

harman/kardon

Service Manual

DVD 29/230

DVD player



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Technical Specifications

Applicable Disc:	Disc formats: 5 inch (12 cm) or 3 inch (8 cm) DVD Video, DVD-Audio, Standard conforming DVD+RW, DVD+R, DVD-R, DVD-RW, DivX, VCD, CD, CD-R, MP3, WMA, JPEG or CD-RW discs, Regio code: DVD Movie disc with Code 2 or 0 only. DVD-Layers: Single Side/Single Layer, Single Side/Dual Layer, Dual Side/Single Layer, Dual Side/Dual Layer Audio formats: DVD-Audio MLP lossless, Linear PCM, MPEG, Windows Media® 9, Dolby Digital or DTS Audio discs Still-image format: JPEG
Video Signal System:	PAL/NTSC
HDMI™ Output:	Video: 576p, 720p, 1080i HDMI Version 1.0-compliant HDCP Version 1.1-compliant
Composite Video Output:	1 V _{p-p} /75 Ohms, sync negative polarity
S Video Output:	Y/Luminance: 1 V _{p-p} /75 Ohms, sync negative polarity C/Chrominance: 0.286 V _{p-p}
Component Video Output:	Y: 1 V _{p-p} /75 Ohms, sync negative polarity Cr: 0.7 V _{p-p} /75 Ohms Cb: 0.7 V _{p-p} /75 Ohms
Analog Audio Output:	2 V _{rms} max
Frequency Response:	DVD (Linear PCM): 2Hz - 22kHz (48kHz sampling) 2Hz - 44kHz (96kHz sampling) CD: 2Hz - 20kHz
Signal/Noise Ratio (SNR):	105 dB (A-weighted)
Dynamic Range:	DVD: 100dB (18 Bit) / 105dB (20 Bit) CD/DVD: 96dB (16 Bit)
THD/1kHz:	DVD/CD: 0.0025 %
Wow & Flutter:	Below Measurable Limits
AC Power:	100 - 240 V/50 ~ 60 Hz
Power Consumption:	1 Watts (Standby)/13 Watts (Max)
Dimensions (WxHxD):	440 x 50 x 285 mm
Weight:	4.0 kg

Depth measurement includes knobs and connectors.

Height measurement includes feet and chassis.

All specifications subject to change without notice.

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Manufactured under license under U.S. Patent #: 5,451,942 & other U.S. and worldwide patents issued & pending.

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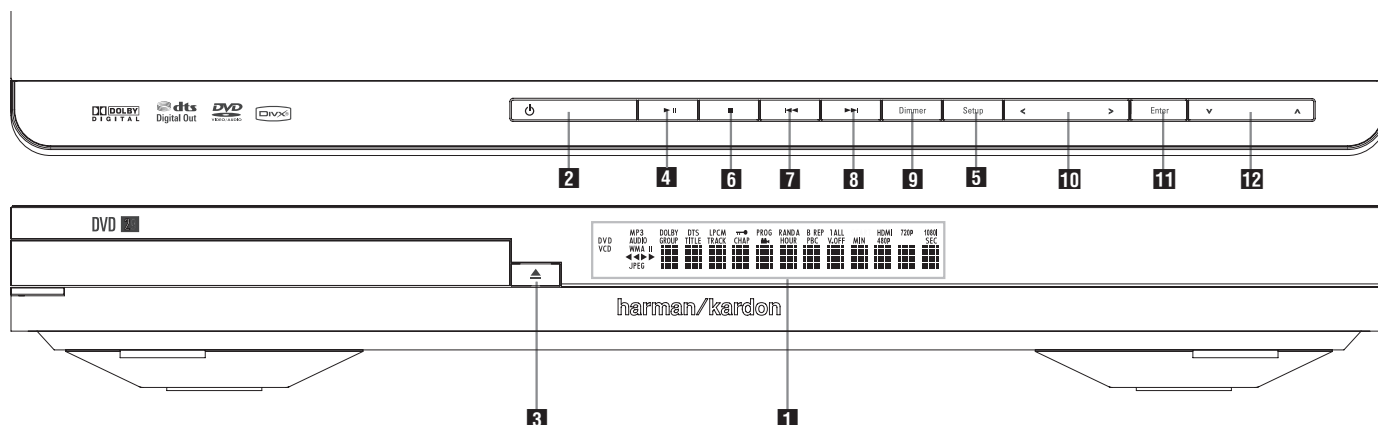
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Troubleshooting Guide

TroubleShooting Guide

Symptom	Possible Cause	Solution
Unit does not turn on	No AC power	Check AC power plug and make certain any switched outlet is turned on.
Disc does not play	Disc loaded improperly	- Load disc label-side up; align the disc with the guides and place it in its proper position. - Incorrect disc type - Check to see that disc is CD, CD-R, CD-RW, DivX, VCD, MP3, WMA, JPEG, DVD-R, DVD-RW, DVD+R, DVD+RW (standard conforming), DVD-Audio or DVD-Video; other types will not play. - Invalid Region Code - Use Region 2 or Open Region (0) disc only. - Rating is above parental preset - Enter password to override or change rating settings.
No picture	- Intermittent connections - Wrong input - Progressive Scan output selected - Video Off feature active HDMI Output ⑪ is connected to a video display that is not HDCP-compliant	- Check all video connections. - Check input selection of TV or receiver. - Use Progressive Scan mode only with compatible TV. If needed, press the Progressive Scan/Interlaced Button ②② to toggle to the correct mode. - Press Video Off Button ②⑦ to reactivate video circuitry (see page 23) - The HDMI Output ⑪ may not be used with video displays that are not HDCP-compliant. Unplug the cable and select another audio and video connection (see pages 11 through 12).
No sound	- Intermittent connections - Incorrect digital audio selection - DVD disc is in fast or slow mode - Surround receiver not compatible with 96kHz PCM audio - DVD Audio disc is loaded without using analog audio connection	- Check all audio connections. - Check digital audio settings. - There is no audio playback on DVD discs during fast or slow modes. - Use analog audio outputs. - Use 6-Channel Audio Outputs ⑫ or Analog Audio Outputs ⑩.
Picture is distorted or jumps during fast forward or reverse play	MPEG-2 decoding	It is a normal artifact of DVD playback for pictures to jump or show some distortion during rapid play.
Some remote buttons do not operate during DVD play; prohibited symbol ⑨ appears (see below)	Function not permitted at this time	With most discs, some functions are not permitted at certain times (e.g., Track Skip) or at all (e.g., direct audio track selection).
The OSD menu is in a foreign language	Incorrect OSD language	Change the display language selection.
The ⑨ symbol appears	Requested function not available at this time	Certain functions may be disabled by the DVD itself during passages of a disc.
Picture is displayed in the wrong aspect ratio	Incorrect match of aspect ratio settings to disc	Change aspect ratio settings.
Remote control inoperative	- Weak batteries - Sensor is blocked	- Change both batteries. - Clear path to sensor or use optional outboard remote sensor.
Disc will not copy to VCR	Copy protection	Many DVDs are encoded with copy protection to prevent copying to VCR.
Password not accepted	Incorrect password being used or password has been forgotten	Stop play of disc. Press and hold the Clear Button ④① until the display blinks. This resets the password and all settings to their defaults.

Front Panel Controls



- 1** Main Information Display
- 2** Power On/Off (Standby)
- 3** Open/Close
- 4** Play/Pause

- 5** Setup
- 6** Stop
- 7** Skip/Search (Previous)
- 8** Skip/Search (Next)

- 9** Dimmer
- 10** Arrows left and right
- 11** Enter
- 12** Arrows up and down

1 Main Information Display: This display delivers messages and status indications to help you operate the DVD player.

2 Power On/Off (Standby): Press the button once to turn the DVD player on, press it again to put the unit in the Standby mode.

3 Open/Close: Press this button to open or close the Disc Tray.

4 Play/Pause: Press to initiate playback or to resume playback after Pause has been pressed. Press this button to momentarily pause playback. To resume playback, press the button again. If a DVD is playing, action will freeze and a still picture will be displayed when the button is pressed.

5 SETUP: Press this button to use the DVD 29's on-screen menu system to adjust the player's configuration settings. Note that the **Info Button 11** must be pressed to access the DVD 29's Player Information menu to obtain detailed disc information, and to configure the playback mode of the disc.

6 Stop: Press this button once to place the disc in the Resume mode, which means that playback will stop, but as long as the tray is not opened or the disc changed, DVD playback will continue from the same point on the disc when the Play Button is pressed again. Resume will also work if the unit was turned off. To stop a disc and have play start from the beginning, press the button twice.

7 Skip/Search (Previous): Press this button to move backward through the music tracks on a CD disc or the chapters on a DVD disc. Keep the button pressed to search backwards at one of the available speeds.

8 Skip/Search (Next): Press to move forward through the music tracks on a CD or the chapters on a DVD disc. Keep the button pressed to search forwards at one of the available speeds.

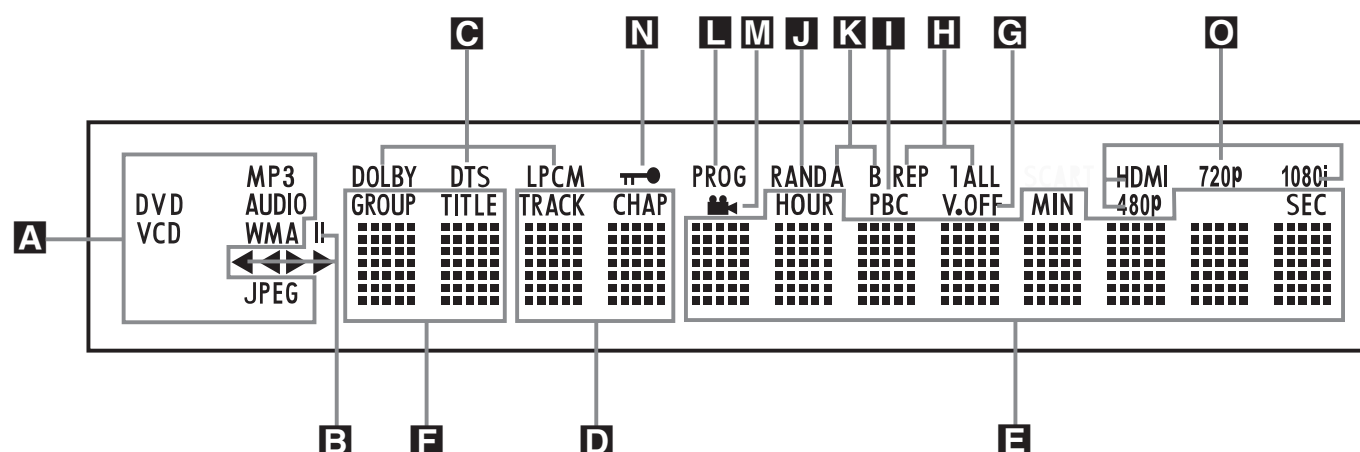
9 Dimmer: Press this button to reduce the brightness of the Information Display by 50% or to turn the display off completely in the following order: FULL BRIGHTNESS → HALF BRIGHTNESS → OFF → FULL BRIGHTNESS.

10 ARROW buttons (◀/▶): Use to move the cursor in the OSD.

11 ENTER: Press this button to activate a setting or option.

12 ARROW buttons (▲/▼): Use to move the cursor in the OSD.

Front Panel Information Display



- A** Disc Type Indicators
- B** Playback-Mode Indicators
- C** Audio Bitstream Indicators
- D** Chapter/Track Number Indicators
- E** Time Indicators

- F** Title Indicators
- G** V-OFF Indicator
- H** Repeat Indicators
- I** VCD Playback Control Indicator
- J** Random Indicator

- K** A-B Repeat Indicator
- L** Program Indicator
- M** Angle Indicator
- N** Parental Lock Indicator
- O** Video Output Indicators

A Disc Type Indicators: The CD, DVD, DVD-Audio, VCD, MP3, WMA or JPEG indicator will illuminate to show the type of disc currently being played.

B Playback-Mode Indicators: These indicators light to show the current playback mode:

▶ Lights when a disc is playing in the normal mode

▶▶ Lights when the disc is in the Fast Search Forward mode. The on-screen banner display indicates the selected speed (x2, x4, x8, x20, x100).

⏸ Lights when the disc is paused.

◀◀ Lights when the disc is in the Fast Search Reverse mode. The on-screen banner display indicates the selected speed (x2, x4, x8, x20, x100).

C Audio Bitstream Indicators: When a Dolby® Digital, DTS® or linear PCM digital audio signal is present on the disc, one of these indicators will light. DVD-Audio, MP3 and WMA bitstreams will be indicated by the **Disc Type Indicator A**.

D Chapter/Track Number Indicators: When a DVD disc is playing, these two positions in the display will show the current chapter. When a CD disc is playing they will show the current track number.

E Time Indicators: These positions in the indicator will show the running time of a DVD in play. When a CD is playing, these indicators will show the current track time, time remaining in the current track, or the total remaining time on the disc.

NOTE: The Indicators **DEF** will also display text messages about the DVD's status, including **LOADING** when a disc is loading, **POWER OFF** when the unit is turned off, and **DISC ERROR** when a disc not compatible with the DVD is put into the play position.

F Title Indicators: These two positions in the display will show the current title number when a DVD disc is playing.

G V-OFF Indicator: This indicator lights when the unit's video output has been turned off by pressing the V-OFF button on the remote control.

H Repeat Indicators: These indicators light when any of the Repeat functions are in use.

I VCD Playback Control Indicator: This indicator lights when the playback control function is turned on with VCDs.

J Random Indicator: This indicator lights when the unit is in the Random Play mode.

K A-B Repeat Indicator: This indicator lights when a specific passage for repeat playback has been selected.

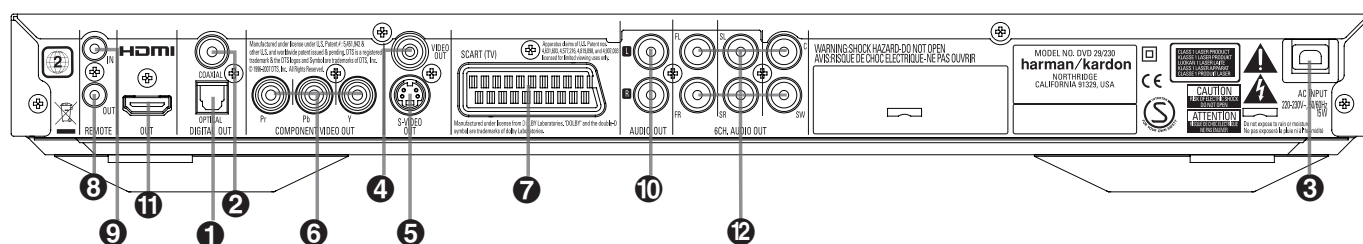
L Program Indicator: This indicator lights when the programming functions are in use.

M Angle Indicator: This indicator blinks when alternative viewing angles are available on the DVD currently playing.

N Parental Lock Indicator: This indicator lights when the parental-lock system is engaged in order to prevent anyone from changing the rating level without a code.

O Video Output Indicators: When the DVD 29 is connected to a video display using the **HDMI Output ⑪**, the display sends information to the DVD 29 indicating the highest video resolution it is capable of handling, and the DVD 29 automatically sets the video output to match it. That resolution is displayed here. You may use the **HD Mode Selector ④③** to manually select a lower video output resolution.

Rear Panel Connections



- 1 Optical Digital Output
- 2 Coaxial Digital Output
- 3 AC Power Cord
- 4 Composite Video Output
- 5 S-Video Output
- 6 Component Video Outputs
- 7 SCART TV Output
- 8 Remote Control Output
- 9 Remote Control Input
- 10 Analog Audio Output
- 11 HDMI Output
- 12 6-Channel Audio Outputs

1 Optical Digital Output: Connect this jack to the optical digital input of an A/V receiver or surround processor for Dolby Digital, DTS or PCM audio playback.

2 Coaxial Digital Output: Connect this jack to the coaxial digital input of an A/V receiver or surround processor for Dolby Digital, DTS or PCM audio playback.

NOTE: The coaxial digital output should only be connected to a digital input. Even though it is the same RCA-type connector as standard analog audio connections, DO NOT connect it to a conventional analog input jack.

Connect either the **Optical Digital Audio Output 1** or the **Coaxial Digital Audio Output 2** to a corresponding digital audio input on your receiver or processor, but not both.

3 AC Power Cord: Connect this plug to an AC outlet. If the outlet is controlled by a switch, make certain that it is in the ON position.

4 Composite Video Output: Connect this jack to the video input on a television or video projector, or to a video input on an A/V receiver or processor if you are using that type of device for video input switching.

5 S-Video Output: Connect this jack to the S-Video input on a television or video projector, or to an S-Video input on an A/V receiver or processor if you are using that type of device for S-Video input switching.

6 Component Video Outputs: These outputs carry the component video signals for connection to display monitors with component video inputs. For standard analog TV's or projectors with inputs marked Y/Pb/Pr or Y/Cr/Cb, connect these outputs to the corresponding inputs. If you have a high-definition television or projector that is compatible with high scan rate progressive video, connect these jacks to the "HD Component" inputs. Note that if you are using a progressive scan display device, then "Progressive" must be selected in the Video Setup Menu in order to take advantage of the progressive scan circuitry. See page 19 for more information on progressive scan video.

IMPORTANT: These jacks should NOT be connected to standard composite video inputs.

7 SCART OUT (TV): If your TV has a SCART socket, you can connect a SCART cable to your TV and to your DVD Player for improved video quality. The SCART cable carries both audio and video. You can select Composite Video or RGB video for that SCART connector's video output signal.

8 Remote Control Output: Connect this jack to the infrared (IR) input jack of another compatible Harman Kardon remote controlled product to have the built-in Remote Sensor on the DVD provide IR signals to other compatible products.

9 Remote Control Input: Connect the output of a remote infrared sensor, or the remote control output of another compatible Harman Kardon product, to this jack. This will enable the remote control to operate even when the front panel **Remote Sensor** on the DVD is blocked. This jack may also be used with compatible IR remote control-based automation systems.

10 Analog Audio Output: Connect these jacks to an audio input on an A/V receiver or surround processor for analog audio playback.

11 HDMI Output: If you have an HDMI-compatible receiver or video display device, connect this output to an HDMI input on the receiver or video display for the highest-quality uncompressed digital audio and video available. Even if your receiver is not capable of processing audio in the HDMI format, you may still experience the superb reproduction of HDMI video.

If your video display has a DVI input, you may use an optional HDMI-to-DVI cable or adapter for the connection to the display. In all cases, the video display must be HDCP-compliant in order to use the HDMI output. For best results, we do not recommend HDMI connections in excess of ten feet.

The following audio formats may be output via the HDMI connection:

Audio CD – 2-Channel PCM or 5.1-channel DTS

DVD-Audio – 2-Channel PCM

DVD-Video – Up to 5.1-channel Dolby Digital or DTS

Note: To hear the high-resolution surround sound recorded on DVD-Audio discs, you need to connect the **6-Channel Audio Outputs 12** to the corresponding input jacks on your receiver or processor. These formats are not output digitally.

12 6-Channel Audio Outputs: Connect these outputs to the matching 6-channel analog audio inputs on your receiver or surround sound processor. This connection is required to listen to the multichannel tracks on DVD-Audio discs. If the disc also contains a linear PCM, Dolby Digital or DTS track, you may listen to it using the **HDMI 11**, **Optical 1** or **Coaxial Digital Audio Output 2** or the **Analog Audio Outputs 10**.

Note: You'll find more details about all Audio/Video connections under Setup and Connections on the following pages.

Setup and Connections

Before connecting your DVD 29, please:

- Ensure that the power switch of this unit and other equipment to be connected is set to off before commencing connection.

- Do not block ventilation holes of any of the equipment and arrange them so that air can circulate freely.
- Read through the instructions before connecting other equipment.

- Ensure that you observe the color coding when connecting audio and video cables.

For the best quality, if your receiver or processor and/or video display are HDMI-capable, we recommend using the HDMI output. With a single cable connection between components, HDMI is able to deliver uncompressed high-definition digital video and digital audio programming.

Note: If your video display has a DVI input, you may use an optional HDMI-to-DVI cable or adapter for the connection to the display. In all cases, the video display must be HDCP-compliant in order to use the HDMI output.

If your equipment is not HDMI-ready, we recommend the use of component video for higher quality pictures.

If you are using a television or video display that is compatible with high-resolution 576P video signals, make sure to use the input jacks on the video display marked "HD Component," if available. Also, make sure to configure the display's input settings for use with "576P" video signals. You will also need to change the scan type in the DVD 29's Video Setup menu from "Interlaced" to "Progressive." See page 19.

The Video output (yellow) combines the complete video signal (composite) and sends it to the TV (or to the AV Receiver) by one line only. Use the Video output, when your TV set is equipped with a Video input jack only.

The S (separate) video output connector separates the color (C) and luminance (Y) signals

before transmitting them to the TV set in order to achieve a sharper picture. Use the S-video cable when connecting the player to a TV equipped with an S-video input for improved picture clarity. Never connect both outputs, Video and S-Video, to your TV or AV Receiver, only one of them.

Most European TV's are equipped with SCART connectors rather than with a normal video input (yellow cinch). In that case the SCART connection should be used, providing the audio signal too. Separate analog audio connections to TV are needed only if your TV is connected to the video or S-video output.

You may also use the standard S-video or composite video connection if your TV does not have component video inputs. The component and S-video outputs are not available simultaneously.

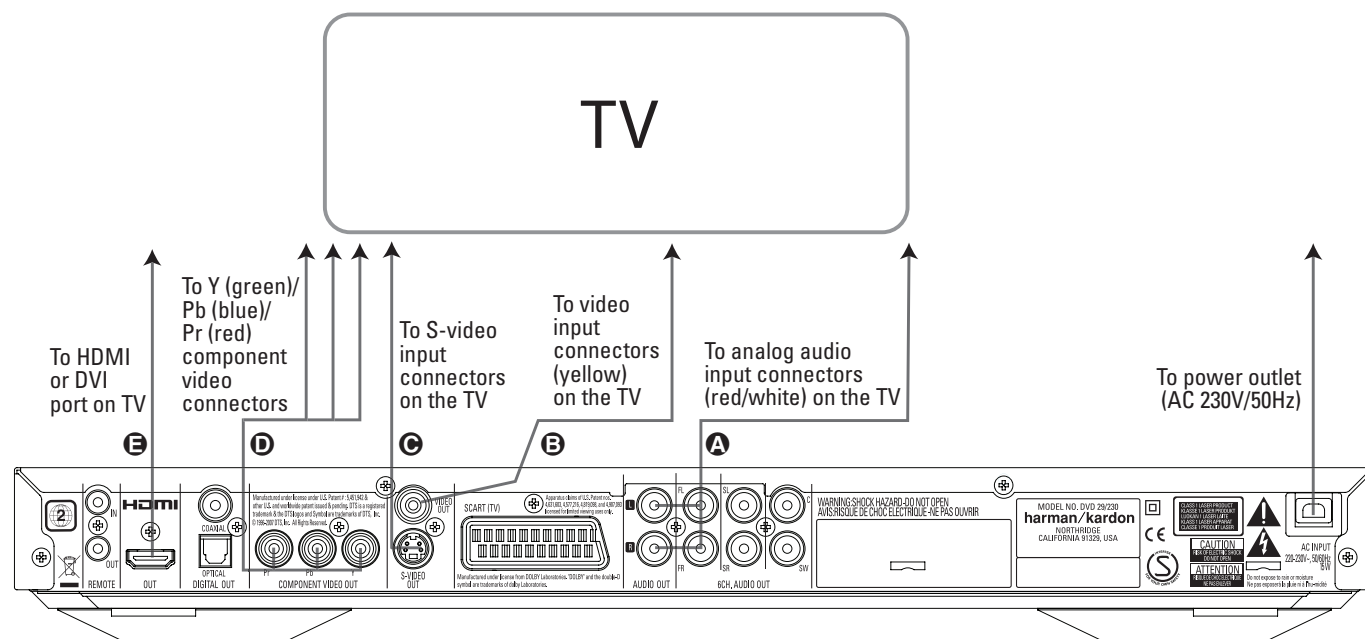
- Modern audio/video receivers are capable of connection to several video source devices, such as the DVD 29 and a VCR, cable television set-top box, HDTV tuner or other device. The receiver is equipped with video monitor outputs for connection to your television, projector or plasma display. As you select any input source device, the receiver selects the correct video input and routes it to the correct video monitor output to your television. It is recommended that you connect one

of the video outputs from the DVD 29 to the corresponding input on your receiver to simplify operation of your home entertainment system. Refer to the owner's guide for your receiver for more information.

