

# Technical Service Manual

## PLX™ Series

- ▲ PLX 1202
- ▲ PLX 1602
- ▲ PLX 2402
- ▲ PLX 3002

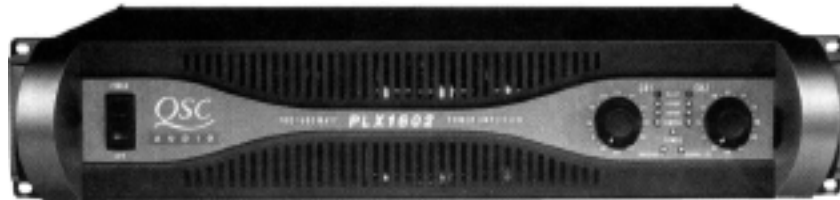


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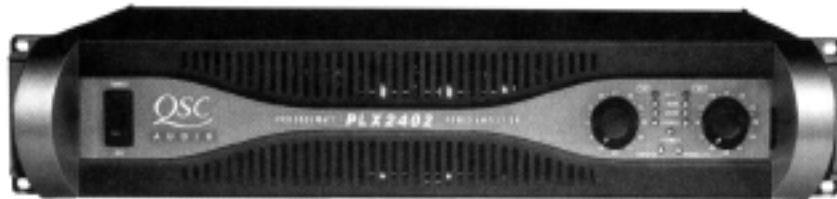
◆ PLX 1202



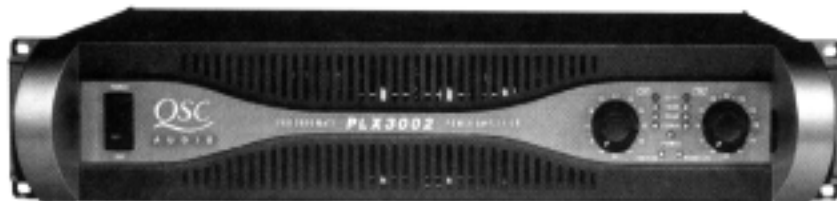
◆ PLX 1602



◆ PLX 2402



◆ PLX 3002



# PLX SERIES SERVICE MANUAL

**PLX 1202**  
**PLX 1602**  
**PLX 2402**  
**PLX 3002**

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# PLX Product Specifications

**PLX 1202**



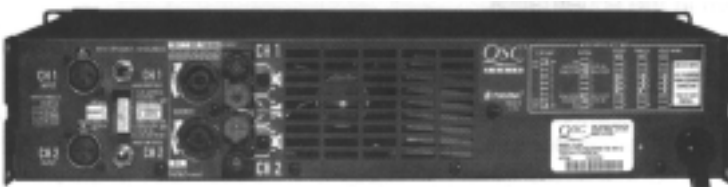
**PLX 1602**



**PLX 2402**



**PLX 3002**



	<b>PLX1202</b>	<b>PLX1602</b>	<b>PLX2402</b>	<b>PLX3002</b>
<b>Output Power (per channel):</b>				
<b>Continuous Average Output Power both channels driven:</b>				
8 ohms, 20Hz - 20kHz 0.03% THD	200 watts	300 watts	425 watts	550 watts
4 ohms, 20Hz - 20kHz 0.05% THD	325 watts	500 watts	700 watts	900 watts
<b>Continuous Average Output Power bridged mono operation:</b>				
8 ohms, 20Hz - 20kHz, 0.1% THD	700 watts	1100 watts	1500 watts	2000 watts
<b>Voltage Gain (dB)</b>	32	32	32	32
<b>Sensitivity (for rated power @ 8 ohms)</b>	1.00 V rms	1.20 Vrms	1.50 Vrms	1.70 vrms
<b>Distortion</b>	SMPTE-IM Less than 0.01%			
<b>Frequency Response (LF Switched Off)</b>	20Hz to 20kHz, +/-0.2dB 8Hz to 50kHz, +/-3dB			
<b>Damping Factor (1 kHz and Below)</b>	Greater than 500			
<b>Noise</b>	106dB below rated output (20 Hz to 20 kHz)			
<b>Input Impedance</b>	6k unbalanced, 12k balanced			
<b>Dimensions</b>				
<b>Faceplate Width</b>	Standard 19" Rack Mounting			
<b>Faceplate Height</b>	3.5"	3.5"	3.5"	3.5"
<b>Chassis Depth</b>	13.25"	13.25"	13.25"	13.25"
<b>Weight</b>				
<b>Net, Lbs/kg</b>	2119.5	2119.5	2119.5	2119.5

# I n t r o d u c t i o n

This manual is prepared to assist service personnel with the repair and calibration of PLX power amplifiers. The procedures described in this manual require advanced technical experience and sophisticated audio test equipment.



**CAUTION:** To reduce the risk of electric shock, do not remove the cover. No user-serviceable parts inside. Refer servicing to qualified personnel.



**WARNING:** To prevent fire or electric shock, do not expose this equipment to rain or moisture.

**CAUTION**

**RISK OF ELECTRIC SHOCK  
DO NOT OPEN**

## Documentation

This manual contains schematics, printed circuit board (PCB) drawings, parts lists, and mechanical assembly drawings. This information should be used in conjunction with the test and troubleshooting guide.

The electrical and electronic components are identified by circuit identification numbers on the schematics and the parts list. The test & troubleshooting sections refer to designations shown in the schematics.

## Equivalent Parts

Although many of the electronic components used in this product may be available from electronic suppliers, some components are specially tested and approved by QSC. A product repaired with non-QSC supplied components may not meet factory specifications. Repairs performed using non-QSC parts may void the product warranty. **When** in doubt, you may contact QSC Technical Services for assistance.

Parts orders to QSC should include the product model number, the part description, and the QSC part number (from the parts list in this manual). Parts will be shipped via UPS, F.O.B. Costa Mesa, California. Shipping, handling and COD charges may be added to the cost of the parts.

## Factory Repair

It may become necessary to return a product to the factory for repair. Call QSC Technical Services for return instructions. QSC Technical Services may be reached at (800) 772-2834.

## Test and Troubleshooting Equipment

- Distortion Analyzer capable of 0.01% THD+N
  - High Power Load Bank (8, 4, & 2 ohms)
  - Function Generator & Digital Multimeter
  - 20MHz Oscilloscope
  - Variac (0-140 VAC, 30-40A)
- Audio Precision - System One  
+ Thermometer

# T e s t & C a l i b r a t i o n

## PLX 1202 Test Procedure

### • SET-UP

1. Connect a test load to the output terminals of the amplifier.
2. Make sure Mode Switches 1 - 10 are in the default position (1 on, 10 on, all others off).
3. Connect a distortion analyzer with a resolution of 0.01%, 20-20kHz (or better) to the output terminals of the amplifier. Enable the 80kHz low pass filter.
4. Connect a dual-channel oscilloscope to the following test points:  
Ch1 - a 10X (vertical sensitivity - 2V/cm) scope probe to the channel speaker output.  
Ch2 - a 1X scope probe (vertical sensitivity - 0.1V/cm) to the distortion analyzer output.
5. Set amp gain pots fully clockwise and turn on power switch.
6. Connect the output of the signal generator to the input terminals of the amplifier and select an output of 1.30 VRMS, 1 kHz sine wave.
7. Plug the amplifier into a variac and set up an AC line current monitor.

### • POWER UP & MUTE DELAY TEST

CAUTION: To avoid damage to the main printed circuit board, place a 50 ohm 225W resistor (100 ohm, 240VAC) in series with the high (+) lead on the AC cable during variac ramp up. If the switching power supply has a shorted device at initial power up, this AC resistor pad will help prevent undue damage. After the amplifier has been fully powered up via the variac, confirm that the amplifier has achieved stable operation during idle. Remove AC power from the amplifier and disconnect the series resistor for normal operation. Continue with the test & calibration process.

1. Slowly raise the variac voltage and watch for excessive current draw (line current greater than 0.5A a.c. at 60 Volts). *This is slightly less for 240V.* Pause at 90VAC (200VAC *European*) for three seconds until the mute I protect circuit disengages. Continue to 120VAC (240V *European*).
2. Verify that the fan is operating at low speed.
3. Turn the power switch off and on a few times to verify the 3 second power-up muting delay.

### • CHANNEL OUTPUT

1. Look for amplified signal on the scope for channel 1. Switch the input signal and scope to channel 2 and repeat output test. Check for noisy / contaminated gain pots by observing general instability on the distortion waveform while adjusting the gain control levels.
2. Select an 8 ohm load and confirm that this amplifier is producing 200 watts at 1 kHz just below the point of clipping. Check both channels.

### • BRIDGE MODE

1. Turn the power switch off.
2. Set Mode Switch #7 in the on position. The gain control, limiter, and filter switch positions on CH2 are disabled with Mode Switch #7 on.
3. Set load to both red output binding posts (CH1 positive and CH2 negative).
4. Apply a 1.30 VRMS, 1 kHz sinewave input to channel I of the amplifier. Check the power and verify that the output does not immediately collapse. Check for 700 watts at 8 ohms.

5. Turn power off and place the amplifier back into the Stereo mode with output loads connected to each channel.

#### . BIAS

1. Let the amplifier cool down to room temperature.
2. With an input amplitude of 1.30Vrms increase the input frequency to 20kHz. Reduce the input signal 20dB (80%) from full output. Adjust the crossover trimpot VR43 (CH1) and VR166 (CH2) for about a 400mVpk-pk crossover spike protruding from the noise trace on the oscilloscope. It will be necessary to have the oscilloscope measure unfiltered distortion from the amplifier in order to see the crossover spike. It is necessary to disable the 80kHz lowpass filter on the analyzer for this test. Further trim so that the total distortion for that channel is less than 0.1% THD+N.
3. With the trim settings achieved, and with no signal plugged into the amplifier and with an 8 ohm load, verify that the AC idle current from the AC service is no more than 1 .0 amperes.
4. Let the amplifier cool down and check channel 2.

#### . SHORT CIRCUIT CURRENT

1. Select a 2 ohm load and apply a 1.3Vrms sinewave (1 kHz) input signal to both channels of the amplifier. Ensure that power is on and that the gain controls are fully up.
  2. While the amplifier is producing power into the loads, apply a short to the output binding posts of each channel. In other words, apply a jumper between the red and black binding posts of each channel. Once this is done, combined AC line current draw for both channels should be no greater than **13A** ac. This is with a 120 volt AC service to the amplifier. Current may be lower if AC line voltage is lower.
  3. Remove the short from each channel and verify that the channels recover in to 2 ohm loads. The output should not experience any hang up and a full sinewave should be present just as it was before a short was applied for this test.
  4. If the amplifier does not pass any of the above steps, troubleshoot the current limit section of the amplifier. If steps 2, 3, and 4 above pass, continue to the next test
- #### FREQUENCY RESPONSE.

#### ¡FREQUENCY RESPONSE

- 1, Set load to 8 ohms and scale the input generator to gain 1 watt of power from the amplifier on each channel. Gain controls on the amplifier should be fully up.
2. Check frequency response from 20Hz to 20kHz (+/- 0.20dB) by sweeping random frequencies between these extremes. This is done by verifying the same voltage amplitude at each of the frequencies selected (within 20Hz to 20kHz). Check both channels.

#### ¡POWER vs. DISTORTION TEST

1. Check to ensure that both channels will produce rated power at 20Hz, 2KHz, and 20kHz. into an 8 ohm load.
2. While verifying rated power, check that at all frequencies the distortion measurement is less than or equal to 0.03% THD.

#### ¡THERMAL TEST

1. Set input frequency to 1 KHz and short both channels while they are producing power into a load.
2. Apply a short to the output of each channel.
3. AC line current draw should be about 11 - 13.5 amperes for both channels. As the amplifier gets hot, there will be some current drift upwards and the fan speed will increase. This is not a problem as long as the case temperature on the output transistors does not exceed 105 degrees C.



4. Verify that the NTC circuit causes thermal shutdown after an extended period.
5. When thermal shutdown occurs, verify AC idle current of less than 0.90 amperes

#### CM TEST

1. Select an 8 ohm load and confirm that this amplifier is producing rated power.
2. Check the Common Mode of the amplifier by inserting a 1/4" input jack halfway into each channel and observe about 6 dB of output voltage reduction. There will also be a 180 degree phase inversion at the output of the channel under test.

#### OUTPUT NOISE

1. Set the amplifier gain controls all the way up, with a 1 kHz 1.30Vrms sinewave input signal. Note the output level at full power just below clipping. Adjust gain if needed.
2. Remove the input signal connector from the amplifier and measure the residual noise level produced into the load by the amplifier. The noise signal should be 107 dB down from the full output power point measured. A signal to noise ratio should be better than or equal to 107dB. Check both channels.

#### FINAL CHECK

This completes the amplifier test procedure for this model. Inspect the amplifier for mechanical defects. Inspect the solder connections. Reassemble the amplifier and verify the amplifier's operation before returning the product to service.

## PLX 1602 Test Procedure

### • SET-UP

1. Connect a test load to the output terminals of the amplifier.
2. Make sure Mode Switches 1 - 10 are in the default position (1 on, 10 on, all others off)
3. Connect a distortion analyzer with a resolution of 0.01%, 20-20kHz (or better) to the output terminals of the amplifier. Enable the 80kHz low pass filter.
4. Connect a dual-channel oscilloscope to the following test points:  
Ch1- a 1 OX (vertical sensitivity - 2V/cm) scope probe to the channel speaker output.  
Ch2 - a 1X scope probe (vertical sensitivity - 0.1V/cm) to the distortion analyzer output.
5. Set amp gain pots fully clockwise and turn on power switch.
6. Connect the output of the signal generator to the input terminals of the amplifier and select an output of 1.30 VRMS, 1 kHz sine wave.
7. Plug the amplifier into a variac and set up an AC line current monitor.

### POWER UP 8 MUTE DELAY TEST

CAUTION: To avoid damage to the main printed circuit board, place a 50 ohm 225W resistor (100 ohm, 240VAC) in series with the high (+) lead on the AC cable during variac ramp up. If the switching power supply has a shorted device at initial power up, this AC resistor pad will help prevent undue damage. After the amplifier has been fully powered up via the variac, confirm that the amplifier has achieved stable operation during idle. Remove AC power from the amplifier and disconnect the series resistor for normal operation. Continue with the test & calibration process.

1. Slowly raise the variac voltage and watch for excessive current draw (line current greater than 0.5A a.c at 60 Volts). *This is slightly less for 240V. Pause at 90VAC (200VAC European) for three seconds until the mute / protect circuit disengages. Continue to 120VAC (240V European).*
2. Verify that the fan is operating at low speed.

3. Turn the power switch off and on a few times to verify the 3 second power-up muting delay.

#### . CHANNEL OUTPUT

1. Look for amplified signal on the scope for channel 1. Switch the input signal and scope to channel 2 and repeat output test. Check for noisy / contaminated gain pots by observing general instability on the distortion waveform while adjusting the gain control levels.
2. Select an 8 ohm load and confirm that this amplifier is producing 300 watts at 1 kHz just below the point of clipping. Check both channels.

#### . BRIDGE MODE

1. Turn the power switch off.
2. Set Mode Switch #7 in the on position. The gain control, limiter, and filter switch positions on CH2 are disabled with Mode Switch #7 on.
3. Set load to both red output binding posts (CH1 positive and CH2 negative).
4. Apply a 1.30 VRMS, 1 kHz sinewave input to channel 1 of the amplifier. Check the power and verify that the output does not immediately collapse. Check for 1000 watts at 8 ohms.
5. Turn power off and place the amplifier under test back into the Stereo mode with output loads connected to each channel.

#### . B I A S

1. Let the amplifier cool down to room temperature.
2. With an input amplitude of 1.30Vrms increase the input frequency to 20kHz. Reduce the input signal 20dB (80%) from full output. Adjust the crossover trimpot VR43 (CH1) and VR166 (CH2) for about a 400mVpk-pk crossover spike protruding from the noise trace on the oscilloscope. It will be necessary to have the oscilloscope measure unfiltered distortion from the amplifier in order to see the crossover spike. It is necessary to disable the 80kHz lowpass filter on the analyzer for this test. Further trim so that the total distortion for that channel is less than 0.1% THD+N.
3. With the trim settings achieved, and with no signal plugged into the amplifier and with an 8 ohm load, verify that the AC idle current from the AC service is no more than 1 .0 amperes.
4. Let the amplifier cool down and check channel 2.

#### . SHORT CIRCUIT CURRENT

1. Select a 2 ohm load and apply a 1.3Vrms sinewave (1 kHz) input signal to both channels of the amplifier. Ensure that power is on and that the gain controls are fully up.
2. While the amplifier is producing power into the loads, apply a short to the output binding posts of each channel. In other words, apply a jumper between the red and black binding posts of each channel. Once this is done, combined AC line current draw for both channels should be no greater than 13A ac. This is with a 120 volt AC service to the amplifier. Current may be lower if AC line voltage is lower.
3. Remove the short from each channel and verify that the channels recover in to 2 ohm loads. The output should not experience any hang up and a full sinewave should be present just as it was before a short was applied for this test.
4. If the amplifier does not pass any of the above steps, troubleshoot the current limit section of the amplifier. If steps 2, 3, and 4 above pass, continue to the next test  
FREQUENCY RESPONSE.

#### FREQUENCY RESPONSE

1. Set load to 8 ohms and scale the input generator to gain 1 watt of power from the amplifier on each channel. Gain controls on the amplifier should be fully up.
2. Check frequency response from 20Hz to 20kHz (+/- 0.20dB) by sweeping random frequencies between these extremes. This is done by verifying the same voltage amplitude at each of the frequencies selected (within 20Hz to 20kHz). Check both channels.

#### POWER vs. DISTORTION TEST

1. Check to ensure that both channels will produce rated power at 20Hz, 2KHz, and 20kHz. into an 8 ohm load.
2. While verifying rated power, check that at all frequencies the distortion measurement is less than or equal to 0.03% THD.

#### THERMAL TEST

1. Set input frequency to 1 KHz and short both channels while they are producing power into a load.
2. Apply a short to the output of each channel.
3. AC line current draw should be about **11** - 13.5 amperes for both channels. As the amplifier gets hot, there will be some current drift upwards and the fan speed will increase. This is not a problem as long as the case temperature on the output transistors does not exceed 105 degrees C.
4. Verify that the NTC circuit causes thermal shutdown after an extended period.
5. When thermal shutdown occurs, verify AC idle current of less than 0.90 amperes.

#### CM TEST

1. Select an 8 ohm load and confirm that this amplifier is producing rated power.
2. Check the Common Mode of the amplifier by inserting a 1/4" input jack halfway into each channel and observe about 6 dB of output voltage reduction. There will also be a 180 degree phase inversion at the output of the channel under test.

#### OUTPUT NOISE

1. Set the amplifier gain controls all the way up, with a 1 kHz 1.30Vrms sinewave input signal. Note the output level at full power just below clipping. Adjust gain if needed.
2. Remove the input signal connector from the amplifier and measure the residual noise level produced into the load by the amplifier. The noise signal should be 107 dB down from the full output power point measured. A signal to noise ratio should be better than or equal to 107dB. Check both channels.

#### FINAL CHECK

This completes the amplifier test procedure for this model. Inspect the amplifier for mechanical defects. inspect the solder connections. Reassemble the amplifier and **verify** the amplifier's operation before returning the product to service.

## PLX 2402 Test Procedure

#### SET-UP

1. Connect a test load to the output terminals of the amplifier.
2. Make sure Mode Switches 1 - 10 are in the default position (1 on, 10 on, all others off).

3. Connect a distortion analyzer with a resolution of 0.01%, 20-20kHz (or better) to the output terminals of the amplifier. Enable the 80kHz low pass filter.
4. Connect a dual-channel oscilloscope to the following test points:  
 Ch1 - a 10X (vertical sensitivity - 2V/cm) scope probe to the channel speaker output.  
 Ch2 - a 1X scope probe (vertical sensitivity - 0.1V/cm) to the distortion analyzer output.
5. Set amp gain pots fully clockwise and turn on power switch.
6. Connect the output of the signal generator to the input terminals of the amplifier and select an output of 1.50 VRMS 1 kHz sine wave.
7. Plug the amplifier into a variac and set up an AC line current monitor.

#### POWER UP & MUTE DELAY TEST

CAUTION: To avoid damage to the main printed circuit board, place a 50 ohm 225W resistor (100 ohm, 240VAC) in series with the high (+) lead on the AC cable during variac ramp up. If the switching power supply has a shorted device at initial power up, this AC resistor pad will help prevent undue damage. After the amplifier has been fully powered up via the variac, confirm that the amplifier has achieved stable operation during idle. Remove AC power from the amplifier and disconnect the series resistor for normal operation. Continue with the test & calibration process.

1. Slowly raise the variac voltage and watch for excessive current draw (line current greater than 0.5A a.c at 60 Volts). *This is slightly less for 240V.* Pause at 90VAC (200VAC European) for three seconds until the mute / protect circuit disengages. Continue to 120VAC (240V European).
2. Verify that the fan is operating at low speed.
3. Turn the power switch off and on a few times to verify the 3 second power-up muting delay.

#### CHANNEL OUTPUT

1. Look for amplified signal on the scope for channel 1. Switch the input signal and scope to channel 2 and repeat output test. Check for noisy / contaminated gain pots by observing general instability on the distortion waveform while adjusting the gain control levels.
2. Select an 8 ohm load and confirm that this amplifier is producing 425 watts at 1 kHz just below the point of clipping. Check both channels.

#### BRIDGE MODE

1. Turn the power switch off.
2. Set Mode Switch #7 in the on position. The gain control, limiter, and filter switch positions on CH2 are disabled with Mode Switch #7 on.
3. Set load to both red output binding posts (CH1 positive and CH2 negative).
4. Apply a 1.30 VRMS, 1 kHz sinewave input to channel 1 of the amplifier. Check the power and verify that the output does not immediately collapse. Check for 1500 watts at 8 ohms.
5. Turn power off and place the amplifier under test back into the Stereo mode with output loads connected to each channel.

#### BIAS

1. Let the amplifier cool down to room temperature.
2. With an input amplitude of 1.50Vrms, increase the input frequency to 20kHz. Reduce the input signal 20dB (80%) from full output. Adjust the crossover trimpot VR43 (CH1) and VR166 (CH2) for about a 400mVpk-pk crossover spike protruding from the noise trace on the oscilloscope. It will be necessary to have the oscilloscope measure unfiltered distortion from the amplifier in order to see the crossover spike. It is necessary to

disable the 80kHz lowpass filter on the analyzer for this test. Further trim so that the total distortion for that channel is less than 0.1% THD+N,

3. With the trim settings achieved, and with no signal plugged into the amplifier and with an 8 ohm load, verify that the AC idle current from the AC service is no more than 1 .0 amperes.
4. Let the amplifier cool down and check channel 2.

#### SHORT CIRCUIT CURRENT

1. Select a 2 ohm load and apply a 1.3Vrms sinewave (1 kHz) input signal to both channels of the amplifier. Ensure that power is on and that the gain controls are fully up.
  2. While the amplifier is producing power into the loads, apply a short to the output binding posts of each channel. In other words, apply a jumper between the red and black binding posts of each channel. Once this is done, combined AC line current draw for both channels should be no greater than 13A ac. This is with a 120 volt AC service to the amplifier. Current may be lower if AC line voltage is lower.
  3. Remove the short from each channel and verify that the channels recover in to 2 ohm loads. The output should not experience any hang up and a full sinewave should be present just as it was before a short was applied for this test,
  4. If the amplifier does not pass any of the above steps, troubleshoot the current limit section of the amplifier. If steps 2, 3, and 4 above pass, continue to the next test
- #### FREQUENCY RESPONSE.

#### FREQUENCY RESPONSE

1. Set load to 8 ohms and scale the input generator to gain 1 watt of power from the amplifier on each channel. Gain controls on the amplifier should be fully up.
2. Check frequency response from 20Hz to 20kHz (+/- 0.20dB) by sweeping random frequencies between these extremes. This is done by verifying the same voltage amplitude at each of the frequencies selected (within 20Hz to 20kHz). Check both channels.

#### POWER vs. DISTORTION TEST

1. Check to ensure that both channels will produce rated power at 20Hz, 2KHz, and 20kHz. into an 8 ohm load.
2. While verifying rated power, check that at all frequencies the distortion measurement is less than or equal to 0.03% THD.

#### THERMAL TEST

1. Set input frequency to 1 KHz and short both channels while they are producing power into a load.
2. Apply a short to the output of each channel.
3. AC line current draw should be about 11 - 13.5 amperes for both channels. As the amplifier gets hot, there will be some current drift upwards and the fan speed will increase, This is not a problem as long as the case temperature on the output transistors does not exceed 105 degrees C.
4. Verify that the NTC circuit causes thermal shutdown after an extended period.
5. When thermal shutdown occurs, verify AC idle current of less that 0.90 amperes.

#### CM TEST

1. Select an 8 ohm load and confirm that this amplifier is producing rated power.
2. Check the Common Mode of the amplifier by inserting a 1/4" input jack halfway into each channel and observe about 6 dB of output voltage reduction. There will also be a 180 degree phase inversion at the output of the channel under test.

#### OUTPUT NOISE

1. Set the amplifier gain controls all the way up, with a 1 kHz 1.50Vrms sinewave input signal. Note the output level at full power just below clipping. Adjust gain if needed.
2. Remove the input signal connector from the amplifier and measure the residual noise level produced into the load by the amplifier. The noise signal should be 107 dB down from the full output power point measured. A signal to noise ratio should be better than or equal to 107dB. Check both channels.

#### FINAL CHECK

This completes the amplifier test procedure for this model. Inspect the amplifier for mechanical defects. Inspect the solder connections. Reassemble the amplifier and verify the amplifier's operation before returning the product to service,

## PLX 3002 Test Procedure

#### SET-UP

1. Connect a test load to the output terminals of the amplifier.
2. Make sure Mode Switches 1 - 10 are in the default position (1 on, 10 on, all others off).
3. Connect a distortion analyzer with a resolution of 0.01%, 20-20kHz (or better) to the output terminals of the amplifier. Enable the 80kHz low pass filter.
4. Connect a dual-channel oscilloscope to the following test points:  
Ch1 - a 10X (vertical sensitivity - 2V/cm) scope probe to the channel speaker output.  
Ch2 - a 1X scope probe (vertical sensitivity - 0.1V/cm) to the distortion analyzer output.
5. Set amp gain pots fully clockwise and turn on power switch.
6. Connect the output of the signal generator to the input terminals of the amplifier and select an output of 1.70 VRMS, 1 kHz sine wave.
7. Plug the amplifier into a variac and set up an AC line current monitor.

