

HD 980/230

CD Player



CONTENTS

BASIC SPECIFICATIONS	2	SEMICONDUCTOR PINOUTS	16
TROUBLESHOOTING GUIDE	3	PCB DRAWINGS	30
PACKAGE LIST AND PARTS	4	BLOCK DIAGRAM	35
EXPLODED VIEW	5	VERSION HISTORY	36
PARTS LIST	6	SCHEMATIC DIAGRAMS	37
		SERVICE BULLETIN. RATTLE NOISE	47

Technical Specifications

Signal Format

Sampling Frequency	32 kHz to 96 kHz
D/A Conversion	Multibit Sigma-Delta modulator
Oversampling	24-bit/176.4 kHz Sample Rate Convertor or 24-bit/96 kHz with HRS-Link, internal DAC.

Discrete Analog Output Section

Error Correction	CIRC System
Frequency Response	20 Hz – 20 kHz +0/-0.5 dB
Total Harmonic Distortion (THD)	<0,0009% @1 kHz
Dynamic Range	> 100 dB
Signal-to-Noise Ratio	> 110 dB
Channel Separation	> 100 dB
Line-Output Level	2.0 V

General

Power Requirement	100-240 V 50/60 Hz
Power Consumption	<20 Watts (On) <2 Watts (Standby)
Dimensions	
Height	63mm
Width	440mm
Depth	332mm
Weight	3.8 kg

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

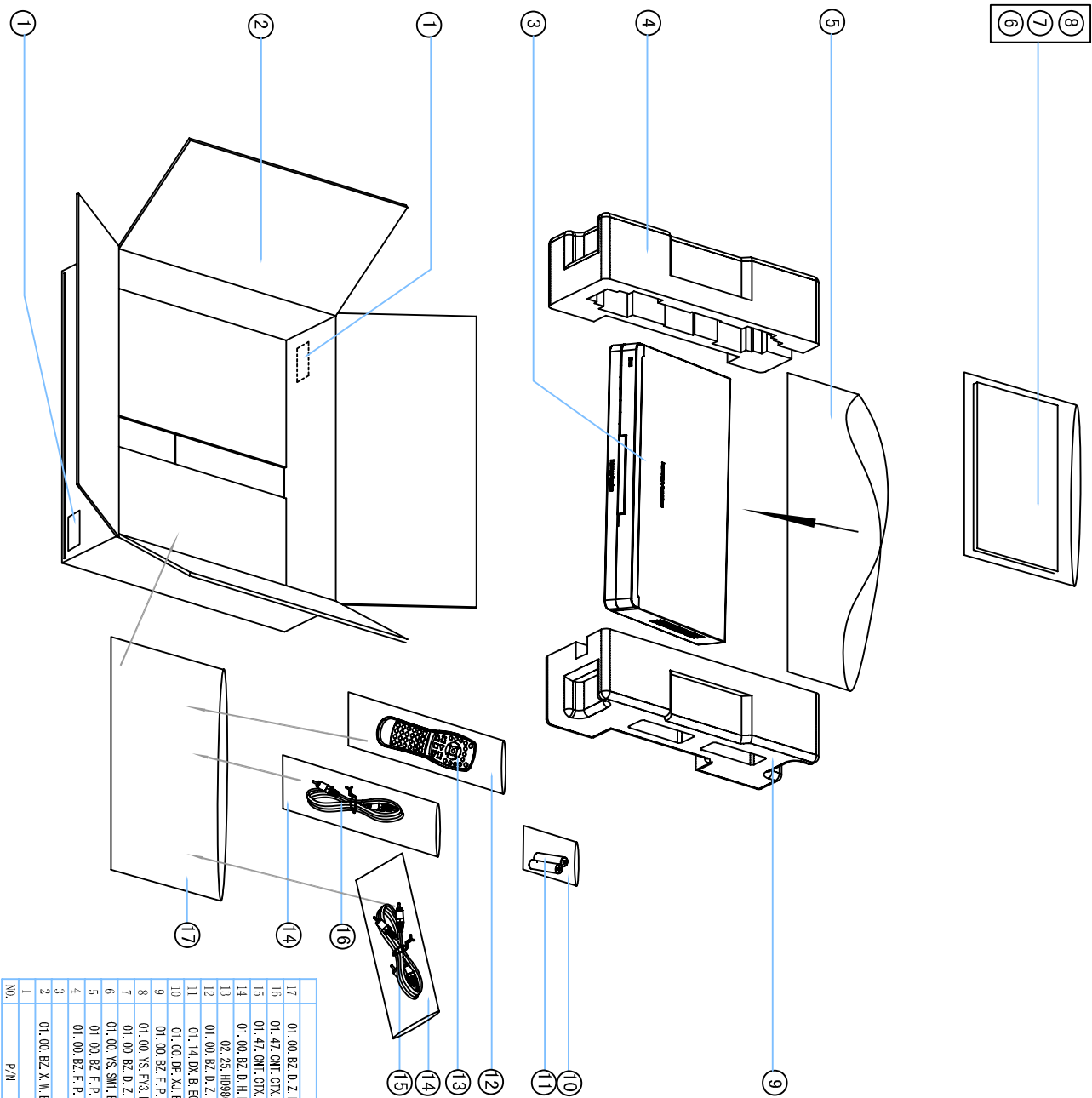
Harman Kardon is a registered trademark of Harman International Industries, Incorporated.



Troubleshooting Guide

TROUBLE SHOOTING GUIDE

SYMPTOM	CAUSE	SOLUTION
No lights on Front Panel	No AC power	Make certain AC power cord is plugged into a live outlet.
Remote does not appear to operate	- Power Switch turned off - Weak batteries - Blocked sensor	- Turn on Power Switch. - Install fresh batteries, observing polarity indications. - Remove obstructions from the front panel sensor or connect a remote sensor to the Remote In jack on the rear panel.
Front panel lights, but CD does not play	Disc upside down	Reload disc with label side facing up.
Play indicator lights, but no sound is heard	- Poor connections - Wrong source connected	- Make certain connections are secure and made to the correct (e.g., CD) input. - Select CD source on receiver or preamp.
Sound skips or stutters during play	- Disc may be damaged - Surface vibrations	- Try another disc. - Isolate the unit from vibration by placing it on a firm surface or move it further away from speakers.
Sound is continually distorted	Incorrect input	Make certain that the analog Audio Outputs ② of the CD player are connected to a line level audio input, NOT to a digital audio or phono input.
ERROR lights up continuously in the display	Various	Turn the unit off and on again. If the problem persists, turn the AC power to the CD player off and on.

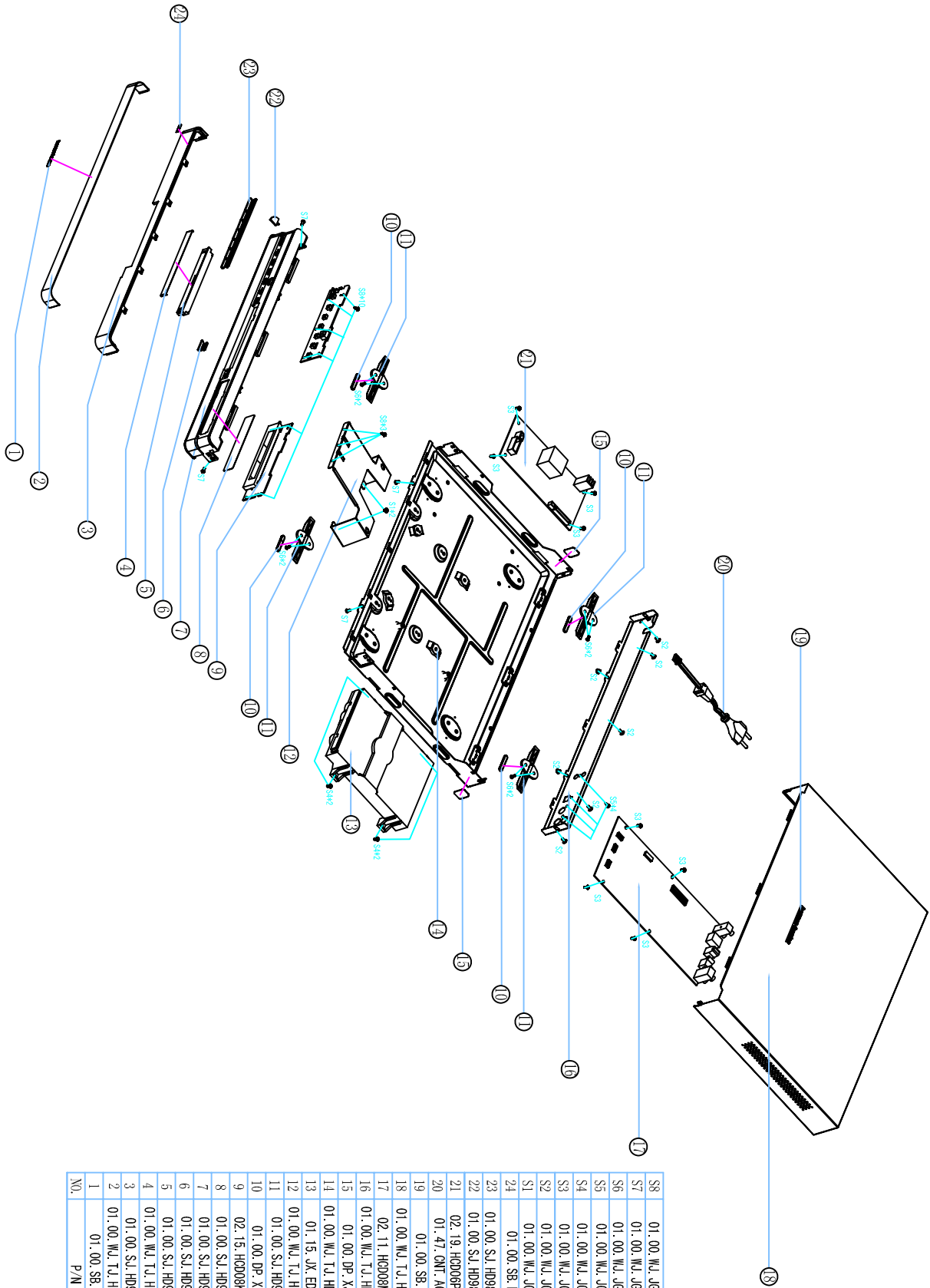


HD980 EU Packing instruction

17	01.00.BZ.D.Z.E018	Plastic bag for accessory 16, 5x24, 5cm	1
16	01.47.CMT.CTX.E033	AV line	1
15	01.47.CMT.CTX.E027	Audio line	1
14	01.00.BZ.D.H.E029	Plastic bag for AV or audio line 6x23cm	2
13	02.25.H0980	Remote control	1
12	01.00.BZ.D.Z.E019	Plastic bag for RC 8, 4x24cm	1
11	01.14.DX.B.E0015	S# battery	2
10	01.00.DP.X.U.E099	Plastic bag for battery 7, 5x8cm	1
9	01.00.BZ.F.P.E111	Polyfoam - right	1
8	01.00.YS.F13.E1781	Safety and Warning instruction manual	1
7	01.00.BZ.D.Z.E020	Plastic bag for manual 25x35cm	1
6	01.00.YS.SM.E1798	Owner manual	1
5	01.00.BZ.F.P.E307	Plastic bag for unit 52x50cm	1
4	01.00.BZ.F.P.E170	Polyfoam - left	1
3		Main unit	1
2	01.00.BZ.X.W.E1699	Carton box H0980 EU version	1
1		Barcode label	2
NO.	P/N	DESCRIPTION	QTY.

HD980 Packing instruction

HD 980 EU Explode view



13	13	Screw 2.5x8P/M4H/1	S8	01.00. W.U. J6. E061
4	4	Screw 3x6K/1T10	S7	01.00. W.U. J6. E328
8	8	Screw 3x6B/1T10	S6	01.00. W.U. J6. E909
4	4	Screw 3x6P/AH0	S5	01.00. W.U. J6. E321
4	4	Screw 3x6P/1B1T0	S4	01.00. W.U. J6. E265
8	8	Screw 3x6P/M4H/1	S3	01.00. W.U. J6. E795
7	7	Screw 3x6P/1B1T0	S2	01.00. W.U. J6. E403
2	2	Screw 3x4P/1B1T/1	S1	01.00. W.U. J6. E717
1	1	Metal logo13.9x4.75mm (with single side glue)	24	01.00. SB. E127
1	1	Button 1	23	01.00. S.J. HD980. E004
1	1	Power Indicator lampshade	22	01.00. S.J. HD980. E010
1	1	Power board	21	02.19. HD06P1254001
1	1	Power cord with 300mm fixture (EU version)	20	01.47. CNT. AOX. E036
1	1	Metal logo 73.6x7.4mm (with single side glue)	19	01.00. SB. E129
1	1	Top cover	18	01.00. W.U. T.J. HD980. E003
1	1	Rear panel	17	02.11. HD08M563C01
2	2	Chassis	15	01.00. DP. X.J. E889
1	1	DV34-850	14	01.00. W.U. T.J. HD980. E003
1	1	Front panel bracket	12	01.00. W.U. T.J. HD980. E004
4	4	Pedestal underlay	11	01.00. S.J. HD980. E006
1	1	Sponge29.7x5.7x2.5mm (with single side glue)	10	01.00. DP. X.J. E799
1	1	VFD board	9	02.15. HD08K5575C01
1	1	VFD filter	8	01.00. S.J. HD980. E008
1	1	Front panel	7	01.00. S.J. HD980. E003
1	1	Button 11	6	01.00. S.J. HD980. E005
1	1	Disc tray door	5	01.00. S.J. HD980. E009
1	1	Aluminum ally wrap for disc tray	4	01.00. W.U. T.J. HD980. E006
1	1	Lens	3	01.00. S.J. HD980. E007
1	1	Aluminum veneer	2	01.00. W.U. T.J. HD980. E005
1	1	Metal logo 52x5.2mm(with single side glue)	1	01.00. SB. E128
QTY.		DESCRIPTION	P/N	NO.

HD980
Explodeview

HD980 Component List

Serial No.: WA0034-01001~03440

01.00.SJ.HD980E003	plastic part	HD980-Front panel	HD980-RE01	
01.00.SJ.HD980E004	plastic part	HD980-Button I	HD980-RE02	
01.00.SJ.HD980E005	plastic part	HD980-Button II	HD980-RE03	
01.00.SJ.HD980E006	plastic part	HD980-Pedestal underlay	HD980-RE04	
01.00.SJ.HD980E007	plastic part	HD980-Lens	HD980-RE05	
01.00.SJ.HD980E008	VFD filter	HD980-VFD filter	HD980-RE06	
01.00.SJ.HD980E009	plastic part	HD980-Disc tray door	HD980-RE07	
01.00.SJ.HD980E010	plastic part	HD980-Power indicator lampshade	HD980-RE08	
01.00.SJ.SK.E008	plastic part	1000A-IR receiver support 5.5mm		
0100WJTJHD980E001	Metals Part	HD980-Chassis	HD980-PT01	
0100WJTJHD980E002	Metals Part	HD980-Rear panel	HD980-PT02	
0100WJTJHD980E003	Metals Part	HD980-Top cover	HD980-PT03	
0100WJTJHD980E004	Metals Part	HD980-Front panel bracket	HD980-PT04	
0100WJTJHD980E005	Metals Part	HD980-Aluminum veneer	HD980-PT05	
0100WJTJHD980E006	Metals Part	HD980-Aluminum ally wrap for disc tray	HD980-PT06	
01.00.WJ.TJ.E569	aluminium fastener	φ 3.5*40		
01.47.CNT.LJX7E768	Connect cable	2.54-3Y-3Y-220mm (Be different side)	Connect Key board and SMPS board	
01.47.CNT.ACX.E036	Connect cable	Power cord with 300mm fixture (EU version)	Connect SMPS board and Rear panel	
01.47.CNT.LJX3E037	Connect cable	2.0-6Y-6Y-130mm (Be different side) (UL20080 28AWG)	Connect Loader and Main board	
01.47.CNT.LJX3E036	Connect cable	2.0-5Y-5Y-240mm (Be same side) (LG UL20080 28AWG)	Connect Loader and Main board	
01.47.CNT.LJX7E612	Connect cable	2.54-2.0-13Y-240mm(Be same side)	Connect SMPS board and Main board	
01.47.CNT.LJX5E333	Connect cable	70mm(solder one end and grounding piece another end)	Connect Key board and SMPS board	
01.47.CNT.LJX5E334	Connect cable	80mm(solder one end and grounding piece another end)	Connect VFD board and Main board	
01.47.CNT.LJX2E110	Connect cable	1.25-6Y-6Y-180mm(Be same side)	Connect Key board and VFD board	
01.48.BPX.1.E189	flat cable	1.25*14P*100mmA(4/8)	Connect Main board and VFD board	
01.48.BPX.1.E045	flat cable	0.5*24P*180mmA	Connect Loader and Main board	
01.47.CNT.CTX.E027	Remot control transmission cable	φ 3.5+ φ 3.5(single channel), black, 1.2m		
01.15.JX.EDV34850	Loader	DV34-850	SF-HD850G+DVD-M06B	

Part number	Description	Specification	Location.No.	Note
01.00.FZ.QT.E409	PC piece	HD980-H05	Between Lens and Front panel	
02.11HCD08M5563C01	Main Board (semi-manufactured goods)	HCD08M-5563C01	2-layers	
02.15HCD08K5575C01	Key Board (semi-manufactured goods)	HCD08K-5575C01	2-layers	
02.15HCD08K5576C01	VFD Board (semi-manufactured goods)	HCD08K-5576C01	2-layers	
02.19HCD06P1254C01	SMPS Board (semi-manufactured goods)	HCD06P-1254C01	1-layer	
02.25.HD980	Remote Control(manufactured goods)	HD980		

