



# TSS-Sub800

## (TSS-800 SYSTEM)

# SERVICE MANUAL



Infinity Systems Incorporated  
250 Crossways Park Dr.  
Woodbury, New York 11797

Rev1 1/2008

**Note: The TSS-Sub800 is part of the TSS-800 system**

**Satellite loudspeakers:**

**(Charcoal) order Infinity part# TSS800CHR Sat-S-EP**

**(Platinum) order Infinity part# TSS800PLT Sat-S-EP**

**Center channel:**

**(Charcoal) order Infinity part# TSS-800CHR CEN-E**

**(Platinum) order Infinity part# TSS-800PLT CEN-E**

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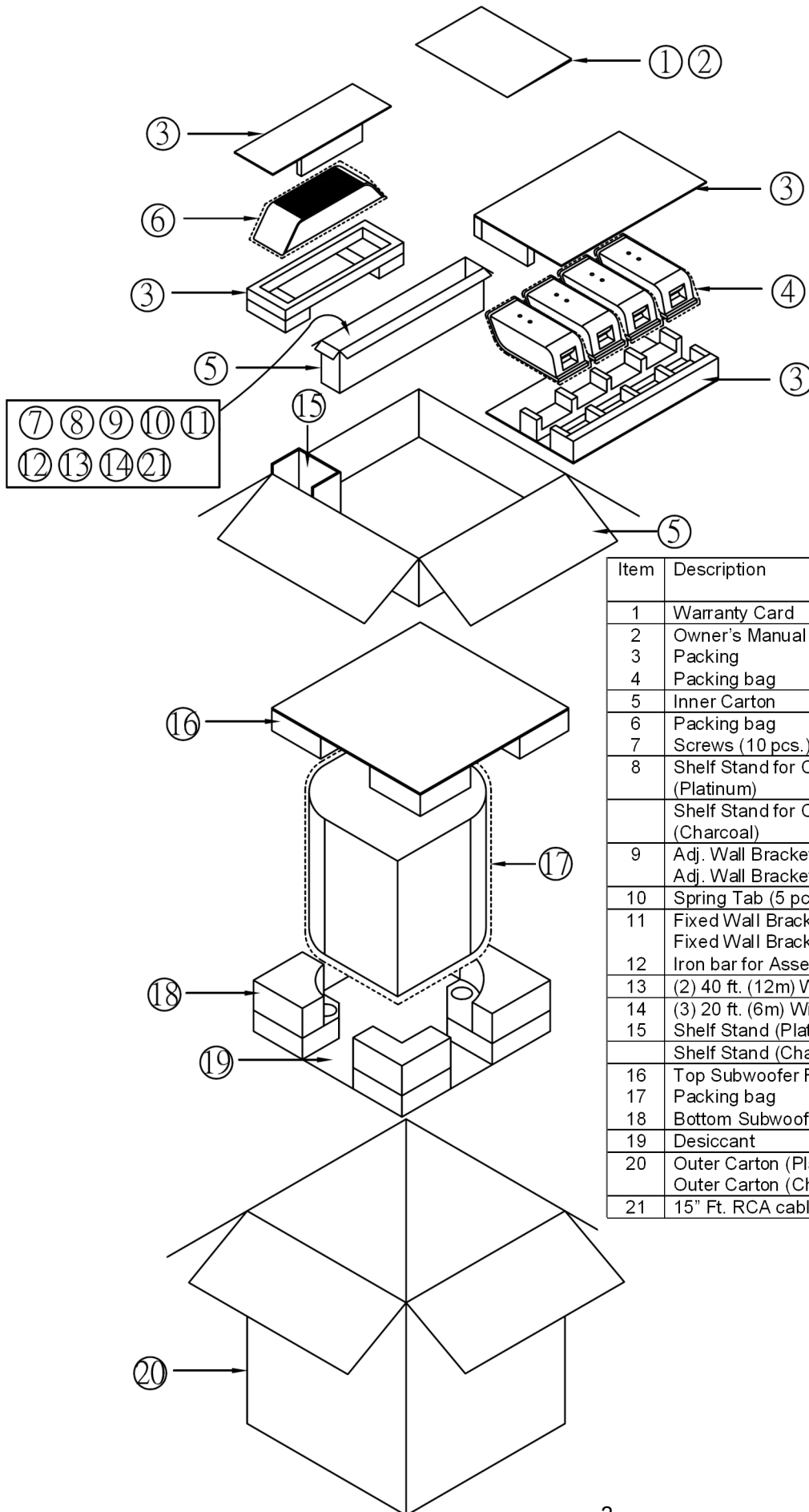
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### TSS-Sub800 Specifications

|                         |  |
|-------------------------|--|
| Frequency Range:        | 34Hz – 150Hz (±3dB)                              |
| Amplifier Output:       | 150 watts RMS, 300 watts Peak                    |
| Low-Frequency Driver:   | 10" (254mm)                                      |
| Crossover Frequency:    | 50Hz – 150Hz, 24dB/Octave, continuously variable |
| Dimensions (H x W x D): | 15-3/4" x 14" x 15" (400mm x 356mm x 381mm)      |
| Weight:                 | 34.6 lb (15.7kg)                                 |

Infinity continually strives to update and improve existing products, as well as create new ones. The specifications and construction details in this and related Infinity publications are therefore subject to change without notice.

# PACKAGING



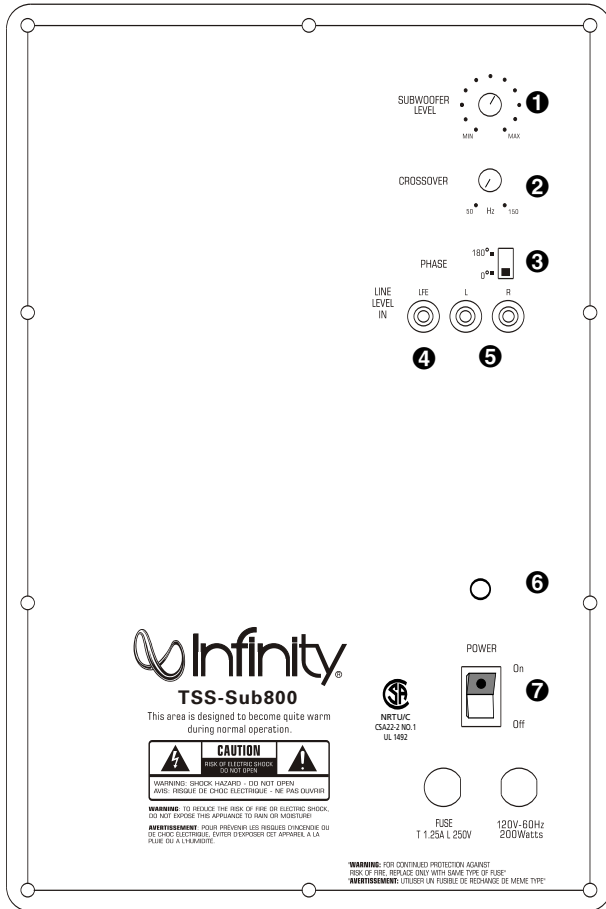
| Item | Description                       | Part Number       | Qty    |
|------|-----------------------------------|-------------------|--------|
| 1    | Warranty Card                     | 405-000-05110-E   | 1      |
| 2    | Owner's Manual                    | 406-000-05309-E   | 1      |
| 3    | Packing bag                       |                   | 1      |
| 4    | Packing bag                       |                   | 4      |
| 5    | Inner Carton                      |                   | 1      |
| 6    | Packing bag                       |                   | 1      |
| 7    | Screws (10 pcs.)                  | 371-000-05126-E   | 1 set  |
| 8    | Shelf Stand for Center (Platinum) | 376-000-01075-E   | 1      |
|      | Shelf Stand for Center (Charcoal) | 376-000-01074-E   | 1      |
| 9    | Adj. Wall Bracket (Platinum)      | 376-000-01076-E   | 5 sets |
|      | Adj. Wall Bracket (Charcoal)      | 376-000-01077-E   | 5 sets |
| 10   | Spring Tab (5 pcs.)               | 376-000-01078-E   | 1 set  |
| 11   | Fixed Wall Bracket (Platinum)     | 376-000-01071-E   | 5 sets |
|      | Fixed Wall Bracket (Charcoal)     | 376-000-01070-E   | 5 sets |
| 12   | Iron bar for Assembly             | 376-000-01069-E   | 1      |
| 13   | (2) 40 ft. (12m) Wire Set         | 370-000-00276-E   | 2 sets |
| 14   | (3) 20 ft. (6m) Wire Set          | 370-000-00277-E   | 3 sets |
| 15   | Shelf Stand (Platinum)            | 325-AL-05153-0VAE | 4      |
|      | Shelf Stand (Charcoal)            | 325-AL-05153-0BAE | 4      |
| 16   | Top Subwoofer Foam                | 431-000-05693-E   | 1      |
| 17   | Packing bag                       |                   | 1      |
| 18   | Bottom Subwoofer Foam             | 431-000-05694-E   | 1      |
| 19   | Desiccant                         |                   | 1      |
| 20   | Outer Carton (Platinum)           | 402-000-05540-E   | 1      |
|      | Outer Carton (Charcoal)           | 402-000-05541-E   | 1      |
| 21   | 15" Ft. RCA cable, subwoofer      | 166-015F011-E     | 1      |

| TSS-Sub800 100W Powered Sub/ Plate Amp |               |            |                |   |   |
|--|---------------|------------|----------------|---|---|
| LINE VOLTAGE                           | Yes/No        | Hi/Lo Line | Unit           | Notes   |   |
| US 120VAC/60Hz                         | Yes           | 108-132    | Vrms           | Normal Operation  |   |
| Europe 220-240VAC, 50-60Hz             | Yes           | 220-230    | Vrms           | Normal Operation  |   |
| Parameter                              | Specification | Unit       | QA Test Limits | Conditions  | Notes   |
| Amp Section                            |               |            |                |   |   |
| Type (Class AB, D, other)              | AB            | AB         | n/a            | 120V Model  | External heatsink required  |
| Type (Class AB, D, other)              | G             | G          | n/a            | 230V Model  | External heatsink required  |
| Load Impedance (speaker)               | 4             | Ohms       | n/a            | Nominal   |   |
| Rated Output Power                     | 100           | Watts      | 95             | Single input driven   |   |
| THD@ Rated Power                       | 0.5           | %          | 1              | 22K filter  |   |
| THD @ 1 Watt                           | 0.1           | %          | 0.3            | 22K filter  |   |
| DC Offset                              | 10            | mV-DC      | 50             | @ Speaker Output  |   |
| Damping factor                         | >100          | DF         | 100            | 50Hz-4 Ohms load  | Measured at amplifier board speaker output terminals, Output power 90 Watts.                          |
| Input Sensitivity                      |               |            |                |   |   |
| Input Frequency                        | 50            | Hz         | 50             | Nominal Freq.   |   |
| Line Input (L&R)                       | 15.62         | mVrms      | ±2dB           | To 1 Watt   | Single input driven, AP Zo=600 Ohms   |
| LFE Input                              | 10.36         | mVrms      | ±2dB           | To 1 Watt   | LFE input driven only, AP Zo=600 Ohms   |
| Signal to Noise                        |               |            |                |   |   |
| SNR-A-Weighted                         | 100           | dBA        | 85             | rel. to rated power   | A-Weighting filter  |
| SNR-unweighted                         | 80            | dBr        | 80             | rel. to rated power   | 22K filter  |
| SNR @ 1W-unweighted                    | 60            | dBr        | 60             | rel. to 1W Output   | 22K filter  |
| Residual Noise Floor                   | 1.5           | mVrms      | 2.5            | Volume @max, using RMS reading<br>DMM/VOM (or A/P)                        |   |
| Residual Noise Floor                   | 1             | mVrms(max) | 2              | Volume @max, w/ A/P Swept Bandpass<br>Measurement (Line freq.+ harmonics) |   |
| Input Impedance                        |               |            |                |   |   |
| Line input L&R , LFE                   | >10           | K ohms     | n/a            | Nominal   |   |
| Filters                                |               |            |                |   |   |
| Low Pass (fixed or variable)           | 4th order     | --         | ±2dB           | 2nd order variable 50-150Hz + 2nd order<br>fix                            |   |
| Slope & Q                              |               |            | n/a            |   |   |
| Subsonic filter (HPF)                  | 2nd order fix | Hz         | ±2dB           |   |   |
| Slope & Q                              |               |            | n/a            |   |   |
| Limiter (yes/no)                       |               |            |                |   |   |
| THD at Max. Output Power               | YES           | --         | Functional     |   |   |
|  | 1             | %          | Functional     |   |   |
| Features                               |               |            |                |   |   |
| LFE Input                              | YES           |            | Functional     |   |   |
| Phase Switch (yes/no)                  | YES           | --         | Functional     |   |   |
| Volume pot Taper (lin/log)             | LOG           | --         | Functional     |   |   |
| ATO                                    | YES           |            | Functional     |   |   |
| Input Configuration                    |               |            |                |   |   |
| Line In (L,R)                          | L ,R          | --         | Functional     |   | RCA inputs (L&R)  |
| Line level in LFE                      | LFE           |            | Functional     |   | RCA single input  |
| Signal Sensing (ATO)                   |               |            |                |   |   |
| Auto-Turn-On (yes/no)                  | YES           | --         | Functional     |   |   |
| ATO Input Frequency                    | 50            | Hz         | Functional     |   |   |
| ATO Level                              | 2             | mV         | Functional     | driven  |   |
| ATO Turn-on time                       | 5             | ms         | Functional     | Amp connected and AC on, then input<br>signal applied                     |   |
| Auto Mute/ Turn-OFF Time               | 10            | minutes    | Functional     | T before muting, after signal is removed                                  | Auto turn of time (T) must be 5 > T <15   |
| Power on Delay time                    |               |            |                |   |   |
|  | 3             | sec.       | Functional     | AC Power Applied  |   |
| Transients/Pops                        |               |            |                |   |   |
| ATO Transient                          | 5             | mV-peak    | 10             | @ Speaker Outputs   |   |
| Turn-on Transient                      | 50            | mV-peak    | 100            | @ Speaker Outputs   | AC Line cycled from OFF to ON   |
| Turn-off Transient                     | 50            | mV-peak    | 100            | @ Speaker Outputs   | AC Line cycled from ON to OFF   |
| Efficiency                             |               |            |                |   |   |
| Stand-by Input Power                   | 14            | Watts      | 18             | @ nom. line voltage   | Maximum allowable input power under<br>nominal Input voltage and frequency, HOT<br>or COLD operation. |
| Power Cons.@rated power                | 195           | Watts      | 210            | @ nom. line voltage   | 100 Watts @ 4 Ohms  |

