

SERVICE MANUAL



C516BEE
Compact Disc Player

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Compact Disc Player

SECTION 1

SUMMARY

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PRODUCT SAFETY SERVICING GUIDELINES

CAUTION : DO NOT ATTEMPT TO MODIFY THIS PRODUCT IN ANY WAY. NEVER PERFORM CUSTOMIZED INSTALLATIONS WITHOUT MANUFACTURER'S APPROVAL. UNAUTHORIZED MODIFICATIONS WILL NOT ONLY VOID THE WARRANTY, BUT MAY LEAD TO YOUR BEING LIABLE FOR ANY RESULTING PROPERTY DAMAGE OR USER INJURY.

SERVICE WORK SHOULD BE PERFORMED ONLY AFTER YOU ARE THOROUGHLY FAMILIAR WITH ALL OF THE FOLLOWING SAFETY CHECKS AND SERVICING GUIDELINES. TO DO OTHERWISE, INCREASES THE RISK OF POTENTIAL HAZARDS AND INJURY TO THE USER.

WHILE SERVICING, USE AN ISOLATION TRANSFORMER FOR PROTECTION FROM AC LINE SHOCK.

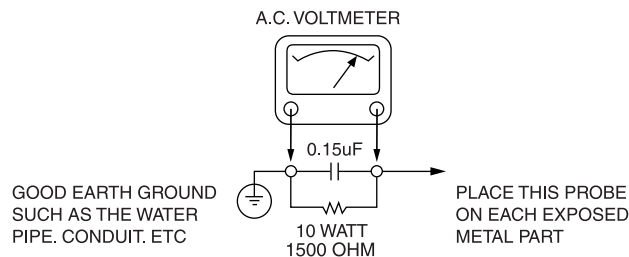
SAFETY CHECKS

AFTER THE ORIGINAL SERVICE PROBLEM HAS BEEN CORRECTED. A CHECK SHOULD BE MADE OF THE FOLLOWING.

SUBJECT : FIRE & SHOCK HAZARD

1. BE SURE THAT ALL COMPONENTS ARE POSITIONED IN SUCH A WAY AS TO AVOID POSSIBILITY OF ADJACENT COMPONENT SHORTS. THIS IS ESPECIALLY IMPORTANT ON THOSE MODULES WHICH ARE TRANSPORTED TO AND FROM THE REPAIR SHOP.
2. NEVER RELEASE A REPAIR UNLESS ALL PROTECTIVE DEVICES SUCH AS INSULATORS, BARRIERS, COVERS, SHIELDS, STRAIN RELIEFS, POWER SUPPLY CORDS, AND OTHER HARDWARE HAVE BEEN REINSTALLED PER ORIGINAL DESIGN. BE SURE THAT THE SAFETY PURPOSE OF THE POLARIZED LINE PLUG HAS NOT BEEN DEFEATED.
3. SOLDERING MUST BE INSPECTED TO DISCOVER POSSIBLE COLD SOLDER JOINTS, SOLDER SPLASHES OR SHARP SOLDER POINTS. BE CERTAIN TO REMOVE ALL LOOSE FOREIGN PARTICLES.
4. CHECK FOR PHYSICAL EVIDENCE OF DAMAGE OR DETERIORATION TO PARTS AND COMPONENTS. FOR FRAYED LEADS, DAMAGED INSULATION (INCLUDING AC CORD). AND REPLACE IF NECESSARY FOLLOW ORIGINAL LAYOUT, LEAD LENGTH AND DRESS.
5. NO LEAD OR COMPONENT SHOULD TOUCH A RECEIVING TUBE OR A RESISTOR RATED AT 1 WATT OR MORE. LEAD TENSION AROUND PROTRUDING METAL SURFACES MUST BE AVOIDED.
6. ALL CRITICAL COMPONENTS SUCH AS FUSES, FLAMEPROOF RESISTORS, CAPACITORS, ETC. MUST BE REPLACED WITH EXACT FACTORY TYPES, DO NOT USE REPLACEMENT COMPONENTS OTHER THAN THOSE SPECIFIED OR MAKE UNRECOMMENDED CIRCUIT MODIFICATIONS.
7. AFTER RE-ASSEMBLY OF THE SET ALWAYS PERFORM AN AC LEAKAGE TEST ON ALL EXPOSED METALLIC PARTS OF THE CABINET, (THE CHANNEL SELECTOR KNOB, ANTENNA TERMINALS. HANDLE AND SCREWS) TO BE SURE THE SET IS SAFET TO OPERATE WITHOUT DANGER OF ELECTRICAL SHOCK. DO NOT USE A LINE ISOLATION TRANSFORMER DURING THIS TEST USE AN AC VOLTMETER, HAVING 5000 OHMS PER VOLT OR MORE SENSITIVITY, IN THE FOLLOWING MANNER; CONNECT A 1500 OHM 10 WATT RESISTOR, PARALLELED BY A .15 MFD, 150V AC TYPE CAPACITOR BETWEEN A KNOWN GOOD EARTH GROUND (WATER PIPE, CONDUIT, ETC.) AND THE EXPOSED METALLIC PARTS, ONE AT A TIME.
MEASURE THE AC VOLTAGE ACROSS THE COMBINATION OF 1500 OHM RESISTOR AND .15 MFD CAPACITOR.
REVERSE THE AC PLUG AND REPEAT AC VOLTAGE MEASUREMENTS FOR EACH EXPOSED METALLIC PART.

VOLTAGE MEASURE MUST NOT EXCEED 75 VOLTS R.M.S. THIS CORRESPONDS TO 0.5 MILLIAMPS AC ANY VALUE EXCEEDING THIS LIMIT CONSTITUTES A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED IMMEDIATELY.



SUBJECT : GRAPHIC SYMBOLS



THE LIGHTNING FLASH WITH ARROWHEAD SYMBOL, WITHIN AN EQUILATERAL TRIANGLE, IS INTENDED TO ALERT THE USER TO THE PRESENCE OF UNINSULATED "DANGEROUS VOLTAGE" WITHIN THE PRODUCT'S ENCLOSURE THAT MAY BE OF SUFFICIENT MAGNITUDE TO CONSTITUTE A RISK OF ELECTRIC SHOCK.



THE EXCLAMATION POINT WITHIN AN EQUILATERAL TRIANGLE IS INTENDED TO ALERT THE USER TO THE PRESENCE OF IMPORTANT OPERATING AND MAINTENANCE (SERVICING) INSTRUCTIONS IN THE LITERATURE ACCOMPANYING THE APPLIANCE.

SUBJECT : TIPS ON PROPER INSTALLATION

1. NEVER INSTALL ANY PRODUCT IN A CLOSED-IN RECESS, CUBBYHOLE OR CLOSELY FITTING SHELF SPACE. OVER OR CLOSE TO HEAT DUCT, OR IN THE PATH OF HEATED AIR FLOW.
2. AVOID CONDITIONS OF HIGH HUMIDITY SUCH AS: OUTDOOR PATIO INSTALLATIONS WHERE DEW IS A FACTOR, NEAR STEAM RADIATORS WHERE STEAM LEAKAGE IS A FACTOR, ETC.
3. AVOID PLACEMENT WHERE DRAPERIES MAY OBSTRUCT REAR VENTING. THE CUSTOMER SHOULD ALSO AVOID THE USE OF DECORATIVE SCARVES OR OTHER COVERINGS WHICH MIGHT OBSTRUCT VENTILATION.
4. WALL AND SHELF MOUNTED INSTALLATIONS USING A COMMERCIAL MOUNTING KIT MUST FOLLOW THE FACTORY APPROVED MOUNTING INSTRUCTIONS A PRODUCT MOUNTED TO A SHELF OR PLATFORM MUST RETAIN ITS ORIGINAL FEET (OR THE EQUIVALENT THICKNESS IN SPACERS) TO PROVIDE ADEQUATE AIR FLOW ACROSS THE BOTTOM, BOLTS OR SCREWS USED FOR FASTENERS MUST NOT TOUCH ANY PARTS OR WIRING. PERFORM LEAKAGE TEST ON CUSTOMIZED INSTALLATIONS.
5. CAUTION CUSTOMERS AGAINST THE MOUNTING OF A PRODUCT ON SLOPING SHELF OR A TILTED POSITION, UNLESS THE PRODUCT IS PROPERLY SECURED.
6. A PRODUCT ON A ROLL-ABOUT CART SHOULD BE STABLE ON ITS MOUNTING TO THE CART. CAUTION THE CUSTOMER ON THE HAZARDS OF TRYING TO ROLL A CART WITH SMALL CASTERS ACROSS THRESHOLDS OR DEEP PILE CARPETS.
7. CAUTION CUSTOMERS AGAINST THE USE OF A CART OR STAND WHICH HAS NOT BEEN LISTED BY UNDERWRITERS LABORATORIES, INC. FOR USE WITH THEIR SPECIFIC MODEL OF TELEVISION RECEIVER OR GENERICALLY APPROVED FOR USE WITH T.V.'S OF THE SAME OR LARGER SCREEN SIZE.
8. CAUTION CUSTOMERS AGAINST THE USE OF EXTENSION CORDS, EXPLAIN THAT A FOREST OF EXTENSIONS SPROUTING FROM A SINGLE OUTLET CAN LEAD TO DISASTROUS CONSEQUENCES TO HOME AND FAMILY.

SERVICING PRECAUTIONS

CAUTION : Before servicing the A/V Receiver covered by this service data and its supplements and addends, read and follow the **SAFETY PRECAUTIONS**. **NOTE** : if unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions in this publication, always follow the safety precautions.

Remember Safety First:

General Servicing Precautions

1. Always unplug the A/V Receiver AC power cord from the AC power source before:
 - (1) Removing or reinstalling any component, circuit board, module, or any other assembly.
 - (2) Disconnecting or reconnecting any internal electrical plug or other electrical connection.
 - (3) Connecting a test substitute in parallel with an electrolytic capacitor.

Caution : A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.
2. Do not spray chemicals on or near this A/V Receiver or any of its assemblies.
3. Unless specified otherwise in this service data, clean electrical contacts by applying an appropriate contact cleaning solution to the contacts with a pipe cleaner, cottontipped swab, or comparable soft applicator.
Unless specified otherwise in this service data, lubrication of contacts is not required.
4. Do not defeat any plug/socket B+ voltage interlocks with which instruments covered by this service manual might be equipped.
5. Do not apply AC power to this A/V Receiver and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
6. Always connect test instrument ground lead to the appropriate ground before connecting the test instrument positive lead. Always remove the test instrument ground lead last.

Insulation Checking Procedure

Disconnect the attachment plug from the AC outlet and turn the power on. Connect an insulation resistance meter(500V) to the blades of the attachment plug. The insulation resistance between each blade of the attachment plug and accessible conductive parts (Note 1) should be more than 1M-ohm.

Note 1 : Accessible Conductive Parts including Metal panels, Input terminals, Earphone jacks, etc.

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 buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an antistatic solder removal device. Some solder removal devices not classified a "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freonpropelled chemicals. These can generate electrical charge sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil, or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

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

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Normally 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 device.)

SPECIFICATIONS

[ELECTRICAL SYSTEM]

OUTPUT LEVEL (Vrms)

2Vrms@1KHz Full Scale

CHANNEL BALANCE(dB)

+/-0.5dB(0.13v)

FREQUENCY RESPONSE (dB)

+/-0.3dB@20Hz

+/-0.1dB@10KHz

+/-0.5dB@20KHz

S/N RATIO (dB) /('A'- weight)

110dB

CHANNEL SEPARATION

(20KHz LPF) 95dB@1KHz

95dB@10KHz

DE-EMPHASIS(dB)

-20dB ±0.2 @5KHz

-20dB ±0.4 @16KHz

T.H.D (%)

(20KHz LPF) 0.005% @100Hz

0.002% @1KHz

0.005% @10KHz

0.005% @20KHz

DYNAMIC RANGE / (W/20KHz LPF)

110dB

PLAYABILITY

Φ0.9mm ↓	INTERRUPTION
Φ0.8mm ↓	BLACK DOTS
Φ0.65um ↓	FINGER PRINTS
210±10um	ECCENTRICITY (12cm)
± 0.5 mm	VERTICAL DEVIATION

[GENERAL ELECTRICAL SPECIFICATION]

Power Requirements

'AH' Version: 120Vac /60Hz

'C', 'CT' Version: 230Vac /50Hz

Power Consumption

0.33Watts @Standby

8.8Watts @Normal Play

C516BEECT EXPLODED VIEW PART LIST

NO.	PARTS NO.	DESCRIPTION	Q'TY	A/S PART	REMARK	NO.	PARTS NO.	DESCRIPTION	Q'TY	A/S PART	REMARK
S1	CTB3+6JR	SCREW	8	O.K		F1	CGR1A542G38	DOOR, CD	1	O.K	
S2	CTB3+6FR	SCREW	6	O.K		F2	CGU1A467Z	WINDOW, VFD	1	O.K	
S3	CTBR3+6JR	SCREW	2	O.K		F3	CGW1A529RJYG38	PANEL, FRONT	1	O.K	
S4	CTB3+8JR	SCREW	10	O.K		F4	CBT1A1172G38	BUTTON, POWER	1	O.K	
S5	CTB3+8JFZR	SCREW	1	O.K		F5	CGL1A302	INDICATOR, POWER	1	O.K	
S6						F6	CBT1A1051G38-V1	KNOB, PLAY	2	O.K	
S7	CTB3+8JFC(CT)	SCREW	13	O.K		F7	CHG1A381	RUBBER, TOP	5	O.K	
S8	CTB3+10JR	SCREW	8	O.K		F10	C516 FASCIA COMPLETE T	TITANIUM	1		
S9	CTB3+10JFZR	SCREW	2	O.K							
S10	CTB4+6FFZR	SCREW	4	O.K		M1	CUA2A277	CHASSIS, BOTTOM	1	O.K	
						M2	CKL1A193-V1	FOOT	4	O.K	
						M3	CHG1A370	CUSHION, FOOT	4	O.K	
						M4	CMH1A261	CLAMP, FLAT CABLE	1	O.K	
						M5	CMX1A318	INSULATOR, POWER	1	O.K	
						M6	CMD1A814	SUPPORT, MECHA	2	O.K	
						M7	CKF1A336TK1	PANEL, REAR	1	O.K	
						M8	CHR1A028	BUSHING, AC CORD	1	O.K	
						M9	CKC1A181G39	CABINET, TOP	1	O.K	
						P1	COP12490B	FRONT PCB ASS'Y-1	1	N.A	
						P2	COP12490B	FRONT PCB ASS'Y-2	1	N.A	
						P3	COP12489B	MAIN PCB ASS'Y	1	N.A	
						P4	COP12490B	JACK PCB ASS'Y	1	N.A	
						P5	COP12490B	POWER PCB ASS'Y	1	N.A	
						P6	CJDC516BEEZA	CD MECHANISM	1	N.A	

