

harman/kardon®
Power for the Digital Revolution®

AVR135

AVR135BK

AUDIO/VIDEO RECEIVER
SERVICE MANUAL

230V international version



AVR 135 TECHNICAL SPECIFICATIONS

Audio Section

Stereo Mode	
Continuous Average Power (FTC)	
50 Watts per channel, 20Hz–20kHz, @ <0.07% THD, both channels driven into 8 ohms	
Six-Channel Surround Modes	
Power per Individual Channel	
Front L&R channels: 40 Watts per channel @ <0.07% THD, 20Hz–20kHz into 8 ohms	
Center channel: 40 Watts @ <0.07% THD, 20Hz–20kHz into 8 ohms	
Surround (L & R Side, Back) channels: 40 Watts per channel @ <0.07% THD, 20Hz–20kHz into 8 ohms	
Input Sensitivity/Impedance	
Linear (High-Level)	200mV/47k ohms
Signal-to-Noise Ratio (IHF-A)	100dB
Surround System Adjacent Channel Separation	
Pro Logic I/II	40dB
Dolby Digital (AC-3)	55dB
DTS	55dB
Frequency Response	
@ 1W (+0dB, –3dB)	10Hz –130kHz
High Instantaneous	
Current Capability (HCC)	±25 Amps
Transient Intermodulation	
Distortion (TIM)	Unmeasurable
Slew Rate	40V/μsec

FM Tuner Section

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

AM Tuner Section

Frequency Range	520–1720kHz
Signal-to-Noise Ratio	45dB
Usable Sensitivity	Loop 500μV
Distortion	1kHz, 50% Mod 0.8%
Selectivity	±10kHz, 30dB

Video Section

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

General

Power Requirement	AC 120V/60Hz	
Power Consumption	65W idle, 540W maximum (6 channels driven)	
Dimensions	(Product)	(Shipping)
Width	17.3 inches (440mm)	21.5 inches (545mm)
Height	6.6 inches (168mm)	9.9 inches (251mm)
Depth	15 inches (382mm)	17.9 inches (455mm)
	(Product)	(Shipping)
Weight	24.4 lb (11.1kg)	29.3 lb (13.3kg)

Depth measurement includes knobs, buttons and terminal connections.
Height measurement includes feet and chassis.
All features and specifications are subject to change without notice.

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Harman International Industries, Incorporated.

*Manufactured under license from Dolby Laboratories. "Dolby," "Pro Logic" and the Double-D symbol
are trademarks of Dolby Laboratories.

DTS, DTS Surround, DTS-ES and DTS Neo:6 are registered trademarks of Digital Theater Systems, Inc.

VMAx is a registered trademark of Harman International Industries, Incorporated, and is an
implementation of Cooper Bauck Transaural Stereo under patent license.

Logic 7 is a registered trademark of Harman International Industries, Incorporated.

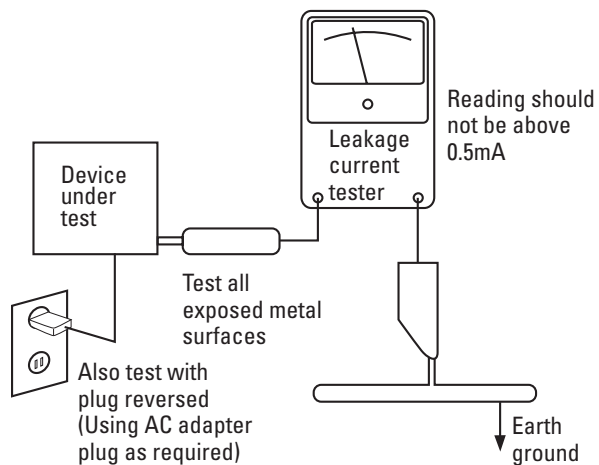
Cirrus is a registered trademark of Cirrus Logic, Inc.

SAFETY PRECAUTIONS

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

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 250V AC 50Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

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

OPERATION

Surround Mode Chart

MODE	FEATURES
Dolby Digital	Available only with digital input sources encoded with Dolby Digital data. It provides up to five separate main audio channels and a special dedicated Low-Frequency Effects channel.
Dolby Digital EX	Available when the receiver is configured for 6.1/7.1-channel operation, Dolby Digital EX is the latest version of Dolby Digital. When used with movies or other programs that have special encoding, Dolby Digital EX reproduces specially encoded soundtracks so that a full 6.1/7.1 sound field is available. When the receiver is set for 6.1/7.1 operation and a Dolby Digital signal is present, the EX mode is automatically selected. Even if specific EX encoding is not available to provide the additional channel, the special algorithms will derive a 6.1/7.1 output.
DTS 5.1	When the speaker configuration is set for 5.1-channel operation, the DTS 5.1 mode is available when DVD, audio-only music or laser discs encoded with DTS data are played. DTS 5.1 provides up to five separate main audio channels and a special dedicated low-frequency channel.
DTS-ES 6.1 Matrix DTS-ES 6.1 Discrete	When the speaker configuration is set for 6.1/7.1 operation, playback of a DTS-encoded program source will automatically trigger the selection of one of the two DTS-ES modes. Newer discs with special DTS-ES discrete encoding will be decoded to provide six discrete, full-bandwidth channels plus a separate low-frequency channel. All other DTS discs will be decoded using the DTS-ES Matrix mode, which creates a 6.1-channel sound field from the original 5.1-channel soundtrack.
Dolby Pro Logic II Movie Music Pro Logic	Dolby Pro Logic II is the latest version of Dolby Laboratory's benchmark surround technology that decodes full-range, discrete left, center right, right surround and left surround channels from either matrix surround-encoded programs and conventional stereo sources when an analog input is in use. The Dolby Pro Logic II Movie mode is optimized for movie soundtracks, while the Pro Logic II Music mode should be used with musical selections. The Pro Logic mode activates original Pro Logic processing for those who prefer that presentation.
Logic 7 Cinema Logic 7 Music Logic 7 Enhance	Exclusive to Harman Kardon for A/V receivers, Logic 7 is an advanced mode that extracts the maximum surround information from either surround-encoded programs or conventional stereo material. Depending on the number of speakers in use and the selection made in the SURROUND SELECT menu, the "5.1" versions of Logic 7 modes are available when the 5.1 option is chosen, while the "7.1" versions of Logic 7 produce a full sound field presentation, including back surround speakers when the "6.1/7.1" option is chosen. The Logic 7 C (or Cinema) mode should be used with any source that contains Dolby Surround or similar matrix encoding. Logic 7 C delivers increased center-channel intelligibility, and more accurate placement of sounds with fades and pans that are much smoother and more realistic than with other decoding techniques. The Logic 7 M or Music mode should be used with analog or PCM stereo sources. Logic 7 M enhances the listening experience by presenting a wider front soundstage and greater rear ambience. Both Logic 7 modes also direct low-frequency information to the subwoofer (if installed and configured) to deliver maximum bass impact. The Logic 7 E (or Enhance) mode, available only when the 5.1 option is chosen, is an extension of the Logic 7 mode that is primarily used with musical programs. Logic 7 adds additional bass enhancement that circulates low frequencies in the 40Hz to 120Hz range to the front and surround speakers to deliver a less localized soundstage that appears broader and wider than when the subwoofer is the sole source of bass energy.
DTS Neo:6 Cinema DTS Neo:6 Music	These two modes are available when any analog source is playing to create a six-channel surround presentation from conventional Matrix-encoded and traditional Stereo sources. Select the Cinema version of Neo:6 when a program with any type of analog Matrix surround encoding is present. Select the Music version of Neo:6 for optimal processing when a nonencoded, two-channel stereo program is being played.
Dolby 3 Stereo	Uses the information contained in a surround-encoded or two-channel stereo program to create center-channel information. In addition, the information that is normally sent to the rear-channel surround speakers is carefully mixed in with the front-left and front-right channels for increased realism. Use this mode when you have a center channel speaker but no surround speakers.
Theater	The Theater mode creates a sound field that resembles the acoustic feeling of a standard live-performance theater.
Hall 1, Hall 2	The two Hall modes create sound fields that resemble a small (Hall 1) and medium-sized (Hall 2) concert hall.
VMAx Near VMAx Far	When only the two front-channel loudspeakers are used, Harman's patented VMAx mode delivers a three-dimensional sound space with the illusion of "phantom speakers" at the center and surround positions. The VMAx N, or "Near Field," mode should be selected when your listening position is less than five feet from the speakers. The VMAx F, or "Far Field," mode should be selected when your listening position is greater than five feet from the speakers. The VMAx modes are also available using the Headphones Output 4 . When headphones are being used, the Far Field mode will appear to push the sound field away from your ears, reducing the "inside the head" sensation often experienced when using headphones.
5-Channel Stereo 7-Channel Stereo	This mode takes advantage of multiple speakers to place a stereo signal at both the front and back of a room. Depending on whether the AVR has been configured for either 5.1 or 6.1/7.1 operation, one of these modes, but not both, is available at any time. Ideal for playing music in situations such as a party, it places the same signal at the front-left and surround-left, and front-right and surround-right speakers. The center channel is fed a summed mono mix of the in-phase material of the left and right channels.
Surround Off (Stereo)	This mode turns off all surround processing and presents the pure left- and right-channel presentation of two-channel stereo programs.

TROUBLESHOOTING GUIDE

SYMPTOM	CAUSE	SOLUTION
Unit does not function when Main Power Switch is pushed	No AC Power	- Make certain AC power cord is plugged into a live outlet - Check to see whether outlet is switch-controlled
Display lights, but no sound or picture	- Intermittent input connections Mute is on - Volume control is down	- Make certain that all input and speaker connections are secure - Press Mute Button 41 - Turn up volume control
Unit turns on, but front panel display does not light up	Display brightness is turned off	Follow the instructions in the Display Brightness section on page 28 so that the display is set to VFD FULL
No sound from any speaker; light around power switch is red	- Amplifier is in protection mode due to possible short - Amplifier is in protection mode due to internal problems	- Check speaker wire connections for shorts at receiver and speaker ends - Contact your local Harman Kardon service center
No sound from surround or center speakers	- Incorrect surround mode - Input is monaural - Incorrect configuration - Stereo or Mono program material	- Select a mode other than Stereo - There is no surround information from mono sources - Check speaker mode configuration - The surround decoder may not create center- or rear-channel information from nonencoded programs
Unit does not respond to remote commands	- Weak batteries in remote - Wrong device selected - Remote sensor is obscured	- Change remote batteries - Press the AVR selector - Make certain front panel sensor is visible to remote or connect remote sensor
Intermittent buzzing in tuner	Local interference	Move unit or antenna away from computers, fluorescent lights, motors or other electrical appliances
Letters flash in the channel indicator display and digital audio stops	Digital audio feed paused	- Resume play for DVD - Check that Digital Input is selected

In addition to the items shown above, additional information on troubleshooting possible problems with your AVR 135, or installation-related issues, may be found in the list of "Frequently Asked Questions" which is located in the Product Support section of our Web site at www.harmankardon.com.

Processor Reset

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

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

To clear the AVR 135's entire system memory including tuner presets, output level settings, delay times and speaker configuration data, press and hold the **Tone Mode Button 5** button for three seconds. The unit will turn on automatically.

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

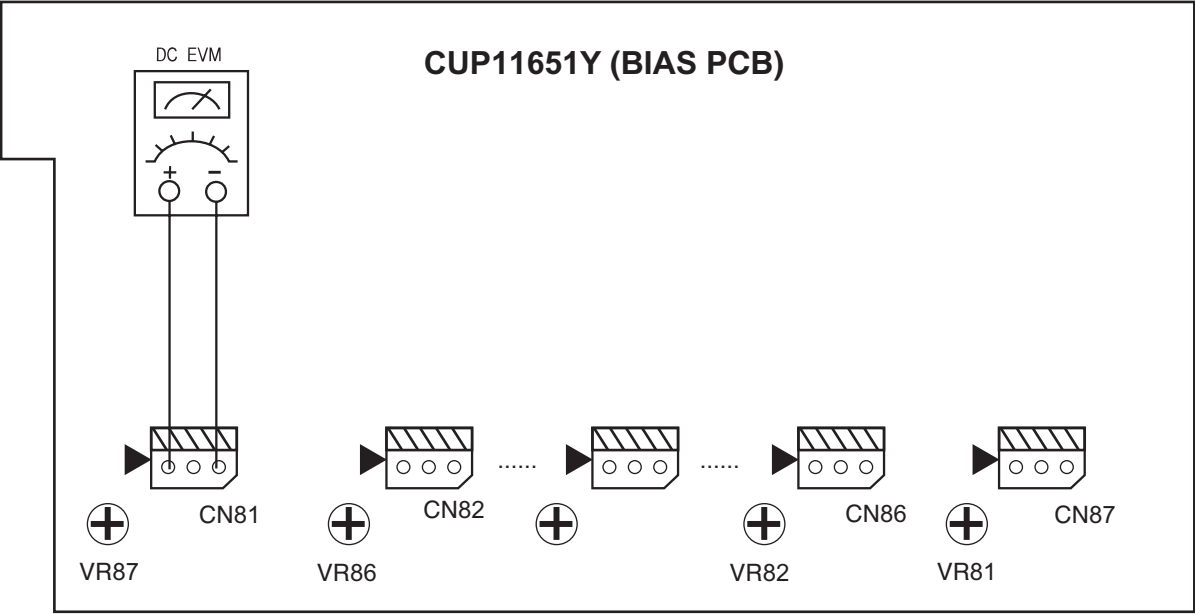
If the system is still operating incorrectly, there may have been an electronic discharge or severe AC line interference that has corrupted the memory or microprocessor.

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

AMPLIFIER SECTION BIAS ADJUSTMENT

Measurement condition
. No input signal or volume position is minimum.

Standard value.
. Ideal current = 48mA (± 5%)
. Ideal DC Voltage = 25.92mV (± 5%)

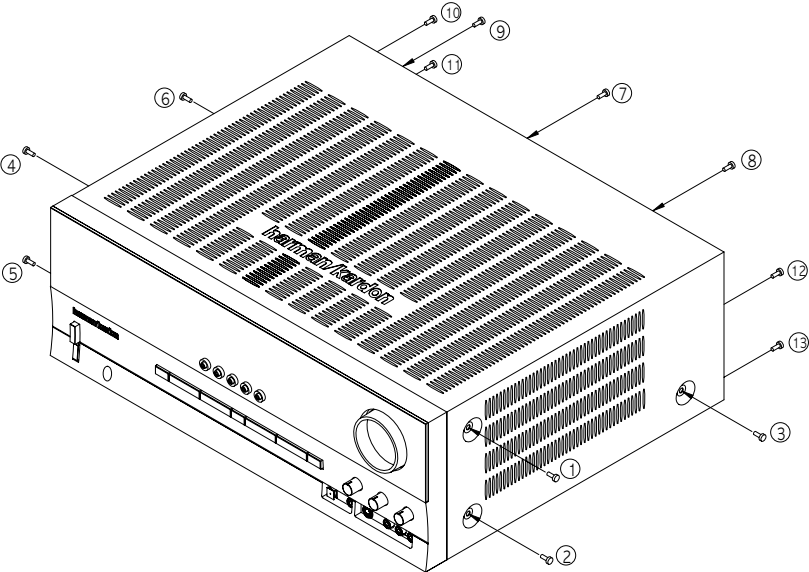


DC VOLTMETER.....Connect to CN81,CN82,CN83,CN84,CN85,CN86,CN87

NO.	Channel	Adjust for	Adjustment
1	Front Left	25.92mV (±5%)	VR83
2	Front Right	25.92mV (±5%)	VR84
3	Center	25.92mV (±5%)	VR85
4	Surround Left	25.92mV (±5%)	VR86
5	Surround Right	25.92mV (±5%)	VR87
6	Surround Back Left	25.92mV (±5%)	VR82
7	Surround Back Right	25.92mV (±5%)	VR81(235&335 ONLY)

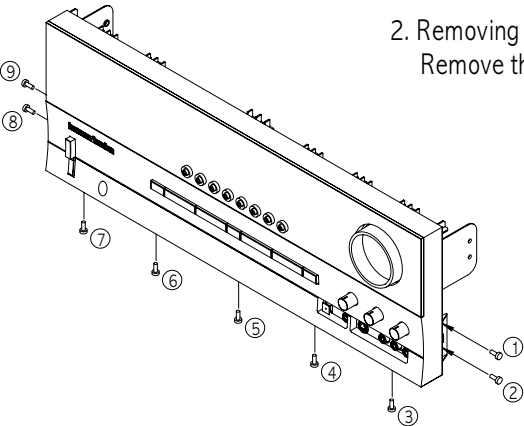
1. Removing the Top Cabinet
Remove the Screws

① ~ ⑬



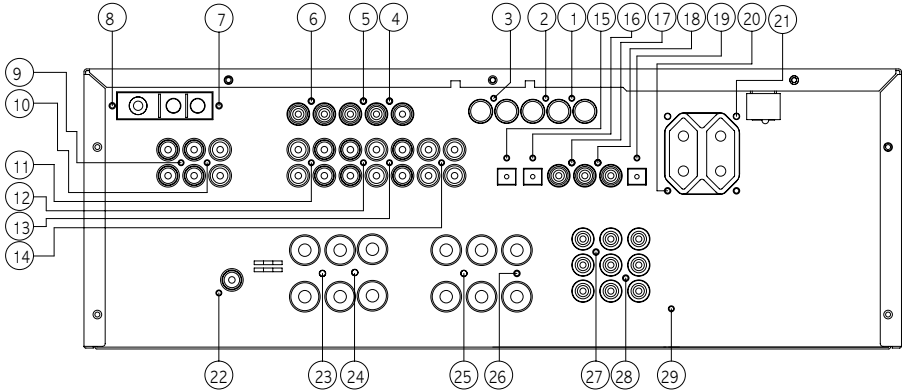
2. Removing the Front Panel
Remove the Screws

① ~ ⑨



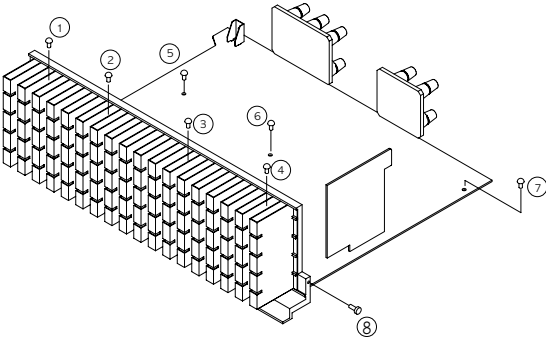
3. Removing the Rear Panel
Remove the Screws

① ~ ⑳

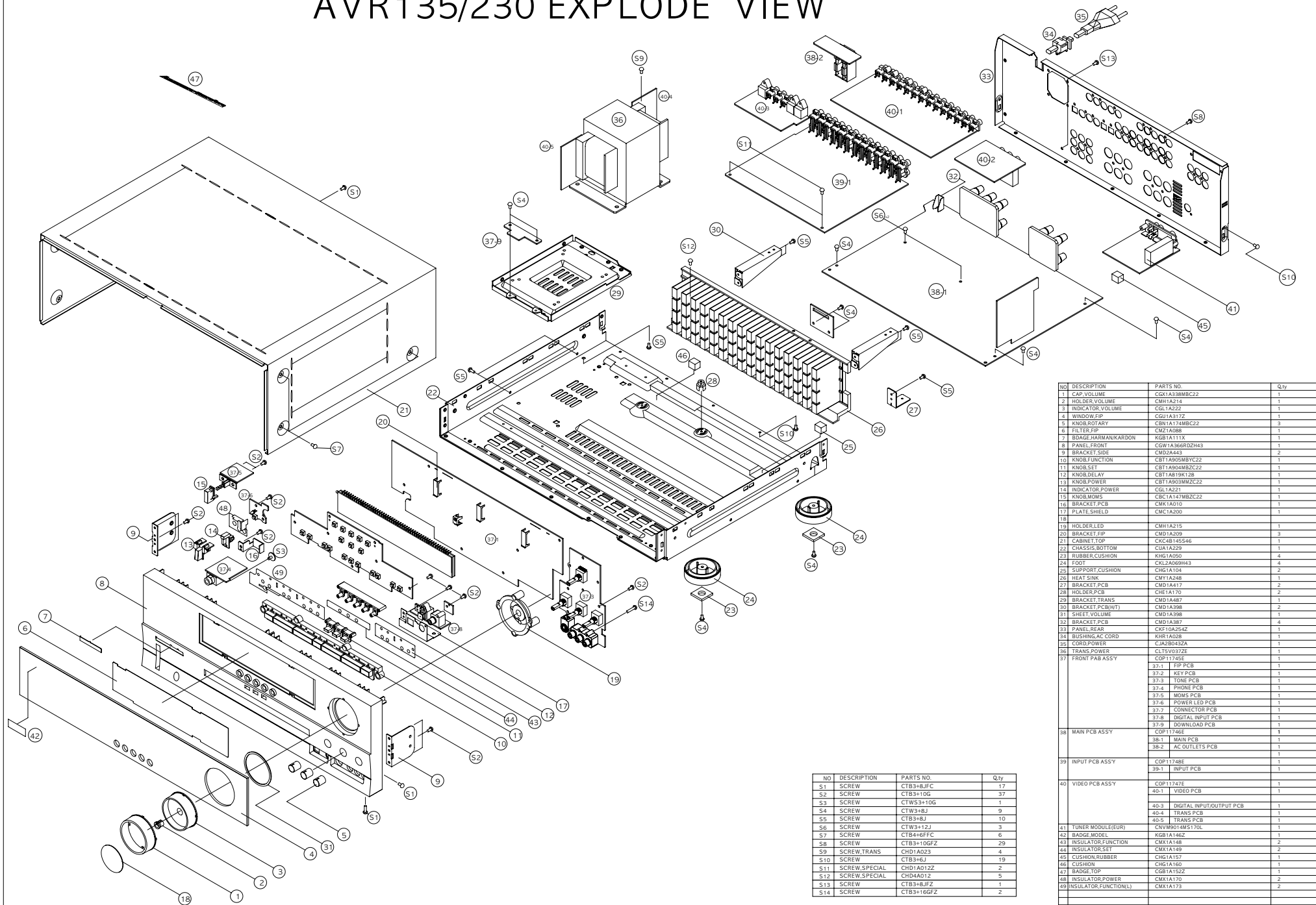


4. Removing the Main PCB
Remove the Screws

① ~ ⑧

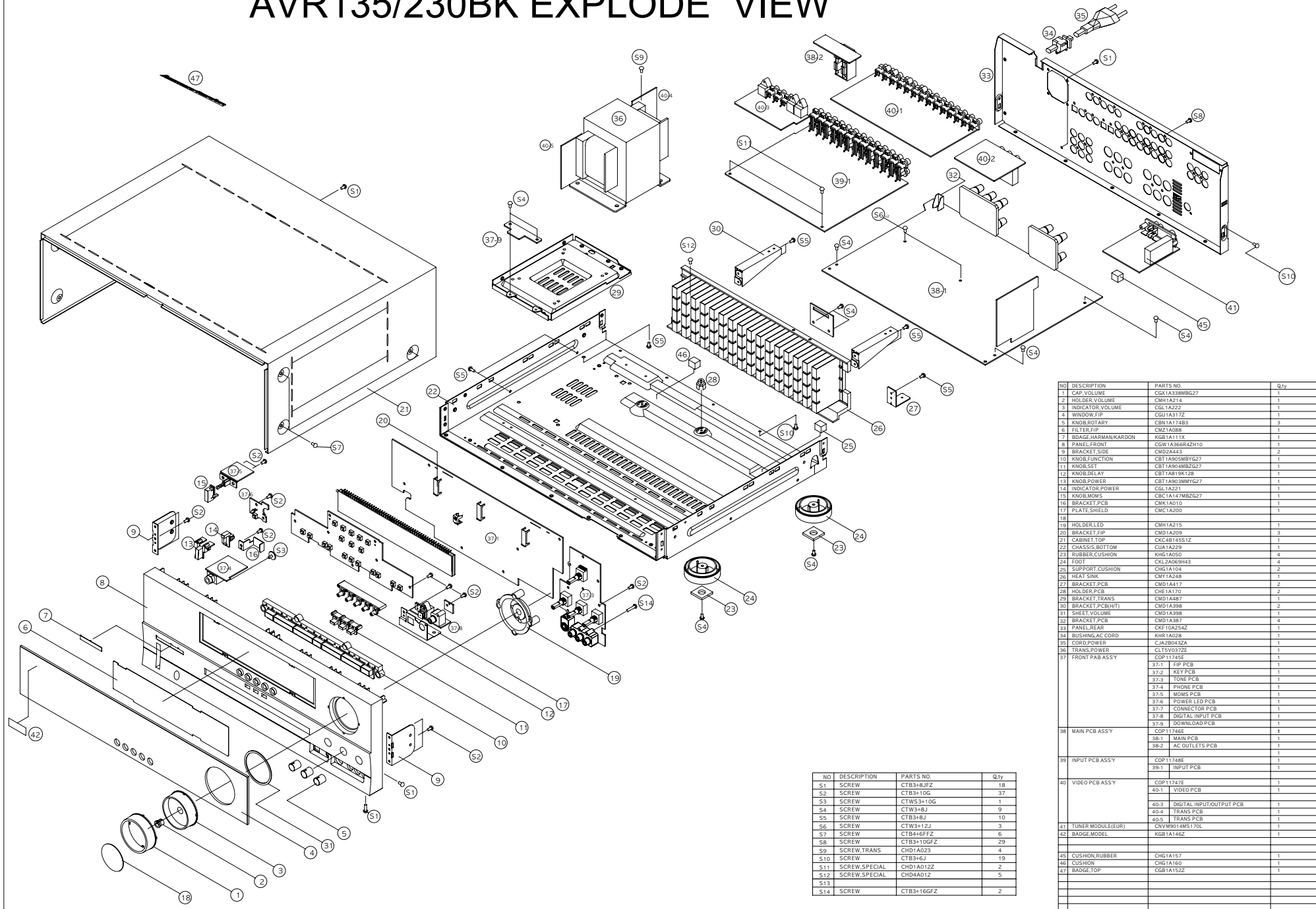


AVR135/230 EXPLODE VIEW

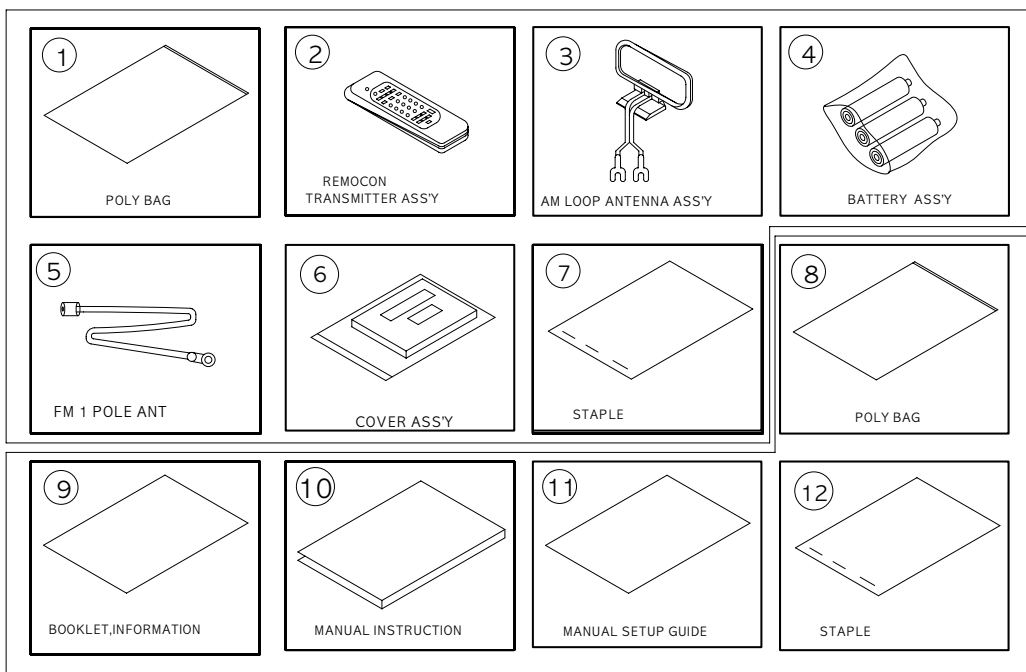


NO	DESCRIPTION	PARTS NO	Qty
1	CAP.VOLUME	CGX1A338MBC22	1
2	HOLDER.VOLUME	CMH1A214	1
3	INDICATOR.VOLUME	CGL1A222	1
4	WINDOW.FIP	CGU1A317Z	1
5	KNOB.ROTARY	CBN1A174MBC22	3
6	FILTER.FIP	CMZ1A088	1
7	BIDGE.HARMON.KARBON	KGB1A111TK	1
8	PANEL.FRONT	CGW1A36GRDZH43	1
9	BRACKET.SIDE	CWD2A443	2
10	KNOB.FUNCTION	CBT1A905MBYC22	1
11	KNOB.SET	CBT1A904MBZC22	1
12	KNOB.DELAY	CBT1A819K128	1
13	KNOB.POWER	CBT1A903MMZC22	1
14	INDICATOR.POWER	CGL1A221	1
15	KNOB.MOMS	CBK1A147MBZC22	1
16	BRACKET.PCB	CMK1A010	1
17	PLATE.SHIELD	CMC1A200	1
18			
19	HOLDER.LED	CMH1A215	1
20	BRACKET.FIP	CWD1A209	3
21	CABINET.TOP	CKC4B146S46	1
22	CHASSIS.BOTTOM	CDU1A229	1
23	RUBBER.CUSHION	KHG1A050	4
24	FOOT	CKL2A069H43	4
25	SUPPORT.CUSHION	CHG1A104	2
26	HEAT.SINK	CMY1A248	1
27	BRACKET.PCB	CMW1A417	2
28	HOLDER.PCB	CHT1A170	2
29	BRACKET.TRANS	CMW1A487	1
30	BRACKET.PCB(H/T)	CMW1A398	2
31	SHEET.VOLUME	CMW1A398	1
32	BRACKET.PCB	CMW1A387	4
33	PANEL.REAR	CKF10A254Z	1
34	BUSHING.AC.CORD	KHR1A028	1
35	CORD.POWER	CJA2B0432A	1
36	TRANS.POWER	CLTSV037ZE	1
37	FRONT PAB ASSY	COP11745E	1
37.1	RIP.PCB		1
37.2	KEY.PCB		1
37.3	PHONE.PCB		1
37.4	PHONE.PCB		1
37.5	MONOS.PCB		1
37.6	POWER.LED.PCB		1
37.7	CONNECTOR.PCB		1
37.8	DIGITAL.INPUT.PCB		1
37.9	DOWNLOAD.PCB		1
38	MAIN PCB ASSY	COP11746E	1
38-1	MAIN.PCB		1
38-2	AC.OUTPUTS.PCB		1
39	INPUT PCB ASSY	COP11748E	1
39-1	INPUT.PCB		1
40	VIDEO PCB ASSY	COP11747E	1
40-1	VIDEO.PCB		1
40-3	DIGITAL.INPUT/OUTPUT.PCB		1
40-4	TRANS.PCB		1
40-5	TRANS.PCB		1
41	TUNER MODULE(EUR)	CTV1900149ET.VOL	1
42	BADGE.MODEL	KGB1A146Z	1
43	INSULATOR.FUNCTION	CMX1A148	2
44	INSULATOR.SET	CMX1A149	2
45	CUSHION.RUBBER	CHG1A157	1
46	CUSHION	CHG1A160	1
47	BADGE.TOP	CGH1A152Z	1
48	INSULATOR.POWER	CMX1A170	2
49	INSULATOR.FUNCTION(L)	CMX1A173	2
51	SCREW	CTB3+8JFC	17
52	SCREW	CTB3+10G	37
53	SCREW	CTW53+10G	1
54	SCREW	CTW3+8J	9
55	SCREW	CTB3+8J	3
56	SCREW	CTW3+12J	3
57	SCREW	CTB4+6FFC	6
58	SCREW	CTB3+10GFZ	29
59	SCREW,TRANS	CHD1A023	4
S10	SCREW	CTB3+6J	19
S11	SCREW,SPECIAL	CHD1A012Z	2
S12	SCREW,SPECIAL	CHD4A012	5
S13	SCREW	CTB3+8JFZ	1
S14	SCREW	CTB3+16GFZ	2

AVR135/230BK EXPLODE VIEW



1. Instruction manual ass'y - Accessories



ACCESSORY-1

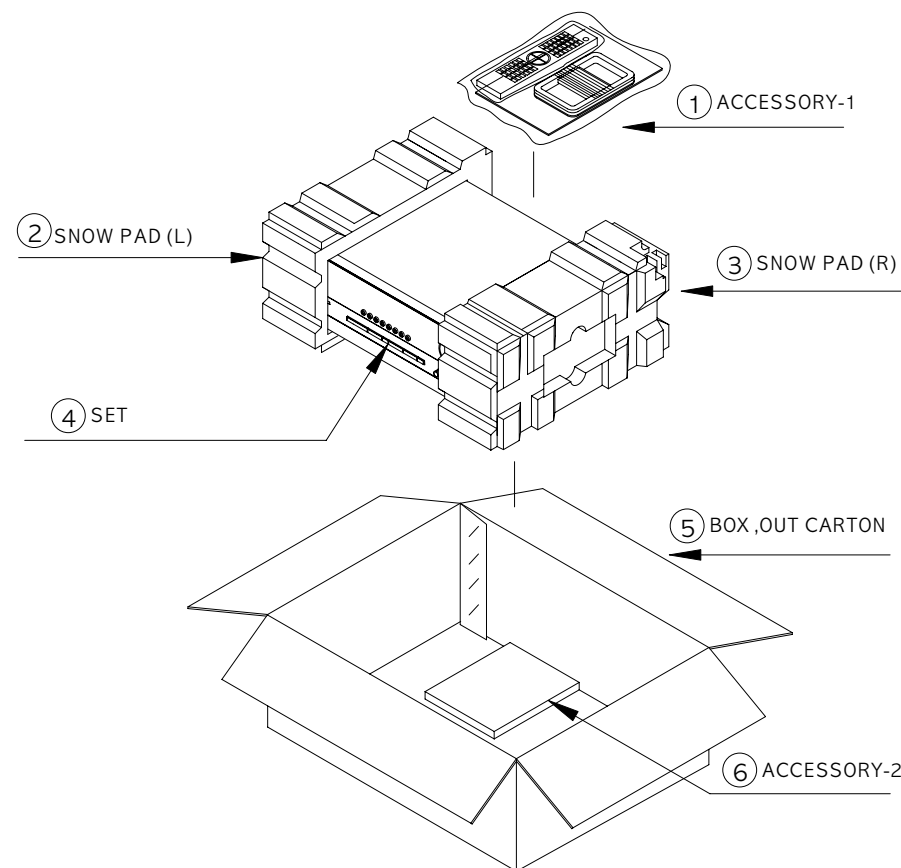
NO	DESCRIPTION	PARTS NO.	Q.ty
1	POLY BAG	CPB1061Y	1
2	REMOCON TRANSMITTER ASS'Y	HARTAVR135/230B	1
3	AM LOOP ANTENNA ASS'Y	CSA1A027Z	1
4	BATTERY	HABAAAM1.5VHK	3
5	FM 1 POL ANT(UL)	CSA1A018Z	1
6	COVER ASS'Y	CGRAVR130/230BZA	1
1	COVER A	CGR1A331H10	1
2	COVER B	CGR1A331H10	1
3	SHEET, FRONT COVER	CQE1A220Z	1
4	PAD, COVER	CPS1A676	1
5	BAG, POLY	CPB1A176Z	1
7	STAPLE	KPL0905	3

ACCESSORY-2

NO	DESCRIPTION	PARTS NO.	Q.ty
8	POLY BAG	CPB1061Y	1
9	BOOKLET, INFORMATION	CQE1A180Z	1
10	MANUAL, INSTRUCTION	CQX1A952Z	1
11	MANUAL, SETUP GUIDE	CQX1A1013Z	1
12	STAPLE	KPL0905	3

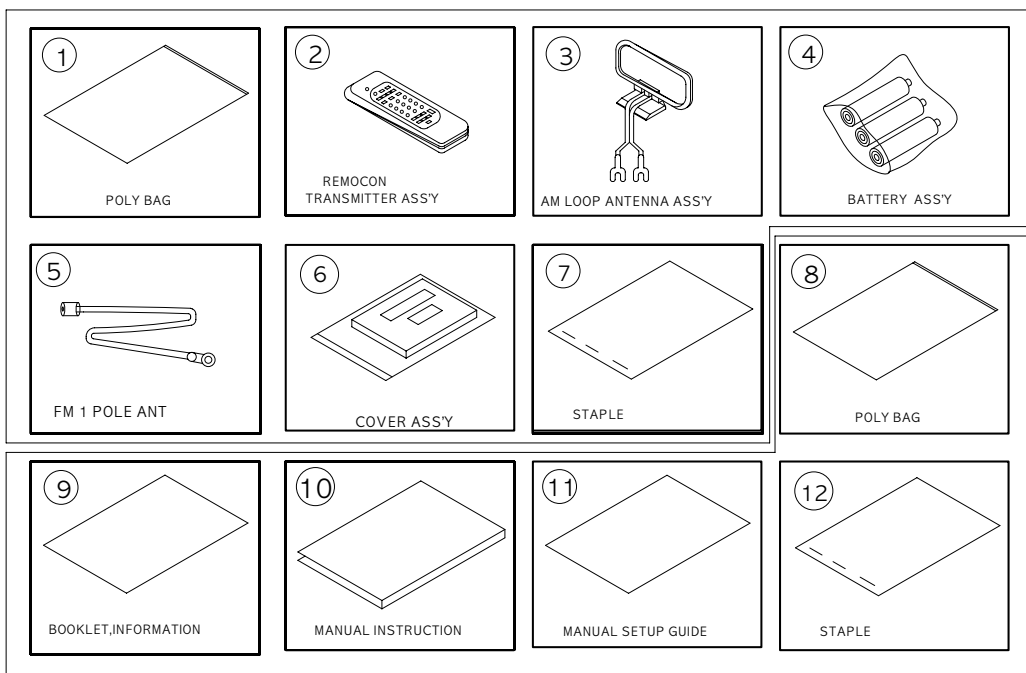
2. Package Drawing

AVR135/230
BLACK



NO	DESCRIPTION	PARTS NO.	Q.ty
1	ACCESSORY-1	CQXAVR135/230BK	1
2	SNOW, PAD(L)	CPS4A564	1
3	SNOW, PAD(R)	CPS4A565	1
4	SET	AVR135/230BKSET	1
5	BOX, OUT CARTON	CPG1A775M	1
6	ACCESSORY-2	CQXAVR135/230BK	1

1. Instruction manual ass'y - Accessories



ACCESSORY-1

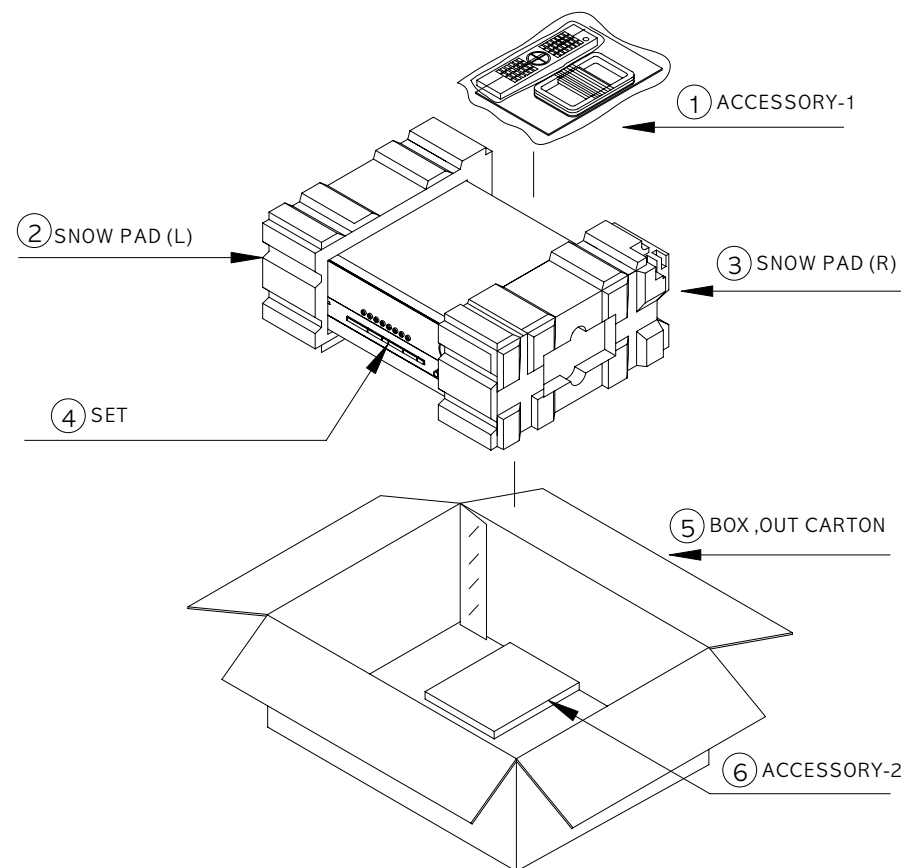
NO	DESCRIPTION	PARTS NO.	Q.ty
1	POLY BAG	CPB1061Y	1
2	REMOCON TRANSMITTER ASS'Y	HARTAVR135/230	1
3	AM LOOP ANTENNA ASS'Y	CSA1A027Z	1
4	BATTERY	HABAAAM1.5VHK	3
5	FM 1 POL ANT(UL)	CSA1A018Z	1
6	COVER ASS'Y	CGRAVR130/230ZA	1
1	COVER A	CGR1A331M7H43	1
2	COVER B	CGR1A332M7H43	1
3	SHEET, FRONT COVER	CQE1A220Z	1
4	PAD, COVER	CPS1A676	1
5	BAG, POLY	CPB1A176Z	1
7	STAPLE	KPL0905	3

ACCESSORY-2

NO	DESCRIPTION	PARTS NO.	Q.ty
8	POLY BAG	CPB1061Y	1
9	BOOKLET, INFORMATION	CQE1A180Z	1
10	MANUAL, INSTRUCTION	CQX1A952Z	1
11	MANUAL, SETUP GUIDE	CQX1A1013Z	1
12	STAPLE	KPL0905	3

2. Package Drawing

AVR135/230



NO	DESCRIPTION	PARTS NO.	Q.ty
1	ACCESSORY-1	CQXAVR135/230	1
2	SNOW, PAD(L)	CPS4A564	1
3	SNOW, PAD(R)	CPS4A565	1
4	SET	AVR135/230SET	1
5	BOX, OUT CARTON	CPG1A775W	1
6	ACCESSORY-2	CQXAVR135/230	1

AVR135/230SET
AV SURROUND RECEIVER

Ref#	Component	Description 1	Description 2	Qty
	CNVM9014MS170L	TUNER MODULE(EUR)		1
T901	CLT5V037ZE	TRANS , POWER		1