HD980 Component List for Main Board (5563C01)

01.57.R.3.E000J	Resistor, chip	0805-0 Ω $\pm 5\%$	R8 R9 R14 R26 R54 R57 R60 R64 R71 R74 R79 R80 R85 R186	
01.57.R.3.E1R0J	Resistor, chip	0805-1 Ω $\pm 5\%$	R67 R68 R69 R70	
01.57.R.3.E220J	Resistor, chip	0805-22 Ω $\pm 5\%$	R27 R29 R121	
01.57.R.3.E330J	Resistor, chip	0805-33 Ω $\pm 5\%$	R20 R114 R129 R130	
01.57.R.3.E470J	Resistor, chip	0805-47 Ω $\pm 5\%$	R103 R104 R105 R107 R110 R111	
01.57.R.3.E101J	Resistor, chip	0805-100 Ω $\pm 5\%$	R46 R47 R81 R84 R93 R94 R95 R123 R125	
01.57.R.3.E241J	Resistor, chip	0805-240 Ω $\pm 5\%$	R43 R44 R96 R122	
01.57.R.3.E271J	Resistor, chip	0805-270 Ω $\pm 5\%$	R137	
01.57.R.3.E391J	Resistor, chip	0805-390 Ω $\pm 5\%$	R142 R97	
01.57.R.3.E561J	Resistor, chip	0805-560 Ω $\pm 5\%$	R33 R49 R50	
01.57.R.3.E102J	Resistor, chip	0805-1K Ω $\pm 5\%$	R12 R32 R112 R113	
01.57.R.3.E152J	Resistor, chip	0805-1.5K Ω $\pm 5\%$	R52 R41	
01.57.R.3.E202J	Resistor, chip	0805-2K Ω $\pm 5\%$	R21 R19	
01.57.R.3.E222J	Resistor, chip	0805-2.2K Ω $\pm 5\%$	R62 R56 R58 R88	
01.57.R.3.E472J	Resistor, chip	0805-4.7K Ω $\pm 5\%$	R17 R37 R42 R53 R115 R138 R145	
01.57.R.3.E512J	Resistor, chip	0805-5.1K Ω $\pm 5\%$	R65	
01.57.R.3.E622F	Resistor, chip	0805-6.2K Ω $\pm 1\%$	R22	
01.57.R.3.E822F	Resistor, chip	0805-8.2K Ω $\pm 1\%$	R66 R63	
01.57.R.3.E103J	Resistor, chip	0805-10K Ω $\pm 5\%$	(R5) R11 R15 (R16) R18 R34 R35 R36 R38 R39 R48 R72 R75 R77 R83 R86 R87 (R92) R108 R109 R116 R117 R118 R119 R120 R124 R140 R181 R182 R183 R185	
01.57.R.3.E1182F	Resistor, chip	0805-11.8K Ω $\pm 1\%$	R30 R28	
01.57.R.3.E223J	Resistor, chip	0805-22K Ω $\pm 5\%$	R45 R55 R177 R180	
01.57.R.3.E333J	Resistor, chip	0805-33K Ω $\pm 5\%$	R23 R24	
01.57.R.3.E473J	Resistor, chip	0805-47K Ω $\pm 5\%$	R59 R61 R184	
01.57.R.3.E104J	Resistor, chip	0805-100K Ω $\pm 5\%$	R73 R76 R78 R82	
01.57.R.3.E105J	Resistor, chip	0805-1M Ω $\pm 5\%$	R51 R40	
01.57.R.4.E101F	Resistor, chip	1206-100 Ω $\pm 1\%$	R154 R155 R170 R171	
01.57.R.4.E331F	Resistor, chip	1206-330 Ω $\pm 1\%$	R147 R148 R152 R157 R161 R162 R163 R164 R168 R173 R178 R179	
01.57.R.4.E681F	Resistor, chip	1206-680 Ω $\pm 1\%$	R150 R160 R166 R176	
01.57.R.4.E202F	Resistor, chip	1206-2K Ω $\pm 1\%$	R153 R156 R169 R172	

HD980 Component List for Main Board (5563C01)

P/N	Description	Specification	Location.No.	Note
01.57.R.4.E272F	Resistor, chip	1206-2.7K Ω $\pm$ 1%	R151 R159 R167 R175	
01.57.R.4.E153F	Resistor, chip	1206-15K Ω $\pm$ 1%	R89 R90 R91 R149 R165	
01.57.R.4.E473F	Resistor, chip	1206-47K Ω $\pm$ 1%	R174 R158	
01.57.R.4.E475J	Resistor, chip	1206-4.7M Ω $\pm$ 5%	R141	
01.57.R.8.EP3304	Resistor, thick film chip network	0603-33 Ω *4 $\pm$ 5%	RN1 RN2 RN3 RN4 RN5 RN6 RN7	
01.54.CS.3E100N50V	Capacitor, multilayer ceramic, chip	0805-10P NPO $\pm$ 5%/50V	C85 C86 C87 C89	
01.54.CS.3E150N50V	Capacitor, multilayer ceramic, chip	0805-15P NPO $\pm$ 5%/50V	C26 C34	
01.54.CS.3E220N50V	Capacitor, multilayer ceramic, chip	0805-22P NPO $\pm$ 5%/50V	C113 C104	
01.54.CS.3E470N50V	Capacitor, multilayer ceramic, chip	0805-47P NPO $\pm$ 5%/50V	C20	
01.54.CS.3E101N50V	Capacitor, multilayer ceramic, chip	0805-100P NPO $\pm$ 5%/50V	C67 C69	
01.54.CS.3E121N50V	Capacitor, multilayer ceramic, chip	0805-120P NPO $\pm$ 5%/50V	C15	
01.54.CS.3E201N50V	Capacitor, multilayer ceramic, chip	0805-200P NPO $\pm$ 5%/50V	C21	
01.54.CS.3E391N50V	Capacitor, multilayer ceramic, chip	0805-390P NPO $\pm$ 5%/50V	C63 C62	
01.54.CS.3E471N50V	Capacitor, multilayer ceramic, chip	0805-470P NPO $\pm$ 5%/50V	C66 C65	
01.54.CS.3E681N50V	Capacitor, multilayer ceramic, chip	0805-680P NPO $\pm$ 5%/50V	C71	
01.54.CS.3E102X50V	Capacitor, multilayer ceramic, chip	0805-102 X7R $\pm$ 10%/50V	C23 C13	
01.54.CS.3E332X50V	Capacitor, multilayer ceramic, chip	0805-332 X7R $\pm$ 10%/50V	C16 C17 (C24)	
01.54.CS.3E392X50V	Capacitor, multilayer ceramic, chip	0805-392 X7R $\pm$ 10%/50V	C22	
01.54.CS.3E103X50V	Capacitor, multilayer ceramic, chip	0805-103 X7R $\pm$ 10%/50V	C14 C73 C74 C80	
01.54.CS.3E273Y50V	Capacitor, multilayer ceramic, chip	0805-273 Y5V- 20+80%/50V	C19	
01.54.CS.3E473X50V	Capacitor, multilayer ceramic, chip	0805-473 X7R $\pm$ 10%/50V	C68	
01.54.CS.3E104Y50V	Capacitor, multilayer ceramic, chip	0805-104 Y5V+80- 20%/50V	(C1) (C2) (C3) (C4) (C5) (C6) (C7) C8 (C9) (C10) C11 C12 C18 (C25) C27 C28 C30 C35 C38 C39 C40 C41 C42 C43 C44 C45 (C46) (C47) (C48) (C49) C50 C51 (C52) (C53) (C54) (C55) C56 C57 C58 C59 C60 C61 C64 C70 C72 (C76) C77 C79 C81 C82 (C83) C84 C90 C91 C92 C93 C107 C108 C109 C110 C111 C115 C116 C117	
01.54.CS.3E105Y16V	Capacitor, multilayer ceramic, chip	0805-105 Y5V- 20+80%/16V	C32 C33 C36 C37 C78	
01.54.CS.3E475Y16V	Capacitor, multilayer ceramic, chip	0805-475 Y5V+80- 20%/16V	C29 C31	

HD980 Component List for Main Board (5563C01)

P/N	Description	Specification	Location.No.	Note
01.54.CS.4E681N50V	Capacitor, multilayer ceramic, chip	1206-680P NPO±5%/50V	C102 C103 C112 C114	
01.54.CS.4E222X50V	Capacitor, multilayer ceramic, chip	1206-222 X7R±10%/50V	C105 C106	
01.34.CL.DE10U16VC	Capacitor, AL.electrolytic	CD110-10UF/16V 5*11	CE1	
01.34.CLDE47U25VC1	Capacitor, AL.electrolytic	CD110-47UF/25V 5*11	CE16 CE17 CE18 CE19 CE20 CE34 CE36 CE37 CE38 CE43 CE45 CE49	
01.34.CLDE47U50VCD	Capacitor, AL.electrolytic	CD110-47UF/50V 6.3*12	CE23 CE24 CE25 CE26 CE27 CE28 CE29 CE30 CE31 CE32 CE33	
01.34.CLDE100U10VD	Capacitor, AL.electrolytic	CD110-100UF/10V 5*12	CE3 CE4 CE5 CE6 CE7 CE8 CE10 CE11 CE13 CE14 CE21 CE22 CE39 CE40 CE41 CE42 CE44 CE46 CE47 CE48 CE50 CE51 CE52 CE53 CE54 CE55 CE56 CE57	
01.34.CLDE220U10VD	Capacitor, AL.electrolytic	CD110-220UF/10V 5*12	CE2 CE9 CE12 CE15	
01.13.L.L.S.E007	Inductor, multilayer ceramic, chip	0805-10UH SMD	L1 L2	
01.13.L.L.S.E362	Inductor, Weifengda	WBR453232-220K-R	L3	
01.13.L.L.D.E081	Inductor	WB1010-1	T1	DIP6 Coilcraft
01.13.L.Z.ESC100	Bead, chip,	1206-100 Ω	FB1 FB2 FB3 FB4 FB5 FB6 FB7 FB8 FB9 FB10 FB11	
01.41.D.PS.ELL4148	Diode	LL4148 SMD	D1 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12 D13 D14	DO-213AA
01.41.D.PSE30BQ040	Diode	30BQ040 SMD	D2	SMC Schottky diode 3A International Rectifier
01.41.D.WS.E6V2	Zener diode	ZENER 6.2V 0.4W	DZ1	
01.42.Q.S.E123	MOSFET, DIODES	BSS123 SMD	MQ31	SOT-23
01.42.Q.S.E1035	Transistor, Panasonic	2SA1035 SMD	Q11 Q12 Q13 Q15 Q18 Q21 Q22 Q24 Q27 Q30 Q32	SOT-23
01.42.Q.S.EDTC343	Transistor, ROHM	DTC343TKT146 SMD	Q17 Q26	SOT-23
01.42.Q.S.E2406	Transistor, Panasonic	2SC2406 SMD	Q14 Q16 Q19 Q20 Q23 Q25 Q28 Q29	SOT-23
01.42.Q.S.E1132	Transistor, ROHM	2SB1132 SMD	Q1 Q2	MPT3
01.42.Q.S.E1664T	Transistor, ROHM	2SD1664T100R SMD	Q10 Q8	MPT3
01.42.Q.S.E3018	MOSFET, ROHM	2SK3018T106 SMD	MQ9 MQ7	UMT3
01.42.Q.D.E8050	Transistor	KTC8050-C/P DIP	Q6 Q5	TO-92
01.42.Q.D.E8550	Transistor	KTC8550-C/P DIP	Q3 Q4	TO-92
01.00.JZ.E33868	Quartz Crystal Unit	33.8688MHZ-49S- 20P	X1	
01.00.JZ.E225792	Crystal Oscillator	22.5792MHz/3.3V	Y1	

HD980 Component List for Main Board (5563C01)

P/N	Description	Specification	Location.No.	Note
01.44.IC.S.EBF532S	IC, ADI, Blackin DSP	ADSP-BF532SBSTZ400,LQFP176	U6	
01.46.IC.E7208G	IC, Via, Servo chip	VT7208, LQFP216	U1	
01.46.ICEKH29LV040	IC, KH,Flash Memory	KH29LV040CQC-70G, PLCC32	U16	firmware burn-in; (Can be replaced by ATEML AT49BV040B-70JU)
01.46.IC.E290011	IC, AMIC, Flash memory	AMIC A290011TL-70, PLCC32	U2	firmware burn-in
0146ICHY57V641620E	IC, Hynix, SDRAM	HY57V641620ETP-7,TSOP54	U30	
0146ICEM11B416256	IC, EliteMT, DRAM	M11B416256A-25J,SOJ40	U3	
01.44.IC.S.E5888	IC, Rohm, Actuator driver	BA5888FP, HSOP-28	U12	
01.46.IC.E7414	IC, Philips, Hex inverting Schmitt trigger	74HCT14D,SOIC14	U31	;
01.46.IC.E74HCT245	IC,TI,TTL input buffer	SN74HCT245PWR,TSSOP20	U14	
01.44.IC.D.EPC817C	IC, Sharp, Photoelectric Coupler	PC817,DIP4	U23	
01.44.IC.S.E1117H	IC, AAC, LDO	AZ1117H-5.0, SOT-223	U29	
01.44.IC.S.E1117	IC, AAC, LDO	AZ1117H-ADJ, SOT-223	U7 U9	
01.44.ICSEA11173V3	IC, AAC, LDO	AZ1117H-3.3, SOT-223	U4	
01.44.IC.S.ELM393	IC, ST, Comparator	LM393, SOP8	U11	
01.44.IC.D.E7912	IC, Fairchild, Voltage Regulator	L7912,TO-220	U10	
01.44.IC.D.E7812	IC, Fairchild, Voltage Regulator	L7812,TO-220	U8	
01.46.IC.NJM5534	IC, JRC, Operational amplifier	NJM5534M,DMP8	U26 U28	
01.44.IC.S.E8740	IC, Wolfsonw, DA converter	WM8740SEDS, SSOP-28	U27	
01.44.IC.S.E9022	IC, NS, Vacuum Fluorescent Display Filament Driver	LM9022, 8P, SO8	U13	
01.44.IC.S.E3522	IC, AAT, Reset monitor	AAT3522IGY-3.08-200-T1, SOT-23	U5	
01.43.E009	Jack, Sharp, Fiber optic ouput jack with shutter	GP1FAV51TK0F	JP1	
01.40.CON.DCZ.E121	Jack, IR in/out jack	SCJ351P00XS0B00 (BLACK), In-line Package	JP4	
01.40.CON.DCZ.E125	Jack, Coaxial output jack	AV1-8.4-6G	JP2	Antiflaming,Orange, Gold-plated jack

HD980 Component List for Main Board (5563C01)

P/N	Description	Specification	Location.No.	Note
01.40.CON.DCZ.E046	Jack, Audio output jack	AV2-8.4-1G	JP5	Antiflaming, Down red & up white, Gold-plated jack
01.40.CON.DPH.E024	Connector	PH-5A	CN3	Antiflaming
01.40.CON.DPH.E028	Connector	PH-6A	CN4	Antiflaming
01.40.CON.DPH.E047	Connector	PH-13A	CN1	Antiflaming
01.40.CON.S05.E007	FPC connector	FPC-0.5-24P with upward touch	CN5	SMD
0140CONS13FPC2.E00	FPC connector	1.25-14P	CN6	Vertical Type
01.37.PCB.2.E5563C	5563C	Main board		2-layers

HD980 Component List for Key Board (5575C01)

01.57.R.3.E000J	Resistor, chip	0805-0 Ω $\pm 5\%$	R414 R415	
01.57.R.3.E241J	Resistor, chip	0805-240 Ω $\pm 5\%$	R412	
01.57.R.3.E471J	Resistor, chip	0805-470 Ω $\pm 5\%$	R404	
01.57.R.3.E821J	Resistor, chip	0805-820 Ω $\pm 5\%$	R413	
01.57.R.3.E472J	Resistor, chip	0805-4.7K Ω $\pm 5\%$	R402 R403 R406 R407 R408 R409 R410 R411	
01.57.R.3.E153J	Resistor, chip	0805-15K Ω $\pm 5\%$	R401	
01.54.CS.3E220N50V	Capacitor, multilayer ceramic, chip	0805-22P NPO $\pm 5\%/50V$	C402 C403	
01.54.CS.3E104Y50V	Capacitor, multilayer ceramic, chip	0805-104 Y5V+80-20%/50V	C404 C405 C406	
01.54.CS.3E225Y16V	Capacitor, multilayer ceramic, chip	0805-225 Y5V-20+80%/16V	C401	
01.34.CL.DE47U16VB	Capacitor, AL.electrolytic	CD11X-47UF/16V 5*7	CE402	
01.34.CLDE100U10VB	Capacitor, AL.electrolytic	CD11X-100UF/10V 5*7	CE401	
01.41.D.PS.ELL4148	Diode	LL4148 SMD	D401	
01.41.DFDE1L0392A2	LED, color is orange & white, DIP	1L0392A2W32CM002	LED401	
01.42.Q.S.E8050	Transistor	KTC8050 SMD	Q402	SOT-23
01.42.Q.S.EC8550	Transistor	KTC8550 SMD	Q401	SOT-23
01.00.JZ.E04000	Quartz Crystal Unit	4.000MHZ-49S-22P	Y401	
01.46.IC.E78P156	IC, ELAN, MCU	EM78P156ELM,SOIC18	U401	firmware burn-in
01.44.IC.D.E0038B	IC, IR receiver	HS0038B	IR401	
01.39.SW.QC.ED665A	Touch switch	6*6*5(80g)	K401 K402 K403 K404 K405 K406 K407	DIP
01.40CONS13AY1E011	Connector	1.25-6A(Horizontal Type)	(CN403)	DIP
01.40.CON.DTJ.E024	Connector	TJC3-3A	(CN404)	Antiflaming
01.37.PCB.2.E5575C	5575C	Key board		2-layers