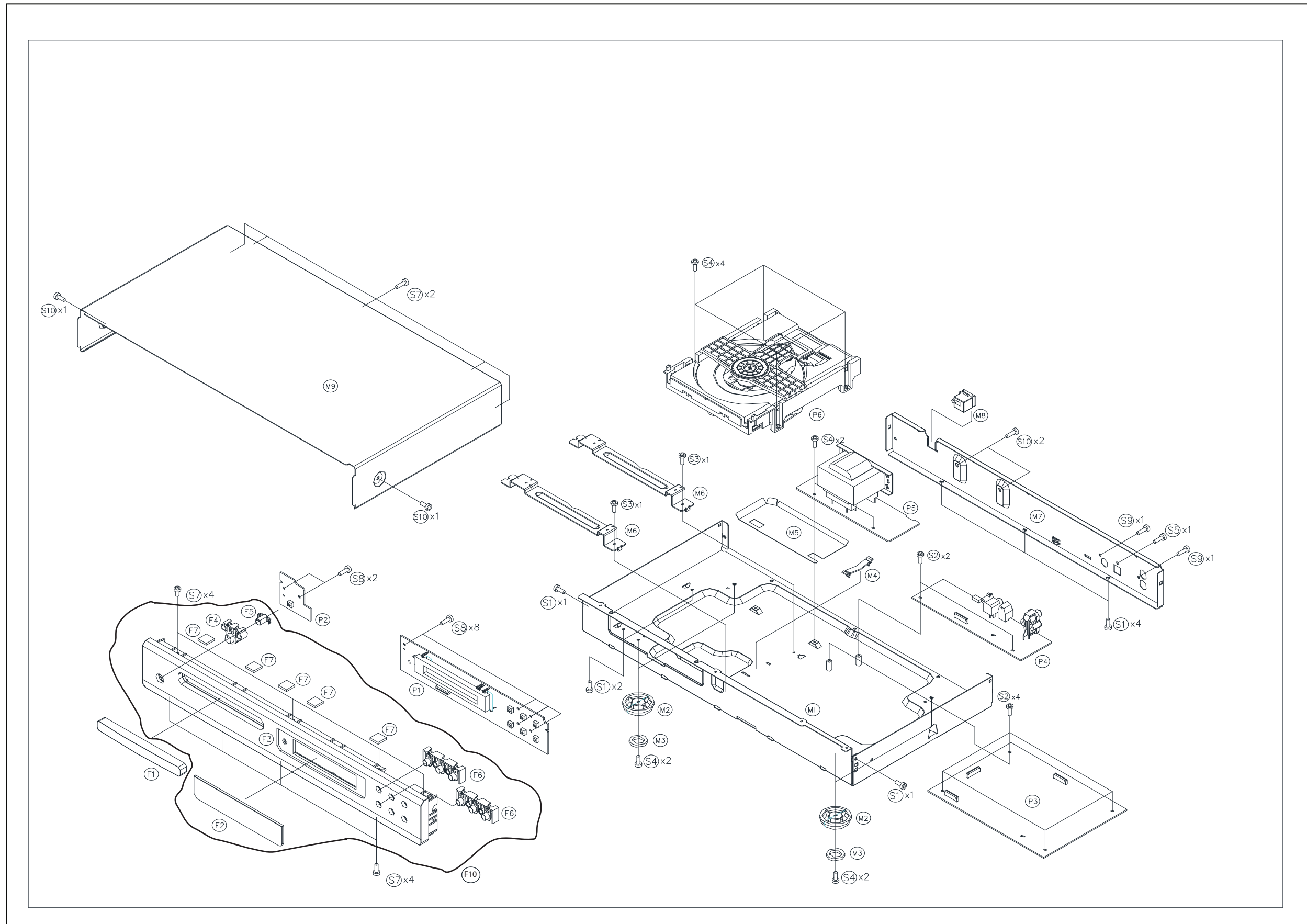
C516BEEC EXPLODED VIEW PART LIST

NO.	PARTS NO.	DESCRIPTION	Q'TY	A/S PART	REMARK	NO.	PARTS NO.	DESCRIPTION	Q'TY	A/S PART	REMARK
S1	CTB3+6JR	SCREW	8	O.K		F1	CGR1A542B29	DOOR, CD	1	O.K	
S2	CTB3+6FR	SCREW	6	O.K		F2	CGU1A467Z	WINDOW, VFD	1	O.K	
S3	CTBR3+6JR	SCREW	2	O.K		F3	CGW1A529RJB29	PANEL, FRONT	1	O.K	
S4	CTB3+8JR	SCREW	10	O.K		F4	CBT1A1172B29	BUTTON, POWER	1	O.K	
S5	CTB3+8JFZR	SCREW	1	O.K		F5	CGL1A302	INDICATOR, POWER	1	O.K	
S6	CTB3+8JFZR(C,AH)	SCREW	13	O.K		F6	CBT1A1051B29-V1	KNOB, PLAY	2	O.K	
S7						F7	CHG1A381	RUBBER, TOP	5	O.K	
S8	CTB3+10JR	SCREW	8	O.K		F10	C516 FASCIA COMPLETE G	GRAPHITE	1		
S9	CTB3+10JFZR	SCREW	2	O.K							
S10	CTB4+6FFZR	SCREW	4	O.K		M1	CUA2A277	CHASSIS, BOTTOM	1	O.K	
						M2	CKL1A193-V1	FOOT	4	O.K	
						M3	CHG1A370	CUSHION, FOOT	4	O.K	
						M4	CMH1A261	CLAMP, FLAT CABLE	1	O.K	
						M5	CMX1A318	INSULATOR, POWER	1	O.K	
						M6	CMD1A814	SUPPORT, MECHA	2	O.K	
						M7	CKF1A336TK1	PANEL, REAR	1	O.K	
						M8	CHR1A028	BUSHING, AC CORD	1	O.K	
						M9	CKC1A181B22	CABINET, TOP	1	O.K	
						P1	COP12490B	FRONT PCB ASS'Y-1	1	N.A	
						P2	COP12490B	FRONT PCB ASS'Y-2	1	N.A	
						P3	COP12489B	MAIN PCB ASS'Y	1	N.A	
						P4	COP12490B	JACK PCB ASS'Y	1	N.A	
						P5	COP12490B	POWER PCB ASS'Y	1	N.A	
						P6	CJDC516BEEZA	CD MECHANISM	1	N.A	

C516BEEAH EXPLODED VIEW PART LIST

NO.	PARTS NO.	DESCRIPTION	Q'TY	A/S PART	REMARK	NO.	PARTS NO.	DESCRIPTION	Q'TY	A/S PART	REMARK
S1	CTB3+6JR	SCREW	8	O.K		F1	CGR1A542B29	DOOR, CD	1	O.K	
S2	CTB3+6FR	SCREW	6	O.K		F2	CGU1A467Z	WINDOW, VFD	1	O.K	
S3	CTBR3+6JR	SCREW	2	O.K		F3	CGW1A529RJZB29	PANEL, FRONT	1	O.K	
S4	CTB3+8JR	SCREW	10	O.K		F4	CBT1A1172B29	BUTTON, POWER	1	O.K	
S5	CTB3+8JFZR	SCREW	1	O.K		F5	CGL1A302	INDICATOR, POWER	1	O.K	
S6	CTB3+8JFZR(C,AH)	SCREW	13	O.K		F6	CBT1A1051B29-V1	KNOB, PLAY	2	O.K	
S7						F7	CHG1A381	RUBBER, TOP	5	O.K	
S8	CTB3+10JR	SCREW	8	O.K		F10	C516 FASCIA COMPLETE G	GRAPHITE	1		
S9	CTB3+10JFZR	SCREW	2	O.K							
S10	CTB4+6FFZR	SCREW	4	O.K		M1	CUA2A277	CHASSIS, BOTTOM	1	O.K	
						M2	CKL1A193-V1	FOOT	4	O.K	
						M3	CHG1A370	CUSHION, FOOT	4	O.K	
						M4	CMH1A261	CLAMP, FLAT CABLE	1	O.K	
						M5	CMX1A318	INSULATOR, POWER	1	O.K	
						M6	CMD1A814	SUPPORT, MECHA	2	O.K	
						M7	CKF1A336SK1	PANEL, REAR	1	O.K	
						M8	CHR1A028	BUSHING, AC CORD	1	O.K	
						M9	KKC1A181B22	CABINET, TOP	1	O.K	
						P1	COP12490C	FRONT PCB ASS'Y-1	1	N.A	
						P2	COP12490C	FRONT PCB ASS'Y-2	1	N.A	
						P3	COP12489B	MAIN PCB ASS'Y	1	N.A	
						P4	COP12490C	AUDIO PCB ASS'Y	1	N.A	
						P5	COP12490C	POWER PCB ASS'Y	1	N.A	
						P6	CJDC516BEEZA	CD MECHANISM	1	N.A	

EXPLODED VIEW (C516BEE)



SECTION 2

ELECTRICAL CONTENTS

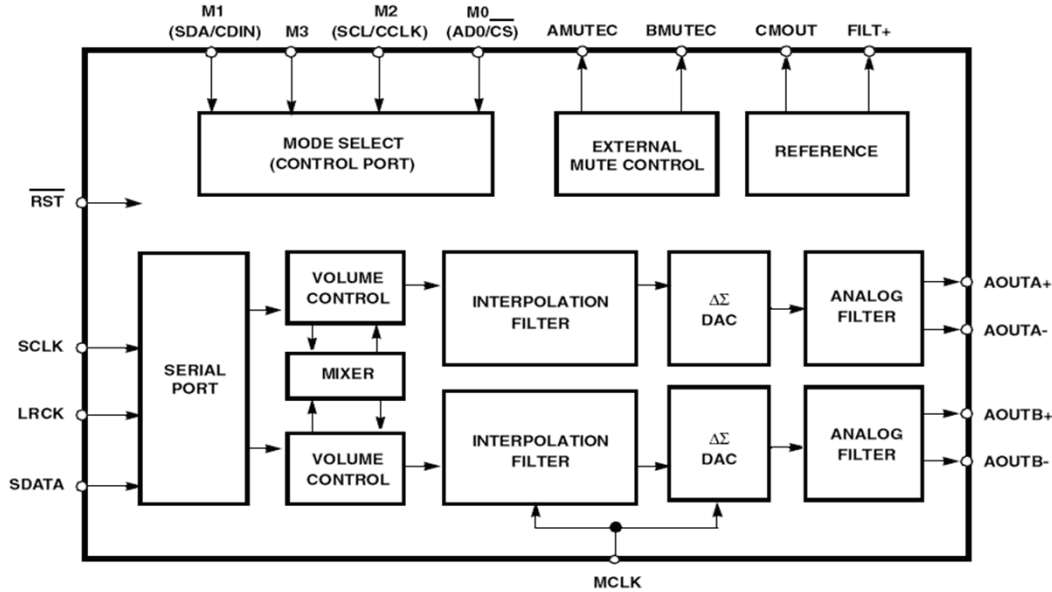
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IC BLOCK DIAGRAMS & PIN DESCRIPTION

IC11 CS4392 D/A CONVERTOR

IC BLOCK DIAGRAMS

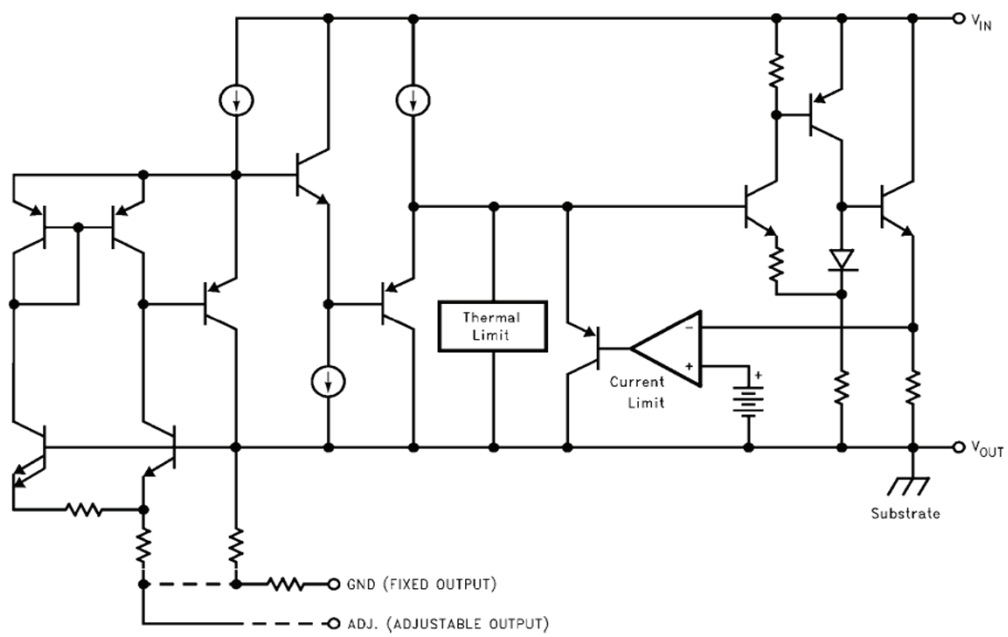


IC PIN DESCRIPTION

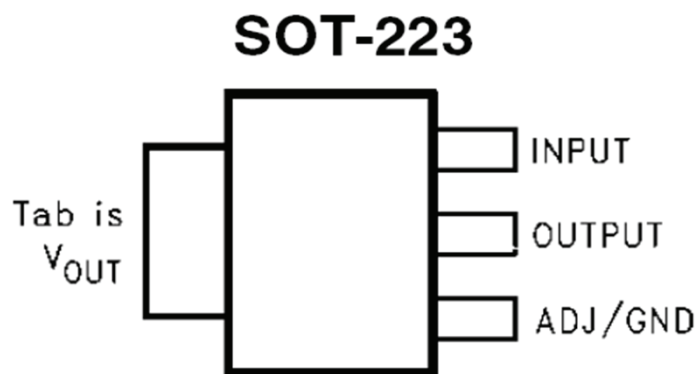
RST	1	Reset (Input) - Powers down device and resets all internal registers to their default settings.
VL	2	Logic Power (Input) - Positive power for the digital input/output.
SDATA	3	Serial Audio Data (Input) - Input for two's complement serial audio data.
SCLK	4	Serial Clock (Input/Output) - Serial clock for the serial audio interface.
LRCK	5	Left Right Clock (Input/Output) - Determines which channel, Left or Right, is currently active on the serial audio data line.
MCLK	6	Master Clock (Input) - Clock source for the delta-sigma modulator and digital filters.
FILT+	11	Positive Voltage Reference (Output) - Positive reference voltage for the internal sampling circuits.
CMOUT	12	Common Mode Voltage (Output) - Filter connection for internal quiescent voltage.
AMUTEC	20	Mute Control (Output) - The Mute Control pin goes high during power-up initialization, reset, muting, power-down or if the master clock to left/right clock frequency ratio is incorrect.
BMUTEC	13	
AOUTB-	14	Differential Analog Output (Outputs) - The full scale differential analog output level is specified in the Analog Characteristics specification table.
AOUTB+	15	
AOUTA+	18	
AOUTA-	19	
AGND	16	Ground (Input)
VA	17	Analog Power (Input) - Positive power for the analog section.
Control Port Mode Definitions		
M3	7	Mode Selection (Input) - This pins should be tied to GND level during control port mode.
SCL/CCLK	8	Serial Control Port Clock (Input) - Serial clock for the serial control port.
SDA/CDIN	9	Serial Control Data (Input/Output) - SDA is a data I/O line in I ² C mode. CDIN is the input data line for the control port interface in SPI mode.
AD0/CS	10	Address Bit 0 (I²C) / Control Port Chip Select (SPI) (Input/Output) - AD0 is a chip address pin in I ² C mode; CS is the chip select signal for SPI format.
Stand-Alone Mode Definitions		
M3	7	Mode Selection (Input) - Determines the operational mode of the device.
M2	8	
M1	9	
M0	10	

IC06, IC07, IC15, IC18, IC19 LM1117SXX
 1A LDO REGULATOR

IC BLOCK DIAGRAMS



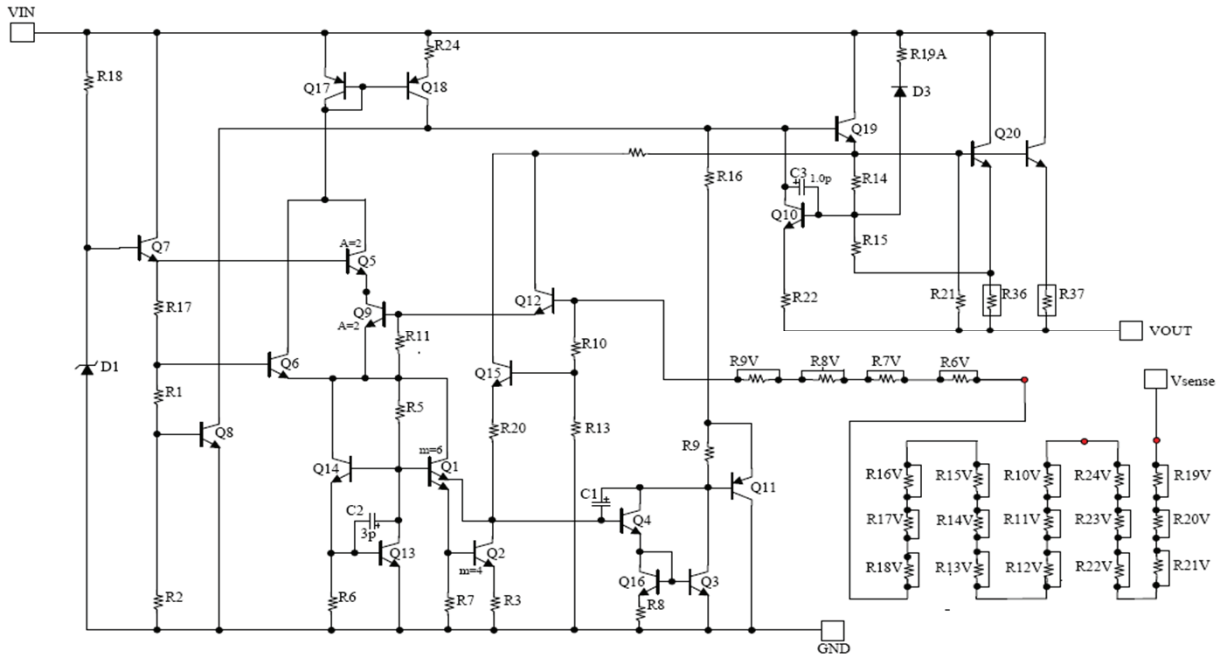
IC PIN DESCRIPTION



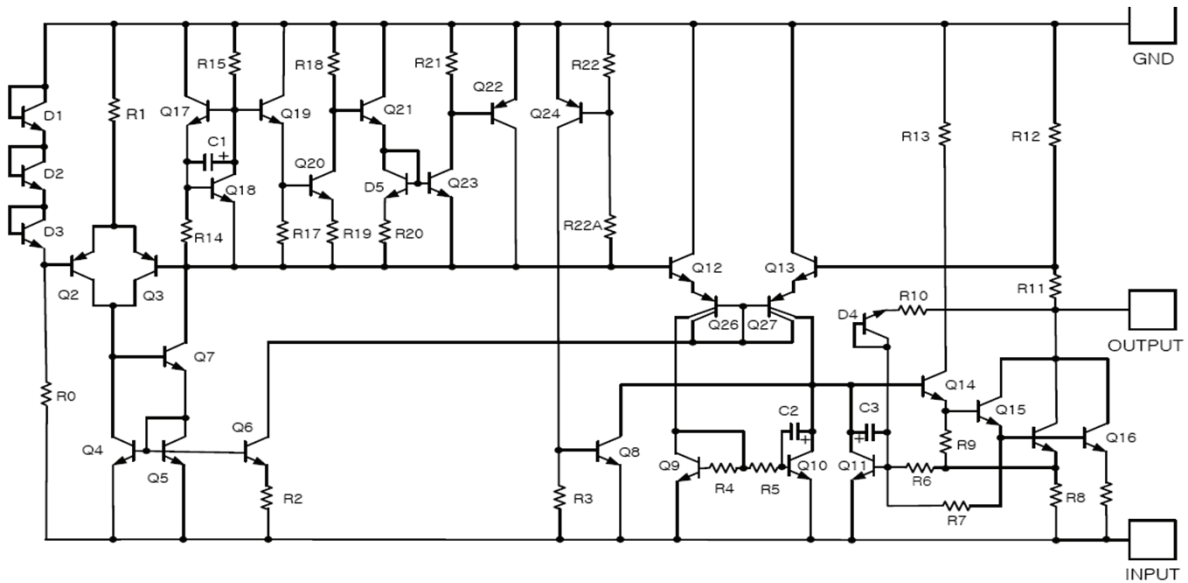
IC20 LM7808RTRL IC, REGULATOR 1A, 8V
 IC21, LM7908RTRL IC, REGULATOR 1A, -8V

IC BLOCK DIAGRAM

LM7808RTRL

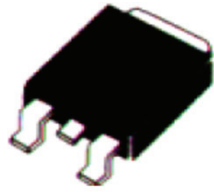


LM7908RTRL



IC PIN MAP

LM7808RTRL

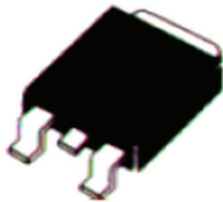


1 2 3

1. INPUT
2. GND
3. OUTPUT

D-PAK(TO-252)

