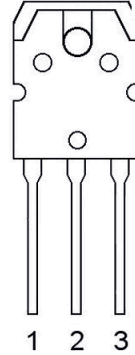
Bottom View

Silicon Transistor
2SA1859 PNP
2SC4883 NPN

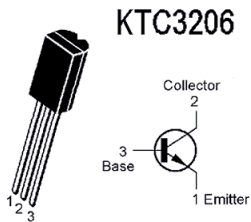


1 Base
 2 Collector
 3 Emitter

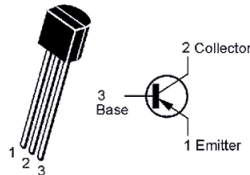
Silicon Transistor
2SA1986, 2SA1941,
2SC5198, 2SC5358,



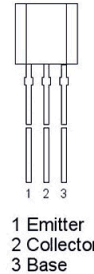
1 Base
 2 Collector (Heat Sink)
 3 Emitter



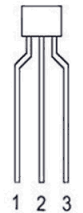
KRC107
KTA1268
KTA1266
KTA1024



EPITAXIAL PLANAR TRANSISTOR
KTC3200
KTC3198
KRA107M PNP
2SA1145 PNP
2SA1370

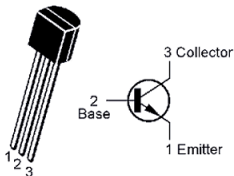


Silicon Transistor
2SA1740S
2SC1740S
2SA933AS

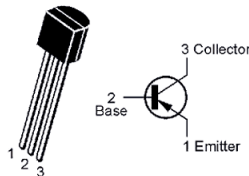


1 Emitter
 2 Collector
 3 Base

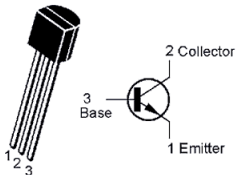
MPSA06



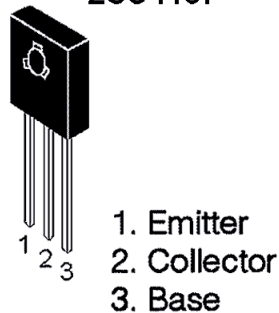
MPSA56



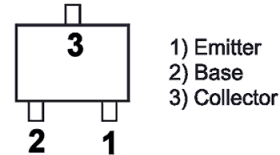
KTD1302



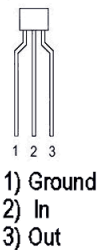
2SC4137



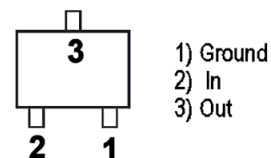
KRA107S PNP
KTD1304 NPN
DTC114YKA NPN



DTC114YSA NPN



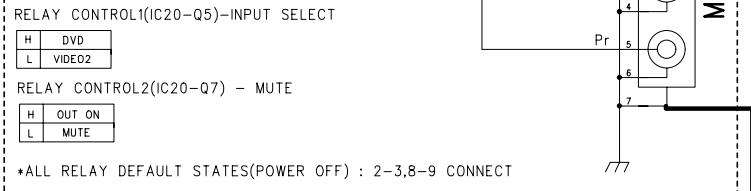
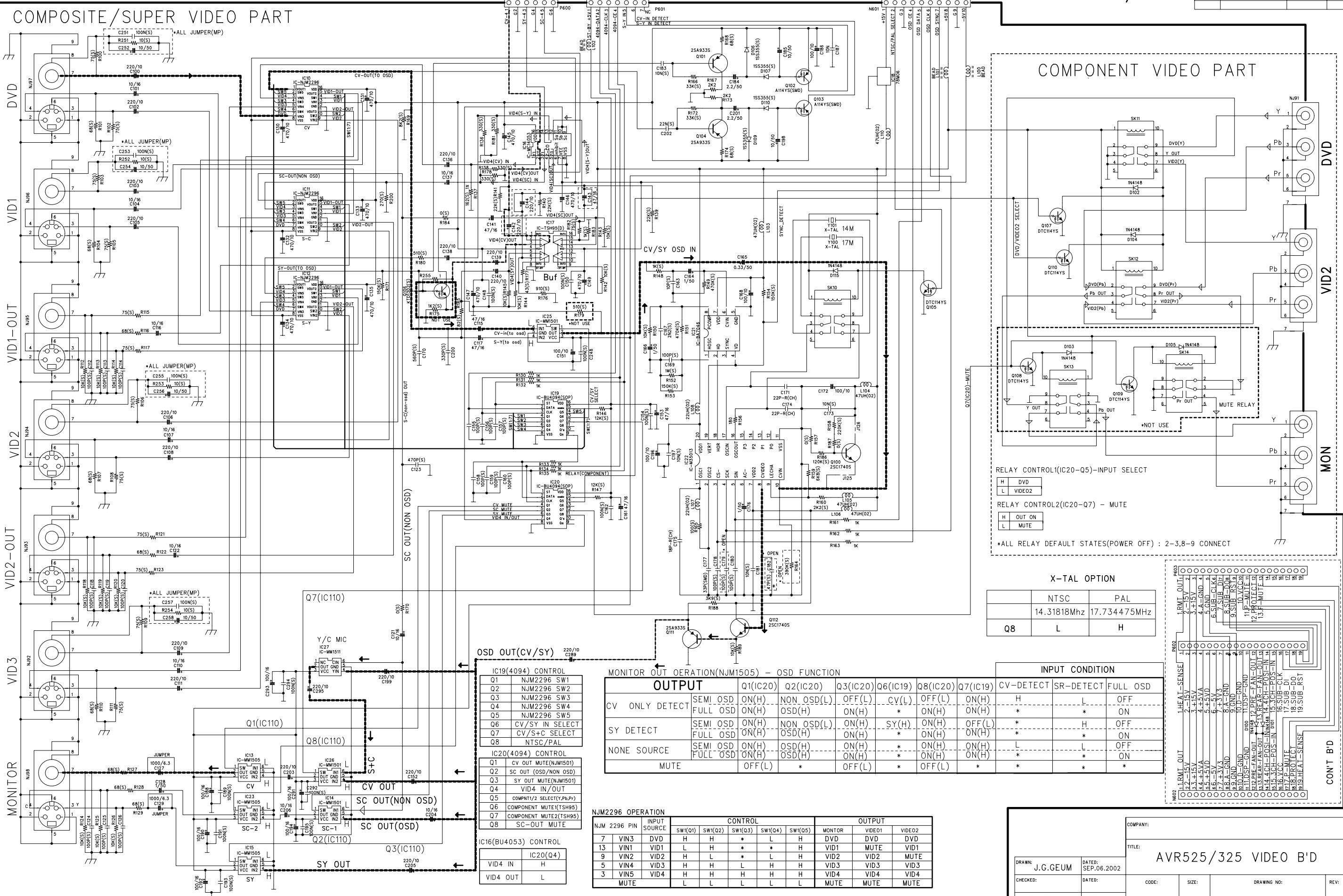
DTA114YKA



SCHEMATIC DIAGRAM

harman/kardon
AVR525/325

LTR	ECO NO.	APPROVED:	DATE:



X-TAL OPTION

	NTSC	PAL
Q8	14.31818Mhz	17.734475MHz
	L	H

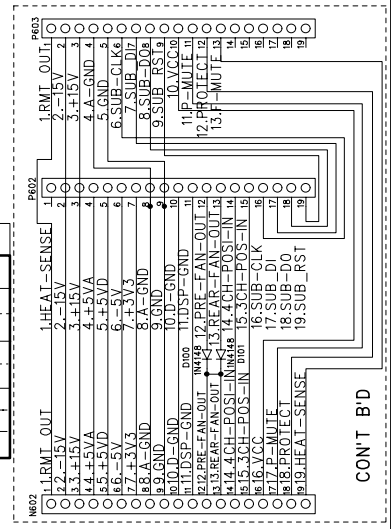
MONITOR OUT OPERATION(NJM1505) - OSD FUNCTION

	OUTPUT	Q1(IC20)	Q2(IC20)	Q3(IC20)	Q6(IC19)	Q8(IC20)	Q7(IC19)	CV-DETECT	SR-DETECT	FULL OSD
CV ONLY DETECT	SEMI OSD	ON(H)	NON OSD(L)	OFF(L)	CV(L)	OFF(L)	ON(H)	H	L	OFF
	FULL OSD	ON(H)	OSD(H)	ON(H)	*	ON(H)	ON(H)	*	*	ON
SY DETECT	SEMI OSD	ON(H)	NON OSD(L)	ON(H)	SY(H)	ON(H)	OFF(L)	*	H	OFF
	FULL OSD	ON(H)	OSD(H)	ON(H)	*	ON(H)	ON(H)	*	*	ON
NONE SOURCE	SEMI OSD	ON(H)	OSD(H)	ON(H)	*	ON(H)	ON(H)	L	L	OFF
	FULL OSD	ON(H)	OSD(H)	ON(H)	*	ON(H)	ON(H)	*	*	ON
MUTE		OFF(L)	*	OFF(L)	*	OFF(L)	*	*	*	*

NJM2296 OPERATION

NUM 2296 PIN	INPUT SOURCE	CONTROL					OUTPUT		
		SW1(Q1)	SW1(Q2)	SW1(Q3)	SW1(Q4)	SW1(Q5)	MONITOR	VIDEO1	VIDEO2
7	VIN3 DVD	H	H	*	L	H	DVD	DVD	DVD
13	VIN1 VID1	L	H	*	*	H	VID1	MUTE	VID1
9	VIN2 VID2	H	L	*	L	H	VID2	MUTE	MUTE
5	VIN4 VID3	H	H	L	H	H	VID3	VID3	VID3
3	VIN5 VID4	H	H	H	H	H	VID4	VID4	VID4
	MUTE	L	L	L	L	L	MUTE	MUTE	MUTE

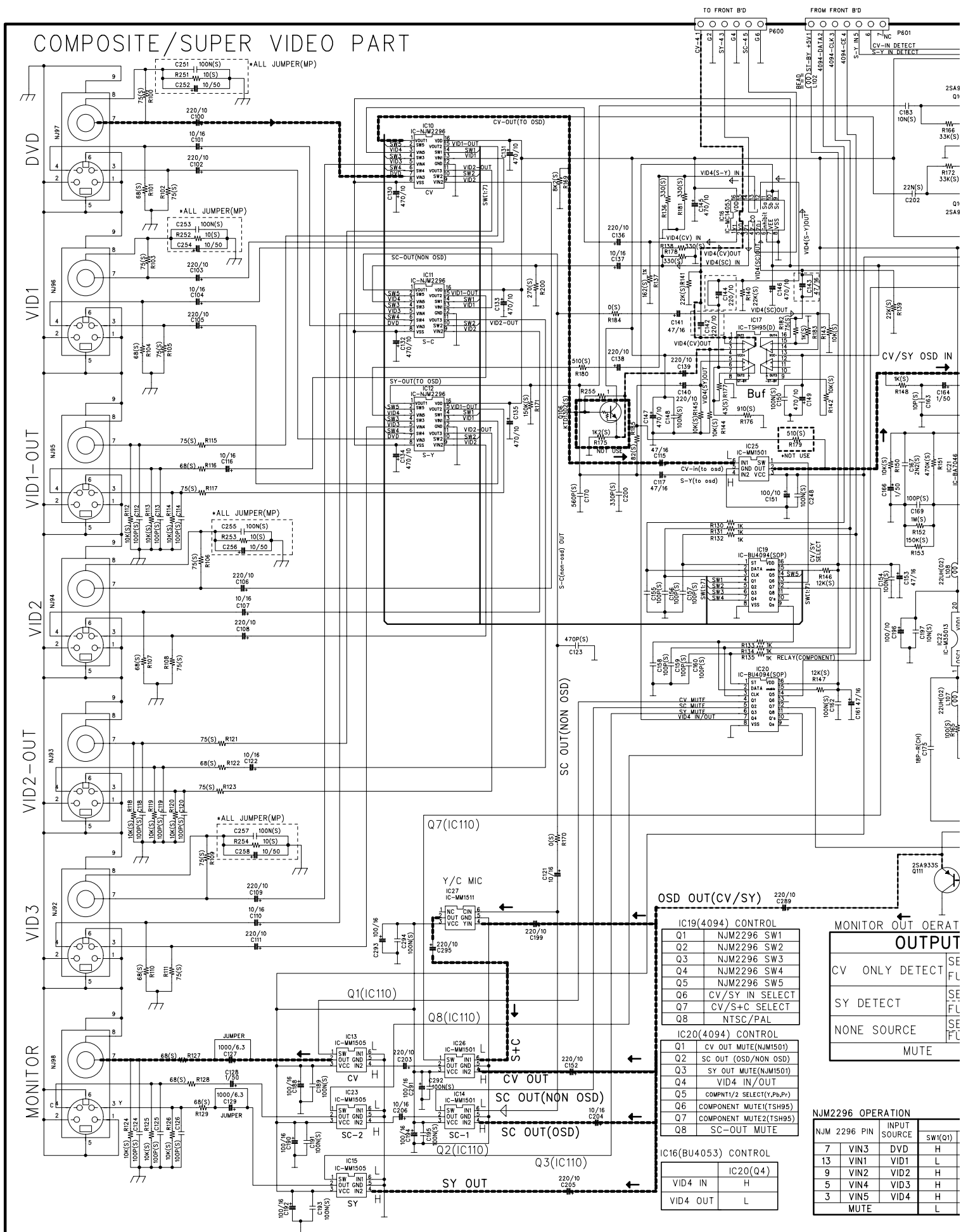
- IC19(4094) CONTROL**
- Q1 NJM2296 SW1
 - Q2 NJM2296 SW2
 - Q3 NJM2296 SW3
 - Q4 NJM2296 SW4
 - Q5 NJM2296 SW5
 - Q6 CV/SY IN SELECT
 - Q7 CV/S+C SELECT
 - Q8 NTSC/PAL
- IC20(4094) CONTROL**
- Q1 CV OUT MUTE(NJM1501)
 - Q2 SC OUT (OSD/NON OSD)
 - Q3 SY OUT MUTE(NJM1501)
 - Q4 VID4 IN/OUT
 - Q5 COMPNT1/2 SELECT(Y,Pb,Pr)
 - Q6 COMPONENT MUTE1(TSH95)
 - Q7 COMPONENT MUTE2(TSH95)
 - Q8 SC-OUT MUTE
- IC16(BU4053) CONTROL**
- VID4 IN H
 - VID4 OUT L