HD980 Component List for Key Board (5576C01)

P/N	Description	Specification	Location.No.	Note
01.57.R.3.E103J	Resistor, chip	0805-10K Ω $\pm 5\%$	(R415)	
01.57.R.3.E203J	Resistor, chip	0805-20K Ω $\pm 5\%$	(R414)	
01.54.CS.3E300N50V	Capacitor, multilayer ceramic, chip	0805-30P NPO $\pm 5\%/50V$	(C411)	
01.54.CS.3E473X50V	Capacitor, multilayer ceramic, chip	0805-473 X7R $\pm 10\%/50V$	(C407) (C415)	
01.54.CS.3E104Y50V	Capacitor, multilayer ceramic, chip	0805-104 Y5V+80-20%/50V	(C408) (C409)	

HD980 Component List for Key Board (5576C01)

P/N	Description	Specification	Location.No.	Note
01.54.CS.3E225Y16V	Capacitor, multilayer ceramic, chip	0805-225 Y5V-20+80%/16V	(C410)	
01.34.CL.DE47U16VB	Capacitor, AL.electrolytic	CD11X-47UF/16V 5*7	(CE403)	
01.41.D.PS.ELL4148	Diode	LL4148 SMD	(D402)	
01.44.IC.S.E75711	IC, SANYO, VFD Driver	LC75711NE,QFP64E	(U402)	
01.16.E1302FA	VFD	VFD22-1302FA	VFD401	
01.39.SW.QC.ED665A	Touch switch	6*6*5(80g)	K408	DIP
01.40CONS13AY1E011	Connector	1.25-6A(Horizontal Type)	(CN403)	DIP
0140CONS13FPC2E002	FPC connector	1.25-14P(Vertical Type and Single Contact)	(CN401)	
01.37.PCB.2.E5576C	5576C	VFD board		2-layers

HD980 Component List for SMPS Board (1254C01)

01.57.R.C.ED100	FIXED FILM	CARBON	RT1/4W-10 Ω	R4,R6	
01.57.R.C.ED470	FIXED FILM	CARBON	RT1/4W-47 Ω	R21	
01.57.R.C.ED101	FIXED FILM	CARBON	RT1/4W-100 Ω	R16	
01.57.R.C.ED221	FIXED FILM	CARBON	RT1/4W-220 Ω	R13,R19,R20	
01.57.R.C.ED681	FIXED FILM	CARBON	RT1/4W-680 Ω	R14	
01.57.R.C.ED102	FIXED FILM	CARBON	RT1/4W-1K Ω	R26	
01.57.R.C.ED222	FIXED FILM	CARBON	RT1/4W-2.2K Ω	R17,R18,R22	
01.57.R.C.ED512	FIXED FILM	CARBON	RT1/4W-5.1K Ω	R23,R24,R25	
01.57.R.C.ED103	FIXED FILM	CARBON	RT1/4W-10K Ω	R15	
01.57.R.C.ED473	FIXED FILM	CARBON	RT1/4W-47K Ω	R5	
01.57.R.C.EF683	FIXED FILM	CARBON	RT1W-68K Ω 5%	R2	
01.57.R.C.EF364	FIXED FILM	CARBON	RT1W-360K Ω	R3	
01.57.R.C.ED105	FIXED FILM	CARBON	RT1/4W-1M Ω	R1	
01.57.R.R.E5D9	Thermistor		NTC-5D-9	NTC	
01.57.R.Y.E10K	Varistor		10K.471	RV1	
01.00.CDGYE104275V	High-voltage metallized polyester film		104/275V X2(lead pitch: 15mm)	CX1	
01.00.CDGYE471400V	High-voltage metallized polyester film		471/400V Y1(lead pitch:10mm)	CY1,CY2	
01.00.CDGYE102400V	High-voltage metallized polyester film		102/400V Y1(lead pitch:10mm)	CY3	
01.00.CDCPE1031KV	High-voltage metallized polyester film		103/1KV(lead pitch:7.5mm)	C1	
01.00.CDDSE473/50V	RADIAL LEADS MLCC		473/50V X7R±10% (lead pitch:5.08mm)	C2,C13	

HD980 Component List for SMPS Board (1254C01)

P/N	Description	Specification	Location.No.	Note
01.00.CD.DS.E683	RADIAL LEADS MLCC	683/50V X7R±10% (lead pitch:5.08mm)	C3	
01.00.CD.DSE10450V	RADIAL LEADS MLCC	104/50V X7R±10% (lead pitch:5.08mm)	C10 C11 C12 C14 C15 C16	
01.34.CLDE4U7160VD	CAPACITOR,AL.ELE CTROLYTIC	CD288H-4.7UF/160V 8*12	EC3	CAPXON KF4R7M160F11 5A
01.34.CLDEH2U250VC	CAPACITOR,AL.ELE CTROLYTIC	CD288H-2.2UF/50V 5*11	EC22	CAPXON GF2R2M050C11 0A
01.34.CLDEH47U25VD	CAPACITOR,AL.ELE CTROLYTIC	KM470M025C110AP	EC17,EC18	CAPXON GF470M025C11 0A
01.34.CLDEH47U50VD	CAPACITOR,AL.ELE CTROLYTIC	GF470M050E110A	EC2	CAPXON GF470M050E11 0A
01.34.CLDE47U400VG	CAPACITOR,AL.ELE CTROLYTIC	CD288H-47UF/400V 18*20	EC1	CAPXON KM470M400K21 0A
0134CLDE288100U25V	CAPACITOR,AL.ELE CTROLYTIC	GF101M025E110A	EC11,EC12	CAPXON GF101M025E11 0A
0134CLDE288220U16V	CAPACITOR,AL.ELE CTROLYTIC	CD288H-220UF/16V 6.3*12	EC5,EC6,EC16,EC21	CAPXON GF221M016E11 0A
0134CLDE288220U25V	CAPACITOR,AL.ELE CTROLYTIC	CD288H-220UF/25V 8*12	EC9,EC10,EC14,EC15	CAPXON GF221M025F11 5A
01.34CLDEH470U16VD	CAPACITOR,AL.ELE CTROLYTIC	GF471M016F115A	EC4	CAPXON GF471M016F11 5A
01.34CLDE1000U16VG	CAPACITOR,AL.ELE CTROLYTIC	CD288H- 1000UF/16V 10*20	EC19,EC20	CAPXON GF102M015G16 0A
01.13.L.L.D.E090	Pulse transformer,Coilcraft	L520-10UH	L7	
01.13.L.L.D.E005	Bead, leaded fixed	LH0810-20UH	L6	
01.13.L.L.D.E051	Bead, leaded fixed	LH0608-22UH	L3,L4,L5,L8	
01.13.L.L.D.E086	Common Mode Choke	LCL- ET20- 010(50MH)	LF1	FLY, FuZhou
01.41.D.PD.EIN4001	Diode	IN4001,SOD81	D17	
01.41.D.PD.EIN4007	Diode	IN4007,SOD81	D1,D2,D3,D4	
01.41.D.PD.EFR104	Diode	FR104, In-line Package	D6,D8,D10,D11,D13	
01.41.D.PD.EFR107	Diode	FR107, In-line Package	D7	
01.41.D.PD.EIN4148	Diode	IN4148,DO-35	D14,D16,D18	
01.41.D.PD.E21DQ10	Diode	21DQ10, In-line Package	D12	
01.41.D.PD.E31DQ06	Diode	31DQ06, In-line Package	D15	
01.41.D.PD.E1U08	Diode	1U08, In-line Package	D5	
01.41.D.WD.E16V	Zener Diode	16V, In-line Package	ZD1	
01.41.D.WD.E18V	Zener Diode	18V, In-line Package	ZD2	
01.42.Q.D.E5551	Transistor	2N5551,TO-92	Q1	
01.42.Q.D.E8550	Transistor	KTC8550-C/P,TO-92	Q3	
01.42.Q.D.E9014	Transistor	C9014,TO-92	Q2	

HD980 Component List for SMPS Board (1254C01)

P/N	Description	Specification	Location.No.	Note
01.44.IC.D.EMCR100	Silicon Controlled Rectifiers	MCR100-6,TO-92	SC1	
01.44.IC.D.E2659R	IC, FAIRCHILD, FPS	KA5M02659R, DIP8	IC1	
01.44.IC.DEAZ431AZ	IC, AAC, Adjustable Shunt Regulator	AZ431AZ-AE1TR, TO 92	IC2	
01.44.IC.D.EBA33	IC, ROHM, Dropout Voltage Regulator	BA33BCO,TO-220	IC6	
01.44.IC.D.ELM317T	IC, NS, Positive Adjustable Regulator	LM317T, TO-220	IC5	
01.44.IC.D.EL7805	IC, ST, Voltage Regulator	L7805, TO-220	IC3	
01.44.IC.D.EPC817C	IC, Sharp, Photoelectric Coupler	PC817, DIP4	PH1	
01.40.CON.DCZ.E131	Fuse Holder	BLX-2A	FU1	Antiflaming
01.38.FUSEDE1A250V	Fuse	T1A/250V	FU1	
01.13.L.R.E059	Switching Power Transformer	BCK-EC2802	TR1	FLY, FuZhou
01.40.CON.DCZ.E129	Connector	Vertical VH three holes two pins(white)	JP1	Antiflaming
01.40.CON.DTJ.E024	Connector	TJC3-3A	CN1	Antiflaming
01.40.CON.DTJ.E002	Connector	TJC3-13A	CN2	Antiflaming
01.00.WJ.TJ.E496	Radiator	12*16*23mm	for IC3	Antiflaming
01.00.WJ.QT.E041	3pins grounding piece	M4	G1,G2,G3,G4	
01.37.PCB.1.E1254C	1254C	SMPS board		1-layer

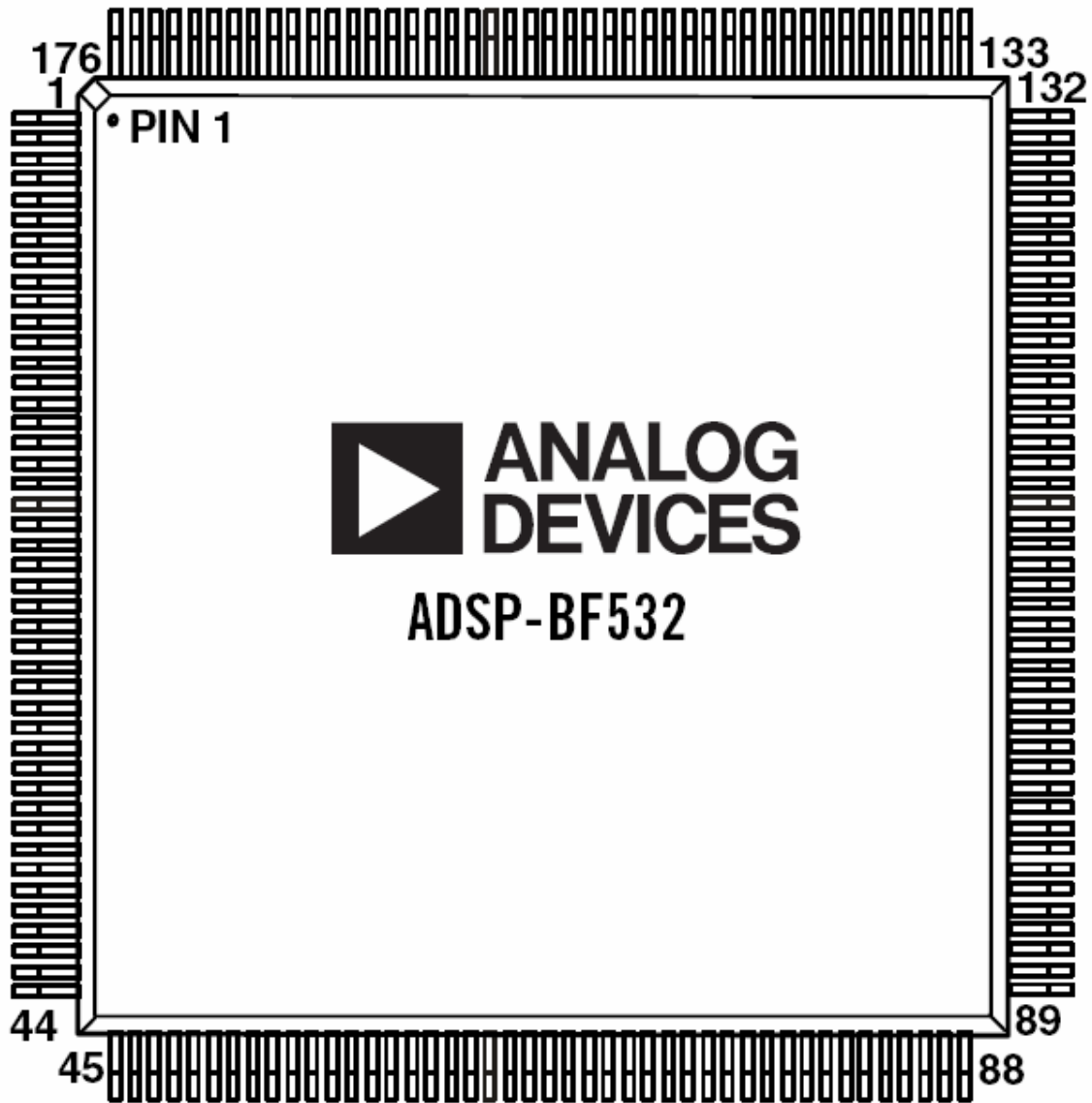
HD980 Component List for Remote Control w/ Circuits Board(1782C)

P/N	Description	Specification	Location.No.	Note
01.00.WJ.TH.E183	Anode Spring		same as DVD25	
01.00.WJ.TH.E184	Cathode Spring		same as DVD25	
01.00.WJ.TH.E185	Double role spring		same as DVD25	
01.00.SJ.HD970E005	Remote Control Top Case		HD980 (tooling same as HD970)	
01.00.SJ.HD970E006	Remote Control Bottom Case		HD980 (tooling same as HD970)	
01.00.SJ.HD970E009	Cover for battery case		HD980 (tooling same as HD970)	
01.00.BP.QT.E085	RC indication plate (upper)		HD980	
01.00.BP.QT.E086	RC indication plate (nether)		HD980	
01.00.DD.QT.E012	RC conductive rubber (upper)		same as HD950	
01.00.DD.QT.E117	RC conductive rubber (nether)		same as HD970	
01.57.R.4.E010J	Resistor, chip	1 Ω 1/6W 1206 5 %	R1	
01.57.R.3.E221J	Resistor, chip	220 Ω 1/8W 0805 5 %	R2	
01.54.CS.3.E101N	Capacitor, multilayer ceramic, chip	100PF 50V J NPO 0805	C3 C4	
01.54.CS.3.E104Y	Capacitor, multilayer ceramic, chip	0.1 μ F 50V Z Y5V 0805	C2	
01.34.CLDE100U10VB	Capacitor,AL.electrolytic	100 μ F 10V 20%	C1	5*7

HD980 Component List for Remote Control w/ Circuits Board(1782C)

P/N	Description	Specification	Location.No.	Note
01.44.IC.S.E970	IC, Princeton Technology Corp., IR encoder	HD970, SMD	U1	
01.41.D.PS.ELL4148	Diode	LL4148, DO213AA	D1 D2 D3 D4 D5 D6 D7 D8	
01.42.Q.S.E8050	Transistor,CHIP	KTC8050, SOT-23	Q1	
01.41.D.FD.EHIR305	Transmitting diode	HIR305CAP, 2P, In-line Package	LED	
01.00.ZJ.TXQ.E009	Ceramic Resonator	Z455E, 2P, In-line Package	X1	
01.00.FZ.ZZ.E009	Jumper	5mm	J1 J2	
02.25.HD9701782C	1782C		Remote control board(same as HD950)	