FRONT PCB

Ref#	Component	Description 1	Description 2	Qty
	COP11745E	FRONT PCB ASS'Y		1
C701	HCBS1H390JT	CAP , CERAMIC	39PF 50V J	1
C702	HCBS1H390JT	CAP , CERAMIC	39PF 50V J	1
C703	HCBS1H821KBT	CAP , CERAMIC	820PF 50V K	1
C704	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C705	HCBS1H102KBT	CAP , CERAMIC	1000PF 50V B	1
C706	HCBS1H561KBT	CAP , CERAMIC	560PF 50V	1
C708	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C709	CCEA1CH101T	CAP , ELECT	100UF 16V	1
C710	CCEA1HH2R2T	CAP , ELECT	2.2UF 50V	1
C711	HCBS1H102KBT	CAP , CERAMIC	1000PF 50V B	1
C712	HCEA1HH1R0T	CAP , ELECT	1UF 50V	1
C713	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C714	HCBS1H151KBT	CAP , CERAMIC	150PF 50V K	1
C716	HCEA1CH331T	CAP , ELECT	330UF 16V	1
C719	HCBS1H181KBT	CAP , CERAMIC	180PF 50V K	1
C720	HCBS1H181KBT	CAP , CERAMIC	180PF 50V K	1
C721	HCBS1H181KBT	CAP , CERAMIC	180PF 50V K	1
C723	HCBS1H104ZFT	CAP , CERAMIC	0.1UF 50V Z	1
C724	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C725	CCKT1H473ZF	CAP , CERAMIC	0.047UF 50V ZF	1
C726	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C728	HCBS1H104ZFT	CAP , CERAMIC	0.1UF 50V Z	1
C729	CCKT1H473ZF	CAP , CERAMIC	0.047UF 50V ZF	1
C730	HCBS1H104ZFT	CAP , CERAMIC	0.1UF 50V Z	1
C731	HCEA1HH100T	CAP , ELECT	10UF 50V	1
C735	CCEA1CH101T	CAP , ELECT	100UF 16V	1
C736	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C737	HCBS1H180JCT	CAP , CERAMIC	18PF 50V	1
C738	HCBS1H180JCT	CAP , CERAMIC	18PF 50V	1
C739	CCEA1AH221T	CAP , ELECT	220UF/10V	1
C740	CCEA1VH100T	CAP , ELECT	10UF 35V	1
C770	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C771	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C773	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C774	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C775	HCBS1H151KBT	CAP , CERAMIC	150PF 50V K	1
C776	HCBS1H151KBT	CAP , CERAMIC	150PF 50V K	1
C777	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C778	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C779	HCEA1CKS470T	CAP , ELECT	47UF 16V	1
C780	HCEA1CKS470T	CAP , ELECT	47UF 16V	1
C781	HCEA1CKS100T	CAP , ELECT	10UF 16V	1
C782	HCEA1CKS100T	CAP , ELECT	10UF 16V	1
C785	HCBS1H470JT	CAP , CERAMIC	47PF 50V J	1
C786	HCBS1H470JT	CAP , CERAMIC	47PF 50V J	1
C787	HCEA1CKS100T	CAP , ELECT	10UF 16V	1
C788	HCEA1CKS100T	CAP , ELECT	10UF 16V	1
C789	HCEA1CKS100T	CAP , ELECT	10UF 16V	1
C790	HCEA1CKS100T	CAP , ELECT	10UF 16V	1
C791	HCEA1CKS470T	CAP , ELECT	47UF 16V	1
C792	HCEA1CKS470T	CAP , ELECT	47UF 16V	1
C793	KCFE1J183JBT	CAP , FILM	0.018UF 63V J	1

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Ref#	Component	Description 1	Description 2	Qty
C794	KCFE1J183JBT	CAP , FILM	0.018UF 63V J	1
C795	KCFE1J823JBT	CAP , FILM	0.082UF 63V J	1
C796	KCFE1J823JBT	CAP , FILM	0.082UF 63V J	1
C797	KCFE1J332JBT	CAP , FILM	0.0033UF 63V J	1
C798	KCFE1J332JBT	CAP , FILM	0.0033UF 63V J	1
C799	KCFE1J183JBT	CAP , FILM	0.018UF 63V J	1
C800	KCFE1J183JBT	CAP , FILM	0.018UF 63V J	1
C805	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C806	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C807	CCFT1H104ZF	CAP , SEMICONDUCTOR	0.1UF 50V ZF	1
C808	CCKT1H181KB	CAP , CERAMIC	180PF 50V KB	1
C809	HCEA1AH471T	CAP , ELECT	470UF 10V	1
C810	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C811	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C813	HCEA1HH4R7T	CAP , ELECT	4.7UF 50V	1
C814	HCEA1HH4R7T	CAP , ELECT	4.7UF 50V	1
C850	HCBS1H471KBT	CAP , CERAMIC	470PF 50V	1
C851	HCBS1H471KBT	CAP , CERAMIC	470PF 50V	1
C852	HCBS1H104ZFT	CAP , CERAMIC	0.1UF 50V Z	1
C855	HCBS1H101KBT	CAP , CERAMIC	100PF 50V K	1
C856	HCBS1H101KBT	CAP , CERAMIC	100PF 50V K	1
C857	HCBS1H104ZFT	CAP , CERAMIC	0.1UF 50V Z	1
C859	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C860	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C861	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C862	HCBS1H101KBT	CAP , CERAMIC	100PF 50V K	1
C863	HCBS1H101KBT	CAP , CERAMIC	100PF 50V K	1
C866	HCEA1CKS100T	CAP , ELECT	10UF 16V	1
C867	HCEA1CKS100T	CAP , ELECT	10UF 16V	1
C868	HCEA1CKS470T	CAP , ELECT	47UF 16V	1
C869	HCEA1CKS470T	CAP , ELECT	47UF 16V	1
C870	HCBS1H681KBT	CAP , CERAMIC	680PF 50V	1
C871	HCBS1H681KBT	CAP , CERAMIC	680PF 50V	1
C872	HCEA1CH331T	CAP , ELECT	330UF 16V	1
C873	HCEA1CH331T	CAP , ELECT	330UF 16V	1
C874	HCBS1H101KBT	CAP , CERAMIC	100PF 50V K	1
C875	HCBS1H473ZFT	CAP , CERAMIC	0.047UF 50V Z	1
C876	HCBS1H473ZFT	CAP , CERAMIC	0.047UF 50V Z	1
C877	HCBS1H473ZFT	CAP , CERAMIC	0.047UF 50V Z	1
C878	HCBS1H473ZFT	CAP , CERAMIC	0.047UF 50V Z	1
C882	HCBS1H104ZFT	CAP , CERAMIC	0.1UF 50V Z	1
C886	CCEA0JH102T	CAP , ELECT	1000UF 6.3V	1
C887	HCBS1H101KBT	CAP , CERAMIC	100PF 50V K	1
C888	HCBS1H101KBT	CAP , CERAMIC	100PF 50V K	1
C889	HCBS1H220JCT	CAP , CERAMIC	22PF 50V J	1
C890	HCBS1H220JCT	CAP , CERAMIC	22PF 50V J	1
C891	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C892	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C893	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C894	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C895	HCEA1AH471T	CAP , ELECT	470UF 10V	1
C896	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C897	HCEA1AH471T	CAP , ELECT	470UF 10V	1
C898	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C899	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C900	HCBS1H104ZFT	CAP , CERAMIC	0.1UF 50V Z	1
C901	HCBS1H104ZFT	CAP , CERAMIC	0.1UF 50V Z	1

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Ref#	Component	Description 1	Description 2	Qty
C903	HCEA1HH2R2T	CAP , ELECT	2.2UF 50V	1
C905	HCEA1HH2R2T	CAP , ELECT	2.2UF 50V	1
D724	HVD1SS133MT	DIODE	1SS133T-77	1
D728	HVD1SS133MT	DIODE	1SS133T-77	1
D729	HVD1SS133MT	DIODE	1SS133T-77	1
D730	HVD1SS133MT	DIODE	1SS133T-77	1
D774	HVD1SS133MT	DIODE	1SS133T-77	1
D778	KVD1N4003ST	DIODE	1N4003	1
D779	HVD1SS133MT	DIODE	1SS133T-77	1
D780	HVD1SS133MT	DIODE	1SS133T-77	1
D781	HVD1SS133MT	DIODE	1SS133T-77	1
D782	KVD1N4003ST	DIODE	1N4003	1
D783	HVD1SS133MT	DIODE	1SS133T-77	1
D784	HVD1SS133MT	DIODE	1SS133T-77	1
D785	HVD1SS133MT	DIODE	1SS133T-77	1
D786	HVDMTZJ5.6BT	DIODE , ZENER	5.6V	1
D787	HVDMTZJ5.6BT	DIODE , ZENER	5.6V	1
IC87	HVIRE5VL28CATZ	IC , RESET	RE5VL28CATZ	1
L702	HLQ02C100KT	COIL , AXAIL	10UH	1
Q701	HVTKRC107MT	T.R	KRC107M	1
Q702	HVTKRC107MT	T.R	KRC107M	1
Q703	HVTKRC107MT	T.R	KRC107M	1
Q705	HVTKRC107MT	T.R	KRC107M	1
Q706	HVTKRC107MT	T.R	KRC107M	1
Q722	HVTKRA107MT	T.R	KRA107M	1
Q724	HVTKRC107MT	T.R	KRC107M	1
Q725	HVTKRC107MT	T.R	KRC107M	1
Q726	HVTKRC107MT	T.R	KRC107M	1
Q727	HVTKRC107MT	T.R	KRC107M	1
Q728	HVTKRC107MT	T.R	KRC107M	1
Q729	HVTKRC107MT	T.R	KRC107M	1
Q734	HVTKTC2874BT	T.R , MUTE	KTC2874B	1
Q735	HVTKTC2874BT	T.R , MUTE	KTC2874B	1
Q736	HVTKTC2874BT	T.R , MUTE	KTC2874B	1
Q737	HVTKTC2874BT	T.R , MUTE	KTC2874B	1
Q738	HVTKRC107MT	T.R	KRC107M	1
Q739	HVTKTA1271YT	T.R	KTA1271Y	1
Q743	HVTKRA107MT	T.R	KRA107M	1
R701	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R702	CRD20TJ1R0T	RES , CARBON	1 OHM 1/5W J	1
R703	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R704	CRD20TJ100T	RES , CARBON	10 OHM 1/5W J	1
R705	CRD20TJ820T	RES , CARBON	82 OHM 1/5W J	1
R706	CRD20TJ820T	RES , CARBON	82 OHM 1/5W J	1
R707	CRD20TJ820T	RES , CARBON	82 OHM 1/5W J	1
R708	CRD20TJ820T	RES , CARBON	82 OHM 1/5W J	1
R709	CRD20TJ470T	RES , CARBON	47 OHM 1/5W J	1
R710	CRD20TJ470T	RES , CARBON	47 OHM 1/5W J	1
R711	CRD20TJ470T	RES , CARBON	47 OHM 1/5W J	1
R712	CRD20TJ470T	RES , CARBON	47 OHM 1/5W J	1
R713	CRD20TJ332T	RES , CARBON	3.3K OHM 1/5W J	1
R716	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R717	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R718	CRD20TJ222T	RES , CARBON	2.2K OHM 1/5W J	1
R719	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R721	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R722	CRD20TJ1R0T	RES , CARBON	1 OHM 1/5W J	1

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Ref#	Component	Description 1	Description 2	Qty
R723	CRD20TJ222T	RES , CARBON	2.2K OHM 1/5W J	1
R724	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R725	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R726	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R727	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R728	CRD20TJ101T	RES , CARBON	100 OHM 1/5W J	1
R730	CRD20TJ112T	RES,CABON	1.1K OHM 1/5W J	1
R731	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J	1
R732	CRD20TJ202T	RES , CARBON	22K OHM 1/5W J	1
R733	CRD20TJ272T	RES , CARBON	2.7K OHM 1/5W J	1
R734	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R735	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R736	CRD20TJ272T	RES , CARBON	2.7K OHM 1/5W J	1
R737	CRD20TJ100T	RES , CARBON	10 OHM 1/5W J	1
R744	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R745	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R746	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R747	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R749	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J	1
R750	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J	1
R751	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J	1
R753	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R754	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J	1
R755	CRD20TJ182T	RES , CARBON	1.8K OHM 1/5W J	1
R756	CRD20TJ272T	RES , CARBON	2.7K OHM 1/5W J	1
R757	CRD20TJ332T	RES , CARBON	3.3K OHM 1/5W J	1
R758	CRD20TJ562T	RES , CARBON	5.6K OHM 1/5W J	1
R759	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R760	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J	1
R761	CRD20TJ182T	RES , CARBON	1.8K OHM 1/5W J	1
R762	CRD20TJ272T	RES , CARBON	2.7K OHM 1/5W J	1
R763	CRD20TJ332T	RES , CARBON	3.3K OHM 1/5W J	1
R764	CRD20TJ562T	RES , CARBON	5.6K OHM 1/5W J	1
R765	CRD20TJ752T	RES , CARBON	7.5K OHM 1/5W J	1
R766	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R767	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J	1
R768	CRD20TJ182T	RES , CARBON	1.8K OHM 1/5W J	1
R769	CRD20TJ272T	RES , CARBON	2.7K OHM 1/5W J	1
R771	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R772	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R773	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R780	CRD20TJ100T	RES , CARBON	10 OHM 1/5W J	1
R781	CRD20TJ123T	RES , CARBON	12K OHM 1/5W J	1
R805	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J	1
R806	CRD20TJ472T	RES , CARBON	4.7K OHM 1/5W J	1
R810	CRD20TJ101T	RES , CARBON	100 OHM 1/5W J	1
R811	CRD20TJ101T	RES , CARBON	100 OHM 1/5W J	1
R813	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J	1
R814	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J	1
R824	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J	1
R825	CRD20TJ681T	RES , CARBON	680 OHM 1/5W J	1
R826	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R827	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R829	CRD20TJ184T	RES , CARBON	180K OHM 1/5W	1
R830	CRD20TJ184T	RES , CARBON	180K OHM 1/5W	1
R831	CRD20TJ562T	RES , CARBON	5.6K OHM 1/5W J	1
R832	CRD20TJ562T	RES , CARBON	5.6K OHM 1/5W J	1

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Ref#	Component	Description 1	Description 2	Qty
R833	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R834	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R835	CRD20TJ184T	RES , CARBON	180K OHM 1/5W	1
R836	CRD20TJ184T	RES , CARBON	180K OHM 1/5W	1
R837	CRD20TJ101T	RES , CARBON	100 OHM 1/5W J	1
R838	CRD20TJ101T	RES , CARBON	100 OHM 1/5W J	1
R839	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J	1
R840	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J	1
R841	CRD20TJ473T	RES , CARBON	47K OHM 1/5W J	1
R842	CRD20TJ473T	RES , CARBON	47K OHM 1/5W J	1
R843	CRD20TJ105T	RES , CARBON	1M OHM 1/5W J	1
R844	CRD20TJ105T	RES , CARBON	1M OHM 1/5W J	1
R845	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J	1
R846	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J	1
R847	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R848	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R849	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J	1
R850	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J	1
R851	CRD20TJ392T	RES , CARBON	3.9K OHM 1/5W J	1
R852	CRD20TJ392T	RES , CARBON	3.9K OHM 1/5W J	1
R853	CRD20TJ222T	RES , CARBON	2.2K OHM 1/5W J	1
R854	CRD20TJ222T	RES , CARBON	2.2K OHM 1/5W J	1
R855	CRD20TJ681T	RES , CARBON	680 OHM 1/5W J	1
R856	CRD20TJ681T	RES , CARBON	680 OHM 1/5W J	1
R857	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J	1
R858	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J	1
R864	CRD20TJ272T	RES , CARBON	2.7K OHM 1/5W J	1
R865	CRD20TJ101T	RES , CARBON	100 OHM 1/5W J	1
R866	CRD20TJ272T	RES , CARBON	2.7K OHM 1/5W J	1
R869	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R871	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J	1
R872	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J	1
R873	CRD20TJ471T	RES , CARBON	470 OHM 1/5W J	1
R874	CRD20TJ471T	RES , CARBON	470 OHM 1/5W J	1
R875	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R876	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R877	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R878	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R881	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R882	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R883	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R884	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R885	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R886	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R887	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R888	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R889	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R890	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R891	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R892	CRD20TJ222T	RES , CARBON	2.2K OHM 1/5W J	1
R893	CRD20TJ333T	RES , CARBON	33K OHM 1/5W J	1
R895	CRD20TJ101T	RES , CARBON	100 OHM 1/5W J	1
R896	CRD20TJ101T	RES , CARBON	100 OHM 1/5W J	1
R897	CRD20TJ101T	RES , CARBON	100 OHM 1/5W J	1
R898	CRD20TJ101T	RES , CARBON	100 OHM 1/5W J	1
R899	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J	1
R900	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J	1

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Ref#	Component	Description 1	Description 2	Qty
R901	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J	1
R902	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J	1
R903	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R904	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R905	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J	1
R906	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J	1
R907	CRD20TJ562T	RES , CARBON	5.6K OHM 1/5W J	1
R908	CRD20TJ562T	RES , CARBON	5.6K OHM 1/5W J	1
R909	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J	1
R910	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J	1
R911	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J	1
R912	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J	1
R913	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R914	CRD20TJ473T	RES , CARBON	47K OHM 1/5W J	1
R915	CRD20TJ473T	RES , CARBON	47K OHM 1/5W J	1
R918	CRD20TJ562T	RES , CARBON	5.6K OHM 1/5W J	1
R919	CRD20TJ562T	RES , CARBON	5.6K OHM 1/5W J	1
R923	CRD25TJ332T	RES , CARBON	3.3K OHM 1/4W J	1
R924	CRD20TJ332T	RES , CARBON	3.3K OHM 1/5W J	1
R925	CRD20TJ242T	RES , CARBON	2.4K OHM 1/5W J	1
R926	CRD20TJ332T	RES , CARBON	3.3K OHM 1/5W J	1
R927	CRD20TJ332T	RES , CARBON	3.3K OHM 1/5W J	1
R928	CRD20TJ121T	RES , CARBON	120 OHM 1/5W J	1
R929	CRD20TJ121T	RES , CARBON	120 OHM 1/5W J	1
S701	HST1A020ZT	SW , TACT		1
S702	HST1A020ZT	SW , TACT		1
S703	HST1A020ZT	SW , TACT		1
S704	HST1A020ZT	SW , TACT		1
S705	HST1A020ZT	SW , TACT		1
S706	HST1A020ZT	SW , TACT		1
S707	HST1A020ZT	SW , TACT		1
S708	HST1A020ZT	SW , TACT		1
S709	HST1A020ZT	SW , TACT		1
S710	HST1A020ZT	SW , TACT		1
S711	HST1A020ZT	SW , TACT		1
S712	HST1A020ZT	SW , TACT		1
S713	HST1A020ZT	SW , TACT		1
S714	HST1A020ZT	SW , TACT		1
S715	HST1A020ZT	SW , TACT		1
S716	HST1A020ZT	SW , TACT		1
S717	HST1A020ZT	SW , TACT		1
S718	HST1A020ZT	SW , TACT		1
S719	HST1A020ZT	SW , TACT		1
S720	HST1A020ZT	SW , TACT		1
BAT1	HGP15BNH3A3H	BATTERY , RECHARGEABLE	GP15BNH3A3H	1
BK71	CMD1A209	BRACKET , FLT	A4-92-1739	1
BK72	CMD1A209	BRACKET , FLT	A4-92-1739	1
BK73	CMD1A387	BRACKET , PCB		1
BK74	CMD1A209	BRACKET , FLT	A4-92-1739	1
BN10	CWZAVR230BN10	WIRE ASS'Y (SHIELD)		1
BN15	CWB2B906150EN	WIRE ASS'Y		1
BN16	CWZAVR2550BN16	WIRE ASS'Y (SHIELD)		1
BN18	CWZAVR125BN18	WIRE ASS'Y (SHIELD)		1
BN41	CWZAVR130BN41	WIRE ASS'Y (SHIELD)		1
BN72	HJP32GA179ZJ	CONN,FFC 1M/M 32P STR,SMD_JST	32FMNNBMTTNATF	1
BN80	CWB2B911420EW	WIRE ASS'Y		1
BN81	CWB2B908250BM	WIRE , ASS'Y		1

FRONT PCB

Ref#	Component	Description 1	Description 2	Qty
BN84	CWB2B905080EN	WIRE ASS'Y		1
BN85	CWB2B902090EN	WIRE ASS'Y		1
BN87	CWZAVR2550BN87	WIRE ASS'Y (SHIELD)		1
BN88	CWB2B904070EN	WIRE ASS'Y		1
BN89	CWB2B905080EN	WIRE ASS'Y		1
BN90	CWB2B902090EN	WIRE ASS'Y		1
BN94	KJP13GB99ZM	CONNECTOR	MOLEX35237-1310	1
BN95	KJP08GB99ZM	CONNECTOR , HOUSING	MOLEX35237-0810	1
CN10	KJP04GB46ZM	WAFER	MOLEX 53015	1
CN11	KJP15GA98ZM	WAFER	MOLEX35336-1510	1
CN12	KJP15GA98ZM	WAFER	MOLEX35336-1510	1
CN15	CJP06GA19ZY	WAFER, STRAIGHT, 6PIN		1
CN16	KJP08GB46ZM	WAFER		1
CN82	KJP06HA37ZM	WAFER	MOLEX42140-2206	1
CN84	KJP05GA19ZM	WAFER	MOLEX53014-0510	1
CN85	KJP02GA19ZM	WAFER		1
CN86	KJP02GA89ZM	WAFER	MOLEX35328-02	1
CN87	KJP06GA19ZM	WAFER	MOLEX53014-0610	1
CN89	KJP05GA19ZM	WAFER	MOLEX53014-0510	1
CN90	KJP02GA19ZM	WAFER		1
C812	CCFT1H104ZF	CAP , SEMICONDUCTOR	0.1UF 50V ZF	1
C817	CCCT1H100DC	CAP , CERAMIC	10PF 50V DC	1
C853	KCKDKS472ME	CAP , CERAMIC(X1/Y2/SC)	0.0047UF/2.5KV	1
D701	CVD52CSBBCEAB2	BLUE L.E.D		1
D703	CVD52CSBBCEAB2	BLUE L.E.D		1
D705	CVD52CSBBCEAB2	BLUE L.E.D		1
D723	CVD50BOBBWGA	L.E.D , 2 COLOR (ORG , BLUE)	TOL-50BOBBWGA	1
FIP1	HFLHCA18ML01	F.I.P		1
IC71	BVISAA6579TV1	I.C , RDS FILTER TW	SAA6579T/V1	1
IC72	BVIMB90F482APFG	IC , FLASH U-COM	FUJITSU	1
IC73	HRVRPM6938H4	SENSOR , REMOTE	RPM6938-H4	1
IC74	HVIANAM1385AT	I.C , U-COM	ANAM1385AT	1
IC75	HVI74ACT04MTR	I.C , HEX	74ACT04M	1
IC76	HVITC74HCU04AFN	IC , INVERTER	TC74HCU04AFN	1
IC80	HVIHCF4053M013T	I.C	HCF4053M	1
IC81	HVINJM2068MDTE1	I.C , OP AMP	NJM2068MD-TE1	1
IC82	HVINJM2068MDTE1	I.C , OP AMP	NJM2068MD-TE1	1
IC83	HVI74ACT04MTR	I.C , HEX	74ACT04M	1
IC84	HVI74ACT04MTR	I.C , HEX	74ACT04M	1
IC85	HVIRH5VT18C	I.C , RESET	RICOH 1.8V	1
IC86	HVINJM4556AL	I.C , HEADPHONE	NJM4556AL	1
IC88	HVINJM2068MDTE1	I.C , OP AMP	NJM2068MD-TE1	1
IC90	HVINJM2068MDTE1	I.C , OP AMP	NJM2068MD-TE1	1
JK81	CJJ4M041Y	JACK , BOARD (COAX)		1
JK82	HJSTORX179L	MODULE , OPTICAL(RX)	TORX179L	1
JK83	CJJ2E026Z	JACK , HEADPHONE(SILVER PLATE)		1
JK85	CJJ9M003Z	JACK , S-VIDEO		1
JK86	CJJ4S023Y	JACK , BOARD		1
JW82	CWZAVR2550JW82	WIRE , ASS'Y		1
JW84	CWE8202110RV	WIRE, ASS'Y		1
JW85	CWE8202070AA	WIRE ASS'Y		1
SW01	CSH1A008ZV	SW , PUSH (MOMS)		1
VR71	CVV2X05M104Z	RES , VARIABLE(BALANCE)	RK14128030214Y	1
VR72	CVV2X07C104Z	RES , VARIABLE(TONE)	RK14128030214C	1
VR73	CVV2X07C104Z	RES , VARIABLE(TONE)	RK14128030214C	1
VR74	HSR2A029Z	VR , ENCODER		1
X701	HOX05000E160C	CRYSTAL	5MHZ	1

FRONT PCB

Ref#	Component	Description 1	Description 2	Qty
X702	HOX04332E200C	CRYSTAL	4.332MHZ	1
X703	HOX10000E220CS	CRYSTAL	10MHZ	1
CB72	CWC1B2A32A250B	CABLE , CARD		1
	CGX1A338MBC22	CAP , VOLUME		1
CN88	KJP04GA19ZM	WAFER		1

Bias PCB

Ref#	Component	Description 1	Description 2	Qty
	CIP11651B	BIAS T.R PCB AUTO ASS'Y		1
C852	HCEA1HH100T	CAP , ELECT	10UF 50V	1
C853	HCEA1HH100T	CAP , ELECT	10UF 50V	1
C854	HCEA1HH100T	CAP , ELECT	10UF 50V	1
C855	HCEA1HH100T	CAP , ELECT	10UF 50V	1
C856	HCEA1HH100T	CAP , ELECT	10UF 50V	1
C857	HCEA1HH100T	CAP , ELECT	10UF 50V	1
R875	CRD20TJ331T	RES , CARBON	330 OHM 1/5W J	1
R876	CRD20TJ331T	RES , CARBON	330 OHM 1/5W J	1
R877	CRD20TJ331T	RES , CARBON	330 OHM 1/5W J	1
R878	CRD20TJ331T	RES , CARBON	330 OHM 1/5W J	1
R879	CRD20TJ331T	RES , CARBON	330 OHM 1/5W J	1
R880	CRD20TJ331T	RES , CARBON	330 OHM 1/5W J	1
R883	CRD20TJ122T	RES , CARBON	1.2K OHM 1/5W J	1
R884	CRD20TJ122T	RES , CARBON	1.2K OHM 1/5W J	1
R885	CRD20TJ122T	RES , CARBON	1.2K OHM 1/5W J	1
R886	CRD20TJ122T	RES , CARBON	1.2K OHM 1/5W J	1
R887	CRD20TJ122T	RES , CARBON	1.2K OHM 1/5W J	1
R888	CRD20TJ122T	RES , CARBON	1.2K OHM 1/5W J	1
Q852	HVTKTD600KGR	T.R , BIAS	KTD600KGR	1
Q853	HVTKTD600KGR	T.R , BIAS	KTD600KGR	1
Q854	HVTKTD600KGR	T.R , BIAS	KTD600KGR	1
Q855	HVTKTD600KGR	T.R , BIAS	KTD600KGR	1
Q856	HVTKTD600KGR	T.R , BIAS	KTD600KGR	1
Q857	HVTKTD600KGR	T.R , BIAS	KTD600KGR	1
VR82	HVN1RA221B01T	RES , SEMI FIXED(220 OHM)	RH0615C100221	1
VR83	HVN1RA221B01T	RES , SEMI FIXED(220 OHM)	RH0615C100221	1
VR84	HVN1RA221B01T	RES , SEMI FIXED(220 OHM)	RH0615C100221	1
VR85	HVN1RA221B01T	RES , SEMI FIXED(220 OHM)	RH0615C100221	1
VR86	HVN1RA221B01T	RES , SEMI FIXED(220 OHM)	RH0615C100221	1
VR87	HVN1RA221B01T	RES , SEMI FIXED(220 OHM)	RH0615C100221	1
CN81	KJP02GB46ZM	WAFER		1
CN82	KJP02GB46ZM	WAFER		1
CN83	KJP02GB46ZM	WAFER		1
CN84	KJP02GB46ZM	WAFER		1
CN85	KJP02GB46ZM	WAFER		1
CN86	KJP02GB46ZM	WAFER		1

Regulator PCB

Ref#	Component	Description 1	Description 2	Qty
CN96	KJP08GA01ZM	WAFER	MOLEX 5267-08A	1
CN98	BJP08GB131ZK	WAFER		1
R912	CRD20TJ153T	RES , CARBON	15K OHM 1/5W J	1
R913	CRD20TJ153T	RES , CARBON	15K OHM 1/5W J	1
R914	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
C928	CCEA1CH472E	CAP , ELECT	4700UF 16V	1
C929	CCEA1EH332F	CAP , ELECT	3300UF 25V	1

Regulator PCB

Ref#	Component	Description 1	Description 2	Qty
C930	CCEA1EH222E	CAP. ELECT.	2200UF 25V	1
IC91	HVIL7815CP	I.C, REGULATOR	L7815CP	1
IC92	HVIL7915CP	I.C, REGULATOR	L7915CP	1
IC93	HVIL7805CP	I.C, REGULATOR	L7805CP	1
C922	HCEA1EH101T	CAP , ELECT	100UF 25V	1
C923	HCEA1EH101T	CAP , ELECT	100UF 25V	1
C924	HCEA1EH101T	CAP , ELECT	100UF 25V	1
C925	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF	1
C926	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF	1
C927	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF	1
C931	HCEA1HH4R7T	CAP , ELECT	4.7UF 50V	1
D903	KVD1N4003SRT	DIODE TW	1N4003	1
D904	KVD1N4003ST	DIODE	1N4003	1
D905	KVD1N4003ST	DIODE	1N4003	1
D906	KVD1N4003ST	DIODE	1N4003	1
D907	KVD1N4003ST	DIODE	1N4003	1
D915	HVD1SS133MT	DIODE	1SS133T-77	1
D916	HVD1SS133MT	DIODE	1SS133T-77	1

MAIN PCB

Ref#	Component	Description 1	Description 2	Qty
	COP11746E	MAIN PCB ASS'Y		1
C501	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C502	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C503	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C504	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C505	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C506	CCKT1H331KB	CAP , CERAMIC	330PF 50V KB	1
C507	CCKT1H331KB	CAP , CERAMIC	330PF 50V KB	1
C508	CCKT1H331KB	CAP , CERAMIC	330PF 50V KB	1
C509	CCKT1H331KB	CAP , CERAMIC	330PF 50V KB	1
C510	CCKT1H331KB	CAP , CERAMIC	330PF 50V KB	1
C561	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C562	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C563	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C564	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C565	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C566	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C567	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C568	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C569	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C570	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C571	HCBS1H681KBT	CAP , CERAMIC	680PF 50V	1
C572	HCBS1H681KBT	CAP , CERAMIC	680PF 50V	1
C573	HCBS1H681KBT	CAP , CERAMIC	680PF 50V	1
C574	HCBS1H681KBT	CAP , CERAMIC	680PF 50V	1
C575	HCBS1H681KBT	CAP , CERAMIC	680PF 50V	1
C601	CCCT1H120JC	CAP , CERAMIC	12PF 50V JC	1
C602	CCCT1H120JC	CAP , CERAMIC	12PF 50V JC	1
C603	CCCT1H120JC	CAP , CERAMIC	12PF 50V JC	1
C604	CCCT1H120JC	CAP , CERAMIC	12PF 50V JC	1
C605	CCCT1H120JC	CAP , CERAMIC	12PF 50V JC	1
C606	CCCT1H330JC	CAP , CERAMIC	33PF 50V JC	1
C607	CCCT1H330JC	CAP , CERAMIC	33PF 50V JC	1
C608	CCCT1H330JC	CAP , CERAMIC	33PF 50V JC	1
C609	CCCT1H330JC	CAP , CERAMIC	33PF 50V JC	1
C610	CCCT1H330JC	CAP , CERAMIC	33PF 50V JC	1

MAIN PCB

Ref#	Component	Description 1	Description 2	Qty
C681	HCEA1HH100T	CAP , ELECT	10UF 50V	1
C682	HCEA1HH100T	CAP , ELECT	10UF 50V	1
C683	HCEA1HH100T	CAP , ELECT	10UF 50V	1
C684	HCEA1HH100T	CAP , ELECT	10UF 50V	1
C685	HCEA1HH100T	CAP , ELECT	10UF 50V	1
C726	CCKT1H221KB	CAP , MYLAR	220PF 50V KB	1
C801	HCEA1HH100T	CAP , ELECT	10UF 50V	1
C803	CCCT1H330JC	CAP , CERAMIC	33PF 50V JC	1
C805	CCCT1H120JC	CAP , CERAMIC	12PF 50V JC	1
C811	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C813	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C815	CCKT1H331KB	CAP , CERAMIC	330PF 50V KB	1
C817	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C819	HCBS1H681KBT	CAP , CERAMIC	680PF 50V	1
C900	HCQI1H473JZT	CAP , MYLAR	0.047UF 50V J	1
C901	HCQI1H473JZT	CAP , MYLAR	0.047UF 50V J	1
C905	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF	1
C907	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C908	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF	1
C910	HCQI1H473JZT	CAP , MYLAR	0.047UF 50V J	1
C911	HCEA1CH471T	CAP , ELECT	470UF 16V	1
C912	HCEA1CH221T	CAP , ELECT	220UF 16V	1
C913	CCFT1H104ZF	CAP , SEMICONDUCTOR	0.1UF 50V ZF	1
C917	HCQI1H473JZT	CAP , MYLAR	0.047UF 50V J	1
C918	HCQI1H473JZT	CAP , MYLAR	0.047UF 50V J	1
C919	HCQI1H473JZT	CAP , MYLAR	0.047UF 50V J	1
C939	HCEA1HH4R7T	CAP , ELECT	4.7UF 50V	1
C940	HCEA1AH471T	CAP , ELECT	470UF 10V	1
C971	HCQI1H562JZT	CAP , MYLAR	5600PF 50V J	1
C973	HCQI1H562JZT	CAP , MYLAR	5600PF 50V J	1
C974	HCQI1H562JZT	CAP , MYLAR	5600PF 50V J	1
C975	HCQI1H562JZT	CAP , MYLAR	5600PF 50V J	1
C980	HCQI1H562JZT	CAP , MYLAR	5600PF 50V J	1
C981	HCQI1H562JZT	CAP , MYLAR	5600PF 50V J	1
C990	HCQI1H473JZT	CAP , MYLAR	0.047UF 50V J	1
C991	HCEA1HH1R0T	CAP , ELECT	1UF 50V	1
C992	HCQI1H473JZT	CAP , MYLAR	0.047UF 50V J	1
C993	HCQI1H473JZT	CAP , MYLAR	0.047UF 50V J	1
C995	HCQI1H473JZT	CAP , MYLAR	0.047UF 50V J	1
C996	HCQI1H473JZT	CAP , MYLAR	0.047UF 50V J	1
C997	HCQI1H473JZT	CAP , MYLAR	0.047UF 50V J	1
C999	CCKT1H223ZF	CAP , CERAMIC	0.022UF 50V ZF	1
D501	HVD1SS133MT	DIODE	1SS133T-77	1
D502	HVD1SS133MT	DIODE	1SS133T-77	1
D503	HVD1SS133MT	DIODE	1SS133T-77	1
D504	HVD1SS133MT	DIODE	1SS133T-77	1
D505	HVD1SS133MT	DIODE	1SS133T-77	1
D581	HVD1SS133MT	DIODE	1SS133T-77	1
D582	HVD1SS133MT	DIODE	1SS133T-77	1
D583	HVD1SS133MT	DIODE	1SS133T-77	1
D584	HVD1SS133MT	DIODE	1SS133T-77	1
D585	HVD1SS133MT	DIODE	1SS133T-77	1
D801	HVD1SS133MT	DIODE	1SS133T-77	1
D803	HVD1SS133MT	DIODE	1SS133T-77	1
D901	KVD1N4003ST	DIODE	1N4003	1
D902	HVD1SS133MT	DIODE	1SS133T-77	1
D911	HVD1SS133MT	DIODE	1SS133T-77	1

MAIN PCB

Ref#	Component	Description 1	Description 2	Qty
D912	HVD1SS133MT	DIODE	1SS133T-77	1
D914	HVD1SS133MT	DIODE	1SS133T-77	1
D917	HVD1SS133MT	DIODE	1SS133T-77	1
D953	HVD1SS133MT	DIODE	1SS133T-77	1
D954	KVD1N4003SRT	DIODE TW	1N4003	1
D955	KVD1N4003SRT	DIODE TW	1N4003	1
D961	KVD1N4003ST	DIODE	1N4003	1
D962	KVD1N4003ST	DIODE	1N4003	1
D963	KVD1N4003ST	DIODE	1N4003	1
D977	HVD1SS133MT	DIODE	1SS133T-77	1
D978	HVD1SS133MT	DIODE	1SS133T-77	1
Q501	HVTKTA1268GRT	T.R	KTA1268GR	1
Q502	HVTKTA1268GRT	T.R	KTA1268GR	1
Q503	HVTKTA1268GRT	T.R	KTA1268GR	1
Q504	HVTKTA1268GRT	T.R	KTA1268GR	1
Q505	HVTKTA1268GRT	T.R	KTA1268GR	1
Q511	HVTKTC3200GRT	T.R	KTC3200GR	1
Q512	HVTKTC3200GRT	T.R	KTC3200GR	1
Q513	HVTKTC3200GRT	T.R	KTC3200GR	1
Q514	HVTKTC3200GRT	T.R	KTC3200GR	1
Q515	HVTKTC3200GRT	T.R	KTC3200GR	1
Q516	HVTKTC3200GRT	T.R	KTC3200GR	1
Q517	HVTKTC3200GRT	T.R	KTC3200GR	1
Q518	HVTKTC3200GRT	T.R	KTC3200GR	1
Q519	HVTKTC3200GRT	T.R	KTC3200GR	1
Q520	HVTKTC3200GRT	T.R	KTC3200GR	1
Q541	HVTKTC3198YT	T.R	KTC3198Y	1
Q542	HVTKTC3198YT	T.R	KTC3198Y	1
Q543	HVTKTC3198YT	T.R	KTC3198Y	1
Q544	HVTKTC3198YT	T.R	KTC3198Y	1
Q545	HVTKTC3198YT	T.R	KTC3198Y	1
Q556	HVTKTC3200GRT	T.R	KTC3200GR	1
Q557	HVTKTC3200GRT	T.R	KTC3200GR	1
Q558	HVTKTC3200GRT	T.R	KTC3200GR	1
Q559	HVTKTC3200GRT	T.R	KTC3200GR	1
Q560	HVTKTC3200GRT	T.R	KTC3200GR	1
Q561	HVTKTC3200GRT	T.R	KTC3200GR	1
Q562	HVTKTC3200GRT	T.R	KTC3200GR	1
Q563	HVTKTC3200GRT	T.R	KTC3200GR	1
Q564	HVTKTC3200GRT	T.R	KTC3200GR	1
Q565	HVTKTC3200GRT	T.R	KTC3200GR	1
Q601	HVTKTA1268GRT	T.R	KTA1268GR	1
Q602	HVTKTA1268GRT	T.R	KTA1268GR	1
Q603	HVTKTA1268GRT	T.R	KTA1268GR	1
Q604	HVTKTA1268GRT	T.R	KTA1268GR	1
Q605	HVTKTA1268GRT	T.R	KTA1268GR	1
Q681	KVTKSC2785YT	T.R	KSC2785Y	1
Q682	KVTKSC2785YT	T.R	KSC2785Y	1
Q683	KVTKSC2785YT	T.R	KSC2785Y	1
Q684	KVTKSC2785YT	T.R	KSC2785Y	1
Q685	KVTKSC2785YT	T.R	KSC2785Y	1
Q706	HVTKTC2874BT	T.R , MUTE	KTC2874B	1
Q801	KVTKSC2785YT	T.R	KSC2785Y	1
Q812	HVTKTA1268GRT	T.R	KTA1268GR	1
Q813	HVTKTC3200GRT	T.R	KTC3200GR	1
Q816	HVTKTA1268GRT	T.R	KTA1268GR	1
Q818	HVTKTC3200GRT	T.R	KTC3200GR	1

MAIN PCB

Ref#	Component	Description 1	Description 2	Qty
Q819	HVTKTC3200GRT	T.R	KTC3200GR	1
Q820	HVTKTC3200GRT	T.R	KTC3200GR	1
Q824	HVTKTC3198YT	T.R	KTC3198Y	1
Q826	HVTKTC2874BT	T.R , MUTE	KTC2874B	1
Q901	KVTKSC2785YT	T.R	KSC2785Y	1
Q938	HVTKRA107MT	T.R	KRA107M	1
Q939	HVTKRA107MT	T.R	KRA107M	1
Q942	KVTKSC2785YT	T.R	KSC2785Y	1
Q943	KVTKSC2785YT	T.R	KSC2785Y	1
Q951	HVTKRC107MT	T.R	KRC107M	1
Q952	HVTKRA107MT	T.R	KRA107M	1
Q960	HVTKRC107MT	T.R	KRC107M	1
Q961	HVTKTA1024YT	T.R	KTA1024Y	1
Q969	HVTKTC2874BT	T.R , MUTE	KTC2874B	1
Q970	HVTKTC2874BT	T.R , MUTE	KTC2874B	1
Q971	HVTKTC2874BT	T.R , MUTE	KTC2874B	1
Q972	HVTKTC2874BT	T.R , MUTE	KTC2874B	1
Q973	HVTKTC2874BT	T.R , MUTE	KTC2874B	1
Q991	HVTKRC107MT	T.R	KRC107M	1
Q992	HVTKRA107MT	T.R	KRA107M	1
R501	CRD20TJ433T	RES , CARBON	43K OHM 1/5W J	1
R502	CRD20TJ433T	RES , CARBON	43K OHM 1/5W J	1
R503	CRD20TJ433T	RES , CARBON	43K OHM 1/5W J	1
R504	CRD20TJ433T	RES , CARBON	43K OHM 1/5W J	1
R505	CRD20TJ433T	RES , CARBON	43K OHM 1/5W J	1
R506	CRD20TJ333T	RES , CARBON	33K OHM 1/5W J	1
R507	CRD20TJ333T	RES , CARBON	33K OHM 1/5W J	1
R508	CRD20TJ333T	RES , CARBON	33K OHM 1/5W J	1
R509	CRD20TJ333T	RES , CARBON	33K OHM 1/5W J	1
R510	CRD20TJ333T	RES , CARBON	33K OHM 1/5W J	1
R511	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J	1
R512	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J	1
R513	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J	1
R514	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J	1
R515	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J	1
R516	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J	1
R517	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J	1
R518	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J	1
R519	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J	1
R520	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J	1
R521	CRD20TJ471T	RES , CARBON	470 OHM 1/5W J	1
R522	CRD20TJ471T	RES , CARBON	470 OHM 1/5W J	1
R523	CRD20TJ471T	RES , CARBON	470 OHM 1/5W J	1
R524	CRD20TJ471T	RES , CARBON	470 OHM 1/5W J	1
R525	CRD20TJ471T	RES , CARBON	470 OHM 1/5W J	1
R531	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J	1
R532	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J	1
R533	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J	1
R534	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J	1
R535	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J	1
R536	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J	1
R537	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J	1
R538	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J	1
R539	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J	1
R540	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J	1
R541	CRD20TJ271T	RES , CARBON	270 OHM 1/5W J	1
R542	CRD20TJ271T	RES , CARBON	270 OHM 1/5W J	1