LM7908RTRL



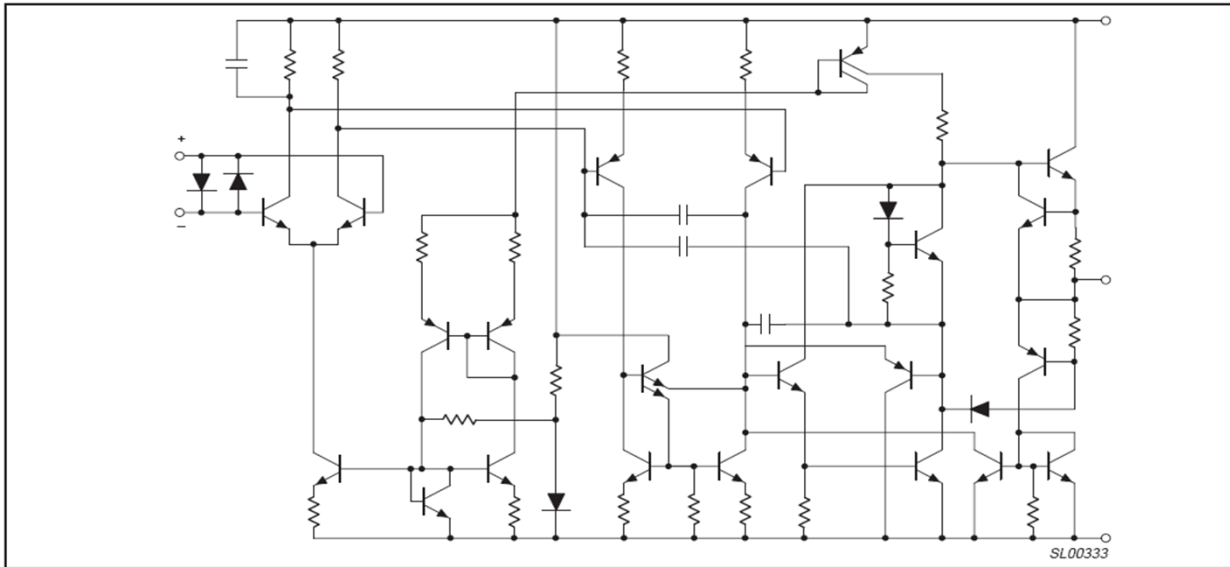
1 2 3

1. GND
2. INPUT
3. OUTPUT

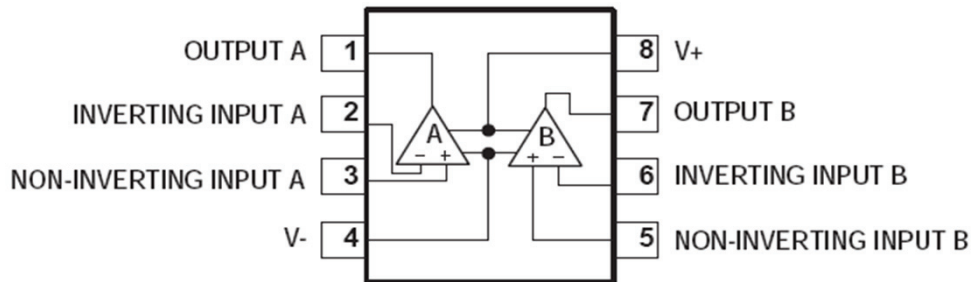
D-PAK(TO-252)

IC12, IC13 SAA5532DR, OP AMPLIFIER

IC BLOCK DIAGRAMS



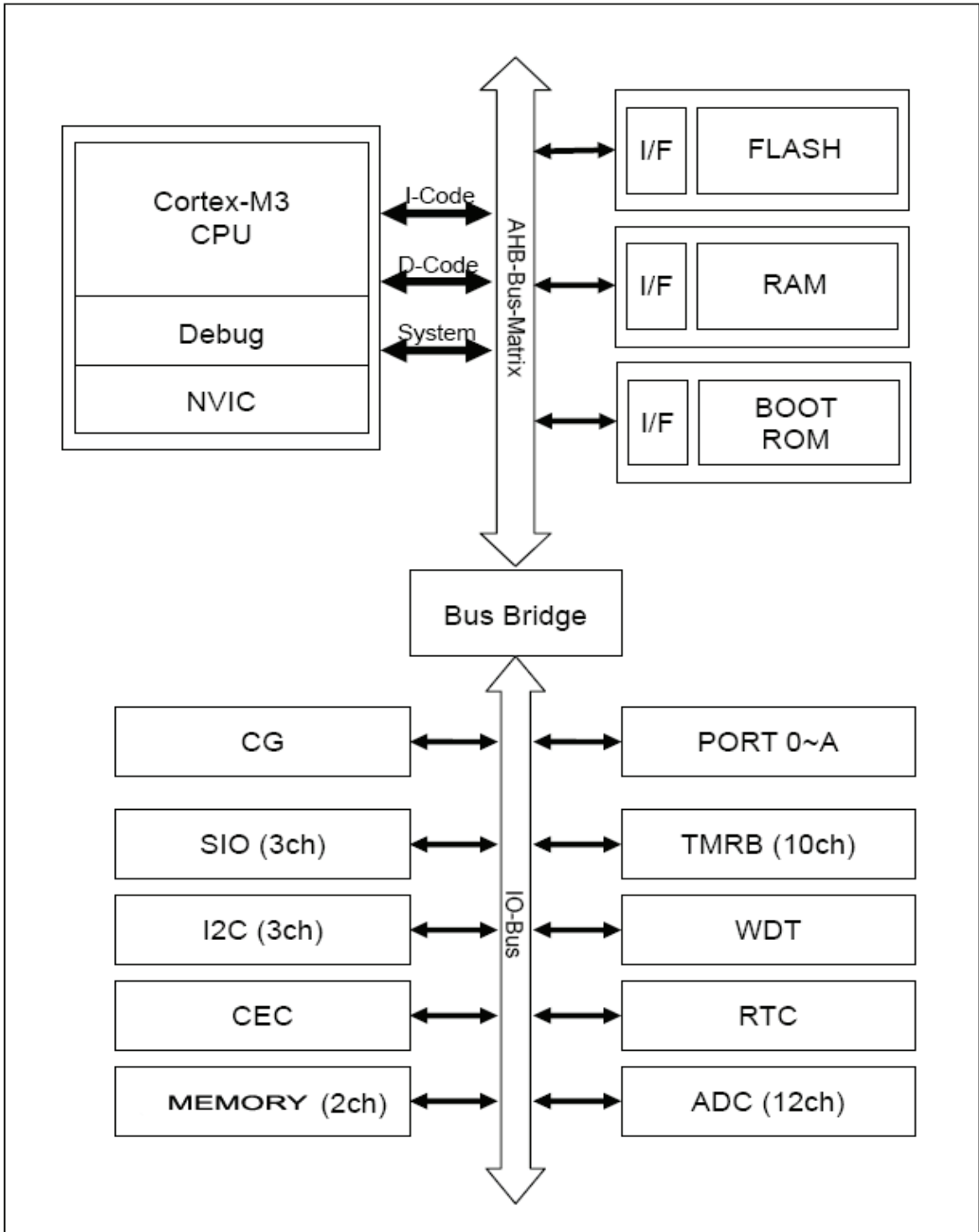
IC PIN MAP



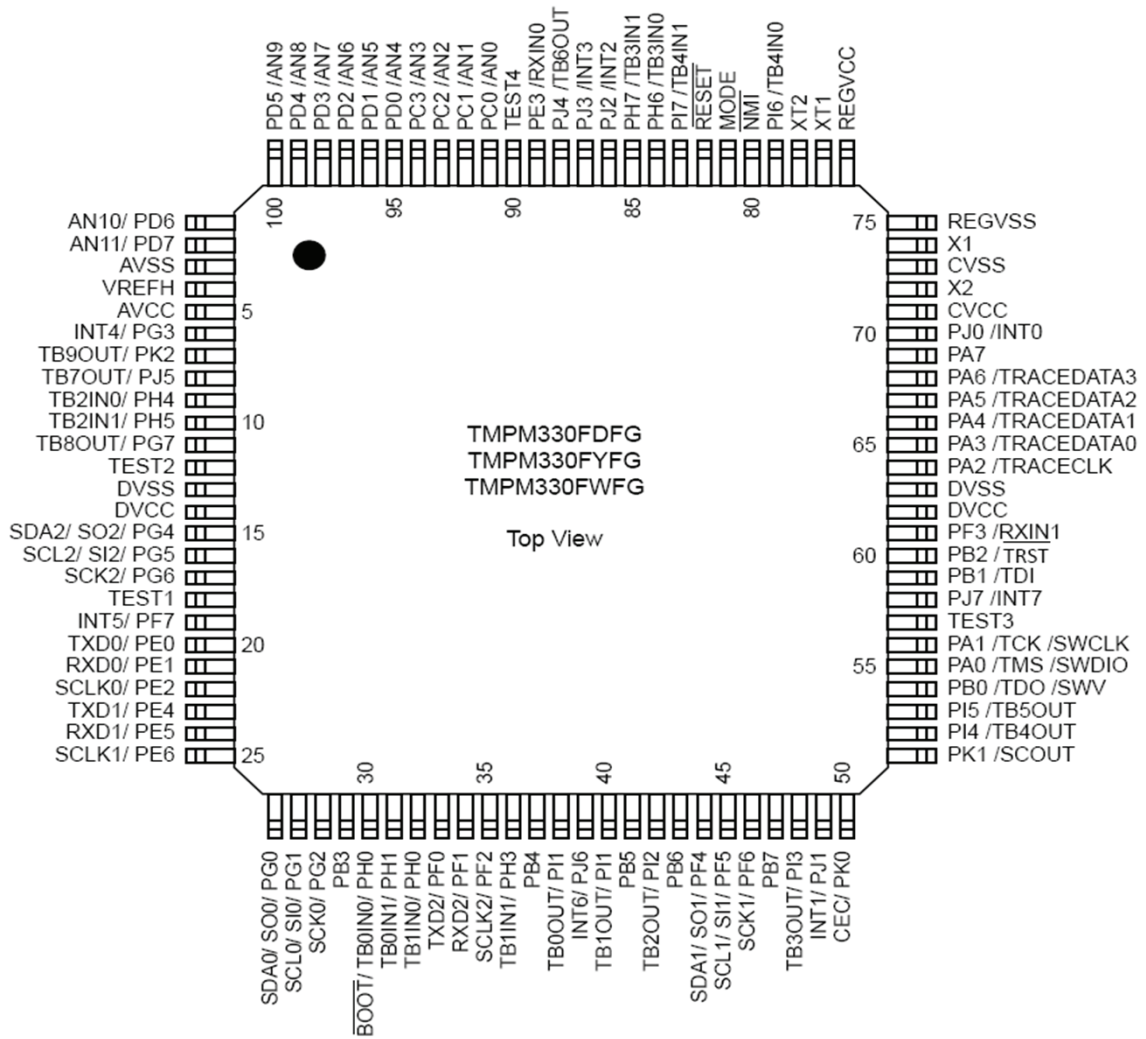
[BLOCKDIAGRAM AND PIN DESCRIPTION of ICs]

IC01 TPM330FWFG (SYSTEM CONTROLLER)

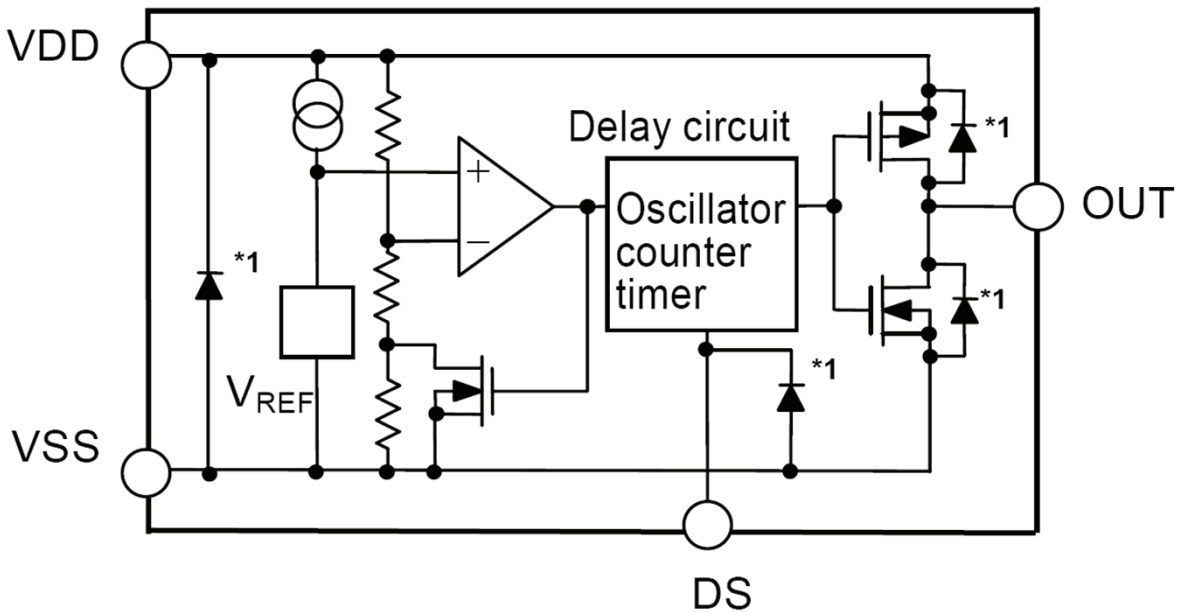
IC BLOCK DIAGRAMS



IC PIN DESCRIPTION



IC02 S80124CLMCJ1JT2 (RESET IC)
 IC BLOCK DIAGRAMS



IC PIN DESCRIPTION

Pin No.	Pin name	Pin description
1	DS ^{*1}	ON/OFF switch for delay time
2	VSS	GND pin
3	NC ^{*2}	No connection
4	OUT	Voltage detection output pin
5	VDD	Voltage input pin

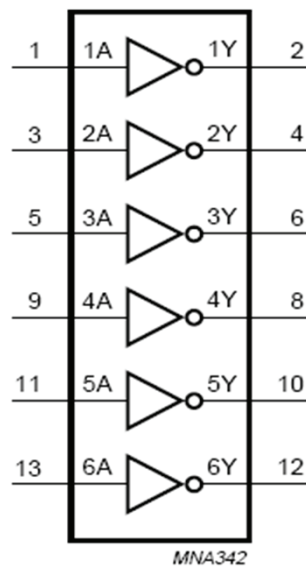
*1. Refer to "2. Delay Circuit" in "■ Operation" for operation.

*2. The NC pin is electrically open.

The NC pin can be connected to VDD or VSS.

IC03 SN74ACT04DR
IC BLOCK DIAGRAMS

HEX INVERTER

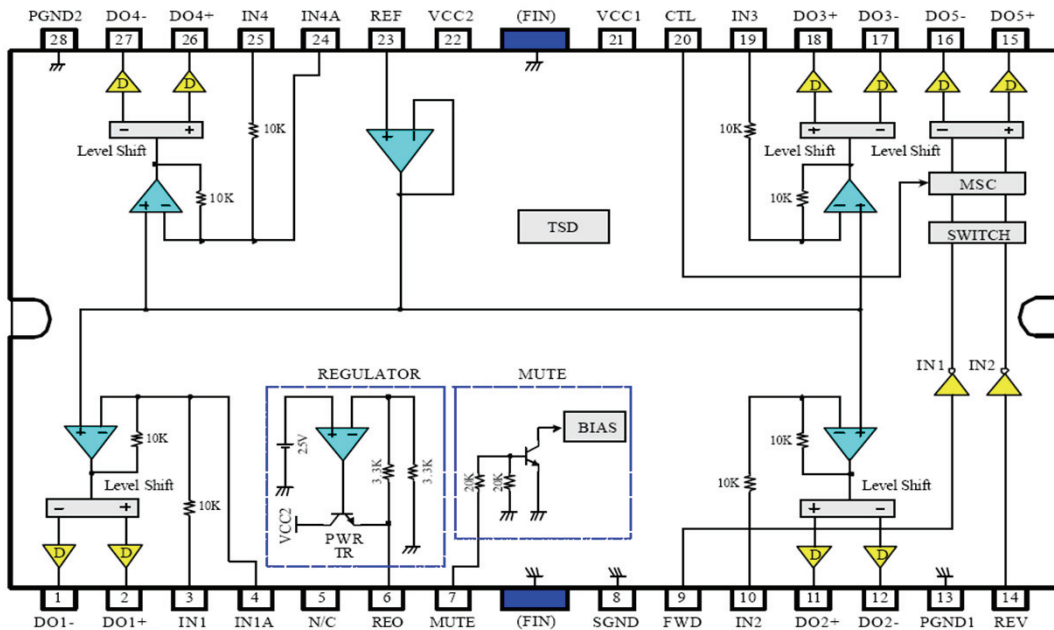


IC PIN DESCRIPTION

PIN	SYMBOL	DESCRIPTION
1	1A	data input
2	1Y	data output
3	2A	data input
4	2Y	data output
5	3A	data input
6	3Y	data output
7	GND	ground (0 V)
8	4Y	data output
9	4A	data input
10	5Y	data output
11	5A	data input
12	6Y	data output
13	6A	data input
14	V _{CC}	supply voltage

