

AVR 139/230

AVR 141/230

AVR 142/230

5 x 40W 5.1 CHANNEL A/V RECEIVER



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ELECTROSTATICALLY SENSITIVE (ES) DEVICES

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

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

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

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

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

PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing.

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

Technical Specifications for AVR Surround Receiver

Audio Section

Stereo Mode	
Continuous Average Power (FTC)	
40 Watts per channel, 20Hz–20kHz,	
@ < 0.07% THD, both channels driven into 8 ohms	
Five-Channel Surround Modes	
Power Per Individual Channel, all channels driven simultaneously	
Front L&R channels:	
35 Watts per channel,	
@ < 0.07% THD, 20Hz–20kHz into 8 ohms	
Center channel:	
35 Watts,	
@ < 0.07% THD, 20Hz–20kHz into 8 ohms	
Surround channels:	
35 Watts per channel,	
@ < 0.07% THD, 20Hz–20kHz into 8 ohms	
Five-Channel Surround Modes	
(One channel driven into 6 ohms, 1kHz, @ <0.07% THD)	
Front L&R channels:	
70 Watts per channel	
Center channel:	
70 Watts	
Surround (L & R) channels:	
70 Watts per channel	
Input Sensitivity/Impedance	
Linear (High Level)	200mV/47kohms
Signal-to-Noise Ratio (IHF-A)	95dB
Surround System Adjacent Channel Separation	
Analog Decoding	40dB
(Pro Logic, etc.)	
Dolby Digital (AC-3)	55dB
DTS	55dB
Frequency Response	
@ 1W (+0dB, –3dB)	10Hz–100kHz
High Instantaneous	
Current Capability (HCC)	±25 Amps
Transient Intermodulation	
Distortion (TIM)	Unmeasurable
Rise Time	16μsec
Slew Rate	40V/μsec

FM Tuner Section

Frequency Range	87.5–108MHz
Usable Sensitivity	IHF 1.3 μV/13.2dB
Signal-to-Noise Ratio	Mono/Stereo: 70/65dB (DIN)
Distortion	Mono/Stereo: 0.15/0.3%
Stereo Separation	35dB @ 1kHz
Selectivity	±400kHz: 70dB
Image Rejection	80dB
IF Rejection	90dB

AM Tuner Section

Frequency Range	522–1620kHz
Signal-to-Noise Ratio	45dB
Usable Sensitivity	Loop: 500μV
Distortion	1kHz, 50% Mod: 0.8%
Selectivity	±10kHz: 30dB

Video Section

Video Format	PAL/NTSC
Input Level/Impedance	1Vp-p/75 ohms
Output Level/Impedance	1Vp-p/75 ohms
Video Frequency	
Response	10Hz–8MHz (–3dB)

General

Power Requirement	AC 230V/50Hz
Power Consumption	72W idle, 580W maximum (2 channels driven)
Dimensions (Max)	
Width	440mm
Height	165mm
Depth	382mm
Weight	9.6 kg

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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Manufactured under license under U.S. Patent #'s: 5,451,942; 5,956,674; 5,974,380; 5,978,762; 6,487,535; 7,003,467 & other U.S. and worldwide patents issued & pending. DTS, DTS Digital Surround, ES, and Neo:6 are registered trademarks and the DTS logos Symbol are trademarks of DTS, Inc. © 1996–2007 DTS, Inc. All Rights Reserved.

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SACD is a trademark of Sony Corporation.

Troubleshooting Guide

SYMPTOM	CAUSE	SOLUTION
Unit does not function when Main Power Switch 1 is pushed	No AC Power	- Make certain AC power cord is plugged into a live outlet - Check to see if 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 5 - Turn up volume control
Sound is heard, but Front-Panel Display does not light	Display brightness is turned off	Follow the instructions in the Display Brightness section on page 23 so that the display is set to VFD FULL
No sound from any speaker; light around Power switch 2 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 depot
No sound from surround or center speakers	- Incorrect surround mode - Incorrect configuration - Stereo or Mono program material - Speakers not properly connected	- Select a mode other than Stereo - Check speaker mode - With (analog or digital) Dolby surround modes, the surround decoder may not create rear-channel information from non-encoded programs - Check speaker-wire connections or use test tone to verify connections (see page 20)
Unit does not respond to remote commands	- Weak batteries in remote - Wrong device selected Remote sensor 15 is obscured	- Change remote batteries - Press the AVR selector 44 - 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 30 and Digital Audio stops	Digital audio feed paused	- Resume play for DVD - Check that Digital Signal is fed to the Digital Input selected

Processor Reset

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

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

To clear the AVR's entire system memory including tuner presets, output level settings, delay times and speaker configuration data, first put the unit in Standby by pressing the **System Power Control** button **2**. Next, press and hold the Surround Mode Button **7** for 5 seconds.

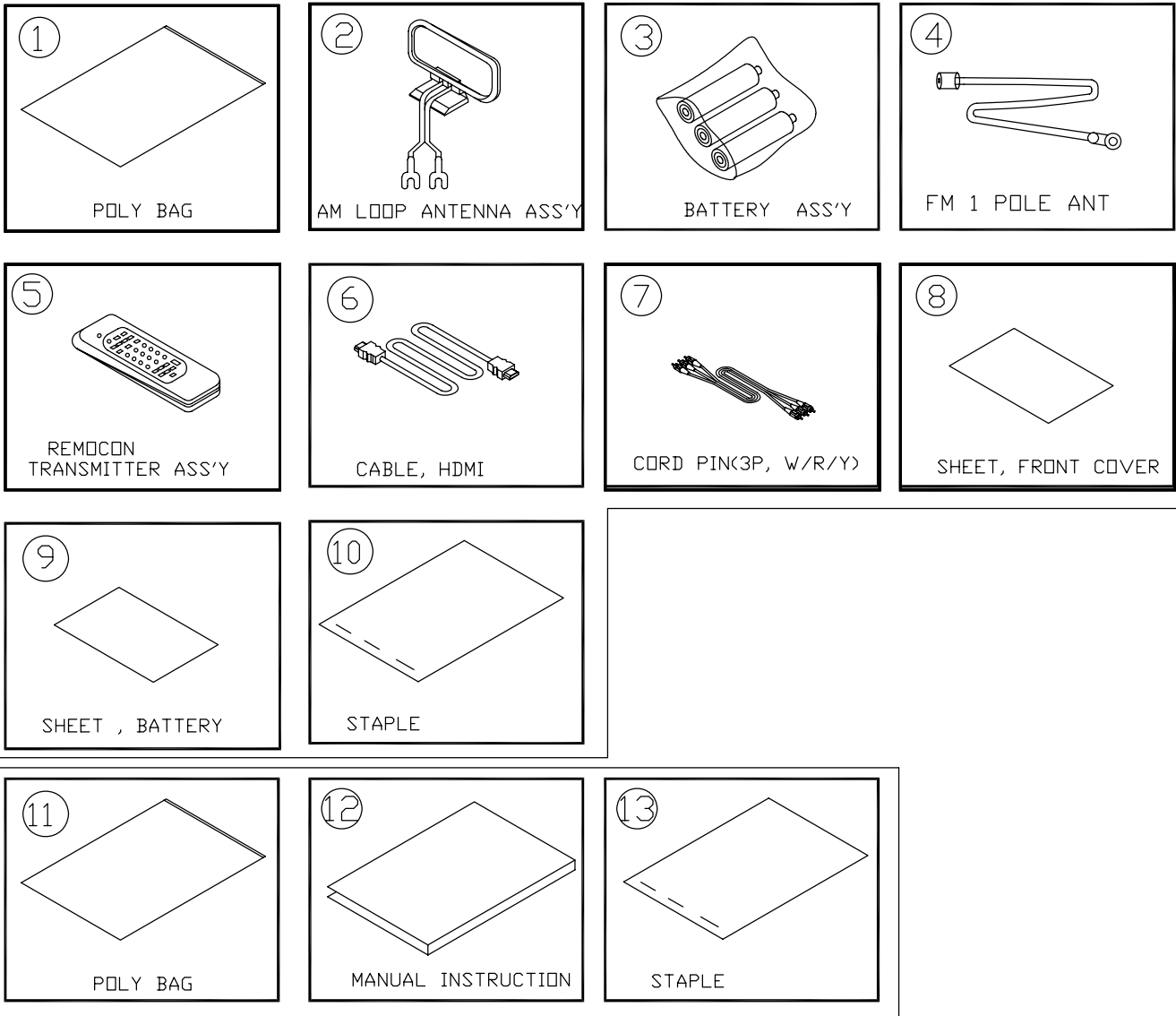
The unit will turn on automatically. Note that once you have cleared the memory in this manner, it is necessary to re-establish all system configuration settings and tuner presets.

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

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

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

1. Instruction manual ass'y - Accessories

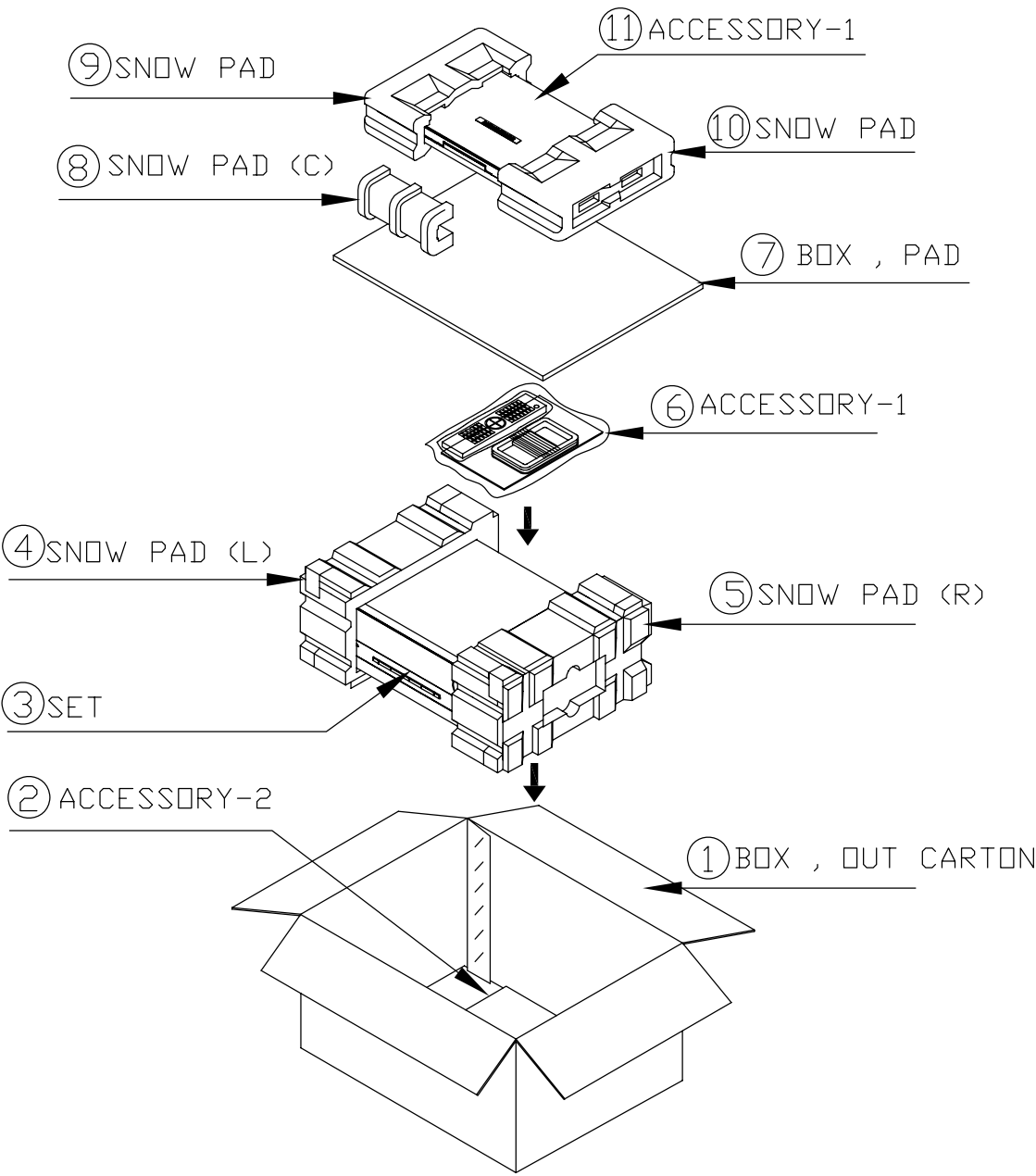


ACCESSORY-1			
NO	DESCRIPTION	PARTS NO.	Q,ty
1	POLY BAG	CPB1061W	1
2	ANT , AM LOOP	CSA1A020Z	1
3	BATTERY	CABR03P3PB	3
4	FM 1 POL ANT	CSA1A018Z	1
5	REMOCON ASS'Y	CARTAVR142/230	1
6	CABLE , HDMI	CJS8T001Z	1
7	CORD,PIN(3P,W/R/Y)	CJS4S004Z	1
8	SHEET , FRONT COVER	CQE1A220Z	1
9	SHEET , BATTERY	CQE1A411Z	1
10	STAPLE	CPL0905	3

ACCESSORY-2			
NO	DESCRIPTION	PARTS NO.	Q,ty
11	POLY BAG	CPB1061W	1
12	MANUAL,INSTRUCTION	CQX1A1440Z	1
13	STAPLE	CPL0905	3

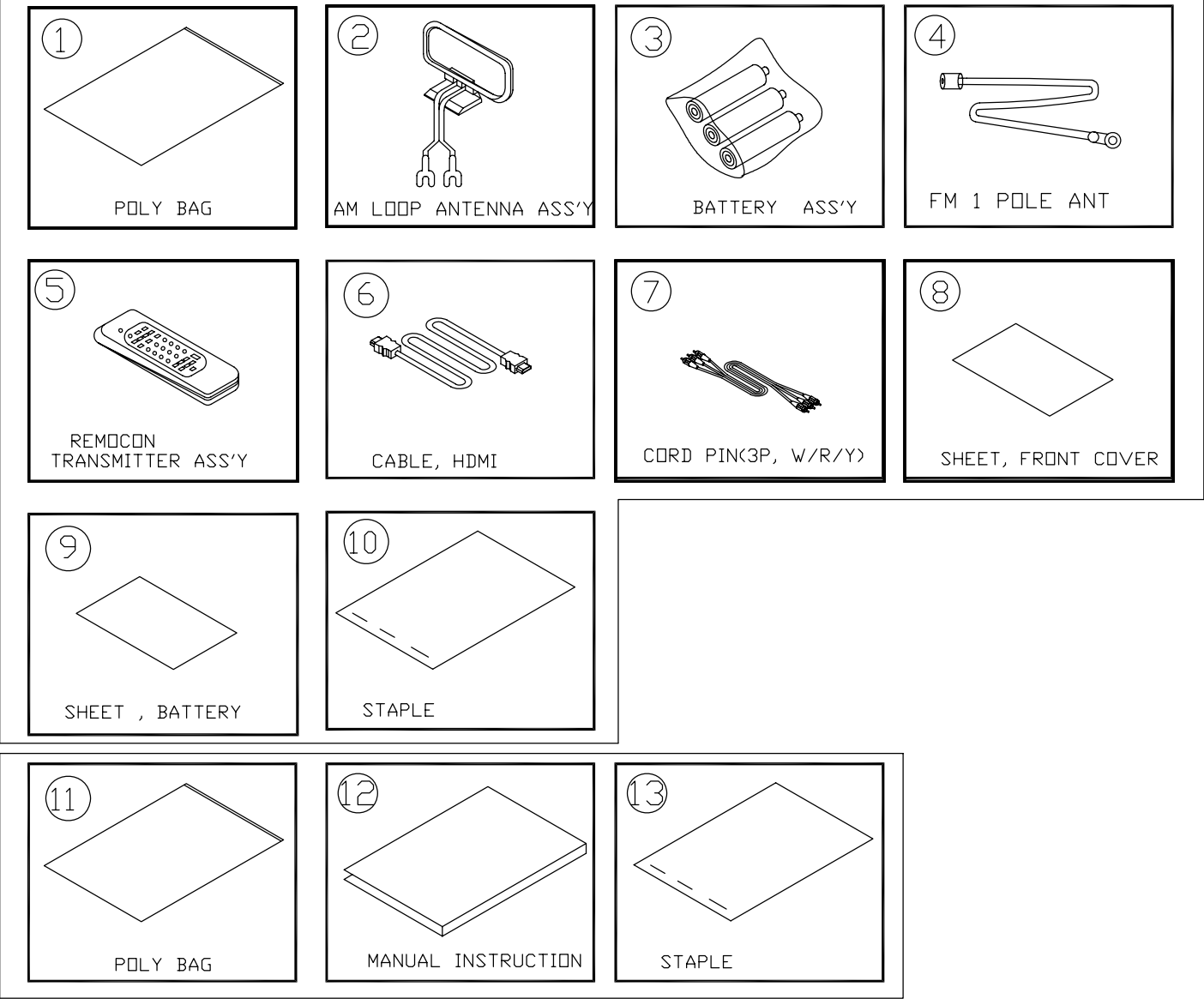
2. Package Drawing

SYSTEM13926230
SYSTEM14126230



NO	DESCRIPTION	PARTS NO.		Q,ty
		SYSTEM13926/230	SYSTEM14126/230	
1	BOX,OUT CARTON	CPG1A880Y	CPG1A880W	1
2	ACCESSORY-2	CQXSYSTEM13926/230	CQXSYSTEM4126/230	1
3	SET	AVR139/230SET	AVR141/230SET	1
4	SNOW,PAD(L)	CPS5A564		1
5	SNOW,PAD(R)	CPS5A565		1
6	ACCESSORY-1	CQXSYSTEM13926/230	CQXSYSTEM14126/230	1
7	BOX,OUT CARTON	CPG1A876		1
8	SNOW,PAD(C)	CPS1A831		1
9	SNOW,PAD(L&R)	CPS1A830		1
10	SNOW,PAD(L&R)	CPS1A830		1
11	SET	DVD26/230SET	DVD28/230SET	1

1. Instruction manual ass'y - Accessories

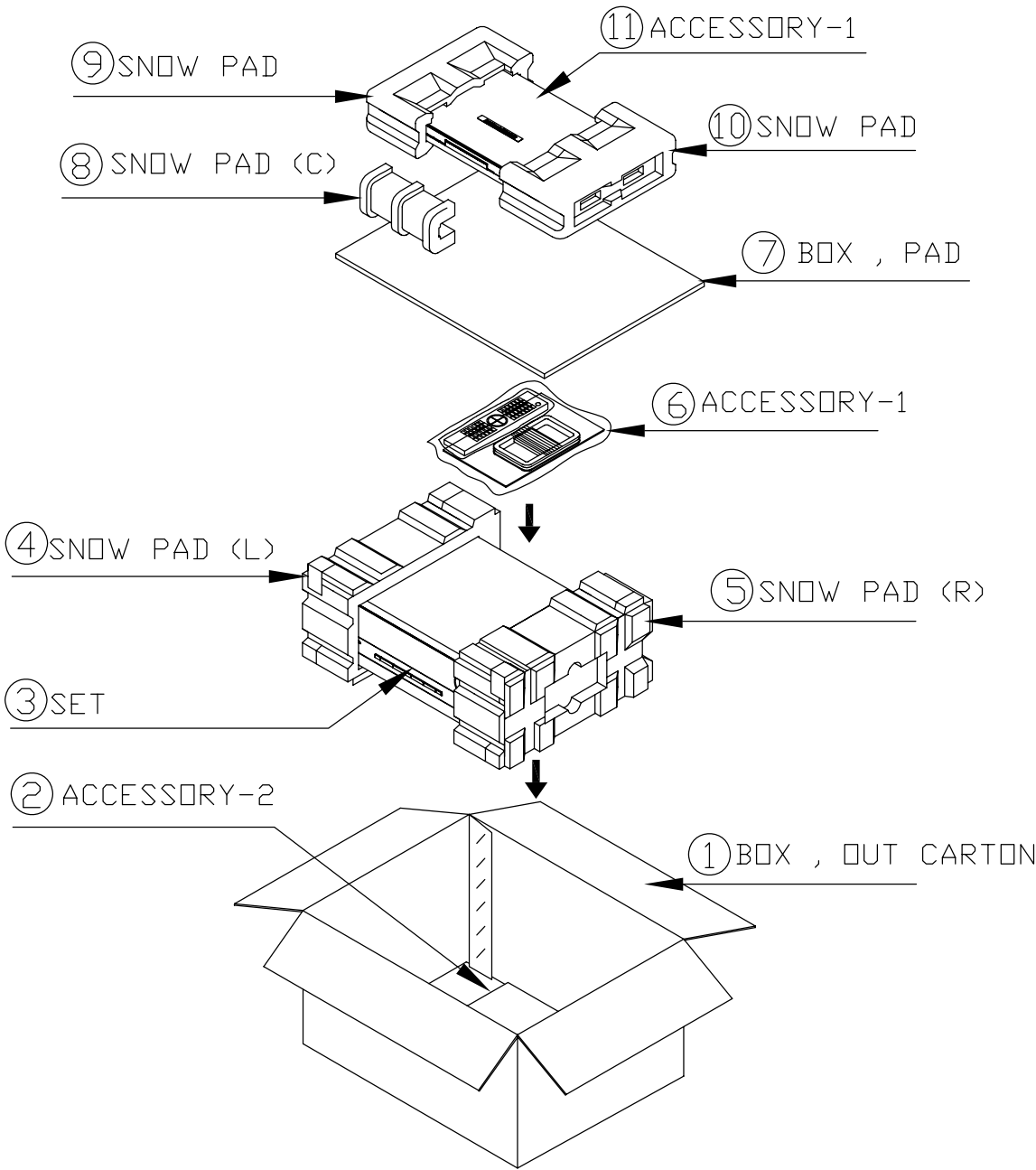


ACCESSORY-1			
NO	DESCRIPTION	PARTS NO.	Q,ty
1	POLY BAG	CPB1061W	1
2	ANT , AM LOOP	CSA1A020Z	1
3	BATTERY	CABR03P3PB	3
4	FM 1 POL ANT	CSA1A018Z	1
5	REMOCON ASS'Y	CARTAVR142/230	1
6	CABLE , HDMI	CJS8T001Z	1
7	CORD,PINK3P,W/R/Y	CJS4S004Z	1
8	SHEET , FRONT COVER	CQE1A220Z	1
9	SHEET , BATTERY	CQE1A411Z	1
10	STAPLE	CPL0905	3

ACCESSORY-2			
NO	DESCRIPTION	PARTS NO.	Q,ty
11	POLY BAG	CPB1061W	1
12	MANUAL,INSTRUCTION	CQX1A1440Z	1
13	STAPLE	CPL0905	3

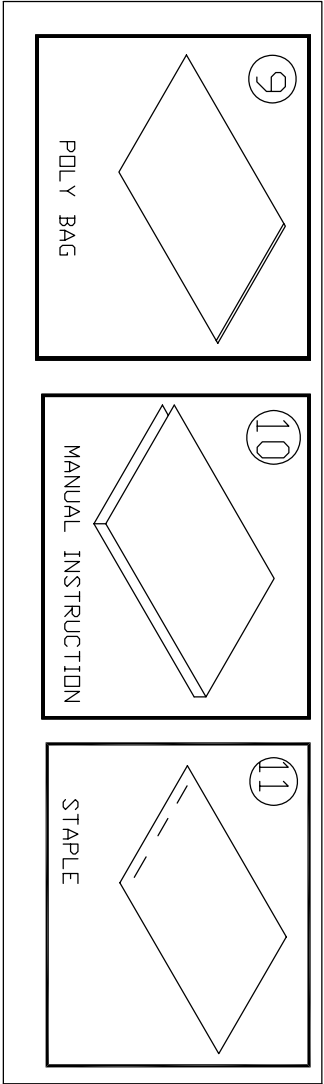
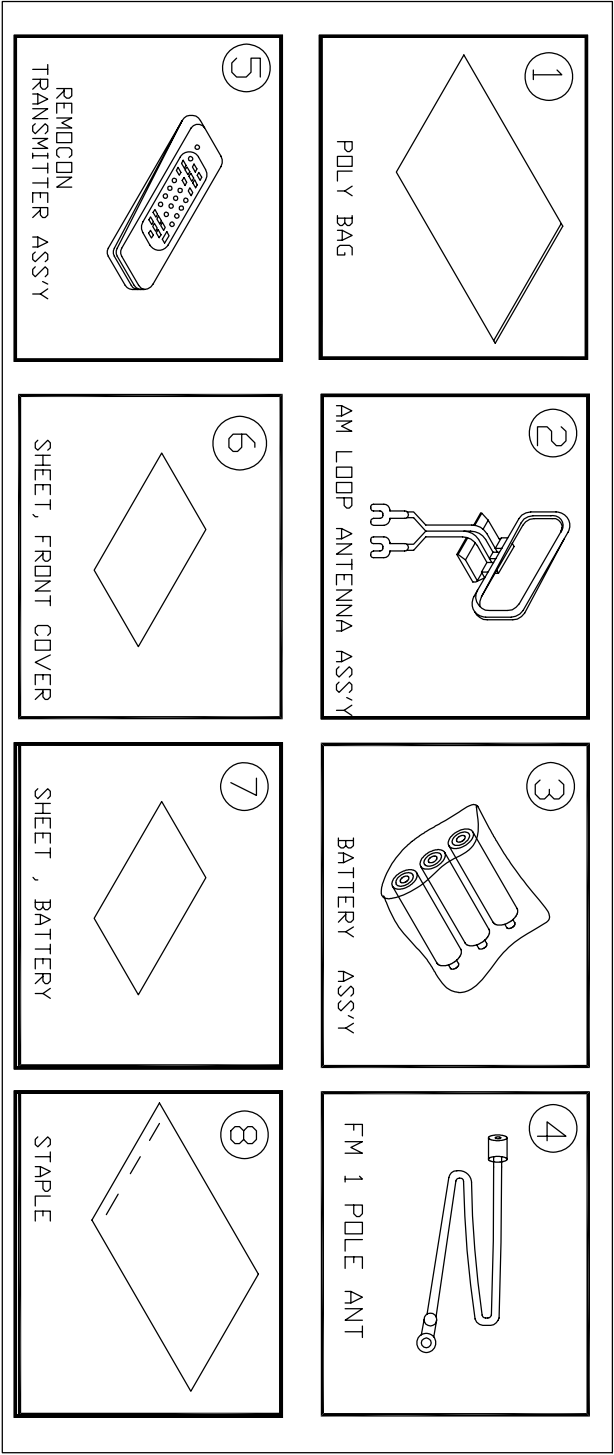
2. Package Drawing

SYSTEM13928230
SYSTEM14128230



NO	DESCRIPTION	PARTS NO.		Q,ty
		SYSTEM13928/230	SYSTEM14128/230	
1	BOX,OUT CARTON	CPG1A880X	CPG1A880V	1
2	ACCESSORY-2	CQXSYSTEM13928/230	CQXSYSTEM4128/230	1
3	SET	AVR139/230SET	AVR141/230SET	1
4	SNOW,PAD(L)	CPS5A564		1
5	SNOW,PAD(R)	CPS5A565		1
6	ACCESSORY-1	CQXSYSTEM13928/230	CQXSYSTEM14128/230	1
7	BOX,OUT CARTON	CPG1A876		1
8	SNOW,PAD(C)	CPS1A831		1
9	SNOW,PAD(L&R)	CPS1A830		1
10	SNOW,PAD(L&R)	CPS1A830		1
11	SET	DVD26/230SET	DVD28/230SET	1

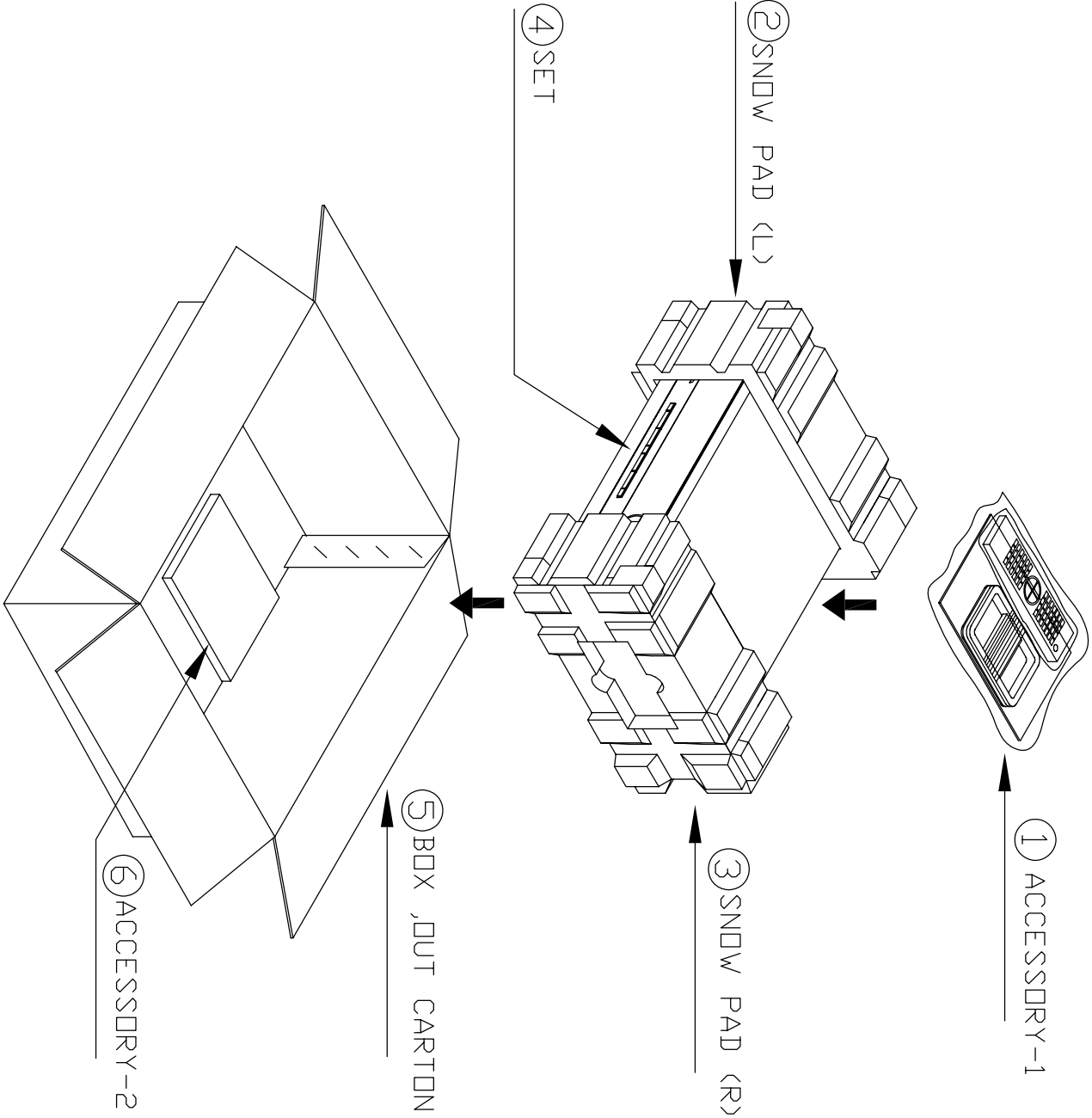
1. Instruction manual ass'y - Accessories



ACCESSORY-1		
NO	DESCRIPTION	PARTS NO.
1	POLY BAG	CPB1061W
2	ANT , AM LOOP	CSA1A020Z
3	BATTERY	CABR03P3PB
4	FM 1 POL ANT	CSA1A018Z
5	REMDCON ASS'Y	CARTAVR142/230
6	SHEET , FRONT COVER	CQE1A220Z
7	SHEET , BATTERY	CQE1A411Z
8	STAPLE	CPL0905

ACCESSORY-2		
NO	DESCRIPTION	PARTS NO.
9	POLY BAG	CPB1061W
10	MANUAL,INSTRUCTION	CQX1A1441Z
11	STAPLE	CPL0905

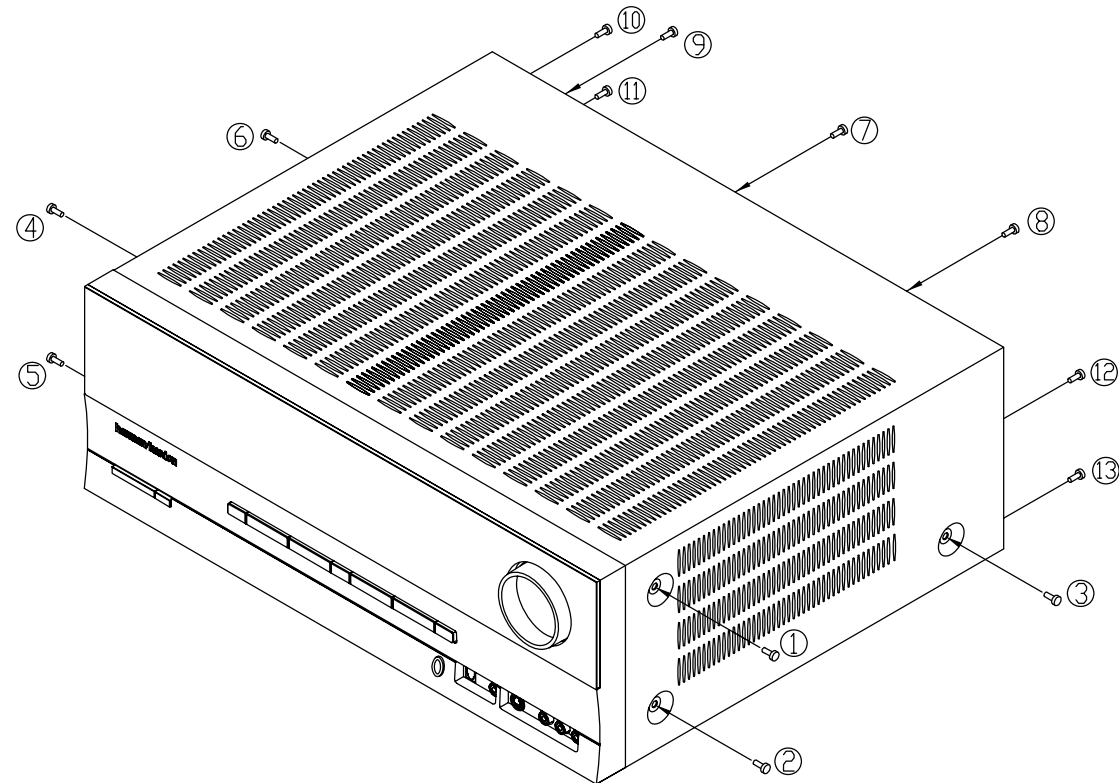
2. Package Drawing



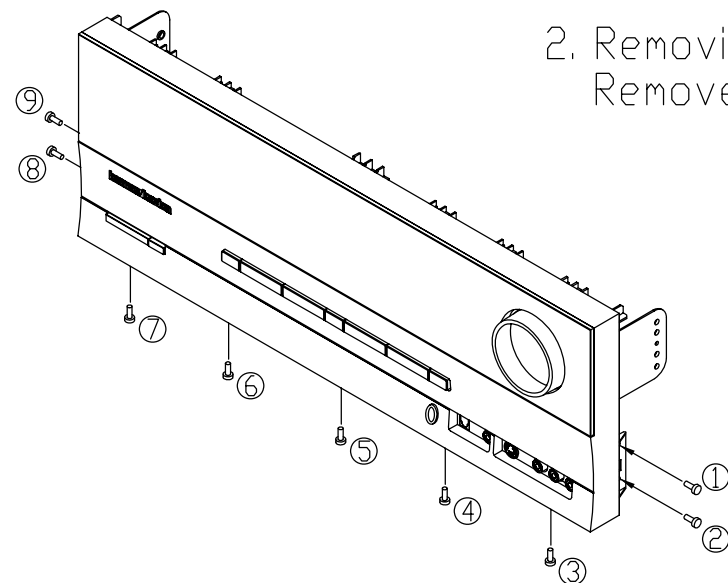
NO	DESCRIPTION	PARTS NO.	Q,tY
1	ACCESSORY-1	CQXAVR142/230	1
2	SNO W,PAD(L)	CPSSA564	1
3	SNO W,PAD(R)	CPSSA565	1
4	SET	AVR142/230SET	1
5	BOX,OUT CARTON	CPG1A890Z	1
6	ACCESSORY-2	CQXAVR142/230	1

DISASSEMBLY

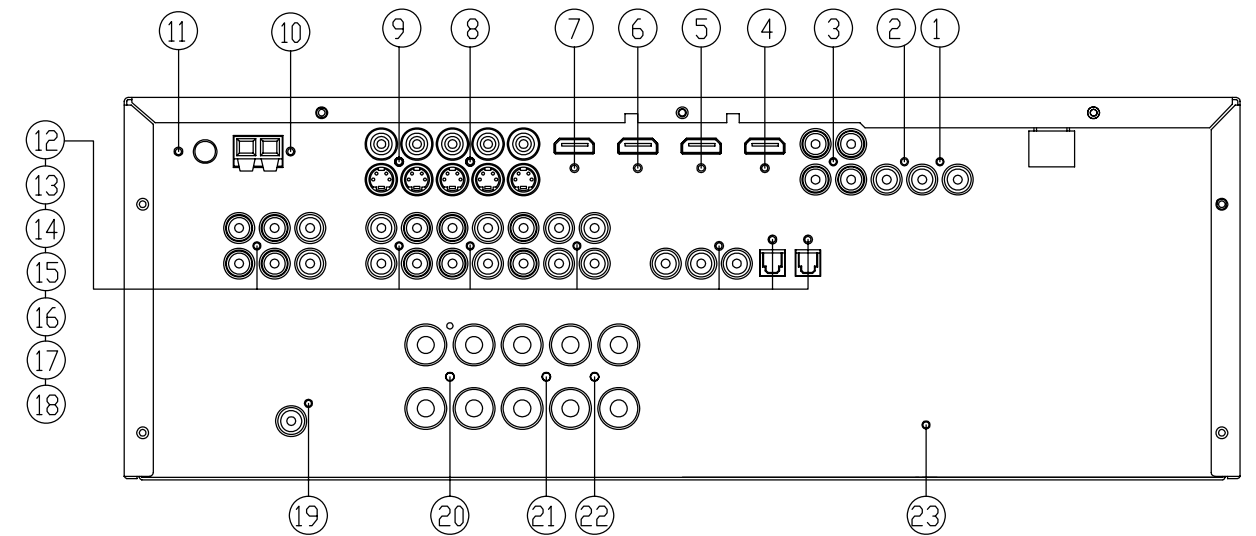
1. Removing the Top Cabinet
Remove the Screws ①~⑬



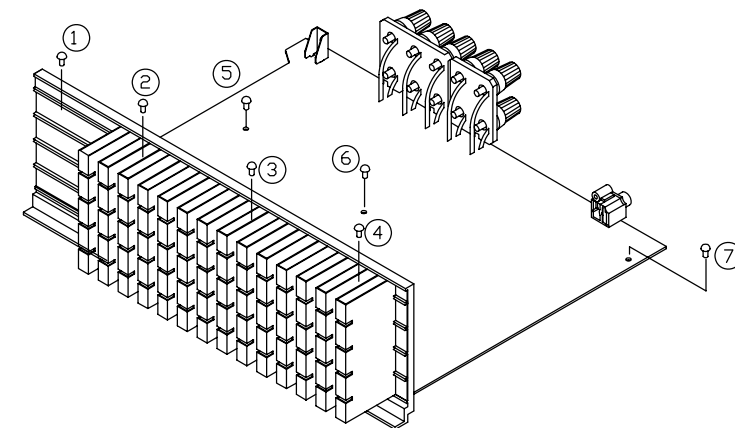
2. Removing the Front Panel
Remove the Screws ①~⑨



3. Removing the Rear Panel
Remove the Screws ①~②③

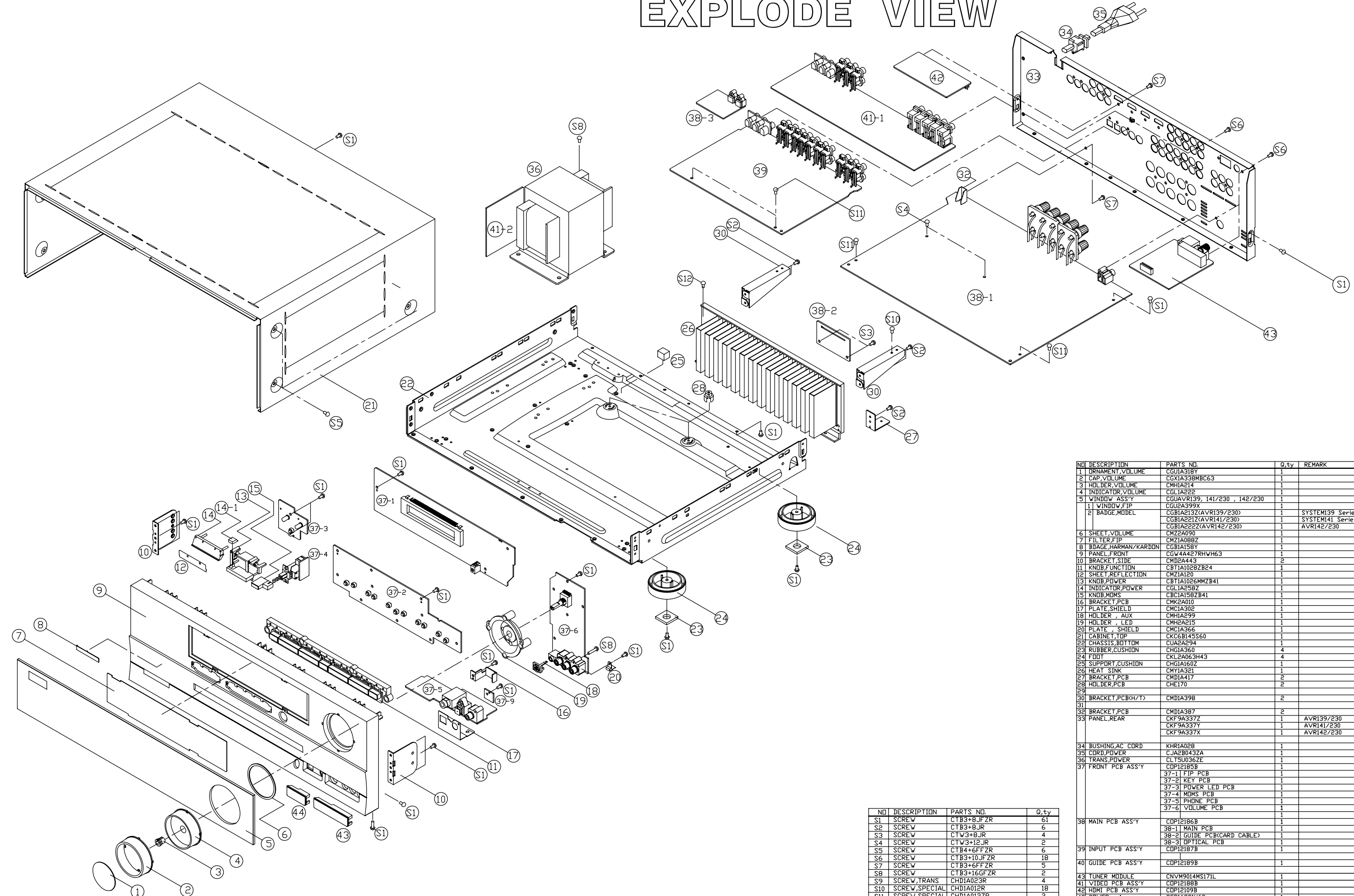


4. Removing the Main PCB
Remove the Screws ①~⑦



AVR139/230 ,AVR141/230,AVR142/230

EXPLODE VIEW



NO	DESCRIPTION	PARTS NO.	Q,ty	REMARK
1	ORNAMENT,VOLUME	CGUIA318Y	1	
2	CAP,VOLUME	CGXIA338MBC63	1	
3	HOLDER,VOLUME	CMHIA214	1	
4	INDICATOR,VOLUME	CGLIA222	1	
5	WINDOW ASS'Y	CGUAVR139, 141/230 , 142/230	1	
6	SHEET,VOLUME	CMZ2A090	1	
7	FILTER,FIP	CMZ1A088Z	1	
8	BDAGE,HARMAN/KARDON	CGBIA158Y	1	
9	PANEL,FRONT	CGW4A42/RHWH63	1	
10	BRACKET,SIDE	CMZ2A443	2	
11	KNOB,FUNCTION	CBTIA1028ZB24	1	
12	SHEET,REFLECTION	CMZ1A120	1	
13	KNOB,POWER	CBTIA1026MMZB41	1	
14	INDICATOR,POWER	CGLIA258Z	1	
15	KNOB,MOMS	CBTIA158ZB41	1	
16	BRACKET,PCB	CMK2A010	1	
17	PLATE,SHIELD	CMCIA302	1	
18	HOLDER , AUX	CMHIA299	1	
19	HOLDER , LED	CMH2A215	1	
20	PLATE , SHIELD	CMCIA366	1	
21	CABINET, TOP	CKC6B145S60	1	
22	CHASSIS,BOTTOM	CUA2A294	1	
23	RUBBER,CUSHION	CHGIA360	4	
24	FOOT	CKL2A063H43	4	
25	SUPPORT,CUSHION	CHGIA160Z	1	
26	HEAT SINK	CMYIA32I	1	
27	BRACKET,PCB	CMYIA417	2	
28	HOLDER,PCB	CHE170	2	
29				
30	BRACKET,PCB(H/T)	CMYIA398	2	
31				
32	BRACKET,PCB	CMYIA387	2	
33	PANEL,REAR	CKF9A337Z	1	AVR139/230
		CKF9A337Y	1	AVR141/230
		CKF9A337X	1	AVR142/230
34	BUSHING,AC CORD	KHRIA02B	1	
35	CORD,POWER	CJA2B043ZA	1	
36	TRANS,POWER	CLTSU036ZE	1	
37	FRONT PCB ASS'Y	COP12185B	1	
		37-1 FIP PCB	1	
		37-2 KEY PCB	1	
		37-3 POWER LED PCB	1	
		37-4 MOMS PCB	1	
		37-5 PHONE PCB	1	
		37-6 VOLUME PCB	1	
38	MAIN PCB ASS'Y	COP12186B	1	
		38-1 MAIN PCB	1	
		38-2 GUIDE PCB(CARD CABLE)	1	
		38-3 OPTICAL PCB	1	
39	INPUT PCB ASS'Y	COP12187B	1	
40	GUIDE PCB ASS'Y	COP12189B	1	
43	TUNER MODULE	CNV99014MS171L	1	
41	VIDEO PCB ASS'Y	COP12188B	1	
42	HDMI PCB ASS'Y	COP12109B	1	
43	COVER , A	CGRIA33IH63	1	
44	COVER , B	CGRIA332H63	1	

