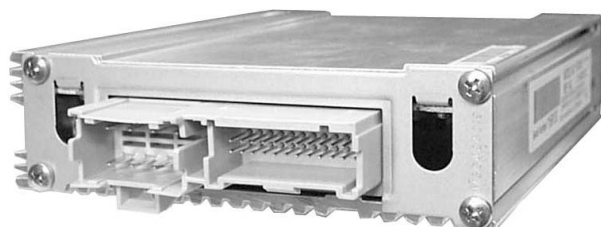


Service Manual

AUTOMOTIVE ELECTRONICS

GM CY-BG8013ZC

6-channels Power Amplifier



GM PART No. : 15762536

VEHICLE : Yukon, Tahoe, Suburban

DESTINATION : US /Mexico

PRODUCED AFTER: Jul., 1999

Specifications*

| | | | |
|----------------------|---|----------------------|--------------------------------------|
| General | | Output Noise | -67dBV max. (each channel) |
| Power Supply | DC 12V (11V - 16V) | Channel Separation | 55dB min. (at 500Hz) |
| | Test Voltage 13.2V | | |
| | Negative ground | | |
| Current Consumption | Less than 2A | Dimensions** (WxHxD) | 167.4 × 140 × 39.1 (mm) |
| Maximum Output Power | 20W × 5ch (FL, FR, RL, RR, AMB) (at 4Ω) | | (not including connector protrusion) |
| | 26W × 1ch (SUB) (at 4Ω) | Weight** | 1.0kg |
| Output Impedance | 4Ω (FL, FR, RL, RR, AMB) | | |
| | 2Ω (SUB) | | |
| Source Impedance | 600Ω or less | | |
| Input Level | 0dBV (1Vrms) | | |
| THD | 0.5% max. (FL, FR, RL, RR, AMB) | | |
| | 1.5% max. (SUB) | | |

* Specifications and the design are subject to possible modification without notice due to improvements.


** Dimensions and Weight shown are approximate.

• Above specifications comply with EIA standards.

WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by  in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

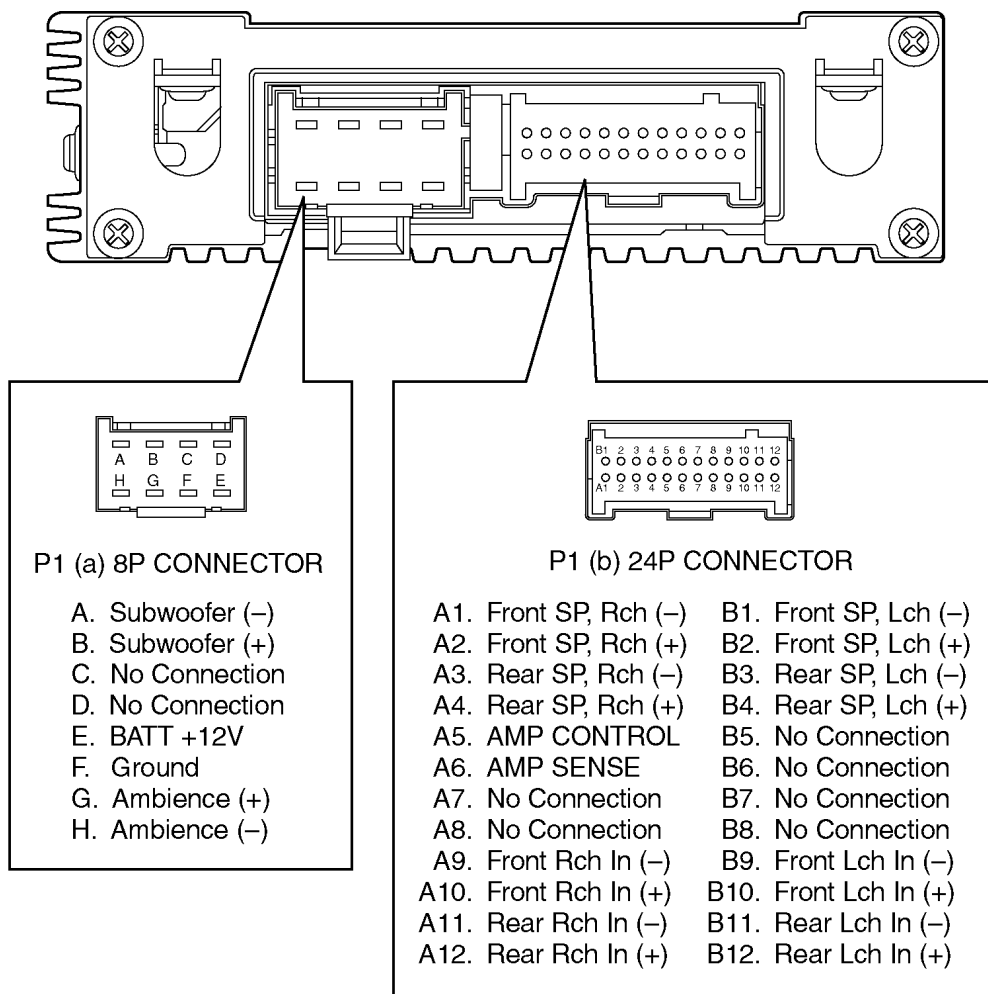
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1 FEATURES