| Parameter                | Specification | Unit | QA Test Limits | Conditions   | Notes   |
|--------------------------|---------------|------|----------------|--|---|
| <b>Protection</b>        |               |      |                |  |   |
| Short Circuit Protection | YES           | --   | Functional     | Direct short at output                                     |   |
| Thermal Protection       | 65 deg. C     | --   | Functional     | @1/8 max unclipped Power                                   | Temperature rise should not exceed 35K rise   |
| DC Offset Protection     | YES           | --   | Functional     | DC present at Speaker Out leads                            | Relay or crowbar (for driver/fire protection) |
| Line Fuse Rating         |               |      |                |  | External fuse with UL/SEMKO rated holder      |
| 120 VAC                  | 2.5           | Amps |                | Type-T or Slo Blo, Fuse markings T2.5A, 250V               |   |
| 230 VAC                  | 1.25          | Amps |                | Type-T, Low breaking capacity, Fuse markings T1.25AL, 250V |   |

# SUBWOOFER CONTROLS

## Rear Panel



- 1 Subwoofer-Level Control
- 2 Crossover-Frequency Adjustment
- 3 Phase Switch
- 4 LFE Input
- 5 Line-Level Inputs
- 6 Power Indicator LED
- 7 Power Switch

### A Few Suggestions

We recommend that you do not operate your speakers or subwoofer with the bass, treble and loudness controls set to full boost. This will place undue strain on your electronics and speakers and could damage them.

The volume control setting on your processor/preamp or receiver is not a specific indication of the overall loudness level of the speakers. The only important consideration is the loudness level at which the system can be played, regardless of where the volume control is set.

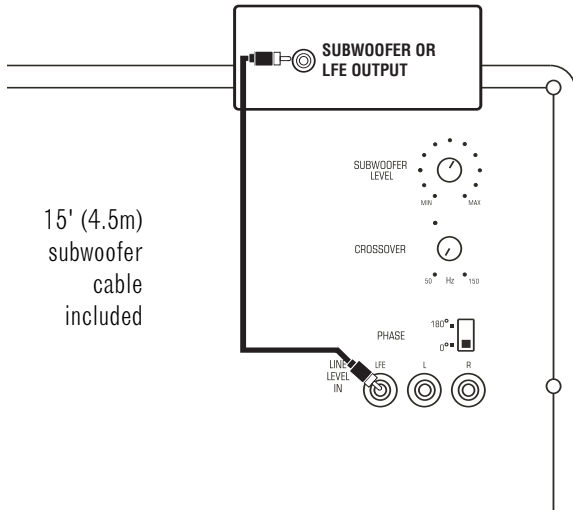
Always turn down the volume control setting on your processor/preamp or receiver when changing sources, or switching inputs to AM or FM operation. Excessively loud transients (clicks or popping sounds) can damage the satellite speakers and possibly the subwoofer.

### Important!

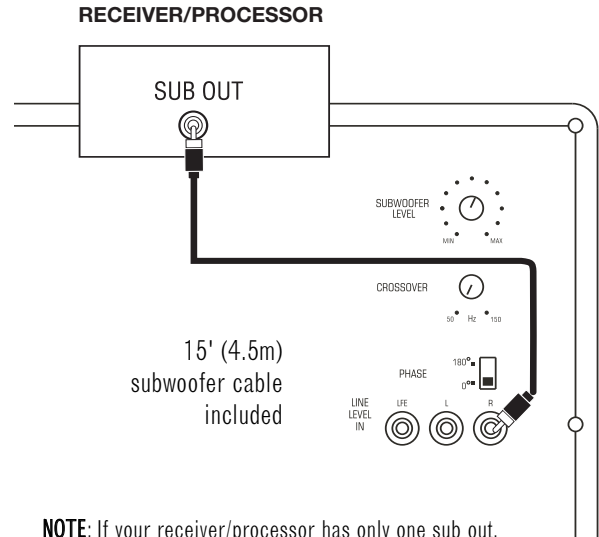
Whenever changing cables, pulling plugs, etc., ALWAYS TURN OFF ALL EQUIPMENT, including the subwoofer.

## SUBWOOFER CONNECTIONS

If you have a Dolby® Digital or DTS® receiver/processor with a low-frequency-effects (LFE) or subwoofer output:



If your receiver/processor does not contain a Dolby Digital or DTS processor but has a subwoofer output:



**NOTE:** If your receiver/processor has only one sub out, you may use either the L or R input.

## OPERATION

### Surround Modes

When using the TSS-800 in a Dolby Digital or DTS home theater system, make sure all speakers are set to "Small". In a Dolby Pro Logic® home theater system, make sure the receiver's center channel mode is set to "Normal."

Some Dolby Digital-equipped receivers/processors offer different setup options for each source or surround mode (e.g., CD-stereo, videotape, Dolby, Pro Logic). In each case, follow your equipment's instructions to ensure that the subwoofer output is turned on and that the speakers are set to "Small" in each mode.

### Power On

Plug your subwoofer's AC cord into a wall outlet. Do not use the outlets on the back of the receiver.

Initially set the Subwoofer Level Control **1** to the "MIN" position.

Turn on the subwoofer by pressing the Power Switch **7** on the rear panel.

Turn on your entire audio system and start a CD or movie soundtrack at a moderate level.

### Auto On/Standby

With the Power Switch **7** in the ON position, the LED on the rear panel **6** will remain lit in green or red to indicate the ON or STANDBY mode of the subwoofer.

RED = STANDBY (No signal detected, Amp Off)

GREEN = ON (Signal detected, Amp On)

The subwoofer will automatically enter the Standby mode after approximately 10 minutes when no signal is detected from your system. The subwoofer will then power on instantly when a signal is detected. During periods of normal use, the Power Switch **7** can be left on. You may turn off the Power Switch **7** for extended periods of nonoperation, e.g., when you are away on vacation.

### Adjust Level

Turn the Subwoofer Level Control **1** up about halfway. If no sound emanates from the subwoofer, check the AC-line cord and input cables. Are the connectors on the cables making proper contact? Is the AC plug connected to a "live" receptacle? Has the Power Switch **7** been pressed to the ON position? Once you have confirmed that the subwoofer is active, proceed by playing a CD or DVD. Use a selection that has ample bass information.

Set the overall volume control of the receiver/processor to a comfortable level. Adjust the Subwoofer Level Control **1** until you obtain a pleasing blend of bass. Bass response should not overpower the room but rather be adjusted so there is a harmonious blend across the entire musical range. Many users have a tendency to set the subwoofer volume too loud, adhering to the belief that a subwoofer is there to produce lots of bass. This is not entirely true. A subwoofer is there to enhance bass, extending the response of the entire system so the bass can be felt as well as heard. However, overall balance must be maintained or the music will not sound natural. An experienced listener will set the volume of the subwoofer so its impact on bass response is always there but never obtrusive.

### Crossover Adjustment

The Crossover Frequency Control **2** determines the highest frequency at which the subwoofer reproduces sounds. For the TSS-800, it is recommended that this control be set at 120Hz (approximately the 3 o'clock position).

**NOTE:** This control will have no effect if the LFE Input **4** is used. If you have a Dolby Digital or DTS receiver/processor, the low-pass frequency is set by the receiver/processor. Consult your owner's manual to learn how to view or change this setting. A setting of 120Hz – 150Hz is recommended.

### Phase Control

The Phase Switch **3** determines whether the subwoofer speaker's pistonlike action moves in and out with the main speakers (0°) or opposite the main speakers (180°). Proper phase adjustment depends on several variables such as room size, subwoofer placement and listener position. Adjust the phase switch to maximize bass output at the listening position.

### Final Positioning

After correctly connecting the TSS-800 system and verifying that both the subwoofer and all satellite speakers are playing, it is time to optimize the system for your particular listening room. Earlier, you placed the subwoofer in its general location. Finding the exact location for optimum performance sometimes only involves moving the speakers up to a few inches in any direction. We urge you, therefore, to experiment with placement, if possible, until your speakers deliver their full potential.

## MAINTENANCE AND SERVICE

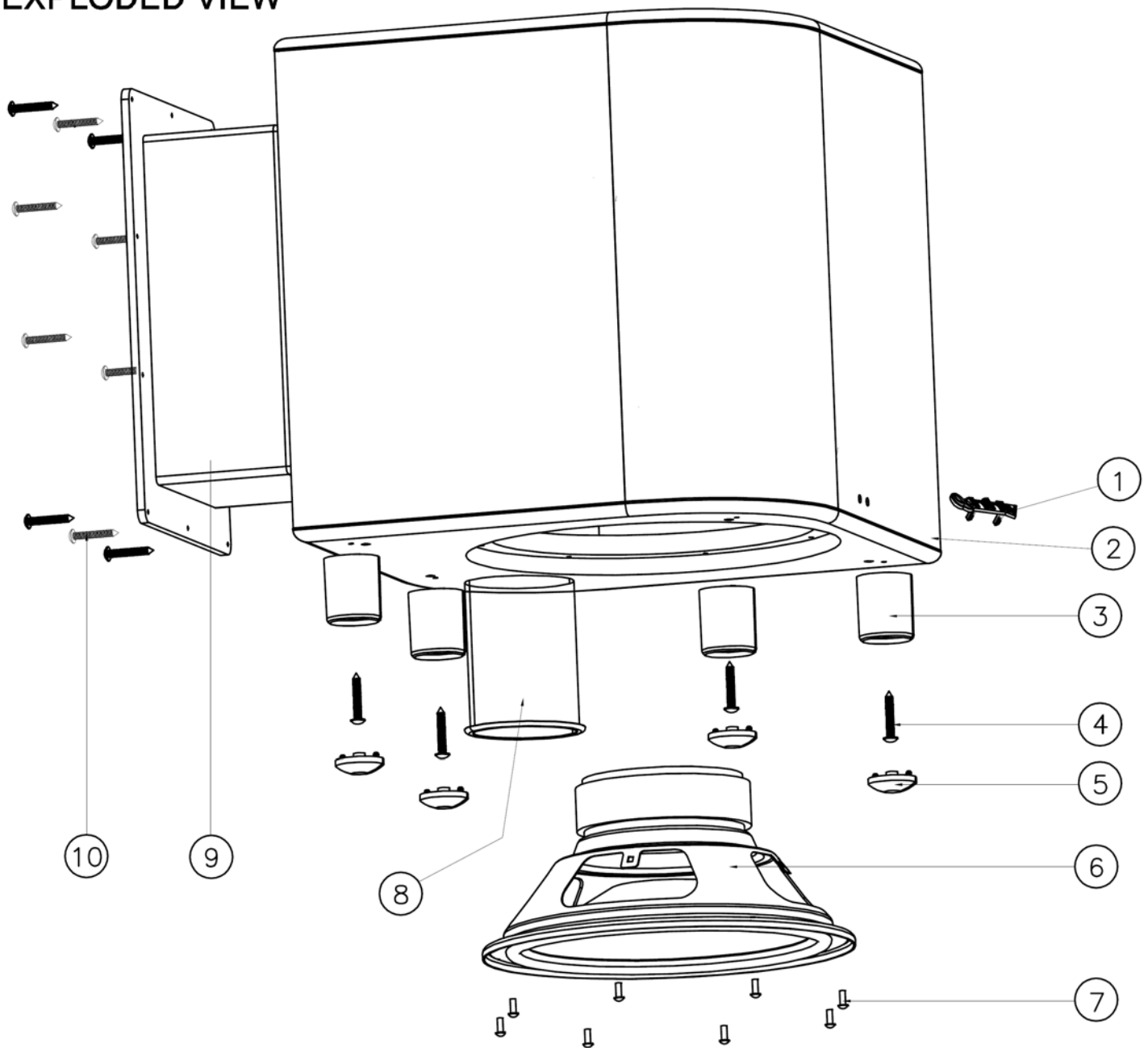
The satellite and subwoofer enclosures may be cleaned using a soft cloth to remove fingerprints or to wipe off dust.