#### POWER UP 8 MUTE DELAY TEST

CAUTION: To avoid damage to the main printed circuit board, place a 50 ohm 225W resistor (100 ohm, 240VAC) in series with the high (+) lead on the AC cable during variac ramp up. If the switching power supply has a shorted device at initial power up, this AC resistor pad will help prevent undue damage. After the amplifier has been fully powered up via the variac, confirm that the amplifier has achieved stable operation during idle. Remove AC power from the amplifier and disconnect the series resistor for normal operation. Continue with the test & calibration process.

1. Slowly raise the variac voltage and watch for excessive current draw (line current greater than 0.5A a.c. at 60 Volts). *This is slightly less for 240V. Pause at 90VAC (200VAC European) for three seconds until the mute / protect circuit disengages. Continue to 120VAC (240V European),,*
2. Verify that the fan is operating at low speed.
3. Turn the power switch off and on a few times to verify the 3 second power-up muting delay.

#### CHANNEL OUTPUT

1. Look for amplified signal on the scope for channel 1. Switch the input signal and scope to channel 2 and repeat output test. Check for noisy / contaminated gain pots by observing general instability on the distortion waveform while adjusting the gain control levels.

2. Select an 8 ohm load and confirm that this amplifier is producing 550 watts at 1 kHz just below the point of clipping. Check both channels.

#### BRIDGE MODE

1. Turn the power switch off.
2. Set Mode Switch #7 in the on position. The gain control, limiter, and filter switch positions on CH2 are disabled with Mode Switch # 7 on.
3. Set load to both red output binding posts (CH1 positive and CH2 negative).
4. Apply a 1.30 VRMS, 1 kHz sinewave input to channel 1 of the amplifier. Check the power and verify that the output does not immediately collapse. Check for 2000 watts at 8 ohms.
5. Turn power off and place the amplifier under test back into the Stereo mode with output loads connected to each channel.

#### BIAS

1. Let the amplifier cool down to room temperature.
2. With an input amplitude of 1.70Vrms increase the input frequency to 20kHz. Reduce the input signal 20dB (80%) from full output. Adjust the crossover trimpot VR43 (CH1) and VR166 (CH2) for about a 400mVpk-pk crossover spike protruding from the noise trace on the oscilloscope. It will be necessary to have the oscilloscope measure unfiltered distortion from the amplifier in order to see the crossover spike. It is necessary to disable the 80kHz lowpass filter on the analyzer for this test. Further trim so that the total distortion for that channel is less than 0.1% THD+N.
3. With the trim settings achieved, and with no signal plugged into the amplifier and with an 8 ohm load, verify that the AC idle current from the AC service is no more than 1 .0 amperes.
4. Let the amplifier cool down and check channel 2.

#### SHORT CIRCUIT CURRENT

1. Select a 2 ohm load and apply a 1.3Vrms sinewave (1 kHz) input signal to both channels of the amplifier. Ensure that power is on and that the gain controls are fully up.
2. While the amplifier is producing power into the loads, apply a short to the output binding posts of each channel. In other words, apply a jumper between the red and black binding posts of each channel. Once this is done, combined AC line current draw for both channels should be no greater than 13A ac. This is with a 120 volt AC service to the amplifier. Current may be lower if AC line voltage is lower.
3. Remove the short from each channel and verify that the channels recover in to 2 ohm loads. The output should not experience any hang up and a full sinewave should be present just as it was before a short was applied for this test.
4. If the amplifier does not pass any of the above steps, troubleshoot the current limit section of the amplifier. If steps 2, 3, and 4 above pass, continue to the next test FREQUENCY RESPONSE.

#### FREQUENCY RESPONSE

1. Set load to 8 ohms and scale the input generator to gain 1 watt of power from the amplifier on each channel. Gain control on the amplifier should be fully up.
2. Check frequency response from 20Hz to 20kHz (+/- 0.20dB) by sweeping random frequencies between these extremes. This is done by verifying the same voltage amplitude at each of the frequencies selected (within 20Hz to 20kHz). Check both channels.

#### POWER vs. DISTORTION TEST

1. Check to ensure that both channels will produce rated power at 20Hz, 2KHz, and 20kHz. into an 8 ohm load.
2. While verifying rated power, check that at all frequencies the distortion measurement is less than or equal to 0.03% THD.

#### THERMAL TEST

1. Set input frequency to 1 KHz and short both channels while they are producing power into a load.
2. Apply a short to the output of each channel.
3. AC line current draw should be about 11 - 13.5 amperes for both channels. As the amplifier gets hot, there will be some current drift upwards and the fan speed will increase. This is not a problem as long as the case temperature on the output transistors does not exceed 105 degrees C.
4. Verify that the NTC circuit causes thermal shutdown after an extended period.
5. When thermal shutdown occurs, verify AC idle current of less than 0.90 amperes.

#### CM TEST

1. Select an 8 ohm load and confirm that this amplifier is producing rated power.
2. Check the Common Mode of the amplifier by inserting a 1/4" input jack halfway into each channel and observe about 6 dB of output voltage reduction. There will also be a 180 degree phase inversion at the output of the channel under test.

#### OUTPUT NOISE

1. Set the amplifier gain controls all the way up, with a 1 kHz 1.70Vrms sinewave input signal. Note the output level at full power just below clipping. Adjust gain if needed.
2. Remove the input signal connector from the amplifier and measure the residual noise level produced into the load by the amplifier. The noise signal should be 107 dB down from the full output power point measured. A signal to noise ratio should be better than or equal to 107dB. Check both channels.

#### FINAL CHECK

This completes the amplifier test procedure for this model. Inspect the amplifier for mechanical defects. Inspect the solder connections. Reassemble the amplifier and verify the amplifier's operation before returning the product to service.



# T r o u b l e s h o o t i n g

PLX 1202 | PLX 1602 | PLX 2402 | PLX 3002

## Power Supply - - Replacing Blown IGBTs.

In order to improve EMI performance, reduce cost, and increase current capacity, the PLX IGBT's are driven by an active, direct coupled integrated circuit, rather than a gate drive transformer. IGBT or driver failure should be rare (when correctly assembled) but when the IGBT's blow, it usually damages the following parts:

### CHECKLIST AFTER BLOWN IGBT'S

Q96, Q97, (IGBT's generally fail in pairs)

D78, D79, R358, R359, gate drive coupling components, check after removing blown IGBT's.

**U18**, IR2110 high-side gate driver, Fault current when low-side IGBT shorts to upper rail. Such currents also typically damage the gate coupling parts noted above.

**U19**, 3525 controller, Blows from currents shorted thru U18, or possibly by overvoltage on the supply rail  
SOMETIMES **U14**, 556, powered from 5V output of 3525, which may fail high when 3525 fails.

RARELY **U13**, which has fairly high supply voltage ratings.

### PROBABLE CAUSES OF MASSIVE IGBT FAULTS

#### SHORTS IN CONTROL CIRCUIT.

The parts operate well within their ratings and should hold up well in the field. The usual cause of failure is when both IGBT's turn on at once, shorting Pri-Hi to Pri-Lo. This occurs when something causes the drive signal to one part to remain on when the other part is supposed to turn on. Shorts from solder or debris are one obvious cause.

#### SHORTS IN THE LOAD.

Although there is peak current shutdown, shorts in the power amplifier transistors or secondary-side supply components can cause currents to increase too quickly to prevent damage.

#### OVERVOLTAGE ON THE BIAS SUPPLY.

If the TOP-210 bias supply fails to operate, no harm occurs, the unit simply does not operate.

However, open circuit (missing part) in several key components can cause the Bias supply voltage to be much too high, This blows the 2110 and thus the IGBT's.

#### QUICK TEST OF BIAS SUPPLY.

Ramp the AC voltage up slowly to 25% of regular voltage (30V for 120V unit). If the bias supply is working normally, the green "power" LED should come on between 30 and 35V, with its usual, steady "half-bright" start-up level. If the LED comes on at 20V, or not until 50V, or blinks, DO NOT RAISE VOLTAGE PAST 60V until you have measured the bias voltage. The switching will not start until you reach 90V, so you can save the IGBT's from blowing.

Confirm that bias voltage at C138 is 18-19V. Open or missing D63, 64, 65, 66, 67 or R349 will break the feedback to U16 and cause overvoltage.

## Troubleshooting “TOP-210” Bias Supply.

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### QUICK TEST OF BIAS SUPPLY.

Ramp the AC voltage up slowly to 25% of regular voltage (30V for 120V unit). If the bias supply is working normally, the green “power” LED should come on between 30 and 35V, with its usual, steady “half-bright” start-up level.

CAUTION: if the LED comes on at 20V, or not until 50V, or blinks, DO NOT RAISE VOLTAGE PAST 60V until you have measured the bias voltage. The switching will not start until you reach 90V, so you can save the IGBT’s from blowing.

Confirm that bias voltage at C138 is 18-19V.

### BIAS SUPPLY VOLTAGE MUCH TOO HIGH

D63,64,65,66,67 or R349 open or missing -- breaks feedback to U16

### NO BIAS SUPPLY VOLTAGE

U16 missing or blown.

T1 missing, reversed, or open primary

D62 open or missing.

### BIAS VOLTAGE ERRORS

The exact voltage is controlled by the feedback through D63, 64, 65, 66, 67 and R349 as follows:

C138 is the “+18V” rail with about 18.8V typical.

D63, 64, 65 each subtract a diode drop (0.7V) from C138.

C139, is the “+16V” rail with about 16.6V typical.

D66, a 10V zener diode, plus diode D67, subtract about 1 IV from +16.6V.

R349 subtracts about 0.5V, bringing the net voltage at U16, feedback pin 4, to about 5.1V.

U16 uses this feedback to adjust the “on” time at pin 5, in order to raise or lower the flyback voltage charging C138 and thus maintain regulation of the +16V and +18V supplies

C142, R356, and R349 form a closed-loop stability circuit which prevents the regulated voltage from “hunting”.

Q99 and associated R374 reduce the voltage of the Bias supply by 33% when the AC voltage is turned off.

This prevents the Power LED from showing at half brightness after turn-off, since U16 continues to run from the main filters for some time after shut down R375 and 376 sense the output of U13:3, the “Loss of AC” comparator, and cause Q99 to turn on. If Q99 is shorted, the bias voltages will remain 33% low when AC is turned on.

### REPLACING BLOWN TOP-210.

If U16 has blown, check T-1 for continuity after removing U16. Its primary may be open. Pins 1-2 It should measure about 15 ohms

## Replacing Blown Output Transistors

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### OUTPUT TRANSISTOR SHORTED

Shorts in one device tend to cause the opposing device to blow as well,

If an output transistor shorts:

Drive transistor will be shorted (Q26, Q27, Q71, Q72)

Some transistors will short in pairs (Q39 & Q40, Q36 & Q37, Q84 & Q85, Q81 & Q82)

The rest will short in fours (Q28, Q29, Q34 & Q35; Q73, Q74, Q79 & Q80)

IGBT’s & their associated components may fail

CHECK EMITTER AND BASE RESISTORS WHILE DEVICES ARE REMOVED,  
 Each output transistor has an associated pair of 0.47 ohm resistors in parallel.  
 Each BANK of output transistors has a 15 ohm resistor from base to rail (emitter bus).

## Audio Outputs, Troubleshooting Current Limit

### WEAK CURRENT LIMIT -- PREMATURE CLIPPING.

The usual symptom of weak output current is premature clipping of one or more peaks of the audio voltage. This could be caused by missing step, weak current limit, or dead output section.

### PREMATURE CLIPPING at 60% VOLTAGE, SIMILAR AT ALL IMPEDANCES:

This points to a step problem (2402, 3002 only). See Step Troubleshooting.

If the amplifier reaches full voltage at 8 ohms, but prematurely clips at 4 ohms or 2 ohms, we can assume the step is OK but the output current is too low (see below).

### NO OUTPUT AT ALL ON ONE POLARITY.

This indicates complete failure (open circuit) in the circuit leading to the dead output polarity. Check the series components in the current splitter for missing or open:

Ch 1: Positive, Q19, R381, Q20, R70, D10, D14. Negative: Q22, R382, Q21, R71, DI 1, D12

Ch 2: Positive, Q64, R383, Q65, R193, D35, D39. Negative: Q67, R384, Q66, R194, D36, D37

### CONSTANT, PREMATURE CLIPPING, WORSE AT LOW IMPEDANCES.

First, check the clamping voltages on C21 (Ch 1+), C22 (Ch 1-), C56 (Ch 2+), C57 (Ch 2-), as shown in table below. At idle, all four voltages should all be similar. If one is out, check parts according to the following table

### CLAMPING VOLTAGES ARE WRONG AT IDLE

CHANNEL-POLARITY	CH 1+	CH 1-	CH 2+	CH 2-
Measure voltage on:	c21	c22	C56	c57
3002 and 2402, about 6V.				
1602, about 4.6V,				
1202 about 4.9V.				
Voltage too high: missing resistor:	R60	R61	R183	R184
or missing transistor:	Q14	Q15	Q59	Q60
Voltage 0-0.3V: shorted transistor	Q14, 24	Q15, 25	Q59, 69	Q60, 70
or missing resistor	R 51, 72	R53, 75	R174, 195	R176, 198
Voltage 0.7V, missing resistor:	R59	R62	R182	R185
Voltage wrong: wrong value	R59, 60	R62, 61	R182, 183	R185, 184

The exact voltage varies with temperature. Look for the mismatching value on the weak cell.

A too-low voltage causes early clamping of that output section, as explained in the previous several pages.

If the voltage is correct and current is still low, also check for missing - unsoldered output device, or emitter resistors.

## Audio Power Stage, Current Limit Troubleshooting

### CURRENT LIMITS WHICH COLLAPSE PREMATURELY.

An immediate collapse of ALL current limits at full power could be premature triggering of "Power Supply Cutback", which is described in the section below. Cutback after several seconds of full power operation at two ohms is normal.

Cutback of one or more output sections, at full temperature, while approaching full power into two ohms is also normal. However, cutbacks at 4 ohms, or when cold into two ohms, indicate problems with the transistor power measuring circuitry.

### CLAMPING VOLTAGES COLLAPSE TOO SOON.

CHANNEL-POLARITY	CH 1+	CH 1-	CH 2+	CH 2-
Measure voltage on:	c21	c22	C56	c57
Cuts back too easily: low value,	R67, 73	R68, 74	R190, 196	R191, 197
or high value:	R 51, 72	R53, 75	R174, 195	R176, 198
or missing diode:	D9	D8	D34	D33

### CLAMPING VOLTAGES ARE CORRECT, CURRENT STILL WEAK.

Shorted diode	D10, 14	D11, 12	D35, 39	D36, 37
Missing-unsoldered output device or emitter resistor.				

### TROUBLESHOOTING "POWER SUPPLY CUTBACK".

As noted in the section on Power Supply, the *amplifier's* current limit cuts back when necessary to protect the power supply. Because the Observed effect is a reduced output voltage, in response to prolonged operation above the long-term current limit, we commonly refer to this behavior as "power supply cutback", but we must remember that it is actually *amplifier current limiting* in response to an overload signal sent from the power supply. Full power operation into 2 ohms (both channels) should produce a 50% cutback of current after several seconds.

If both channels of the amplifier fail to cut back after about 3 seconds, 2-ohms, both channels driven, the cutback signal is probably missing. CAUTION: Prolonged operation under these conditions could blow IGBT or burn out C144. Test for 6-10 seconds maximum.

Check the output (secondary side) pins of U17 (sh 4). Confirm presence of +6V on pin 5. Pin 4 should normally be at about 0V, and go high (1-5V) after 3 seconds at full power,

If U17-pin 4 does not go high, check U17 itself. If it appears OK, trace the circuitry driving U17 (PRIMARY SIDE, CAUTION). Check for continuity through L6:2 to Pri-Lo, check missing or open R343, D61, Q95, R347, all of which drive optocoupler U17. A short in R346 or CI31 will also prevent drive to U17.

If U17-pin 4 goes high on schedule, and BOTH channels fail to cut back, trace voltage on "PS\_OL" bus to R273 (sh 3), which connects to "MUTE+" bus. Continue tracing voltage on MUTE+ to Q16 (sh 1) and Q61 (sh 2). If only ONE channel fails to cut back, look for missing Q16, R 65, Q17 (sh 1) or Q61, R188, Q62 (sh 2).

CI31 controls the speed of cutback.. If missing, the amplifier current limits will enter cutback almost immediately at or above full power, 4 ohms.

### SHORT CIRCUIT CURRENT DOESN'T CUT BACK.

CAUTION: DO NOT MAINTAIN A SHORTED LOAD IF CUTBACK FAILS TO OCCUR WITHIN 1 SECOND.

It will be necessary to measure the output current with a DC current probe, or by noting the voltage across a low value resistance with a DC scope, in order to determine which output cell is failing to cut back.

Failure to cut back could indicate either lack of clamping, or lack of voltage cutback. Measure the voltage on the respective clamp capacitor. If the voltage decreases, but current limiting does not cut back, check the clamping transistor. :

#### CLAMPING VOLTAGE DECREASES, BUT NO CURRENT CUTBACK

CHANNEL-POLARITY	CH 1+	CH 1-	CH 2+	CH 2-
Measure voltage on:	c21	c22	C56	C57
Check clamp transistor	Q18	Q23	Q63	Q68

If the measured voltage on the clamp capacitor is not decreasing to about 50% during the short, check the circuitry which measures the current during short circuit,

#### CLAMPING VOLTAGE DOES NOT DECREASE TO 50% DURING SHORT.

CHANNEL-POLARITY	CH 1+	CH 1-	CH 2+	CH 2-
Measure voltage on:	c21	c22	C56	c57
Missing cutback transistor, resistor	Q24, R67	Q25, R68	Q69, R190	Q70, R191
Missing voltage sense resistor,	R 73	R 74	R196	R197
Shorted or low value shunt resistor	R72	R75	R195	R198

## Troubleshooting Thermal Tracking

#### MOUNTING PROBLEMS WITH 10K SENSING NTC.

The thermal sensing for fan and bias tracking depends on a 1 OK NTC which is mounted in a hole in the heat sink. The hole is filled with thermal grease to improve coupling. If the NTC is not straight while mounting the heat sink, it may short out against the side of its hole. It is mounted on a standoff which protrudes into the hole, so this should not occur if care is taken while installing the heatsink.

If shorted to the heat sink, the amplifier output voltage is coupled to the NTC. If the short is to the grounded lead of the NTC, it may not damage anything. If to the other end, a large voltage is put across the NTC which will probably damage it.

#### SHORT FROM "LIVE" END OF NTC TO HEAT SINK:

Replace affected NTC

BE AWARE! This can short (relatively) quietly and then appear to be operating normally. Poor bias tracking can indicate this problem. Sometimes this short will not happen until the amplifier is driven past IV input.

#### NTC BENT OVER AND SHORTED TO DRIVER TRANSISTORS.

May touch Q19, Q26, or Q64, Q71.

This causes severe overcurrent to the affected output cell, possibly damaging the parts in series with the shorted transistor. It may also blow the power supply.

Replace affected NTC, drive transistors, check components in series with drive transistor

Ch 1:	Q19 shorted, check, R381, Q20, R70, D10, D14. Q26 shorted, check ALL outputs and opposing driver transistor on this channel.
Ch 2:	Q64 shorted, check R383, Q65, R193, D35, D39. Q71 shorted, check ALL outputs and opposing driver transistor on this channel.

## Audio Output, Troubleshooting Stability Feedback

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### HIGH FREQUENCY OSCILLATIONS

SEVERE-DRAWS CURRENT-GROSS DISTORTION

C27 (62) missing or wrong, or series R367 (368)

C 25, 26 (60, 61) missing

Secondary filter capacitors missing or open (unlikely that ALL are defective).

SEVERE, BUT DOES NOT DRAW LARGE CURRENT

R22 (146) open.

MARGINAL -- MAY APPEAR ONLY AS EXCESS DISTORTION

CI4 (49) missing

CI 6 (50) missing or too large

C28 (63) missing

C 25 or 26 (60 or 61) missing or too large

CI95 or 196 missing (input board).

EXCESSIVE OSCILLATION JUST BELOW CLIPPING, 2-4 ohms

CI 7 (52) missing

NOTE: about 0.1% oscillation right below clipping at 2 ohms is normal.

EXCESSIVE SWITCHING INTERFERENCE.

Switching interference may LOOK like an instability, however it is at a much lower frequency (110kHz) than most instabilities. It will be more visible at low frequencies (200Hz) and at lower impedances.

Missing jumper at R224.

Missing C129, 134 on output board.

Grounds not connected to chassis at output board and front chassis mounting screw.

### FEEDBACK PROBLEMS: GAIN INCORRECT

Gain of output stage set by R23, 31 (147, 153)

Gain of Ch 1 volume control buffer stage set by RI 1, 16.

Gain of Ch 2 volume control buffer stage set by R137, 139. Make sure Q48 is turned on - grounding R137 at Q48 should not affect gain. Check RI 32 (drives Q48).

Gain of balanced input is set by 4 matched resistors R9, 8, 12, 13 (129, 130, 135, 136). Confirm both sides of balanced input are working. Check R5, 6 (123, 124).

## Audio Output, Troubleshooting Clipping, Limiting

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### EXCESS STICKING (TOO MUCH DISTORTION DURING CLIP LIMITING)

**CI4 (49) much** too large (also causes increased high frequency distortion).

R38 (161) missing.

R38-39 (161-162) have wrong values.

Q9, 10 (54, 55) missing

R34 (157) or R35 (158) missing

Q8 (53) missing

CLIP LIMITING DOESN'T WORK:

BOTH CHANNELS:

Check U3 missing,  
Check U3 supply voltages, +13VCL, -13VCL, on C73, 74

ONLY ONE CHANNEL BAD:

Probe output of U2 (7), pin 7 while clipping. If output exceeds 4V during clipping, check :  
R38 (161) missing.  
R38-39 (161-162) have wrong values.  
Q9, 10 (54, 55) missing.  
R34 (157) or R35 (158) missing  
Q8 (53) missing

If output at pin 7 clamps at 3.5-4V as expected, check parts surrounding U3:

R32 (154) missing  
Q7 (52) missing  
R28 (151) missing  
Q6 (51) missing  
R18 (141) missing  
R19 (142) missing  
SW 1:1(1:10) not making contact  
Check each pin on U3

CLIP LIMITING OSCILLATES:

CI 3 (48) missing.  
R21, 27 (144, 150) missing

## Troubleshooting Step Problems

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EXCESSIVE STEP DISTORTION (STEP GLITCH)

Close scrutiny of the distortion trace, and scope probing of the switched waveform, will help determine the cause of excess step distortion. The step should switch when the output voltage is within 10-12 volts of its respective rail. This switching margin should be fairly constant from 20- 20kHz. The switching event itself should be a fairly uniform up and down ramp, moving at about 25 volts/us, therefore taking about 2us to complete its transition.

Step Switching Too Close to the Rail:

This will cause increased step glitch, especially at low impedances. If present at all frequencies, check the reference voltages:

Negref: 17.5 volts above its intermediate rail: D88, R276-7-8.  
PosRef: 20V below its intermediate rails: D87, R256, 257, D53.

Confirm correct values in output voltage divider: R48 loaded by R49-50 (R171, and R172-173). If present only at high frequencies, check the value of the speed up capacitor C20 (C55) in the output voltage divider, or look for slow switching (see below).

### **Step Chattering.**

If the step repeatedly switches on and off, usually at a low frequency, it creates an oscillation burst which increases step glitch at low frequency. The tendency is usually worse at low impedances and low frequencies. 2-3 “false trials” at very low frequency, 2 ohms, is normal, but prolonged bursts of maximum frequency chattering may cause FET failure.

Positive step: check hysteresis resistor R66 (RI 89)

Negative step: check hysteresis resistor R69 (RI 92) and capacitor CI 87 (CI 93).

### **Slow or Fast Switching.**

Slow switching reduces step glitch but puts more strain on the FET. Fast switching increases step glitch. The usable limit is 17-27 volts/us,

If both slopes are equally off speed, check the slope capacitors:

Positive, C30 (C65) and Negative, C29 (C64).

If only one slope is slow, check the resistors and buffer transistors:

Positive step: R78, 79, D15, Q30-31 (R201, 202, D40, Q75-76)

Negative step: R83, 84, D17, Q32-33 (R206, 207, D42, Q77-78).

### **Step FET Oscillation.**

Certain FET types oscillate at extremely high frequency while ramping up and down. This injects interference into the amplifier which increases the step glitch. Such problems are supposed to be found while (dis)qualifying specific FET types. If they crop up in production, Engineering needs to know.

### **STEP WON'T TURN ON (Premature Clipping)**

If the step refuses to switch high, the amp will clip prematurely, at the intermediate rail, at any load. Make sure the clipping is not actually current cutback, usually evident only at 2 ohms. Probe the output voltage and intermediate rail voltages to confirm clip point and lack of step action. Trace the circuit from the step FET back via gate drive to drive circuit to locate cracks, missing part etc. Check DC power on step driver (14V on EACH positive step drivers, 12V on BOTH negative drivers). Check voltage of PosRef (20V below +65V rail) or Negref (17.5V above -65V rail). Look for severe mismatches of the comparator resistor ladders.

### **STEP STUCK ON (Switched Rail Voltage Stuck On Full)**

If the **positive** step is stuck on, (evidenced by permanent high voltage on switched rail) the FET is probably bad, since the positive gate drive cannot sustain DC turn-on due to the bootstrapping. If the **negative step** is stuck on, it could be a bad FET, or the gate drive circuit could be holding the FET on, which will easily be confirmed by measuring the gate voltage. Malfunctioning gate drive circuitry should be checked as noted above under “Won’t Turn On”.

### **REPEATED FET FAILURE.**

Repeated failure of step FET's is usually caused by failure to fully switch ON or OFF (lingering in the linear region). The actual failure usually occurs at 2 ohms, where the dissipation is highest. After replacing the FET, the step waveform should be monitored, starting at light load to avoid repeated failure, and advancing briefly to heavier loads while closely watching the waveform. You will need to use an isolated scope probe which allows voltage readings to be taken with respect to the intermediate rails, or to FET sources.

#### **FET Does Not Fully Turn On:**

Generally causes problems at low frequency, 2 ohms.

Confirm that the step FET remains fully on for the entire cycle (20Hz). If not, confirm weak gate drive and determine cause.

Weak positive drive: check voltage on C32 (C51) for 14V. Check C31 (C66), low R104 (R227), missing D18 (D148). Check R78, D15, Q30 (R201, D40, Q75).

Weak negative drive: check voltage on C67, 12V. Check R83, D17, Q32 (R206, D42, Q77).



**FET Turns On or Off Very Slowly:**

Generally causes problems at high frequency, 2 ohms.

If both slopes are equally slow, check the slope capacitors:

Positive, C30 (C65) and Negative, C29 (C64).

If only one slope is slow, check the resistors and buffer transistors:

Positive step: R78, 79, D15, Q30-31 (R201, 202, D40, Q75-76)

Negative step: R83, 84, D17, Q32-33 (R206, 207, D42, Q77-78).