- If your receiver is capable of multiroom operation, it is recommended that you connect both the component (or HDMI) and composite video outputs of the DVD 29 to the receiver. This enables the highest-quality picture (component video) for viewing in the main listening room, while enabling the multiroom system, if it is video-capable, to distribute the composite video signal to the remote zone. Consult the owner's guide for your receiver to determine whether it has video multiroom capability.

Connecting to a TV Only

When using the DVD 29 with a television but no audio receiver or processor, connect it as follows. Make the **Analog Audio Connection A** and one of the **Video Connections (Composite Video B, S-Video C, Component Video D)**. If your television or video display is HDMI-capable, you only need to make the **HDMI E** connection, as it handles both audio and video. Remember to plug in the power cord.



Setup and Connections

Connecting to a Receiver/Amplifier With a Dolby Digital or DTS Decoder

One of the major advantages of the DVD format is its ability to use a variety of digital audio formats for the ultimate in sonic performance. However, in order to enjoy the benefits of digital audio, you must use a receiver or processor that has digital audio decoding capabilities and make an optical or coaxial digital audio connection between the DVD 29 and your home theater system. This simple connection is made as shown below with an optional coax or optical cable. Only one of these connections is required, and both should not be made at the same time.

In order to take advantage of the high-resolution DVD-Audio output of the DVD 29, you must connect the **6-Channel Audio Outputs 12** to the matching 6-channel inputs on your receiver or processor.

NOTES FOR ANALOG AUDIO:

- If you wish to use the DVD 29 as the input for a multiroom system, the **Analog Audio Outputs 10** should be connected to the standard analog left/right DVD or CD inputs on your digital receiver or processor.
- The connection from the **Analog Audio Outputs 10** to the TV is optional.

- When the audio signal is to be fed to an analog receiver rather than to the TV, connect the **Analog Audio Outputs 10** to any analog audio inputs on your receiver or processor.
- The analog audio connection should also be made if you wish to play high-resolution 96kHz PCM audio discs where your receiver does not support 96kHz processing.

NOTES ON VIDEO:

■ Note: With multiple video sources, your Audio/Video device can be used for selecting the video signal and routing it to the TV. Connect the video or S-video output of the DVD player (whatever is provided with your device) to the video or S-video input on your device and the video/S-video output of this device to your TV. For more details, see the manual of your Audio/Video amplifier/receiver.

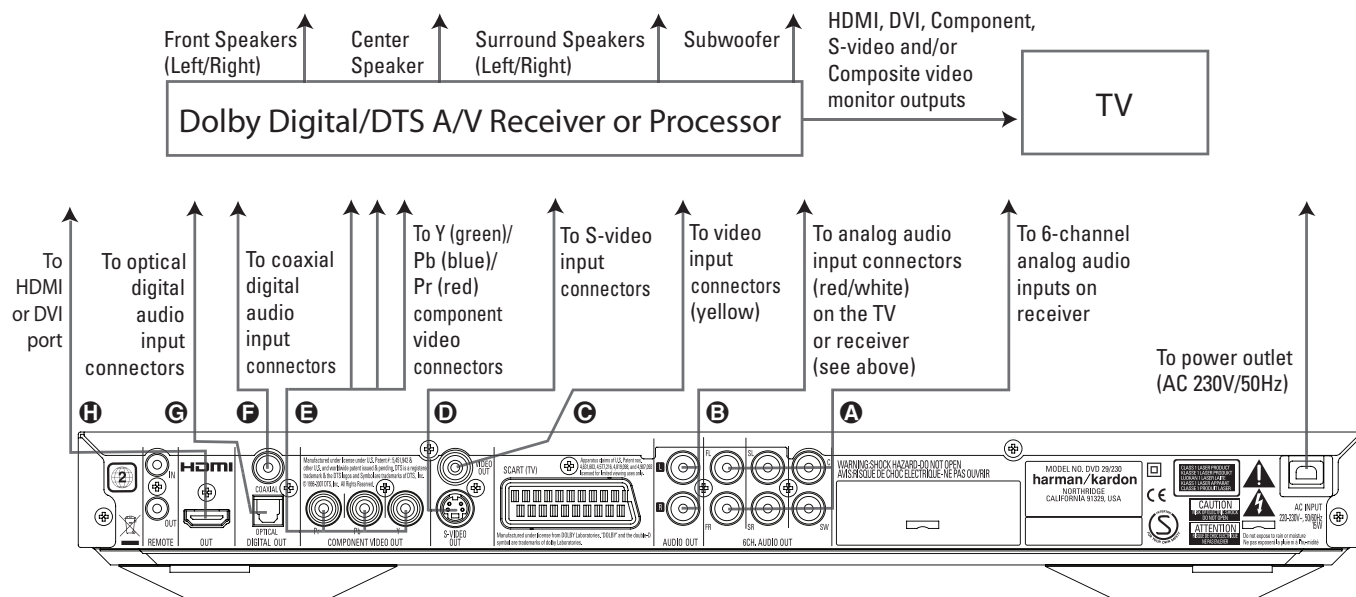
■ Note for Analog Audio: The connection from Audio Out to the TV is optional only. Normally you'll hear the sound from your AV-system's speakers, so the TV volume should be completely turned down. If you plan to use your DVD player also without having to turn on your complete system, this connection must exist, then you can turn up the TV's volume as needed.

Connecting to a Receiver

When using the DVD 29 with an audio/video receiver or processor, connect it as follows. First, make one of the video connections (**Composite Video 9**, **S-Video 11**, **Component Video 13** or **HDMI 14**) to the video input jacks on the A/V receiver, and then connect the receiver's video monitor output to the TV. In addition, to benefit from the high-resolution surround sound formats recorded on DVD-Audio discs, which are not output via the HDMI connection, you will need to make the **6-Channel Audio Connection 12** to your receiver or processor.

Second, if your receiver or processor is not HDMI-capable, make either the **Optical Digital Audio Connection 15** or the **Coaxial Digital Audio Connection 16**, to the receiver or processor.

IMPORTANT NOTE: Make certain that any device being connected, including the DVD 29, your receiver or processor and your TV or video display, is turned off whenever you make connections between products.



Important Notes on SCART and RGB format:

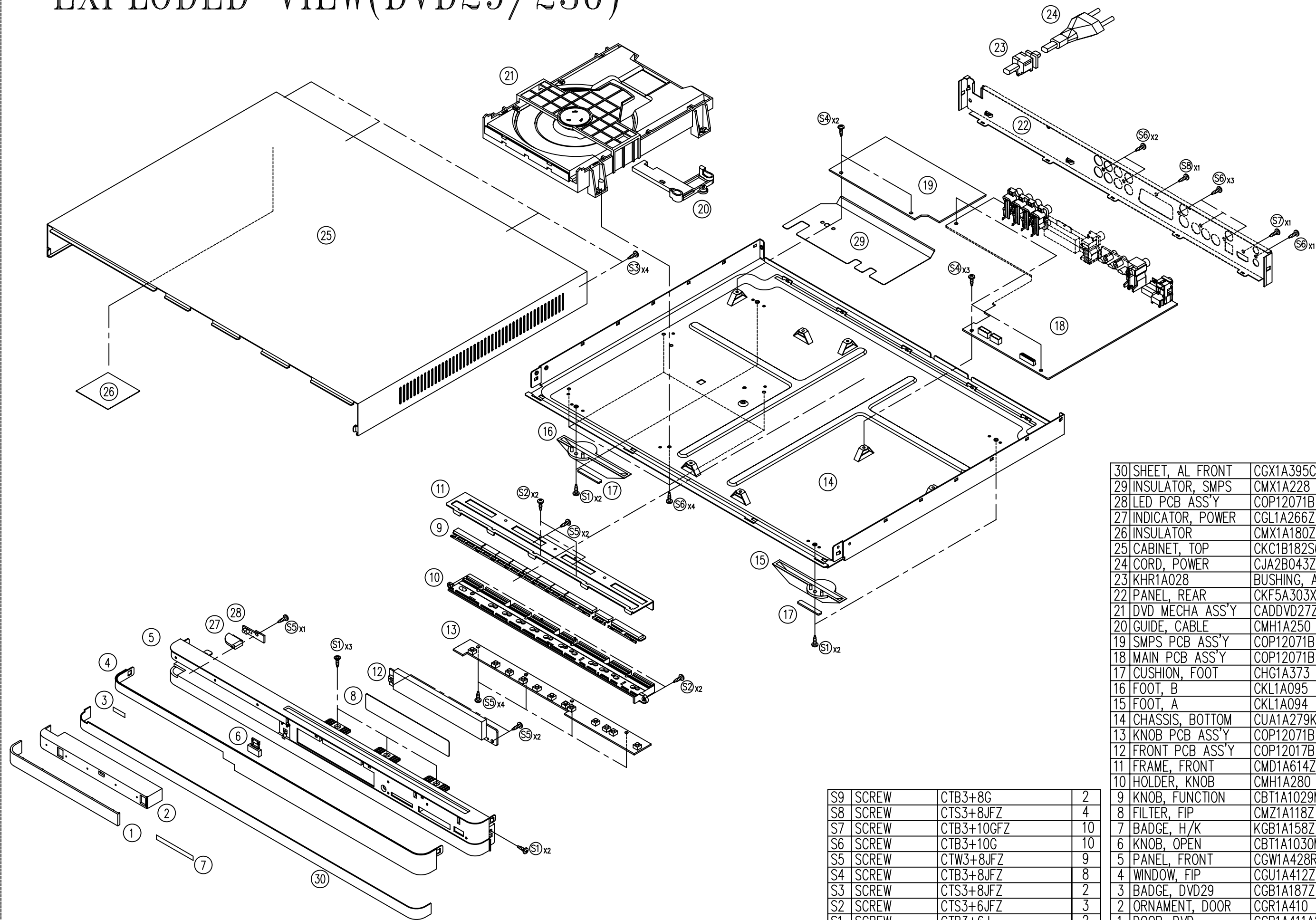
- Your DVD is equipped with a SCART connector for direct connection to the TV.
- The SCART connector provides the video signal as well as audio (stereo L/R) signals.
- The SCART connector for the TV provides the composite video signal or the direct RGB signal, delivering the best video performance possible, selectable in the Setup menu.

To view RGB video on your TV, the RGB compatible SCART connector on the TV must be used and the DVD's TV SCART connector must be set to "RGB".

Note that with RGB video the color intensity cannot be adjusted with most TVs.

- When the RGB video signal is used, DVD's recorded with the NTSC format (with regional code 0 or 2) can be viewed even on non-NTSC compatible TVs.

EXPLODED VIEW(DVD29/230)



30	SHEET, AL FRONT	CGX1A395C66	1
29	INSULATOR, SMPS	CMX1A228	1
28	LED PCB ASS'Y	COP12071B	1
27	INDICATOR, POWER	CGL1A266Z	1
26	INSULATOR	CMX1A180Z	1
25	CABINET, TOP	CKC1B182S60	1
24	CORD, POWER	CJA2B043ZA	1
23	KHR1A028	BUSHING, AC CORD	1
22	PANEL, REAR	CKF5A303XK1	1
21	DVD MECHA ASS'Y	CADDVD27ZA	1
20	GUIDE, CABLE	CMH1A250	1
19	SMPS PCB ASS'Y	COP12071B	1
18	MAIN PCB ASS'Y	COP12071B	1
17	CUSHION, FOOT	CHG1A373	4
16	FOOT, B	CKL1A095	2
15	FOOT, A	CKL1A094	2
14	CHASSIS, BOTTOM	CUA1A279K1	1
13	NOB PCB ASS'Y	COP12071B	1
12	FRONT PCB ASS'Y	COP12017B	1
11	FRAME, FRONT	CMD1A614Z1	1
10	HOLDER, KNOB	CMH1A280	1
9	KNOB, FUNCTION	CBT1A1029MMYB24	1
8	FILTER, FIP	CMZ1A118Z	1
7	BADGE, H/K	KGB1A158Z	1
6	KNOB, OPEN	CBT1A1030MMYB17	1
5	PANEL, FRONT	CGW1A428R4XB24	1
4	WINDOW, FIP	CGU1A412Z	1
3	BADGE, DVD29	CGB1A187Z	1
2	ORNAMENT, DOOR	CGR1A410	1
1	DOOR, DVD	CGR1A411A25	1

S9	SCREW	CTB3+8G	2
S8	SCREW	CTS3+8JFZ	4
S7	SCREW	CTB3+10GFZ	10
S6	SCREW	CTB3+10G	10
S5	SCREW	CTW3+8JFZ	9
S4	SCREW	CTB3+8JFZ	8
S3	SCREW	CTS3+8JFZ	2
S2	SCREW	CTS3+6JFZ	3
S1	SCREW	CTB3+6J	2
No.	DESCRIPTION	PARTS-No.	Q,ty

DVD 29/230 ELECTRICAL PARTS LIST

POS	PART NUMBER	PART NAME	COMMENTS
	CHE154	CLAMPER , ARM	
	CPS1A765	PAD , CENTER	DMC250
	CPS2A793	PAD , SNOW L	
	CPS2A794	PAD , SNOW R	
	CQXDVD29/230	INSTRUCTION MANUAL ASS'Y	
	CARTDVD29/230	REMOCON TRANSMITTER ASS'Y	
	CJS0I006Z	CABLE, S-VHS(1.5M)	Y, C
	CJS4S004Z	CORD , PIN(3P,W/R/Y)	
	CJS8T001Z	CABLE, HDMI(2M)	CBADV-005-2
	CJS9D002Z	CORD , JACK(MONO) 1200MM	
	CQX1A1294Y	MANUAL , INSTRUCTION DVD29	
	CGR1A411ZA	DVD DOOR ASS'Y(DMC250)	DMC250
	CGR1A410	ORNAMENT , DOOR	
	CGR1A411A25	DOOR , DVD	
	CGWDVD29/230	FRONT PANEL ASS'Y	
	CBT2A1029TA	DVD29/230 FUNCTION KNOB ASS'Y	
	CBT2A1029MMTB24	KNOB , FUNCTION DVD29	
	CMH2A280	HOLDER , KNOB	
	CGB1A158Y	BADGE , FRONT HARMAN/KARDON	
	CGB1A187Y	BADGE , DVD29	
	CGL1A266Y	INDICATOR , POWER DVD29	
	CGW3A428TA	FRONT SUB ASS'Y	
	CBT1A1030MMYB17	KNOB , OPEN DVD29/230	
	CGU2A412A25Z	WINDOW , FIP DVD29/230	
	CGW3A428R4XB24	PANEL , FRONT DVD29/230	
	CGX2A395C66	SHEET , AL FRONT DVD49/230	
	CHG1A305	CUSHION , SUPPORT	
	CMC1A341	PLATE , EARTH DMC250	
	CMD1A655	FRAME , FRONT	
	CMD2A682	BRACKET , HOLDER	
	CMZ1A118Z	FILTER , FIP	
	CTB3+10JR	SCREW	
	CTB3+8JR	SCREW	
	CTS3+8JFZR	SCREW	
	CWC4F2A07A080B	CABLE , CARD(7P, 80mm, B TYPE)	
	CWC4F2A15A300B	CABLE , CARD(15P, 300mm, B TYPE)	
	C8AAK81	BOND , LOCK	
	CKC1A182S60	CABINET , TOP DVD29	
	CMX1A180Z	INSULATOR	
	CTB3+8JFZR	SCREW	
	CTS3+8JFZR	SCREW	
	CUADVD29/230	BOTTOM CHASSIS ASS'Y	
	CADDVD29/230ZA	DVD MECHANISM ASS'Y	
	CADSDL003YA	LOADER ASS'Y	
	CMH1A250	GUIDE, CABLE	
	CWB1B905250EE	WIRE ASS'Y(5PIN, 250mm)	12PIN, 250MM, AWG#26
	CWB5A906250SE	WIRE ASS'Y(6PIN, 250mm)	12PIN, 240MM, AWG#28
	CWC4G2A24G400B	CABLE , CARD(24P, 400mm, B TYPE)	
	CHD1A055R	SCREW , SPECIAL	
	CHG1A373	CUSHION , FOOT AVR350	
	CJA2B043ZA	CORD , POWER(EUR)	QDR-7100CC
	CKF11A303VK1	PANEL , REAR DVD29/230	
	CKL1A098	FOOT , L	
	CKL1A099	FOOT , R	
	CMX2A228	INSULATOR , SMPS DVD29	
	COP12017B	DVD29/230 MAIN PCB ASS'Y	
CN11	CJP24GA195ZM	SMT FFC/FPC WAFER(0.5MM PITCH)	52559-2472 (PB FREE)
C100	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C101	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C102	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C103	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C104	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C106	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C107	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C110	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C112	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C113	CCUS1H104KC	CAP , CHIP	0.1UF 50V K

POS	PART NUMBER	PART NAME	COMMENTS
C115	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C117	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C120	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C122	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C124	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C126	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C127	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C129	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C146	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C156	CCUS1H180JA	CAP , CHIP(18PF/50V)	18PF 50V J
C157	CCUS1H330JA	CAP , CHIP	33PF 50V J
C158	CCUS1H330JA	CAP , CHIP	33PF 50V J
C159	CCUS1H562KC	CAP , CHIP CERAMIC(1608, 5600p)	5600PF 50V K
C160	CCUS1H562KC	CAP , CHIP CERAMIC(1608, 5600p)	5600PF 50V K
C161	CCUS1H562KC	CAP , CHIP CERAMIC(1608, 5600p)	5600PF 50V K
C163	CCUS1H471JA	CAP , CHIP	470PF 50V J
C164	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C165	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C166	CCUS1H102KC	CAP , CHIP	1000PF 50V K
C167	CCUS1H102KC	CAP , CHIP	1000PF 50V K
C168	CCUS1H102KC	CAP , CHIP	1000PF 50V K
C169	CCUS1H102KC	CAP , CHIP	1000PF 50V K
C170	CCUS1H102KC	CAP , CHIP	1000PF 50V K
C172	CCUS1H102KC	CAP , CHIP	1000PF 50V K
C173	CCUS1H102KC	CAP , CHIP	1000PF 50V K
C174	CCUS1H333KC	CAP , CHIP	0.033UF 50V K
C175	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C176	CCUS1H102KC	CAP , CHIP	1000PF 50V K
C178	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C179	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C180	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C181	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C183	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C185	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C186	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C187	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C188	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C189	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C190	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C191	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C192	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C193	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C194	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C195	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C196	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C197	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C199	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C200	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C201	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C204	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C205	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C207	CCUS1H272KC	CAP , CHIP	2700PF 50V K
C208	CCUS1H102KC	CAP , CHIP	1000PF 50V K
C209	CCUS1H273KC	CAP , CHIP	0.027UF 50V K
C210	CCUS1H102KC	CAP , CHIP	1000PF 50V K
C214	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C215	CCUS1H561JA	CAP , CHIP	560PF 50V J
C217	CCUS1H273KC	CAP , CHIP	0.027UF 50V K
C218	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C220	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C222	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C225	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C227	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C228	CCUS1H222KC	CAP , CHIP	2200PF 50V K
C229	CCUS1H222KC	CAP , CHIP	2200PF 50V K
C230	CCUS1H222KC	CAP , CHIP	2200PF 50V K
C231	CCUS1H222KC	CAP , CHIP	2200PF 50V K
C232	CCUS1H330JA	CAP , CHIP	33PF 50V J
C240	CCUS1H104KC	CAP , CHIP	0.1UF 50V K

POS	PART NUMBER	PART NAME	COMMENTS
C242	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C244	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C245	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C247	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C249	CCUS1H150JA	CAP , CHIP(15PF/50V)	15PF 50V J
C250	CCUS1H150JA	CAP , CHIP(15PF/50V)	15PF 50V J
C252	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C253	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C254	CCUS1H272KC	CAP , CHIP	2700PF 50V K
C255	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C256	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C257	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C260	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C261	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C262	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C263	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C266	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C267	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C276	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C277	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C279	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C280	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C281	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C282	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C283	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C284	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C285	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C286	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C287	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C295	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C304	HCSHB21A220B	CAP , TANTAL B2 SIZE	
C306	HCSHB21A220B	CAP , TANTAL B2 SIZE	
C307	HCSHB21A220B	CAP , TANTAL B2 SIZE	
C308	HCSHB21A220B	CAP , TANTAL B2 SIZE	
C310	CCUS1H102KC	CAP , CHIP	1000PF 50V K
C311	CCUS1H560JA	CAP , CHIP	56PF 50V J
C312	CCUS1H102KC	CAP , CHIP	1000PF 50V K
C313	CCUS1H102KC	CAP , CHIP	1000PF 50V K
C336	CCUS1H682KC	CAP , CHIP	6800PF 50V K
C337	CCUS1H223KC	CAP , CHIP	0.022UF 50V K
C338	CCUS1H221JA	CAP , CHIP	220PF 50V J
C339	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C346	CCUS1H070DA	CAP , CHIP	7PF 50V D
C380	CCUS1H150JA	CAP , CHIP(15PF/50V)	15PF 50V J
C401	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C402	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C403	CCUS1H102KC	CAP , CHIP	1000PF 50V K
C404	CCSJA1C100B	CAP , CHIP TANTAL(A TYPE, 10uF/16V, ELNA)	
C405	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C406	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C408	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C429	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C430	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
C431	CCUS1H221JA	CAP , CHIP	220PF 50V J
C432	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C511	CCUS1H151JA	CAP , CHIP	150PF 50V J
C531	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C533	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C552	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C553	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C555	CCUS1H150JA	CAP , CHIP(15PF/50V)	15PF 50V J
C556	CCUS1H150JA	CAP , CHIP(15PF/50V)	15PF 50V J
C578	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C580	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C581	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C584	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C585	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C593	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C594	CCUS1H104KC	CAP , CHIP	0.1UF 50V K