All wiring connections should be inspected and cleaned or remade periodically. The frequency of maintenance depends on the metals involved in the connections, atmospheric conditions and other factors, but once per year is the minimum.

In the event that your TSS-800 ever needs service, contact your local Infinity dealer or distributor, or visit [www.infinitysystems.com](http://www.infinitysystems.com) for a service center near you.

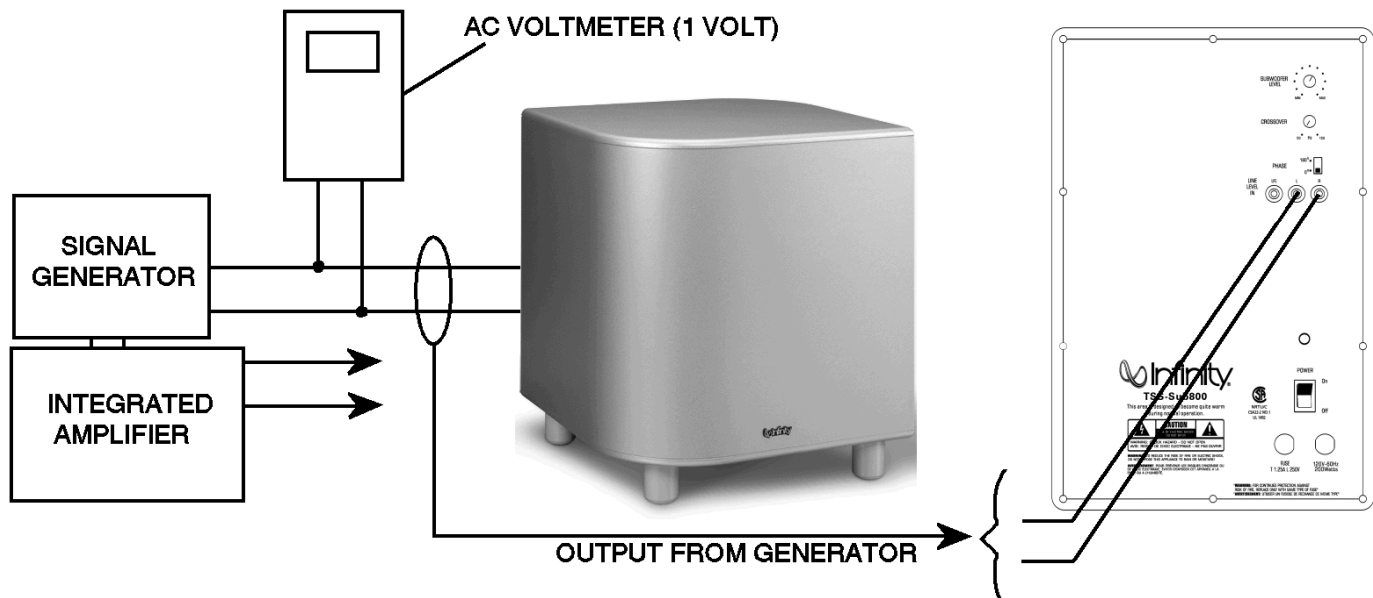


## EXPLODED VIEW



| Item No. | Description                   | Part Number        | Qty |
|----------|-------------------------------|--------------------|-----|
| 1        | Infinity Logo                 | 316-ABS-00550      | 1   |
| 2        | Cabinet                       | Not for Sale       | 1   |
| 3        | Plastic Feet (Platinum)       | 321-ABS-05055-0AAE | 4   |
|          | Plastic Feet (Charcoal)       | 321-ABS-05055-0BAE | 4   |
| 4        | Screw, Foot                   | 352-HM04070D998    | 4   |
| 5        | Rubber Feet (Platinum)        | 320-RUB-05051-0AAE | 4   |
|          | Rubber Feet (Charcoal)        | 320-RUB-05051-0BAE | 4   |
| 6        | 10" Woofer DCR = 4.8 $\Omega$ | 25PR12EZM-FW01-E   | 1   |
| 7        | Screw, Woofer                 | 352-FM04020D605    | 8   |
| 8        | Port Tube (Platinum)          | 249-ABS-05088-0VAE | 1   |
|          | Port Tube (Charcoal)          | 249-ABS-05088-0BAE | 1   |
| 9        | Amplifier                     | Not for Sale       | 1   |
| 10       | Screw, Amplifier              | 352-AM04020D210    | 10  |

## Test Set Up and Procedure



### Equipment needed:

- Function/signal generator/sweep generator
- Integrated Amplifier
- Multimeter
- Speaker cables

### General Unit Function (UUT = Unit Under Test)

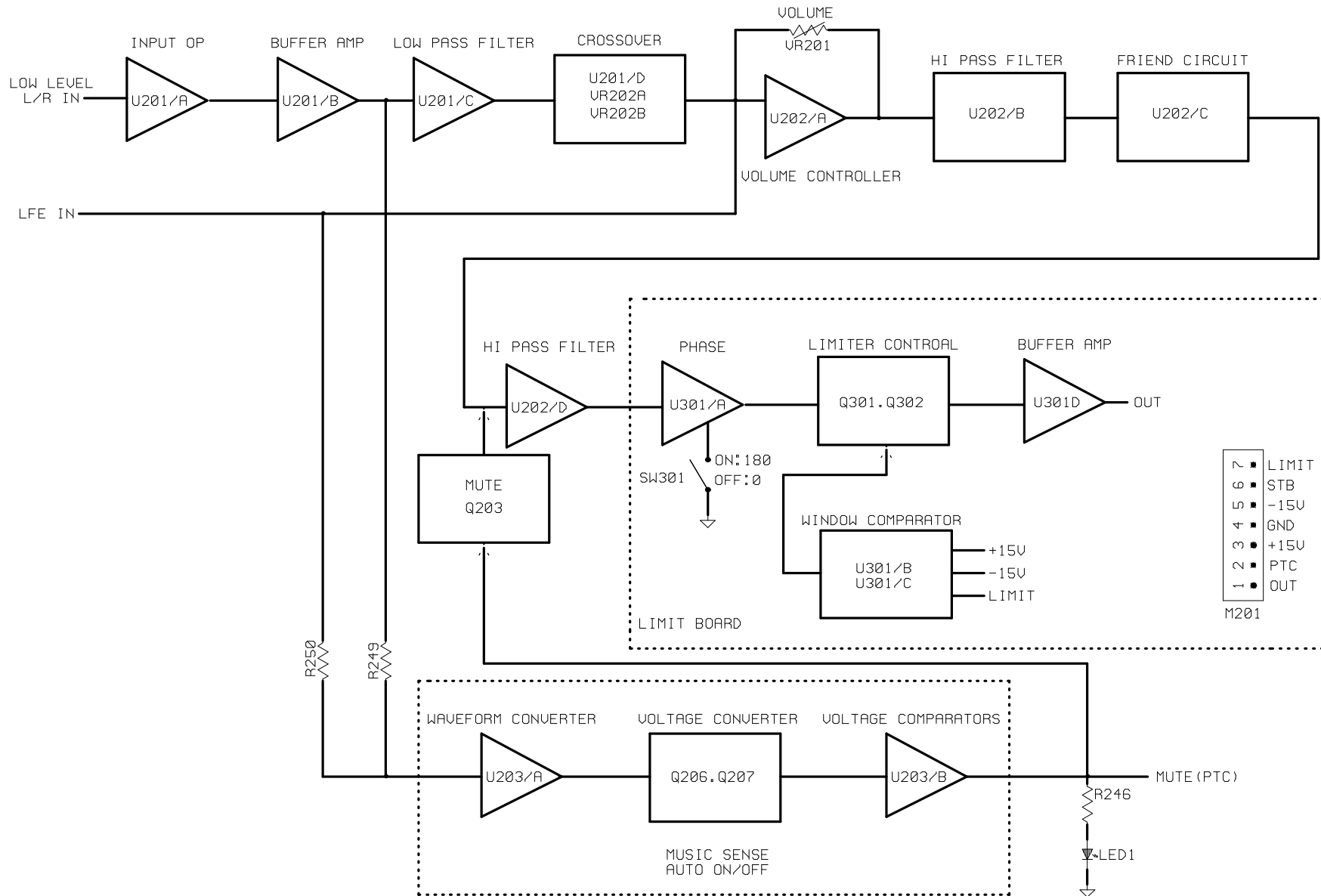
- 1) From the signal generator, connect one line level (RCA) cable to the Subwoofer Line Level Input jacks L/R on the UUT. Use a Y-cable from a mono source if necessary to connect to both inputs. Do not connect to the single LFE input.
- 2) On the amplifier, turn the LEVEL control full counterclockwise (MIN)
- 3) Turn the Crossover Frequency Adjustment full CW (150Hz)
- 4) Turn on generator, adjust to **100mV, 50 Hz**.
- 5) Plug in UUT; turn the power switch ON. LED should be Red. Turn LEVEL control full clockwise (MAX)
- 6) LED should now be Green; immediate bass response should be heard and felt from bottom port tube opening.
- 7) Turn off generator, turn LEVEL control fully counterclockwise, disconnect RCA cable.

### Sweep Function

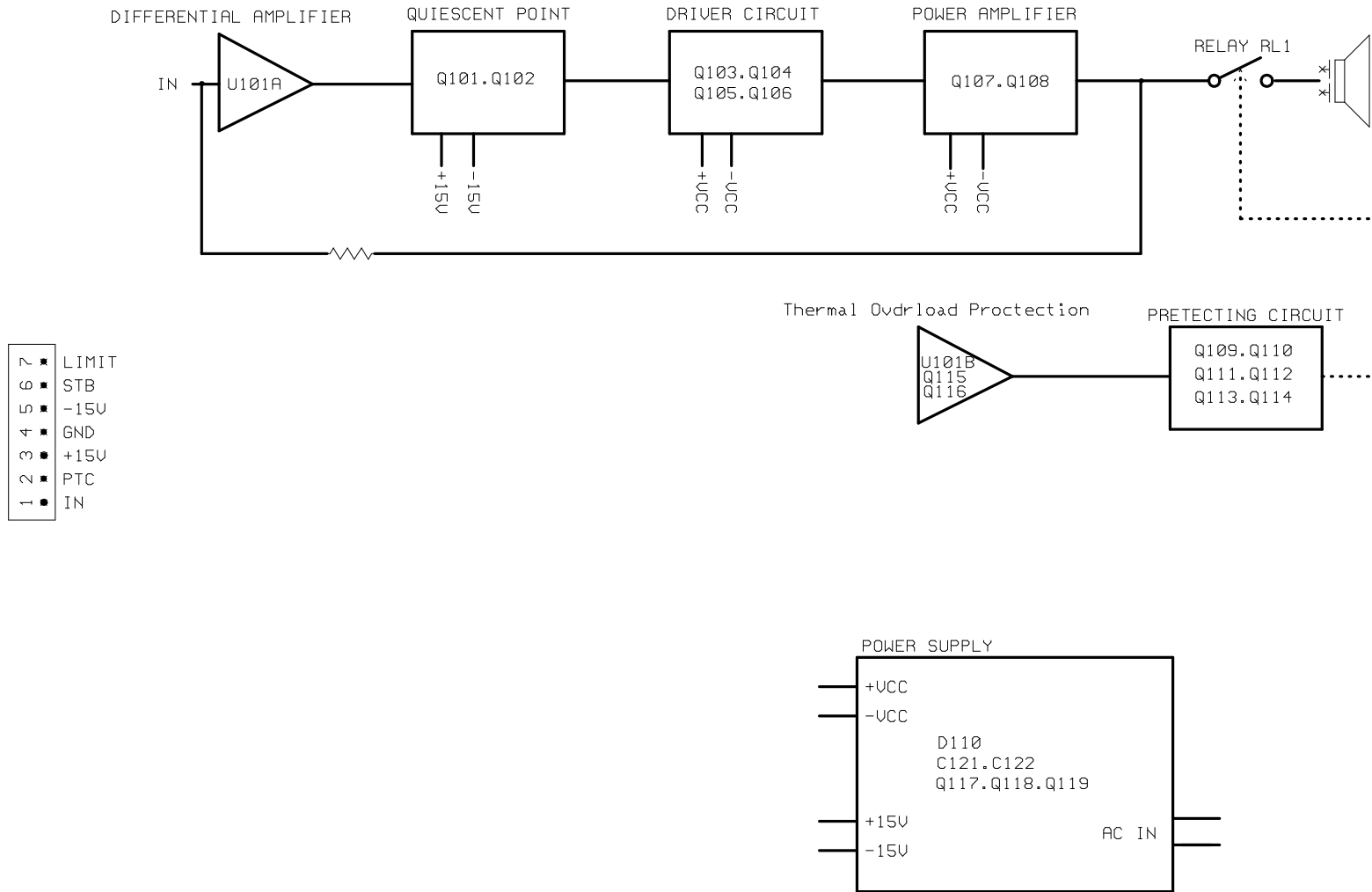
- 1) Follow steps 3-6 above, using a sweep generator as a signal source.
- 2) Sweep generator from 20Hz to 300Hz. Listen to the cabinet and drivers for any rattles, clicks, buzzes or any other noises. If any unusual noises are heard, remove woofers and test.