NO	DESCRIPTION	PARTS NO.	Q,ty
S1	SCREW	CTB3+8JFZR	61
S2	SCREW	CTB3+8JR	6
S3	SCREW	CTW3+8JR	4
S4	SCREW	CTW3+12JR	2
S5	SCREW	CTB4+6FFZR	6
S6	SCREW	CTB3+10JFZR	18
S7	SCREW	CTB3+6FFZR	5
S8	SCREW	CTB3+16GFZR	2
S9	SCREW,SPECIAL	CHDIA023R	4
S10	SCREW,SPECIAL	CHDIA012R	18
S11	SCREW,SPECIAL	CHDIA012ZR	2
S12	SCREW,SPECIAL	CHD4A012R	6

COMPLETE ELECTRICAL PARTS LISTS FOR AVR 139 - AVR 141 - AVR 142			
AVR 139 AND AVR 141 ARE IN THE SYSTEMS 13926/13928 AND 14126/14128, WITH DVD 26 AND 28			
AVR 142 IS SOLD AS A SEPARATE			
Parts for AVR 139 only			
Ref. #	Part Number	Description	Value
	CPG1A880X	BOX , OUT CARTON	
	CPG1A876	BOX , PAD SYSTEM13828/230	
	CQXSYSTEM14126/230	INSTRUCTION MANUAL ASS'Y	
	CJS4S004Z	CORD , PIN(3P,W/R/Y)	
	CJS8T001Z	CABLE, HDMI(2M)	CBADV-005-2
	CGB1A213Z	BADGE , AVR139	
	CPB1061W	BAG , POLY(ENGLISH/FRANCH)	FRANCE LANGUAGE ADDED
	CGUAVR139	WINDOW ASS'Y	
FRONT PANEL ASSY			
Ref. #	Part Number	Description	Value
	CGWAVR139/230	FRONT PANEL ASS'Y	
BOTTOM CHASSIS ASS'Y			
Ref. #	Part Number	Description	Value
	CKF9A337Z	PANEL , REAR	
Parts for AVR 141 only			
Ref. #	Part Number	Description	Value
	CPG1A880W	BOX , OUT CARTON	
	CPG1A876	BOX , PAD SYSTEM13828/230	
	CQXSYSTEM14126/230	INSTRUCTION MANUAL ASS'Y	
	CJS4S004Z	CORD , PIN(3P,W/R/Y)	
	CJS8T001Z	CABLE, HDMI(2M)	CBADV-005-2
	CGB1A221Z	BADGE , AVR141	
	CPB1061W	BAG , POLY(ENGLISH/FRANCH)	FRANCE LANGUAGE ADDED
	CGUAVR141/230	WINDOW ASS'Y	
FRONT PANEL ASSY			
Ref. #	Part Number	Description	Value
	CGWAVR141/230	FRONT PANEL ASS'Y	
BOTTOM CHASSIS ASS'Y			
Ref. #	Part Number	Description	Value
	CKF9A337Y	PANEL , REAR	
Parts for AVR 142 only			
Ref. #	Part Number	Description	Value
	CQX1A1441Z	MANUAL , INSTRUCTION	
	CPG1A890Z	BOX , OUT CARTON	
	CGUAVR142/230	WINDOW ASS'Y	
	CGB1A222Z	BADGE , AVR142	
	CGU2A399W	WINDOW , FIP	
FRONT PANEL ASSY			
Ref. #	Part Number	Description	Value
	CGWAVR142/230	FRONT PANEL ASS'Y	
BOTTOM CHASSIS ASS'Y			
Ref. #	Part Number	Description	Value
	CKF9A337X	PANEL , REAR	
AVR 139 / 141 / 142 electrical parts list for all models			
Ref. #	Part Number	Description	Value
	CGL1A222	INDICATOR , VOLUME	AVR130/230/330
	CGR1A331H63	COVER , A AVR154	
	CGR1A332H63	COVER , B AVR154	
	CGU2A399W	WINDOW , FIP	
	CGU1A318Y	ORNAMENT , VOLUME AVR255	
	CGX1A338MBC63	CAP , VOLUME	
	CKC6B145S60	CABINET , TOP AVR350	
	CMH1A214	HOLDER , VOLUME	AVR130/230/330
	CMZ2A090	SHEET , VOLUME	
	CQB1A549Y	LABEL , ATTENTION DVD48	
	CQB1A622	LABEL , SERIAL NO	
	CTB3+8JFZR	SCREW	
	CTB4+6FFZR	SCREW	
	CHE154	CLAMPER , ARM	
	CPP1A081Z	BAG,POLY SET	
	CPS5A564	PAD , SNOW L	
	CPS5A565	PAD , SNOW R	
	CQB1A907Z	LABEL , BAR CODE AVR154	
	CQB1A931Y	LABEL , COUNTRY AVR142/230	
	CQS1A001	RIBON , BAR CODE	SONY(TR-4070)

Ref. #	Part Number	Description	Value
	CQXAVR142/230	INSTRUCTION MANUAL ASS'Y	
	CABR03P3PB	BATTERY , AAA 3PCS IN PACK	
	CARTAVR142/230	REMOCON TRANSMITTER ASS'Y	
	CPB1061W	BAG , POLY(ENGLISH/FRANCH)	FRANCE LANGUAGE ADDED
	CPL0905	STAPLE	
	CQE1A220Z	SHEET , FRONT COVER	AVR130/230BK
	CQE1A411Z	SHEET , BATTERY HARMAN	
	CQX1A1441Z	MANUAL , INSTRUCTION	
	CSA1A018Z	FM 1 POLE ANT	
	CSA1A020Z	ANT , AM LOOP	
	C4FC240CL	TAPE , P.P(24mm*50mm)	
	C4FC500CL	TAPE , OPP	
FRONT PANEL ASSY			
Ref. #	Part Number	Description	Value
	CBC1A158ZB41	KNOB , MOMS AVR138/230	
	CBT1A1026MMZB41	KNOB , POWER AVR138/230	
	CBT1A1028YB41	KNOB , FUNCTION AVR138/230	
	CGB1A158Y	BADGE , FRONT HARMAN/KARDON	
	CGL1A258Z	INDICATOR , POWER	
	CGW4A427RHWH63	PANEL , FRONT	
	CHR301	CLAMPER	
	CMC1A366	PLATE , SHIELD	
	CMC2A302	PLATE , SHIELD	
	CMD2A443	BRACKET , SIDE	
	CMH1A299	HOLDER , AUX	
	CMH2A215	HOLDER , LED AVR350	
	CMK2A010	BRACKET , PCB	
	CMZ1A088Z	FILTER , FIP AVR154	
	CMZ1A120	SHEET , REFLECTION	
	CTB3+16GFZR	SCREW	
	CTB3+8JFZR	SCREW	
CN72	CWC4C4A31B250B10	CABLE , CARD (31P,1.25MM,250MM,B,10MM)	
FRONT PCB ASSY			
Ref. #	Part Number	Description	Value
	COP12185B	AVR139/230 FRONT PCB ASS'Y	
C278	CCBS1H104ZFT	CAP , CERAMIC	0.1UF 50V Z
C406	CCEA1HKS4R7T	CAP , ELECT	4.7UF 50V SMALL SIZE
C513	CCEA1HKS4R7T	CAP , ELECT	4.7UF 50V SMALL SIZE
C714	CCBS1H680JT	CAP , CERAMIC(68PF/50V)	CH UP025SL680J-A-B Z
C716	CCEA1AH331T	CAP , ELECT	330UF 10V
C719	CCBS1H102KBT	CAP , CERAMIC(1000PF/50V)	CH UP025 B102K-A-B Z
C720	CCBS1H102KBT	CAP , CERAMIC(1000PF/50V)	CH UP025 B102K-A-B Z
C721	CCBS1H104ZFT	CAP , CERAMIC	0.1UF 50V Z
C722	CCBS1H104ZFT	CAP , CERAMIC	0.1UF 50V Z
C723	CCBS1H104ZFT	CAP , CERAMIC	0.1UF 50V Z
C724	CCBS1H104ZFT	CAP , CERAMIC	0.1UF 50V Z
C725	CCBS1H104ZFT	CAP , CERAMIC	0.1UF 50V Z
C726	CCBS1H104ZFT	CAP , CERAMIC	0.1UF 50V Z
C727	CCBS1H104ZFT	CAP , CERAMIC	0.1UF 50V Z
C728	CCBS1H104ZFT	CAP , CERAMIC	0.1UF 50V Z
C729	CCBS1H473ZFT	CAP , CERAMIC(47000PF/50V)	CH UP025 F473Z-A-B J
C735	CCEA1CKS100T	CAP , ELECT	10UF 16V
C742	CCBS1H223ZFT	CAP , CERAMIC(22000PF/50V)	CH UP025 F223Z-A-B J
C793	CCBS1H104ZFT	CAP , CERAMIC	0.1UF 50V Z
C794	CCBS1C222MXT	CAP , CERAMIC(2200PF/16V)	CH EP025 B222M-A-B J
C795	CCBS1H102KBT	CAP , CERAMIC(1000PF/50V)	CH UP025 B102K-A-B Z
C796	CCBS1H102KBT	CAP , CERAMIC(1000PF/50V)	CH UP025 B102K-A-B Z
C805	CCBS1H223ZFT	CAP , CERAMIC(22000PF/50V)	CH UP025 F223Z-A-B J
C806	CCBS1H223ZFT	CAP , CERAMIC(22000PF/50V)	CH UP025 F223Z-A-B J
C807	CCBS1H104ZFT	CAP , CERAMIC	0.1UF 50V Z
C808	CCBS1H181KBT	CAP , CERAMIC(180PF/50V)	CH UP025 B181K-A-B Z
C809	CCEA1AH471T	CAP , ELECT	470UF 10V
C812	CCBS1H104ZFT	CAP , CERAMIC	0.1UF 50V Z
C817	CCBS1H100JCT	CAP , CERAMIC(10PF/50V)	CH UP025CH100J-A-B Z
C843	CCEA1HH100T	CAP , ELECT	10UF 50V
C850	HCQ1H102JZT	CAP , MYLAR	1000PF 50V J
C851	HCQ1H102JZT	CAP , MYLAR	1000PF 50V J
C855	CCBS1H101KBT	CAP , CERAMIC(100PF/50V)	CH UP025 B101K-A-B Z
C856	CCBS1H101KBT	CAP , CERAMIC(100PF/50V)	CH UP025 B101K-A-B Z
C857	CCBS1H104ZFT	CAP , CERAMIC	0.1UF 50V Z
C862	CCBS1H101KBT	CAP , CERAMIC(100PF/50V)	CH UP025 B101K-A-B Z
C863	CCBS1H221KBT	CAP , CERAMIC(220PF/50V)	CH UP025 B221K-A-B Z
C864	CCBS1H221KBT	CAP , CERAMIC(220PF/50V)	CH UP025 B221K-A-B Z
C866	CCEA1HKS100T	CAP , ELECT	10UF 50V SMALL SIZE
C867	CCEA1HKS100T	CAP , ELECT	10UF 50V SMALL SIZE
C868	CCEA1CKS470T	CAP , ELECT	47UF 16V
C869	CCEA1CKS470T	CAP , ELECT	47UF 16V
C870	CCBS1H681KBT	CAP , CERAMIC(680PF/50V)	CH UP025 B681K-A-B Z
C871	CCBS1H681KBT	CAP , CERAMIC(680PF/50V)	CH UP025 B681K-A-B Z
C872	CCEA1CH331T	CAP , ELECT	330UF 16V
C873	CCEA1CH331T	CAP , ELECT	330UF 16V
C882	CCBS1H104ZFT	CAP , CERAMIC	0.1UF 50V Z
C889	CCBS1H104ZFT	CAP , CERAMIC	0.1UF 50V Z

FRONT PCB ASSY			
Ref. #	Part Number	Description	Value
C891	CCBS1H223ZFT	CAP , CERAMIC(22000PF/50V)	CH UP025 F223Z-A-B J
C892	CCBS1H223ZFT	CAP , CERAMIC(22000PF/50V)	CH UP025 F223Z-A-B J
C893	CCBS1H223ZFT	CAP , CERAMIC(22000PF/50V)	CH UP025 F223Z-A-B J
C894	CCEA1CKS100T	CAP , ELECT	10UF 16V
C896	CCBS1H104ZFT	CAP , CERAMIC	0.1UF 50V Z
C897	CCEA1AH471T	CAP , ELECT	470UF 10V
C903	CCEA1HKS2R2T	CAP , ELECT	2.2UF 50V SMALL SIZE
C905	CCEA1HKS2R2T	CAP , ELECT	2.2UF 50V SMALL SIZE
D774	CVD1SS133MT	DIODE	1SS133
D775	CVD1SS133MT	DIODE	1SS133
D786	CVD1SS133MT	DIODE	1SS133
D787	CVD1SS133MT	DIODE	1SS133
L702	HLQ02C100KT	COIL , AXAIL	
Q701	HVTKRC107MT	T.R	KRC107M
Q722	HVTKRA107MT	T.R	KRA107M
Q724	HVTKRC107MT	T.R	KRC107M
Q725	HVTKRC107MT	T.R	KRC107M
Q734	HVTKTC2874BT	T.R , MUTE	KTC2874B
Q735	HVTKTC2874BT	T.R , MUTE	KTC2874B
Q736	HVTKTC2874BT	T.R , MUTE	KTC2874B
Q737	HVTKTC2874BT	T.R , MUTE	KTC2874B
Q738	HVTKRC107MT	T.R	KRC107M
Q739	HVTKTA1271YT	T.R	KTA1271Y
R582	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J
R583	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J
R584	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J
R585	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J
R701	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J
R702	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R704	CRD20TJ100T	RES , CARBON	10 OHM 1/5W J
R705	CRD20TJ820T	RES , CARBON	82 OHM 1/5W J
R706	CRD20TJ820T	RES , CARBON	82 OHM 1/5W J
R708	CRD20TJ820T	RES , CARBON	82 OHM 1/5W J
R709	CRD20TJ470T	RES , CARBON	47 OHM 1/5W J
R710	CRD20TJ470T	RES , CARBON	47 OHM 1/5W J
R711	CRD20TJ470T	RES , CARBON	47 OHM 1/5W J
R718	CRD20TJ222T	RES , CARBON	2.2K OHM 1/5W J
R724	CRD20TJ100T	RES , CARBON	10 OHM 1/5W J
R725	CRD20TJ100T	RES , CARBON	10 OHM 1/5W J
R737	CRD20TJ100T	RES , CARBON	10 OHM 1/5W J
R753	CRD20TF1001T	RES , CARBON	1K /1/5W /F
R754	CRD20TF1501T	RES , CARBON	1.5K /1/5W /F
R755	CRD20TF1801T	RES , CARBON	1.8K /1/5W /F
R756	CRD20TF2701T	RES , CARBON	2.7K /1/5W/F
R757	CRD20TF3301T	RES , CARBON	3.3K /1/5W/F
R758	CRD20TF5601T	RES , CARBON(5.6K/F)	
R759	CRD20TF1001T	RES , CARBON	1K /1/5W /F
R760	CRD20TF1501T	RES , CARBON	1.5K /1/5W /F
R761	CRD20TF1801T	RES , CARBON	1.8K /1/5W /F
R762	CRD20TF2701T	RES , CARBON	2.7K /1/5W/F
R763	CRD20TF3301T	RES , CARBON	3.3K /1/5W/F
R764	CRD20TF5601T	RES , CARBON(5.6K/F)	
R765	CRD20TF7501T	RES , CARBON (7.5K/F)	
R781	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R783	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R784	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R786	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J
R787	CRD20TJ101T	RES , CARBON	100 OHM 1/5W J
R791	CRD20TJ123T	RES , CARBON	12K OHM 1/5W J
R805	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J
R806	CRD20TJ472T	RES , CARBON	4.7K OHM 1/5W J
R824	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J
R825	CRD20TJ681T	RES , CARBON	680 OHM 1/5W J
R828	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J
R829	CRD20TJ681T	RES , CARBON	680 OHM 1/5W J
R864	CRD20TJ272T	RES , CARBON	2.7K OHM 1/5W J
R865	CRD20TJ101T	RES , CARBON	100 OHM 1/5W J
R866	CRD20TJ272T	RES , CARBON	2.7K OHM 1/5W J
R869	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J
R871	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J
R872	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J
R873	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J
R874	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J
R875	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J
R878	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J
R892	CRD20TJ222T	RES , CARBON	2.2K OHM 1/5W J
R893	CRD20TJ333T	RES , CARBON	33K OHM 1/5W J
R895	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R896	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R897	CRD20TJ101T	RES , CARBON	100 OHM 1/5W J
R898	CRD20TJ101T	RES , CARBON	100 OHM 1/5W J
R899	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J
R900	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J
R901	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J
R902	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J
R903	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J

FRONT PCB ASSY			
Ref. #	Part Number	Description	Value
R904	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R905	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J
R906	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J
R907	CRD20TJ472T	RES , CARBON	4.7K OHM 1/5W J
R908	CRD20TJ472T	RES , CARBON	4.7K OHM 1/5W J
R909	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J
R910	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J
R911	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J
R912	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J
R913	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R915	CRD20TJ473T	RES , CARBON	47K OHM 1/5W J
R918	CRD20TJ472T	RES , CARBON	4.7K OHM 1/5W J
R919	CRD20TJ472T	RES , CARBON	4.7K OHM 1/5W J
S701	CST1A024ZT	SW , TACT	
S702	CST1A024ZT	SW , TACT	
S703	CST1A024ZT	SW , TACT	
S704	CST1A024ZT	SW , TACT	
S705	CST1A024ZT	SW , TACT	
S706	CST1A024ZT	SW , TACT	
S707	CST1A024ZT	SW , TACT	
S711	CST1A024ZT	SW , TACT	
S712	CST1A024ZT	SW , TACT	
S713	CST1A024ZT	SW , TACT	
S714	CST1A024ZT	SW , TACT	
S715	CST1A024ZT	SW , TACT	
BK71	CMD1A468	BRACKET , FLT	
BK72	CMD1A468	BRACKET , FLT	
BN10	CWB1B009450BM001	WIRE ASS'Y (9P,2.5MM,450MM,Shield)	
BN81	CWB1C007200BM	WIRE ASS'Y	
BN84	CWB1B005080BM	WIRE ASS'Y (5P,2.5MM,80MM)	
BN85	CWB1B013200EN001	WIRE ASS'Y (13P,2.0MM,200MM,Shield)	
BN88	CWB1B005100BM	WIRE ASS'Y (5P,2.5MM,100MM)	
BN89	CWB1B003080MM	WIRE ASS'Y (3P,2.5MM,80MM)	
CN72	CJP31GA41ZM	WAFER (1.25MM, CARD CABLE, STRAIGHT 31P)	MOLEX 52045-**45
CN84	CJP05GB03ZY	WAFER , ANGLE (2.5mm)	
CN85	CJP13GA19ZY	WAFER, STRAIGHT, 13PIN	
CN86	CJP02GA89ZM	WAFER	
CN88	CJP05GB03ZY	WAFER , ANGLE (2.5mm)	
C906	KCKDKS471ME	CAP , CERAMIC(KH TYPE)	DKS471ME
D701	CVD52CSBBCEAB2	L.E.D , BLUE	
D703	CVD52CSBBCEAB2	L.E.D , BLUE	
D705	CVD52CSBBCEAB2	L.E.D , BLUE	
D727	CVD50BOBBWGA	L.E.D , 2 COLOR (ORG , BLUE)	TOL-50BOBBWGA
D728	CVD50BOBBWGA	L.E.D , 2 COLOR (ORG , BLUE)	TOL-50BOBBWGA
D778	HVD1N5819T	DIODE , SCHOTTKY	1N5819
FIP2	CFL162BD01GINK	V.F.D	162-BD-01GINK
IC73	HRVNJL34H380A	SENSOR , REMOCON	
IC75	HVI74ACT04MTR	I.C , HEX	
IC76	HVI74HCU04AFNG	I.C , INVERTER	TC74HCU04AFNG(TOSHIBA)
IC86	HVINJM4556AL	I.C , HEADPHONE	NJM4556AL
JK43	HJJ2D003Y	JACK , HEADPHONE (SILVER)	
JK81	CJJ4M041Y	JACK , BOARD (COAX)	
JK82	HJSTORX177L	MODULE , OPTICAL(RX)	TORX177L
JK83	CJJ2E026Z	JACK , HEADPHONE(SILVER PLATE)	
JK86	CJJ4S023Y	JACK , BOARD	
SW1	CSH1A008ZV	SW , PUSH (MOMS)	
VR74	CSR2A037Z	ENCODER	
BOTTOM CHASSIS ASS'Y			
Ref. #	Part Number	Description	Value
	CUAAVR142/230	BOTTOM CHASSIS ASS'Y	
	CHD1A012ZR	SCREW , SPECIAL	
	CHD1A023R	SCREW , SPECIAL	
	CHD4A012R	SCREW , SPECIAL	
	CHE170	HOLDER , PCB	
	CHE36-3	CLAMPER , WIRE	
	CHG1A160Z	CUSHION , RUBBER	
	CHG1A360	CUSHION , FOOT	
	CHR301	CLAMPER	
	CHS1A032	TAPE , HEMELON	
	CJA2B043ZA	CORD , POWER(EUR)	QDR-7100CC
	CKL2A069H43	FOOT	
	CLT5U036ZE	TRANS , MAIN AVR139/230	
	CNVMM9004MS1J75L	MODULE , TUNER EUR	KST-M9004MS1-J75L(WO/19KHZ)
	CTB3+10JFZR	SCREW	
	CTB3+6FFZR	SCREW	
	CTB3+8JFZR	SCREW	
	CTW3+12JR	SCREW	
	CUA2A294	CHASSIS , BOTTOM	
	KBA2C4000TLEY	FUSE	4A/250V(EUR)
	KHR1A028	BUSHING , AC CORD	
CN12	CWC4C4A27B120B10	CABLE , CARD (11P,1.25MM,120MM,B,10MM)	
CN13	CWC4C4A13B100B10	CABLE , CARD (13P,1.25MM,100MM,B,10MM)	
CN14	CWC4C4A11B100B10	CABLE , CARD (11P,1.25MM,100MM,B,10MM)	
CN45	CWC4F2A07A060B10	CABLE , CARD (7P,1.0MM,60MM,B,10MM)	
CN83	CWB4F232450UU	2P WIRE ASS'Y (450MM UL1617)	

HDMI PCB ASSY			
Ref. #	Part Number	Description	Value
	COP12109B	HDMI MUX PCB ASS'Y	
CN45	CJP07GA193ZY	WAFER, CARD CABLE SMD	
C637	CCUS1H104KC	CAP, CHIP	0.1UF 50V K
C901	CCUS1H104KC	CAP, CHIP	0.1UF 50V K
C903	CCUS1H104KC	CAP, CHIP	0.1UF 50V K
C904	CCUS1H104KC	CAP, CHIP	0.1UF 50V K
C905	CCUS1H104KC	CAP, CHIP	0.1UF 50V K
C906	CCUS1H104KC	CAP, CHIP	0.1UF 50V K
C907	CCUS1H104KC	CAP, CHIP	0.1UF 50V K
C908	CCUS1H104KC	CAP, CHIP	0.1UF 50V K
C909	CCUS1H104KC	CAP, CHIP	0.1UF 50V K
C910	CCUS1H104KC	CAP, CHIP	0.1UF 50V K
C911	CCUS1A105KC	CAP, CHIP	1UF 10V K
C912	CCUS1H104KC	CAP, CHIP	0.1UF 50V K
C913	CCUS1H104KC	CAP, CHIP	0.1UF 50V K
C914	CCUS1H104KC	CAP, CHIP	0.1UF 50V K
C915	CCUS1H104KC	CAP, CHIP	0.1UF 50V K
C916	CCUS1H104KC	CAP, CHIP	0.1UF 50V K
C917	CCUS1H104KC	CAP, CHIP	0.1UF 50V K
C918	CCUS1H104KC	CAP, CHIP	0.1UF 50V K
C919	CCUS1H104KC	CAP, CHIP	0.1UF 50V K
C920	CCUS1H104KC	CAP, CHIP	0.1UF 50V K
C921	CCSJA0J220B	CAP, CHIP TANTAL(A TYPE, 22uF/6.3V, ELNA)	
C922	CCSJA0J220B	CAP, CHIP TANTAL(A TYPE, 22uF/6.3V, ELNA)	
C923	CCSJA0J220B	CAP, CHIP TANTAL(A TYPE, 22uF/6.3V, ELNA)	
C924	CCUS1H104KC	CAP, CHIP	0.1UF 50V K
C925	CCUS1H104KC	CAP, CHIP	0.1UF 50V K
C926	HCEC1CRV2220T	CAP, CHIP ELECT	22UF/16V
C927	CCUS1H104KC	CAP, CHIP	0.1UF 50V K
C928	HCEC1CRV2220T	CAP, CHIP ELECT	22UF/16V
C929	CCUS1H104KC	CAP, CHIP	0.1UF 50V K
C930	HCEC1CRV2220T	CAP, CHIP ELECT	22UF/16V
IC91	CVISII9185ACTU	I.C, HDMI RX SW(80PIN TQFP)	SII9185ACTU
IC92	CVIKIA1117S50	I.C, REGULATOR(SOT-223)	KIA1117S50-RTK/P
IC93	CVIKIA1117S33	I.C, REGULATOR(SOT-223)	KIA1117S/F33, SOT-223
IC94	CVIKIA1117S18	I.C, REGULATOR(SOT-223)	KIA1117S/F18, SOT-223
JK81	HJJ9H003Z	JACK, HDMI(JALCO)	YKF45-7009
JK82	HJJ9H003Z	JACK, HDMI(JALCO)	YKF45-7009
JK83	HJJ9H003Z	JACK, HDMI(JALCO)	YKF45-7009
JK84	HJJ9H003Z	JACK, HDMI(JALCO)	YKF45-7009
L823	CLZ9R009Z	CHOKE COIL, CHIP (FOR HDMI)	
L824	CLZ9R009Z	CHOKE COIL, CHIP (FOR HDMI)	
L825	CLZ9R009Z	CHOKE COIL, CHIP (FOR HDMI)	
L826	CLZ9R009Z	CHOKE COIL, CHIP (FOR HDMI)	
L901	CLZ9Z014Z	FERRITE, CHIP BEAD(60ohm, 4516)	HCB4516KF-600T60
L902	CLZ9R005Z	FERRITE, CHIP BEAD(60ohm, 1608)	HCB1608KF-600T30
L903	CLZ9Z014Z	FERRITE, CHIP BEAD(60ohm, 4516)	HCB4516KF-600T60
Q901	HVTKRA102S	T.R, CHIP	KRA102S
Q902	CVTKRC103S	T.R, CHIP	
Q903	HVTKRA102S	T.R, CHIP	KRA102S
Q904	CVTKRC103S	T.R, CHIP	
Q905	HVTKRA102S	T.R, CHIP	KRA102S
Q906	CVTKRC103S	T.R, CHIP	
R901	CRJ10DJ102T	RES, CHIP	1608 SIZE
R902	CRJ10DJ223T	RES, CHIP	1608 SIZE
R911	CRJ10DJ102T	RES, CHIP	1608 SIZE
R912	CRJ10DJ223T	RES, CHIP	1608 SIZE
R915	CRJ10DJ473T	RES, CHIP	1608 SIZE
R916	CRJ10DJ103T	RES, CHIP	1608 SIZE
R921	CRJ10DJ102T	RES, CHIP	1608 SIZE
R922	CRJ10DJ223T	RES, CHIP	1608 SIZE
R932	CRJ10DJ473T	RES, CHIP	1608 SIZE
R933	CRJ10DJ152T	RES, CHIP	1608 SIZE
R934	CRJ10DJ152T	RES, CHIP	1608 SIZE
R935	CRJ10DJ473T	RES, CHIP	1608 SIZE
R936	CRJ10DJ473T	RES, CHIP	1608 SIZE
R937	CRJ10DJ202T	RES, CHIP	
R938	CRJ10DJ202T	RES, CHIP	
R939	CRJ10DJ221T	RES, CHIP	1608 SIZE
R940	CRJ10DJ221T	RES, CHIP	1608 SIZE
R941	CRJ10DJ221T	RES, CHIP	1608 SIZE
R963	CRJ10DJ473T	RES, CHIP	1608 SIZE
R964	CRJ10DJ101T	RES, CHIP	1608 SIZE
MAIN PCB ASSY			
Ref. #	Part Number	Description	Value
	COP12186B	AVR139/230 MAIN PCB ASS'Y	
	CHR301	CLAMPER	
C501	CCEA1HH100T	CAP, ELECT	10UF 50V
C502	CCEA1HH100T	CAP, ELECT	10UF 50V
C503	CCEA1HH100T	CAP, ELECT	10UF 50V
C504	CCEA1HH100T	CAP, ELECT	10UF 50V
C506	CCKT1H331KB	CAP, CERAMIC	330PF 50V K

MAIN PCB ASSY			
Ref. #	Part Number	Description	Value
C507	CCKT1H331KB	CAP , CERAMIC	330PF 50V K
C508	CCKT1H331KB	CAP , CERAMIC	330PF 50V K
C509	CCKT1H331KB	CAP , CERAMIC	330PF 50V K
C561	CCEA1CH101T	CAP , ELECT	100UF 16V
C562	CCEA1CH101T	CAP , ELECT	100UF 16V
C563	CCEA1CH101T	CAP , ELECT	100UF 16V
C564	CCEA1CH101T	CAP , ELECT	100UF 16V
C566	CCEA1CH101T	CAP , ELECT	100UF 16V
C567	CCEA1CH101T	CAP , ELECT	100UF 16V
C568	CCEA1CH101T	CAP , ELECT	100UF 16V
C569	CCEA1CH101T	CAP , ELECT	100UF 16V
C571	CCBS1H681KBT	CAP , CERAMIC(680PF/50V)	CH UP025 B681K-A-B Z
C572	CCBS1H681KBT	CAP , CERAMIC(680PF/50V)	CH UP025 B681K-A-B Z
C573	CCBS1H681KBT	CAP , CERAMIC(680PF/50V)	CH UP025 B681K-A-B Z
C574	CCBS1H681KBT	CAP , CERAMIC(680PF/50V)	CH UP025 B681K-A-B Z
C601	CCCT1H120JC	CAP , CERAMIC	12PF 50V J
C602	CCCT1H120JC	CAP , CERAMIC	12PF 50V J
C603	CCCT1H120JC	CAP , CERAMIC	12PF 50V J
C604	CCCT1H120JC	CAP , CERAMIC	12PF 50V J
C606	CCCT1H330JC	CAP , CERAMIC	33PF 50V J
C607	CCCT1H330JC	CAP , CERAMIC	33PF 50V J
C608	CCCT1H330JC	CAP , CERAMIC	33PF 50V J
C609	CCCT1H330JC	CAP , CERAMIC	33PF 50V J
C681	CCEA1HH100T	CAP , ELECT	10UF 50V
C682	CCEA1HH100T	CAP , ELECT	10UF 50V
C683	CCEA1HH100T	CAP , ELECT	10UF 50V
C684	CCEA1HH100T	CAP , ELECT	10UF 50V
C726	CCKT1H221KB	CAP , CERAMIC	220PF 50V K
C750	CCEA1CH101T	CAP , ELECT	100UF 16V
C751	CCEA1CH101T	CAP , ELECT	100UF 16V
C801	CCEA1HH100T	CAP , ELECT	10UF 50V
C803	CCCT1H330JC	CAP , CERAMIC	33PF 50V J
C805	CCCT1H120JC	CAP , CERAMIC	12PF 50V J
C811	CCEA1CH101T	CAP , ELECT	100UF 16V
C813	CCEA1CH101T	CAP , ELECT	100UF 16V
C815	CCKT1H331KB	CAP , CERAMIC	330PF 50V K
C817	CCEA1HH100T	CAP , ELECT	10UF 50V
C819	CCBS1H681KBT	CAP , CERAMIC(680PF/50V)	CH UP025 B681K-A-B Z
C852	CCEA1HH100T	CAP , ELECT	10UF 50V
C854	CCEA1HH100T	CAP , ELECT	10UF 50V
C855	CCEA1HH100T	CAP , ELECT	10UF 50V
C856	CCEA1HH100T	CAP , ELECT	10UF 50V
C857	CCEA1HH100T	CAP , ELECT	10UF 50V
C900	HCQ1H473JZT	CAP , MYLAR	0.047UF 50V J
C901	HCQ1H473JZT	CAP , MYLAR	0.047UF 50V J
C902	CCEA1EH101T	CAP , ELECT	100UF 25V
C903	CCFT1H104ZF	CAP , SEMICONDUCTOR	0.1UF 50V Z
C905	CCFT1H223ZF	CAP , CERAMIC	0.022UF 50V Z
C907	CCEA1CH101T	CAP , ELECT	100UF 16V
C908	CCBS1H223ZFT	CAP , CERAMIC(22000PF/50V)	CH UP025 F223Z-A-B J
C909	CCEA1EH101T	CAP , ELECT	100UF 25V
C910	HCQ1H473JZT	CAP , MYLAR	0.047UF 50V J
C911	CCEA1CH471T	CAP , ELECT	470UF 16V
C912	CCEA1CH221T	CAP , ELECT	220UF 16V
C913	CCFT1H104ZF	CAP , SEMICONDUCTOR	0.1UF 50V Z
C914	CCEA0JH102T	CAP , ELECT	1000UF 6.3V
C917	CCEA1HH470T	CAP , ELECT	47UF 50V
C918	HCQ1H473JZT	CAP , MYLAR	0.047UF 50V J
C919	HCQ1H473JZT	CAP , MYLAR	0.047UF 50V J
C920	CCFT1H104ZF	CAP , SEMICONDUCTOR	0.1UF 50V Z
C921	HCQ1H103JZT	CAP , MYLAR	0.01UF 50V J
C922	KCME2E104JP04T	CAP , METALLIZED FILM	
C923	KCME2E104JP04T	CAP , METALLIZED FILM	
C924	CCFT1H104ZF	CAP , SEMICONDUCTOR	0.1UF 50V Z
C925	CCEA1HKS2R2T	CAP , ELECT	2.2UF 50V SMALL SIZE
C926	HCQ1H103JZT	CAP , MYLAR	0.01UF 50V J
C927	CCKT1H102KB	CAP , CERAMIC	1000PF 50V K
C931	HCQ1H473JZT	CAP , MYLAR	0.047UF 50V J
C932	HCQ1H473JZT	CAP , MYLAR	0.047UF 50V J
C935	CCBS1H223ZFT	CAP , CERAMIC(22000PF/50V)	CH UP025 F223Z-A-B J
C936	CCBS1H223ZFT	CAP , CERAMIC(22000PF/50V)	CH UP025 F223Z-A-B J
C937	CCBS1H223ZFT	CAP , CERAMIC(22000PF/50V)	CH UP025 F223Z-A-B J
C938	CCEA1CH101T	CAP , ELECT	100UF 16V
C939	CCEA1HH47R7T	CAP , ELECT	4.7UF 50V
C940	CCEA1AH471T	CAP , ELECT	470UF 10V
C948	CCFT1H104ZF	CAP , SEMICONDUCTOR	0.1UF 50V Z
C971	HCQ1H562JZT	CAP , MYLAR	5600PF 50V J
C972	HCQ1H562JZT	CAP , MYLAR	5600PF 50V J
C973	HCQ1H562JZT	CAP , MYLAR	5600PF 50V J
C977	CCEA1HH3R3T	CAP , ELECT	3.3UF 50V
C980	HCQ1H562JZT	CAP , MYLAR	5600PF 50V J
C981	HCQ1H562JZT	CAP , MYLAR	5600PF 50V J
C990	HCQ1H473JZT	CAP , MYLAR	0.047UF 50V J
C991	CCEA1HH1R0T	CAP , ELECT	1UF 50V
C992	HCQ1H473JZT	CAP , MYLAR	0.047UF 50V J
C993	HCQ1H473JZT	CAP , MYLAR	0.047UF 50V J

MAIN PCB ASSY			
Ref. #	Part Number	Description	Value
C995	HCQI1H473JZT	CAP , MYLAR	0.047UF 50V J
C997	HCQI1H473JZT	CAP , MYLAR	0.047UF 50V J
C999	CCFT1H223ZF	CAP , CERAMIC	0.022UF 50V Z
D501	CVD1SS133MT	DIODE	1SS133
D502	CVD1SS133MT	DIODE	1SS133
D503	CVD1SS133MT	DIODE	1SS133
D504	CVD1SS133MT	DIODE	1SS133
D581	CVD1SS133MT	DIODE	1SS133
D582	CVD1SS133MT	DIODE	1SS133
D583	CVD1SS133MT	DIODE	1SS133
D584	CVD1SS133MT	DIODE	1SS133
D801	CVD1SS133MT	DIODE	1SS133
D802	CVD1SS133MT	DIODE	1SS133
D803	CVD1SS133MT	DIODE	1SS133
D901	CVD1N4003SRT	DIODE , RECT	1N4003
D902	CVD1SS133MT	DIODE	1SS133
D903	CVD1SS133MT	DIODE	1SS133
D911	CVD1SS133MT	DIODE	1SS133
D912	CVD1SS133MT	DIODE	1SS133
D914	CVD1SS133MT	DIODE	1SS133
D917	CVD1SS133MT	DIODE	1SS133
D953	CVD1SS133MT	DIODE	1SS133
D954	CVD1N4003SRT	DIODE , RECT	1N4003
D955	CVD1N4003SRT	DIODE , RECT	1N4003
D956	CVD1N4003SRT	DIODE , RECT	1N4003
D957	CVD1N4003SRT	DIODE , RECT	1N4003
D961	CVD1N4003SRT	DIODE , RECT	1N4003
D962	CVD1N4003SRT	DIODE , RECT	1N4003
D963	CVD1N4003SRT	DIODE , RECT	1N4003
D973	CVD1SS133MT	DIODE	1SS133
D974	CVD1SS133MT	DIODE	1SS133
D979	CVDZJ5.1BT	DIODE , ZENER	ZJ5.1B 1/2W
ET90	HJT1A025	PALTE , EARTH	MET37-0002
ET91	HJT1A025	PALTE , EARTH	MET37-0002
F901	KJCF5S	HOLDER , FUSE	
IC97	HVIRE5VT28CATZ	I.C , RESET	
Q501	HVTKTA1268GRT	T.R	KTA1268GR
Q502	HVTKTA1268GRT	T.R	KTA1268GR
Q503	HVTKTA1268GRT	T.R	KTA1268GR
Q504	HVTKTA1268GRT	T.R	KTA1268GR
Q511	HVTKTC3200GRT	T.R	KTC3200GR
Q512	HVTKTC3200GRT	T.R	KTC3200GR
Q513	HVTKTC3200GRT	T.R	KTC3200GR
Q514	HVTKTC3200GRT	T.R	KTC3200GR
Q516	HVTKTC3200GRT	T.R	KTC3200GR
Q517	HVTKTC3200GRT	T.R	KTC3200GR
Q518	HVTKTC3200GRT	T.R	KTC3200GR
Q519	HVTKTC3200GRT	T.R	KTC3200GR
Q541	HVTKTC3198YT	T.R	KTC3198Y
Q542	HVTKTC3198YT	T.R	KTC3198Y
Q543	HVTKTC3198YT	T.R	KTC3198Y
Q544	HVTKTC3198YT	T.R	KTC3198Y
Q556	HVTKTC3200GRT	T.R	KTC3200GR
Q557	HVTKTC3200GRT	T.R	KTC3200GR
Q558	HVTKTC3200GRT	T.R	KTC3200GR
Q559	HVTKTC3200GRT	T.R	KTC3200GR
Q561	HVTKTC3200GRT	T.R	KTC3200GR
Q562	HVTKTC3200GRT	T.R	KTC3200GR
Q563	HVTKTC3200GRT	T.R	KTC3200GR
Q564	HVTKTC3200GRT	T.R	KTC3200GR
Q601	HVTKTA1268GRT	T.R	KTA1268GR
Q602	HVTKTA1268GRT	T.R	KTA1268GR
Q603	HVTKTA1268GRT	T.R	KTA1268GR
Q604	HVTKTA1268GRT	T.R	KTA1268GR
Q681	HVTKTC3199YT	T.R	KTC3199Y
Q682	HVTKTC3199YT	T.R	KTC3199Y
Q683	HVTKTC3199YT	T.R	KTC3199Y
Q684	HVTKTC3199YT	T.R	KTC3199Y
Q801	HVTKTC3199YT	T.R	KTC3199Y
Q812	HVTKTA1268GRT	T.R	KTA1268GR
Q813	HVTKTC3200GRT	T.R	KTC3200GR
Q816	HVTKTA1268GRT	T.R	KTA1268GR
Q818	HVTKTC3200GRT	T.R	KTC3200GR
Q819	HVTKTC3200GRT	T.R	KTC3200GR
Q820	HVTKTC3200GRT	T.R	KTC3200GR
Q824	HVTKTC3198YT	T.R	KTC3198Y
Q901	HVTKTC3199YT	T.R	KTC3199Y
Q911	HVTKTA1267YT	T.R	KTA1267Y
Q912	HVTKTC3198YT	T.R	KTC3198Y
Q913	HVTKTC3198YT	T.R	KTC3198Y
Q938	HVTKRA107MT	T.R	KRA107M
Q939	HVTKRA107MT	T.R	KRA107M
Q941	HVTKTC3199YT	T.R	KTC3199Y
Q942	HVTKTC3199YT	T.R	KTC3199Y
Q943	HVTKTC3199YT	T.R	KTC3199Y
Q960	HVTKRC107MT	T.R	KRC107M