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Ref#	Component	Description 1	Description 2	Qty
R543	CRD20TJ271T	RES , CARBON	270 OHM 1/5W J	1
R544	CRD20TJ271T	RES , CARBON	270 OHM 1/5W J	1
R545	CRD20TJ271T	RES , CARBON	270 OHM 1/5W J	1
R556	CRD20TJ273T	RES , CARBON	27K OHM 1/5W J	1
R557	CRD20TJ273T	RES , CARBON	27K OHM 1/5W J	1
R558	CRD20TJ273T	RES , CARBON	27K OHM 1/5W J	1
R559	CRD20TJ273T	RES , CARBON	27K OHM 1/5W J	1
R560	CRD20TJ273T	RES , CARBON	27K OHM 1/5W J	1
R561	CRD20TJ202T	RES , CARBON	2K OHM 1/5W J	1
R562	CRD20TJ202T	RES , CARBON	2K OHM 1/5W J	1
R563	CRD20TJ202T	RES , CARBON	2K OHM 1/5W J	1
R564	CRD20TJ202T	RES , CARBON	2K OHM 1/5W J	1
R565	CRD20TJ202T	RES , CARBON	2K OHM 1/5W J	1
R566	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R567	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R568	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R569	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R570	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R571	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R572	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R573	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R574	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R575	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R576	CRD20TJ100T	RES , CARBON	10 OHM 1/5W J	1
R577	CRD20TJ100T	RES , CARBON	10 OHM 1/5W J	1
R578	CRD20TJ100T	RES , CARBON	10 OHM 1/5W J	1
R579	CRD20TJ100T	RES , CARBON	10 OHM 1/5W J	1
R580	CRD20TJ100T	RES , CARBON	10 OHM 1/5W J	1
R581	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R582	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R583	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R584	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R585	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R586	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R587	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R588	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R589	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R590	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R591	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R592	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R593	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R594	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R595	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R596	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R597	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R598	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R599	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R600	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R601	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J	1
R602	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J	1
R603	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J	1
R604	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J	1
R605	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J	1
R606	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J	1
R607	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J	1
R608	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J	1
R609	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J	1

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Ref#	Component	Description 1	Description 2	Qty
R610	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J	1
R611	CRD20TJ100T	RES , CARBON	10 OHM 1/5W J	1
R631	KRD25FJ180T	RES , CARBON	18 OHM 1/4W J	1
R632	KRD25FJ180T	RES , CARBON	18 OHM 1/4W J	1
R633	KRD25FJ180T	RES , CARBON	18 OHM 1/4W J	1
R634	KRD25FJ180T	RES , CARBON	18 OHM 1/4W J	1
R635	KRD25FJ180T	RES , CARBON	18 OHM 1/4W J	1
R636	KRD25FJ180T	RES , CARBON	18 OHM 1/4W J	1
R637	KRD25FJ180T	RES , CARBON	18 OHM 1/4W J	1
R638	KRD25FJ180T	RES , CARBON	18 OHM 1/4W J	1
R639	KRD25FJ180T	RES , CARBON	18 OHM 1/4W J	1
R640	KRD25FJ180T	RES , CARBON	18 OHM 1/4W J	1
R646	KRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J	1
R647	KRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J	1
R648	KRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J	1
R649	KRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J	1
R650	KRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J	1
R651	KRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J	1
R652	KRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J	1
R653	KRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J	1
R654	KRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J	1
R655	KRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J	1
R666	CRD25TJ470T	RES , CARBON	47 OHM 1/4W J	1
R667	CRD25TJ470T	RES , CARBON	47 OHM 1/4W J	1
R668	CRD25TJ470T	RES , CARBON	47 OHM 1/4W J	1
R669	CRD25TJ470T	RES , CARBON	47 OHM 1/4W J	1
R670	CRD25TJ470T	RES , CARBON	47 OHM 1/4W J	1
R671	CRD20TJ911T	RES , CARBON	910 OHM 1/5W J	1
R672	CRD20TJ911T	RES , CARBON	910 OHM 1/5W J	1
R673	CRD20TJ911T	RES , CARBON	910 OHM 1/5W J	1
R674	CRD20TJ911T	RES , CARBON	910 OHM 1/5W J	1
R675	CRD20TJ911T	RES , CARBON	910 OHM 1/5W J	1
R676	CRD20TJ182T	RES , CARBON	1.8K OHM 1/5W J	1
R677	CRD20TJ182T	RES , CARBON	1.8K OHM 1/5W J	1
R678	CRD20TJ182T	RES , CARBON	1.8K OHM 1/5W J	1
R679	CRD20TJ182T	RES , CARBON	1.8K OHM 1/5W J	1
R680	CRD20TJ182T	RES , CARBON	1.8K OHM 1/5W J	1
R681	CRD20TJ562T	RES , CARBON	5.6K OHM 1/5W J	1
R682	CRD20TJ562T	RES , CARBON	5.6K OHM 1/5W J	1
R683	CRD20TJ562T	RES , CARBON	5.6K OHM 1/5W J	1
R684	CRD20TJ562T	RES , CARBON	5.6K OHM 1/5W J	1
R685	CRD20TJ562T	RES , CARBON	5.6K OHM 1/5W J	1
R686	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R687	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R688	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R689	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R690	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R696	CRD25TJ470T	RES , CARBON	47 OHM 1/4W J	1
R697	CRD25TJ470T	RES , CARBON	47 OHM 1/4W J	1
R698	CRD25TJ470T	RES , CARBON	47 OHM 1/4W J	1
R699	CRD25TJ470T	RES , CARBON	47 OHM 1/4W J	1
R700	CRD25TJ470T	RES , CARBON	47 OHM 1/4W J	1
R706	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R716	CRD20TJ472T	RES , CARBON	4.7K OHM 1/5W J	1
R726	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J	1
R771	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R772	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1

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Ref#	Component	Description 1	Description 2	Qty
R773	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R774	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R775	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R776	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R781	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R782	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R783	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R784	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R785	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R786	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R801	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R803	CRD20TJ562T	RES , CARBON	5.6K OHM 1/5W J	1
R805	CRD20TJ911T	RES , CARBON	910 OHM 1/5W J	1
R808	CRD20TJ182T	RES , CARBON	1.8K OHM 1/5W J	1
R812	CRD25TJ470T	RES , CARBON	47 OHM 1/4W J	1
R813	CRD25TJ470T	RES , CARBON	47 OHM 1/4W J	1
R817	KRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J	1
R818	KRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J	1
R821	KRD25FJ180T	RES , CARBON	18 OHM 1/4W	1
R822	KRD25FJ180T	RES , CARBON	18 OHM 1/4W	1
R830	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J	1
R831	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J	1
R834	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R835	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R836	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R837	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R842	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R843	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R848	CRD20TJ273T	RES , CARBON	27K OHM 1/5W J	1
R850	CRD20TJ202T	RES , CARBON	2K OHM 1/5W J	1
R852	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J	1
R853	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J	1
R856	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J	1
R857	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J	1
R860	CRD20TJ271T	RES , CARBON	270 OHM 1/5W J	1
R862	CRD20TJ333T	RES , CARBON	33K OHM 1/5W J	1
R864	CRD20TJ331T	RES , CARBON	330 OHM 1/5W J	1
R866	CRD20TJ472T	RES , CARBON	4.7K OHM 1/5W J	1
R868	CRD20TJ473T	RES , CARBON	47K OHM 1/5W J	1
R870	CRD20TJ433T	RES , CARBON	43K OHM 1/5W J	1
R872	CRD20TJ471T	RES , CARBON	470 OHM 1/5W J	1
R900	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R901	CRD25TJ393T	RES , CARBON	39K OHM 1/4W J	1
R902	CRD25TJ393T	RES , CARBON	39K OHM 1/4W J	1
R903	CRD25TJ393T	RES , CARBON	39K OHM 1/4W J	1
R906	CRD25TJ393T	RES , CARBON	39K OHM 1/4W J	1
R910	CRD20TJ105T	RES , CARBON	1M OHM 1/5W J	1
R911	CRD25TJ680T	RES , CARBON	68 OHM 1/4W J	1
R917	CRD25TJ393T	RES , CARBON	39K OHM 1/4W J	1
R918	CRD25TJ393T	RES , CARBON	39K OHM 1/4W J	1
R919	CRD25TJ393T	RES , CARBON	39K OHM 1/4W J	1
R920	CRD25TJ393T	RES , CARBON	39K OHM 1/4W J	1
R932	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R939	CRD20TJ472T	RES , CARBON	4.7K OHM 1/5W J	1
R940	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J	1
R941	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J	1
R942	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J	1

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Ref#	Component	Description 1	Description 2	Qty
R943	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J	1
R944	CRD25TJ223T	RES , CARBON	22K OHM 1/4W J	1
R945	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J	1
R946	CRD25TJ223T	RES , CARBON	22K OHM 1/4W J	1
R947	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J	1
R955	CRD20TJ393T	RES , CARBON	39K OHM 1/5W J	1
R956	CRD20TJ394T	RES , CARBON	390K OHM 1/5W J	1
R957	CRD20TJ153T	RES , CARBON	15K OHM 1/5W J	1
R960	CRD20TJ392T	RES , CARBON	39K OHM 1/5W J	1
R961	CRD20TJ331T	RES , CARBON	330 OHM 1/5W J	1
R962	CRD20TJ273T	RES , CARBON	27K OHM 1/5W J	1
R963	CRD20TJ105T	RES , CARBON	1M OHM 1/5W J	1
R966	CRD20TJ472T	RES , CARBON	4.7K OHM 1/5W J	1
R969	CRD20TJ472T	RES , CARBON	4.7K OHM 1/5W J	1
R970	CRD20TJ472T	RES , CARBON	4.7K OHM 1/5W J	1
R971	CRD20TJ472T	RES , CARBON	4.7K OHM 1/5W J	1
R972	CRD20TJ472T	RES , CARBON	4.7K OHM 1/5W J	1
R973	CRD20TJ472T	RES , CARBON	4.7K OHM 1/5W J	1
R974	CRD20TJ331T	RES , CARBON	330 OHM 1/5W J	1
R975	CRD20TJ331T	RES , CARBON	330 OHM 1/5W J	1
R976	CRD20TJ331T	RES , CARBON	330 OHM 1/5W J	1
R977	CRD20TJ331T	RES , CARBON	330 OHM 1/5W J	1
R978	CRD20TJ331T	RES , CARBON	330 OHM 1/5W J	1
R979	CRD20TJ473T	RES , CARBON	47K OHM 1/5W J	1
R980	CRD20TJ473T	RES , CARBON	47K OHM 1/5W J	1
R981	CRD20TJ473T	RES , CARBON	47K OHM 1/5W J	1
R982	CRD20TJ473T	RES , CARBON	47K OHM 1/5W J	1
R983	CRD20TJ473T	RES , CARBON	47K OHM 1/5W J	1
R986	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R987	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J	1
R988	CRD20TJ562T	RES , CARBON	5.6K OHM 1/5W J	1
R991	CRD20TJ822T	RES , CARBON	8.2K OHM 1/5W J	1
R992	CRD20TJ562T	RES , CARBON	5.6K OHM 1/5W J	1
R998	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
	CMD1A387	BRACKET , PCB		1
	CMYAVR135	HEAT SINK ASS'Y		1
	CHD1A012	SCREW , TR		18
	CHD3A012	SCREW , TR		3
	CMD1A398	BRACKET , PCB		2
	CMD1A417	BRACKET , PCB		2
	CMY1A248	HEAT SINK		1
	CTB3+8J	SCREW		6
Q652	BVT2SB1560-OKM	T.R , POWER	2SB1560	1
Q653	BVT2SB1560-OKM	T.R , POWER	2SB1560	1
Q654	BVT2SB1560-OKM	T.R , POWER	2SB1560	1
Q655	BVT2SB1560-OKM	T.R , POWER	2SB1560	1
Q657	BVT2SD2390-OKM	T.R , POWER	2SD2390	1
Q658	BVT2SD2390-OKM	T.R , POWER	2SD2390	1
Q659	BVT2SD2390-OKM	T.R , POWER	2SD2390	1
Q660	BVT2SD2390-OKM	T.R , POWER	2SD2390	1
Q661	BVT2SB1560-OKM	T.R , POWER	2SB1560	1
Q670	BVT2SD2390-OKM	T.R , POWER	2SD2390	1
Q803	BVT2SD2390-OKM	T.R , POWER	2SD2390	1
Q804	BVT2SB1560-OKM	T.R , POWER	2SB1560	1
	CTW3+8J	SCREW		3
BN19	CWB3FE03250UP	WIRE ASS'Y		1
BN20	CWB3FB43280UP	WIRE ASS'Y		1

MAIN PCB

Ref#	Component	Description 1	Description 2	Qty
BN82	CWB1C902050EN	WIRE ASS'Y		1
BN83	CWB1C902050EN	WIRE ASS'Y		1
BN84	CWB1C902050EN	WIRE ASS'Y		1
BN85	CWB1C902050EN	WIRE ASS'Y		1
BN86	CWB1C902050EN	WIRE ASS'Y		1
BN87	CWB1C902050EN	WIRE ASS'Y		1
BN98	BJP08GA130ZK	WAFER		1
BN99	CWB1C902050EN	WIRE ASS'Y		1
CN61	KJP02GA01ZM	WAFER	MOLEX 5267-02A	1
CN62	KJP02GA01ZM	WAFER	MOLEX 5267-02A	1
CN63	KJP02GA01ZM	WAFER	MOLEX 5267-02A	1
CN64	KJP02GA01ZM	WAFER	MOLEX 5267-02A	1
CN65	KJP02GA01ZM	WAFER	MOLEX 5267-02A	1
CN66	KJP02GA01ZM	WAFER	MOLEX 5267-02A	1
CN80	KJP11GA19ZM	WAFER	MOLEX-53014	1
CN91	KJP03GA89ZM	WAFER	MOLEX35328-0310	1
CN94	KJP13GA98ZM	WAFER	MOLEX35336-1310	1
CN95	KJP08GA98ZM	WAFER	MOLEX35336-0810	1
CN99	CJP02GA19ZY	WAFER, 2PIN	CJP02GA19ZY	1
C631	CCEA1JH221E	CAP , ELECT	220UF 63V	1
C632	CCEA1JH221E	CAP , ELECT	220UF 63V	1
C633	CCEA1JH221E	CAP , ELECT	220UF 63V	1
C634	CCEA1JH221E	CAP , ELECT	220UF 63V	1
C635	CCEA1JH221E	CAP , ELECT	220UF 63V	1
C636	CCEA1JH221E	CAP , ELECT	220UF 63V	1
C637	CCEA1JH221E	CAP , ELECT	220UF 63V	1
C638	CCEA1JH221E	CAP , ELECT	220UF 63V	1
C639	CCEA1JH221E	CAP , ELECT	220UF 63V	1
C640	CCEA1JH221E	CAP , ELECT	220UF 63V	1
C807	CCEA1JH221E	CAP , ELECT	220UF 63V	1
C808	CCEA1JH221E	CAP , ELECT	220UF 63V	1
C902	CCET50VKL4822NK	CAP , ELECT	8200UF/50V	1
C904	KCKDKS472ME	CAP , CERAMIC(X1/Y2/SC)	0.0047UF/2.5KV	1
C906	HCEA1EH102E	CAP , ELECT	1000UF 25V	1
C909	CCET50VKL4822NK	CAP , ELECT	8200UF/50V	1
C915	CCET50VKL4822NK	CAP , ELECT	8200UF/50V	1
C916	CCET50VKL4822NK	CAP , ELECT	8200UF/50V	1
D971	HVD1SS133MT	DIODE	1SS133T-77	1
ET01	CNE75	PLATE , EARTH		1
ET03	CNE75	PLATE , EARTH		1
IC94	HVIMC7805C	I.C, REGULATOR	KA7805-ABTU	1
JK90	CJJ4M040Z	JACK , BOARD (SW)		1
JK91	CJJ5R006Z	TERMINAL , SPEAKER		1
JK92	CJJ5R007Z	TERMINAL , SPEAKER		1
JW90	CWEE212120VV	WIRE ASS'Y		1
JW91	CWE8212180VV	WIRE ASS'Y		1
JW99	CWE8202150AA	WIRE ASS'Y		1
L501	CLEY0R5KAK	COIL , SPEAKER	0.5UH K	1
L502	CLEY0R5KAK	COIL , SPEAKER	0.5UH K	1
L503	CLEY0R5KAK	COIL , SPEAKER	0.5UH K	1
L504	CLEY0R5KAK	COIL , SPEAKER	0.5UH K	1
L505	CLEY0R5KAK	COIL , SPEAKER	0.5UH K	1
L506	CLEY0R5KAK	COIL , SPEAKER	0.5UH K	1
Q858	HVT2SA1360O	T.R	2SA1360O	1
Q871	HVT2SA1360O	T.R	2SA1360O	1
Q872	HVT2SA1360O	T.R	2SA1360O	1
Q874	HVT2SA1360O	T.R	2SA1360O	1

MAIN PCB

Ref#	Component	Description 1	Description 2	Qty
Q875	HVT2SA1360O	T.R	2SA1360O	1
Q876	HVT2SA1360O	T.R	2SA1360O	1
Q881	HVT2SC3423O	T.R	2SC3423O	1
Q882	HVT2SC3423O	T.R	2SC3423O	1
Q883	HVT2SC3423O	T.R	2SC3423O	1
Q884	HVT2SC3423O	T.R	2SC3423O	1
Q885	HVT2SC3423O	T.R	2SC3423O	1
Q886	HVT2SC3423O	T.R	2SC3423O	1
RY94	HSL1A008ZE	RELAY	SDT-S-112DMR	1
R656	CRF5EKR27HX2K	RES , CEMENT	5W	1
R657	CRF5EKR27HX2K	RES , CEMENT	5W	1
R658	CRF5EKR27HX2K	RES , CEMENT	5W	1
R659	CRF5EKR27HX2K	RES , CEMENT	5W	1
R660	CRF5EKR27HX2K	RES , CEMENT	5W	1
R810	CRF5EKR27HX2K	RES , CEMENT	5W	1
R905	CRG1ANJ100H	RES , METAL OXIDE FILM	10 OHM 1W	1
R990	CRG1ANJ100H	RES , METAL OXIDE FILM	10 OHM 1W	1
R993	CRG1ANJ100H	RES , METAL OXIDE FILM	10 OHM 1W	1
R995	CRG1ANJ100H	RES , METAL OXIDE FILM	10 OHM 1W	1
R996	CRG1ANJ100H	RES , METAL OXIDE FILM	10 OHM 1W	1
R997	CRG1ANJ100H	RES , METAL OXIDE FILM	10 OHM 1W	1
R999	CRG1ANJ100H	RES , METAL OXIDE FILM	10 OHM 1W	1
TH91	KRTP42T7D330B	THERMAL SENSOR , POSISTOR	P42T7D330BW20	1
T902	CLT5J033ZE	TRANS , SUB		1

VIDEO PCB

Ref#	Component	Description 1	Description 2	Qty
	COP11747E	VIDEO PCB ASS'Y		1
C403	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C404	CCKT1H101KB	CAP , CERAMIC	100PF 50V KB	1
C405	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C406	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C407	CCKT1H101KB	CAP , CERAMIC	100PF 50V KB	1
C411	HCBS1H101KBT	CAP , CERAMIC	100PF 50V K	1
C412	HCBS1H101KBT	CAP , CERAMIC	100PF 50V K	1
C413	HCBS1H151KBT	CAP , CERAMIC	150PF 50V K	1
C414	HCBS1H151KBT	CAP , CERAMIC	150PF 50V K	1
C416	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C417	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C418	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C419	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C420	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C421	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C422	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C423	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C424	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C425	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C426	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C427	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C428	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C429	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C430	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C431	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C432	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C433	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C434	CCEA1VH100T	CAP , ELECT	10UF 35V	1
C435	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C436	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1

VIDEO PCB

Ref#	Component	Description 1	Description 2	Qty
C437	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C438	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C439	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C442	HCBS1H103ZFT	CAP , CERAMIC	0.01UF 50V Z	1
C443	HCEA1VKS100T	CAP , ELECT	10UF 35V	1
C444	HCEA1VKS100T	CAP , ELECT	10UF 35V	1
C445	HCBS1H103ZFT	CAP , CERAMIC	0.01UF 50V Z	1
C446	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C447	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C448	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C449	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C450	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C451	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C452	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C453	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C454	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C455	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C456	HCBS1H104ZFT	CAP , CERAMIC	0.1UF 50V Z	1
C457	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C458	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C459	HCBS1H104ZFT	CAP , CERAMIC	0.1UF 50V Z	1
C460	HCBS1C272MXT	CAP , CERAMIC	2700PF 16V	1
C461	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C462	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C463	HCBS1H473ZFT	CAP , CERAMIC	0.047UF 50V Z	1
C498	HCBS1H151KBT	CAP , CERAMIC	150PF 50V K	1
C499	HCBS1H151KBT	CAP , CERAMIC	150PF 50V K	1
C501	HCBS1H270JT	CAP , CERAMIC	27PF 50V	1
C502	HCBS1H270JT	CAP , CERAMIC	27PF 50V	1
C503	HCBS1H181KBT	CAP , CERAMIC	180PF 50V K	1
C504	HCEA1HHR47T	CAP , ELECT	0.47PF 50V	1
C505	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C506	HCEA1AH471T	CAP , ELECT	470UF 10V	1
C509	HCEA1HH1R0T	CAP , ELECT	1UF 50V	1
C510	HCEA1HH1R0T	CAP , ELECT	1UF 50V	1
C511	HCQI1H682JZT	CAP , MYLAR	6800PF 50V J	1
C512	HCEA1HH1R0T	CAP , ELECT	1UF 50V	1
C513	HCBS1H560JT	CAP , CERAMIC	56PF 50V J	1
C514	HCBS1H220JCT	CAP , CERAMIC	22PF 50V J	1
C515	HCEA1AH471T	CAP , ELECT	470UF 10V	1
C517	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C518	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C519	CCFT1H104ZF	CAP , SEMICONDUCTOR	0.1UF 50V ZF	1
C521	HCBS1H330JT	CAP , CERAMIC	33PF 50V	1
C522	HCBS1H330JT	CAP , CERAMIC	33PF 50V	1
C555	HCEA1AH471T	CAP , ELECT	470UF 10V	1
C556	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C557	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C561	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C568	HCBS1H104ZFT	CAP , CERAMIC	0.1UF 50V Z	1
D401	HVD1SS133MT	DIODE	1SS133T-77	1
D402	HVD1SS133MT	DIODE	1SS133T-77	1
D403	HVD1SS133MT	DIODE	1SS133T-77	1
D404	HVD1SS133MT	DIODE	1SS133T-77	1
D405	HVD1SS133MT	DIODE	1SS133T-77	1
F903	KJCFC5S	HOLDER , FUSE		2
F904	KJCFC5S	HOLDER , FUSE		2

VIDEO PCB

Ref#	Component	Description 1	Description 2	Qty
F905	KJCFC5S	HOLDER , FUSE		2
F906	KJCFC5S	HOLDER , FUSE		2
F907	KJCFC5S	HOLDER , FUSE		2
J304	CRD25TJ2R2T	RES , CARBON	2.2 OHM 1/4W	1
L501	HLQ02C101JT	COIL , AXAIL	100UH,J	1
L502	KLQ5R6G405T	COIL , PEAKING(RADIAL)	5.6UH	1
L503	KLQ220J405T	COIL, PEAKING(RADIAL)	22UH J 4X5	1
Q402	HVTKSA733CYT	T.R	KRA107M	1
Q403	HVTKRA107MT	T.R	KRA107M	1
Q404	HVTKRC107MT	T.R	KRC107M	1
Q405	HVTKSA733CYT	T.R	KSA733CY	1
Q406	HVTKRA107MT	T.R	KRA107M	1
Q407	HVTKRC107MT	T.R	KRC107M	1
Q408	HVTKRC107MT	T.R	KRC107M	1
Q409	HVTKRA104MT	T.R	KRA104M	1
Q410	HVTKTD1302T	T.R	KTD1302	1
Q411	HVTKTD1302T	T.R	KTD1302	1
Q412	HVTKRA104MT	T.R	KRA104M	1
Q501	KVTKSC2785YT	T.R	KSC2785Y	1
Q502	KVTKSA1175YT	T.R	KSA1175Y	1
Q556	KVTKSA1175YT	T.R	KSA1175Y	1
Q568	HVTKTC2874BT	T.R , MUTE	KTC2874B	1
Q569	HVTKRC107MT	T.R	KRC107M	1
R404	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R405	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R406	CRD20TJ332T	RES , CARBON	3.3K OHM 1/5W J	1
R407	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R408	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R409	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R410	CRD20TJ332T	RES , CARBON	3.3K OHM 1/5W J	1
R417	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R418	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R419	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R420	CRD20TJ332T	RES , CARBON	3.3K OHM 1/5W J	1
R421	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R422	CRD20TJ332T	RES , CARBON	3.3K OHM 1/5W J	1
R423	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R424	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R425	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R426	CRD20TJ332T	RES , CARBON	3.3K OHM 1/5W J	1
R427	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R428	CRD20TJ332T	RES , CARBON	3.3K OHM 1/5W J	1
R430	CRD20TJ1R8T	RES , CARBON	1.8 OHM 1/5W J	1
R431	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R432	CRD20TJ1R0T	RES , CARBON	1 OHM 1/5W J	1
R433	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R434	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R435	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R436	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R437	CRD25TJ102T	RES , CARBON	1K OHM 1/4W	1
R438	CRD25TJ1R0T	RES , CARBON	1OHM 1/4W	1
R439	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R440	CRD20TJ1R8T	RES , CARBON	1.8 OHM 1/5W J	1
R441	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R442	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R443	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R444	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1

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Ref#	Component	Description 1	Description 2	Qty
R445	CRD20TJ1R0T	RES , CARBON	1 OHM 1/5W J	1
R446	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R447	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R448	CRD20TJ1R8T	RES , CARBON	1.8 OHM 1/5W J	1
R449	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R450	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R451	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R452	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R453	CRD20TJ332T	RES , CARBON	3.3K OHM 1/5W J	1
R454	CRD25TJ562T	RES , CARBON	5.6K OHM 1/4W J	1
R455	CRD20TJ105T	RES , CARBON	1M OHM 1/5W J	1
R456	CRD20TJ680T	RES , CARBON	68 OHM 1/5W J	1
R457	CRD20TJ333T	RES , CARBON	33K OHM 1/5W J	1
R458	CRD20TJ123T	RES , CARBON	12K OHM 1/5W J	1
R459	CRD20TJ680T	RES , CARBON	68 OHM 1/5W J	1
R460	CRD20TJ333T	RES , CARBON	33K OHM 1/5W J	1
R461	CRD20TJ123T	RES , CARBON	12K OHM 1/5W J	1
R462	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R463	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R464	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R465	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R466	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R467	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R468	CRD20TJ100T	RES , CARBON	10 OHM 1/5W J	1
R469	CRD20TJ100T	RES , CARBON	10 OHM 1/5W J	1
R470	CRD20TJ100T	RES , CARBON	10 OHM 1/5W J	1
R471	CRD20TJ100T	RES , CARBON	10 OHM 1/5W J	1
R472	CRD20TJ151T	RES , CARBON	150 OHM 1/5W J	1
R473	CRD20TJ181T	RES , CARBON	180 OHM 1/5W J	1
R474	CRD20TJ1R8T	RES , CARBON	1.8 OHM 1/5W J	1
R475	CRD20TJ1R0T	RES , CARBON	1 OHM 1/5W J	1
R476	CRD20TJ101T	RES , CARBON	100 OHM 1/5W J	1
R478	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J	1
R479	CRD20TJ181T	RES , CARBON	180 OHM 1/5W J	1
R480	CRD25TJ223T	RES , CARBON	22K OHM 1/4W J	1
R481	CRD20TJ183T	RES , CARBON	18K OHM 1/5W J	1
R482	CRD20TJ392T	RES , CARBON	3.9K OHM 1/5W J	1
R501	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R502	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R503	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R504	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J	1
R505	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R506	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R507	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R508	CRD20TJ682T	RES , CARBON	6.8K OHM 1/5W J	1
R509	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J	1
R510	CRD20TJ393T	RES , CARBON	39K OHM 1/5W J	1
R511	CRD20TJ222T	RES , CARBON	2.2K OHM 1/5W J	1
R512	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R513	CRD20TJ822T	RES , CARBON	8.2K OHM 1/5W J	1
R514	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R516	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J	1
R517	CRD20TJ273T	RES , CARBON	27K OHM 1/5W J	1
R555	CRD20TJ101T	RES , CARBON	100 OHM 1/5W J	1
R556	CRD20TJ183T	RES , CARBON	18K OHM 1/5W J	1
R557	C3A206	WIRE , COPPER	SN95/PB5 , 0.6	0.018
R558	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1

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Ref#	Component	Description 1	Description 2	Qty
R568	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J	1
R569	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J	1
CN13	KJP05GA01ZM	WAFER	MOLEX 5267-05A	1
CN41	KJP06GA19ZM	WAFER	MOLEX53014-0610	1
CN43	CJP13GA115ZY	WAFER , CARD CABLE		1
CN61	KJP07GA19ZM	WAFER	MOLEX53014-0710	1
C440	CCKT1H271KB	CAP , CERAMIC	270PF 50V KB	1
C441	CCKT1H271KB	CAP , CERAMIC	270PF 50V KB	1
C507	CCCT1H220JC	CAP , CERAMIC	22PF 50V JC	1
C508	CCCT1H270JC	CAP , CERAMIC	22PF 50V JC	1
C520	CCEA0JKR3222E	CAP , ELECTROLYTIC		1
C523	CCEA0JKR3222E	CAP , ELECTROLYTIC		1
IC41	HVINJM2296M	I.C , VIDEO SW	NJM2296M	1
IC42	HVINJM2296M	I.C , VIDEO SW	NJM2296M	1
IC43	HVINJM2296M	I.C , VIDEO SW	NJM2296M	1
IC44	HVIHCF4053M013T	I.C		1
IC45	HVIHCF4053M013T	I.C		1
IC46	HVINJM2581MTE1	I.C		1
IC47	HVIMM1511XNRE	IC, Y/C-MIX	R59-4174	1
IC48	HVIL7805CP	I.C, REGULATOR		1
IC49	HVIL7905CP	I.C, REGULATOR		1
IC51	HVILC74763M	I.C , OSD		1
IC52	HVI74ACT04MTR	I.C , HEX		1
IC61	HVINJM2586AMTE1	I.C , VIDEO SW		1
IC71	HVITC74HCU04AFN	IC , INVERTER	TC74HCU04AFN	1
JK42	CJJ9N001Z	JACK , S-VIDEO (2P/H)		1
JK43	CJJ9S001Z	JACK , S-VIDEO (3P/H)		1
JK49	CJJ4N043Z	JACK , BOARD		1
JK50	CJJ4S010Z	JACK , BOARD		1
JW11	CWEP202110VV	WIRE		1
J519	CRD25TJ102T	RES , CARBON		1
X501	HOX17734E220C	CRYSTAL		1
X502	HOX14318E220C	CRYSTAL		1

CUP11747-2 PCB

Ref#	Component	Description 1	Description 2	Qty
C610	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C611	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C612	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C613	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C620	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C621	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
C622	HCBS1H223ZFT	CAP , CERAMIC	0.022UF 50V Z	1
Q601	HVTKRC114MT	T.R	KTC114M	1
R601	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R602	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R603	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R604	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R605	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R606	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R607	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R608	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R609	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R610	CRD20TJ4R7T	RES , CARBON	4.7 OHM 1/5W	1
R611	CRD20TJ4R7T	RES , CARBON	4.7 OHM 1/5W	1
R612	CRD20TJ472T	RES , CARBON	4.7K OHM 1/5W J	1
R709	CRD20TJ111T	RES , CARBON	110 OHM 1/5W J	1
R710	CRD20TJ1R0T	RES , CARBON	1 OHM 1/5W J	1
BN61	CWB2B907120EN	WIRE ASS'Y		1
JK61	CJJ4L009Z	JACK 9P (RRR/BBB/GGG)		1

CUP11747-3 PCB

Ref#	Component	Description 1	Description 2	Qty
BN17	KJP12GB143ZP	DIP SOCKET	3011 - DR12 - G	1
JK71	HJSTORX179L	MODULE , OPTICAL(RX)	TORX179L	1
JK72	HJSTORX179L	MODULE , OPTICAL(RX)	TORX179L	1
JK73	CJJ4S022Z	JACK , BOARD		1
JK74	HJSTOTX179L	MODULE , OPTICAL(TX)	TOTX179L	1
R711	CRD20TJ1R0T	RES , CARBON	1 OHM 1/5W J	1
R713	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J	1
R714	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J	1
R715	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R716	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J	1
R717	CRD20TJ472T	RES , CARBON	4.7K OHM 1/5W J	1
R718	CRD20TJ472T	RES , CARBON	4.7K OHM 1/5W J	1
R701	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R702	CRD20TJ1R0T	RES , CARBON	1 OHM 1/5W J	1
R703	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J	1
R704	CRD20TJ1R0T	RES , CARBON	1 OHM 1/5W J	1
R705	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R706	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J	1
R707	CRD20TJ270T	RES , CARBON	27 OHM 1/5W J	1
R708	CRD20TJ271T	RES , CARBON	270 OHM 1/5W J	1
C701	HCEA1AH471T	CAP , ELECT	470UF 10V	1
C702	HCEA1AH471T	CAP , ELECT	470UF 10V	1
C703	CCKT1H181KB	CAP , CERAMIC	180PF 50V KB	1
C704	CCFT1H104ZF	CAP , SEMICONDUCTOR	0.1UF 50V ZF	1
C705	CCKT1H181KB	CAP , CERAMIC	180PF 50V KB	1
C706	CCFT1H104ZF	CAP , SEMICONDUCTOR	0.1UF 50V ZF	1
C707	CCKT1H101KB	CAP , CERAMIC	100PF 50V KB	1
C708	HCEA1CKS101T	CAP , ELECT	100UF 16V	1
C709	HCBS1H104ZFT	CAP , CERAMIC	0.1UF 50V Z	1
C711	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C712	HCBS1H473ZFT	CAP , CERAMIC	0.047UF 50V Z	1

CUP11747-4 PCB

Ref#	Component	Description 1	Description 2	Qty
CN19	KJP03GA90ZM	WAFER	MOLEX35313-0310	1
CN20	KJP04GA90ZM	WAFER	MOLEX35313-0310	1
F903	KBA2C6300TLEZ	FUSE	6.3A 250V	1
F904	KBA2C6300TLEZ	FUSE	6.3A 250V	1
F905	KBA2C6300TLEZ	FUSE	6.3A 250V	1
F906	KBA2C6300TLEZ	FUSE	6.3A 250V	1
D991	HVDKBU804F	DIODE , BRIDGE		1
D992	HVDKBU804F	DIODE , BRIDGE		1
C921	HCQI1H104JZT	CAP , MYLAR	0.1UF 50V J	1
C922	HCQI1H104JZT	CAP , MYLAR	0.1UF 50V J	1
C923	HCQI1H104JZT	CAP , MYLAR	0.1UF 50V J	1
C924	HCQI1H104JZT	CAP , MYLAR	0.1UF 50V J	1
C925	HCQI1H103JZT	CAP , MYLAR	0.01UF 50V J	1
C926	HCQI1H103JZT	CAP , MYLAR	0.01UF 50V J	1
C927	HCQI1H103JZT	CAP , MYLAR	0.01UF 50V J	1
C928	HCQI1H103JZT	CAP , MYLAR	0.01UF 50V J	1
C931	HCQI1H473JZT	CAP , MYLAR	0.047UF 50V J	1
C932	HCQI1H473JZT	CAP , MYLAR	0.047UF 50V J	1
C933	HCQI1H473JZT	CAP , MYLAR	0.047UF 50V J	1
C934	HCQI1H473JZT	CAP , MYLAR	0.047UF 50V J	1

CUP11747-5 PCB

Ref#	Component	Description 1	Description 2	Qty
BN96	CWB1C908150BM	WIRE ASS'Y		1
CN81	CJP08GA01ZY	WAFER, STRAIGHT, 8PIN		1
SW91	KST1A010Z	SW , TACT CN		1
R112	CRD20TJ122T	RES , CARBON	1.2K OHM 1/5W J	1
R113	CRD20TJ473T	RES , CARBON	47K OHM 1/5W J	1
C107	CCKT1H103ZF	CAP , CERAMIC	0.01UF 50V ZF	1
C108	CCKT1H103ZF	CAP , CERAMIC	0.01UF 50V ZF	1
C109	CCFT1H104ZF	CAP , SEMICONDUCTOR	0.1UF 50V ZF	1
C110	CCFT1H104ZF	CAP , SEMICONDUCTOR	0.1UF 50V ZF	1
C111	CCKT1H103ZF	CAP , CERAMIC	0.01UF 50V ZF	1
C112	CCKT1H103ZF	CAP , CERAMIC	0.01UF 50V ZF	1
C117	HCEA1HH4R7T	CAP , ELECT	4.7UF 50V	1
C118	CCKT1H103ZF	CAP , CERAMIC	0.01UF 50V ZF	1
C119	HCEA1HH470T	CAP , ELECT	47UF 50V	1
C120	HCEA1HH470T	CAP , ELECT	47UF 50V	1
C121	CCKT1H103ZF	CAP , CERAMIC	0.01UF 50V ZF	1
C122	HCEA1JH101E	CAP , ELECT	100UF 63V	1
Q104	HVTKSC2316YT	T.R	KSC2316Y	1
D101	HVDMTZJ15BT	DIODE , ZENER	15V 1/2W	1
D102	HVDMTZJ27BT	DIODE , ZENER	27V 1/2W	1
D104	KVD1N4003ST	DIODE	1N4003	1
D105	KVD1N4003ST	DIODE	1N4003	1
D108	KVD1N4003ST	DIODE	1N4003	1
D109	HVDMTZJ12BT	DIODE , ZENER	12V 1/2W	1
D111	HVDMTZJ12BT	DIODE , ZENER	12V 1/2W	1
R101	KRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W	1
R104	KRQ1AJR47H	RES , FUSE	0.47 OHM 1W J	1
R105	KRQ1AJR47H	RES , FUSE	0.47 OHM 1W J	1
R106	KRQ1AJR47H	RES , FUSE	0.47 OHM 1W J	1
R107	KRQ1AJR47H	RES , FUSE	0.47 OHM 1W J	1
R108	CRD20TJ4R7T	RES , CARBON	4.7 OHM 1/5W	1
R109	CRD20TJ100T	RES , CARBON	10 OHM 1/5W J	1
R110	CRD20TJ4R7T	RES , CARBON	4.7 OHM 1/5W	1

CUP11747-6 PCB

Ref#	Component	Description 1	Description 2	Qty
CN21	KJP02GA89ZM	WAFER	MOLEX35328-02	1
BN91	CWB4FE53130PU	WIRE ASS'Y		1
BN14	CWB4F232450PU	WIRE ASS'Y		1
C124	BCQE2E104KDE	CAP , LINE ACROSS	0.1UF 250V KD	1
CN84	KJP02KA060ZY	WAFER	7.92MM(YUNHO)	1
OL91	KJJ7A025Z	OUTLET , EUR(2P)	A3-04-D007-2P	1
F901	KBA2D2500TLET	FUSE		1
F902	KBA2D2500TLET	FUSE		1
F907	KBA2C4000TLEZ	FUSE	4A 250V	1

Digital and Analog PCB

Ref#	Component	Description 1	Description 2	Qty
	COP11748E	INPUT PCB ASS'Y		1
C105	HCUS1H223KC	CAP , CHIP	0.022UF KC	1
C106	HCUS1H223KC	CAP , CHIP	0.022UF KC	1
C201	HCUS1H221JA	CAP , CHIP	220PF JA	1
C202	HCUS1H221JA	CAP , CHIP	220PF JA	1
C203	HCUS1H221JA	CAP , CHIP	220PF JA	1
C204	HCUS1H221JA	CAP , CHIP	220PF JA	1
C205	HCUS1H221JA	CAP , CHIP	220PF JA	1
C206	HCUS1H221JA	CAP , CHIP	220PF JA	1
C211	HCUS1H221JA	CAP , CHIP	220PF JA	1
C212	HCUS1H221JA	CAP , CHIP	220PF JA	1
C213	HCUS1H221JA	CAP , CHIP	220PF JA	1
C214	HCUS1H221JA	CAP , CHIP	220PF JA	1
C215	HCUS1H221JA	CAP , CHIP	220PF JA	1
C216	HCUS1H221JA	CAP , CHIP	220PF JA	1
C217	HCUS1H221JA	CAP , CHIP	220PF JA	1
C218	HCUS1H221JA	CAP , CHIP	220PF JA	1
C219	HCUS1H221JA	CAP , CHIP	220PF JA	1
C220	HCUS1H221JA	CAP , CHIP	220PF JA	1
C221	HCUS1H221JA	CAP , CHIP	220PF JA	1
C222	HCUS1H221JA	CAP , CHIP	220PF JA	1
C223	HCUS1H221JA	CAP , CHIP	220PF JA	1
C224	HCUS1H221JA	CAP , CHIP	220PF JA	1
C225	HCUS1H221JA	CAP , CHIP	220PF JA	1
C226	HCUS1H221JA	CAP , CHIP	220PF JA	1
C241	HCUS1H181JA	CAP , CHIP	180PF JA	1
C242	HCUS1H471JA	CAP , CHIP	470PF JA	1
C253	HCUS1H181JA	CAP , CHIP	180PF JA	1
C254	HCUS1H471JA	CAP , CHIP	470PF JA	1
C255	HCUS1H223KC	CAP , CHIP	0.022UF KC	1
C256	HCUS1H223KC	CAP , CHIP	0.022UF KC	1
C270	HCUS1H181JA	CAP , CHIP	180PF JA	1
C271	HCUS1H471JA	CAP , CHIP	470PF JA	1
C291	HCUS1E104ZF	CAP , CHIP	0.1UF ZF	1
C292	HCUS1E104ZF	CAP , CHIP	0.1UF ZF	1
C294	HCUS1E104ZF	CAP , CHIP	0.1UF ZF	1
C295	HCUS1E104ZF	CAP , CHIP	0.1UF ZF	1
C296	HCUS1E104ZF	CAP , CHIP	0.1UF ZF	1
C297	HCUS1E104ZF	CAP , CHIP	0.1UF ZF	1
C298	HCUS1E104ZF	CAP , CHIP	0.1UF ZF	1
C317	HCUS1H223KC	CAP , CHIP	0.022UF KC	1
C318	HCUS1H223KC	CAP , CHIP	0.022UF KC	1
C319	HCUS1H223KC	CAP , CHIP	0.022UF KC	1
C320	HCUS1H223KC	CAP , CHIP	0.022UF KC	1
C321	HCUS1H561JA	CAP , CHIP	560PF JA	1
C322	HCUS1H561JA	CAP , CHIP	560PF JA	1
C323	HCUS1H561JA	CAP , CHIP	560PF JA	1
C324	HCUS1H561JA	CAP , CHIP	560PF JA	1
C325	HCUS1H561JA	CAP , CHIP	560PF JA	1
C326	HCUS1H561JA	CAP , CHIP	560PF JA	1
C327	HCUS1H561JA	CAP , CHIP	560PF JA	1
C328	HCUS1H561JA	CAP , CHIP	560PF JA	1
C329	HCUS1H561JA	CAP , CHIP	560PF JA	1
C330	HCUS1H561JA	CAP , CHIP	560PF JA	1
C331	HCUS1H561JA	CAP , CHIP	560PF JA	1
C332	HCUS1H561JA	CAP , CHIP	560PF JA	1
C333	HCUS1H561JA	CAP , CHIP	560PF JA	1
C334	HCUS1H561JA	CAP , CHIP	560PF JA	1
C335	HCUS1H561JA	CAP , CHIP	560PF JA	1
C336	HCUS1H561JA	CAP , CHIP	560PF JA	1