POS	PART NUMBER	PART NAME	COMMENTS
C615	CCUS1H391JA	CAP , CHIP	390PF 50V J
C617	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C620	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C630	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C631	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C636	CCUS1H391JA	CAP , CHIP	390PF 50V J
C638	CCUS1H391JA	CAP , CHIP	390PF 50V J
C639	CCUS1H391JA	CAP , CHIP	390PF 50V J
C641	CCUS1H391JA	CAP , CHIP	390PF 50V J
C644	CCUS1H391JA	CAP , CHIP	390PF 50V J
C646	CCUS1H391JA	CAP , CHIP	390PF 50V J
C650	CCUS1H391JA	CAP , CHIP	390PF 50V J
C657	CCUS1H391JA	CAP , CHIP	390PF 50V J
C659	CCUS1H391JA	CAP , CHIP	390PF 50V J
C660	CCUS1H391JA	CAP , CHIP	390PF 50V J
C662	CCUS1H391JA	CAP , CHIP	390PF 50V J
C664	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C665	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C668	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C672	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C674	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C677	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C678	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C679	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C809	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C810	CCUS1H560JA	CAP , CHIP	56PF 50V J
C812	CCUS1H101JA	CAP , CHIP	100PF 50V J
C817	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C819	CCUS1H101JA	CAP , CHIP	100PF 50V J
C820	CCUS1H101JA	CAP , CHIP	100PF 50V J
C822	CCUS1H560JA	CAP , CHIP	56PF 50V J
C823	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C828	CCUS1H220JA	CAP , CHIP	22PF 50V J
C830	CCUS1H150JA	CAP , CHIP(15PF/50V)	15PF 50V J
C831	CCUS1H150JA	CAP , CHIP(15PF/50V)	15PF 50V J
C834	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
D101	HVDRLS4148SR	DIODE, SWITCHING, SMD TYPE	RLS4148 TE-11
D102	HVDRLS4148SR	DIODE, SWITCHING, SMD TYPE	RLS4148 TE-11
D501	HVDRLS4148SR	DIODE, SWITCHING, SMD TYPE	RLS4148 TE-11
D502	HVDRLS4148SR	DIODE, SWITCHING, SMD TYPE	RLS4148 TE-11
D511	HVDRLS4148SR	DIODE, SWITCHING, SMD TYPE	RLS4148 TE-11
D601	HVDRLS4148SR	DIODE, SWITCHING, SMD TYPE	RLS4148 TE-11
D602	HVDRLS4148SR	DIODE, SWITCHING, SMD TYPE	RLS4148 TE-11
D603	HVDRLS4148SR	DIODE, SWITCHING, SMD TYPE	RLS4148 TE-11
IC10	HVIZR36778	IC,MPEG (ZORAN)	
IC11	HVILM1117S-3V3	I.C , REGULATOR (3.3V)	1117S-3.3V
IC12	HVILM1117S-1V8	I.C , REGULATOR (1.8V)	LM1117-1V8
IC13	HVILM1117S-3V3	I.C , REGULATOR (3.3V)	1117S-3.3V
IC14	HVILM1117S-1V8	I.C , REGULATOR (1.8V)	LM1117-1V8
IC15	HVIAT24C08N10SC	I.C	AT24C08N10SC2.7
IC17	HVI74VHC04MX	I.C , INVERTER	74VHC04M
IC19	HVIZR36721	IC,HDMI TRANSMITTER(ZORAN)	
IC20	HVITL3472IDR	IC,OP AMP 8-SOIC (TI)	
IC21	HVIM29W160ET70N	IC,16M FLASH (ST)	M29W160ET-70N6
IC22	HVIM12L64164A7T	IC, 64M SDRAM (4X16)	
IC23	HVIAM5888SLF	I. C , Motor Driver(AMtek,Pb free)	AM5888S L/F
IC24	HVIZR36707	IC,RF (ZORAN)	
IC40	HVICS4382-KQ	I.C , DAC	CS4382-KQ
IC41	BVIBH7862FS	IC , 6CH VIDEO DRIVER	ROHM (BH7862FS)
IC42	HVIBA7660FS	IC , R.G.B DRIVER	BA7660FS
IC43	HVI74LVC157ADBR	I.C , MULTIPLEXER	SN74LVC157A
IC45	HVIST72F324K2	IC,FLASH (ST)	
IC47	HVITC74HCT7007F	I.C	TC74HC7007AFEL
IC51	HVILM1117S-5.0	IC REGULATOR/SOT-223	
IC52	HVINJM2068MDTE1	I.C , OP AMP	NJM2068MD-TE1
IC53	HVILM1117S-3V3	I.C , REGULATOR (3.3V)	1117S-3.3V
IC54	HVINJM2068MDTE1	I.C , OP AMP	NJM2068MD-TE1
IC55	HVINJM2068MDTE1	I.C , OP AMP	NJM2068MD-TE1
IC56	HVILM1117S-5.0	IC REGULATOR/SOT-223	

POS	PART NUMBER	PART NAME	COMMENTS
IC57	HVTHN1K05FU	MOS FET	HN1K05FU
JK07	HJJ9H003Z	JACK , HDMI(JALCO)	YKF45-7009
L101	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L102	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L103	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L104	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L105	HLQ06E100KRZ	INDUCTOR , CHIP	3225 SIZE
L106	HLQ06E100KRZ	INDUCTOR , CHIP	3225 SIZE
L107	HLQ06E100KRZ	INDUCTOR , CHIP	3225 SIZE
L109	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L110	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L111	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L112	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L113	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L114	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L115	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L116	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L117	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L120	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L121	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L123	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L124	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L125	HLZ9R006Z	BEAD , CHIP	
L126	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L127	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L128	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L518	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L519	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L520	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L521	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L522	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L601	BLZ9R004Z	BEAD CHIP 90 OHM (2012 SIZE)	ACM2012H-900
L602	BLZ9R004Z	BEAD CHIP 90 OHM (2012 SIZE)	ACM2012H-900
L603	BLZ9R004Z	BEAD CHIP 90 OHM (2012 SIZE)	ACM2012H-900
L604	BLZ9R004Z	BEAD CHIP 90 OHM (2012 SIZE)	ACM2012H-900
L610	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L611	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L612	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L613	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L614	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L615	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L617	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L696	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L801	HLQ08ER68KRZ	CHIP FERRITE INDUCTOR	2012-R68UH
L802	HLQ08E1R8KRZ	CHIP , COIL (1.8UH)	2012
L803	HLQ08E1R8KRZ	CHIP , COIL (1.8UH)	2012
L804	HLQ09E8R2KRZ	CHIP , COIL	
L805	HLQ08ER68KRZ	CHIP FERRITE INDUCTOR	2012-R68UH
L806	HLQ08ER39KRZ	CHIP FERRITE INDUCTOR	2012-R39UH
L807	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L808	HLZ9R001Z	FB, 2012(0805)600E, 1.5A,POWER	600E, 1.5A
L809	HLQ09E8R2KRZ	CHIP , COIL	
L884	HLQ08E1R8KRZ	CHIP , COIL (1.8UH)	2012
Q105	HVTKTA1664YP	T.R	
Q106	HVTKTA1664YP	T.R	
Q108	HVT2N3904SP	TR, CHIP (KEC)	2N3904S-RTK/PS
Q109	HVT2N3904SP	TR, CHIP (KEC)	2N3904S-RTK/PS
Q110	HVT2N3904SP	TR, CHIP (KEC)	2N3904S-RTK/PS
Q307	HVT2SA1955B	T.R, TE85L,F, SSM Type, hFE=B	TE85L,F SSM TYPE HFE=B
Q308	HVT2N3904SP	TR, CHIP (KEC)	2N3904S-RTK/PS
Q315	HVTKRC107S	T.R , CHIP	
Q316	HVTKTA1504SYRTK	T.R , CHIP	KTA1504S Y RTK
Q404	HVT2N3904SP	TR, CHIP (KEC)	2N3904S-RTK/PS
Q407	HVTKRC107S	T.R , CHIP	
Q408	HVTKRA107ST	T.R , CHIP	KRA107S
Q501	HVTKTA1504SYRTK	T.R , CHIP	KTA1504S Y RTK
Q502	HVTKTC3875SYRTK	T.R , CHIP	KTC3875S Y RTK
Q604	HVTKRA107ST	T.R , CHIP	KRA107S
Q606	HVTKRA107ST	T.R , CHIP	KRA107S

POS	PART NUMBER	PART NAME	COMMENTS
Q607	HVTKRA107ST	T.R , CHIP	KRA107S
Q608	HVTKRC107S	T.R , CHIP	
Q609	HVTKTD1304T	T.R , CHIP (MUTE)	KTD1304
Q610	HVTKTD1304T	T.R , CHIP (MUTE)	KTD1304
Q611	HVTKTD1304T	T.R , CHIP (MUTE)	KTD1304
Q612	HVTKTD1304T	T.R , CHIP (MUTE)	KTD1304
Q613	HVTKTD1304T	T.R , CHIP (MUTE)	KTD1304
Q614	HVTKTD1304T	T.R , CHIP (MUTE)	KTD1304
Q615	HVTKRA107ST	T.R , CHIP	KRA107S
Q616	HVTKRC107S	T.R , CHIP	
Q617	HVTKTD1304T	T.R , CHIP (MUTE)	KTD1304
Q618	HVTKTD1304T	T.R , CHIP (MUTE)	KTD1304
Q619	HVTKTD1304T	T.R , CHIP (MUTE)	KTD1304
Q620	HVTKTD1304T	T.R , CHIP (MUTE)	KTD1304
Q621	HVTKTD1304T	T.R , CHIP (MUTE)	KTD1304
Q622	HVTKTD1304T	T.R , CHIP (MUTE)	KTD1304
Q801	HVTKRC107S	T.R , CHIP	
Q802	HVTKRC107S	T.R , CHIP	
Q803	HVTKTA1504SYRTK	T.R , CHIP	KTA1504S Y RTK
Q804	HVTKTA1504SYRTK	T.R , CHIP	KTA1504S Y RTK
Q805	HVTKTD1304T	T.R , CHIP (MUTE)	KTD1304
Q806	HVTKRA107ST	T.R , CHIP	KRA107S
Q821	HVTKTA1504SYRTK	T.R , CHIP	KTA1504S Y RTK
R100	CRJ10DJ472T	RES , CHIP	1608 SIZE
R101	CRJ10DF4700T	RES, CHIP 470 OHM/1608/1%	
R102	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R103	CRJ10DF4300T	RES	
R104	CRJ10DF3920T	RES. CHIP (392R 1%)	1608 SIZE
R109	CRJ10DJ472T	RES , CHIP	1608 SIZE
R112	CRJ10DJ202T	RES , CHIP	1608 SIZE
R113	CRJ10DJ202T	RES , CHIP	1608 SIZE
R114	CRJ10DJ121T	RES , CHIP	1608 SIZE
R115	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R116	CRJ10DJ121T	RES , CHIP	1608 SIZE
R117	CRJ10DJ121T	RES , CHIP	1608 SIZE
R118	CRJ10DJ103T	RES , CHIP	1608 SIZE
R123	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R124	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R125	CRJ10DJ113T	RES , CHIP	1608 SIZE
R126	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R127	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R128	CRJ10DJ121T	RES , CHIP	1608 SIZE
R133	CRJ10DF3920T	RES. CHIP (392R 1%)	1608 SIZE
R134	CRJ10DJ103T	RES , CHIP	1608 SIZE
R135	CRJ10DJ100T	RES , CHIP	1608 SIZE
R136	CRJ10DJ221T	RES , CHIP	1608 SIZE
R137	CRJ10DJ221T	RES , CHIP	1608 SIZE
R138	CRJ10DJ100T	RES , CHIP	1608 SIZE
R139	CRJ10DJ472T	RES , CHIP	1608 SIZE
R140	CRJ10DJ133T	RES , CHIP	1608 SIZE
R141	CRJ10DJ474T	RES , CHIP	1608 SIZE
R142	CRJ10DJ474T	RES , CHIP	1608 SIZE
R144	CRJ10DJ330T	RES , CHIP	1608 SIZE
R145	CRJ10DJ750T	RES , CHIP	1608 SIZE
R146	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R147	CRJ10DJ104T	RES , CHIP	1608 SIZE
R148	CRJ10DJ750T	RES , CHIP	1608 SIZE
R149	CRJ104DJ470T	RES , 4ARRAY (1608*4)	47 OHM
R150	CRJ104DJ470T	RES , 4ARRAY (1608*4)	47 OHM
R151	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R152	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R153	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R154	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R155	CRJ10DJ101T	RES , CHIP	1608 SIZE
R157	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R158	CRJ104DJ101T	RES , CHIP NETWORK(1/16W, 100ohm, 1608X4)	100R (1608)
R159	CRJ10DJ472T	RES , CHIP	1608 SIZE
R160	CRJ10DJ330T	RES , CHIP	1608 SIZE
R162	CRJ104DJ330T	RES , 4ARRAY (1608*4)	33 OHM/1608*4

POS	PART NUMBER	PART NAME	COMMENTS
R163	CRJ104DJ330T	RES , 4ARRAY (1608*4)	33 OHM/1608*4
R164	CRJ104DJ330T	RES , 4ARRAY (1608*4)	33 OHM/1608*4
R165	CRJ10DJ330T	RES , CHIP	1608 SIZE
R166	CRJ10DJ330T	RES , CHIP	1608 SIZE
R167	CRJ10DJ330T	RES , CHIP	1608 SIZE
R168	CRJ104DJ330T	RES , 4ARRAY (1608*4)	33 OHM/1608*4
R169	CRJ10DJ750T	RES , CHIP	1608 SIZE
R170	CRJ104DJ330T	RES , 4ARRAY (1608*4)	33 OHM/1608*4
R171	CRJ104DJ330T	RES , 4ARRAY (1608*4)	33 OHM/1608*4
R172	CRJ104DJ330T	RES , 4ARRAY (1608*4)	33 OHM/1608*4
R173	CRJ104DJ330T	RES , 4ARRAY (1608*4)	33 OHM/1608*4
R174	CRJ10DJ472T	RES , CHIP	1608 SIZE
R175	CRJ10DJ912T	RES , CHIP	9.1K OHM/1608
R176	CRJ10DJ132T	RES , CHIP	1608 SIZE
R177	CRJ10DJ132T	RES , CHIP	1608 SIZE
R178	CRJ10DJ272T	RES , CHIP	1608 SIZE
R180	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R181	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R182	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R183	CRJ10DF1202T	RES , CHIP 1%	1608 SIZE
R184	CRJ10DJ471T	RES , CHIP	1608 SIZE
R185	CRJ10DJ332T	RES , CHIP	1608 SIZE
R186	CRJ10DJ332T	RES , CHIP	1608 SIZE
R187	CRJ10DJ332T	RES , CHIP	1608 SIZE
R188	CRJ10DJ113T	RES , CHIP	1608 SIZE
R189	CRJ10DJ105T	RES , CHIP	1608 SIZE
R190	CRJ10DJ223T	RES , CHIP	1608 SIZE
R191	CRJ10DJ223T	RES , CHIP	1608 SIZE
R192	CRJ10DJ103T	RES , CHIP	1608 SIZE
R193	CRJ10DJ332T	RES , CHIP	1608 SIZE
R194	CRJ10DJ750T	RES , CHIP	1608 SIZE
R195	CRJ10DJ101T	RES , CHIP	1608 SIZE
R196	CRJ10DJ472T	RES , CHIP	1608 SIZE
R197	CRJ10DJ753T	RES , CHIP	1608 SIZE
R199	CRJ10DJ330T	RES , CHIP	1608 SIZE
R200	CRJ10DJ330T	RES , CHIP	1608 SIZE
R201	CRJ10DJ472T	RES , CHIP	1608 SIZE
R202	CRJ10DJ622T	RES , CHIP	1608 SIZE
R203	CRJ10DJ562T	RES , CHIP	1608 SIZE
R204	CRJ10DJ562T	RES , CHIP	1608 SIZE
R205	CRJ10DJ562T	RES , CHIP	1608 SIZE
R206	CRJ10DJ103T	RES , CHIP	1608 SIZE
R207	CRJ10DF4700T	RES, CHIP 470 OHM/1608/1%	
R209	CRJ10DF1002T	RES , CHIP 1%	10K /1/10W/F
R210	CRJ10DF1002T	RES , CHIP 1%	10K /1/10W/F
R211	CRJ10DF1002T	RES , CHIP 1%	10K /1/10W/F
R219	CRJ10DJ273T	RES , CHIP	1608 SIZE
R220	CRJ10DJ562T	RES , CHIP	1608 SIZE
R221	CRJ10DJ562T	RES , CHIP	1608 SIZE
R222	CRJ10DJ562T	RES , CHIP	1608 SIZE
R230	CRJ10DJ472T	RES , CHIP	1608 SIZE
R241	CRJ10DF75R0T	RES, CHIP 1% 75 OHM	75 OHM, 1%
R243	CRJ10DF75R0T	RES, CHIP 1% 75 OHM	75 OHM, 1%
R244	CRJ10DF75R0T	RES, CHIP 1% 75 OHM	75 OHM, 1%
R265	CRJ10DJ472T	RES , CHIP	1608 SIZE
R284	CRJ10DJ472T	RES , CHIP	1608 SIZE
R285	CRJ10DJ472T	RES , CHIP	1608 SIZE
R287	CRJ10DJ113T	RES , CHIP	1608 SIZE
R297	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R298	CRJ10DJ103T	RES , CHIP	1608 SIZE
R299	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R301	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R302	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R303	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R305	CRJ10DJ472T	RES , CHIP	1608 SIZE
R306	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R307	CRJ10DJ272T	RES , CHIP	1608 SIZE
R308	CRJ10DJ102T	RES , CHIP	1608 SIZE
R309	CRJ10DJ102T	RES , CHIP	1608 SIZE

POS	PART NUMBER	PART NAME	COMMENTS
R377	CRJ10DJ221T	RES , CHIP	1608 SIZE
R404	CRJ10DJ333T	RES , CHIP	1608 SIZE
R409	CRJ10DJ100T	RES , CHIP	1608 SIZE
R410	CRJ10DJ103T	RES , CHIP	1608 SIZE
R411	CRJ10DJ103T	RES , CHIP	1608 SIZE
R412	CRJ10DJ681T	RES , CHIP	1608 SIZE
R413	CRJ10DJ821T	RES , CHIP	1608 SIZE
R414	CRJ10DJ122T	RES , CHIP	1608 SIZE
R415	CRJ10DJ152T	RES , CHIP	1608 SIZE
R416	CRJ10DJ222T	RES , CHIP	1608 SIZE
R419	CRJ10DJ391T	RES , CHIP	1608 SIZE
R420	CRJ10DJ750T	RES , CHIP	1608 SIZE
R421	CRJ10DJ680T	RES , CHIP	1608 SIZE
R422	CRJ10DJ121T	RES , CHIP	1608 SIZE
R423	CRJ10DJ820T	RES , CHIP	1608 SIZE
R424	CRJ10DJ4R7T	RES , CHIP	1608 SIZE
R425	CRJ10DJ152T	RES , CHIP	1608 SIZE
R427	CRJ10DJ681T	RES , CHIP	1608 SIZE
R428	CRJ10DJ821T	RES , CHIP	1608 SIZE
R429	CRJ10DJ122T	RES , CHIP	1608 SIZE
R430	CRJ10DJ152T	RES , CHIP	1608 SIZE
R431	CRJ10DJ222T	RES , CHIP	1608 SIZE
R432	CRJ10DJ332T	RES , CHIP	1608 SIZE
R501	CRJ10DJ182T	RES , CHIP	1608 SIZE
R502	CRJ10DJ182T	RES , CHIP	1608 SIZE
R503	CRJ10DJ103T	RES , CHIP	1608 SIZE
R504	CRJ10DJ473T	RES , CHIP	1608 SIZE
R505	CRJ10DJ470T	RES , CHIP	1608 SIZE
R506	CRJ10DJ271T	RES , CHIP	1608 SIZE
R511	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R512	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R513	CRJ10DJ103T	RES , CHIP	1608 SIZE
R514	CRJ10DJ100T	RES , CHIP	1608 SIZE
R515	CRJ10DJ103T	RES , CHIP	1608 SIZE
R516	CRJ10DJ103T	RES , CHIP	1608 SIZE
R517	CRJ10DJ103T	RES , CHIP	1608 SIZE
R518	CRJ10DJ103T	RES , CHIP	1608 SIZE
R519	CRJ10DJ473T	RES , CHIP	1608 SIZE
R522	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R533	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R544	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R549	CRJ10DJ105T	RES , CHIP	1608 SIZE
R552	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R553	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R564	CRJ10DJ472T	RES , CHIP	1608 SIZE
R593	CRJ10DJ750T	RES , CHIP	1608 SIZE
R600	CRJ10DJ132T	RES , CHIP	1608 SIZE
R601	CRJ10DJ132T	RES , CHIP	1608 SIZE
R602	CRJ10DJ132T	RES , CHIP	1608 SIZE
R603	CRJ10DJ132T	RES , CHIP	1608 SIZE
R604	CRJ10DJ132T	RES , CHIP	1608 SIZE
R605	CRJ10DJ132T	RES , CHIP	1608 SIZE
R606	CRJ10DJ132T	RES , CHIP	1608 SIZE
R607	CRJ10DJ132T	RES , CHIP	1608 SIZE
R608	CRJ10DJ132T	RES , CHIP	1608 SIZE
R609	CRJ10DJ132T	RES , CHIP	1608 SIZE
R611	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R612	CRJ10DJ332T	RES , CHIP	1608 SIZE
R618	CRJ10DJ332T	RES , CHIP	1608 SIZE
R619	CRJ10DJ101T	RES , CHIP	1608 SIZE
R620	CRJ10DJ132T	RES , CHIP	1608 SIZE
R621	CRJ10DJ132T	RES , CHIP	1608 SIZE
R622	CRJ10DJ132T	RES , CHIP	1608 SIZE
R623	CRJ10DJ132T	RES , CHIP	1608 SIZE
R624	CRJ10DJ102T	RES , CHIP	1608 SIZE
R625	CRJ10DJ332T	RES , CHIP	1608 SIZE
R626	CRJ10DJ332T	RES , CHIP	1608 SIZE
R627	CRJ10DJ332T	RES , CHIP	1608 SIZE
R628	CRJ10DJ102T	RES , CHIP	1608 SIZE

POS	PART NUMBER	PART NAME	COMMENTS
R629	CRJ10DJ332T	RES , CHIP	1608 SIZE
R630	CRJ10DJ221T	RES , CHIP	1608 SIZE
R631	CRJ10DJ221T	RES , CHIP	1608 SIZE
R632	CRJ10DJ104T	RES , CHIP	1608 SIZE
R633	CRJ10DJ104T	RES , CHIP	1608 SIZE
R641	CRJ10DJ224T	RES , CHIP	1608 SIZE
R642	CRJ10DJ224T	RES , CHIP	1608 SIZE
R650	CRJ10DJ132T	RES , CHIP	1608 SIZE
R651	CRJ10DJ132T	RES , CHIP	1608 SIZE
R652	CRJ10DJ132T	RES , CHIP	1608 SIZE
R653	CRJ10DJ132T	RES , CHIP	1608 SIZE
R654	CRJ10DJ102T	RES , CHIP	1608 SIZE
R655	CRJ10DJ332T	RES , CHIP	1608 SIZE
R656	CRJ10DJ332T	RES , CHIP	1608 SIZE
R657	CRJ10DJ332T	RES , CHIP	1608 SIZE
R658	CRJ10DJ102T	RES , CHIP	1608 SIZE
R659	CRJ10DJ332T	RES , CHIP	1608 SIZE
R660	CRJ10DJ102T	RES , CHIP	1608 SIZE
R661	CRJ10DJ102T	RES , CHIP	1608 SIZE
R662	CRJ10DJ104T	RES , CHIP	1608 SIZE
R663	CRJ10DJ104T	RES , CHIP	1608 SIZE
R664	CRJ10DJ102T	RES , CHIP	1608 SIZE
R665	CRJ10DJ102T	RES , CHIP	1608 SIZE
R666	CRJ10DJ102T	RES , CHIP	1608 SIZE
R667	CRJ10DJ102T	RES , CHIP	1608 SIZE
R668	CRJ10DJ104T	RES , CHIP	1608 SIZE
R669	CRJ10DJ104T	RES , CHIP	1608 SIZE
R670	CRJ10DJ102T	RES , CHIP	1608 SIZE
R671	CRJ10DJ102T	RES , CHIP	1608 SIZE
R672	CRJ10DJ332T	RES , CHIP	1608 SIZE
R673	CRJ10DJ102T	RES , CHIP	1608 SIZE
R674	CRJ10DJ332T	RES , CHIP	1608 SIZE
R675	CRJ10DJ102T	RES , CHIP	1608 SIZE
R676	CRJ10DJ102T	RES , CHIP	1608 SIZE
R677	CRJ10DJ102T	RES , CHIP	1608 SIZE
R678	CRJ10DJ132T	RES , CHIP	1608 SIZE
R679	CRJ10DJ132T	RES , CHIP	1608 SIZE
R680	CRJ10DJ132T	RES , CHIP	1608 SIZE
R681	CRJ10DJ132T	RES , CHIP	1608 SIZE
R685	CRJ10DJ101T	RES , CHIP	1608 SIZE
R686	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R687	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R688	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R694	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R695	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R698	CRJ10DJ132T	RES , CHIP	1608 SIZE
R699	CRJ10DJ132T	RES , CHIP	1608 SIZE
R726	CRJ10DJ474T	RES , CHIP	1608 SIZE
R727	CRJ10DJ221T	RES , CHIP	1608 SIZE
R728	CRJ10DJ223T	RES , CHIP	1608 SIZE
R729	CRJ10DJ221T	RES , CHIP	1608 SIZE
R730	CRJ10DJ221T	RES , CHIP	1608 SIZE
R731	CRJ10DJ221T	RES , CHIP	1608 SIZE
R732	CRJ10DJ221T	RES , CHIP	1608 SIZE
R733	CRJ10DJ222T	RES , CHIP	1608 SIZE
R734	CRJ10DJ222T	RES , CHIP	1608 SIZE
R735	CRJ10DJ222T	RES , CHIP	1608 SIZE
R736	CRJ10DJ222T	RES , CHIP	1608 SIZE
R737	CRJ10DJ222T	RES , CHIP	1608 SIZE
R738	CRJ10DJ222T	RES , CHIP	1608 SIZE
R739	CRJ10DJ224T	RES , CHIP	1608 SIZE
R744	CRJ10DJ222T	RES , CHIP	1608 SIZE
R745	CRJ10DJ222T	RES , CHIP	1608 SIZE
R746	CRJ10DJ222T	RES , CHIP	1608 SIZE
R747	CRJ10DJ222T	RES , CHIP	1608 SIZE
R748	CRJ10DJ222T	RES , CHIP	1608 SIZE
R749	CRJ10DJ222T	RES , CHIP	1608 SIZE
R801	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R802	CRJ10DJ820T	RES , CHIP	1608 SIZE