### Driver Function

- 1) Remove woofer from cabinet; detach + and - wire clips.
- 2) Check DC resistance of woofer; it should be **4.8 ohms ±10%**
- 3) Connect a pair of speaker cables to driver terminals. Cables should be connected to an integrated amplifier fed by a signal generator. Turn on generator and adjust so that speaker level output is **5.0V**.
- 4) Sweep generator from 20Hz to 1kHz. Listen to driver for any rubbing, buzzing, or other unusual noises.



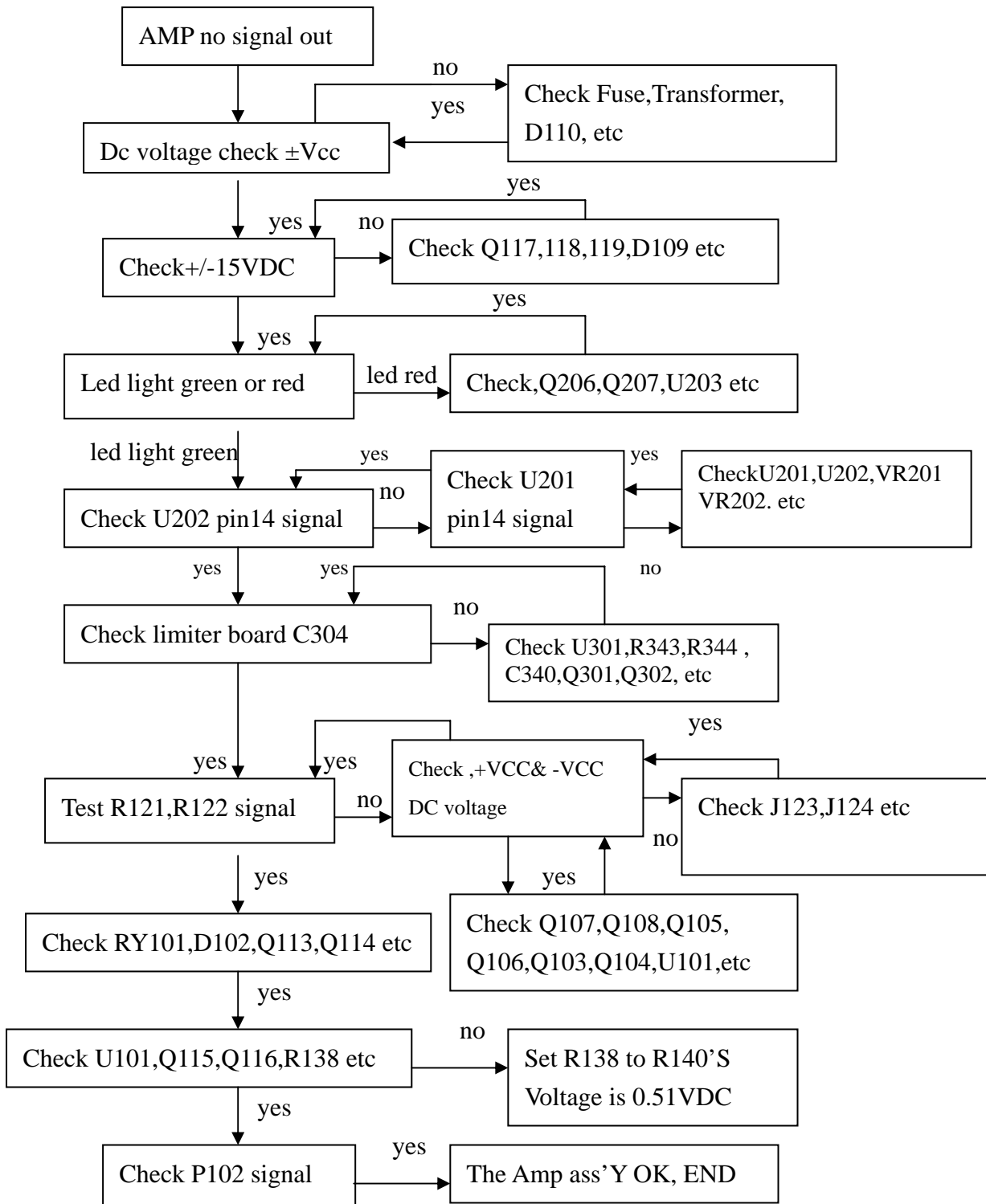
TSS-800(UL) BLOCK DIAGRAM(PRE & LIMIT)

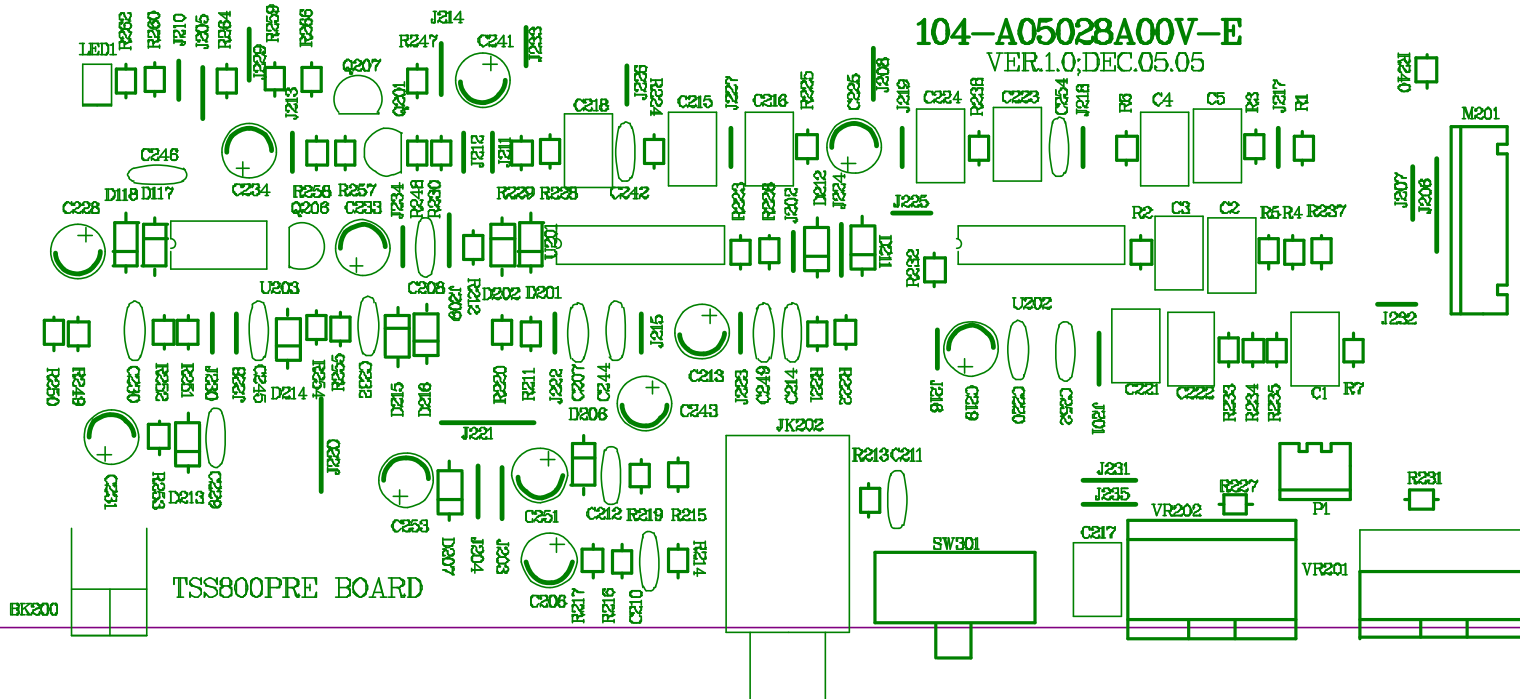


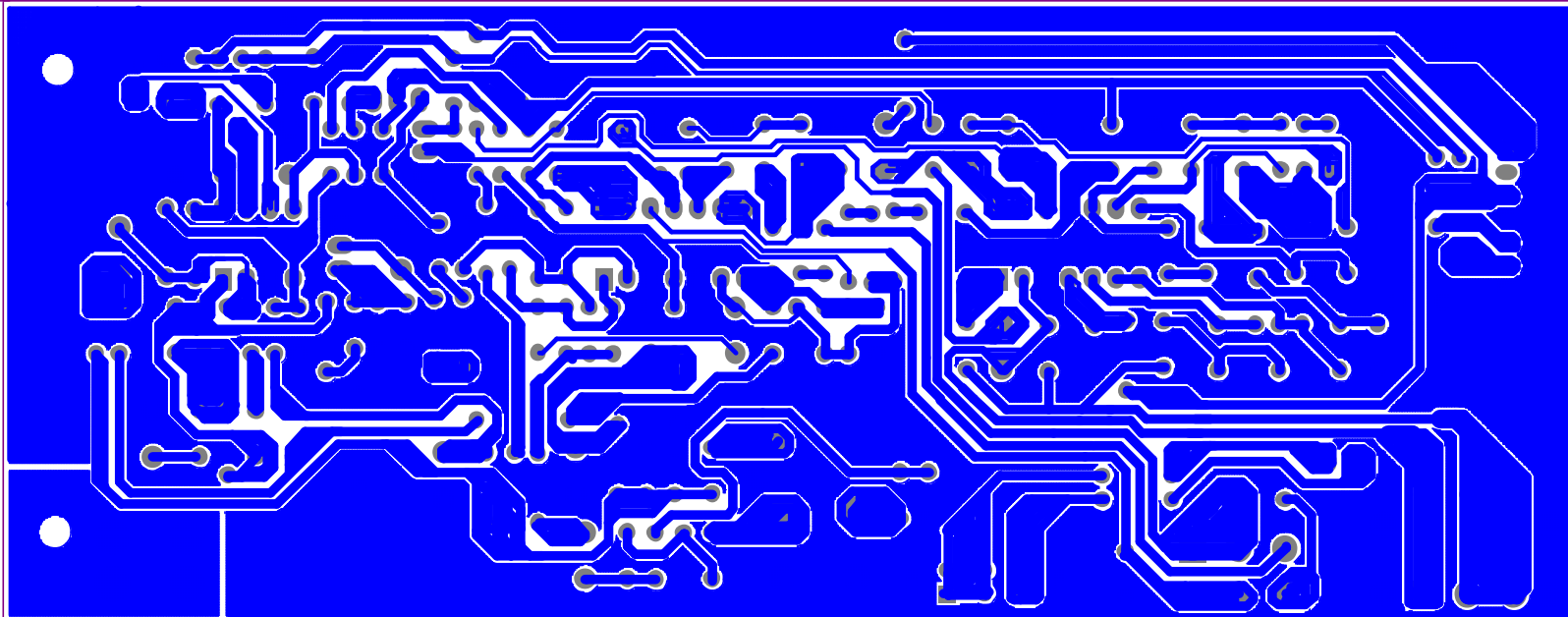
TSS-800 (UL) BLOCK DIAGRAM (POWER AMPLIFIER, POWER SOURCE, PRETECT)