AVR525/325 VIDEO B'D

DRAWN: J.G.GEUM		DATED: SEP.06.2002	
CHECKED:	DATE:	CODE:	SIZE:
QUALITY CONTROL:	DATE:	DRAWING NO.:	REV:
RELEASED:	DATE:	STAGE: MP	SHEET: 3 OF 5

COMPOSITE/SUPER VIDEO PART



IC19(4094) CONTROL

Q1	NJM2296 SW1
Q2	NJM2296 SW2
Q3	NJM2296 SW3
Q4	NJM2296 SW4
Q5	NJM2296 SW5
Q6	CV/SY IN SELECT
Q7	CV/S+C SELECT
Q8	NTSC/PAL

IC20(4094) CONTROL

Q1	CV OUT MUTE(NJM1501)
Q2	SC OUT (OSD/NON OSD)
Q3	SY OUT MUTE(NJM1501)
Q4	VID4 IN/OUT
Q5	COMPNT1/2 SELECT(Y,Pb,P)
Q6	COMPONENT MUTE1(TSH95)
Q7	COMPONENT MUTE2(TSH95)
Q8	SC-OUT MUTE

IC16(BU4053) CONTROL

VID4 IN	H
VID4 OUT	L

IC20(Q4)

VID4 IN	H
VID4 OUT	L

MONITOR OUT OPERAT OUTPUT

CV ONLY DETECT	SE FL
SY DETECT	SE FL
NONE SOURCE	SE FL
MUTE	SE FL

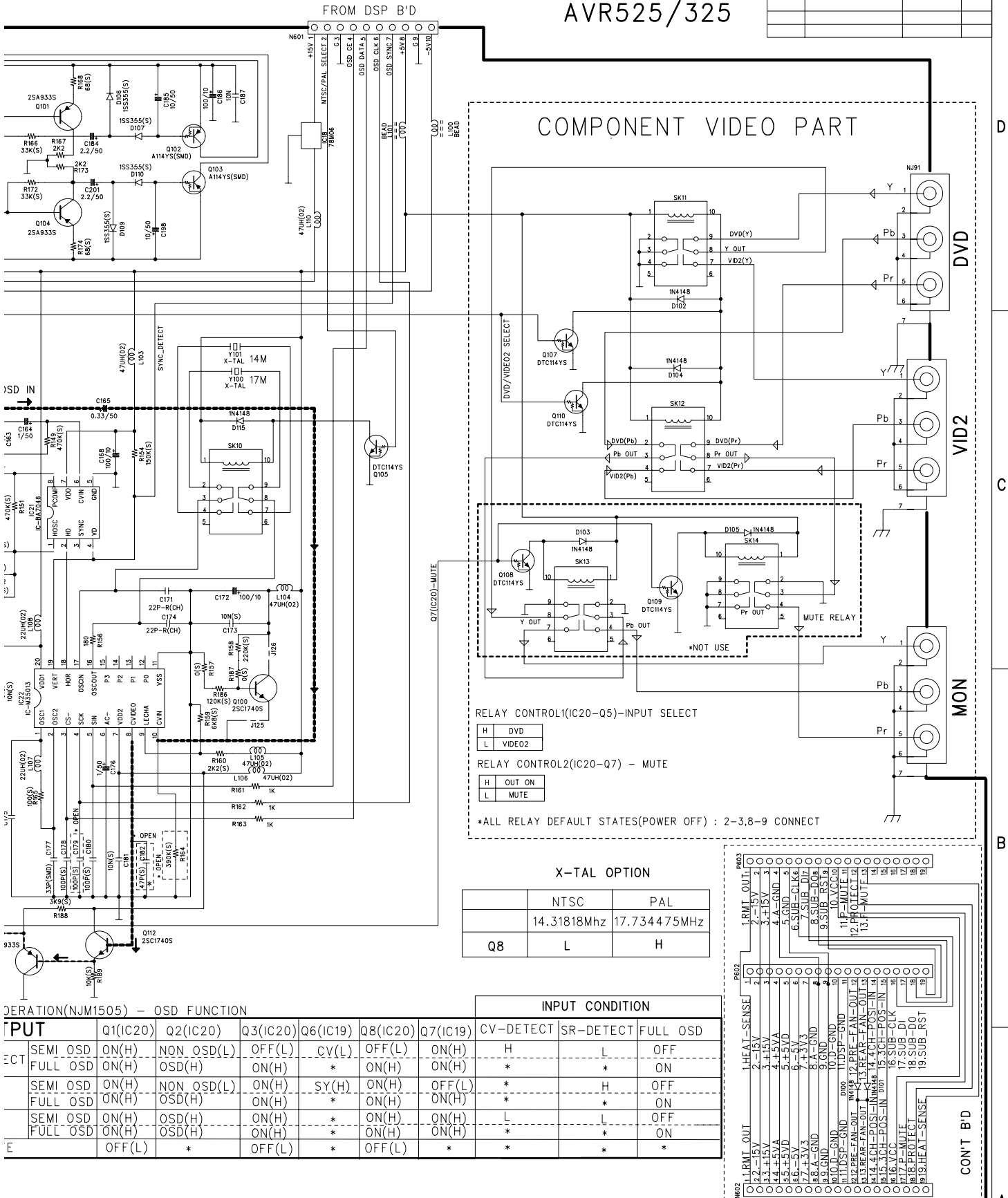
NJM2296 OPERATION

NJM 2296 PIN	INPUT SOURCE	SW(O1)	
7	VIN3	DVD	H
13	VIN1	VID1	L
9	VIN2	VID2	H
5	VIN4	VID3	H
3	VIN5	VID4	H
	MUTE	VID4	L

DIAGRAM

harman/kardon
AVR525/325

TR	ECO NO:	APPROVED:	DATE:



RELAY CONTROL1(IC20-Q5)-INPUT SELECT

H	DVD
L	VIDEO2

RELAY CONTROL2(IC20-Q7) - MUTE

H	OUT ON
L	MUTE

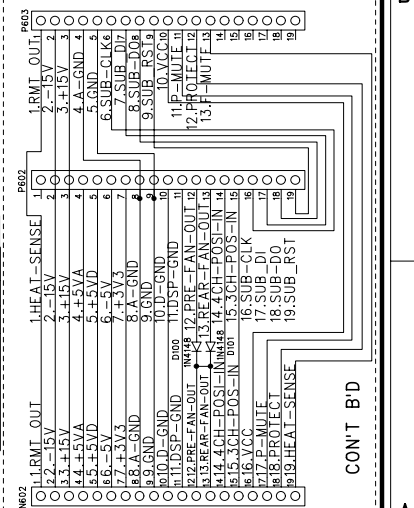
*ALL RELAY DEFAULT STATES(POWER OFF) : 2-3,8-9 CONNECT

X-TAL OPTION

	NTSC	PAL
Q8	14.31818MHz	17.734475MHz
Q8	L	H

OPERATION(NJM1505) - OSD FUNCTION

INPUT	INPUT CONDITION						CV-DETECT	SR-DETECT	FULL OSD
	Q1(IC20)	Q2(IC20)	Q3(IC20)	Q6(IC19)	Q8(IC20)	Q7(IC19)			
SEMI OSD	ON(H)	NON OSD(L)	OFF(L)	CV(L)	OFF(L)	ON(H)	H	L	OFF
FULL OSD	ON(H)	OSD(H)	ON(H)	*	ON(H)	ON(H)	*	*	ON
SEMI OSD	ON(H)	NON OSD(L)	ON(H)	SY(H)	ON(H)	OFF(L)	*	H	OFF
FULL OSD	ON(H)	OSD(H)	ON(H)	ON(H)	ON(H)	ON(H)	*	*	ON
SEMI OSD	ON(H)	OSD(H)	ON(H)	*	ON(H)	ON(H)	L	L	OFF
FULL OSD	ON(H)	OSD(H)	ON(H)	*	ON(H)	ON(H)	*	*	ON
OFF	OFF(L)	*	OFF(L)	*	OFF(L)	ON(H)	*	*	*



CONTROL					OUTPUT		
SW1(Q1)	SW1(Q2)	SW1(Q3)	SW1(Q4)	SW1(Q5)	MONTOR	VIDEO1	VIDEO2
H	H	*	L	H	DVD	DVD	DVD
L	H	*	*	H	VID1	MUTE	VID1
H	L	*	L	H	VID2	MUTE	MUTE
H	H	L	H	H	VID3	VID3	VID3
H	H	H	H	H	VID4	VID4	VID4
L	L	L	L	L	MUTE	MUTE	MUTE

COMPANY: _____

TITLE: **AVR525/325 VIDEO B'D**

DRAWN: J.G.GEUM DATED: SEP.06.2002

CHECKED: _____ DATED: _____

QUALITY CONTROL: _____ DATED: _____

RELEASED: _____ DATED: _____

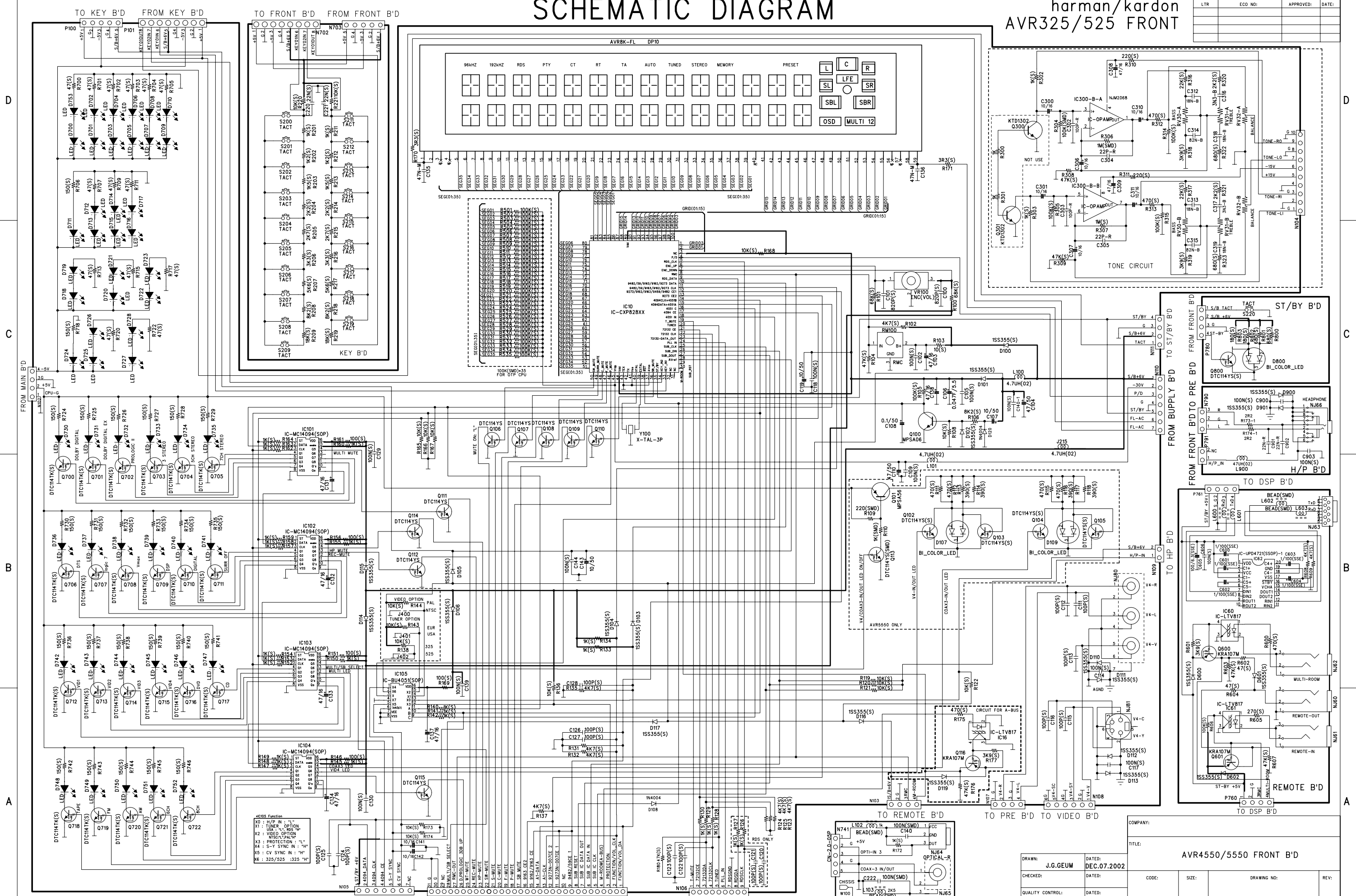
CODE: _____ SIZE: _____ DRAWING NO: _____ REV: _____