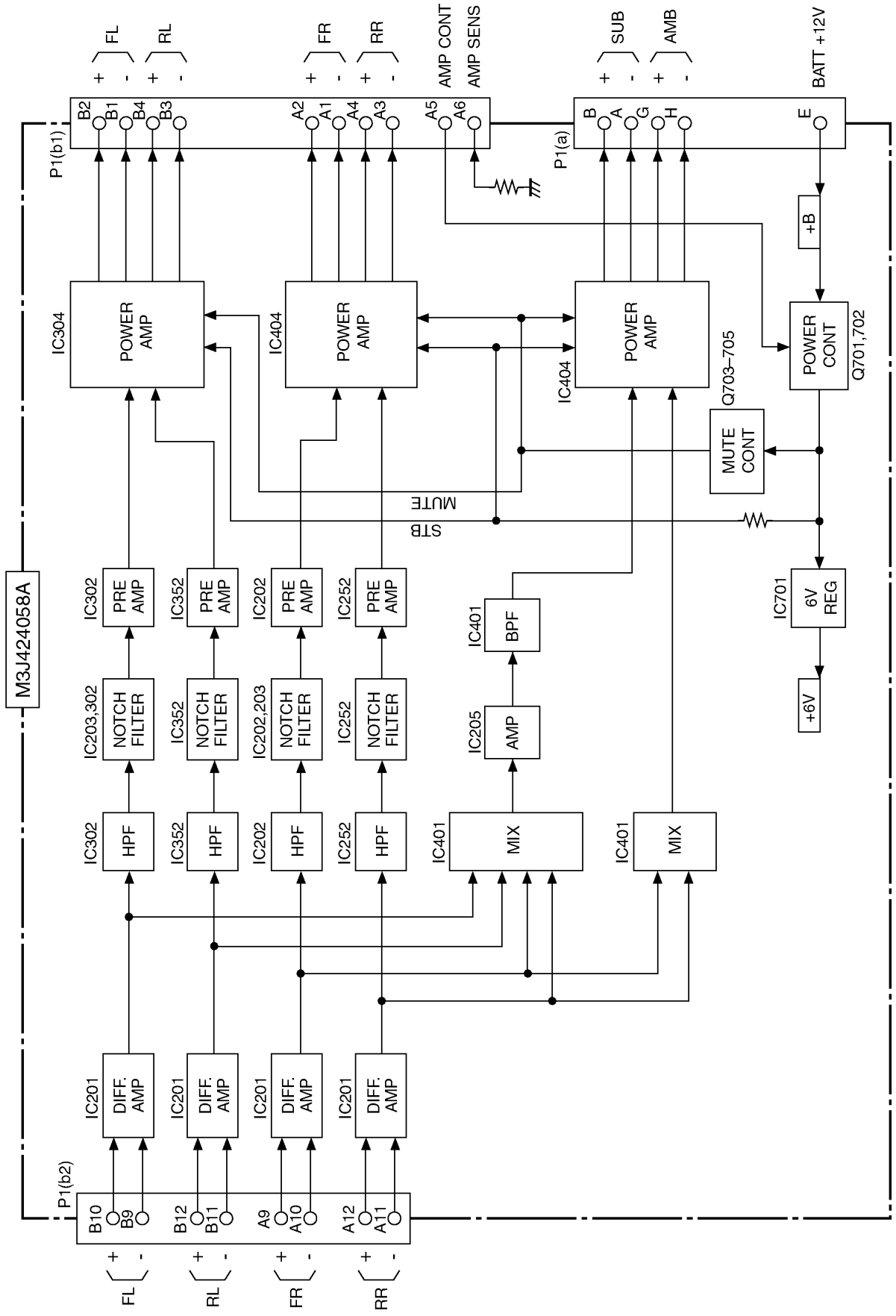
- 6 channels of amplification: LF, RF, LR, RR, AMB (Ambience) and SUB (Subwoofer).
- 3 bands of fixed equalization for each front channel.
2 bands of fixed equalization for each rear channel.
LPF for Subwoofer.
- The amplifier shall utilize AMP CONTROL to invoke amplifier function as follows:
For AMP CONTROL signal from 0 Vdc to 1.0 Vdc, amplifier shall be off.
For AMP CONTROL signal from 2.5 Vdc to voltage BATT12V terminal, amplifier shall be on.