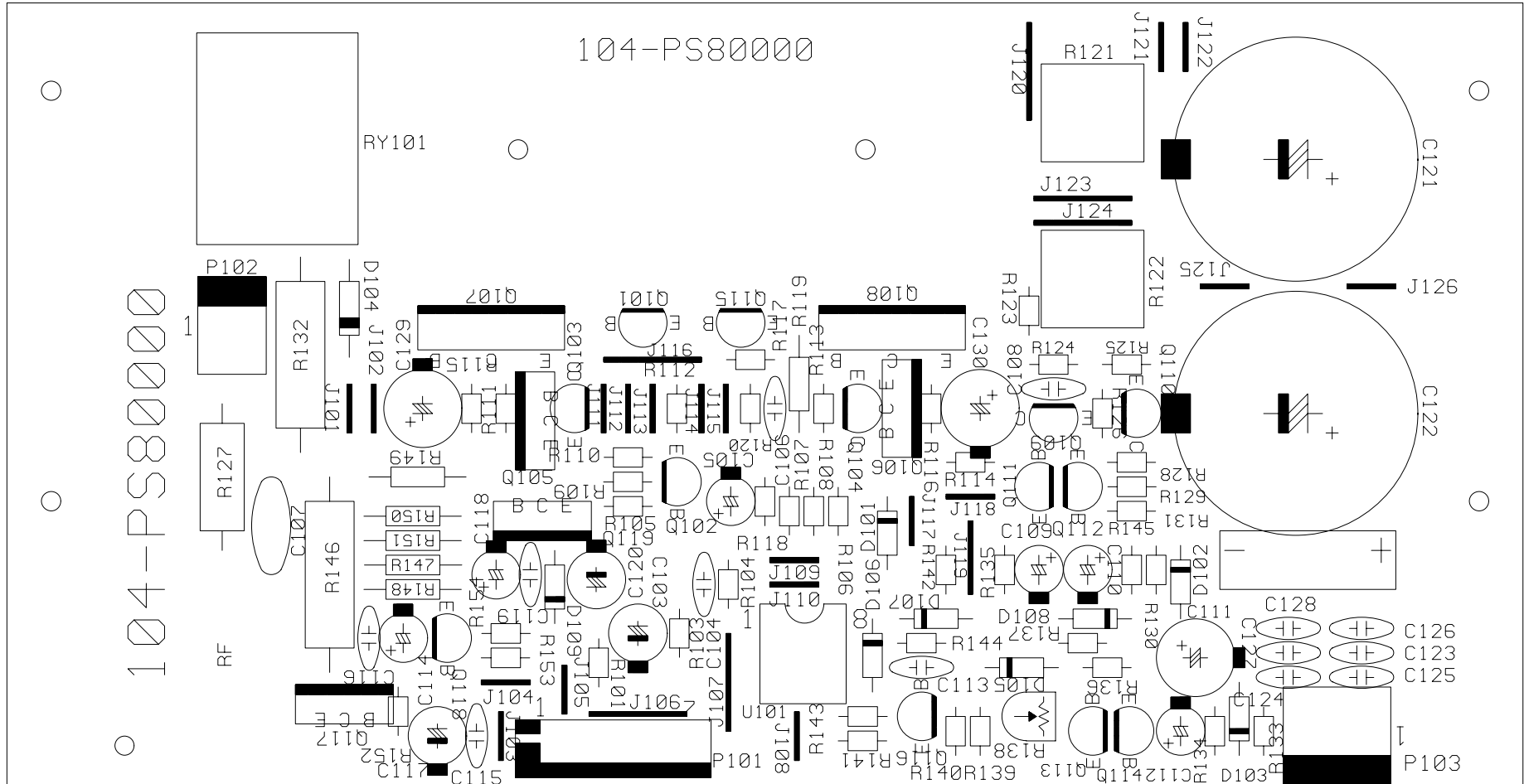
# TSS-Sub800 AMP

## Troubleshooting Flow Chart



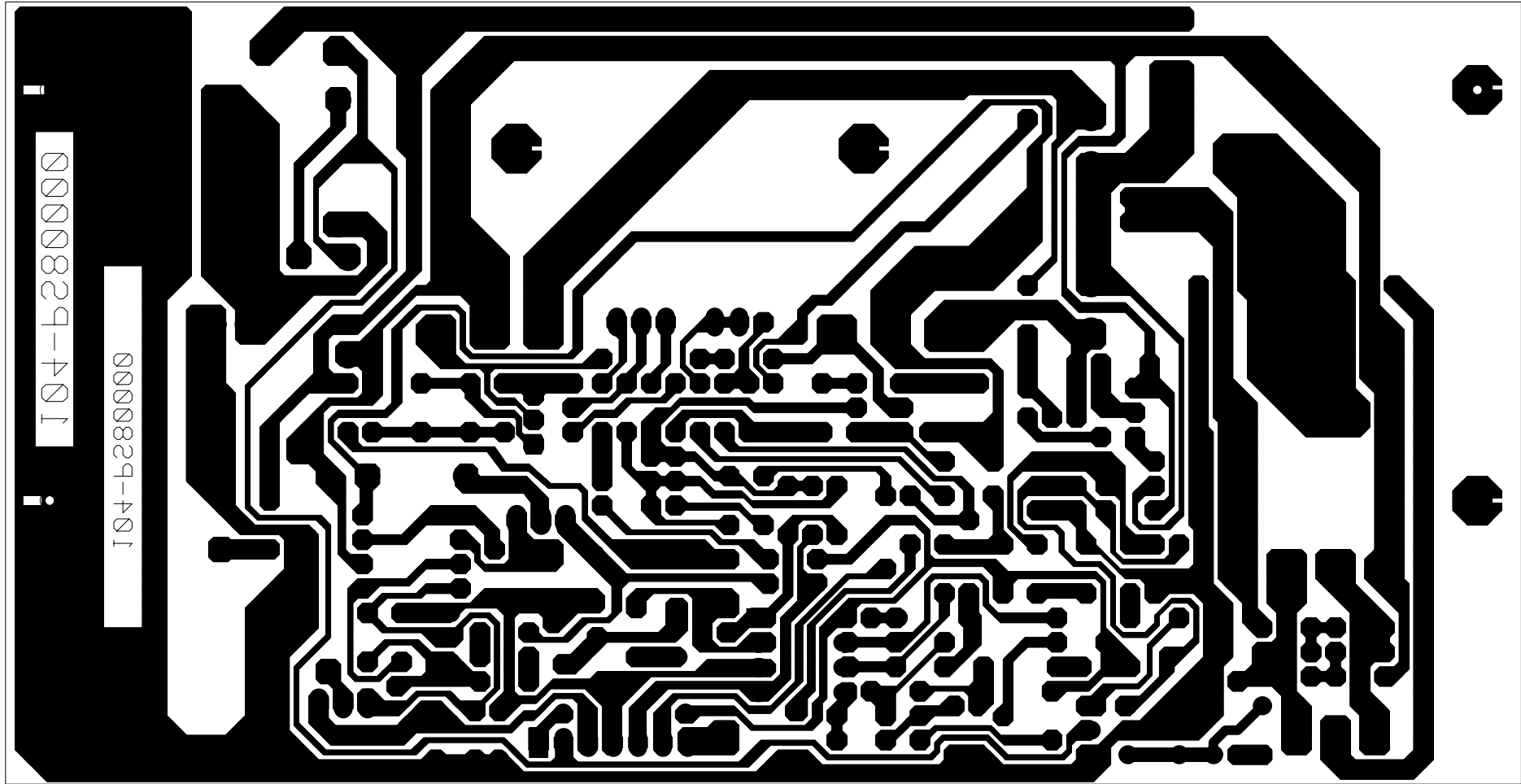




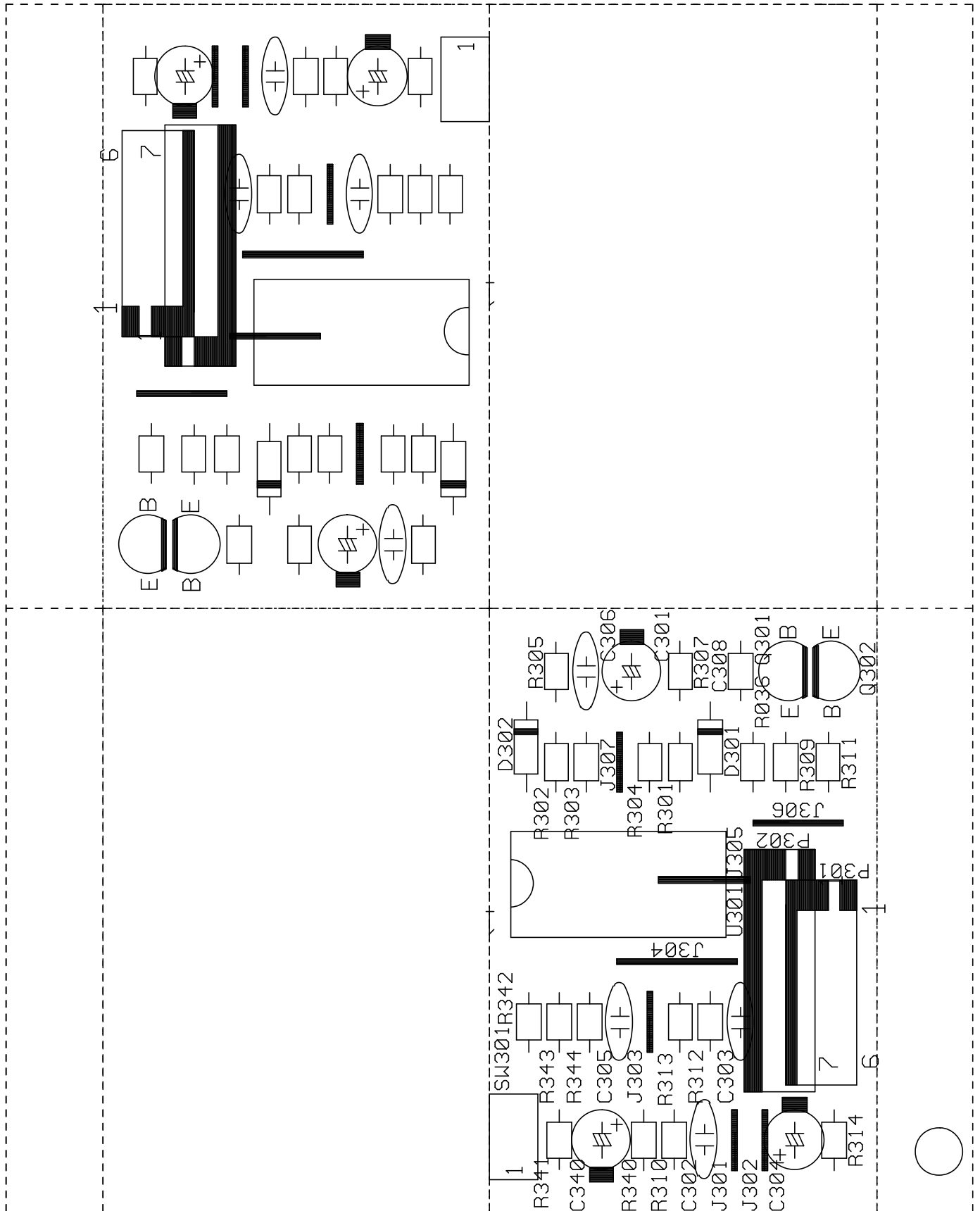


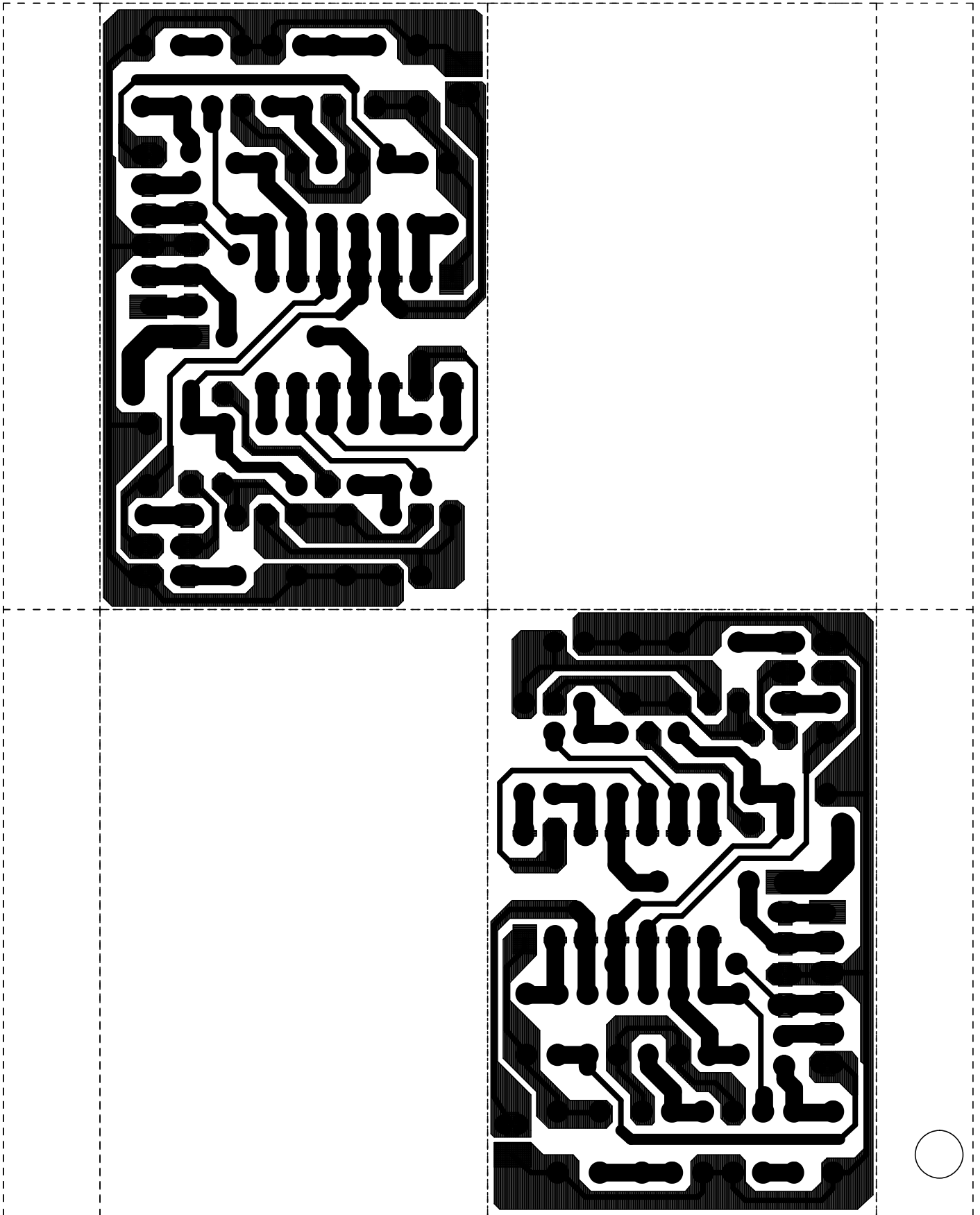
|  |       |       |  |       |                        |              |
|--|-------|-------|--|-------|------------------------|--------------|
|  | DRAW. |       |  |       | FILENAME : POWER-AMP   | REVISION: A0 |
|  |       | DSGN. |  | APVD. | MODEL NO. TSS-800/120V | 1            |
|  |       |       |  |       | MATERIAL :             | 2            |
|  |       |       |  |       | LAYER                  | 3            |