**Severe Step Oscillation.**

Generally observed at low frequency, low impedance, right at threshold.

Positive step: check hysteresis resistor R66 (RI 89)

Negative step: check hysteresis resistor R69 (RI 92) and capacitor CI 87 (CI 93)

## Troubleshooting DC Fault Shutdown

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### NORMAL BEHAVIOR OF THE CIRCUIT.

Any amplifier fault which causes a non-symmetrical output, such as premature clipping of one polarity, a missing step, etc, may trigger DC fault shutdown. This indicates normal operation of the circuit

### TRACING THE CAUSE OF FALSE TRIGGERS.

If amplifier is shutting down for no apparent cause, the source of the false signal must be found. Be sure the output is checked with a DC coupled scope in order to confirm absence of an actual DC offset. The circuit will trip on DC offsets exceeding about 4V.

The optocoupler's input can be safely disabled by shorted U15, pins I-2 together. This will indicate if false triggering is before or after U15.

The output of U10:1, pin 1 should be monitored. If it goes low during DC shutdown, it is sending the false signal.

### SHUTDOWN OCCURS AS SOON AS SWITCHING STARTS.

Disable U15 as noted above, determine if there is a DC fault condition. CAUTION: use 50-ohm resistor in series with AC line to limit fault current in case of shorted outputs.

If amplifier output looks OK, check U10:1 output. If low, check voltage on pins 2 and 3

U10:1, pin 2: should be zero (no signal)

U10:1, pin 3: should be about 2V, set by R243, 244, 245.

Check R348 at U1.5.

### SHUTDOWN OCCURS ABOVE ABOUT 4V OUTPUT:

Q87, C7, R240 or D48 missing.

Confirm D48 is pulled low (-13V), holding Q87 on. If not, check RI 17, 118, Q42

NOTE: this control voltage responds to the Br Mono switch, pole 7.

Check R348 at U15.

Bad connection at step diodes (D21, D22, D46, D47)

## Fan Speed Troubleshooting

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### FAN STUCK HIGH:

Q88 or Q89 failed

R30 or **R155**, Thermal Sense NTC, shorted to heatsink

R266 or R271 missing.

### FAN DOESN'T RUN

Check fan voltage, should be 1 IV when cold, 29V when hot.

Voltage OK -- replace fan.

No Voltage: check Q91, 89, 90, R264 and 265 missing. Confirm that +/-15V is reaching circuit.

**PLX 1202 PCB ASSEMBLY (120V)**

Part Number	Description	Reference
CA-010002-30	CAP 1 OPF 5% 50V 0805 SMT	c14,49
CA-01 5002-10	CAP CER 15PF 10% 500V SL	C16,50
CA-I 10002-30	CAP CER 1 OOPF 5% 50V NPO SM	C40,41,43, C5,6,9,18, c53
CA-I 33001-10	CAP SM 330PF 5% 500V	C145,146
CA-I 47003-30	CAP 470PF 5% 50V 1206 SMT	C1,2,4,17, C119,121, C148,181, C182,186, C188 C26,36,37, C52,61,
CA-168003-30	CAP CER 68OPF 5% 50V NPO SM	C25,60
CA-21 0005-30	CAP ,001 UF 5% 50V 1206 SMT	C120,124, C195,196 C75,81,85,
CA-222001-00	CAP CER Y .0022UF 20% 125VAC	C122,127
CA-227001-30	CAP CER .0027UF 10% 100V 0805	C108,109, C128 C20,23,24, C55,58,59,
CA-233001-10	CAP MYLAR .0033UF 10% 100V	C113
CA-233002-00	CAP CER Y .0033UF 20% 125VAC	CI 15,118
CA-322001-10	CAP MYLAR .022UF 10% 100V	C27,62
CA-410001-00	CAP MET POLY X.1UF 20% 250V	C126
CA-410002-10	CAP MYLAR .1UF 5% 100V	c47 C8,12,44,
CA-410003-10	CAP MET POLY .1UF 10% 250V	C129,134, C156,157 C28,63,
CA-410006-30	CAP CER .1UF 10% 50VX7R SMT	C116,125, C135,155, C162,163, C179,180, C183,185, C189,190, c19,39,54, CI91
CA-410011-00	CAP MMYL .1UF 10% 400V	C107,123
CA-422001-10	CAP MYLAR .22UF 5% 50V	c10,45
CA-447001 -00	CAP MET POLY X.47UF 20% 250	CI 17
CA-447003-00	CAP POLYP .47UF 10% 400V	CI44
CA-510005-30	CAP LYTIC 1 UF 20% 50V SMT	C13,48,184
CA-510006-00	CAP MPOLY X 1UF 20% 250VAC	CI 10,112
CA-610002-10	1 OUF,35V,20%,RADIAL ELECT	CI92 C3,38,80, C86,114,
CA-647001-10	CAP LYTIC RL 47UF 10% 1 OV NP	C46,71 C7,11,42,
CA-647002-10	CAP LYTIC RL 47UF 20% 50V	C21,22,56, C57,89
CA-710002-10	CAP LYTIC RL 1 OOUF 20%25V	c139,142, CI43 C15,33,72, C78,79,
CA-710004-10	CAP LYTIC RL 100UF 20% 25V	CI38,149, C150
CA-747001-10	CAP LYTIC RL 47OUF 20% 16V	C73,74,76, c77,131
CA-747004-00	CAP LYTIC RL 47OUF 20% 100V	C152,153, C159,160,

**PLX 1202 PCB ASSEMBLY (120V) Cont'd**

Part Number	Description	Reference
CA-822200-AE	CAP LYTIC RL 220OUF 20% 200V	CI 32,133
CH-000102-00	HEATSINK, AUDIO, PLX	
CH-000103-00	SPRING, CLAMP, 2 HOLE	
CH-000104-00	HEATSINK PS PLX	
CH-0001 1 I-00	BRACKT,OUTPUT PCB PLC PLATFORM	
CH-000114-00	CLAMP, 2 FINGER PLX	
CO-000036-CO	SPEAKONS, PC MOUNT	J7,8
CO-000148-00	CONN XLR F VERT PCB	J2,10
CO-000155-00	HEADER PCB ,100 2-POSITION	J13
CO-000162-00	BNDG POST A, DUAL SLOT, PLX	
CO-000163-00	BNDG POST B, DUAL SLOT, PLX	
CO-3001 12-PJ	JACK 1/4" PHONE DBLOPEN CKT	J1,9
HW-000001-FC	FUSE CLIPS	REF: FI
IC-000024-00	IC REG PWM 40V O.IA SG3525A	U19
IC-000047-30	IC LIN DUAL COMP LM393 SO-8	U10
IC-000048-30	IC LIN DUAL OP AMP MC33078	U1,6
IC-000051-00	IC OPTO-IS0 MOC8101	U15,17
IC-000053-30	IC LIN SMT DUAL TIMER LM556	U14
IC-000054-30	IC LIN SMT QUAD COMP LM339A	U13
IC-000073-30	IC LIN DUAL OP AMP LM13600	U3
IC-000134-00	IC CMOS HV DRVR IR2110	U18
IC-000135-00	IC LIN PWM SWITCH TOP 210	U16
IC-005532-OP	IC LIN DUAL OP AMP 5532 EX/MP	U2,7
MS-000048-HS	HEAT SINK, ISOL TO-220	REF: Q91
MS-0001 12-00	FUSE 25A 125V 3AG FAST CER	FI
PC-000531-00	PCB MAIN PLX	
PL-000114-00	INSULATOR,IGBT/RECT HS, PLX	
PL-000126-00	SPRING, SEAT, PLX	
PL-000128-00	SPACER, LED, ,276"	LD2-LD11 RE155,LD1, REF:R30,
PL-000135-00	INSULATOR, MICA 1.25" X 1.75"	REF:Q96,97
PL-905156-SP	SPACER,ROUND,NYLON,#6,0.155	REF:L1,2
PT-125000-AT	RES VAR IT 250 20% 0.15W CAR	VR43,166
PT-310000-CR	RES VAR IT 10K 20% 0.2W W/DE	VR2,121
QD-000014-QD	DIODE TO220 ULTRAFAST 200V	D74,75,80, D81
QD-000042-00	DIODE RECT ULTRAFAST 400V 3	D70,71
QD-000052-00	LED GRN T-I	LD2,3,4,7, LD8,9,11
QD-000053-00	LED YEL T-I	LD1,6
QD-000054-00	LED RED T-I	LD5,10
QD-000062-10	XISTOR NPN TO-92 40V 0.2A 1.5	Q20,65
QD-000063-10	XISTOR PNP TO-92 40V 0.2A 1.5	Q21,66
QD-000076-00	XISTOR NPN TO-220 250V	Q27,72
QD-000077-00	XISTOR PNP TO-220 250V	Q26,71
QD-000102-30	DIODE SW IN4148 SMT 75V 75M	D1-5,8,9, D10-12,14, D23-30,33, D34-37,39, D48-51,55, D59,63, D64,65,67, D69,89,90, D91
QD-000103-30	XISTOR NPN SMT 40V .2A .2W	Q13,15,18, Q25,49,50, Q5,7,8,9, Q52,53,54, Q58,60,63,

**PLX 1202 PCB ASSEMBLY (120V) Cont'd**

Part Number	Description	Reference
		<b>Q70,89,90,</b> <b>Q92,93,95</b>
QD-000104-30	XISTOR PNP SMT 40V .2A .2W	Q1-4,6,10, Q12,14,23, Q24,42,43, Q44-48,51, Q55,57,59, Q68,69,87, Q88,94,98, Q99
QD-000105-30	XISTOR NPN SMT 300V .2A .2W	Q16,61
QD-000106-30	XISTOR PNP SMT 300V .2A .2W	Q17,62
QD-000108-30	DIODE SMT SWITCH 200V .2A 50	D13,16,38, D41,61,68, D78,79
QD-000110-30	DIODE ZNR 6.2V 5% .3W SMT	D56
QD-000113-30	DIODE ZNR 10V 5% .3W SMT	D66
QD-00011530	DIODE SMT RECT 600V IA	D58,60,86
QD-000116-30	DIODE RECT SMT 200V IA	D62,76,77, D82,83
QD-000154-00	XISTOR NPN TO-220 230V	Q19,64
QD-000155-00	XISTOR PNP TO-220 230V	Q22,67
QD-000156-00	XISTOR PNP TO-220 100V 3A 40	Q91
QD-000162-00	XISTOR,IGBT 20A/600V	Q96,97
QD-000170-00	DIODE BRIDGE RECT 600V 50A	BR1
QD-001302-PN	XISTOR PNP TO-3P 200V 15A	Q28,36,39, Q73,81,84
QD-003281-NP	XISTOR NPN TO-3P 200V 15A	Q29,37,40, Q74,82,85
QD-004744-ZA	DIODE ZNR 15V 5% 1 W 1 N4744A	D53,54
QD-005402-DX	DIODE RECT DO27 200V 3A	D19,20,44, D45
RE-.04703-10	RES MOFP .47 5% 2W MINI	R103,107, R108,111, R112-114, R211,212, R214,215, R225,226, R230,231, R234-237 R88,89,91, R92,102, R203,221, R354,355, R373 R80,98,
RE- 56002-10	RES MOFP 5.6 5% 2W MINI	R203,221, R354,355, R373 R80,98,
RE-000210-NR	THERMISTOR NTC 15A CUR LIM	R324
RE-000230-NR	THERMISTOR NTC 10K 5%	R30,155
RE-001003-30	RES SMT 10 OHM 5% 1/8W 1206	R353,356, R358,359
RE-001502-10	RES MOFP 15 5% 2W MINI	R209,210, R213,216, R367,368 R85-87,90, R93,208,
RE-003921-30	RES SMT 39.2 OHM 1% 1/8W 120	R246-249, R349,357
RE-005606-10	RES MOFP 56 5% 2W MINI	R372
RE-007502-30	RES SMT 75 1%/1OW 1 OOV	R124
RE-010002-30	RES SMT 100 1% 1/10W100V	R5,6,123, R150,193, RI 94,334,

**PLX 1202 PCB ASSEMBLY (120V) Cont'd**

Part Number	Description	Reference
		R21,27,70, R364,381, R382-384 R71,144, RI 91,204, R205 R67,68,81, R82,190, R44,167 R256,257, R276,277, R278
RE-027401-30	RES SMT 274 1% 1/1OW 1 OOV	R151,160 R28,37, R22,146, R361,374 R370
RE-038301-30	RES SMT 383 1% 1/10W100V	RI ,7,42, R117,118, R128,165, R232,250, R252,369
RE-047001-10	RES MOFP 470 5% 2W MINI	R101,109, R147,154, R157,158, R162,164, R23,32,34, R270,273 R35,39,41, R127,171, R195,198 R48,72,75, R240,264, R265,267, R347,348 R47,170, R251
RE-047502-30	RES SMT 475 1% 1/10W100V	R11,17, R125,126, R131,137, RI 38,253, R3,4,10, R327,330, R362
RE-053602-30	RES SMT 536 1% 1/1OW 1 OOV	RE-156001-10 RES 5.60K.1%1/4W 25PPM
RE-063402-30	RES SMT 634 1% 1/8W 1206	R13,129, R130,135, R136
RE-110006-30	RES SMT 1 .00K 1%/1/8W1206	RE-159002-30 RES SMT 5.90K 1%/10W 1 OOV
		R122,152, R182,185 R29,59,62, R120,132, R140,161 RI 5,38, R360
RE-115002-30	RES SMT1.50K 1% 1/10W 1 OOV	RE-175002-30 RES SMT 7.50K 1%/1OW 1 OOV
		R120,132, R140,161 RI 5,38, R360
RE-120002-30	RES SMT 2.00K 1% 1/1OW 100V	RE-178701-30 RES SMT 7.87K 1% 1/10W100V
		R258,266, R272
RE-122103-30	RES SMT 2.21K 1% 1/10W100V	RE-190902-30 RES SMT 9.09K 1% 1/1OW 1 OOV
		R272
RE-139002-10	RES MOFP 3.9K 5% 2W MINI	R36,159, R336,338, R363,366, R375,376
RE-147502-30	RES SMT 4.75K 1%/1OW100V	RE-210003-30 RES SMT 10.0K 1% 1/10W100V
		R106,133,
RE-156001-10	RES 5.60K.1%1/4W 25PPM	
RE-159002-30	RES SMT 5.90K 1%/10W 1 OOV	
RE-175002-30	RES SMT 7.50K 1%/1OW 1 OOV	
RE-178701-30	RES SMT 7.87K 1% 1/10W100V	
RE-190902-30	RES SMT 9.09K 1% 1/1OW 1 OOV	
RE-210003-30	RES SMT 10.0K 1% 1/10W100V	
RE-212702-30	RES SMT 12.7K 1% 1/10W100V	

## PLX 1202 PCB ASSEMBLY (120V) Cont'd

Part Number	Description	Reference
		R134,139, R14,16,19, R142,169, R188,199, R200,241, R245,259, R329,337 R46,65, R76,77,
RE-212702-30	RES SMT 12.7K 1% 1/10W100V	R148,168, R25,45, R262,365
RE-2 15002-30	RES SMT 15.0K 1% 1/10W100V	R172,173 R49,50,
RE-215401-30	RES SMT 15.4K 1% 1/8W 1206	R31,153
RE-216501-CM	RES MF 16 5K 1% 1/2W	R18,141, R229,242, R244,271, R331,346
RE-220002-30	RES SMT 20.0K 1% 1/10W100V	R325
RE-224901-30	RES SMT 24.9K 1% 1/10W100V	R351,352
RE-230002-10	RES MOFP 30K 5% 2W MINI	R143,183, R184,243, R20,60,61, R261,323, R332
RE-239202-30	RES SMT 39.2K 1% 1/10W100V	R26,149
RE-247503-30	RES SMT47 5K 1% 1/10W100V	R156
RE-310002-30	RES SMT 100K 1% 1/10W100V	R33,119, R176,196, R197,268, R341-345 R51,53,73, R74,174,
RE-310003-30	RES SMT 100K 5% 1/8W 1206	R333,335 R24,145, R260,263, R340
RE-315002-30	RES MF 150K 1% 1/8W 1206	R321,322, R326,328 R339,371
RE-339201-30	RES SMT 392K 1% 1/10W100V	
RE-348702-30	RES MF 487K 1% 1/8W 1206	
RE-375005-BM	RES MF 750K 2% 1/2W	
SC-063100-PP	#6-20 X 5/8" "AB" TYPE 1 XRECE	
SC-081101-SP	#8-18 X 5/8", TYPE 1 PIP BLACK	
SW-000029-S	RELAY, SPKR PROTECT,SPDT,2 KI	
SW-000053-00	SWITCH DIP 10-POS, TALL	SW1
WC-0.2020-JW	JMPR BARE 0.2" 20AWG SLD	D22,46,47 REF:D21,
WC-0.5018-JW	JMPR INS 0.5"18AWG SLD WHT	J120, REF:D87,88
WC-000001-10	JUMPER INS .6" 22AWG SOLID W	R224
WC-000103-00	CABLE ASSY, 20 PIN 9"L	J3-4,J5-6
WC-000115-00	AC SWITCH WIRE, BLK, LONG	REF:ES2, TO SWITCH
WC-000115-01	AC SWITCH WIRE, RED, SHORT	REF:ES1, TO SWITCH
WC-000117-00	SPEAKER WIRE, BLACK	E12A-12C REF:
WC-000117-01	SPEAKER WIRE, WHITE	E9A-9C REF:
WC-000117-02	SPEAKER WIRE, GREY	E11A-11C REF:
WC-000117-03	SPEAKER WIRE, BLACK	E10A-10C

## PLX 1202 PCB ASSEMBLY (120V) Cont'd

Part Number	Description	Reference
WC-000118-00	WIRE ASSY,BLK, LONG	EH1-EH2 REF:
WC-000118-01	WIRE ASSY, RED, SHORT	EL1-E120A
WC-000118-01	WIRE ASSY, RED, SHORT	REF:
XF-000005-00	BEAD FERRITE W/20AWG LEAD	L9,10
XF-000023-00	CHOKE COMMON MODE 2.2MH	L3,4
XF-000061-00	INDUCTOR TORIOD1.9UH13GA	L6
XF-000064-00	XFMR AMP HOUSEKEPPING PLC	TI
XF-000079-00	XFMR PLX1202/2402(120V)	T2
XF-000085-00	XFMR PLX1202/2403(100V)	T3
XF-200014-CR	INDUCTOR 2UH14AWG VERT M	L1,2

## PLX 1202 PCB ASSEMBLY (230V)

Part Number	Description	Reference
CA-010002-30	CAP 1 OPF 5% 50V 0805 SMT	C14,49
CA-015002-10	CAP CER 15PF 10% 500V SL	C16,50
CA-I 10002-30	CAP CER 100PF 5% 50V NPO SM	C40,41,43, C5,6,9,18, c53
CA-133001-10	CAP SM 330PF 5% 500V	C145,146
CA-147003-30	CAP 470PF 5% 50V 1206 SMT	C1,2,4,17, C119,121, C148,181, C182,186, C188
CA-I 68003-30	CAP CER 68OPF 5% 50V NPO SM	C25,60
CA-210005-30	CAP .001UF 5% 50V 1206 SMT	C120,124, C195,196 C75,81,85,
CA-222001-00	CAP CER Y .0022UF 20% 125VAC	C122,127
CA-227001-30	CAP CER .0027UF 10% 100V 0805	C108,109, C128 C20,23,24, C55,58,59,
CA-233001-10	CAP MYLAR .0033UF 10% 100V	CI 13
CA-233002-00	CAP CER Y .0033UF 20% 125VAC	C115,118
CA-322001-10	CAP MYLAR .022UF 10% 100V	C27,62
CA-410001-00	CAP MET POLY X.1UF 20% 250V	CI26
CA-410002-10	CAP MYLAR .1UF 5% 100V	c47 C8,12,44,
CA-410003-10	CAP MET POLY .1UF 10% 250V	C129,134, C156,157 C28,63,
CA-410006-30	CAP CER .1UF 10% 50V X7R SMT	C116,125, C135,155, C162,163, C179,180, C183,185, C189,190, C19,39,54, CI91
CA-41 001 I-00	CAP MMYL .1UF 10% 400V	C107,123
CA-422001-10	CAP MYLAR .22UF 5% 50V	C10,45
CA-447001 -00	CAP MET POLY X.47UF 20% 250	CI 17
CA-447003-00	CAP POLYP .47UF 10% 400V	CI44
CA-510005-30	CAP LYTIC 1 UF 20% 50V SMT	C13,48,184
CA-510006-00	CAP MPOLY X 1 UF 20% 250VAC	CI 10,112

**PLX 1202 PCB ASSEMBLY (230V) Cont'd**

Part Number	Description	Reference
CA-610002-10	10UF,35V,20%,RADIAL ELECT	C192 C3,38,80, C86,114,
CA-647001-10	CAP LYTIC RL 47UF 10% 10V NP	C46,71 C7,11,42,
CA-647002-10	CAP LYTIC RL 47UF 20% 50V	C21,22,56, C57,89
CA-710002-10	CAP LYTIC RL 1 OOUF 20%25V	C139,142, C143 C15,33,72, C78,79,
CA-71 0004-10	CAP LYTIC RL 1 OOUF 20%25V	C138,149, C150
CA-747001-10	CAP LYTIC RL 470UF 20% 16V	C73,74,76, C77,131
CA-747004-00	CAP LYTIC RL 470UF 20% 1 OOV	CI 52,153, C159,160, C165,166, C169,170
CA-822200-AE	CAP LYTIC RL 2200UF 20% 200V	CI 32,133
CH-000102-00	HEATSINK, AUDIO, PLX	
CH-000103-00	SPRING, CLAMP, 2 HOLE	
CH-000104-00	HEATSINK PS PLX	
CH-000111 I -00	BRACKT,OUTPUT PCB PLC PLATFORM	
CH-000114-00	CLAMP, 2 FINGER PLX	
CO-000036-CO	SPEAKONS, PC MOUNT	J7,8
CO-000148-00	CONN XLR F VERT PCB	J2,10
CO-000155-00	HEADER PCB .100 2-POSITION	J13
CO-000162-00	BNDG POST A, DUAL SLOT, PLX	
CO-000163-00	BNDG POST B, DUAL SLOT, PLX	
CO-3001 12-PJ	JACK 1/4" PHONE DBLOPEN CKT	J1,9
HW-000001-FC	FUSE CLIPS	REF: F1
IC-000024-00	IC REG PWM 40V 0.1A SG3525A	U19
IC-000047-30	ICLIN DUAL COMP LM393 so-a	U10
IC-000048-30	ICLIN DUAL OP AMP MC33078	U1,6
IC-000051-00	IC OPTO-IS0 MOC8101	U15,17
IC-000053-30	ICLIN SMT DUAL TIMER LM556	U14
IC-000054-30	ICLIN SMT QUAD COMP LM339A	U13
IC-000073-30	ICLIN DUAL OP AMP LM13600	U3
IC-000134-00	IC CMOS HV DRVR IR2110	U18
IC-000135-00	ICLIN PWM SWITCH TOP 210	U16
IC-005532-OP	ICLIN DUAL OP AMP 5532 EX/MP	U2,7
MS-000048-HS	HEAT SINK, ISOL TO-220	REF: Q91
MS-I 50250-FU	FUSE 15A 250V 3AG FAST CER	FI
PC-000531-00	PCB MAIN PLX	
PL-000114-00	INSULATOR, IGBT/RECT HS, PLX	
PL-000126-00	SPRING, SEAT, PLX	
PL-000128-00	SPACER, LED, .276"	LD2-11 R155,LD1, REF:R30,
PL-000135-00	INSULATOR, MICA 1.25" X 1.75"	REF:Q96,97
PL-905156-SP	SPACER,ROUND,NYLON,#6,0.155	REF:L1,2
PT-125000-AT	RES VAR IT 250 20% 0.15W CAR	VR43,166
PT-310000-CR	RES VAR IT 1 OK 20% 0.2W W/DE	VR2,121
QD-000014-QD	DIODE TO220 ULTRAFAST 200V	D74,75,80 D81
QD-000042-00	DIODE RECT ULTRAFAST 400V 3	D70,71
QD-000052-00	LED GRN T-I	LD2,3,4,7, LD8,9,11
QD-000053-00	LED YEL T-I	LD1,6
QD-000054-00	LED RED T-I	LD5,10

**PLX 1202 PCB ASSEMBLY (230V) Cont'd**

Part Number	Description	Reference
QD-000062-10	XISTOR NPN TO-92 40V 0.2A 1.5	Q20,65
QD-000063-10	XISTOR PNP TO-92 40V 0.2A 1.5	Q21,66
QD-000076-00	XISTOR NPN TO-220 250V	Q27,72
QD-000077-00	XISTOR PNP TO-220 250V	Q26,71
QD-000102-30	DIODE SW 1 N4148 SMT 75V 75M	D1-5,8,9, D10-12,14, D23-30,33, D34-37,39, D48-51,55, D59,63-65, D67,69,89, D90,91
QD-000103-30	XISTOR NPN SMT 40V .2A .2W	Q13,15,18, Q25,49,50, Q5,7,8,9, Q52,53,54, Q58,60,63, Q70,89,90, Q92,93,95
QD-000104-30	XISTOR PNP SMT 40V .2A .2W	Q1-4,6,10, Q12,14,23, Q24,42,43, Q44-48,51, Q55,57,59, Q68,69,87, Q88,94,98, Q99
QD-000105-30	XISTOR NPN SMT 300V .2A .2W	Q16,61
QD-000106-30	XISTOR PNP SMT 300V .2A .2W	Q17,62
QD-000108-30	DIODE SMT SWITCH 200V .2A 50	D13,16,38, D41,61,68, D78,79
QD-000110-30	DIODE ZNR 6.2V 5% .3W SMT	D56
QD-000113-30	DIODE ZNR 10V 5% .3W SMT	D66
QD-000115-30	DIODE SMT RECT 600V IA	D58,60,86
QD-000116-30	DIODE RECT SMT 200V 1A	D62,76,77, D82,83
QD-000154-00	XISTOR NPN TO-220 230V	Q19,64
QD-000155-00	XISTOR PNP TO-220 230V	Q22,67
QD-000156-00	XISTOR PNP TO-220 1 OOV 3A 40	Q91
QD-000162-00	XISTOR,IGBT 20A/600V	Q96,97
QD-000170-00	DIODE BRIDGE RECT 600V 50A	BR1
QD-001302-PN	XISTOR PNP TO-3P 200V 15A	Q28,36,39, Q73,81 ,a4
QD-003281-NP	XISTOR NPN TO-3P 200V 15A	Q29,37,40, Q74,82,85
QD-004744-ZA	DIODE ZNR 15V 5% 1 W 1 N4744A	D53,54
QD-005402-DX	DIODE RECT DO27 200V 3A	D19,20,44, D45
RE-.04703-10	RES MOFP .47 5% 2W MINI	R103,107, R108,111, R112-114, R211,212, R214,215, R225,226, R230,231, R234-237
RE-.56002-10	RES MOFP 5.6 5% 2W MINI	R88,89,91, R92,102, R203,221, R354,355,