STAGE: MP SHEET: 3 OF 5

SCHEMATIC DIAGRAM

harman/kardon
AVR325/525 FRONT

REVISION RECORD			
LTR	ECO NO.	APPROVED:	DATE:



COMPANY:		TITLE:	
DRAWN: J.G.GEUM		DATED: DEC.07.2002	
CHECKED:	DATED:	CODE:	SIZE:
QUALITY CONTROL:	DATED:	DRAWING NO:	REV:
RELEASED:	DATED:	SCALE: FTMS	SHEET: 1 OF 6

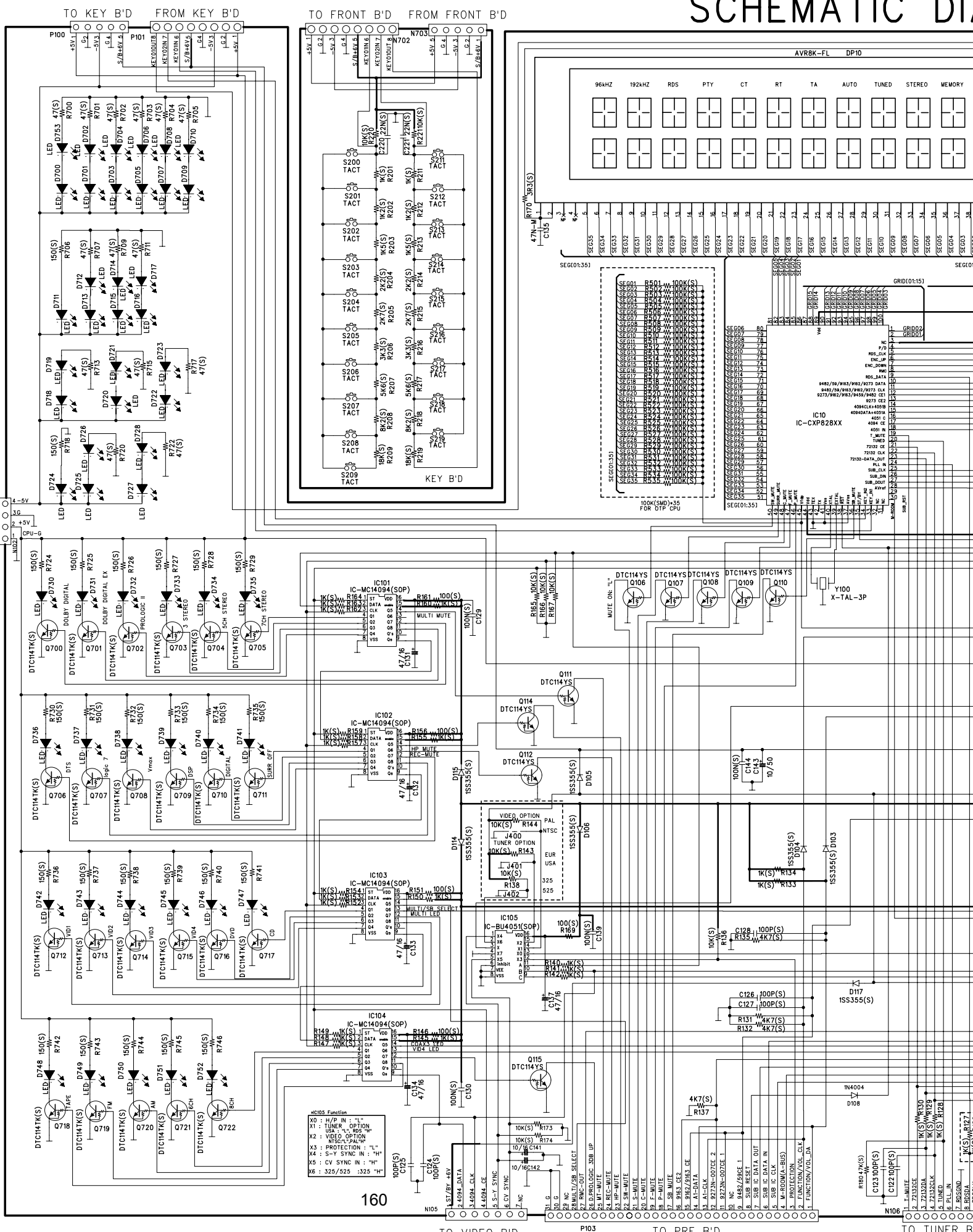
SCHEMATIC DI

D

C

B

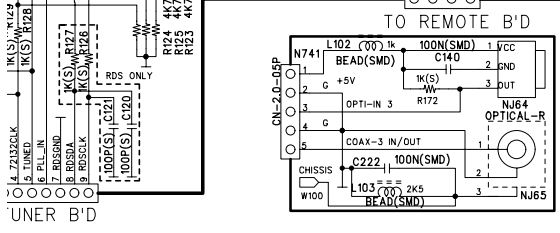
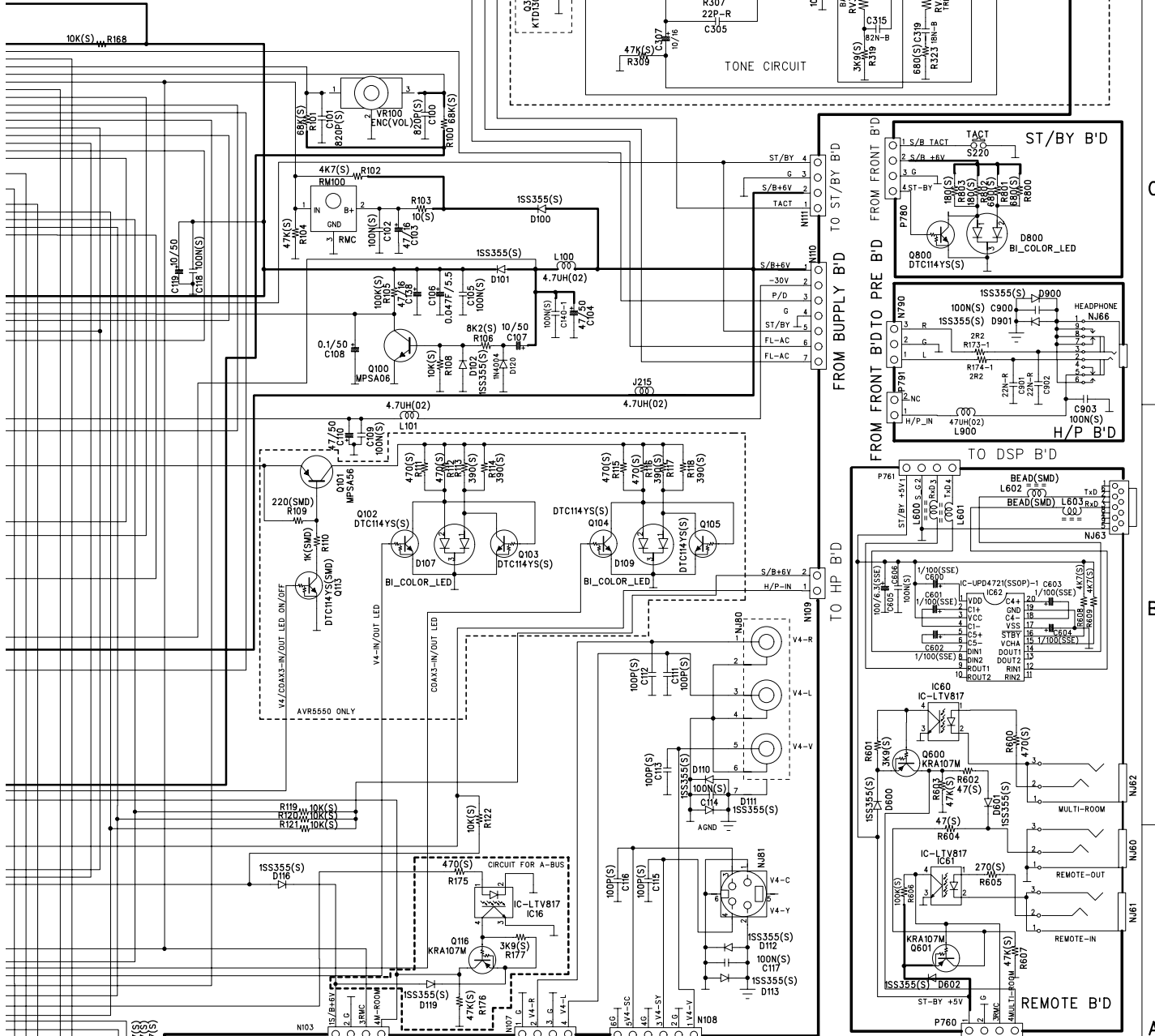
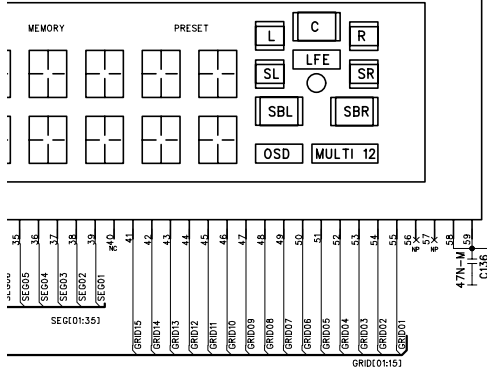
A



DIAGRAM

harman/kardon AVR325/525 FRONT

LTR	ECO NO.	APPROVED:	DATE:

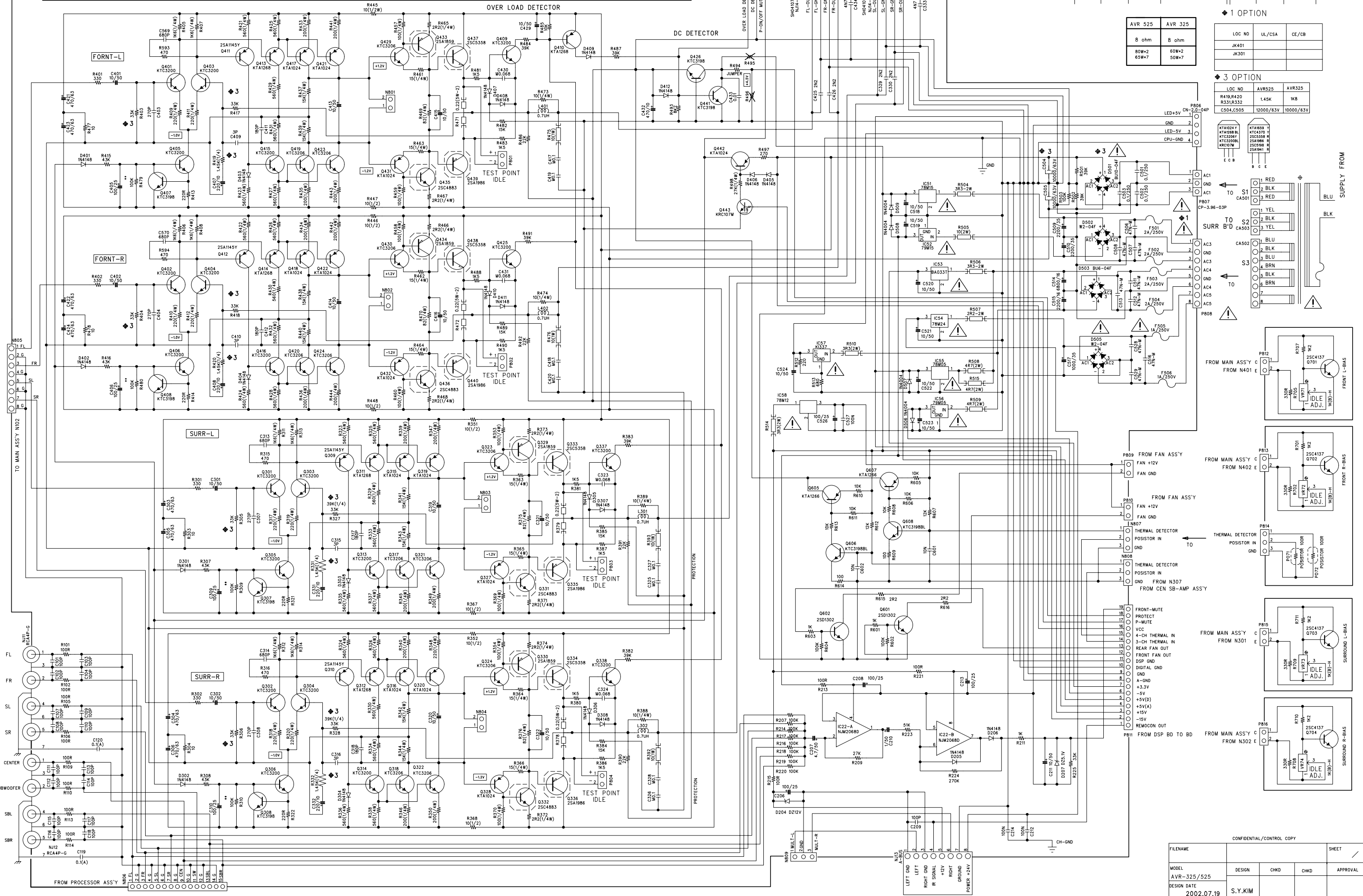


DRAWN: J.G.GEUM
 CHECKED:
 QUALITY CONTROL:
 RELEASED:
 DATED: DEC.07.2002

COMPANY:
 TITLE: AVR4550/5550 FRONT B'D

CODE:	SIZE:	DRAWING NO:	REV:

SCALE: FTMS SHEET: 1 OF 6



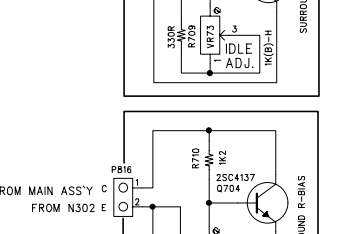
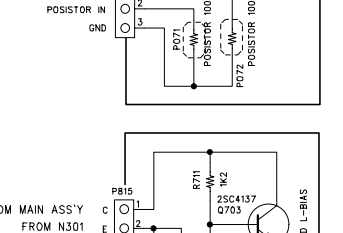
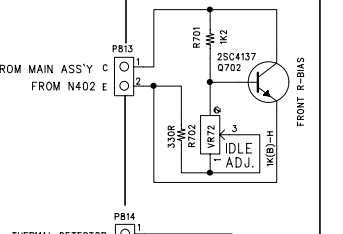
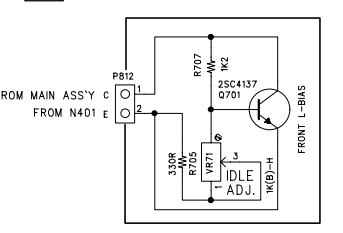
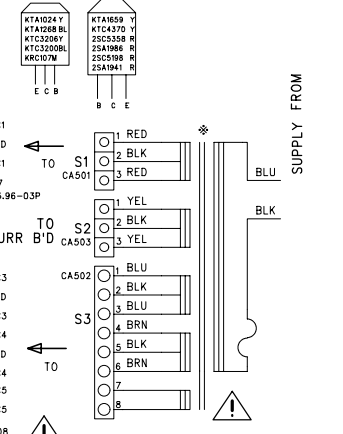
AVR 525	AVR 325
8 ohm	8 ohm
80W*2	60W*2
65W*7	50W*7

◆ 1 OPTION

LOC NO	UL/CSA	CE/CB
JK401		
JK301		

◆ 3 OPTION

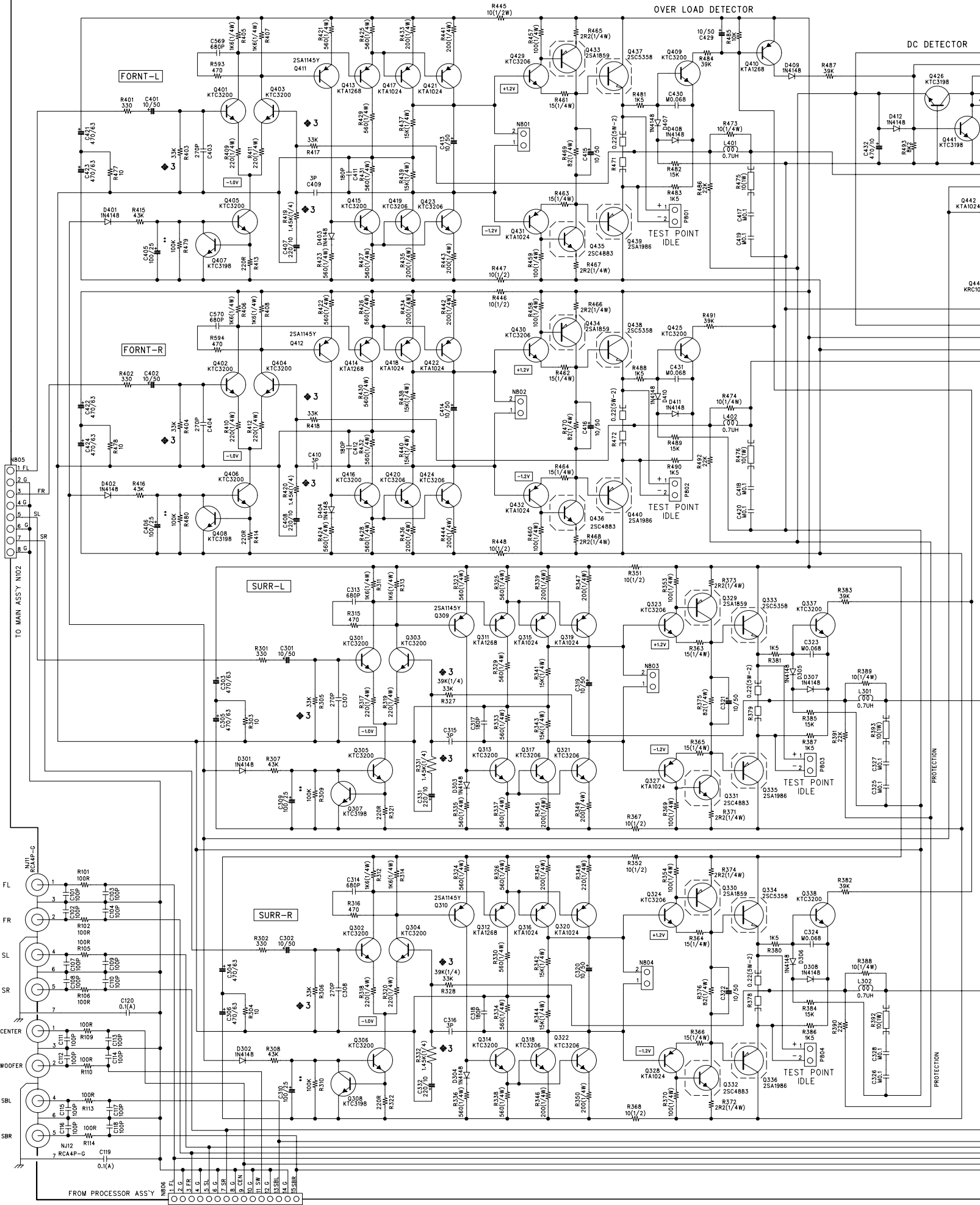
LOC NO	AVR525	AVR325
R419,R420	1.45K	1K8
R331,R332		
C504,C505	12000/63V	10000/63V

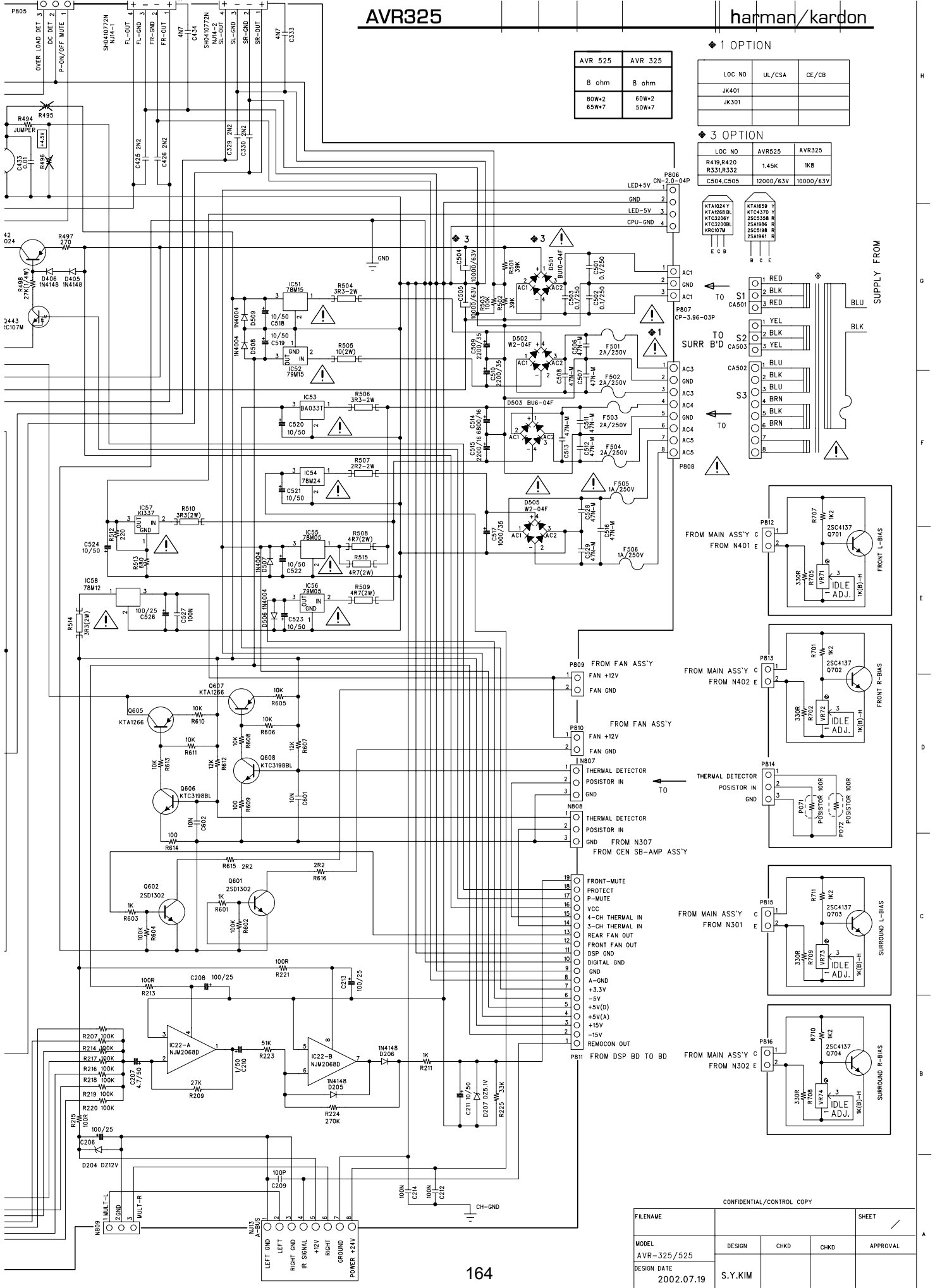


CONFIDENTIAL/CONTROL COPY

FILENAME	DESIGN	CHKD	CHKD	APPROVAL
AVR-325/525	S.Y.KIM			

MODEL: AVR-325/525
DESIGN DATE: 2002.07.19





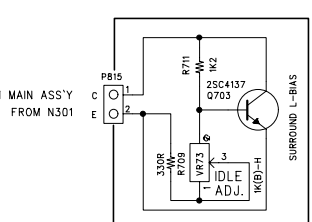
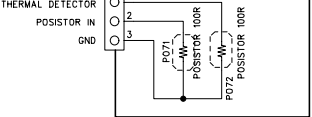
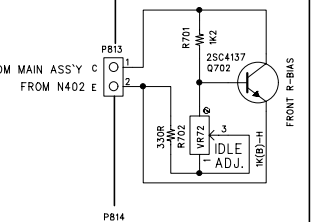
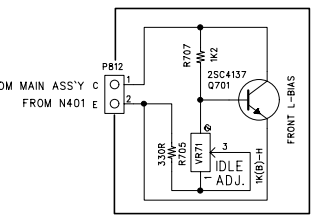
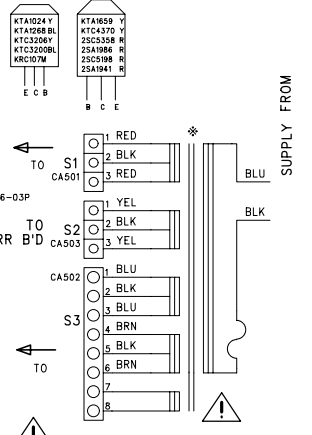
AVR 525	AVR 325
8 ohm	8 ohm
80W+2	60W+2
65W+7	50W+7