|  |       |  |       |       |            |           |  |
|--|-------|--|-------|-------|------------|-----------|--|
|  |       |  |       |       | FILENAME : | REVISION: |  |
|  | DRAW. |  | DSGN. |       | MODEL NO.  | 1         |  |
|  |       |  |       | APVD. | MATERIAL : | 2         |  |
|  |       |  |       |       | LAYER      | 3         |  |





| TSS-Sub800 (120v) Electrical Parts List |   |     |   |
|---|---|-----|---|
| Part Number                             | Description                                     | Qty | Reference Designator  |
| <b>PREAMP PCB</b>                       |   |     |   |
| <i>Resistors</i>                        |   |     |   |
| 110-16102j26-e                          | Resistor 1k 1/6W ±5% CF 26mm (RoHS)             | 4   | R213,R214,R215,R254   |
| 110-16103j26-e                          | Resistor 10k 1/6W ±5% CF 26mm (RoHS)            | 12  | R212.R216.R217.R220.R221.R222.R225.R228.R232.R235.R240.R248 |
| 110-16104j26-e                          | Resistor 100k 1/6W ±5% CF 26mm (RoHS)           | 2   | R231.R266   |
| 110-16105j26-e                          | Resistor 1M 1/6W ±5% CF 26mm (RoHS)             | 1   | R259  |
| 110-16122j26-e                          | Resistor 1.2K 1/6W ±5% CF 26mm (RoHS)           | 1   | R264  |
| 110-16151j26-e                          | Resistor 150OHM 1/6W ±5% CF 26mm (RoHS)         | 1   | R253  |
| 110-16154j26-e                          | Resistor 150k 1/6W ±5% CF 26mm (RoHS)           | 1   | R252  |
| 110-16183j26-e                          | Resistor 18k 1/6W ±5% CF 26mm (RoHS)            | 1   | R262  |
| 110-16205j26-e                          | Resistor 2M 1/6W ±5% CF 26mm (RoHS)             | 1   | R257  |
| 110-16223j26-e                          | Resistor 22K 1/6W ±5% CF 26mm (RoHS)            | 3   | R247.R250.R255  |
| 110-16333j26-e                          | Resistor 33K 1/6W ±5% CF 26mm (RoHS)            | 1   | R249  |
| 110-16472j26-e                          | Resistor 4.7K 1/6W ±5% CF 26mm (RoHS)           | 2   | R258.R260   |
| 110-16473j26-e                          | Resistor 47K 1/6W ±5% CF 26mm (RoHS)            | 2   | R219.R251   |
| 110-16512j26-e                          | Resistor 5.1K 1/6W ±5% CF 26mm (RoHS)           | 3   | R211.R229.R230  |
| 116-161002f26-e                         | Resistor 10K 1/6W ±1% MF 26mm (RoHS)            | 1   | R7  |
| 116-161471f26-e                         | Resistor 1.47K 1/6W ±1% MF 26mm (RoHS)          | 1   | R4  |
| 116-161503f26-e                         | Resistor 150.0K 1/6W ±1% MF 26mm (RoHS)         | 1   | R1  |
| 116-161542f26-e                         | Resistor 15.4K 1/6W ±1% MF 26mm (RoHS)          | 2   | R237.R238   |
| 116-162400f26-e                         | Resistor 240OHM 1/6W ±1% MF 26mm (RoHS)         | 1   | R2  |
| 116-162871f26-e                         | Resistor 2.87K 1/6W ±1% MF 26mm (RoHS)          | 1   | R234  |
| 116-163602f26-e                         | Resistor 36K 1/6W ±1% MF 26mm (RoHS)            | 1   | R233  |
| 116-165361f26-e                         | Resistor 5.36K 1/6W ±1% MF 26mm (RoHS)          | 1   | R6  |
| 116-16649f26-e                          | Resistor 64.9OHM 1/6W ±1% MF 26mm (RoHS)        | 1   | R5  |
| 116-166801f26-e                         | Resistor 6.8K 1/6W ±1% MF 26mm (RoHS)           | 4   | R224.R223.R226.R227   |
| 116-168251f26-e                         | Resistor 8.25K 1/6W ±1% MF 26mm (RoHS)          | 2   | R3  |
| 115-h203b208-e                          | VR 20KB*2 (RoHS) CROSSOVER                      | 1   | VR202   |
| 115-h503a104-e                          | VR 50KA*1 (RoHS) LEVEL                          | 1   | VR201   |
| <i>Capacitors</i>                       |   |     |   |
| 129-a104j633-e                          | metallize Capacitor 0.1uF 63V ± 5% MSC (RoHS)   | 2   | C5.C215   |
| 129-a153j633-e                          | metallize Capacitor 0.015uF 63V ± 5% MSC (RoHS) | 1   | C224  |
| 129-a224j633-e                          | metallize Capacitor 0.22uF 63V ± 5% MSC (RoHS)  | 1   | C216  |
| 129-a274j633-e                          | metallize Capacitor 0.27uF 63V ± 5% MSC (RoHS)  | 1   | C218  |
| 129-a473j633-e                          | metallize Capacitor 0.047uF 63V ± 5% MSC (RoHS) | 1   | C4  |
| 129-a474j633-e                          | metallize Capacitor 0.47uF 63V ± 5% MSC (RoHS)  | 2   | C221.C222   |
| 129-a823j633-e                          | metallize Capacitor 0.082uF 63V ± 5% MSC (RoHS) | 1   | C217  |
| 130-2b221k503-e                         | disc Capacitor 220pF 50V +/-10% Y5P (RoHS)      | 9   | C207.C208.C210.C211.C212.C214.C220.C230.C249                |
| 130-3f104z503-e                         | disc Capacitor 0.1uF 50V +80/-20% Y5V (RoHS)    | 7   | C232.C242.C244.C245.C246.C252.C254                          |
| 130-sl470k503-e                         | disc Capacitor 47pF 50V +80/-20% SL (RoHS)      | 1   | C229  |
| 132-103j503-e                           | mylar Capacitor 0.01UF 50V ± 5% (RoHS)          | 1   | C223  |
| 135-3105m50-e                           | electrolytic 1uF 50V ±20% 85°C (RoHS)           | 1   | C228  |
| 135-3106m50-e                           | electrolytic 10uF 50V ±20% 85°C (RoHS)          | 8   | C206.C213.C219.C231.C241.C243.C251.C253                     |
| 135-3107m16-e                           | electrolytic 100uF 16V ±20% 85°C (RoHS)         | 2   | C233.C234   |
| 135-3226m50-e                           | electrolytic 22uF 50V ±20% 85°C (RoHS)          | 1   | C225  |
| <i>Semiconductors</i>                   |   |     |   |
| 192-027c1815gr-e                        | transistor 2SC1815GR TOSHIBA (RoHS) NPN         | 1   | Q201.Q206.Q207  |
| 197-031n4148-e                          | diode 100mA 75V SIGNAL IN4148 ROHM (RoHS)       | 9   | D201.D202.D118.D117.D207.D206.D211.D212.D214                |
| 199-15000335-e                          | zener diode 3.3V 1/2W 52mm (RoHS)               | 1   | D213  |
| 190-06m4558d-e                          | IC OPA 4558 DUAL OP-AMP                         | 1   | U203  |
| 190-16ti074cn-e                         | I .C TL074cm st QUAD OP-AMP                     | 2   | U201.U202   |
| 195-10204hgw-e                          | LED Red-Green 204HGW ψ3(RoHS)                   | 1   | D209  |

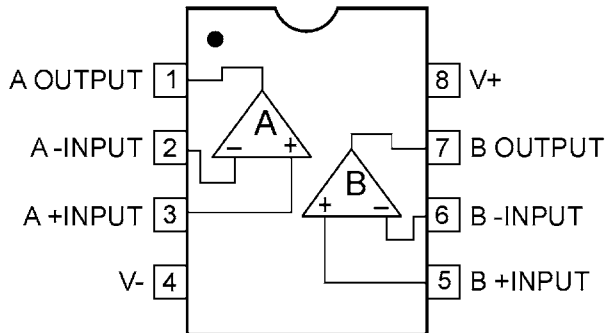
| Part Number           | Description                                | Qty | Reference Designator                    |
|-----------------------|--|-----|---|
| <b>PREAMP PCB</b>     |  |     |   |
| <i>Miscellaneous</i>  |  |     |   |
| 162-50159201-e        | WIRE 2PIN White-Red 150mm                  | 1   | TO LIMIT BOARD                          |
| 174-0rca326p-e        | RCA JACK RCA-326 3PIN(RoHS)                | 1   | JK202                                   |
| 180-tms7210v-e        | SWITCH SLIDE 6PIN MS-7210(RoHS) PHASE      | 1   | SW301                                   |
| 362-FE-00041-0LAE     | PCB support 11.75*8.5*12.5H(RoHS)          | 1   |   |
| <b>LIMITER PCB</b>    |  |     |   |
| <i>Resistors</i>      |  |     |   |
| 110-16103j26-e        | Resistor 10K 1/6W ±5% CF 26mm (RoHS)       | 2   | R109,R162                               |
| 110-16102j26-e        | Resistor 1K 1/6W ±5% CF 26mm (RoHS)        | 8   | R301.R303.R304.R308.R309.R314.R340.R344 |
| 110-16183j26-e        | Resistor 18K 1/6W ±5% CF 26mm (RoHS)       | 1   | R302                                    |
| 110-16223j26-e        | Resistor 22K 1/6W ±5% CF 26mm (RoHS)       | 2   | R310.R312                               |
| 110-16273j26-e        | Resistor 27K 1/6W ±5% CF 26mm (RoHS)       | 1   | R341                                    |
| 110-16333j26-e        | Resistor 33K 1/6W ±5% CF 26mm (RoHS)       | 1   | R305                                    |
| 110-16472j26-e        | Resistor 4.7K 1/6W ±5% CF 26mm (RoHS)      | 2   | R342.R343                               |
| 110-16474j26-e        | Resistor 470K 1/6W ±5% CF 26mm (RoHS)      | 1   | R307                                    |
| 110-16751j26-e        | Resistor 750Ω 1/6W ±5% CF 26mm (RoHS)      | 2   | R311.R313                               |
| 110-16755j26-e        | Resistor 7.5M 1/6W ±5% CF 26mm (RoHS)      | 1   | R306                                    |
| <i>Capacitors</i>     |  |     |   |
| 130-3f104z503-e       | disc Capacitor 2700pF 100V +80%/-20%(RoHS) | 2   | C305.C306                               |
| 132-103j503-e         | mylar Capacitor 0.01UF 50V ± 5% (RoHS)     | 2   | C302.C303                               |
| 135-3226m50-e         | electrolytic 22uF 50V ±20% 85°C(RoHS)      | 2   | C301.C340                               |
| 135-3476m25-e         | electrolytic 47uF 25V ±20% 85°C(RoHS)      | 1   | C304                                    |
| <i>Semiconductors</i> |  |     |   |
| 192-027c1815gr-e      | transistor 2SC1815GR TOSHIBA (RoHS) NPN    | 2   | Q301.Q302                               |
| 197-031n4148-e        | diode 100mA 75V SIGNAL IN4148 ROHM (RoHS)  | 2   | D301.D302                               |
| 190-16t074cn-e        | I .C TL074cm st QUAD OP-AMP                | 1   | U301                                    |
| <i>Miscellaneous</i>  |  |     |   |
| 162-50289001-e        | WIRE 7PIN 280mm UL2468 AWG26(RoHS)         | 1   |   |
| 162-80098201-e        | WIRE 2PIN 90mm GRAY AWG26(RoHS)            | 1   |   |
| 175-9f40hr2-e         | Connector 40PIN PITCH= 2.54mm,HR2*40(RoHS) | 1   |   |
| <b>POWER/MAIN PCB</b> |  |     |   |
| <i>Resistors</i>      |  |     |   |
| 110-10821jk2-e        | Resistor 820Ω 1W ±5% 10mm (RoHS)           | 1   | R132,                                   |
| 110-122r2j15-e        | Resistor 2.2Ω 1/2W ±5% 15mm (RoHS)         | 1   | R127,                                   |
| 110-20331jk2-e        | Resistor 330Ω 2W ±5% 5mm(RoHS)             | 2   | R146,R149,                              |
| 113-50r10j10-e        | cement Resistor 0.1Ω 5W ±5% (RoHS)         | 2   | R121,R122,                              |
| 114-03302m0-e         | semi-fixed Resistor 3K 0.3W ±20% (RoHS)    | 1   | R138,                                   |
| 110-14472j26-e        | Resistor 4.7K 1/4W ±5% CF 26mm (RoHS)      | 2   | R147,R150,                              |
| 110-14681j26-e        | Resistor 680Ω 1/4W ±5% CF 26mm (RoHS)      | 2   | R148,R151,                              |
| 110-16101j26-e        | Resistor 100Ω 1/6W ±5% CF 26mm (RoHS)      | 1   | R120,                                   |
| 110-16102j26-e        | Resistor 1K 1/6W ±5% CF 26mm (RoHS)        | 1   | R124,                                   |
| 110-16103j26-e        | Resistor 10K 1/6W ±5% CF 26mm (RoHS)       | 1   | R134,                                   |
| 110-16105j26-e        | Resistor 1M 1/6W ±5% CF 26mm (RoHS)        | 1   | R143,                                   |
| 110-16123j26-e        | Resistor 12K 1/6W ±5% CF 26mm (RoHS)       | 2   | R135,R139,                              |
| 110-16152j26-e        | Resistor 1.5K 1/6W ±5% CF 26mm (RoHS)      | 2   | R141,R142,                              |
| 110-16153j26-e        | Resistor 15K 1/6W ±5% CF 26mm (RoHS)       | 4   | R118,R145,R152,R154,                    |
| 110-16154j26-e        | Resistor 150K 1/6W ±5% CF 26mm (RoHS)      | 1   | R131,                                   |
| 110-16181j26-e        | Resistor 180Ω 1/6W ±5% CF 26mm (RoHS)      | 2   | R111,R114,                              |
| 110-16182j26-e        | Resistor 1.8K 1/6W ±5% CF 26mm (RoHS)      | 1   | R153,                                   |