MAIN PCB ASSY			
Ref. #	Part Number	Description	Value
Q961	HVTKTA1024YT	T.R	
R501	CRD20TJ433T	RES , CARBON	43K OHM 1/5W J
R502	CRD20TJ433T	RES , CARBON	43K OHM 1/5W J
R504	CRD20TJ433T	RES , CARBON	43K OHM 1/5W J
R505	CRD20TJ433T	RES , CARBON	43K OHM 1/5W J
R506	CRD20TJ333T	RES , CARBON	33K OHM 1/5W J
R507	CRD20TJ333T	RES , CARBON	33K OHM 1/5W J
R508	CRD20TJ333T	RES , CARBON	33K OHM 1/5W J
R509	CRD20TJ333T	RES , CARBON	33K OHM 1/5W J
R511	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J
R512	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J
R513	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J
R514	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J
R516	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J
R517	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J
R518	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J
R519	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J
R521	CRD20TJ471T	RES , CARBON	470 OHM 1/5W J
R522	CRD20TJ471T	RES , CARBON	470 OHM 1/5W J
R523	CRD20TJ471T	RES , CARBON	470 OHM 1/5W J
R524	CRD20TJ471T	RES , CARBON	470 OHM 1/5W J
R531	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J
R532	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J
R533	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J
R534	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J
R536	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J
R537	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J
R538	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J
R539	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J
R541	CRD20TJ271T	RES , CARBON	270 OHM 1/5W J
R542	CRD20TJ271T	RES , CARBON	270 OHM 1/5W J
R543	CRD20TJ271T	RES , CARBON	270 OHM 1/5W J
R544	CRD20TJ271T	RES , CARBON	270 OHM 1/5W J
R556	CRD20TJ273T	RES , CARBON	27K OHM 1/5W J
R557	CRD20TJ273T	RES , CARBON	27K OHM 1/5W J
R558	CRD20TJ273T	RES , CARBON	27K OHM 1/5W J
R559	CRD20TJ273T	RES , CARBON	27K OHM 1/5W J
R561	CRD20TJ202T	RES , CARBON	
R562	CRD20TJ202T	RES , CARBON	
R563	CRD20TJ202T	RES , CARBON	
R564	CRD20TJ202T	RES , CARBON	
R566	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R567	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R568	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R569	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R571	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R572	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R573	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R574	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R576	CRD20TJ100T	RES , CARBON	10 OHM 1/5W J
R577	CRD20TJ100T	RES , CARBON	10 OHM 1/5W J
R578	CRD20TJ100T	RES , CARBON	10 OHM 1/5W J
R579	CRD20TJ100T	RES , CARBON	10 OHM 1/5W J
R581	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R582	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R583	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R584	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R586	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R587	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R588	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R589	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R591	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R592	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R593	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R594	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R596	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R597	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R598	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R599	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R601	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J
R602	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J
R603	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J
R604	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J
R606	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J
R607	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J
R608	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J
R609	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J
R611	CRD20TJ100T	RES , CARBON	10 OHM 1/5W J
R631	CRD25FJ180T	RES , CARBON	
R632	CRD25FJ180T	RES , CARBON	
R633	CRD25FJ180T	RES , CARBON	
R634	CRD25FJ180T	RES , CARBON	
R636	CRD25FJ180T	RES , CARBON	
R637	CRD25FJ180T	RES , CARBON	
R638	CRD25FJ180T	RES , CARBON	
R639	CRD25FJ180T	RES , CARBON	

MAIN PCB ASSY			
Ref. #	Part Number	Description	Value
R646	CRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J
R647	CRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J
R648	CRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J
R649	CRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J
R651	CRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J
R652	CRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J
R653	CRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J
R654	CRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J
R666	CRD25TJ470T	RES , CARBON	
R667	CRD25TJ470T	RES , CARBON	
R668	CRD25TJ470T	RES , CARBON	
R669	CRD25TJ470T	RES , CARBON	
R671	CRD20TJ472T	RES , CARBON	4.7K OHM 1/5W J
R672	CRD20TJ472T	RES , CARBON	4.7K OHM 1/5W J
R673	CRD20TJ472T	RES , CARBON	4.7K OHM 1/5W J
R674	CRD20TJ472T	RES , CARBON	4.7K OHM 1/5W J
R676	CRD25TJ182T	RES , CARBON	
R677	CRD25TJ182T	RES , CARBON	
R678	CRD25TJ182T	RES , CARBON	
R679	CRD25TJ182T	RES , CARBON	
R681	CRD20TJ562T	RES , CARBON	5.6K OHM 1/5W J
R682	CRD20TJ562T	RES , CARBON	5.6K OHM 1/5W J
R683	CRD20TJ562T	RES , CARBON	5.6K OHM 1/5W J
R684	CRD20TJ562T	RES , CARBON	5.6K OHM 1/5W J
R686	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J
R687	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J
R688	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J
R689	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J
R696	CRD25TJ470T	RES , CARBON	
R697	CRD25TJ470T	RES , CARBON	
R698	CRD25TJ470T	RES , CARBON	
R699	CRD25TJ470T	RES , CARBON	
R750	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J
R751	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J
R771	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J
R772	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J
R773	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J
R774	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J
R776	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J
R781	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J
R782	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J
R783	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J
R784	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J
R786	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J
R801	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J
R803	CRD20TJ562T	RES , CARBON	5.6K OHM 1/5W J
R805	CRD20TJ472T	RES , CARBON	4.7K OHM 1/5W J
R808	CRD25TJ182T	RES , CARBON	
R812	CRD25TJ470T	RES , CARBON	
R813	CRD25TJ470T	RES , CARBON	
R817	CRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J
R818	CRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J
R821	CRD25FJ180T	RES , CARBON	
R822	CRD25FJ180T	RES , CARBON	
R830	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J
R831	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J
R834	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R835	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R836	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R837	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R842	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R843	CRD20TJ561T	RES , CARBON	560 OHM 1/5W J
R848	CRD20TJ273T	RES , CARBON	27K OHM 1/5W J
R850	CRD20TJ202T	RES , CARBON	
R852	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J
R853	CRD20TJ152T	RES , CARBON	1.5K OHM 1/5W J
R856	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J
R857	CRD20TJ221T	RES , CARBON	220 OHM 1/5W J
R860	CRD20TJ271T	RES , CARBON	270 OHM 1/5W J
R862	CRD20TJ333T	RES , CARBON	33K OHM 1/5W J
R870	CRD20TJ433T	RES , CARBON	43K OHM 1/5W J
R872	CRD20TJ471T	RES , CARBON	470 OHM 1/5W J
R875	CRD20TJ331T	RES , CARBON	330 OHM 1/5W J
R877	CRD20TJ331T	RES , CARBON	330 OHM 1/5W J
R878	CRD20TJ331T	RES , CARBON	330 OHM 1/5W J
R879	CRD20TJ331T	RES , CARBON	330 OHM 1/5W J
R880	CRD20TJ331T	RES , CARBON	330 OHM 1/5W J
R883	CRD20TJ122T	RES , CARBON	1.2K OHM 1/5W J
R885	CRD20TJ122T	RES , CARBON	1.2K OHM 1/5W J
R886	CRD20TJ122T	RES , CARBON	1.2K OHM 1/5W J
R887	CRD20TJ122T	RES , CARBON	1.2K OHM 1/5W J
R888	CRD20TJ122T	RES , CARBON	1.2K OHM 1/5W J
R891	CRD20TJ391T	RES , CARBON	
R893	CRD20TJ391T	RES , CARBON	
R894	CRD20TJ391T	RES , CARBON	
R896	CRD20TJ391T	RES , CARBON	

MAIN PCB ASSY			
Ref. #	Part Number	Description	Value
R897	CRD20TJ391T	RES , CARBON	
R900	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J
R901	CRD20TJ272T	RES , CARBON	2.7K OHM 1/5W J
R902	CRD20TJ153T	RES , CARBON	15K OHM 1/5W J
R903	CRD20TJ153T	RES , CARBON	15K OHM 1/5W J
R905	CRG1SANJ1R0RT	RES , METAL OXIDE FILM(1W/1 OHM)	
R906	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J
R907	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J
R908	CRD20TJ153T	RES , CARBON	15K OHM 1/5W J
R909	CRD20TJ153T	RES , CARBON	15K OHM 1/5W J
R910	CRD20TJ153T	RES , CARBON	15K OHM 1/5W J
R911	KRG1SANJ271RT	RES , METAL OXIDE FILM	
R912	CRD20TJ332T	RES , CARBON	3.3K OHM 1/5W J
R913	CRD25TJ470T	RES , CARBON	
R914	CRD20TJ153T	RES , CARBON	15K OHM 1/5W J
R917	CRD25TJ393T	RES , CARBON	
R918	CRD25TJ393T	RES , CARBON	
R919	CRD25TJ393T	RES , CARBON	
R920	CRD25TJ393T	RES , CARBON	
R925	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J
R927	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J
R928	CRD20TJ333T	RES , CARBON	33K OHM 1/5W J
R939	CRD20TJ472T	RES , CARBON	4.7K OHM 1/5W J
R940	CRD20TJ123T	RES , CARBON	12K OHM 1/5W J
R941	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J
R942	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J
R944	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J
R946	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J
R947	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J
R948	CRD25TJ153T	RES , CARBON	
R954	CRD20TJ272T	RES , CARBON	2.7K OHM 1/5W J
R955	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J
R957	CRD20TJ223T	RES , CARBON	22K OHM 1/5W J
R961	CRD20TJ331T	RES , CARBON	330 OHM 1/5W J
R962	CRD20TJ273T	RES , CARBON	27K OHM 1/5W J
R986	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R988	CRD20TJ203T	RES , CARBON	
R989	CRD20TJ302T	RES , CARBON	
R990	KRG1SANJ100RT	RES , METAL OXIDE FILM	10 OHM 1W J
R991	CRD20TJ822T	RES , CARBON	8.2K OHM 1/5W J
R993	KRG1SANJ100RT	RES , METAL OXIDE FILM	10 OHM 1W J
R995	KRG1SANJ100RT	RES , METAL OXIDE FILM	10 OHM 1W J
R997	KRG1SANJ100RT	RES , METAL OXIDE FILM	10 OHM 1W J
R998	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J
R999	KRG1SANJ100RT	RES , METAL OXIDE FILM	10 OHM 1W J
VR82	CVN1RA221B02T	RES , SEMI FIXED (220, B CURVE)	KVSF637AVC
VR84	CVN1RA221B02T	RES , SEMI FIXED (220, B CURVE)	KVSF637AVC
VR85	CVN1RA221B02T	RES , SEMI FIXED (220, B CURVE)	KVSF637AVC
VR86	CVN1RA221B02T	RES , SEMI FIXED (220, B CURVE)	KVSF637AVC
VR87	CVN1RA221B02T	RES , SEMI FIXED (220, B CURVE)	KVSF637AVC
	CMYAVR139/230	HEAT SINK ASS'Y	
	CHD1A012R	SCREW , SPECIAL	
	CHD4A012R	SCREW , SPECIAL	
	CMD1A398	BRACKET , PCB	AG-D9320
	CMD1A417	BRACKET , PCB	AG-D8900
	CMY1A321	HEAT SINK	
	CTB3+8JR	SCREW	
	CTW3+8JR	SCREW	
IC89	HV1KIA278R05PI	REGULATOR (5V OUTPUT LOW DROP)	KIA278R05PI
IC90	CV1KIA278R15PI	I.C , REGULATOR(15V OUTPUT LOW DROP)	
IC91	CV1KIA7915PI	I.C , REGULATOR(15V, TO-220AB)	KIA7915PI
Q652	CVT2SB1559P43M	TR , 2SB1559 (PNP,MT-100,POWER, MICA 43 TYPE)	
Q653	CVT2SB1559P43M	TR , 2SB1559 (PNP,MT-100,POWER, MICA 43 TYPE)	
Q654	CVT2SB1559P43M	TR , 2SB1559 (PNP,MT-100,POWER, MICA 43 TYPE)	
Q657	CVT2SD2389P43M	TR , 2SD2389 (NPN,MT-100,POWER, MICA 43 TYPE)	
Q658	CVT2SD2389P43M	TR , 2SD2389 (NPN,MT-100,POWER, MICA 43 TYPE)	
Q659	CVT2SD2389P43M	TR , 2SD2389 (NPN,MT-100,POWER, MICA 43 TYPE)	
Q660	CVT2SD2389P43M	TR , 2SD2389 (NPN,MT-100,POWER, MICA 43 TYPE)	
Q661	CVT2SB1559P43M	TR , 2SB1559 (PNP,MT-100,POWER, MICA 43 TYPE)	
Q803	CVT2SD2389P43M	TR , 2SD2389 (NPN,MT-100,POWER, MICA 43 TYPE)	
Q804	CVT2SB1559P43M	TR , 2SB1559 (PNP,MT-100,POWER, MICA 43 TYPE)	
Q852	HVTKTD600KGR	T.R , BIAS	KTD600KGR
Q854	HVTKTD600KGR	T.R , BIAS	KTD600KGR
Q855	HVTKTD600KGR	T.R , BIAS	KTD600KGR
Q856	HVTKTD600KGR	T.R , BIAS	KTD600KGR
Q857	HVTKTD600KGR	T.R , BIAS	KTD600KGR
	CVDGBJ1006BHA	DIODE HEAT SINK ASS'Y (CMY1A138)	
	CMY1A138	HEAT SINK , DIODE	
	CTB3+12JR	SCREW	
	K8AYG6260	COMPOUND , SILICONE	
D991	HVDGBJ1006	DIODE , BRIDGE	
BN17	CJP06GB143ZB	FEMALE HEADER(6P, 2.54mm)	
BN20	CWB1C007220BM	WIRE ASS'Y	
BN90	CJP02GA89ZY	WAFER	
CN12	CJP27GA41ZM	WAFER (1.25MM, CARD CABLE, STRAIGHT 27P)	MOLEX 52045-**45
CN61	CJP02GA01ZY	WAFER , STRAIGHT, 2PIN	

MAIN PCB ASSY			
Ref. #	Part Number	Description	Value
CN62	CJP02GA01ZY	WAFER , STRAIGHT, 2PIN	
CN63	CJP02GA01ZY	WAFER , STRAIGHT, 2PIN	
CN64	CJP02GA01ZY	WAFER , STRAIGHT, 2PIN	
CN65	CJP03GA90ZY	WAFER	
CN66	CJP02GA01ZY	WAFER , STRAIGHT, 2PIN	
CN91	CJP02GA89ZY	WAFER	
CN92	CJP02KA060ZY	WAFER	
CN96	CJP09GA01ZY	CON WAFER YMW025-09R	
C631	CCEA1JH101E	CAP , ELECT	100UF 63V
C632	CCEA1JH101E	CAP , ELECT	100UF 63V
C633	CCEA1JH101E	CAP , ELECT	100UF 63V
C634	CCEA1JH101E	CAP , ELECT	100UF 63V
C636	CCEA1JH101E	CAP , ELECT	100UF 63V
C637	CCEA1JH101E	CAP , ELECT	100UF 63V
C638	CCEA1JH101E	CAP , ELECT	100UF 63V
C639	CCEA1JH101E	CAP , ELECT	100UF 63V
C807	CCEA1JH101E	CAP , ELECT	100UF 63V
C808	CCEA1JH101E	CAP , ELECT	100UF 63V
C904	KCKDKS472ME	CAP , CERAMIC(X1/Y2/SC)	0.0047UF/2.5KV
C906	CCEA1EH222E	CAP , ELECT	2200UF 25V
C915	CCET50VKL4103NK	CAP , ELECT	10000UF/50V
C916	CCET50VKL4103NK	CAP , ELECT	10000UF/50V
C929	CCEA1VH222EZ	CAP , ELECT (2200UF/35V, 12.5X31)	KR3-35V222MH1-L/C4.0
C930	CCEA1VH222EZ	CAP , ELECT (2200UF/35V, 12.5X31)	KR3-35V222MH1-L/C4.0
C941	CCEA1EH822E	CAP , ELECT(KR3, 8200UF/25V, 18X30)	KR3-25V822MU
ET01	CMD1A387	BRACKET , PCB	
IC94	CVIKIA1117PI50	I.C , REGULATOR (+5V,TO-220IS)	
JK75	HJSTORX177L	MODULE , OPTICAL(RX)	TORX177L
JK76	HJSTORX177L	MODULE , OPTICAL(RX)	TORX177L
JK90	CJJ4M040Z	JACK , BOARD (SW)	
JK91	CJJ5R006Z	TERMINAL , SPEAKER	
JK92	CJJ5P020Z	TERMINAL , SPEAKER	
JW92	CWE8112220VV	WIRE , 1P RED (220MM)	
JW93	CWE8102150VV	WIRE ASS'Y (1PIN #18, 150MM TERMINAL)	
JW94	CWE8101200VV	WIRE , 1P BLUE (200MM)	
L501	CLEY0R5KAK	COIL , SPEAKER	0.5UH K
L502	CLEY0R5KAK	COIL , SPEAKER	0.5UH K
L503	CLEY0R5KAK	COIL , SPEAKER	0.5UH K
L504	CLEY0R5KAK	COIL , SPEAKER	0.5UH K
L506	CLEY0R5KAK	COIL , SPEAKER	0.5UH K
Q858	HVTKTA1360Y	T.R , PRE DRIVE	KTA1360Y
Q871	HVTKTA1360Y	T.R , PRE DRIVE	KTA1360Y
Q872	HVTKTA1360Y	T.R , PRE DRIVE	KTA1360Y
Q874	HVTKTA1360Y	T.R , PRE DRIVE	KTA1360Y
Q876	HVTKTA1360Y	T.R , PRE DRIVE	KTA1360Y
Q881	HVTKTC3423Y	T.R , PRE DRIVE	KTC3423Y
Q882	HVTKTC3423Y	T.R , PRE DRIVE	KTC3423Y
Q883	HVTKTC3423Y	T.R , PRE DRIVE	KTC3423Y
Q884	HVTKTC3423Y	T.R , PRE DRIVE	KTC3423Y
Q886	HVTKTC3423Y	T.R , PRE DRIVE	KTC3423Y
RY94	CSL1E002ZE	RELAY , POWER	G5PA-1 (DC 6V)
R656	CRF5EKR27HX2K	RES , CEMENT	
R657	CRF5EKR27HX2K	RES , CEMENT	
R658	CRF5EKR27HX2K	RES , CEMENT	
R659	CRF5EKR27HX2K	RES , CEMENT	
R810	CRF5EKR27HX2K	RES , CEMENT	
TH91	KRTP42T7D330B	THERMAL SENSOR , POSISTOR	P42T7D330BW20
T902	CLT5I009ZE	TRANS , SUB CD6002/N	
INPUT PCB ASSY			
Ref. #	Part Number	Description	Value
	COP12187B	AVR139/230 INPUT PCB ASSY	
C260	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C277	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C279	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C280	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C289	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C290	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C400	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C401	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C405	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C601	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C603	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C605	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C607	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C609	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C611	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C613	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C615	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C619	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C621	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C623	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C625	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C627	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C629	CCUS1H104KC	CAP , CHIP	0.1UF 50V K

INPUT PCB ASSY			
Ref. #	Part Number	Description	Value
C631	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C704	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C707	CCUS1H102KC	CAP , CHIP	1000PF 50V K
C719	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C738	CCUS1A105KC	CAP , CHIP	1UF 10V K
C739	CCUS1H103KC	CAP , CHIP	0.01UF 50V K
C743	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C757	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C759	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C760	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C761	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C762	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C763	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C769	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C770	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C771	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C772	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C773	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C793	CCUS1H101JA	CAP , CHIP	100PF 50V J
C799	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C800	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C804	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C808	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C809	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
D201	CVD1SS355T	DIODE , CHIP	
D202	CVD1SS355T	DIODE , CHIP	
D203	CVD1SS355T	DIODE , CHIP	
D204	CVD1SS355T	DIODE , CHIP	
D207	CVD1SS355T	DIODE , CHIP	
D208	CVD1SS355T	DIODE , CHIP	
D209	CVD1SS355T	DIODE , CHIP	
D210	CVD1SS355T	DIODE , CHIP	
D211	CVD1SS355T	DIODE , CHIP	
D212	CVD1SS355T	DIODE , CHIP	
D213	CVD1SS355T	DIODE , CHIP	
D214	CVD1SS355T	DIODE , CHIP	
D228	CVD1SS355T	DIODE , CHIP	
D229	CVD1SS355T	DIODE , CHIP	
IC77	HVI57V161610ET7	SDRAM 16M 7NS	HY57V161610ET-7
R254	CRJ10DJ4R7T	RES , CHIP	1608 SIZE
R255	CRJ10DJ4R7T	RES , CHIP	1608 SIZE
R256	CRJ10DJ4R7T	RES , CHIP	1608 SIZE
R257	CRJ10DJ4R7T	RES , CHIP	1608 SIZE
R259	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
R260	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R723	CRJ10DJ2R7T	RES , CHIP	1/10W 2.7
R727	CRJ10DJ473T	RES , CHIP	1608 SIZE
R729	CRJ10DJ123T	RES , CHIP	1608 SIZE
R730	CRJ10DJ123T	RES , CHIP	1608 SIZE
R739	CRJ10DJ1R0T	RES , CHIP	1608 SIZE
R740	CRJ10DJ820T	RES , CHIP	1608 SIZE
	CIP12187BTSMD	AVR139/230 INPUT PCB TOP SMD ASS'Y	
	CUP12187Z	AVR139/230 PCB , INPUT (FR-4,216X168)	
C201	CCUS1H221JA	CAP , CHIP	220PF 50V J
C202	CCUS1H221JA	CAP , CHIP	220PF 50V J
C203	CCUS1H221JA	CAP , CHIP	220PF 50V J
C204	CCUS1H221JA	CAP , CHIP	220PF 50V J
C205	CCUS1H221JA	CAP , CHIP	220PF 50V J
C206	CCUS1H221JA	CAP , CHIP	220PF 50V J
C209	CCUS1H221JA	CAP , CHIP	220PF 50V J
C210	CCUS1H221JA	CAP , CHIP	220PF 50V J
C211	CCUS1H221JA	CAP , CHIP	220PF 50V J
C212	CCUS1H221JA	CAP , CHIP	220PF 50V J
C213	CCUS1H221JA	CAP , CHIP	220PF 50V J
C214	CCUS1H221JA	CAP , CHIP	220PF 50V J
C215	CCUS1H221JA	CAP , CHIP	220PF 50V J
C216	CCUS1H221JA	CAP , CHIP	220PF 50V J
C219	CCUS1H221JA	CAP , CHIP	220PF 50V J
C220	CCUS1H221JA	CAP , CHIP	220PF 50V J
C221	CCUS1H221JA	CAP , CHIP	220PF 50V J
C222	CCUS1H221JA	CAP , CHIP	220PF 50V J
C223	CCUS1H221JA	CAP , CHIP	220PF 50V J
C224	CCUS1H221JA	CAP , CHIP	220PF 50V J
C269	CCUS1A105KC	CAP , CHIP	1UF 10V K
C274	CCUS1A105KC	CAP , CHIP	1UF 10V K
C291	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C293	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C301	CCUS1H471JA	CAP , CHIP	470PF 50V J
C302	CCUS1H471JA	CAP , CHIP	470PF 50V J
C303	CCUS1H471JA	CAP , CHIP	470PF 50V J
C304	CCUS1H471JA	CAP , CHIP	470PF 50V J
C305	CCUS1H471JA	CAP , CHIP	470PF 50V J
C306	CCUS1H471JA	CAP , CHIP	470PF 50V J
C309	CCUS1H332KC	CAP , CHIP	3300PF 50V K
C310	CCUS1H332KC	CAP , CHIP	3300PF 50V K
C311	CCUS1H332KC	CAP , CHIP	3300PF 50V K

INPUT PCB ASSY			
Ref. #	Part Number	Description	Value
C312	CCUS1H332KC	CAP , CHIP	3300PF 50V K
C313	CCUS1H332KC	CAP , CHIP	3300PF 50V K
C314	CCUS1H332KC	CAP , CHIP	3300PF 50V K
C317	CCUS1H223KC	CAP , CHIP	0.022UF 50V K
C318	CCUS1H223KC	CAP , CHIP	0.022UF 50V K
C319	CCUS1H223KC	CAP , CHIP	0.022UF 50V K
C321	CCUS1H561JA	CAP , CHIP	560PF 50V J
C322	CCUS1H561JA	CAP , CHIP	560PF 50V J
C323	CCUS1H561JA	CAP , CHIP	560PF 50V J
C324	CCUS1H561JA	CAP , CHIP	560PF 50V J
C325	CCUS1H561JA	CAP , CHIP	560PF 50V J
C326	CCUS1H561JA	CAP , CHIP	560PF 50V J
C327	CCUS1H561JA	CAP , CHIP	560PF 50V J
C328	CCUS1H561JA	CAP , CHIP	560PF 50V J
C329	CCUS1H561JA	CAP , CHIP	560PF 50V J
C330	CCUS1H561JA	CAP , CHIP	560PF 50V J
C331	CCUS1H561JA	CAP , CHIP	560PF 50V J
C332	CCUS1H561JA	CAP , CHIP	560PF 50V J
C337	CCUS1H223KC	CAP , CHIP	0.022UF 50V K
C338	CCUS1H223KC	CAP , CHIP	0.022UF 50V K
C339	CCUS1H223KC	CAP , CHIP	0.022UF 50V K
C350	CCUS1H332KC	CAP , CHIP	3300PF 50V K
C351	CCUS1H332KC	CAP , CHIP	3300PF 50V K
C352	CCUS1H332KC	CAP , CHIP	3300PF 50V K
C353	CCUS1H332KC	CAP , CHIP	3300PF 50V K
C354	CCUS1H332KC	CAP , CHIP	3300PF 50V K
C355	CCUS1H332KC	CAP , CHIP	3300PF 50V K
C369	CCUS1H223KC	CAP , CHIP	0.022UF 50V K
C370	CCUS1H223KC	CAP , CHIP	0.022UF 50V K
C381	CCUS1H223KC	CAP , CHIP	0.022UF 50V K
C382	CCUS1H223KC	CAP , CHIP	0.022UF 50V K
C383	CCUS1H223KC	CAP , CHIP	0.022UF 50V K
C384	CCUS1H223KC	CAP , CHIP	0.022UF 50V K
C385	CCUS1H223KC	CAP , CHIP	0.022UF 50V K
C386	CCUS1H223KC	CAP , CHIP	0.022UF 50V K
C391	CCUS1H151JA	CAP , CHIP	150PF 50V J
C392	CCUS1H151JA	CAP , CHIP	150PF 50V J
C393	CCUS1H151JA	CAP , CHIP	150PF 50V J
C394	CCUS1H102KC	CAP , CHIP	1000PF 50V K
C395	CCUS1H151JA	CAP , CHIP	150PF 50V J
C396	CCUS1H151JA	CAP , CHIP	150PF 50V J
C397	CCUS1H181JA	CAP , CHIP	180PF 50V J
C398	CCUS1H181JA	CAP , CHIP	180PF 50V J
C399	CCUS1H181JA	CAP , CHIP	180PF 50V J
C402	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C403	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C404	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C406	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C617	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C701	CCUS1H150JA	CAP , CHIP(15PF/50V)	15PF 50V J
C702	CCUS1H150JA	CAP , CHIP(15PF/50V)	15PF 50V J
C705	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C708	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C709	CCUS1H102KC	CAP , CHIP	1000PF 50V K
C711	CCUS1H102KC	CAP , CHIP	1000PF 50V K
C712	CCUS1H223KC	CAP , CHIP	0.022UF 50V K
C713	CCUS1H300JA	CAP , CHIP	
C714	CCUS1H270JA	CAP , CHIP	27PF 50V J
C718	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C722	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C723	CCUS1H473KC	CAP , CHIP	0.047UF 50V K
C725	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C727	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C729	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C731	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C733	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C734	CCUS1H102KC	CAP , CHIP	1000PF 50V K
C735	CCUS1H470JA	CAP , CHIP	47PF 50V J
C741	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C742	CCUS1H220JA	CAP , CHIP	22PF 50V J
C744	CCUS1H220JA	CAP , CHIP	22PF 50V J
C745	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C746	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C747	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C748	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C751	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C755	CCUS1H561JA	CAP , CHIP	560PF 50V J
C758	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C765	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C768	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C775	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C776	CCUS1H473KC	CAP , CHIP	0.047UF 50V K
C794	CCUS1H181JA	CAP , CHIP	180PF 50V J
C795	CCUS1H181JA	CAP , CHIP	180PF 50V J
C796	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C797	CCUS1H104KC	CAP , CHIP	0.1UF 50V K

INPUT PCB ASSY			
Ref. #	Part Number	Description	Value
C798	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C801	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C803	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C805	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C806	CCUS1H104KC	CAP , CHIP	0.1UF 50V K
C807	CCUS1H680JA	CAP , CHIP	68PF 50V J
D221	CVD1SS355T	DIODE , CHIP	
D222	CVD1SS355T	DIODE , CHIP	
D223	CVD1SS355T	DIODE , CHIP	
D224	CVD1SS355T	DIODE , CHIP	
D225	CVD1SS355T	DIODE , CHIP	
D226	CVD1SS355T	DIODE , CHIP	
D227	CVD1SS355T	DIODE , CHIP	
IC20	CVINJW1197CFC2	I.C , VOL WITH INPUT SELECTOR	NJW1197CFC2
IC21	HVINJM2068MDTE1	I.C , OP AMP	NJM2068MD-TE1
IC22	HVINJM2068MDTE1	I.C , OP AMP	NJM2068MD-TE1
IC23	HVINJM2068MDTE1	I.C , OP AMP	NJM2068MD-TE1
IC25	HVINJM2068MDTE1	I.C , OP AMP	NJM2068MD-TE1
IC31	HVINJM2068MDTE1	I.C , OP AMP	NJM2068MD-TE1
IC32	HVINJM2068MDTE1	I.C , OP AMP	NJM2068MD-TE1
IC33	HVINJM2068MDTE1	I.C , OP AMP	NJM2068MD-TE1
IC71	HVI74HCU04AFNG	I.C , INVERTER	TC74HCU04AFNG(TOSHIBA)
IC72	HVITC74HCU04AFN	IC , INVERTER	TC74HCU04AFN
IC73	HVIAK4589VQ-T	I.C , CODEC + DIR	AK4589VQ
IC74	HVILC72723M	IC , PLL (RDS)	
IC75	CVICS49510-CQ	I.C , DSP	
IC76	CVIANAM1487AT	I.C , FLASH ROM 8M (ES29LV800ET70TG,AVR139/230)	
IC76	CVIES29LV800ET70TG	IC , FLASH MEMORY (8Mbit)	ES29LV800ET-70TG/8M NOR FLASH
IC78	HVINJM2391DL133	I.C , CHIP REGULATOR (+3.3V)	
IC79	CVIKIA1117S18	I.C , REGULATOR(SOT-223)	KIA1117S/F18, SOT-223
IC87	HVIRH5VT28C	I.C , RESET	
IC88	CVIKIA1117S33	I.C , REGULATOR(SOT-223)	KIA1117S/F33, SOT-223
IC89	CVIM24C32WMN6TP	I.C , EEPROM (32 Kbit)	
IC90	CVIANAM1486AT	I.C , U-COM (T5CC1,AVR139/230)	
IC90	CVIT5CC1	I.C , FLASH U-COM	
IC91	HVI74ACT04MTR	I.C , HEX	
L701	CLZ9Z014Z	FERRITE , CHIP BEAD(60ohm, 4516)	HCB4516KF-600T60
L702	CLZ9Z014Z	FERRITE , CHIP BEAD(60ohm, 4516)	HCB4516KF-600T60
L703	CLZ9Z014Z	FERRITE , CHIP BEAD(60ohm, 4516)	HCB4516KF-600T60
L704	CLZ9R005Z	FERRITE , CHIP BEAD(60ohm, 1608)	HCB1608KF-600T30
L705	CLZ9R005Z	FERRITE , CHIP BEAD(60ohm, 1608)	HCB1608KF-600T30
Q301	HVTKTC2875B	TR , CHIP	KTC2875B
Q302	HVTKTC2875B	TR , CHIP	KTC2875B
Q303	HVTKTC2875B	TR , CHIP	KTC2875B
Q304	HVTKTC2875B	TR , CHIP	KTC2875B
Q305	HVTKTC2875B	TR , CHIP	KTC2875B
Q306	HVTKTC2875B	TR , CHIP	KTC2875B
Q307	HVTKTC2875B	TR , CHIP	KTC2875B
Q729	HVTKRC107S	T.R , CHIP	
Q730	HVTKRC107S	T.R , CHIP	
Q731	HVTKRC107S	T.R , CHIP	
Q732	HVTKRC107S	T.R , CHIP	
Q901	HVTKRC107S	T.R , CHIP	
Q902	HVTKRA107S	TR, CHIP	
Q903	HVTKRC107S	T.R , CHIP	
Q904	HVTKRA107S	TR, CHIP	
RN62	CRJ104DJ103T	RES, ARRAY, 10K (1608)	10K(1608)
RN63	CRJ104DJ103T	RES, ARRAY, 10K (1608)	10K(1608)
RN64	CRJ104DJ101T	RES , CHIP NETWORK(1/16W, 100ohm, 1608X4)	100R (1608)
RN65	CRJ104DJ101T	RES , CHIP NETWORK(1/16W, 100ohm, 1608X4)	100R (1608)
RN66	CRJ104DJ101T	RES , CHIP NETWORK(1/16W, 100ohm, 1608X4)	100R (1608)
RN71	CRJ104DJ103T	RES, ARRAY, 10K (1608)	10K(1608)
RN72	CRJ104DJ103T	RES, ARRAY, 10K (1608)	10K(1608)
RN73	CRJ104DJ103T	RES, ARRAY, 10K (1608)	10K(1608)
RN74	CRJ104DJ330T	RES , 4ARRAY (1608*4)	33 OHM/1608*4
RN75	CRJ104DJ330T	RES , 4ARRAY (1608*4)	33 OHM/1608*4
RN76	CRJ104DJ330T	RES , 4ARRAY (1608*4)	33 OHM/1608*4
RN77	CRJ104DJ330T	RES , 4ARRAY (1608*4)	33 OHM/1608*4
RN78	CRJ104DJ330T	RES , 4ARRAY (1608*4)	33 OHM/1608*4
RN79	CRJ104DJ330T	RES , 4ARRAY (1608*4)	33 OHM/1608*4
RN80	CRJ104DJ330T	RES , 4ARRAY (1608*4)	33 OHM/1608*4
RN81	CRJ104DJ330T	RES , 4ARRAY (1608*4)	33 OHM/1608*4
RN82	CRJ104DJ330T	RES , 4ARRAY (1608*4)	33 OHM/1608*4
RN83	CRJ104DJ330T	RES , 4ARRAY (1608*4)	33 OHM/1608*4
RN84	CRJ104DJ330T	RES , 4ARRAY (1608*4)	33 OHM/1608*4
RN85	CRJ104DJ330T	RES , 4ARRAY (1608*4)	33 OHM/1608*4
RN86	CRJ104DJ103T	RES, ARRAY, 10K (1608)	10K(1608)
RN87	CRJ104DJ330T	RES , 4ARRAY (1608*4)	33 OHM/1608*4
RN88	CRJ104DJ103T	RES, ARRAY, 10K (1608)	10K(1608)
RN89	CRJ104DJ103T	RES, ARRAY, 10K (1608)	10K(1608)
RN90	CRJ104DJ330T	RES , 4ARRAY (1608*4)	33 OHM/1608*4
RN91	CRJ104DJ330T	RES , 4ARRAY (1608*4)	33 OHM/1608*4
RN92	CRJ104DJ101T	RES , CHIP NETWORK(1/16W, 100ohm, 1608X4)	100R (1608)
R201	CRJ10DJ221T	RES , CHIP	1608 SIZE
R202	CRJ10DJ221T	RES , CHIP	1608 SIZE
R203	CRJ10DJ221T	RES , CHIP	1608 SIZE

INPUT PCB ASSY			
Ref. #	Part Number	Description	Value
R204	CRJ10DJ221T	RES , CHIP	1608 SIZE
R205	CRJ10DJ221T	RES , CHIP	1608 SIZE
R206	CRJ10DJ221T	RES , CHIP	1608 SIZE
R209	CRJ10DJ221T	RES , CHIP	1608 SIZE
R210	CRJ10DJ221T	RES , CHIP	1608 SIZE
R211	CRJ10DJ221T	RES , CHIP	1608 SIZE
R212	CRJ10DJ221T	RES , CHIP	1608 SIZE
R213	CRJ10DJ221T	RES , CHIP	1608 SIZE
R214	CRJ10DJ221T	RES , CHIP	1608 SIZE
R215	CRJ10DJ221T	RES , CHIP	1608 SIZE
R216	CRJ10DJ221T	RES , CHIP	1608 SIZE
R219	CRJ10DJ221T	RES , CHIP	1608 SIZE
R220	CRJ10DJ221T	RES , CHIP	1608 SIZE
R221	CRJ10DJ221T	RES , CHIP	1608 SIZE
R222	CRJ10DJ221T	RES , CHIP	1608 SIZE
R223	CRJ10DJ221T	RES , CHIP	1608 SIZE
R224	CRJ10DJ272T	RES , CHIP	1608 SIZE
R227	CRJ10DJ104T	RES , CHIP	1608 SIZE
R228	CRJ10DJ104T	RES , CHIP	1608 SIZE
R229	CRJ10DJ104T	RES , CHIP	1608 SIZE
R230	CRJ10DJ104T	RES , CHIP	1608 SIZE
R231	CRJ10DJ104T	RES , CHIP	1608 SIZE
R232	CRJ10DJ104T	RES , CHIP	1608 SIZE
R235	CRJ10DJ104T	RES , CHIP	1608 SIZE
R236	CRJ10DJ104T	RES , CHIP	1608 SIZE
R237	CRJ10DJ104T	RES , CHIP	1608 SIZE
R238	CRJ10DJ104T	RES , CHIP	1608 SIZE
R239	CRJ10DJ104T	RES , CHIP	1608 SIZE
R240	CRJ10DJ104T	RES , CHIP	1608 SIZE
R241	CRJ10DJ104T	RES , CHIP	1608 SIZE
R242	CRJ10DJ104T	RES , CHIP	1608 SIZE
R245	CRJ10DJ104T	RES , CHIP	1608 SIZE
R246	CRJ10DJ104T	RES , CHIP	1608 SIZE
R247	CRJ10DJ104T	RES , CHIP	1608 SIZE
R248	CRJ10DJ104T	RES , CHIP	1608 SIZE
R249	CRJ10DJ104T	RES , CHIP	1608 SIZE
R250	CRJ10DJ103T	RES , CHIP	1608 SIZE
R261	CRJ10DJ184T	RES , CHIP	1608 SIZE
R262	CRJ10DJ184T	RES , CHIP	1608 SIZE
R263	CRJ10DJ184T	RES , CHIP	1608 SIZE
R264	CRJ10DJ184T	RES , CHIP	1608 SIZE
R265	CRJ10DJ184T	RES , CHIP	1608 SIZE
R266	CRJ10DJ184T	RES , CHIP	1608 SIZE
R271	CRJ10DJ242T	RES , CHIP	1608 SIZE
R272	CRJ10DJ242T	RES , CHIP	1608 SIZE
R273	CRJ10DJ242T	RES , CHIP	1608 SIZE
R274	CRJ10DJ222T	RES , CHIP	1608 SIZE
R275	CRJ10DJ242T	RES , CHIP	1608 SIZE
R276	CRJ10DJ242T	RES , CHIP	1608 SIZE
R281	CRJ10DJ512T	RES , CHIP	1608 SIZE
R282	CRJ10DJ512T	RES , CHIP	1608 SIZE
R283	CRJ10DJ512T	RES , CHIP	1608 SIZE
R284	CRJ10DJ103T	RES , CHIP	1608 SIZE
R285	CRJ10DJ512T	RES , CHIP	1608 SIZE
R286	CRJ10DJ512T	RES , CHIP	1608 SIZE
R291	CRJ10DJ184T	RES , CHIP	1608 SIZE
R292	CRJ10DJ184T	RES , CHIP	1608 SIZE
R293	CRJ10DJ184T	RES , CHIP	1608 SIZE
R294	CRJ10DJ184T	RES , CHIP	1608 SIZE
R295	CRJ10DJ184T	RES , CHIP	1608 SIZE
R296	CRJ10DJ184T	RES , CHIP	1608 SIZE
R301	CRJ10DJ332T	RES , CHIP	1608 SIZE
R302	CRJ10DJ332T	RES , CHIP	1608 SIZE
R303	CRJ10DJ332T	RES , CHIP	1608 SIZE
R304	CRJ10DJ332T	RES , CHIP	1608 SIZE
R305	CRJ10DJ332T	RES , CHIP	1608 SIZE
R306	CRJ10DJ332T	RES , CHIP	1608 SIZE
R307	CRJ10DJ332T	RES , CHIP	1608 SIZE
R308	CRJ10DJ332T	RES , CHIP	1608 SIZE
R309	CRJ10DJ332T	RES , CHIP	1608 SIZE
R310	CRJ10DJ332T	RES , CHIP	1608 SIZE
R311	CRJ10DJ332T	RES , CHIP	1608 SIZE
R312	CRJ10DJ332T	RES , CHIP	1608 SIZE
R317	CRJ10DJ561T	RES , CHIP	
R318	CRJ10DJ392T	RES , CHIP	
R321	CRJ10DJ512T	RES , CHIP	1608 SIZE
R322	CRJ10DJ122T	RES , CHIP	1608 SIZE
R323	CRJ10DJ122T	RES , CHIP	1608 SIZE
R324	CRJ10DJ512T	RES , CHIP	1608 SIZE
R325	CRJ10DJ512T	RES , CHIP	1608 SIZE
R326	CRJ10DJ122T	RES , CHIP	1608 SIZE
R327	CRJ10DJ122T	RES , CHIP	1608 SIZE
R328	CRJ10DJ103T	RES , CHIP	1608 SIZE
R329	CRJ10DJ512T	RES , CHIP	1608 SIZE
R330	CRJ10DJ122T	RES , CHIP	1608 SIZE
R331	CRJ10DJ122T	RES , CHIP	1608 SIZE