◆ 1 OPTION

LOC NO	UL/CSA	CE/CB
JK401		
JK301		

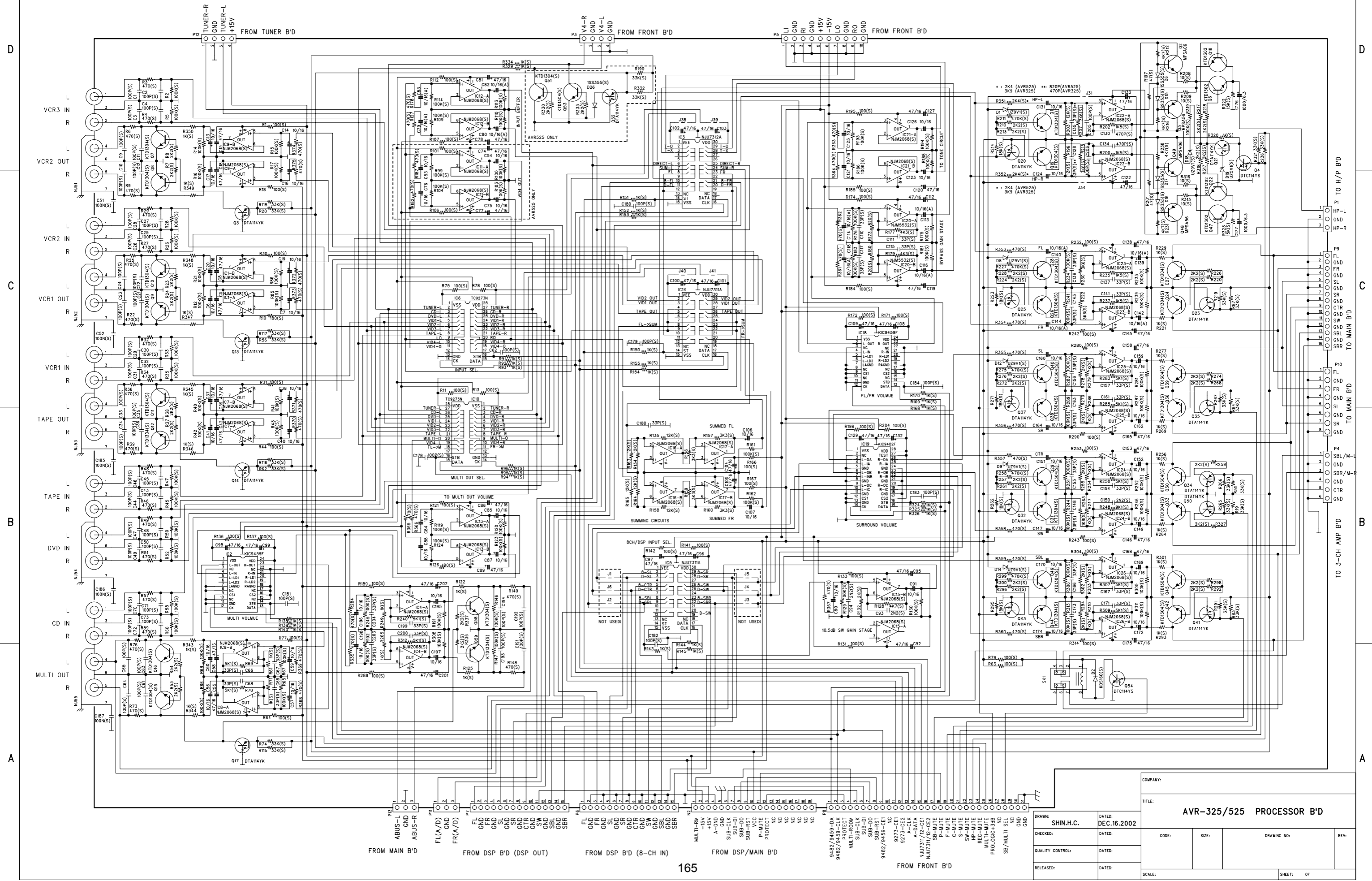
◆ 3 OPTION

LOC NO	AVR525	AVR325
R419,R420	1.45K	1K8
R331,R332		
C504,C505	12000/63V	10000/63V



CONFIDENTIAL/CONTROL COPY				
FILENAME	DESIGN	CHKD	CHKD	SHEET
AVR-325/525	S.Y.KIM			1
DESIGN DATE				
2002.07.19				

SCHEMATIC DIAGRAM AVR325/525



DRAWN: SHIN.H.C.		DATED: DEC.16.2002	
CHECKED:	DATE:	CODE:	SIZE:
QUALITY CONTROL:	DATE:	DRAWING NO:	REV:
RELEASED:	DATE:	SCALE:	SHEET: OF

AVR-325/525 PROCESSOR B'D

D

L

R

L

R

C

L

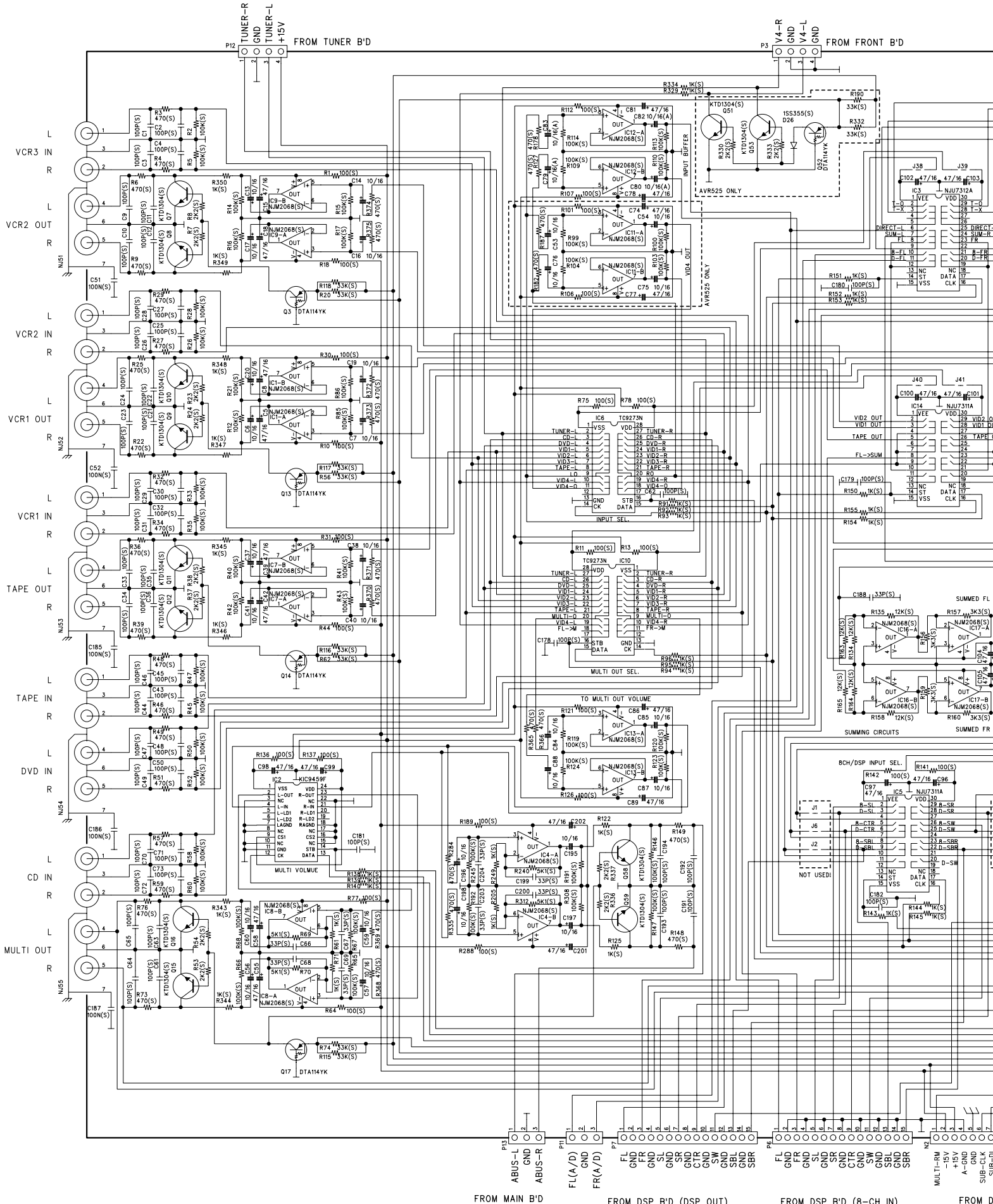
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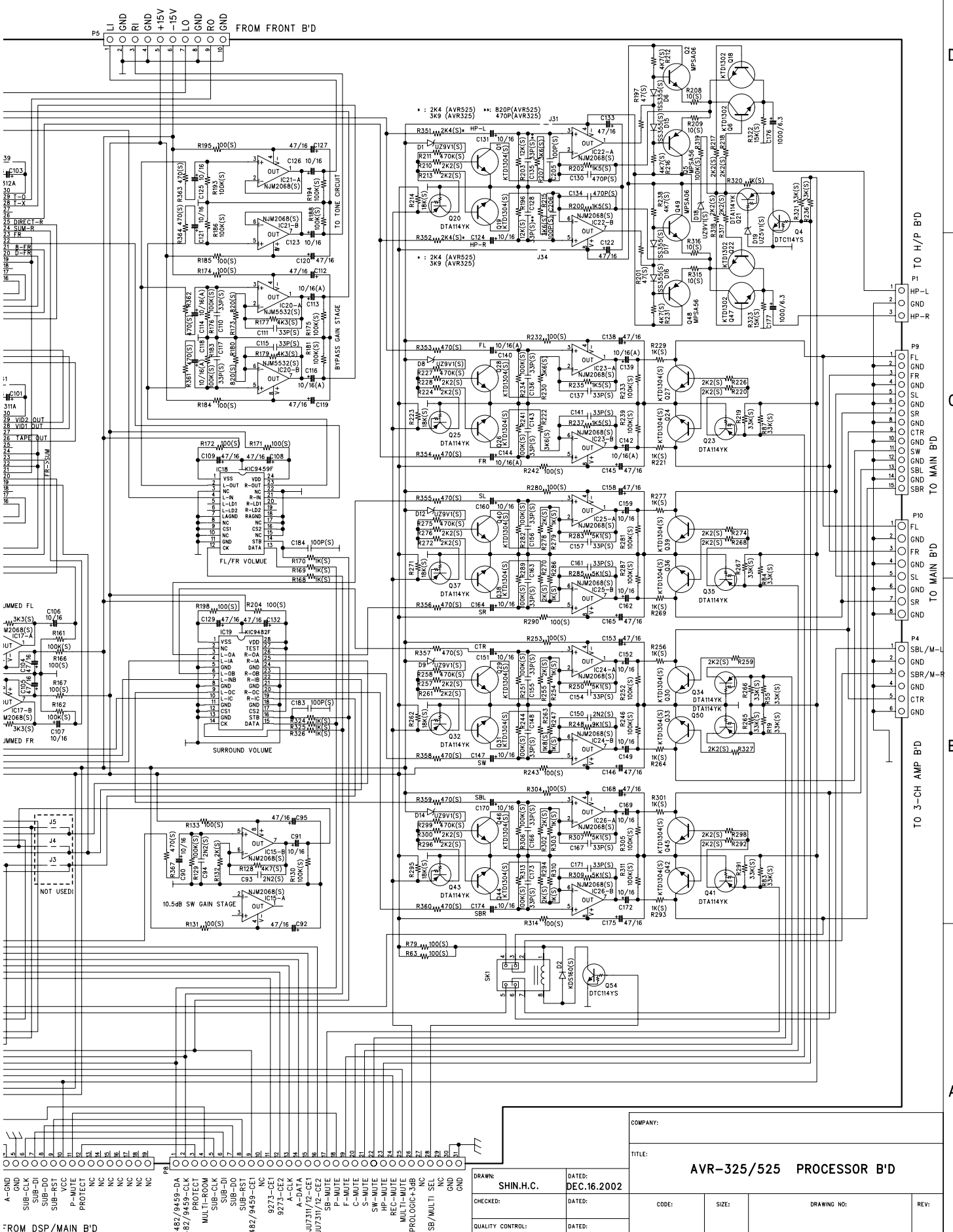
B

L

R

A





FROM DSP/MAIN B'D

FROM FRONT B'D

DRAWN: SHIN.H.C.		DATED: DEC.16.2002	
CHECKED:	DATE:	CODE:	SIZE:
QUALITY CONTROL:	DATE:	DRAWING NO.:	REV.:
RELEASED:	DATE:	SCALE:	SHEET: OF