Digital and Analog PCB

Ref#	Component	Description 1	Description 2	Qty
C337	HCUS1H223KC	CAP , CHIP	0.022UF KC	1
C338	HCUS1H223KC	CAP , CHIP	0.022UF KC	1
C339	HCUS1H223KC	CAP , CHIP	0.022UF KC	1
C340	HCUS1H223KC	CAP , CHIP	0.022UF KC	1
C371	HCUS1H221JA	CAP , CHIP	220PF JA	1
C372	HCUS1H221JA	CAP , CHIP	220PF JA	1
C373	HCUS1H221JA	CAP , CHIP	220PF JA	1
C374	HCUS1H221JA	CAP , CHIP	220PF JA	1
C375	HCUS1H223KC	CAP , CHIP	0.022UF KC	1
C376	HCUS1H223KC	CAP , CHIP	0.022UF KC	1
C378	HCUS1H223KC	CAP , CHIP	0.022UF KC	1
C379	HCUS1H223KC	CAP , CHIP	0.022UF KC	1
C381	HCUS1H561JA	CAP , CHIP	560PF JA	1
C382	HCUS1H223KC	CAP , CHIP	0.022UF KC	1
C383	HCUS1H223KC	CAP , CHIP	0.022UF KC	1
C413	HCUS1H223KC	CAP , CHIP	0.022UF KC	1
C414	HCUS1H223KC	CAP , CHIP	0.022UF KC	1
C415	HCUS1H223KC	CAP , CHIP	0.022UF KC	1
C416	HCUS1H223KC	CAP , CHIP	0.022UF KC	1
C417	HCUS1H223KC	CAP , CHIP	0.022UF KC	1
C418	HCUS1H223KC	CAP , CHIP	0.022UF KC	1
C419	HCUS1H223KC	CAP , CHIP	0.022UF KC	1
C420	HCUS1H223KC	CAP , CHIP	0.022UF KC	1
C425	HCUS1H151JA	CAP , CHIP	150PF JA	1
C427	HCUS1H151JA	CAP , CHIP	150PF JA	1
C428	HCUS1H151JA	CAP , CHIP	150PF JA	1
C429	HCUS1H151JA	CAP , CHIP	150PF JA	1
C430	HCUS1H151JA	CAP , CHIP	150PF JA	1
C471	HCUS1H181JA	CAP , CHIP	180PF JA	1
C472	HCUS1H181JA	CAP , CHIP	180PF JA	1
C474	HCUS1H181JA	CAP , CHIP	180PF JA	1
C726	HCUS1H473ZF	CAP , CHIP	0.047UF ZF	1
C727	HCUS1E104ZF	CAP , CHIP	0.1UF ZF	1
C729	HCUS1E104ZF	CAP , CHIP	0.1UF ZF	1
C730	HCUS1E104ZF	CAP , CHIP	0.1UF ZF	1
C731	HCUS1E104ZF	CAP , CHIP	0.1UF ZF	1
C733	HCUS1H223KC	CAP , CHIP	0.022UF KC	1
C734	HCUS1H101JA	CAP , CHIP	100PF JA	1
C735	HCUS1H101JA	CAP , CHIP	100PF JA	1
C736	HCUS1H101JA	CAP , CHIP	100PF JA	1
C737	HCUS1H101JA	CAP , CHIP	100PF JA	1
C738	HCUS1E104ZF	CAP , CHIP	0.1UF ZF	1
C739	HCUS1H330JA	CAP , CHIP	33PF JA	1
C740	HCUS1H330JA	CAP , CHIP	33PF JA	1
C742	HCUS1E104ZF	CAP , CHIP	0.1UF ZF	1
C743	HCUS1E104ZF	CAP , CHIP	0.1UF ZF	1
C744	HCUS1E104ZF	CAP , CHIP	0.1UF ZF	1
C746	HCUS1E104ZF	CAP , CHIP	0.1UF ZF	1
C747	HCUS1H223KC	CAP , CHIP	0.022UF KC	1
C748	HCUS1E104ZF	CAP , CHIP	0.1UF ZF	1
C750	HCUS1E104ZF	CAP , CHIP	0.1UF ZF	1
C751	HCUS1E104ZF	CAP , CHIP	0.1UF ZF	1
C753	HCUS1E104ZF	CAP , CHIP	0.1UF ZF	1
C755	HCUS1H223KC	CAP , CHIP	0.022UF KC	1
C756	HCUS1E104ZF	CAP , CHIP	0.1UF ZF	1
C758	HCUS1E104ZF	CAP , CHIP	0.1UF ZF	1
C760	HCUS1H471JA	CAP , CHIP	470PF JA	1
C761	HCUS1H103KC	CAP , CHIP	0.01UF KC	1
C762	HCUS1H120JA	CAP , CHIP	12PF JA	1
C763	HCUS1H120JA	CAP , CHIP	12PF JA	1

Digital and Analog PCB

Ref#	Component	Description 1	Description 2	Qty
C764	HCUS1H102KC	CAP , CHIP	1000PF KC	1
C765	HCUS1H101JA	CAP , CHIP	100PF JA	1
C766	HCUS1E104ZF	CAP , CHIP , 0.1UF ZF	0.1UF ZF	1
C767	HCUS1E104ZF	CAP , CHIP , 0.1UF ZF	0.1UF ZF	1
C769	HCUS1E104ZF	CAP , CHIP , 0.1UF ZF	0.1UF ZF	1
C771	HCUS1E104ZF	CAP , CHIP , 0.1UF ZF	0.1UF ZF	1
C773	HCUS1E104ZF	CAP , CHIP , 0.1UF ZF	0.1UF ZF	1
C774	HCUS1E104ZF	CAP , CHIP , 0.1UF ZF	0.1UF ZF	1
C775	HCUS1E104ZF	CAP , CHIP , 0.1UF ZF	0.1UF ZF	1
C777	HCUS1H473ZF	CAP , CHIP	0/047UF ZF	1
C779	HCUS1E104ZF	CAP , CHIP , 0.1UF ZF	0.1UF ZF	1
C780	HCUS1E104ZF	CAP , CHIP , 0.1UF ZF	0.1UF ZF	1
C783	HCUS1H473ZF	CAP , CHIP	0/047UF ZF	1
C784	HCUS1E104ZF	CAP , CHIP , 0.1UF ZF	0.1UF ZF	1
C787	HCUS1H473ZF	CAP , CHIP	0/047UF ZF	1
D703	HVDRB160L60TE25	DIODE , SCHOTTKEY BARRIER HK	RB160L-60TE25	1
IC13	HVINJM2068MDTE1	I.C , OP AMP	NJM2068MD-TE1	1
IC23	HVITC9164AF	I.C , FUNCTION	TC9164AF	1
IC24	HVITC9163AF	I.C , FUNCTION	TC9163AF	1
IC25	HVINJM2068MDTE1	I.C , OP AMP	NJM2068MD-TE1	1
IC26	HVITC9162AF	I.C , FUNCTION	TC9162AF	1
IC31	HVINJM2068MDTE1	I.C , OP AMP	NJM2068MD-TE1	1
IC32	HVINJM2068MDTE1	I.C , OP AMP	NJM2068MD-TE1	1
IC33	HVINJM2068MDTE1	I.C , OP AMP	NJM2068MD-TE1	1
IC34	HVINJM2068MDTE1	I.C , OP AMP	NJM2068MD-TE1	1
IC35	HVINJM2068MDTE1	I.C , OP AMP	NJM2068MD-TE1	1
IC36	HVINJM2068MDTE1	I.C , OP AMP	NJM2068MD-TE1	1
IC37	HVINJM2068MDTE1	I.C , OP AMP	NJM2068MD-TE1	1
IC40	HVITC9459F	I.C , VOLUME	TC9459	1
IC42	HVITC9459F	I.C , VOLUME	TC9459	1
IC43	HVITC9459F	I.C , VOLUME	TC9459	1
IC44	HVITC9459F	I.C , VOLUME	TC9459	1
IC46	HVINJM2068MDTE1	I.C , OP AMP	NJM2068MD-TE1	1
IC47	HVINJM2068MDTE1	I.C , OP AMP	NJM2068MD-TE1	1
IC48	HVINJM2068MDTE1	I.C , OP AMP	NJM2068MD-TE1	1
IC49	HVINJM2068MDTE1	I.C , OP AMP	NJM2068MD-TE1	1
IC72	HVITC74HCU04AFN	IC , INVERTER	TC74HCU04AFN	1
IC73	HVIAK4114VQ	I.C , DIR	AK4114VQ	1
IC74	HVIAK4358VQ	I.C , DAC(8CH)	AK4358VQ	1
IC75	HVICS493263-CLG	I.C , DSP HK	CS493263-CLG	1
IC76	HVIAK5381VT	I.C , ADC	AK5381VT	1
R101	HRJ10DJ562T	RES , CHIP	5.6K OHM 1/10W	1
R102	HRJ10DJ562T	RES , CHIP	5.6K OHM 1/10W	1
R103	HRJ10DJ682T	RES , CHIP	6.8K OHM 1/10W	1
R104	HRJ10DJ682T	RES , CHIP	6.8K OHM 1/10W	1
R105	HRJ10DJ151T	RES , CHIP	150 OHM 1/10W	1
R106	HRJ10DJ151T	RES , CHIP	150 OHM 1/10W	1
R107	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R108	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R201	HRJ10DJ471T	RES , CHIP	470 OHM 1/10W	1
R202	HRJ10DJ471T	RES , CHIP	470 OHM 1/10W	1
R203	HRJ10DJ471T	RES , CHIP	470 OHM 1/10W	1
R204	HRJ10DJ471T	RES , CHIP	470 OHM 1/10W	1
R205	HRJ10DJ471T	RES , CHIP	470 OHM 1/10W	1
R206	HRJ10DJ471T	RES , CHIP	470 OHM 1/10W	1
R211	HRJ10DJ471T	RES , CHIP	470 OHM 1/10W	1
R212	HRJ10DJ471T	RES , CHIP	470 OHM 1/10W	1
R213	HRJ10DJ471T	RES , CHIP	470 OHM 1/10W	1
R214	HRJ10DJ471T	RES , CHIP	470 OHM 1/10W	1
R215	HRJ10DJ471T	RES , CHIP	470 OHM 1/10W	1

Digital and Analog PCB

Ref#	Component	Description 1	Description 2	Qty
R216	HRJ10DJ471T	RES , CHIP	470 OHM 1/10W	1
R217	HRJ10DJ471T	RES , CHIP	470 OHM 1/10W	1
R218	HRJ10DJ471T	RES , CHIP	470 OHM 1/10W	1
R219	HRJ10DJ471T	RES , CHIP	470 OHM 1/10W	1
R220	HRJ10DJ471T	RES , CHIP	470 OHM 1/10W	1
R221	HRJ10DJ471T	RES , CHIP	470 OHM 1/10W	1
R222	HRJ10DJ471T	RES , CHIP	470 OHM 1/10W	1
R223	HRJ10DJ471T	RES , CHIP	470 OHM 1/10W	1
R224	HRJ10DJ272T	RES , CHIP	2.7K OHM 1/10W	1
R225	HRJ10DJ471T	RES , CHIP	470 OHM 1/10W	1
R226	HRJ10DJ471T	RES , CHIP	470 OHM 1/10W	1
R227	HRJ10DJ474T	RES , CHIP	470K OHM 1/10W	1
R228	HRJ10DJ474T	RES , CHIP	470K OHM 1/10W	1
R229	HRJ10DJ474T	RES , CHIP	470K OHM 1/10W	1
R230	HRJ10DJ474T	RES , CHIP	470K OHM 1/10W	1
R231	HRJ10DJ474T	RES , CHIP	470K OHM 1/10W	1
R232	HRJ10DJ474T	RES , CHIP	470K OHM 1/10W	1
R237	HRJ10DJ474T	RES , CHIP	470K OHM 1/10W	1
R238	HRJ10DJ474T	RES , CHIP	470K OHM 1/10W	1
R239	HRJ10DJ474T	RES , CHIP	470K OHM 1/10W	1
R240	HRJ10DJ474T	RES , CHIP	470K OHM 1/10W	1
R241	HRJ10DJ474T	RES , CHIP	470K OHM 1/10W	1
R242	HRJ10DJ474T	RES , CHIP	470K OHM 1/10W	1
R243	HRJ10DJ474T	RES , CHIP	470K OHM 1/10W	1
R244	HRJ10DJ474T	RES , CHIP	470K OHM 1/10W	1
R245	HRJ10DJ474T	RES , CHIP	470K OHM 1/10W	1
R246	HRJ10DJ474T	RES , CHIP	470K OHM 1/10W	1
R247	HRJ10DJ474T	RES , CHIP	470K OHM 1/10W	1
R248	HRJ10DJ474T	RES , CHIP	470K OHM 1/10W	1
R249	HRJ10DJ474T	RES , CHIP	470K OHM 1/10W	1
R250	HRJ10DJ103T	RES , CHIP	10K OHM 1/10W	1
R251	HRJ10DJ474T	RES , CHIP	470K OHM 1/10W	1
R252	HRJ10DJ474T	RES , CHIP	470K OHM 1/10W	1
R265	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R267	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R268	HRJ10DJ184T	RES , CHIP	180K OHM 1/10W	1
R269	HRJ10DJ184T	RES , CHIP	180K OHM 1/10W	1
R270	HRJ10DJ472T	RES , CHIP	4.7K OHM 1/10W	1
R271	HRJ10DJ472T	RES , CHIP	4.7K OHM 1/10W	1
R272	HRJ10DJ472T	RES , CHIP	4.7K OHM 1/10W	1
R273	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R274	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R275	HRJ10DJ472T	RES , CHIP	4.7K OHM 1/10W	1
R276	HRJ10DJ472T	RES , CHIP	4.7K OHM 1/10W	1
R277	HRJ10DJ472T	RES , CHIP	4.7K OHM 1/10W	1
R278	HRJ10DJ104T	RES , CHIP	100K OHM 1/10W	1
R279	HRJ10DJ104T	RES , CHIP	100K OHM 1/10W	1
R280	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R281	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R283	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R284	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R285	HRJ10DJ184T	RES , CHIP	180K OHM 1/10W	1
R286	HRJ10DJ184T	RES , CHIP	180K OHM 1/10W	1
R287	HRJ10DJ184T	RES , CHIP	180K OHM 1/10W	1
R288	HRJ10DJ184T	RES , CHIP	180K OHM 1/10W	1
R289	HRJ10DJ184T	RES , CHIP	180K OHM 1/10W	1
R290	HRJ10DJ184T	RES , CHIP	180K OHM 1/10W	1
R291	HRJ10DJ472T	RES , CHIP	4.7K OHM 1/10W	1
R292	HRJ10DJ472T	RES , CHIP	4.7K OHM 1/10W	1
R293	HRJ10DJ472T	RES , CHIP	4.7K OHM 1/10W	1

Digital and Analog PCB

Ref#	Component	Description 1	Description 2	Qty
R301	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R302	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R303	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R304	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R305	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R306	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R307	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R308	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R309	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R310	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R311	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R312	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R313	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R314	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R315	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R316	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R317	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R318	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R319	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R320	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R321	HRJ10DJ562T	RES , CHIP	5.6K OHM 1/10W	1
R322	HRJ10DJ562T	RES , CHIP	5.6K OHM 1/10W	1
R323	HRJ10DJ562T	RES , CHIP	5.6K OHM 1/10W	1
R324	HRJ10DJ562T	RES , CHIP	5.6K OHM 1/10W	1
R325	HRJ10DJ562T	RES , CHIP	5.6K OHM 1/10W	1
R326	HRJ10DJ562T	RES , CHIP	5.6K OHM 1/10W	1
R327	HRJ10DJ223T	RES , CHIP	22K OHM 1/10W	1
R328	HRJ10DJ223T	RES , CHIP	22K OHM 1/10W	1
R329	HRJ10DJ562T	RES , CHIP	5.6K OHM 1/10W	1
R330	HRJ10DJ562T	RES , CHIP	5.6K OHM 1/10W	1
R331	HRJ10DJ562T	RES , CHIP	5.6K OHM 1/10W	1
R332	HRJ10DJ562T	RES , CHIP	5.6K OHM 1/10W	1
R333	HRJ10DJ562T	RES , CHIP	5.6K OHM 1/10W	1
R334	HRJ10DJ562T	RES , CHIP	5.6K OHM 1/10W	1
R335	HRJ10DJ562T	RES , CHIP	5.6K OHM 1/10W	1
R336	HRJ10DJ562T	RES , CHIP	5.6K OHM 1/10W	1
R337	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R338	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R339	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R340	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R341	HRJ10DJ122T	RES , CHIP	1.2K OHM 1/10W	1
R342	HRJ10DJ122T	RES , CHIP	1.2K OHM 1/10W	1
R343	HRJ10DJ122T	RES , CHIP	1.2K OHM 1/10W	1
R344	HRJ10DJ122T	RES , CHIP	1.2K OHM 1/10W	1
R345	HRJ10DJ122T	RES , CHIP	1.2K OHM 1/10W	1
R346	HRJ10DJ122T	RES , CHIP	1.2K OHM 1/10W	1
R347	HRJ10DJ122T	RES , CHIP	1.2K OHM 1/10W	1
R348	HRJ10DJ122T	RES , CHIP	1.2K OHM 1/10W	1
R349	HRJ10DJ122T	RES , CHIP	1.2K OHM 1/10W	1
R350	HRJ10DJ122T	RES , CHIP	1.2K OHM 1/10W	1
R351	HRJ10DJ122T	RES , CHIP	1.2K OHM 1/10W	1
R352	HRJ10DJ122T	RES , CHIP	1.2K OHM 1/10W	1
R353	HRJ10DJ122T	RES , CHIP	1.2K OHM 1/10W	1
R354	HRJ10DJ122T	RES , CHIP	1.2K OHM 1/10W	1
R355	HRJ10DJ122T	RES , CHIP	1.2K OHM 1/10W	1
R356	HRJ10DJ122T	RES , CHIP	1.2K OHM 1/10W	1
R361	HRJ10DJ104T	RES , CHIP	100K OHM 1/10W	1
R362	HRJ10DJ104T	RES , CHIP	100K OHM 1/10W	1
R363	HRJ10DJ104T	RES , CHIP	100K OHM 1/10W	1
R364	HRJ10DJ104T	RES , CHIP	100K OHM 1/10W	1

Digital and Analog PCB

Ref#	Component	Description 1	Description 2	Qty
R365	HRJ10DJ104T	RES , CHIP	100K OHM 1/10W	1
R366	HRJ10DJ104T	RES , CHIP	100K OHM 1/10W	1
R367	HRJ10DJ104T	RES , CHIP	100K OHM 1/10W	1
R368	HRJ10DJ104T	RES , CHIP	100K OHM 1/10W	1
R371	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R372	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R373	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R374	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R375	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R376	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R377	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R378	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R379	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R380	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R381	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R382	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R383	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R384	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R385	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R386	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R389	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R390	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R391	HRJ10DJ105T	RES , CHIP	1M OHM 1/10W	1
R392	HRJ10DJ105T	RES , CHIP	1M OHM 1/10W	1
R393	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R394	HRJ10DJ153T	RES , CHIP	15K OHM 1/10W	1
R395	HRJ10DJ153T	RES , CHIP	15K OHM 1/10W	1
R396	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R397	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R398	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R403	HRJ10DJ184T	RES , CHIP	180K OHM 1/10W	1
R404	HRJ10DJ184T	RES , CHIP	180K OHM 1/10W	1
R405	HRJ10DJ184T	RES , CHIP	180K OHM 1/10W	1
R406	HRJ10DJ184T	RES , CHIP	180K OHM 1/10W	1
R407	HRJ10DJ184T	RES , CHIP	180K OHM 1/10W	1
R408	HRJ10DJ184T	RES , CHIP	180K OHM 1/10W	1
R409	HRJ10DJ184T	RES , CHIP	180K OHM 1/10W	1
R410	HRJ10DJ184T	RES , CHIP	180K OHM 1/10W	1
R415	HRJ10DJ562T	RES , CHIP	5.6K OHM 1/10W	1
R416	HRJ10DJ103T	RES , CHIP	10K OHM 1/10W	1
R417	HRJ10DJ562T	RES , CHIP	5.6K OHM 1/10W	1
R418	HRJ10DJ562T	RES , CHIP	5.6K OHM 1/10W	1
R419	HRJ10DJ562T	RES , CHIP	5.6K OHM 1/10W	1
R420	HRJ10DJ562T	RES , CHIP	5.6K OHM 1/10W	1
R425	HRJ10DJ102T	RES , CHIP	1K OHM 1/10W	1
R426	HRJ10DJ102T	RES , CHIP	1K OHM 1/10W	1
R427	HRJ10DJ102T	RES , CHIP	1K OHM 1/10W	1
R428	HRJ10DJ102T	RES , CHIP	1K OHM 1/10W	1
R429	HRJ10DJ102T	RES , CHIP	1K OHM 1/10W	1
R430	HRJ10DJ102T	RES , CHIP	1K OHM 1/10W	1
R433	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R434	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R435	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R436	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R437	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R438	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R439	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R440	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R453	HRJ10DJ184T	RES , CHIP	180K OHM 1/10W	1
R454	HRJ10DJ184T	RES , CHIP	180K OHM 1/10W	1

Digital and Analog PCB

Ref#	Component	Description 1	Description 2	Qty
R455	HRJ10DJ184T	RES , CHIP	180K OHM 1/10W	1
R456	HRJ10DJ184T	RES , CHIP	180K OHM 1/10W	1
R457	HRJ10DJ184T	RES , CHIP	180K OHM 1/10W	1
R458	HRJ10DJ184T	RES , CHIP	180K OHM 1/10W	1
R459	HRJ10DJ184T	RES , CHIP	180K OHM 1/10W	1
R460	HRJ10DJ184T	RES , CHIP	180K OHM 1/10W	1
R471	HRJ10DJ272T	RES , CHIP	2.7K OHM 1/10W	1
R472	HRJ10DJ272T	RES , CHIP	2.7K OHM 1/10W	1
R473	HRJ10DJ272T	RES , CHIP	2.7K OHM 1/10W	1
R491	HRJ10DJ4R7T	RES , CHIP	4.7 OHM 1/10W	1
R492	HRJ10DJ4R7T	RES , CHIP	4.7 OHM 1/10W	1
R494	HRJ10DJ4R7T	RES , CHIP	4.7 OHM 1/10W	1
R495	HRJ10DJ4R7T	RES , CHIP	4.7 OHM 1/10W	1
R496	HRJ10DJ4R7T	RES , CHIP	4.7 OHM 1/10W	1
R497	HRJ10DJ4R7T	RES , CHIP	4.7 OHM 1/10W	1
R498	HRJ10DJ4R7T	RES , CHIP	4.7 OHM 1/10W	1
R722	HRJ10DJ104T	RES , CHIP	100K OHM 1/10W	1
R723	HRJ10DJ104T	RES , CHIP	100K OHM 1/10W	1
R724	HRJ10DJ104T	RES , CHIP	100K OHM 1/10W	1
R725	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R726	HRJ10DJ1R0T	RES , CHIP	1 OHM 1/10W	1
R727	HRJ10DJ1R0T	RES , CHIP	1 OHM 1/10W	1
R728	HRJ10DJ1R0T	RES , CHIP	1 OHM 1/10W	1
R729	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R730	HRJ10DJ1R0T	RES , CHIP	1 OHM 1/10W	1
R731	HRJ10DJ1R0T	RES , CHIP	1 OHM 1/10W	1
R732	HRJ10DJ183T	RES , CHIP	18K OHM 1/10W	1
R733	HRJ10DJ4R7T	RES , CHIP	4.7 OHM 1/10W	1
R734	HRJ10DJ330T	RES , CHIP	33 OHM 1/10W	1
R735	HRJ10DJ105T	RES , CHIP	1M OHM 1/10W	1
R736	HRJ10DJ121T	RES , CHIP	120 OHM 1/10W	1
R737	HRJ10DJ4R7T	RES , CHIP	4.7 OHM 1/10W	1
R738	HRJ10DJ1R0T	RES , CHIP	1 OHM 1/10W	1
R739	HRJ10DJ2R7T	RES , CHIP	2.7 OHM 1/10W	1
R740	HRJ10DJ330T	RES , CHIP	33 OHM 1/10W	1
R741	HRJ10DJ330T	RES , CHIP	33 OHM 1/10W	1
R742	HRJ10DJ330T	RES , CHIP	33 OHM 1/10W	1
R743	HRJ10DJ330T	RES , CHIP	33 OHM 1/10W	1
R744	HRJ10DJ330T	RES , CHIP	33 OHM 1/10W	1
R745	HRJ10DJ330T	RES , CHIP	33 OHM 1/10W	1
R746	HRJ10DJ472T	RES , CHIP	4.7K OHM 1/10W	1
R747	HRJ10DJ472T	RES , CHIP	4.7K OHM 1/10W	1
R748	HRJ10DJ103T	RES , CHIP	10K OHM 1/10W	1
R749	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R750	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R751	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R752	HRJ10DJ102T	RES , CHIP	1K OHM 1/10W	1
R753	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R754	HRJ10DJ103T	RES , CHIP	10K OHM 1/10W	1
R755	HRJ10DJ103T	RES , CHIP	10K OHM 1/10W	1
R756	HRJ10DJ103T	RES , CHIP	10K OHM 1/10W	1
R757	HRJ10DJ103T	RES , CHIP	10K OHM 1/10W	1
R758	HRJ10DJ103T	RES , CHIP	10K OHM 1/10W	1
R759	HRJ10DJ103T	RES , CHIP	10K OHM 1/10W	1
R760	HRJ10DJ103T	RES , CHIP	10K OHM 1/10W	1
R761	HRJ10DJ103T	RES , CHIP	10K OHM 1/10W	1
R762	HRJ10DJ103T	RES , CHIP	10K OHM 1/10W	1
R763	HRJ10DJ333T	RES , CHIP	33K OHM 1/10W	1
R764	HRJ10DJ330T	RES , CHIP	33 OHM 1/10W	1
R765	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1

Digital and Analog PCB

Ref#	Component	Description 1	Description 2	Qty
R766	HRJ10DJ103T	RES , CHIP	10K OHM 1/10W	1
R767	HRJ10DJ332T	RES , CHIP	3.3K OHM 1/10W	1
R768	HRJ10DJ330T	RES , CHIP	33 OHM 1/10W	1
R769	HRJ10DJ101T	RES , CHIP	100 OHM 1/10W	1
R770	HRJ10DJ103T	RES , CHIP	10K OHM 1/10W	1
R771	HRJ10DJ4R7T	RES , CHIP	4.7 OHM 1/10W	1
R772	HRJ10DJ182T	RES , CHIP	1.8K OHM 1/10W	1
R773	HRJ10DJ8R2T	RES , CHIP	8.2 OHM 1/10W	1
R774	HRJ10DJ471T	RES , CHIP	470 OHM 1/10W	1
R780	HRJ10DJ330T	RES , CHIP	33 OHM 1/10W	1
C101	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C102	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C103	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C104	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C237	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C238	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C239	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C240	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C251	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C252	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C261	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C262	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C263	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C264	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C265	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C267	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C268	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C269	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C301	HCQI1H332JZT	CAP , MYLAR	3300PF 50V J	1
C302	HCQI1H332JZT	CAP , MYLAR	3300PF 50V J	1
C303	HCQI1H332JZT	CAP , MYLAR	3300PF 50V J	1
C304	HCQI1H332JZT	CAP , MYLAR	3300PF 50V J	1
C305	HCQI1H332JZT	CAP , MYLAR	3300PF 50V J	1
C306	HCQI1H332JZT	CAP , MYLAR	3300PF 50V J	1
C307	HCQI1H332JZT	CAP , MYLAR	3300PF 50V J	1
C308	HCQI1H332JZT	CAP , MYLAR	3300PF 50V J	1
C309	HCQI1H332JZT	CAP , MYLAR	3300PF 50V J	1
C310	HCQI1H332JZT	CAP , MYLAR	3300PF 50V J	1
C311	HCQI1H332JZT	CAP , MYLAR	3300PF 50V J	1
C312	HCQI1H332JZT	CAP , MYLAR	3300PF 50V J	1
C313	HCQI1H332JZT	CAP , MYLAR	3300PF 50V J	1
C314	HCQI1H332JZT	CAP , MYLAR	3300PF 50V J	1
C315	HCQI1H332JZT	CAP , MYLAR	3300PF 50V J	1
C316	HCQI1H332JZT	CAP , MYLAR	3300PF 50V J	1
C341	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C342	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C343	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C344	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C345	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C346	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C347	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C348	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C349	HCEA1HH1R0T	CAP , ELECT	1UF 50V	1
C403	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C404	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C405	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C406	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C407	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C408	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C409	HCEA1VH100T	CAP , ELECT	10UF 35V	1

Digital and Analog PCB

Ref#	Component	Description 1	Description 2	Qty
C410	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C426	HCQI1H182JZT	CAP , MYLAR	1800PF 50V J	1
C433	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C434	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C435	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C436	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C437	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C438	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C439	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C440	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C453	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C454	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C455	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C456	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C457	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C458	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C459	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C460	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C725	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C728	HCEA1EH470T	CAP , ELECT	47UF 25V	1
C732	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C741	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C745	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C749	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C752	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C754	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C757	HCEA1HH2R2T	CAP , ELECT	2.2UF 50V	1
C759	HCEA1VH100T	CAP , ELECT	10UF 35V	1
C768	HCEA1HH2R2T	CAP , ELECT	2.2UF 50V	1
C770	HCEA1EH470T	CAP , ELECT	47UF 25V	1
C772	HCEA1EH470T	CAP , ELECT	47UF 25V	1
C778	HCEA0JH102T	CAP , ELECT	1000UF 6.3V	1
C781	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C782	HCEA1AH471T	CAP , ELECT	470UF 10V	1
C785	HCEA1CH101T	CAP , ELECT	100UF 16V	1
C786	HCEA1AH471T	CAP , ELECT	470UF 10V	1
D201	HVD1SS133MT	DIODE	1SS133T-77	1
D203	HVD1SS133MT	DIODE	1SS133T-77	1
D204	HVD1SS133MT	DIODE	1SS133T-77	1
D207	HVD1SS133MT	DIODE	1SS133T-77	1
D208	HVD1SS133MT	DIODE	1SS133T-77	1
D209	HVD1SS133MT	DIODE	1SS133T-77	1
D210	HVD1SS133MT	DIODE	1SS133T-77	1
D211	HVD1SS133MT	DIODE	1SS133T-77	1
D212	HVD1SS133MT	DIODE	1SS133T-77	1
D213	HVD1SS133MT	DIODE	1SS133T-77	1
D214	HVD1SS133MT	DIODE	1SS133T-77	1
D215	HVD1SS133MT	DIODE	1SS133T-77	1
D216	HVD1SS133MT	DIODE	1SS133T-77	1
D701	HVDMTZJ4.7BT	DIODE , ZENER	4.7V 1/2W	1
D702	HVDMTZJ3.3BT	DIODE , ZENER	3.3V 1/2W	1
L703	KLQ100J405T	COIL, PEAKING(RADIAL)	10UH J 4X5	1
Q201	HVTKTD1302T	T.R	KTD1302	1
Q202	HVTKTC2874BT	T.R , MUTE	KTC2874B	1
Q203	HVTKTC2874BT	T.R , MUTE	KTC2874B	1
Q204	HVTKRA107MT	T.R	KRA107M	1
Q701	HVTKSC2316YT	T.R	KSC2316Y	1
Q702	HVTKSC2316YT	T.R	KSC2316Y	1

Digital and Analog PCB

Ref#	Component	Description 1	Description 2	Qty
BN11	KJP15GB99ZM	WAFER	35237(15PIN)	1
BN12	KJP15GB99ZM	WAFER	35237(15PIN)	1
CN13	CJP13GA115ZY	WAFER , CARD CABLE		1
CN15	CJP13GA115ZY	WAFER , CARD CABLE		1
CN17	KJP12GB142ZP	PIN HEADER	2110 - DR12 - G	1
CN18	KJP05GA19ZM	WAFER	MOLEX53014-0510	1
CN72	KJP32GA117ZG	WAFER , CARD CABLE	GF102-32S-TS	1
JK11	CJJ4R019W	TERMINAL , IN/OUT		1
JK13	CJJ4P014W	JACK , IN/OUT		1
JK14	CJJ4R019W	TERMINAL , IN/OUT		1
JK15	CJJ4R037W	JACK , BOARD		1
JW21	CWE7202090AA	WIRE ASS'Y		1
L701	KLZ9H001Z	BEAD , CORE	BEAD	1
L702	KLZ9H001Z	BEAD , CORE	BEAD	1
L704	KLZ9H001Z	BEAD , CORE	BEAD	1
L705	KLZ9H001Z	BEAD , CORE	BEAD	1
R781	CRG2ANJ150H	RES , METAL OXIDE FILM	15 OHM 2W J	1
R782	CRG2ANJ330H	RES , METAL OXIDE FILM	33 OHM 2W J	1
X701	HOX12288E220TF	CRYSTAL(HC-49/S,ATS)	12.288MHZ 22PF	1
C857	HCEA1HH100T	CAP , ELECT	10UF 50V	1
C928	CCEA1CH682E	CAP , ELECT	6800UF 16V	1
C929	CCEA1EH332F	CAP , ELECT	3300UF 25V	1
C930	CCEA1EH222E	CAP. ELECT.	2200UF 25V	1
CB13	CWC1C4A13B080B	CABLE , CARD		1
CB15	CWC1C4A13B100B	CABLE , CARD		1
	C4FA031	TAPE , BOTH SIDE	NITTO #500	0.05

74AC04 • 74ACT04 Hex Inverter

General Description

The AC/ACT04 contains six inverters.

Features

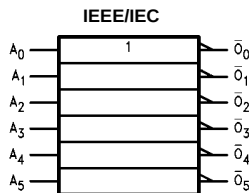
- I_{CC} reduced by 50% on 74AC only
- Outputs source/sink 24 mA
- ACT04 has TTL-compatible inputs

Ordering Code:

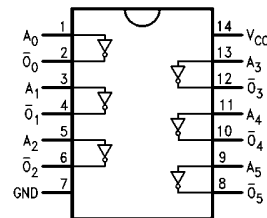
Order Number	Package Number	Package Description
74AC04SC	M14A	14-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-120, 0.150" Narrow Body
74AC04SJ	M14D	14-Lead Small Outline Package (SOP), EIAJ TYPE II, 5.3mm Wide
74AC04MTC	MTC14	14-Lead Thin Shrink Small Outline Package (TSSOP), JEDEC MO-153, 4.4mm Wide
74AC04PC	N14A	14-Lead Plastic Dual-In-Line Package (PDIP), JEDEC MS-001, 0.300" Wide
74ACT04SC	M14A	14-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-120, 0.150" Narrow Body
74ACT04MTC	MTC14	14-Lead Thin Shrink Small Outline Package (TSSOP), JEDEC MO-153, 4.4mm Wide
74ACT04PC	N14A	14-Lead Plastic Dual-In-Line Package (PDIP), JEDEC MS-001, 0.300" Wide

Device also available in Tape and Reel. Specify by appending suffix letter "X" to the ordering code. (PC not available in Tape and Reel.)

Logic Symbol



Connection Diagram



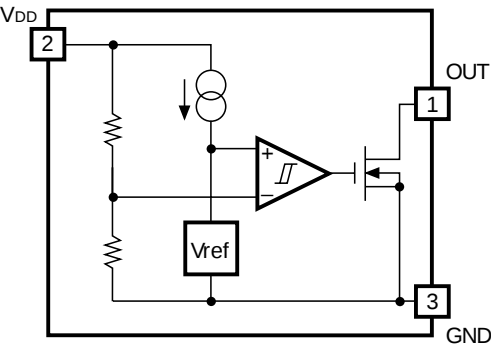
Pin Descriptions

Pin Names	Description
A_n	Inputs
$\overline{O}_n$	Outputs

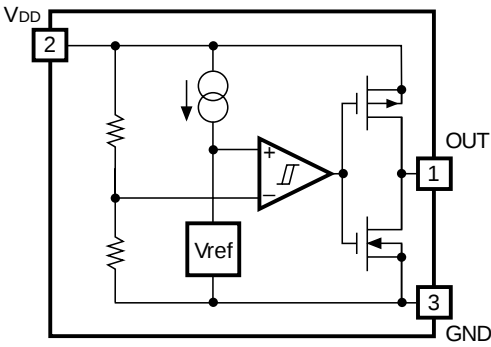
FACT™ is a trademark of Fairchild Semiconductor Corporation.

BLOCK DIAGRAMS

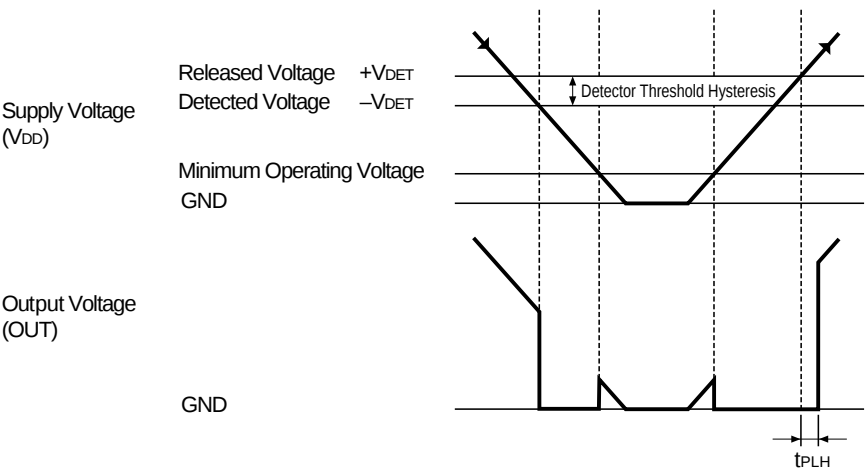
• Nch Open Drain Output (R5VT×A)



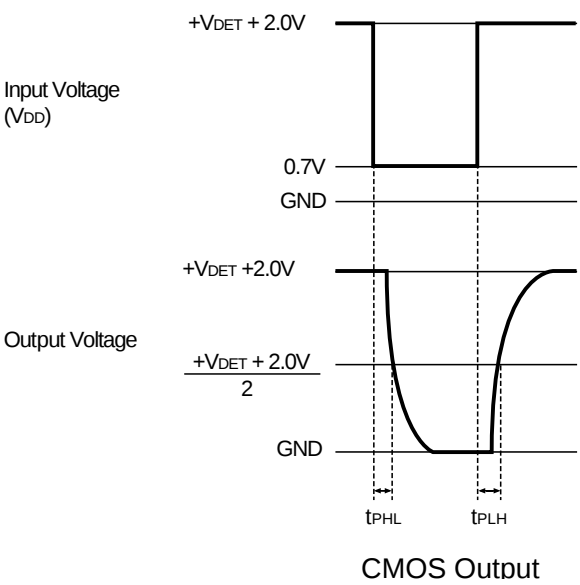
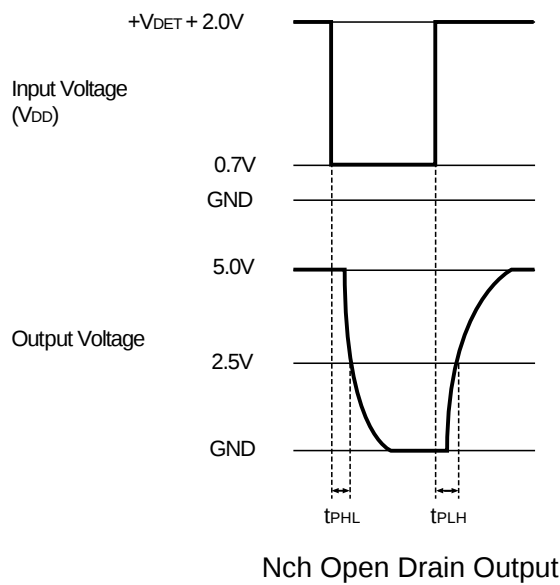
• CMOS Output (R5VT×C)



TIME CHART

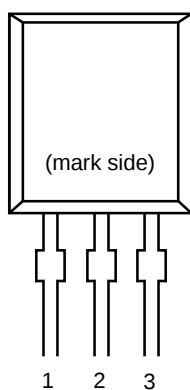


DEFINITION OF OUTPUT DELAY TIME tPLH

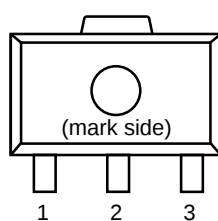


PIN CONFIGURATION

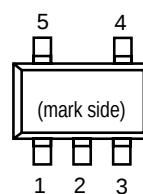
• TO-92



• SOT-89



• SOT-23-5



PIN DESCRIPTION

• TO-92

Pin No.	Symbol
1	OUT
2	V _{DD}
3	GND

• SOT-89

Pin No.	Symbol
1	OUT
2	V _{DD}
3	GND

• SOT-23-5

Pin No.	Symbol
1	OUT
2	V _{DD}
3	GND
4	NC
5	NC

OPERATION

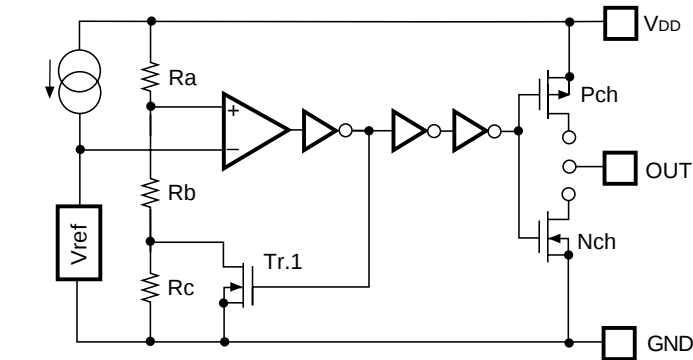


FIG. 1 Block Diagram

- In R5VTXA, Nch Tr. drain is connected to OUT pin.
- In R5VTC, Nch Tr. drain and Pch Tr. drain are connected to OUT pin.