POS	PART NUMBER	PART NAME	COMMENTS
R803	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R806	CRJ10DJ820T	RES , CHIP	1608 SIZE
R807	CRJ10DJ680T	RES , CHIP	1608 SIZE
R808	CRJ10DJ680T	RES , CHIP	1608 SIZE
R809	CRJ10DJ680T	RES , CHIP	1608 SIZE
R810	CRJ10DJ471T	RES , CHIP	1608 SIZE
R811	CRJ10DJ471T	RES , CHIP	1608 SIZE
R812	CRJ10DJ102T	RES , CHIP	1608 SIZE
R813	CRJ10DJ821T	RES , CHIP	1608 SIZE
R814	CRJ10DJ750T	RES , CHIP	1608 SIZE
R815	CRJ10DJ181T	RES , CHIP	1608 SIZE
R816	CRJ10DJ390T	RES , CHIP	1608 SIZE
R817	CRJ10DJ750T	RES , CHIP	1608 SIZE
R818	CRJ10DJ750T	RES , CHIP	1608 SIZE
R821	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R823	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R824	CRJ10DJ750T	RES , CHIP	1608 SIZE
R825	CRJ10DJ101T	RES , CHIP	1608 SIZE
R826	CRJ10DJ222T	RES , CHIP	1608 SIZE
R827	CRJ10DJ221T	RES , CHIP	1608 SIZE
R828	CRJ18AJ221T	RES , CHIP	1608 SIZE
R829	CRJ10DJ104T	RES , CHIP	1608 SIZE
R830	CRJ10DJ390T	RES , CHIP	1608 SIZE
R831	CRJ10DJ620T	RES , CHIP	1608 SIZE
R832	CRJ10DJ102T	RES , CHIP	1608 SIZE
R833	CRJ10DJ750T	RES , CHIP	1608 SIZE
R834	CRJ10DJ820T	RES , CHIP	1608 SIZE
R878	CRJ10DJ104T	RES , CHIP	1608 SIZE
R879	CRJ10DJ101T	RES , CHIP	1608 SIZE
R880	CRJ10DJ221T	RES , CHIP	1608 SIZE
R895	CRJ10DJ221T	RES , CHIP	1608 SIZE
R896	CRJ10DJ680T	RES , CHIP	1608 SIZE
X101	HOX27000E180S	CRYSTAL , CHIP(27MHZ,SMD)	HC-49/US
C105	CCEA1CH470T	CAP , ELECT	47UF 16V
C108	CCEA1CH101T	CAP , ELECT	100UF 16V
C109	CCEA1CH101T	CAP , ELECT	100UF 16V
C111	CCEA1CH101T	CAP , ELECT	100UF 16V
C114	CCEA1CH101T	CAP , ELECT	100UF 16V
C116	CCEA1CH101T	CAP , ELECT	100UF 16V
C118	CCEA1CH101T	CAP , ELECT	100UF 16V
C119	CCEA1CH101T	CAP , ELECT	100UF 16V
C121	CCEA1CH101T	CAP , ELECT	100UF 16V
C123	CCEA1CH101T	CAP , ELECT	100UF 16V
C125	CCEA1CH101T	CAP , ELECT	100UF 16V
C128	CCEA1CH101T	CAP , ELECT	100UF 16V
C130	CCEA1CH101T	CAP , ELECT	100UF 16V
C137	CCEA1CH470T	CAP , ELECT	47UF 16V
C155	CCEA1CH470T	CAP , ELECT	47UF 16V
C177	CCEA1CH101T	CAP , ELECT	100UF 16V
C182	CCEA1CH470T	CAP , ELECT	47UF 16V
C184	CCEA1CH470T	CAP , ELECT	47UF 16V
C198	CCEA1CH101T	CAP , ELECT	100UF 16V
C202	CCEA1CH470T	CAP , ELECT	47UF 16V
C203	CCEA1CH470T	CAP , ELECT	47UF 16V
C206	CCEA1CH470T	CAP , ELECT	47UF 16V
C213	CCEA1CH221T	CAP , ELECT	220UF 16V
C219	CCEA1CH470T	CAP , ELECT	47UF 16V
C221	CCEA1CH101T	CAP , ELECT	100UF 16V
C223	CCEA1CH101T	CAP , ELECT	100UF 16V
C224	CCEA1CH101T	CAP , ELECT	100UF 16V
C226	CCEA1CH101T	CAP , ELECT	100UF 16V
C233	CCEA1CH101T	CAP , ELECT	100UF 16V
C241	CCEA1CH470T	CAP , ELECT	47UF 16V
C243	CCEA1CH470T	CAP , ELECT	47UF 16V
C251	CCEA1CH470T	CAP , ELECT	47UF 16V
C258	CCEA1HH4R7T	CAP , ELECT	4.7UF 50V
C301	CCEA1CH101T	CAP , ELECT	100UF 16V
C504	CCEA1CH221T	CAP , ELECT	220UF 16V
C508	CCEA1CH221T	CAP , ELECT	220UF 16V

POS	PART NUMBER	PART NAME	COMMENTS
C510	CCEA1HH4R7T	CAP , ELECT	4.7UF 50V
C530	CCEA1CH221T	CAP , ELECT	220UF 16V
C532	CCEA1CH221T	CAP , ELECT	220UF 16V
C548	CCEA1CH221T	CAP , ELECT	220UF 16V
C549	CCEA1CH221T	CAP , ELECT	220UF 16V
C561	CCEA1CH100T	CAP , ELECT	10UF 16V
C562	CCEA1HH1R0T	CAP , ELECT	1UF 50V
C574	CCEA1CH221T	CAP , ELECT	220UF 16V
C579	CCEA1CH221T	CAP , ELECT	220UF 16V
C582	CCEA1CH470T	CAP , ELECT	47UF 16V
C583	CCEA1CH221T	CAP , ELECT	220UF 16V
C586	CCEA1CH221T	CAP , ELECT	220UF 16V
C616	CCEA1CH220T	CAP , ELECT	22UF 16V
C618	CCEA1CH101T	CAP , ELECT	100UF 16V
C628	CCEA1CH101T	CAP , ELECT	100UF 16V
C629	CCEA1CH101T	CAP , ELECT	100UF 16V
C637	HCQ11H222JZT	CAP , MYLAR	2200PF 50V J
C640	HCQ11H222JZT	CAP , MYLAR	2200PF 50V J
C642	CCEA1CH220T	CAP , ELECT	22UF 16V
C643	CCEA1CH220T	CAP , ELECT	22UF 16V
C645	HCQ11H222JZT	CAP , MYLAR	2200PF 50V J
C648	HCQ11H222JZT	CAP , MYLAR	2200PF 50V J
C653	CCEA1CH220T	CAP , ELECT	22UF 16V
C658	HCQ11H222JZT	CAP , MYLAR	2200PF 50V J
C661	HCQ11H222JZT	CAP , MYLAR	2200PF 50V J
C666	CCEA1CH101T	CAP , ELECT	100UF 16V
C667	CCEA1CH101T	CAP , ELECT	100UF 16V
C669	CCEA1CH101T	CAP , ELECT	100UF 16V
C673	CCEA1CH101T	CAP , ELECT	100UF 16V
C675	CCEA1CH470T	CAP , ELECT	47UF 16V
C676	CCEA1HH1R0T	CAP , ELECT	1UF 50V
C680	CCEA1CH221T	CAP , ELECT	220UF 16V
C681	CCEA1CH101T	CAP , ELECT	100UF 16V
C685	HCQ11H222JZT	CAP , MYLAR	2200PF 50V J
C687	HCQ11H222JZT	CAP , MYLAR	2200PF 50V J
C688	HCQ11H222JZT	CAP , MYLAR	2200PF 50V J
C689	HCQ11H222JZT	CAP , MYLAR	2200PF 50V J
C690	HCQ11H222JZT	CAP , MYLAR	2200PF 50V J
C692	HCQ11H222JZT	CAP , MYLAR	2200PF 50V J
C733	CCEA1HH3R3T	CAP , ELECT	3.3UF 50V
C751	CCEA1CH220T	CAP , ELECT	22UF 16V
C752	CCEA1CH220T	CAP , ELECT	22UF 16V
C795	CCEA1CH221T	CAP , ELECT	220UF 16V
C801	CCEA1AH331T	CAP , ELECT	330UF 10V
C802	CCEA1AH331T	CAP , ELECT	330UF 10V
C803	CCEA1CH220T	CAP , ELECT	22UF 16V
C804	CCEA1CH101T	CAP , ELECT	100UF 16V
C811	CCEA1AH331T	CAP , ELECT	330UF 10V
C813	CCEA1AH331T	CAP , ELECT	330UF 10V
C815	CCEA1AH331T	CAP , ELECT	330UF 10V
C818	CCEA1AH331T	CAP , ELECT	330UF 10V
C824	CCEA1HH1R0T	CAP , ELECT	1UF 50V
C825	CCEA1HH1R0T	CAP , ELECT	1UF 50V
C826	CCEA1CH470T	CAP , ELECT	47UF 16V
C827	CCEA1CH470T	CAP , ELECT	47UF 16V
C829	CCEA1AH471T	CAP , ELECT	470UF 10V
C835	CCEA1CH221T	CAP , ELECT	220UF 16V
C882	CCEA1AH471T	CAP , ELECT	470UF 10V
C891	CCEA1AH471T	CAP , ELECT	470UF 10V
C905	CCFT1H104ZF	CAP , SEMICONDUCTOR	0.1UF 50V Z
C906	CCKT1H391KB	CAP , CERAMIC	390PF 50V K
C907	CCEA1HH100T	CAP , ELECT	10UF 50V
C908	CCEA1HH470T	CAP , ELECT	47UF 50V
C910	CCEA1HH1R0T	CAP , ELECT	1UF 50V
C921	CCEA1EH331T	CAP , ELECT	330UF 25V
C922	CCEA1HH0R1T	CAP , ELECT	0.1UF 50V
C923	CCEA1EH331TS	CAP , ELECT	25V/330UF/105'C
C924	CCEA1VH101T	CAP , ELECT	100UF 35V
C925	CCEA1EH331TS	CAP , ELECT	25V/330UF/105'C

POS	PART NUMBER	PART NAME	COMMENTS
C926	HCQ11H102JZT	CAP , MYLAR	1000PF 50V J
C927	CCEA1HH470T	CAP , ELECT	47UF 50V
C928	CCEA1HH470T	CAP , ELECT	47UF 50V
C929	CCFT1H104ZF	CAP , SEMICONDUCTOR	0.1UF 50V Z
C931	CCFT1H104ZF	CAP , SEMICONDUCTOR	0.1UF 50V Z
C935	CCFT1H104ZF	CAP , SEMICONDUCTOR	0.1UF 50V Z
D906	HVDMTZJ12BT	DIODE , ZENER	MTZJ12B 1/2W
D907	HVD1N4148T	DIODE	1N4148
D909	HVDMTZJ24BT	DIODE , ZENER	MTZJ24BT 1/2W
D910	HVD1N4148T	DIODE	1N4148
D911	HVD1N4148T	DIODE	1N4148
D912	HVDMTZJ5.1BT	DIODE , ZENER	MTZJ5.1B 1/2W
D913	HVD1N4148T	DIODE	1N4148
D925	HVD1N4148T	DIODE	1N4148
D926	HVDMTZJ12BT	DIODE , ZENER	MTZJ12B 1/2W
D928	HVDMTZJ2.7BT	DIODE , ZENER	MTZJ2.7B 1/2W
FH91	KJCFC5S	HOLDER , FUSE	
FH92	KJCFC5S	HOLDER , FUSE	
IC50	HVIKA79L08AZT	REGULATOR, -8V	KA79LXXAZTA
IC92	HVIKIA431BAT	I.C , REGULATOR	KIA431B
L903	CLZ9Z040Y	COIL , CHOCK(6.8uH)	6700F-6R8M
L905	CLZ9Z040Y	COIL , CHOCK(6.8uH)	6700F-6R8M
NT91	KRT10D9MSFT	THERMISTER	
Q605	HVTKSA916YT	T.R	
Q904	HVTKTC3198YT	T.R	KTC3198Y
Q905	HVTKTA1273YT	T.R	
Q906	HVTKSC1008YT	T.R	KSC1008Y
Q907	HVTKRC102MT	T.R	KRC102M
Q908	HVTKRA102MT	T.R	KRA102M
Q910	HVTKSC1008YT	T.R	KSC1008Y
Q911	HVTKSA708YT	T.R	KSA708Y
Q912	HVDMCR100-6ZL1G	SCR (ON SEMI)	
R901	KROS1TJ105V	RES , METAL FILM (1/2W , 1M OHM)	
R903	CRD25TJ754T	RES	
R904	CRD25TJ754T	RES	
R905	CRD20TJ222T	RES , CARBON	2.2K OHM 1/5W J
R906	CRD20TJ101T	RES , CARBON	100 OHM 1/5W J
R907	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J
R909	CRD20TJ100T	RES , CARBON	10 OHM 1/5W J
R910	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J
R911	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J
R912	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R913	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R914	CRD20TJ333T	RES , CARBON	33K OHM 1/5W J
R920	CRD20TJ101T	RES , CARBON	100 OHM 1/5W J
R921	CRD20TJ222T	RES , CARBON	2.2K OHM 1/5W J
R922	CRD20TF3481T	RES , CARBON	
R923	CRD20TF3001T	RES , CARBON	3K 1/5W F
R924	CRD20TJ101T	RES , CARBON	100 OHM 1/5W J
R925	CRD25TJ101T	RES , CARBON	
R926	CRD20TJ101T	RES , CARBON	100 OHM 1/5W J
R927	KRDS1TJ681V	RES , CARBON	680OHM 1/2W J
R928	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R929	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R930	CRD20TJ101T	RES , CARBON	100 OHM 1/5W J
R934	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R935	CRD20TJ153T	RES , CARBON	15K OHM 1/5W J
R940	CRD20TJ472T	RES , CARBON	4.7K OHM 1/5W J
S401	CST1A012ZT	SW , TACT	SKHV10910G
S402	CST1A012ZT	SW , TACT	SKHV10910G
S403	CST1A012ZT	SW , TACT	SKHV10910G
S404	CST1A012ZT	SW , TACT	SKHV10910G
S405	CST1A012ZT	SW , TACT	SKHV10910G
S406	CST1A012ZT	SW , TACT	SKHV10910G
S409	CST1A012ZT	SW , TACT	SKHV10910G
S410	CST1A012ZT	SW , TACT	SKHV10910G
S411	CST1A012ZT	SW , TACT	SKHV10910G
S412	CST1A012ZT	SW , TACT	SKHV10910G
S413	CST1A012ZT	SW , TACT	SKHV10910G

POS	PART NUMBER	PART NAME	COMMENTS
S414	CST1A012ZT	SW , TACT	SKHV10910G
S415	CST1A012ZT	SW , TACT	SKHV10910G
BN01	CWB1C912060EN	WIRE ASS'Y	
BN07	CJP07GB113ZY	WAFER , CARD CABLE	
BN09	CWB1C903180EN	WIRE ASS'Y (3P, 180mm)	
CN01	CJP15GA117ZY	WAFER , CARD CABLE	
CN03	CJP07GA01ZY	WAFER , STRAIGHT(7PIN)	
CN05	CJP15GB113ZY	WAFER	
CN07	CJP07GB113ZY	WAFER , CARD CABLE	
CN09	CJP03GA19ZY	WAFER , STRAIGHT(3PIN)	
CN12	CJP05GA19ZY	WAFER , STRAIGHT	
CN13	CJP06GA19ZY	WAFER , STRAIGHT(DVD LOADER)	
CN91	CJP02KA060ZY	WAFER	
CN92	CJP12GA19ZY	WAFER	
C901	HCQF2E104KZE	CAP , POLYPROPYLENE FILM	
C902	HCQF2E104KZE	CAP , POLYPROPYLENE FILM	
C903	CCET400VKRH470K	CAP , ELECT(400V/47uF)	KOSHIN KRH SERIES (SIZE 16*2
C904	CCKT3A222KBL	CAP , CERAMIC	EKR3A222K05FK5
C920	CCEA1EH102ES	CAP , ELECT	
C930	CCKDHS222ME	CAP , CERAMIC (400V Y-CAP)	SDE2G222M10FF7
C932	CCKDHS102ME	CAP , CERAMIC (400V Y-CAP)	SDE2G102M10FF7
C933	CCKDHS102ME	CAP , CERAMIC (400V Y-CAP)	SDE2G102M10FF7
D103	CVD1N4003ST	DIODE , RECT	1N4003
D104	CVD1N4003ST	DIODE , RECT	1N4003
D105	CVD1N4003ST	DIODE , RECT	1N4003
D107	CVD1N4003ST	DIODE , RECT	1N4003
D109	CVD1N4003ST	DIODE , RECT	1N4003
D110	CVD1N4003ST	DIODE , RECT	1N4003
D401	CVD1L034FA22M0MA	L.E.D , AMBER DIFFUSED	1L034FA22M0MA001
D402	CVD1L0345W31BOCT20	L.E.D , WHITE	CVD1L0345W31BOCT201
D901	HVD1N4007T	DIODE	
D902	HVD1N4007T	DIODE	
D903	HVD1N4007T	DIODE	
D904	HVD1N4007T	DIODE	
D905	HVDUF4007T	DIODE , SCHOTTKY	UF4007
D908	HVD1N4007T	DIODE	
D920	HVD31DQ06H	DIODE	31DQ06-FC5
D921	HVDUF4007T	DIODE , SCHOTTKY	UF4007
D922	HVD1N4937T	DIODE , RECTIFIERS	1N4937(600V/1A)
D923	HVD1N4937T	DIODE , RECTIFIERS	1N4937(600V/1A)
D924	HVDSF26T	DIODE , SUPER FAST	
ET01	CMC1A111	PLATE , EARTH	
ET02	CMC1A111	PLATE , EARTH	
F401	HFL13BT229GINK	F.I.P	13-BT-229GINK (FUTABA)
IC46	BVIKP1010B	IC, PHOTO COUPLER	
IC49	HVIKIA7808API	I.C , REGULATOR +8V	KIA7808 (KEC)
IC61	HRVKSM603TH2A	SENSOR , REMOCON	KSM-603TH2A
IC91	BVISG6848DZ	IC,PWM	SG6848DZ
JK01	CJJ4R041Z	6P JACK, BOARD	RCA-601DAG-11
JK02	CJJ4N067Z	JACK , 2P	RCA-201DAG-01
JK03	CJJ4S043Z	JACK , BOARD	
JK04	CJJ9N003Z	JACK , S-VIDEO+VHS	
JK05	CJJ6K004Z	JACK , SCART(SHIELD PLATE)	
JK06	CJS9U011Z	JACK, OPTICAL+COXIAL(GOLD PLATE)	
JK08	HJJ1D002Z	JACK , STEREO(2P 3.5PIE)	SR7400
JW01	CWE7202100AR	WIRE ASS'Y	
JW02	CWE7202100AR	WIRE ASS'Y	
LF91	CLZ9Z060Y	LINE FILTER	CLZ9Z060Y
PB01	CMD2A602	BRACKET , FL	
PB02	CMD2A602	BRACKET , FL	
PC91	HVIPC17L1CB	I.C , PHOTO COUPLER	
Q901	CVIKHB4D5N60F2JA	F.E.T HEAT SINK ASS'Y(CMY2A223)	
	CMY2A223	HEAT SINK	
	CTB3+8JR	SCREW	
	CVIKHB4D5N60F2	F.E.T(TO-220IS)	KHB4D5N60F2
Q903	HVTKSB1151Y	T.R	KSB1151Y
R902	KRG1SANJ104H	RES,METAL OXIDE FILM	
R908	KRW1PJ1R5V	RES , WIRE WOUND(1W, 1.5ohm)	1W 1.5(J) NON-INDUCTIVE
T901	CLT9Z018ZE	TRANS (DVD 27)	EER2828H

POS	PART NUMBER	PART NAME	COMMENTS
X501	HOX08000E160C	CRYSTAL 8MHz	
	CTB3+10JFZR	SCREW	
	CTB3+6FFZR	SCREW	
	CTS3+6JFZR	SCREW	
	CTW3+8JR	SCREW	
	CUA1A279K1	CHASSIS , BOTTOM DVD29/230	
	CWE8102050RR	RING WIRE ASS'Y	
	KHR1A028	BUSHING , AC CORD	
	KMC1A264	CUSHION , SHIELD	
F901	KBA2C2000TLEY	FUSE	EUR (2A/250V)

TOSHIBA**TC74HCT7007AP/AF**

TOSHIBA CMOS DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TC74HCT7007AP, TC74HCT7007AF

HEX BUFFER

The TC74HCT7007A is a high speed CMOS BUFFER fabricated with silicon gate C²MOS technology.

It achieves the high speed operation similar to equivalent LSTTL while maintaining the CMOS low power dissipation.

This device may be used as a level converter for interfacing TTL or NMOS to High Speed CMOS. The inputs are compatible with TTL, NMOS and CMOS output voltage levels.

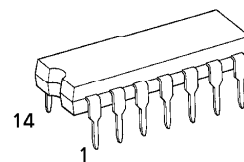
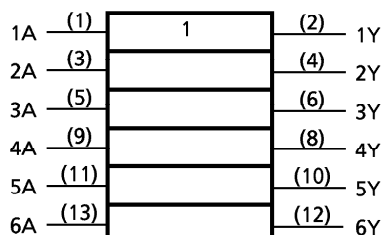
The internal circuit is composed of 4 stages including a buffer output, which provides high noise immunity and stable output.

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

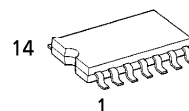
FEATURES:

- High Speed..... $t_{pd} = 11\text{ns}(\text{typ.})$ at $V_{CC} = 5\text{V}$
- Low Power Dissipation..... $I_{CC} = 1\mu\text{A}(\text{Max.})$ at $T_a = 25^\circ\text{C}$
- Compatible with TTL outputs..... $V_{IH} = 2\text{V}(\text{Min.})$
 $V_{IL} = 0.8\text{V}(\text{Max.})$
- Wide Interfacing ability.....LSTTL, NMOS, CMOS
- Output Drive Capability.....10 LSTTL Loads
- Symmetrical Output Impedance..... $|I_{OH}| = I_{OL} = 4\text{mA}(\text{Min.})$
- Balanced Propagation Delays..... $t_{pLH} \approx t_{pHL}$
- Pin and Function Compatible with 74LS07

IEC LOGIC SYMBOL

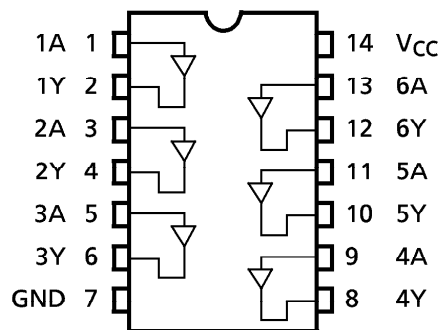


P (DIP14-P-300-2.54)
Weight : 0.96g (Typ.)



F (SOP14-P-300-1.27)
Weight : 0.18g (Typ.)