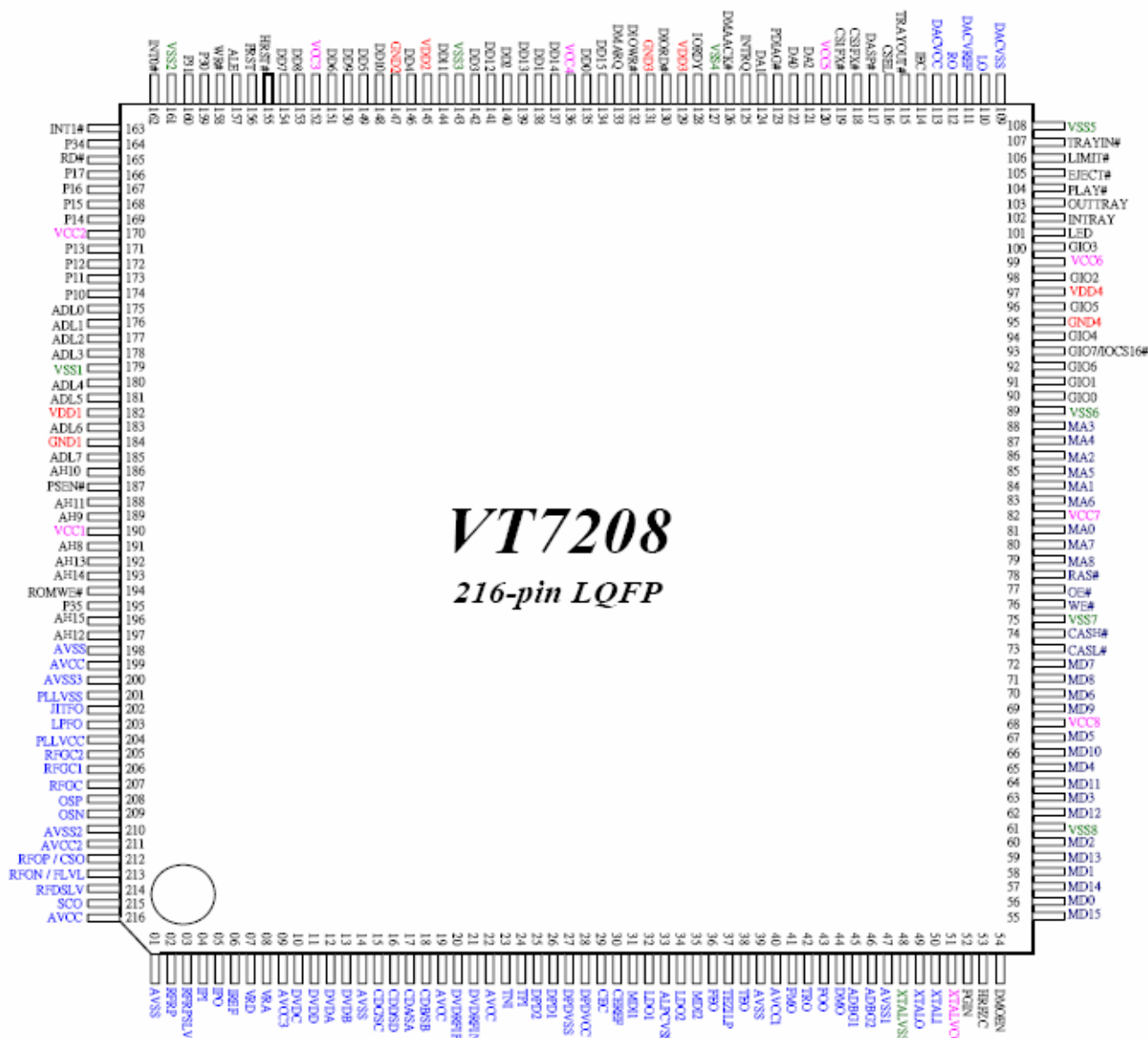
ADSP-BF532SBSTZ400 LQFP176



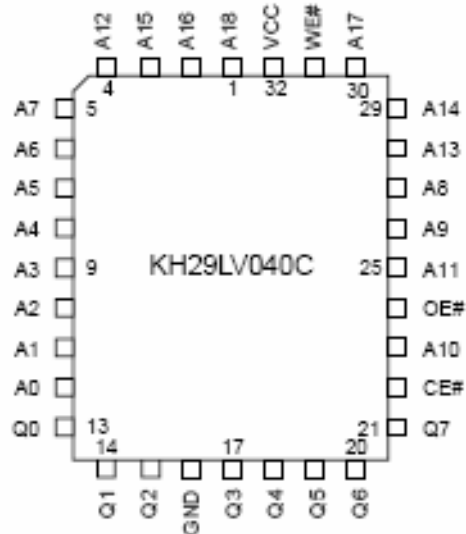
176-Lead LQFP Pin Assignment (Numerically by Lead Number)

Lead No.	Signal	Lead No.	Signal	Lead No.	Signal	Lead No.	Signal	Lead No.	Signal
1	GND	41	GND	81	TX	121	ADDR19	161	AMS0
2	GND	42	GND	82	RX	122	ADDR18	162	ARDY
3	GND	43	GND	83	EMU	123	ADDR17	163	BR
4	VROUT1	44	GND	84	TRST	124	ADDR16	164	SA10
5	VROUT0	45	VDDEXT	85	TMS	125	ADDR15	165	SWE
6	VDDEXT	46	PF5	86	TDI	126	ADDR14	166	SCAS
7	GND	47	PF4	87	TDO	127	ADDR13	167	SRAS
8	GND	48	PF3	88	GND	128	GND	168	VDDINT
9	GND	49	PF2	89	GND	129	GND	169	CLKOUT
10	CLKIN	50	PF1	90	GND	130	GND	170	GND
11	XTAL	51	PF0	91	GND	131	GND	171	VDDEXT
12	VDDEXT	52	VDDINT	92	GND	132	GND	172	SMS
13	RESET	53	SCK	93	VDDEXT	133	GND	173	SCKE
14	NMI	54	MISO	94	TCK	134	VDDEXT	174	GND
15	GND	55	MOSI	95	BMODE1	135	ADDR12	175	GND
16	RTXO	56	GND	96	BMODE0	136	ADDR11	176	GND
17	RTXI	57	VDDEXT	97	GND	137	ADDR10		
18	VDDRTC	58	DT1SEC	98	DATA15	138	ADDR9		
19	GND	59	DT1PRI	99	DATA14	139	ADDR8		
20	VDDEXT	60	TFS1	100	DATA13	140	ADDR7		
21	PPI_CLK	61	TSCLK1	101	DATA12	141	ADDR6		
22	PPI0	62	DR1SEC	102	DATA11	142	ADDR5		
23	PPI1	63	DR1PRI	103	DATA10	143	VDDINT		
24	PPI2	64	RFS1	104	DATA9	144	GND		
25	VDDINT	65	RSCLK1	105	DATA8	145	VDDEXT		
26	PPI3	66	VDDINT	106	GND	146	ADDR4		
27	PF15	67	DT0SEC	107	VDDEXT	147	ADDR3		
28	PF14	68	DT0PRI	108	DATA7	148	ADDR2		
29	PF13	69	TFS0	109	DATA6	149	ADDR1		
30	GND	70	GND	110	DATA5	150	ABE1		
31	VDDEXT	71	VDDEXT	111	VDDINT	151	ABE0		
32	PF12	72	TSCLK0	112	DATA4	152	AWE		
33	PF11	73	DR0SEC	113	DATA3	153	ARE		
34	PF10	74	DR0PRI	114	DATA2	154	AOE		
35	PF9	75	RFS0	115	DATA1	155	GND		
36	PF8	76	RSCLK0	116	DATA0	156	VDDEXT		
37	PF7	77	TMR2	117	GND	157	VDDINT		
38	PF6	78	TMR1	118	VDDEXT	158	AMS3		
39	GND	79	TMR0	119	BG	159	AMS2		
40	GND	80	VDDINT	120	BGH	160	AMS1		

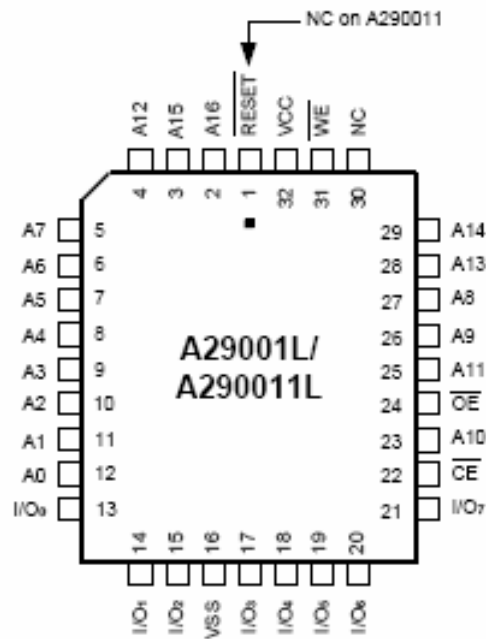
VT7208 LQFP 216



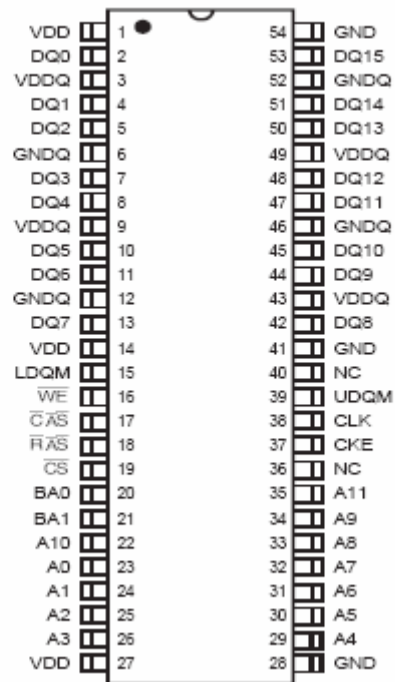
KH29LV040CQC-70G PLCC-32



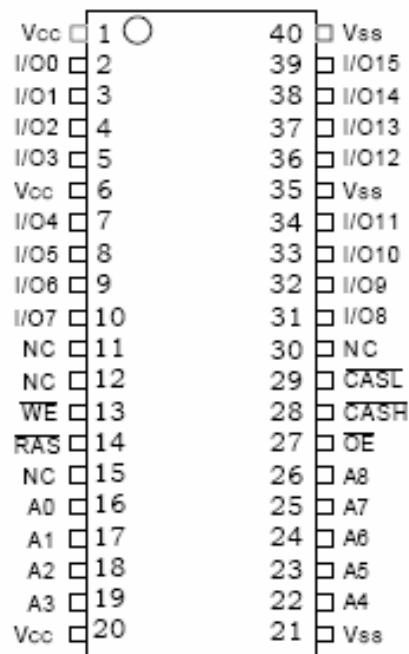
A290011TL-70 PLCC-32



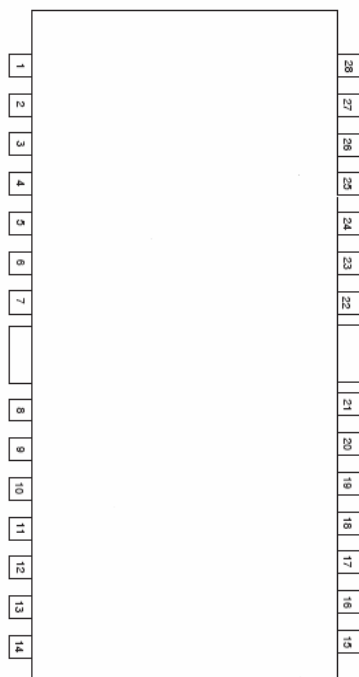
HY57V641620ETP-7 TSSOP-54



M11B416256A SOJ-40

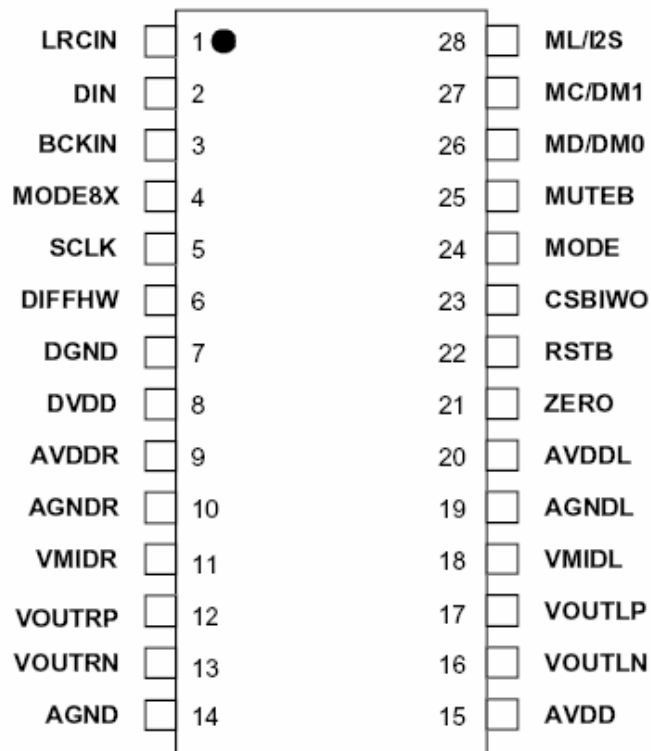


BA5888FP HSOP-28

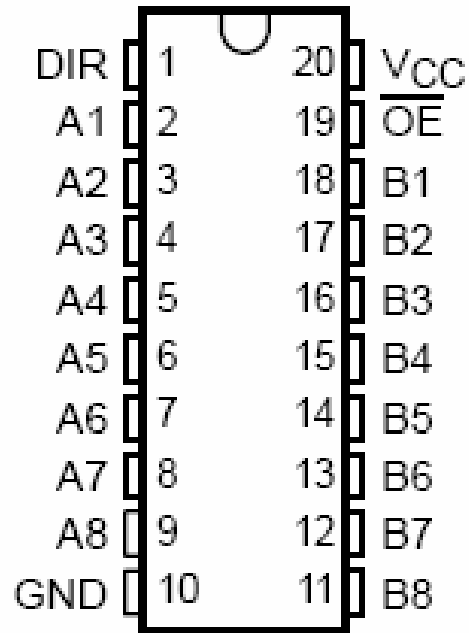


No	Symbol	No	Symbol
1	VINFC	15	VOTK+
2	CFCerr1	16	VOTK-
3	CFCerr2	17	VOLD+
4	VINSL+	18	VOLD-
5	VINSL-	19	PGND
6	VOSL	20	VNFTK
7	VNFFC	21	PVcc2
8	Vcc	22	PreGND
9	PVcc1	23	VINLD
10	PGND	24	CTKerr2
11	VOSL-	25	CTKerr1
12	VOSL+	26	VINTK
13	VOFC-	27	BIAS
14	VOFC+	28	STBY