Operation Diagram

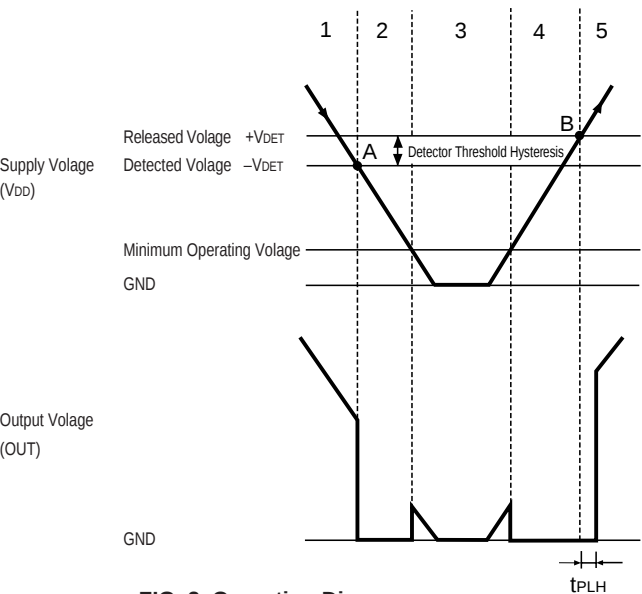


FIG. 2 Operation Diagram

Step	Step 1	Step 2	Step 3	Step 4	Step 5
Comparator(+) Pin Input Voltage	I	II	II	II	I
Comparator Output	H	L	Indefinite	L	H
Tr. 1	OFF	ON	Indefinite	ON	OFF
Output Tr.	Pch	ON	OFF	Indefinite	OFF
	Nch	OFF	ON	Indefinite	ON

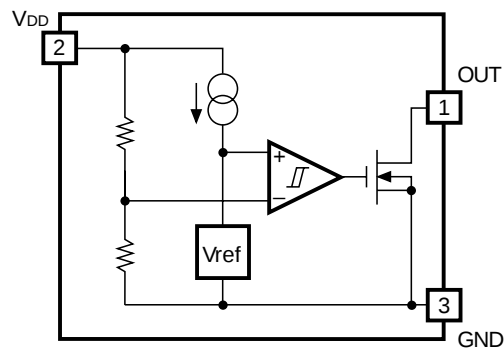
$$I. \frac{R_b + R_c}{R_a + R_b + R_c} \cdot V_{DD}$$

$$II. \frac{R_b}{R_a + R_b} \cdot V_{DD}$$

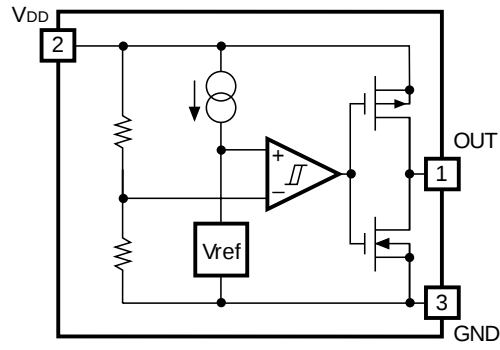
- Step 1. Output Voltage is equal to Power Source Voltage (V_{DD}).
- Step 2. When Input Voltage to Comparator reaches the state of $V_{ref} \geq V_{DD} \cdot (R_b + R_c) / (R_a + R_b + R_c)$ at Point A (Detected Voltage $-V_{DET}$), the output of Comparator is reserved, so that Output Voltage becomes GND.
- Step 3. In the case of CMOS Output, Output Voltage becomes unstable when Supply Voltage (V_{DD}) is smaller than Minimum Operating Voltage. In the case of Nch Open Drain Output, a pulled-up voltage is output.
- Step 4. Output Voltage becomes equal to GND.
- Step 5. When Input Voltage to Comparator reaches the state of $V_{ref} \leq V_{DD} \cdot (R_b) / (R_a + R_b)$ at Point B (Released Voltage $+V_{DET}$), the output of Comparator is reversed, so that Output Voltage becomes equal to Supply Voltage (V_{DD}).

BLOCK DIAGRAMS

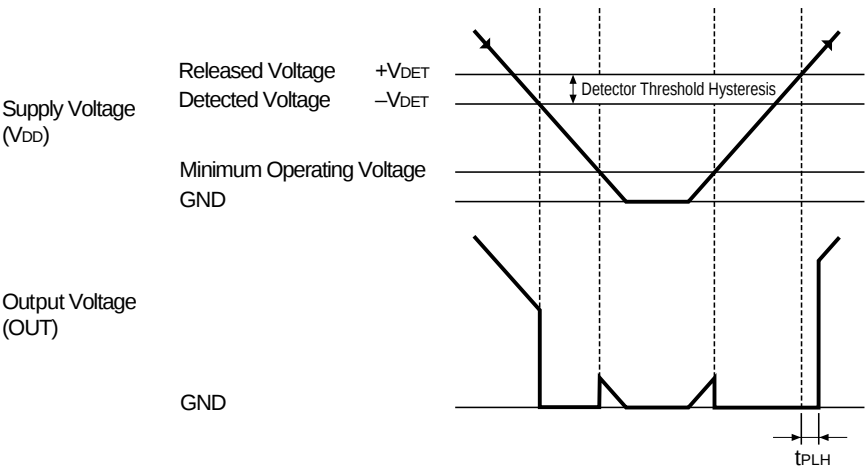
• Nch Open Drain Output (R5VL×A)



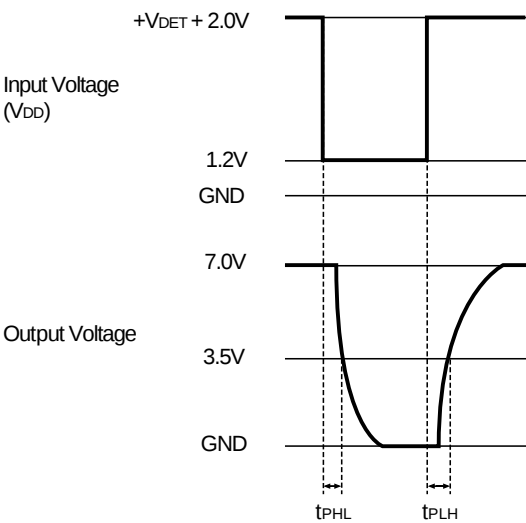
• CMOS Output (R5VL×C)



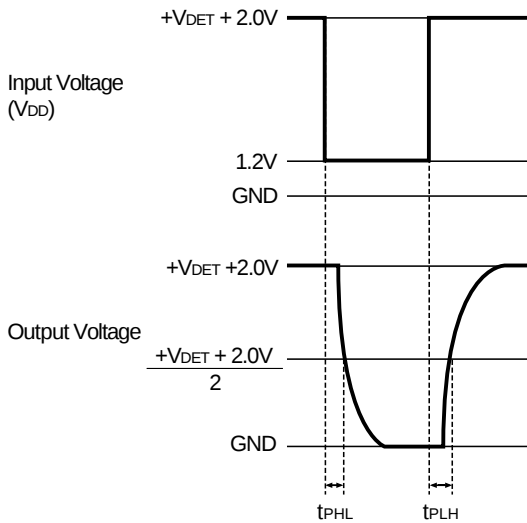
TIME CHART



DEFINITION OF OUTPUT DELAY TIME tPLH



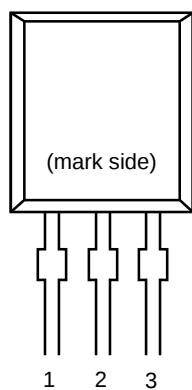
Nch Open Drain Output



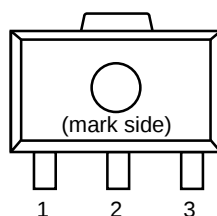
CMOS Output

PIN CONFIGURATION

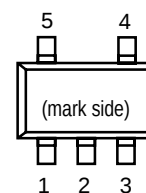
• TO-92



• SOT-89



• SOT-23-5



PIN DESCRIPTION

• TO-92

Pin No	Symbol
1	OUT
2	V _{DD}
3	GND

• SOT-89

Pin No	Symbol
1	OUT
2	V _{DD}
3	GND

• SOT-23-5

Pin No	Symbol
1	OUT
2	V _{DD}
3	GND
4	NC
5	NC

OPERATION

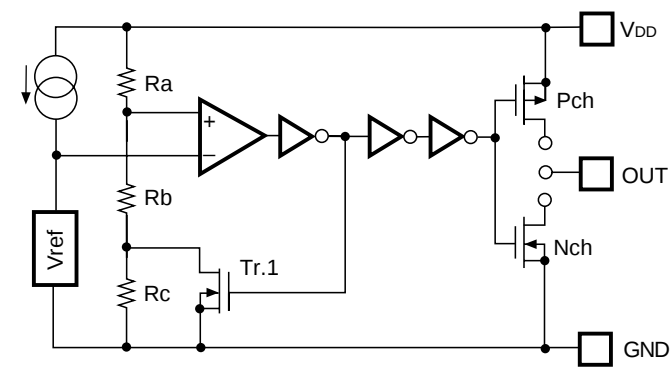


FIG. 1 Block Diagram

- In R5VL×A, Nch Tr. drain is connected to OUT pin.
- In R5VL×C, Nch Tr. drain and Pch Tr. drain are connected to OUT pin.

Operation Diagram

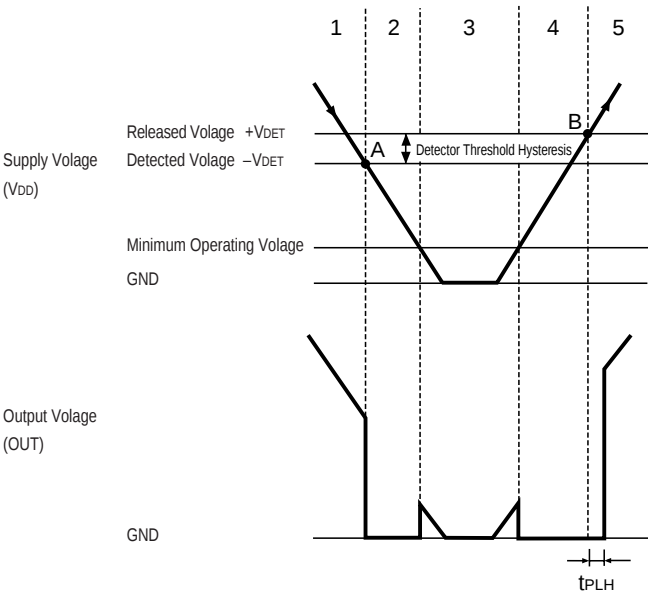


FIG. 2 Operation Diagram

Step		Step 1	Step 2	Step 3	Step 4	Step 5
Comparator(+)Pin Input Voltage		I	II	II	II	I
Comparator Output		H	L	Indefinite	L	H
Tr. 1		OFF	ON	Indefinite	ON	OFF
Output Tr.	Pch	ON	OFF	Indefinite	OFF	ON
	Nch	OFF	ON	Indefinite	ON	OFF

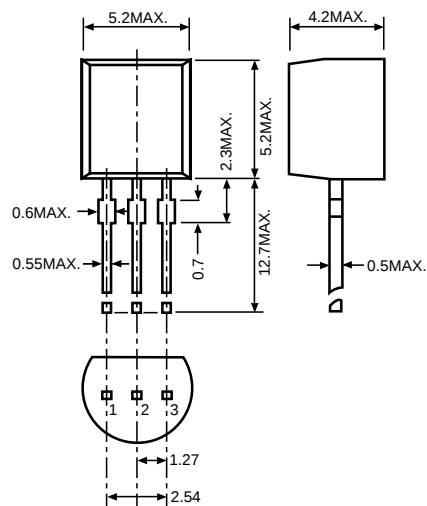
I. $\frac{Rb + Rc}{Ra + Rb + Rc} \cdot V_{DD}$

II. $\frac{Rb}{Ra + Rb} \cdot V_{DD}$

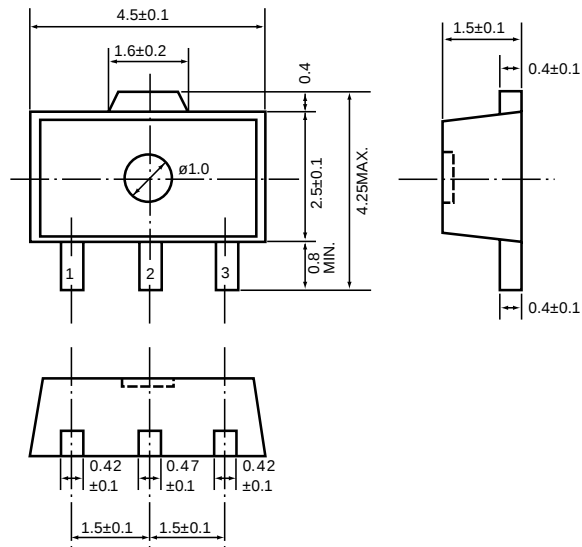
- Step 1. Output Voltage is equal to Power Source Voltage (V_{DD}).
- Step 2. When Input Voltage to Comparator reaches the state of $V_{ref} \geq V_{DD} \cdot (Rb + Rc) / (Ra + Rb + Rc)$ at Point A (Detected Voltage $-V_{DET}$), the output of Comparator is reserved, so that Output Voltage becomes GND.
- Step 3. In the case of CMOS Output, Output Voltage becomes unstable when Supply Voltage (V_{DD}) is smaller than Minimum Operating Voltage. In the case of Nch Open Drain Output, a pulled-up voltage is output.
- Step 4. Output Voltage becomes equal to GND.
- Step 5. When Input Voltage to Comparator reaches the state of $V_{ref} \leq V_{DD} \cdot (Rb) / (Ra + Rb)$ at Point B (Released Voltage $+V_{DET}$), the output of Comparator is reserved, so that Output Voltage becomes equal to Supply Voltage (V_{DD})

PACKAGE DIMENSIONS (Unit: mm)

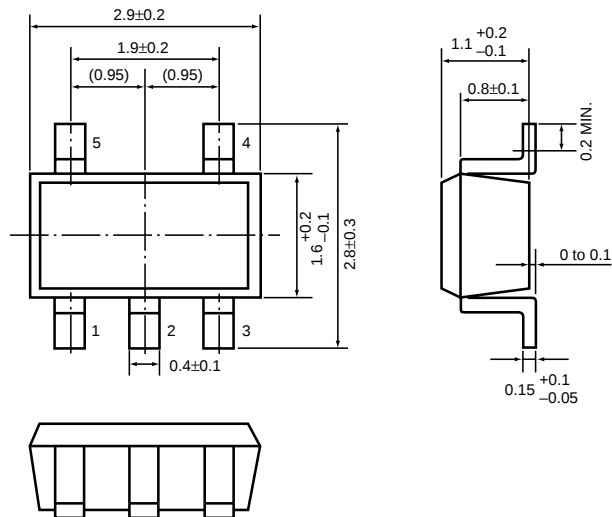
• TO-92



• SOT-89

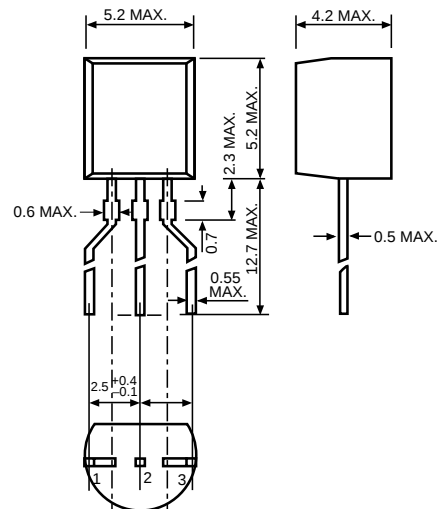
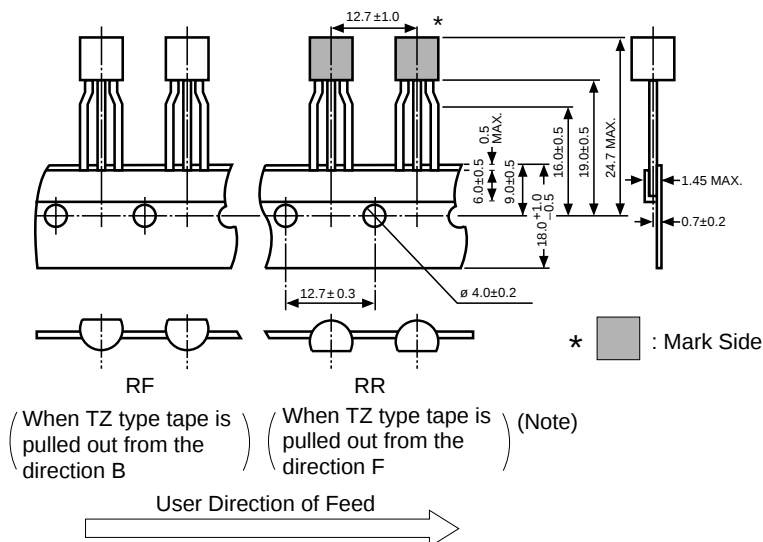


• SOT-23-5

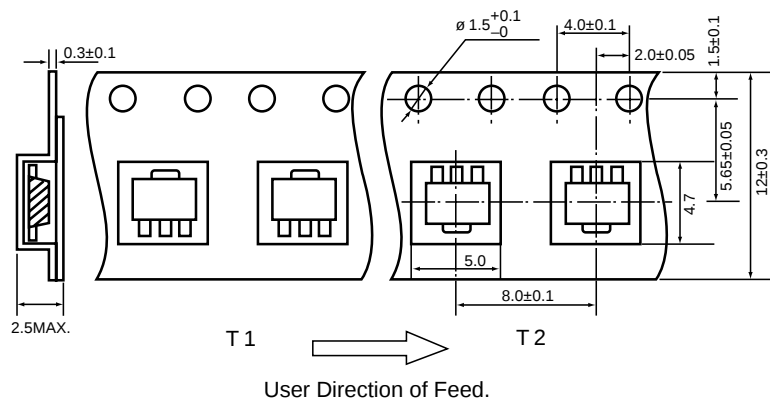


TAPING SPECIFICATIONS (Unit: mm)

• TO-92



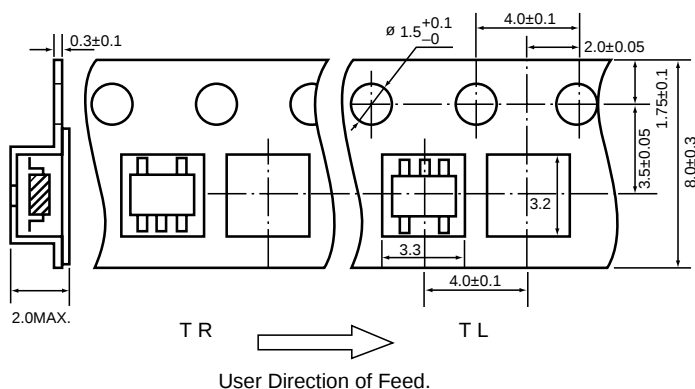
• SOT-89



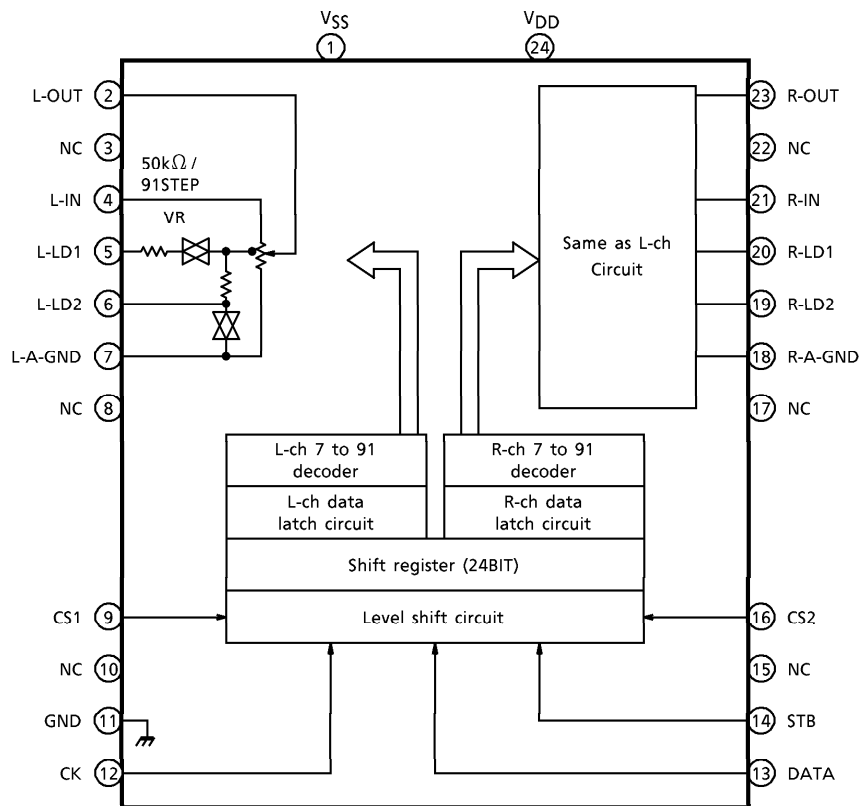
(Note) When taping is conducted, the pins of TO-92 are subjected to a particular forming.

(Note) TZ type tape is not in the form of a reel, but is packed in a zigzag state in a box. Therefore, the tape can be used as either an RF type tape or an RR type tape, depending upon the pulling out direction (B or F).

• SOT-23-5

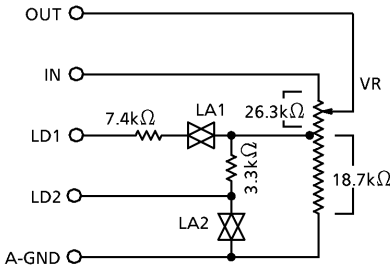


BLOCK DIAGRAM (TC9459F)



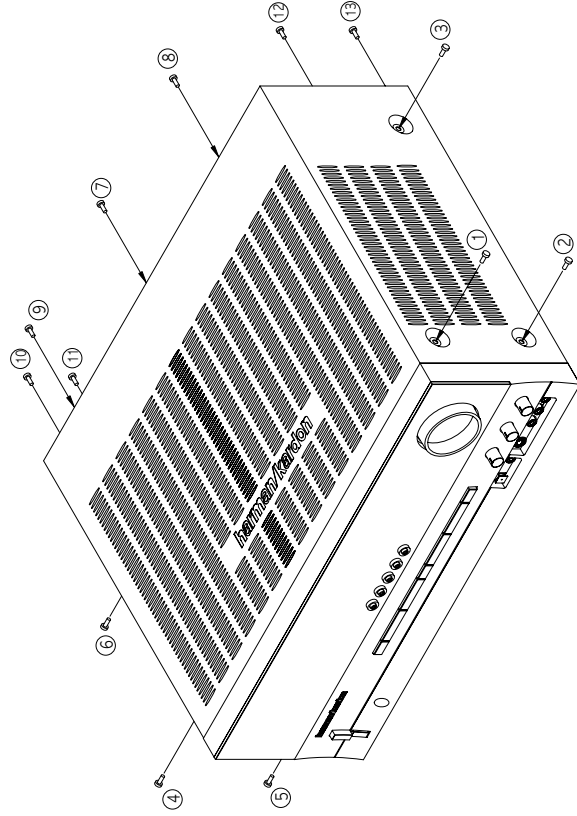
PIN DESCRIPTION

Numeral in () means the pin No. of TC9459F.

PIN No.	SYMBOL	PIN NAME	FUNCTION	REMARK									
1 (1)	V _{SS}	Negative power supply pin	When using dual power supplies V_{DD} = 6.0~17V GND = 0V V_{SS} = - 6.0~ - 17V When using a single power supply V_{DD} = 6.0~18V GND = V_{SS} = 0V	—									
28 (24)	V _{DD}	Positive power supply pin											
13 (11)	GND	Digital GND pin											
3 (2)	L-OUT	Volume output pin	• Volume circuit  <table><tr><th></th><th>LA1</th><th>LA2</th></tr><tr><td>LOUDNESS "ON"</td><td>ON</td><td>OFF</td></tr><tr><td>LOUDNESS "OFF"</td><td>OFF</td><td>ON</td></tr></table>		LA1	LA2	LOUDNESS "ON"	ON	OFF	LOUDNESS "OFF"	OFF	ON	—
	LA1			LA2									
LOUDNESS "ON"	ON	OFF											
LOUDNESS "OFF"	OFF	ON											
26 (23)	R-OUT												
5 (4)	L-IN	Volume input pin											
24 (21)	R-IN												
6 (5)	L-LD1	Loudness tap output pin											
23 (20)	R-LD1												
7 (6)	L-LD2												
22 (19)	R-LD2												
8 (7)	L-A-GND	Analog GND pin											
21 (18)	R-A-GND												
10 (9)	CS1	Chip select input pin	Up to 4 chips on the same bus can be used by switching over chip select code.	—									
19 (16)	CS2												
14 (12)	CK	Clock input pin	Data transfer clock input	Low threshold value input pin									
15 (13)	DATA	Data input pin	Volume setup serial data input										
16 (14)	STB	Strobe input pin	Data write strobe input										
2 (3)	NC	No connection	—	—									
27 (22)													
4													
25													
9 (8)													
20 (17)													
11													
18													
12 (10)													
17 (15)													

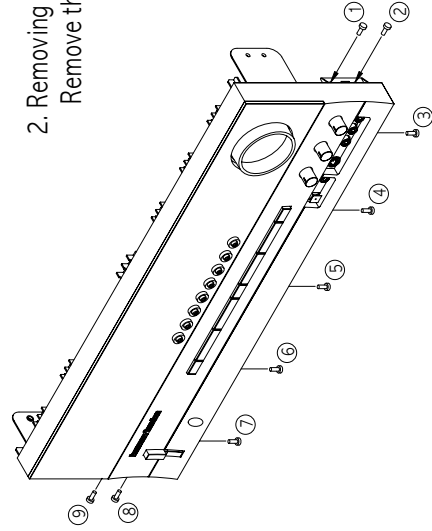
1. Removing the Top Cabinet Remove the Screws

①~⑬



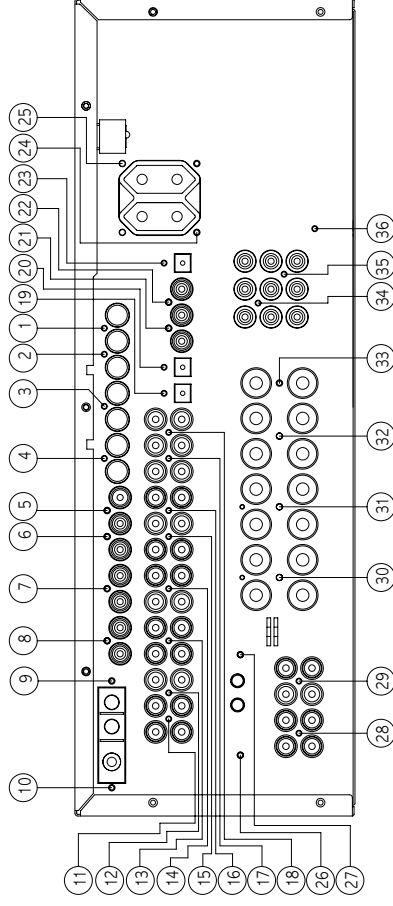
2. Removing the Front Panel Remove the Screws

①~⑨



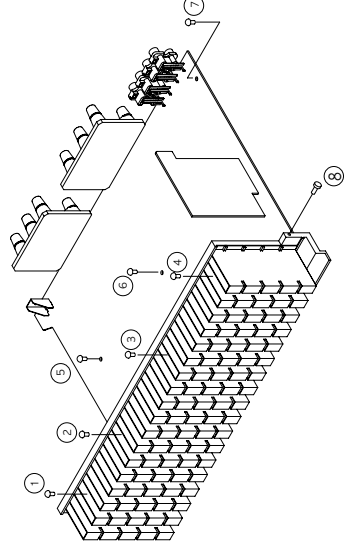
3. Removing the Rear Panel Remove the Screws

①~③⑧



4. Removing the Main PCB Remove the Screws

①~⑧

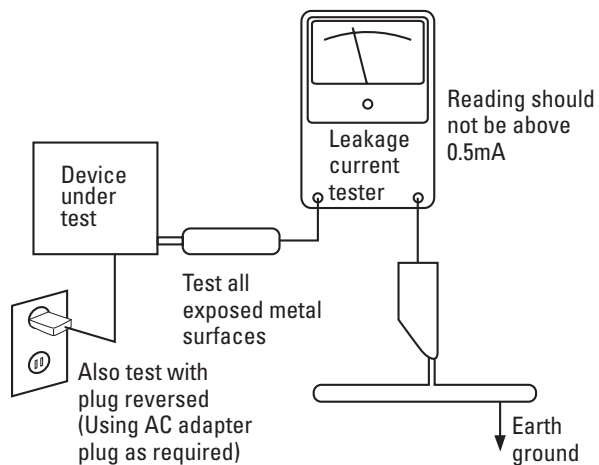


SAFETY PRECAUTIONS

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

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 250V AC 50Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

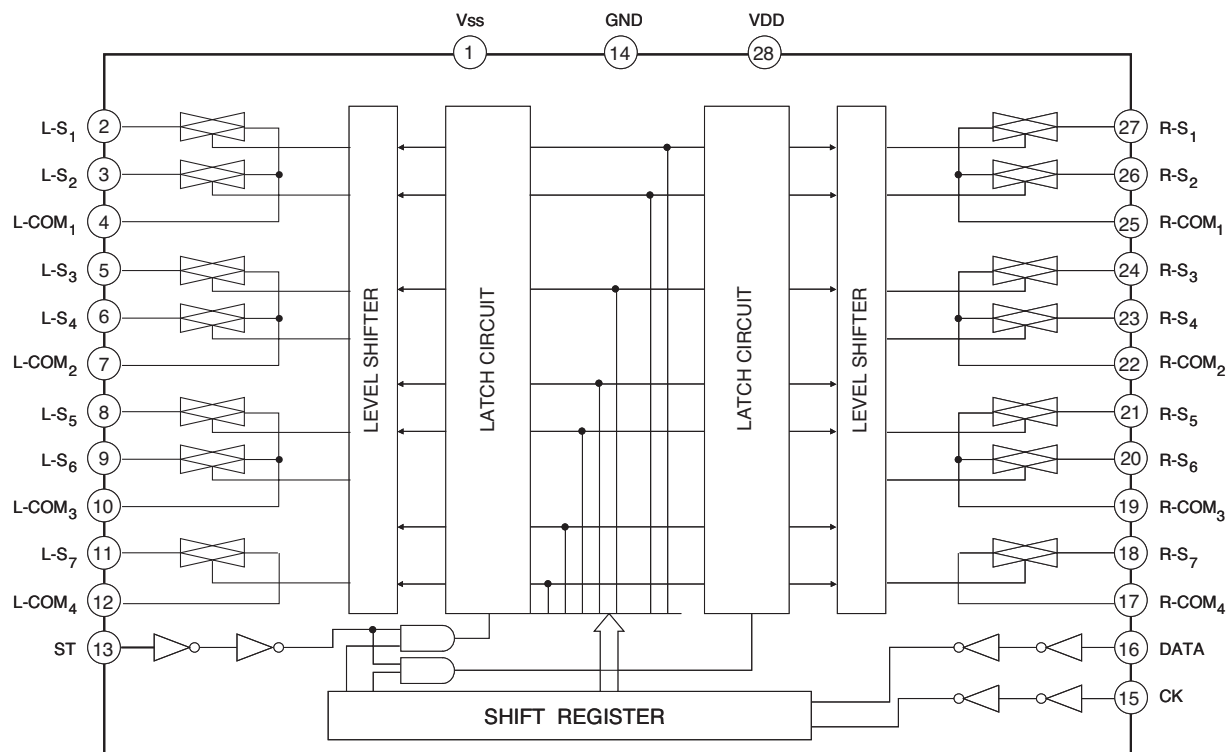
ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

TRANSISTOR, REGULATOR IC BLOCK DIAGRAM

TO-92M  123 1. Emitter 2. Collector 3. Base KTC2874B KSC2785Y KRA107M KRC107M	TO-92  123 1. Emitter 2. Collector 3. Base KTD1302T KTA1268GR KTC3200GR KTC3198Y KTA1271Y	TO-220  123 1. GND 2. INPUT 3. OUTPUT MCNJM7905 MC7915C	TO-92L  123 1. Emitter 2. Collector 3. Base KTA1024Y KSC2316Y
TO-126  123 1. Emitter 2. Collector 3. Base 2SA1360O 2SC3423O KTD600KG	TO-220  123 1. Base 2. Collector 3. Emitter KSA614Y	TO-220  123 1. INPUT 2. GND 3. OUTPUT MC7815C MC7805C	TO-3P  1 2 3 1. Base 2. Collector 3. Emitter 2SB1560 2SD2390

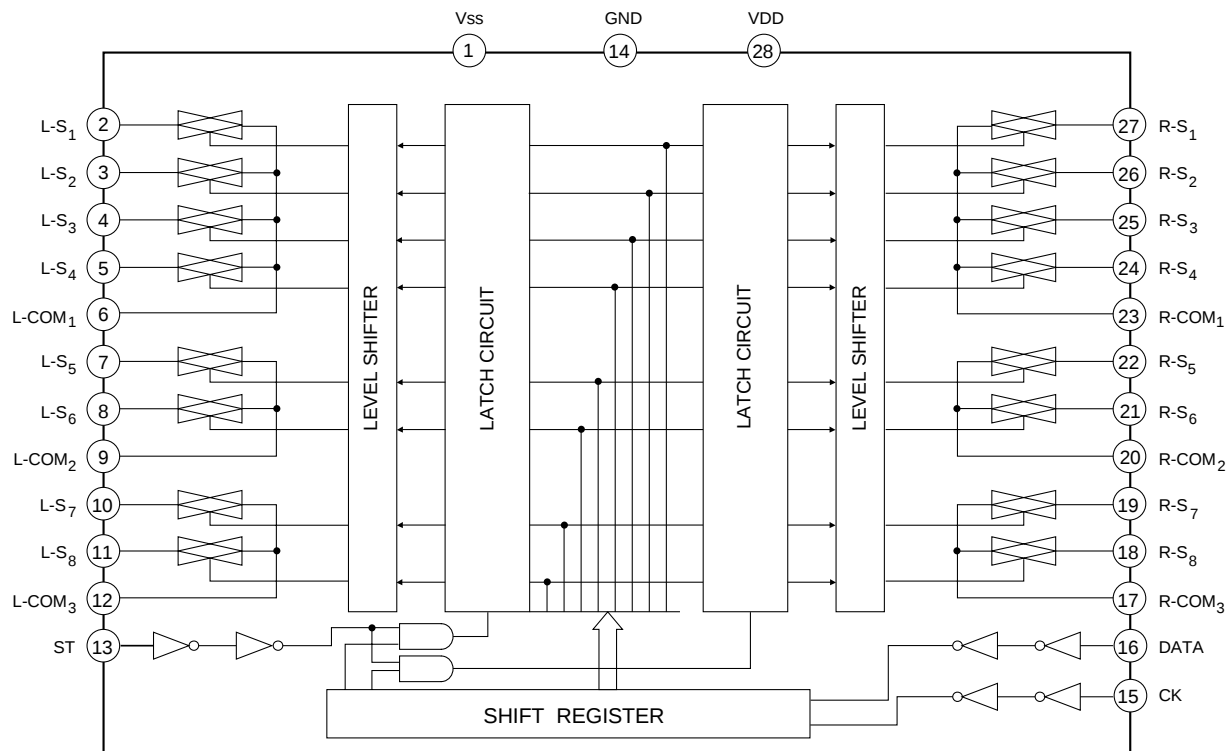
TC9162AF (FUNCTION/INPUT : IC30)

■ BLOCK DIAGRAM



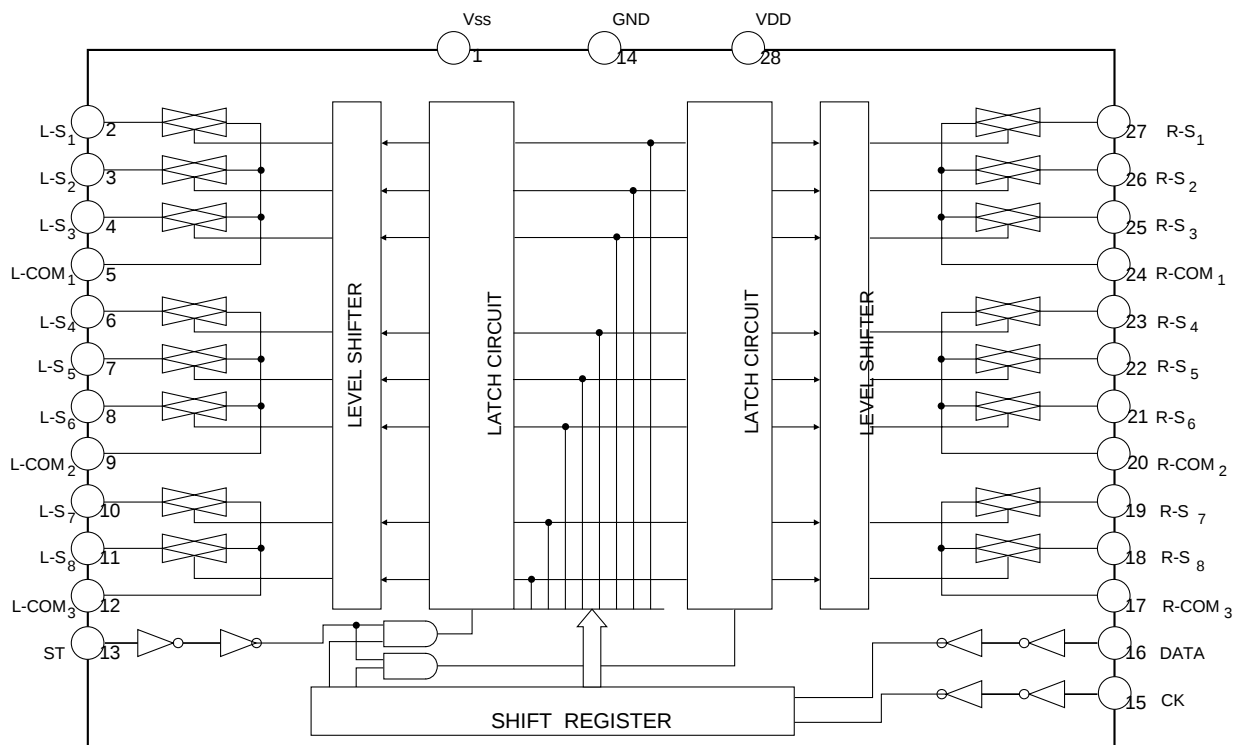
TC9164AF (FUNCTION/INPUT) : IC23

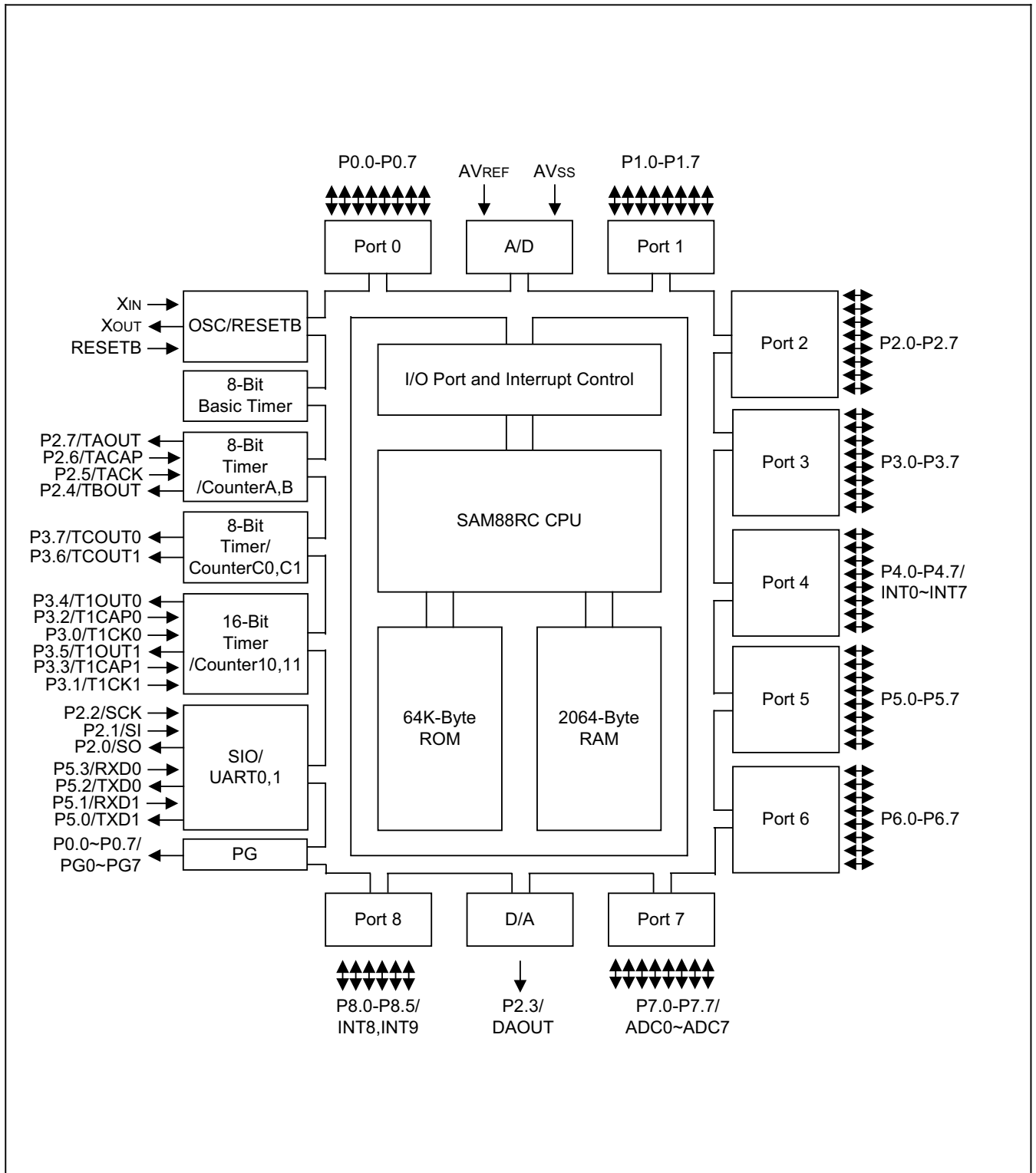
■ BLOCK DIAGRAM



TC9163AF (FUNCTION/INPUT) : IC21,24

■ BLOCK DIAGRAM



BLOCK DIAGRAM (IC74)**Figure 1-1. S3C84BB/F84BB Block Diagram**

PIN ASSIGNMENT (IC74)