PIN ASSIGNMENT



(TOP VIEW)

PIN ASSIGNMENT

A	Y
L	L
H	H

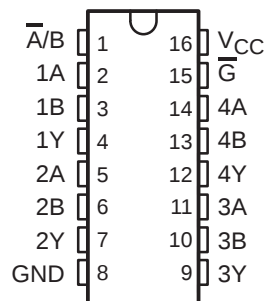
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QUADRUPLE 2-LINE TO 1-LINE DATA SELECTOR/MULTIPLEXER

SCAS292G – JANUARY 1993 – REVISED OCTOBER 1998

- **EPIC™** (Enhanced-Performance Implanted CMOS) Submicron Process
- Typical V_{OLP} (Output Ground Bounce) < 0.8 V at $V_{CC} = 3.3$ V, $T_A = 25^\circ\text{C}$
- Typical V_{OHV} (Output V_{OH} Undershoot) > 2 V at $V_{CC} = 3.3$ V, $T_A = 25^\circ\text{C}$
- Inputs Accept Voltages to 5.5 V
- ESD Protection Exceeds 2000 V Per MIL-STD-883, Method 3015; Exceeds 200 V Using Machine Model ($C = 200$ pF, $R = 0$)
- Latch-Up Performance Exceeds 250 mA Per JESD 17
- Package Options Include Plastic Small-Outline (D), Shrink Small-Outline (DB), and Thin Shrink Small-Outline (PW) Packages

D, DB, OR PW PACKAGE
(TOP VIEW)

description

This quadruple 2-line to 1-line data selector/multiplexer is designed for 1.65-V to 3.6-V V_{CC} operation.

The SN74LVC157A features a common strobe ($\overline{G}$) input. When the strobe is high, all outputs are low. When the strobe is low, a 4-bit word is selected from one of two sources and is routed to the four outputs. The device provides true data.

Inputs can be driven from either 3.3-V or 5-V devices. This feature allows the use of these devices as translators in a mixed 3.3-V/5-V system environment.

The SN74LVC157A is characterized for operation from -40°C to 85°C .

FUNCTION TABLE

INPUTS				OUTPUT Y
$\overline{G}$	$\overline{A/B}$	A	B	
H	X	X	X	L
L	L	L	X	L
L	L	H	X	H
L	H	X	L	L
L	H	X	H	H



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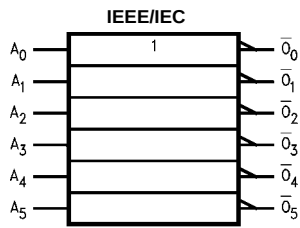


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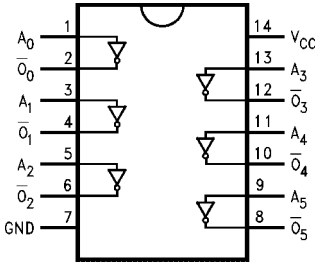
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74VHC04

Logic Symbol



Connection Diagram



Pin Descriptions

Pin Names	Description
A _n	Inputs
O _n	Outputs

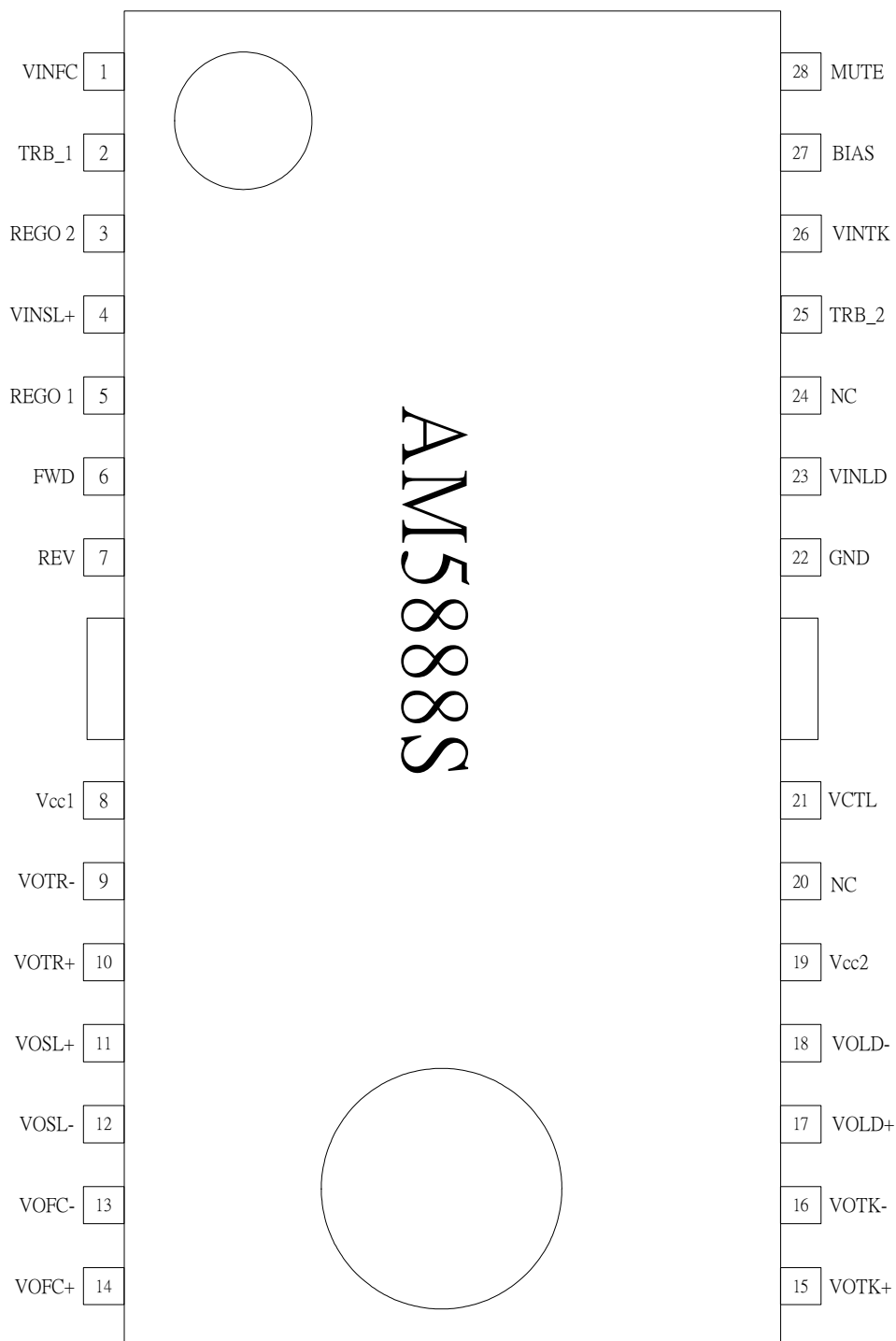
Truth Table

A	O
L	H
H	L



AM5888S Motor Driver ICs

● Pin configuration





AM5888S Motor Driver ICs

● Pin description

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

Notes) Symbol of + and – (output of drivers) means polarity to input pin.
(For example, if voltage of pin1 is high, pin14 is high.)

Features

- Medium-voltage and Standard-voltage Operation
 - 5.0 (V_{CC} = 4.5V to 5.5V)
 - 2.7 (V_{CC} = 2.7V to 5.5V)
- Automotive Temperature Range –40°C to 125°C
- Internally Organized 128 x 8 (1K), 256 x 8 (2K), 512 x 8 (4K), 1024 x 8 (8K) or 2048 x 8 (16K)
- Two-wire Serial Interface
- Schmitt Trigger, Filtered Inputs for Noise Suppression
- Bidirectional Data Transfer Protocol
- 400 kHz (2.7V) Compatibility
- Write Protect Pin for Hardware Data Protection
- 8-byte Page (1K, 2K), 16-byte Page (4K, 8K, 16K) Write Modes
- Partial Page Writes are Allowed
- Self-timed Write Cycle (5 ms max)
- High-reliability
 - Endurance: 1 Million Write Cycles
 - Data Retention: 100 Years
- 8-lead PDIP, 8-lead JEDEC SOIC, and 8-lead TSSOP Packages

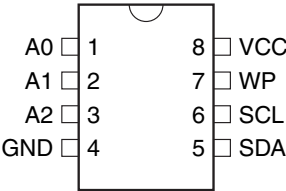
Description

The AT24C01A/02/04/08A/16A provides 1024/2048/4096/8192/16384 bits of serial electrically erasable and programmable read-only memory (EEPROM) organized as 128/256/512/1024/2048 words of 8 bits each. The device is optimized for use in many automotive applications where low-power and low-voltage operation are essential. The AT24C01A/02/04/08A/16A is available in space-saving 8-lead PDIP, 8-lead JEDEC SOIC, and 8-lead TSSOP packages and is accessed via a two-wire serial interface. In addition, the entire family is available in 2.7V (2.7V to 5.5V) versions.

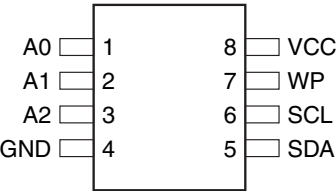
Table 1. Pin Configurations

Pin Name	Function
A0 – A2	Address Inputs
SDA	Serial Data
SCL	Serial Clock Input
WP	Write Protect
NC	No Connect

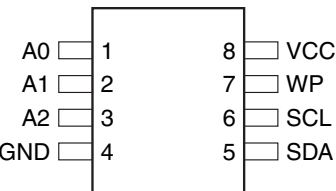
8-lead PDIP



8-lead SOIC



8-lead TSSOP



Two-wire
Automotive
Temperature
Serial EEPROM

1K (128 x 8)

2K (256 x 8)

4K (512 x 8)

8K (1024 x 8)

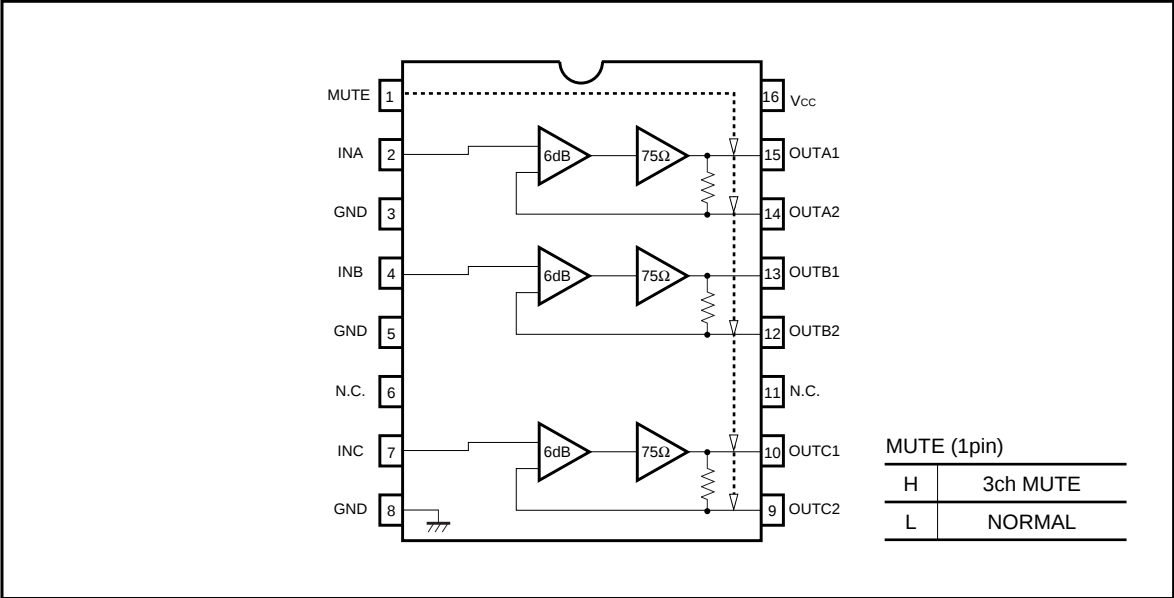
16K (2048 x 8)

AT24C01A
AT24C02
AT24C04
AT24C08A
AT24C16A

5092B–SEEPR–9/05



●Block diagram



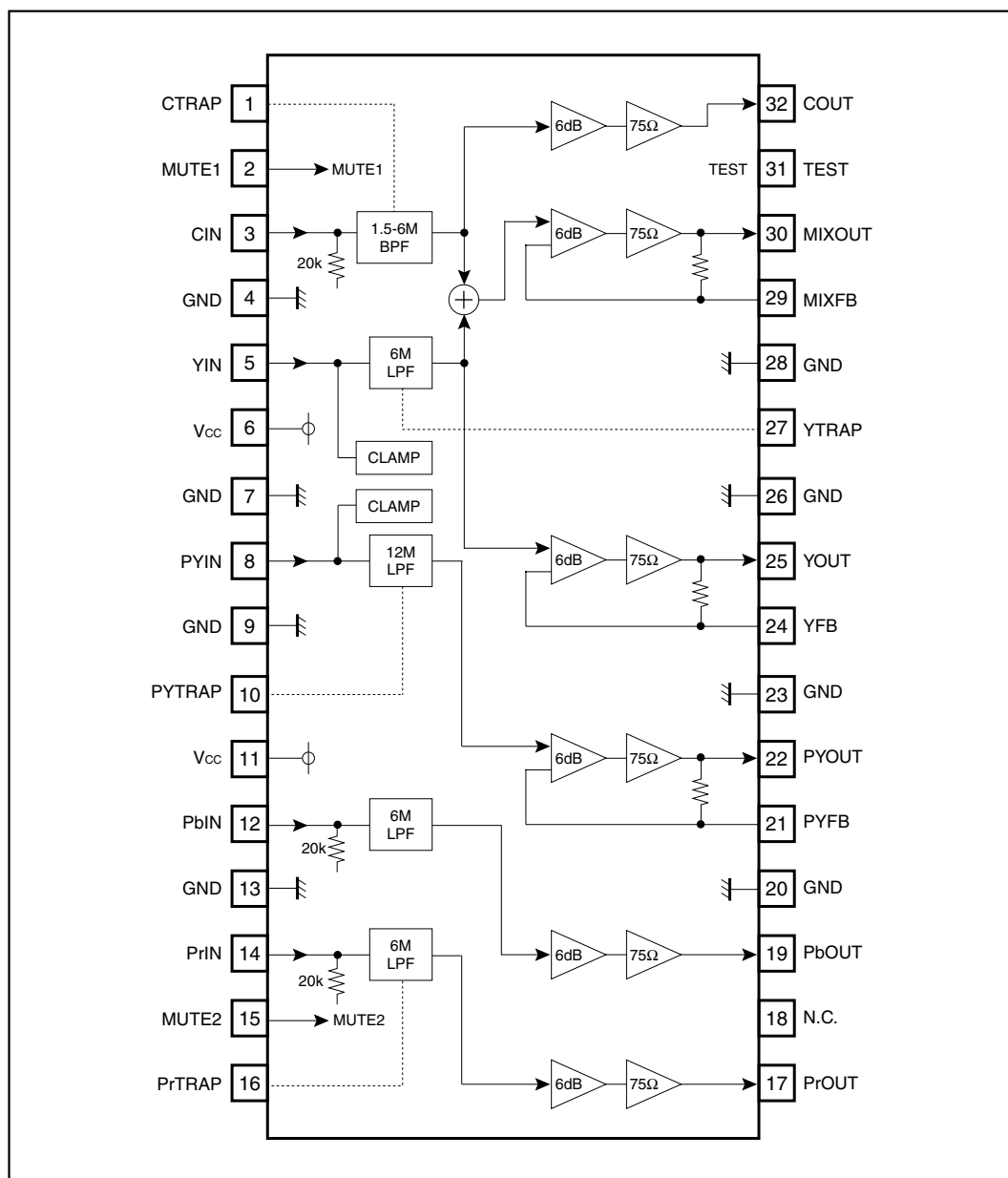
● Pin descriptions and input / output circuits

Pin. No	Pin name	IN	OUT	Reference voltage	Equivalent circuit	Function
1	MUTE	○	—	—		Muting control If MUTE (pin 1) is set to HIGH, muting is carried out simultaneously on all three channels.
2 4 7	INA INB INC	○	—	—		Signal input Input signals consist of composite video signals, Y signals, C signals, RGB, and others. The input level is within a range of 0 to 1.3 (min.) to 1.5 (typ.).
3 5 8	GND	—	—	0V		Ground
14 12 9 15 13 10	OUTA2 OUTB2 OUTC2 OUTA1 OUTB1 OUTC1	—	○	0.9V 0.95V		Signal output The signal output level is $(0.9 + 2 \times \text{input voltage [V]})$. Pins 9, 12, and 14 are the pins for sag correction. If pins 10, 13, and 15 are set to 0.2V or less, the protective circuit is triggered and the power-saving mode is accessed.
16	V _{CC}	—	—	5.0V		Power supply

BH7862FS

Multimedia ICs

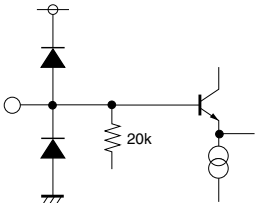
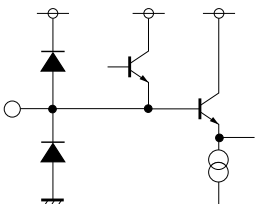
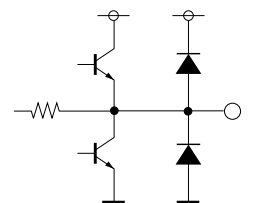
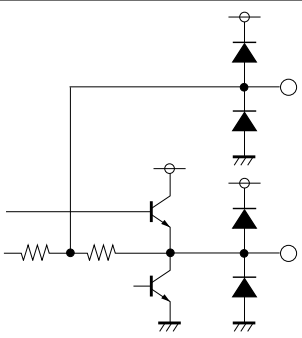
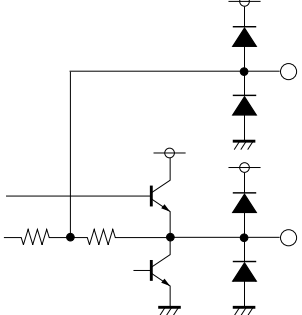
●Block diagram



BH7862FS

Multimedia ICs

●Pin descriptions and Input / output circuits

Pin No.	Pin name	Input/output equivalent circuit	Pin description
3 12 14	CIN PbIN PrIN		Signal input terminal. Input terminal for chroma signal and color-difference signal. Bias type input. The input impedance is 20kΩ.
5 8	YIN PYIN		Signal input terminal. Input terminal for luminance signal. Di clamp input.
32	COUT		Signal output terminal. Output terminal for chroma signal.
29 30	MIXFB MIXOUT		Signal output terminal. Output terminal for Y/C MIX signal.
24 25	YFB YOUT		Signal output terminal. Output terminal for luminance signal (interlaced type).

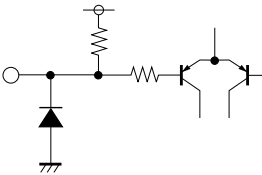
BH7862FS

Multimedia ICs

Pin No.	Pin name	Input/output equivalent circuit	Pin description
21 22	PYFB PYOUT		Signal output terminal. Output terminal for luminance signal (progressive type).
17 19	PrOUT PbOUT		Signal output terminal. Output terminal for color-difference signal.
1 27 10 16	CTPAP YTRAP PYTRAP PrTRAP		Terminal for LC resonance.
6 11	V _{CC}		Power supply voltage. V _{CC} is separated into 6 pin and 11 pin. That is to say, C, MIX and Y are partitioned by 6 pin and PY, Pb and Pr by 11 pin. They are not connected internally. Connect them externally when using.
4 7 9 13 20 23 26 28	GND		Grounding terminal.
2	MUTE1		Mute control terminal. C, MIX and Y are muted simultaneously by setting MUTE to "L".

BH7862FS

Multimedia ICs

Pin No.	Pin name	Input/output equivalent circuit	Pin description
12	MUTE2		Mute control terminal. PY, Pb and PR are muted simultaneously by setting MUTE to "L".
31	TEST		Test terminal. Usually, short-circuit this terminal to GND when using it.
18	N.C.		—

KEC**SEMICONDUCTOR
TECHNICAL DATA****KIA79L05BP~
KIA79L24BP
BIPOLAR LINEAR INTEGRATED CIRCUIT**

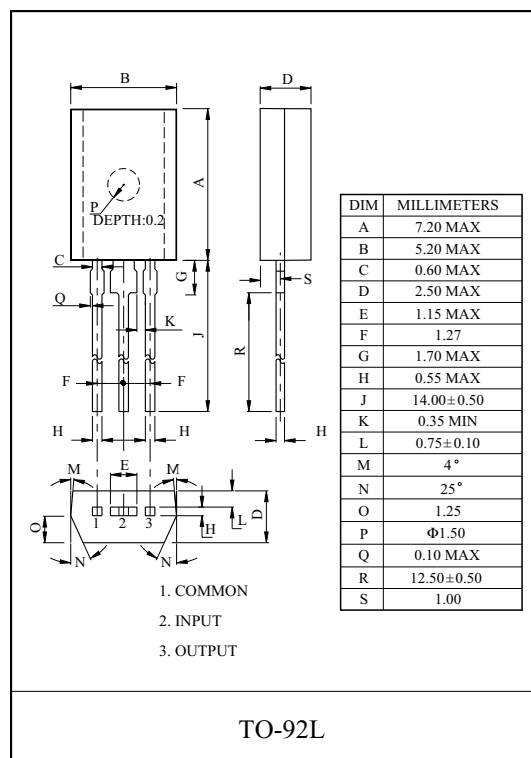
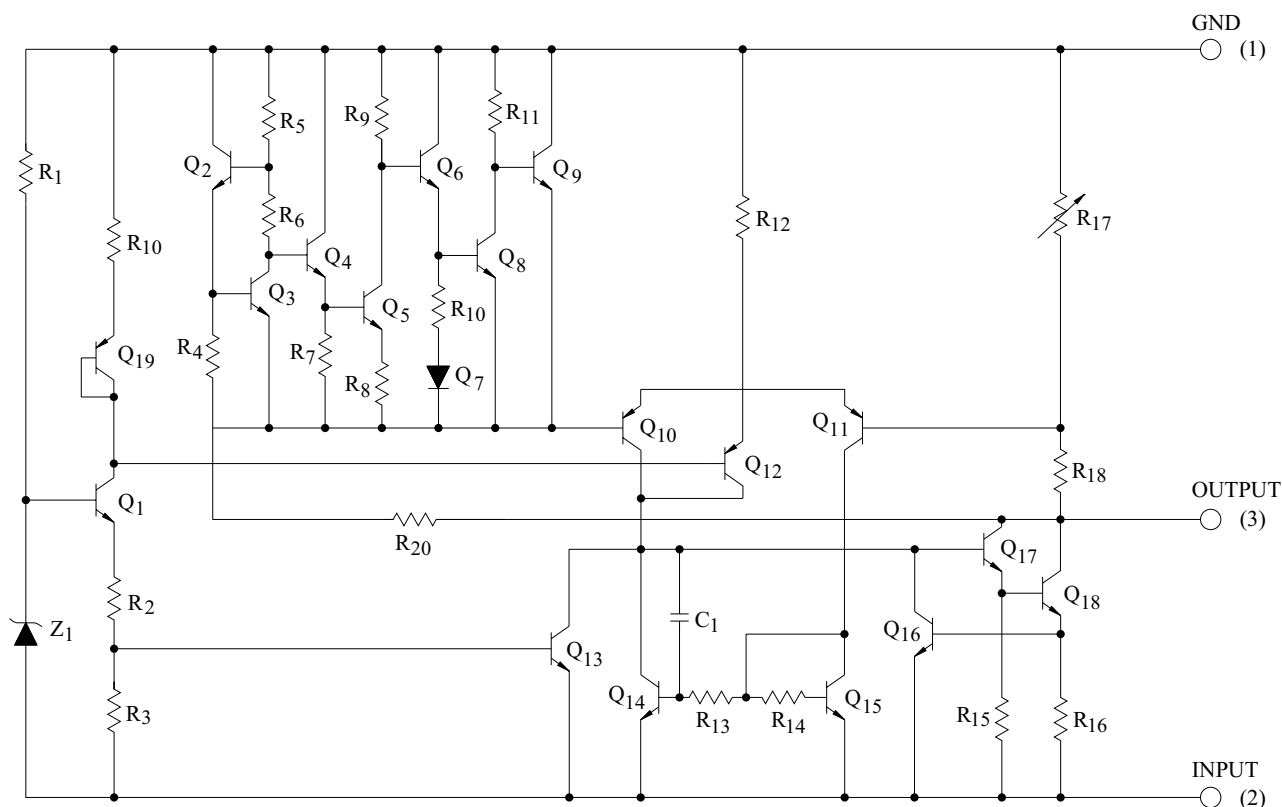
THREE TERMINAL POSITIVE VOLTAGE REGULATORS
5V, 6V, 8V, 9V, 10V, 12V, 15V, 18V, 20V, 24V.