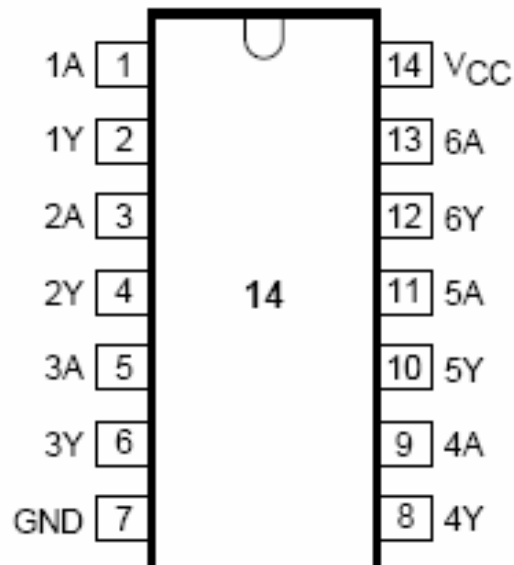
WM8740SEDS SSOP-28



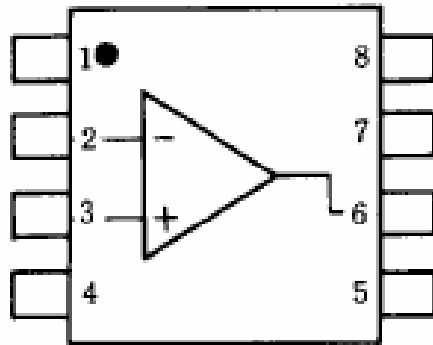
SN74HCT245PWR TSSOP-20



74HCT14D SOIC14



NJM5534M DMP8



NJM5534M

PIN FUNCTION

1.BALANCE

2.-INPUT

3.+INPUT

4.V⁻

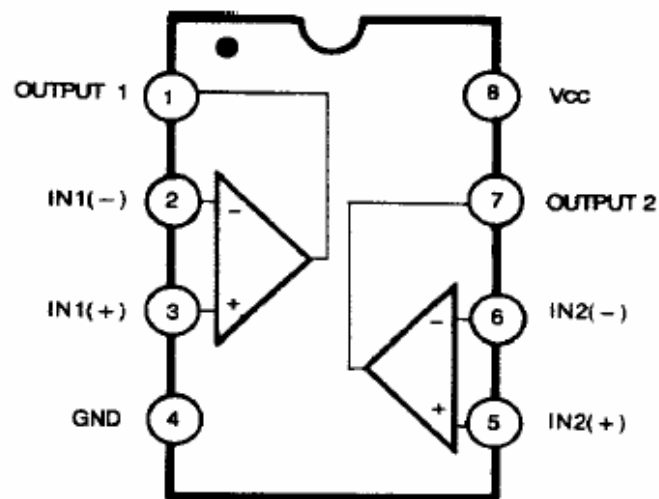
5.COMPENSATION

6.OUTPUT

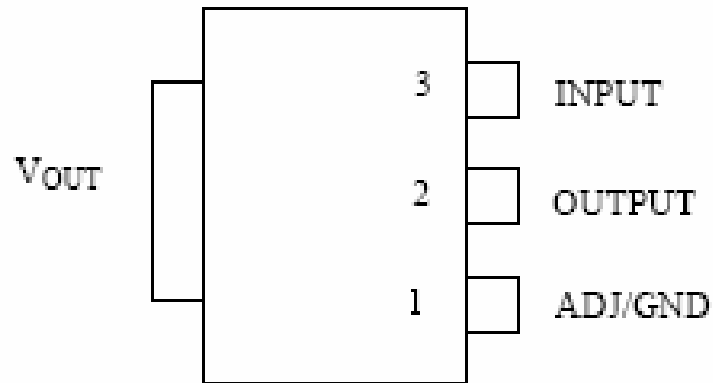
7.V⁺

8.BALANCE/COMPENSATION

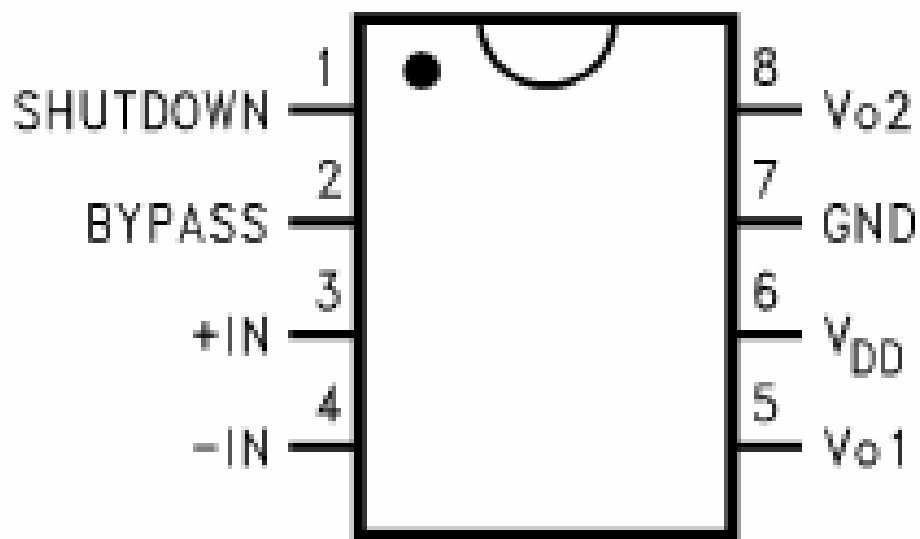
LM393 SOP8



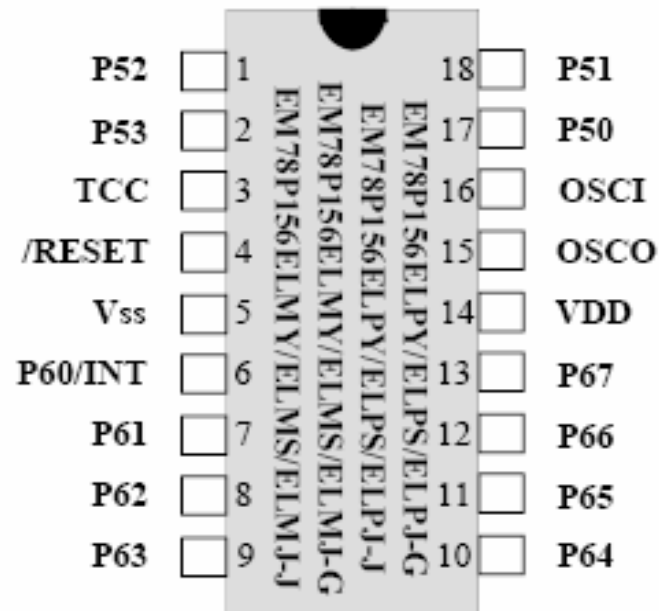
AZ1117-ADJ/3.3V/5V SOT-223



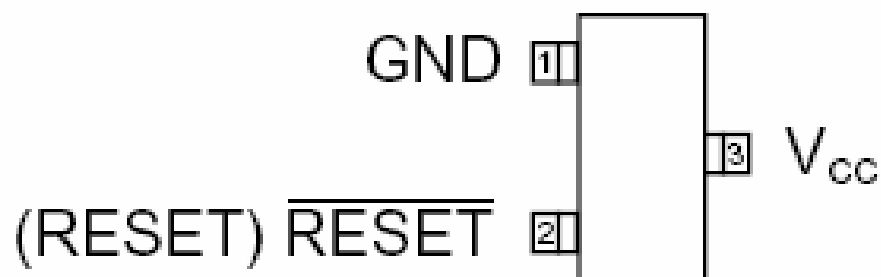
LM9022 SOP8



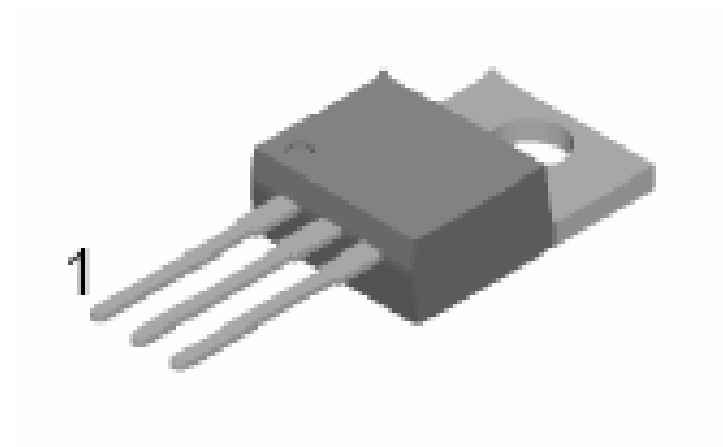
EM78P156ELM-G SOIC18



AAT3522 SOT-23

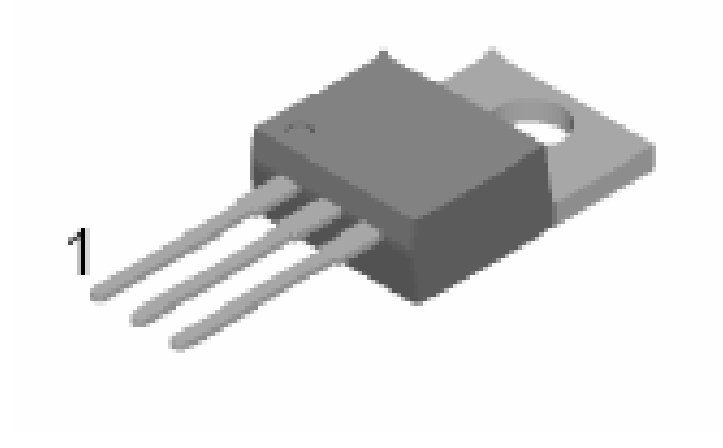


L7805/L7812 TO-220



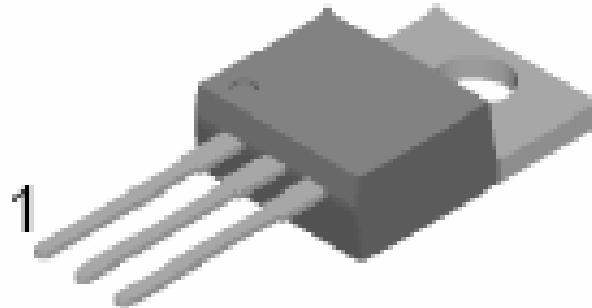
1. Input 2. GND 3. Output

L7912 TO-220



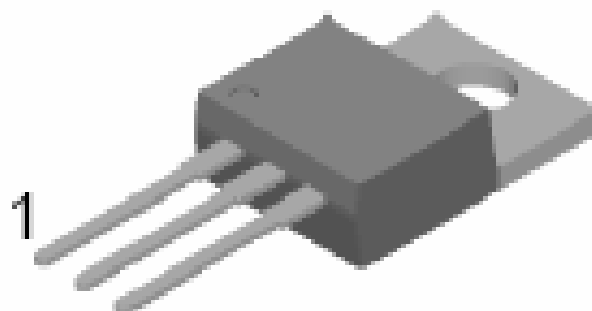
1. GND 2. Input 3. Output

BA33BCO TO-220



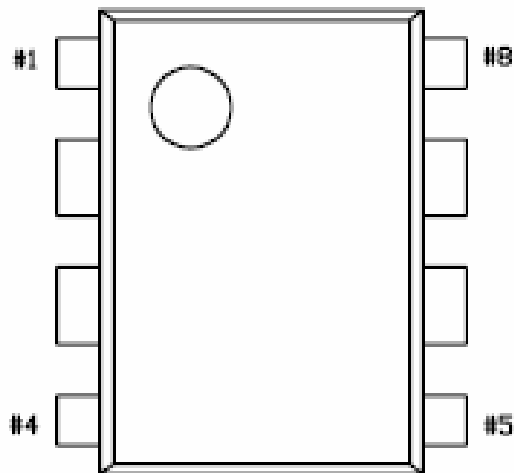
1. Vcc 2. GND 3. Output

LM317T TO-220



1. Adj 2. Output 3. Input

KA5M02659R DIP8



1.6.7.8. Drain

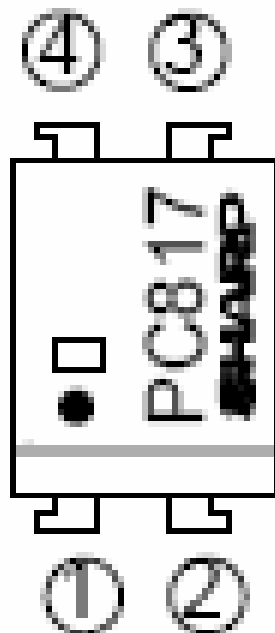
2. GND

3. Vcc

4. FB

5. NC

PC817 DIP4



① Anode

② Cathode

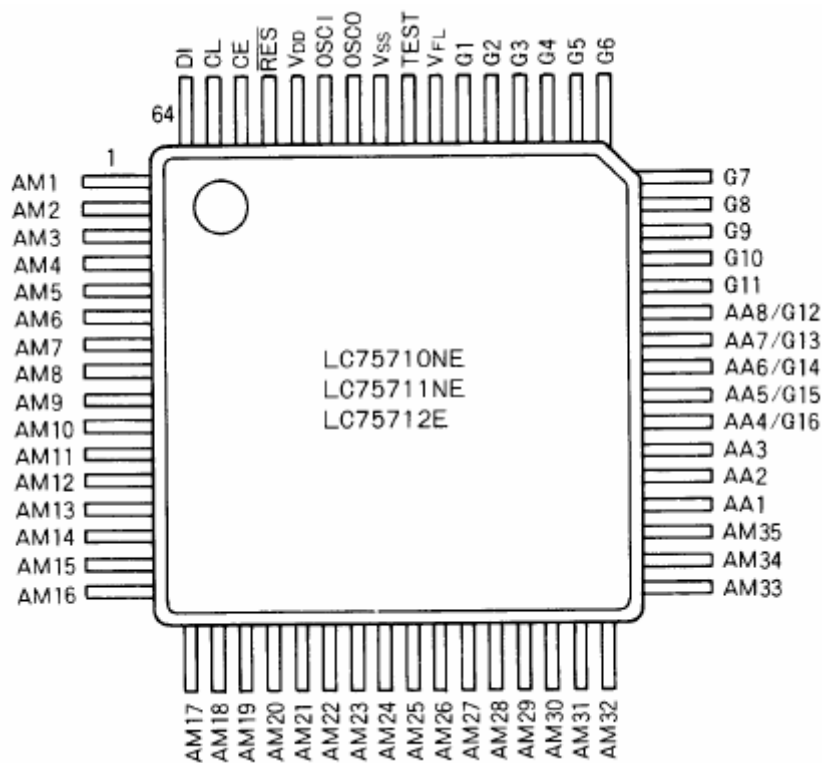
③ Emitter

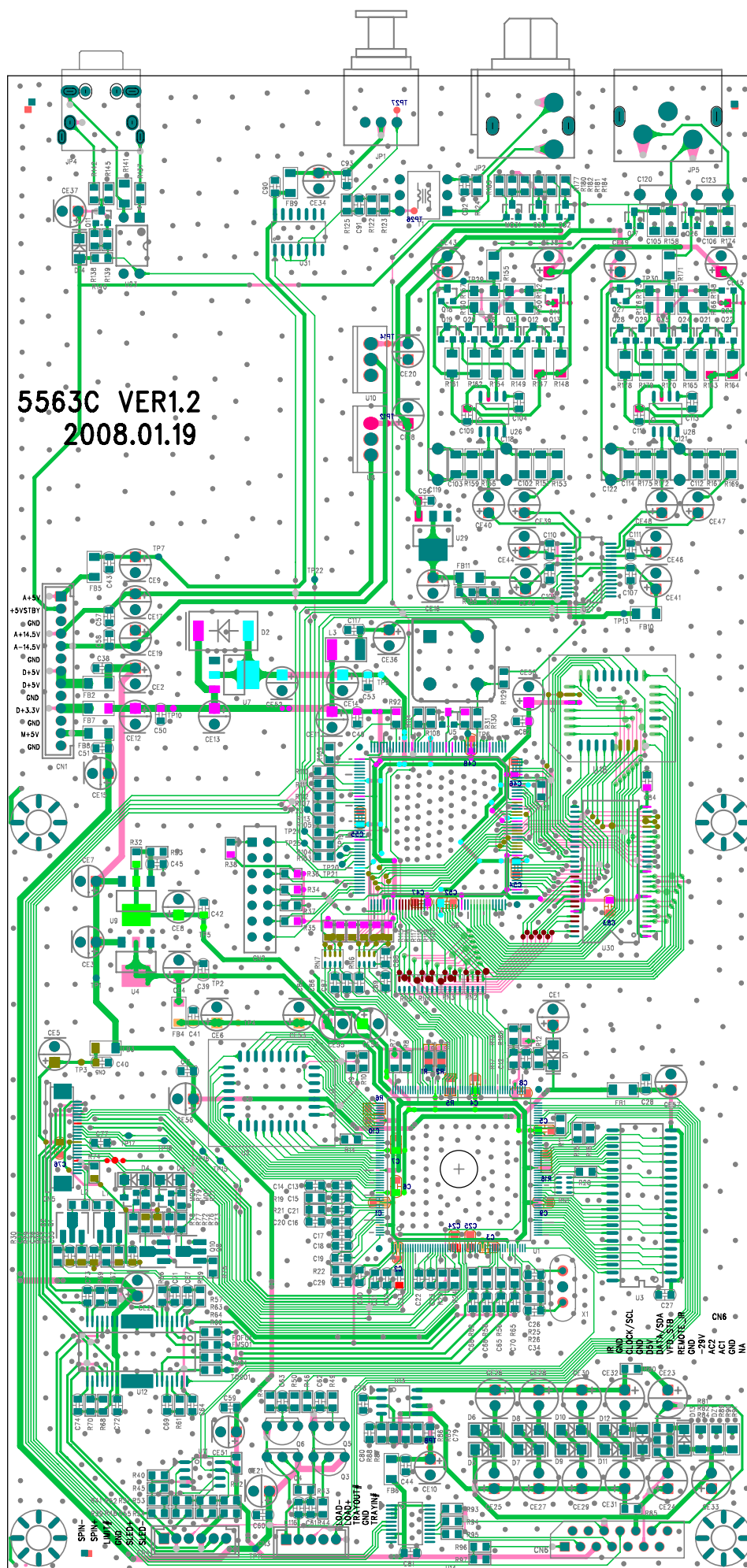
④ Collector

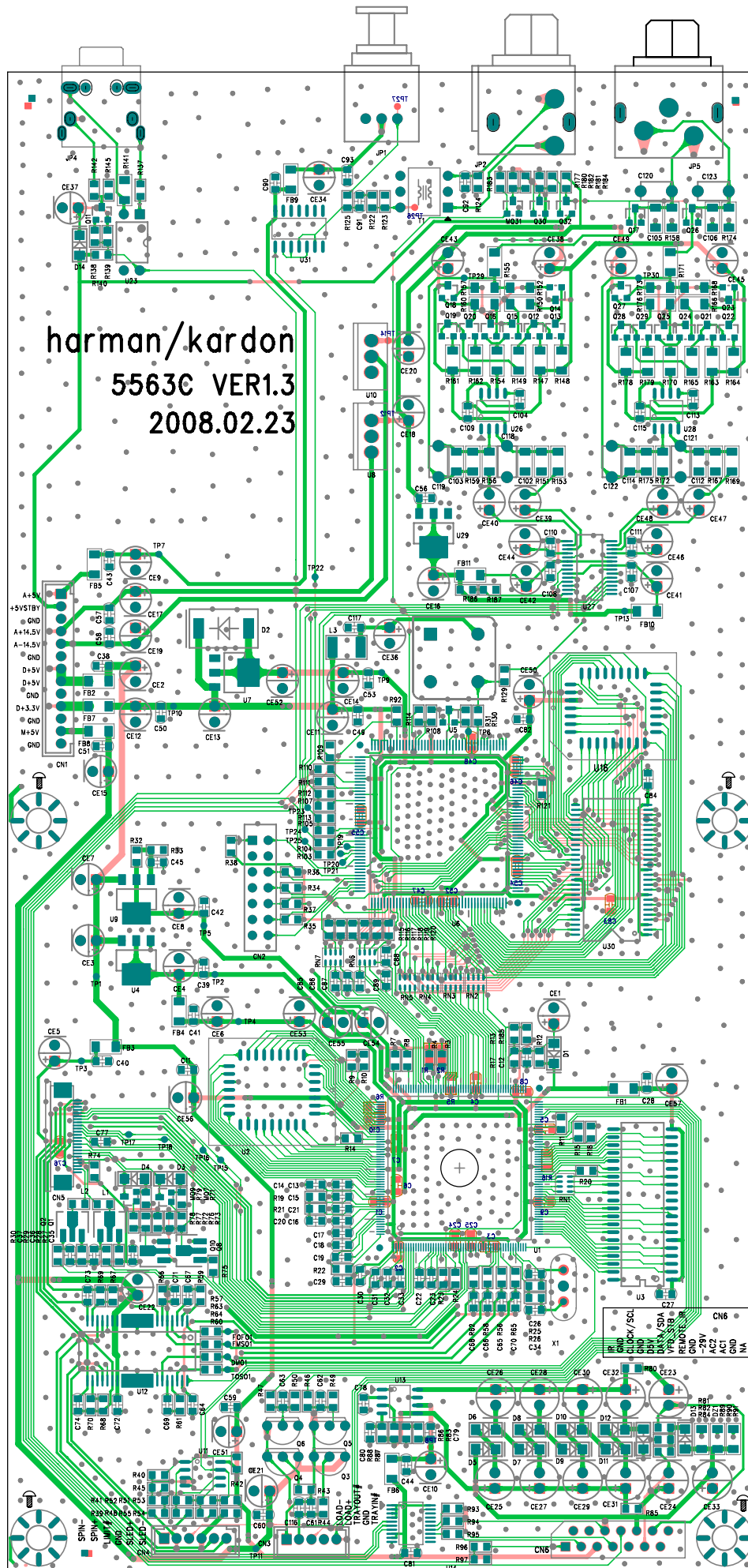
AZ431AZ-ATRE1 TO-92

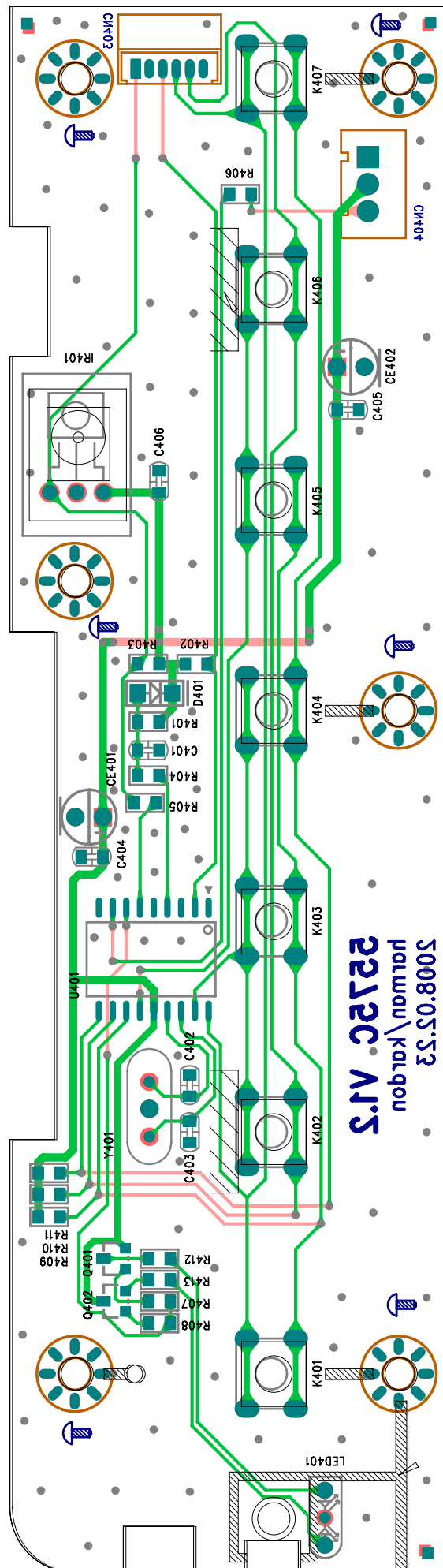


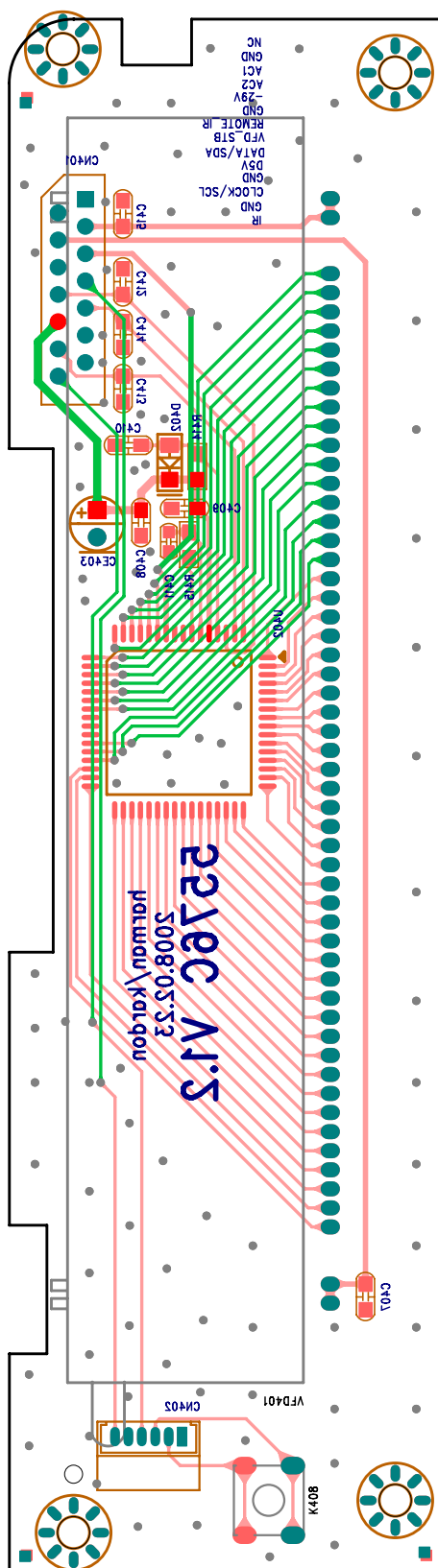
LC75711NE QFP64E

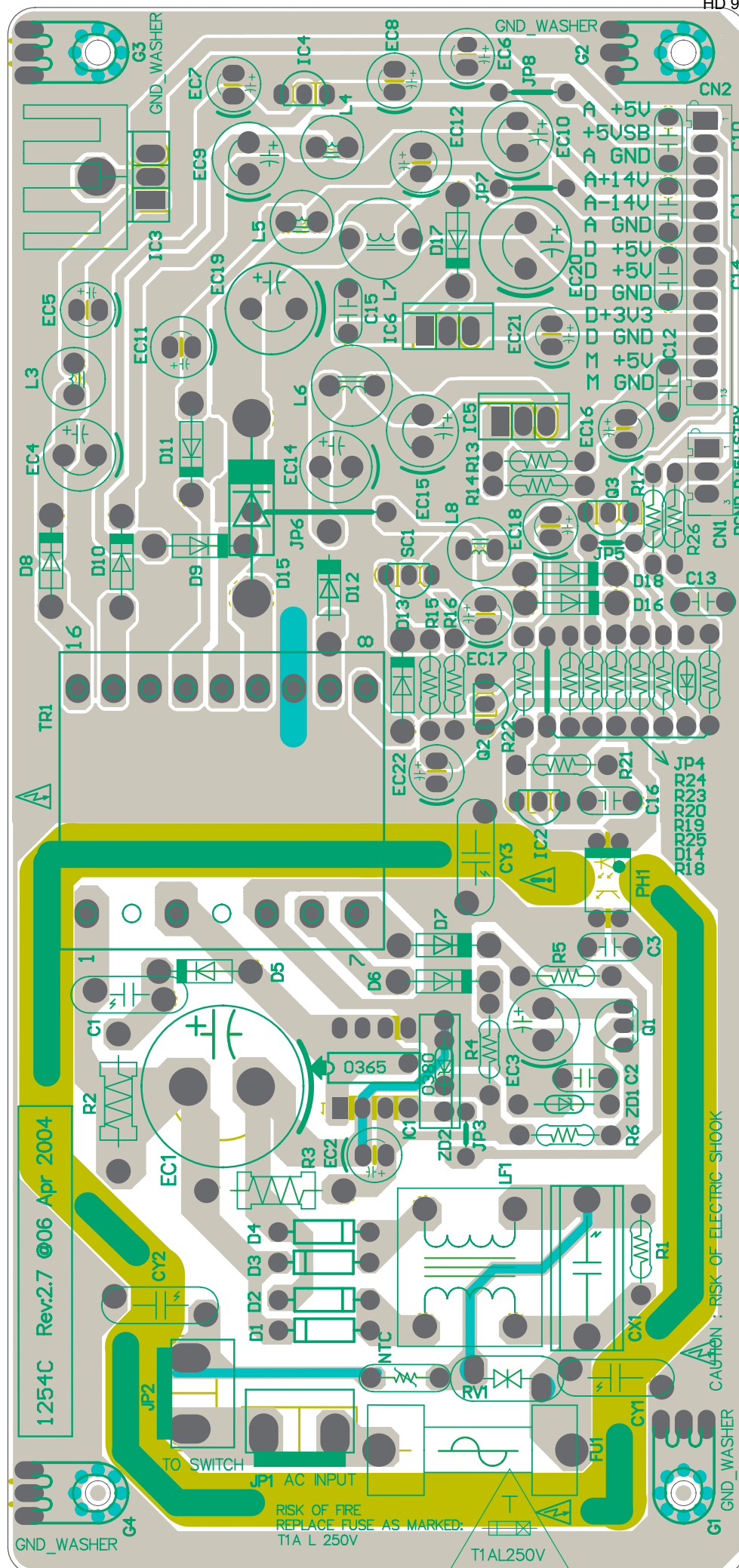