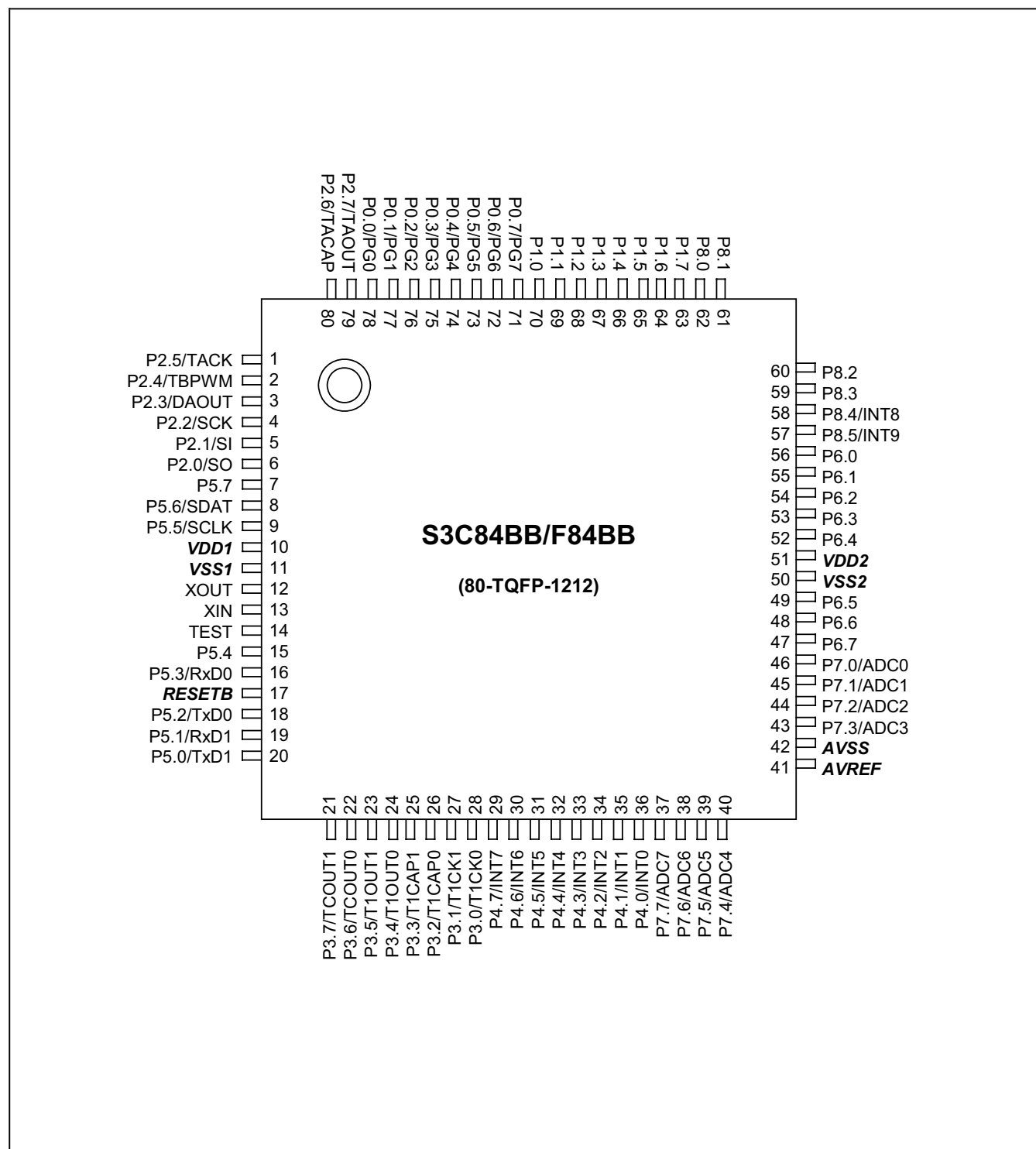


Figure 1-3. S3C84BB/F84BB Pin Assignment (80-TQFP)

PIN DESCRIPTIONS (IC74)

Table 1-1. S3C84BB/F84BB Pin Descriptions (80-QFP)

Pin Name	Pin Type	Pin Description	Circuit Type	Pin Number	Share Pins
P0.0 - P0.7	I/O	Bit programmable port; input or output mode selected by software; input or push-pull output. Software assignable pull-up. Alternately, P0.0-P0.7 can be used as the PG output port (PG0-PG7).	D	80-73	PG0-PG7
P1.0 - P1.7	I/O	Bit programmable port; input or output mode selected by software; input or push-pull output. Software assignable pull-up.	D	72-65	
P2.0 - P2.7	I/O	Bit programmable port; input or output mode selected by software; input or push-pull output. Software assignable pull-up. Alternately, P2.0~P2.7 can be used as I/O for TIMERA, TIMERB, D/A, SIO	D,D-2	8-1	SO SI SCK DAOUT TBPWM TACK TACAP TAOUT
P3.0 - P3.7	I/O	Bit programmable port; input or output mode selected by software; input or push-pull output. Software assignable pull-up. Alternately, P3.0~P3.7 can be used as I/O for TIMERC0/C1, TIMER10/11	D	30-23	T1CK0 T1CK1 T1CAP0 T1CAP1 T1OUT0 T1OUT1 TCOUT0 TCOUT1

Table 1-1. S3C84BB/F84BB Pin Descriptions (80-QFP) (Continued)

Pin Name	Pin Type	Pin Description	Circuit Type	Pin Number	Share Pins
P4.0 - P4.7	I/O	Bit programmable port; input or output mode selected by software; input or push-pull output. Software assignable pull-up. P4.0-P4.7 can alternately be used as inputs for external interrupts INT0-INT7, respectively (with noise filters and interrupt controller)	D-1	38-31	INT0-INT7
P5.0 - P5.7	I/O	Bit programmable port; input or output mode selected by software; input or push-pull output. Software assignable pull-up. Alternately, P5.0~P5.3 can be used as I/O for serial por, UART0, UART1, respectively.	G	22-17,11-9	TxD1 RxD1 TxD0 RxD0
P6.0 - P6.7	O	N-channel, open-drain output only port.	F	58-54,51-49	
P7.0 - P7.7	I	General-purpose digital input ports. Alternatively used as analog input pins for A/D converter modules.	E	48-45,42-39	ADC0-ADC7
P8.0 - P8.5	I/O	Bit programmable port; input or output mode selected by software; input or push-pull output. Software assignable pull-up. P8.4, P8.5 can alternately be used as inputs for external interrupts INT8, INT9, respectively (with noise filters and interrupt controller)	D,D-1	64-59	INT8,INT9

Table 1-1. S3C84BB/F84BB Pin Descriptions (80-QFP) (Continued)

Pin Name	Pin Type	Pin Description	Circuit Type	Pin Number	Share Pins
AD0 - AD7	I	Analog input pins for A/D converter module. Alternatively used as general-purpose digital input port 7.	E	48–45 42–39	P7.0–P7.7
AVREF, AVSS	-	A/D converter reference voltage and ground	-	43, 44	-
RxD0, RxD1	I/O	Serial data RxD pin for receive input and transmit output (mode 0)	D	18, 21	P5.3, P5.1
TxD0, TxD1	O	Serial data TxD pin for transmit output and shift clock input (mode 0)	D	20, 22	P5.2, P5.0
TACK	I	External clock input pins for timer A	D	3	P2.5
TACAP	I	Capture input pins for timer A	D	2	P2.6
TAOUT	O	Pulse width modulation output pins for timer A	D	1	P2.7
TBPWM	O	Carrier frequency output pins for timer B	D	4	P2.4
TCOUT0 TCOUT1	O	Timer C 8-bit PWM mode output or counter match toggle output pins	D	24,23	P3.6,P3.7
T1CK0 T1CK1	I	External clock input pins for timer 1	D	39,30	P3.0,P3.1
T1CAP0 T1CAP1	I	Capture input pins for timer 1	D	28,27	P3.2,P3.3
T1OUT0 T1OUT1	O	Timer 1 16-bit PWM mode output or counter match toggle output pins	D	26,25	P3.4,P3.5
SI,SO,SCK	I/O	Synchronous SIO pins	D	7,8,9	P2.1,P2.0, P2.2
RESETB	I	System reset pin (pull-up resistor: 240 kΩ)	B	19	-
TEST	I	Pull – down register connected internally	-	16	-
VDD1, VDD2, VSS1, VSS2	-	Power input pins	-	12,53, 13,52	-
XIN, XOUT	-	Main oscillator pins	-	15,14	-

DUAL HIGH CURRENT OPERATIONAL AMPLIFIER

■ GENERAL DESCRIPTION

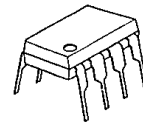
The NJM4556A integrated circuit is a high-gain, high output current dual operational amplifier capable of driving $\pm 70\text{mA}$ into $150\ \Omega$ loads ($\pm 10.5\text{V}$ output voltage), and operating low supply voltage ($V^+/V^- = \pm 2\text{V} \sim$).

The NJM4556A combines many of the features of the popular NJM4558 as well as having the capability of driving $150\ \Omega$ loads. In addition, the wide band-width, low noise, high slew rate and low distortion of the NJM4556A make it ideal for many audio, telecommunications and instrumentation applications.

■ FEATURES

- Operating Voltage ($\pm 2\text{V} \sim \pm 18\text{V}$)
- High Output Current ($I_o = 70\text{mA}$)
- Slew Rate ($3\text{V}/\mu\text{s}$ typ.)
- Gain Band Width Product (8MHz typ.)
- Package Outline DIP8, DMP8, SIP8, SSOP8
- Bipolar Technology

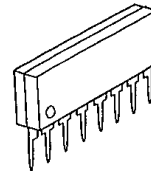
■ PACKAGE OUTLINE



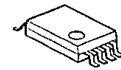
NJM4556AD



NJM4556AM

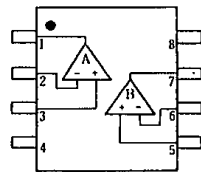


NJM4556AL

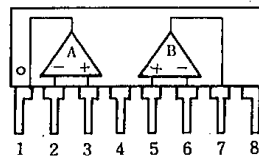


NJM4556AV

■ PIN CONFIGURATION



NJM4556AD
NJM4556AM
NJM4556AV

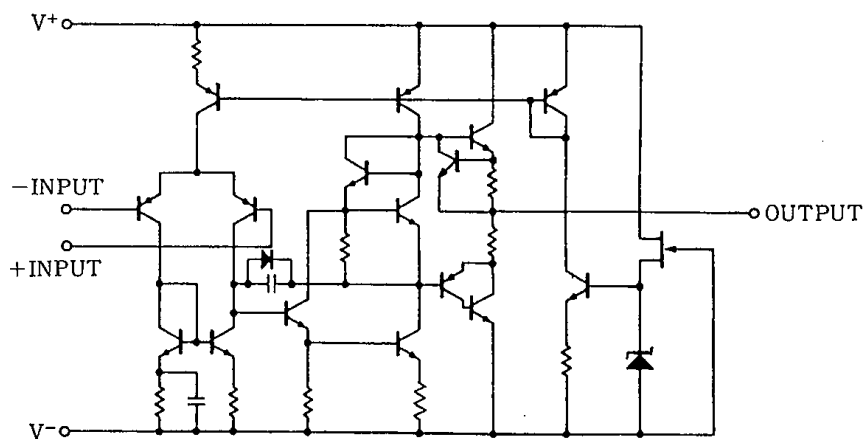


NJM4556AL

PIN FUNCTION

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

■ EQUIVALENT CIRCUIT (1/2 Shown)



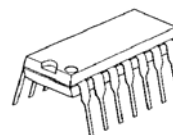
DUAL SUPPLY WIDE BAND 3ch VIDEO AMPLIFIER

■ GENERAL DESCRIPTION

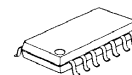
The **NJM2581** is a dual supply voltage wide band 3ch video amplifier. It is suitable for Y, Pb, and Pr signal because frequency range is 50MHz.

The **NJM2581** is suitable for Set Top Box, AV amplifier, and other high quality AV systems.

■ PACKAGE OUTLINE



NJM2581D

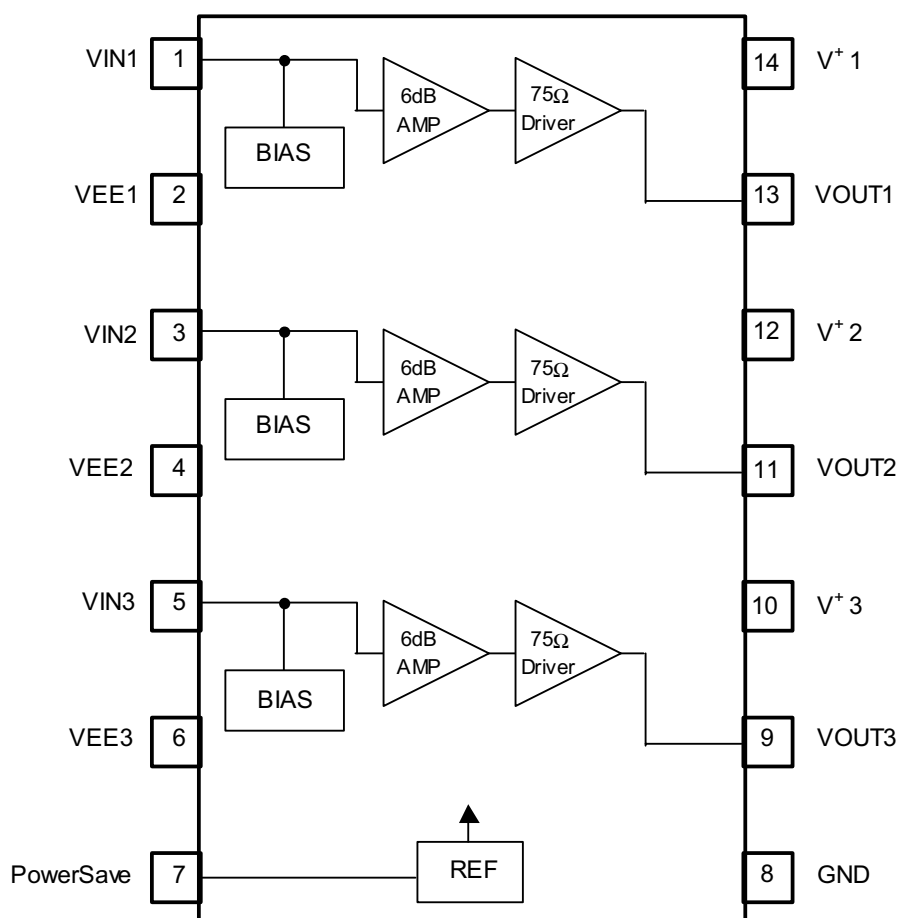


NJM2581M

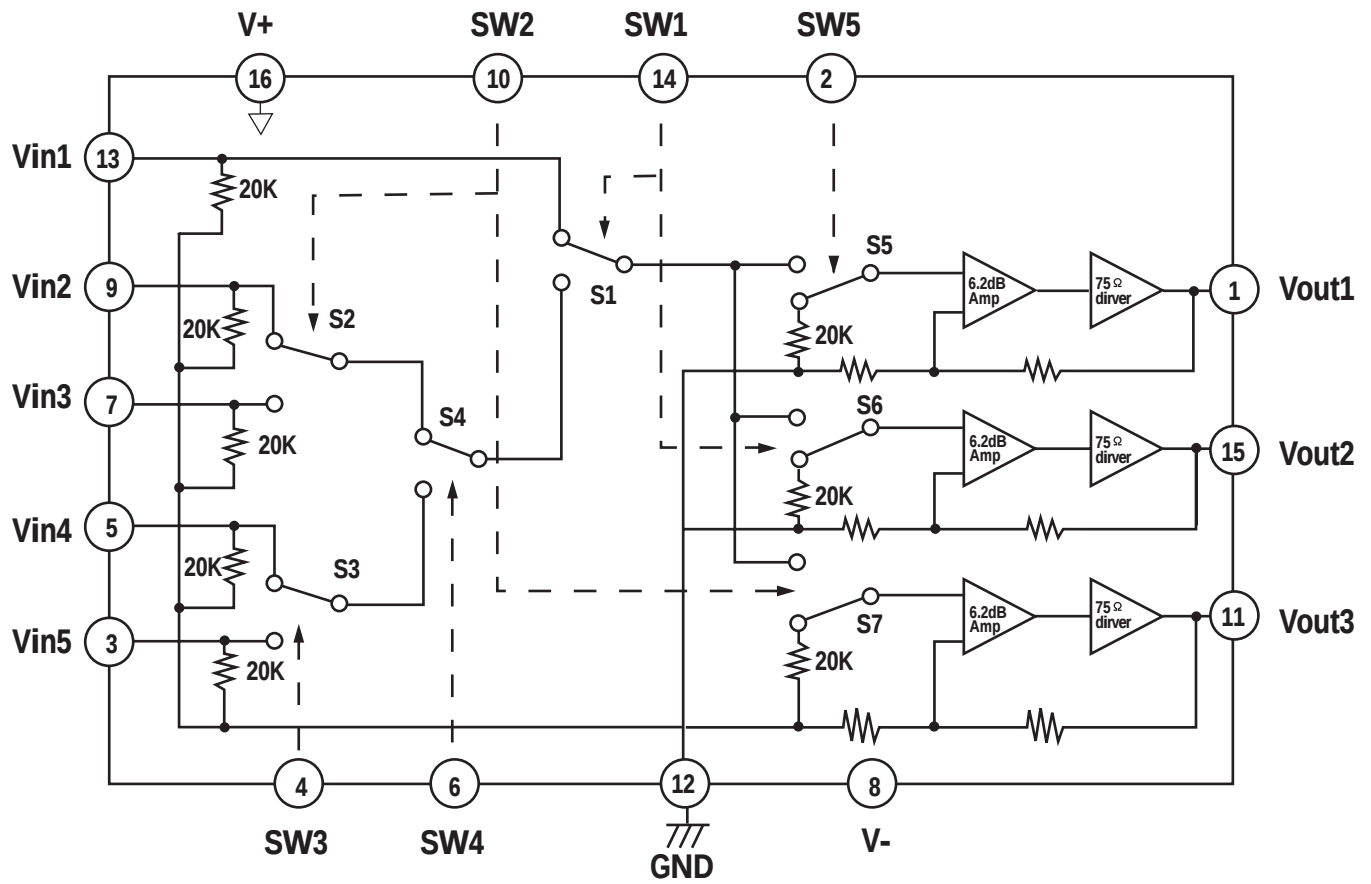
■ FEATURES

- Operating Voltage ± 4.5 to $\pm 5.5V$
- Wide frequency range 50MHz at 0dB typ.
- Internal 6dB Amplifier
- Internal 75Ω Driver Circuit (2-system drive)
- Power Save Circuit
- Bipolar Technology
- Package Outline DIP14, DMP14

■ BLOCK DIAGRAM



■ BLOCK DIAGAM (NJM2296M) : IC41, 42, 43



* Normally mute

Above circuits show that the switches are set at low.

LOW-NOISE DUAL OPERATIONAL AMPLIFIER

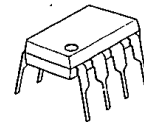
■ GENERAL DESCRIPTION

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

■ FEATURES

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

■ PACKAGE OUTLINE



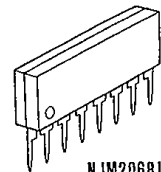
NJM2068D



NJM2068M

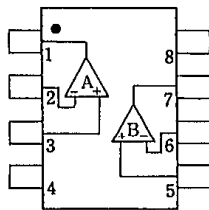


NJM2068V

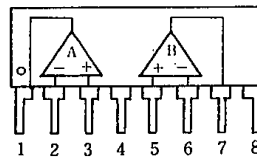


NJM2068L

■ PIN CONFIGURATION



NJM2068D
NJM2068M
NJM2068V

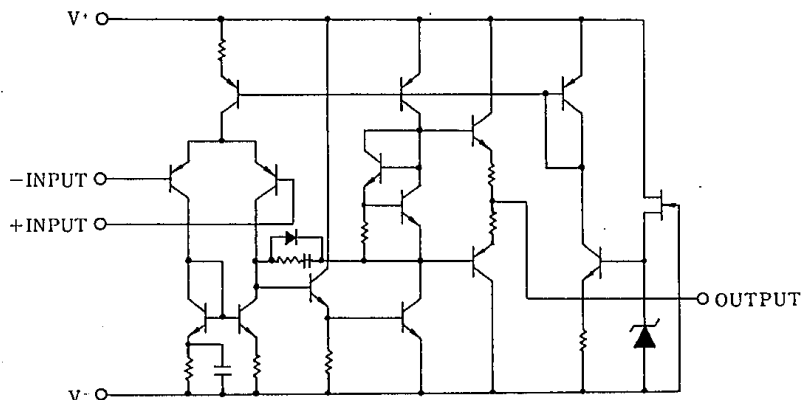


NJM2068L

PIN FUNCTION

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

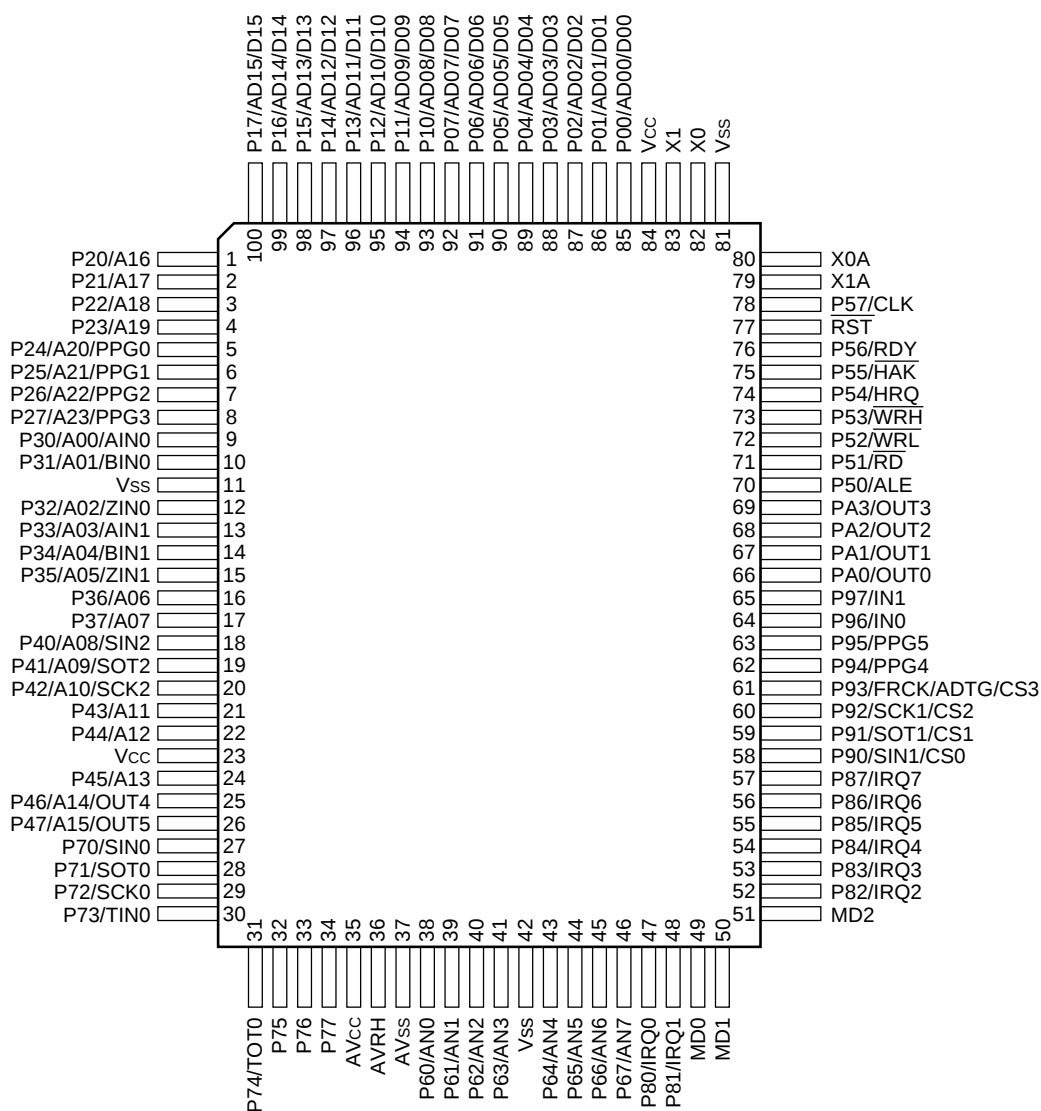
■ EQUIVALENT CIRCUIT (1/2 Shown)



U-COM IC PIN ASSIGNMENT & DESCRIPTIONS

■ PIN ASSIGNMENT (IC72)

(TOP VIEW)



(FPT-100P-M06)

MB90482

■ PIN DESCRIPTIONS (IC72)

Pin No.		Pin name	Circuit type	Function
LQFP*1	QFP*2			
80	82	X0	A	Oscillator pin
81	83	X1	A	Oscillator pin
78	80	X0A	A	32 kHz oscillator pin
77	79	X1A	A	32 kHz oscillator pin
75	77	$\overline{\text{RST}}$	B	Reset input pin
83 to 90	85 to 92	P00 to P07	C (CMOS)	This is a general purpose I/O port. A setting in the pull-up resistance setting register (RDR0) can be used to apply pull-up resistance (RD00-RD07 = "1") . (Disabled when pin is set for output.)
		AD00 to AD07		In multiplex mode, these pins function as the external address/data bus low I/O pins.
		D00 to D07		In non-multiplex mode, these pins function as the external data bus low output pins.
91 to 98	93 to 100	P10 to P17	C (CMOS)	This is a general purpose I/O port. A setting in the pull-up resistance setting register (RDR1) can be used to apply pull-up resistance (RD10-RD17 = "1") . (Disabled when pin is set for output.)
		AD08 to AD15		In multiplex mode, these pins function as the external address/data bus high I/O pins.
		D08 to D15		In non-multiplex mode, these pins function as the external data bus high output pins.
99, 100, 1, 2	1 to 4	P20 to P23	E (CMOS/H)	This is a general purpose I/O port. When the bits of external address output control register (HACR) are set to "1" in external bus mode, these pins function as general purpose I/O ports.
		A16 to A19		When the bits of external address output control register (HACR) are set to "0" in multiplex mode, these pins function as address high output pins (A16-A19).
		A16 to A19		When the bits of external address output control register (HACR) are set to "0" in non-multiplex mode, these pins function as address high output pins (A16-A19).
3 to 6	5 to 8	P24 to P27	E (CMOS/H)	This is a general purpose I/O port. When the bits of external address output control register (HACR) are set to "1" in external bus mode, these pins function as general purpose I/O ports.
		A20 to A23		When the bits of external address output control register (HACR) are set to "0" in multiplex mode, these pins function as address high output pins (A20-A23).
		A20 to A23		When the bits of external address output control register (HACR) are set to "0" in non-multiplex mode, these pins function as address high output pins (A20-A23).
		PPG0 to PPG3		PPG timer output pins.

(Continued)

Pin No.		Pin name	Circuit type	Function
LQFP*1	QFP*2			
7	9	P30	E (CMOS/H)	This is a general purpose I/O port.
		A00		In non-multiplex mode, this pin functions as an external address pin.
		AIN0		8/16-bit up/down timer input pin (channel 0) .
8	10	P31	E (CMOS/H)	This is a general purpose I/O port.
		A01		In non-multiplex mode, this pin functions as an external address pin.
		BIN0		8/16-bit up/down counter input pin (channel0) .
10	12	P32	E (CMOS/H)	This is a general purpose I/O port.
		A02		In non-multiplex mode, this pin functions as an external address pin.
		ZIN0		8/16-bit up/down counter input pin (channel 0)
11	13	P33	E (CMOS/H)	This is a general purpose I/O port.
		A03		In non-multiplex mode, this pin functions as an external address pin.
		AIN1		8/16-bit up/down counter input pin (channel 1) .
12	14	P34	E (CMOS/H)	This is a general purpose I/O port.
		A04		In non-multiplex mode, this pin functions as an external address pin.
		BIN1		8/16-bit up/down counter input pin (channel 1) .
13	15	P35	E (CMOS/H)	This is a general purpose I/O port.
		A05		In non-multiplex mode, this pin functions as an external address pin.
		ZIN1		8/16-bit up/down counter input pin (channel 1)
14	16	P36, P37	D*3 (CMOS)	This is a general purpose I/O port.
15	17	A06, A07		In non-multiplex mode, this pin functions as an external address pin.
16	18	P40	G (CMOS/H)	This is a general purpose I/O port.
		A08		In non-multiplex mode, this pin functions as an external address pin.
		SIN2		Simple serial I/O input pin.
17	19	P41	F (CMOS)	This is a general purpose I/O port.
		A09		In non-multiplex mode, this pin functions as an external address pin.
		SOT2		Simple serial I/O output pin.
18	20	P42	G (CMOS/H)	This is a general purpose I/O port.
		A10		In non-multiplex mode, this pin functions as an external address pin.
		SCK2		Simple serial I/O clock input/output pin.

(Continued)

MB90482

Pin No.		Pin name	Circuit type	Function
LQFP*1	QFP*2			
19 20	21 22	P43, P44	F (CMOS)	This is a general purpose I/O port.
		A11, A12		In non-multiplex mode, this pin functions as an external address pin.
22	24	P45	F*4 (CMOS)	This is a general purpose I/O port.
		A13		In non-multiplex mode, this pin functions as an external address pin.
23 24	25 26	P46, P47	F (CMOS)	This is a general purpose I/O port.
		A14, A15		In non-multiplex mode, this pin functions as an external address pin.
		OUT4/OUT5		Output compare event output pins.
68	70	P50	D (CMOS)	This is a general purpose I/O port. In external bus mode, this pin functions as the ALE pin.
		ALE		In external bus mode, this pin functions as the address load enable (ALE) signal pin.
69	71	P51	D (CMOS)	This is a general purpose I/O port. In external bus mode, this pin functions as the $\overline{RD}$ pin.
		$\overline{RD}$		In external bus mode, this pin functions as the read strobe output (RD) signal pin.
70	72	P52	D (CMOS)	This is a general purpose I/O port. In external bus mode, when the WRE pin in the EPCR register is set to "1", this pin functions as the $\overline{WRL}$ pin.
		$\overline{WRL}$		In external bus mode, this pin functions as the lower data write strobe output ($\overline{WRL}$) pin. When the WRE bit in the EPCR register is set to "0", this pin functions as a general purpose I/O port.
71	73	P53	D (CMOS)	This is a general purpose I/O port. In external bus mode with 16-bit bus width, when the WRE bit in the EPCR register is set to "1", this pin functions as the $\overline{WRH}$ pin.
		$\overline{WRH}$		In external bus mode with 16-bit bus width, this pin functions as the upper data write strobe output ($\overline{WRH}$) pin. When the WRE bit in the EPCR register is set to "0", this pin functions as a general purpose I/O port.
72	74	P54	D (CMOS)	This is a general purpose I/O port. In external bus mode, when the HDE bit in the EPCR register is set to "1", this pin functions as the HRQ pin.
		HRQ		In external bus mode, this pin functions as the hold request input (HRQ) pin. When the HDE bit in the EPCR register is set to "0", this pin functions as a general purpose I/O port.
73	75	P55	D (CMOS)	This is a general purpose I/O port. In external bus mode, when the HDE bit in the EPCR register is set to "1", this pin functions as the HAK pin.
		$\overline{HAK}$		In external bus mode, this pin functions as the hold acknowledge ($\overline{HAK}$) pin. When the HDE bit in the EPCR register is set to "0", this pin functions as a general purpose I/O port.

(Continued)

Pin No.		Pin name	Circuit type	Function
LQFP*1	QFP*2			
74	76	P56	D (CMOS)	This is a general purpose I/O port. In external bus mode, when the RYE bit in the EPCR register is set to "1", this pin functions as the RDY pin.
		RDY		In external bus mode, this pin functions as the external ready (RDY) input pin. When the RYE bit in the EPCR register is set to "0", this pin functions as a general purpose I/O port.
76	78	P57	D (CMOS)	This is a general purpose I/O port. In external bus mode, when the CKE bit in the EPCR register is set to "1", this pin functions as the CLK pin.
		CLK		In external bus mode, this pin functions as the machine cycle clock (CLK) output pin. When the CKE bit in the EPCR register is set to "0", this pin functions as a general purpose I/O port.
36 to 39	38 to 41	P60 to P63	H (CMOS)	These are general purpose I/O ports.
		AN0 to AN3		These are the analog input pins.
41 to 44	43 to 46	P64 to P67	H (CMOS)	These are general purpose I/O ports.
		AN4 to AN7		These are the analog input pins.
25	27	P70	G (CMOS/H)	This is a general purpose I/O port.
		SIN0		This is the UART data input pin.
26	28	P71	F (CMOS)	This is a general purpose I/O port.
		SOT0		This is the UART data output pin.
27	29	P72	G (CMOS/H)	This is a general purpose I/O port.
		SCK0		This is the UART clock I/O pin.
28	30	P73	G (CMOS/H)	This is a general purpose I/O port.
		TIN0		This is the 16-bit reload timer event input pin.
29	31	P74	F (CMOS)	This is a general purpose I/O port.
		TOT0		This is the 16-bit reload timer output pin.
30	32	P75	F*4 (CMOS)	This is a general purpose I/O port.
31	33	P76	F*5 (CMOS)	This is a general purpose I/O port.
32	34	P77	F*5 (CMOS)	This is a general purpose I/O port.
45, 46	47, 48	P80, P81	E (CMOS/H)	These are general purpose I/O ports.
		IRQ0, IRQ1		External interrupt input pins.
50 to 55	52 to 57	P82 to P87	E (CMOS/H)	These are general purpose I/O ports.
		IRQ2 to IRQ7		External interrupt input pins.

(Continued)

MB90482

(Continued)

Pin No.		Pin name	Circuit type	Function
LQFP*1	QFP*2			
56	58	P90	E (CMOS/H)	This is a general purpose I/O port.
		SIN1		Simple serial I/O data input pin.
		CS0		Chip select 0.
57	59	P91	D (CMOS)	This is a general purpose I/O port.
		SOT1		Simple serial I/O data output pin.
		CS1		Chip select 1.
58	60	P92	E (CMOS/H)	This is a general purpose I/O port.
		SCK1		Simple serial I/O data input/output pin.
		CS2		Chip select 2.
59	61	P93	E (CMOS/H)	This is a general purpose I/O port.
		FRCK		When the free run timer is in use, this pin functions as the external clock input pin.
		ADTG		When the A/D converter is in use, this pin functions as the external trigger input pin.
		CS3		Chip select 3.
60	62	P94	D (CMOS)	This is a general purpose I/O port.
		PPG4		PPG timer output pin.
61	63	P95	D (CMOS)	This is a general purpose I/O port.
		PPG5		PPG timer output pin.
62	64	P96	E (CMOS/H)	This is a general purpose I/O port.
		IN0		Input capture channel 0 trigger input pin.
63	65	P97	E (CMOS/H)	This is a general purpose I/O port.
		IN1		Input capture channel 1 trigger input pin.
64 to 67	66 to 69	PA0 to PA3	D (CMOS)	These are general purpose I/O ports.
		OUT0 to OUT3		Output compare event output pins.
33	35	AV _{CC}	—	A/D converter power supply pin.
34	36	AVRH	—	A/D converter external reference voltage supply pin.
35	37	AV _{SS}	—	A/D converter power supply pin.
47 to 49	49 to 51	MD0 to MD2	J (CMOS/H)	Operating mode selection input pins.
21, 82	23, 84	V _{CC}	—	3.3 V ± 0.3 V power supply pins (V _{CC3}) .
9, 40, 79	11, 42, 81	V _{SS}	—	Power supply input pins (GND) .

*1 : LQFP : FPT-100P-M05

*2 : QFP : FPT-100P-M06

*3 : The circuit type of MB90V480 is E (CMOS/H).

*4 : The circuit type of MB90V480 is G (CMOS/H).

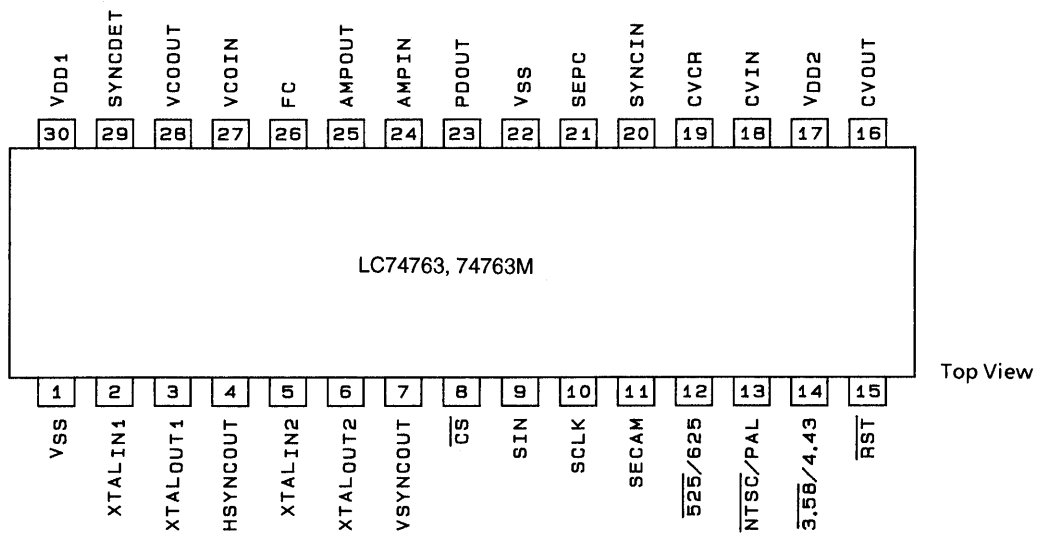
*5 : The circuit type of MB90V480 is I (NMOS/H)

O.S.D IC (74763M)

Pin Functions (IC51)

Pin No.	Symbol	Function	Description
1	V _{SS}	Ground	Ground connection
2	Xtal _{IN1}	Crystal oscillator connection	Connection for the crystal and capacitor used to form the crystal oscillator that generates the internal synchronization signal. The oscillator can be selected with a command switch.
3	Xtal _{OUT1}		
4	HSYNC _{OUT}	Horizontal synchronization output	Outputs the horizontal synchronization signal (AFC). The output polarity can be selected (metal option). Also functions as general output port (command switch).
5	Xtal _{IN2}	Crystal oscillator connection	Connection for the crystal and capacitor used to form the crystal oscillator that generates the internal synchronization signal.
6	Xtal _{OUT2}		
7	VSYNC _{OUT}	Vertical synchronization output	Outputs the vertical synchronization signal. The output polarity can be selected (metal option). Also functions as general output port (command switch).
8	$\overline{\text{CS}}$	Enable input	Enables/disables serial data input. Serial data is enabled when this pin is low (hysteresis input). Pull-up resistor built in (metal option).
9	SIN	Data input	Serial data input (hysteresis input). Pull-up resistor built in (metal option).
10	SCLK	Clock input	Clock input for serial data input (hysteresis input). Pull-up resistor built in (metal option).
11	SECAM	SECAM mode switch input/output (command switch)	During input, switches between SECAM and other modes. During output, functions as general output port or internal V output (command switch). Low = other modes, high = SECAM mode
12	$\overline{525/625}$	525/625 switch input/output (command switch)	During input, switches between 525 scan lines and 625 scan lines. During output, functions as general output port or character data output (command switch). Low = 525 lines, high = 625 lines
13	$\overline{\text{NTSC/PAL}}$	NTSC/PAL switch input/output (command switch)	Switches the color mode between NTSC and PAL. During output, functions as general output port or frame data output (command switch). Low = NTSC, high = PAL
14	$\overline{3.58/4.43}$	3.58/4.43 switch input/output (command switch)	Switch FSC between 3.58 MHz and 4.43 MHz. During output, functions as general output port or halftone output (command switch). Low = 3.58, high = 4.43
15	$\overline{\text{RST}}$	Reset input	System reset input pin, low is active (hysteresis input). Pull-up resistor built in (metal option).
16	CV _{OUT}	Video signal output	Composite video output
17	V _{DD2}	Power supply connection	Power supply connection for composite video signal level generation
18	CV _{IN}	Video signal input	Composite video input
19	CV _{CR}	Video signal input	SECAM chroma signal input
20	SYNC _{IN}	Sync separator circuit input	Built-in sync separator circuit video signal input
21	SEP _C	Sync separator circuit	Built-in sync separator circuit
22	V _{SS}	Ground	Ground connection
23	PD _{OUT}	Control voltage output	AFC control voltage output
24	AMP _{IN}	AFC filter connection	Filter connection
25	AMP _{OUT}		
26	FC	Control voltage input	AFC control voltage input
27	VCO _{IN}	LC oscillator connection	VCO LC oscillator circuit coil and capacitor connection
28	VCO _{OUT}		
29	SYNC _{DET}	External synchronization signal detection output	Outputs the exclusive NOR of the horizontal synchronization signal (AFC) and CSYNC (sync separator). The output polarity can be selected (metal option). Also functions as general output port (command switch).
30	V _{DD1}	Power supply connection	Power supply connection (+5 V: digital system power supply)