INPUT PCB ASSY			
Ref. #	Part Number	Description	Value
R332	CRJ10DJ512T	RES , CHIP	1608 SIZE
R341	CRJ10DJ122T	RES , CHIP	1608 SIZE
R344	CRJ10DJ122T	RES , CHIP	1608 SIZE
R345	CRJ10DJ122T	RES , CHIP	1608 SIZE
R348	CRJ10DJ122T	RES , CHIP	1608 SIZE
R349	CRJ10DJ122T	RES , CHIP	1608 SIZE
R352	CRJ10DJ122T	RES , CHIP	1608 SIZE
R361	CRJ10DJ104T	RES , CHIP	1608 SIZE
R362	CRJ10DJ104T	RES , CHIP	1608 SIZE
R363	CRJ10DJ104T	RES , CHIP	1608 SIZE
R364	CRJ10DJ104T	RES , CHIP	1608 SIZE
R365	CRJ10DJ104T	RES , CHIP	1608 SIZE
R366	CRJ10DJ104T	RES , CHIP	1608 SIZE
R371	CRJ10DJ512T	RES , CHIP	1608 SIZE
R372	CRJ10DJ512T	RES , CHIP	1608 SIZE
R373	CRJ10DJ512T	RES , CHIP	1608 SIZE
R374	CRJ10DJ103T	RES , CHIP	1608 SIZE
R375	CRJ10DJ512T	RES , CHIP	1608 SIZE
R376	CRJ10DJ512T	RES , CHIP	1608 SIZE
R381	CRJ10DJ561T	RES , CHIP	
R382	CRJ10DJ561T	RES , CHIP	
R383	CRJ10DJ561T	RES , CHIP	
R384	CRJ10DJ561T	RES , CHIP	
R385	CRJ10DJ561T	RES , CHIP	
R386	CRJ10DJ561T	RES , CHIP	
R389	CRJ10DJ184T	RES , CHIP	1608 SIZE
R390	CRJ10DJ184T	RES , CHIP	1608 SIZE
R391	CRJ10DJ392T	RES , CHIP	
R392	CRJ10DJ392T	RES , CHIP	
R393	CRJ10DJ392T	RES , CHIP	
R394	CRJ10DJ392T	RES , CHIP	
R395	CRJ10DJ392T	RES , CHIP	
R396	CRJ10DJ392T	RES , CHIP	
R701	CRJ10DJ103T	RES , CHIP	1608 SIZE
R702	CRJ10DJ103T	RES , CHIP	1608 SIZE
R703	CRJ10DJ103T	RES , CHIP	1608 SIZE
R704	CRJ10DJ330T	RES , CHIP	1608 SIZE
R705	CRJ10DJ330T	RES , CHIP	1608 SIZE
R706	CRJ10DJ222T	RES , CHIP	1608 SIZE
R707	CRJ10DJ222T	RES , CHIP	1608 SIZE
R708	CRJ10DJ101T	RES , CHIP	1608 SIZE
R709	CRJ10DJ103T	RES , CHIP	1608 SIZE
R710	CRJ10DJ103T	RES , CHIP	1608 SIZE
R711	CRJ10DJ103T	RES , CHIP	1608 SIZE
R713	CRJ10DJ330T	RES , CHIP	1608 SIZE
R714	CRJ10DJ104T	RES , CHIP	1608 SIZE
R715	CRJ10DJ104T	RES , CHIP	1608 SIZE
R716	CRJ10DJ472T	RES , CHIP	1608 SIZE
R717	CRJ10DJ3R3T	RES , CHIP	
R718	CRJ10DJ123T	RES , CHIP	1608 SIZE
R719	CRJ10DJ473T	RES , CHIP	1608 SIZE
R720	CRJ10DJ473T	RES , CHIP	1608 SIZE
R721	CRJ10DJ330T	RES , CHIP	1608 SIZE
R722	CRJ10DJ330T	RES , CHIP	1608 SIZE
R724	CRJ10DJ101T	RES , CHIP	1608 SIZE
R725	CRJ10DJ473T	RES , CHIP	1608 SIZE
R726	CRJ10DJ473T	RES , CHIP	1608 SIZE
R728	CRJ10DJ102T	RES , CHIP	1608 SIZE
R731	CRJ10DJ330T	RES , CHIP	1608 SIZE
R732	CRJ10DJ330T	RES , CHIP	1608 SIZE
R733	CRJ10DJ100T	RES , CHIP	1608 SIZE
R734	CRJ10DJ330T	RES , CHIP	1608 SIZE
R735	CRJ10DJ104T	RES , CHIP	1608 SIZE
R736	CRJ10DJ241T	RES , CHIP	
R737	CRJ10DJ330T	RES , CHIP	1608 SIZE
R738	CRJ10DJ330T	RES , CHIP	1608 SIZE
R741	CRJ10DJ330T	RES , CHIP	1608 SIZE
R742	CRJ10DJ330T	RES , CHIP	1608 SIZE
R743	CRJ10DJ330T	RES , CHIP	1608 SIZE
R744	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R745	CRJ10DJ330T	RES , CHIP	1608 SIZE
R746	CRJ10DJ330T	RES , CHIP	1608 SIZE
R747	CRJ10DJ330T	RES , CHIP	1608 SIZE
R748	CRJ10DJ330T	RES , CHIP	1608 SIZE
R749	CRJ10DJ330T	RES , CHIP	1608 SIZE
R750	CRJ10DJ330T	RES , CHIP	1608 SIZE
R751	CRJ10DJ330T	RES , CHIP	1608 SIZE
R752	CRJ10DJ330T	RES , CHIP	1608 SIZE
R753	CRJ10DJ103T	RES , CHIP	1608 SIZE
R754	CRJ10DJ103T	RES , CHIP	1608 SIZE
R755	CRJ10DJ750T	RES , CHIP	1608 SIZE
R756	CRJ10DJ103T	RES , CHIP	1608 SIZE
R757	CRJ10DJ750T	RES , CHIP	1608 SIZE
R758	CRJ10DJ103T	RES , CHIP	1608 SIZE
R759	CRJ10DJ330T	RES , CHIP	1608 SIZE
R760	CRJ10DJ105T	RES , CHIP	1608 SIZE

INPUT PCB ASSY			
Ref. #	Part Number	Description	Value
R761	CRJ10DJ104T	RES , CHIP	1608 SIZE
R762	CRJ10DJ104T	RES , CHIP	1608 SIZE
R763	CRJ10DJ472T	RES , CHIP	1608 SIZE
R764	CRJ10DJ472T	RES , CHIP	1608 SIZE
R765	CRJ10DJ103T	RES , CHIP	1608 SIZE
R766	CRJ10DJ103T	RES , CHIP	1608 SIZE
R767	CRJ10DJ301T	RES , CHIP	1608
R768	CRJ10DJ562T	RES , CHIP	1608 SIZE
R769	CRJ10DJ330T	RES , CHIP	1608 SIZE
R770	CRJ10DJ330T	RES , CHIP	1608 SIZE
R771	CRJ10DJ0R0T	RES , CHIP	1608 SIZE
R773	CRJ10DJ332T	RES , CHIP	1608 SIZE
R774	CRJ10DJ332T	RES , CHIP	1608 SIZE
R775	CRJ10DJ332T	RES , CHIP	1608 SIZE
R776	CRJ10DJ332T	RES , CHIP	1608 SIZE
R777	CRJ10DJ102T	RES , CHIP	1608 SIZE
R778	CRJ10DJ103T	RES , CHIP	1608 SIZE
R779	CRJ10DJ102T	RES , CHIP	1608 SIZE
R780	CRJ10DJ102T	RES , CHIP	1608 SIZE
R781	CRJ10DJ750T	RES , CHIP	1608 SIZE
R782	CRJ10DJ272T	RES , CHIP	1608 SIZE
R783	CRJ10DJ272T	RES , CHIP	1608 SIZE
R784	CRJ10DJ473T	RES , CHIP	1608 SIZE
R785	CRJ10DJ104T	RES , CHIP	1608 SIZE
R786	CRJ10DJ471T	RES , CHIP	1608 SIZE
R787	CRJ10DJ101T	RES , CHIP	1608 SIZE
R789	CRJ10DJ103T	RES , CHIP	1608 SIZE
R790	CRJ10DJ103T	RES , CHIP	1608 SIZE
R791	CRJ10DJ101T	RES , CHIP	1608 SIZE
R793	CRJ10DJ103T	RES , CHIP	1608 SIZE
R794	CRJ10DJ102T	RES , CHIP	1608 SIZE
R795	CRJ10DJ102T	RES , CHIP	1608 SIZE
R796	CRJ10DJ102T	RES , CHIP	1608 SIZE
R799	CRJ10DJ102T	RES , CHIP	1608 SIZE
R800	CRJ10DJ102T	RES , CHIP	1608 SIZE
R801	CRJ10DJ105T	RES , CHIP	1608 SIZE
R802	CRJ10DJ100T	RES , CHIP	1608 SIZE
R803	CRJ10DJ101T	RES , CHIP	1608 SIZE
R804	CRJ10DJ103T	RES , CHIP	1608 SIZE
R805	CRJ10DJ330T	RES , CHIP	1608 SIZE
R910	CRJ10DJ105T	RES , CHIP	1608 SIZE
R932	CRJ10DJ103T	RES , CHIP	1608 SIZE
R960	CRJ10DJ332T	RES , CHIP	1608 SIZE
R963	CRJ10DJ105T	RES , CHIP	1608 SIZE
R966	CRJ10DJ472T	RES , CHIP	1608 SIZE
R992	CRJ10DJ562T	RES , CHIP	1608 SIZE
X702	HOX27000E180S	CRYSTAL , CHIP(27MHZ,SMD)	HC-49/US
C261	CCEA1EH470T	CAP , ELECT	47UF 25V
C262	CCEA1EH470T	CAP , ELECT	47UF 25V
C263	CCEA1EH470T	CAP , ELECT	47UF 25V
C264	CCEA1EH470T	CAP , ELECT	47UF 25V
C265	CCEA1EH470T	CAP , ELECT	47UF 25V
C266	CCEA1EH470T	CAP , ELECT	47UF 25V
C267	CCEA1EH470T	CAP , ELECT	47UF 25V
C268	CCEA1EH470T	CAP , ELECT	47UF 25V
C272	CCEA1HH100T	CAP , ELECT	10UF 50V
C273	CCEA1HH100T	CAP , ELECT	10UF 50V
C275	CCEA1HH100T	CAP , ELECT	10UF 50V
C276	CCEA1HH100T	CAP , ELECT	10UF 50V
C281	CCEA1HH100T	CAP , ELECT	10UF 50V
C282	CCEA1HH100T	CAP , ELECT	10UF 50V
C283	CCEA1HH100T	CAP , ELECT	10UF 50V
C284	CCEA1HH100T	CAP , ELECT	10UF 50V
C285	CCEA1HH100T	CAP , ELECT	10UF 50V
C286	CCEA1HH100T	CAP , ELECT	10UF 50V
C292	CCEA1CH101T	CAP , ELECT	100UF 16V
C294	CCEA1CH101T	CAP , ELECT	100UF 16V
C341	CCEA1HH100T	CAP , ELECT	10UF 50V
C342	CCEA1HH100T	CAP , ELECT	10UF 50V
C343	CCEA1HH100T	CAP , ELECT	10UF 50V
C344	CCEA1HH100T	CAP , ELECT	10UF 50V
C345	CCEA1HH100T	CAP , ELECT	10UF 50V
C346	CCEA1HH100T	CAP , ELECT	10UF 50V
C358	CCEA1CH101T	CAP , ELECT	100UF 16V
C360	CCEA1CH101T	CAP , ELECT	100UF 16V
C371	CCEA1HH100T	CAP , ELECT	10UF 50V
C372	CCEA1HH100T	CAP , ELECT	10UF 50V
C373	CCEA1HH100T	CAP , ELECT	10UF 50V
C374	CCEA1HH100T	CAP , ELECT	10UF 50V
C375	CCEA1HH100T	CAP , ELECT	10UF 50V
C376	CCEA1HH100T	CAP , ELECT	10UF 50V
C389	CCEA1HH100T	CAP , ELECT	10UF 50V
C390	CCEA1HH100T	CAP , ELECT	10UF 50V
C600	CCEA1CH101T	CAP , ELECT	100UF 16V
C602	CCEA1CH101T	CAP , ELECT	100UF 16V
C604	CCEA1CH101T	CAP , ELECT	100UF 16V

INPUT PCB ASSY			
Ref. #	Part Number	Description	Value
C606	CCEA1CH101T	CAP , ELECT	100UF 16V
C608	CCEA1CH101T	CAP , ELECT	100UF 16V
C610	CCEA1CH101T	CAP , ELECT	100UF 16V
C612	CCEA1CH101T	CAP , ELECT	100UF 16V
C614	CCEA1CH101T	CAP , ELECT	100UF 16V
C616	CCEA1CH101T	CAP , ELECT	100UF 16V
C618	CCEA1CH101T	CAP , ELECT	100UF 16V
C620	CCEA1CH101T	CAP , ELECT	100UF 16V
C622	CCEA1CH101T	CAP , ELECT	100UF 16V
C624	CCEA1CH101T	CAP , ELECT	100UF 16V
C626	CCEA1CH101T	CAP , ELECT	100UF 16V
C628	CCEA1CH101T	CAP , ELECT	100UF 16V
C630	CCEA1CH101T	CAP , ELECT	100UF 16V
C703	CCEA1CH101T	CAP , ELECT	100UF 16V
C706	CCEA1CH101T	CAP , ELECT	100UF 16V
C717	CCEA1CH101T	CAP , ELECT	100UF 16V
C720	CCEA1AH471T	CAP , ELECT	470UF 10V
C721	CCEA1AH471T	CAP , ELECT	470UF 10V
C724	CCEA1AH471T	CAP , ELECT	470UF 10V
C726	CCEA1CH101T	CAP , ELECT	100UF 16V
C728	CCEA1AH471T	CAP , ELECT	470UF 10V
C730	CCEA1CH101T	CAP , ELECT	100UF 16V
C736	CCEA1HH2R2T	CAP , ELECT	2.2UF 50V
C737	CCEA1CH101T	CAP , ELECT	100UF 16V
C740	CCEA1CH101T	CAP , ELECT	100UF 16V
C749	CCEA1CH101T	CAP , ELECT	100UF 16V
C764	CCEA0JH102T	CAP , ELECT	1000UF 6.3V
C766	CCEA0JH102T	CAP , ELECT	1000UF 6.3V
C767	CCEA1CKS100T	CAP , ELECT	10UF 16V
C774	CCEA1CH101T	CAP , ELECT	100UF 16V
C802	CCEA1HH100T	CAP , ELECT	10UF 50V
D704	CVD1N4003SRT	DIODE , RECT	1N4003
IC36	HVIKA78L08AZT	I.C , REGULATOR (+8V)	KA78LXXAZTA
IC37	HVIKA79L08AZT	REGULATOR , -8V	KA79LXXAZTA
CN10	CJP09GA01ZY	CON WAFER YMW025-09R	
CN12	CJP27GA41ZM	WAFER (1.25MM, CARD CABLE, STRAIGHT 27P)	MOLEX 52045-**45
CN13	CJP13GA115ZY	WAFER , CARD CABLE	
CN14	CJP11GA115ZY	WAFER(11P, ST 1.25MM)	
CN17	CJP06GB142ZB	PIN HEADER(6P, 2.54mm)	
CN19	CJP07GA117ZY	WAFER	
CN20	CJP07GA01ZY	WAFER , STRAIGHT(7PIN)	
CN72	CJP31GA41ZM	WAFER (1.25MM, CARD CABLE, STRAIGHT 31P)	MOLEX 52045-**45
C732	CCEA0JKR3222E	CAP , ELECT	
D703	CVD1N4003ST	DIODE , RECT	1N4003
JK11	CJJ4R019W	TERMINAL , IN/OUT	
JK12	CJJ4P014W	JACK , IN/OUT	
JK13	CJJ4R019W	TERMINAL , IN/OUT	
JK14	CJJ4P043W	JACK IN/OUT	
JK78	CJJ4S022Z	JACK , BOARD	
X701	H0X24576E150TF	CRYSTAL	24.576MHZ
X703	H0X04332E200C	CRYSTAL	
VIDEO PCB ASSY			
Ref. #	Part Number	Description	Value
	COP12188B	AVR139/230 VIDEO PCB ASSY	
C101	CCFT1H473ZF	CAP , CERAMIC	0.047UF 50V Z
C102	CCFT1H473ZF	CAP , CERAMIC	0.047UF 50V Z
C103	CCFT1H473ZF	CAP , CERAMIC	0.047UF 50V Z
C104	HCQ11H103JZT	CAP , MYLAR	0.01UF 50V J
C105	HCQ11H103JZT	CAP , MYLAR	0.01UF 50V J
C106	HCQ11H104JZT	CAP , MYLAR	0.1UF 50V J
C107	HCQ11H103JZT	CAP , MYLAR	0.01UF 50V J
C108	HCQ11H103JZT	CAP , MYLAR	0.01UF 50V J
C109	HCQ11H104JZT	CAP , MYLAR	0.1UF 50V J
C110	CCEA1HH4R7T	CAP , ELECT	4.7UF 50V
C117	CCEA1HH4R7T	CAP , ELECT	4.7UF 50V
C118	CCBS1H103ZFT	CAP , CERAMIC	0.01UF 50V Z
C119	CCEA1JH470TS	CAP , ELECT	63V/47UF/105C
C120	CCEA1JH470TS	CAP , ELECT	63V/47UF/105C
C121	CCBS1H103ZFT	CAP , CERAMIC	0.01UF 50V Z
C122	CCEA2AH101E	CAP , ELECT	
C401	CCBS1H101KBT	CAP , CERAMIC(100PF/50V)	CH UP025 B101K-A-B Z
C402	CCBS1H101KBT	CAP , CERAMIC(100PF/50V)	CH UP025 B101K-A-B Z
C403	CCEA1HH100T	CAP , ELECT	10UF 50V
C404	CCEA1HH100T	CAP , ELECT	10UF 50V
C405	CCEA1HH100T	CAP , ELECT	10UF 50V
C406	CCBS1H223ZFT	CAP , CERAMIC(22000PF/50V)	CH UP025 F223Z-A-B J
C407	CCEA1CH101T	CAP , ELECT	100UF 16V
C408	CCBS1H223ZFT	CAP , CERAMIC(22000PF/50V)	CH UP025 F223Z-A-B J
C409	CCEA1CH101T	CAP , ELECT	100UF 16V
C410	CCBS1H101KBT	CAP , CERAMIC(100PF/50V)	CH UP025 B101K-A-B Z
C411	CCBS1H101KBT	CAP , CERAMIC(100PF/50V)	CH UP025 B101K-A-B Z
C412	CCBS1H101KBT	CAP , CERAMIC(100PF/50V)	CH UP025 B101K-A-B Z
C601	CCBS1H220JCT	CAP , CERAMIC(22PF/50V)	CH UP025CH220J-A-B Z
C602	CCEA0JH102T	CAP , ELECT	1000UF 6.3V

VIDEO PCB ASSY			
Ref. #	Part Number	Description	Value
C603	CCBS1H220JCT	CAP , CERAMIC(22PF/50V)	CH UP025CH220J-A-B Z
C604	CCEA0JH102T	CAP , ELECT	1000UF 6.3V
C605	CCBS1H220JCT	CAP , CERAMIC(22PF/50V)	CH UP025CH220J-A-B Z
C606	CCEA0JH102T	CAP , ELECT	1000UF 6.3V
C607	CCBS1H220JCT	CAP , CERAMIC(22PF/50V)	CH UP025CH220J-A-B Z
C608	CCEA1HH100T	CAP , ELECT	10UF 50V
C609	CCBS1H220JCT	CAP , CERAMIC(22PF/50V)	CH UP025CH220J-A-B Z
C610	CCEA1HH100T	CAP , ELECT	10UF 50V
C611	CCBS1H220JCT	CAP , CERAMIC(22PF/50V)	CH UP025CH220J-A-B Z
C612	CCEA1HH100T	CAP , ELECT	10UF 50V
C613	CCBS1H220JCT	CAP , CERAMIC(22PF/50V)	CH UP025CH220J-A-B Z
C614	CCEA1HH100T	CAP , ELECT	10UF 50V
C615	CCBS1H220JCT	CAP , CERAMIC(22PF/50V)	CH UP025CH220J-A-B Z
C616	CCEA1HH100T	CAP , ELECT	10UF 50V
C617	CCBS1H220JCT	CAP , CERAMIC(22PF/50V)	CH UP025CH220J-A-B Z
C618	CCEA1HH100T	CAP , ELECT	10UF 50V
C619	CCEA1CH101T	CAP , ELECT	100UF 16V
C620	CCBS1H104ZFT	CAP , CERAMIC	0.1UF 50V Z
C621	CCEA1HH100T	CAP , ELECT	10UF 50V
C623	CCBS1H223ZFT	CAP , CERAMIC(22000PF/50V)	CH UP025 F223Z-A-B J
C624	CCEA1CH101T	CAP , ELECT	100UF 16V
D101	HVDMTZJ5.1BT	DIODE , ZENER	MTZJ5.1B 1/2W
D102	HVDMTZJ27BT	DIODE , ZENER	MTZJ27B 1/2W
D105	CVD1N4003ST	DIODE , RECT	1N4003
D106	CVD1N4003ST	DIODE , RECT	1N4003
D108	CVD1N4003ST	DIODE , RECT	1N4003
D109	CVDZJ6.8BT	DIODE , ZENER	ZJ6.8B 1/2W
D110	CVDZJ6.8BT	DIODE , ZENER	ZJ6.8B 1/2W
D111	CVD1N4003ST	DIODE , RECT	1N4003
D112	CVD1N4003ST	DIODE , RECT	1N4003
D113	CVD1N4003ST	DIODE , RECT	1N4003
D114	CVD1N4003ST	DIODE , RECT	1N4003
D401	CVDZJ5.1BT	DIODE , ZENER	ZJ5.1B 1/2W
D402	CVDZJ5.1BT	DIODE , ZENER	ZJ5.1B 1/2W
Q104	CVTKTC1027YT	T.R	
R101	CRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J
R108	CRD20TJ100T	RES , CARBON	10 OHM 1/5W J
R109	CRD20TJ100T	RES , CARBON	10 OHM 1/5W J
R110	CRD20TJ100T	RES , CARBON	10 OHM 1/5W J
R111	CRD20TJ103T	RES , CARBON	10K OHM 1/5W J
R112	CRD20TJ122T	RES , CARBON	1.2K OHM 1/5W J
R113	CRD20TJ473T	RES , CARBON	47K OHM 1/5W J
R121	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J
R122	CRD20TJ104T	RES , CARBON	100K OHM 1/5W J
R401	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J
R402	CRD25TJ101T	RES , CARBON	
R403	CRD25TJ101T	RES , CARBON	
R411	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J
R421	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J
R451	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J
R461	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R491	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J
R601	CRD20TJ680T	RES , CARBON	68 OHM 1/5W J
R602	CRD20TJ101T	RES , CARBON	100 OHM 1/5W J
R603	CRD20TJ560T	RES , CARBON	56 OHM 1/5W J
R604	CRD20TJ101T	RES , CARBON	100 OHM 1/5W J
R605	CRD20TJ620T	RES , CARBON	1/5W 62 OHM
R611	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J
R613	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J
R615	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J
R621	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J
R623	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J
R625	CRD20TJ750T	RES , CARBON	75 OHM 1/5W J
R674	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
R675	CRD20TJ102T	RES , CARBON	1K OHM 1/5W J
BN14	CJP11GA115ZY	WAFER(11P, ST 1.25MM)	
BN96	CWB1C009280BM	WIRE ASS'Y (9P,2.5MM,280MM)	
CN13	CJP05GA01ZY	WAFER(YMW025-05R)	
CN45	CJP07GA117ZY	WAFER	
CN81	CJP07GA01ZY	WAFER , STRAIGHT(7PIN)	
D103	HVD2A04H	DIODE , RECT(2A)	
D104	HVD2A04H	DIODE , RECT(2A)	
IC41	CVINJM2595MTE1	I.C , VIDEO S/W	
IC61	CVINJW1321FP1	I.C , VIDEO S/W	
IC62	HVIKIA7809API	I.C , REGULATOR +9V	KIA7809 (KEC)
JK10	CJJ4S010Z	JACK , BOARD	
JK12	CJJ4N043Z	JACK , BOARD	
JK13	CJJ4R045Z	JACK , BOARD	
JK14	CJJ4S030Z	JACK , BOARD	3P,G/B/R,SILVER
R104	CRQ1AJR47H	RES , FUSE	
R105	CRQ1AJR47H	RES , FUSE	
R106	CRQ1AJR33H	RES , FUSE	
R107	CRQ1AJR33H	RES , FUSE	

VIDEO PCB ASSY			
Ref. #	Part Number	Description	Value
	COP12189B	AVR139/230 GUIDE PCB ASS'Y	
CN50	CJP06GB142ZB	PIN HEADER(6P, 2.54mm)	
CN51	CJP06GB142ZB	PIN HEADER(6P, 2.54mm)	
CN60	CJP06GB142ZB	PIN HEADER(6P, 2.54mm)	
CN61	CJP06GB142ZB	PIN HEADER(6P, 2.54mm)	

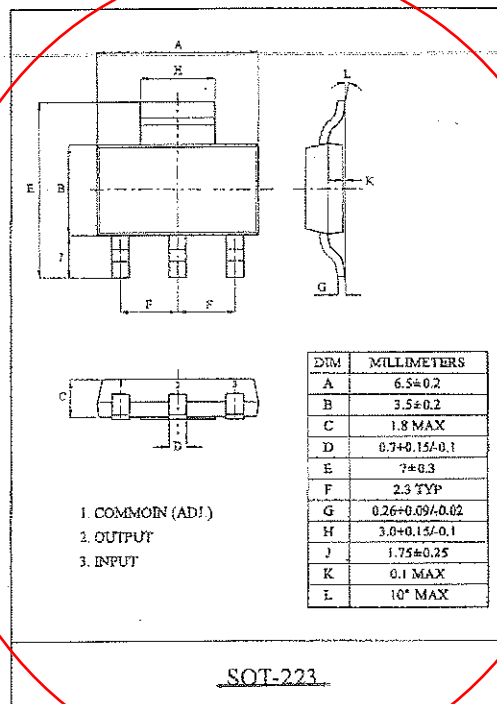
AVR139/230, AVR141/230, AVR142/230 IC List						
						2009.04.22
No.	PCB Name	Ref. #	Part No.(Makers)	Part No.(ANAM)	Description	Makers
1	COP12185B (Front PCB Ass'y)	IC73	NJL34H380A	HRVNJL34H380A	INFRARED REMOTE CONTROL RECEIVER	JRC
2	"	IC75	74ACT04MTR	HVI74ACT04MTR	HEX INVERTER	ST
3	"	IC76	74HCU04AFNG	HVI74HCU04AFNG	HEX INVERTER	TOSHIBA
4	"	IC86	NJM4556AL	HVINJM4556AL	DUAL HIGH CURRENT OPERATIONAL AMPLIFIER	JRC
5	"	FIP1	162-BD-01GINK	CFL162BD01GINK	VACUUM FLUORESCENT DISPLAY TUBE	FUTABA
No.	PCB Name	Ref. #	Part No.(Makers)	Part No.(ANAM)	Description	Makers
1	COP12186B (Main PCB Ass'y)	IC89	KIA278R05PI	HVIA278R05PI	4 TERMINAL 2A OUTPUT LOW DROP VOLTAGE REGULATOR	KEC
2	"	IC90	KIA278R15PI	CVIKIA278R15PI	4 TERMINAL 2A OUTPUT LOW DROP VOLTAGE REGULATOR	KEC
3	"	IC91	KIA7915PI	CVIKIA7915PI	1A THREE TERMINAL NEGATIVE VOLTAGE REGULATOR	KEC
4	"	IC94	KIA1117PI50	CVIKIA1117PI50	LOW DROP FIXED AND ADJUSTABLE POSITIVE VOLTAGE REGULATOR	KEC
5	"	IC97	RE5VT28CATZ	HVIRE5VT28CATZ	LOW VOLTAGE DETECTOR	RICOH
6	"	Q653	2SB1559	CVT2SB1559P47M	Silicon PNP Epitaxial Planar Transistor	SANKEN
7	"	Q659	2SD2389	CVT2SD2389P47M	Silicon NPN Triple Diffused Planar Transistor	SANKEN
8	"	Q852	KD600K	HVTKD600KGR	EPITAXIAL PLANAR NPN TRANSISTOR	KEC
No.	PCB Name	Ref. #	Part No.(Makers)	Part No.(ANAM)	Description	Makers
1	COP12187B (Input PCB Ass'y)	IC20	NJW1197C	CVINJW1197CFC2	8-CHANNEL ELECTRONIC VOLUME WITH INPUT SELECTOR	JRC
2	"	IC21~IC33	NJM2068M	HVINJM2068MDTE1	LOW NOISE DUAL OPERATIONAL AMPLIFIER	JRC
3	"	IC36	KA78L08AZ	HVIA78L08AZT	3-Terminal 0.1A Positive Voltage Regulator	FAIRCHILD
4	"	IC37	KA79L08AZ	HVIA79L08AZT	3-Terminal 0.1A Negative Voltage Regulator	FAIRCHILD
5	"	IC71	TC74HCU04AFNG	HVI74HCU04AFNG	HEX INVERTER	TOSHIBA
6	"	IC72	TC74HCU04AFNG	HVITC74HCU04AFN	HEX INVERTER	TOSHIBA
7	"	IC73	AK4589VQ	HVIAK4589VQ-T	2/8-Channel Audio CODEC with DIR	AKM
8	"	IC74	LC72723M	HVILC72723M	RDS Demodulation IC	SANYO
9	"	IC75	CS49510-CQ	CVICS49510-CQ	Multi-channel Audio DSP	CIRRUS LOGIC
10	"	IC76	ES29LV800ET70TG	CVIANAM1487AT	8Mbit CMOS 3.0 Volt-only, Boot Sector Flash Memory	ESI
11	"	IC77	57V161610ET7	HV157V161610ET7	2 Banks x 512K x 16 Bit Synchronous DRAM	HYNIX
12	"	IC78	NJM2391DL1-33	HVINJM2391DL133	LOW DROPOUT VOLTAGE REGULATOR	JRC
13	"	IC79	KIA1117S18	CVIKIA1117S18	LOW DROP FIXED POSITIVE VOLTAGE REGULATOR	KEC
14	"	IC87	RH5VT28C	HVIRH5VT28C	LOW VOLTAGE DETECTOR	RICOH
15	"	IC88	KIA1117S33	CVIKIA1117S33	LOW DROP FIXED POSITIVE VOLTAGE REGULATOR	KEC
16	"	IC89	M24C32WMN6TP	CVIM24C32WMN6TP	64Kbit and 32Kbit Serial I ² C Bus EEPROM	ST
17	"	IC90	T5CC1	CVIANAM1486AT	CMOS 16-Bit Microcontrollers	TOSHIBA
18	"	IC91	74ACT04MTR	HVI74ACT04MTR	HEX INVERTER	ST
No.	PCB Name	Ref. #	Part No.(Makers)	Part No.(ANAM)	Description	Makers
1	COP12188B (Video PCB Ass'y)	IC41	NJM2595M	CVINJM2595MTE1	5-INPUT 3-OUTPUT VIDEO SWITCH	JRC
2	"	IC61	NJW1321FP1	CVINJW1321FP1	WIDE BAND VIDEO SWITCH WITH I2C BUS	JRC
3	"	IC62	KIA7809API	HVIA7809API	THREE TERMINAL POSITIVE VOLTAGE REGULATORS	KEC
No.	PCB Name	Ref. #	Part No.(Makers)	Part No.(ANAM)	Description	Makers
1	COP12109B (HDMI PCB Ass'y)	IC91	SHI9185ACTU	CVISII9185ACTU	3:1 HDMI 1.3 Switch	Silicon Image
2	"	IC92	KIA1117S50	CVIKIA1117S50	LOW DROP FIXED POSITIVE VOLTAGE REGULATOR	KEC
3	"	IC93	KIA1117S33	CVIKIA1117S33	LOW DROP FIXED POSITIVE VOLTAGE REGULATOR	KEC
4	"	IC94	KIA1117S18	CVIKIA1117S18	LOW DROP FIXED POSITIVE VOLTAGE REGULATOR	KEC

KEC**SEMICONDUCTOR
TECHNICAL DATA****KIA1117S/F00~
KIA1117S/F50
BIPOLAR LINEAR INTEGRATED CIRCUIT****LOW DROP FIXED AND ADJUSTABLE
POSITIVE VOLTAGE REGULATOR**

The KIA1117S/F × × is a Low Drop Voltage Regulator able to provide up to 1A of output current, available even in adjustable version ($V_{ref}=1.25V$)

FEATURES

- Low Dropout Voltage : 1.1V/Typ. ($I_{out}=1.0A$)
- Very Low Quiescent Current : 4.2mA/Typ.
- Output Current up to 1A
- Fixed Output Voltage of 1.5V, 1.8V, 2.5V, 2.85V, 3.3V, 5.0V
- Adjustable Version Availability : $V_{ref}=1.25V$
- Internal Current and Thermal Limit
- Only 10 μF for stability
- Available in $\pm 2\%$ (at 25 °C) and 4% in full Temperature range
- High Ripple Rejection : 80dB/Typ
- Temperature Range : 0 °C ~ 125 °C

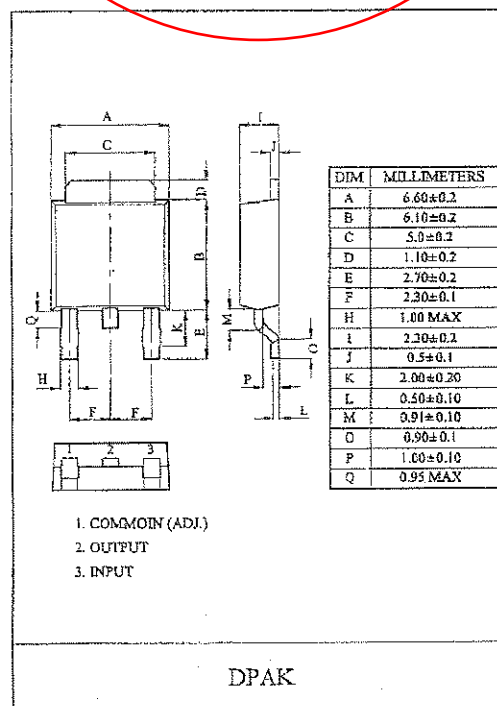
**LINE UP**

ITEM	OUTPUT VOLTAGE (V)	PACKAGE
KIA1117S/F00	Adjustable (1.25~10V)	S : SOT-223 F : DPAK
KIA1117S/F15	1.5	
KIA1117S/F18	1.8	
KIA1117S/F25	2.5	
KIA1117S/F28	2.85	
KIA1117S/F33	3.3	
KIA1117S/F50	5.0	

MAXIMUM RATINGS ($T_a=25\text{ °C}$)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Input Voltage		V_{IN}	10	V
Output Current	S/F	I_{OUT}	1.0	A
Power Dissipation 1 (No heatsink)	S (Note)	P_{D1}	1.0	W
	F		1.3	
Power Dissipation 2 (Without heatsink)	S	P_{D2}	8.3	W
	F		13	
Operating Temperature		T_{opr}	0 ~ 125	°C
Storage Temperature		T_{stg}	-55 ~ 150	°C

Note) Package Mounted on FR-4 PCB 36 × 18 × 1.5 mm,
: mounting pad for the GND Lead min. 6mm²

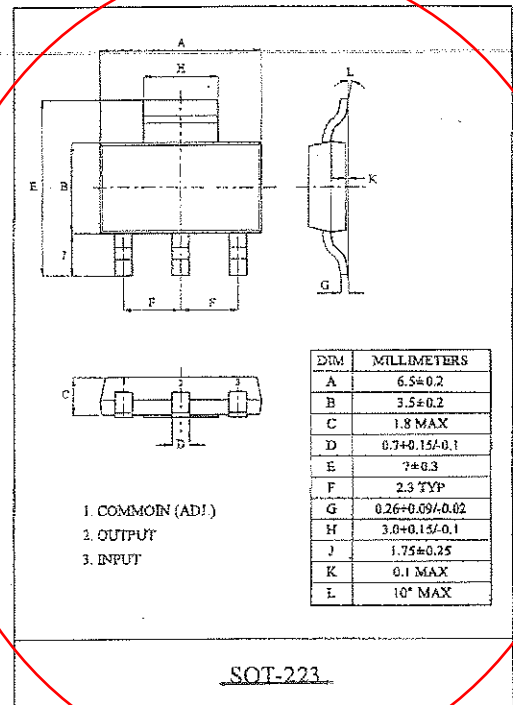


KEC**SEMICONDUCTOR
TECHNICAL DATA****KIA1117S/F00~
KIA1117S/F50
BIPOLAR LINEAR INTEGRATED CIRCUIT****LOW DROP FIXED AND ADJUSTABLE
POSITIVE VOLTAGE REGULATOR**

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- Low Dropout Voltage : 1.1V/Typ. ($I_{out}=1.0A$)
- Very Low Quiescent Current : 4.2 μ A/Typ.
- Output Current up to 1A
- Fixed Output Voltage of 1.5V, 1.8V, 2.5V, 2.85V, 3.3V, 5.0V
- Adjustable Version Availability : $V_{ref}=1.25V$
- Internal Current and Thermal Limit
- Only 10 μ F for stability
- Available in $\pm 2\%$ (at 25 °C) and 4% in full Temperature range
- High Ripple Rejection : 80dB/Typ
- Temperature Range : 0 °C ~ 125 °C

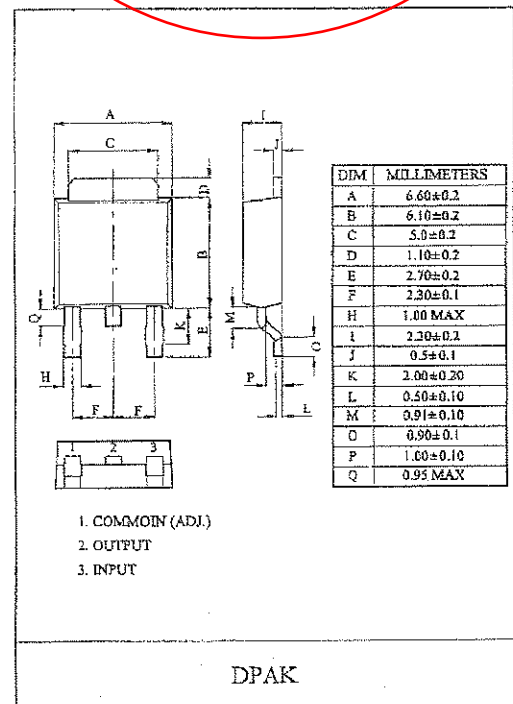
**LINE UP**

ITEM	OUTPUT VOLTAGE (V)	PACKAGE
KIA1117S/F00	Adjustable (1.25~10V)	S : SOT-223 F : DPAK
KIA1117S/F15	1.5	
KIA1117S/F18	1.8	
KIA1117S/F25	2.5	
KIA1117S/F28	2.85	
KIA1117S/F33	3.3	
KIA1117S/F50	5.0	

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

CHARACTERISTIC		SYMBOL	RATING	UNIT
Input Voltage		V_{IN}	10	V
Output Current	S/F	I_{OUT}	1.0	A
Power Dissipation 1 (No heatsink)	S (Note)	P_{D1}	1.0	W
	F		1.3	
Power Dissipation 2 (Without heatsink)	S	P_{D2}	8.3	W
	F		13	
Operating Temperature		T_{opr}	0 ~ 125	°C
Storage Temperature		T_{stg}	-55 ~ 150	°C

Note) Package Mounted on FR-4 PCB 36 × 18 × 1.5 mm,
: mounting pad for the GND Lead min. 6mm²

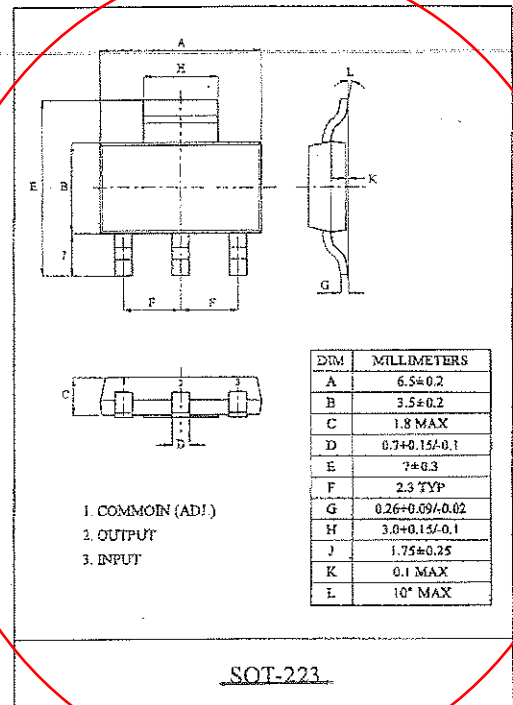


KEC**SEMICONDUCTOR
TECHNICAL DATA****KIA1117S/F00~
KIA1117S/F50
BIPOLAR LINEAR INTEGRATED CIRCUIT****LOW DROP FIXED AND ADJUSTABLE
POSITIVE VOLTAGE REGULATOR**

The KIA1117S/F × × is a Low Drop Voltage Regulator able to provide up to 1A of output current, available even in adjustable version ($V_{ref}=1.25V$)

FEATURES

- Low Dropout Voltage : 1.1V/Typ. ($I_{out}=1.0A$)
- Very Low Quiescent Current : 4.2mA/Typ.
- Output Current up to 1A
- Fixed Output Voltage of 1.5V, 1.8V, 2.5V, 2.85V, 3.3V, 5.0V
- Adjustable Version Availability : $V_{ref}=1.25V$
- Internal Current and Thermal Limit
- Only 10 μF for stability
- Available in $\pm 2\%$ (at 25 °C) and 4% in full Temperature range
- High Ripple Rejection : 80dB/Typ
- Temperature Range : 0 °C ~ 125 °C

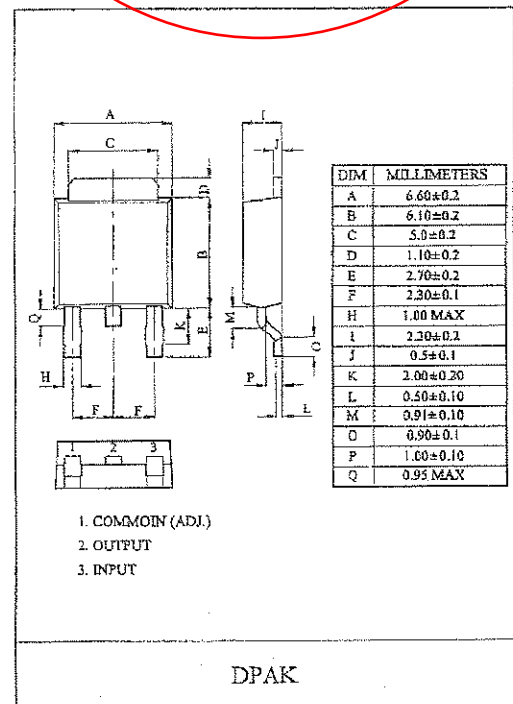
**LINE UP**

ITEM	OUTPUT VOLTAGE (V)	PACKAGE
KIA1117S/F00	Adjustable (1.25~10V)	S : SOT-223 F : DPAK
KIA1117S/F15	1.5	
KIA1117S/F18	1.8	
KIA1117S/F25	2.5	
KIA1117S/F28	2.85	
KIA1117S/F33	3.3	
KIA1117S/F50	5.0	

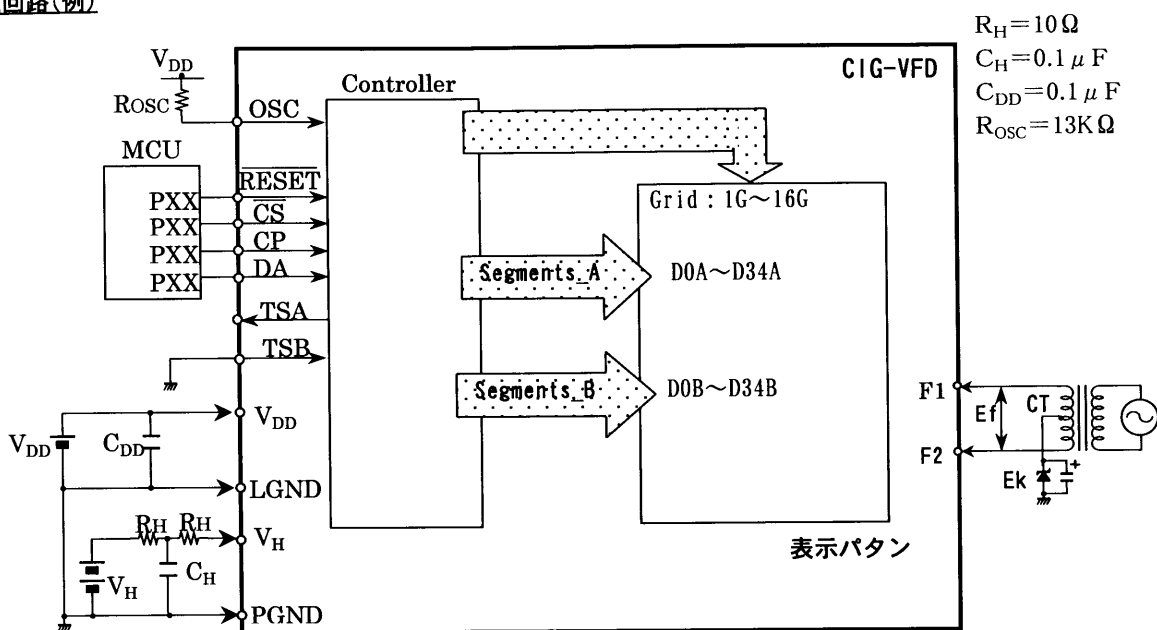
MAXIMUM RATINGS ($T_a=25^\circ C$)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Input Voltage		V_{IN}	10	V
Output Current	S/F	I_{OUT}	1.0	A
Power Dissipation 1 (No heatsink)	S (Note)	P_{D1}	1.0	W
	F		1.3	
Power Dissipation 2 (Without heatsink)	S	P_{D2}	8.3	W
	F		13	
Operating Temperature		T_{opr}	0 ~ 125	°C
Storage Temperature		T_{stg}	-55 ~ 150	°C

Note) Package Mounted on FR-4 PCB 36 × 18 × 1.5 mm,
: mounting pad for the GND Lead min. 6mm²



接續回路(例)



注1) 直流抵抗RHは電流制限用の抵抗です。CH,CDDはノイズフィルター用のパスコンです。

Note1)The series resistor RH is resistor for limitation of over current.CH and CDD is the capacitors for noise filter to the VH and VDD.