2 REAR VIEW AND CONNECTORS



3 BLOCK DIAGRAM

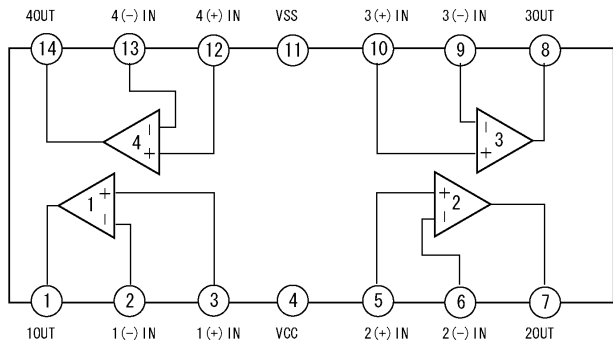
3.1. Main Block



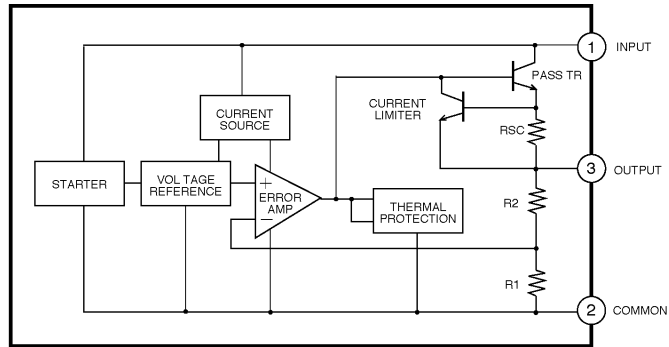
CY-BG8013ZC Block Diagram

4 PACKAGE AND IC BLOCK DIAGRAM

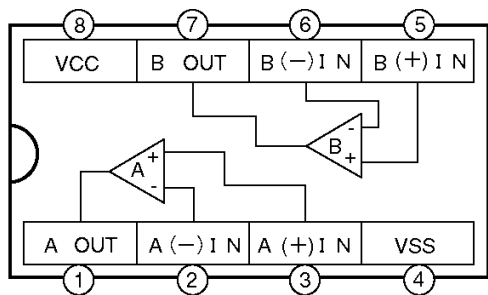
4.1. MAIN BLOCK



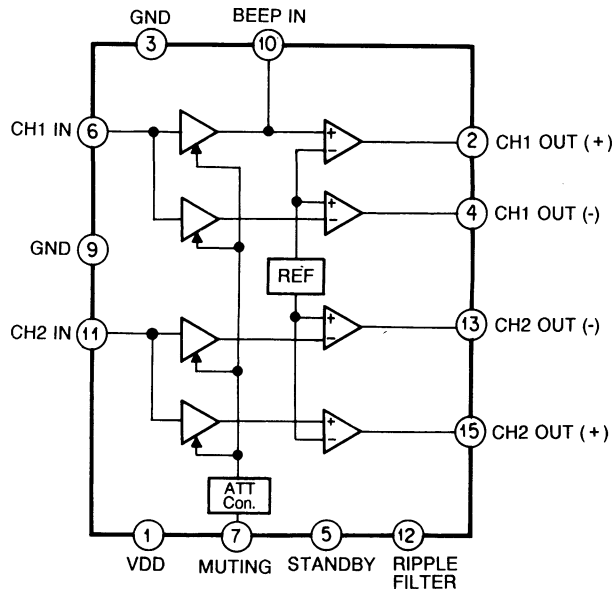
IC201, 202, 252 : YEAMPC4574E1
 IC302, 352, 401 : YEAMPC4574E1



IC701 : MC7806BT



IC203, 205 : YEAMPC4570E1



IC204, 304, 404 : AN7190NK

5 REPLACEMENT PARTS LIST

Notes :