IC04 IP4001CRLTF_CN 5-CH MOTOR DRIVER

IC BLOCK DIAGRAMS

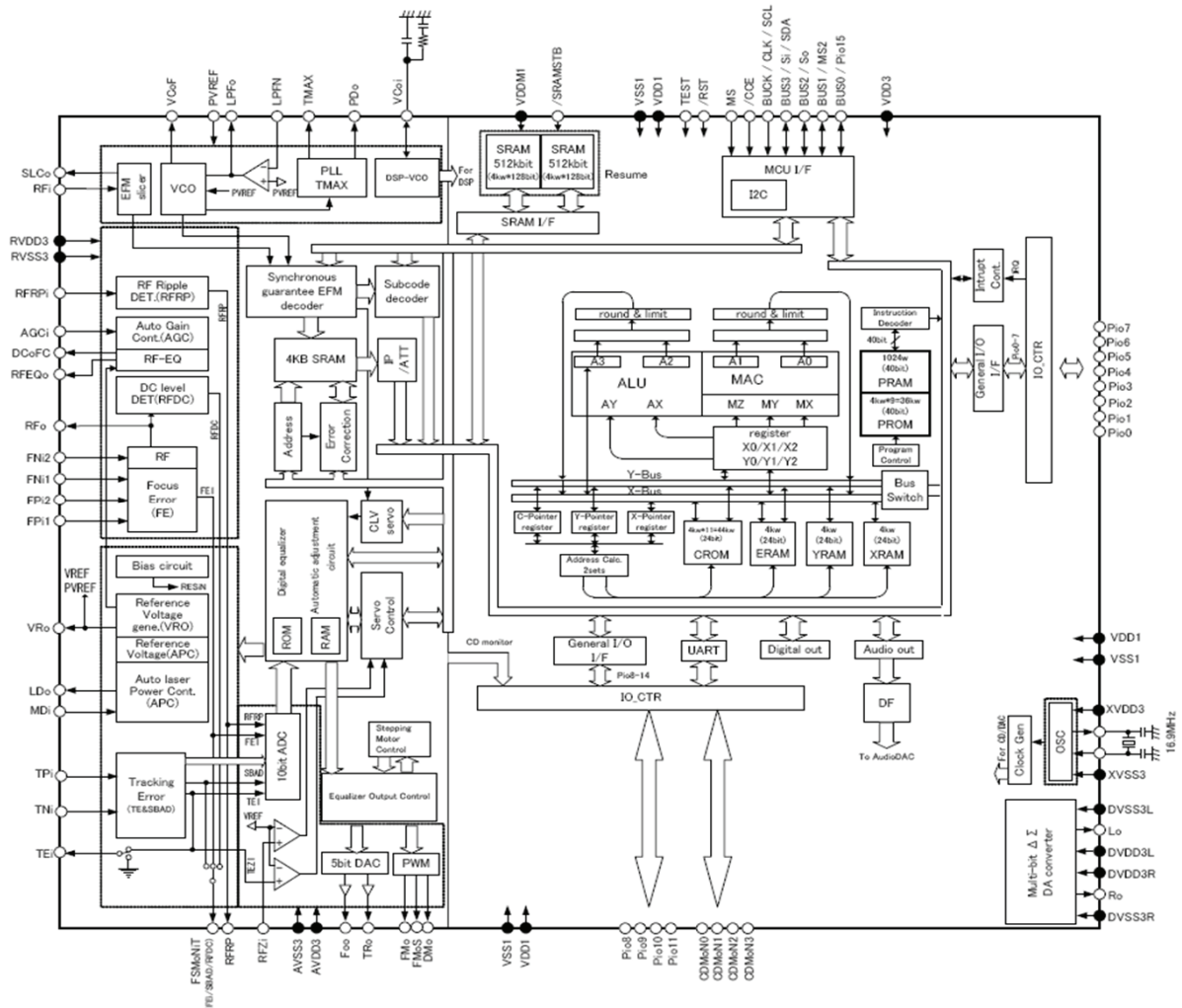


IC PIN DESCRIPTION

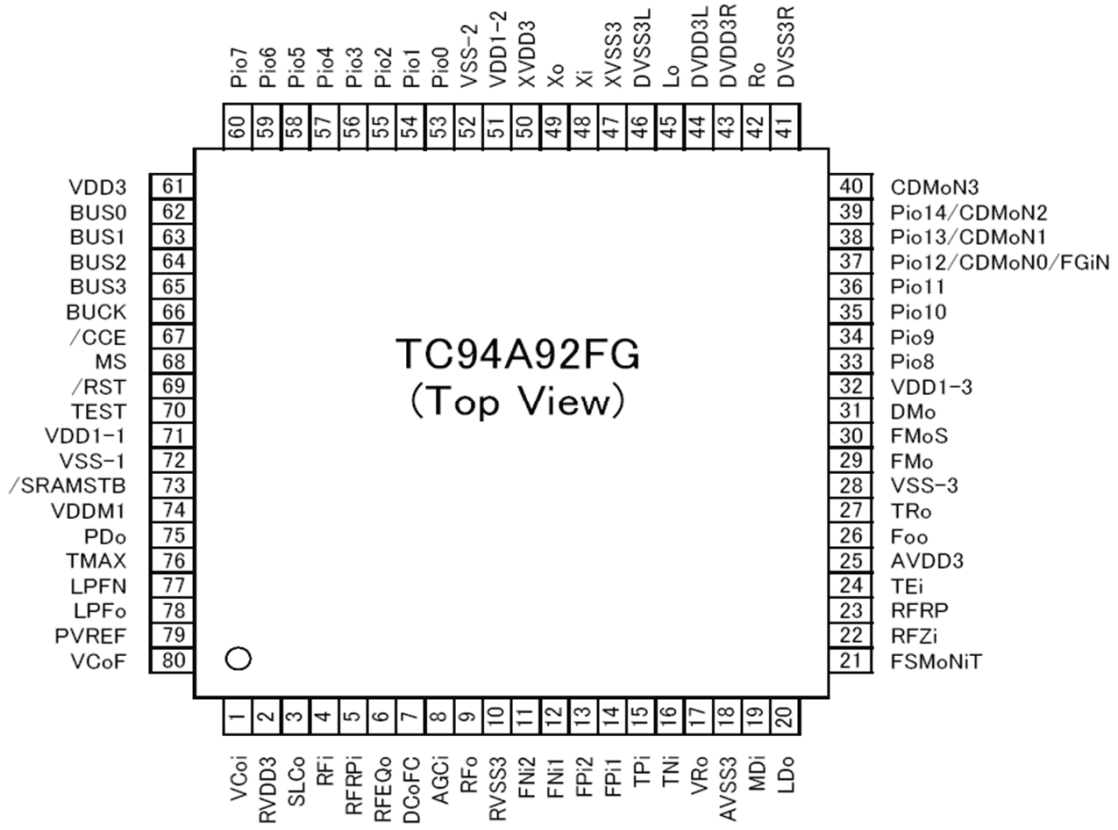
NO	SYMBOL	I/O	DESCRIPTION	NO	SYMBOL	I/O	DESCRIPTION
1	DO1-	O	CH1 OUTPUT (-)	15	DO5+	O	CH5 OUTPUT (+)
2	DO1+	O	CH1 OUTPUT (+)	16	DO5-	O	CH5 OUTPUT (-)
3	IN1	I	CH1 INPUT 1	17	DO3-	O	CH3 OUTPUT (-)
4	IN1A	I	CH1 INPUT 2	18	DO3+	O	CH3 OUTPUT (+)
5	N / C	-	NO-CONNECTION	19	IN3	I	CH3 INPUT
6	REO	O	REGULATOR OUTPUT	20	CTL	I	CH5 MOTOR SPEED CONTROL
7	MUTE	I	MUTE INPUT	21	VCC1	I	SUPPLY VOLTAGE 1 (CH2,CH3,CH5)
8	SGND	-	SIGNAL GROUND	22	VCC2	I	SUPPLY VOLTAGE 2 (CH1,CH4,SIGNAL,REG)
9	FWD	I	CH5 INPUT 1	23	REF	I	CH BIAS INPUT
10	IN2	I	CH2 INPUT	24	IN4A	I	CH4 INPUT 1
11	DO2+	O	CH2 OUTPUT (+)	25	IN4	I	CH4 INPUT 2
12	DO2-	O	CH2 OUTPUT (-)	26	DO4+	O	CH4 OUTPUT (+)
13	PGND1	-	POWER GROUND 1	27	DO4-	O	CH4 OUTPUT (-)
14	REV	I	CH5 INPUT 2	28	PGND2	-	POWER GROUND 2

IC05 TC94A92FG CD DSP

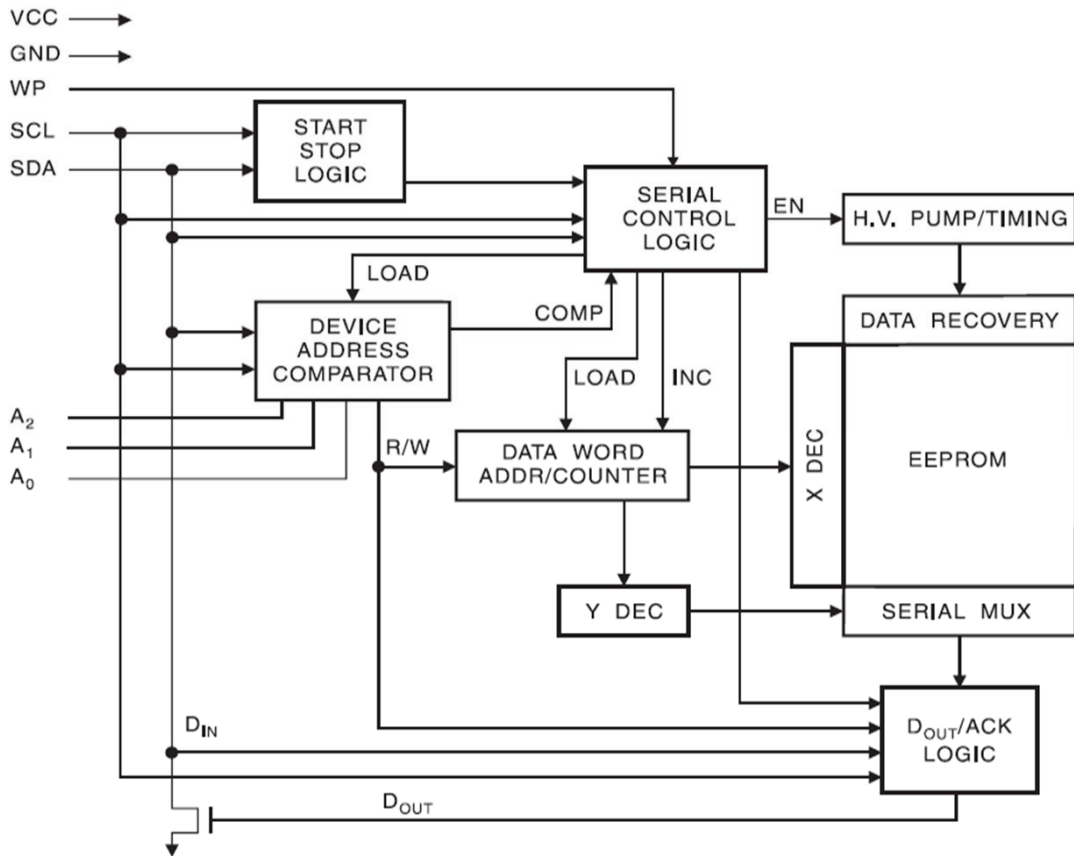
IC BLOCK DIAGRAMS



IC PIN MAP



IC BLOCK DIAGRAMS

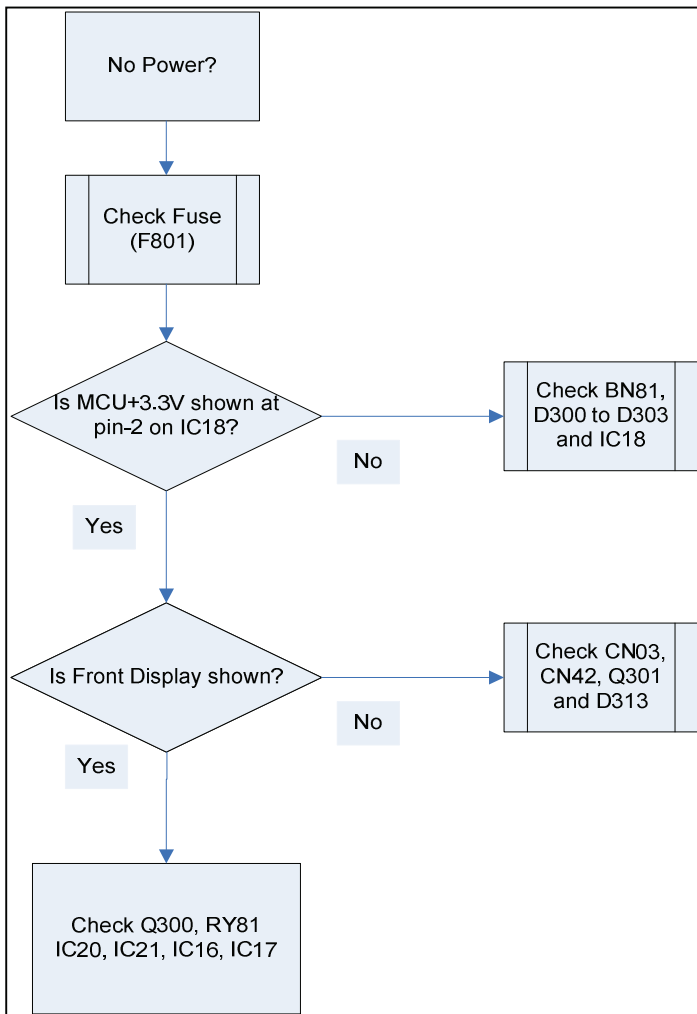


IC PIN DESCRIPTION

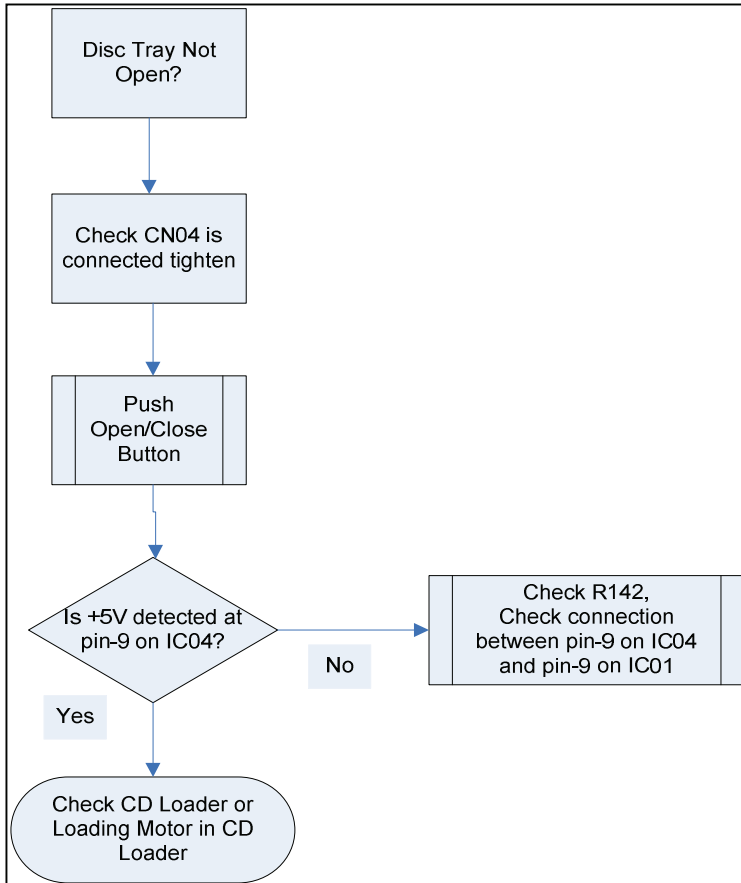
Pin Name	Function
A0 - A2	Address Inputs
SDA	Serial Data
SCL	Serial Clock Input
WP	Write Protect
NC	No Connect