Pin Assignment

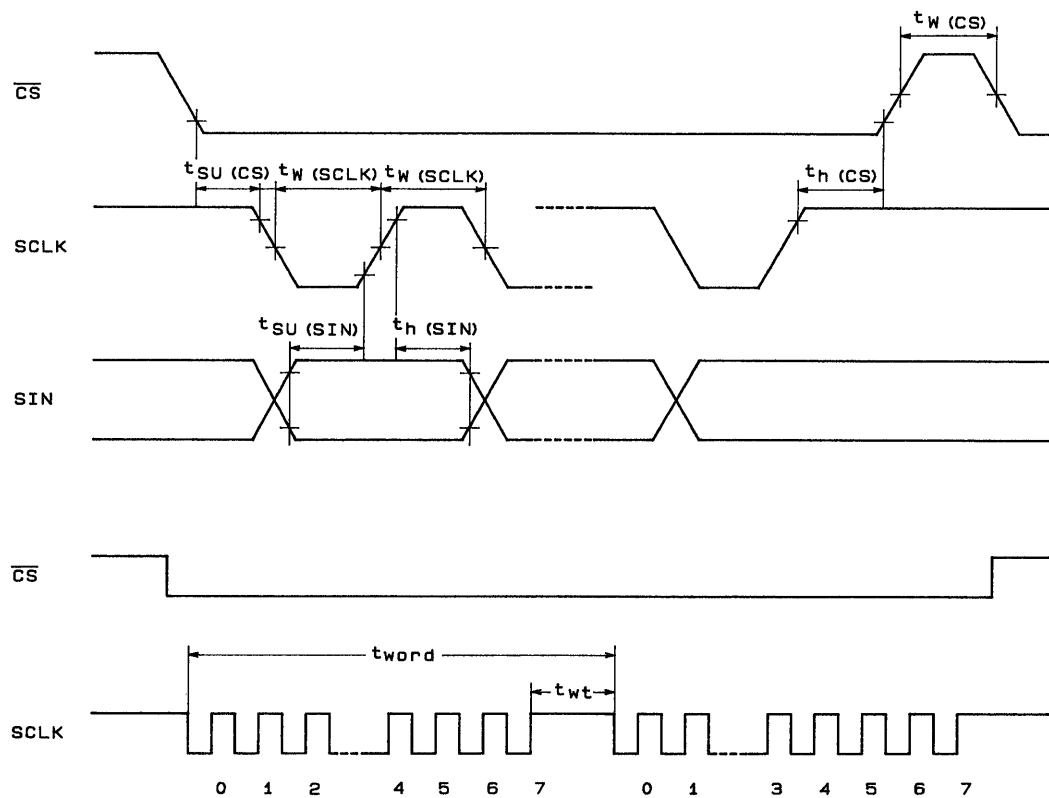


Top View

A03518

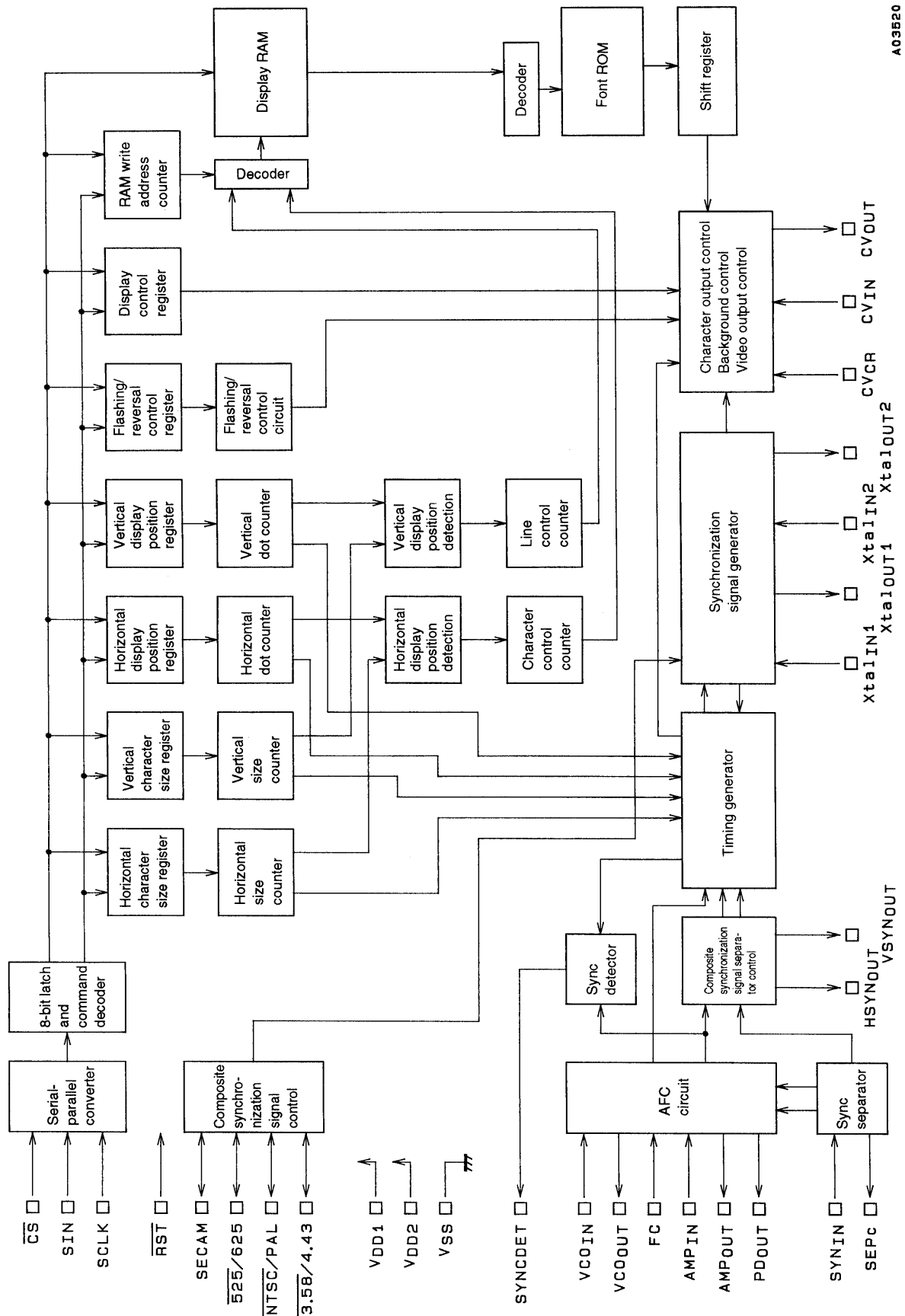
Top view

Serial Data Input Timing



A03519

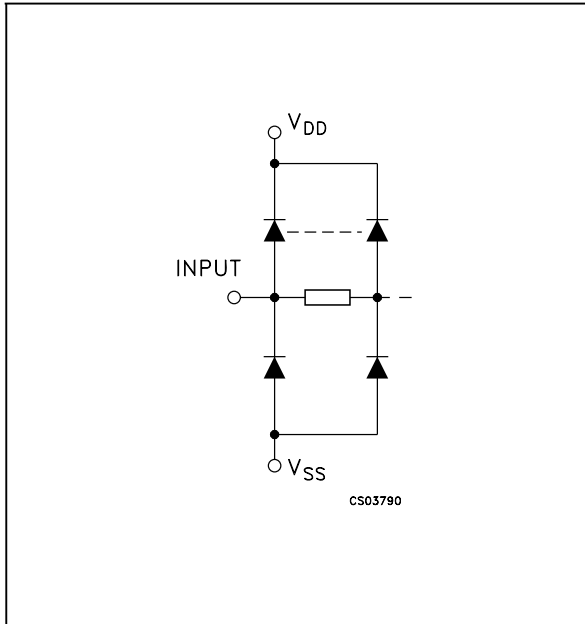
System Block Diagram



A03520

HCF4053B FUNCTION DIAGRAM & PIN DESCRIPTION

INPUT EQUIVALENT CIRCUIT



PIN DESCRIPTION (IC44,45,51,80,89)

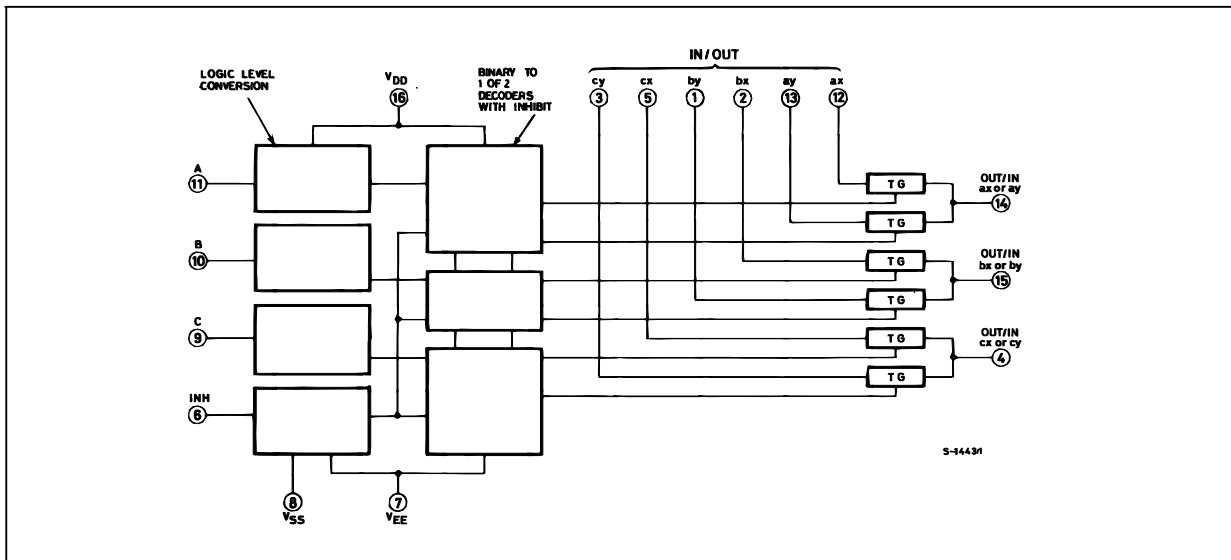
PIN No	SYMBOL	NAME AND FUNCTION
11, 10, 9	A, B, C	Binary Control Inputs
6	INH	Inhibit Inputs
12, 13, 2, 1, 5, 3	IN/OUT	ax,ay,bx,by,cx,cy Input/Output
14	OUT/IN	ax or ay
15	OUT/IN	bx or by
4	OUT/IN	cx or cy
7	V_{EE}	Supply Voltage
8	V_{SS}	Negative Supply Voltage
16	V_{DD}	Positive Supply Voltage

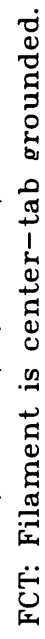
TRUTH TABLE

INHIBIT	C or B or A	
0	0	ax or bx or cx
0	1	ay or by or cy
1	X	NONE

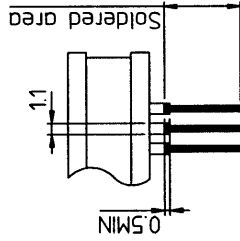
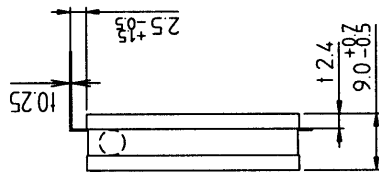
X : Don't Care

FUNCTIONAL DIAGRAM (IC44,45,51,80,89)





MODEL : HCA-18ML01
BLOCK DIAGRAM
Rev. ① 20-Feb-2003



LEAD DETAILS

PIN NO.	104	103	102	101	100	99	98	97	96	95	94	93	92	91	90~15	14~6	5	4	3	2	1
CONNECTION	F2	F2	F2	NP	NP	VDD2	VSS	VSS	CLK	D0	DI	BLK	STB	VDD1	NP	NC	NP	NP	F1	F1	F1

*Notes

* D0(Serial data output) : Be left open if not used.

NP : No Pin

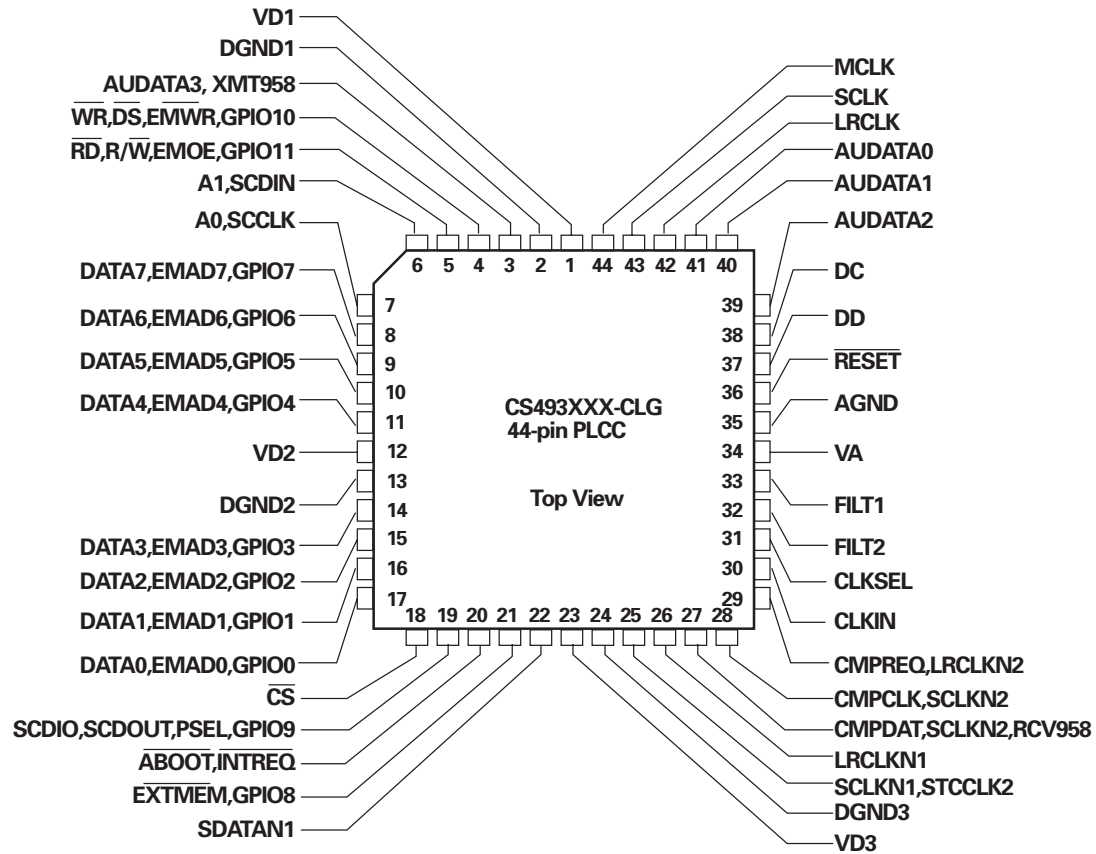
NC : No Connection Pin

MODEL : HCA-18ML01
OUTER DIMENSIONS
Rev. ① 20-Feb-200

AUDIO DSP (CS493263 - CLG : IC75)

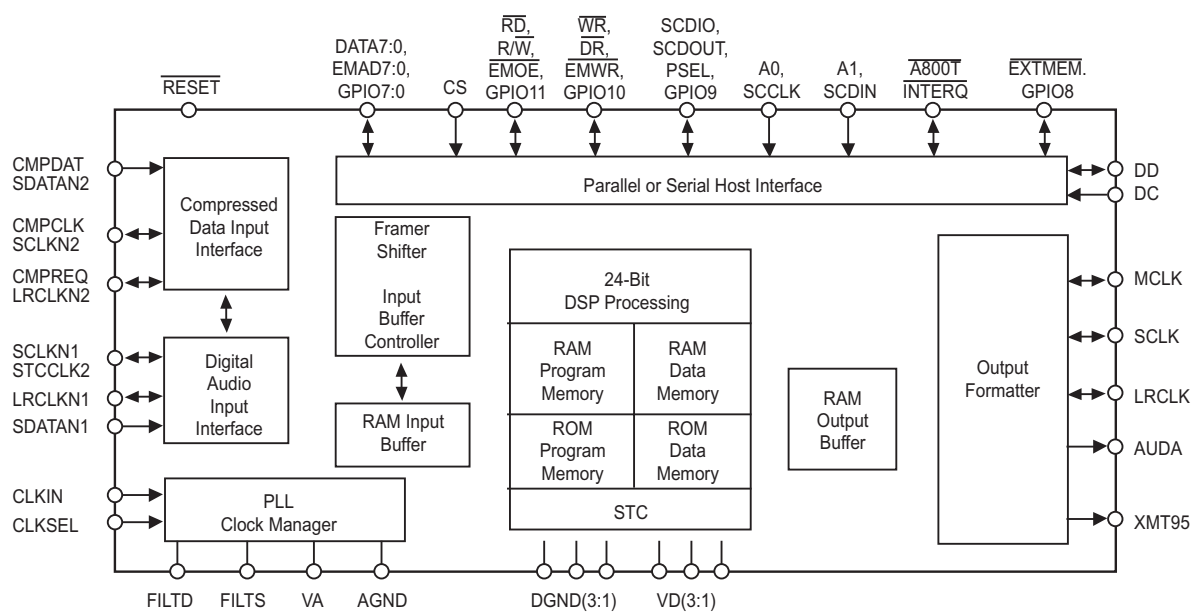
PIN No.	Pin Name	I/O	Function
1,12,23	+VD1	-	Digital Power supply. Normally +2.5v
2,13,24	DGND	-	Digital Ground
3	AUD3	O	SPDIF transmitter output/Digital audio output(N.C)
4	WR	I	Host write strobe pin(connected to GND with an external resistor)
5	RD	I	Host parallel output enable pin(pulled up with an external resistor)
6	CS_DA	I	SPI Serial data input pin
7	CS_CK	I	Serial control clock input pin
8	EMAD7	I/O	Serial data IN/OUTPUT pins(pulled up with an external resistor)
9	EMAD6	I/O	
10	EMAD5	I/O	
11	EMAD4	I/O	
14	EMAD3	I/O	
15	EMAD2	I/O	
16	EMAD1	I/O	
17	EMAD0	I/O	
18	CS_CE	I	Host parallel chip select pin
19	SCDIO(AK_DOUT)	O	Serial control port data ouput pin
20	INTREQ	O	Control port interrupt request output pin
21	EXTMEM	I/O	External Memory Chip Selector(pulled up with an external resistor)
22	SDATAN1(SDI)	I	PCM audio data input number 1 pin
25	SCLKN1(BICK)	I	PCM audio input bit clock pin
26	LRCLKN1(LRCK)	I	PCM audio input sample rate clock pin
27	CMPDAT(SDI)	I	PCM audio data input number 2 pin
28	CMPCLK(BICK)	I	PCM audio input bit clock pin
29	CREQ(LRCK)	I	PCM audio input sample rate clock pin
30	CLKIN(XIN)	I	Master clock input(used external clock)
31	CLKSEL(GND)	I	DSP clock mode select pin: connect the GND
32	FILT1		Connects to an external filter for the on-chip phase-locked loop
33	FILT1		Connects to an external filter for the on-chip phase-locked loop
34	+2.5V	-	Analog Power supply for clock generator . Normally +2.5V
35	AGND	-	Analog ground supply for clock generator PLL.
36	RESET(CS_RST)	I	Master reset input pin
37	DBDATA	-	Reserved pin and should be pulled up with an external resistor.
38	DBCLK	-	Reserved pin and should be pulled up with an external resistor.
39	AUD2(SDO2)	O	PCM multi-format digital-audio data ouput2 pin
40	AUD1(SDO1)	O	PCM multi-format digital-audio data ouput1 pin
41	AUD0(SDO0)	O	PCM multi-format digital-audio data ouput0 pin
42	LRCLK	I	Audio output sample rate clock pin
43	SCLK(BICK)	I	Audio ouput bit clock pin
44	MCLK	I	Audio master clock output pin

PIN ASSIGNMENT.(CS493263)



(TOP VIEW)

BLOCK DIAGRAM(CS493263)





= Preliminary =

AK5381

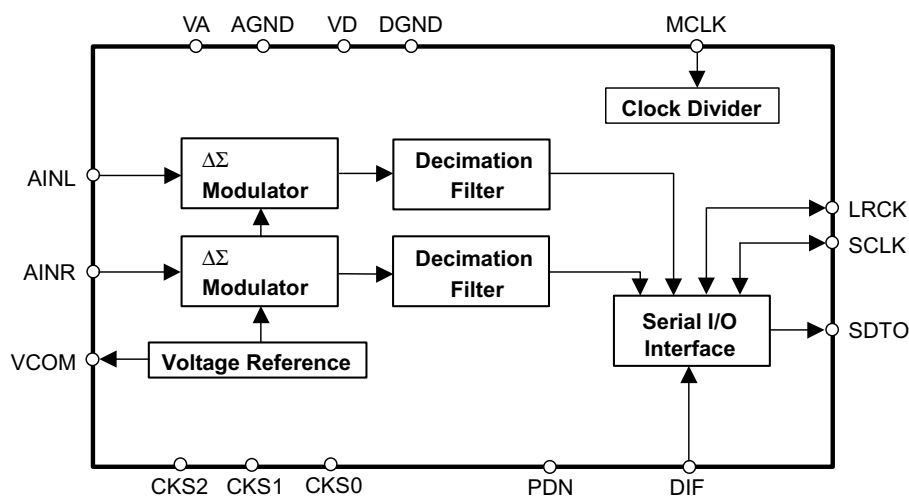
24Bit 96kHz $\Delta\Sigma$ ADC

GENERAL DESCRIPTION

The AK5381 is a stereo A/D Converter with wide sampling rate of 4kHz ~ 96kHz and is suitable for High-end audio system. The AK5381 achieves high accuracy and low cost by using Enhanced dual bit $\Delta\Sigma$ techniques. The AK5381 requires no external components because the analog inputs are single-ended. The audio interface has two formats (MSB justified, I^2S) and can correspond to many systems like music instrument and AV receiver.

FEATURES

- ☐ Stereo $\Delta\Sigma$ ADC
- ☐ On-Chip Digital Anti-Alias Filtering
- ☐ Single-ended Input
- ☐ Digital HPF for DC-Offset cancel
- ☐ S/(N+D): 96dB@5V for 48kHz
- ☐ DR: 106dB@5V for 48kHz
- ☐ S/N: 106dB@5V for 48kHz
- ☐ Sampling Rate Ranging from 4kHz to 96kHz
- ☐ Master Clock:
 - 256fs/384fs/512fs/768fs (~ 48kHz)
 - 256fs/384fs (~ 96kHz)
- ☐ Audio Interface: Master or Slave Mode selectable
- ☐ Input level: TTL/CMOS selectable
- ☐ Output format: 24bit MSB justified / I^2S selectable
- ☐ Power Supply: 4.5 ~ 5.5V (VA)
 - 2.7 ~ 5.5V (VD at 48kHz)
 - 3.0 ~ 5.5V (VD at 96kHz)
- ☐ Ta = -40 ~ 85°C
- ☐ Small 16pin TSSOP Package
- ☐ AK5380 Pin-compatible



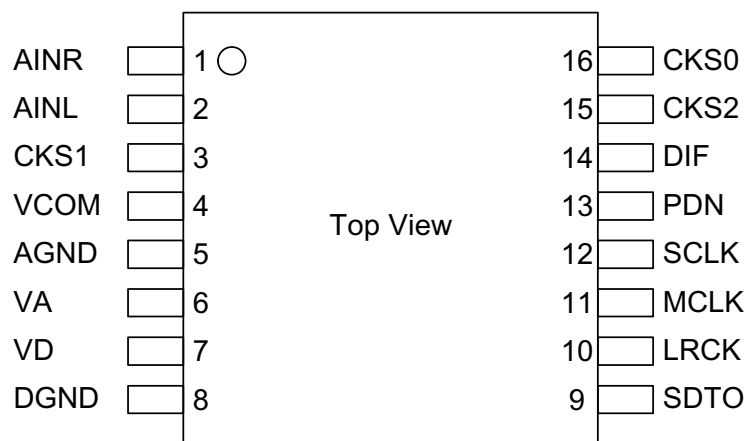
■ Ordering Guide

AK5381VT
AKD5381

−40 ~ +85°C
Evaluation Board for AK5381

16pin TSSOP (0.65mm pitch)

■ Pin Layout



■ Compatibility with AK5380

	AK5380	AK5381
Master Mode	Not Available	Available
HPF OFF	Not Available	Available
VD (Digital Supply)	4.5 to 5.5V@fs=96kHz	3.0 to 5.5V@fs=96kHz
Pin #3	NC	CKS1
Pin #15	TTL	CKS2
Pin #16	TST	CKS0

PIN / FUNCTION			
No.	Pin Name	I/O	Function
1	AINR	I	Rch Analog Input Pin
2	AINL	I	Lch Analog Input Pin
3	CKS1	I	Mode Select 1 Pin
4	VCOM	O	Common Voltage Output Pin, VA/2 Bias voltage of ADC input.
5	AGND	-	Analog Ground Pin
6	VA	-	Analog Power Supply Pin, 4.5 ~ 5.5V
7	VD	-	Digital Power Supply Pin, 2.7 ~ 5.5V(fs=4k ~ 48kHz), 3.0 ~ 5.5V(fs=48k ~ 96kHz)
8	DGND	-	Digital Ground Pin
9	SDTO	O	Audio Serial Data Output Pin “L” Output at Power-down mode.
10	LRCK	I/O	Output Channel Clock Pin “L” Output in Master Mode at Power-down mode.
11	MCLK	I	Master Clock Input Pin
12	SCLK	I/O	Audio Serial Data Clock Pin “L” Output in Master Mode at Power-down mode.
13	PDN	I	Power Down Mode Pin “H”: Power up, “L”: Power down
14	DIF	I	Audio Interface Format Pin “H” : 24bit I ² S Compatible, “L” : 24bit MSB justified
15	CKS2	I	Mode Select 2 Pin
16	CKS0	I	Mode Select 0 Pin

Note: All digital input pins should not be left floating.

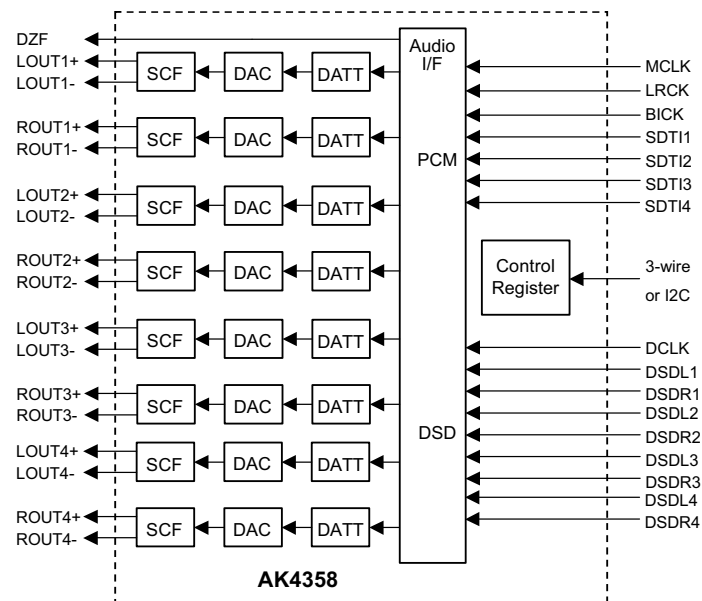
= Target Spec =
AK4358
192kHz 24-Bit 8ch DAC with DSD Input

GENERAL DESCRIPTION

The AK4358 is eight channels 24bit DAC corresponding to digital audio system. Using AKM's advanced multi bit architecture for its modulator the AK4358 delivers a wide dynamic range while preserving linearity for improved THD+N performance. The AK4358 has full differential SCF outputs, removing the need for AC coupling capacitors and increasing performance for systems with excessive clock jitter. The AK4358 accepts 192kHz PCM data and 1-Bit DSD data, ideal for a wide range of applications including DVD-Audio and SACD.

FEATURES

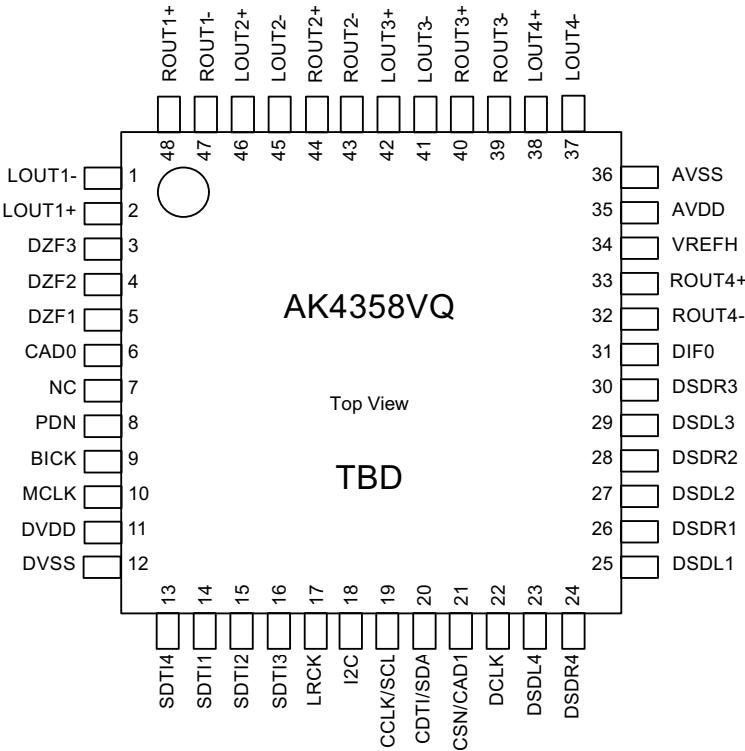
- ☐ Sampling Rate Ranging from 8kHz to 192kHz
- ☐ 24Bit 8 times Digital Filter with Slow roll-off option
- ☐ THD+N: -94dB
- ☐ DR, S/N: 114dB
- ☐ High Tolerance to Clock Jitter
- ☐ Low Distortion Differential Output
- ☐ DSD Data input available
- ☐ Channel Independent Digital De-emphasis for 32, 44.1 & 48kHz sampling
- ☐ Zero Detect function
- ☐ Channel Independent Digital Attenuator with soft-transition (3 Speed mode)
- ☐ Soft Mute
- ☐ 3-wire Serial and I²C Bus μ P I/F for mode setting
- ☐ I/F format: MSB justified, LSB justified (16bit, 20bit, 24bit), I²S, TDM or DSD
- ☐ Master clock: 256fs, 384fs, 512fs or 768fs (PCM Normal Speed Mode)
 128fs, 192fs, 256fs or 384fs (PCM Double Speed Mode)
 128fs or 192fs (PCM Quad Speed Mode)
 512fs or 768fs (DSD Mode)
- ☐ Power Supply: 4.75 to 5.25V
- ☐ 48pin LQFP Package



■ Ordering Guide

AK4358VQ	-40 ~ +85°C	48LQFP
AKD4358	Evaluation Board for AK4358	

■ Pin Layout (To be determined)



■ Compatibility with AK4357

1. Function & Performance

Functions	AK4357	AK4358
# of channels	6	8
DR	106dB	114B
48kHz/96kHz TDM	Not available	Available
I2C	Not available	Available
DSDM control	Pin/Register	Register
Input channel of DZF pin	Fixed	Programmable

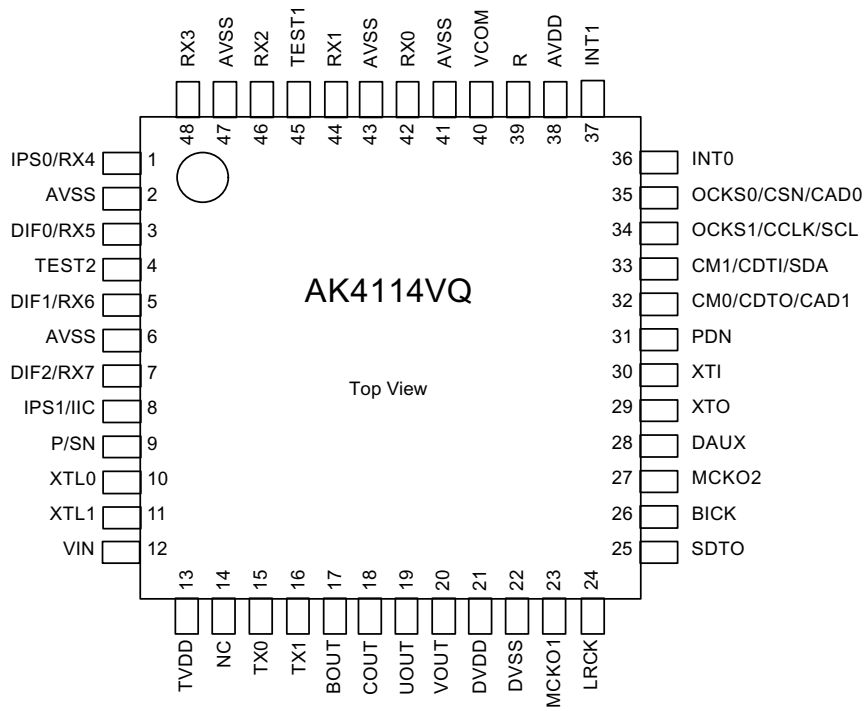
2. Pin Configuration (To be determined)

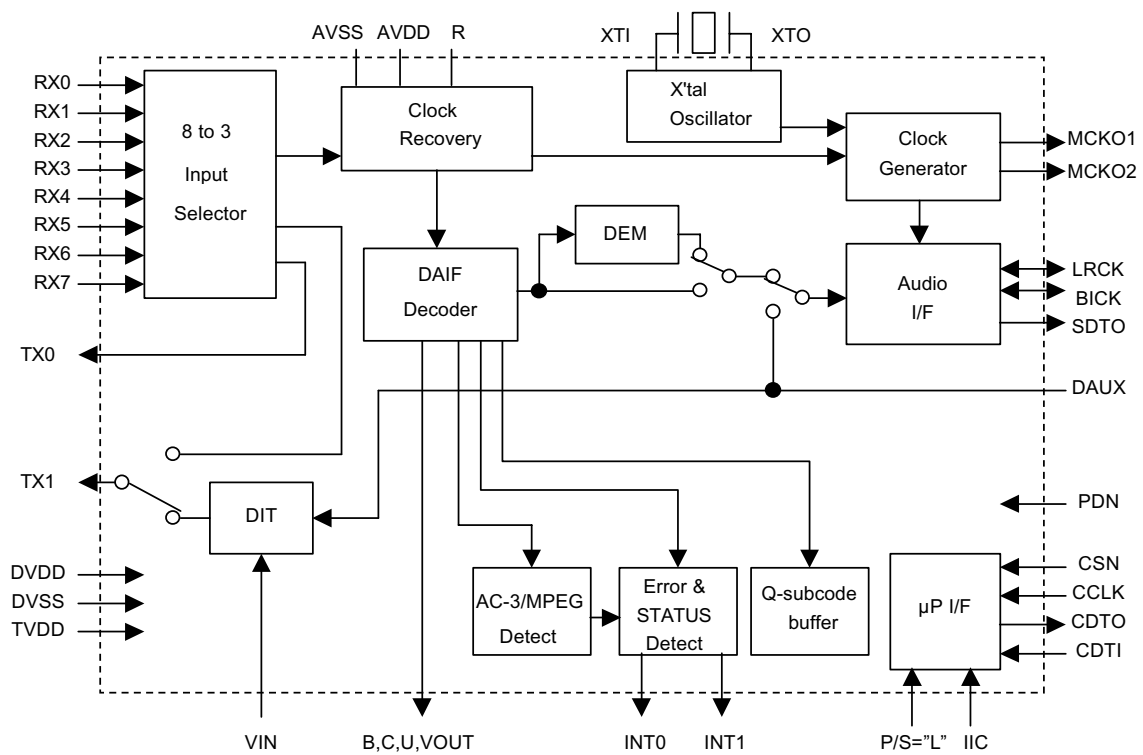
Pin #	AK4357	AK4358
3	DZFL1	DZF3
4	DZFR1	DZF2
5	DZF23	DZF1
7	CAD1	NC
12	NC	DVSS
13	DVSS	SDTI4
18	SMUTE	I2C
22	DSDM	DCLK
23	DCLK	DSDL4
24	NC	DSDR4
32	DIF1	ROUT4-
33	DIF2	ROUT4+
37	AVSS	LOUT4-
38	AVSS	LOUT4-

3. Register

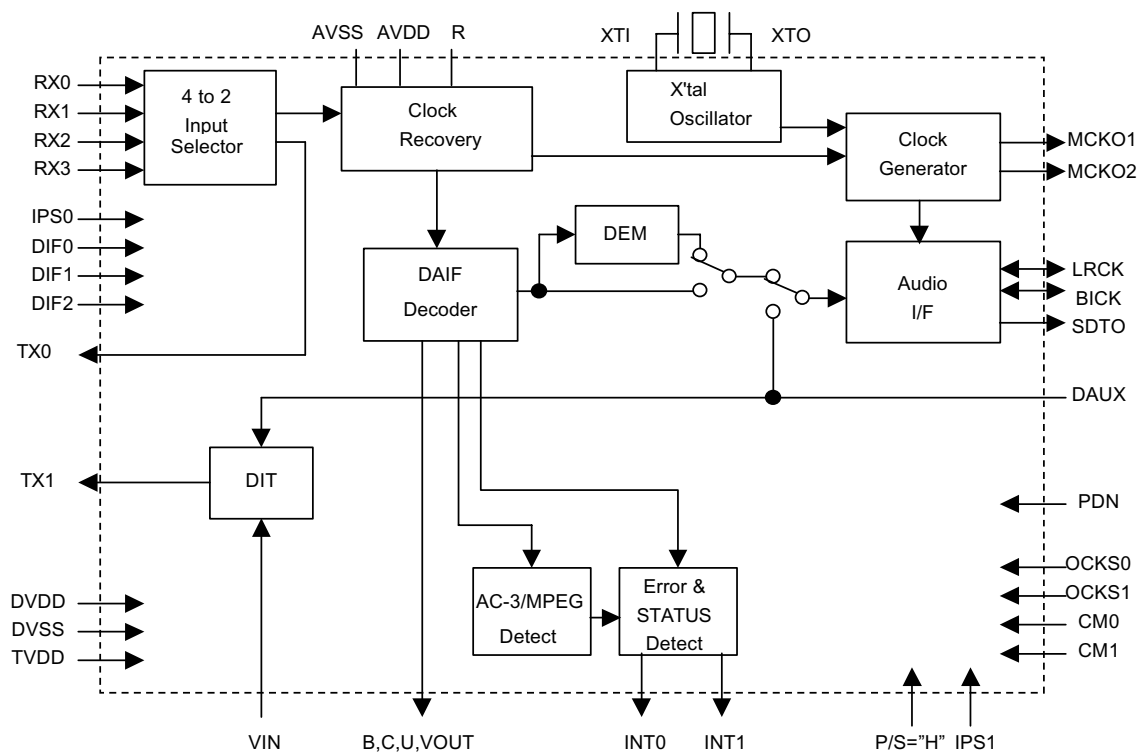
Addr	Bit	AK4357	AK4358
00H	D5	DZFM	0
01H	D6	0	PW4
04H	D7	ATT7	ATTE
05H	D7	ATT7	ATTE
06H	D7	ATT7	ATTE
07H	D7	ATT7	ATTE
08H	D7	ATT7	ATTE
09H	D7	ATT7	ATTE
0AH	D7, D6	0, 0	TDM1, TDM0
0BH		Not available	LOUT4 ATT Control
0CH		Not available	ROUT4 ATT Control
0DH		Not available	DZF1 control
0EH		Not available	DZF2 control
0FH		Not available	DZF3 control

PIN/FUNCTION (TBD)			
No.	Pin Name	I/O	Function
	LOUT1-	O	DAC1 Lch Negative Analog Output Pin
	LOUT1+	O	DAC1 Lch Positive Analog Output Pin
	DZF1	O	Zero Input Detect 1 Pin
	DZF2	O	Zero Input Detect 2 Pin
	DZF3	O	Zero Input Detect 3 Pin
	CAD0	I	Chip Address 0 Pin
	PDN	I	Power-Down Mode Pin When at "L", the AK4358 is in the power-down mode and is held in reset. The AK4358 should always be reset upon power-up.
	BICK	I	Audio Serial Data Clock Pin
	MCLK	I	Master Clock Input Pin An external TTL clock should be input on this pin.
	DVDD	-	Digital Power Supply Pin, +4.75~+5.25V
	DVSS	-	Digital Ground Pin
	SDTI1	I	DAC1 Audio Serial Data Input Pin
	SDTI2	I	DAC2 Audio Serial Data Input Pin
	SDTI3	I	DAC3 Audio Serial Data Input Pin
	SDTI4	I	DAC4 Audio Serial Data Input Pin
	LRCK	I	L/R Clock Pin
	I2C	I	Control Mode Select Pin "L": 3-wire Serial, "H": I ² C Bus
	CCLK/SCL	I	Control Data Clock Pin I2C = "L": CCLK (3-wire Serial), I2C = "H": SCL (I ² C Bus)
	CDTI/SDA	I/O	Control Data Input Pin I2C = "L": CDTI (3-wire Serial), I2C = "H": SDA (I ² C Bus)
	CSN/CAD1	I	Chip Select Pin I2C = "L": CSN (3-wire Serial), I2C = "H": CAD1 (I ² C Bus)
	DCLK	I	DSD Clock Pin
	DSDL1	I	DAC1 DSD Lch Data Input Pin
	DSDR1	I	DAC1 DSD Rch Data Input Pin
	DSDL2	I	DAC2 DSD Lch Data Input Pin
	DSDR2	I	DAC2 DSD Rch Data Input Pin
	DSDL3	I	DAC3 DSD Lch Data Input Pin
	DSDR3	I	DAC3 DSD Rch Data Input Pin
	DSDL4	I	DAC4 DSD Lch Data Input Pin
	DSDR4	I	DAC4 DSD Rch Data Input Pin
	DIF0	I	Audio Data Interface Format 0 Pin
	VREFH	I	Positive Voltage Reference Input Pin
	AVDD	-	Analog Power Supply Pin, +4.75~+5.25V
	AVSS	-	Analog Ground Pin
	ROUT4-	O	DAC4 Rch Negative Analog Output Pin
	ROUT4+	O	DAC4 Rch Positive Analog Output Pin
	LOUT4-	O	DAC4 Lch Negative Analog Output Pin
	LOUT4+	O	DAC4 Lch Positive Analog Output Pin
	ROUT3-	O	DAC3 Rch Negative Analog Output Pin
	ROUT3+	O	DAC3 Rch Positive Analog Output Pin
	LOUT3-	O	DAC3 Lch Negative Analog Output Pin
	LOUT3+	O	DAC3 Lch Positive Analog Output Pin
	ROUT2-	O	DAC2 Rch Negative Analog Output Pin
	ROUT2+	O	DAC2 Rch Positive Analog Output Pin
	LOUT2-	O	DAC2 Lch Negative Analog Output Pin
	LOUT2+	O	DAC2 Lch Positive Analog Output Pin
	ROUT1-	O	DAC1 Rch Negative Analog Output Pin





Serial Control Mode



Parallel Control Mode

PIN/FUNCTION

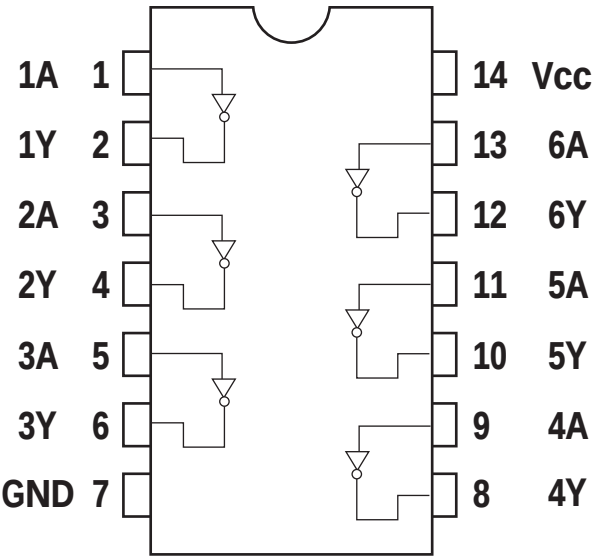
No.	Pin Name	I/O	Function
1	IPS0	I	Input Channel Select 0 Pin in Parallel Mode
	RX4	I	Receiver Channel 4 Pin in Serial Mode (Internal biased pin)
2	NC(AVSS)	I	No Connect No internal bonding. This pin should be connected to AVSS.
3	DIF0	I	Audio Data Interface Format 0 Pin in Parallel Mode
	RX5	I	Receiver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

PIN/FUNCTION (Continued)

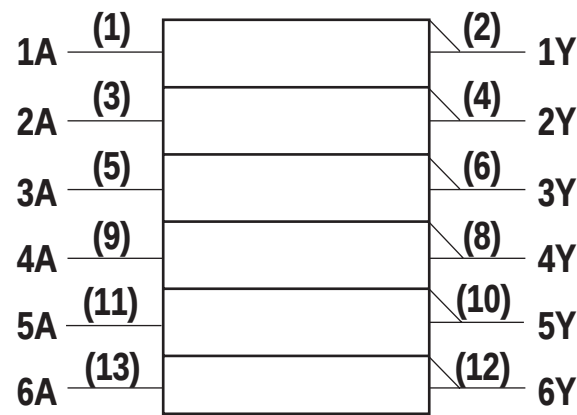
No.	Pin Name	I/O	Function
31	PDN	I	Power-Down Mode Pin When “L”, the AK4114 is powered-down and reset.
32	CM0	I	Master Clock Operation Mode 0 Pin in Parallel Mode
	CDTO	O	Control Data Output Pin in Serial Mode, IIC= “L”.
	CAD1	I	Chip Address 1 Pin in Serial Mode, IIC= “H”.
33	CM1	I	Master Clock Operation Mode 1 Pin in Parallel Mode
	CDTI	I	Control Data Input Pin in Serial Mode, IIC= “L”.
	SDA	I/O	Control Data Pin in Serial Mode, IIC= “H”.
34	OCS1	I	Output Clock Select 1 Pin in Parallel Mode
	CCLK	I	Control Data Clock Pin in Serial Mode, IIC= “L”
	SCL	I	Control Data Clock Pin in Serial Mode, IIC= “H”
35	OCS0	I	Output Clock Select 0 Pin in Parallel Mode
	CSN	I	Chip Select Pin in Serial Mode, IIC= “L”.
	CAD0	I	Chip Address 0 Pin in Serial Mode, IIC= “H”.
36	INT0	O	Interrupt 0 Pin
37	INT1	O	Interrupt 1 Pin
38	AVDD	I	Analog Power Supply Pin, 3.3V
39	R	-	External Resistor Pin 18k Ω +/-1% resistor should be connected to AVSS externally.
40	VCOM	-	Common Voltage Output Pin 0.47 μ F capacitor should be connected to AVSS externally.
41	AVSS	I	Analog Ground Pin
42	RX0	I	Receiver Channel 0 Pin (Internal biased pin) This channel is default in serial mode.
43	NC(AVSS)	I	No Connect No internal bonding. This pin should be connected to AVSS.
44	RX1	I	Receiver Channel 1 Pin (Internal biased pin)
45	TEST1	I	TEST 1 pin. This pin should be connected to AVSS.
46	RX2	I	Receiver Channel 2 Pin (Internal biased pin)
47	NC(AVSS)	I	No Connect No internal bonding. This pin should be connected to AVSS.
48	RX3	I	Receiver Channel 3 Pin (Internal biased pin)