| Part Number           | Description  | Qty | Reference Designator       |
|-----------------------|--|-----|----------------------------|
| <b>POWER/MAIN PCB</b> |  |     |                            |
| 110-16223j26-e        | Resistor 22K 1/6W ±5% CF 26mm (RoHS)                 | 3   | R128,R129,R133,            |
| 110-16332j26-e        | Resistor 3.3K 1/6W ±5% CF 26mm (RoHS)                | 3   | R106,R107,R144,            |
| 110-16392j26-e        | Resistor 3.9K 1/6W ±5% CF 26mm (RoHS)                | 2   | R105,R108,                 |
| 110-16393j26-e        | Resistor 39K 1/6W ±5% CF 26mm (RoHS)                 | 1   | R126,                      |
| 110-16470j26-e        | Resistor 47Ω 1/6W ±5% CF 26mm (RoHS)                 | 4   | R112,R113,R115,R116,       |
| 110-16471j26-e        | Resistor 470Ω 1/6W ±5% CF 26mm (RoHS)                | 1   | R140,                      |
| 110-16472j26-e        | Resistor 4.7K 1/6W ±5% CF 26mm (RoHS)                | 3   | R110,R125,R130,            |
| 110-16473j26-e        | Resistor 47K 1/6W ±5% CF 26mm (RoHS)                 | 1   | R101,                      |
| 110-16560j26-e        | Resistor 56Ω 1/6W ±5% CF 26mm (RoHS)                 | 1   | R117,                      |
| 110-16563j26-e        | Resistor 56K 1/6W ±5% CF 26mm (RoHS)                 | 1   | R104,                      |
| 110-16682j26-e        | Resistor 6.8K 1/6W ±5% CF 26mm (RoHS)                | 1   | R109,                      |
| <i>Capacitors</i>     |  |     |                            |
| 132-223ja03-e         | mylar Capacitor 0.022uF 100V ±5% (RoHS)              | 2   | C123,C127,                 |
| 135-3107m16-e         | electrolytic cap. 100uF 16V ±20% (RoHS)              | 1   | C110,                      |
| 135-4688m50-e         | electrolytic cap. 6800U/50V ±20% D25X45mm (RoHS)     | 2   | C121,C122,                 |
| 130-2b102k503-e       | disc Capacitor 1000P 50V ±10% (RoHS)                 | 1   | C116,                      |
| 130-3f104z503-e       | disc Capacitor 0.1U 50V +80/-20% (RoHS)              | 4   | C108,C113,C115,C119,       |
| 130-3f473m503-e       | disc Capacitor 0.047U 50V ±20% (RoHS)                | 1   | C106,                      |
| 132-104j503-e         | mylar Capacitor 0.1U 50V ±5% (RoHS)                  | 1   | C107,                      |
| 132-223ja03-e         | mylar Capacitor 0.022uF 100V ±5% (RoHS)              | 4   | C124,C125,C126,C128,       |
| 135-3105m50-e         | electrolytic cap. 1U 50V ±20% (RoHS)                 | 2   | C105,C112,                 |
| 135-3107m16-e         | electrolytic cap. 100uF 16V ±20% (RoHS)              | 3   | C109,C117,C120,            |
| 135-3226m50-e         | electrolytic cap. 22U 50V ±20% (RoHS)                | 2   | C114,C118,                 |
| 135-3227m10-e         | electrolytic cap. 220U 10V ±20% (RoHS)               | 2   | C129,C130,                 |
| 135-3227m16-e         | electrolytic cap. 220U 16V ±20% (RoHS)               | 1   | C111,                      |
| 135-3476m25-e         | electrolytic cap. 47U 25V ±20% (RoHS)                | 1   | C103,                      |
| 130-sl101k503-e       | disc Capacitor 100P 50V SL ±10% (RoHS)               | 2   | C139,C140,                 |
| <i>Semiconductors</i> |  |     |                            |
| 190-06m4558d-e        | IC OPA 4558 DUAL OP-AMP                              | 1   | U101,                      |
| 192-021tip35c-e       | transistor TIP35C (RoHS) NPN                         | 1   | Q107,                      |
| 192-022tip36c-e       | transistor TIP36C (RoHS) PNP                         | 1   | Q108,                      |
| 192-027c1815gr-e      | transistor 2SC1815GR TOSHIBA(RoHS) NPN               | 2   | Q101,Q115,                 |
| 192-201d882y-e        | transistor KSD882Y (RoHS) PNP                        | 1   | Q117,                      |
| 192-202b772y-e        | transistor KSB772Y (RoHS) PNP                        | 1   | Q119,                      |
| 192-991d669a-e        | transistor HI-SINCERITY HSD669A (RoHS) NPN           | 1   | Q106,                      |
| 192-992b649t-e        | transistor HSB649T (RoHS) PNP                        | 1   | Q105,                      |
| 197-00kbl405-e        | diode 4A 500V KBL405 (RoHS) BRIDGE                   | 2   | D110,                      |
| 197-101n4002-e        | diode 1N4002TB (RoHS)                                | 2   | D104,                      |
| 192-027c1815gr-e      | transistor 2SC1815GR TOSHIBA(RoHS) NPN               | 5   | Q102,Q111,Q112,Q113, Q118, |
| 192-028a1015gr-e      | transistor 2SA1015GR TOSHIBA(RoHS) PNP               | 2   | Q114,Q116,                 |
| 192-1572n5551-e       | transistor FSC 2N5551 (RoHS) NPN                     | 2   | Q103,Q109,                 |
| 192-1582n5401-e       | transistor FSC 2N5401 AI-PNP 350V 500mA TO-92 (RoHS) | 2   | Q104,Q110,                 |
| 197-031n4148-e        | diode 100mA 75V SIGNAL 1N4148 ROHM (RoHS)            | 4   | D101,D103,D105,D108,       |
| 199-15000335-e        | zener diode 3.3V 1/2W 52mm (RoHS)                    | 1   | D102,                      |
| 199-15000625-e        | zener diode HZ6C2 RENESAS (RoHS)                     | 2   | D106,D107,                 |
| 199-15001605-e        | zener diode HZ16-2 RENESAS (RoHS)                    | 1   | D109,                      |
| <i>Miscellaneous</i>  |  |     |                            |
| 171-udhss124d-e       | Relay 5A 24V UDH-SS124D (RoHS)                       | 1   | RY101,                     |
| 175-1c07v01-e         | wire connector & base 7PIN PITCH=2.5mm (RoHS)        | 1   | P101,                      |
| 175-1d02v01-e         | wire connector and base 2PIN PITCH=3.96mm(RoHS)      | 1   | P102,                      |
| 175-1d03v01-e         | wire connector and base 3 PIN PITCH=3.96mm (RoHS)    | 1   | P103,                      |
| 193-3m2520-e          | insulator TO-3P 25x20mm (RoHS)                       | 2   | for Q107,Q108,             |
| 323-AL-00020-OLAE     | HEAT SINK 65*32*31                                   | 1   |                            |
| 351-AM03014A094-E     | M3*14 machine screw (RoHS)                           | 1   |                            |
| 352-AM03008D040-E     | ∅ 3*8 ping screw (RoHS)                              | 4   |                            |

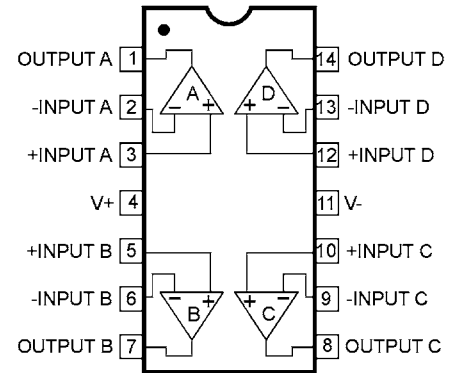
| Part Number                     | Description                                     | Qty | Reference Designator |
|---------------------------------|---|-----|----------------------|
| <b>POWER/MAIN PCB</b>           |   |     |                      |
| 361-FE-00051-0LAE               | transistor's holder 14.2*8.0*5.2 t=1.6mm (RoHS) | 1   |                      |
| 361-NYL-00054-0LAE              | transistor's insulated pad (SW06002) (RoHS)     | 2   |                      |
| <b>MISCELLANEOUS/MECHANICAL</b> |   |     |                      |
| 150-e8604107-e                  | power transformer EI-86 60Hz 120VTT0869906580   | 1   |                      |
| 152-u602015-e                   | power supply cord SVT FT-2 6FT (RoHS)           | 1   |                      |
| 154-u25006t0-e                  | fuse 2.5A 250V 20mm (RoHS)                      | 1   |                      |
| 155-520020-e                    | fuse holder R3-11 (RoHS)                        | 1   |                      |
| 162-10082007-e                  | WIRE RED 18AWG 80mm 8mm#1015 (RoHS)             | 1   |                      |
| 176-wjce1-e                     | wire connector pin CE-1 (RoHS)                  | 1   |                      |
| 180-prf1003s-e                  | power switch ROCKER RF-1003-BB2-OHA (RoHS)      | 1   |                      |
| 350-EM04012D024-                | 4 $\varnothing$ *12 wood screw (RoHS)           | 4   |                      |
| 351-HM04016A218-E               | M4*16 machine screw (RoHS)                      | 4   |                      |
| 351-AM03008A079-E               | M3*8 machine screw (RoHS)                       | 7   |                      |
| 352-AM03010D065-E               | $\varnothing$ 3*10 ping screw (RoHS)            | 1   |                      |
| 352-AM03008D040-E               | $\varnothing$ 3*8 ping screw (RoHS)             | 8   |                      |
| 354-GM04002-E                   | M4 nut adding pad (RoHS)                        | 4   |                      |
| 362-FE-00013-0LAE               | PCB support L TYPE t=1.6mm 89*9*1.6T (RoHS)     | 2   |                      |
| 311-ABS-00028-0BAE              | knob CROSSOVER,LEVEL 46077-W P.V.C. (RoHS)      | 2   |                      |
| 335-NYL-00002-0BAE              | power wire clip 4K-4 NO-BB(RoHS)                | 2   |                      |
| 333-EVA-00783-0BAE              | EVA W 198*12*2.0T                               | 2   |                      |
| 333-EVA-00807-0BAE              | EVA L 274*12*2.0T (RoHS)                        | 2   |                      |
| 333-EVA-00826-0BAE              | EVA W 198*12*1.0T (RoHS)                        | 2   |                      |
| 333-EVA-00835-0BAE              | EVA L 274*12*1.0T (RoHS)                        | 2   |                      |
| 320-RUB-00033-0BAE              | rubber foot pad 25*21*4t (RoHS)                 | 4   |                      |
| 123-14j70d-e                    | Ferrite Core U-16.3*8.2*13 (J70)+CASE (RoHS)    | 1   |                      |
| 337-CU-00101-0LAE               | copper foil 65L*50W (RoHS)                      | 1   |                      |
| 323-AL-00106-0BBE               | HEAT SINK 117.5*71.5*25 (RoHS)                  | 1   |                      |
| 302-AL-00406-0BAE               | aluminium faceplate 300*200*2.5T black(RoHS)    | 1   |                      |
| 306-ABS-00177-0BAE              | Plastic rear housing 198*298*102mm (RoHS)       | 1   |                      |
| 162-50652003-e                  | WIRE 650mm RED=205# 0.5T BLK=110# 0.5T (RoHS)   | 1   |                      |
| 130-3f472md00-e                 | disc Capacitor 4700P 400V $\pm$ 20% (RoHS)      | 1   | C001 on Power Switch |

# Integrated Circuit Diagrams

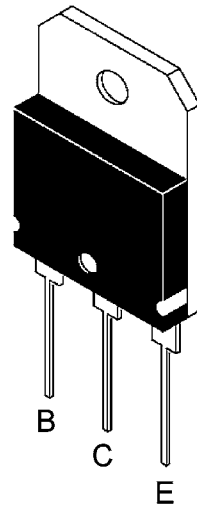
4558 Dual Op Amp  
U101,203



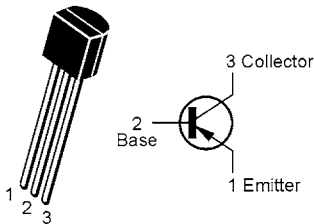
OPAMP, QUAD 14P DIL TL074  
U201, 202, 301