注2)本製品はICを含むデバイスです。ICの破壊モード(ショートモード)に対応する回路設計を推奨します。

Note2(This product is the device with built-in IC. The design of the PWB should be considered for the destructive mode (short mode) of IC.

型名 Type No. 162-BD-01GINK



74ACT04

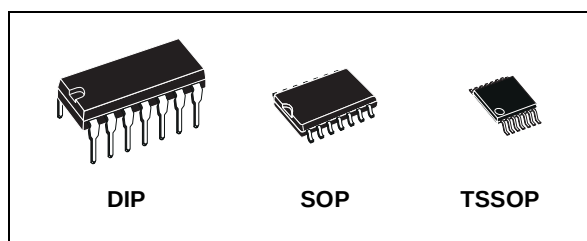
HEX INVERTER

- HIGH SPEED: $t_{PD} = 5.0ns$ (TYP.) at $V_{CC} = 5V$
- LOW POWER DISSIPATION:
 $I_{CC} = 2\mu A$ (MAX.) at $T_A = 25^\circ C$
- COMPATIBLE WITH TTL OUTPUTS
 $V_{IH} = 2V$ (MIN.), $V_{IL} = 0.8V$ (MAX.)
- 50Ω TRANSMISSION LINE DRIVING CAPABILITY
- SYMMETRICAL OUTPUT IMPEDANCE:
 $|I_{OH}| = I_{OL} = 24mA$ (MIN)
- BALANCED PROPAGATION DELAYS:
 $t_{PLH} \approx t_{PHL}$
- OPERATING VOLTAGE RANGE:
 V_{CC} (OPR) = 4.5V to 5.5V
- PIN AND FUNCTION COMPATIBLE WITH 74 SERIES 04
- IMPROVED LATCH-UP IMMUNITY

DESCRIPTION

The 74ACT04 is an advanced high-speed CMOS HEX INVERTER fabricated with sub-micron silicon gate and double-layer metal wiring C²MOS technology.

The internal circuit is composed of 3 stages including buffer output, which enables high noise immunity and stable output.



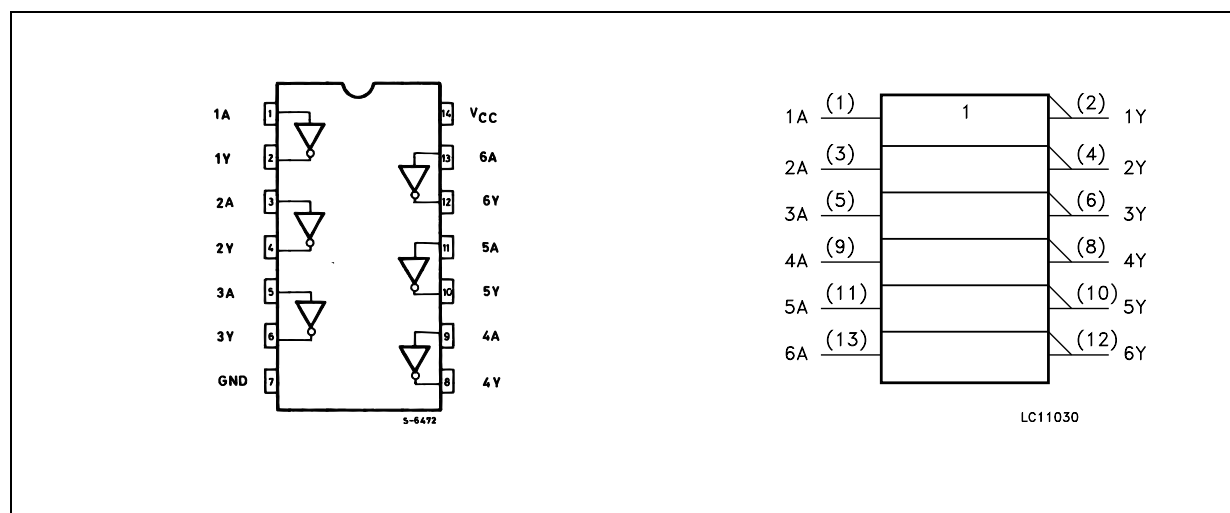
ORDER CODES

PACKAGE	TUBE	T & R
DIP	74ACT04B	
SOP	74ACT04M	74ACT04MTR
TSSOP		74ACT04TTR

The device is designed to interface directly High Speed CMOS systems with TTL, NMOS and CMOS output voltage levels.

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

PIN CONNECTION AND IEC LOGIC SYMBOLS



TOSHIBA**TC74HCU04AP/AF/AFN**

TOSHIBA CMOS DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TC74HCU04AP, TC74HCU04AF, TC74HCU04AFN**HEX INVERTER**

The TC74HCU04A is a high speed CMOS INVERTER fabricated with silicon gate C²MOS technology.

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

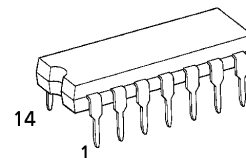
Since the internal circuit is composed of a single stage inverter, it can be used in analog applications such as crystal oscillators.

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

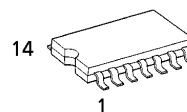
FEATURES :

- High Speed..... $t_{pd} = 4\text{ns}(\text{typ.})$ at $V_{CC} = 5\text{V}$
- Low Power Dissipation..... $I_{CC} = 1\mu\text{A}(\text{Max.})$ at $T_a = 25^\circ\text{C}$
- High Noise Immunity..... $V_{NIH} = V_{NIH} = 10\%V_{CC}(\text{Min.})$
- Output Drive Capability.....10 LSTTL Loads
- Symmetrical Output Impedance... $|I_{OH}| = |I_{OL}| = 4\text{mA}(\text{Min.})$
- Balanced Propagation Delays..... $t_{pLH} \approx t_{pHL}$
- Wide Operating Voltage Range... $V_{CC}(\text{opr.}) = 2\text{V} \sim 6\text{V}$
- Pin and Function Compatible with 74LS04

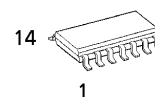
(Note) The JEDEC SOP (FN) is not available in Japan.



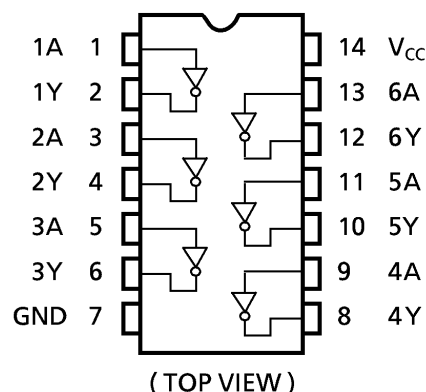
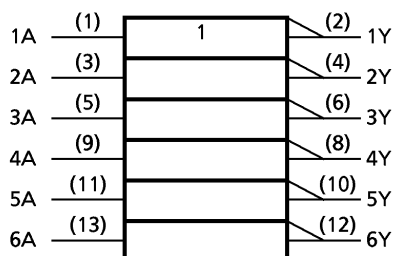
P (DIP14-P-300-2.54)
Weight : 0.96g (Typ.)



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



FN (SOL14-P-150-1.27)
Weight : 0.12g (Typ.)

PIN ASSIGNMENT**IEC LOGIC SYMBOL****TRUTH TABLE**

A	Y
L	H
H	L

961001EBA2

● TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.

1997-08-07 1/5

DUAL HIGH CURRENT OPERATIONAL AMPLIFIER

■ GENERAL DESCRIPTION

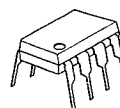
The NJM4556A integrated circuit is a high-gain, high output current dual operational amplifier capable of driving $\pm 70\text{mA}$ into $150\ \Omega$ loads ($\pm 10.5\text{V}$ output voltage), and operating low supply voltage ($V^+/V^- = \pm 2\text{V} \sim$).

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

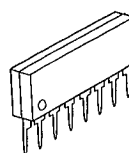
■ PACKAGE OUTLINE



NJM4556AD



NJM4556AM

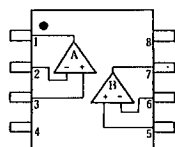


NJM4556AL

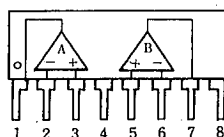


NJM4556AV

■ PIN CONFIGURATION



NJM4556AD.
NJM4556AM
NJM4556AV

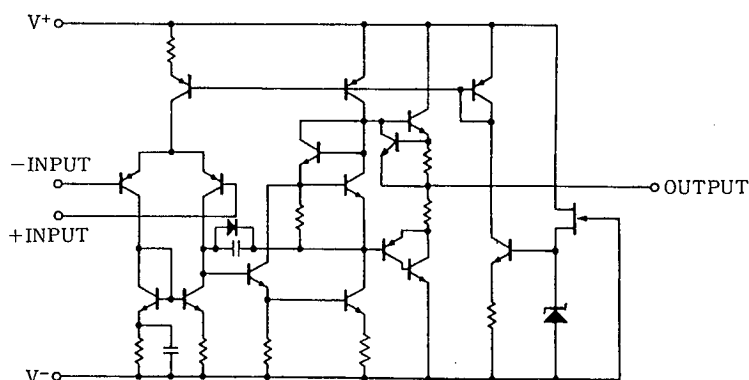


NJM4556AL

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)



4 TERMINAL 2A OUTPUT LOW DROP
VOLTAGE REGULATOR

The KIA278R × × Series are Low Drop Voltage Regulator suitable for various electronic equipments.

It provides constant voltage power source with TO-220 4 terminal lead full molded PKG. The Regulator has multi function such as over current protection, overheat protection and ON/OFF control.

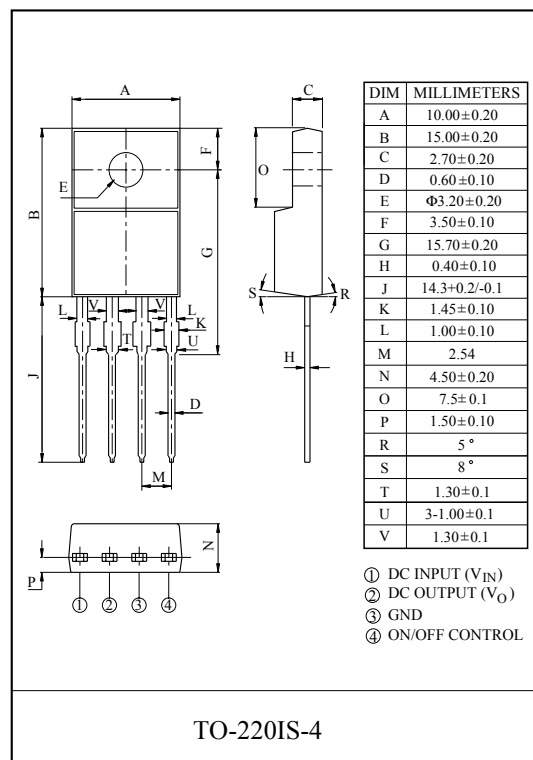
FEATURES

- 2.0A Output Low Drop Voltage Regulator.
- Built in ON/OFF Control Terminal.
- Built in Over Current Protection, Over Heat Protection Function.

LINE UP

ITEM	OUTPUT VOLTAGE (Typ.)	UNIT
KIA278R05PI	5	V
KIA278R06PI	6	
KIA278R08PI	8	
KIA278R09PI	9	
KIA278R10PI	10	
KIA278R12PI	12	
* KIA278R15PI	15	

* Note) * : Under Development.

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

CHARACTERISTIC	SYMBOL	RATING	UNIT	Remark
Input Voltage	V_{IN}	35	V	-
ON/OFF Control Voltage	V_C	35	V	-
Output Current	I_O	2	A	-
Power Dissipation 1	P_{d1}	1.5	W	No heatsink
Power Dissipation 2	P_{d2}	15	W	with heatsink
Junction Temperature	T_j	125	$^\circ\text{C}$	-
Operating Temperature	T_{opr}	-20 ~ 80	$^\circ\text{C}$	-
Storage Temperature	T_{stg}	-30 ~ 125	$^\circ\text{C}$	-
Soldering Temperature (10sec)	T_{sol}	260	$^\circ\text{C}$	-

KEC

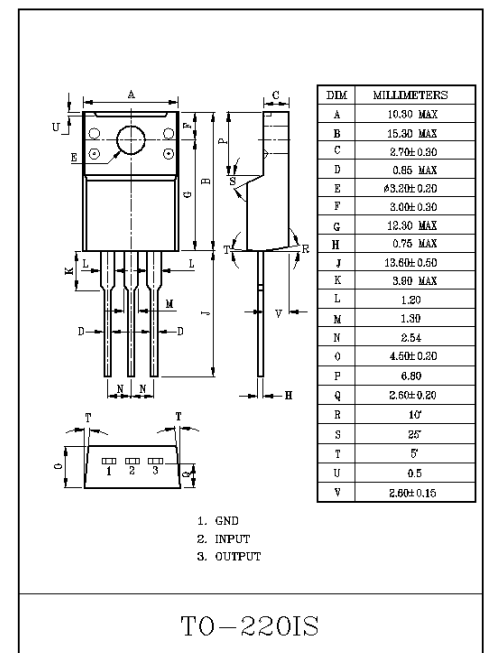
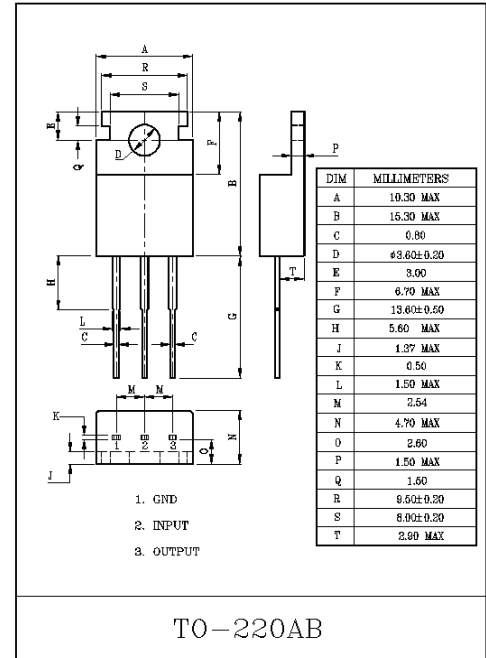
KOREA ELECTRONICS CO.,LTD.

SEMICONDUCTOR
TECHNICAL DATA**KIA7905P/PI ~**
KIA7924P/PI
BIPOLAR LINEAR INTEGRATED CIRCUIT1A THREE TERMINAL NEGATIVE VOLTAGE REGULATORS
-5V, -6V, -8V, **-9V**, -10V, -12V, -15V, -18V, -20V, -24V**FEATURES:**

- Suitable for C-MOS, TTL, and the other digital IC power supply.
- Internal thermal overload protecting.
- Internal short circuit current limiting.
- Output current in excess of 1.0A.

MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Input Voltage	V _{IN}	-35	V
		-40	
Power Dissipation (Tc=25°C)	P _D	20.8	W
Operating Junction Temperature	T _j	-30~150	°C
Operating Temperature	T _{opr}	-30~75	°C
Storage Temperature	T _{stg}	-55~150	°C

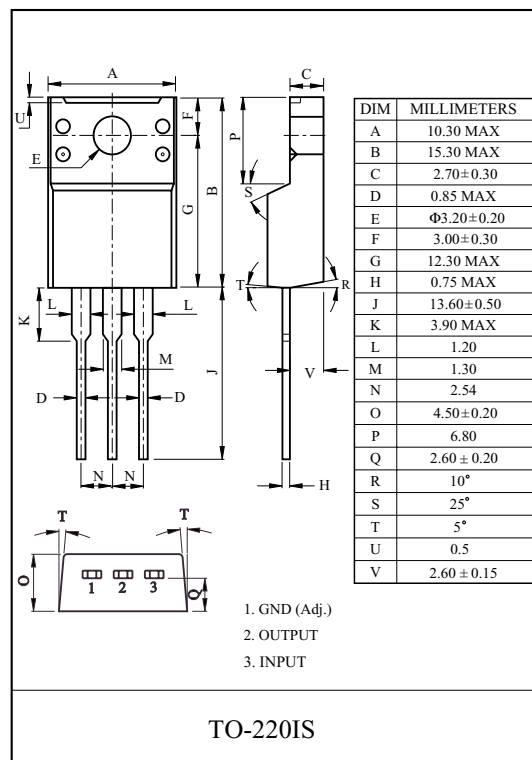


**LOW DROP FIXED AND ADJUSTABLE
POSITIVE VOLTAGE REGULATOR**

The KIA1117PI × × is a Low Drop Voltage Regulator able to provide up to 0.8A of output current, available even in adjustable version ($V_{ref}=1.25V$)

FEATURES

- Low Dropout Voltage : 1.1V/Typ. ($I_{out}=0.8A$)
- Very Low Quiescent Current : 4.2mA/Typ.
- Output Current up to 0.8A
- Fixed Output Voltage of 1.5V, 1.8V, 2.5V, 2.85V, 3.3V, 5.0V
- Adjustable Version Availability : $V_{ref}=1.25V$
- Internal Current and Thermal Limit
- A minimum of $10\mu F$ for stability
- Available in $\pm 2\%$ (at 25 °C) and 4% in full Temperature range
- High Ripple Rejection : 80dB/Typ.
- Temperature Range : -30 °C ~ 125 °C

**LINE UP**

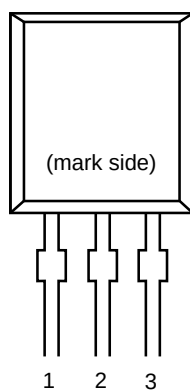
ITEM	OUTPUT VOLTAGE (V)	PACKAGE
KIA1117PI00	Adjustable (1.25~10V)	TO-220IS
KIA1117PI15	1.5	
KIA1117PI18	1.8	
KIA1117PI25	2.5	
KIA1117PI28	2.85	
KIA1117PI33	3.3	
KIA1117PI50	5.0	

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

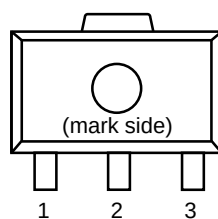
CHARACTERISTIC	SYMBOL	RATING	UNIT
Input Voltage	V_{IN}	10	V
Output Current	I_{OUT}	0.8	A
Power Dissipation 1 (No Heatsink)	P_{D1}	2.0	W
Power Dissipation 2 (Infinite Heatsink)	P_{D2}	20.8	W
Operating Temperature	T_{opr}	-30 ~ 125	°C
Storage Temperature	T_{stg}	-55 ~ 150	°C

PIN CONFIGURATION

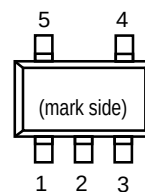
• TO-92



• 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

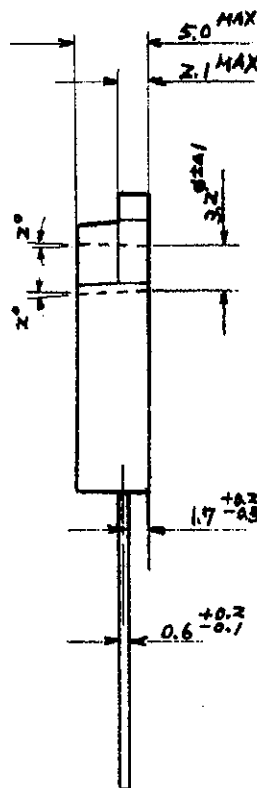
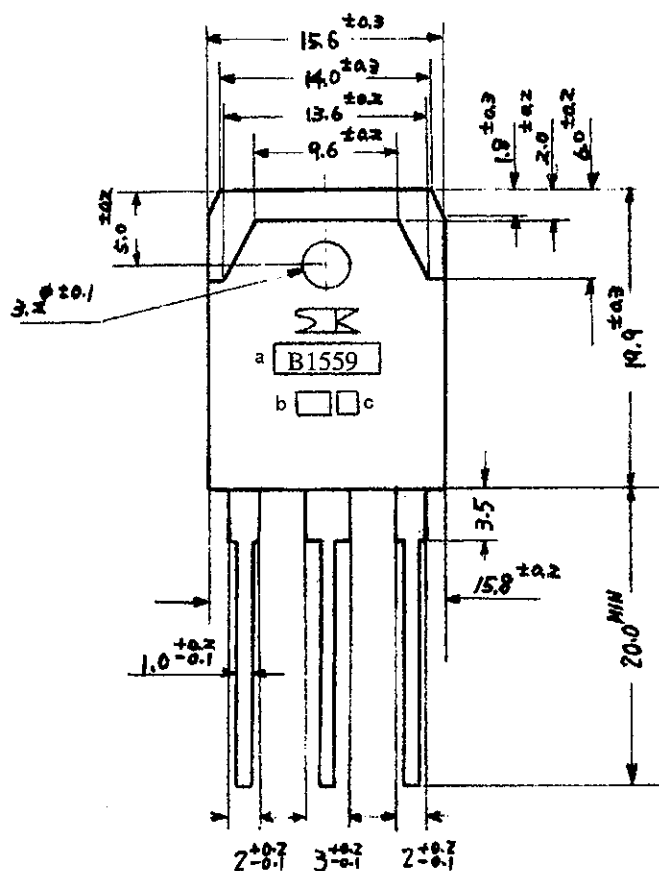
Pin No.	Symbol
1	OUT
2	V _{DD}
3	GND
4	NC
5	NC

5 外形 (リードフォーミング No.100)

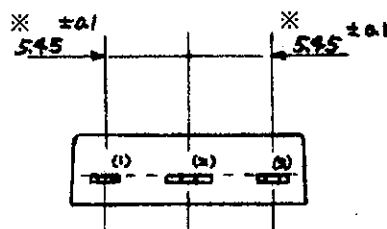
Package information(Lead forming No.100)

5-1 外形、寸法および材質

Package type, physical dimensions and material



- (1) ベース
Base
- (2) コレクタ
Collector
- (3) エミッタ
Emitter

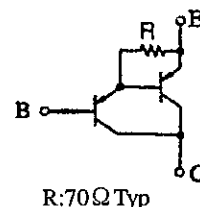


<注> ※印寸法は、リード根元部の寸法を示す。

<Note> ※shows the dimensions measured at the bottom of lead.

リード端子 Lead terminal	Cu	Ni メッキ・半田ディップ処理 Ni plating, solder dip treatment
ヒートシンク Heat sink	Cu	Ni メッキ Ni plating
名 称 Description	材 質 Material	仕 様 Specification

等価回路図
Equivalent circuit



- a. 品名標示
Type Number
- b. ロット番号
Lot Number

第1文字 西曆年号下一桁

1st letter The last digit of year

第二文字 月

2nd letter Month

1～9 月：アラビア数字

10月:0

11月: N

12月:D

(1 to 9 for Jan. to Sept.,

O for Oct., N for Nov., D for Dec.)

- c. h_{FE} ランク
 h_{FE} rank

單位：mm

Dimensions in mm

図番 DWG No.:TG3A-0101

5-2 外觀

Appearance

本体は、汚れ、傷、亀裂等なく綺麗であること。

The body shall be clean and shall not bear any stain, rust or flaw.

5-3 標示

Marking

本体に明瞭に品名、ロット番号を容易に消えぬよう白色で捺印すること。

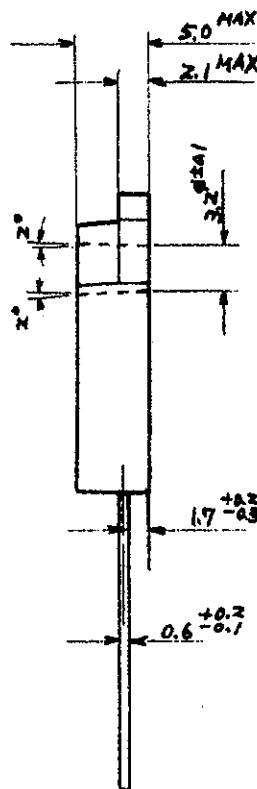
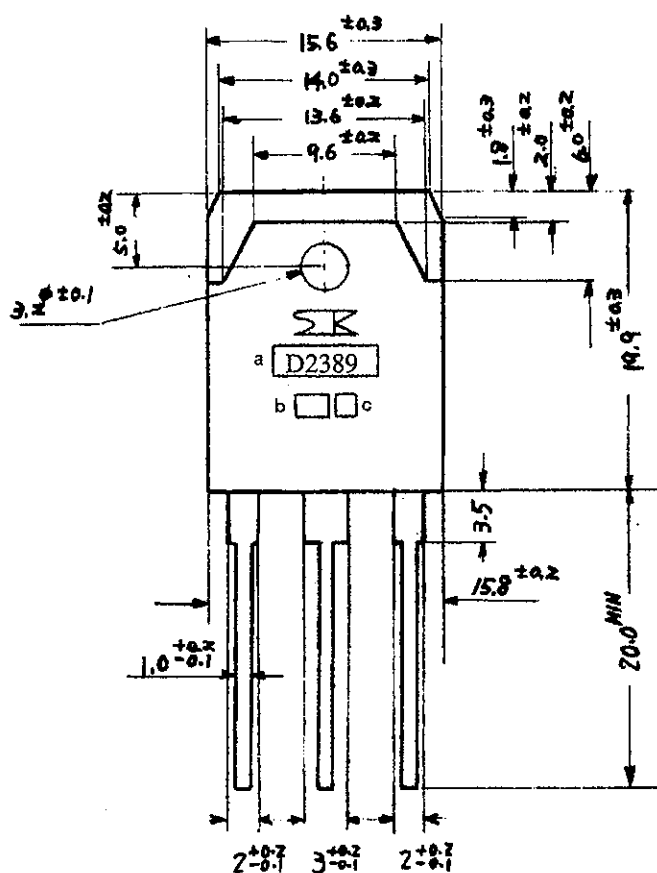
The type number and lot number shall be clearly marked in white.

4 外形 (リードフォーミング No.100)

Package information(Lead forming No.100)

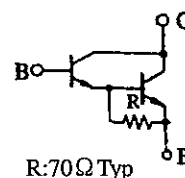
4-1 外形、寸法および材質

Package type, physical dimensions and material

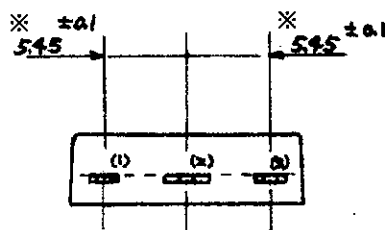


等価回路図

Equivalent circuit



- (1) ベース
Base
- (2) コレクタ
Collector
- (3) エミッタ
Emitter



<注> ※印寸法は、リード根元部の寸法を示す。

<Note> ※shows the dimensions measured at the bottom of lead.

リード端子 Lead terminal	Cu	Ni メッキ・半田ディップ処理 Ni plating, solder dip treatment
ヒートシンク Heat sink	Cu	Ni メッキ Ni plating
名 称 Description	材 質 Material	仕 様 Specification

4-2 外觀

Appearance

本体は、汚れ、傷、亀裂等なく綺麗であること。

The body shall be clean and shall not bear any stain, rust or flaw.

4-3 標示

Marking

本体に明瞭に品名、ロット番号を容易に消えぬよう白色で捺印すること。

The type number and lot number shall be clearly marked in white.

- a. 品名標示
Type Number
- b. ロット番号
Lot Number

第1文字 西曆年号下一桁

1st letter The last digit of year

第二文字 月

2nd letter Month

1～9 月：アラビア数字

10月:0

11月:N

12月:D

(1 to 9 for Jan. to Sept.,
O for Oct. N for Nov. D for Dec.)

- c. h_{FE} ランク
 h_{FE} rank

單位：mm

Dimensions in mm

図番 DWG No.:TG3A-0101

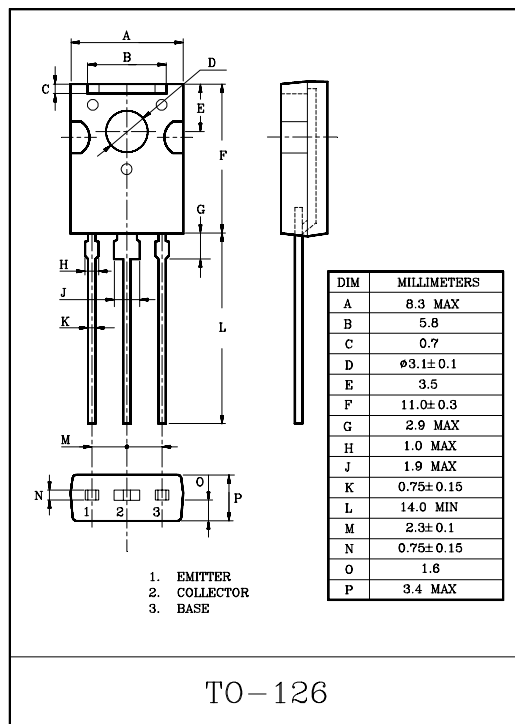
LOW FREQUENCY POWER AMP,
MEDIUM SPEED SWITCHING APPLICATIONS

FEATURES

- High breakdown voltage V_{CEO} 120V, high current 1A.
- Low saturation voltage and good linearity of h_{FE} .

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

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	120	V
Collector-Emitter Voltage		V_{CEO}	120	V
Emitter-Base Voltage		V_{EBO}	5	V
Collector Current		I_C	1	A
		I_{CP}	2	
Collector Power Dissipation	$T_a=25^\circ\text{C}$	P_C	1.5	W
	$T_C=25^\circ\text{C}$		8	
Junction Temperature		T_j	150	$^\circ\text{C}$
Storage Temperature Range		T_{stg}	-55~150	$^\circ\text{C}$

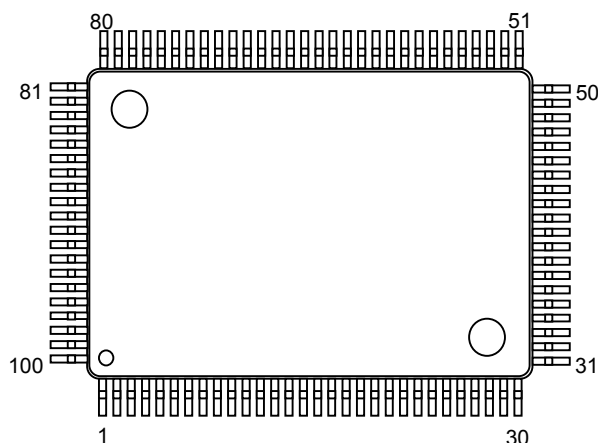
**ELECTRICAL CHARACTERISTICS** ($T_a=25^\circ\text{C}$)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut of Current		I_{CBO}	$V_{CB}=50\text{V}, I_E=0$	-	-	1	μA
Emitter Cut of Current		I_{EBO}	$V_{EB}=4\text{V}, I_C=0$	-	-	1	μA
Collector-Base Breakdown Voltage		$V_{(BR)CBO}$	$I_C=10\mu\text{A}$	120	-	-	V
Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	$I_C=1\text{mA}$	120	-	-	V
Emitter-Base Breakdown Voltage		$V_{(BR)EBO}$	$I_E=10\mu\text{A}$	5	-	-	V
DC Current Gain		$h_{FE(1)}$ Note	$V_{CE}=5\text{V}, I_C=50\text{mA}$	100	-	320	
		$h_{FE(2)}$	$V_{CE}=5\text{V}, I_C=500\text{mA}$	20	-	-	
Gain Bandwidth Product		f_T	$V_{CE}=10\text{V}, I_C=50\text{mA}$	-	130	-	MHz
Output Capacitance		C_{ob}	$V_{CB}=10\text{V}, f=1\text{MHz}$	-	20	-	pF
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	$I_C=500\text{mA}, I_B=50\text{mA}$	-	0.15	0.4	V
Base-Emitter Saturation Voltage		$V_{BE(sat)}$	$I_C=500\text{mA}, I_B=50\text{mA}$	-	0.85	1.2	V
Switching Time	Turn-on Time	t_{on}	$V_{CE}=12\text{V}$ $I_C=10I_{B1}=-10I_{B2}=500\text{mA}$	-	100	-	nS
	Turn-off Time	t_{off}		-	500	-	
	Storage Time	t_{stg}		-	700	-	

(Note) : $h_{FE(1)}$ Classification Y:100~200, GR:160~320

NJW1197C

PIN FUNCTION



No.	SYMBOL	FUNCTION	No.	SYMBOL	FUNCTION
1	ROUT	Rch output	51	DCR_IN	"Multi-channel selector" Rch input
2	COUT	Cch output	52	DCR_OUT	"Input selector" Rch output
3	LSOUT	LSch output	53	GND	Ground
4	RSOUT	RSch output	54	DCL_IN	"Multi-channel selector" Lch input
5	LBOUT	LBch output	55	DCL_OUT	"Input selector" Lch output
6	RBOUT	RBch output	56	GND	Ground
7	SWOUT	SWch output	57	REC_B1R	"Input selector" Rch REC output B1
8	GND	Ground	58	REC_B1L	"Input selector" Lch REC output B1
9	FIL_BL2	Lch Bass filter terminal 2	59	REC_A4R	"Input selector" Rch REC output A4
10	FIL_BL1	Lch Bass filter terminal 1	60	REC_A4L	"Input selector" Lch REC output A4
11	FIL_TL	Lch Treble filter terminal	61	REC_A3R	"Input selector" Rch REC output A3
12	TCAP	Switching noise rejection capacitor	62	REC_A3L	"Input selector" Lch REC output A3
13	FIL_BR2	Rch Bass filter terminal 2	63	REC_A2R	"Input selector" Rch REC output A2
14	FIL_BR1	Rch Bass filter terminal 1	64	REC_A2L	"Input selector" Lch REC output A2
15	FIL_TR	Rch Treble filter terminal	65	REC_A1R	"Input selector" Rch REC output A1
16	V+	+ Power supply voltage input	66	REC_A1L	"Input selector" Lch REC output A1
17	ADR	Chip address select input	67	VDDOUT	Internal Digital +Power Supply Output
18	V-	- Power supply voltage input	68	DATA	Control data signal input
19	L1IN	"Input selector" Lch input 1	69	CLOCK	Clock signal input
20	DCCAP_SW	Switching noise rejection capacitor	70	LATCH	Latch signal input
21	R1IN	"Input selector" Rch input 1	71	MUTE	External mute control
22	DCCAP_RB	Switching noise rejection capacitor	72	FL+	"Input selector gain control" Lch no-inverted output
23	L2IN	"Input selector" Lch input 2	73	FL-	"Input selector gain control" Lch inverted output
24	DCCAP_LB	Switching noise rejection capacitor	74	FR+	"Input selector gain control" Rch no-inverted output
25	R2IN	"Input selector" Rch input 2	75	FR-	"Input selector gain control" Rch inverted output
26	DCCAP_RS	Switching noise rejection capacitor	76	GND	Ground
27	L3IN	"Input selector" Lch input 3	77	LSCIN	Multi-channel LSch input C
28	DCCAP_LS	Switching noise rejection capacitor	78	RSCIN	Multi-channel RSch input C
29	R3IN	"Input selector" Rch input 3	79	LBCIN	Multi-channel LBch input C
30	DCCAP_C	Switching noise rejection capacitor	80	RBCIN	Multi-channel RBch input C
31	L4IN	"Input selector" Lch input 4	81	GND	Ground
32	DCCAP_R	Switching noise rejection capacitor	82	LAIN	Multi-channel Lch input A
33	R4IN	"Input selector" Rch input 4	83	RAIN	Multi-channel Rch input A
34	DCCAP_L	Switching noise rejection capacitor	84	CAIN	Multi-channel Cch input A
35	L5IN	"Input selector" Lch input 5	85	LSAIN	Multi-channel LSch input A
36	GND	Ground	86	RSAIN	Multi-channel RSch input A
37	R5IN	"Input selector" Rch input 5	87	LBAIN	Multi-channel LBch input A
38	GND	Ground	88	RBAIN	Multi-channel RBch input A
39	L6IN	"Input selector" Lch input 6	89	SWAIN	Multi-channel SWch input A
40	L9IN	"Input selector" Lch input 9	90	GND	Ground
41	R6IN	"Input selector" Rch input 6	91	LBIN	Multi-channel Lch input B
42	R9IN	"Input selector" Rch input 9	92	RBIN	Multi-channel Rch input B
43	L7IN	"Input selector" Lch input 7	93	CBIN	Multi-channel Cch input B
44	L10IN	"Input selector" Lch input 10	94	LSBIN	Multi-channel LSch input B
45	R7IN	"Input selector" Rch input 7	95	RSBIN	Multi-channel RSch input B
46	R10IN	"Input selector" Rch input 10	96	LBBIN	Multi-channel LBch input B
47	L8IN	"Input selector" Lch input 8	97	RBBIN	Multi-channel RBch input B
48	L11IN	"Input selector" Lch input 11	98	SWBIN	Multi-channel SWch input B
49	R8IN	"Input selector" Rch input 8	99	GND	Ground
50	R11IN	"Input selector" Rch input 11	100	LOUT	Lch output



NJM2068

LOW-NOISE DUAL OPERATIONAL AMPLIFIER

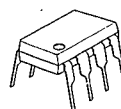
■ GENERAL DESCRIPTION

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

■ FEATURES

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

■ PACKAGE OUTLINE



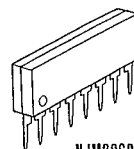
NJM2068D



NJM2068M

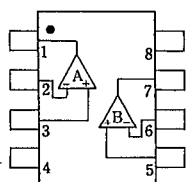


NJM2068V

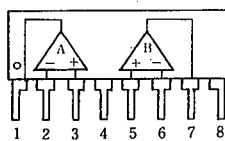


NJM2068L

■ PIN CONFIGURATION



NJM2068D
NJM2068M
NJM2068V

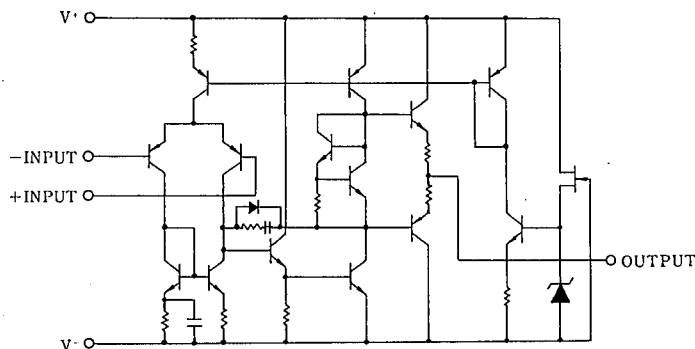


NJM2068L

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)





KA78LXXA/KA78L05AA

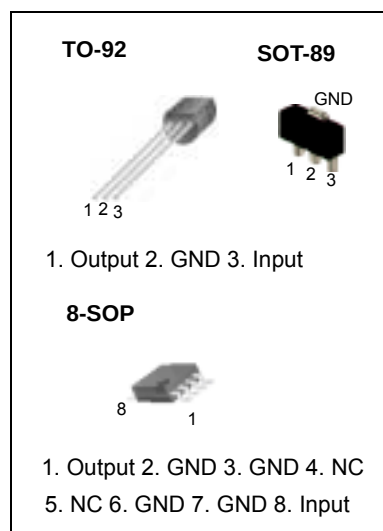
3-Terminal 0.1A Positive Voltage Regulator

Features

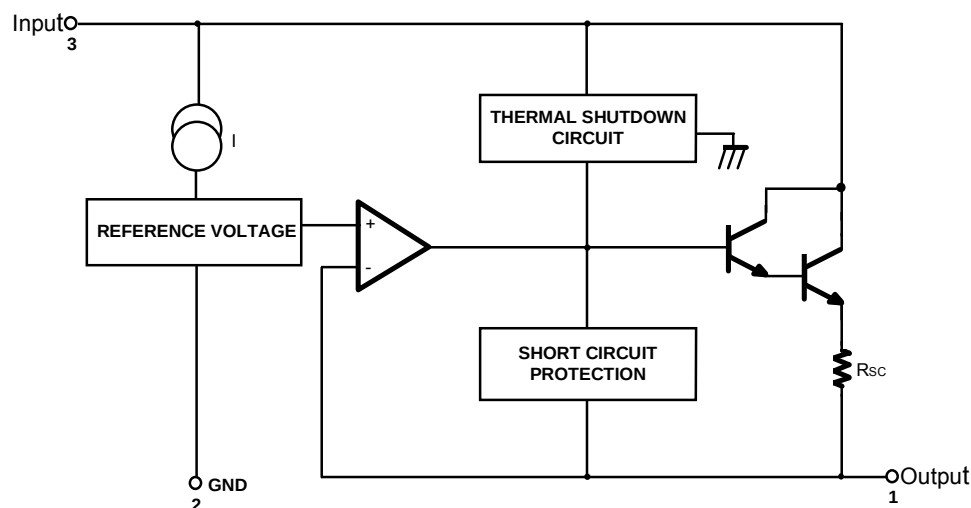
- Maximum Output Current of 100mA
- Output Voltage of 5V, 6V, 8V, 9V, 10V, 12V, 15V, 18V and 24V
- Thermal Overload Protection
- Short Circuit Current Limiting
- Output Voltage Offered in $\pm 5\%$ Tolerance

Description

The KA78LXXA/KA78L05AA series of fixed voltage monolithic integrated circuit voltage regulators are suitable for application that required supply current up to 100mA.