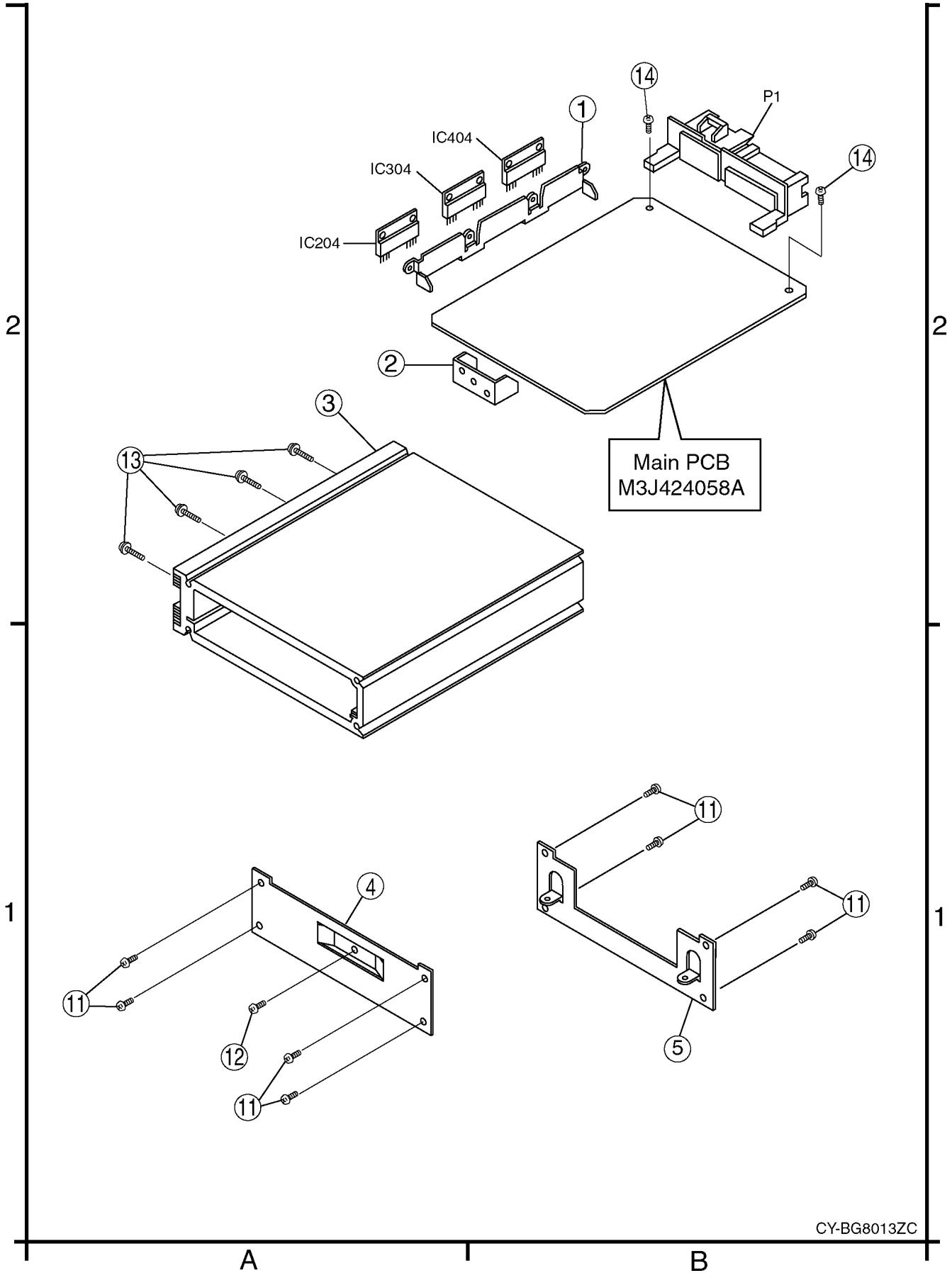
1. Be sure to make your orders of replacement parts according to this list.
2. Important safety notice: Components, identified by Δ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. Location keys in the remarks column indicates the general location of the parts shown in the exploded drawing, as in a road map.
4. The marking (RTL) indicates that Retention Time is limited for this item. After the discontinuation of assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependent on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.
5. "MCC" marks in remarks column are indicated supply parts of Matsushita Communication Industrial Corp. of America (MCC).