ELECTRICAL TROUBLESHOOTING GUIDE

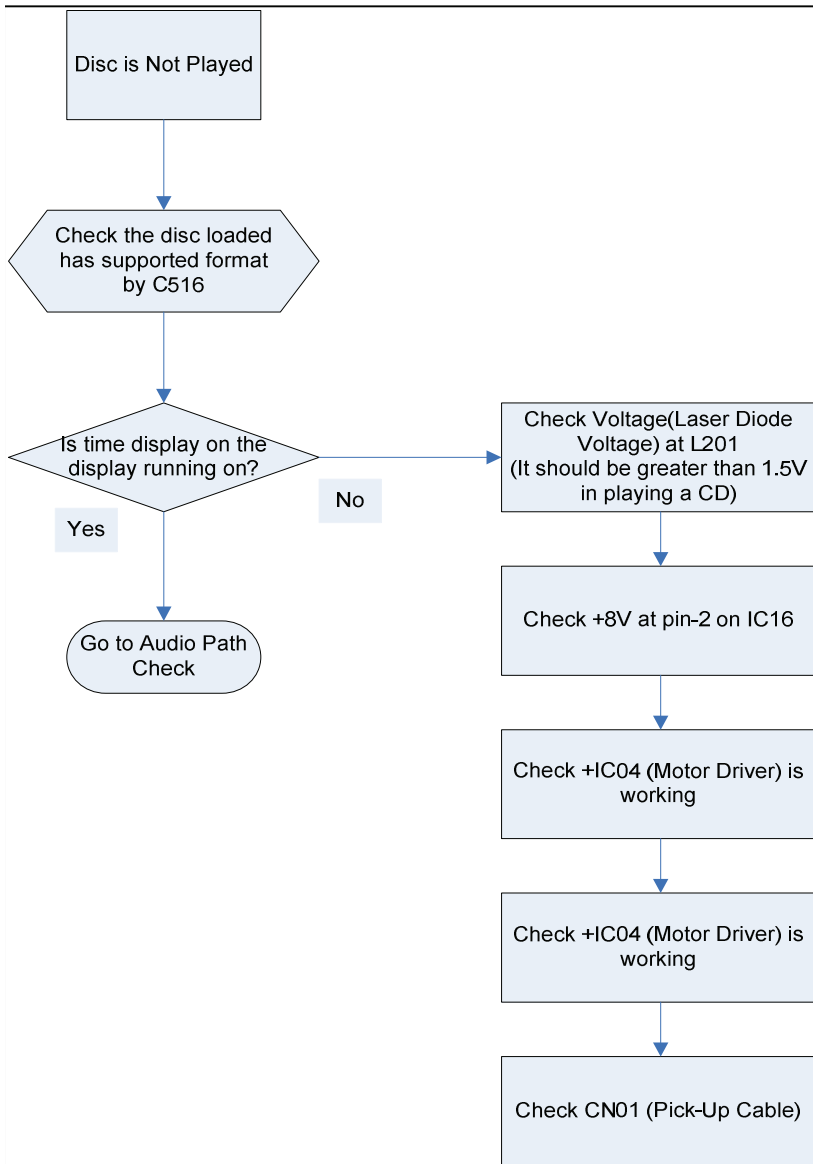
1. No Power, No Display



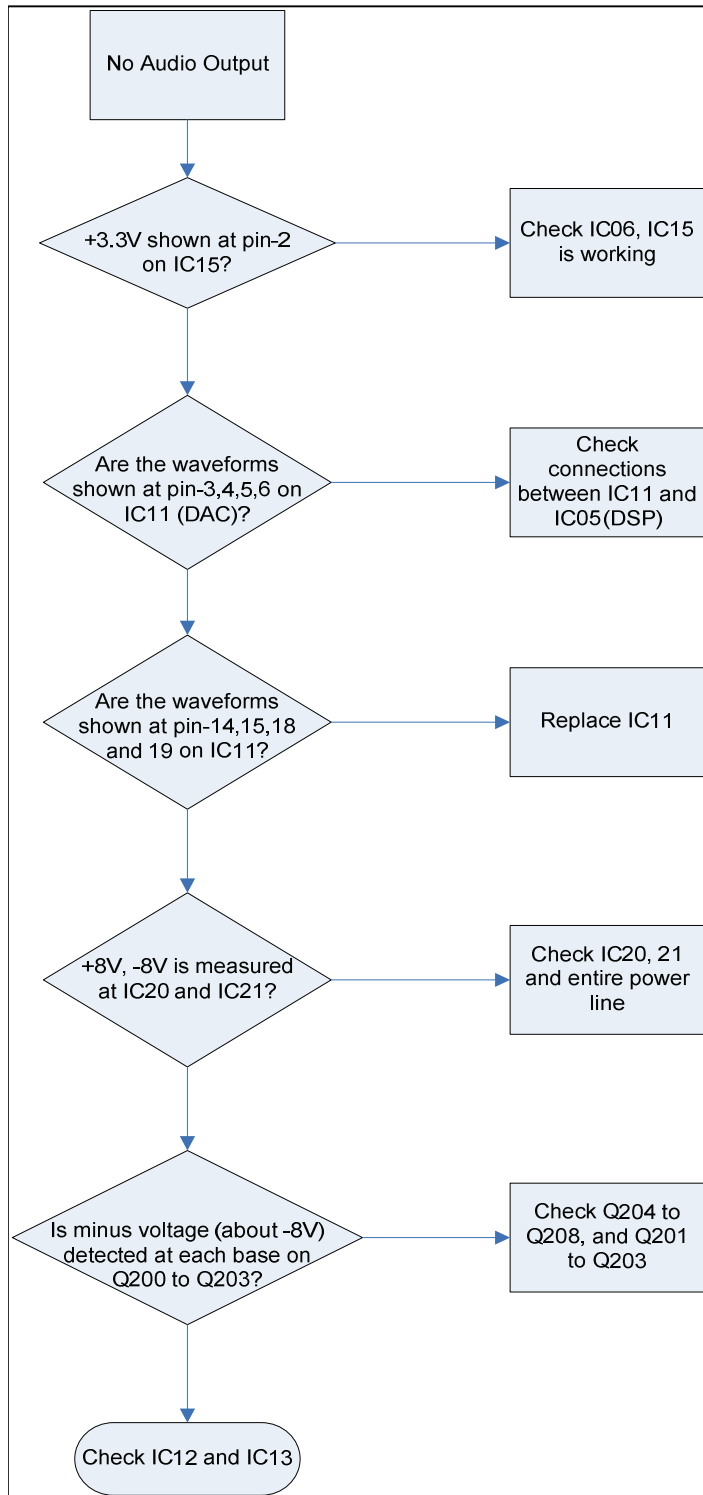
2. Disc Tray Not Opened



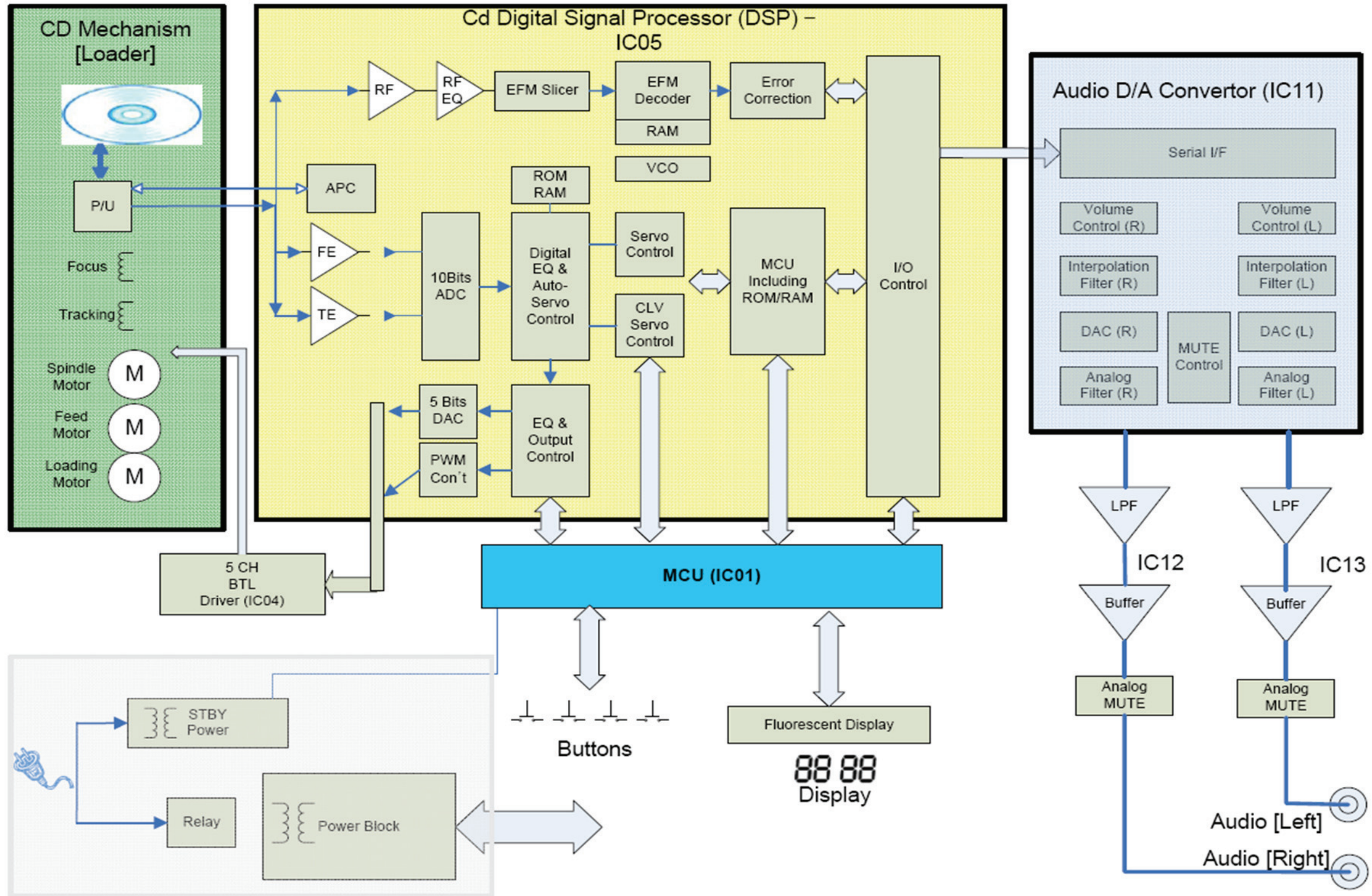
3. Disc is not Played



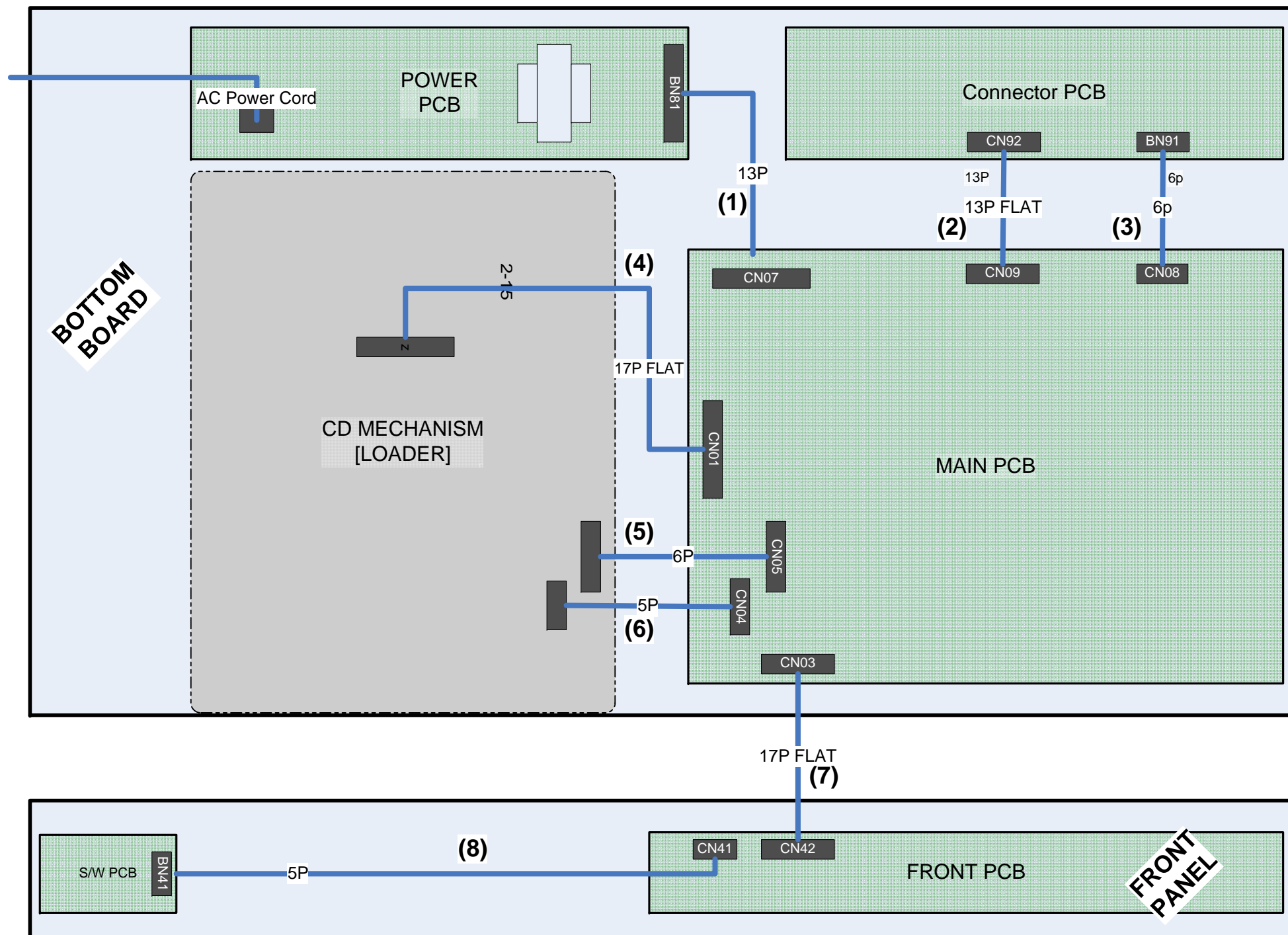
4. Disc is playing but No Audio output (Audio Path)



1. BLOCK DIAGRAM



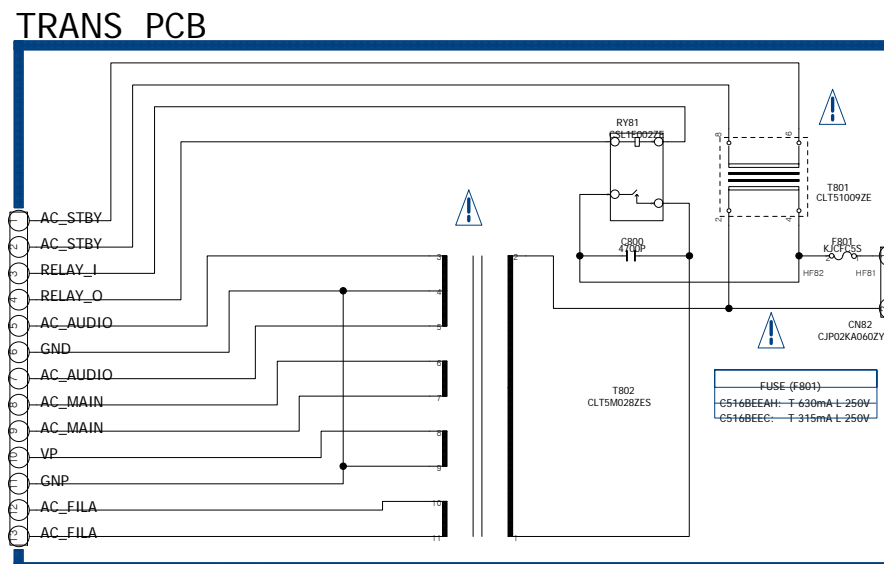
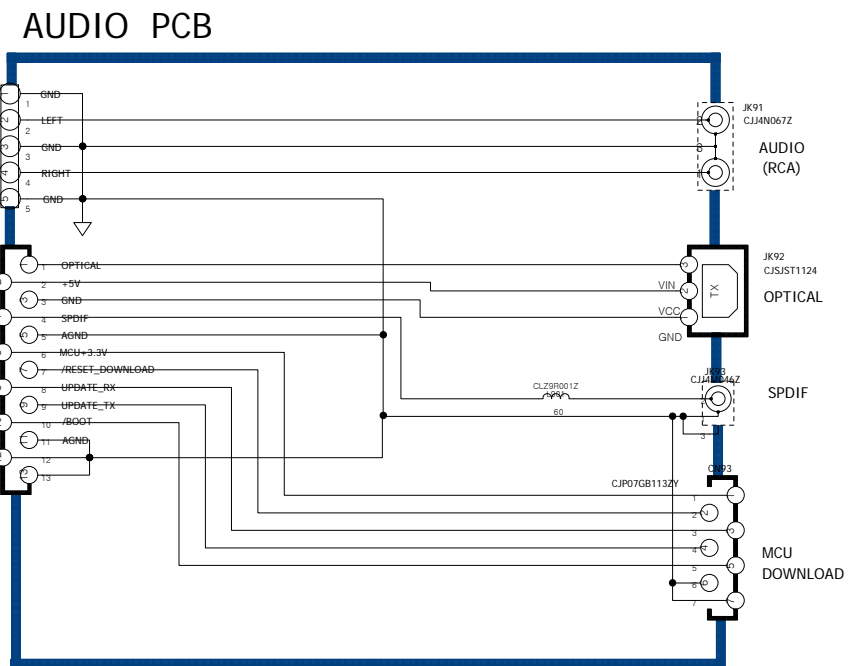
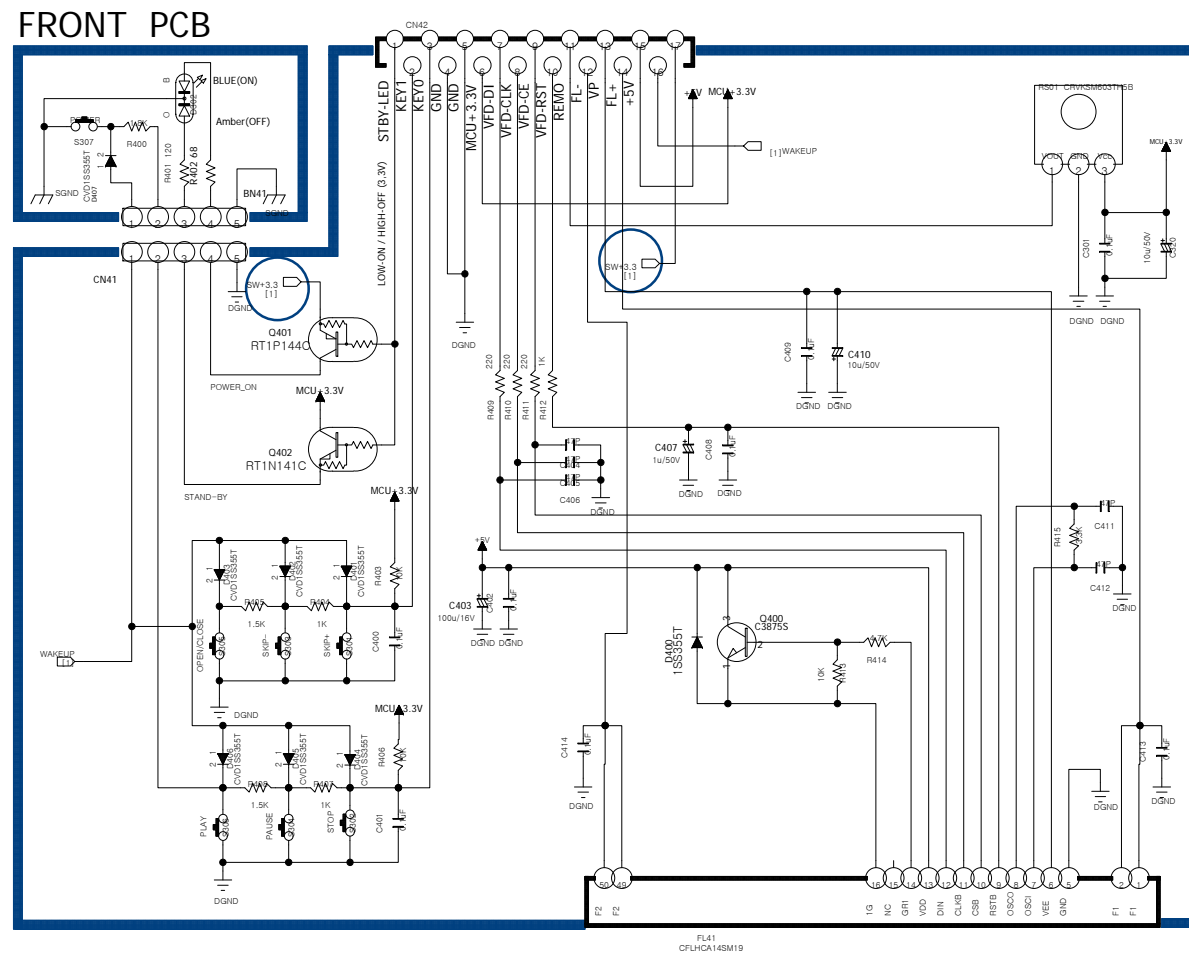
2. WIRING DIAGRAM