Internal Block Diagram





KA79LXXA

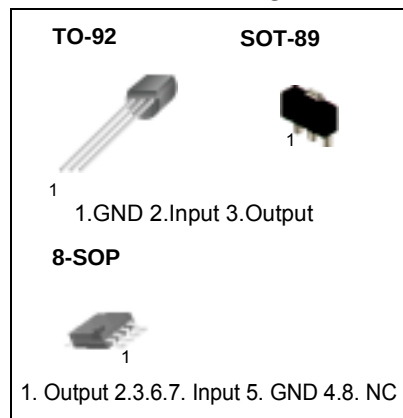
3-Terminal 0.1A Negative Voltage Regulator

Features

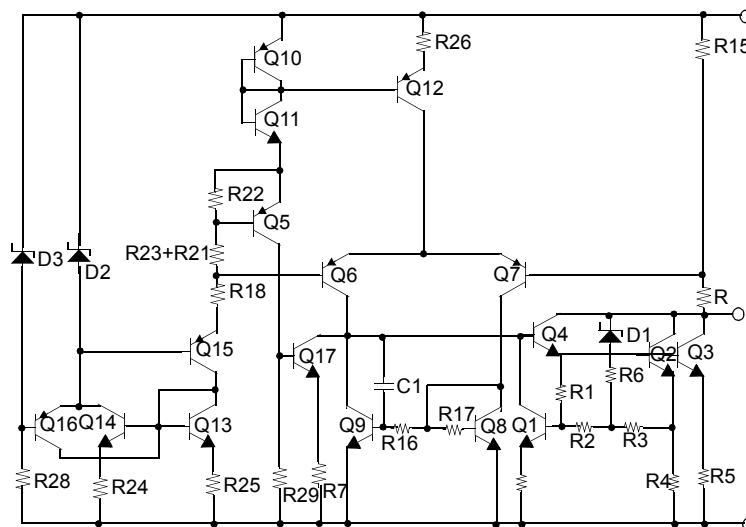
- Output Current up to 100mA
- No External Components
- Internal Thermal Over Load Protection
- Internal Short Circuit Current Limiting
- Output Voltage Offered in $\pm 5\%$ Tolerance
- Output Voltage of -5V, -8V, -12V, -15V, -18V and -24V

Description

These regulators employ internal current limiting and thermal shutdown, making them essentially indestructible.



Internal Block Diagram



TOSHIBA**TC74HCU04AP/AF/AFN**

TOSHIBA CMOS DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TC74HCU04AP, TC74HCU04AF, TC74HCU04AFN**HEX INVERTER**

The TC74HCU04A is a high speed CMOS INVERTER fabricated with silicon gate C²MOS technology.

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

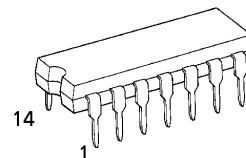
Since the internal circuit is composed of a single stage inverter, it can be used in analog applications such as crystal oscillators.

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

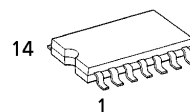
FEATURES :

- High Speed..... $t_{pd} = 4\text{ns}(\text{typ.})$ at $V_{CC} = 5\text{V}$
- Low Power Dissipation..... $I_{CC} = 1\mu\text{A}(\text{Max.})$ at $T_a = 25^\circ\text{C}$
- High Noise Immunity..... $V_{NIH} = V_{NIH} = 10\%V_{CC}(\text{Min.})$
- Output Drive Capability.....10 LSTTL Loads
- Symmetrical Output Impedance... $|I_{OH}| = |I_{OL}| = 4\text{mA}(\text{Min.})$
- Balanced Propagation Delays..... $t_{pLH} \approx t_{pHL}$
- Wide Operating Voltage Range... $V_{CC}(\text{opr.}) = 2\text{V} \sim 6\text{V}$
- Pin and Function Compatible with 74LS04

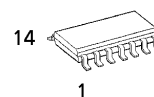
(Note) The JEDEC SOP (FN) is not available in Japan.



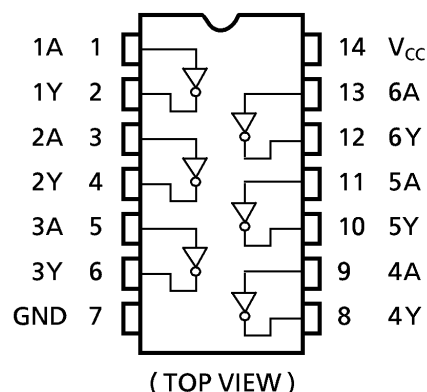
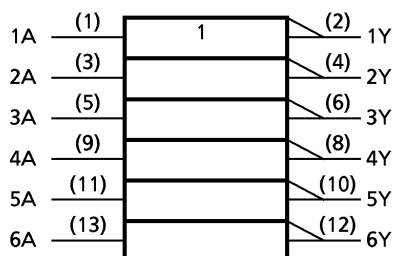
P (DIP14-P-300-2.54)
Weight : 0.96g (Typ.)



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



FN (SOL14-P-150-1.27)
Weight : 0.12g (Typ.)

PIN ASSIGNMENT**IEC LOGIC SYMBOL****TRUTH TABLE**

A	Y
L	H
H	L

961001EBA2

● TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.

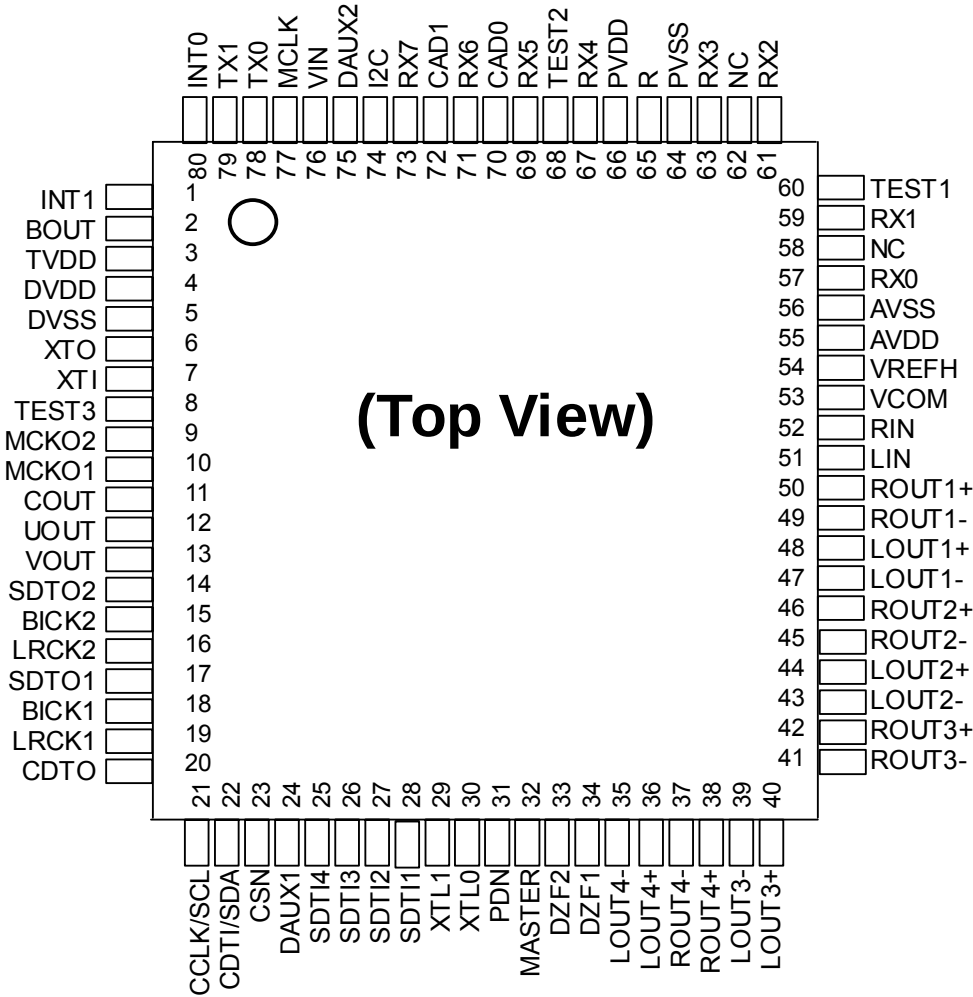
1997-08-07 1/5

■ Ordering Guide

AK4589VQ-10 ~ +70°C80pin LQFP(0.5mm pitch)

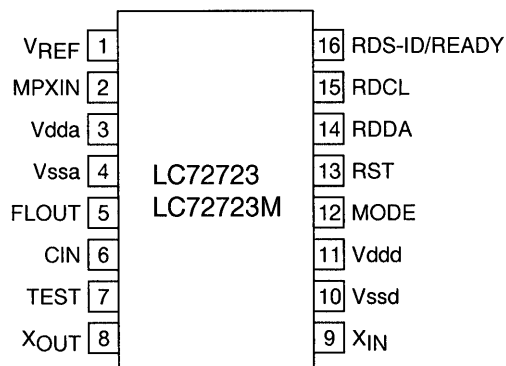
AKD4589Evaluation Board for AK4589

■ Pin Layout

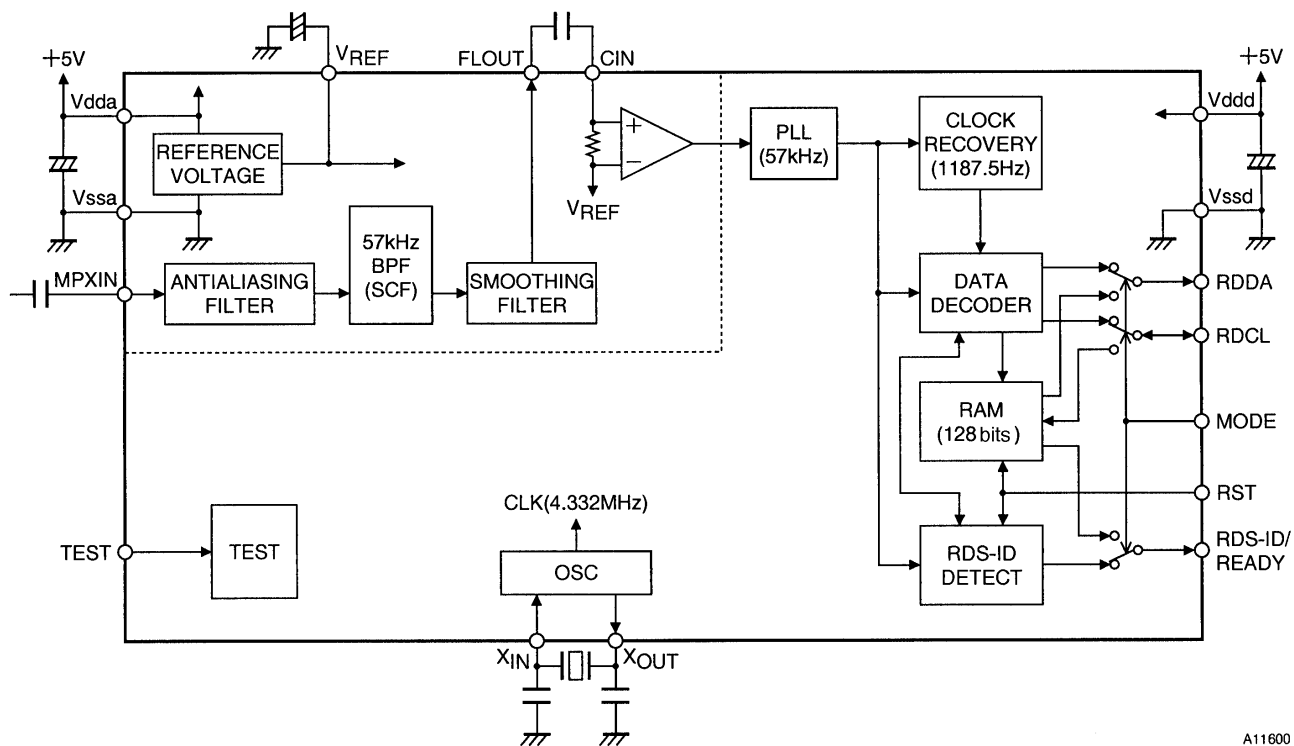


LC72723, LC72723M

Pin Assignment (DIP16/MFP16)



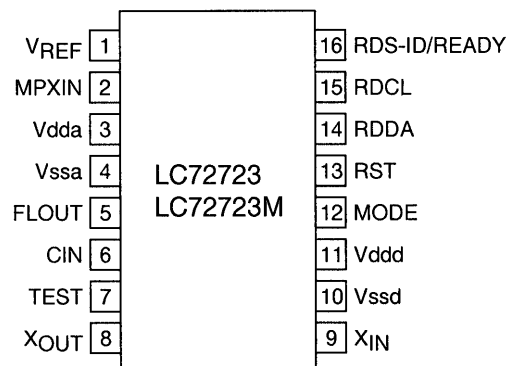
Block Diagram



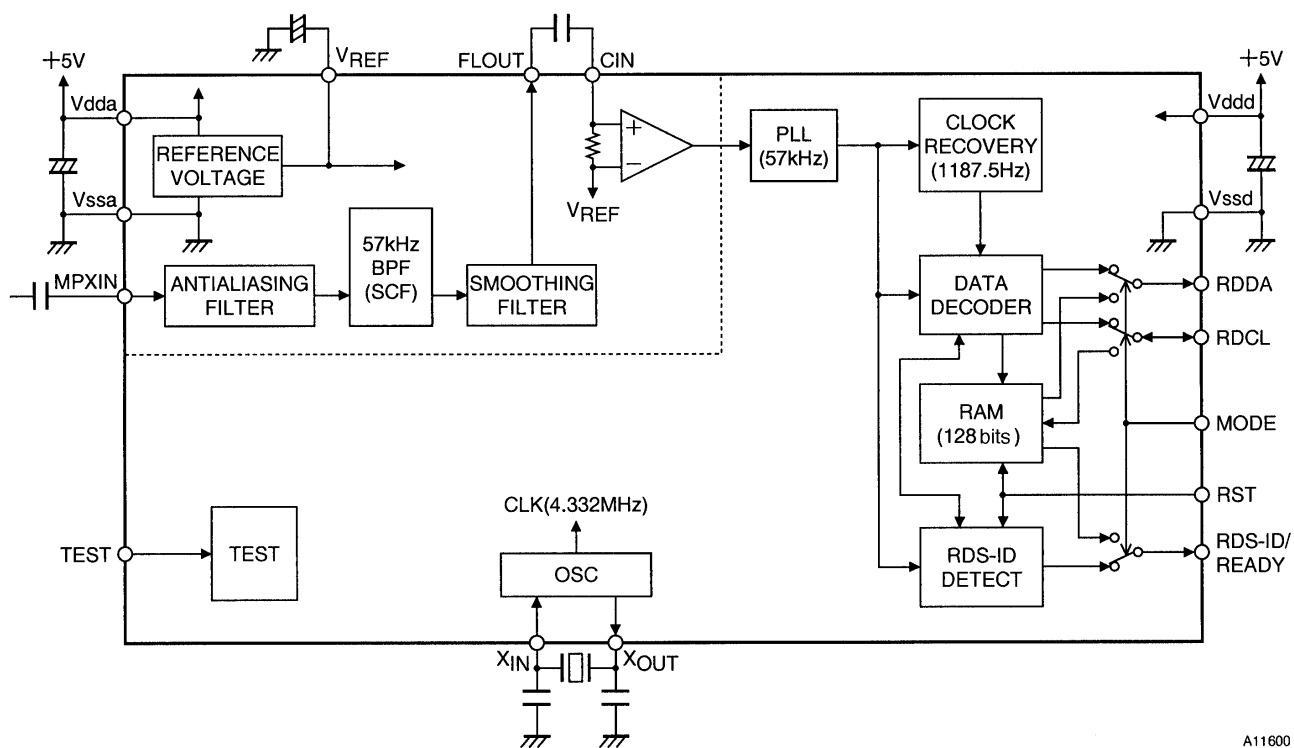
A11600

LC72723, LC72723M

Pin Assignment (DIP16/MFP16)



Block Diagram



A11600

CS495xx Data Sheet
32-bit Audio Decoder DSP Family



Leading the Digital Entertainment Revolution

7. Package Pinout, 144-Pin QFP/LQFP

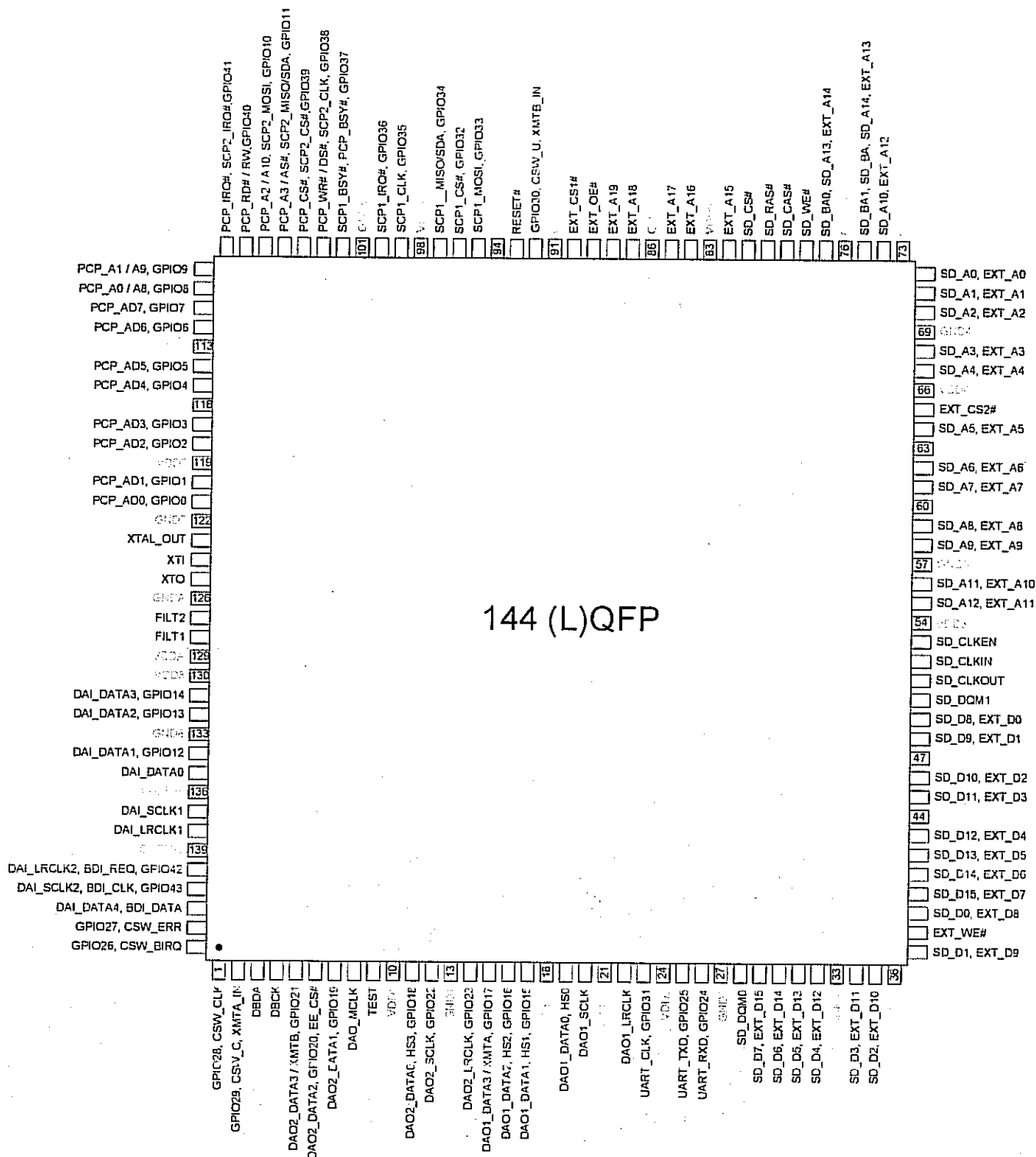


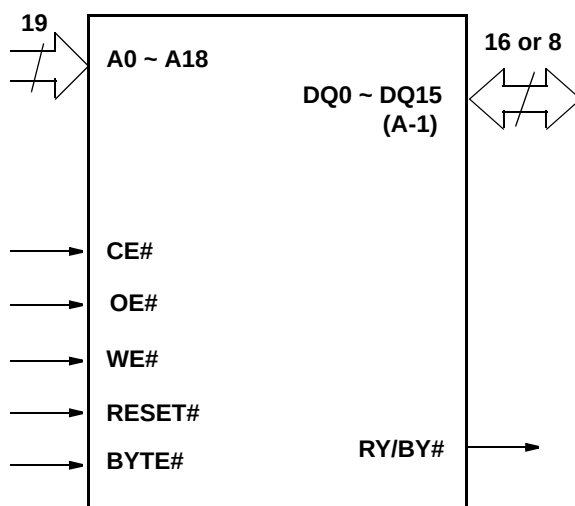
Figure 23. 144-Pin (L)QFP Package Pinout



PIN DESCRIPTION

Pin	Description
A0-A18	19 Addresses
DQ0-DQ14	15 Data Inputs/Outputs
DQ15/A-1	DQ15 (Data Input/Output, Word Mode) A-1 (LSB Address Input, Byte Mode)
CE#	Chip Enable
OE#	Output Enable
WE#	Write Enable
RESET#	Hardware Reset Pin, Active Low
BYTE#	Selects 8-bit or 16-bit mode
RY/BY#	Ready/Busy Output
Vcc	3.0 volt-only single power supply (see Product Selector Guide for speed options and voltage supply tolerances)
Vss	Device Ground
NC	Pin Not Connected Internally

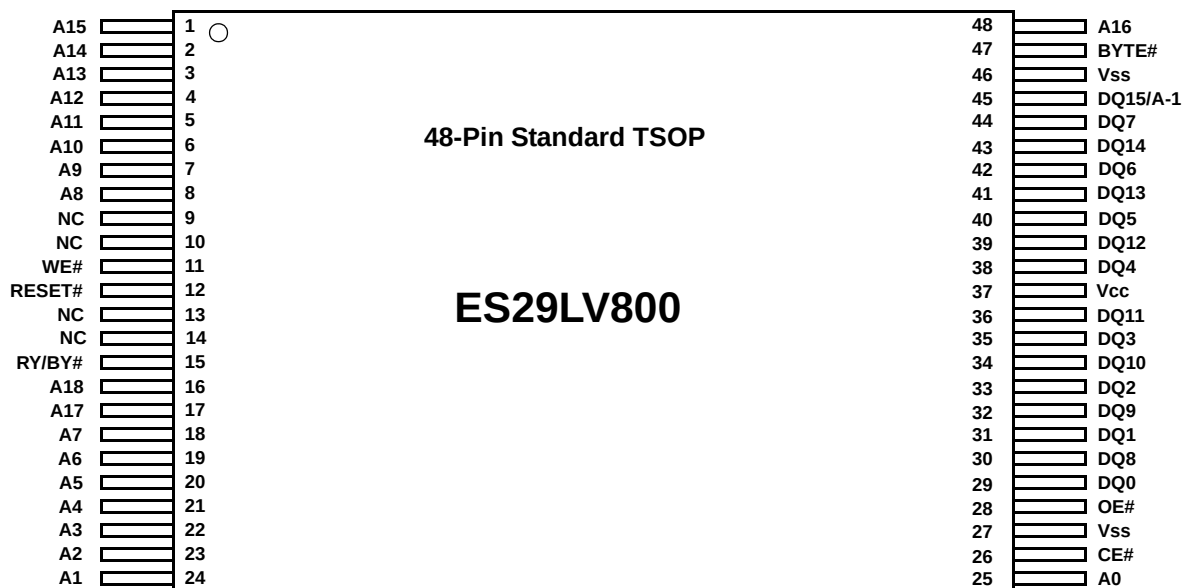
LOGIC SYMBOL



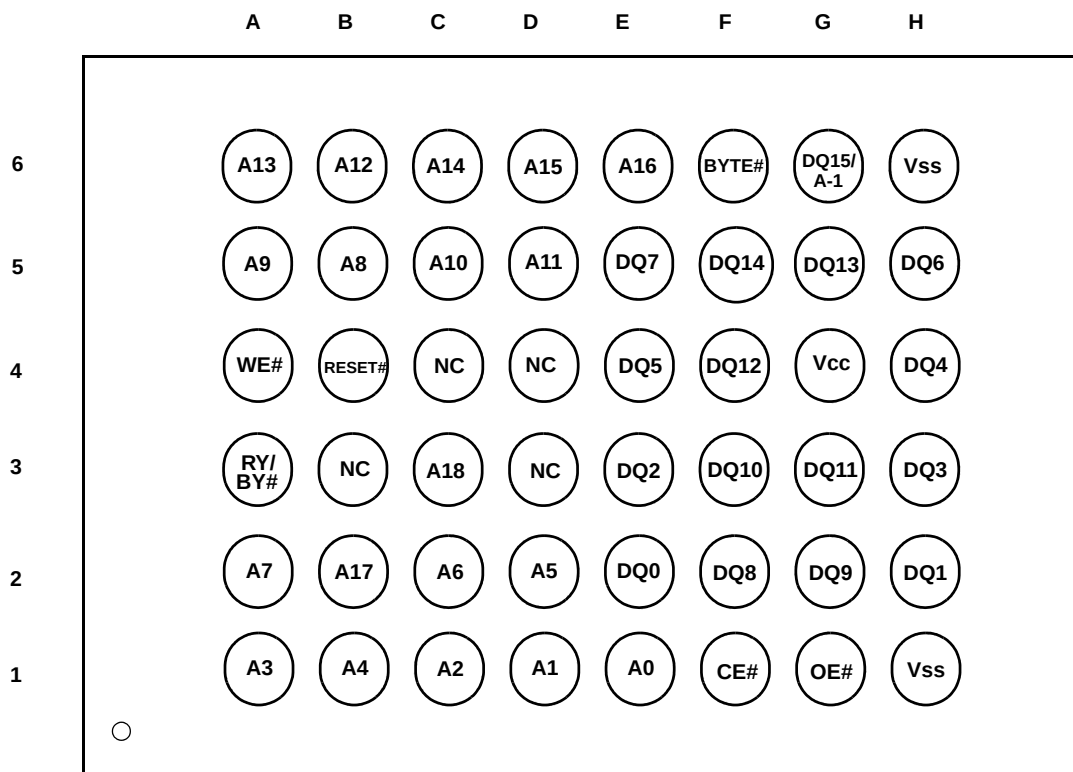


Excel Semiconductor inc.

CONNECTION DIAGRAM



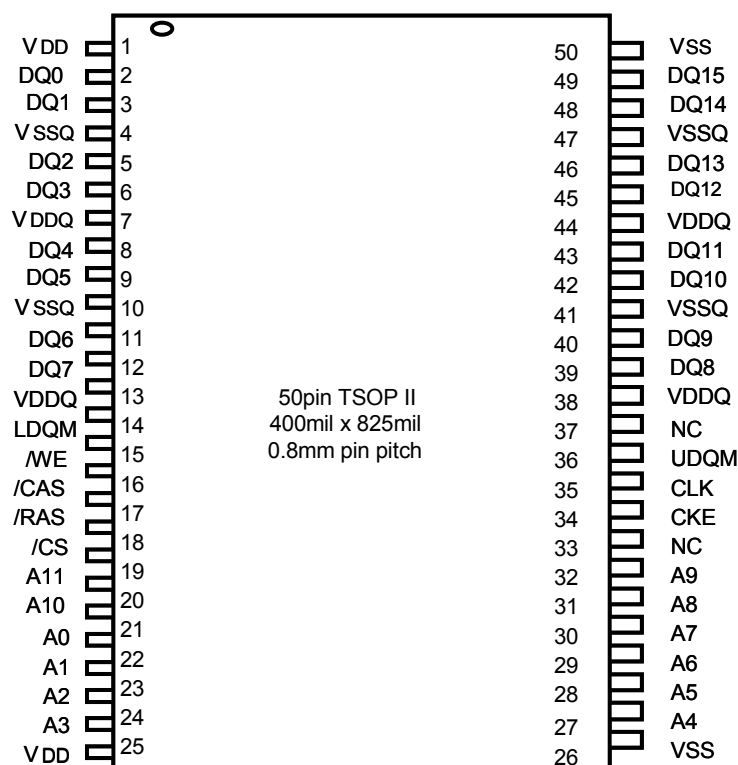
48-Ball FBGA (6 x 8 mm) (Top View, Balls Facing Down)





HY57V161610E

PIN CONFIGURATION



PIN DESCRIPTION

PIN	PIN NAME	DESCRIPTION
CLK	Clock	The system clock input. All other inputs are referenced to the SDRAM on the rising edge of CLK.
CKE	Clock Enable	Controls internal clock signal and when deactivated, the SDRAM will be one of the states among power down, suspend or self refresh.
$\overline{\text{CS}}$	Chip Select	Command input enable or mask except CLK, CKE and DQM
BA	Bank Address	Select either one of banks during both $\overline{\text{RAS}}$ and $\overline{\text{CAS}}$ activity.
A0 ~ A10	Address	Row Address : RA0 ~ RA10, Column Address : CA0 ~ CA7 Auto-precharge flag : A10
$\overline{\text{RAS}}$, $\overline{\text{CAS}}$, $\overline{\text{WE}}$	Row Address Strobe, Column Address Strobe, Write Enable	$\overline{\text{RAS}}$, $\overline{\text{CAS}}$ and $\overline{\text{WE}}$ define the operation. Refer function truth table for details
LDQM, UDQM	Data Input/Output Mask	DQM control output buffer in read mode and mask input data in write mode
DQ0 ~ DQ15	Data Input/Output	Multiplexed data input / output pin
VDD/VSS	Power Supply/Ground	Power supply for internal circuit and input buffer
VDDQ/VSSQ	Data Output Power/Ground	Power supply for DQ
NC	No Connection	No connection



NJM2391

LOW DROPOUT VOLTAGE REGULATOR

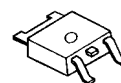
■ GENERAL DESCRIPTION

The NJM2391 is low dropout voltage regulators featuring high precision voltage.

It is suitable for Notebook PCs, PC cards and hard disks where 3.3V need to be generated from 5V supply.

A small TO-252 package is adopted for the space saving.

■ PACKAGE OUTLINE

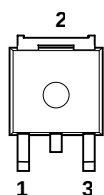


NJM2391DL1

■ FEATURES

- Output Current $I_o(\text{max.})=1\text{A}$
- High Precision Output Voltage $V_o\pm 1\%$
- Low Dropout Voltage $\Delta V_{I-O}=1.1\text{V typ. At } I_o=1\text{A}$
- Internal Excessive Voltage Protection Circuit
- Internal Short Circuit Current Limit
- Internal Thermal Overload Protection
- Bipolar Technology
- Package Outline TO-252

■ PIN CONFIGURATION



PIN FUNCTION

- 1. V_{IN}
- 2. GND
- 3. V_{OUT}

NJM2391DL1

■ ABSOLUTE MAXIMUM RATINGS

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

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V^+	+10	V
Power Dissipation	P_D	TO-252 8 ($T_c=25^\circ\text{C}$) 0.8 ($T_a\leq 25^\circ\text{C}$)	W
Operating Temperature	T_{opr}	$-40 \sim +85$	$^\circ\text{C}$
Storage Temperature	T_{stg}	$-50 \sim +125$	$^\circ\text{C}$

■ OUTPUT VOLTAGE RANK LIST

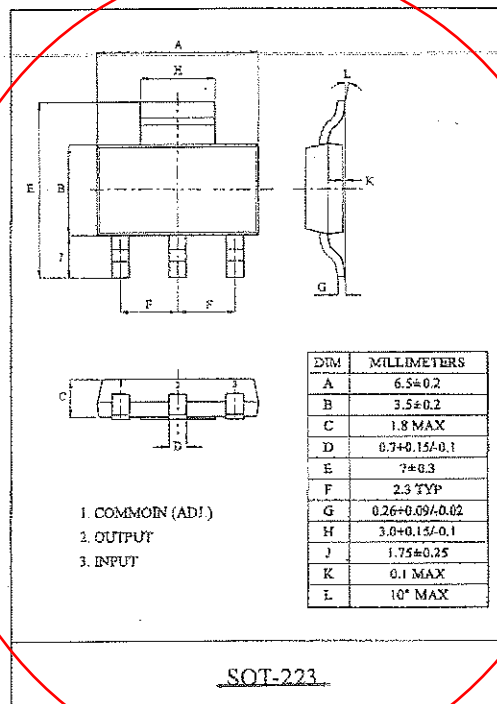
Device Name	V_{OUT}
NJM2391DL1-25	2.5V
NJM2391DL1-26	2.6V
NJM2391DL1-28	2.85V
NJM2391DL1-03	3.0V
NJM2391DL1-33	3.3V
NJM2391DL1-35	3.5V
NJM2391DL1-05	5.0V

KEC**SEMICONDUCTOR
TECHNICAL DATA****KIA1117S/F00~
KIA1117S/F50
BIPOLAR LINEAR INTEGRATED CIRCUIT****LOW DROP FIXED AND ADJUSTABLE
POSITIVE VOLTAGE REGULATOR**

The KIA1117S/F × × is a Low Drop Voltage Regulator able to provide up to 1A of output current, available even in adjustable version ($V_{ref}=1.25V$)

FEATURES

- Low Dropout Voltage : 1.1V/Typ. ($I_{out}=1.0A$)
- Very Low Quiescent Current : 4.2mA/Typ.
- Output Current up to 1A
- Fixed Output Voltage of 1.5V, 1.8V, 2.5V, 2.85V, 3.3V, 5.0V
- Adjustable Version Availability : $V_{ref}=1.25V$
- Internal Current and Thermal Limit
- Only 10 μF for stability
- Available in $\pm 2\%$ (at 25 °C) and 4% in full Temperature range
- High Ripple Rejection : 80dB/Typ
- Temperature Range : 0 °C ~ 125 °C

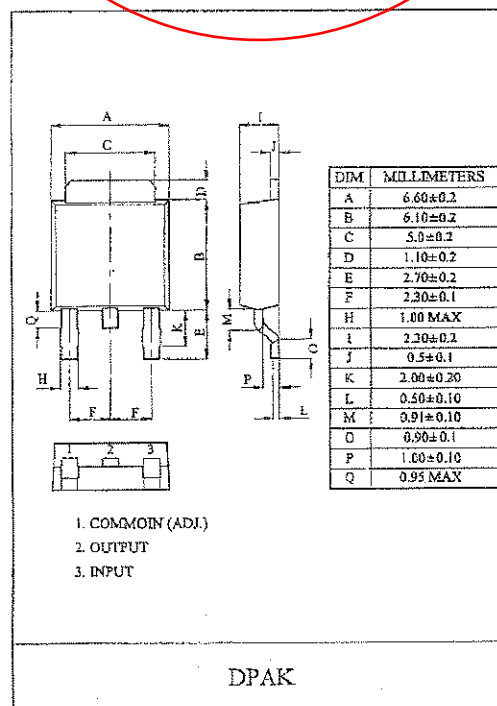
**LINE UP**

ITEM	OUTPUT VOLTAGE (V)	PACKAGE
KIA1117S/F00	Adjustable (1.25~10V)	S : SOT-223 F : DPAK
KIA1117S/F15	1.5	
KIA1117S/F18	1.8	
KIA1117S/F25	2.5	
KIA1117S/F28	2.85	
KIA1117S/F33	3.3	
KIA1117S/F50	5.0	

MAXIMUM RATINGS (Ta=25 °C)

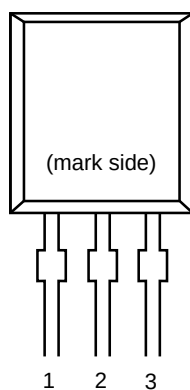
CHARACTERISTIC		SYMBOL	RATING	UNIT
Input Voltage		V_{IN}	10	V
Output Current	S/F	I_{OUT}	1.0	A
Power Dissipation 1 (No heatsink)	S (Note)	P_{D1}	1.0	W
	F		1.3	
Power Dissipation 2 (Without heatsink)	S	P_{D2}	8.3	W
	F		13	
Operating Temperature		T_{opr}	0 ~ 125	°C
Storage Temperature		T_{stg}	-55 ~ 150	°C

Note) Package Mounted on FR-4 PCB 36 × 18 × 1.5 mm,
: mounting pad for the GND Lead min. 6mm²

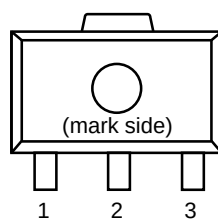


PIN CONFIGURATION

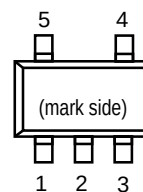
• TO-92



• 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

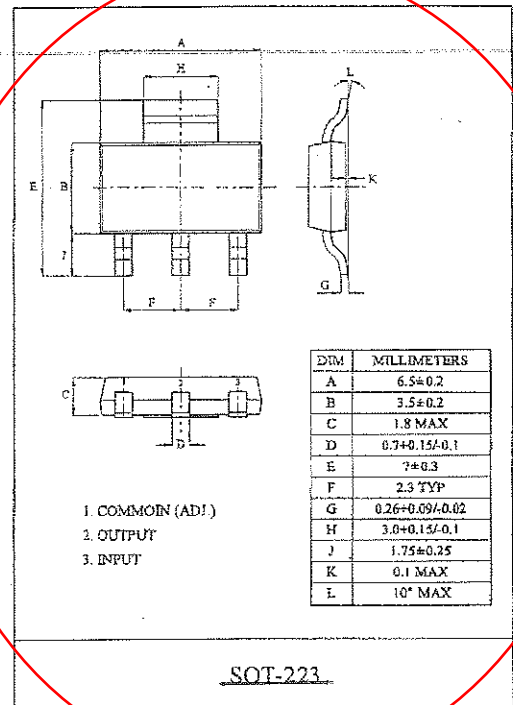
Pin No.	Symbol
1	OUT
2	V _{DD}
3	GND
4	NC
5	NC

KEC**SEMICONDUCTOR
TECHNICAL DATA****KIA1117S/F00~
KIA1117S/F50
BIPOLAR LINEAR INTEGRATED CIRCUIT****LOW DROP FIXED AND ADJUSTABLE
POSITIVE VOLTAGE REGULATOR**

The KIA1117S/F × × is a Low Drop Voltage Regulator able to provide up to 1A of output current, available even in adjustable version ($V_{ref}=1.25V$)

FEATURES

- Low Dropout Voltage : 1.1V/Typ. ($I_{out}=1.0A$)
- Very Low Quiescent Current : 4.2mA/Typ.
- Output Current up to 1A
- Fixed Output Voltage of 1.5V, 1.8V, 2.5V, 2.85V, 3.3V, 5.0V
- Adjustable Version Availability : $V_{ref}=1.25V$
- Internal Current and Thermal Limit
- Only 10 μF for stability
- Available in $\pm 2\%$ (at 25 °C) and 4% in full Temperature range
- High Ripple Rejection : 80dB/Typ
- Temperature Range : 0 °C ~ 125 °C

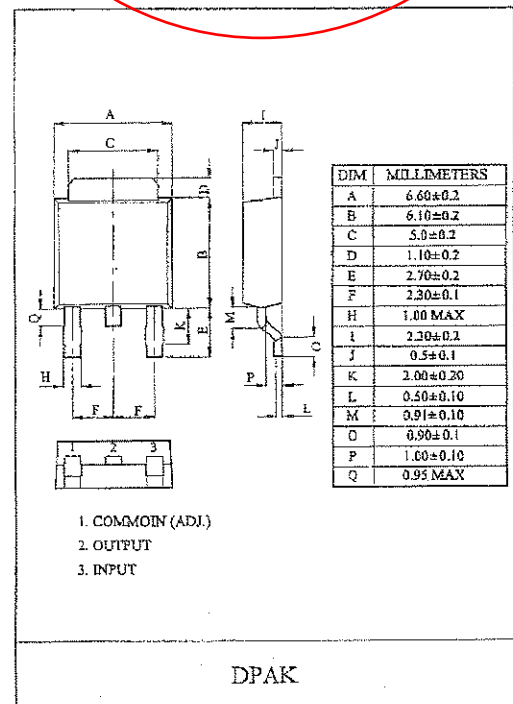
**LINE UP**

ITEM	OUTPUT VOLTAGE (V)	PACKAGE
KIA1117S/F00	Adjustable (1.25~10V)	S : SOT-223 F : DPAK
KIA1117S/F15	1.5	
KIA1117S/F18	1.8	
KIA1117S/F25	2.5	
KIA1117S/F28	2.85	
KIA1117S/F33	3.3	
KIA1117S/F50	5.0	

MAXIMUM RATINGS (Ta=25 °C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Input Voltage		V_{IN}	10	V
Output Current	S/F	I_{OUT}	1.0	A
Power Dissipation 1 (No heatsink)	S (Note)	P_{D1}	1.0	W
	F		1.3	
Power Dissipation 2 (Without heatsink)	S	P_{D2}	8.3	W
	F		13	
Operating Temperature		T_{opr}	0 ~ 125	°C
Storage Temperature		T_{stg}	-55 ~ 150	°C

Note) Package Mounted on FR-4 PCB 36 × 18 × 1.5 mm,
: mounting pad for the GND Lead min. 6mm²





M24C64

M24C32

64Kbit and 32Kbit Serial I²C Bus EEPROM

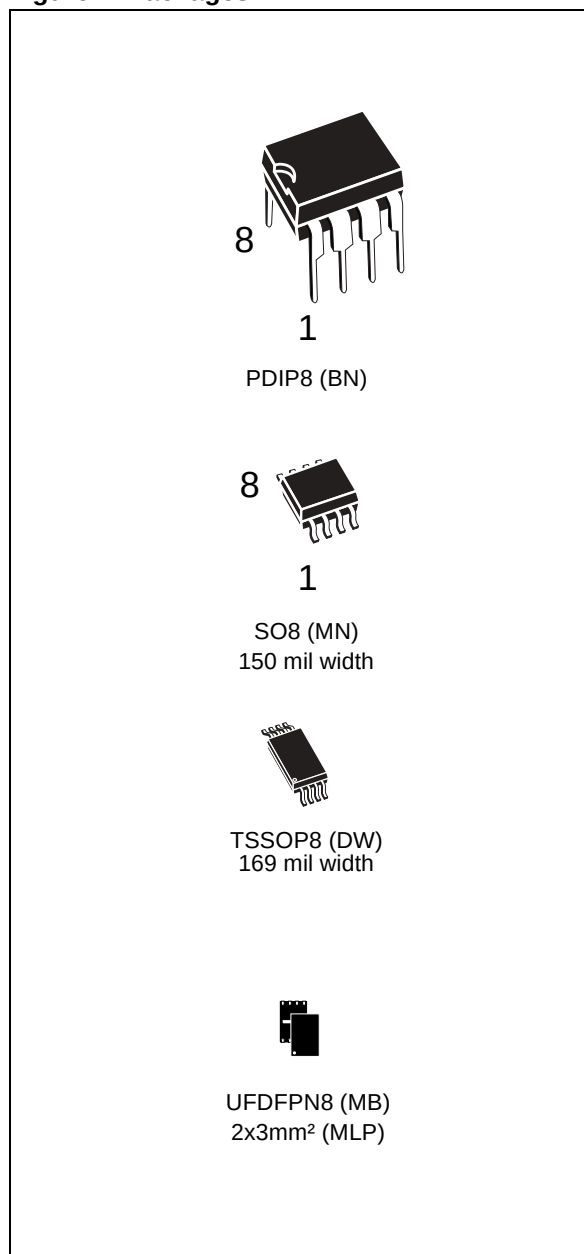
FEATURES SUMMARY

- Two-Wire I²C Serial Interface
Supports 400kHz Protocol
- Single Supply Voltage:
 - 4.5 to 5.5V for M24Cxx
 - 2.5 to 5.5V for M24Cxx-W
 - 1.8 to 5.5V for M24Cxx-R
- Write Control Input
- BYTE and PAGE WRITE (up to 32 Bytes)
- RANDOM and SEQUENTIAL READ Modes
- Self-Timed Programming Cycle
- Automatic Address Incrementing
- Enhanced ESD/Latch-Up Protection
- More than 1 Million Erase/Write Cycles
- More than 40-Year Data Retention

Table 1. Product List

Reference	Part Number
M24C64	M24C64
	M24C64-W
	M24C64-R
M24C32	M24C32
	M24C32-W
	M24C32-R

Figure 1. Packages

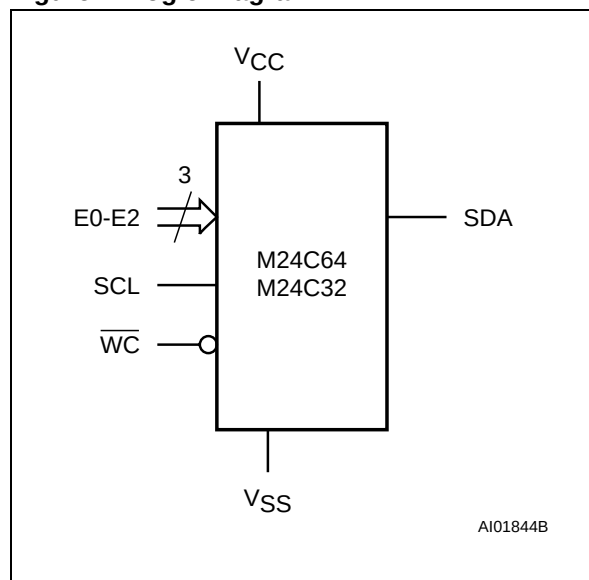


M24C64, M24C32

SUMMARY DESCRIPTION

These I²C-compatible electrically erasable programmable memory (EEPROM) devices are organized as 8192 x 8 bits (M24C64) and 4096 x 8 bits (M24C32).