| Ref. No. | Part No. | Part Name & Description | Remarks |
|----------------------|--------------|-------------------------------|---------|
| [M3J424058A] | | | |
| IC's and TRANSISTORS | | | |
| IC201 | YEAMPC4574E1 | IC | MCC |
| IC202 | YEAMPC4574E1 | IC | MCC |
| IC203 | YEAMPC4570E1 | IC | MCC |
| IC204 | AN7190NK | IC | |
| IC205 | YEAMPC4570E1 | IC | MCC |
| IC252 | YEAMPC4574E1 | IC | MCC |
| IC302 | YEAMPC4574E1 | IC | MCC |
| IC304 | AN7190NK | IC | |
| IC352 | YEAMPC4574E1 | IC | MCC |
| IC401 | YEAMPC4574E1 | IC | MCC |
| IC404 | AN7190NK | IC | |
| IC701 | MC7806BT | IC | MCC |
| Q701 | 2SB1073TX | Transistor | |
| Q702 | YEANC3661TA | Transistor | |
| Q703 | B1ABCF000042 | Transistor | |
| Q704 | YEANC3661TA | Transistor | |
| Q705 | YEANC3661TA | Transistor | |
| DIODES | | | |
| D201 | MA3X15300L | Diode | MCC |
| D202 | MA3X15300L | Diode | MCC |
| D251 | MA3X15300L | Diode | MCC |
| D252 | MA3X15300L | Diode | MCC |
| D301 | MA3X15300L | Diode | MCC |
| D302 | MA3X15300L | Diode | MCC |
| D351 | MA3X15300L | Diode | MCC |
| D352 | MA3X15300L | Diode | MCC |
| D701 | YEAD30D2FC6 | Diode | |
| D702 | MA3X15300L | Diode | MCC |
| D703 | YEAD30D2FC6 | Diode | |
| D704 | MA3X15300L | Diode | MCC |
| D705 | MA3X15300L | Diode | MCC |
| CAPACITORS | | | |
| C200 | YECUS1H221JM | Ceramic, 220PF 50WV | |
| C201 | ECEALCSN100I | Electrolytic, 10 μ F 16WV | |
| C202 | ECEALCSN100I | Electrolytic, 10 μ F 16WV | |
| C203 | YECUS1H221JM | Ceramic, 220PF 50WV | |
| C204 | YECUS1H221JM | Ceramic, 220PF 50WV | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|----------|--------------|---------------------------------|---------|
| C205 | YECUS1E473KX | Ceramic, 0.047 μ F 25WV | |
| C206 | YECUS1E473KX | Ceramic, 0.047 μ F 25WV | |
| C207 | FLJ1C274A006 | Ceramic, 0.27 μ F 16WV | |
| C208 | YECUS1H273KX | Ceramic, 0.027 μ F 50WV | |
| C209 | YECUS1H183KX | Ceramic, 0.018 μ F 50WV | |
| C210 | YECUS1H273KX | Ceramic, 0.027 μ F 50WV | |
| C211 | FLJ1H223A035 | Ceramic, 0.022 μ F 50WV | |
| C212 | YECUS1H122KX | Ceramic, 1200PF 50WV | |
| C221 | ECEALCKA100I | Electrolytic, 10 μ F 16WV | |
| C222 | YECUS1H152KX | Ceramic, 1500PF 50WV | |
| C223 | YECUS1C224KX | Ceramic, 0.22 μ F 16WV | |
| C224 | YECUS1C224KX | Ceramic, 0.22 μ F 16WV | |
| C225 | YECUS1H471JM | Ceramic, 470PF 50WV | |
| C226 | YECUS1H471JM | Ceramic, 470PF 50WV | |
| C227 | YECUS1H471JM | Ceramic, 470PF 50WV | |
| C228 | YECUS1H471JM | Ceramic, 470PF 50WV | |
| C231 | YECUS1H103KX | Ceramic, 0.01 μ F 50WV | |
| C232 | ECEALCKA100I | Electrolytic, 10 μ F 16WV | |
| C233 | ECA1CM222B | Electrolytic, 2200 μ F 16WV | |
| C241 | YECUS1H104KX | Ceramic, 0.1 μ F 50WV | |