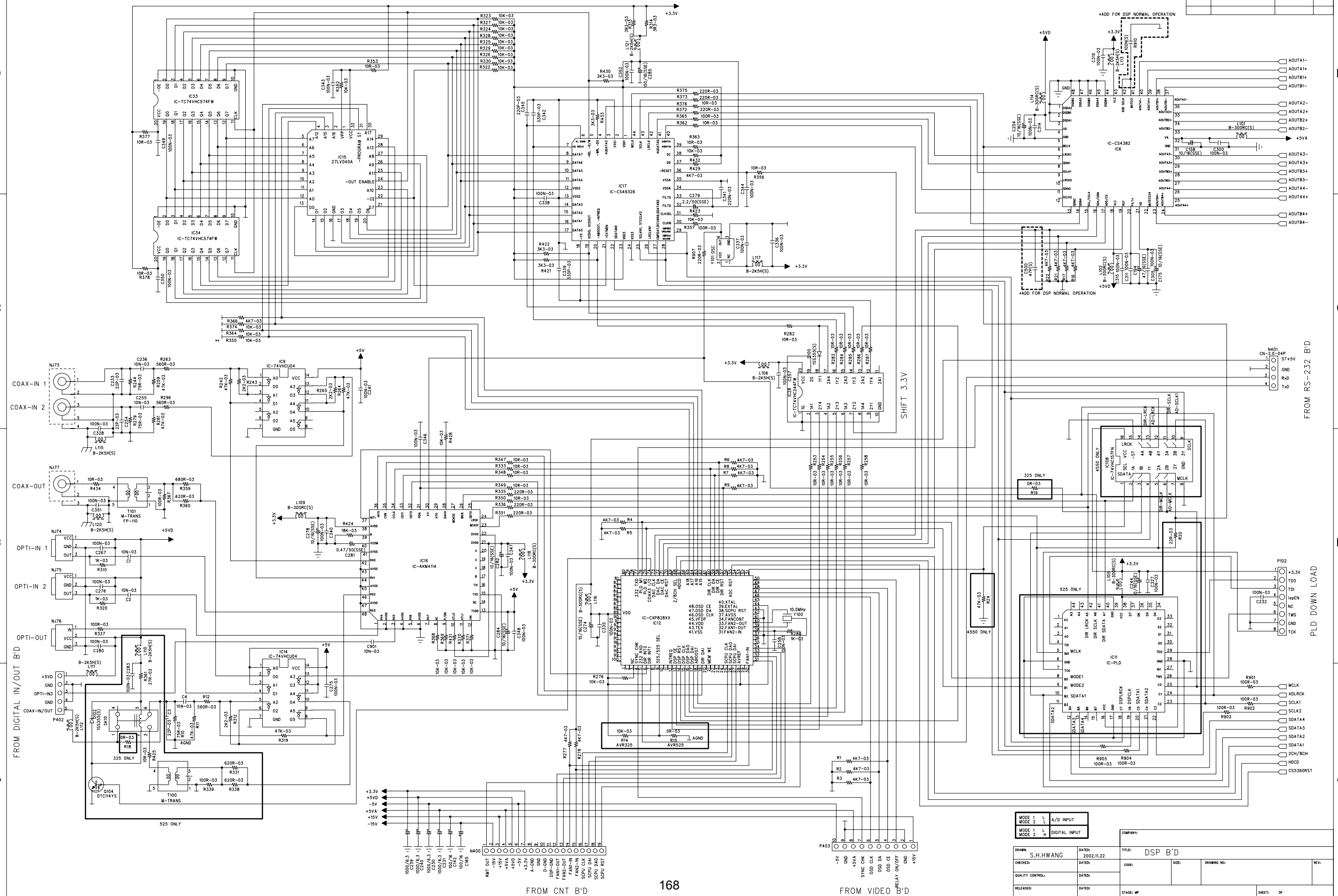
COMPANY: **AVR-325/525 PROCESSOR B'D**

TITLE:

SCHEMATIC DIAGRAM

AVR325/525 DSP B'D

REVISION RECORD			
LTR	ECO NO.	APPROVED	DATE



MODE 1	L	A/D INPUT
MODE 2	L	DIGITAL INPUT

DRAWN:	S.H.HWANG	DATE:	2002.11.22	TITLE:	DSP B'D
CHECKED:		DATE:		CODE:	
QUALITY CONTROL:		DATE:		SIZE:	
RELEASED:		DATE:		DRAWING NO.:	
				STAGE:	MP
				SHEET:	OF

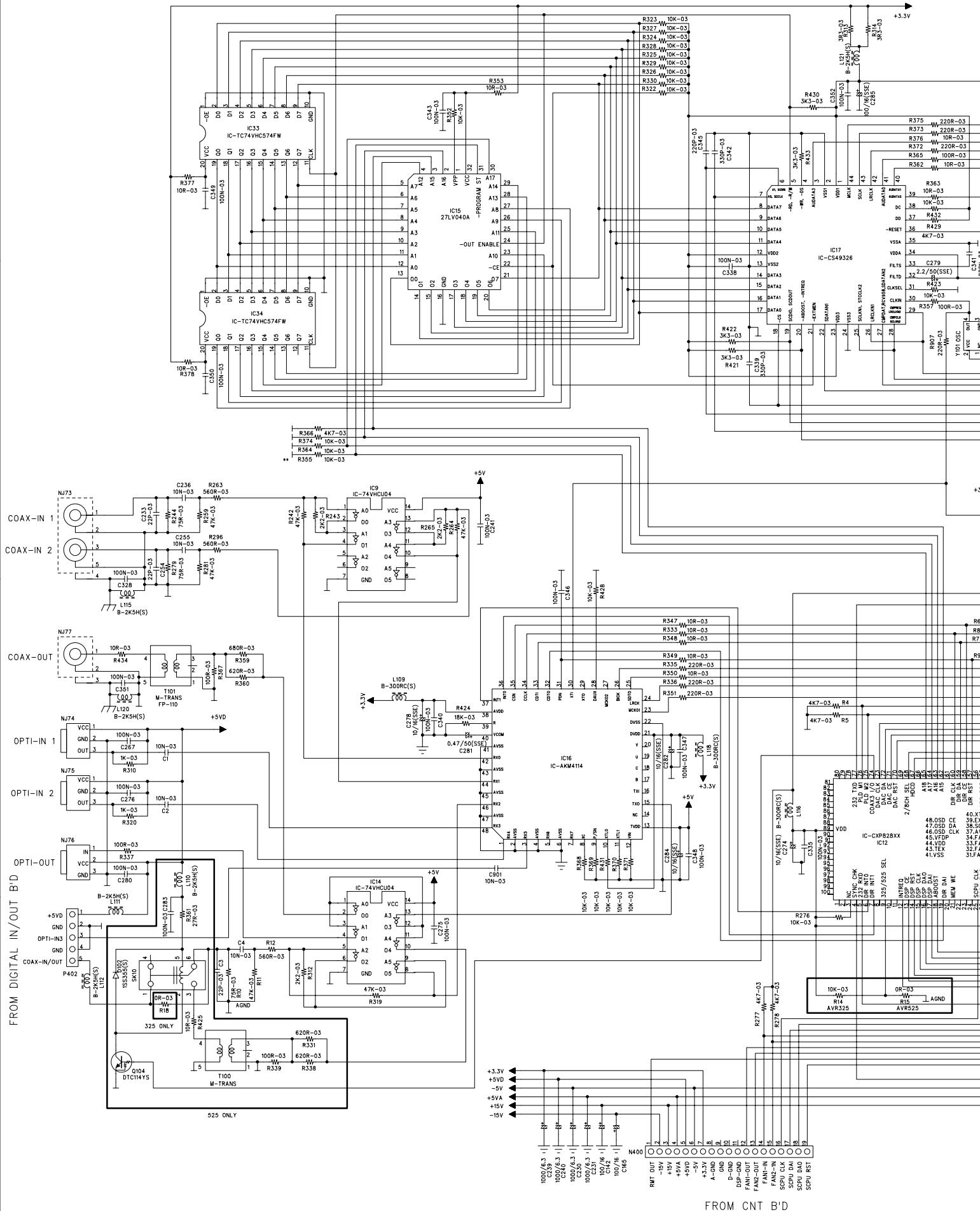
SCHEMATIC DIAGRAM

D

C

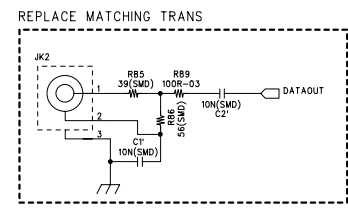
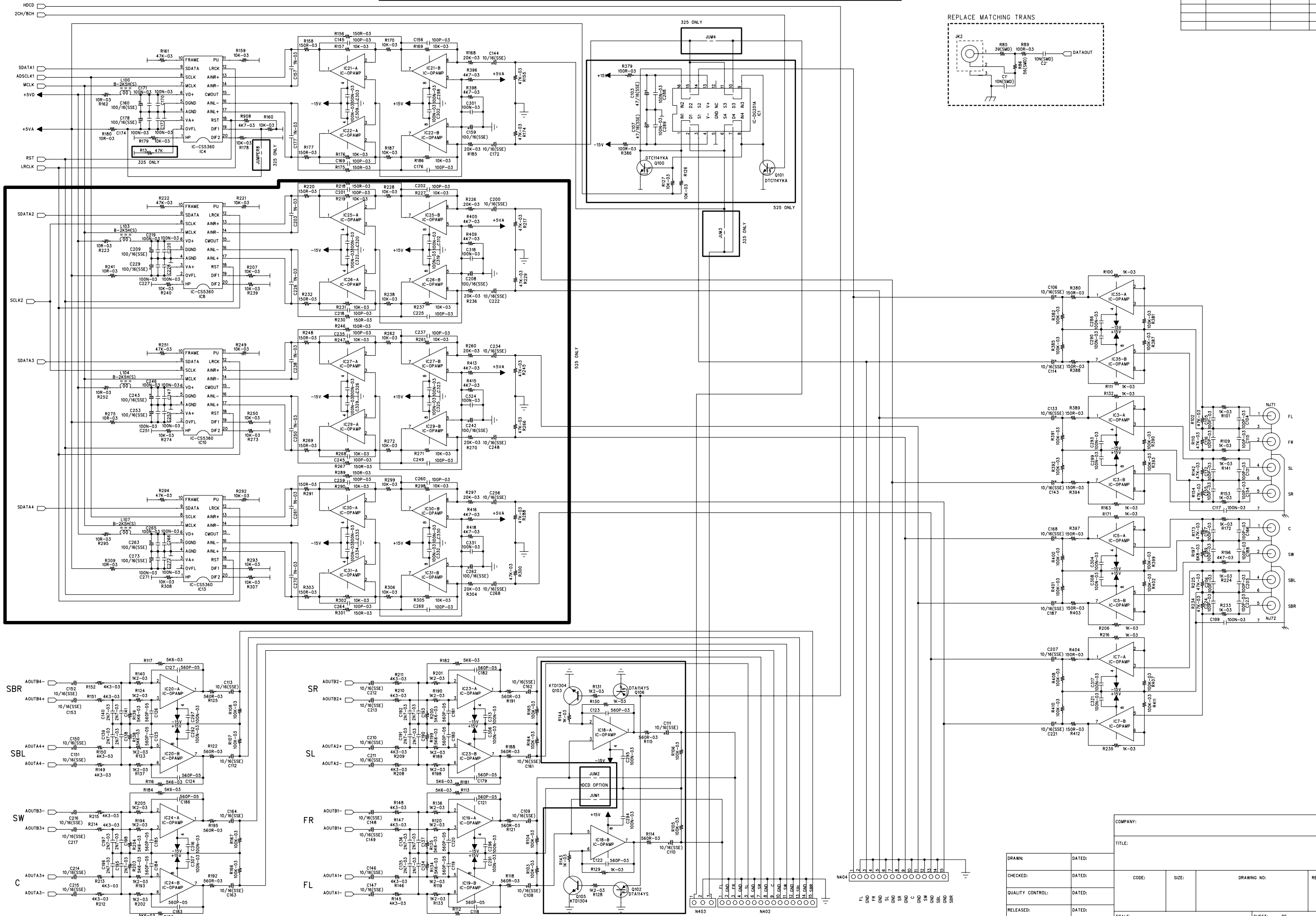
B