**PLX 1202 PCB ASSEMBLY (230V) Cont'd**

Part Number	Description	Reference
		R373
		R80,98,
RE-000210-NR	THERMISTOR NTC 15A CUR LIM	R324
RE-000230-NR	THERMISTOR NTC 10K 5%	R30,155
RE-001003-30	RES SMT 10 OHM 5% 1/8W 1206	R353,356, R358,359
RE-001502-10	RES MOFP 15 5% 2W MINI	R209,210, R213,216, R367,368 R85-87,90, R93,208,
RE-003921-30	RES SMT 39.2 OHM 1% 1/8W 1206	R246-249, R349,357
RE-005606-10	RES MOFP 56 5% 2W MINI	R372
RE-007502-30	RES SMT 75 1% 1/10W100V	R124
RE-010002-30	RES SMT 100 1% 1/10W100V	R5,6,123, R150,193, R194,334, R21,27,70, R364,381, R382-384 R71,144,
RE-027401-30	RES SMT 274 1% 1/10W100V	R191,204, R205 R67,68,81, R82,190, R44,167
RE-038301-30	RES SMT 383 1% 1/10W100V	R256,257, R276-278
RE-047001-10	RES MOFP 470 5% 2W MINI	R151,160
RE-047502-30	RES SMT475 1% 1/10W100V	R28,37, R22,146, R361,374
RE-053602-30	RES SMT 536 1% 1/10W100V	R370
RE-063402-30	RES SMT 634 1% 1/8W 1206	RI,7,42, R117,118, R128,165, R232,250, R252,369
RE-110006-30	RES SMT 1.00K 1% 1/8W1206	R101,109, R147,154, R157,158, R162,164, R23,32,34, R270,273 R35,39,41,
RE-115002-30	RES SMT 1.50K 1% 1/10W100V	R127,171, R195,198 R48,72,75,
RE-120002-30	RES SMT 2.00K 1% 1/10W100V	R240,264, R265,267, R347,348 R47,170,
RE-122103-30	RES SMT 2.21K 1% 1/10W100V	R251
RE-139002-10	RES MOFP 3.9K 5% 2W MINI	R11,17, R125,126, R131,137, RI 38,253, R3,4,10, R327,330, R362
RE-147502-30	RES SMT 4.75K 1% 1/10W100V	

**PLX 1202 PCB ASSEMBLY (230V) Cont'd**

Part Number	Description	Reference
RE-156001-10	RES 5.60K .1% 1/4W 25PPM	R13,129, R130,135, R136 R8,9,12, R122,152, R182,185 R29,59,62, R120,132, R140,161 R15,38, R360
RE-159002-30	RES SMT 5.90K 1% 1/10W 1 OOV	R258,266, R272 R36,159, R336,338, R363,366, R375,376
RE-175002-30	RES SMT 7.50K 1% 1/10W 1 OOV	R106,133, R134,139, R14,16,19, R142,169, R188,199, R200,241, R245,259, R329,337 R46,65, R76,77, R148,168, R25,45, R262,365
RE-178701-30	RES SMT 7.87K 1% 1/10W 1 OOV	R172,173 R49,50, R31,153
RE-190902-30	RES SMT 9.09K 1% 1/10W 1 OOV	R18,141, R229,242, R244,271, R331,346 R325
RE-210003-30	RES SMT 10.0K 1% 1/10W100V	R351,352
RE-212702-30	RES SMT 12.7K 1% 1/10W100V	R143,183, RI 84,243, R20,60,61, R261,323, R332
RE-215002-30	RES SMT 15.0K 1% 1/10W100V	R26,149
RE-215401-30	RES SMT 15.4K 1% 1/8W 1206	R156 R33,119, R176,196, RI 97,268, R341-345 R51,53,73, R74,174, R333,335
RE-216501-CM	RES MF 16.5K 1% 1/2W	R24,145, R260,263, R340
RE-220002-30	RES SMT 20.0K 1% 1/10W100V	R321,322, R326,328 R339,371
RE-220002-30	RES SMT 20.0K 1% 1/10W100V	
RE-224901-30	RES SMT 24.9K 1% 1/10W100V	
RE-230002-10	RES MOFP 30K 5% 2W MINI	
RE-239202-30	RES SMT 39.2K 1% 1/10W100V	
RE-247503-30	RES SMT 47.5K 1% 1/10W100V	
RE-310002-30	RES SMT 100K 1% 1/10W100V	
RE-310003-30	RES SMT 100K 5% 1/8W 1206	
RE-315002-30	RES MF 150K 1% 1/8W 1206	
RE-339201-30	RES SMT 392K 1% 1/10W 1 OOV	
RE-348702-30	RES MF 487K 1% 1/8W 1206	
RE-375005-BM	RES MF 750K 2% 1/2W	
SC-063100-PP	#6-20 X 5/8" "AB" TYPE 1 XRECE	
SC-081101-SP	#8-18 X 5/8", TYPE 1 P/PBLACK	

## PLX 1202 PCB ASSEMBLY (230V) Cont'd

Part Number	Description	Reference
SW-000029-S	RELAY, SPKR PROTECT,SPDT,2 KI	
<b>SW-000053-00</b>	<b>SWITCH DIP IO-POS, TALL</b>	<b>SW1</b>
WC-0.2020-JW	JMPR BARE 0.2" 20AWG SLD	D22,46,47 REF:D21,
WC-O 5018-JW	JMPR INS 0.5"18AWG SLD WHT	J240, REF:D87,88
WC-000001-10	<b>JUMPER INS .6" 22AWG SOLID W</b>	<b>R224</b>
WC-000103-00	<b>CABLE ASSY, 20 PIN 9"L</b>	J3-4,J5-6
WC-000115-00	<b>AC SWITCH WIRE, BLK, LONG</b>	REF:ES2, <b>TO SWITCH</b>
WC-000115-01	<b>AC SWITCH WIRE, RED, SHORT</b>	REF:ES1, <b>TO SWITCH</b>
WC-000117-00	<b>SPEAKER WIRE, BLACK</b>	E12A-12C REF:
WC-000117-01	SPEAKER WIRE, WHITE	E9A-9C REF:
WC-000117-02	SPEAKER WIRE, GREY	E11A-11C REF:
WC-000117-03	SPEAKER WIRE, BLACK	E10A-10C REF:
WC-000118-00	WIRE ASSY,BLK, LONG	EH1-EH2 REF:
XF-000005-00	BEAD FERRITE W/20AWG LEAD	L9,10
XF-000023-00	CHOKE COMMON MODE 2.2MH	L3,4
xF-000061-00	INDUCTOR TORIOD1.9UH13GAL6	
XF-000064-00	XFMR AMP HOUSEKEEPING PLC TI	
XF-000079-00	XFMR PLX1202/2402	T2
XF-200014-CR	INDUCTOR 2UH 14AWG VERT M L1,2	

## PLX 1202 CHASSIS ASSEMBLY (120V)

Part Number	Description	Reference
CH-000097-00	CHASSIS, PLX	
CH-000100-00	HANDLE-EAR CASTING PLX	
CH-000112-00	SHIELD, AC, PLX	
LB-000052-00	LABEL, CUL APPROVAL	
LB-000053-00	LBL, FRENCH, FUSE REPLACEMENT	
LB-000077-00	LABEL,WARNING,HIGH ENERGY	
LB-000215-00	LABEL, INPUT/OUTPUT, PLX	
LB-000236-00	LABEL, FACEPLATE PLX 1202	
LB-I 60226-05	LABEL, FUSE, UL CAUT. 25A125V	
NW-380801-IL	3/8" INTERNAL TOOTH LOCKWASHER	
PL-000003-CP	AC CORD PROTECTOR	
PL-000040-PL	POT COVERS	
PL-000044-PL	BUSHING, STRAIN RELIEF	
PL-000054-00	KNOB FAB.	
PL-000066-00	CLIP XMAS-TREE SLG HEAD FASTEX	
PL-00009500	FAN INTERFACE PLX	
PL-000096-00	INSULATOR,FAN DUCT, PLX	
SC-025000-PP	SCREW M2.5 X 6MM TYPE 1 PH BLK	
SC-060060-PS	SCREW 6-32 X .375 SEMS EXTL ZC	
SC-082051-PL	SCREW,TAP,PAN PH#8X5/16" "B"BK	
SW-000016-S	SPST SNAP IN POWER SWITCH	
WC-000114-00	AC CORD ASSY PLX	
WP-000057-00	FAN ASSY, 3.15" 24VDC W/5.5L"	
WP-001203-00	PCB ASSY, PLX 1202 (120V)	

## PLX 1202 CHASSIS ASSEMBLY (230V)

Part Number	Description	Reference
CH-000097-00	CHASSIS, PLX	
CH-000100-00	HANDLE-EAR CASTING PLX	
CH-000112-00	SHIELD, AC, PLX	
LB-000053-00	LBL, FRENCH, FUSE REPLACEMENT	
LB-000077-00	LABEL,WARNING,HIGH ENERGY	
LB-000099-01	LABEL, CE LISTING	
LB-000215-00	LABEL, INPUT/OUTPUT, PLX	
LB-000236-00	LABEL, FACEPLATE PLX 1202	
LB-160226-01	LABEL, FUSE, UL CAUT. 15A 250V	
NW-380801-IL	3/8" INTERNAL TOOTH LOCKWASHER	
PL-000003-CP	AC CORD PROTECTOR	
PL-000024-00	STRAIN RELIEF,LIQ.TIGHT,HEYCO	
PL-000040-PL	POT COVERS	
PL-000054-00	KNOB FAB.	
PL-000055-00	EXPORT BINDING POST PLUG(RED)	
PL-000056-00	EXPORT BINDING POST PLUG(BLK)	
PL-000066-00	CLIP XMAS-TREE SLG HEAD FASTEX	
PL-000095-00	FAN INTERFACE PLX	
PL-000096-00	INSULATOR,FAN DUCT, PLX	
SC-025000-PP	SCREW M2.5 X 6MM TYPE 1 PH BLK	
SC-060060-PS	SCREW 6-32 X .375 SEMS EXTL ZC	
SC-082051-PL	SCREW,TAP,PAN PH#8X5/16" "B"BK	
SW-000016-S	SPST SNAP IN POWER SWITCH	
WC-000134-00	AC CORD ASSY, 230V, PLX	
WP-000057-00	FAN ASSY, 3.15" 24VDC W/5.5L"	
WP-001203-02	PCB ASSY, PLX 1202 (230V)	

## PLX 1602 PCB ASSEMBLY (120V)

Part Number	Description	Reference
CA-010002-30	CAP 1OPF 5% 50V 0805 SMT	C14,49
CA-015002-10	CAP CER 15PF 10% 500V SL	C16,50
CA-I 10002-30	CAP CER 1 OOPF 5% 50V NPO SM	C40,41,43, C5,6,9,18, C53
CA-133001-10	CAP SM 330PF 5% 500V	C145,146
CA-I 47003-30	CAP 47OPF 5% 50V 1206 SMT	C1,2,4,17, C119,121, C148,181, C182,186, C188 C26,36,37, C52,61,
CA-I 68003-30	CAP CER 680PF 5% 50V NPO SM	C25,60
CA-210005-30	CAP .001UF 5% 50V 1206 SMT	C120,124, C195,196 C75,81,85,
CA-222001-00	CAP CER Y .0022UF 20% 125VAC	C122,127
CA-227001-30	CAP CER .0027UF 10% 100V 0805	C108,109, C128 C20,23,24,
CA-227001-30	CAP CER .0027UF 10% 1 OOV 0805	C55,58,59,
CA-233001-10	CAP MYLAR .0033UF 10% 100V	CI 13
CA-233002-00	CAP CER Y .0033UF 20% 125VAC	C115,118
CA-322001-10	CAP MYLAR .022UF 10% 100V	C27,62
CA-410001-00	CAP MET POLY X. 1 UF 20% 250V	CI 26
CA-410002-10	CAP MYLAR .1UF 5% 100V	C47 C8,12,44, C129,134,
CA-410003-10	CAP MET POLY .1UF 10% 250V	



**PLX 1602 PCB ASSEMBLY (120V) Cont'd**

Part Number	Description	Reference
		C156,157
		C28,63,
CA-410006-30	CAP CER .1UF 10% 50V X7R SMT	C116,125,
		C135,155,
		C162,163,
		C179,180,
		C183,185,
		C189,190,
		C19,39,54,
		CI91
CA-410011-00	CAP MMYL .1UF 10% 400V	C107,123
CA-422001-10	CAP MYLAR .22UF 5% 50V	C10,45
CA-447001-00	CAP MET POLY X.47UF 20% 250	CI 17
CA-447003-00	CAP POLYP 47UF 10% 400V	CI44
CA-510005-30	CAP LYTIC 1 UF 20% 50V SMT	C13,48,184
CA-510006-00	CAP MPOLY X 1 UF 20% 250VAC	CI10,112
CA-610002-10	10UF,35V,20%,RADIAL ELECT	CI92
		C3,38,80,
		C86,114,
CA-647001-10	CAP LYTIC RL 47UF 10% 10V NP	C46,71
		C7,11,42,
CA-647002-10	CAP LYTIC RL 47UF 20% 50V	C21,22,56,
		C57,89
CA-710002-10	CAP LYTIC RL 1 00UF 20%25V	C139,142,
		CI43
		C15,33,72,
		C78,79,
CA-710004-10	CAP LYTIC RL 1 00UF 20%25V	C138,149,
		C150
CA-747001-10	CAP LYTIC RL 470UF 20% 16V	C73,74,76,
		C77,131
CA-747004-00	CAP LYTIC RL 470UF 20% 1 OOV	CI 52,153,
		C159,160,
		C165,166,
		C169,170,
		C173,174
CA-822200-AE	CAP LYTIC RL 2200UF 20% 200V	C132,133,
		C136,137
CH-000102-00	HEATSINK, AUDIO, PLX	
CH-000103-00	SPRING, CLAMP, 2 HOLE	
CH-000104-00	HEATSINK PS PLX	
CH-000111-00	BRACKET,OUTPUT PCB PLC PLATFORM	
CH-000114-00	CLAMP, 2 FINGER PLX	
CO-000036-CO	SPEAKERS, PC MOUNT	J7,8
CO-000148-00	CONN XLR F VERT PCB	J2,10
CO-000155-00	HEADER PCB .100 2-POSITION	J13
CO-000162-00	BNDG POST A, DUAL SLOT, PLX	
CO-000163-00	BNDG POST B, DUAL SLOT, PLX	
CO-300112-PJ	JACK 1/4" PHONE DBLOPEN CKT	J1,9
HW-000001-FC	FUSE CLIPS	REF: FI
IC-000024-00	IC REG PWM 40V O.IA SG3525A	U19
IC-000047-30	IC LIN DUAL COMP LM393 so-a	U10
IC-000048-30	IC LIN DUAL OP AMP MC33078	U1,6
IC-000051-00	IC OPTO-IS0 MOC8101	U15,17
IC-000053-30	IC LIN SMT DUAL TIMER LM556	U14
IC-000054-30	IC LIN SMT QUAD COMP LM339A	U13
IC-000073-30	IC LIN DUAL OP AMP LM13600	U3
IC-000134-00	IC CMOS HV DRVR IR2110	U1a
IC-000135-00	IC LIN PWM SWITCH TOP 210	U16
IC-005532-OP	IC LIN DUAL OP AMP 5532 EX/MP	U2,7
MS-000048-HS	HEAT SINK, ISOL TO-220	REF: Q91

**PLX 1602 PCB ASSEMBLY (120V) Cont'd**

Part Number	Description	Reference
MS-000112-00	FUSE 25A125V 3AG FAST CER	FI
PC-000531-00	PCB MAIN PLX	
PL-000114-00	INSULATOR, IGBT/RECT HS, PLX	
PL-000126-00	SPRING, SEAT, PLX	
PL-000128-00	SPACER, LED, .276"	LD2-LD11
		RE155,LD1,
		REF:R30,
PL-000135-00	INSULATOR, MICA 1.25" X 1.75"	REF:Q96,97
PL-905156-SP	SPACER,ROUND,NYLON,#6,0.155	REF:L1,2
PT-125000-AT	RES VAR IT 250 20% 0.15W CAR	VR43,166
PT-310000-CR	RES VAR IT 10K 20% 0.2W W/DE	VR2,121
QD-000014-QD	DIODE TO220 ULTRAFAST 200V	D74,75,80,
		D81
QD-000042-00	DIODE RECT ULTRAFAST 400V 3	D70,71
QD-000052-00	LED GRN T-I	LD2,3,4,7,
		LD8,9,11
QD-000053-00	LED YEL T-I	LD1,6
QD-000054-00	LED RED T-I	LD5,10
QD-000062-10	XISTOR NPN TO-92 40V 0.2A 1.5	Q20,65
QD-000063-10	XISTOR PNP TO-92 40V 0.2A 1.5	Q21,66
QD-000076-00	XISTOR NPN TO-220 250V	Q27,72
QD-000077-00	XISTOR PNP TO-220 250V	Q26,71
QD-000102-30	DIODE SW IN4148 SMT 75V 75M	D1-5,8,9,
		D10-12,14,
		D23-30,33,
		D34-37,39,
		D48-51,55,
		D59,63,
		D64,65,67,
		D69,89,90,
		D91
QD-000103-30	XISTOR NPN SMT 40V .2A 2W	Q13,15,18,
		Q25,49,50,
		Q5,7,8,9,
		Q52,53,54,
		Q58,60,63,
		Q70,89,90,
		Q92,93,95
QD-000104-30	XISTOR PNP SMT 40V .2A 2W	Q1-4,6,10,
		Q12,14,23,
		Q24,42,43,
		Q44-48,51,
		Q55,57,59,
		Q68,69,87,
		Q88,94,98,
		Q99
QD-000105-30	XISTOR NPN SMT 300V .2A 2W	Q16,61
QD-000106-30	XISTOR PNP SMT 300V .2A 2W	Q17,62
QD-000108-30	DIODE SMT SWITCH 200V .2A 50	D13,16,38,
		D41,61,68,
		D78,79
QD-000110-30	DIODE ZNR 6.2V 5% .3W SMT	D56
QD-000113-30	DIODE ZNR 10V 5% .3W SMT	D66
QD-000115-30	DIODE SMT RECT 600V IA	D58,60,86
QD-000116-30	DIODE RECT SMT 200V IA	D62,76,77,
		D82,83
QD-000154-00	XISTOR NPN TO-220 230V	Q19,64
QD-000155-00	XISTOR PNP TO-220 230V	Q22,67
QD-000156-00	XISTOR PNP TO-220 100V 3A 40	Q91
QD-000162-00	XISTOR,IGBT 20A/600V	Q96,97
QD-000170-00	DIODE BRIDGE RECT 600V 50A	BR1

**PLX 1602 PCB ASSEMBLY (120V) Cont'd**

Part Number	Description	Reference
QD-001302-PN	XISTOR PNP TO-3P 200V 15A	Q28,34,36, Q39,73,79, Q81,84
QD-003281-NP	XISTOR NPN TO-3P 200V 15A	Q29,35,37, Q40,74,80, Q82,85
QD-004744-ZA	DIODE ZNR 15V 5% 1 W 1 N4744A	D53,54
QD-005402-DX	DIODE RECT DO27 200V 3A	D19,20,44, D45
RE-.04703-10	RES MOFP .47 5% 2W MINI	R102,103, R107,108, R111-114, R211,212, R214,215, R217,218, R220,222, R225,226, R230,231, R234-237 R88,89,91, R92,94,95, R97,99,
RE-.56002-10	RES MOFP 5.6 5% 2W MINI	R203,221, R354,355, R373 R80,98,
RE-000210-NR	THERMISTOR NTC 15A CUR LIM	R324
RE-000230-NR	THERMISTOR NTC 1 OK 5%	R30,155
RE-001003-30	RES SMT 10 OHM 5% 1/8W 1206	R353,356, R358,359
RE-001502-10	RES MOFP 15 5% 2W MINI	R209,210, R213,216, R367,368 R85-87,90, R93,208,
RE-003921-30	RES SMT 39.2 OHM 1% 1/8W 1206	R246-249, R349,357
RE-005606-10	RES MOFP 56 5% 2W MINI	R372
RE-007502-30	RES SMT 75 1% I/OV 1 OOV	R124 R5,6,123, R150,193, R194,334, R21,27,70, R364,381, R382-384 R71,144,
RE-010002-30	RES SMT 100 1% 1/10W100V	RI 91,204, R205 R67,68,81, R82,190, R44,167
RE-027401-30	RES SMT 274 1% 1/10W100V	R151,160 R28,37, R22,146, R361,374 R370
RE-038301-30	RES SMT 383 1% 1/10W100V	R256,257, R276-278
RE-047502-30	RES SMT 475 1% 1/10W100V	RI ,7,42, R117,118, R128,165,
RE-053602-30	RES SMT 536 1% 1/10W100V	
RE-063402-30	RES SMT 634 1% 1/8W 1206	
RE-082001-10	RES MOFP 820 5% 2W MINI	
RE-110006-30	RES SMT 1.00K 1% 1/8W 1206	

**PLX 1602 PCB ASSEMBLY (120V) Cont'd**

Part Number	Description	Reference
RE-115002-30	RES SMT 1.50K 1% 1/10W100V	R232,250, R252,369 R101,109, R147,154, R157,158, R162,164, R23,32,34, R270,273 R35,39,41,
RE-116202-30	RES SMT 1.62K 1% 1/10W100V	R195,198 R72,75,
RE-120002-30	RES SMT 2.00K 1% I/OV 1 OOV	RI 71 R48,127,
RE-122103-30	RES SMT 2.21K 1% 1/10W100V	R240,264, R265,267, R347,348 R47,170,
RE-139002-10	RES MOFP 3.9K 5% 2W MINI	R251
RE-147502-30	RES SMT 4.75K 1% 1/10W100V	R11,17, R125,126, R131,137, R138,253, R3,4,10, R327,330, R362
RE-156001-10	RES 5.60K.1%1/4W 25PPM	R13,129, R130,135, R136 R8,9,12,
RE-159002-30	RES SMT 5.90K 1% I/OV 1 OOV	RI 52 R29,122, R182,185 R59,62,
RE-163402-30	6.34K I/OV 1% 1 OOV SMT	R120,132, R140,161 R15,38,
RE-175002-30	RES SMT 7.50K 1% 1/10W100V	R360
RE-178701-30	RES SMT 7.87K 1% 1/10W100V	R258,266, R272 R36,159, R336,338, R363,366, R375,376
RE-190902-30	RES SMT 9.09K 1% I/OV 1 OOV	R106,133, R134,139, R14,16,19, R142,169, R188,199, R200,241, R245,259, R329,337
RE-210003-30	RES SMT 10.0K 1% 1/10W100V	R46,65, R76,77, R148,168, R25,45, R262,365
RE-212702-30	RES SMT 12.7K 1% 1/10W100V	R31,153
RE-212702-30	RES SMT 12.7K 1% I/OV 1 OOV	R18,141, R229,242, R244,271, R331,346
RE-215002-30	RES SMT 15.0K 1% 1/10W100V	
RE-216501-CM	RES MF 16.5K 1% 1/2W	
RE-220002-30	RES SMT 20.0K 1% 1/10W100V	

## PLX 1602 PCB ASSEMBLY (120V) Cont'd

Part Number	Description	Reference
RE-220003-30	RESSMT 20.0K 1% 1/8W 1206	R172,173 R49,50,
RE-224901-30	RES SMT 24.9K 1% 1/10W 1 OOV	R325
RE-230002-10	RES MOFP 30K 5% 2W MINI	R351,352
RE-239202-30	RES SMT 39.2K 1% 1/10W 100V	R143,183, R184,243, R20,60,61, R261,323, R332
RE-247503-30	RES SMT 47 5K 1% 1/10W 100V	R26,149
RE-310002-30	RES SMT 100K 1% 1/10W 100V	R156 R33,119,
RE-310003-30	RES SMT 1 00K 5% 1/8W 1206	R196,197, R268,341, R342,344, R343,345 R73,74,
RE-315002-30	RES MF 150K 1% 1/8W 1206	R174,176, R333,335 R51,53,
RE-339201-30	RES SMT 392K 1% 1/10W 100V	R24,145, R260,263, R340
RE-348702-30	RES MF 487K 1% 1/8W 1206	R321,322, R326,328 R339,371
RE-375005-BM	RES MF 750K 2% 1/2W	
SC-063100-PP	#6-20 X 5/8" "AB" TYPE 1 XRECE	
SC-081 101-SP	#8-18 X 5/8", TYPE 1 P/P BLACK	
SW-000029-S	RELAY, SPKR PROTECT, SPDT, 2 KI	
SW-000053-00	SWITCH DIP 10-POS, TALL	SW1
WC-0.2020-JW	JMPR BARE 0.2" 20AWG SLD	D22,46,47 REF:D21,
WC-0.5018-JW	JMPR INS 0.5" 18AWG SLD WHT	J120, REF:D87,88
WC-000001-10	JUMPER INS .6" 22AWG SOLID W	R224
WC-000103-00	CABLE ASSY, 20 PIN 9"L	J3-4,J5-6
WC-0001 15-00	AC SWITCH WIRE, BLK, LONG	REF:ES2, TO SWITCH
WC-0001 15-01	AC SWITCH WIRE, RED, SHORT	REF:ES1, TO SWITCH
WC-0001 17-00	SPEAKER WIRE, BLACK	E12A-12C REF:
WC-0001 17-01	SPEAKER WIRE, WHITE	E9A-9C REF:
WC-0001 17-02	SPEAKER WIRE, GREY	E11A-11C REF:
WC-0001 17-03	SPEAKER WIRE, BLACK	E10A-10C REF:
WC-0001 18-00	WIRE ASSY, BLK, LONG	EH1-EH2 REF:
WC-0001 18-01	WIRE ASSY, RED, SHORT	ELI-EI2OA REF:
XF-000005-00	BEAD FERRITE W/20AWG LEAD	L9,10
XF-000023-00	CHOKE COMMON MODE 2.2MHL3,4	
XF-000061-00	INDUCTOR TORIOD 1.9UH 13GA	L6
XF-000063-00	XFMR, PWR PLX1602(120V)	T2
XF-000086-00	XFMR, PWR PLX1602(100V)	T2
XF-000064-00	XFMR AMP HOUSEKEEPING PLC	TI
XF-200014-CR	INDUCTOR 2UH 14AWG VERT M	L1,2