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

■ PIN ASSIGNMENT (74HCU04AFN : IC71,72,76)

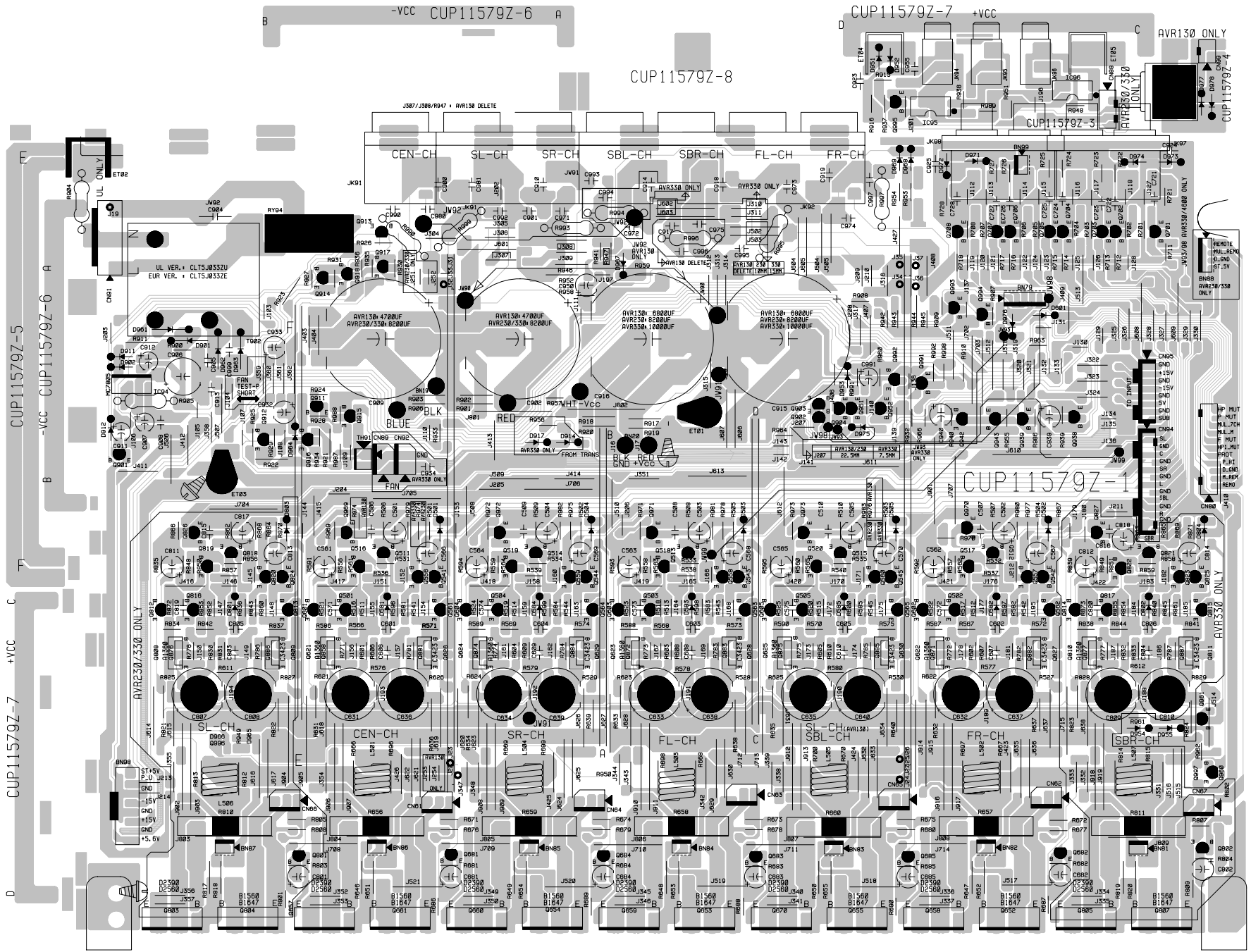


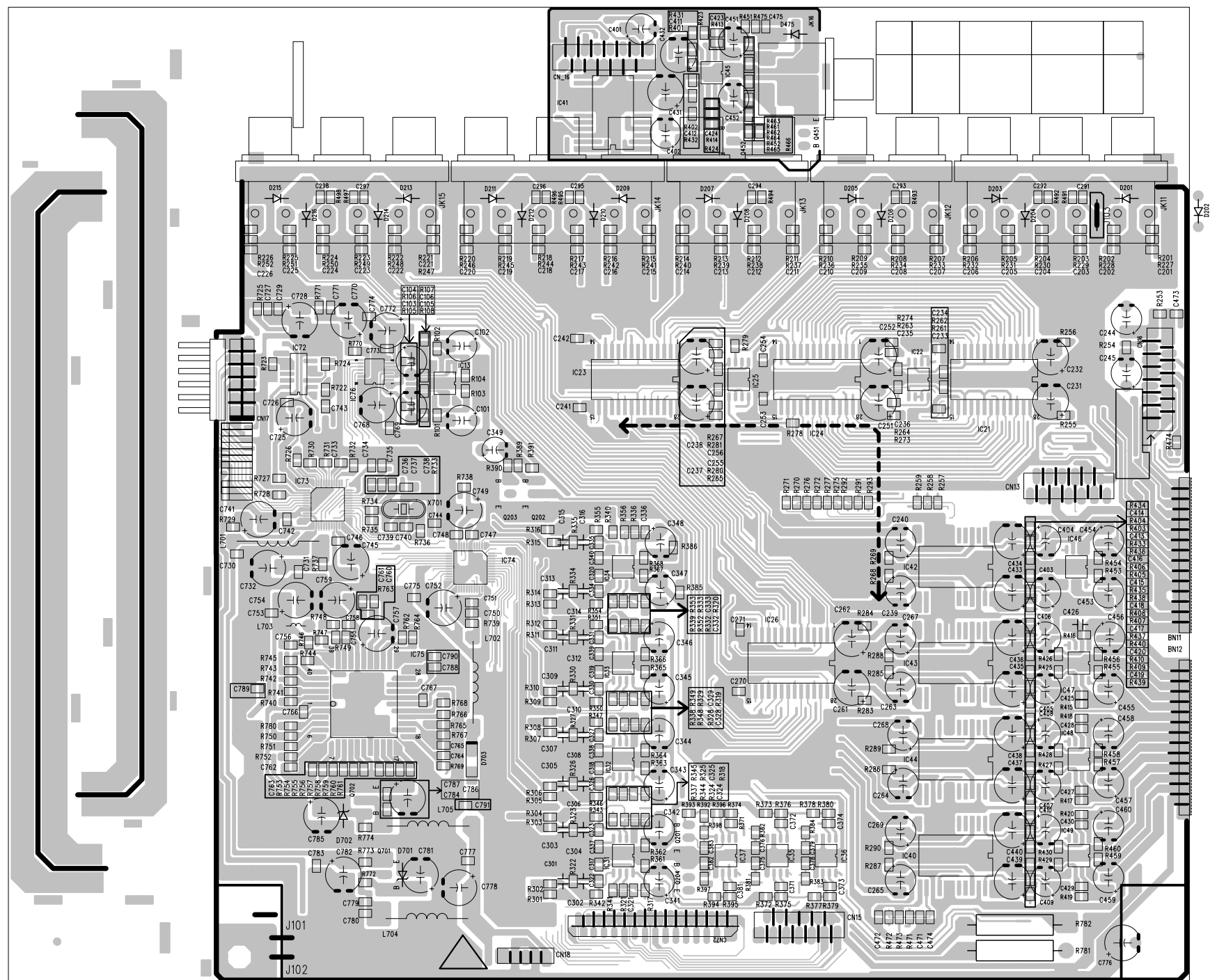
■ LOGIC SYMBOL

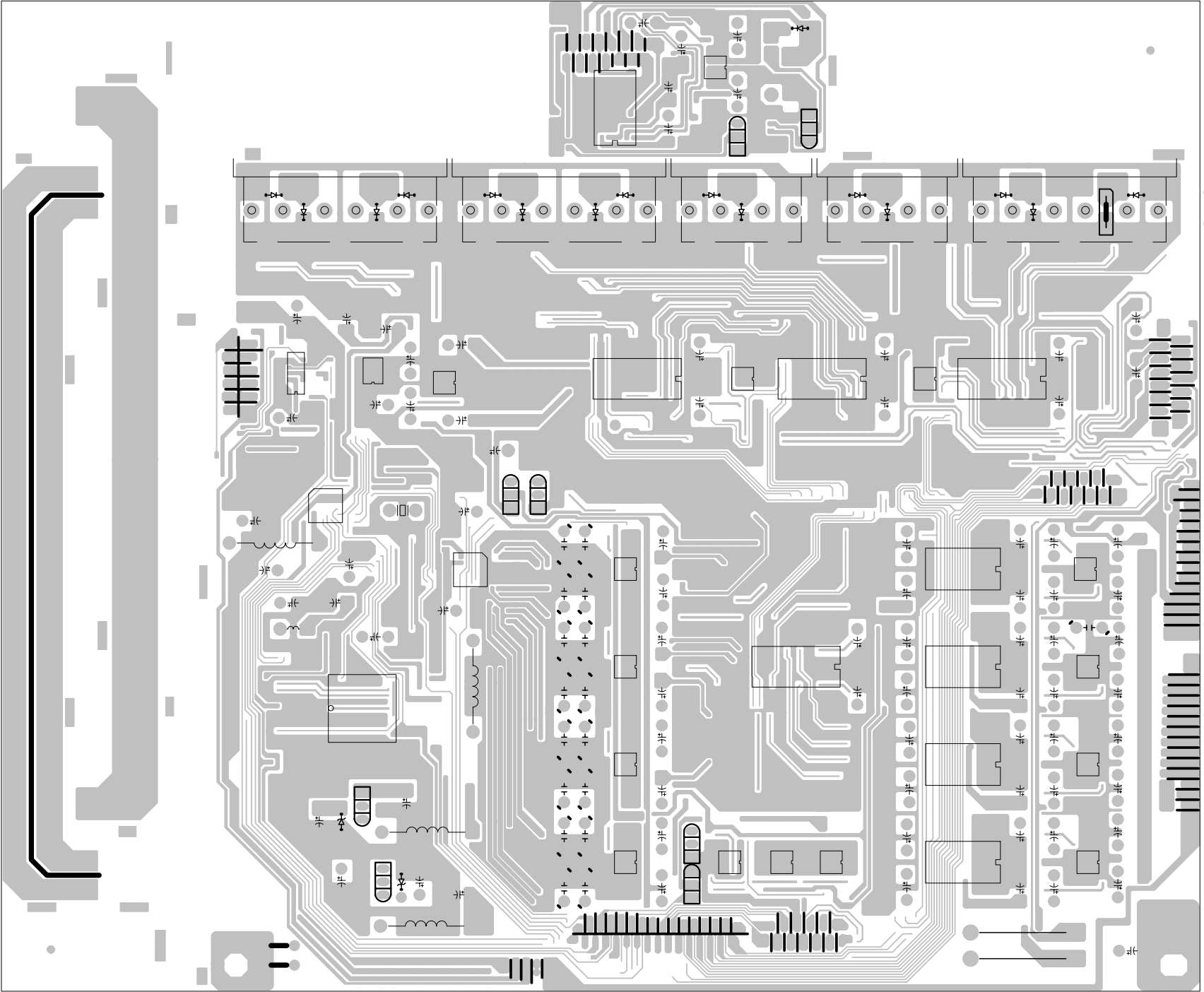


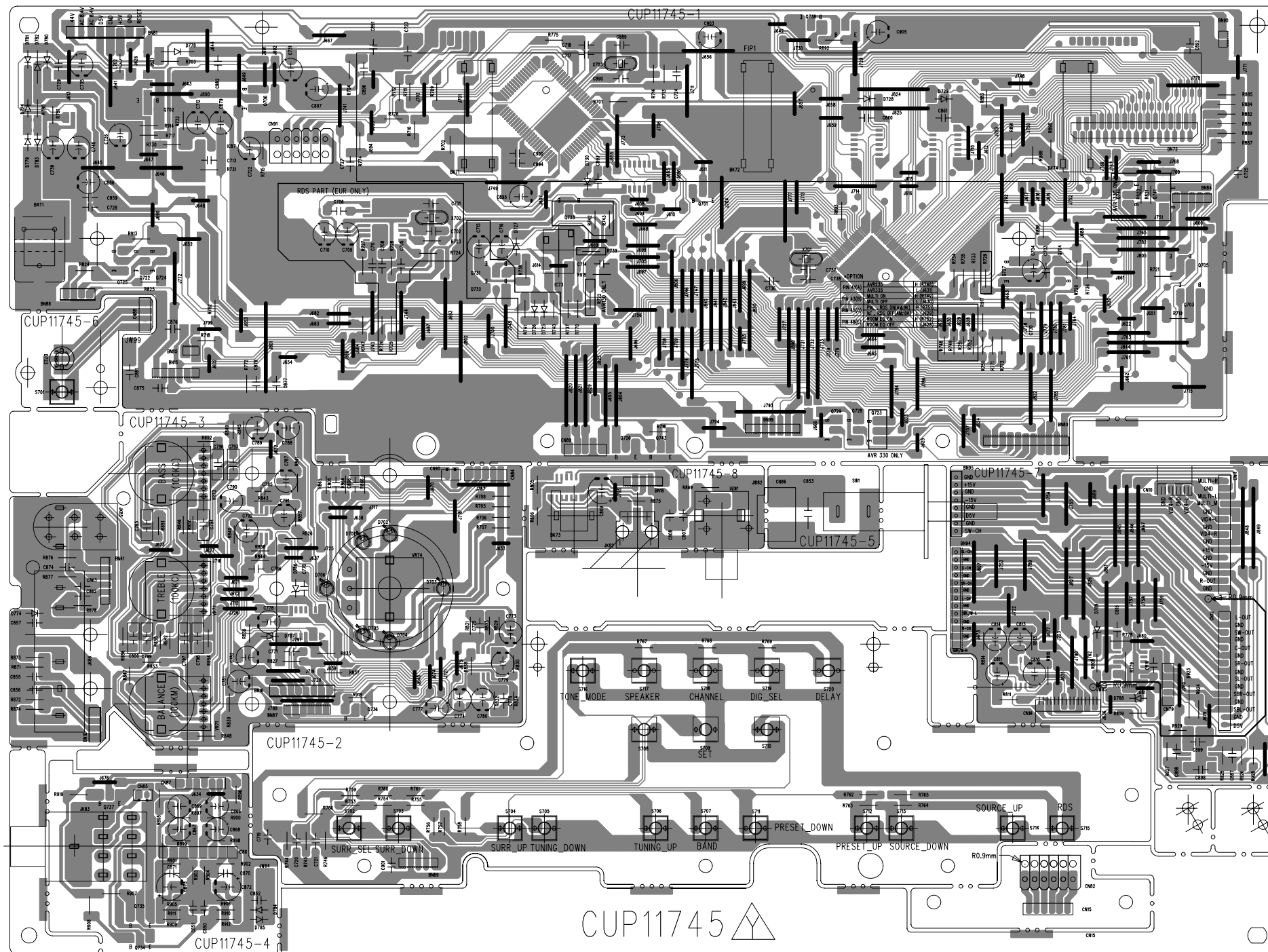
■ TRUTH TABLE

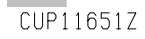
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L	H
H	L



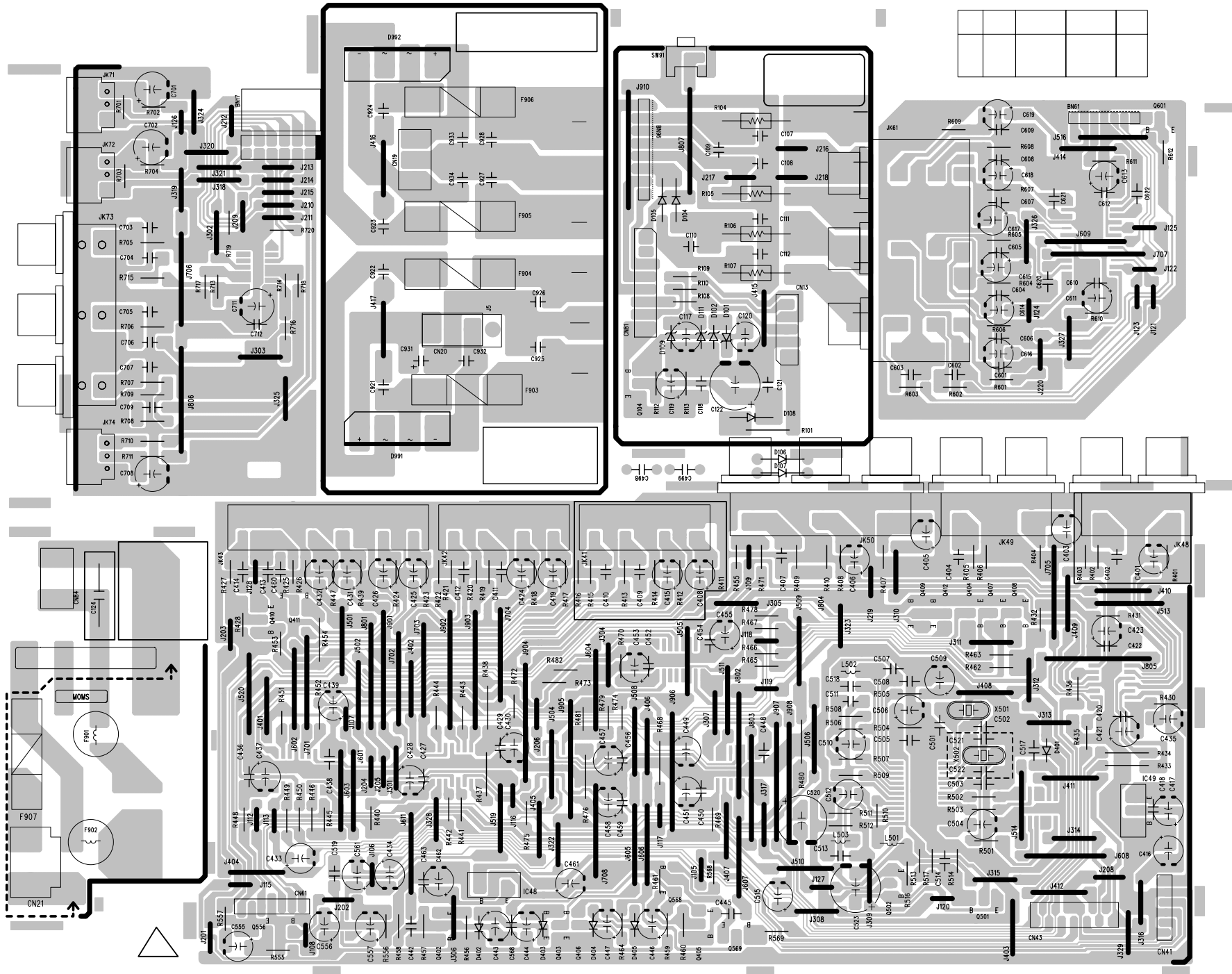


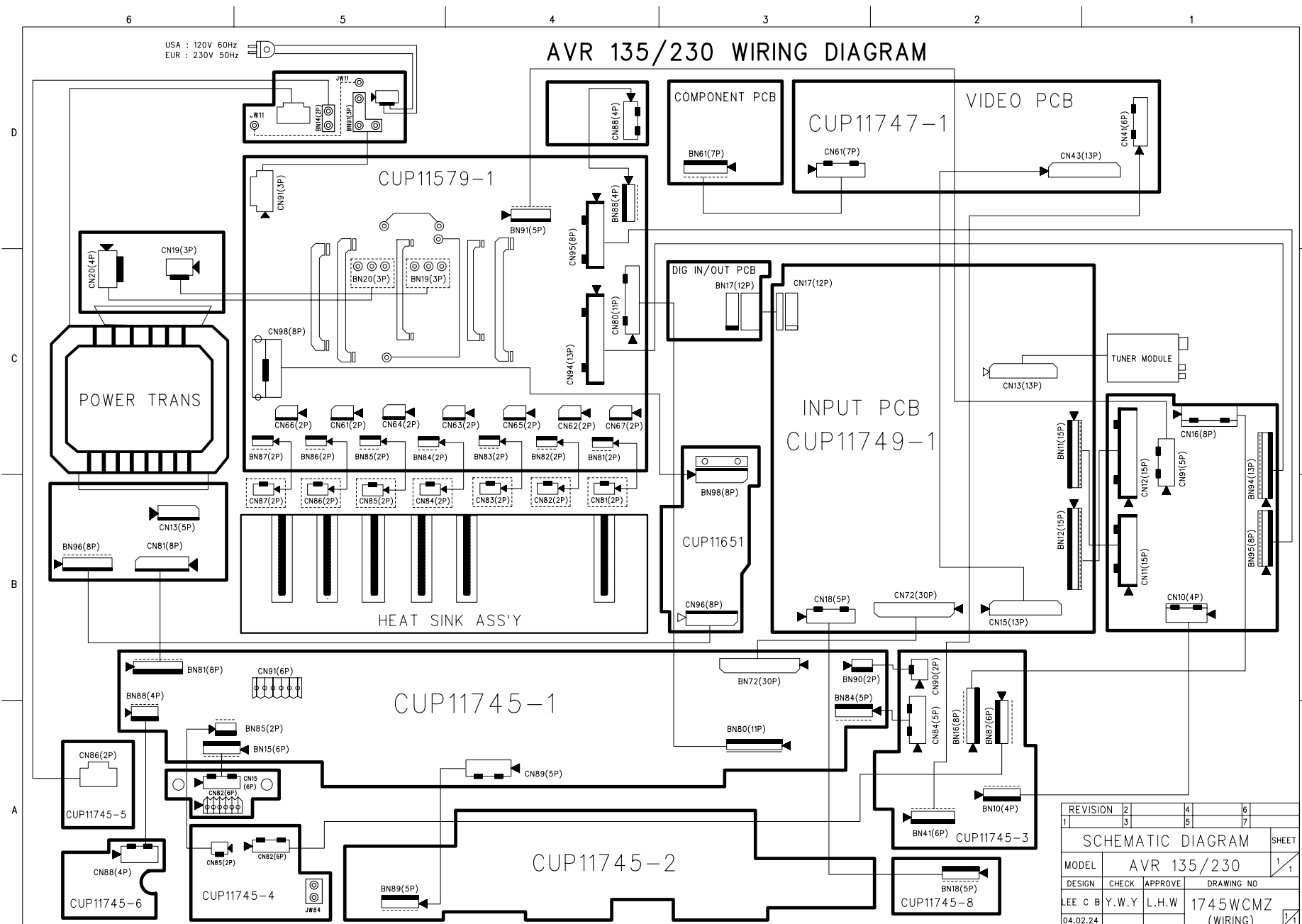


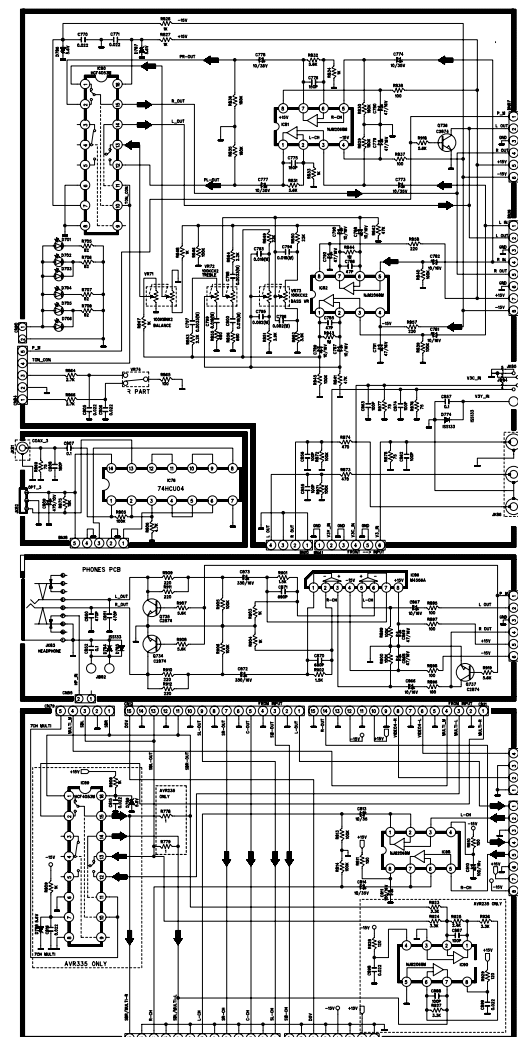
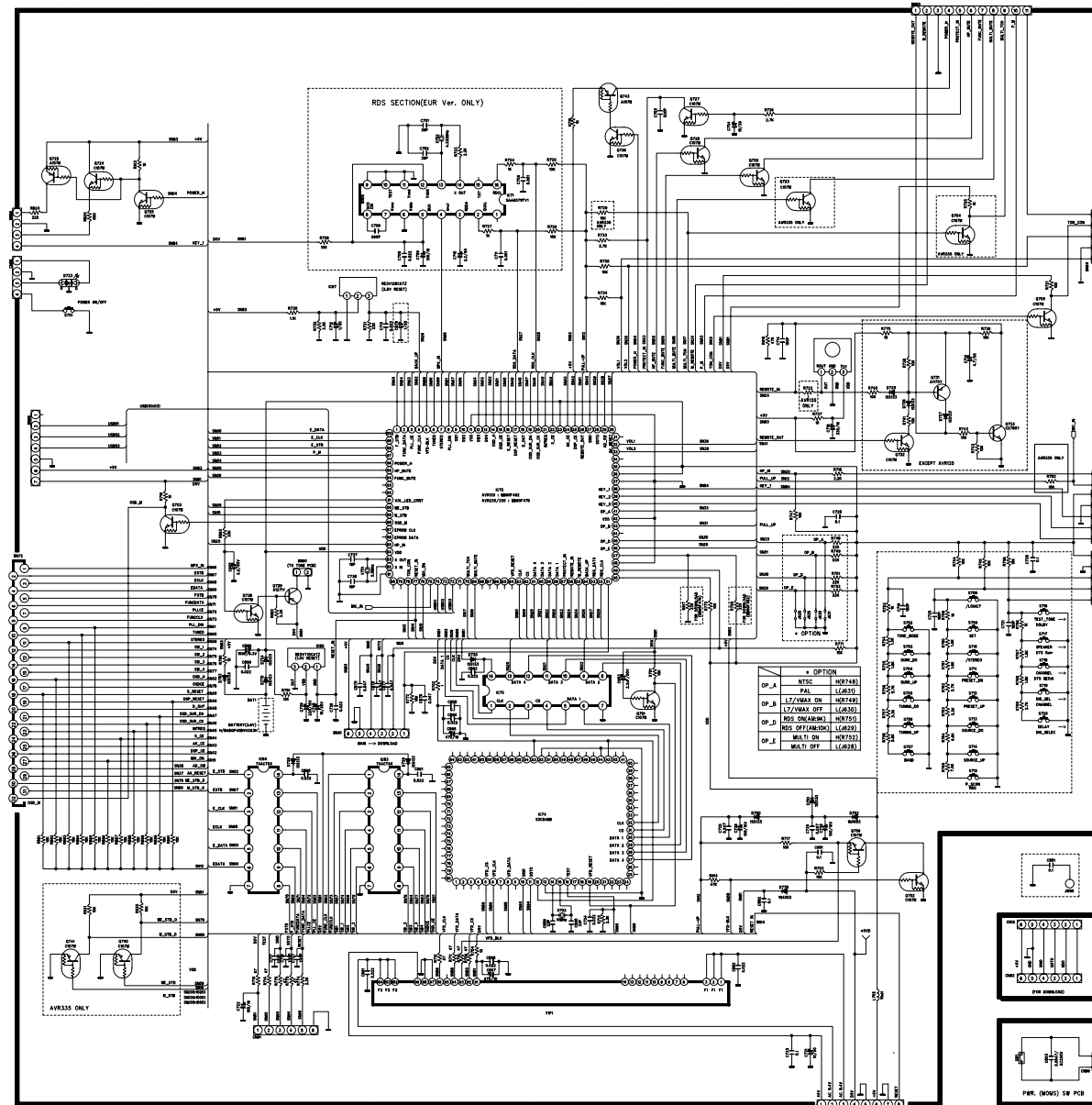




CUP11651-9



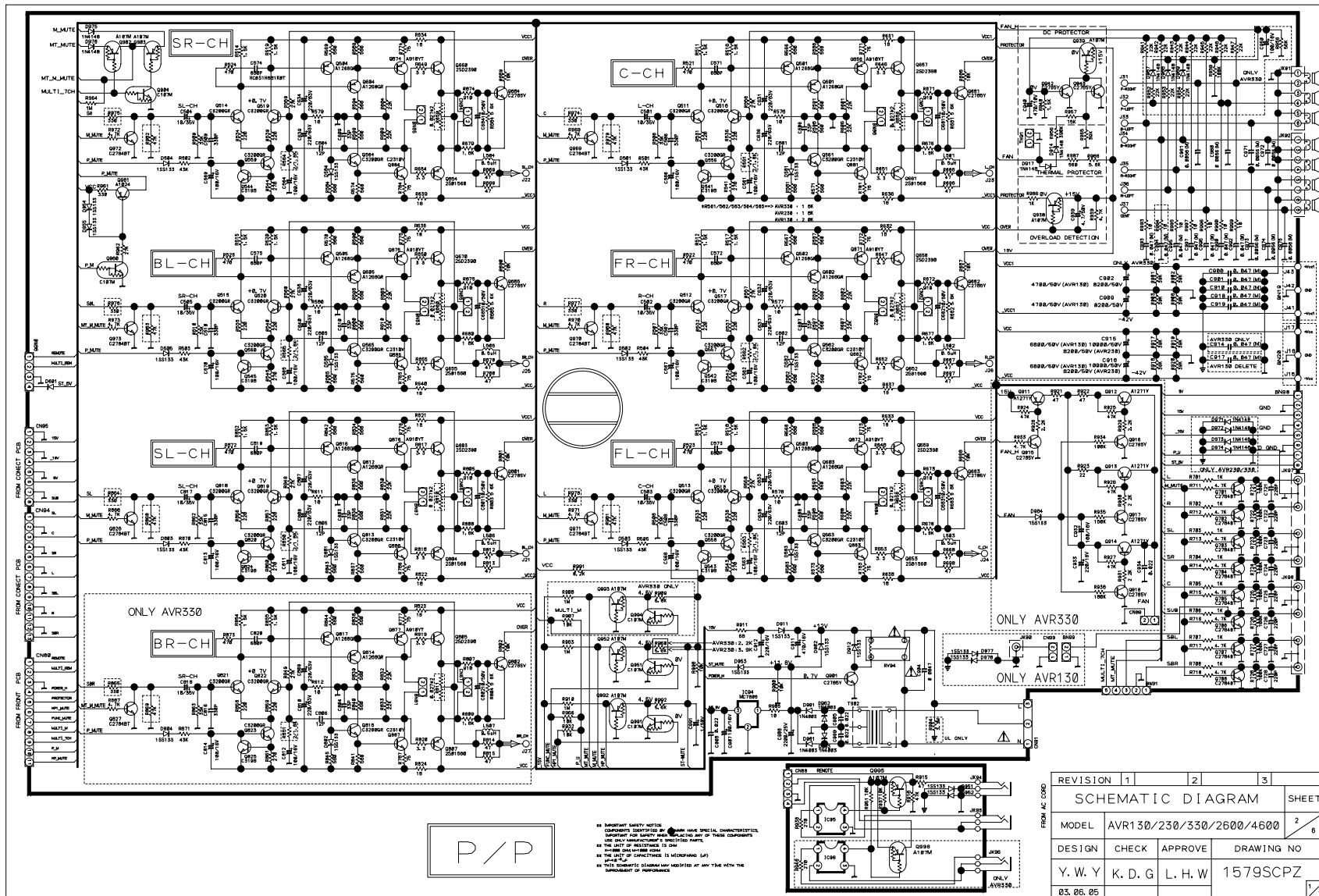




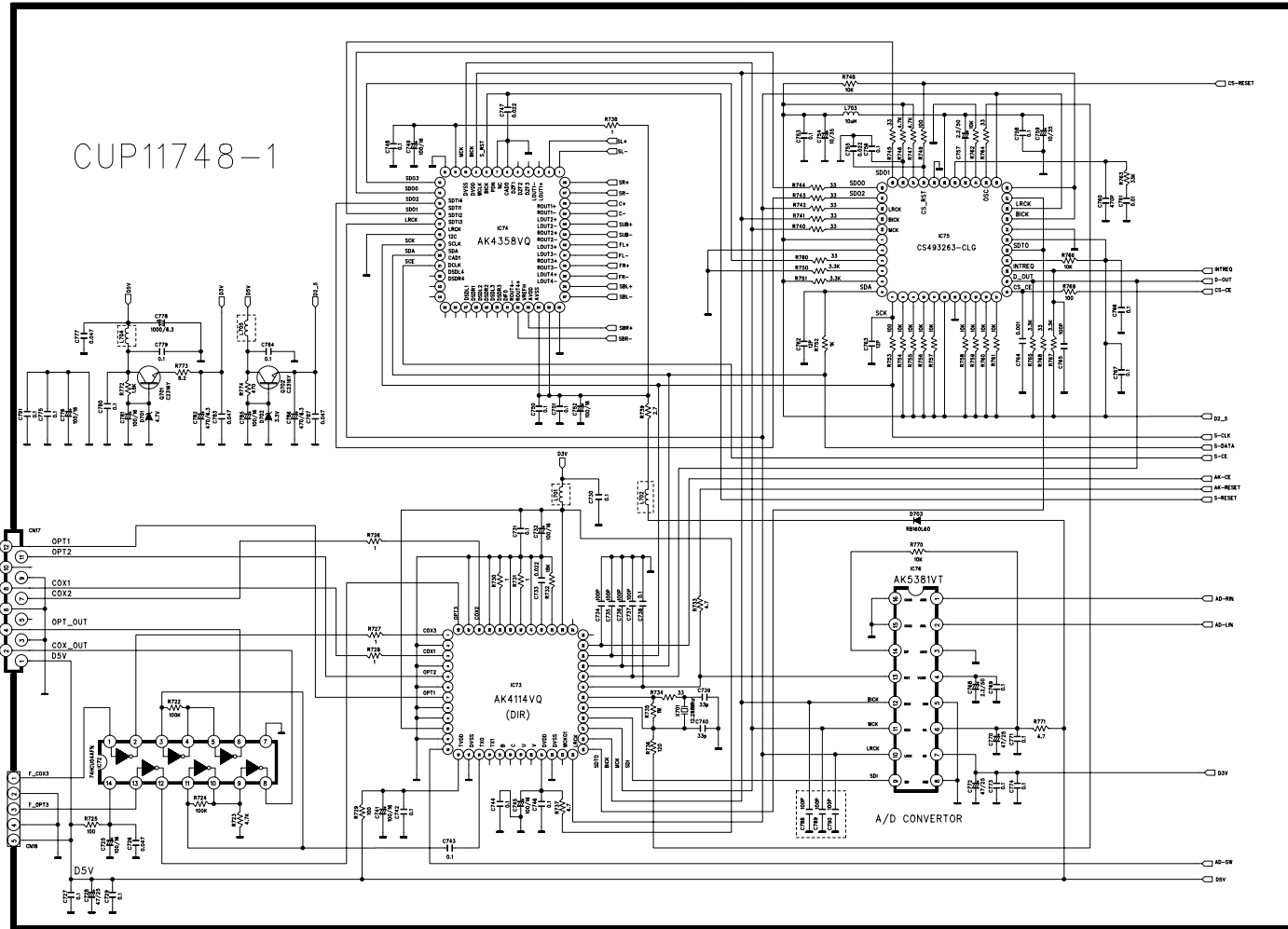
LPP

REVISION	2	4	6
1	3	5	7
SCHEMATIC DIAGRAM			
MODEL	AVR135		
DESIGN	CHECK	APPROVE	DRAWING NO
LEE C B	Y.W.Y	L.H.W	1745SCLZ
04.02.24			(FRONT)

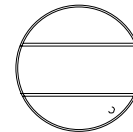
SHEET 1/6



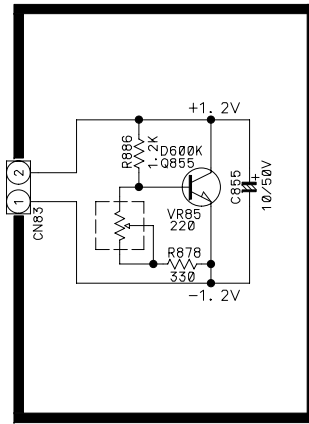
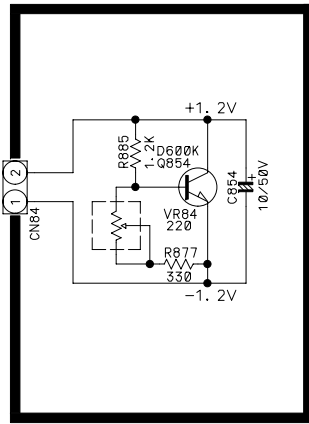
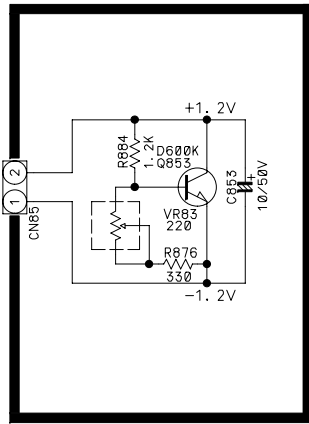
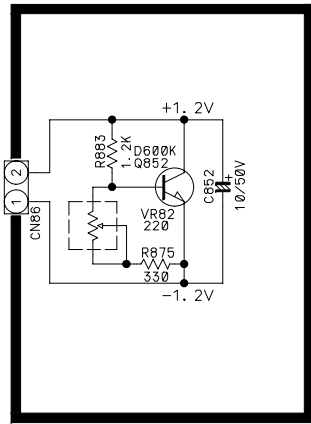
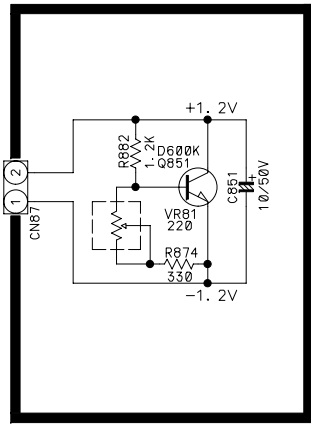
CUP11748-1



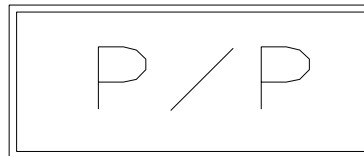
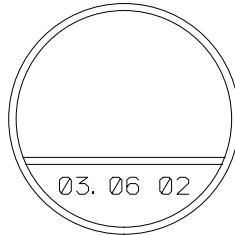
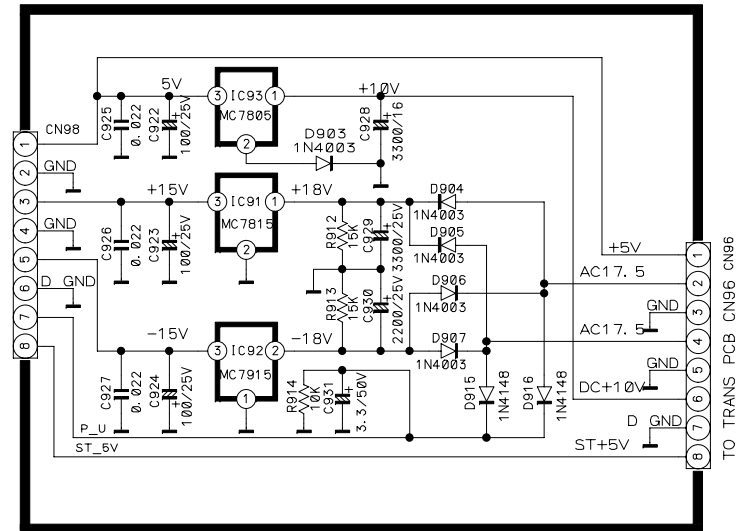
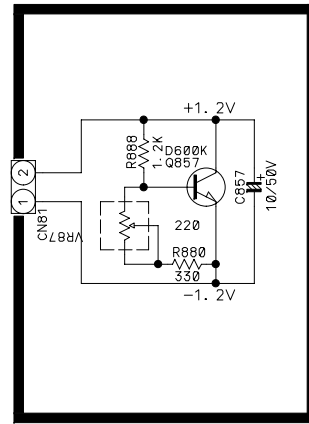
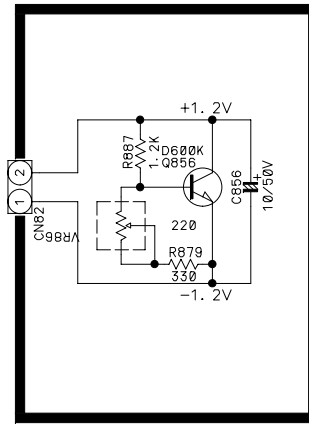
M/P



REVISION	2	4	6
1	3	5	7
SCHEMATIC DIAGRAM			SHEET
MODEL	AVR135/230		4/6
DESIGN	CHECK	APPROVE	DRAWING NO
LEE C B	Y.W.Y	L.H.W	1748SCMZ
04.02.24			(DSP) 2



** IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY  MARK HAVE SPECIAL CHARACTERISTICS.
IMPORTANT FOR SAFETY, WHEN REPLACING ANY OF THESE COMPONENTS
USE ONLY MANUFACTURER'S SPECIFIED PARTS.
** THE UNIT OF RESISTANCE IS OHM
K=1000 OHM, M=1000 KOHM
** THE UNIT OF CAPACITANCE IS MICROFARAD (uF)
PF=10⁻⁶ uF
** THIS SCHEMATIC DIAGRAM MAY MODIFIED AT ANY TIME WITH THE
IMPROVEMENT OF PERFORMANCE



REVISION	2		4		6	
1	3		5		7	
SCHEMATIC DIAGRAM					SHEET	
MODEL	AVR130/230/330/2600/4600					6/6
DESIGN	CHECK	APPROVE	DRAWING NO			
Y. W. Y	K. D. G	L. H. W	1651SCPZ			
03.05.26						