No.	Ref	Part Number
1	BN81	CWB1C913120EN
2		CWC4C4A13B100B10
3	BN91	CWB2B905080EN
4		CWC4F2A16A250B10
5		CWB2B005100GG
6		CWB5A906100GG
7		CWC4C4A17B100B10
8	BN41	CWB1B905180EN

3. SCHEMATIC DIAGRAM

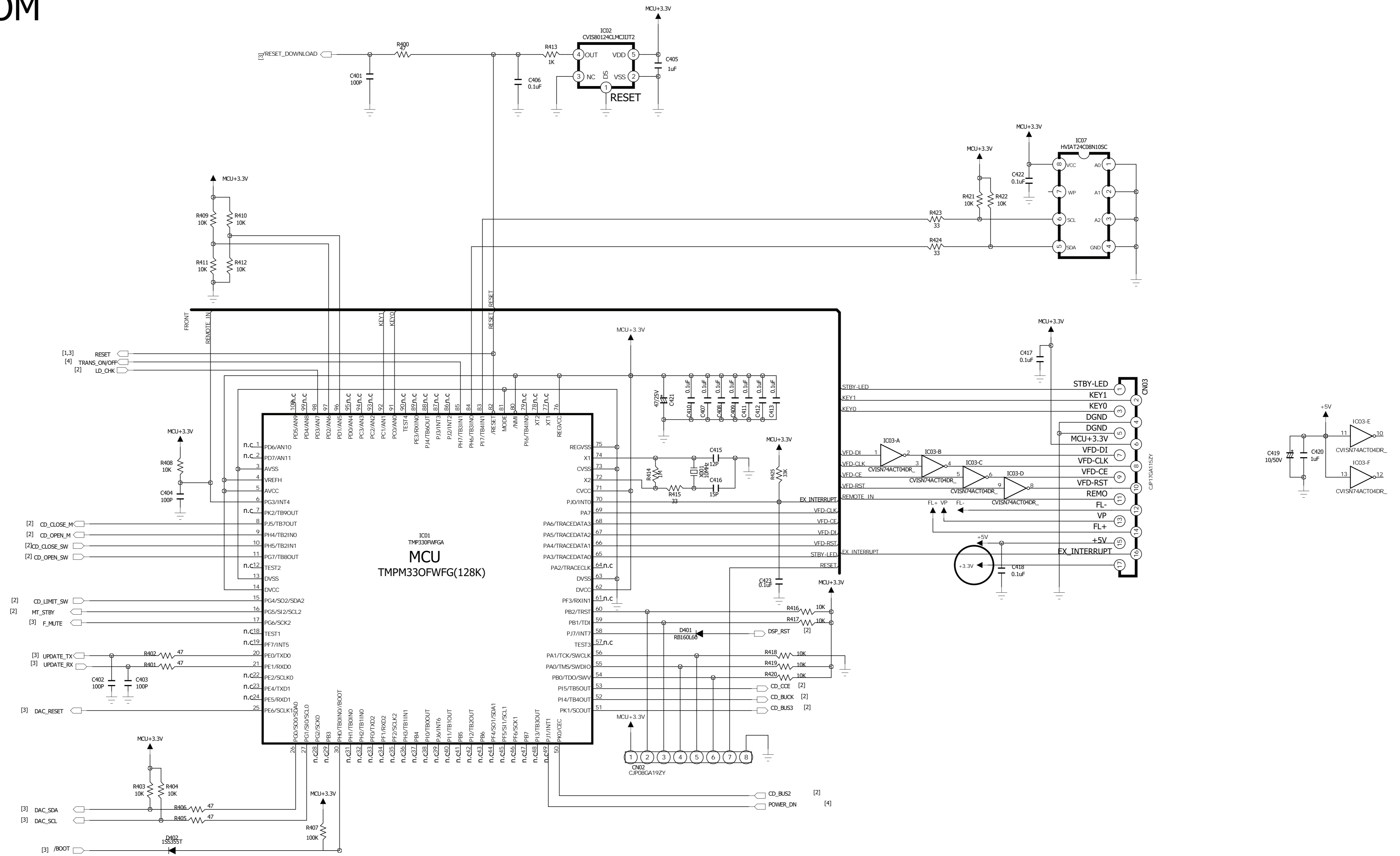
FRONT + TRANSFORMER + AUDIO PART



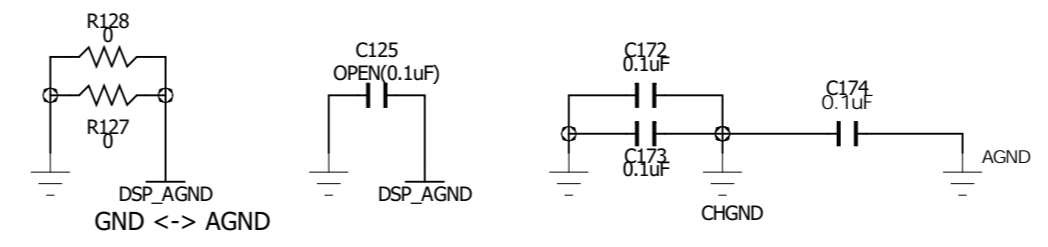
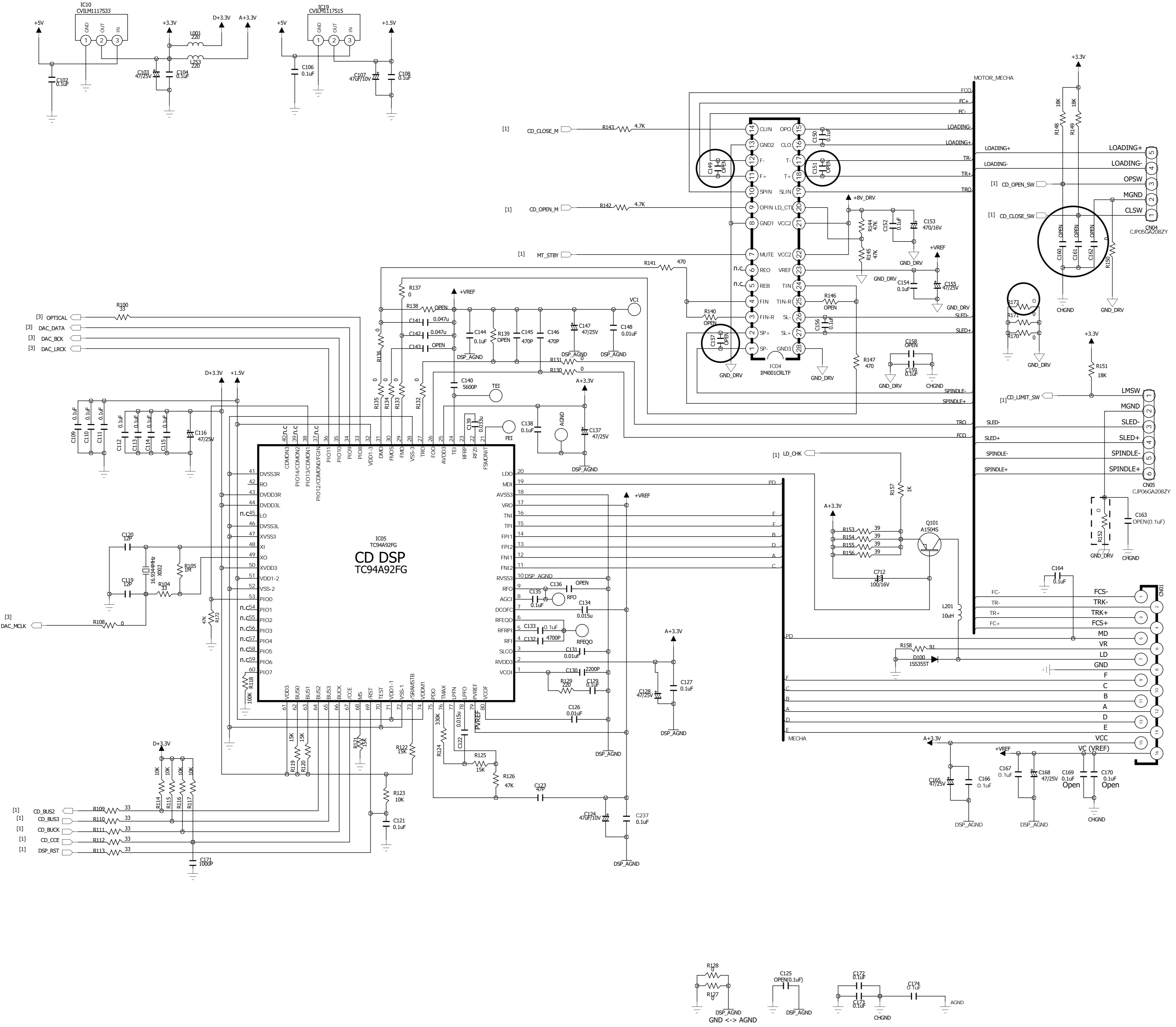
MP

REVISION	2	4	6
1	3	5	7
SCHEMATIC DIAGRAM			SHEET
MODEL	C516BEE		
DESIGN	CHECK	APPROVE	DRAWING NO
JW.RYU	BD.JANG	JH.PARK	
			1