FEATURES

- Best Suited to a Power Supply for TTL and CMOS.
- Built-in Overcurrent Protective Circuit.
- Built-in Thermal Protective Circuit.
- Max. Output Current 150mA ($T_J=25^\circ\text{C}$).
- Packaged in TO-92L.

MAXIMUM RATINGS ($T_a=25^\circ\text{C}$)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Input Voltage	KIA79L05BP ~ KIA79L15BP	V_{IN}	-35	V
	KIA79L18BP ~ KIA79L24BP		-40	
Power Dissipation ($T_c=25^\circ\text{C}$)		P_D	800	mW
Operating Junction Temperature		T_J	-30 ~ 150	$^\circ\text{C}$
Operating Temperature		T_{opr}	-30 ~ 75	$^\circ\text{C}$
Storage temperature		T_{stg}	-55 ~ 150	$^\circ\text{C}$

**EQUIVALENT CIRCUIT**

KEC

SEMICONDUCTOR
TECHNICAL DATA

KIA7805API~
KIA7824API

BIPOLAR LINEAR INTEGRATED CIRCUIT

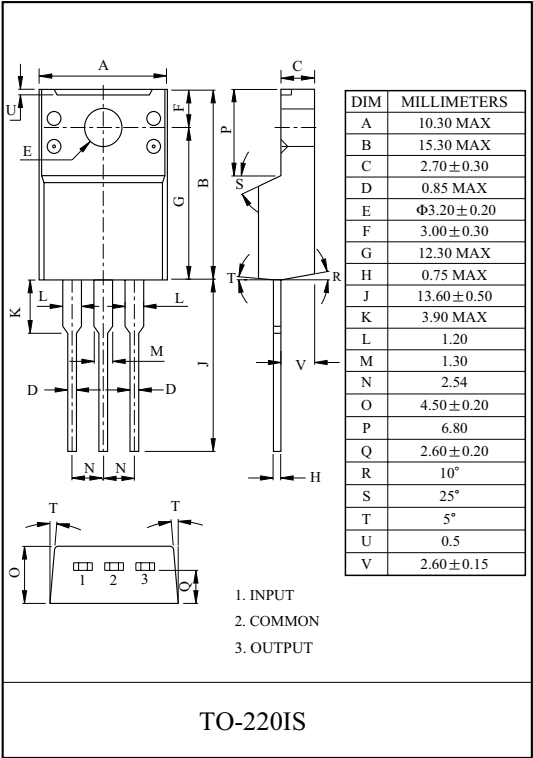
THREE TERMINAL POSITIVE VOLTAGE REGULATORS
5V, 6V, 8V, 9V, 10V, 12V, 15V, 18V, 20V, 24V.

FEATURES

- Suitable for C-MOS, TTL, the Other Digital IC's Power Supply.
- Internal Thermal Overload Protection.
- Internal Short Circuit Current Limiting.
- Output Current in Excess of 1A.
- Satisfies IEC-65 Specification. (International Electronical Commission)

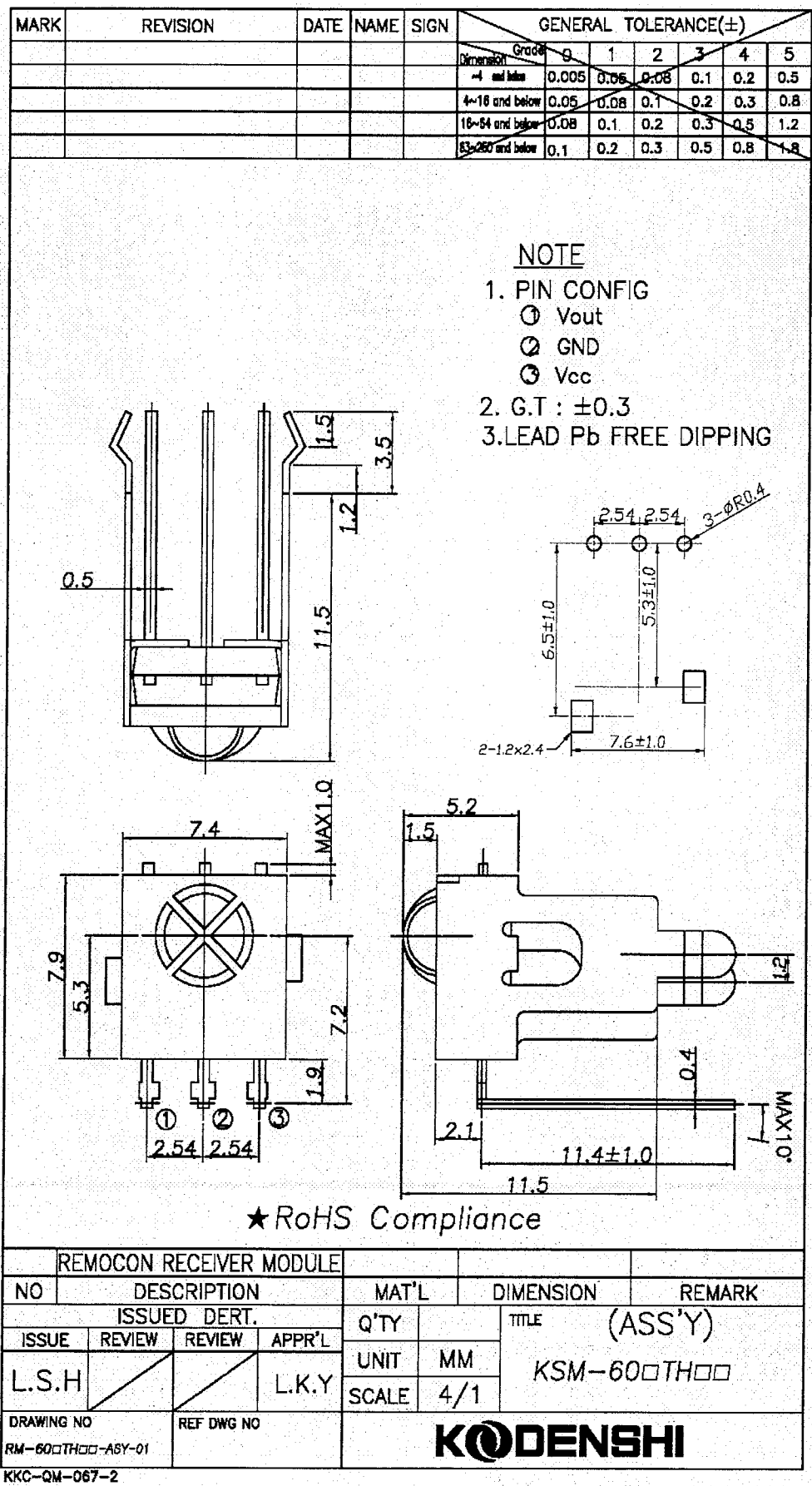
MAXIMUM RATINGS (Ta=25 °C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Input Voltage	KIA7805API ~ KIA7815API	V _{IN}	35	V
	KIA7818API ~ KIA7824API		40	
Power Dissipation (Tc=25 °C)		P _D	20.8	W
Power Dissipation (Without Heatsink)	KIA7805API ~ KIA7824API	P _D	2.0	W
Operating Junction Temperature		T _J	-30 ~150	°C
Storage Temperature		T _{stg}	-55 ~150	°C

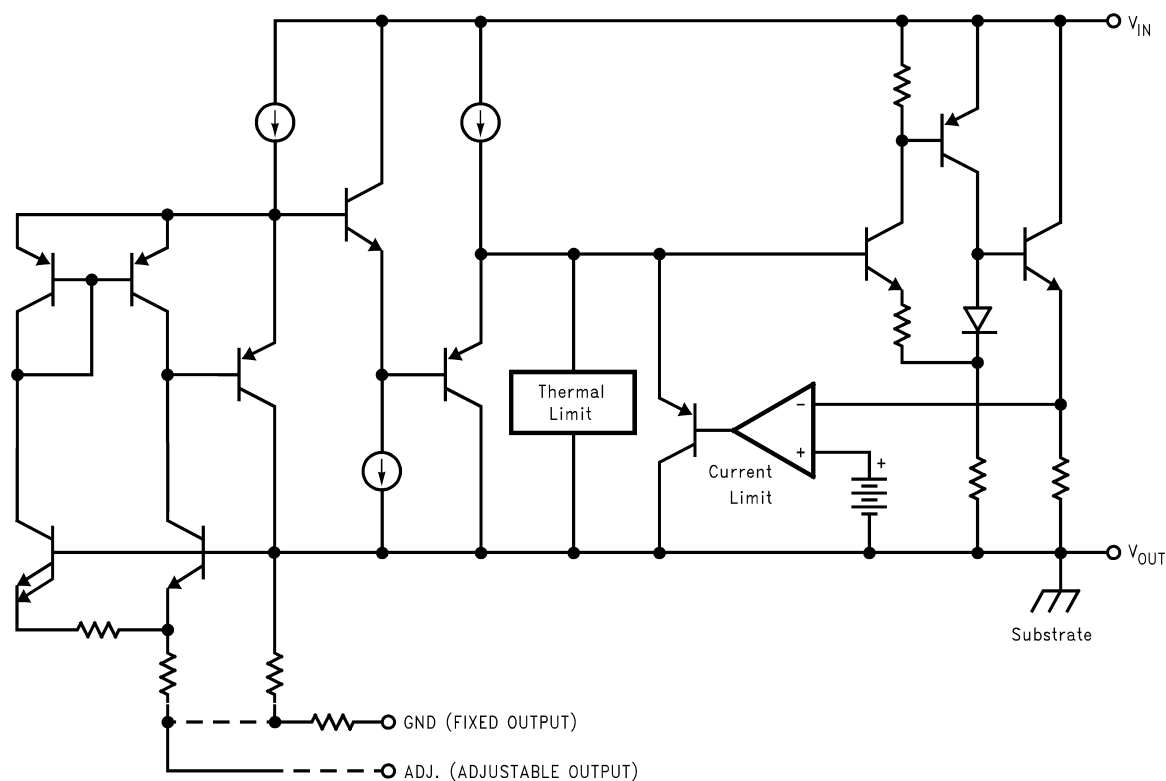


KSM-60□TH2A

KODENSHI KOREA CORP



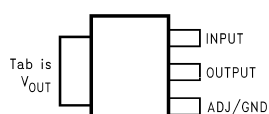
Block Diagram



10091901

Connection Diagrams

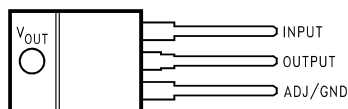
SOT-223



10091904

Top View

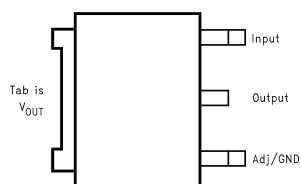
TO-220



10091902

Top View

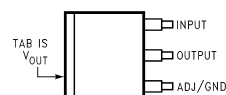
TO-252



10091938

Top View

TO-263



10091944

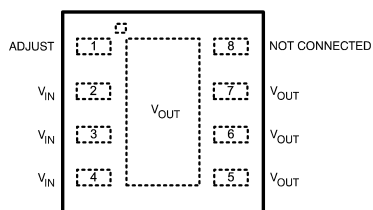
Top View



10091945

Side View

LLP



10091946

When using the LLP package

Pins 2, 3 & 4 must be connected together and

Pins 5, 6 & 7 must be connected together

Top View

ESMT

M12L64164A

SDRAM

1M x 16 Bit x 4 Banks

Synchronous DRAM

FEATURES

- JEDEC standard 3.3V power supply
- LVTTTL compatible with multiplexed address
- Four banks operation
- MRS cycle with address key programs
 - CAS Latency (2 & 3)
 - Burst Length (1, 2, 4, 8 & full page)
 - Burst Type (Sequential & Interleave)
- All inputs are sampled at the positive going edge of the system clock
- DQM for masking
- Auto & self refresh
- 64ms refresh period (4K cycle)

ORDERING INFORMATION

54 Pin TSOP (Type II)
(400mil x 875mil)

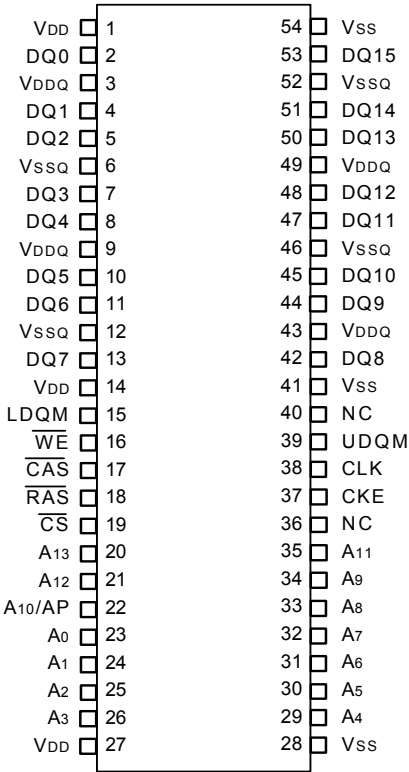
PRODUCT NO.	MAX FREQ.	PACKAGE
M12L64164A-6T	166MHz	TSOP II
M12L64164A-7T	143MHz	

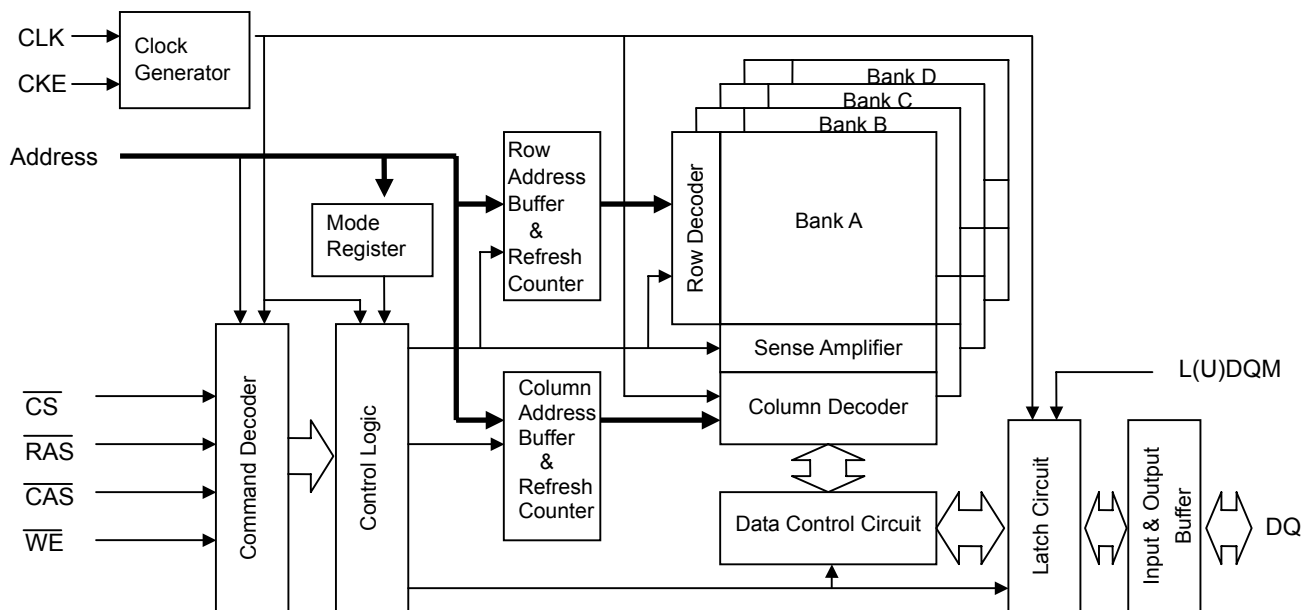
GENERAL DESCRIPTION

The M12L64164A is 67,108,864 bits synchronous high data rate Dynamic RAM organized as 4 x 1,048,576 words by 16 bits. Synchronous design allows precise cycle controls with the use of system clock I/O transactions are possible on every clock cycle. Range of operating frequencies, programmable burst length and programmable latencies allow the same device to be useful for a variety of high bandwidth, high performance memory system applications.

PIN ASSIGNMENT

Top View

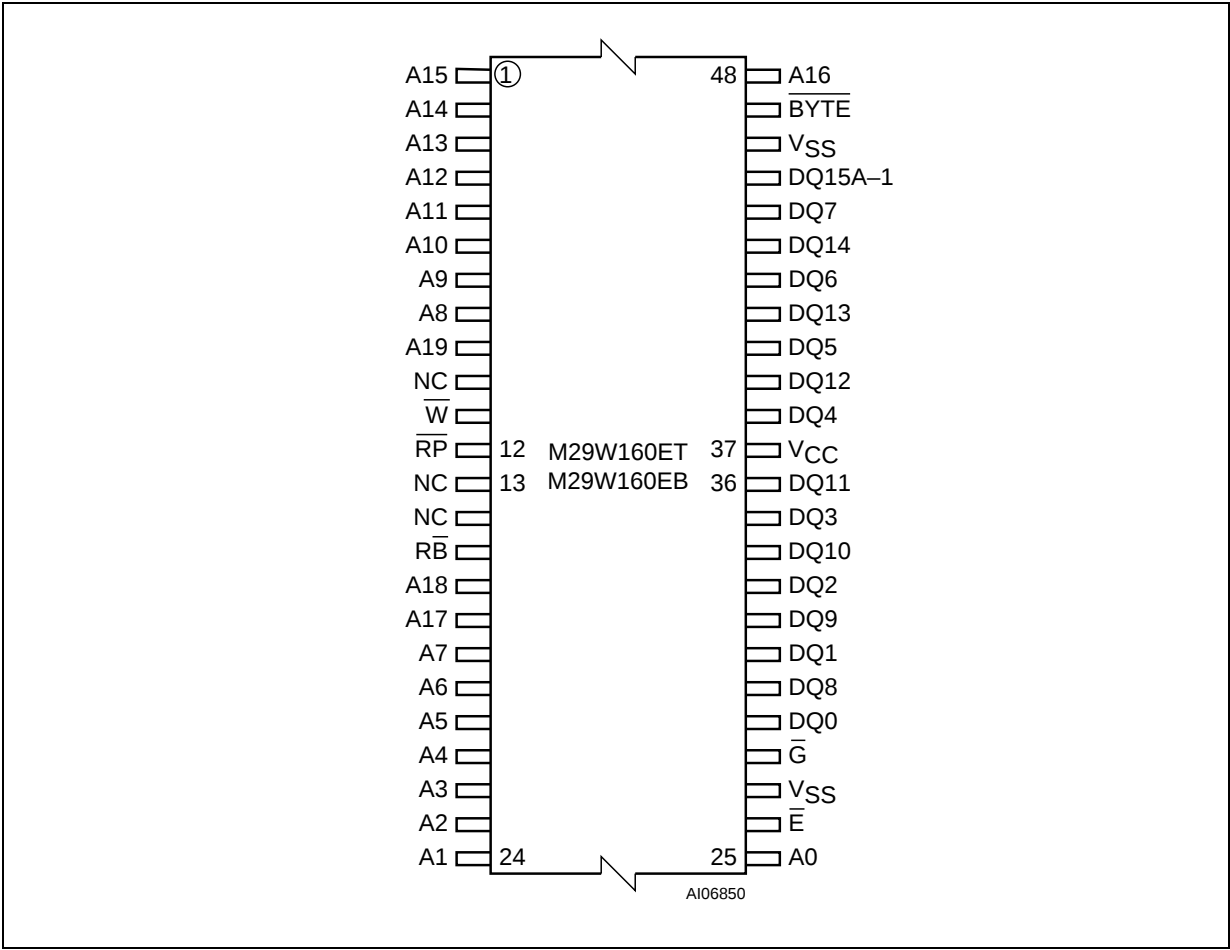


ESMT**M12L64164A****FUNCTIONAL BLOCK DIAGRAM****PIN FUNCTION DESCRIPTION**

PIN	NAME	INPUT FUNCTION
CLK	System Clock	Active on the positive going edge to sample all inputs
$\overline{\text{CS}}$	Chip Select	Disables or enables device operation by masking or enabling all inputs except CLK, CKE and L(U)DQM
CKE	Clock Enable	Masks system clock to freeze operation from the next clock cycle. CKE should be enabled at least one cycle prior new command. Disable input buffers for power down in standby.
A0 ~ A11	Address	Row / column address are multiplexed on the same pins. Row address : RA0~RA11, column address : CA0~CA7
A12, A13	Bank Select Address	Selects bank to be activated during row address latch time. Selects bank for read / write during column address latch time.
$\overline{\text{RAS}}$	Row Address Strobe	Latches row addresses on the positive going edge of the CLK with $\overline{\text{RAS}}$ low. Enables row access & precharge.
$\overline{\text{CAS}}$	Column Address Strobe	Latches column address on the positive going edge of the CLK with $\overline{\text{CAS}}$ low. Enables column access.
$\overline{\text{WE}}$	Write Enable	Enables write operation and row precharge. Latches data in starting from $\overline{\text{CAS}}$, $\overline{\text{WE}}$ active.
L(U)DQM	Data Input / Output Mask	Makes data output Hi-Z, t_{SHZ} after the clock and masks the output. Blocks data input when L(U)DQM active.
DQ0 ~ DQ15	Data Input / Output	Data inputs / outputs are multiplexed on the same pins.
VDD / VSS	Power Supply / Ground	Power and ground for the input buffers and the core logic.
VDDQ / VSSQ	Data Output Power / Ground	Isolated power supply and ground for the output buffers to provide improved noise immunity.
NC	No Connection	This pin is recommended to be left No Connection on the device.

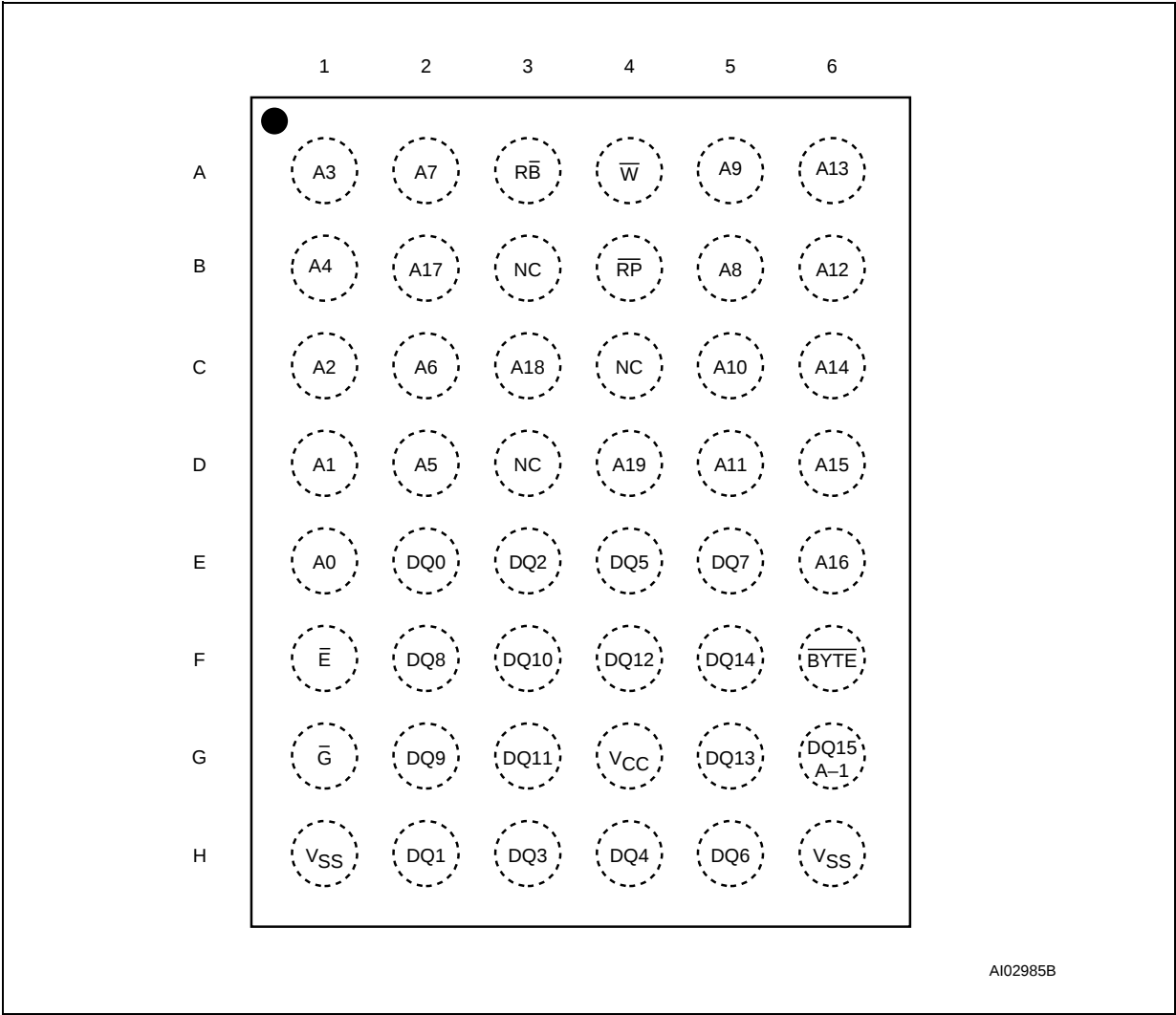
M29W160ET, M29W160EB

Figure 3. TSOP Connections



M29W160ET, M29W160EB

Figure 4. TFBGA Connections (Top view through package)



Photocoupler

KODENSHI

PC-17L1 • PC-17L2 • PC-17L4

These Photocouplers consist of a Gallium Arsenide Infrared Emitting Diode and a Silicon NPN Phototransistor per a channel.