| C242 | YECUS1H104KX | Ceramic, 0.1 μ F 50WV | |
| C243 | YECUS1H104KX | Ceramic, 0.1 μ F 50WV | |
| C244 | YECUS1H104KX | Ceramic, 0.1 μ F 50WV | |
| C245 | YECUS1H104KX | Ceramic, 0.1 μ F 50WV | |
| C246 | YECUS1C224KX | Ceramic, 0.22 μ F 16WV | |
| C247 | YECUS1H102KX | Ceramic, 1000PF 50WV | |
| C248 | YECUS1C224KX | Ceramic, 0.22 μ F 16WV | |
| C249 | YECUS1H102KX | Ceramic, 1000PF 50WV | |
| C250 | YECUS1H221JM | Ceramic, 220PF 50WV | |
| C251 | ECEALCSN100I | Electrolytic, 10 μ F 16WV | |
| C252 | ECEALCSN100I | Electrolytic, 10 μ F 16WV | |
| C253 | YECUS1H221JM | Ceramic, 220PF 50WV | |
| C254 | YECUS1H221JM | Ceramic, 220PF 50WV | |
| C255 | YECUS1E473KX | Ceramic, 0.047 μ F 25WV | |
| C256 | YECUS1E473KX | Ceramic, 0.047 μ F 25WV | |
| C257 | FLJ1C394A006 | Ceramic, 0.39 μ F 16WV | |
| C258 | FLJ1H223A035 | Ceramic, 0.022 μ F 50WV | |
| C259 | YECUS1C563KX | Ceramic, 0.056 μ F 16WV | |
| C260 | FLJ1H182A509 | Ceramic, 1800PF 50WV | |
| C271 | ECEALCKA100I | Electrolytic, 10 μ F 16WV | |
| C272 | YECUS1H152KX | Ceramic, 1500PF 50WV | |
| C273 | YECUS1C224KX | Ceramic, 0.22 μ F 16WV | |
| C274 | YECUS1C224KX | Ceramic, 0.22 μ F 16WV | |
| C275 | YECUS1H471JM | Ceramic, 470PF 50WV | |
| C276 | YECUS1H471JM | Ceramic, 470PF 50WV | |
| C277 | YECUS1H471JM | Ceramic, 470PF 50WV | |
| C278 | YECUS1H471JM | Ceramic, 470PF 50WV | |
| C300 | YECUS1H221JM | Ceramic, 220PF 50WV | |
| C301 | ECEALCSN100I | Electrolytic, 10 μ F 16WV | |
| C302 | ECEALCSN100I | Electrolytic, 10 μ F 16WV | |
| C303 | YECUS1H221JM | Ceramic, 220PF 50WV | |
| C304 | YECUS1H221JM | Ceramic, 220PF 50WV | |
| C305 | YECUS1E473KX | Ceramic, 0.047 μ F 25WV | |
| C306 | YECUS1E473KX | Ceramic, 0.047 μ F 25WV | |
| C307 | YECUS1C563KX | Ceramic, 0.056 μ F 16WV | |
| C308 | YECUS1C154KX | Ceramic, 0.15 μ F 16WV | |
| C309 | YECUS1E393KX | Ceramic, 0.039 μ F 25WV | |
| C310 | YECUS1C683KX | Ceramic, 0.068 μ F 16WV | |
| C311 | FLJ1H223A035 | Ceramic, 0.022 μ F 50WV | |
| C312 | YECUS1H122KX | Ceramic, 1200PF 50WV | |
| C321 | ECEALCKA100I | Electrolytic, 10 μ F 16WV | |
| C322 | YECUS1H152KX | Ceramic, 1500PF 50WV | |
| C323 | YECUS1C224KX | Ceramic, 0.22 μ F 16WV | |
| C324 | YECUS1C224KX | Ceramic, 0.22 μ F 16WV | |
| C325 | YECUS1H471JM | Ceramic, 470PF 50WV | |
| C326 | YECUS1H471JM | Ceramic, 470PF 50WV | |
| C327 | YECUS1H471JM | Ceramic, 470PF 50WV | |
| C328 | YECUS1H471JM | Ceramic, 470PF 50WV | |
| C331 | YECUS1H103KX | Ceramic, 0.01 μ F 50WV | |
| C332 | ECEALCKA100I | Electrolytic, 10 μ F 16WV | |
| C333 | ECA1CM222B | Electrolytic, 2200 μ F 16WV | |
| C341 | YECUS1H104KX | Ceramic, 0.1 μ F 50WV | |
| C342 | YECUS1H104KX | Ceramic, 0.1 μ F 50WV | |