Figure 2. Logic Diagram



I²C uses a two-wire serial interface, comprising a bi-directional data line and a clock line. The devices carry a built-in 4-bit Device Type Identifier code (1010) in accordance with the I²C bus definition.

The device behaves as a slave in the I²C protocol, with all memory operations synchronized by the serial clock. Read and Write operations are initiated by a Start condition, generated by the bus master. The Start condition is followed by a Device Select Code and Read/Write bit (RW) (as described in Table 3.), terminated by an acknowledge bit.

When writing data to the memory, the device inserts an acknowledge bit during the 9th bit time, following the bus master's 8-bit transmission. When data is read by the bus master, the bus master acknowledges the receipt of the data byte in the same way. Data transfers are terminated by a Stop condition after an Ack for Write, and after a NoAck for Read.

Table 2. Signal Names

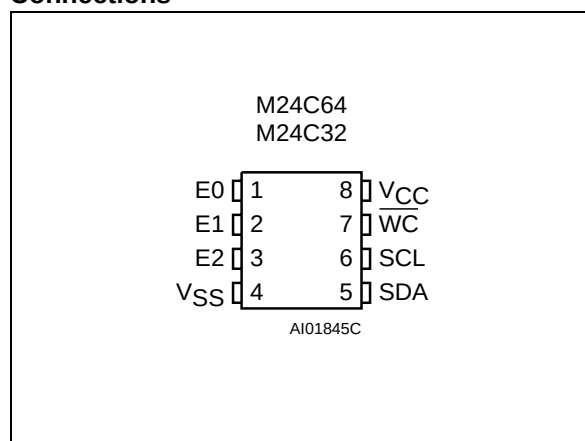
E0, E1, E2	Chip Enable
SDA	Serial Data
SCL	Serial Clock
$\overline{WC}$	Write Control
VCC	Supply Voltage
VSS	Ground

Power On Reset: VCC Lock-Out Write Protect

In order to prevent data corruption and inadvertent Write operations during Power-up, a Power On Reset (POR) circuit is included. At Power-up, the internal reset is held active until VCC has reached the Power On Reset (POR) threshold voltage, and all operations are disabled – the device will not respond to any command. In the same way, when VCC drops from the operating voltage, below the Power On Reset (POR) threshold voltage, all operations are disabled and the device will not respond to any command.

A stable and valid VCC (as defined in Table 9. and Table 10.) must be applied before applying any logic signal.

Figure 3. DIP, SO, TSSOP and UFDFPN Connections



Note: See PACKAGE MECHANICAL section for package dimensions, and how to identify pin-1.

2. Pin Assignment and Pin Functions

The assignment of input/output pins for the T5CC1, their names and functions are as follows:

2.1 Pin Assignment Diagram

Figure 2.1.1 shows the pin assignment of the T5CC1.

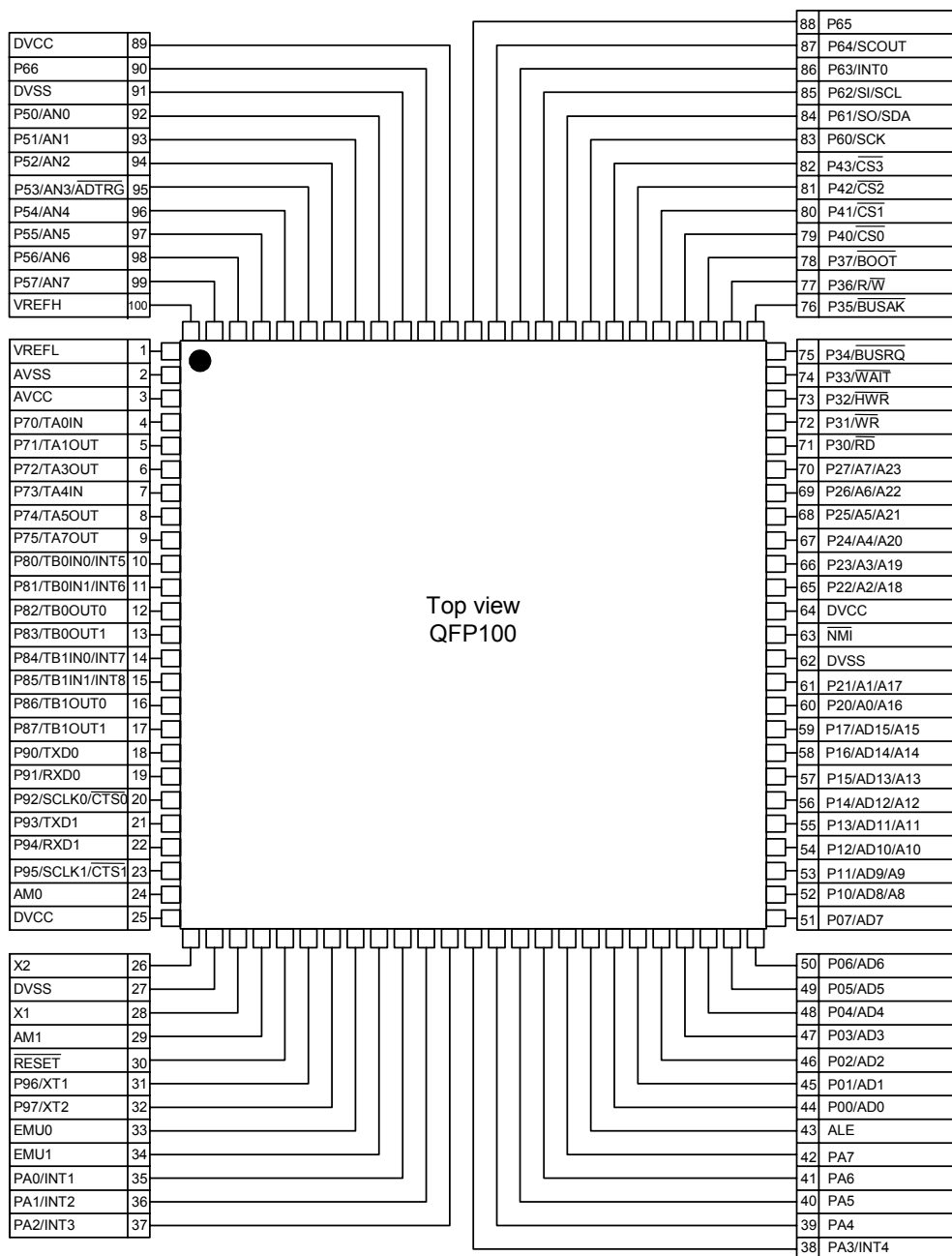


Figure 2.1.1 Pin assignment diagram (100-pin LQFP)

2.2 Pin Names and Functions

The names of the input/output pins and their functions are described below.

Table 2.2.1 Pin names and functions.

Table 2.2.1 Pin names and functions (1/3)

Pin Name	Number of Pins	I/O	Functions
P00~P07 AD0~AD7	8	I/O I/O	Port 0: I/O port that allows I/O to be selected at the bit level Address and data (lower): Bits 0 to 7 of address and data bus
P10~P17 AD8~AD15 A8~A15	8	I/O I/O Output	Port 1: I/O port that allows I/O to be selected at the bit level Address and data (upper): Bits 8 to 15 for address and data bus Address: Bits 8 to 15 of address bus
P20~P27 A0~A7 A16~A23	8	I/O Output Output	Port 2: I/O port that allows I/O to be selected at the bit level Address: Bits 0 to 7 of address bus Address: Bits 16 to 23 of address bus
P30 RD	1	Output Output	Port 30: Output port Read: Strobe signal for reading external memory This port output RD signal also case of reading internal-area by setting P3 <P30> = 0 and P3FC <P30F> = 1.
P31 WR	1	Output Output	Port 31: Output port Write: Strobe signal for writing data to pins AD0 to AD7
P32 HWR	1	I/O Output	Port 32: I/O port (with pull-up resistor) High Write: Strobe signal for writing data to pins AD8 to AD15
P33 WAIT	1	I/O Input	Port 33: I/O port (with pull-up resistor) Wait: Pin used to request CPU bus wait ((1+N) WAIT mode)
P34 BUSRQ	1	I/O Input	Port 34: I/O port (with pull-up resistor) Bus Request: Signal used to request Bus Release
P35 BUSAK	1	I/O Output	Port 35: I/O port (with pull-up resistor) Bus Acknowledge: Signal used to acknowledge Bus Release
P36 R/W	1	I/O Output	Port 36: I/O port (with pull-up resistor) Read/Write: 1 represents Read or Dummy cycle; 0 represents Write cycle.
P37 BOOT	1	I/O Input	Port 36: I/O port (with pull-up resistor) This pin sets single boot mode. When released reset, Single boot mode is started at P37=Low level.
P40 CS0	1	I/O Output	Port 40: I/O port (with pull-up resistor) Chip Select 0: Outputs 0 when address is within specified address area
P41 CS1	1	I/O Output	Port 41: I/O port (with pull-up resistor) Chip Select 1: Outputs 0 if address is within specified address area
P42 CS2	1	I/O Output	Port 42: I/O port (with pull-up resistor) Chip Select 2: Outputs 0 if address is within specified address area
P43 CS3	1	I/O Output	Port 43: I/O port (with pull-up resistor) Chip Select 3: Outputs 0 if address is within specified address area
P50~P57 AN0~AN7 ADTRG	8	Input Input Input	Port 5: Pin used to input port Analog input: Pin used to input to AD converter AD Trigger: Signal used to request start of AD converter (Shared with53 pin)

Table 2.2.1 Pin names and functions (2/3)

Pin Name	Number of Pins	I/O	Functions
P60 SCK	1	I/O I/O	Port 60: I/O port Serial bus interface clock in SIO Mode
P61 SO SDA	1	I/O Output I/O	Port 61: I/O port Serial bus interface send data at SIO mode Serial bus interface send/recv data at I ² C bus mode Open-drain output mode by programmable
P62 SI SCL	1	I/O Input I/O	Port 62: I/O port Serial bus interface receive data at SIO mode Serial bus interface clock I/O data at I ² C bus mode Open-drain output mode by programmable
P63 INT0	1	I/O Input	Port 63: I/O port Interrupt Request Pin 0: Interrupt request pin with programmable level / rising edge / falling edge
P64 SCOUT	1	I/O Output	Port 64: I/O port System Clock Output: Outputs f _{FPH} or fs clock.
P65	1	I/O	Port 65 I/O port
P66	1	I/O	Port 66 I/O port
P70 TA0IN	1	I/O Input	Port 70 I/O port 8-bit timer 0 input: Timer 0 input
P71 TA1OUT	1	I/O Output	Port 71 I/O port 8-bit timer 1 output: Timer 0 or Timer 1 output
P72 TA3OUT	1	I/O Output	Port 72 I/O port 8-bit 8-bit timer 3 output: Timer 2 or Timer 3 output
P73 TA4IN	1	I/O Input	Port 73: I/O port 8-bit timer 4 input: Timer 4 input
P74 TA5OUT	1	I/O Output	Port 74: I/O port 8-bit timer 5 output: Timer 4 or Timer 5 output
P75 TA7OUT	1	I/O Output	Port 75: I/O port 88-bit timer 7 output: Timer 6 or Timer 7 output
P80 TB0IN0 INT5	1	I/O Input Input	Port 80: I/O port 16-bit timer 0 input 0: 16-bit Timer 0 count / capture trigger input Interrupt Request Pin 5: Interrupt request pin with programmable rising edge / falling edge.
P81 TB0IN1 INT6	1	I/O Input Input	Port 81: I/O port 16-bit timer 0 input 1: 16-bit Timer 0 count / capture trigger input Interrupt Request Pin 6: Interrupt request on rising edge
P82 TB0OUT0	1	I/O Output	Port 82: I/O port 16-bit timer 0 output 0: 16-bit Timer 0 output
P83 TB0OUT1	1	I/O Output	Port 83: I/O port 16-bit timer 0 output 1: 16-bit Timer 0 output
P84 TB1IN0 INT7	1	I/O Input Input	Port 84: I/O port 16-bit timer 1 input 0: 16-bit Timer 1 count / capture trigger input Interrupt Request Pin 7: Interrupt request pin with programmable rising edge / falling edge.
P85 TB1IN1 INT8	1	I/O Input Input	Port 85: I/O port 16-bit timer 1 input 1: 16-bit Timer 1 count / capture trigger input Interrupt Request Pin 8: Interrupt request on rising edge
P86 TB1OUT0	1	I/O Output	Port 86: I/O port 16-bit timer 1 output 0: 16-bit Timer 1 output 16-bit
P87 TB1OUT1	1	I/O Output	Port 87: I/O port 16-bit timer 1 output 1: 16-bit Timer 1 output 16-bit 16-bit



74ACT04

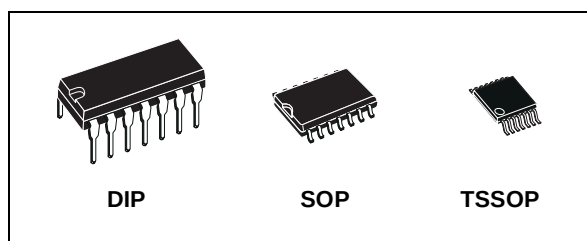
HEX INVERTER

- HIGH SPEED: $t_{PD} = 5.0ns$ (TYP.) at $V_{CC} = 5V$
- LOW POWER DISSIPATION:
 $I_{CC} = 2\mu A$ (MAX.) at $T_A = 25^\circ C$
- COMPATIBLE WITH TTL OUTPUTS
 $V_{IH} = 2V$ (MIN.), $V_{IL} = 0.8V$ (MAX.)
- 50Ω TRANSMISSION LINE DRIVING CAPABILITY
- SYMMETRICAL OUTPUT IMPEDANCE:
 $|I_{OH}| = I_{OL} = 24mA$ (MIN)
- BALANCED PROPAGATION DELAYS:
 $t_{PLH} \approx t_{PHL}$
- OPERATING VOLTAGE RANGE:
 V_{CC} (OPR) = 4.5V to 5.5V
- PIN AND FUNCTION COMPATIBLE WITH 74 SERIES 04
- IMPROVED LATCH-UP IMMUNITY

DESCRIPTION

The 74ACT04 is an advanced high-speed CMOS HEX INVERTER fabricated with sub-micron silicon gate and double-layer metal wiring C²MOS technology.

The internal circuit is composed of 3 stages including buffer output, which enables high noise immunity and stable output.



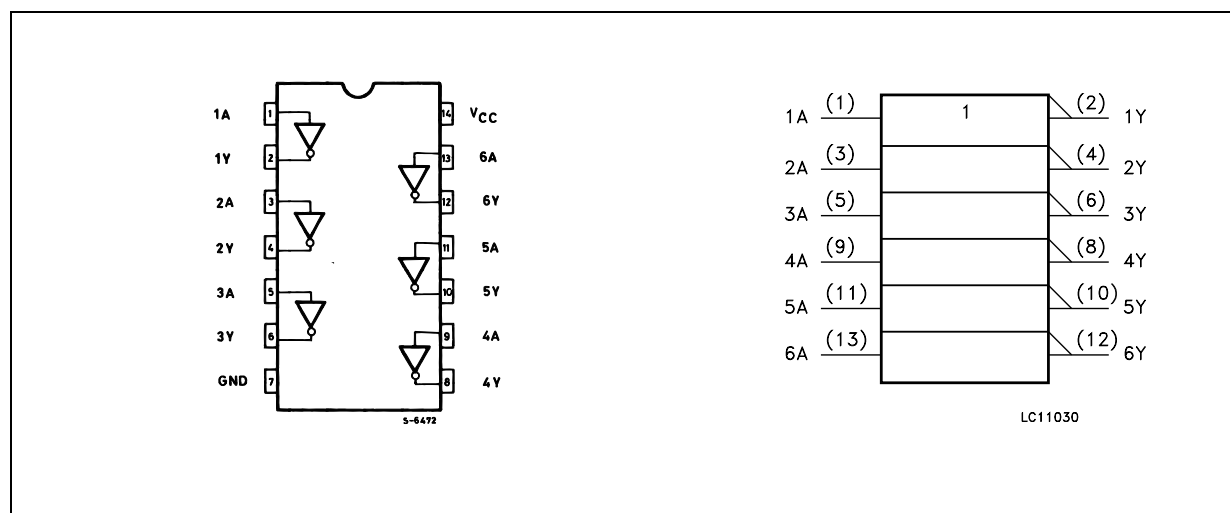
ORDER CODES

PACKAGE	TUBE	T & R
DIP	74ACT04B	
SOP	74ACT04M	74ACT04MTR
TSSOP		74ACT04TTR

The device is designed to interface directly High Speed CMOS systems with TTL, NMOS and CMOS output voltage levels.

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

PIN CONNECTION AND IEC LOGIC SYMBOLS





NJM2595

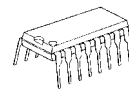
5-INPUT 3-OUTPUT VIDEO SWITCH

■ GENERAL DESCRIPTION

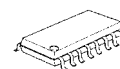
The **NJM2595** is a 5-input 3-output video switch. Its switches select one from five signals received from VTR,TV,DVD, TV-GAME and others.

The NJM2595 is designed for audio items, such as AV amplifier and others.

■ PACKAGE OUTLINE



NJM2595D

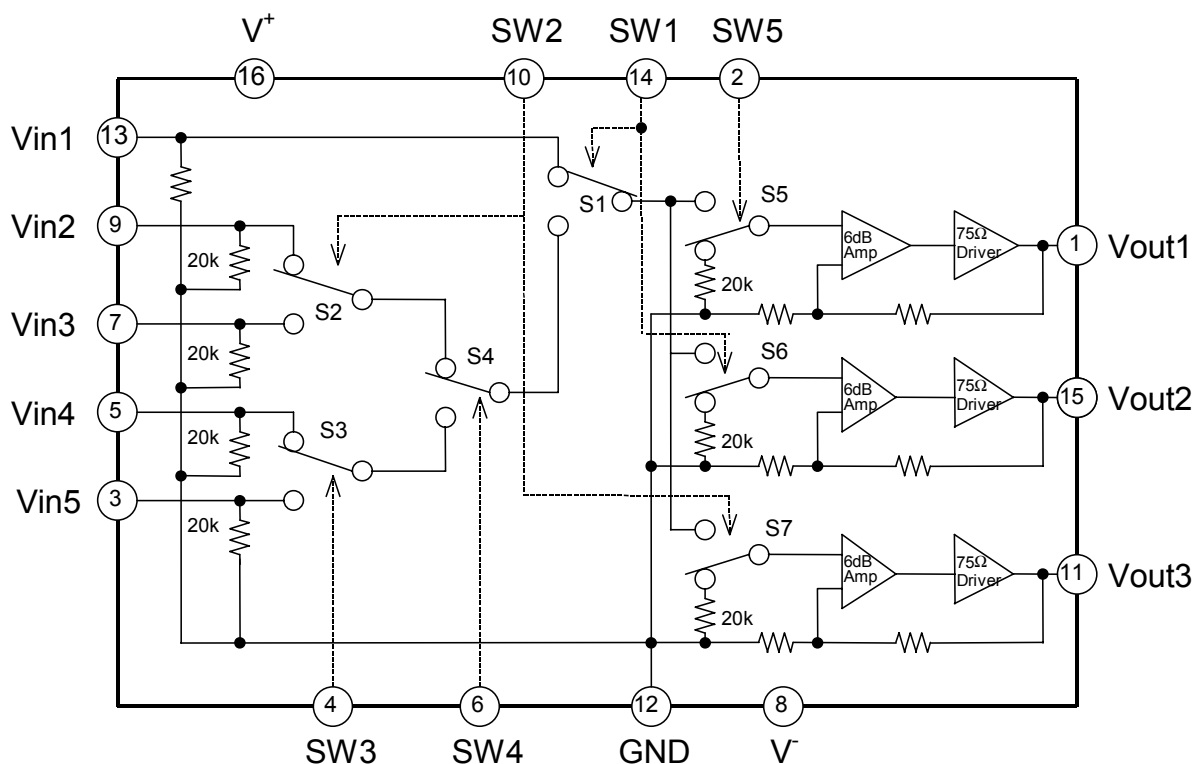


NJM2595M

■ FEATURES

- 5-input 3-output
- Operating Voltage ± 4.0 to $\pm 6.5V$
- Operating current $\pm 15mA_{typ.}$ at $V_{CC} = \pm 5V$
- Crosstalk $-65dB_{typ.}$
- Internal 6dB Amplifier
- Internal 75 Ω Driver
- Bipolar Technology
- Package Outline DIP16,DMP16

■ PIN CONFIGURATION and BLOCK DIAGRAM



KEC

KOREA ELECTRONICS CO.,LTD.

SEMICONDUCTOR
TECHNICAL DATA**KIA7805AP/API~**
KIA7824AP/API

BIPOLAR LINEAR INTEGRATED CIRCUIT

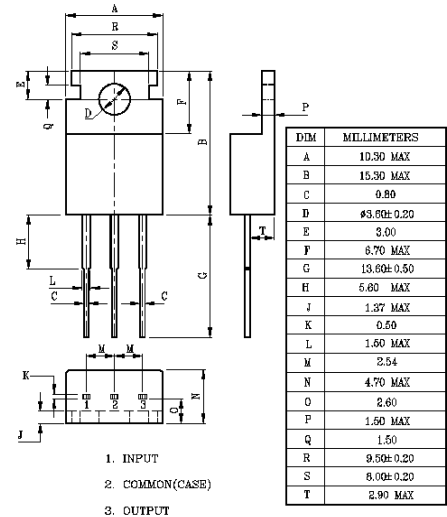
THREE TERMINAL POSITIVE VOLTAGE REGULATORS
5V, 6V, 8V, 9V, 10V, 12V, 15V, 18V, 20V, 24V.

FEATURES

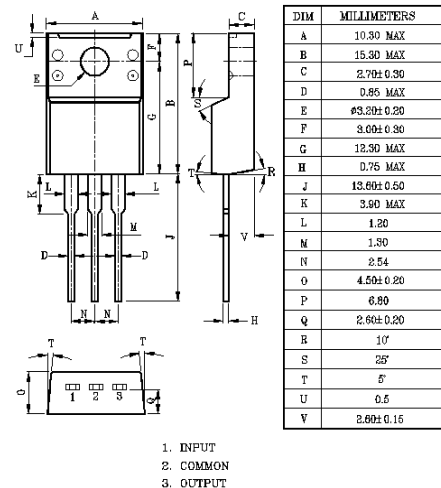
- Suitable for C-MOS, TTL, the Other Digital IC's Power Supply.
- Internal Thermal Overload Protection.
- Internal Short Circuit Current Limiting.
- Output Current in Excess of 1A.
- Satisfies IEC-65 Specification. (International Electronical Commission).

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

CHARACTERISTIC		SYMBOL	RATING	UNIT
Input Voltage	KIA7805AP/API~	V_{IN}	35	V
	KIA7815AP/API			
	KIA7818AP/API~		40	
	KIA7824AP/API			
Power Dissipation ($T_c=25^{\circ}\text{C}$)		P_D	20.8	W
Power Dissipation (Without Heatsink)	KIA7805API~ KIA7824API	P_D	2.0	W
Operating Junction Temperature		T_j	-30~150	$^{\circ}\text{C}$
Storage Temperature		T_{stg}	-55~150	$^{\circ}\text{C}$

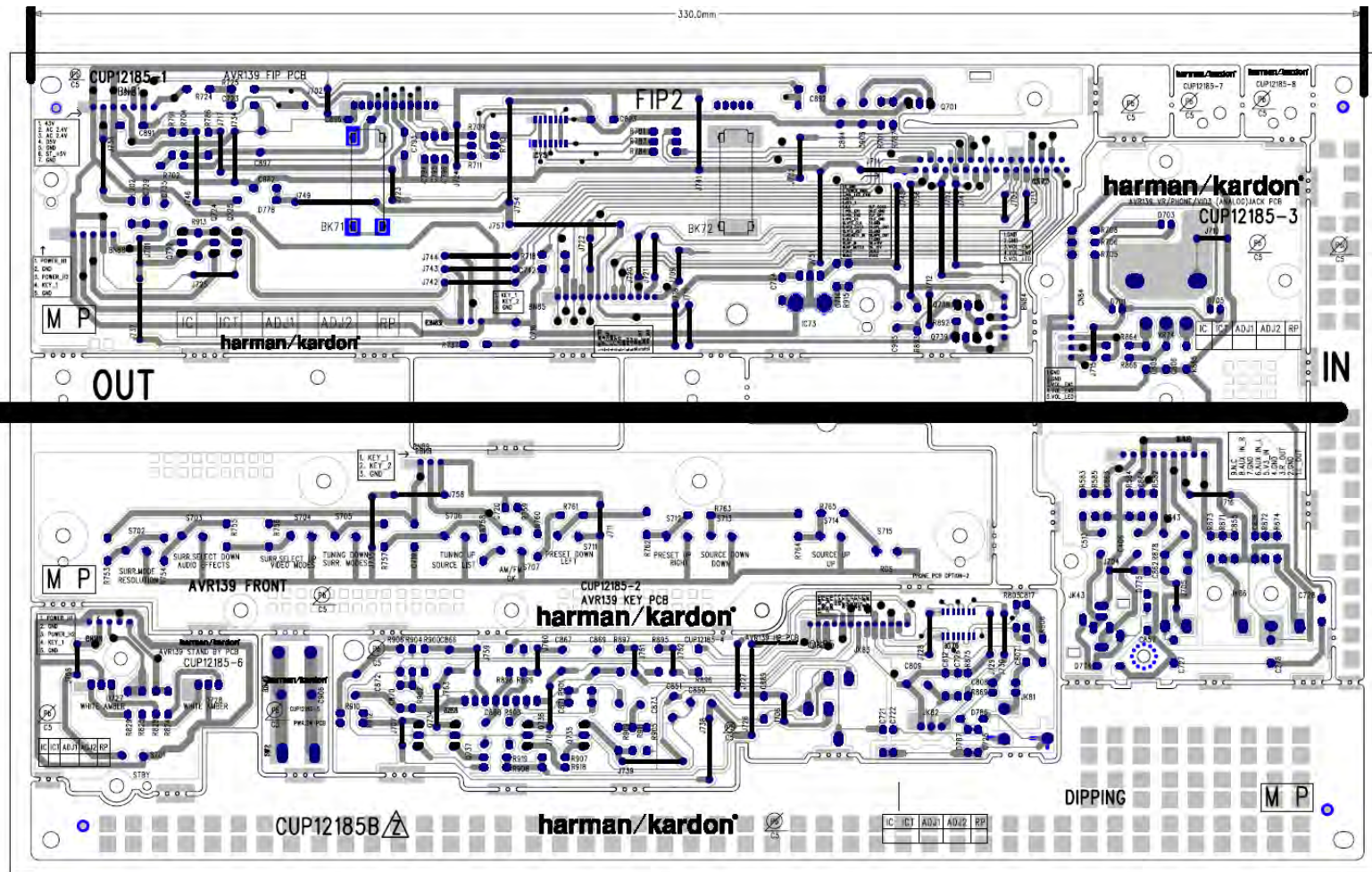


TO-220AB

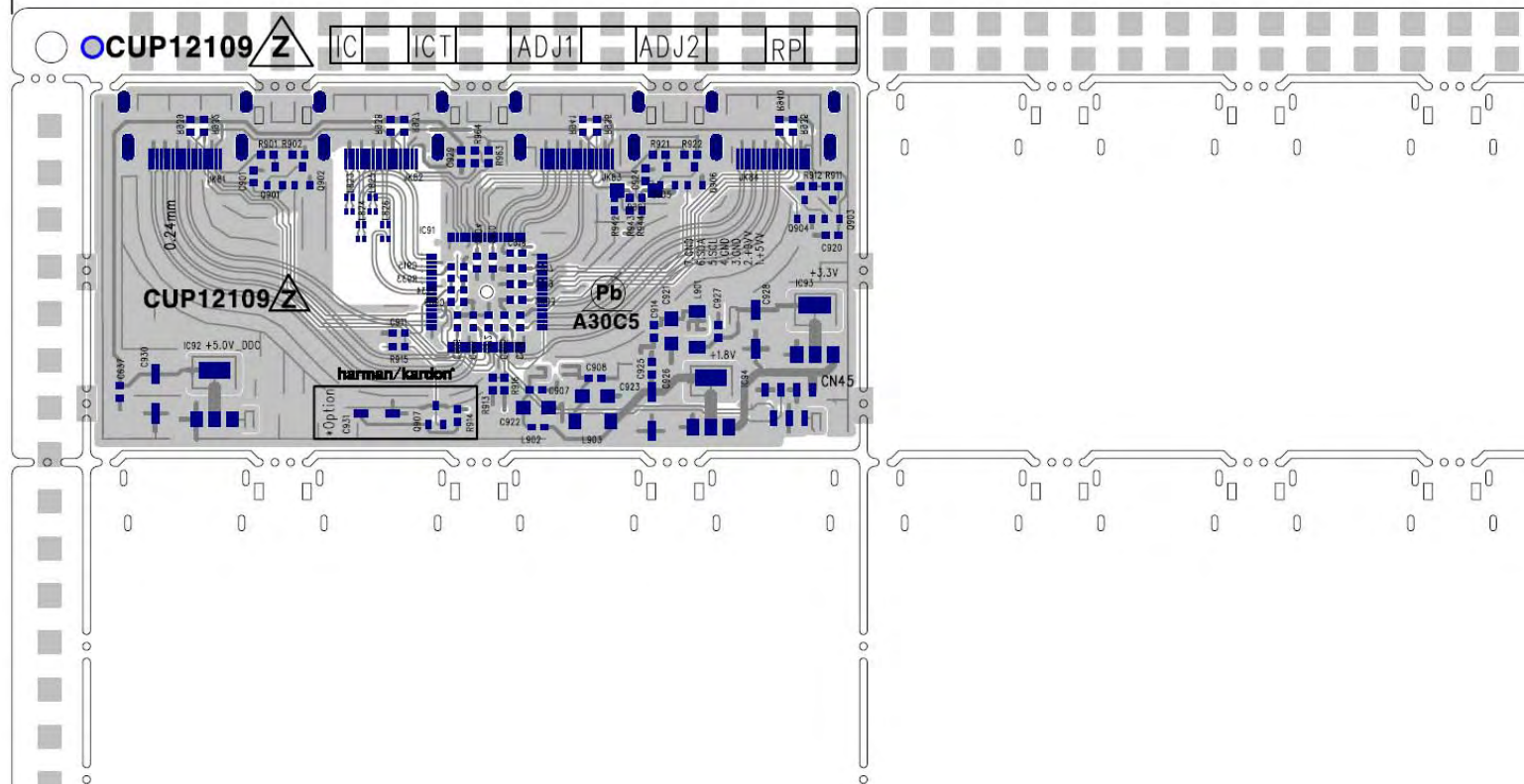


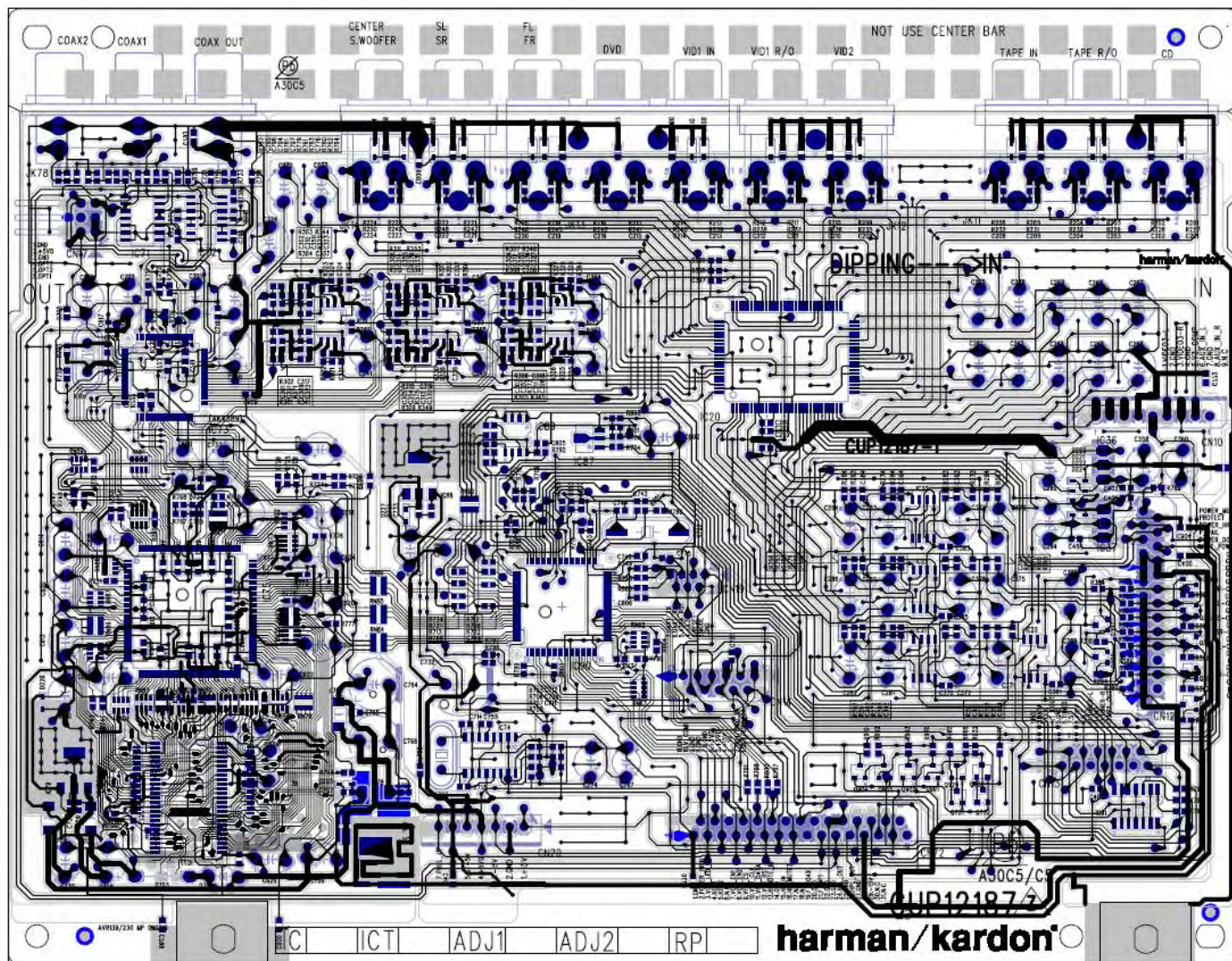
TO-220IS

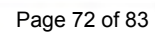
-330.0mm-

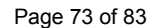


207.0mm

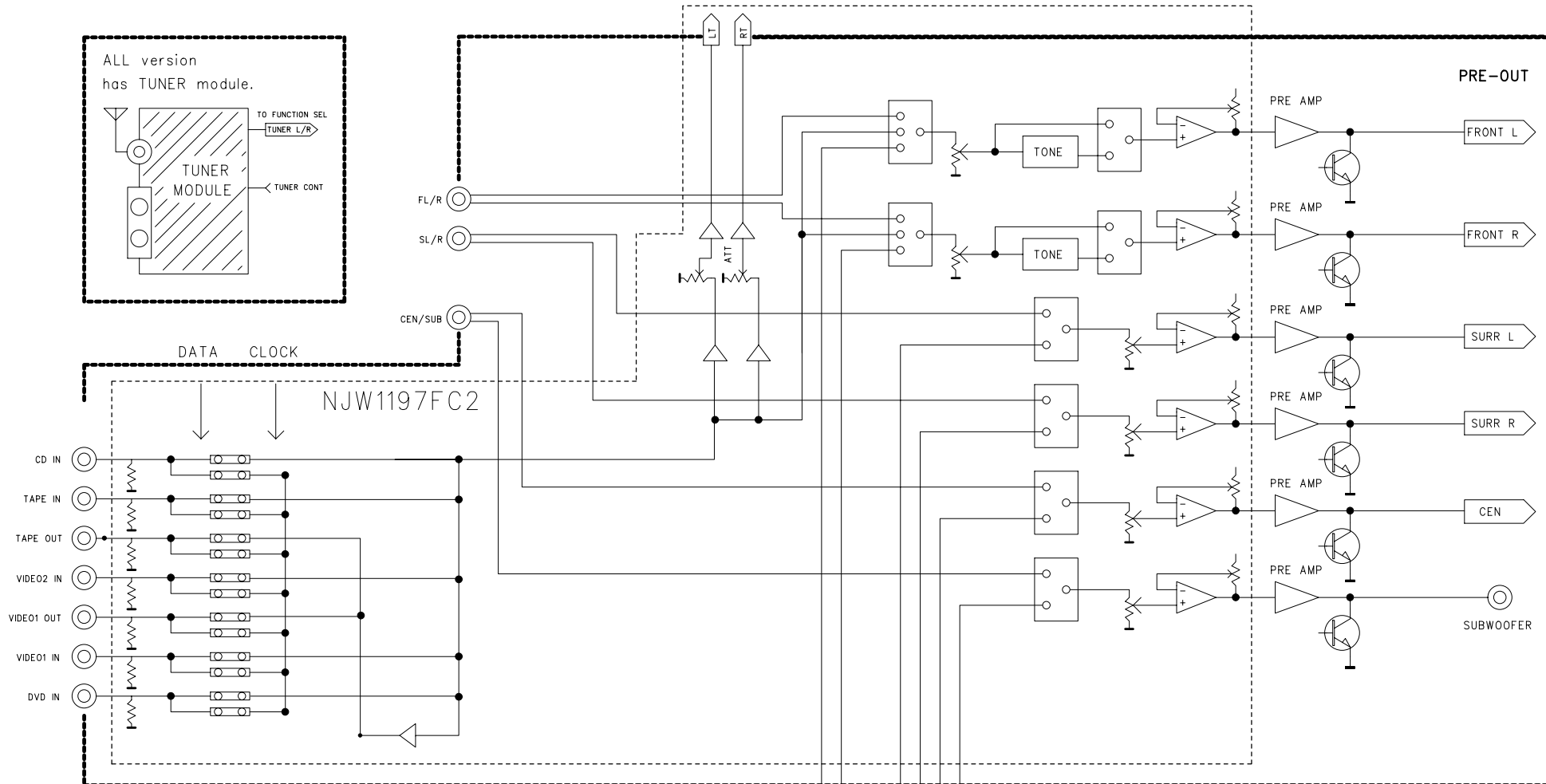




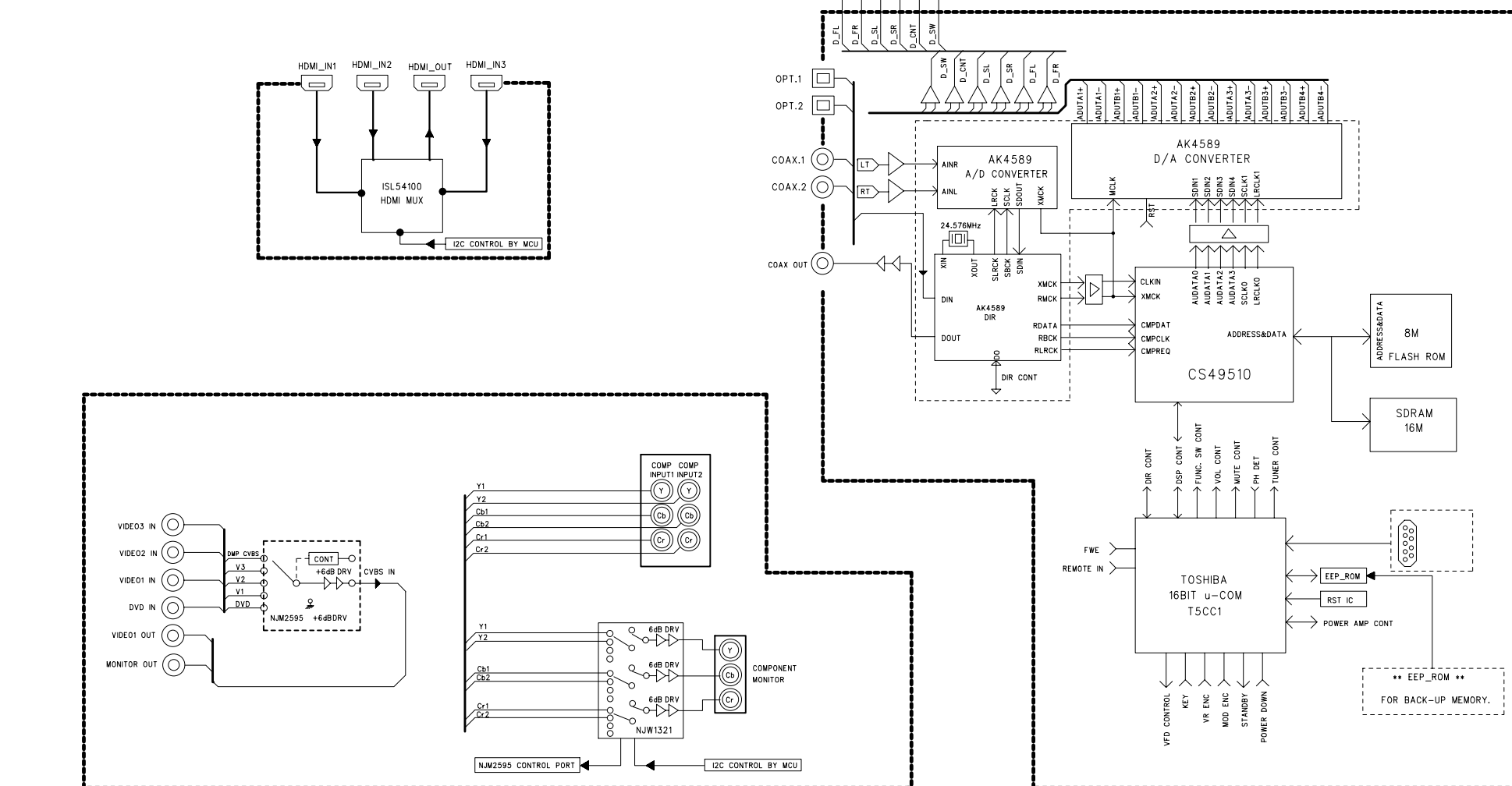




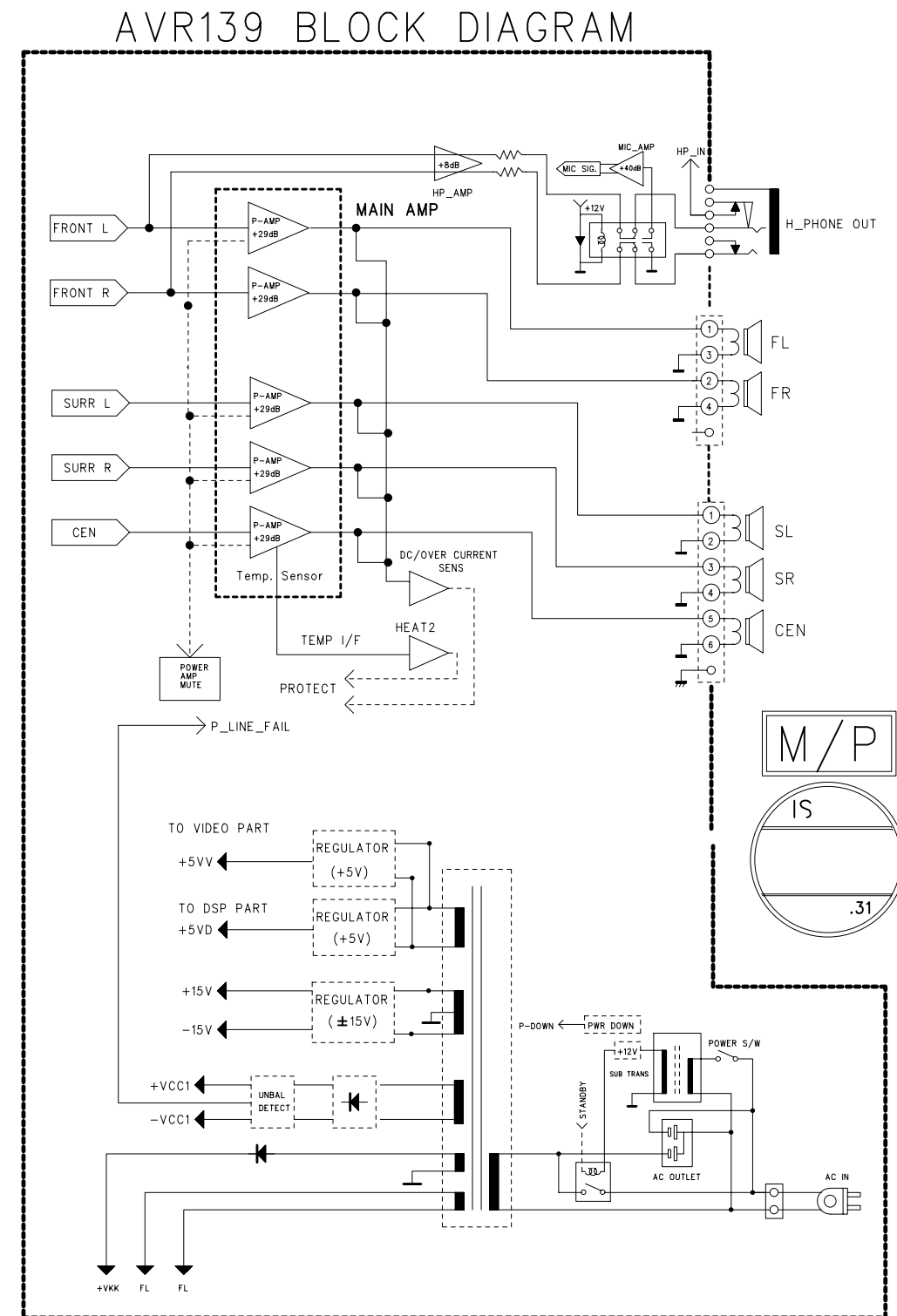
D



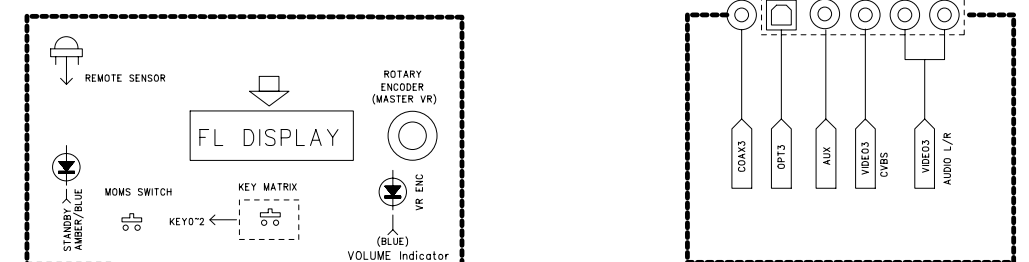
C



B



A



REVISION	2	4	6
1	3	5	7
BLOCK DIAGRAM			SHEET
MODEL	AVR139		1 1
DESIGN	CHECK	APPROVE	DRAWING NO
L.J.W	Y.W.Y.	W.K.S	BLOCK DIAGRAM 2185BEMZ
08.03.31	08.03.31	08.03.31	1 1