The PC-17L1 has one channel in a 4-pin DIP package.

The PC-17L2 has two channels in a 8-pin DIP package.

The PC-17L4 has four channels in a 16-pin DIP package.

FEATURES

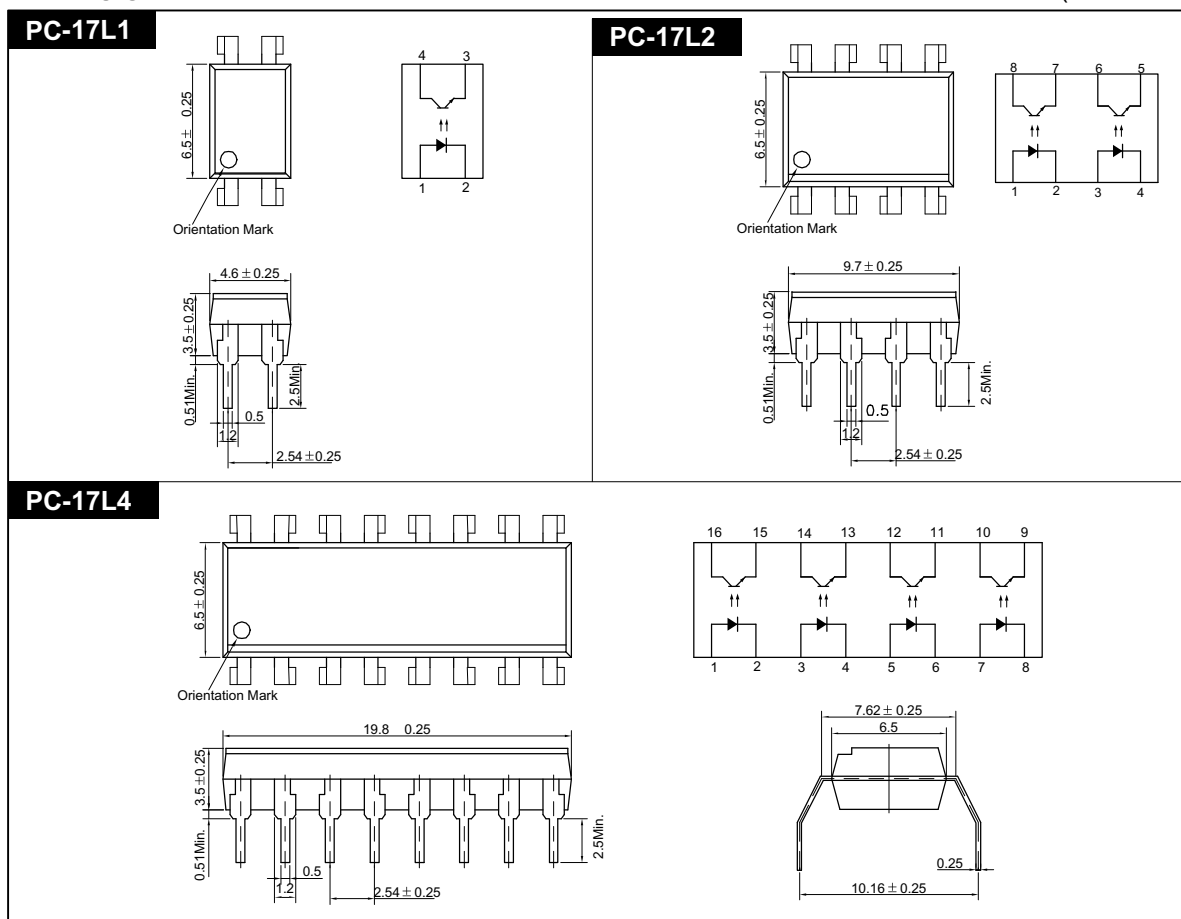
- Small Package Size
- Collector-Emitter Voltage : Min.35V
- Current Transfer Ratio : Min.50% (at $I_F=5mA$, $V_{CE}=5V$)
- Electrical Isolation Voltage : AC5000V_{rms}
- Creepage/Clearance between Input and Output : Min. 7.0mm
- UL Recognized File No. E107486

APPLICATIONS

- Interface between two circuits of different potential
- Vending Machine, Cordless Phone, Key Phone, Fax, Motor Control
- Programmable Logic Control
- Power Supply
- Computer Terminals

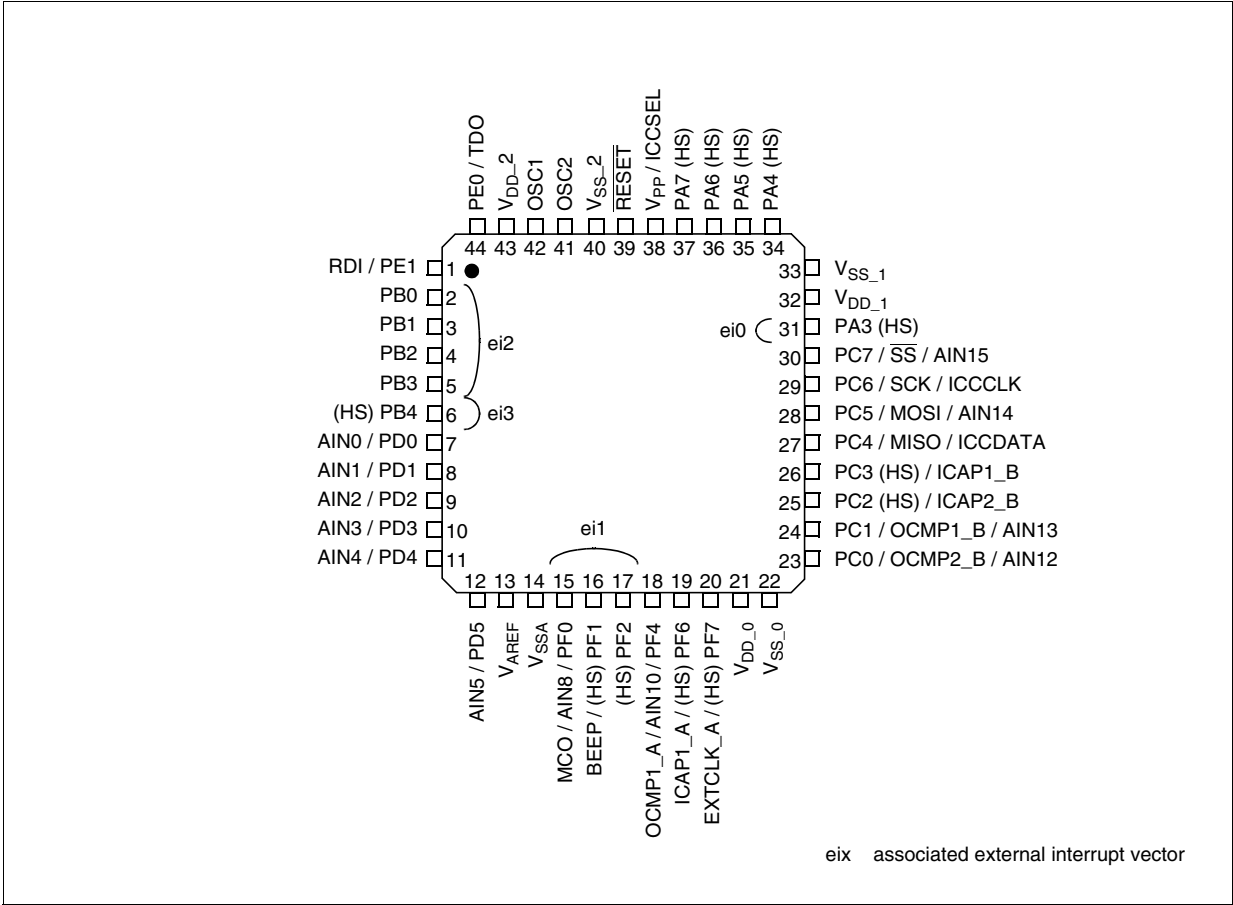
DIMENSION

(Unit : mm)



2 PIN DESCRIPTION

Figure 2. 44-Pin TQFP Package Pinouts



PIN DESCRIPTION (Cont'd)

Figure 3. 32-Pin SDIP Package Pinout

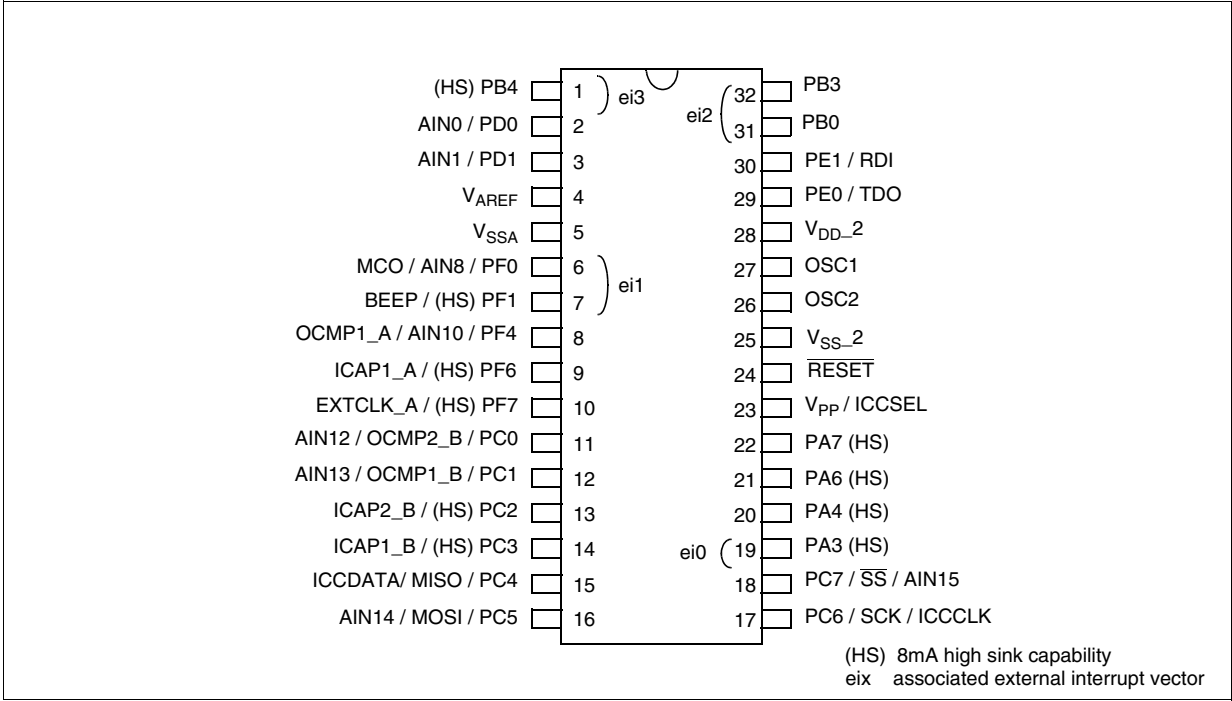
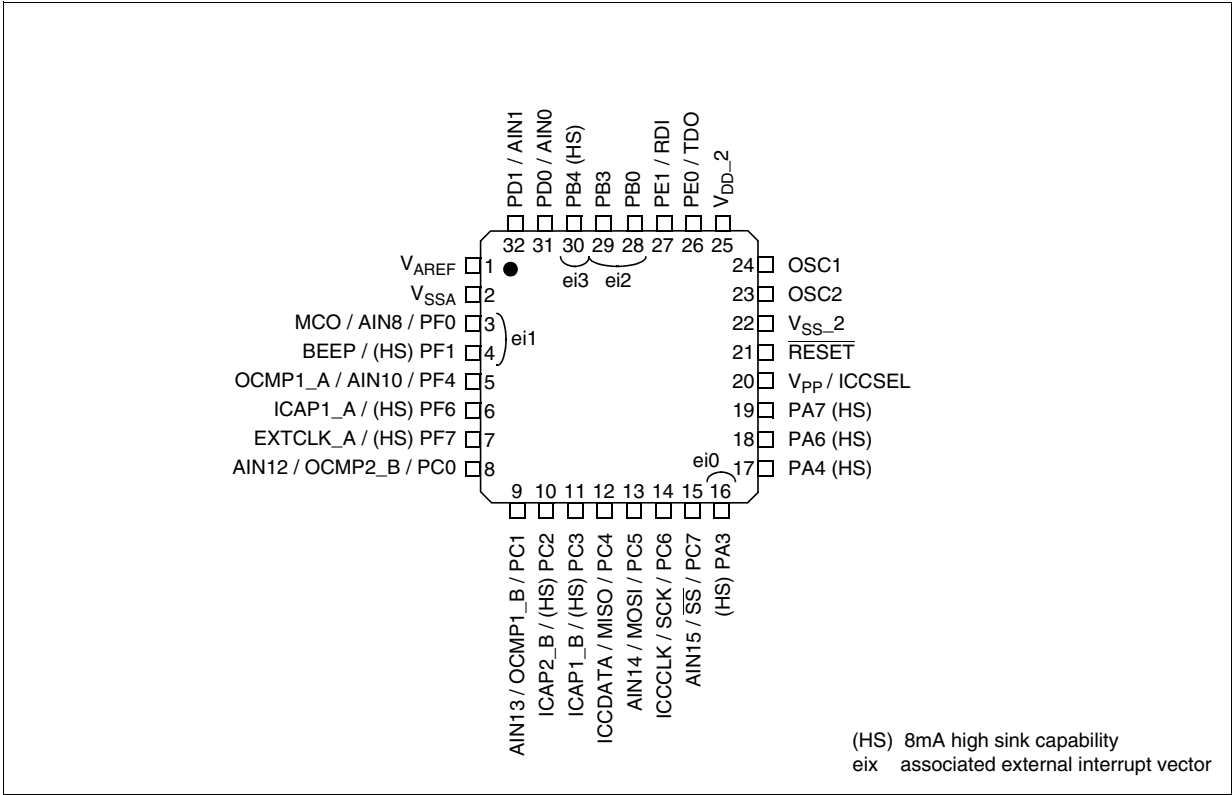


Figure 4. 32-Pin TQFP 7x7 Package Pinout



PIN DESCRIPTION (Cont'd)

For more details, refer to **"ELECTRICAL CHARACTERISTICS"** on page 110

Legend / Abbreviations for Table 1:

Type: I = input, O = output, S = supply

In/Output level: C = CMOS

C_T = CMOS with input trigger

Output level: HS = high sink (on N-buffer only)

Port and control configuration:

- Input: float = floating, wpu = weak pull-up, int = interrupt ¹⁾, ana = analog ports
- Output: OD = open drain ²⁾, PP = push-pull

Refer to **"I/O PORTS"** on page 39 for more details on the software configuration of the I/O ports.

The RESET configuration of each pin is shown in bold. This configuration is valid as long as the device is in reset state.

Table 1. Device Pin Description

Pin n°			Pin Name	Type	Level		Port						Main function (after reset)	Alternate Function	
TQFP44	TQFP32	SDIP32			Input	Output	Input				Output				
							float	wpu	int	ana	OD	PP			
6	30	1	PB4 (HS)	I/O	C _T	HS	X	ei3			X	X	Port B4		
7	31	2	PD0/AIN0	I/O	C _T		X	X		X	X	X	Port D0	ADC Analog Input 0	
8	32	3	PD1/AIN1	I/O	C _T		X	X		X	X	X	Port D1	ADC Analog Input 1	
9			PD2/AIN2	I/O	C _T		X	X		X	X	X	Port D2	ADC Analog Input 2	
10			PD3/AIN3	I/O	C _T		X	X		X	X	X	Port D3	ADC Analog Input 3	
11			PD4/AIN4	I/O	C _T		X	X		X	X	X	Port D4	ADC Analog Input 4	
12			PD5/AIN5	I/O	C _T		X	X		X	X	X	Port D5	ADC Analog Input 5	
13	1	4	V _{AREF}	S									Analog Reference Voltage for ADC		
14	2	5	V _{SSA}	S									Analog Ground Voltage		
15	3	6	PF0/MCO/AIN8	I/O	C _T		X	ei1		X	X	X	Port F0	Main clock out (f _{OSC} /2)	ADC Analog Input 8
16	4	7	PF1 (HS)/BEEP	I/O	C _T	HS	X	ei1			X	X	Port F1	Beep signal output	
17			PF2 (HS)	I/O	C _T	HS	X		ei1		X	X	Port F2		
18	5	8	PF4/OCMP1_A/AIN10	I/O	C _T		X	X		X	X	X	Port F4	Timer A Output Compare 1	ADC Analog Input 10
19	6	9	PF6 (HS)/ICAP1_A	I/O	C _T	HS	X	X			X	X	Port F6	Timer A Input Capture 1	
20	7	10	PF7 (HS)/EXTCLK_A	I/O	C _T	HS	X	X			X	X	Port F7	Timer A External Clock Source	
21			V _{DD_0}	S									Digital Main Supply Voltage		
22			V _{SS_0}	S									Digital Ground Voltage		
23	8	11	PC0/OCMP2_B/AIN12	I/O	C _T		X	X		X	X	X	Port C0	Timer B Output Compare 2	ADC Analog Input 12
24	9	12	PC1/OCMP1_B/AIN13	I/O	C _T		X	X		X	X	X	Port C1	Timer B Output Compare 1	ADC Analog Input 13

ST72F324L, ST72324BL

Pin n°			Pin Name	Type	Level		Port						Main function (after reset)	Alternate Function	
TQFP44	TQFP32	SDIP32			Input	Output	Input				Output				
							float	wpu	int	ana	OD	PP			
25	10	13	PC2 (HS)/ICAP2_B	I/O	C _T	HS	X	X			X	X	Port C2	Timer B Input Capture 2	
26	11	14	PC3 (HS)/ICAP1_B	I/O	C _T	HS	X	X			X	X	Port C3	Timer B Input Capture 1	
27	12	15	PC4/MISO/ICCDATA	I/O	C _T		X	X			X	X	Port C4	SPI Master In / Slave Out Data	ICC Data Input
28	13	16	PC5/MOSI/AIN14	I/O	C _T		X	X		X	X	X	Port C5	SPI Master Out / Slave In Data	ADC Analog Input 14
29	14	17	PC6/SCK/ICCCLK	I/O	C _T		X	X			X	X	Port C6	SPI Serial Clock	ICC Clock Output
30	15	18	PC7/ $\overline{SS}$ /AIN15	I/O	C _T		X	X		X	X	X	Port C7	SPI Slave Select (active low)	ADC Analog Input 15
31	16	19	PA3 (HS)	I/O	C _T	HS	X		ei0		X	X	Port A3		
32			V _{DD_1}	S									Digital Main Supply Voltage		
33			V _{SS_1}	S									Digital Ground Voltage		
34	17	20	PA4 (HS)	I/O	C _T	HS	X	X			X	X	Port A4		
35			PA5 (HS)	I/O	C _T	HS	X	X			X	X	Port A5		
36	18	21	PA6 (HS)	I/O	C _T	HS	X				T		Port A6 ¹⁾		
37	19	22	PA7 (HS)	I/O	C _T	HS	X				T		Port A7 ¹⁾		
38	20	23	V _{PP} /ICCSEL	I									Must be tied low. In the flash programming mode, this pin acts as the programming voltage input V _{PP} . See Section 12.9.2 for more details. High voltage must not be applied to ROM devices.		
39	21	24	$\overline{RESET}$	I/O	C _T								Top priority non maskable interrupt.		
40	22	25	V _{SS_2}	S									Digital Ground Voltage		
41	23	26	OSC2	O									Resonator oscillator inverter output		
42	24	27	OSC1	I									External clock input or Resonator oscillator inverter input		
43	25	28	V _{DD_2}	S									Digital Main Supply Voltage		
44	26	29	PE0/TDO	I/O	C _T		X	X			X	X	Port E0	SCI Transmit Data Out	
1	27	30	PE1/RDI	I/O	C _T		X	X			X	X	Port E1	SCI Receive Data In	
2	28	31	PB0	I/O	C _T		X		ei2		X	X	Port B0		
3			PB1	I/O	C _T		X		ei2		X	X	Port B1		
4			PB2	I/O	C _T		X		ei2		X	X	Port B2		
5	29	32	PB3	I/O	C _T		X		ei2		X	X	Port B3		

Notes:

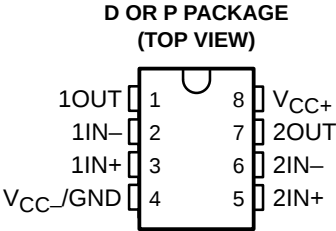
1. In the interrupt input column, “eiX” defines the associated external interrupt vector. If the weak pull-up column (wpu) is merged with the interrupt column (int), then the I/O configuration is pull-up interrupt input, else the configuration is floating interrupt input.

2. In the open drain output column, “T” defines a true open drain I/O (P-Buffer and protection diode to V_{DD}

HIGH-SLEW-RATE, SINGLE-SUPPLY OPERATIONAL AMPLIFIER

SLOS200G – OCTOBER 1997 – REVISED JULY 2003

- Wide Gain-Bandwidth Product . . . 4 MHz
- High Slew Rate . . . 13 V/ μ s
- Fast Settling Time . . . 1.1 μ s to 0.1%
- Wide-Range Single-Supply Operation . . . 4 V to 36 V
- Wide Input Common-Mode Range Includes Ground (V_{CC-})
- Low Total Harmonic Distortion . . . 0.02%
- Large-Capacitance Drive Capability . . . 10,000 pF
- Output Short-Circuit Protection



description/ordering information

Quality, low-cost, bipolar fabrication with innovative design concepts is employed for the TL3472 operational amplifier. This device offers 4 MHz of gain-bandwidth product, 13-V/ μ s slew rate, and fast settling time, without the use of JFET device technology. Although the TL3472 can be operated from split supplies, it is particularly suited for single-supply operation because the common-mode input voltage range includes ground potential (V_{CC-}). With a Darlington transistor input stage, this device exhibits high input resistance, low input offset voltage, and high gain. The all-npn output stage, characterized by no dead-band crossover distortion and large output voltage swing, provides high-capacitance drive capability, excellent phase and gain margins, low open-loop high-frequency output impedance, and symmetrical source/sink ac frequency response. This low-cost amplifier is an alternative to the MC33072 and the MC34072 operational amplifiers.

ORDERING INFORMATION

T _A	PACKAGE†		ORDERABLE PART NUMBER	TOP-SIDE MARKING
0°C to 70°C	PDIP (P)	Tube of 25	TL3472CP	TL3472CP
	SOIC (D)	Tube of 50	TL3472CD	3472C
		Reel of 2500	TL3472CDR	
–40°C to 105°C	PDIP (P)	Tube of 25	TL3472IP	TL3472IP
	SOIC (D)	Tube of 50	TL3472ID	Z3472
		Reel of 2500	TL3472IDR	

† Package drawings, standard packing quantities, thermal data, symbolization, and PCB design guidelines are available at www.ti.com/sc/package.