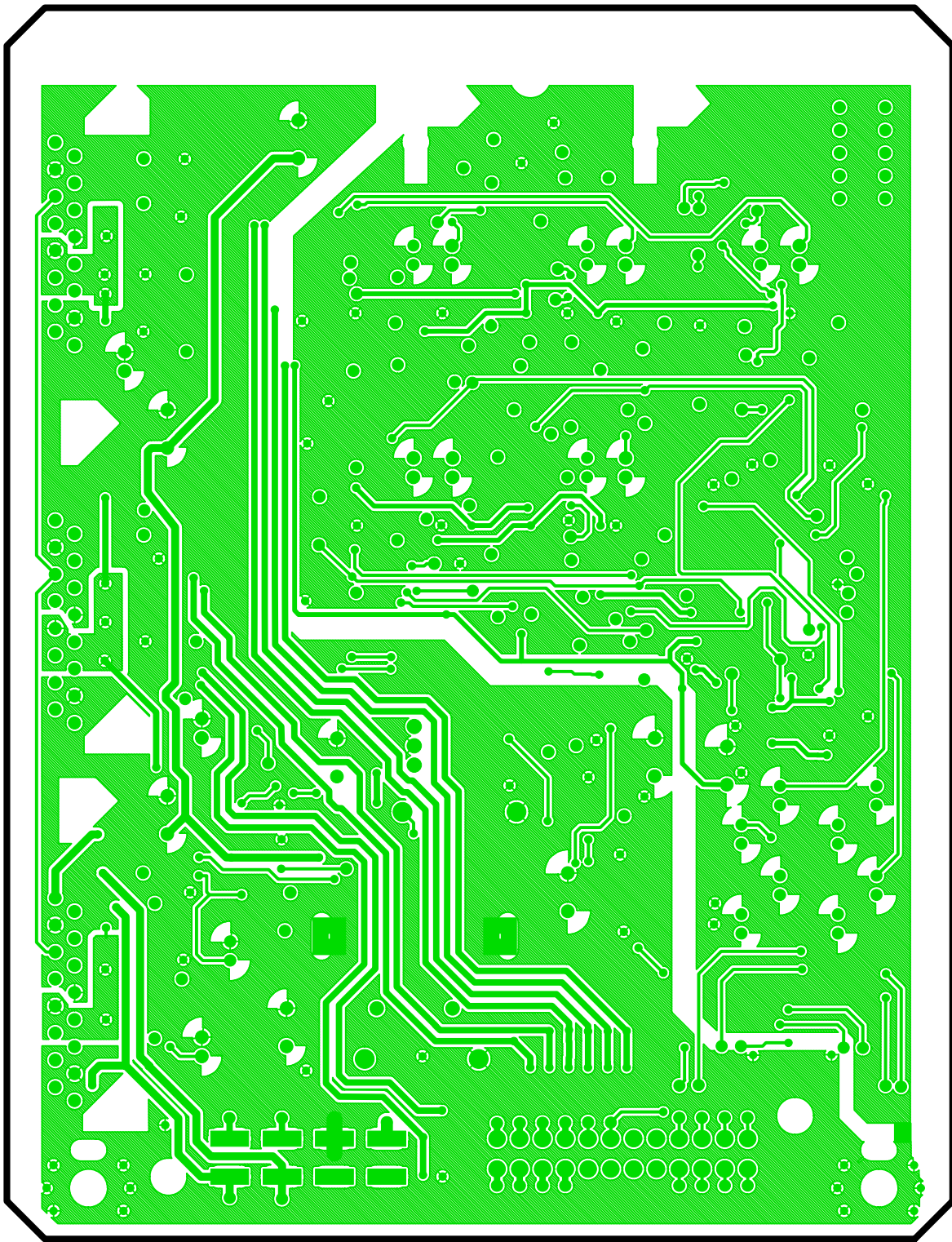
| Ref. No. | Part No. | Part Name & Description | Remarks |
|------------------|--------------|----------------------------|---------|
| R404 | ERJ6GEYJ273 | Chip, 27k Ω 1/10W | |
| R405 | ERJ6GEYJ223 | Chip, 22k Ω 1/10W | |
| R406 | ERJ6ENF4752V | Chip, 47.5k Ω 1/10W | |
| R407 | ERJ6GEYJ822 | Chip, 8.2k Ω 1/10W | |
| R408 | ERJ6GEYJ682 | Chip, 6.8k Ω 1/10W | |
| R421 | ERJ6GEYJ392 | Chip, 3.9k Ω 1/10W | |
| R422 | ERJ6GEYJ272 | Chip, 2.7k Ω 1/10W | |
| R423 | ERJ6GEYJ2R2 | Chip, 2.2 Ω 1/10W | |
| R424 | ERJ6GEYJ2R2 | Chip, 2.2 Ω 1/10W | |
| R451 | ERJ6GEYJ223 | Chip, 22k Ω 1/10W | |
| R452 | ERJ6ENF4752V | Chip, 47.5k Ω 1/10W | |
| R471 | ERJ6GEYJ822 | Chip, 8.2k Ω 1/10W | |
| R472 | ERJ6GEYJ272 | Chip, 2.7k Ω 1/10W | |
| R473 | ERJ6GEYJ2R2 | Chip, 2.2 Ω 1/10W | |
| R474 | ERJ6GEYJ2R2 | Chip, 2.2 Ω 1/10W | |
| R475 | ERJ6GEYJ101 | Chip, 100 Ω 1/10W | |
| R701 | ERJ6GEYJ222 | Chip, 2.2k Ω 1/10W | |
| R702 | ERJ6GEYJ222 | Chip, 2.2k Ω 1/10W | |
| R703 | ERJ6GEYJ223 | Chip, 22k Ω 1/10W | |
| R704 | ERJ6GEYJ123 | Chip, 12k Ω 1/10W | |
| R705 | ERJ6GEYJ564 | Chip, 560k Ω 1/10W | |
| R706 | ERJ6GEYJ104 | Chip, 100k Ω 1/10W | |
| R707 | ERJ6GEYJ103 | Chip, 10k Ω 1/10W | |
| R709 | ERJ6GEYJ223 | Chip, 22k Ω 1/10W | |
| R710 | ERJ6GEYJ393 | Chip, 39k Ω 1/10W | |
| R711 | ERJ6GEYJ103 | Chip, 10k Ω 1/10W | |
| R712 | ERJ6GEYJ822 | Chip, 8.2k Ω 1/10W | |
| R713 | ERJ6GEYJ822 | Chip, 8.2k Ω 1/10W | |
| R714 | ERJ6GEYJ272 | Chip, 2.7k Ω 1/10W | |
| R717 | ERJ6GEY0R00 | Chip, 0 Ω 1/10W | |
| R721 | ERJ6GEYJ471 | Chip, 470 Ω 1/10W | |
| R8013 | ERJ6GEYJ103 | Chip, 10k Ω 1/10W | |
| | | | |
| | | | |
| COILS | | | |
| L701 | YETQ026F048A | Coil | |
| | | | |
| | | | |
| | | | |
| Mechanical Parts | | | |
| MISCELLANEOUS | | | |
| P1 | M4Z424088 | Connector | MCC |
| 1 | M2G424004A | Fixture, IC | MCC |
| 2 | M2G424005 | Fixture, PCB | MCC |
| 3 | M3F424022 | Chassis, Amplifier | MCC |
| 4 | M3G424020 | End Cap, (L) | MCC |
| 5 | M3G424019 | End Cap, (R) | MCC |
| 11 | XTB4+12BFX | Screw, M4 x 12 | |
| 12 | XTB3+6FFX | Screw, M3 x 16 | |
| 13 | YEJT03038 | Screw, M3 x 16 | |
| 14 | YEJT03015 | Screw, M3 x 6 | |
| | | | |