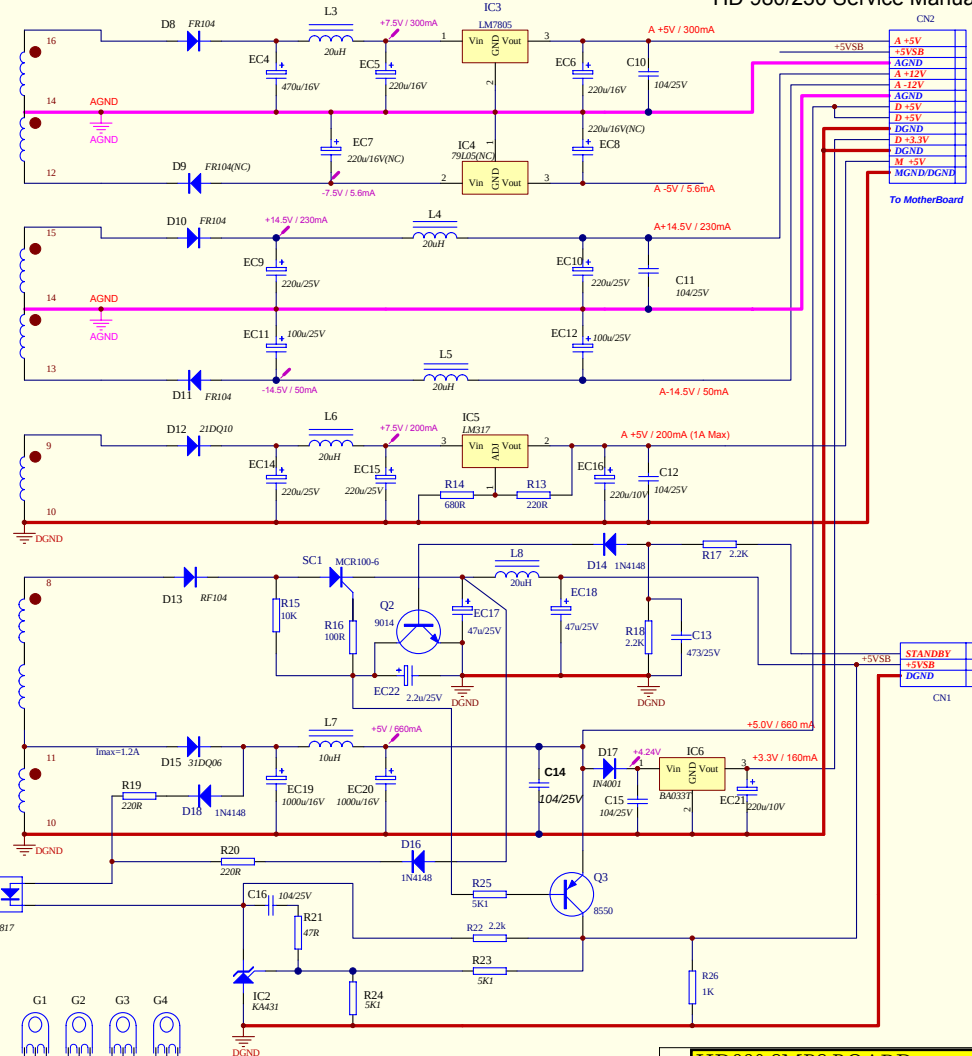
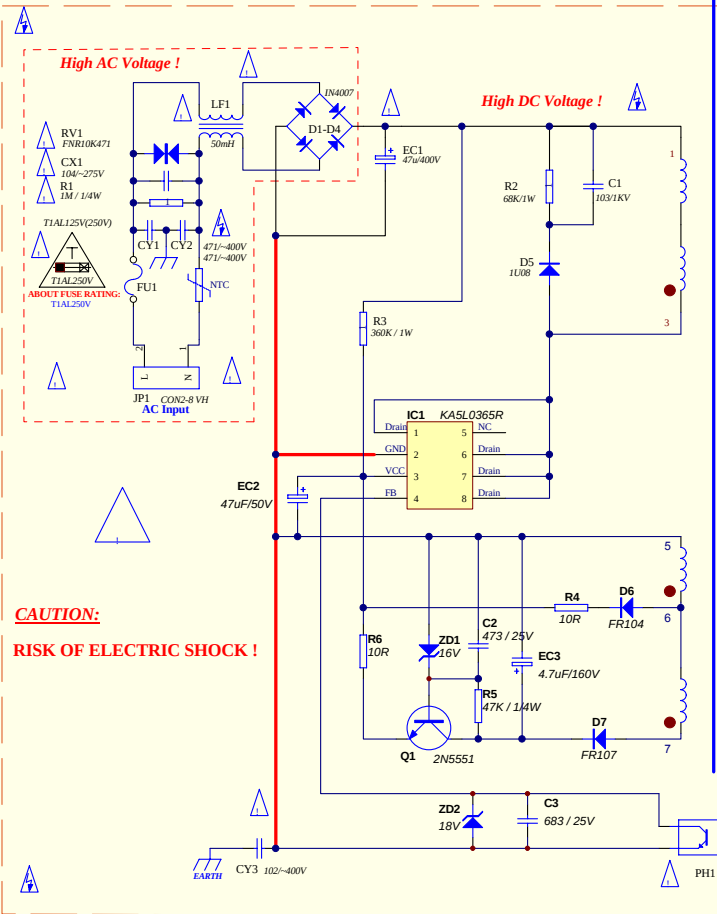












HD980 SMPS BOARD

History

REV 1.0:

- 1.Make Pin1 of Y1 hang up.
- 2.Add R185 and C116, and both be valued "NA".
- 3.Add net mame "ATA_CS1#", "ATA_CS0#", "ATA_RDY", "ATA_RST#", "D[0..15]" and "AT1_18J", "VFD_STB", "DATA/SDA", "CLOCK/SCL", "IR".
- 4.Delete net MISO.
- 5.Renamed net "CS_75710" as "CS_75711".
- 6.Connected Pin6 of T1 to "singal" net,and Connected Pin4 of T1 to "GND" net.
- 7.Delete U17A(74LCX125) and replace it with U15C(74LCX125).
- 8.Some Part Reference of components was changed, such as Capacitor, Electrolytic Capacitor, IC, connectors, MOSFET etc.
- 9.Deleted C49, and made pin4/pin5/pin6 of JP1 hung up.

REV 1.1:

- 1.Add R186,R187;
- 2.Connected PIN38 and PIN69 of U6;
- 3.Change Q3,Q4,Q5,Q6 into TO-92 Footprint;
- 4.Add TR1;
- 5.Change R56,R88 from 22K to 2.2K.
- 6.Change JP5.

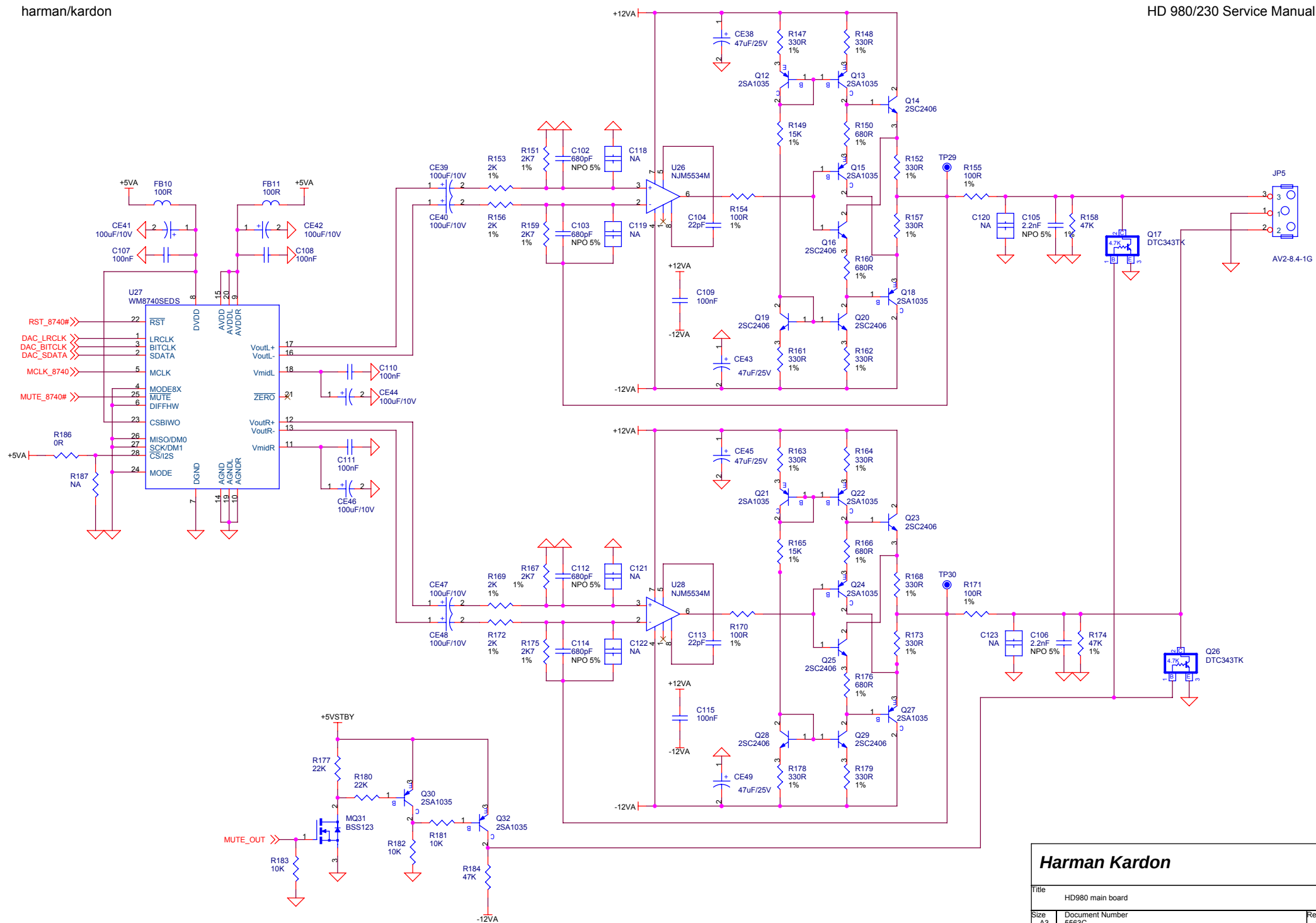
REV 1.2:

- 1.remove U15, U18, U19, U21, U22, U25;
- 2.R98, R99, R100, R101, R102, R128, R133, R136, R144, R132, R135, R143, R146, R126, R106, R127, R131, R134;
- 3.remove C95, C99, C100, C101;
- 4.connect MCLK_8740 to the oscillator at R129;
- 5.delete Isolation Transformer.
- 6.remove RJ45 connector.
- 7.Replace U15C with 74HCT14D.
- 8.Add C118, C119, C120, C121, C122, C123, and all Valued "NA".
- 9.Deleted C96, C97, C98, CE35, U24, and connected net "+3.3V" to L3.