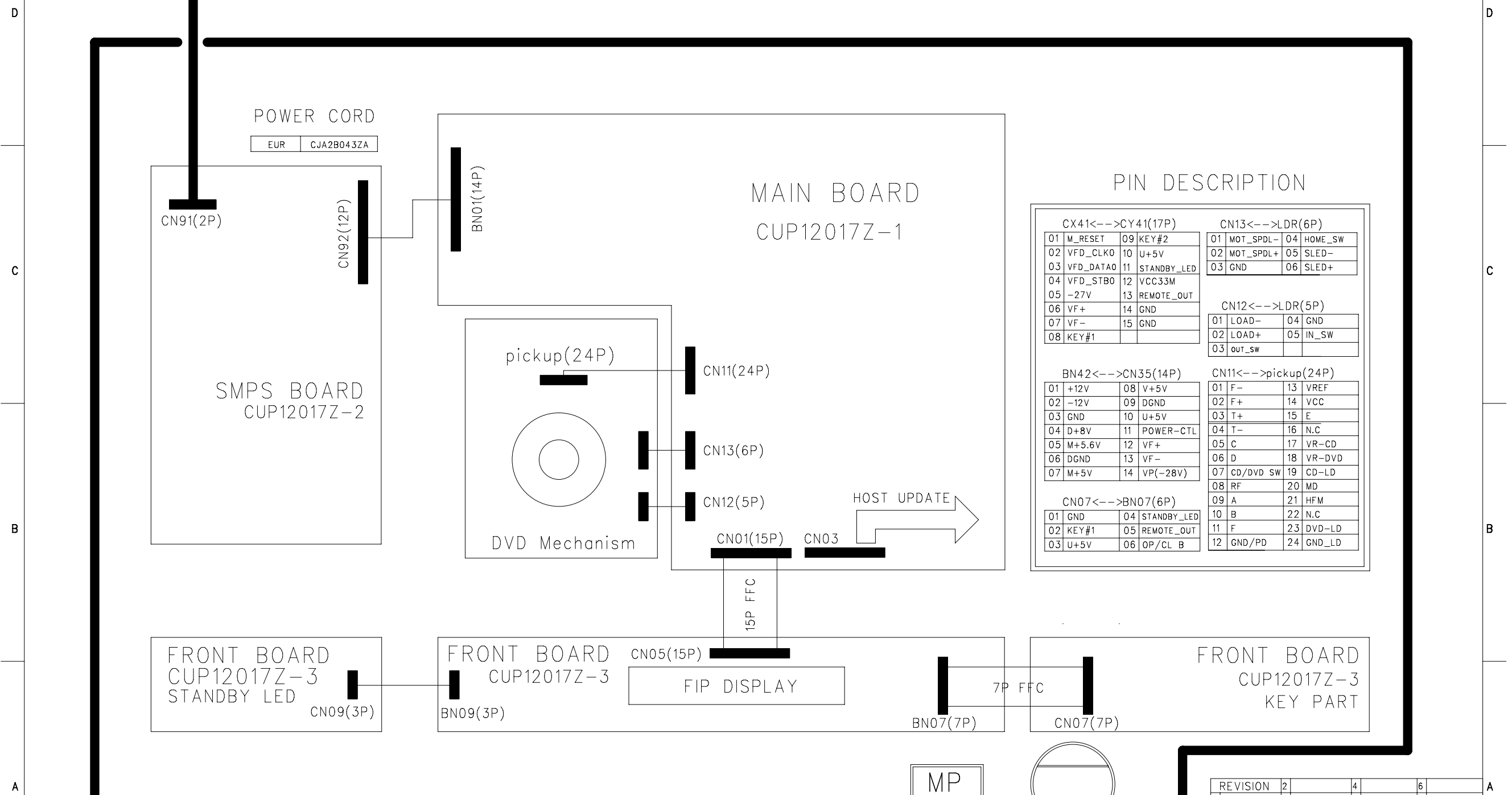
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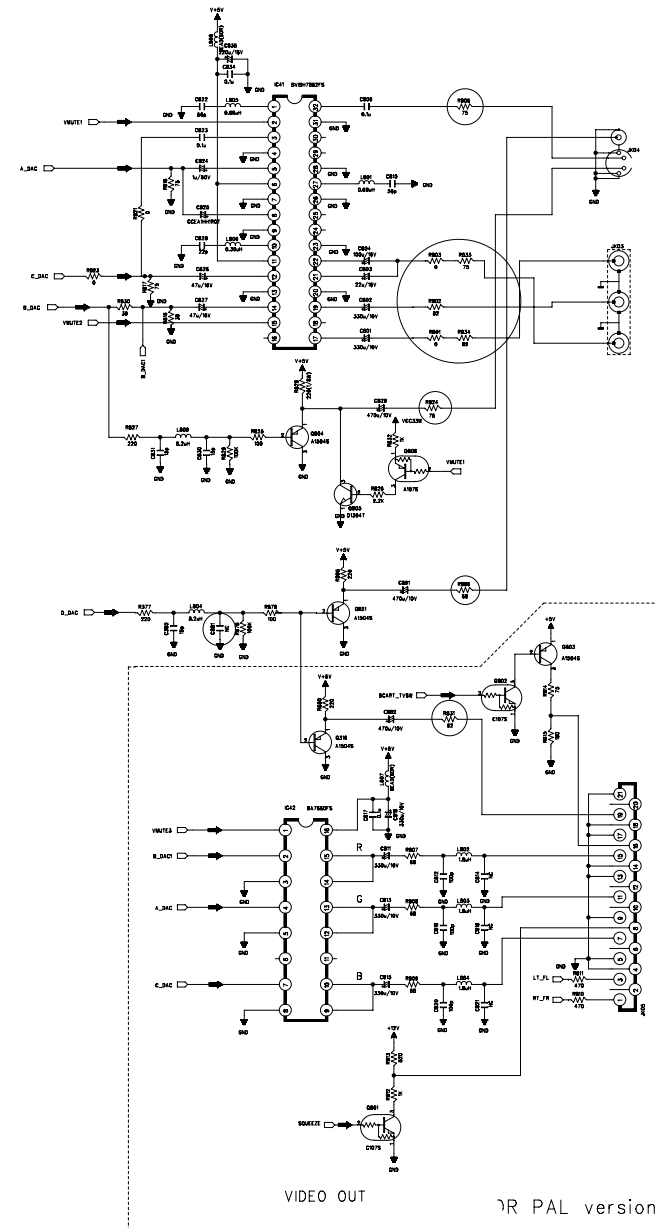
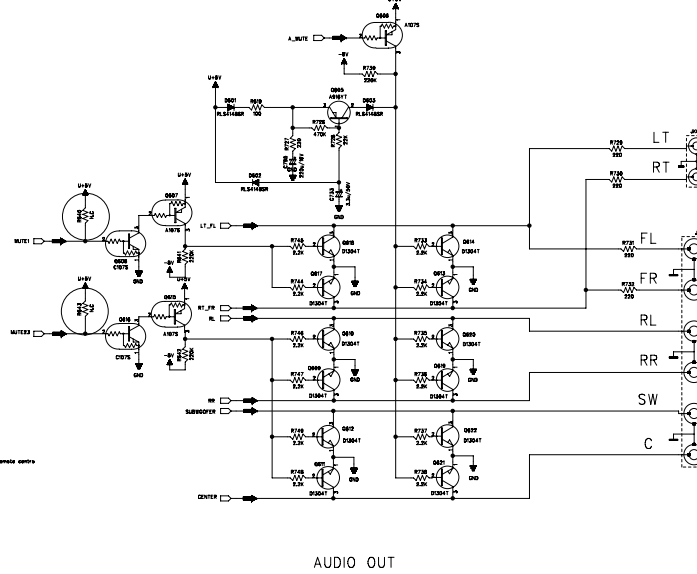
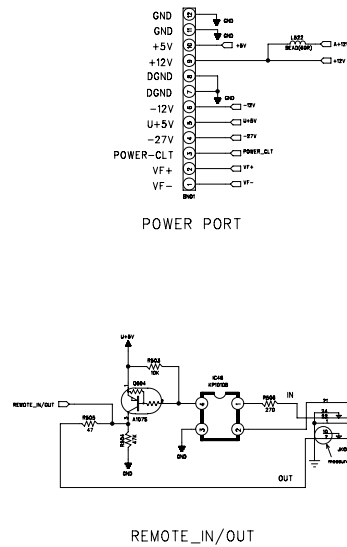
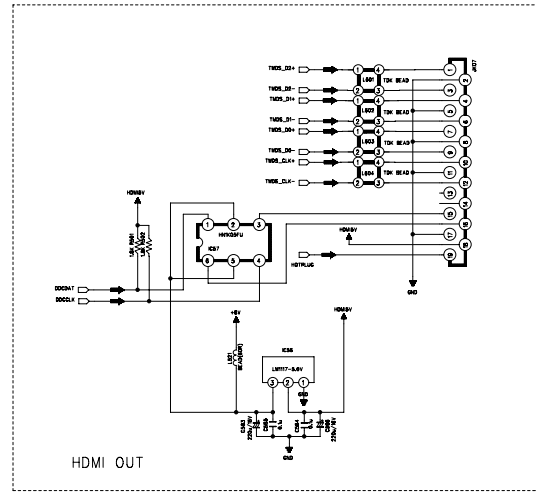
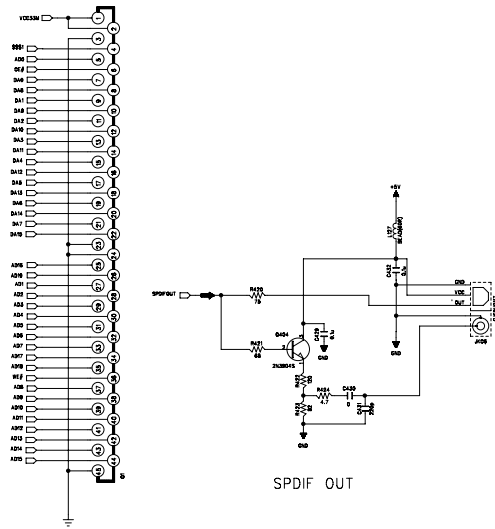
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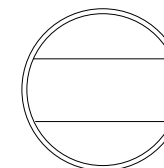
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1	3	5	7
WIRING DIAGRAM			SHEET
MODEL	DVD29/230		1/1
DESIGN	CHECK	APPROVE	DRAWING NO
L.S.H	P.J.H		
07.11.20	07.11.20		1/1



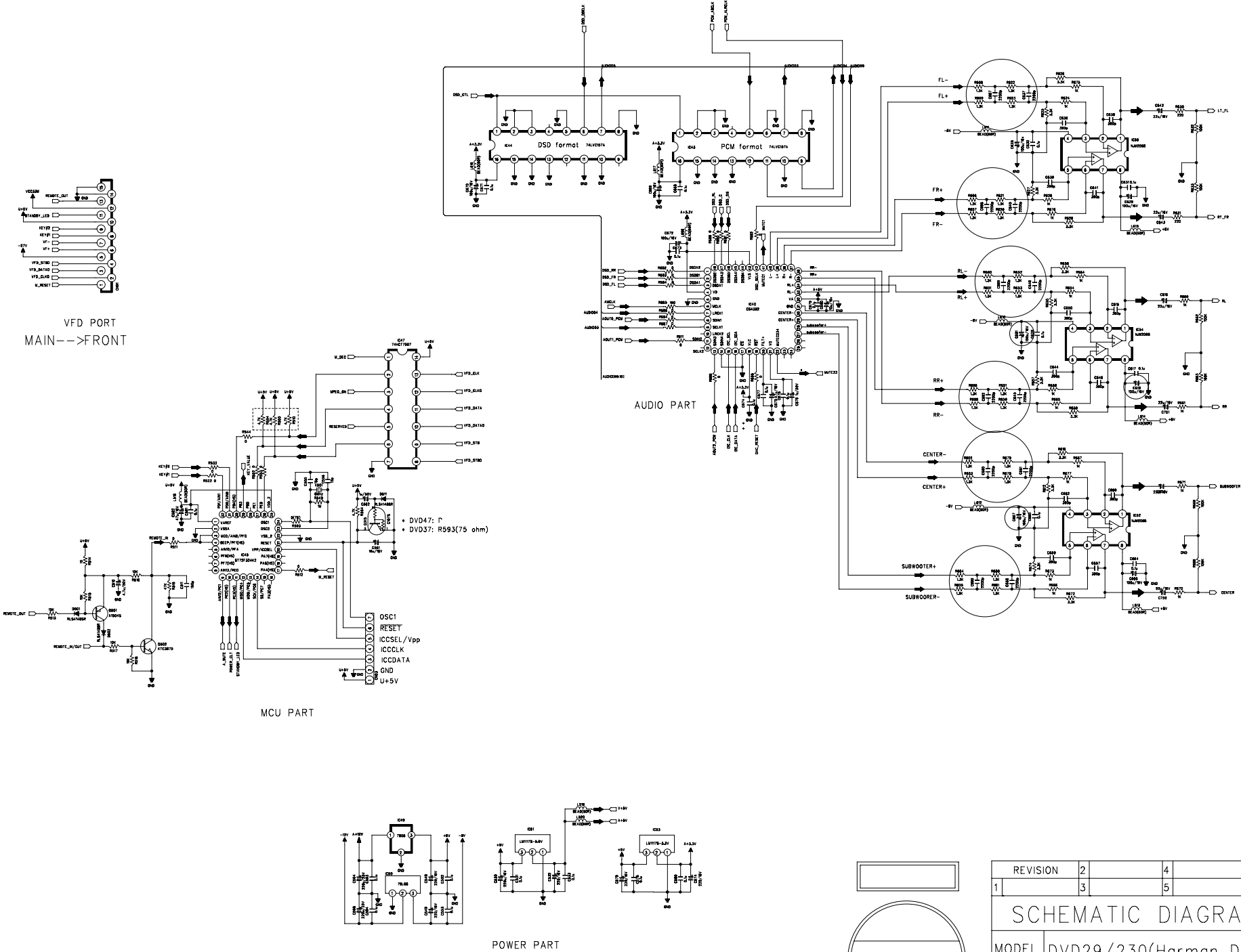
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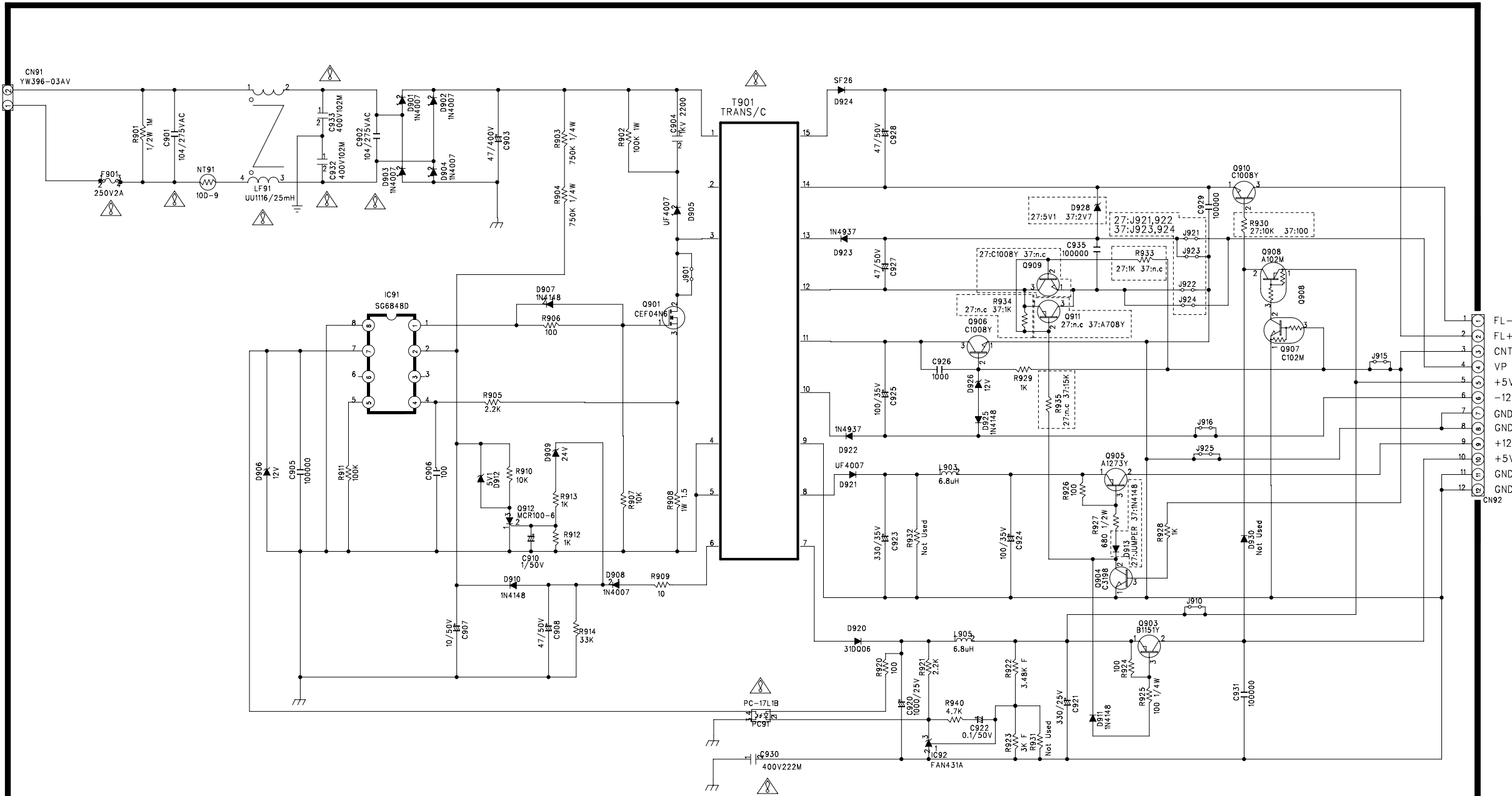
M.P3LOT



REVISION		2	4	6
1	3	5	7	
SCHEMATIC DIAGRAM				
MODEL	DVD29/230(Harman DVD)			SHEET 3/3
DESIGN	CHECK	APPROVE	DRAWING NO	
2007.11.20	2007.11.20		12017XSCMY	



REVISION		2	4	6
1	3		5	7
SCHEMATIC DIAGRAM				
MODEL	DVD29/230(Harman DVD)			
DESIGN	CHECK	APPROVE	DRAWING NO	
S.H.LEE	J.H.PARK	.LEE	12017XSCMY	
2007.11.20	2007.11.20			



DVD 27
D913 : JUMPER R935 : N.C R934 : N.C
Q909 : C1008Y R933 : 1K Q911 : N.C
D928 : 5V1 R930 : 10K J923, J924 : N.C
J921, J922 : CONNECTION

DVD 37/47/29
D913 : 1N4148 R935 : 15K R934 : 1K
Q911 A708Y Q909 : N.C R933 : N.C
D928 : 2V7 R930 : 100
J921, J922 : N.C J923, J924 : CONNECTION

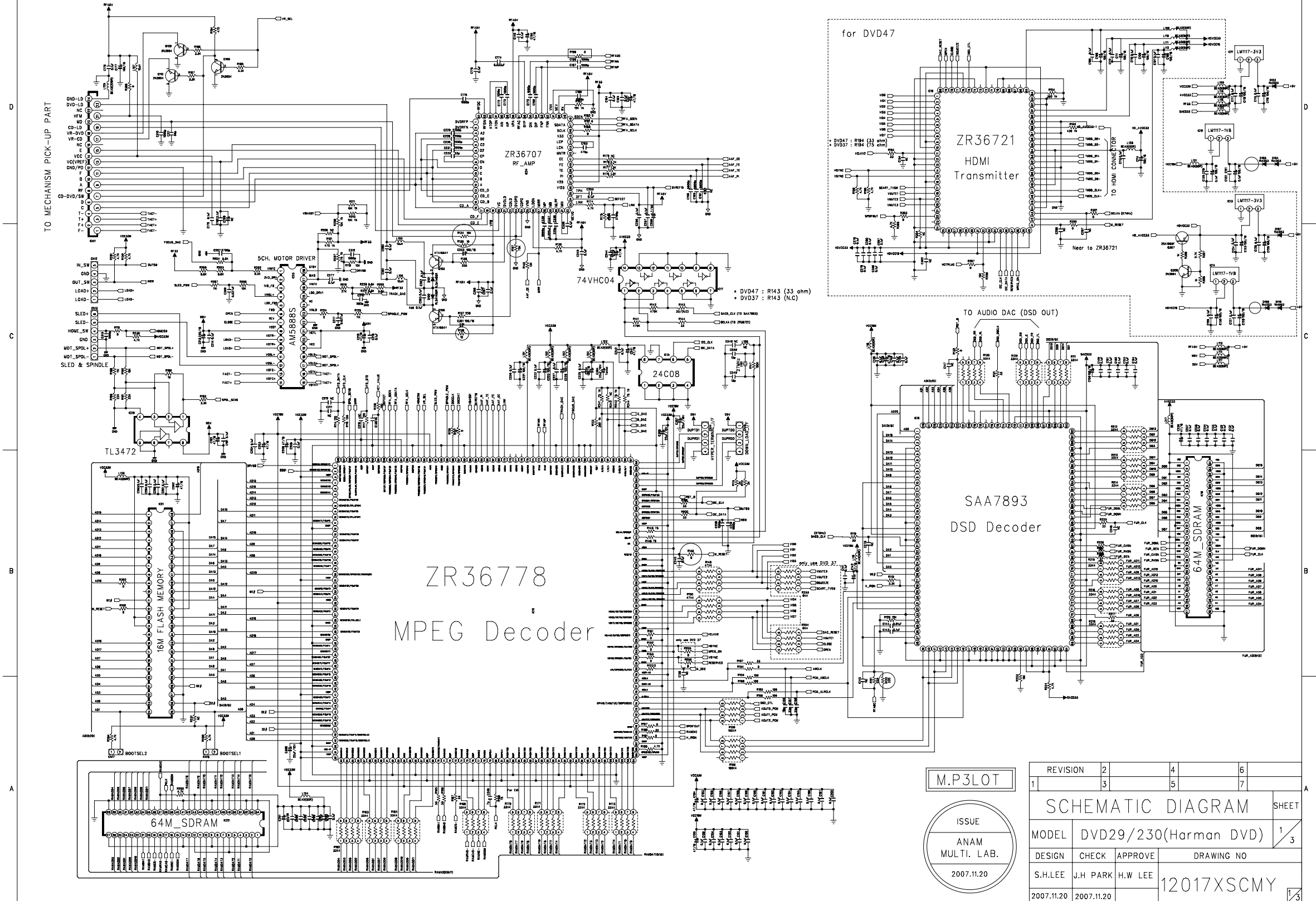
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COMPONENTS IDENTIFIED BY MARK HAVE SPECIAL CHARACTERISTICS.
IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS.
USE ONLY MANUFACTUREY'S SPECIFIED PARTS.

**THE UNIT OF RESISTANCE IS OHM.
K=1000 OHM, M=1000 KOHM

**THE UNIT OF CAPACITANCE IS MICROFARAD (uF)
1pF = 10⁻⁶ uF

**THIS SCHEMATIC DIAGRAM MAY MODIFIED AT ANYTIME
WITH THE IMPROVEMENT OF PERFORMANCE

REVISION	2	4	6
1	3	5	7
SCHEMATIC DIAGRAM			
MODEL	DVD 27/37/47/29		
DESIGN	CHECK	APPROVE	DRAWING NO
			12017SCLZ
05.06.13	05.06.13		(SMPS)



REVISION		2	4	6
1	3	5	7	
SCHEMATIC DIAGRAM				SHEET
MODEL	DVD29/230(Harman DVD)			1/3
DESIGN	CHECK	APPROVE	DRAWING NO	
S.H.LEE	J.H PARK	H.W LEE	12017XSCMY	
2007.11.20	2007.11.20			

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