A

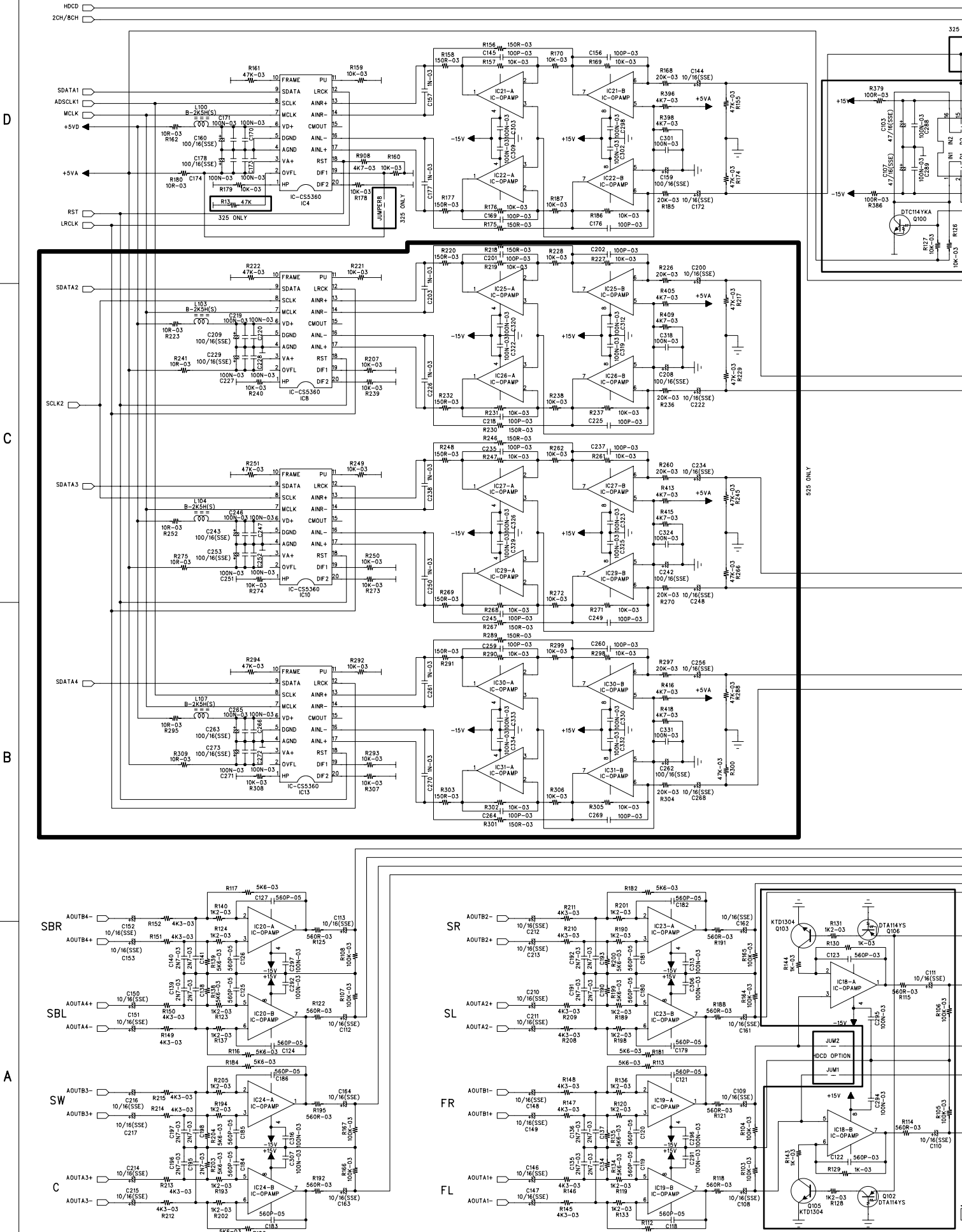


FROM CNT B'D

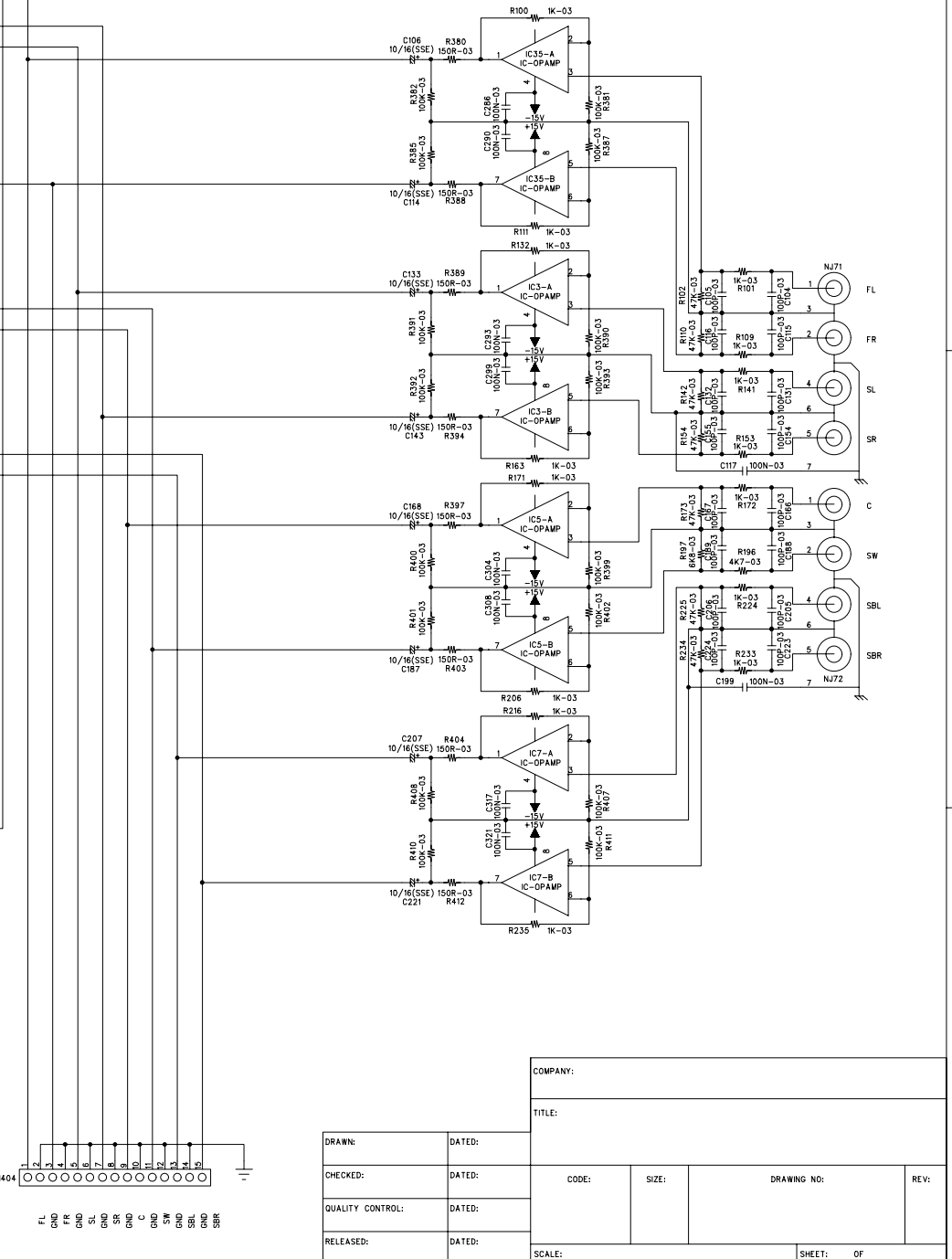
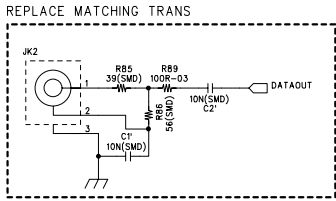
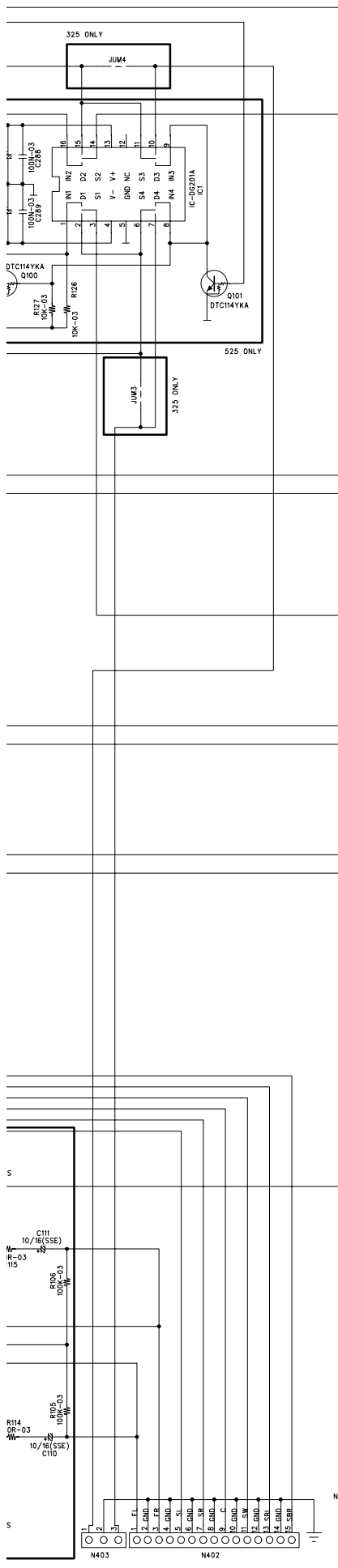
REVISION RECORD			
LTR	ECO NO.	APPROVED:	DATE:



DRAWN:		DATED:		CODE:		SIZE:		DRAWING NO:		REV:	
CHECKED:		DATED:		SCALE:		SHEET:		OF			
QUALITY CONTROL:		DATED:									
RELEASED:		DATED:									



REVISION RECORD		APPROVED:	DATE:
LTR	ECD NO:		



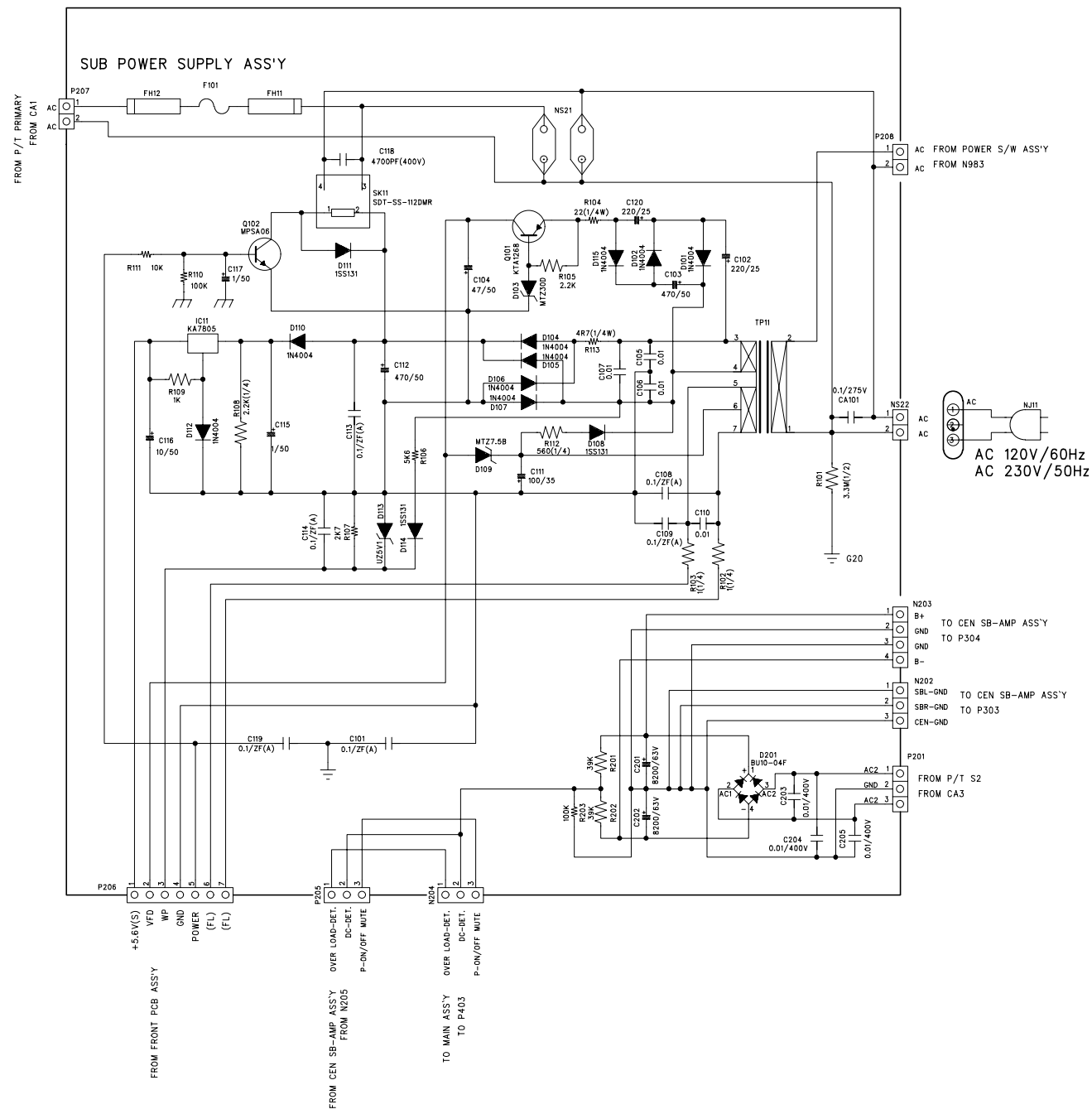
COMPANY:

TITLE:

DRAWN:	DATED:	CODE:	SIZE:	DRAWING NO:	REV:
CHECKED:	DATED:				
QUALITY CONTROL:	DATED:				
RELEASED:	DATED:				