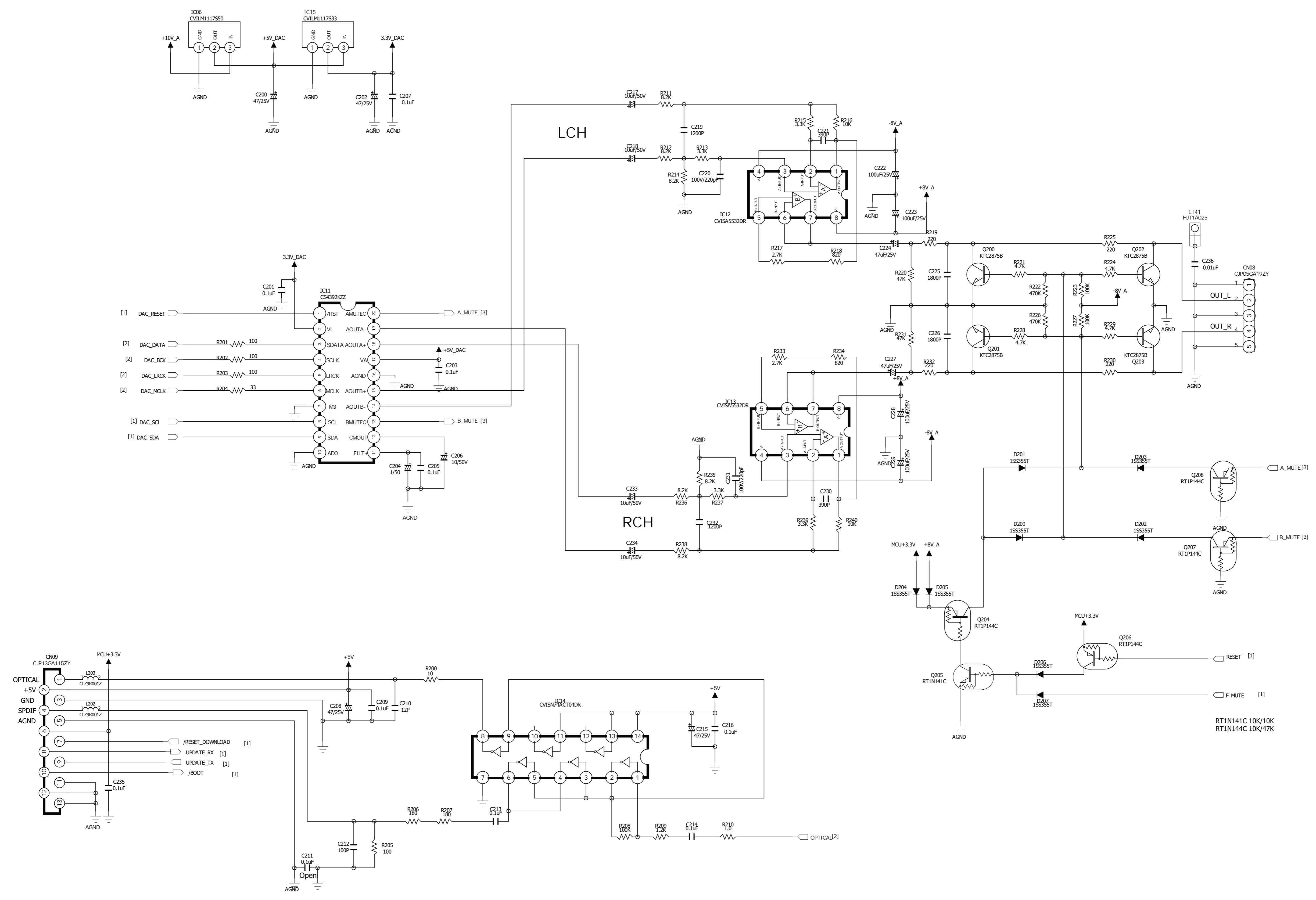
MCU & EEPROM



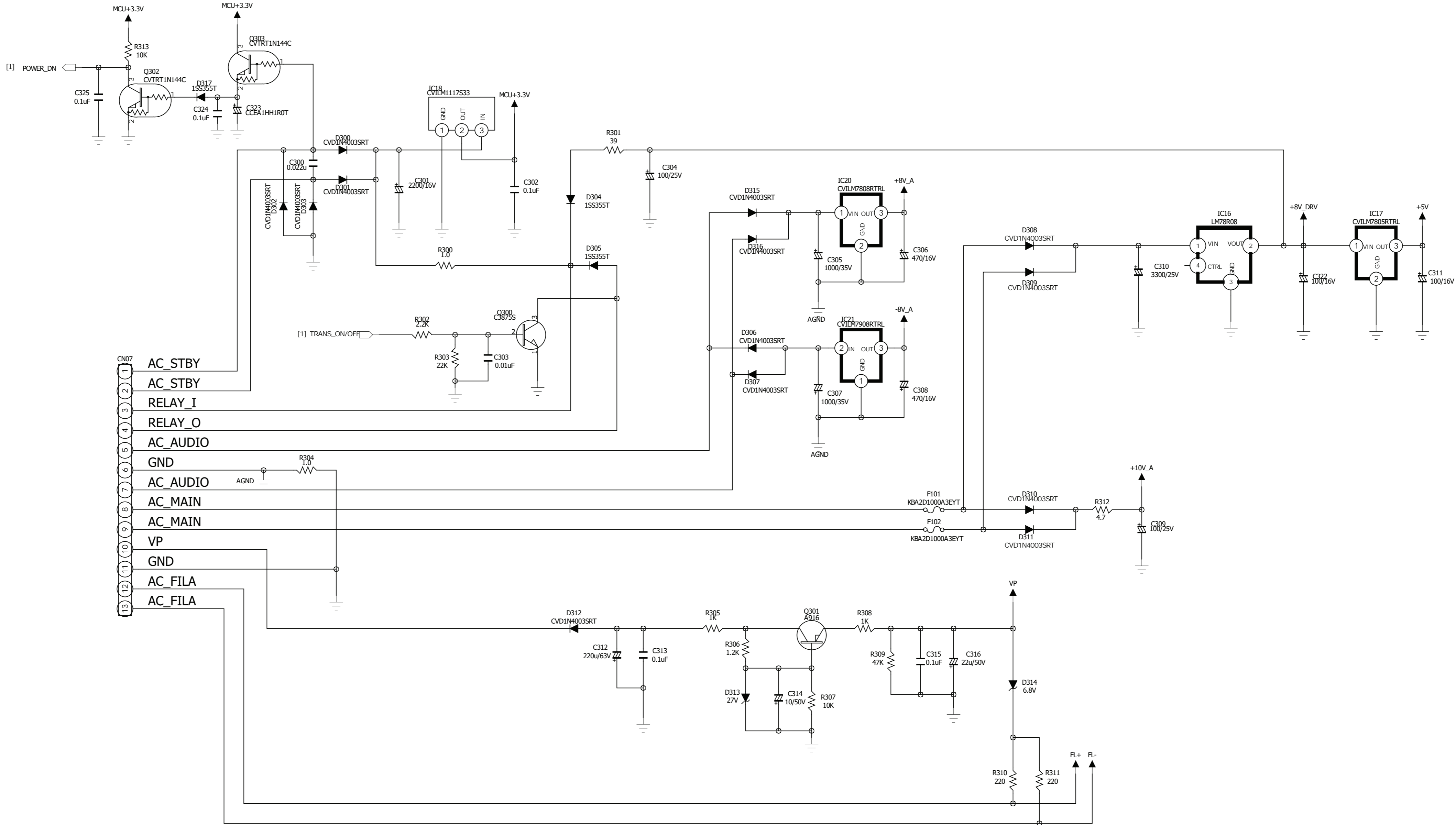
DSP & MECHA INTERFACE



DAC & AUDIO

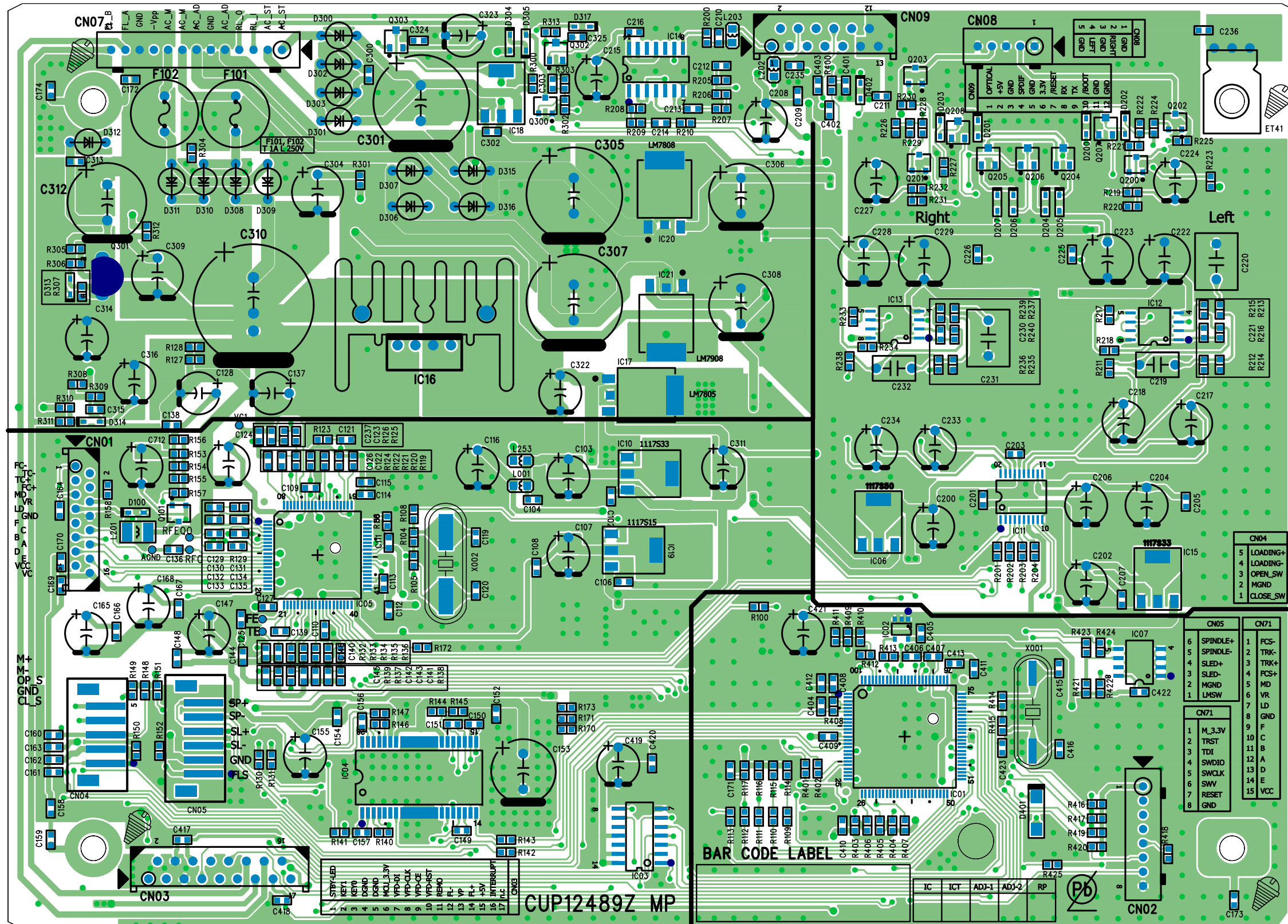


POWER

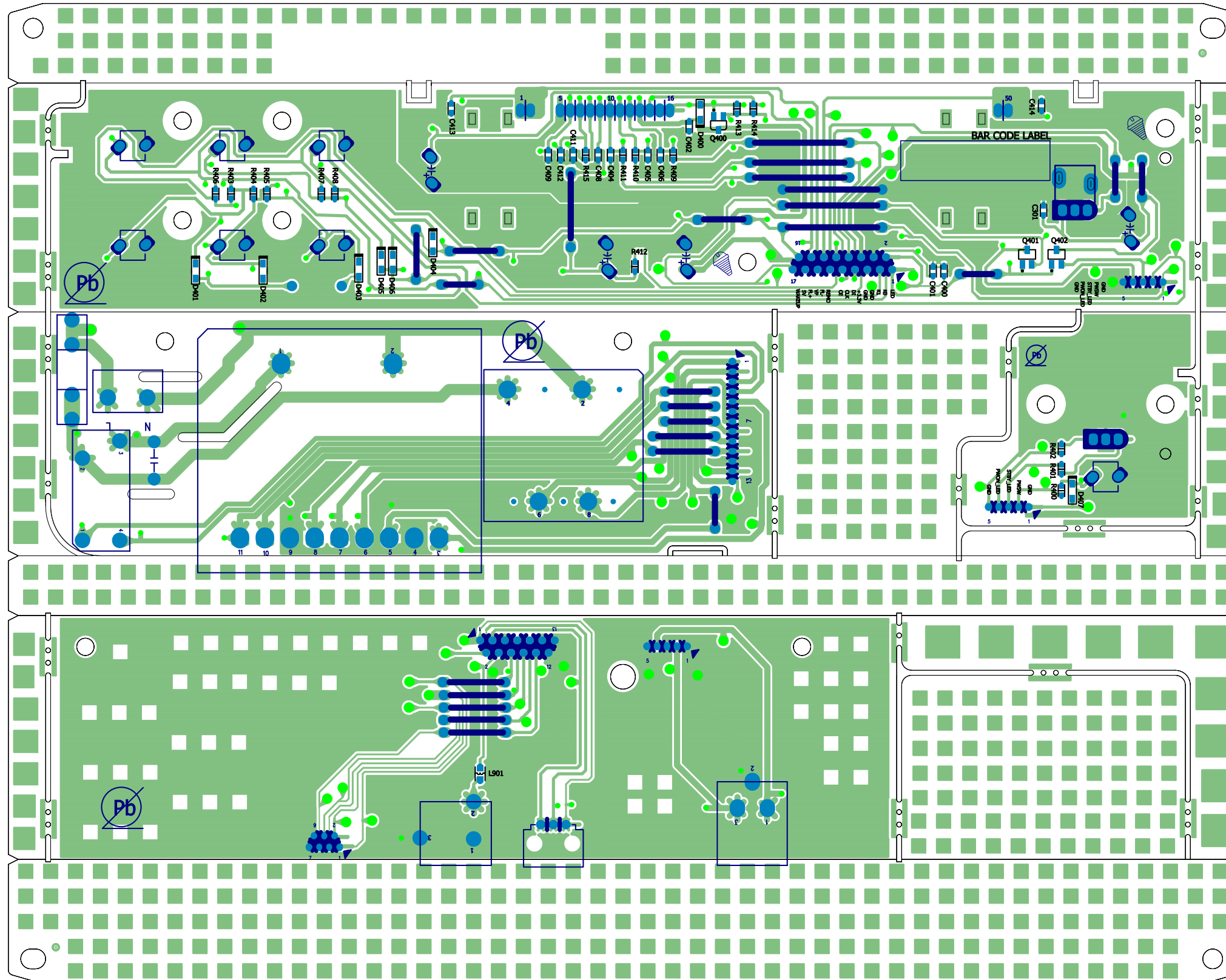


4. PRINTED CIRCUIT BOARDS

DSP PCB VIEW



FRONT + POWER PCB VIEW)



SECTION 3

ELECTRICAL PARTS LIST

[FRONT & POWER PCB Ass'y] COP12490B(C516BEEC, C516BEECT) , COP12490C(C516BEEAH)
CUP12489Z-1

Ref NO	PART NUMBER	Description	REMARK
C301	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C400	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C401	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C402	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C404	CCUS1H470JA	CAP, CHIP(1608, 50V/47pF)	
C405	CCUS1H470JA	CAP, CHIP(1608, 50V/47pF)	
C406	CCUS1H470JA	CAP, CHIP(1608, 50V/47pF)	
C408	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C409	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C411	CCUS1H470JA	CAP, CHIP(1608, 50V/47pF)	
C412	CCUS1H470JA	CAP, CHIP(1608, 50V/47pF)	
C413	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C414	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
D400	CVD1SS355T	DIODE, CHIP, SWITCHING	
D401	CVD1SS355T	DIODE, CHIP, SWITCHING	
D402	CVD1SS355T	DIODE, CHIP, SWITCHING	
D403	CVD1SS355T	DIODE, CHIP, SWITCHING	
D404	CVD1SS355T	DIODE, CHIP, SWITCHING	
D405	CVD1SS355T	DIODE, CHIP, SWITCHING	
D406	CVD1SS355T	DIODE, CHIP, SWITCHING	
D407	CVD1SS355T	DIODE, CHIP, SWITCHING	
L901	CLZ9R001Z	FERRITE, CHIP BEAD(60ohm, 2012)	
Q400	HVTKTC3875SYRTK	T.R, CHIP, SOT-23	
Q401	CVTRT1P144C	T.R,RT1P144C(10K-47K)	
Q402	CVTRT1N141C	T.R,RT1N141C(10K-10K)	
R400	CRJ10DJ182T	RES, CHIP(1608/5%/1.8Kohm)	
R401	CRJ10DJ121T	RES, CHIP(1608/5%/120ohm)	
R402	CRJ10DJ680T	RES, CHIP(1608/5%/68ohm)	
R403	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)	
R404	CRJ10DJ102T	RES, CHIP(1608/5%/1Kohm)	
R405	CRJ10DJ152T	RES, CHIP(1608/5%/1.5Kohm)	
R406	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)	
R407	CRJ10DJ102T	RES, CHIP(1608/5%/1Kohm)	
R408	CRJ10DJ152T	RES, CHIP(1608/5%/1.5Kohm)	
R409	CRJ10DJ221T	RES, CHIP(1608/5%/220ohm)	
R410	CRJ10DJ221T	RES, CHIP(1608/5%/220ohm)	
R411	CRJ10DJ221T	RES, CHIP(1608/5%/220ohm)	
R412	CRJ10DJ102T	RES, CHIP(1608/5%/1Kohm)	
R413	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)	
R414	CRJ10DJ472T	RES, CHIP(1608/5%/4.7Kohm)	
R415	CRJ10DJ332T	RES, CHIP(1608/5%/3.3Kohm)	
C320	CCEA1HKS100T	CAP, ELECT(50V/10uF)-S	
C403	CCEA1CKS101T	CAP, ELECT(16V/100uF)-S	
C407	CCEA1HKS1R0T	CAP, ELECT(50V/1uF)-S	
C410	CCEA1HKS100T	CAP, ELECT(50V/10uF)-S	
S301	CST1A012ZT	SW, TACT	
S302	CST1A012ZT	SW, TACT	
S303	CST1A012ZT	SW, TACT	
S304	CST1A012ZT	SW, TACT	
S305	CST1A012ZT	SW, TACT	
S306	CST1A012ZT	SW, TACT	
BK10	CMD1A807	BRACKET, FIP	
BK11	CMD1A807	BRACKET, FIP	
CN41	CJP05GA19ZY	WAFER, STRAIGHT	
CN42	CJP17GB116ZY	WAFER, FFC(17P-1.25mm, ANGEL)	
FL41	CFLCIG201411	VFD, ZBOE, CIG20-1411, CIG-TYPE	
RS01	CRVKSM603TH5B	SENSOR, REMOTE/U	
	CWC4C4A13B100B10	CABLE, CARD (13P, 1.25MM, 100MM, B, 10MM)	
	CWC4C4A17B100B10	CABLE, CARD (17P, 1.25MM, 100MM, B, 10MM)	
	C4FJ104	TAPE, BOTH SID	

Ref NO	PART NUMBER	Description	REMARK
Switch PCB Ass'y CUP12490Z-2 : C516BEEAH, C516BEEC, C516BEECT			
S307	CST1A012ZT	SW , TACT	
D302	CVD50BOBBWGA	L.E.D , 2 COLOR (ORG , BLUE)	
BN41	CWB1B905180EN	WIRE ASS'Y	

Trans PCB Ass'y CUP12490Z-3 : C516BEEC, C516BEECT

T801	CLT5I009ZE	TRANS , SUB CD6002/N	C516BEEC/CT
T802	CLT5M028ZES	TRANS , POWER(EUR/UK)	C516BEEC/CT
F801	KBA2C0315TLEY	FUSE(218Series, 250V/315mA)	C516BEEC/CT
RY81	CSL1E002ZE	RELAY,G5PA-1,DC6V,1C1P	
CN82	CJP02KA060ZY	WAFER, 2P, 3.96mm	
HF81	KJCF5S	HOLDER , FUSE	
HF82	KJCF5S	HOLDER , FUSE	
BN81	CWB1C913120EN	WIRE ASS'Y(13P, 120mm)	
C800	KCKDKS472ME	CAP , CERAMIC(X1/Y2/SC)	

Trans PCB Ass'y CUP12490Z-3 : C516BEEAH

T801	CLT5I009ZU	TRANS , SUB C515	C516BEEAH
T802	CLT5M028ZUS	TRANS , POWER C515	C516BEEAH
F801	KBA2C0630TLEY	FUSE(218Series, 250V/630mA)	C516BEEAH
RY81	CSL1E002ZE	RELAY,G5PA-1,DC6V,1C1P	
CN82	CJP02KA060ZY	WAFER, 2P, 3.96mm	
HF81	KJCF5S	HOLDER , FUSE	
HF82	KJCF5S	HOLDER , FUSE	
BN81	CWB1C913120EN	WIRE ASS'Y(13P, 120mm)	
C800	KCKDKS472ME	CAP , CERAMIC(X1/Y2/SC)	

Jack PCB Ass'y CUP12490Z-5 : C516BEEAH, C516BEEC, C516BEECT

BN91	CWB2B905080EN	WIRE ASS'Y	
JK91	CJJ4N067Z	JACK , 2P	
JK92	CJSJST1124	MODULE , OPTICAL(TX 16MHz)	
JK93	CJJ4M045Z	JACK , BOARD	
CN92	CJP13GA115ZY	WAFER, FFC(13P-1.25mm, STRAIGHT)	
CN93	CJP07GB113ZY	WAFER, FFC(5P-1mm, ANGLE)	

ELECTRICAL PARTS LIST

[Main PCB Ass'y COP12489B] — C516BEEAH, C516BEEC, C516BEECT
CUP12489Z

Ref NO	PART NUMBER	Description	REMARK
CN04	CJP05GA208ZY	WAFER , SMD (2MM PITCH)	
CN05	CJP06GA208ZY	WAFER , SMD (2MM PITCH)	
C102	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C104	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C106	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C108	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C109	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C110	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C111	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C112	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C113	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C114	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C115	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C119	CCUS1H120JA	CAP, CHIP(1608, 50V/12pF)	
C120	CCUS1H120JA	CAP, CHIP(1608, 50V/12pF)	
C121	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C122	CCUS1H153KC	CAP, CHIP(1608, 50V/0.015uF)	
C123	CCUS1H470JA	CAP, CHIP(1608, 50V/47pF)	
C126	CCUS1H103KC	CAP, CHIP(1608, 50V/0.01uF)	
C127	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C129	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C130	CCUS1H222KC	CAP, CHIP(1608, 50V/2200pF)	
C131	CCUS1H103KC	CAP, CHIP(1608, 50V/0.01uF)	
C132	CCUS1H472KC	CAP, CHIP(1608, 50V/4700pF)	
C133	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C134	CCUS1H153KC	CAP, CHIP(1608, 50V/0.015uF)	
C135	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C138	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C139	CCUS1H333KC	CAP, CHIP(1608, 50V/0.033uF)	
C140	CCUS1H562KC	CAP, CHIP(1608, 50V/5600pF)	
C141	CCUS1H473KC	CAP, CHIP(1608, 50V/0.047uF)	
C142	CCUS1H473KC	CAP, CHIP(1608, 50V/0.047uF)	
C144	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C145	CCUS1H471JA	CAP, CHIP(1608, 50V/470pF)	
C146	CCUS1H471JA	CAP, CHIP(1608, 50V/470pF)	
C148	CCUS1H103KC	CAP, CHIP(1608, 50V/0.01uF)	
C150	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C152	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C154	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C156	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C159	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C164	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C166	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C167	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C171	CCUS1H102KC	CAP, CHIP(1608, 50V/1000pF)	
C172	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C173	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C201	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C203	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C205	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C207	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C209	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C210	CCUS1H120JA	CAP, CHIP(1608, 50V/12pF)	
C211	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C212	CCUS1H101JA	CAP, CHIP(1608, 50V/100pF)	
C213	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C214	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C216	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C221	CCUS1H391JA	CAP, CHIP(1608, 50V/390pF)	