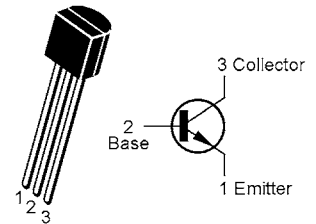
TIP35C, TIP36C  
Q107,108



2N5401  
Q104, 110



2N5551  
Q103, 109

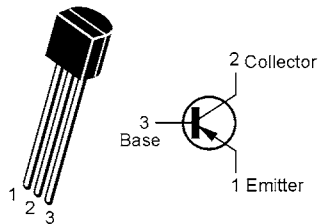


2SD669A, 2SB649A  
KSB772, KSD882  
Q105, 106, 117, 119

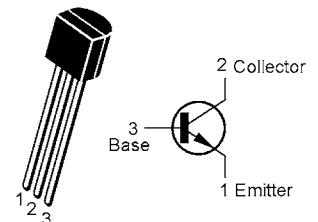


1. Emitter
2. Collector
3. Base

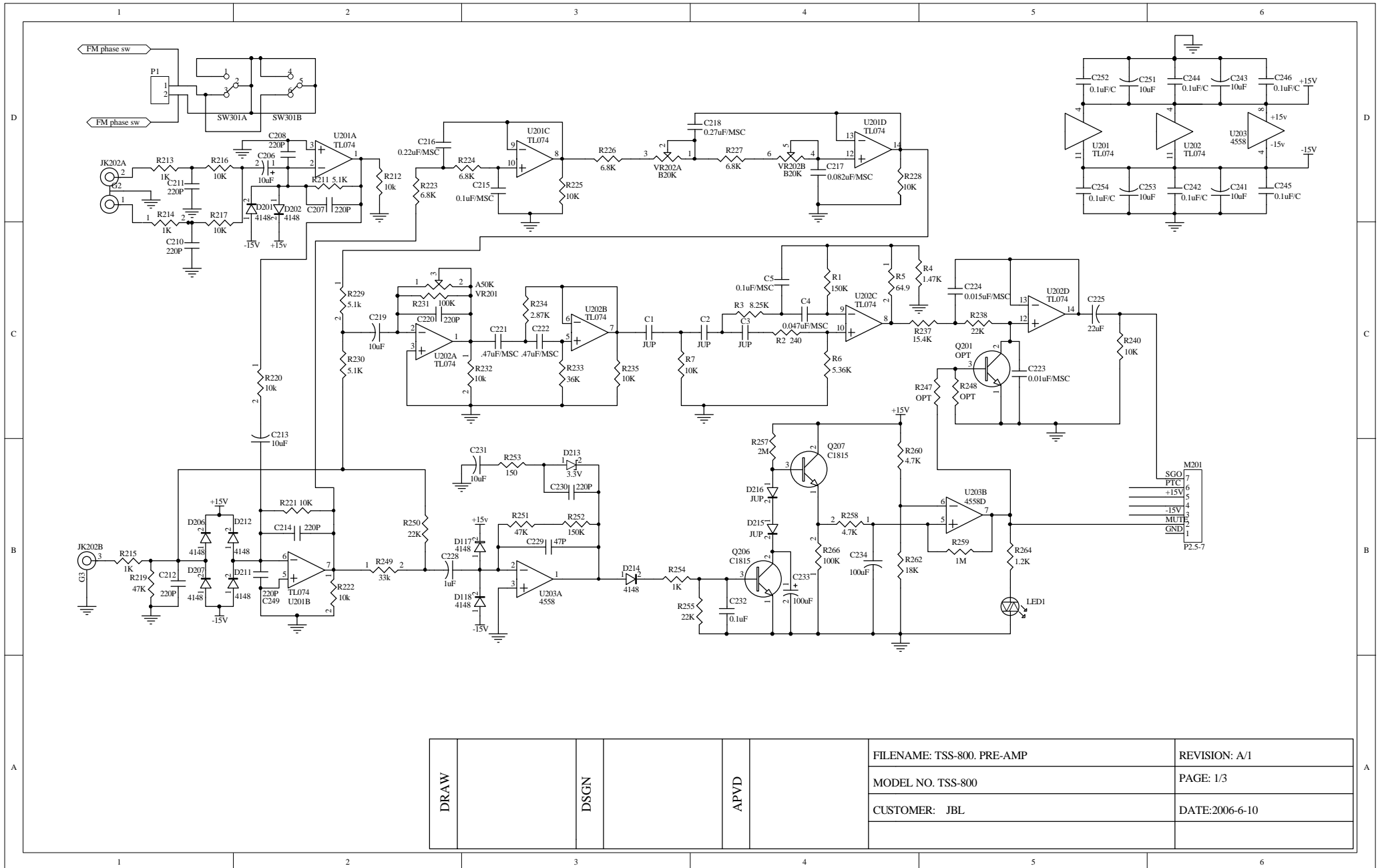
2SA1015  
Q114,116



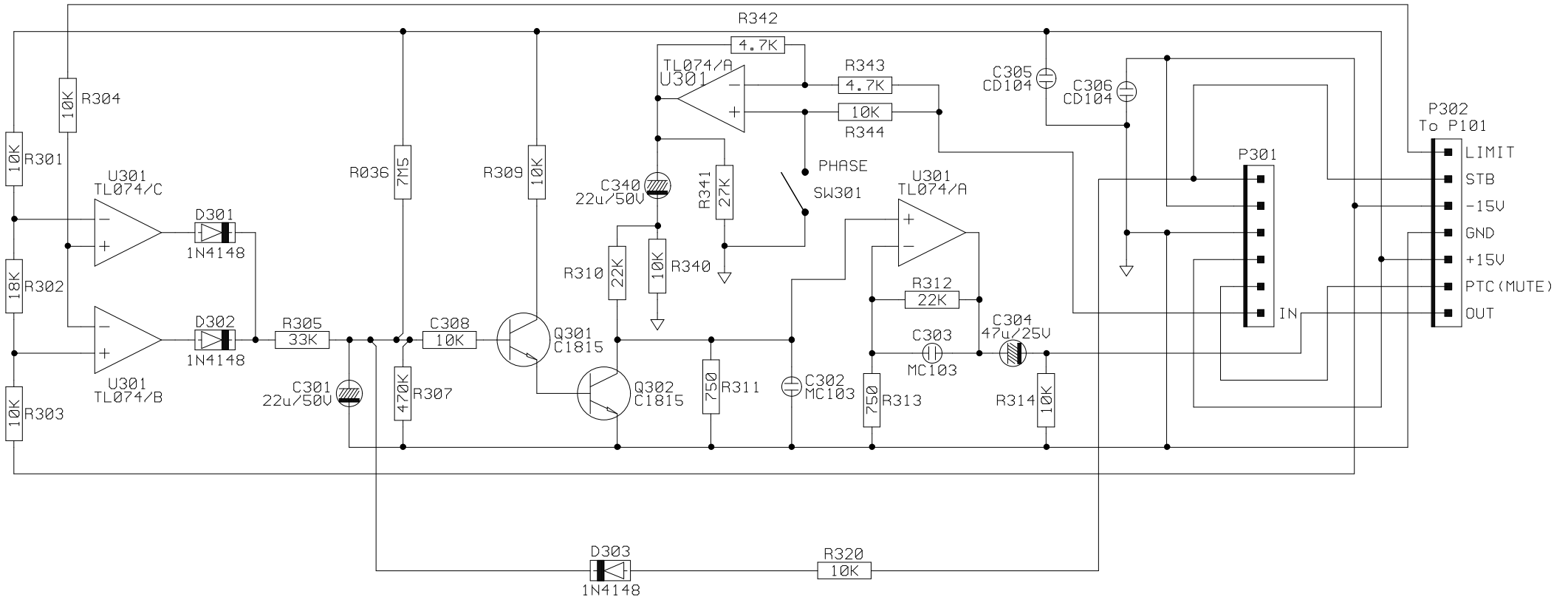
2SC1815  
Q101,102,111,112,113,115,118,  
201,206,207,301,302.



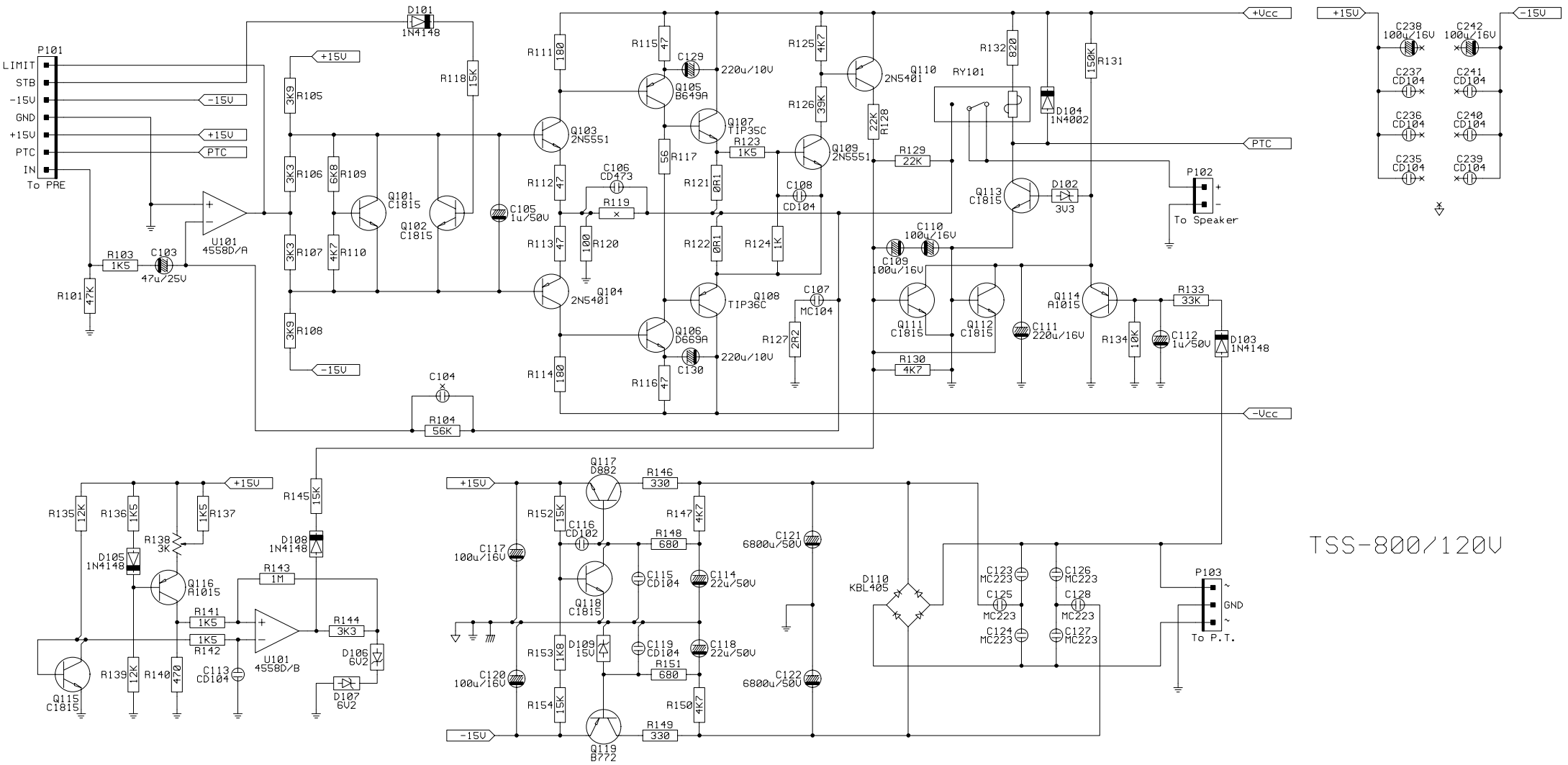




|      |      |      |                            |                 |
|------|------|------|----------------------------|-----------------|
| DRAW | DSGN | APVD | FILENAME: TSS-800. PRE-AMP | REVISION: A/1   |
|      |      |      | MODEL NO. TSS-800          | PAGE: 1/3       |
|      |      |      | CUSTOMER: JBL              | DATE: 2006-6-10 |
|      |      |      |                            |                 |



|            |          |            |                   |        |
|------------|----------|------------|-------------------|--------|
| APPROVE BY | CHECK BY | DRAWING BY | NAME : LIMITER    | 2 / 3  |
|            |          |            | MODEL : TSS-800   | REV:A0 |
|            |          |            | CUSTOMER : JBL    |        |
|            |          |            | DATE : 2006-06-10 |        |



TSS-800/120V

|            |          |            |                     |         |
|------------|----------|------------|---------------------|---------|
| APPROVE BY | CHECK BY | DRAWING BY | NAME: POWER-AMP     | 3 / 3   |
|            |          |            | MODEL: TSS-800/120V | REV: A0 |
|            |          |            | CUSTOMER: JBL       |         |
|            |          |            | DATE: 2006-06-10    |         |