6 EXPLODED VIEW



CY-BG8013ZC

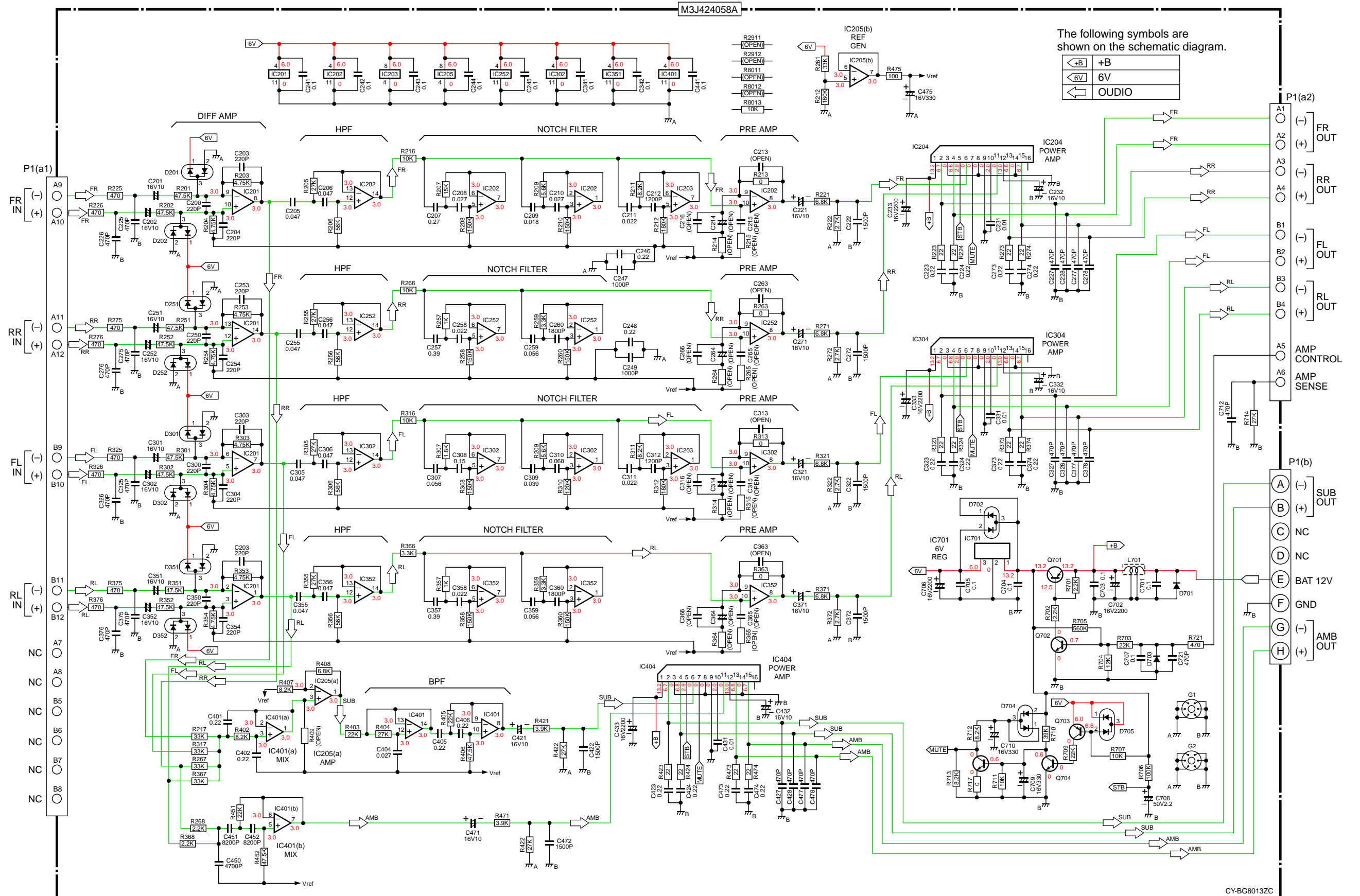
7.2. Main Block-2 (Bottom View)



[M3J424058A] [Bottom View]

8 SCHEMATIC DIAGRAM

8.1. Main Block



CY-BG80132C

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