Ref NO	PART NUMBER	Description	REMARK
C225	CCUS1H182KC	CAP, CHIP(1608, 50V/1800pF)	
C226	CCUS1H182KC	CAP, CHIP(1608, 50V/1800pF)	
C230	CCUS1H391JA	CAP, CHIP(1608, 50V/390pF)	
C235	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C236	CCUS1H103KC	CAP, CHIP(1608, 50V/0.01uF)	
C237	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C300	CCUS1H223KC	CAP, CHIP(1608, 50V/0.022uF)	
C302	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C303	CCUS1H103KC	CAP, CHIP(1608, 50V/0.01uF)	
C313	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C315	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C324	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C325	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C401	CCUS1H101JA	CAP, CHIP(1608, 50V/100pF)	
C402	CCUS1H101JA	CAP, CHIP(1608, 50V/100pF)	
C403	CCUS1H101JA	CAP, CHIP(1608, 50V/100pF)	
C404	CCUS1H101JA	CAP, CHIP(1608, 50V/100pF)	
C405	CCUS1A105KC	CAP, CHIP(1608, 10V/1uF)	
C406	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C407	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C408	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C409	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C410	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C411	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C412	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C413	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C415	CCUS1H120JA	CAP, CHIP(1608, 50V/12pF)	
C416	CCUS1H150JA	CAP, CHIP(1608, 50V/15pF)	
C417	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C418	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C420	CCUS1A105KC	CAP, CHIP(1608, 10V/1uF)	
C422	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
C423	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)	
D100	CVD1SS355T	DIODE , CHIP , SWITCHING	
D200	CVD1SS355T	DIODE , CHIP , SWITCHING	
D201	CVD1SS355T	DIODE , CHIP , SWITCHING	
D202	CVD1SS355T	DIODE , CHIP , SWITCHING	
D203	CVD1SS355T	DIODE , CHIP , SWITCHING	
D204	CVD1SS355T	DIODE , CHIP , SWITCHING	
D205	CVD1SS355T	DIODE , CHIP , SWITCHING	
D206	CVD1SS355T	DIODE , CHIP , SWITCHING	
D207	CVD1SS355T	DIODE , CHIP , SWITCHING	
D304	CVD1SS355T	DIODE , CHIP , SWITCHING	
D305	CVD1SS355T	DIODE , CHIP , SWITCHING	
D313	HVDUDZS27BSR	DIODE , ZENER(CHIP,27V)	
D314	HVDUDZS6.8BSR	DIODE , ZENER(CHIP,6.8V)	
D317	CVD1SS355T	DIODE , CHIP , SWITCHING	
D401	HVDRB160L60TE25	DIODE, SCHOTTKY BARRIER	
D402	CVD1SS355T	DIODE , CHIP , SWITCHING	
IC01	CVIANAM1734C	I.C , U-COM (TOSHIBA , TMPM330TWFG)	
	CVITMPM330FWFG	I.C , U-COM (TOSHIBA,128KB/8KB,LQFP-100P)	
IC02	CVIS80124CLMCJIJ2	I.C , RESET 2.4V (200ms,C-MOS,SOT23-5P)	
IC03	CVISN74ACT04DR	I.C , HEX INVERTERS(SOIC/D-14P)	
IC04	CVIIP4001CRLTF_CN	I.C , 5-CH MOTOR DRIVE(REG,SSOP-28P)	
IC05	CVITC94A92FG	I.C , CD DSP (SERVO,AMPLIFIER,DSP,LQFP-80P)	
IC06	CVILM1117S50	I.C, REGULATOR(1.0A, 5.0V, SOT-223)	
IC07	HVIAT24C08N10SC	I.C	
IC10	CVILM1117S33	I.C, REGULATOR(1.0A, 3.3V, SOT-223)	
IC11	HVICS4392KZZ	I.C , DAC	
IC12	CVISA5532DR	I.C , OP AMP	
IC13	CVISA5532DR	I.C , OP AMP	
IC14	CVISN74ACT04DR	I.C , HEX INVERTERS(SOIC/D-14P)	
IC15	CVILM1117S33	I.C, REGULATOR(1.0A, 3.3V, SOT-223)	

Ref NO	PART NUMBER	Description	REMARK
IC17	CVILM7805RTRL	I.C, REGULATOR(1.0A, 5V , D-PAK)	
IC18	CVILM1117S33	I.C, REGULATOR(1.0A, 3.3V, SOT-223)	
IC19	CVILM1117S15	I.C, REGULATOR(1.0A, 1.5V, SOT-223)	
IC20	CVILM7808RTRL	IC, REGULATOR(1A, 8V)	
IC21	CVILM7908RTRL	IC, REGULATOR(1A, -8V)	
L001	CLZ9R006Z	FERRITE CHIP BEAD(2012/220R)	
L201	HLQ10E100KRZ	INDUCTOR CHIP 10UH (3225 PKG)	
L202	CLZ9R001Z	FERRITE , CHIP BEAD(60ohm, 2012)	
L203	CLZ9R001Z	FERRITE , CHIP BEAD(60ohm, 2012)	
L253	CLZ9R006Z	FERRITE CHIP BEAD(2012/220R)	
Q101	HVTKTA1504SYRTK	T.R , CHIP , SOT-23	
Q200	HVTKTC2875B	T.R , CHIP , SOT-23	
Q201	HVTKTC2875B	T.R , CHIP , SOT-23	
Q202	HVTKTC2875B	T.R , CHIP , SOT-23	
Q203	HVTKTC2875B	T.R , CHIP , SOT-23	
Q204	CVTRT1P144C	T.R,RT1P144C(10K-47K)	
Q205	CVTRT1N141C	T.R,RT1N141C(10K-10K)	
Q206	CVTRT1P144C	T.R,RT1P144C(10K-47K)	
Q207	CVTRT1P144C	T.R,RT1P144C(10K-47K)	
Q208	CVTRT1P144C	T.R,RT1P144C(10K-47K)	
Q300	HVTKTC3875SYRTK	T.R , CHIP , SOT-23	
Q302	CVTRT1N144C	T.R,RT1N144C(10K-47K)	
Q303	CVTRT1N144C	T.R,RT1N144C(10K-47K)	
R100	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)	
R104	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)	
R105	CRJ10DJ105T	RES, CHIP(1608/5%/1Mohm)	
R108	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)	
R109	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)	
R110	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)	
R111	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)	
R112	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)	
R113	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)	
R114	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)	
R115	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)	
R116	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)	
R117	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)	
R118	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)	
R119	CRJ10DJ153T	RES, CHIP(1608/5%/15Kohm)	
R120	CRJ10DJ153T	RES, CHIP(1608/5%/15Kohm)	
R121	CRJ10DJ153T	RES, CHIP(1608/5%/15Kohm)	
R122	CRJ10DJ153T	RES, CHIP(1608/5%/15Kohm)	
R123	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)	
R124	CRJ10DJ334T	RES, CHIP(1608/5%/330Kohm)	
R125	CRJ10DJ153T	RES, CHIP(1608/5%/15Kohm)	
R126	CRJ10DJ473T	RES, CHIP(1608/5%/47Kohm)	
R127	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)	
R128	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)	
R129	CRJ10DJ221T	RES, CHIP(1608/5%/220ohm)	
R130	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)	
R131	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)	
R132	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)	
R133	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)	
R134	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)	
R135	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)	
R136	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)	
R137	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)	
R141	CRJ10DJ471T	RES, CHIP(1608/5%/470ohm)	
R142	CRJ10DJ472T	RES, CHIP(1608/5%/4.7Kohm)	
R143	CRJ10DJ472T	RES, CHIP(1608/5%/4.7Kohm)	
R144	CRJ10DJ473T	RES, CHIP(1608/5%/47Kohm)	
R145	CRJ10DJ473T	RES, CHIP(1608/5%/47Kohm)	
R147	CRJ10DJ471T	RES, CHIP(1608/5%/470ohm)	
R148	CRJ10DJ183T	RES, CHIP(1608/5%/18Kohm)	

Ref NO	PART NUMBER	Description	REMARK
R149	CRJ10DJ183T	RES, CHIP(1608/5%/18Kohm)	
R150	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)	
R151	CRJ10DJ183T	RES, CHIP(1608/5%/18Kohm)	
R152	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)	
R153	CRJ10DJ390T	RES, CHIP(1608/5%/39ohm)	
R154	CRJ10DJ390T	RES, CHIP(1608/5%/39ohm)	
R155	CRJ10DJ390T	RES, CHIP(1608/5%/39ohm)	
R156	CRJ10DJ390T	RES, CHIP(1608/5%/39ohm)	
R157	CRJ10DJ102T	RES, CHIP(1608/5%/1Kohm)	
R158	CRJ10DJ910T	RES, CHIP(1608/5%/91ohm)	
R170	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)	
R171	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)	
R172	CRJ10DJ473T	RES, CHIP(1608/5%/47Kohm)	
R173	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)	
R200	CRJ10DJ100T	RES, CHIP(1608/5%/10ohm)	
R201	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)	
R202	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)	
R203	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)	
R204	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)	
R205	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)	
R206	CRJ10DJ181T	RES, CHIP(1608/5%/180ohm)	
R207	CRJ10DJ181T	RES, CHIP(1608/5%/180ohm)	
R208	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)	
R209	CRJ10DJ122T	RES, CHIP(1608/5%/1.2Kohm)	
R210	CRJ10DJ1R0T	RES, CHIP(1608/5%/1ohm)	
R211	CRJ10DJ822T	RES, CHIP(1608/5%/8.2Kohm)	
R212	CRJ10DJ822T	RES, CHIP(1608/5%/8.2Kohm)	
R213	CRJ10DJ332T	RES, CHIP(1608/5%/3.3Kohm)	
R214	CRJ10DJ822T	RES, CHIP(1608/5%/8.2Kohm)	
R215	CRJ10DJ332T	RES, CHIP(1608/5%/3.3Kohm)	
R216	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)	
R217	CRJ10DJ272T	RES, CHIP(1608/5%/2.7Kohm)	
R218	CRJ10DJ821T	RES, CHIP(1608/5%/820ohm)	
R219	CRJ10DJ221T	RES, CHIP(1608/5%/220ohm)	
R220	CRJ10DJ473T	RES, CHIP(1608/5%/47Kohm)	
R221	CRJ10DJ472T	RES, CHIP(1608/5%/4.7Kohm)	
R222	CRJ10DJ474T	RES, CHIP(1608/5%/470Kohm)	
R223	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)	
R224	CRJ10DJ472T	RES, CHIP(1608/5%/4.7Kohm)	
R225	CRJ10DJ221T	RES, CHIP(1608/5%/220ohm)	
R226	CRJ10DJ474T	RES, CHIP(1608/5%/470Kohm)	
R227	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)	
R228	CRJ10DJ472T	RES, CHIP(1608/5%/4.7Kohm)	
R229	CRJ10DJ472T	RES, CHIP(1608/5%/4.7Kohm)	
R230	CRJ10DJ221T	RES, CHIP(1608/5%/220ohm)	
R231	CRJ10DJ473T	RES, CHIP(1608/5%/47Kohm)	
R232	CRJ10DJ221T	RES, CHIP(1608/5%/220ohm)	
R233	CRJ10DJ272T	RES, CHIP(1608/5%/2.7Kohm)	
R234	CRJ10DJ821T	RES, CHIP(1608/5%/820ohm)	
R235	CRJ10DJ822T	RES, CHIP(1608/5%/8.2Kohm)	
R236	CRJ10DJ822T	RES, CHIP(1608/5%/8.2Kohm)	
R237	CRJ10DJ332T	RES, CHIP(1608/5%/3.3Kohm)	
R238	CRJ10DJ822T	RES, CHIP(1608/5%/8.2Kohm)	
R239	CRJ10DJ332T	RES, CHIP(1608/5%/3.3Kohm)	
R240	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)	
R300	CRJ10DJ1R0T	RES, CHIP(1608/5%/1ohm)	
R301	CRJ10DJ390T	RES, CHIP(1608/5%/39ohm)	
R302	CRJ10DJ222T	RES, CHIP(1608/5%/2.2Kohm)	
R303	CRJ10DJ223T	RES, CHIP(1608/5%/22Kohm)	
R304	CRJ10DJ1R0T	RES, CHIP(1608/5%/1ohm)	
R305	CRJ10DJ102T	RES, CHIP(1608/5%/1Kohm)	
R306	CRJ10DJ122T	RES, CHIP(1608/5%/1.2Kohm)	
R307	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)	

Ref NO	PART NUMBER	Description	REMARK
R308	CRJ10DJ102T	RES, CHIP(1608/5%/1Kohm)	
R309	CRJ10DJ473T	RES, CHIP(1608/5%/47Kohm)	
R310	CRJ10DJ221T	RES, CHIP(1608/5%/220ohm)	
R311	CRJ10DJ221T	RES, CHIP(1608/5%/220ohm)	
R312	CRJ10DJ4R7T	RES, CHIP(1608/5%/4.7ohm)	
R313	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)	
R400	CRJ10DJ470T	RES, CHIP(1608/5%/47ohm)	
R401	CRJ10DJ470T	RES, CHIP(1608/5%/47ohm)	
R402	CRJ10DJ470T	RES, CHIP(1608/5%/47ohm)	
R403	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)	
R404	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)	
R405	CRJ10DJ470T	RES, CHIP(1608/5%/47ohm)	
R406	CRJ10DJ470T	RES, CHIP(1608/5%/47ohm)	
R407	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)	
R408	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)	
R409	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)	
R410	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)	
R411	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)	
R412	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)	
R413	CRJ10DJ102T	RES, CHIP(1608/5%/1Kohm)	
R414	CRJ10DJ105T	RES, CHIP(1608/5%/1Mohm)	
R415	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)	
R416	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)	
R417	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)	
R418	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)	
R419	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)	
R420	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)	
R421	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)	
R422	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)	
R423	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)	
R424	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)	
R425	CRJ10DJ333T	RES, CHIP(1608/5%/33Kohm)	
X001	COX10000E120S	X-TAL, 10MHz, HC-49/SMD, 12pF	
X002	COX16934E120S	X-TAL, 16.934MHz, HC-49/SMD, 12pF, 25PPM	
C103	CCEA1EH470TC	CAP, ELECT(25V/47uF)	
C107	CCEA1AH470TC	CAP, ELECT(10V/47uF)	
C116	CCEA1EH470TC	CAP, ELECT(25V/47uF)	
C124	CCEA1AH470TC	CAP, ELECT(10V/47uF)	
C128	CCEA1EH470TC	CAP, ELECT(25V/47uF)	
C137	CCEA1EH470TC	CAP, ELECT(25V/47uF)	
C147	CCEA1EH470TC	CAP, ELECT(25V/47uF)	
C153	CCEA1CH471TC	CAP, ELECT(16V/470uF)	
C155	CCEA1EH470TC	CAP, ELECT(25V/47uF)	
C165	CCEA1EH470TC	CAP, ELECT(25V/47uF)	
C168	CCEA1EH470TC	CAP, ELECT(25V/47uF)	
C200	CCEA1EH470TC	CAP, ELECT(25V/47uF)	
C202	CCEA1EH470TC	CAP, ELECT(25V/47uF)	
C204	CCEA1HH1R0TC	CAP, ELECT(50V/1uF)	
C206	CCEA1HH100TC	CAP, ELECT(50V/10uF)	
C208	CCEA1EH470TC	CAP, ELECT(25V/47uF)	
C215	CCEA1EH470TC	CAP, ELECT(25V/47uF)	
C217	HCEA1HRA100T	ELECT, CAP(ELNA/RA-2)	
C218	HCEA1HRA100T	ELECT, CAP(ELNA/RA-2)	
C219	HCQ11H122JZT	CAP, MYLAR(50V/1200pF/J)	
C220	CCME2A221JR11T	CAP, PE-FILM(100V/220pF/J)	
C222	HCEA1ERA101T	ELECT, CAP(ELNA/RA-2)	
C223	HCEA1ERA101T	ELECT, CAP(ELNA/RA-2)	
C224	CCEA1ERA470T	CAP, ELECT(16V/47uF,ELNA/RA2, 5X11)	
C227	CCEA1ERA470T	CAP, ELECT(16V/47uF,ELNA/RA2, 5X11)	
C228	HCEA1ERA101T	ELECT, CAP(ELNA/RA-2)	
C229	HCEA1ERA101T	ELECT, CAP(ELNA/RA-2)	
C231	CCME2A221JR11T	CAP, PE-FILM(100V/220pF/J)	
C232	HCQ11H122JZT	CAP, MYLAR(50V/1200pF/J)	

Ref NO	PART NUMBER	Description	REMARK
C233	HCEA1HRA100T	ELECT , CAP(ELNA/RA-2)	
C234	HCEA1HRA100T	ELECT , CAP(ELNA/RA-2)	
C304	CCEA1EH101TC	CAP, ELECT(25V/100uF)	
C306	CCEA1CH471TC	CAP, ELECT(16V/470uF)	
C308	CCEA1CH471TC	CAP, ELECT(16V/470uF)	
C309	CCEA1EH101TC	CAP, ELECT(25V/100uF)	
C311	CCEA1CH101TC	CAP, ELECT(16V/100uF)	
C314	CCEA1HH100TC	CAP, ELECT(50V/10uF)	
C316	CCEA1HH220TC	CAP, ELECT(50V/22uF)	
C322	CCEA1CH101TC	CAP, ELECT(16V/100uF)	
C323	CCEA1HH2R2TC	CAP, ELECT(50V/2.2uF)	
C419	CCEA1HH100TC	CAP, ELECT(50V/10uF)	
C421	CCEA1EH470TC	CAP, ELECT(25V/47uF)	
C712	CCEA1CH101TC	CAP, ELECT(16V/100uF)	
D300	CVD1N4003SRT	DIODE , RECT	
D301	CVD1N4003SRT	DIODE , RECT	
D302	CVD1N4003SRT	DIODE , RECT	
D303	CVD1N4003SRT	DIODE , RECT	
D306	CVD1N4003SRT	DIODE , RECT	
D307	CVD1N4003SRT	DIODE , RECT	
D308	CVD1N4003SRT	DIODE , RECT	
D309	CVD1N4003SRT	DIODE , RECT	
D310	CVD1N4003SRT	DIODE , RECT	
D311	CVD1N4003SRT	DIODE , RECT	
D312	CVD1N4003SRT	DIODE , RECT	
D315	CVD1N4003SRT	DIODE , RECT	
D316	CVD1N4003SRT	DIODE , RECT	
ET41	CJT1A026	PLATE , EARTH(TRONIC ELECTRONICS)	
F101	KBA2D1000A3EYT	FUSE(1A, 372 SERIES/TR5)	
F102	KBA2D1000A3EYT	FUSE(1A, 372 SERIES/TR5)	
Q301	HVTKSA916YT	T.R	
CN01	CJP16GA117ZY	WAFER, FFC(17P-1mm, STRAIGHT)	
CN02	CJP08GA19ZY	WAFER, STRAIGHT, 8PIN	
CN03	CJP17GA115ZY	WAFER, FFC(17P-1.25mm, STRAIGHT)	
CN07	CJP13GA19ZY	WAFER, STRAIGHT, 13PIN	
CN08	CJP05GA19ZY	WAFER , STRAIGHT	
CN09	CJP13GA115ZY	WAFER, FFC(13P-1.25mm, STRAIGHT)	
C301	CCEA1CH222EC	CAP, ELECT(16V/2200uF)	
C305	CCEA1VH102EC	CAP, ELECT(35V/1000uF)	
C307	CCEA1VH102EC	CAP, ELECT(35V/1000uF)	
C310	CCEA1EH332E	CAP, ELECT(25V/3300uF)	
C312	CCEA1JH221EC	CAP , ELECT(63V/220uF)	
IC16	CVIKIA78R08PIBA	I.C HEAT SINK ASS'Y(CMY3A222)	
	CMY3A222-V1	HEAT SINK	
	CTB3+8JR	SCREW	
	CVIKIA78R08PI	I.C , REGULATOR(TO220IS-4)	
	K8AYG6260	COMPOUND , SILICONE	