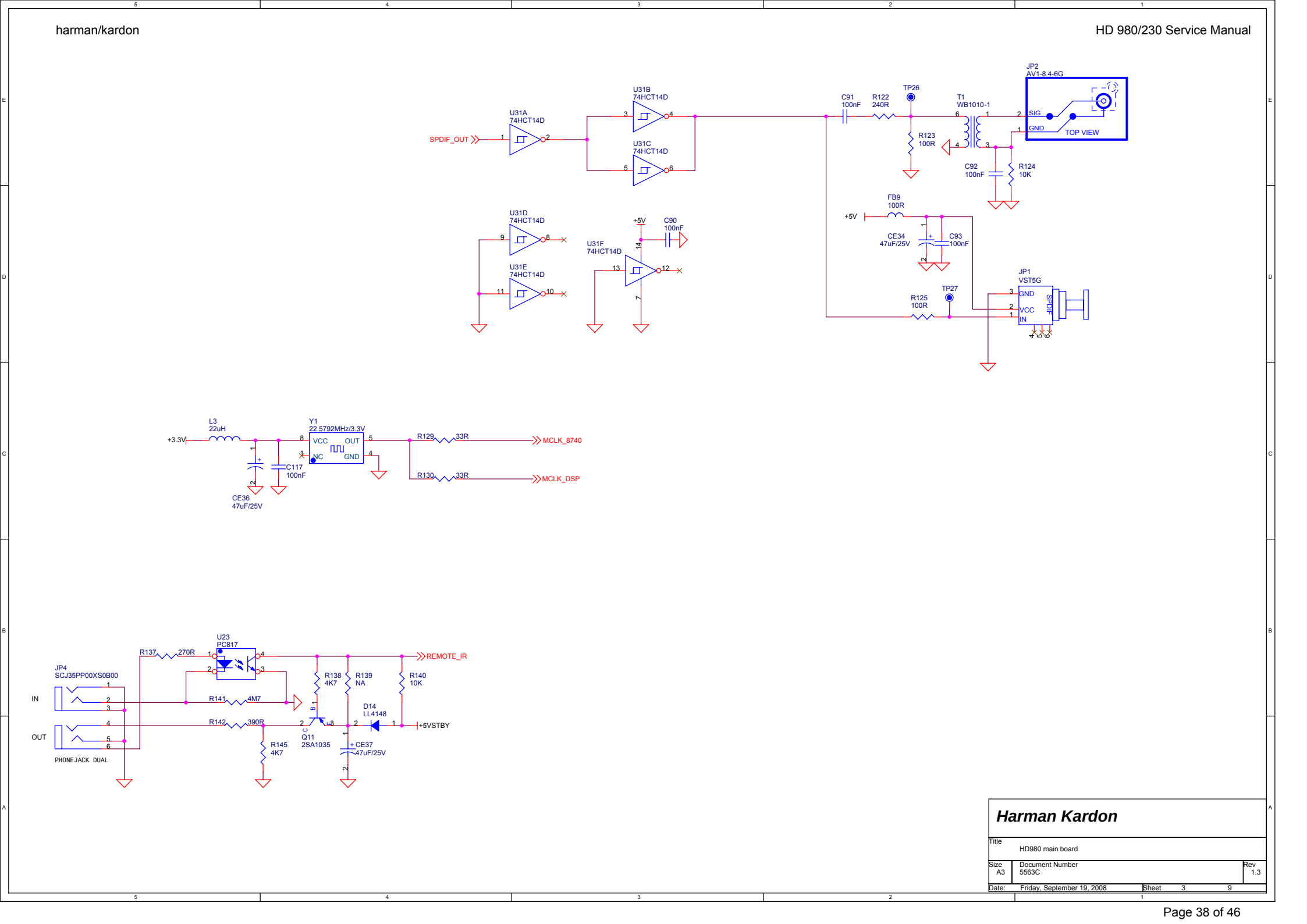
REV 1.3:

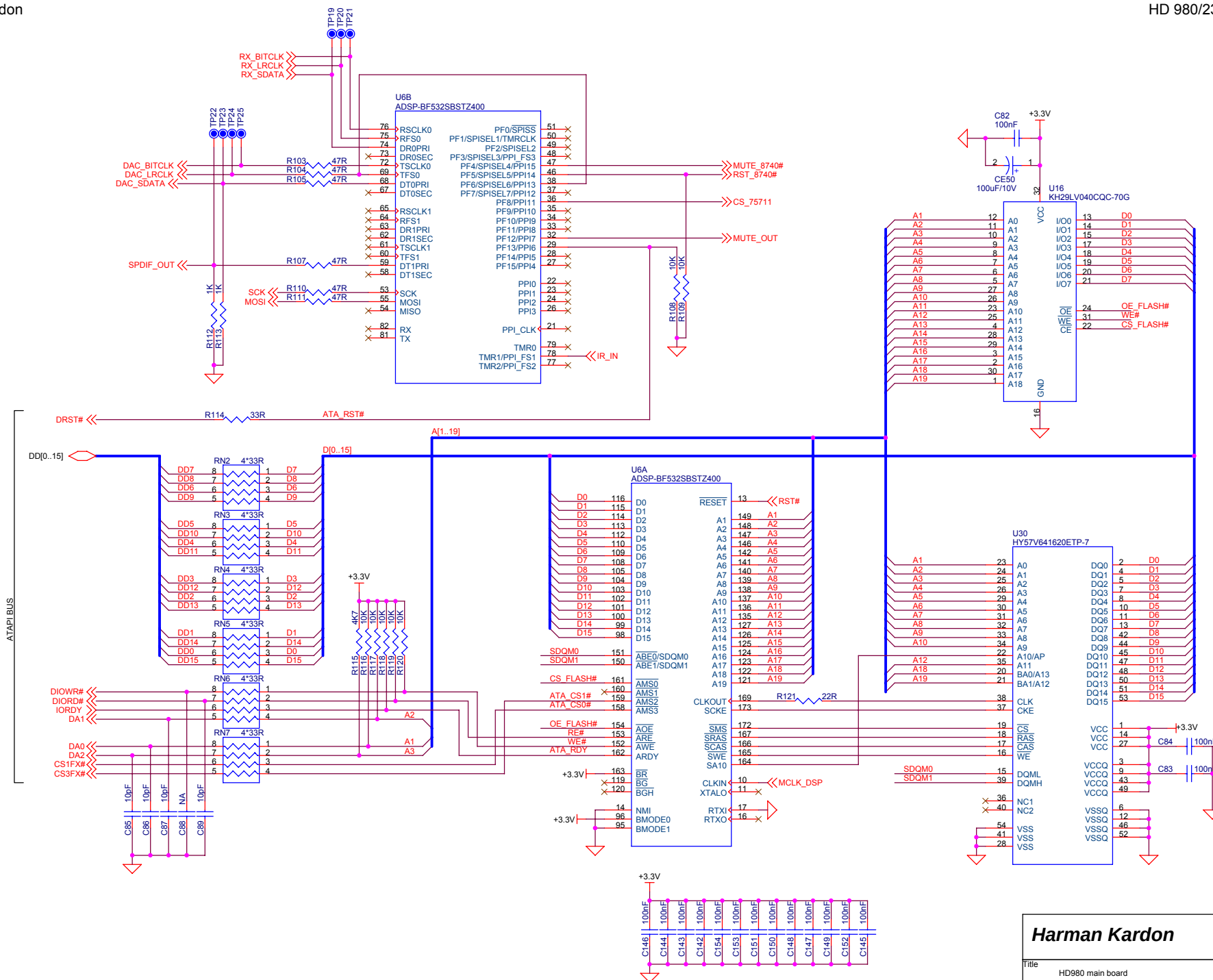
- 1.Add C124~C154;
- 2.Add D15

Harman Kardon			
Title		HD980 History	
Size	Document Number		Rev
A3	HD980		
Date:	Friday, September 19, 2008	Sheet	1 of 9

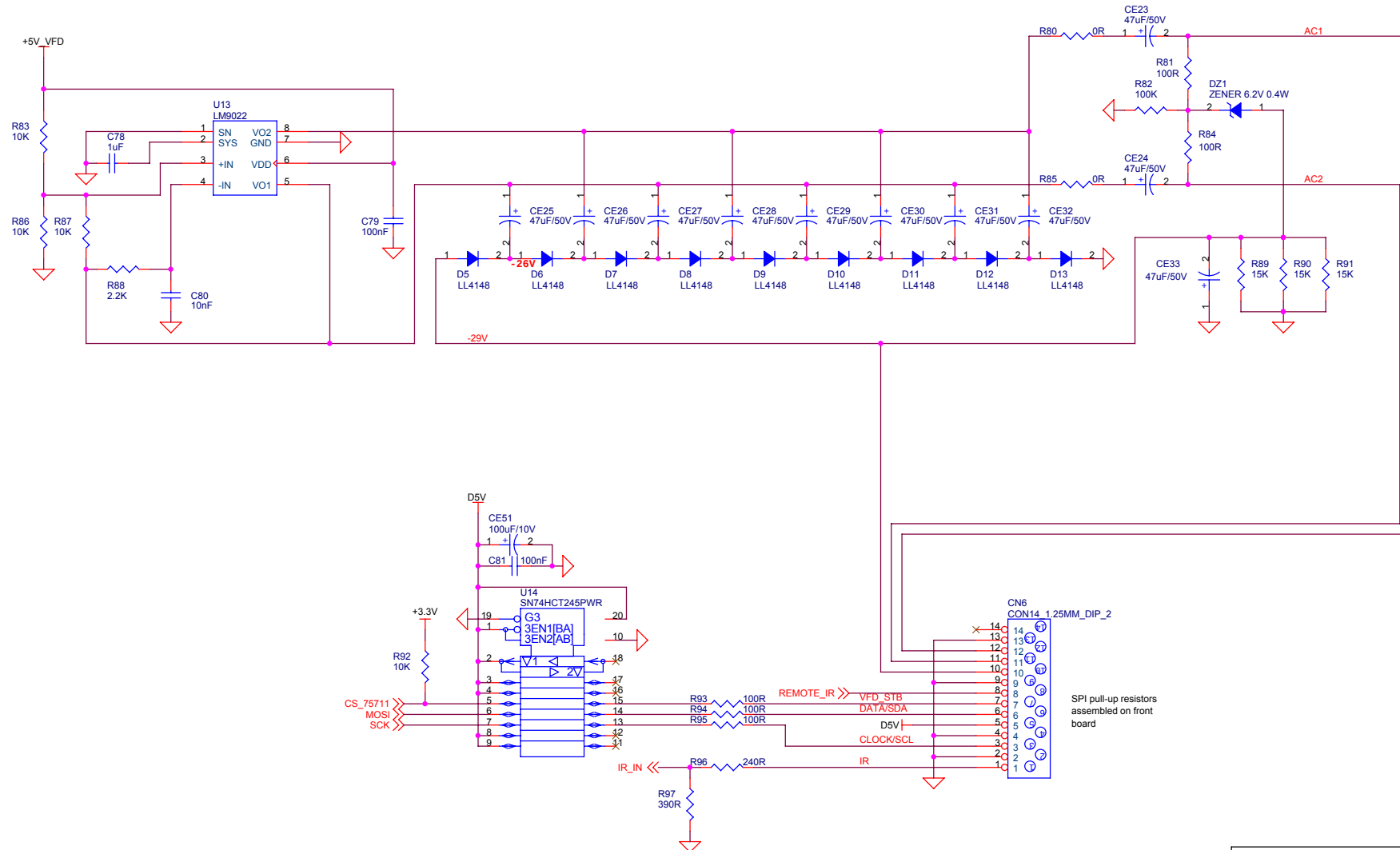


Harman Kardon		
Title HD980 main board		
Size A3	Document Number 5563C	Rev 1.3
Date: Friday, September 19, 2008 Sheet 2 of 9		

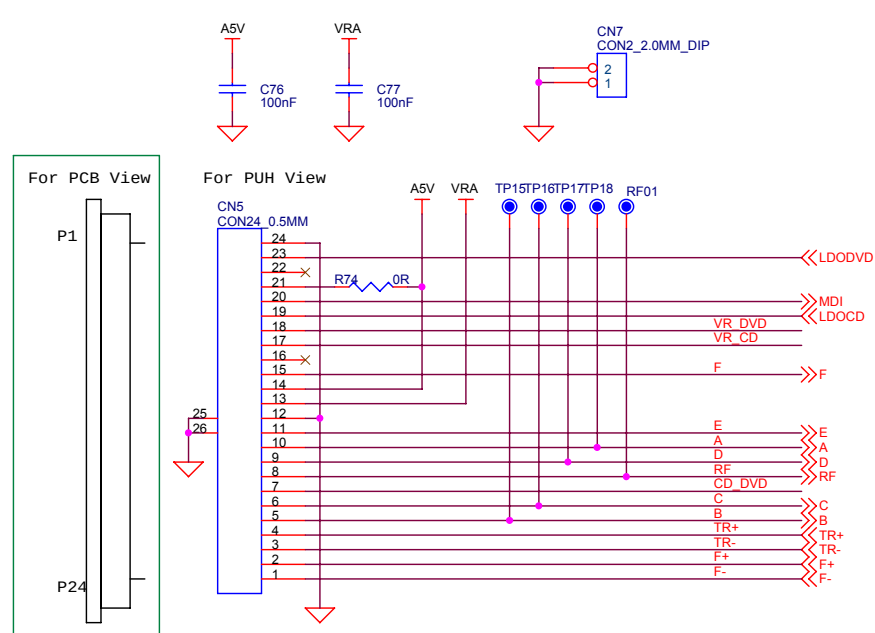
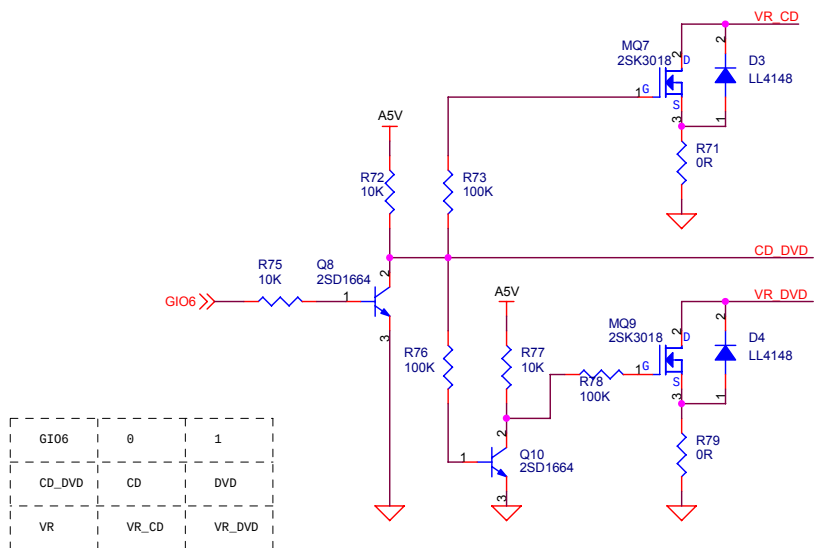


**Harman Kardon**

Title		
HD980 main board		
Size	Document Number	Rev
A3	5563C	1.3
Date:	Friday, September 19, 2008	Sheet 4 of 9