## PLX 1602 PCB ASSEMBLY (230V)

Part Number	Description	Reference
CA-010002-30	CAP 1 OPF 5% 50V 0805 SMT	C14,49
CA-015002-10	CAP CER 15PF 10% 500V SL	C16,50
CA-I 10002-30	CAP CER 1 OOPF 5% 50V NPO SM	C40,41,43, C5,6,9,18, C53
CA-I 33001-10	CAP SM 330PF 5% 500V	C145,146
CA-I 47003-30	CAP 470PF 5% 50V 1206 SMT	C1,2,4,17, C119,121, C148,181, C182,186, C188
CA-147003-30	CAP 470PF 5% 50V 1206 SMT	C26,36,37, C52,61,
CA-168003-30	CAP CER 680PF 5% 50V NPO SM	C25,60
CA-210005-30	CAP .001UF 5% 50V 1206 SMT	C120,124, C195,196 C75,81,85,
CA-222001-00	CAP CER Y .0022UF 20% 125VAC	C122,127
CA-227001-30	CAP CER .0027UF 10% 100V 0805	C108,109, C128 C20,23,24, C55,58,59,
CA-233001-10	CAP MYLAR .0033UF 10% 100V	C113
CA-233002-00	CAP CER Y .0033UF 20% 125VAC	CI 15,118
CA-322001-10	CAP MYLAR .022UF 10% 100V	C27,62
CA-410001-00	CAP MET POLY X.1UF 20% 250V	CI26
CA-410002-10	CAP MYLAR .1UF 5% 100V	c47 C8,12,44,
CA-410003-10	CAP MET POLY .1UF 10% 250V	C129,134, C156,157 C28,63,
CA-410006-30	CAP CER .1UF 10% 50V X7R SMT	C116,125, C135,155, C162,163, C179,180, C183,185, C189,190, C19,39,54, CI91
CA-410011-00	CAP MMYL .1UF 10% 400V	C107,123
CA-422001-10	CAP MYLAR .22UF 5% 50V	C10,45
CA-447001-00	CAP MET POLY X.47UF 20% 250	CI 17
CA-447003-00	CAP POLYP .47UF 10% 400V	CI44
CA-510005-30	CAP LYTIC 1 UF 20% 50V SMT	C13,48,184
CA-510006-00	CAP MPOLY X 1 UF 20% 250VAC	CI 10,112
CA-610002-10	10UF,35V,20%,RADIAL ELECT	CI92 C3,38,80, C86,114,
CA-647001-10	CAP LYTIC RL 47UF 10% 1 OV NP	C46,71 C7,11,42,
CA-647002-10	CAP LYTIC RL 47UF 20% 50V	C21,22,56, C57,89
CA-710002-10	CAP LYTIC RL 100UF 20% 25V	C139,142, CI43 C15,33,72, C78,79,
CA-710004-10	CAP LYTIC RL 1 OOUF 20% 25V	C138,149, CI50
CA-747001-10	CAP LYTIC RL 470UF 20% 16V	C73,74,76, C77,131
CA-747004-00	CAP LYTIC RL 470UF 20% 1 OOV	CI 52,153,

**PLX 1602 PCB ASSEMBLY (230V) Cont'd**

Part Number	Description	Reference
		C159,160, C165,166, C169,170, C173,174
CA-822200-AE	CAP LYTIC RL 2200UF 20% 200V	C132,133, C136,137
<b>CH-000102-00</b>	<b>HEATSINK, AUDIO, PLX</b>	
CH-000103-00	SPRING, CLAMP, 2 HOLE	
CH-000104-00	HEATSINK PS PLX	
CH-00011 I-00	BRACKET, OUTPUT PCB PLC PLATFORM	
CH-000114-00	CLAMP, 2 FINGER PLX	
CO-000036-CO	SPEAKERS, PC MOUNT	J7,8
CO-000148-00	CONN XLR F VERT PCB	J2,10
CO-000155-00	HEADER PCB .100 2-POSITION	J13
CO-000162-00	BNDG POST A, DUAL SLOT, PLX	
CO-000163-00	BNDG POST B, DUAL SLOT, PLX	
CO-300112-PJ	JACK 1/4" PHONE DBLOPEN CKT	J1,9
HW-000001-FC	FUSE CLIPS	REF. FI
IC-000024-00	IC REG PWM 40V O.IA SG3525A	U19
IC-000047-30	IC LIN DUAL COMP LM393 SO-8	U10
IC-000048-30	IC LIN DUAL OP AMP MC33078	U1,6
IC-000051-00	IC OPTO-ISO MOC8101	U15,17
IC-000053-30	IC LIN SMT DUAL TIMER LM556	U14
IC-000054-30	IC LIN SMT QUAD COMP LM339A	U13
IC-000073-30	IC LIN DUAL OP AMP LM13600	U3
IC-000134-00	IC CMOS HV DRVR IR2110	U18
IC-000135-00	IC LIN PWM SWITCH TOP 210	U16
IC-005532-OP	IC LIN DUAL OP AMP 5532 EX/MPU	U2,7
MS-000048-HS	HEAT SINK, ISOL TO-220	REF: Q91
MS-1 50250-FU	FUSE 15A 250V 3AG FAST CER	FI
PC-000531-00	PCB MAIN PLX	
PL-000114-00	INSULATOR, IGBT/RECTHS, PLX	
PL-000126-00	SPRING, SEAT, PLX	
PL-000128-00	SPACER, LED, .276"	LD2-11 R155,LD1, REF:R30,
PL-000135-00	INSULATOR, MICA 1.25" X 1.75"	REF:Q96,97
PL-905156-SP	SPACER, ROUND, NYLON, #6, 0.155	REF:L1,2
PT-125000-AT	RES VAR IT 250 20% 0.15W CAR	VR43,166
PT-310000-CR	RES VAR IT 1 OK 20% 0.2W W/DE	VR2,121
QD-000014-QD	DIODE TO220 ULTRAFAST 200V	D74,75,80 D81
QD-000042-00	DIODE RECT ULTRAFAST 400V 3	D70,71
<b>QD-000052-00</b>	<b>LED GRN T-I</b>	LD2,3,4,7, LD8,9,11
QD-000053-00	LED YEL T-I	LD1,6
QD-000054-00	LED RED T-I	LD5,10
QD-000062-10	XISTOR NPN TO-92 40V 0.2A 1.5	Q20,65
QD-000063-10	XISTOR PNP TO-92 40V 0.2A 1.5	Q21,66
QD-000076-00	XISTOR NPN TO-220 250V	Q27,72
QD-000077-00	XISTOR PNP TO-220 250V	Q26,71
QD-000102-30	DIODE SW 1 N4148 SMT 75V 75M	D1-5,8,9, D10-12,14, D23-30,33, D34-37,39, D48-51,55, D59,63-65, D67,69,89, D90,91
QD-000103-30	XISTOR NPN SMT 40V .2A .2W	Q13,15,18, Q25,49,50,

**PLX 1602 PCB ASSEMBLY (230V) Cont'd**

Part Number	Description	Reference
		Q5,7,8,9, Q52,53,54, Q58,60,63, Q70,89,90, Q92,93,95
QD-000104-30	XISTOR PNP SMT 40V .2A .2W	Q1-4,6,10, Q12,14,23, Q24,42,43, Q44-48,51,
QD-000104-30	XISTOR PNP SMT 40V .2A .2W	Q55,57,59, Q68,69,87, Q88,94,98, Q99
QD-000105-30	XISTOR NPN SMT 300V .2A .2W	Q16,61
QD-000106-30	XISTOR PNP SMT 300V .2A .2W	Q17,62
QD-000108-30	DIODE SMT SWITCH 200V .2A 50	D13,16,38, D41,61,68, D78,79
QD-000110-30	DIODE ZNR 6.2V 5% .3W SMT	D56
QD-000113-30	DIODE ZNR 10V 5% .3W SMT	D66
QD-000115-30	DIODE SMT RECT 600V IA	D58,60,86
QD-000116-30	DIODE RECT SMT 200V IA	D62,76,77, D82,83
QD-000154-00	XISTOR NPN TO-220 230V	Q19,64
QD-000155-00	XISTOR PNP TO-220 230V	Q22,67
QD-000156-00	XISTOR PNP TO-220 100V 3A 40	Q91
QD-000162-00	XISTOR, IGBT 20A/600V	Q96,97
QD-000170-00	DIODE BRIDGE RECT 600V 50A	BR1
QD-001302-PN	XISTOR PNP TO-3P 200V 15A	Q28,34,36, Q39,73,79, Q81,84
QD-003281-NP	XISTOR NPN TO-3P 200V 15A	Q29,35,37, Q40,74,80, Q82,85
QD-004744-ZA	DIODE ZNR 15V 5% 1 W 1 N4744A	D53,54
QD-005402-DX	DIODE RECT DO27 200V 3A	D19,20,44, D45
RE-.04703-10	RES MOFP .47 5% 2W MINI	R102,103, R107,108, R111-114, R211,212, R214,215, R217,218, R220,222, R225,226, R230,231, R234-237
RE-.56002-10	RES MOFP 5.6 5% 2W MINI	R88,89,91, R92,94,95, R97,99, R203,221, R354,355, R373 R80,98,
RE-000210-NR	THERMISTOR NTC 15A CUR LIM	R324
RE-000230-NR	THERMISTOR NTC 10K 5%	R30,155
RE-001003-30	RES SMT 10 OHM 5% 1/8W 1206	R353,356, R358,359
RE-001502-10	RES MOFP 15 5% 2W MINI	R209,210, R213,216, R367,368

**PLX 1602 PCB ASSEMBLY (230V) Cont'd**

Part Number	Description	Reference
		R85-87,90, R93,208,
RE-003921-30	RES SMT 39.2 OHM 1% 1/8W 120	R246-249, R349,357
RE-005606-10	RES MOFP 56 5% 2W MINI	R372
RE-007502-30	RES SMT 75 1% 1/10W100V	R124 R5,6,123, R150,193, R194,334, R21,27,70, R364,381, R382-384 R71,144, R191,204, R205 R67,68,81, R82,190, R44,167
RE-010002-30	RES SMT 100 1% 1/10W100V	R151,160
RE-010002-30	RES SMT 100 1% 1/10W100V	R28,37, R22,146, R361,374 R370
RE-027401-30	RES SMT 274 1% 1/10W100V	R256,257, R276-278 R1,7,42, R117,118, R128,165, R232,250, R252,369
RE-038301-30	RES SMT 383 1% 1/10W 100V	R101,109, R147,154, R157,158, R162,164, R23,32,34, R270,273 R35,39,41, R195,198 R72,75, R171
RE-047502-30	RES SMT 475 1% 1/10W100V	R48,127, R240,264, R265,267, R347,348 R47,170, R251
RE-053602-30	RES SMT 536 1% 1/10W100V	R11,17, R125,126, R131,137, R138,253, R3,4,10, R327,330, R362
RE-063402-30	RES SMT 634 1% 1/8W 1206	R13,129, R130,135, R136 R8,9,12, R152
RE-082001-10	RES MOFP a20 5% 2W MINI	R29,122, R182,185 R59,62,
RE-10006-30	RES SMT 1.00K 1% 1/8W 1206	
RE-115002-30	RES SMT 1 50K 1% 1/10W 1 OOV	
RE-116202-30	RES SMT 1 62K 1% 1/10W100V	
RE-120002-30	RES SMT 2.00K 1% 1/10W1 OOV	
RE-122103-30	RES SMT 2.21K 1% 1/10W100V	
RE-139002-10	RES MOFP 3.9K 5% 2W MINI	
RE-147502-30	RES SMT 4.75K 1% 1/10W 1 OOV	
RE-156001-10	RES 5.60K.1% 1/4W 25PPM	
RE-159002-30	RES SMT 5.90K 1% 1/10W100V	
RE-163402-30	6.34K1/10W 1% 100V SMT	

**PLX 1602 PCB ASSEMBLY (230V) Cont'd**

Part Number	Description	Reference
RE-175002-30	RES SMT 7.50K 1% 1/10W100V	R120,132, R140,161 R15,38, R360
RE-178701-30	RES SMT 7.87K 1% 1/10W 1 OOV	R258,266, R272 R36,159, R336,338, R363,366, R375,376
RE-190902-30	RES SMT 9.09K 1% 1/10W 100V	R106,133, R134,139, R14,16,19, R142,169, R188,199, R200,241, R245,259, R329,337 R46,65, R76,77,
RE-210003-30	RES SMT 1 0.0K 1% 1/10W 1 OOV	R148,168, R25,45, R262,365 R31,153
RE-212702-30	RES SMT 12.7K 1% 1/10W100V	R18,141, R229,242, R244,271, R331,346
RE-215002-30	RES SMT 15.0K 1% 1/10W100V	R172,173 R49,50, R325
RE-216501-CM	RES MF 16.5K 1% 1/2W	R351,352
RE-220002-30	RES SMT 20.0K 1% 1/10W100V	R143,183, R184,243, R20,60,61, R261,323, R332
RE-220003-30	RES SMT 20.0K 1% 1/8W 1206	R26,149
RE-224901-30	RES SMT 24.9K 1% 1/10W 1 OOV	R156
RE-230002-10	RES MOFP 30K 5% 2W MINI	R33,119, R196,197, R268,341, R342,344, R343,345 R73,74,
RE-239202-30	RES SMT 39.2K 1% 1/10W100V	R174,176, R333,335 R51,53, R24,145, R260,263, R340
RE-247503-30	RES SMT 47.5K 1% 1/10W 1 OOV	R321,322, R326,328 R339,371
RE-310002-30	RES SMT 1 0.0K 1% 1/10W 1 OOV	
RE-310003-30	RES SMT 1 0.0K 5% 1/8W 1206	
RE-315002-30	RES MF 150K 1% 1/8W 1206	
RE-339201-30	RES SMT 392K 1% 1/10W 1 OOV	
RE-348702-30	RES MF 487K 1% 1/8W 1206	
RE-375005-BM	RES MF 750K 2% 1/2W	
SC-0631 00-PP	#6-20 X 5/8" "AB" TYPE 1 XRECE	
SC-Oal 101-SP	#a-la X 5/8", TYPE 1 P/P BLACK	
SW-000029-S	RELAY, SPKR PROTECT, SPDT, 2 KI	
SW-000053-00	SWITCH DIP 10-POS, TALL	SW1
WC-0.2020-JW	JMPR BARE 0.2" 20AWG SLD	D22,46,47
WC-O.501 a-JW	JMPR INS 0.5" 18AWG SLD WHT	REF: D21, J240,

## PLX 1602 PCB ASSEMBLY (230V) Cont'd

Part Number	Description	Reference
		REF:D87,88
WC-000001-10	JUMPER INS .6" 22AWG SOLID W	R224
WC-000103-00	CABLE ASSY, 20 PIN 9"L	J3-4,J5-6
WC-0001 15-00	AC SWITCH WIRE, BLK, LONG	REF:ES2, TO SWITCH
WC-0001 15-01	AC SWITCH WIRE, RED, SHORT	REF:ES1,
WC-0001 15-01	AC SWITCH WIRE, RED, SHORT	TO SWITCH
WC-0001 17-00	SPEAKER WIRE, BLACK	E12A-12C REF:
WC-0001 17-01	SPEAKER WIRE, WHITE	E9A-9C REF:
WC-0001 17-02	SPEAKER WIRE, GREY	E11A-11C REF:
WC-0001 17-03	SPEAKER WIRE, BLACK	E10A-10C REF:
WC-0001 18-00	WIRE ASSY,BLK, LONG	EHI-EH2 REF:
XF-000005-00	BEAD FERRITE W/20AWG LEAD	L9,10
XF-000023-00	CHOKE COMMON MODE 2.2MHL3,4	
XF-000061-00	INDUCTOR TORIOD1.9UH13GA L6	
XF-000063-00	XFMR, PWR PLX1602	T2
XF-000064-00	XFMR AMP HOUSEKEPPING PLC TI	
XF-200014-CR	INDUCTOR 2UH 14AWG VERT M L1,2	

## PLX 1602 CHASSIS ASSEMBLY (120V)

Part Number	Description	Reference
CH-000097-00	CHASSIS, PLX	
CH-000100-00	HANDLE-EAR CASTING PLX	
CH-000112-00	SHIELD, AC, PLX	
LB-000052-00	LABEL, cUL APPROVAL	
LB-000053-00	LBL, FRENCH, FUSE REPLACEMENT	
LB-000077-00	LABEL,WARNING,HIGH ENERGY	
LB-000214-00	LABEL, FACEPLATE PLX 1602	
LB-000215-00	LABEL, INPUT/OUTPUT, PLX	
LB-160226-05	LABEL, FUSE, UL CAUT. 25A 125V	
NW-380801-IL3/8"	INTERNAL TOOTH LOCKWASHER	
PL-000003-CP	AC CORD PROTECTOR	
PL-000040-PL	POT COVERS	
PL-000044-PL	BUSHING, STRAIN RELIEF	
PL-000054-00	KNOB FAB.	
PL-000066-00	CLIP XMAS-TREE SLG HEAD FASTEX	
PL-000095-00	FAN INTERFACE PLX	
PL-000096-00	INSULATOR,FAN DUCT, PLX	
SC-025000-PP	SCREW M2.5 X 6MM TYPE 1 PH BLK	
SC-060060-PS	SCREW 6-32 X .375 SEMS EXTL ZC	
SC-082051-PL	SCREW,TAP,PAN PH#8X5/16" "B"BK	
SW-000016-S	SPST SNAP IN POWER SWITCH	
WC-0001 14-00	AC CORD ASSY PLX	
WP-000057-00	FAN ASSY, 3.15" 24VDC W/5.5L"	
WP-000516-00	PCB ASSY, PLX 1602 (120V)	

## PLX 1602 CHASSIS ASSEMBLY (230V)

Part Number	Description	Reference
CH-000097-00	CHASSIS, PLX	
CH-000100-00	HANDLE-EAR CASTING PLX	
CH-000112-00	SHIELD, AC, PLX	
LB-000053-00	LBL, FRENCH, FUSE REPLACEMENT	
LB-000077-00	LABEL,WARNING,HIGH ENERGY	
LB-000099-01	LABEL, CE LISTING	
LB-000214-00	LABEL, FACEPLATE PLX 1602	
LB-000215-00	LABEL, INPUT/OUTPUT, PLX	
LB-160226-01	LABEL, FUSE, UL CAUT. 15A 250V	
NW-380801-IL 3/8"	INTERNAL TOOTH LOCKWASHER	
PL-000003-CP	AC CORD PROTECTOR	
PL-000024-00	STRAIN RELIEF,LIQ.TIGHT,HEYCO	
PL-000040-PL	POT COVERS	
PL-000054-00	KNOB FAB.	
PL-000055-00	EXPORT BINDING POST PLUG(RED)	
PL-000056-00	EXPORT BINDING POST PLUG(BLK)	
PL-000066-00	CLIP XMAS-TREE SLG HEAD FASTEX	
PL-000095-00	FAN INTERFACE PLX	
PL-000096-00	INSULATOR,FAN DUCT, PLX	
SC-025000-PP	SCREW M2.5 X 6MM TYPE 1 PH BLK	
SC-060060-PS	SCREW 6-32 X .375 SEMS EXTL ZC	
SC-082051-PL	SCREW,TAP,PAN PH#8X5/16" "B"BK	
SW-000016-S	SPST SNAP IN POWER SWITCH	
WC-0001 34-00	AC CORD ASSY, 230V, PLX	
WP-000057-00	FAN ASSY, 3.15" 24VDC W/5.5L"	
WP-000516-02	PCB ASSY, PLX 1602 (230V)	

## PLX 2402 PCB ASSEMBLY (120V)

Part Number	Description	Reference
CA-010002-30	CAP 1 OPF 5% 50V 0805 SMT	C14,49
CA-015002-10	CAP CER 15PF 10% 500V SL	C16,50
CA-047002-30	CAP CER 47PF 5% 50V NPO SMT	CI93 C29,30,64, C65,187, CI47
CA-110001-10	CAP SM IOOPF, 5%, 500V	CI47
CA-I10002-30	CAP CER IOOPF 5% 50V NPO SM	C40,41,43, C5,6,9,18, C53
CA-I33001-10	CAP SM 330PF 5% 500V	C145,146
CA-I47003-30	CAP 470PF 5% 50V 1206 SMT	cl 2,4,
CA-I47003-30	CAP 470PF 5% 50V 1206 SMT	C119,121, C148,181, CI7,26,36, C182,186, CI88 C37,52,61,
CA-168003-30	CAP CER 68OPF 5% 50V NPO SM	C25,60
CA-210005-30	CAP 001 UF 5% 50V 1206 SMT	C120,124, C195,196 C75,81,85,
CA-222001-00	CAP CER Y .0022UF 20% 125VAC	C122,127
CA-227001-30	CAP CER .0027UF 10% 100V 0805	C108,109, CI28 C20,23,24, C55,58,59,
CA-233001-10	CAP MYLAR .0033UF 10% 100V	CI13
CA-233002-00	CAP CER Y .0033UF 20% 125VAC	CI15,118
CA-322001-10	CAP MYLAR .022UF 10% 100V	C27,62
CA-410001-00	CAP MET POLY X.1UF 20% 250V	CI26
CA-410002-10	CAP MYLAR .1UF 5% 100V	c47 C8,12,44, C129,134, C156,157 C28,34,35, C63,69,70, C84,87,90,
CA-410003-10	CAP MET POLY 1UF 10% 250V	C129,134, C156,157 C28,34,35, C63,69,70, C84,87,90,
CA-410006-30	CAP CER .1UF 10% 50V X7R SMT	C116,125, C135,155, C162,163, C177,178, C179,180, C183,185, C189,190, C199,39,54, CI91
CA-410011-00	CAP MMYL .1UF 10% 400V	C107,123
CA-422001-10	CAP MYLAR .22UF 5% 50V	CI0,45
CA-447001-00	CAP MET POLY X.47UF 20% 250	CI17
CA-447003-00	CAP POLYP .47UF 10% 400V	CI44
CA-510005-30	CAP LYTIC 1 UF 20% 50V SMT	C13,48,184
CA-510006-00	CAP MPOLY X 1 UF 20% 250VAC	CI10,112
CA-610002-10	10UF,35V,20%,RADIAL ELECT	C114,192 C3,31,38, C66,80,86, C46,71
CA-647001-10	CAP LYTIC RL 47UF 10% 10V NP	C7,11,42, C21,22,56, C57,89
CA-647002-10	CAP LYTIC RL 47UF 20% 50V	C21,22,56, C57,89
CA-710002-10	CAP LYTIC RL 1 OOUF 20%25V	C139,142, CI43

## PLX 2402 PCB ASSEMBLY (120V) Cont'd

Part Number	Description	Reference
CA-710004-10	CAP LYTIC RL 100UF 20% 25V	C15,32,51, C67,72,78, C79,33, C138,149, C150
CA-747001-10	CAP LYTIC RL 470UF 20% 16V	C73,74,76, C77,131
CA-747004-00	CAP LYTIC RL 470UF 20% 1 OOV	CI52,153, C159,160, C165,166, C169,170, C173,174
CA-747063-AE	CAP LYTIC RL 470UF 20% 63V	C151,154, C158,161, C164,167, C168,171, C172,175
CA-822200-AE	CAP LYTIC RL 2200UF 20% 200V	CI32,133, C136,137
CH-000102-00	HEATSINK, AUDIO, PLX	
CH-000103-00	SPRING, CLAMP, 2 HOLE	
CH-000104-00	HEATSINK PS PLX	
CH-000111-00	BRACKET, OUTPUT PCB PLC PLATFORM	
CH-000114-00	CLAMP, 2 FINGER PLX	
CO-000036-CO	SPEAKERS, PC MOUNT	J7,8
CO-000148-00	CONN XLR F VERT PCB	J2,10
CO-000155-00	HEADER PCB 100 2-POSITION	J13
CO-000162-00	BNDG POST A, DUAL SLOT, PLX	
CO-000163-00	BNDG POST B, DUAL SLOT, PLX	
CO-300112-PJ	JACK 1/4" PHONE DBLOPEN CKT	J1,9
HW-000001-FC	FUSE CLIPS	REF:FI
IC-000024-00	IC REG PWM 40V O.IA SG3525AU19	U19
IC-000047-30	ICLIN DUAL COMP LM393 SO-8	U10
IC-000048-30	ICLIN DUAL OP AMP MC33078	U1,6
IC-000051-00	IC OPTO-ISO MOC8101	U15,17
IC-000053-30	ICLIN SMT DUAL TIMER LM556	U14
IC-000054-30	ICLIN SMT QUAD COMP LM339A	U13
IC-000073-30	ICLIN DUAL OP AMP LM13600	U3
IC-000133-30	ICLIN COMP LM311	U4,5,8,9
IC-000134-00	IC CMOS HV DRVR IR2110	U18
IC-000135-00	ICLIN PWM SWITCH TOP 210	U16
IC-005532-OP	ICLIN DUAL OP AMP 5532 EX/MPU2,7	
MS-000048-HS	HEAT SINK, ISOL TO-220	REF:Q91
MS-000112-00	FUSE 25A125V 3AG FAST CER	FI
PC-000531-00	PCB MAIN PLX	
PL-000098-00	INSULATOR, TO-220, PLX	
PL-000114-00	INSULATOR, IGBT/RECTHS, PLX	
PL-000117-00	INSULATOR, TO-247, PLX	
PL-000126-00	SPRING, SEAT, PLX	
PL-000128-00	SPACER, LED, .276"	LD2-LD11 R155,LD1, REF:R30,
PL-000135-00	INSULATOR, MICA 1.25" X 1.75"	REF:Q96,97
PL-905156-SP	SPACER, ROUND, NYLON, #6, 0.155	REF:L1,2
PT-125000-AT	RES VAR IT 250 20% 0.15W CAR	VR43,166
PT-310000-CR	RES VAR IT 10K 20% 0.2W WIDE	VR2,121
QD-000014-QD	DIODE TO220 ULTRAFast 200V	D21,22,46, D47,74,75, D80,81
QD-000021-QD	1N4740 1 OV ZENER1W	D7,32,88
QD-000031-QD	FET NCHAN TO220 60V 50A	Q38,41,83,