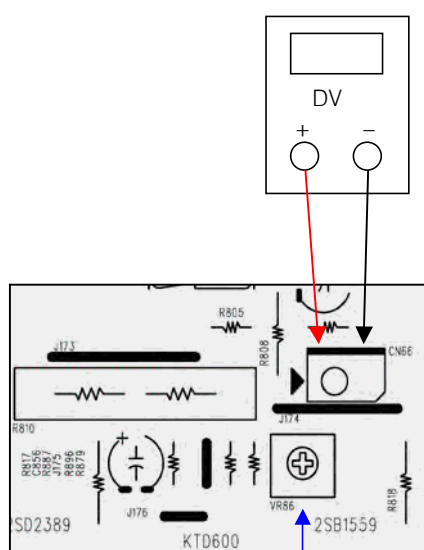
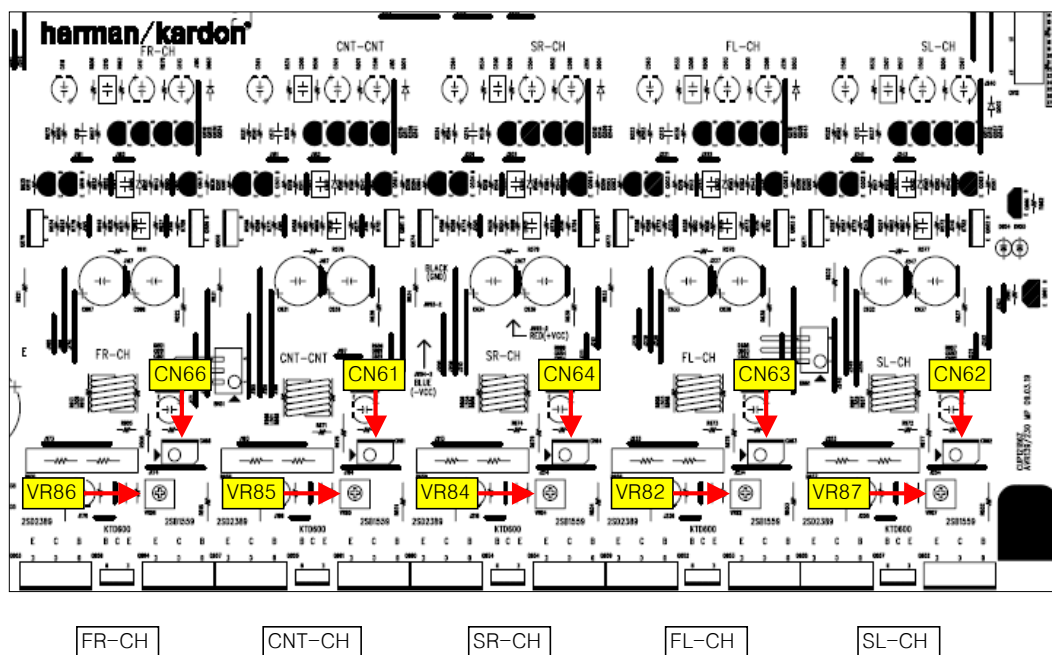
AMPLIFIER SECTION BIAS ADJUSTMENT

Model : AVR139/230, AVR141/230, AVR142/230
 Rated voltage : AC 230V 50 Hz
 Measurement condition : No input signal or volume position is minimum.
 Standard value : 1) Ideal current : 48mA (± 5%)
 2) Ideal DC Voltage : 25.92mV (± 5%)

Date 2009.04.28

JM.Kang

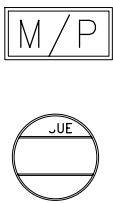
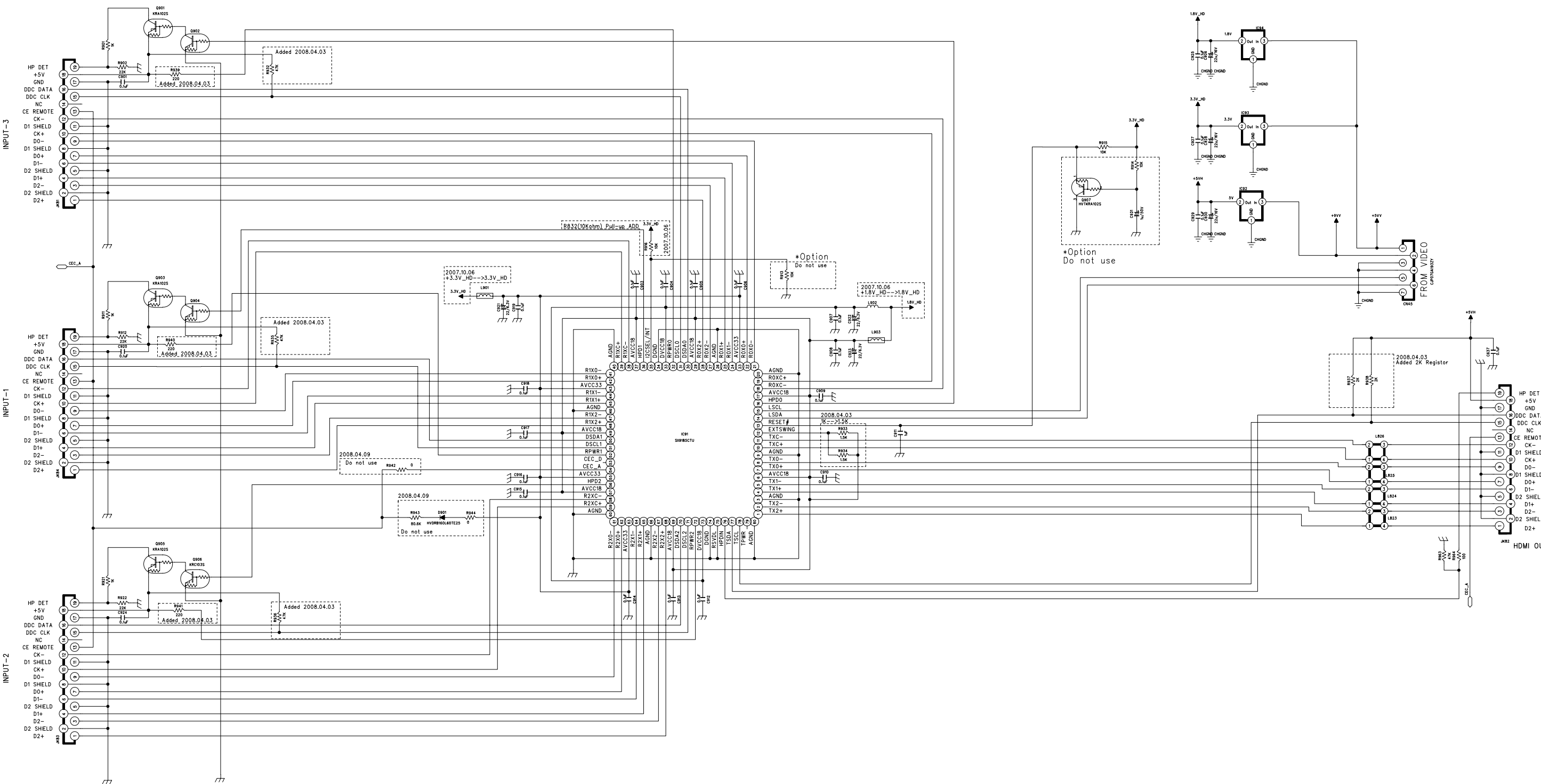
* CUP12186Z (MAIN PCB)



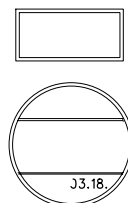
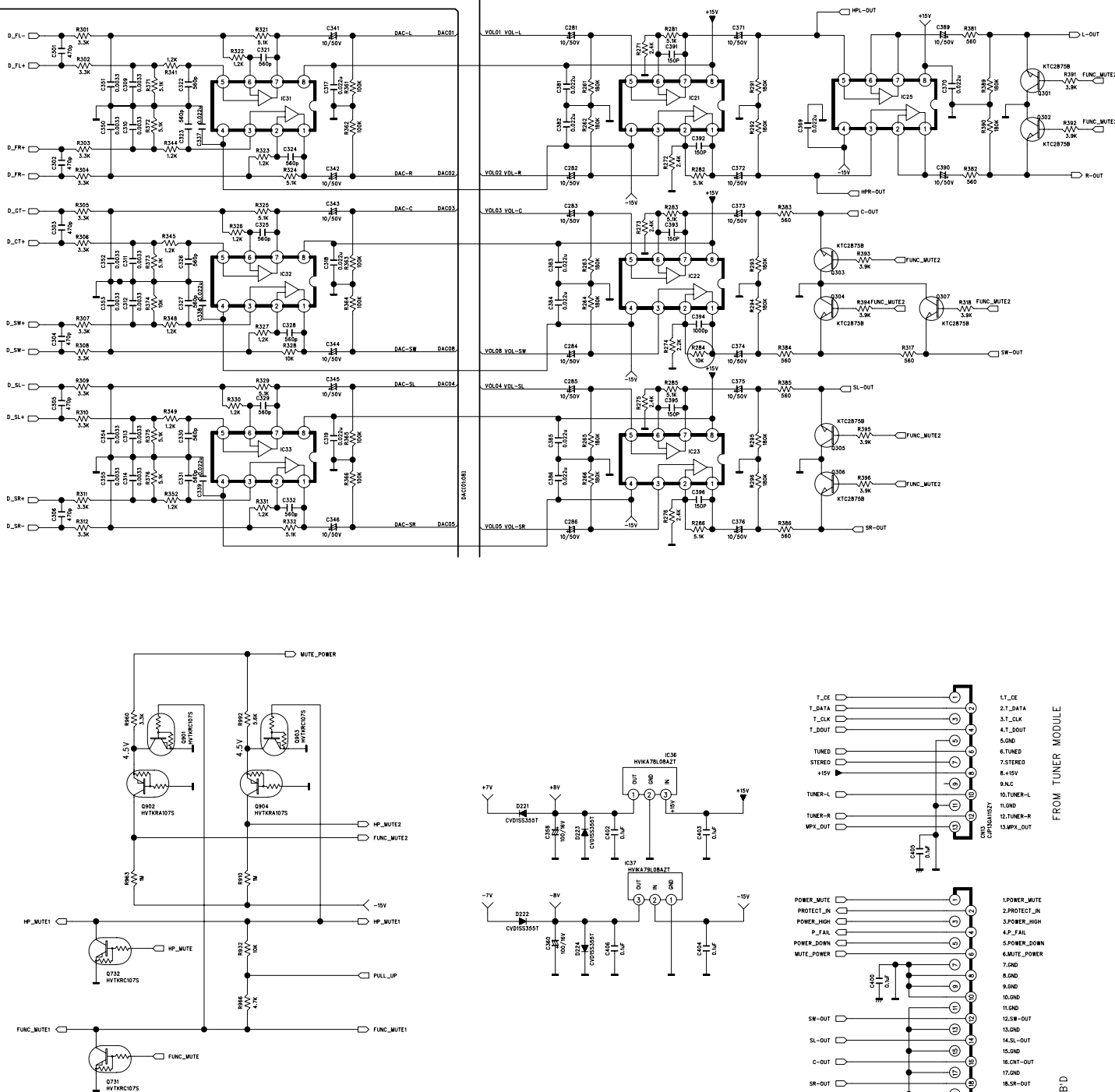
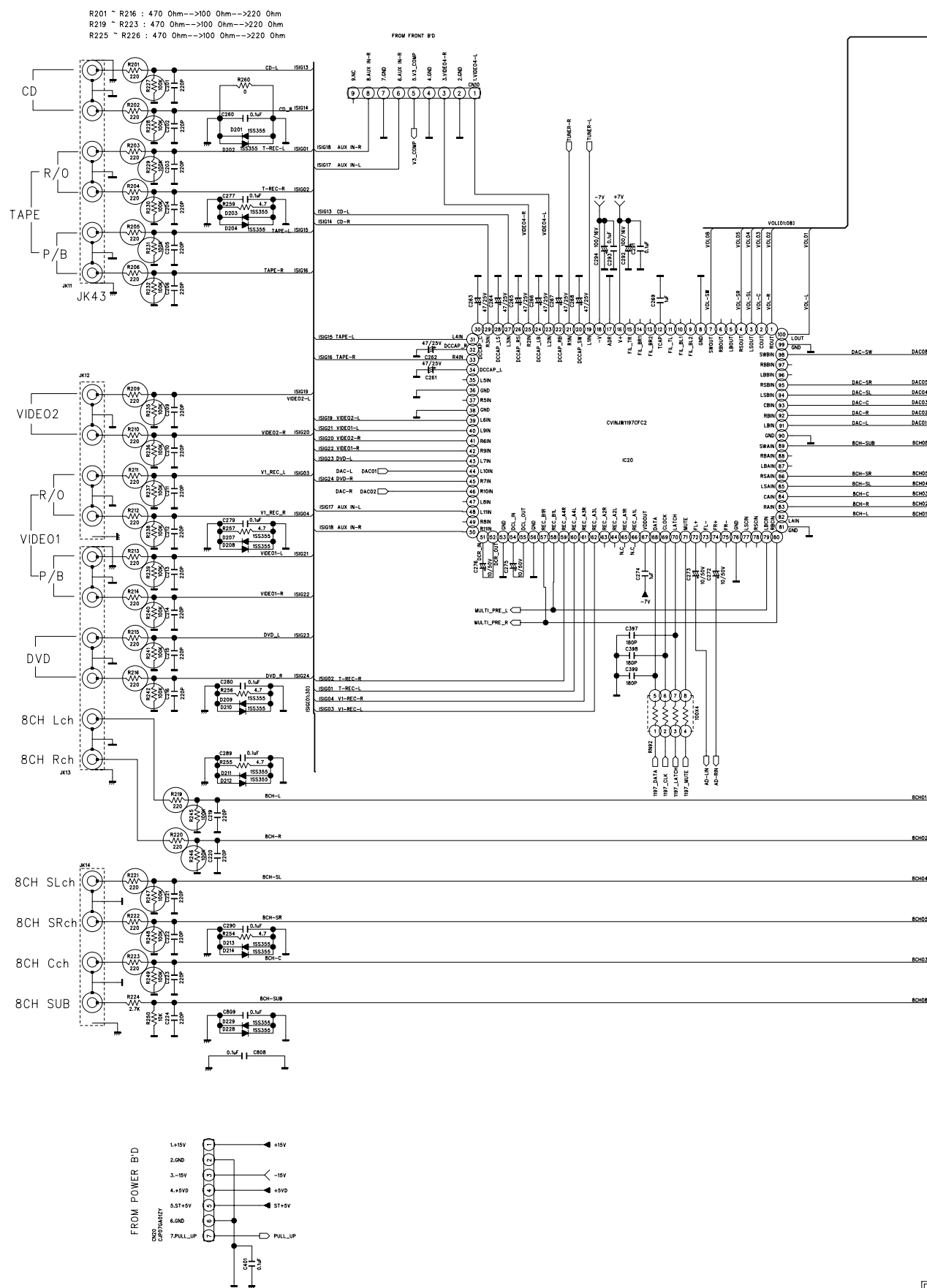
VR ADJUST

No.	Channel	Adjust	Adjustment
1	FR-CH	25.92mV (± 5%)	CN66
2	CNT-CH	25.92mV (± 5%)	CN61
3	SR-CH	25.92mV (± 5%)	CN64
4	FL-CH	25.92mV (± 5%)	CN63
5	SL-CH	25.92mV (± 5%)	CN62

CUP12109Z

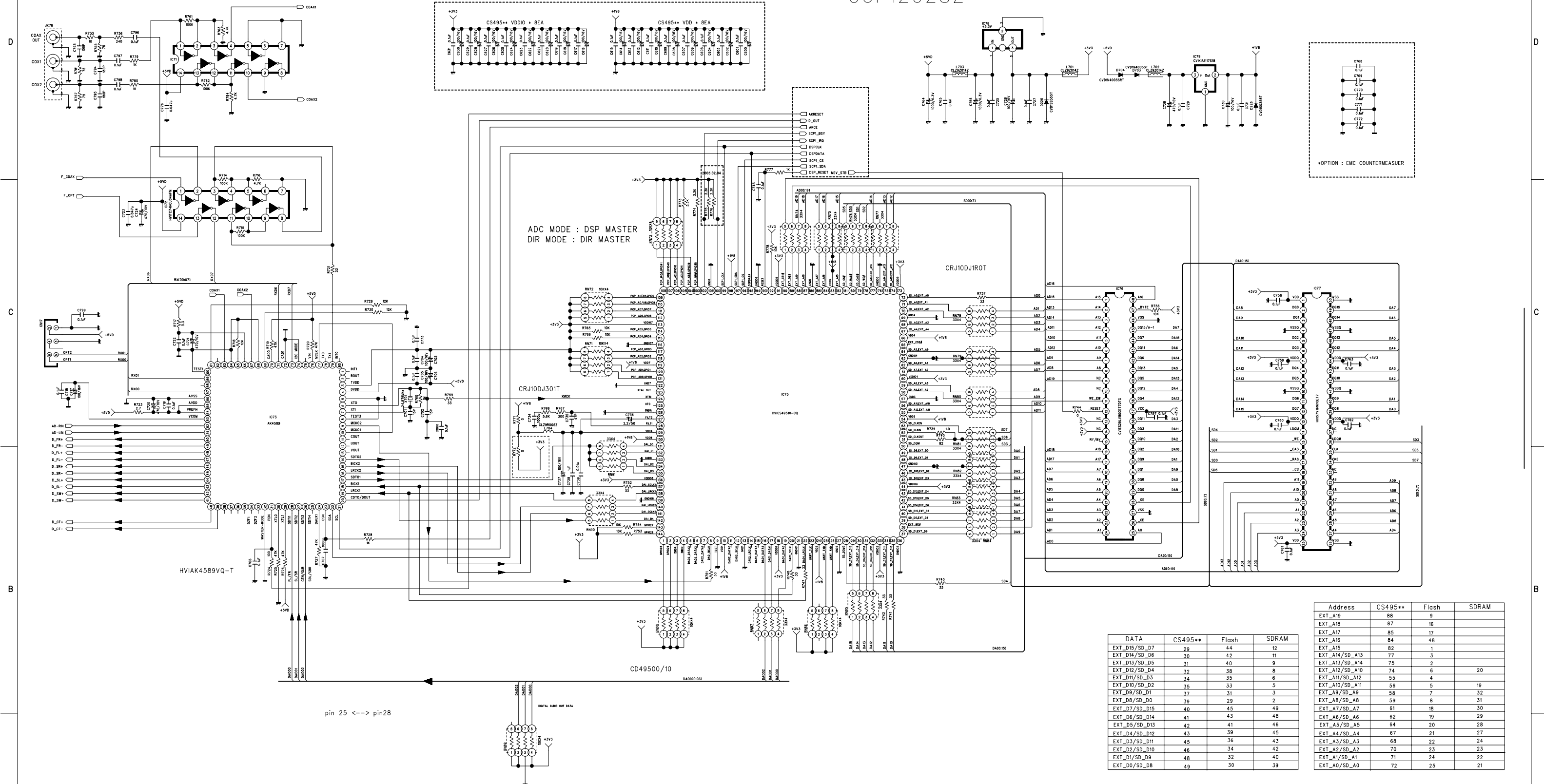


REVISION		2	4	6
1	3	5	7	
SCHEMATIC DIAGRAM				SHEET
MODEL	AVR154/155			1/4
DESIGN	CHECK	APPROVE	DRAWING NO	
S KIM	W.Y YANG	G.S WEY	2109SCEZ	
08.04.09	08.04.09	08.04.09	(HDMI)	



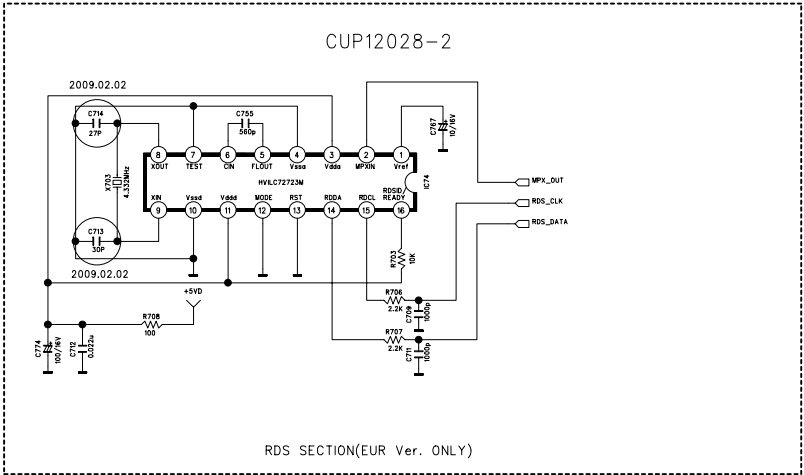
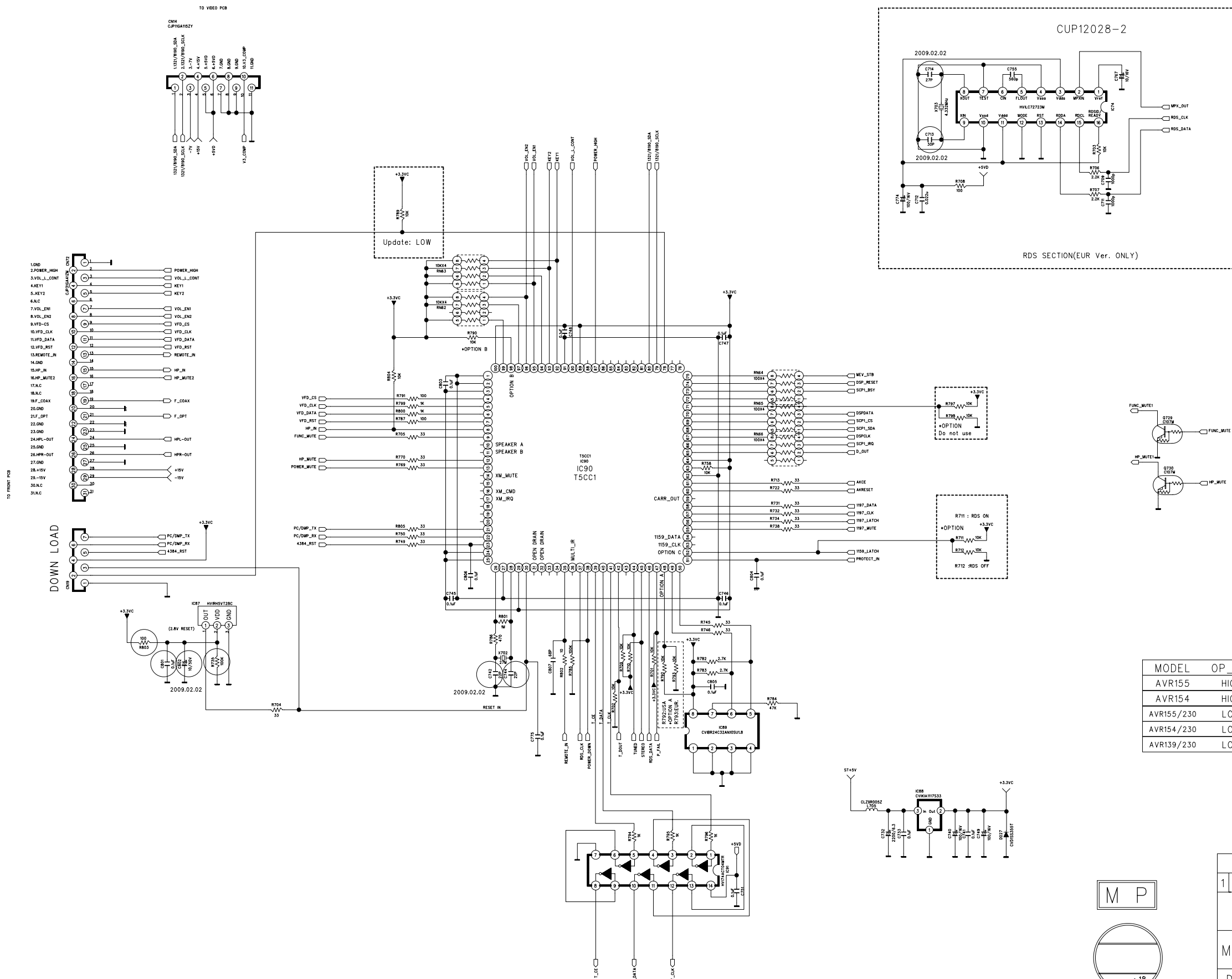
- IMPORTANT SAFETY NOTICES.
- COMPONENTS IDENTIFIED BY  MARK HAVE SPECIAL CHARACTERISTICS.
- IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS
USE ONLY MANUFACTURER'S SPECIFIED PARTS.
- THE UNIT OF RESISTANCE IS OHM.
K=1000 OHM , M=1000 KOHM
- THE UNIT OF CAPACITANCE IS MICROFARAD. (uF)
pF=10⁻⁶ 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	AVR139/230			1/3
DESIGN	CHECK	APPROVE	DRAWING NO	
K.K.Y	Y.W.Y	W.K.S	2187SEMZ	
09.03.18	09.03.18	09.03.18	(INPUT)	



DATA	CS495**	Flosh	SDRAM
EXT_015/SD_07	29	44	12
EXT_014/SD_06	30	42	11
EXT_013/SD_05	31	40	9
EXT_012/SD_04	32	38	8
EXT_011/SD_03	34	35	6
EXT_010/SD_02	35	33	5
EXT_09/SD_01	37	31	3
EXT_08/SD_00	39	29	2
EXT_07/SD_015	40	45	49
EXT_06/SD_014	41	43	48
EXT_05/SD_013	42	41	46
EXT_04/SD_012	43	39	45
EXT_03/SD_011	45	36	43
EXT_02/SD_010	46	34	42
EXT_01/SD_09	48	32	40
EXT_00/SD_08	49	30	39

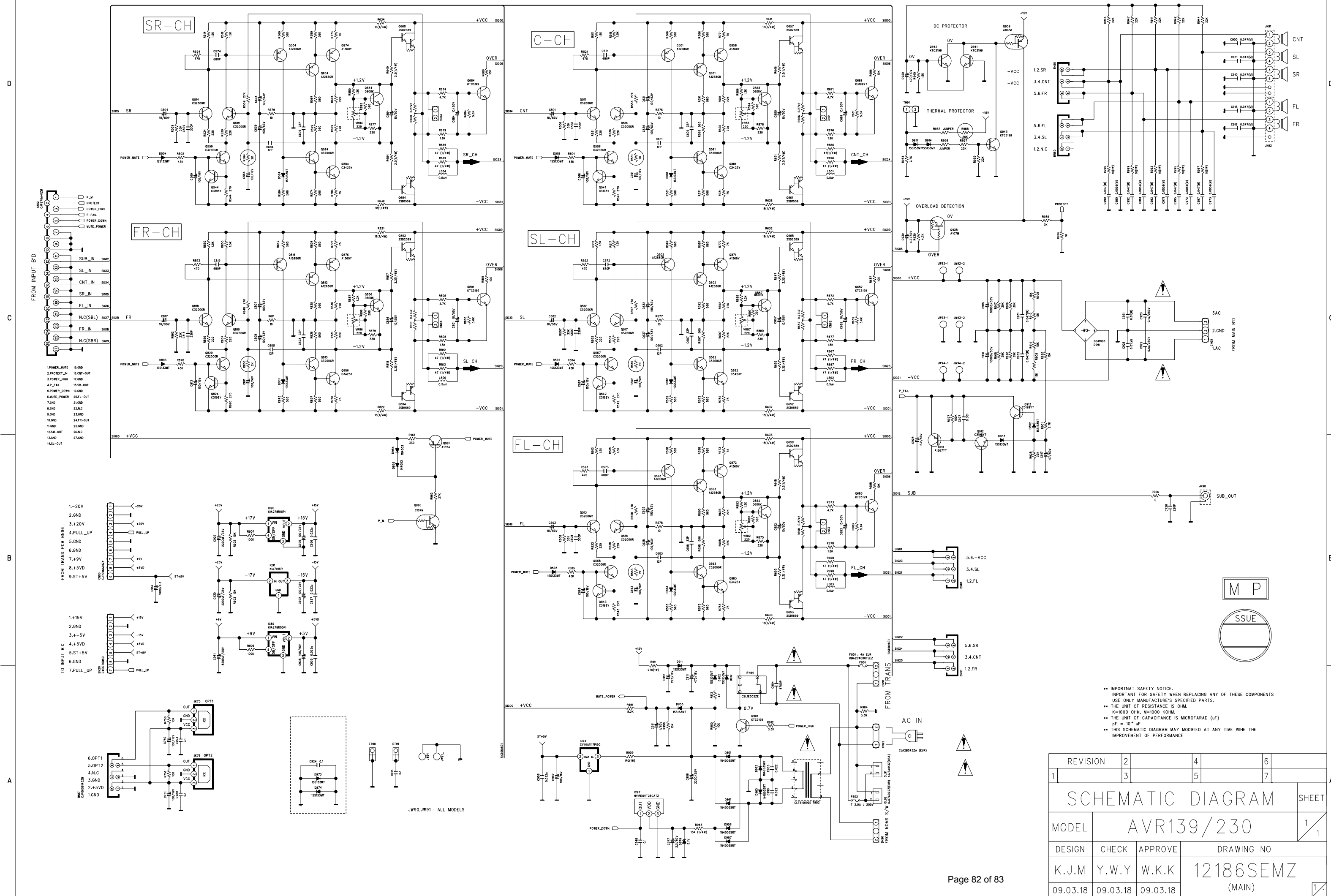
Address	C5495**	Flash	SDRAM
EXT_A10	88	9	
EXT_A18	87	16	
EXT_A17	85	17	
EXT_A16	84	48	
EXT_A15	82	1	
EXT_A14/SD_A13	77	3	
EXT_A13/SD_A14	75	2	
EXT_A12/SD_A10	74	6	20
EXT_A11/SD_A12	55	4	
EXT_A10/SD_A11	56	5	19
EXT_A9/SD_A9	58	7	32
EXT_A8/SD_A8	59	8	31
EXT_A7/SD_A7	61	18	30
EXT_A6/SD_A6	62	19	29
EXT_A5/SD_A5	64	20	28
EXT_A4/SD_A4	67	21	27
EXT_A3/SD_A3	68	22	24
EXT_A2/SD_A2	70	23	23
EXT_A1/SD_A1	71	24	22
EXT_A0/SD_A0	72	25	21



* MODEL OPTION

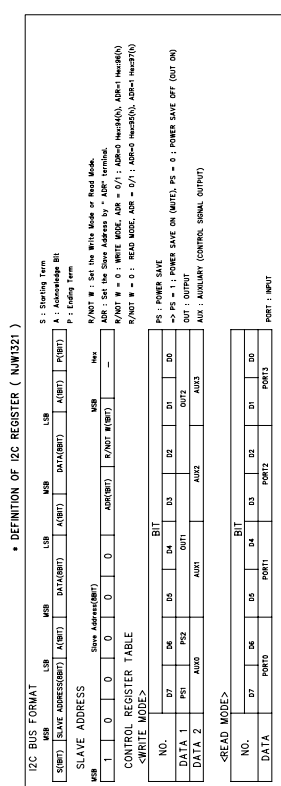
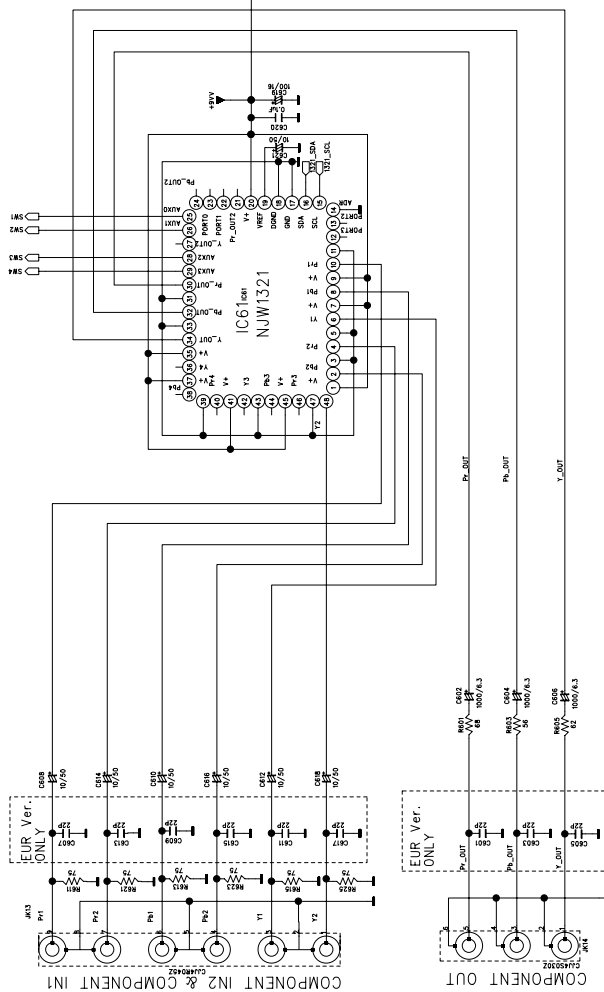
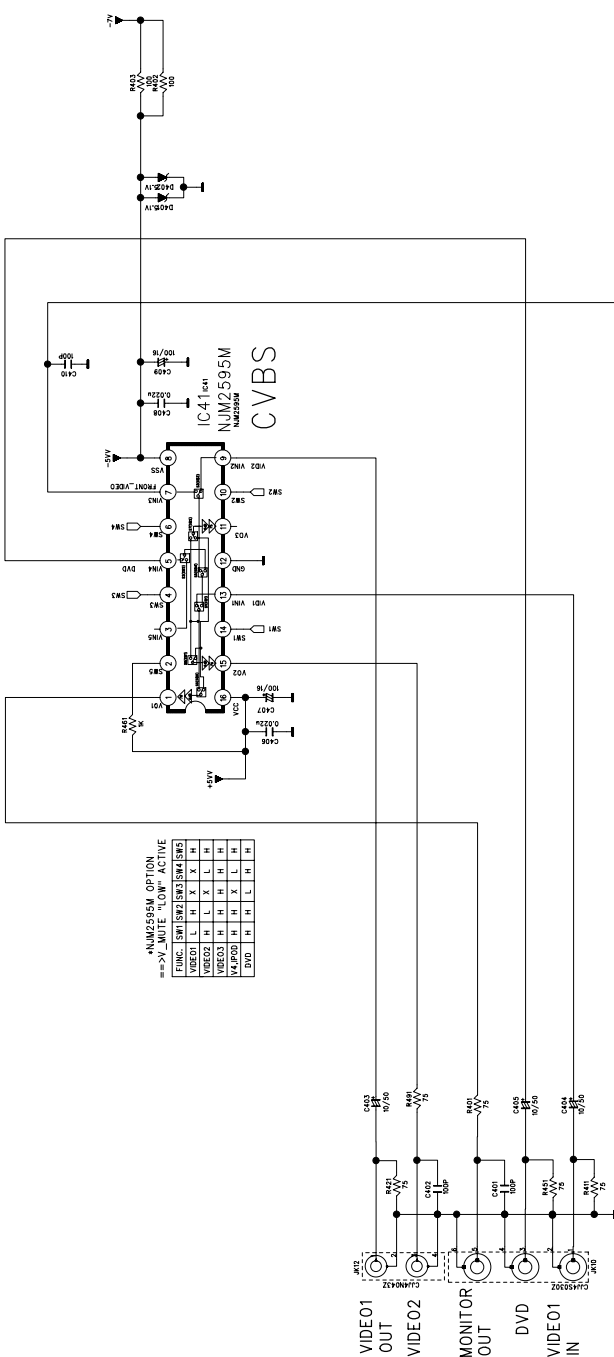
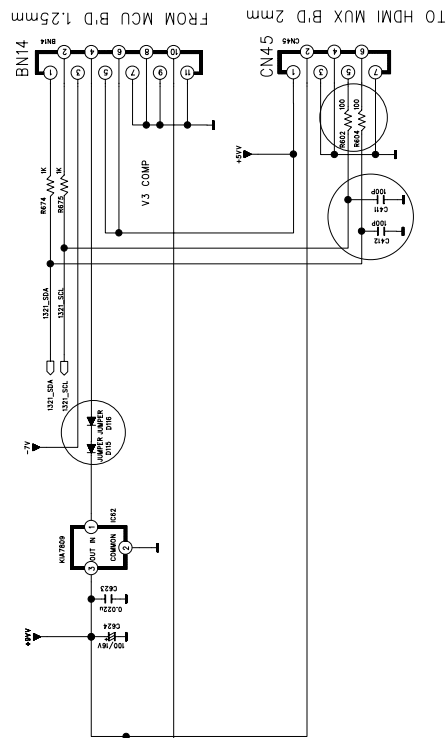
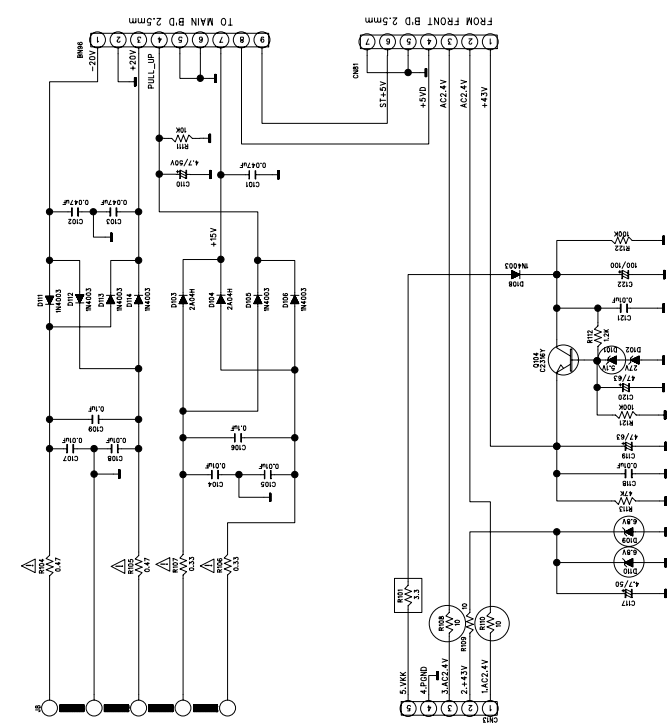
MODEL	OP_A(PIN48)	OP_B(PIN98)	OP_C(PIN52)
AVR155	HIGH(R792)	LOW(R791)	LOW(R712)
AVR154	HIGH(R792)	HIGH(R790)	LOW(R712)
AVR155/230	LOW(R793)	LOW(R791)	HIGH(R711)
AVR154/230	LOW(R793)	HIGH(R790)	HIGH(R711)
AVR139/230	LOW(R793)	LOW(R791)	HIGH(R711)

REVISION	2	4	6
1	3	5	7
SCHEMATIC DIAGRAM			
MODEL	AVR139/230		
DESIGN	CHECK	APPROVE	DRAWING NO
K.K.Y	Y.W.Y	W.K.S	2187SEMZ
09.03.18.	09.03.18.	09.03.18.	(CPU)



CUP12188Z

< TRANS PCB 2 >



REVISION	2	4	6
1	3	5	7
SCHEMATIC DIAGRAM			
MODEL	AVR139/230		
DESIGN	CHECK	APPROVE	DRAWING NO
L.J.W	Y.W.Y	W.K.S	2188SEMZ
09.03.31	09.03.31	09.03.31	(VIDEO)