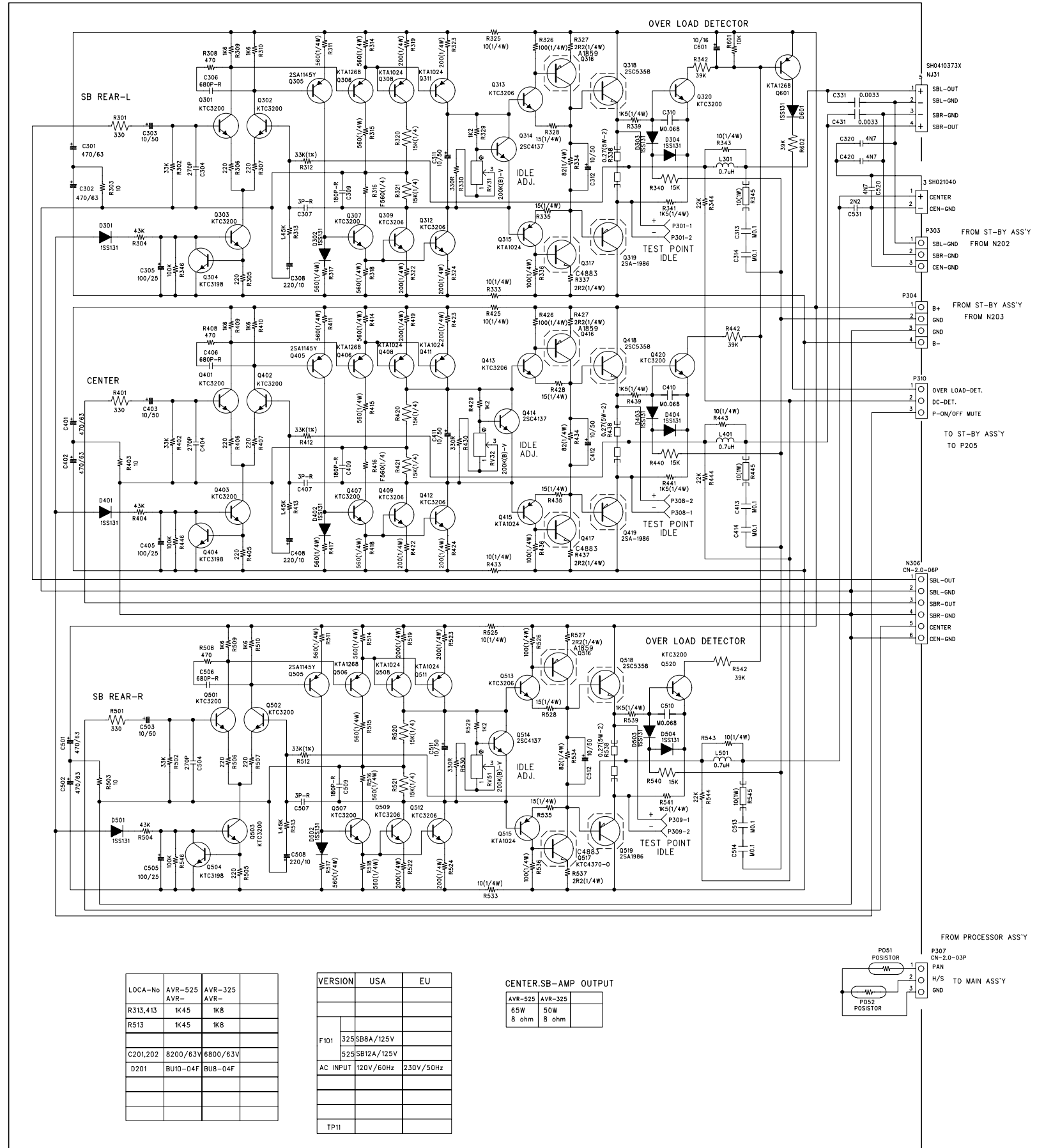
SCALE: _____ SHEET: _____ OF _____

AVR 525/325 SUPPLY



LOC#-No	AVR-525	AVR-325
R313,413	1K45	1K8
R513	1K45	1K8
C201,202	8200/63V	6800/63V
D201	BU10-04F	BU8-04F

VERSION	USA	EU
F101	325SB8A/125V	
	525SB12A/125V	
AC INPUT	120V/60Hz	230V/50Hz
TP11		



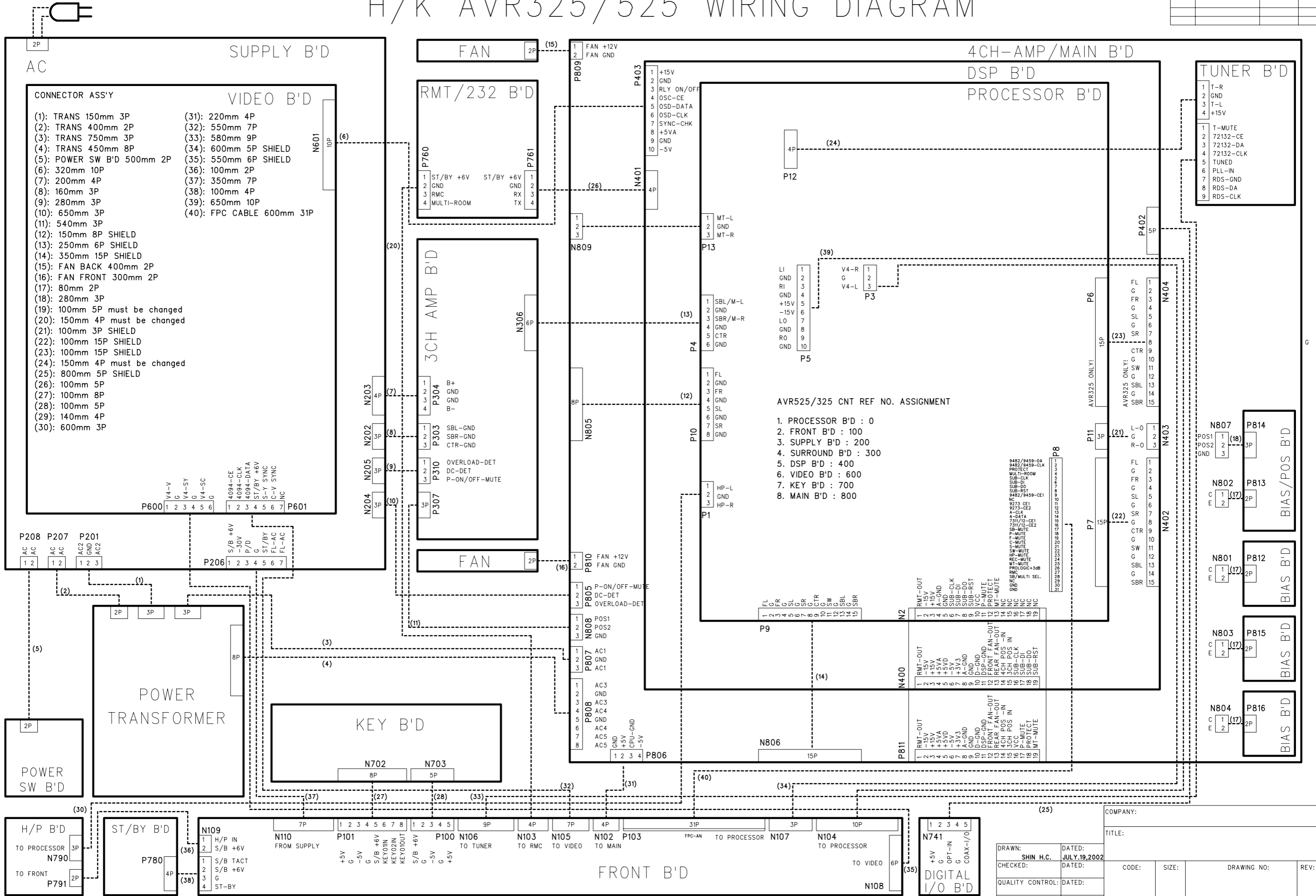
LOC#-No	AVR-525	AVR-325
R313,413	1K45	1K8
R513	1K45	1K8
C201,202	8200/63V	6800/63V
D201	BU10-04F	BU8-04F

VERSION	USA	EU
F101	325SB8A/125V	
	525SB12A/125V	
AC INPUT	120V/60Hz	230V/50Hz
TP11		

CENTER.SB-AMP OUTPUT	
AVR-525	AVR-325
65W	50W
8 ohm	8 ohm

H/K AVR325/525 WIRING DIAGRAM

REVISION RECORD		
LTR	ECO NO:	APPROVED DATE:

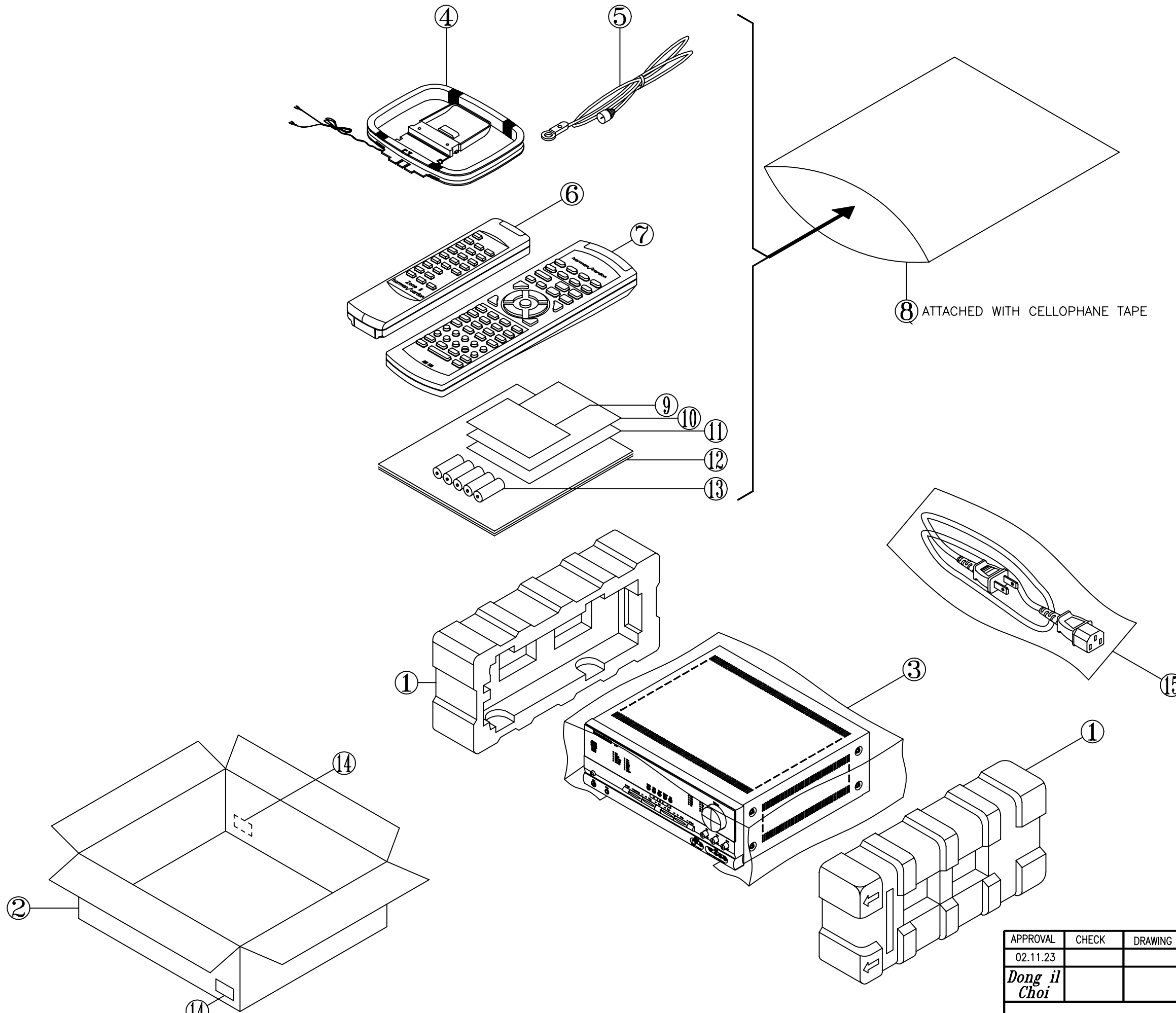


AVR525/325 CNT REF NO. ASSIGNMENT

1. PROCESSOR B'D : 0
2. FRONT B'D : 100
3. SUPPLY B'D : 200
4. SURROUND B'D : 300
5. DSP B'D : 400
6. VIDEO B'D : 600
7. KEY B'D : 700
8. MAIN B'D : 800

DRAWN:	SHIN H.C.	DATED:	JULY.19.2002
CHECKED:		DATED:	
QUALITY CONTROL:		DATED:	
RELEASED:		DATED:	

COMPANY:	
TITLE:	
CODE:	
SIZE:	
DRAWING NO:	
REV:	
SCALE:	
SHEET:	



8 ATTACHED WITH CELLOPHANE TAPE

NO.	PARTS NO.	DESCRIPTION	AVR 325	AVR 525	AVR 4550	AVR 5550
1	55178610	CUSHION POLY	2	2	2	2
2	55405650	BOX CARTON AVR 325 US	1			
	55405660	BOX CARTON AVR 525 US		1		
	55575740	BOX CARTON AVR 4550			1	
	55575750	BOX CARTON AVR 5550				1
3	55170660	SHEET PE 0.5t	1	1	1	1
4	55127490	AM ANTENNA LOOP	1	1	1	1
5	55127460	FM ANTENNA 75 EU			1	1
	55127450	FM ANTENNA 75 US	1	1		
6	55178550	ASS'Y REMOCON ZONE II	1	1	1	1
7	55405740	ASS'Y REMOCON AVR 325US	1			
	55405750	ASS'Y REMOCON AVR 525US		1		
	55575820	ASS'Y REMOCON AVR 4550			1	
	55575830	ASS'Y REMOCON AVR 5550				1
8	55164890	POLY BAG PE 0.05t	1	1	1	1
9	55178720	CARD POST PAPER	1	1	1	1
10	55178740	CADR WARRANTY PAPER	1	1	1	1
11	55178770	SAFETY LEAFLET PAPER	1	1	1	1
12	55406040	MANUAL AVR 325 US	1			
	55406140	MANUAL AVR 525 US		1		
	55575880	MANUAL AVR 4550			1	
	55575890	MANUAL AVR 5550				1
13	5502022A	BATTERY 1.5V AAA	5	5	5	5
14	55405720	LABEL BARCODE AVR 325 US	3			
	55405730	LABEL BARCODE AVR 525 US		3		
	55575800	LABEL BARCODE AVR 4550			3	
	55575810	LABEL BARCODE AVR 5550				3
15	55231270	WIRE-MCRDM 0.82MM2 1MM BK	1	1		
	55339780	WIRE-MCRDM 0.82MM2 2000MM BK CE			1	1

APPROVAL	CHECK	DRAWING	DESIGN	MODEL	TOLERANCE	PARTS NAME
02.11.23				SCALE	LESS; ±	PACKING DRAWING
Dong il Choi				N / S	LESS; ±	
				UNIT	LESS; ±	MODEL NO.
				m/m	LESS;	AVR 325/525
						AVR 4550/5550