## PLX 2402 PCB ASSEMBLY (120V) Cont'd

Part Number	Description	Reference
		Q86
QD-000042-00	DIODE RECT ULTRAFAST 400V 3	D70,71
QD-000052-00	LED GRN T-I	LD2,3,4,7, LD8,9,11
QD-000053-00	LED YEL T-I	LD1,6
QD-000054-00	LED RED T-I	LD5,10
QD-000062-10	XISTOR NPN TO-92 40V 0.2A 1.5	Q20,65
QD-000063-10	XISTOR PNP TO-92 40V 0.2A 1.5	Q21,66
QD-000076-00	XISTOR NPN TO-220 250V	Q27,72
QD-000077-00	XISTOR PNP TO-220 250V	Q26,71
QD-000102-30	DIODE SW 1N4148 SMT 75V 75MD	1-5,8,9, D10-12,14, D15,17,18, D23-30,33, D34-37,39, D40,42,43, D48-51,55, D59,63,64, D65,67,69, D89,90,91
QD-000103-30	XISTOR NPN SMT 40V 2A .2W	Q13,15,18, Q25,30,32, Q49,50,52, Q5,7,8,9, Q53,54,58, Q60,63,70, Q75,77,89, Q90,92,93, Q95
QD-000104-30	XISTOR PNP SMT 40V .2A .2W	Q1-4,6,10, Q12,14,23, Q24,31,33, Q42,43,44, Q45-48,51, Q55,57,59, Q68,69,76, Q78,87,88, Q94,98,99
QD-000105-30	XISTOR NPN SMT 300V .2A .2W	Q16,61
QD-000106-30	XISTOR PNP SMT 300V .2A .2W	Q17,62
QD-000108-30	DIODE SMT SWITCH 200V .2A 50	D13,16,38, D41,61,68, D78,79
QD-000110-30	DIODE ZNR 6.2V 5% .3W SMT	D56
QD-000113-30	DIODE ZNR 10V 5% .3W SMT	D66
QD-000115-30	DIODE SMT RECT 600V IA	D58,60,86
QD-000116-30	DIODE RECT SMT 200V IA	D62,76,77, D82,83
QD-000152-10	DIODE ZNR 12V 5% 1 W 1 N4742A	D57
QD-000153-00	DIODE RECT TO247 UFAST 400V 3	D72,73,84, D85
QD-000154-00	XISTOR NPN TO-220 230V	Q19,64
QD-000155-00	XISTOR PNP TO-220 230V	Q22,67
QD-000156-00	XISTOR PNP TO-220 100V 3A 40	Q91
QD-000169-00	XISTOR IGBT TO-247AC 600V 55	Q96,97
QD-000170-00	DIODE BRIDGE RECT 600V 50A	BR1
QD-0003.9-ZT	DIODE ZNR 3.9V TESTED	D6,31
QD-001302-PN	XISTOR PNP TO-3P 200V 15A	Q28,34,36, Q39,73,79, Q81,84
QD-003281-NP	XISTOR NPN TO-3P 200V 15A	Q29,35,37,

## PLX 2402 PCB ASSEMBLY (120V) Cont'd

Part Number	Description	Reference
		Q40,74,80, Q82,85
QD-004744-ZA	DIODE ZNR 15V 5% 1 W 1 N4744A	D53,54,87
QD-005402-DX	DIODE RECT DO27 200V 3A	D19,20,44, D45
RE-04703-10	RES MOFP .47 5% 2W MINI	R102,103, R107,108, R111-114, R211,212, R214,215, R217,218, R220,222, R225,226, R230,231, R234-237
RE-04703-10	RES MOFP .47 5% 2W MINI	R88,89,91, R92,94,95, R97,99, R115,116, R238,239, R269
RE-15002-10	RES MOFP 1.5 5% 2W MINI	R203,221, R354,355, R373
RE-56002-10	RES MOFP 5.6 5% 2W MINI	R80,98,
RE-000210-NR	THERMISTOR NTC 15A CUR LIM	R324
RE-000230-NR	THERMISTOR NTC 10K 5%	R30,155
RE-001003-30	RES SMT 10 OHM 5% 1/8W 1206	R353,356, R358,359
RE-001502-10	RES MOFP 15 5% 2W MINI	R209,210, R213,216, R350,367, R368
RE-003921-30	RES SMT 39.2 OHM 1% 1/8W 1206	R85-87,90, R93,208, R246-249, R349,357
RE-004752-30	RES SMT 47.5 1% 1/10W 1 OOV	R100,110, R223,233
RE-005606-10	RES MOFP 56 5% 2W MINI	R372
RE-007502-30	RES SMT 75 1% 1/10W 1 OOV	R124,193, R194
RE-010002-30	RES SMT 100 1% 1/10W 100V	R5,6,70, R71,123, R144,150, R21,27, R334,364, R381-384
RE-015004-10	RES MOFP 150 5% 2W MINI	R256,278
RE-020002-30	RES SMT 200 1% 1/10W 1 OOV	R204,205 R81,82,
RE-027401-30	RES SMT 274 1% 1/10W 1 OOV	R190,191 R67,68,
RE-038301-30	RES SMT 383 1% 1/10W 100V	R44,167
RE-047001-10	RES MOFP 470 5% 2W MINI	R274-277, R279
RE-047502-30	RES SMT 475 1% 1/10W 100V	R151,160 R28,37,
RE-053602-30	RES SMT 536 1% 1/10W 1 OOV	R22,146, R361,374
RE-063402-30	RES SMT 634 1% 1/8W 1206	R370



## PLX 2402 PCB ASSEMBLY (120V) Cont'd

Part Number	Description	Reference
RE-082001-10	RES MOFP 820 5% 2W MINI	R257
RE-110006-30	RES SMT 1.00K 1% 1/8W 1206	R1,7,42, R117,118, R128,165, R232,250, R252,369
RE-115002-30	RES SMT 1.50K 1% 1/10W 100V	R101,109,
RE-115002-30	RES SMT 1.50K 1% 1/10W 100V	R147,154, R157,158, R162,164, R23,32,34, R270,273 R35,39,41,
RE-120002-30	RES SMT 2.00K 1% 1/10W 100V	RI71
RE-122103-30	RES SMT 2.21K 1% 1/10W 100V	R48,127, RI 70,195, R198,240, R207 R264,265, R267,347, R348,84, R47,72,75,
RE-130102-30	RES SMT 3.01K 1% 1/10W 100V	R79,202
RE-139002-10	RES MOFP 3 9K 5% 2W MINI	R219,228, R251 R96,105,
RE-147502-30	RES SMT 4.75K 1% 1/10W 100V	R11,17, R125,126, R131,137, R138,178, R179,182, R185,186, R187,253, R3,4,10, R327,330, R362 R55,56,59, R62-64,
RE-156001-10	RES 5.60K.1%1/4W 25PPM	R13,129, R130,135, R136 R8,9,12, R122,152, R201,206 R29,78,83,
RE-159002-30	RES SMT 5.90K 1% 1/10W 1 OOV	R120,132, R140,161 R15,38, R360
RE-175002-30	RES SMT 7.50K 1% 1/10W 100V	R258,266, R272
RE-178701-30	RES SMT 7.87K 1% 1/10W 100V	R336,338, R363,366, R375,376
RE-190902-30	RES SMT 9.09K 1% 1/10W 1 OOV	RIO6 R133,134, R139,142, R14,16,19, R159,168, R169,188, R227,241,

## PLX 2402 PCB ASSEMBLY (120V) Cont'd

Part Number	Description	Reference
RE-215002-30	RES SMT 15.0K 1% 1/10W 100V	R245,259, R329,337, R36,45,46, R65,104, R25,148, R262,365 R31,153
RE-216501-CM	RES MF 16.5K 1% 1/2W	
RE-220002-30	RES SMT 20.0K 1% 1/10W 1 OOV	R18,141, R229,242, R244,271, R331,346 R325
RE-224901-30	RES SMT 24.9K 1% 1/10W 1 OOV	R351,352
RE-230002-10	RES MOFP 30K 5% 2W MINI	R172,173 R49,50,
RE-230102-30	RES SMT 30.1K 1% 1/8W 1206	R143,183, R184,199, R20,60,61, R200,243, R261,323, R332,76,77
RE-239202-30	RES SMT 39.2K 1% 1/10W 100V	R149
RE-247503-30	RES SMT 47.5K 1% 1/10W 100V	R2,26,43, R156 R33,11Q, R176,196, R197,268, R344,345 R51,53,73, R74,174, R177,180, R181,333, R335,341, R342,343 R52,54,57, R58,175,
RE-310002-30	RES SMT 1 00K 1% 1/10W 1 OOV	R145,189, RI 92,260, R24,66,69, R263,340 R321,322, R326,328 R339,371
RE-310003-30	RES SMT 100K 5% 1/8W 1206	
RE-315002-30	RES MF 150K 1% 1/8W 1206	
RE-339201-30	RES SMT 392K 1% 1/10W 100V	
RE-348702-30	RES MF 487K 1% 1/8W 1206	
RE-375005BM	RES MF 750K 2% 1/2W	
SC-063100-PP #6-20 X 5/8" "AB" TYPE 1 XRECE		
SC-081 101-SP#8-18 X 5/8", TYPE 1 P/P BLACK		
SW-000029-S RELAY, SPKR PROTECT, SPDT, 2 KI		
SW-000053-00 SWITCH DIP 10-POS, TALL	SW1	
WC-0.5018-JW JMPR INS 0.5" 18AWG SLD WHT J120		
WC-000001-10 JUMPER INS .6" 22AWG SOLID W	R224,280	
WC-000103-00 CABLE ASSY, 20 PIN 9"L	J3-4, J5-6	
WC-0001 15-00 AC SWITCH WIRE, BLK, LONG	REF:ES2, TO SWITCH	
WC-0001 15-01 AC SWITCH WIRE, RED, SHORT	REF:ES1, TO SWITCH	
WC-0001 17-00 SPEAKER WIRE, BLACK	E12A-12C REF:	
WC-0001 17-01 SPEAKER WIRE, WHITE	E9A-9C REF:	
WC-0001 17-02 SPEAKER WIRE, GREY	E11A-11C REF:	

## PLX 2402 PCB ASSEMBLY (120V) Cont'd

Part Number	Description	Reference
WC-0001	17-03 SPEAKER WIRE, BLACK	E10A-10C REF:
WC-0001	18-00 WIRE ASSY,BLK, LONG	EH1-EH2 REF:
WC-0001	18-01 WIRE ASSY, RED, SHORT	ELI-EI2OA REF:
WC-0001	18-01 WIRE ASSY, RED, SHORT	REF:
XF-000005-00	BEAD FERRITE W/20AWG LEAD	L7-12
XF-000023-00	CHOKE COMMON MODE 2.2MH	L3,4
XF-000061-00	INDUCTOR TORIOD 1.9UH13GA	L6
XF-000064-00	XFMR AMP HOUSEKEEPING PLC	T1
XF-000079-00	XFMR PLX1202/2402 (120V)	T2
XF-000085-00	XFMR PLX1202/2402 (100V)	T2
XF-200014-CR	INDUCTOR 2UH 14AWG VERT M	L1,2

## PLX 2402 PCB ASSEMBLY (230V)

Part Number	Description	Reference
CA-010002-30	CAP 1 OPF 5% 50V 0805 SMT	C14,49
CA-015002-10	CAP CER 15PF 10% 500V SL	C16,50
CA-047002-30	CAP CER 47PF 5% 50V NPO SMT	CI93
CA-047002-30	CAP CER 47PF 5% 50V NPO SMT	C29,30,64, C65,187,
CA-110001-10	CAP SM IOOPF, 5%, 500V	CI47
CA-I 10002-30	CAP CER IOOPF 5% 50V NPO SM	C40,41,43, C5,6,9,18, C53
CA-133001-10	CAP SM 330PF 5% 500V	C145,146
CA-147003-30	CAP 470PF 5% 50V 1206 SMT	C1,2,4, C119,121, C148,181, C17,26,36, C182,186, C188 C37,52,61,
CA-I 68003-30	CAP CER 68OPF 5% 50V NPO SM	C25,60
CA-210005-30	CAP .001UF 5% 50V 1206 SMT	C120,124, C195,196 C75,81,85,
CA-222001-00	CAP CER Y .0022UF 20% 125VAC	C122,127
CA-227001-30	CAP CER .0027UF 10% 100V 0805	C108,109, CI28 C20,23,24, C55,58,59,
CA-233001-10	CAP MYLAR .0033UF 10% 100V	C113
CA-233002-00	CAP CER Y .0033UF 20% 125VAC	CI 15,118
CA-322001-10	CAP MYLAR .022UF 10% 100V	C27,62
CA-410001-00	CAP MET POLY X. 1 UF 20% 250V	CI 26
CA-410002-10	CAP MYLAR.1UF 5% 1 OOV	c47 C8,12,44,
CA-410003-10	CAP MET POLY .IUF 10% 250V	C129,134, C156,157 C28,34,35, C63,69,70, C84,87,90,
CA-410006-30	CAP CER .IUF 10% 50V X7R SMT	C116,125, C135,155, C162,163, C177,178, C179,180,

## PLX 2402 PCB ASSEMBLY (230V) Cont'd

Part Number	Description	Reference
CA-410011-00	CAP MMYL .IUF 10% 400V	C183,185, C189,190, C19,39,54, CI91
CA-422001-10	CAP MYLAR .22UF 5% 50V	C107,123 C10,45
CA-447001-00	CAP MET POLY X.47UF 20% 250	CI 17
CA-447003-00	CAP POLYP .47UF 10% 400V	C144
CA-510005-30	CAP LYTIC 1 UF 20% 50V SMT	C13,48,184
CA-510006-00	CAP MPOLY X 1UF 20% 250VAC	C110,112
CA-610002-10	10UF,35V,20%,RADIAL ELECT	C114,192 C3,31,38, C66,80,86, C46,71
CA-647001-10	CAP LYTIC RL 47UF 10% 10V NP	C7,11,42, C21,22,56, C57,89
CA-647002.10	CAP LYTIC RL 47UF 20% 50V	C139,142, C143
CA-710002-10	CAP LYTIC RL 1 OOUF 20%25V	C15,32,51, C67,72,78, C79,33, C138,149, C150
CA-710002-10	CAP LYTIC RL IOOUF 20% 25V	C73,74,76, C77,131
CA-710004-10	CAP LYTIC RL 100UF 20% 25V	CI 52,153, C159,160, C165,166, C169,170, C173,174
CA-747001-10	CAP LYTIC RL 470UF 20% 16V	C151,154, C158,161, C164,167, C168,171, C172,175
CA-747004-00	CAP LYTIC RL 470UF 20% 1 OOV	CI 32,133, C136,137
CA-747063-AE	CAP LYTIC RL 470UF 20% 63V	
CA-822200-AE	CAP LYTIC RL 2200UF 20% 200V	
CH-000102-00	HEATSINK, AUDIO, PLX	
CH-000103-00	SPRING, CLAMP, 2 HOLE	
CH-000104-00	HEATSINK PS PLX	
CH-000110-00	OBS-BRACKET,OUTPUT PCB PLC	
CH-000114-00	CLAMP, 2 FINGER PLX	
CO-000036-CO	SPEAKONS, PC MOUNT	J7,8
CO-000148-00	CONN XLR F VERT PCB	J2,10
CO-000155-00	HEADER PCB .100 2-POSITION	J13
CO-000162-00	OBS-BNDG POST A,DUAL SLOT,PLX	
CO-000163-00	OBS-BNDG POST B,DUAL SLOT,PLX	
CO-300112-PJ	JACK 1/4" PHONE DBLOPEN CKT	J1,9
HW-000001-FC	FUSE CLIPS	REF:FI
IC-000024-00	IC REG PWM 40V O.IA SG3525A	U19
IC-000047-30	ICLIN DUAL COMP LM393 SO-8	U10
IC-000048-30	ICLIN DUAL OP AMP MC33078	U1,6
IC-000051-00	IC OPTO-IS0 MOC8101	U15,17
IC-000053-30	ICLIN SMT DUAL TIMER LM556	U14
IC-000054-30	ICLIN SMT QUAD COMP LM339A	U13
IC-000073-30	ICLIN DUAL OP AMP LM13600	U3
IC-000133-30	ICLIN COMP LM311	U4,5,8,9
IC-000134-00	IC CMOS HV DRVR IR2110	U18
IC-000135-00	ICLIN PWM SWITCH TOP 210	U16

**PLX 2402 PCB ASSEMBLY (230V) Cont'd**

Part Number	Description	Reference
IC-005532-OP	ICLIN DUAL OP AMP 5532 EX/MPU2,7	
MS-000048-HS	HEAT SINK, ISOL TO-220	REF:Q91
MS-I50250-FU	FUSE 15A 250V 3AG FAST CER	FI
PC-000531-00	PCB MAIN PLX	
PL-000098-00	INSULATOR, TO-220, PLX	
PL-000114-00	INSULATOR, IGBT/RECTHS, PLX	
PL-000117-00	INSULATOR, TO-247, PLX	
PL-000126-00	SPRING, SEAT, PLX	
PL-000128-00	SPACER, LED, .276"	LD2-11 R155,LD1, REF:R30,
PL-000135-00	INSULATOR, MICA 1.25" X 1.75"	REF:Q96,97
PL-905156-SP	SPACER,ROUND,NYLON,#6,0.155	REF:L1,2
PT-125000-AT	RES VAR IT 250 20% 0.15W CAR	VR43,166
PT-310000-CR	RES VAR IT 10K 20% 0.2W W/DE	VR2,121
QD-000014-QD	DIODE TO220 ULTRAFAST 200V	D21,22,46, D47,74,75, D80,81
QD-000021-QD	1N4740 1 OV ZENER 1 W	D7,32,88
QD-000031-QD	FET NCHAN TO220 60V 50A	Q38,41,83, Q86
QD-000042-00	DIODE RECT ULTRAFAST 400V 3	D70,71
QD-000052-00	LED GRN T-I	LD2,3,4,7, LD8,9,11
QD-000053-00	LED YEL T-I	LD1,6
QD-000054-00	LED RED T-I	LD5,10
QD-000062-10	XISTOR NPN TO-92 40V 0.2A 1.5	Q20,65
QD-000063-10	XISTOR PNP TO-92 40V 0.2A 1.5	Q21,66
QD-000076-00	XISTOR NPN TO-220 250V	Q27,72
QD-000077-00	XISTOR PNP TO-220 250V	Q26,71
QD-000102-30	DIODE SW IN4148 SMT 75V75M	D1-5,8,9, D10-12,14, D15,17,18, D23-30,33, D34-37,39, D40,42,43, D48-51,55, D59,63-65, D67,69,89, D90,91
QD-000103-30	XISTOR NPN SMT 40V .2A .2W	Q13,15,18, Q25,30,32, Q49,50,52, Q5,7,8,9, Q53,54,58, Q60,63,70, Q75,77,89, Q90,92,93, Q95
QD-000104-30	XISTOR PNP SMT 40V .2A .2W	Q1-4,6,10, Q12,14,23, Q24,31,33, Q42,43,44, Q45-48,51, Q55,57,59, Q68,69,76, Q78,87,88, Q94,98,99
QD-000105-30	XISTOR NPN SMT 300V .2A .2W	Q16,61
QD-000106-30	XISTOR PNP SMT 300V .2A .2W	Q17,62
QD-000108-30	DIODE SMT SWITCH 200V .2A 50	D13,16,38,

**PLX 2402 PCB ASSEMBLY (230V) Cont'd**

Part Number	Description	Reference
		D41,61,68, D78,79
QD-000110-30	DIODE ZNR 6.2V 5% .3W SMT	D56
QD-000113-30	DIODE ZNR 10V 5% .3W SMT	D66
QD-000115-30	DIODE SMT RECT 600V IA	D58,60,86
QD-000116-30	DIODE RECT SMT 200V IA	D62,76,77, D82,83
QD-000152-10	DIODE ZNR 12V 5% 1W 1 N4742A	D57
QD-000153-00	DIOD RECT TO247 UFAST 400V 3	D72,73,84, D85
QD-000154-00	XISTOR NPN TO-220 230V	Q19,64
QD-000155-00	XISTOR PNP TO-220 230V	Q22,67
QD-000156-00	XISTOR PNP TO-220 100V 3A 40	Q91
QD-000169-00	XISTOR IGBT TO-247AC 600V 55	Q96,97
QD-000170-00	DIODE BRIDGE RECT 600V 50A	BR1
QD-0003.9-ZT	DIODE ZNR 3.9V TESTED	D6,31
QD-001302-PN	XISTOR PNP TO-3P 200V 15A	Q28,34,36, Q39,73,79, Q81,84
QD-003281-NP	XISTOR NPN TO-3P 200V 15A	Q29,35,37,
QD-003281-NP	XISTOR NPN TO-3P 200V 15A	Q40,74,80, Q82,85
QD-004744.ZA	DIODE ZNR 15V 5% 1W 1 N4744A	D53,54,87
QD-005402-DX	DIODE RECT DO27 200V 3A	D19,20,44, D45
RE-.04703-10	RES MOFP .47 5% 2W MINI	R102,103, R107,108, R111-114, R211,212, R214,215, R217,218, R220,222, R225,226, R230,231, R234-237 R88,89,91, R92,94,95, R97,99,
RE-.15002-10	RES MOFP 1.5 5% 2W MINI	R115,116, R238,239, R269
RE-.56002-10	RES MOFP 5.6 5% 2W MINI	R203,221, R354,355, R373 R80,98,
RE-000210-NR	THERMISTOR NTC 15A CUR LIM	R324
RE-000230-NR	THERMISTOR NTC 10K 5%	R30,155
RE-001003-30	RES SMT 10 OHM 5% 1/8W 1206	R353,356, R358,359
RE-001502-10	RES MOFP 15 5% 2W MINI	R209,210, R213,216, R350,367, R368 R85-87,90, R93,208,
RE-003921-30	RES SMT 39.2 OHM 1% 1/8W 120	R246-249, R349,357
RE-004752.30	RES SMT47.5 1% 1/10W 100V	R100,110, R223,233
RE-005606-10	RES MOFP 56 5% 2W MINI	R372
RE-007502-30	RES SMT 75 1% 1/10W 100V	R124,193, R194 R5,6,70,

**PLX 2402 PCB ASSEMBLY (230V) Cont'd**

Part Number	Description	Reference
RE-010002-30	RES SMT 100 1% 1/10W100V	R71,123, R144,150, R21,27, R334,364, R381-384
RE-015004-10	RES MOFP 150 5% 2W MINI	R256,278
RE-020002-30	RES SMT 200 1% 1/10W100V	R204,205 R81,82,
RE-027401-30	RES SMT 274 1% 1/10W100V	R190,191 R67,68,
RE-038301-30	RES SMT 383 1% 1/10W100V	R44,167
RE-047001-10	RES MOFP 470 5% 2W MINI	R274-277, R279
RE-047502-30	RES SMT 475 1% 1/10W100V	R151,160 R28,37,
RE-053602-30	RES SMT 536 1% 1/10W100V	R22,146, R361,374
RE-063402-30	RES SMT 634 1% 1/8W 1206	R370
RE-082001-10	RES MOFP 820 5% 2W MINI	R257
RE-110006-30	RES SMT 1.00K 1% 1/8W 1206	RI ,7,42, RI 17,118, R128,165, R232,250, R252,369
RE-115002-30	RES SMT 1.50K 1% 1/10W 1 OOV	R101,109, R147,154, R157,158, R162,164, R23,32,34, R270,273 R35,39,41,
RE-120002-30	RES SMT 2.00K 1% 1/10W100V	RI71 R48,127,
RE-122103-30	RES SMT 2.21K 1% 1/10W100V	R170,195, R198,240, R207 R264,265, R267,347, R348,84, R47,72,75,
RE-130102-30	RES SMT 3.01K 1% 1/10W100V	R79,202
RE-139002-10	RES MOFP 3.9K 5% 2W MINI	R219,228, R251 R96,105,
RE-147502-30	RES SMT 4.75K 1% 1/10W100V	R11,17, R125,126, R131,137, R138,178, R179,182, R185,186, R187,253, R3,4,10, R327,330, R362 R55,56,59, R62-64,
RE-156001-10	RES 5.60K .1% 1/4W 25PPM	R13,129, R130,135, R136 R8,9,12, R122,152,
RE-159002-30	RES SMT 5.90K 1% 1/10W100V	

**PLX 2402 PCB ASSEMBLY (230V) Cont'd**

Part Number	Description	Reference
RE-175002-30	RES SMT 7.50K 1% 1/10W100V	R201,206 R29,78,83, R120,132, R140,161 R15,38, R360
RE-178701-30	RES SMT 7.87K 1% 1/10W IOOV	R258,266, R272
RE-190902-30	RES SMT 9.09K 1% 1/10W100V	R336,338, R363,366, R375,376
RE-210003-30	RES SMT 1 O.OK 1%/10W 1 OOV	R106 R133,134, R139,142, R14,16,19, R159,168, R169,188, R227,241, R245,259, R329,337, R36,45,46, R65,104,
RE-212702-30	RES SMT 12.7K 1% 1/10W100V	R25,148, R262,365
RE-212702-30	RES SMT 12.7K 1% 1/10W100V	R31,153
RE-215002-30	RES SMT 15.0K 1% 1/10W 1 OOV	R18,141, R229,242, R244,271, R331,346 R325
RE-216501-CM	RES MF 16.5K 1% 1/2W	R351,352
RE-220002-30	RES SMT 20.0K 1% 1/10W 1 OOV	R172,173 R49,50, R143,183, R184,199, R20,60,61, R200,243, R261,323, R332,76,77
RE-224901-30	RES SMT 24.9K 1% 1/10W100V	R149
RE-230002-10	RES MOFP 30K 5% 2W MINI	R2,26,43, RI 56 R33,119, R176,196, R197,268, R344,345 R51,53,73, R74,174, R177,180, R181,333, R335,341, R342,343 R52,54,57, R58,175,
RE-230102-30	RES SMT 30.1K 1% 1/8W 1206	R145,189, R192,260, R24,66,69, R263,340
RE-239202-30	RES SMT 39 2K 1% 1/10W100V	R321,322,
RE-247503-30	RES SMT 47.5K 1% 1/10W100V	
RE-310002-30	RES SMT 100K 1% 1/10W100V	
RE-310003-30	RES SMT 1 OOK 5%/1/8W1206	
RE-315002-30	RES MF 150K 1% 1/8W 1206	
RE-339201-30	RES SMT 392K 1% 1/10W 1 OOV	
RE-348702-30	RES MF 487K 1% 1/8W 1206	