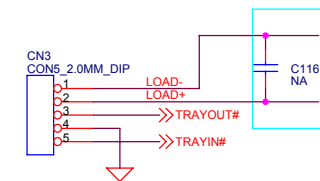
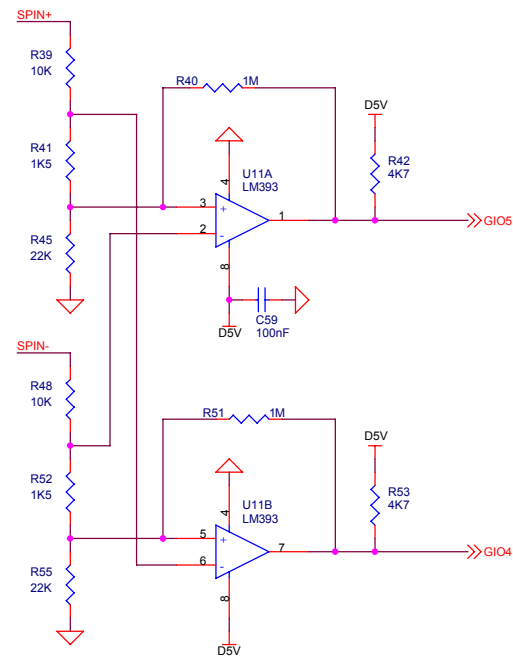
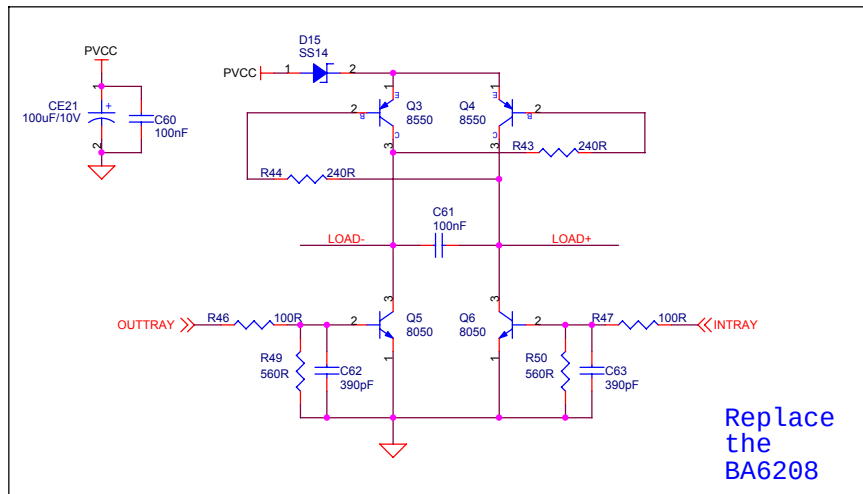


Harman Kardon		
Title HD980 main board		
Size A3	Document Number 5563C	Rev 1.3
Date: Friday, September 19, 2008	Sheet 5	of 9

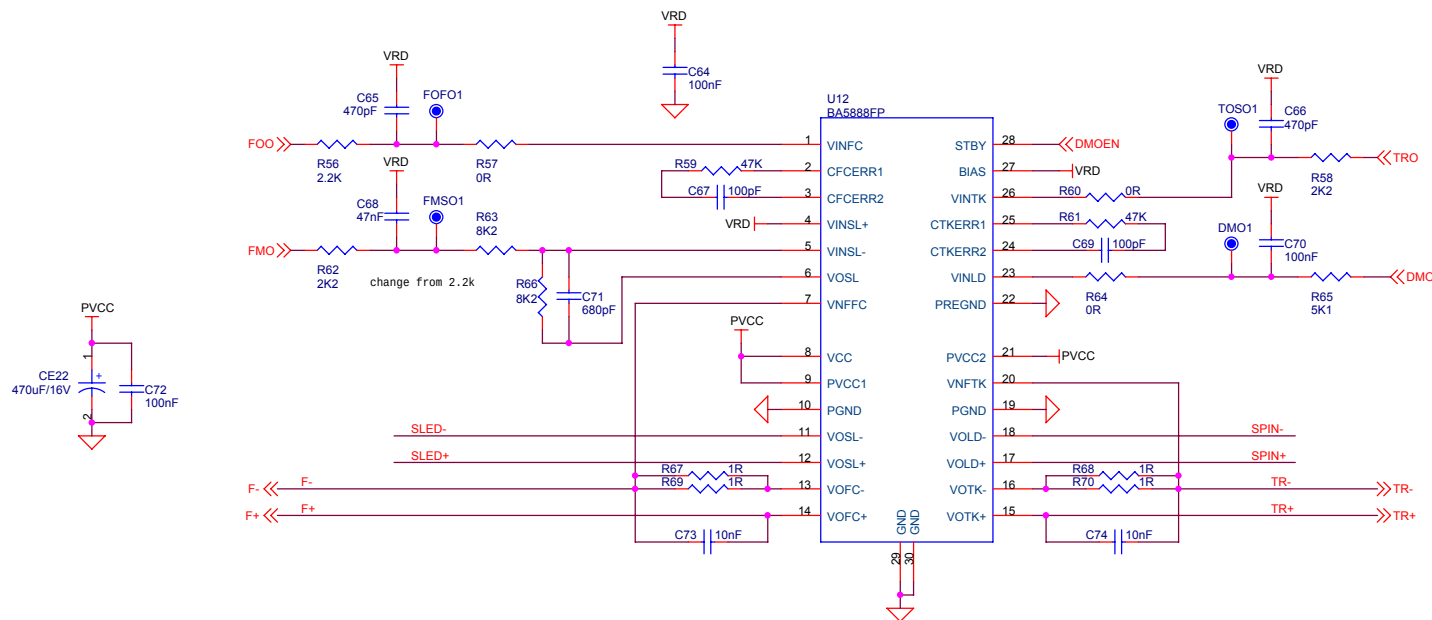
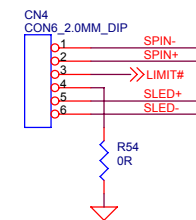


This connector support SF-HD850G

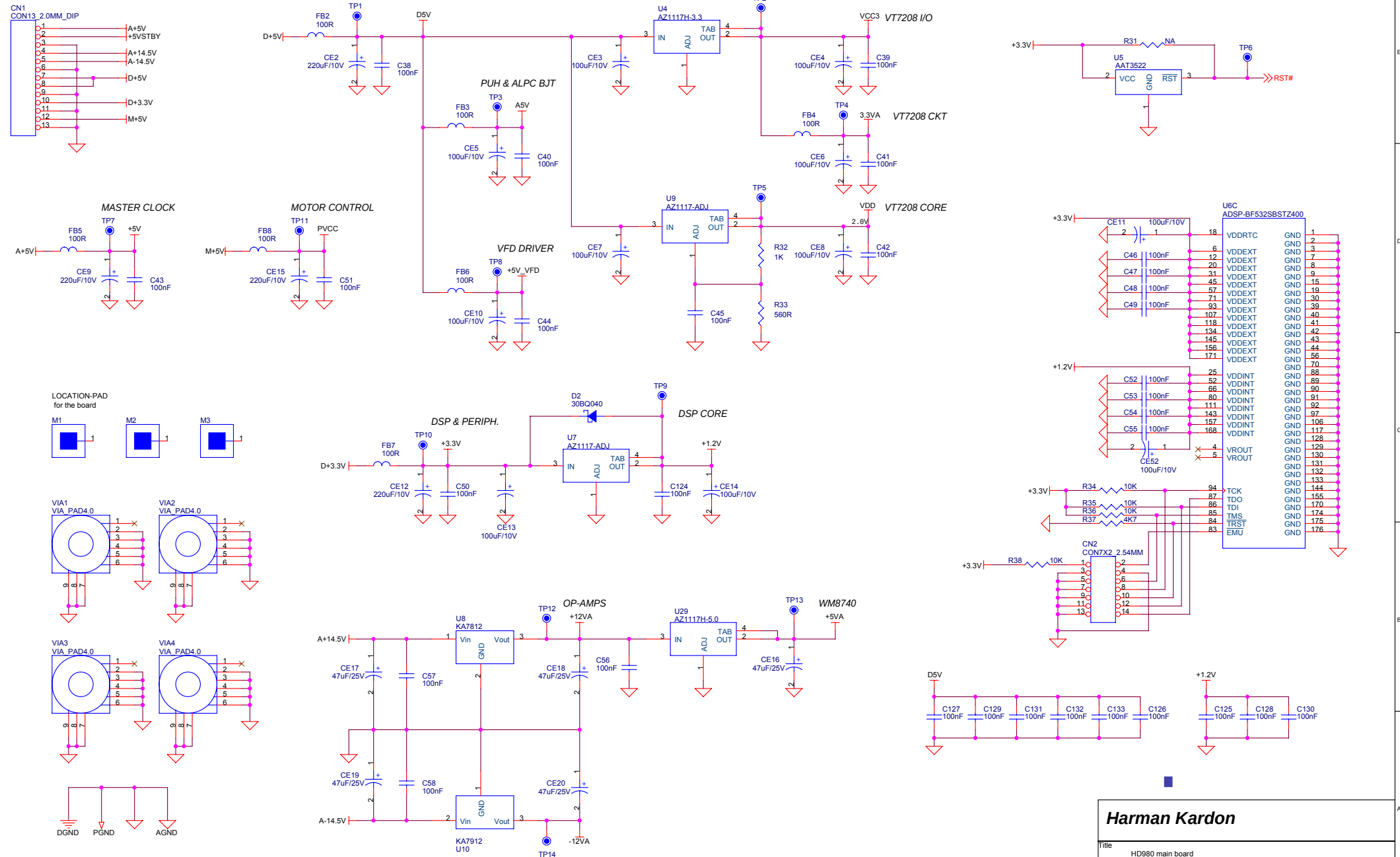
Harman Kardon		
Title HD980 main board		
Size B	Document Number 5563C	Rev 1.3
Date:	Friday, September 19, 2008	Sheet 6 of 9



This connector support SF-HD850



Harman Kardon			
Title HD980 main board			
Size A3	Document Number 5563C		Rev 1.3
Date: Friday, September 19, 2008	Sheet 7	of 9	

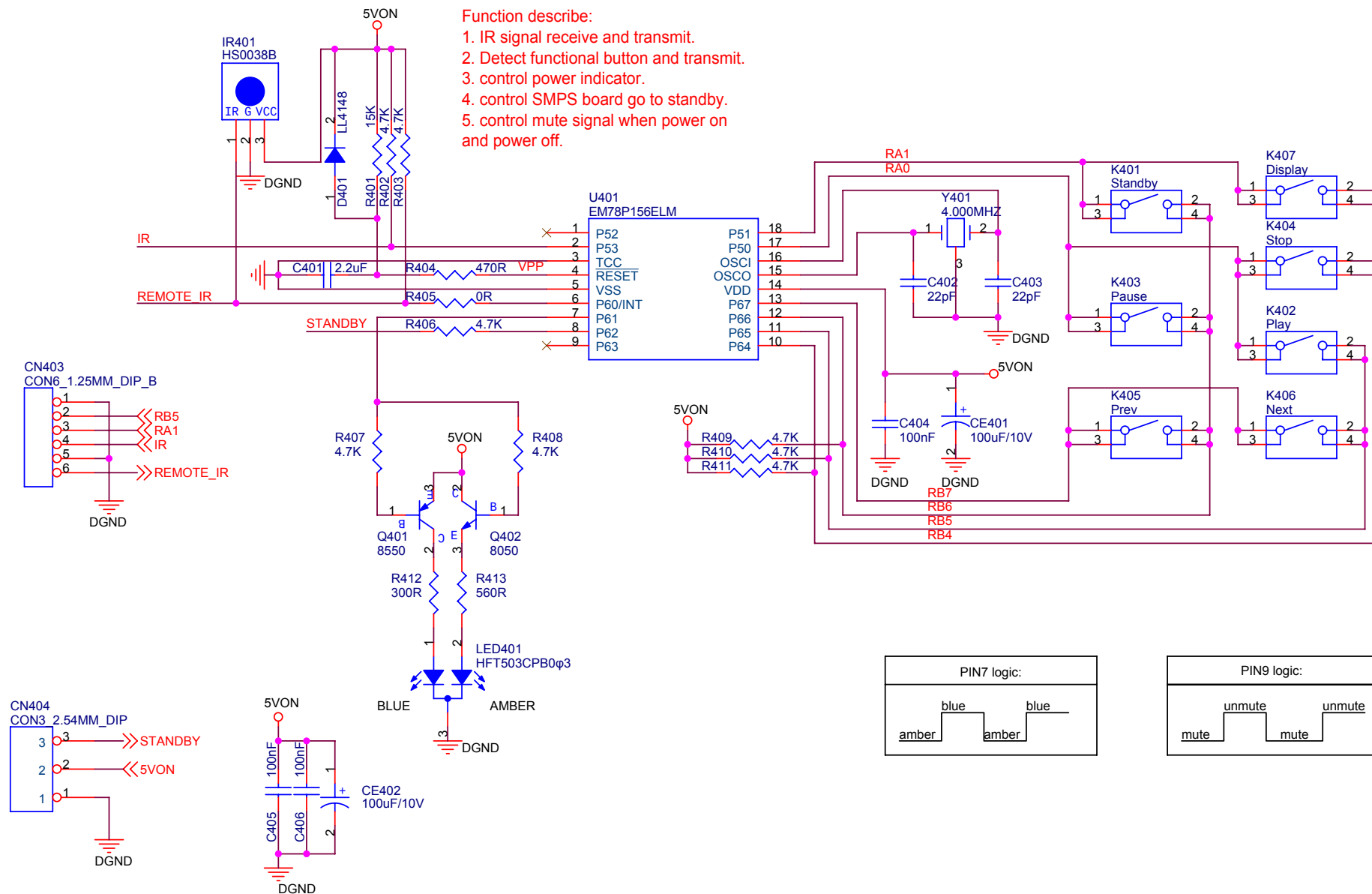


Harman Kardon

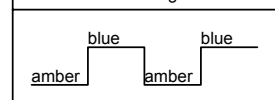
Title	HD980 main board	Rev	1.3
Size	Document Number		
Custom	6563C		
Date:	Friday, September 19, 2008	Sheet	8 of 9

Function describe:

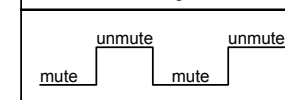
1. IR signal receive and transmit.
2. Detect functional button and transmit.
3. control power indicator.
4. control SMPS board go to standby.
5. control mute signal when power on and power off.



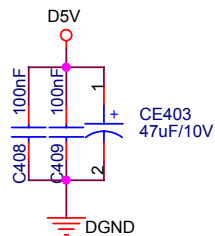
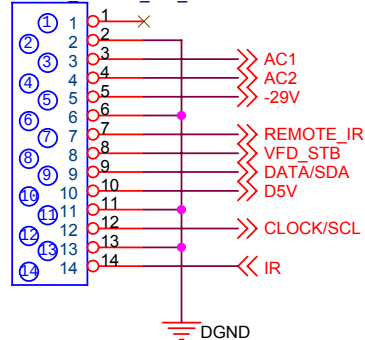
PIN7 logic:



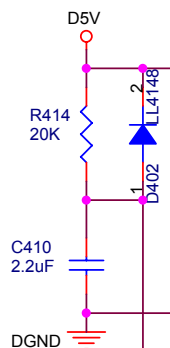
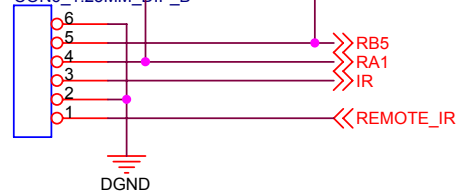
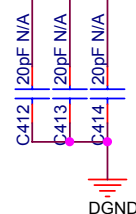
PIN9 logic:



Title			
HD980 FRONT PANEL: Button board			
Size	Document Number	Rev	
A4	5575C	1.1	
Date:	Tuesday, May 06, 2008	Sheet	1 of 2

CN401
CON14_1.25MM_DIP_2C407
47nFVFD401
VFD22-1302FA

VFD 12COLUMNS × 1LINE 5×7 DOT MATRIX

C415
47nFCN402
CON6_1.25MM_DIP_BVFD_STB
CLOCK/SCL
DATA/SDAVFD_STB
CLOCK/SCL
DATA/SDA

DGND

-29V

VSS

SOCO

OSCI

VDD

RES

FCS

CLK

DATAI

LC75711NE

U402
LC75711NE

Title			
HD980 FRONT PANEL: VFD BOARD			
Size	Document Number	Rev	
A4	5576C	1.1	
Date:	Wednesday, December 19, 2007	Sheet	2 of 2

HD 980/HD 990

May 2012

Service bulletin # HK2012-002

To: All Harman Kardon Service Centers

Models: HD 980/990

Subject: Rattle noise

In the event you receive a unit with the complaint “*Periodic mechanical noise from the CD player*”.

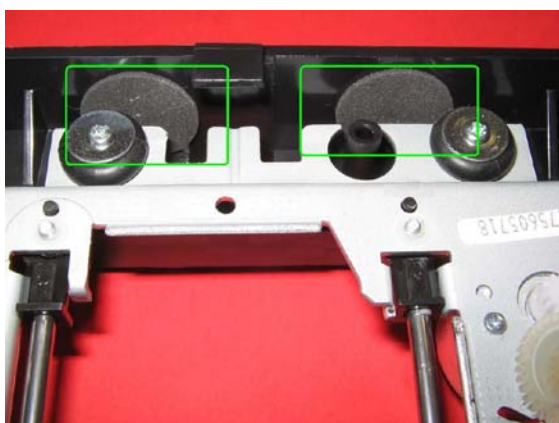
Perform the following repair: Add damping pads to prevent rattling.

Rattling noise is related to the spinning disc not being completely balanced or centric.

Parts: Pads – Part number: EDV3485ORATTLE (5 sets of 4 pads).

Procedure:

Please mount 2x2 damping-pads as shown in the pictures.



Note: There should be no marks in the surface or stickers on the disc, causing imbalance when the disc is spinning. Even original discs may not be fully centric.

Model	Serial number	Status	Action	PN used
HD 980/990	All	Rattle noise	Add damping pads	EDV3485ORATTLE