## PLX 2402 PCB ASSEMBLY (230V) Cont'd

Part Number	Description	Reference
		R326,328
RE-375005-BM	RES MF 750K 5% 1/2W100PPM	R339,371
SC-063100-PP	#6-20 X 5/8" "AB" TYPE 1 XRECE	
SC-081101-SP	#8-18 X 5/8", TYPE 1 P/P BLACK	
SW-000029-S	RELAY, SPKR PROTECT,SPDT,2 KI	
SW-000053-00	SWITCH DIP IO-POS, TALL	SW1
WC-0.5018-JW	JMPR INS 0.5"18AWG SLD WHT	J240
WC-000001-10	JUMPER INS .6" 22AWG SOLID W	R224,280
WC-000103-00	CABLE ASSY, 20 PIN 9"L	J3-4,J5-6
WC-000115-00	AC SWITCH WIRE, BLK, LONG	REF:ES2, TO SWITCH
WC-000115-01	AC SWITCH WIRE, RED, SHORT	REF:ES1, TO SWITCH
WC-000117-00	SPEAKER WIRE, BLACK	E12A-12C REF:
WC-000117-01	SPEAKER WIRE, WHITE	E9A-9C
WC-000117-01	SPEAKER WIRE, WHITE	REF.
WC-000117-02	SPEAKER WIRE, GREY	E11A-11C REF:
WC-000117-03	SPEAKER WIRE, BLACK	E10A-10C REF.
WC-000118-00	WIRE ASSY,BLK, LONG	EH1-EH2 REF:
XF-000005-00	BEAD FERRITE W/20AWG LEAD	L7-12
XF-000023-00	CHOKER COMMON MODE 2.2MH	L3,4
XF-000061-00	INDUCTOR TORIOD1.9UH13GA	L6
XF-000064-00	XFMR AMP HOUSEKEEPING PLC	T1
XF-000079-00	XFMR PLX1202/2402	T2
XF-200014-CR	INDUCTOR 2UH 14AWG VERT M	L1,2

## PLX 2402 CHASSIS ASSEMBLY (120V)

Part Number	Description	Reference
CH-000097-00	CHASSIS, PLX	
CH-000100-00	HANDLE-EAR CASTING PLX	
CH-000112-00	SHIELD, AC, PLX	
LB-000052-00	LABEL, cUL APPROVAL	
LB-000053-00	LBL, FRENCH, FUSE REPLACEMENT	
LB-000077-00	LABEL,WARNING,HIGH ENERGY	
LB-000215-00	LABEL, INPUT/OUTPUT, PLX	
LB-000237-00	LABEL, FACEPLATE PLX 2402	
LB-I 60226-05	LABEL, FUSE, UL CAUT.25A 125V	
NW-380801.IL	3/8" INTERNAL TOOTH LOCKWASHER	
PL-000003-CP	AC CORD PROTECTOR	
PL-000040-PL	POT COVERS	
PL-000044-PL	BUSHING, STRAIN RELIEF	
PL-000054-00	KNOB FAB.	
PL-000066-00	CLIP XMAS-TREE SLG HEAD FASTEX	
PL-000095-00	FAN INTERFACE PLX	
PL-000096-00	INSULATOR,FAN DUCT, PLX	
SC-025000-PP	SCREW M2.5 X 6MM TYPE 1 PH BLK	
SC-060060-PS	SCREW 6-32 X .375 SEMS EXTL ZC	
SC-082051 -PL	SCREW,TAP,PAN PH#8X5/16" "B"BK	
SW-000016-S	SPST SNAP IN POWER SWITCH	
WC-000114-00	AC CORD ASSY PLX	
WP-000057-00	FAN ASSY, 3.15" 24VDC W/5.5L"	
WP-002403-00	PCB ASSY, PLX 2402 (120V)	

## PLX 2402 CHASSIS ASSEMBLY (230V)

Part Number	Description	Reference
CH-000097-00	CHASSIS, PLX	
CH-000100-00	HANDLE-EAR CASTING PLX	
CH-000112-00	SHIELD, AC, PLX	
LB-000053-00	LBL, FRENCH, FUSE REPLACEMENT	
LB-000077-00	LABEL,WARNING,HIGH ENERGY	
LB-000099-01	LABEL, CE LISTING	
LB-000215-00	LABEL, INPUT/OUTPUT, PLX	
LB-000237-00	LABEL, FACEPLATE PLX 2402	
LB-160226-01	LABEL, FUSE, UL CAUT. 15A 250V	
NW-380801-IL	3/8" INTERNAL TOOTH LOCKWASHER	
PL-000003-CP	AC CORD PROTECTOR	
PL-000024-00	STRAIN RELIEF,LIQ.TIGHT,HEYCO	
PL-000040-PL	POT COVERS	
PL-000054-00	KNOB FAB.	
PL-000055-00	EXPORT BINDING POST PLUG(RED)	
PL-000056-00	EXPORT BINDING POST PLUG(BLK)	
PL-000066-00	CLIP XMAS-TREE SLG HEAD FASTEX	
PL-000095-00	FAN INTERFACE PLX	
PL-000096-00	INSULATOR,FAN DUCT, PLX	
SC-025000-PP	SCREW M2.5 X 6MM TYPE 1 PH BLK	
SC-060060-PS	SCREW 6-32 X .375 SEMS EXTL ZC	
SC-082051-PL	SCREW,TAP,PAN PH#8X5/16" "B"BK	
SW-000016-S	SPST SNAP IN POWER SWITCH	
WC-000134-00	AC CORD ASSY,230V, PLX	
WP-000057-00	FAN ASSY, 3.15" 24VDC W/5.5L"	
WP-002403-02	PCB ASSY, PLX 2402 (230V)	

## PLX 3002 PCB ASSEMBLY (120V)

Part Number	Description	Reference
CA-010002-30	CAP 1 OPF 5% 50V 0805 SMT	C14,49
CA-015002-10	CAP CER 15PF 10% 500V SL	C16,50
CA-047002-30	CAP CER 47PF 5% 50V NPO SMT	CI 93 C29,30,64, C65,187,
CA-110001-10	CAP SM IOOPF, 5%, 500V	C147
CA-I 10002-30	CAP CER IOOPF 5% 50V NPO SM	C40,41,43, C5,6,9,18, C53,99,100
CA-133001-10	CAP SM 330PF 5% 500V	C145,146
CA-I 47003-30	CAP 470PF 5% 50V 1206 SMT	CI ,2,4,17, C119,121, C148,181, C182,186, C188 C26,36,37, C52,61,
CA-168003-30	CAP CER 680PF 5% 50V NPO SM	C25,60,68, C98
CA-21 0005-30	CAP .001UF 5% 50V 1206 SMT	C120,124, C195,196 C75,81,85,
CA-222001-00	CAP CER Y .0022UF 20% 125VAC	C122,127
CA-227001-30	CAP CER .0027UF 10% 100V 0805	C108,109, CI28 C20,23,24, C55,58,59,
CA-233001-10	CAP MYLAR .0033UF 10% 100V	C113
CA-233002-00	CAP CER Y .0033UF 20% 125VAC	C115,118
CA-310004-30	CAP 01 UF 10% 50V 1206 SMT	C95,96
CA-322001-10	CAP MYLAR .022UF 10% 100V	C27,62
CA-41 0001-00	CAP MET POLY X.1UF 20% 250V	CI26
CA-410002-10	CAP MYLAR .1UF 5% 100V	c47 C8,12,44,
CA-410003-10	CAP MET POLY .1UF 10% 250V	C129,134, C156,157 C28,34,35, C63,69,70, C84,87,90,
CA-410006-30	CAP CER .1UF 10% 50V X7R SMT	C125,135, C155,162, C163,179, C178,189, C180,183, C185,177, CI 9,39,54, C190,191, C194 C88,116, C107,123
CA-41 001 I-00	CAP MMYL .1UF 10% 400V	C10,45
CA-422001-10	CAP MYLAR .22UF 5% 50V	CI 17
CA-447001-00	CAP MET POLY X.47UF 20% 250	C144
CA-447003-00	CAP POLYP .47UF 10% 400V	C13,48,184
CA-51 0005-30	CAP LYTIC 1 UF 20% 50V SMT	C110,112
CA-510006-00	CAP MPOLY X 1UF 20% 250VAC	C114,192 C3,31,38, C66,80,86,
CA-610002-10	10UF,35V,20%,RADIAL ELECT	C46,71 C7,11,42,
CA-647001-10	CAP LYTIC RL 47UF 10% 10V NP	C21,22,56,
CA-647002-10	CAP LYTIC RL 47UF 20% 50V	

## PLX 3002 PCB ASSEMBLY (120V) Cont'd

Part Number	Description	Reference
		C57,89
CA-710002-10	CAP LYTIC RL 100UF 20% 25V	C102,104, C105,106, C139,142, CI43 C15,32,51, C67,72,78, C79,33,
CA-710004-10	CAP LYTIC RL 1 OOUF 20%25V	C138,149,
CA-710004-10	CAP LYTIC RL 1 OOUF 20% 25V	C150
CA-722001-10	CAP LYTIC RL 220UF 20% 10V N	C91,92
CA-747001-10	CAP LYTIC RL 470UF 20% 16V	CI31 C73,74,76, C77,82,83,
CA-747004-00	CAP LYTIC RL 470UF 20% 1 OOV	CI 52,153, C159,160, C165,166, C169,170, C173,174
CA-747063-AE	CAP LYTIC RL 470UF 20% 63V	C151,154, C158,161, C164,167, C168,171, C172,175
CA-822200-AE	CAP LYTIC RL 2200UF 20% 200V	C132,133, C136,137, C140,141
CH-000102-00	HEATSINK, AUDIO, PLX	
CH-000103-00	SPRING, CLAMP, 2 HOLE	
CH-000104-00	HEATSINK PS PLX	
CH-0001 11-00	BRACKT,OUTPUT PCB PLC PLATFORM	
CH-000114-00	CLAMP, 2 FINGER PLX	
CO-000036-CO	SPEAKONS, PC MOUNT	J7,8
CO-000106-00	CONN HD15 PIN RT ANGLE PC M	J17
CO-000148-00	CONN XLR F VERT PCB	J2,10
co-0001 55-00	HEADER PCB ,100 2-POSITION	J13
CO-000161-00	CONN BLK HDR 3-PIN EURO OPE	J16,18
CO-000162-00	BNDG POST A, DUAL SLOT, PLX	
CO-000163-00	BNDG POST B, DUAL SLOT, PLX	
CO-3001 12-PJ	JACK 1/4" PHONE DBLOPEN CKT	J1,9
HW-000001-FC	FUSE CLIPS	REF:F1
IC-000024-00	IC REG PWM 40V 0.1A SG3525A	U19
IC-000046-30	ICLIN DUAL OP AMP TL072 SO-8	U1 ,12
IC-000047-30	ICLIN DUAL COMP LM393 SO-8	U10
IC-000048-30	ICLIN DUAL OP AMP MC33078	U1,6
IC-000051-00	IC OPTO-IS0 MOC8101	U15,17
IC-000053-30	ICLIN SMT DUAL TIMER LM556	U14
IC-000054-30	ICLIN SMT QUAD COMP LM339A	U13
IC-000073-30	ICLIN DUAL OP AMP LM13600	U3
IC-000133-30	ICLIN COMP LM311	U4,5,8,9
IC-000134-00	IC CMOS HV DRVR IR2110	U18
IC-000135-00	ICLIN PWM SWITCH TOP 210	U16
IC-005532-OP	ICLIN DUAL OP AMP 5532 EX/MP	U2,7
MS-000048-HS	HEAT SINK, ISOL TO-220	REF:Q91
MS-000112-00	FUSE 25A 125V 3AG FAST CER	FI
PC-000531-00	PCB MAIN PLX	
PL-000098-00	INSULATOR, TO-220, PLX	
PL-000114-00	INSULATOR, IGBT/RECTHS, PLX	
PL-000117-00	INSULATOR, TO-247, PLX	
PL-000126-00	SPRING, SEAT, PLX	
PL-000128-00	SPACER, LED, .276"	LD2-11

**PLX 3002 PCB ASSEMBLY (120V) Cont'd**

Part Number	Description	Reference
		R155,LD1, REF:R30, REF:Q96,97
PL-000135-00	INSULATOR, MICA 1.25" X 1.75"	REF:L1,2
PL-905156-SP	SPACER,ROUND,NYLON,#6,0.155	REF:VR43,166
PT-125000-AT	RES VAR IT 250 20% 0.15W CAR	VR2,121
PT-31 OOOO-CR	RES VAR IT 1 OK 20%0.2WW/DE	D21,22,46, D47,74,75, D80,81
QD-000014-QD	DIODE TO220 ULTRAFAST 200V	D7,32,88
QD-000014-QD	DIODE TO220 ULTRAFAST 200V	Q38,41,83, Q86
QD-000021-QD	1N4740 1 OV ZENER 1 W	D70,71
QD-000031-QD	FET NCHAN TO220 60V 50A	LD2,3,4,7, LD8,9,11 LD1,6 LD5,10
QD-000042-00	DIODE RECT ULTRAFAST 400V 3	Q20,65
QD-000052-00	LED GRN T-I	Q21,66
QD-000053-00	LED YEL T-I	Q27,72
QD-000054-00	LED RED T-I	Q26,71
QD-000062-10	XISTOR NPN TO-92 40V 0 2A 1.5	D1-5,8,9, D10-12,14, D15,17,18, D23-30,33, D34-37,39, D40,42,43, D48-52,55, D59,63-65, D67,69,89, D90,91,93, D94
QD-000063-10	XISTOR PNP TO-92 40V 0 2A 1.5	Q13,15,18, Q25,30,32, Q49,50,52, Q5,7,8,9, Q53,54,58, Q60,63,70, Q75,77,89, Q90,92,93, Q95
QD-000076-00	XISTOR NPN TO-220 250V	Q1-4,6,10, Q11,12,14, Q23,24,31, Q33,42,43, Q44-48,51, Q55-57,59, Q68,69,76, Q78,87,88, Q94,98,99
QD-000077-00	XISTOR PNP TO-220 250V	Q16,61
QD-000102-30	DIODE SW 1N4148 SMT 75V 75M	Q17,62
QD-000103-30	XISTOR NPN SMT 40V .2A.2W	D13,16,38, D41,61,68, D78,79
QD-000104-30	XISTOR PNP SMT 40V .2A 2W	D56,92 D66
QD-000105-30	XISTOR NPN SMT 300V .2A.2W	D58,60,86
QD-000106-30	XISTOR PNP SMT 300V .2A.2W	D62,76,77, D82,83
QD-000108-30	DIODE SMT SWITCH 200V .2A 50	D13,16,38, D41,61,68, D78,79
QD-000110-30	DIODE ZNR 6.2V 5% .3W SMT	D56,92
QD-000113-30	DIODE ZNR 10V 5% .3W SMT	D66
QD-000115-30	DIODE SMT RECT 600V 1A	D58,60,86
QD-000116-30	DIODE RECT SMT 200V 1A	D62,76,77, D82,83
QD-000152-10	DIODE ZNR 12V 5% 1 W 1 N4742A	D57

**PLX 3002 PCB ASSEMBLY (120V) Cont'd**

Part Number	Description	Reference
QD-000153-00	DIOD RECT TO247 UFAST 400V 3	D72,73,84, D85
QD-000154-00	XISTOR NPN TO-220 230V	Q19,64
QD-000155-00	XISTOR PNP TO-220 230V	Q22,67
QD-000156-00	XISTOR PNP TO-220 100V 3A 40	Q91
QD-000169-00	XISTOR IGBT TO-247AC 600V 55	Q96,97
QD-000170-00	DIODE BRIDGE RECT 600V 50A	BR1
QD-0003.9-ZT	DIODE ZNR 3.9V TESTED	D6,31
QD-001302-PN	XISTOR PNP TO-3P 200V 15A	Q28,34,36, Q39,73,79, Q81,84
QD-003281.NP	XISTOR NPN TO-3P 200V 15A	Q29,35,37, Q40,74,80, Q82,85
QD-004744-ZA	DIODE ZNR 15V 5% 1W 1 N4744A	D53,54,87
QD-005402-DX	DIODE RECT DO27 200V 3A	D19,20,44, D45
RE-04703-10	RES MOFP .47 5% 2W MINI	R102,103, R107,108, R111-114, R211,212, R214,215, R217,218, R220,222, R225,226, R230,231, R234-237 R88,89,91, R92,94,95, R97,99,
RE-.15002-10	RES MOFP 1.5 5% 2W MINI	R115,116, R238,239, R269
RE-.56002-10	RES MOFP 5.6 5% 2W MINI	R203,221, R354,355, R373 R80,98,
RE-000210-NR	THERMISTOR NTC 15A CUR LIM	R324
RE-000230-NR	THERMISTOR NTC 10K 5%	R30,155
RE-001003-30	RES SMT 10 OHM 5% 1/8W 1206	R314,353, R356,358, R359
RE-001502-10	RES MOFP 15 5% 2W MINI	R209,210, R213,216, R350,367, R368 R85-87,90, R93,208,
RE-003921-30	RES SMT 39.2 OHM 1% 1/8W 1206	R246-249, R349,357
RE-004752-30	RES SMT 47.5 1% 1/10W 1 OOV	R100,110, R223,233, R308,309, R312,313, R319
RE-005606-10	RES MOFP 56 5% 2W MINI	R372
RE-007502-30	RES SMT 75 1% 1/10W 1 OOV	R124,193, R194 R5,6,70, R71,123, R144,150,
RE-010002-30	RES SMT 100 1% 1/10W 100V	

## PLX 3002 PCB ASSEMBLY (120V) Cont'd

Part Number	Description	Reference
		R21,27, R334,364, R381-384
RE-015004-10	RES MOFP 150 5% 2W MINI	R256,278
RE-020002-30	RES SMT 200 1% 1/10W100V	R204,205
RE-027401-30	RES SMT274 1% 1/10W100V	R81,82, R190,191, R290,293
RE-038301-30	RES SMT 383 1% 1/10W100V	R67,68, R254,255
RE-047001-10	RES MOFP 470 5% 2W MINI	R44,167, R274-277, R279,280
RE-047502-30	RES SMT 475 1% 1/10W100V	R151,160, R28,37, R291,294
RE-053602-30	RES SMT 536 1%1/10W100V	R22,146, R361,374
RE-063402-30	RES SMT 634 1% 1/8W 1206	R370
RE-082001-10	RES MOFP 820 5% 2W MINI	R257
RE-090901-30	909 1/10W 1% 100V SMT	R282,287
RE-110006-30	RES SMT 1 00K 1% 1/8W 1206	R1,7,42, R117,118, R128,165, R232,250, R252,369
RE-115002-30	RES SMT1.50K 1%1/10W 1 OOV	R101,109, R147,154, R157,158, R162,164, R23,32,34, R270,273, R297,300
RE-117401-30	RES MF 1.74K 1% 1/10W 0805	R35,39,41, R310,311
RE-120002-30	RES SMT 2 00K 1% 1/10W100V	R171
RE-122103-30	RES SMT 2.21K 1% 1/10W100V	R48,127, R195,198, R207,240, R264,265, R267,306, R307,347, R348
RE-130102-30	RES SMT 3.01K 1% 1/10W100V	R47,72,75, R84,170, R79,202
RE-139002-10	RES MOFP 3.9K 5% 2W MINI	R219,228, R251
RE-147502-30	RES SMT 4 75K1%1/10W100V	R96,105, R11,17,40, R125,126, R131,137, R138,163, R166,178, R179,182, R185-187, R253,315, R3,4,10, R316-318, R327,330, R362

## PLX 3002 PCB ASSEMBLY (120V) Cont'd

Part Number	Description	Reference
RE-156001-10	RES 5.60K.1%1/4W25PPM	R55,56,59, R62-64, R13,129, R130,135, R136
RE-156001-10	RES 5.60K.1%1/4W25PPM	R8,9,12,
RE-159002-30	RES SMT 5.90K 1% 1/10W100V	R122,152, R201,206 R29,78,83,
RE-175002-30	RES SMT 7.50K 1% 1/10W100V	R120,132, R140,161 R15,38,
RE-178701-30	RES SMT 7.87K 1% 1/10W 1 OOV	R360
RE-190902-30	RES SMT 9.09K 1% 1/10W100V	R258,266, R272
RE-210003-30	RES SMT 10.0K 1% 1/10W100V	R121,305, R336,338, R363,366, R375,376
RE-212702-30	RES SMT 12.7K 1% 1/10W100V	R106,133, R134,139, R14,16,19, R142,159, R168,169, R188,227, R241,245, R259,329, R337
RE-215002-30	RES SMT 15.0K 1% 1/10W100V	R36,45,46, R65,104, R25,148, R262,365
RE-216501-CM	RES MF 16.5K 1% 1/2W	R31,153
RE-220002-30	RES SMT 20.0K 1% 1/10W100V	R18,141, R229,242, R244,271, R281,303, R304,331, R346
RE-224901-30	RES SMT 24.9K 1% 1/10W100V	R325
RE-230002-10	RES MOFP 30K 5% 2W MINI	R351,352
RE-230102-30	RES SMT 30.1K 1% 1/8W 1206	R172,173 R49,50, R283-286
RE-233201-30	RES SMT 33.2K1%1/8W 1206	R143,183, R184,199, R20,60,61, R200,243, R261,323, R332,76,77
RE-239202-30	RES SMT 39.2K 1% 1/10W100V	R149
RE-247503-30	RES SMT 47.5K 1% 1/10W100V	R2,26,43, R156
RE-310002-30	RES SMT 100K 1% 1/10W100V	R33,119, R176,196, R197,268, R344,345
RE-310003-30	RES SMT 100K 5% 1/8W 1206	R51,53,73, R74,174, R177,180, R181,333,
RE-315002-30	RES MF 150K 1% 1/8W 1206	



## PLX 3002 PCB ASSEMBLY (120V) Cont'd

Part Number	Description	Reference
		R335,341, R342,343 R52,54,57, R58,175, R145,189, RI 92,260, R24,66,69, R263,340
RE-339201-30	RES SMT 392K 1% 1/10W 100V	R321,322, R326,328 R339,371
RE-348702-30	RES MF 487K 1% 1/8W 1206	R289,292
RE-375005-BM	RES MF 750K 2% 1/2W	
RE-410001-30	RES SMT 1.0 MEG OHM 5% 1/8W	
SC-063100-PP	#6-20 x 5/8" "AB" TYPE I XRECE	
SC-081101-SP	#8-18 x 5/8", TYPE I P/P BL AC K	
SW-000029-S	RELAY, SPKR PROTECT, SPDT, 2 KI	
SW-000053-00	SWITCH DIP IO-POS, TALL	SW1
WC-O 5018-JW	JMPR INS 0.5" 18AWG SLD WHT	J120
WC-000001-10	JUMPER INS .6" 22AWG SOLID W	R224
WC-000103-00	CABLE ASSY, 20 PIN 9"L	J14-15 J3-4, J5-6, REF: ES2, TO SWITCH
WC-0001 15-00	AC SWITCH WIRE, BLK, LONG	REF: ES1, TO SWITCH
WC-0001 15-01	AC SWITCH WIRE, RED, SHORT	E12A-12C REF:
WC-0001 17-00	SPEAKER WIRE, BLACK	E9A-9C REF:
WC-0001 17-01	SPEAKER WIRE, WHITE	E11A-11C REF:
WC-0001 17-02	SPEAKER WIRE, GREY	E10A-10C REF:
WC-0001 17-03	SPEAKER WIRE, BLACK	EHI-EH2 REF:
WC-0001 1a-00	WIRE ASSY, BLK, LONG	ELI-EI2OA REF:
WC-0001 18-01	WIRE ASSY, RED, SHORT	
XF-000005-00	BEAD FERRITE W/20AWG LEAD L7-12	
XF-000023-00	CHOKE COMMON MODE 2.2MHL3,4	
XF-000050-00	XFMR, PWR, PLX3002 (120V)	T2
XF-000087-00	XFMR, PWR, PLX3002 (100V)	T2
XF-000061-00	INDUCTOR TORIOD 1.9UH 13GA L6	
XF-000064-00	XFMR AMP HOUSEKEEPING PLC T1	
XF-000066-00	INDUCTOR AIR 2UH 14/22GA	L1,2

## PLX 3002 PCB ASSEMBLY (230V)

Part Number	Description	Reference
CA-010002-30	CAP 1 OPF 5% 50V Oa05 SMT	C14,49
CA-015002-10	CAP CER 15PF 10% 500V SL	C16,50
CA-047002-30	CAP CER 47PF 5% 50V NPO SMT	CI93 C29,30,64, C65,187,
CA-I 10001-10	CAP SM 1 00PF, 5%, 500V	C147
CA-110002-30	CAP CER 1 OOPF 5% 50V NPO SM	C40,41,43, C5,6,9,1a, C53,99,100
CA-I 33001-10	CAP SM 330PF 5% 500V	C145,146
CA-147003-30	CAP 47OPF 5% 50V 1206 SMT	C1,2,4,17,

## PLX 3002 PCB ASSEMBLY (230V) Cont'd

Part Number	Description	Reference
		C119,121, C148,181, C182,186, C188 C26,36,37, C52,61, C25,60,68, C98
CA-168003-30	CAP CER 6aOPF 5% 50V NPO SM	C120,124, C195,196 C75,81,85,
CA-210005-30	CAP .001UF 5% 50V 1206 SMT	CA-222001-00 CAP CER Y .0022UF 20% 125VAC C122,127
CA-227001-30	CAP CER .0027UF 10% 100V Oa05	C108,109, C128 C20,23,24,
CA-227001-30	CAP CER .0027UF 10% 100V Oa05	C55,58,59,
CA-233001-10	CAP MYLAR .0033UF 10% 100V	C113
CA-233002-00	CAP CER Y .0033UF 20% 125VAC	CI15,11a
CA-310004-30	CAP .01UF 10% 50V 1206 SMT	C95,96
CA-322001-10	CAP MYLAR .022UF 10% 1 OOV	C27,62
CA-410001-00	CAP MET POLY X.1UF 20% 250V	C126 C47
CA-410002-10	CAP MYLAR .1UF 5% 100V	C8,12,44,
CA-410003-10	CAP MET POLY .1UF 10% 250V	C129,134, C156,157 C28,34,35, C63,69,70, C84,87,90,
CA-410006-30	CAP CER .1UF 10% 50V X7R SMT	CI 25,135, C155,162, C163,179, C178,189, C180,183, C185,177, C19,39,54, C190,191, C194 C88,116, C107,123
CA-410011-00	CAP MMYL .1UF 10% 400V	C10,45
CA-422001-10	CAP MYLAR .22UF 5% 50V	CI 17
CA-447001-00	CAP MET POLY X.47UF 20% 250	CI44
CA-447003-00	CAP POLYP .47UF 10% 400V	C13,48,184
CA-510005-30	CAP LYTIC 1 UF 20% 50V SMT	C110,112
CA-510006-00	CAP MPOLY X 1UF 20% 250VAC	C114,192 C3,31,38, C66,80,86, C46,71 C7,11,42, C21,22,56, C57,89
CA-610002-10	10UF,35V,20%,RADIALECT	C102,104, C105,106, C139,142, C143 C15,32,51, C67,72,78, C79,33,
CA-647001-10	CAP LYTIC RL 47UF 10% 1 OV NP	C138,149,
CA-647002-10	CAP LYTIC RL 47UF 20% 50V	
CA-710002-10	CAP LYTIC RL 1 OOUF 20% 25V	
CA-710004-10	CAP LYTIC RL 100UF 20% 25V	

## PLX 3002 PCB ASSEMBLY (230V) Cont'd

Part Number	Description	Reference
		CI.50
CA-722001-10	CAP LYTIC RL 220UF 20% 1 OV N	C91,92
CA-747001-10	CAP LYTIC RL 470UF 20% 16V	CI31
		C73,74,76,
		C77,82,83,
CA-747004-00	CAP LYTIC RL 470UF 20% 1 OOV	CI 52,153,
		C159,160,
		C165,166,
		C169,170,
		C173,174
CA-747063-AE	CAP LYTIC RL 470UF 20% 63V	C151,154,
		C158,161,
		C164,167,
		C168,171,
		C172,175
CA-822200-AE	CAP LYTIC RL 2200UF 20% 200V	C132,133,
CA-822200-AE	CAP LYTIC RL 2200UF 20% 200V	C136,137,
		C140,141
CH-000102-00	HEATSINK, AUDIO, PLX	
CH-000103-00	SPRING, CLAMP, 2 HOLE	
CH-000104-00	HEATSINK PS PLX	
CH-000111-00	BRACKT,OUTPUT PCB PLC PLATFORM	
CH-000114-00	CLAMP, 2 FINGER PLX	
CO-000036-CO	SPEAKONS, PC MOUNT	J7,8
CO-000106-00	CONN HD15 PIN RT ANGLE PC M	J17
CO-000148-00	CONN XLR F VERT PCB	J2,10
CO-000155-00	HEADER PCB .1002-POSITION	J13
CO-000161-00	CONN BLK HDR 3-PIN EURO OPE	J16,18
CO-000162-00	BNDG POST A, DUAL SLOT, PLX	
CO-000163-00	BNDG POSTB, DUAL SLOT, PLX	
CO-3001 12-PJ	JACK 1/4" PHONE DBLOPEN CKT	J1,9
HW-000001-FC	FUSE CLIPS	REF:FI
IC-000024-00	IC REG PWM 40V 0.1A SG3525AU19	
IC-000046-30	ICLIN DUAL OP AMP TLO72 SO-a U11,12	
IC-000047-30	ICLIN DUAL COMP LM393 SO-a U10	
IC-000048-30	ICLIN DUAL OP AMP MC33078 U1,6	
IC-000051-00	IC OPTO-ISO MOC8101 U15,17	
IC-000053-30	ICLINSMT DUAL TIMERLM556 U14	
IC-000054-30	ICLINSMT QUAD COMP LM339A U13	
IC-000073-30	ICLIN DUAL OP AMP LM13600 U3	
IC-000133-30	ICLIN COMP LM311 U4,5,8,9	
IC-000134-00	IC CMOS HV DRVR IR2110 u1a	
IC-000135-00	ICLIN PWM SWITCH TOP 210 U16	
IC-005532-OP	ICLIN DUAL OP AMP 5532 EX/MPU2,7	
MS-000048-HS	HEAT SINK, ISOL TO-220	REF:Q91
MS-150250-FU	FUSE 15A 250V 3AG FAST CER	FI
PC-000531-00	PCB MAIN PLX	
PL-000098-00	INSUL ATOR, TO-220, PLX	
PL-000114-00	INSULATOR, IGBT/RECTHS, PLX	
PL-000117-00	INSULATOR, TO-247, PLX	
PL-000126-00	SPRING, SEAT, PLX	
PL-000128-00	SPACER, LED, .276"	LD2-11
		R155,LD1,
		REF:R30,
PL-000135-00	INSULATOR, MICA 1.25" X 1.75"	REF:Q96,97
PL-905156-SP	SPACER,ROUND,NYLON,#6,0.155	REF:L1,2
P-f-1 25000-AT	RES VAR IT 250 20% 0.15W CAR	VR43,166
PT-310000-CR	RES VAR IT10K 20% 0.2W W/DE	VR2,121
QD-000014-QD	DIODE TO220ULTRAFAST 200V	D21,22,46,
		D47,74,75,
		D80,81

## PLX 3002 PCB ASSEMBLY (230V) Cont'd

Part Number	Description	Reference
QD-000021-QD	1N47401OV ZENER 1 W	D7,32,88
QD-000031-QD	FE-r NCHAN TO220 60V 50A	Q38,41,83,
		Q86
QD-000042-00	DIODE RECTULTRAFAST 400V 3	D70,71
QD-000052-00	LED GRN T-1	LD2,3,4,7,
		LD8,9,11
QD-000053-00	LED YEL T-1	LD1,6
QD-000054-00	LED RED T-1	LD5,10
QD-000062-10	XISTOR NPN TO-92 40V 0.2A 1.5	Q20,65
QD-000063-10	XISTOR PNP TO-92 40V 0.2A 1.5	Q21,66
QD-000076-00	XISTOR NPN TO-220 250V	Q27,72
QD-000077-00	XISTOR PNP TO-220 250V	Q26,71
QD-000102-30	DIODE SW 1N4148SMT 75V 75M	D1-5,8,9,
		D10-12,14,
		D15,17,18,
QD-000102-30	DIODE SW 1N4148SMT 75V 75M	D23-30,33,
		D34-37,39,
		D40,42,43,
		D48-52,55,
		D59,63-65,
		D67,69,89,
		D90,91,93,
		D94
QD-000103-30	XISTOR NPN SMT 40V .2A .2W	Q13,15,18,
		Q25,30,32,
		Q49,50,52,
		Q5,7,8,9,
		Q53,54,58,
		Q60,63,70,
		Q75,77,89,
		Q90,92,93,
		Q95
QD-000104-30	XISTOR PNP SMT 40V .2A .2W	Q1-4,6,10,
		Q11,12,14,
		Q23,24,31,
		Q33,42,43,
		Q44-48,51,
		Q55-57,59,
		Q68,69,76,
		Q78,87,88,
		Q94,98,99
QD-000105-30	XISTOR NPN SMT 300V .2A .2W	Q16,61
QD-000106-30	XISTOR PNP SMT 300V .2A .2W	Q17,62
QD-000108-30	DIODE SMT SWITCH 200V .2A 50	D13,16,38,
		D41,61,68,
		D78,79
QD-000110-30	DIODE ZNR 6.2V 5% .3W SMT	D56,92
QD-000113-30	DIODE ZNR 1 OV 5% .3W SMT	D66
QD-000115-30	DIODE SMT RECT 600V IA	D58,60,86
QD-000116-30	DIODE RECT SMT 200V IA	D62,76,77,
		D82,83
QD-000152-10	DIODE ZNR 12V 5% 1 W 1 N4742A	D57
QD-000153-00	DIODRECT TO247 UFAST 400V 3	D72,73,84,
		D85
QD-000154-00	XISTOR NPN TO-220 230V	Q19,64
QD-000155-00	XISTOR PNP TO-220 230V	Q22,67
QD-000156-00	XISTOR PNP TO-220 100V 3A 40	Q91
QD-000169-00	XISTORIGBT TO-247AC 600V 55	Q96,97
QD-000170-00	DIODE BRIDGE RECT 600V 50A	BR1
QD-0003.9-ZT	DIODE ZNR 3.9V TESTED	D6,31
QD-001302-PN	XISTOR PNP TO-3P 200V 15A	Q28,34,36,

**PLX 3002 PCB ASSEMBLY (230V) Cont'd**

Part Number	Description	Reference
		Q39,73,79, Qal,a4
QD-003281-NP	XISTOR NPN TO-3P 200V 15A	Q29,35,37, Q40,74,80, Q82,85
QD-004744-ZA	DIODE ZNR 15V 5% 1W 1N4744A	D53,54,87
QD-005402-DX	DIODE RECT DO27 200V 3A	D19,20,44, D45
RE-.04703-10	RES MOFP .47 5% 2W MINI	R102,103, R107,108, R111-114, R211,212, R214,215, R217,218, R220,222, R225,226, R230,231, R234-237 R88,89,91, R92,94,95, R97,99, R115,116, R238,239, R269
RE-.04703-10	RES MOFP .47 5% 2W MINI	R203,221, R354,355, R373 R80,98,
RE-15002-10	RES MOFP 1.5 5% 2W MINI	R324
RE-000210-NR	THERMISTOR NTC 15A CUR LIM	R30,155
RE-000230-NR	THERMISTOR NTC 10K 5%	R314,353, R356,358, R359
RE-001003-30	RES SMT 10 OHM 5% 1/8W 1206	R209,210, R213,216, R350,367, R368 R85-87,90, R93,208,
RE-001502-10	RES MOFP 15 5% 2W MINI	R246-249, R349,357
RE-003921-30	RES SMT 39.2 OHM 1% 1/8W 1206	R100,110, R223,233, R308,309, R312,313, R319
RE-004752-30	RES SMT 47.5 1% 1/10W 100V	R372
RE-005606-10	RES MOFP 56 5% 2W MINI	R124,193, R194 R5,6,70, R71,123, R144,150, R21,27, R334,364, R381-384
RE-007502-30	RES SMT 75 1% 1/10W 100V	R256,278
RE-010002-30	RES SMT 100 1% 1/10W 100V	R204,205 Rai ,82, R190,191, R290,293 R67,68,
RE-015004-10	RES MOFP 150 5% 2W MINI	
RE-020002-30	RES SMT 200 1% 1/10W 100V	
RE-027401-30	RES SMT 274 1% 1/10W 100V	

**PLX 3002 PCB ASSEMBLY (230V) Cont'd**

Part Number	Description	Reference
RE-038301-30	RES SMT 383i % 1/10W 100V	R254,255 R44,167, R274-277, R279,280
RE-047001-10	RES MOFP 470 5% 2W MINI	R151,160, R28,37, R291,294
RE-047502-30	RES SMT 475 1% 1/10W 100V	R22,146, R361,374 R370
RE-053602-30	RES SMT 536 1% 1/10W 100V	R257
RE-063402-30	RES SMT 634 1% 1/8W 1206	R282,287
RE-082001-10	RES MOFP 820 5% 2W MINI	R1,7,42, R117,118, R128,165, R232,250, R252,369
RE-090901-30	909 1/10W 1% 100V SMT	R101,109, R147,154, R157,158, R162,164, R23,32,34, R270,273, R297-300 R35,39,41, R310,311
RE-110006-30	RES SMT 1.00K 1% 1/8W 1206	RI71 R48,127, R195,198, R207,240, R264,265, R267,306, R307,347, R348 R47,72,75, R84,170,
RE-110006-30	RES SMT 1.00K 1% 1/8W 1206	R79,202
RE-115002-30	RES SMT 1.50K 1% 1/10W 100V	RE-139002-10 RES MOFP 3.9K 5% 2W MINI R219,228, R251 R96,105, R11,17,40, R125,126, R131,137, R138,163, R166,178, R179,182, R185-187, R253,315, R3,4,10, R316-318, R327,330, R362 R55,56,59, R62-64, R13,129, R130,135, R136 R8,9,12, R122,152, R201,206 R29,78,83,
RE-117401-30	RES MF 1.74K 1% 1/10W 0805	
RE-120002-30	RES SMT 2.00K 1% 1/10W 100V	
RE-122103-30	RES SMT 2.21K 1% 1/10W 100V	
RE-130102-30	RES SMT 3.01K 1% 1/10W 100V	
RE-139002-10	RES MOFP 3.9K 5% 2W MINI	
RE-147502-30	RES SMT 4.75K 1% 1/10W 100V	
RE-156001-10	RES 5.60K.1% 1/4W 25PPM	
RE-159002-30	RES SMT 5.90K 1% 1/10W 100V	

## PLX 3002 PCB ASSEMBLY (230V) Cont'd

Part Number	Description	Reference
RE-175002-30	RES SMT 7.50K 1% 1/10W100V	R120,132, R140,161 R15,38, R360
RE-178701-30	RES SMT 7.87K 1% 1/10W100V	R258,266, R272
RE-190902-30	RES SMT 9.09K 1% 1/10W100V	R121,305, R336,338, R363,366, R375,376
RE-210003-30	RES SMT 10.0K 1% 1/10W100V	R106,133, R134,139, R14,16,19, R142,159, R168,169, R188,227, R241,245, R259,329, R337 R36,45,46, R65,104, R25,148, R262,365 R31,153
RE-212702-30	RES SMT 12.7K 1% 1/10W100V	R18,141, R229,242, R244,271, R281,303, R304,331, R346
RE-212702-30	RES SMT 12.7K 1% 1/10W100V	R325
RE-215002-30	RES SMT 15.0K 1% 1/10W100V	R351,352 R172,173 R49,50, R283-286
RE-216501-CM	RES MF 16.5K 1% 1/2W	R143,183, R184,199, R20,60,61, R200,243, R261,323, R332 R76,77, R149
RE-220002-30	RES SMT 20.0K 1% 1/10W100V	R2,26,43, R156 R33,119, R176,196, R197,268, R344,345 R51,53,73, R74,174, R177,180, R181,333, R335,341, R342,343 R52,54,57, R58,175, R145,189, R192,260, R24,66,69, R263,340
RE-224901-30	RES SMT 24.9K 1% 1/10W100V	
RE-230002-10	RES MOFP 30K 5% 2W MINI	
RE-230102-30	RES SMT 30.1K 1% 1/8W 1206	
RE-233201-30	RES SMT 33.2K 1% 1/8W 1206	
RE-239202-30	RES SMT 39.2K 1% 1/10W100V	
RE-247503-30	RES SMT 47.5K 1% 1/10W100V	
RE-310002-30	RES SMT 100K 1% 1/10W100V	
RE-310003-30	RES SMT 100K 5% 1/8W 1206	
RE-315002-30	RES MF 150K 1% 1/8W 1206	
RE-339201-30	RES SMT 392K 1% 1/10W100V	

## PLX 3002 PCB ASSEMBLY (230V) Cont'd

Part Number	Description	Reference
RE-348702-30	RES MF 487K 1% 1/8W 1206	R321,322, R326,328 R339,371
RE-375005-BM	RES MF 750K 2% 1/2W	R289,292
RE-410001-30	RES SMT 1.0 MEG OHM 5% 1/8W	
SC-0631 OO-PP	#6-20 x 5/8" "AB" TYPE I XRECE	
sc-0ai 101-SP	#a-I a X 5/8", TYPE 1 PIP BLACK	
SW-000029-S	RELAY, SPKR PROTECT,SPDT,2 KI	
SW-000053-00	SWITCH DIP IO-POS, TALL	SW1
WC-0.5018-JW	JMPR INS 0.5" 18AWG SLD WHT	J240
WC-000001-10	JUMPER INS .6" 22AWG SOLID W	R224
WC-000103-00	CABLE ASSY, 20 PIN 9"L	J14-15
WC-000103-00	CABLE ASSY, 20 PIN 9"L	J3-4, J5-6,
WC-000115-00	AC SWITCH WIRE, BLK, LONG	REF:ES2, TO SWITCH
WC-000115-01	AC SWITCH WIRE, RED, SHORT	REF:ES1, TO SWITCH
WC-000117-00	SPEAKER WIRE, BLACK	EI 2A-12C REF:
WC-000117-01	SPEAKER WIRE, WHITE	E9A-9C REF:
WC-000117-02	SPEAKER WIRE, GREY	E11A-11C REF:
WC-000117-03	SPEAKER WIRE, BLACK	E10A-10C REF:
wc-0001 1a-00	WIRE ASSY, BLK, LONG	EH1-EH2 REF:
XF-000005-00	BEAD FERRITE W/20AWG LEAD	L7-12
XF-000023-00	CHOKE COMMON MODE 2.2MH	L3,4
XF-000050-00	XFMR, PWR, PLX3002	T2
XF-000061-00	INDUCTOR TORIOD 1.9UH13GA L6	
XF-000064-00	XFMR AMP HOUSEKEEPING PLC TI	
XF-000066-00	INDUCTOR AIR 2UH 14/22GA	L1,2

## PLX 3002 CHASSIS ASSEMBLY (120V)

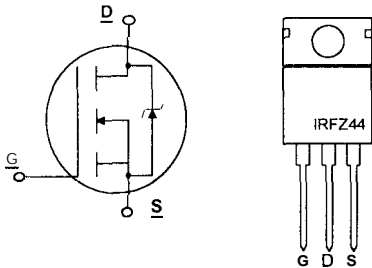
Part Number	Description	Reference
CH-000097-00	CHASSIS, PLX	
CH-000100-00	HANDLE-EAR CASTING PLX	
CH-000112-00	SHIELD, AC, PLX	
LB-000052-00	LABEL, cUL APPROVAL	
LB-000053-00	LBL, FRENCH, FUSE REPLACEMENT	
LB-000077-00	LABEL, WARNING, HIGH ENERGY	
LB-000213-00	LABEL, FACEPLATE PLX 3002	
LB-000215-00	LABEL, INPUT/OUTPUT, PLX	
LB-I 60226-05	LABEL, FUSE, UL CAUT. 25A 125V	
NW-380801-IL	3/8" INTERNAL TOOTH LOCKWASHER	
PL-000003-CP	AC CORD PROTECTOR	
PL-000040-PL	POT COVERS	
PL-000044-PL	BUSHING, STRAIN RELIEF	
PL-000054-00	KNOB FAB.	
PL-000066-00	CLIP XMAS-TREE SLG HEAD FASTEX	
PL-000095-00	FAN INTERFACE PLX	
PL-000096-00	INSULATOR, FAN DUCT, PLX	
SC-025000-PP	SCREW M2.5 X 6MM TYPE 1 PH BLK	
SC-060060-PS	SCREW 6-32 X .375 SEMS EXTL ZC	
sc-0a2051 -PL	SCREW, TAP, PAN PH#8X5/16" "B" BK	
SW-000016-S	SPST SNAP IN POWER SWITCH	
WC-000114-00	AC CORD ASSY PLX	
WP-000057-00	FAN ASSY, 3.15" 24VDC W/5.5L"	
WP-000541-00	PCB ASSY, PLX 3002 (120V)	

## PLX 3002 CHASSIS ASSEMBLY (230V)

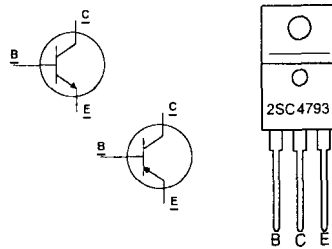
Part Number	Description	Reference
CH-000097-00	CHASSIS, PLX	
CH-000100-00	HANDLE-EAR CASTING PLX	
CH-000112-00	SHIELD, AC, PLX	
LB-000053-00	LBL, FRENCH, FUSE REPLACEMENT	
LB-000077-00	LABEL,WARNING,HIGH ENERGY	
LB-000099-01	LABEL, CE LISTING	
LB-000213-00	LABEL, FACEPLATE PLX 3002	
LB-00021 5-00	LABEL, INPUT/OUTPUT, PLX	
LB-160226-01	LABEL, FUSE, UL CAUT. 15A 250V	
NW-380801.1L	3/8" INTERNAL TOOTH LOCKWASHER	
PL-000003-CP	AC CORD PROTECTOR	
PL-000024-00	STRAIN RELIEF,LIQ.TIGHT,HEYCO	
PL-000040-PL	POT COVERS	
PL-000054-00	KNOB FAB.	
PL-000055-00	EXPORT BINDING POST PLUG(RED)	
PL-000056-00	EXPORT BINDING POST PLUG(BLK)	
PL-000066-00	CLIP XMAS-TREE SLG HEAD FASTEX	
PL-000095-00	FAN INTERFACE PLX	
PL-000096-00	INSULATOR,FAN DUCT, PLX	
SC-025000-PP	SCREW M2.5 X 6MM TYPE 1 PH BLK	
SC-060060-PS	SCREW 6-32 X .375 SEMS EXTL ZC	
SC-082051-PL	SCREW,TAP,PAN PH#8X5/16" "B"BK	
SW-000016-S	SPST SNAP IN POWER SWITCH	
WC-000134-00	AC CORD ASSY,230V, PLX	
WP-000057-00	FAN ASSY, 3.15" 24VDC W/5.5L"	
WP-000541-02	PCB ASSY, PLX 3002 (230V)	

# PLX Series Semiconductor Identification

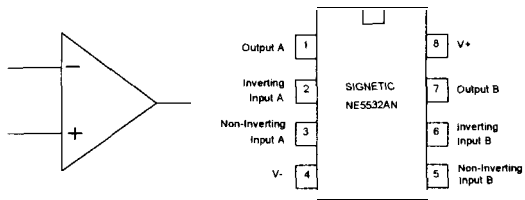
**TMOS FET**      IRFZ44  
TMOS Power Field Effect Transistor



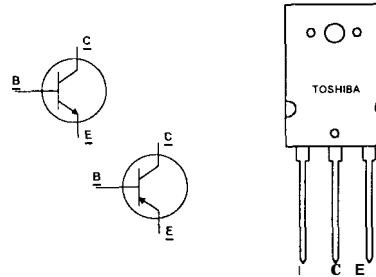
**DRIVER TRANSISTORS**  
2SC4793 NPN / 2SA1837 PNP



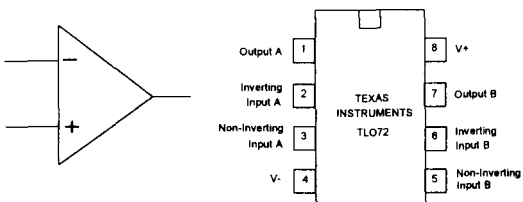
**OP-AMP**      NE5532AN  
Dual Operational Amplifier



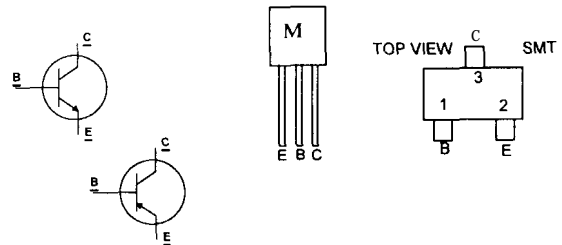
**POWER TRANSISTORS**  
2SC3281 NPN / 2SA1302 PNP



**OP-AMP**      TL072  
Dual Operational Amplifier



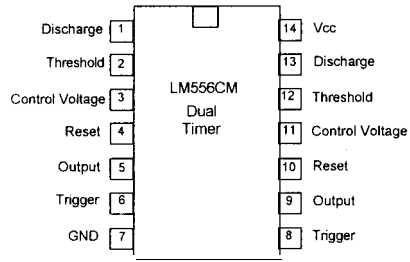
**SMALL SIGNAL TRANSISTORS**  
2N3904 NPN / 2N3906 PNP



# PLX Series Semiconductor Identification

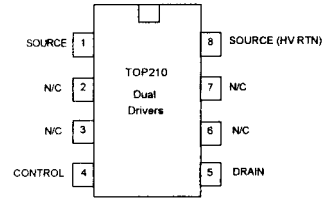
## TIMER Dual Timer

LM556CM



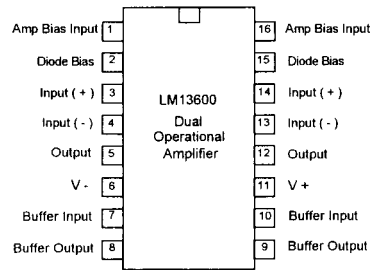
## PWM Switch PWM MOSFET Gate Driver

TOP210



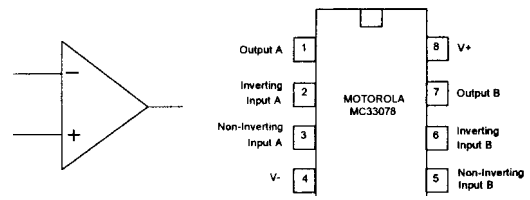
## OP-AMP Dual Transconductance Operational Amplifier

LM13600



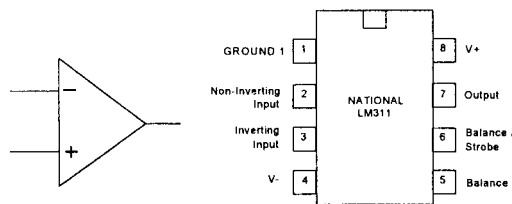
## OP-AMP Dual Low Noise Operational Amplifier

MC33078



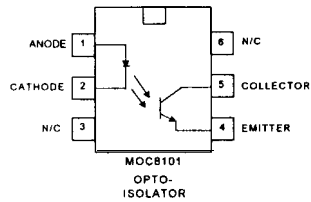
## COMPARATOR Voltage Comparator

LM311



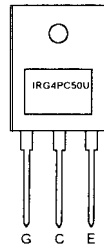
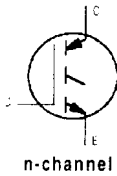
## OPTO-ISOLATOR Gallium Arsenide LED Coupled to Phototransistor.

MOC8101

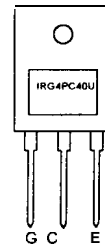
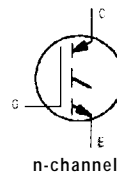


# PLX Series Semiconductor Identification

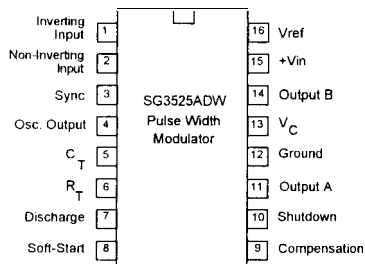
**IGBT**  
PLX2402, PLX3002  
insulated Gate Bipolar Transistor



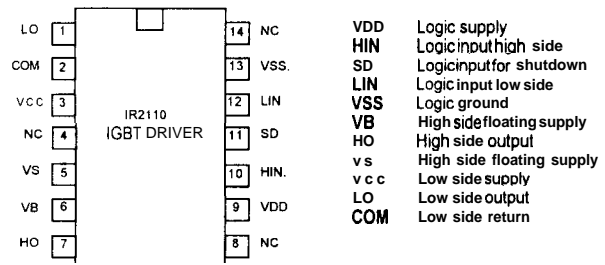
**IGBT**  
PLX1202, PLX1602  
Insulated Gate Bipolar Transistor



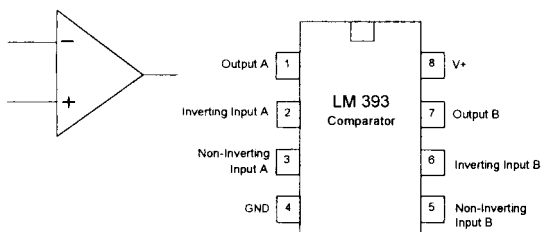
**PWM**  
SG3525AN  
Regulating Pulse Width Modulator



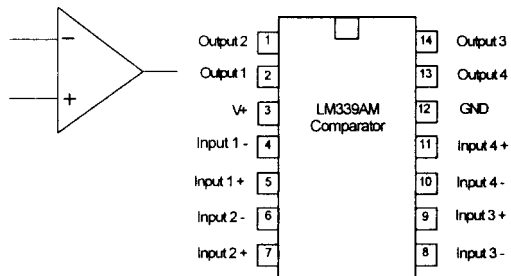
**HIGH/LOW SIDE DRIVER** IR2110  
High Speed MOSFET IGBT Driver



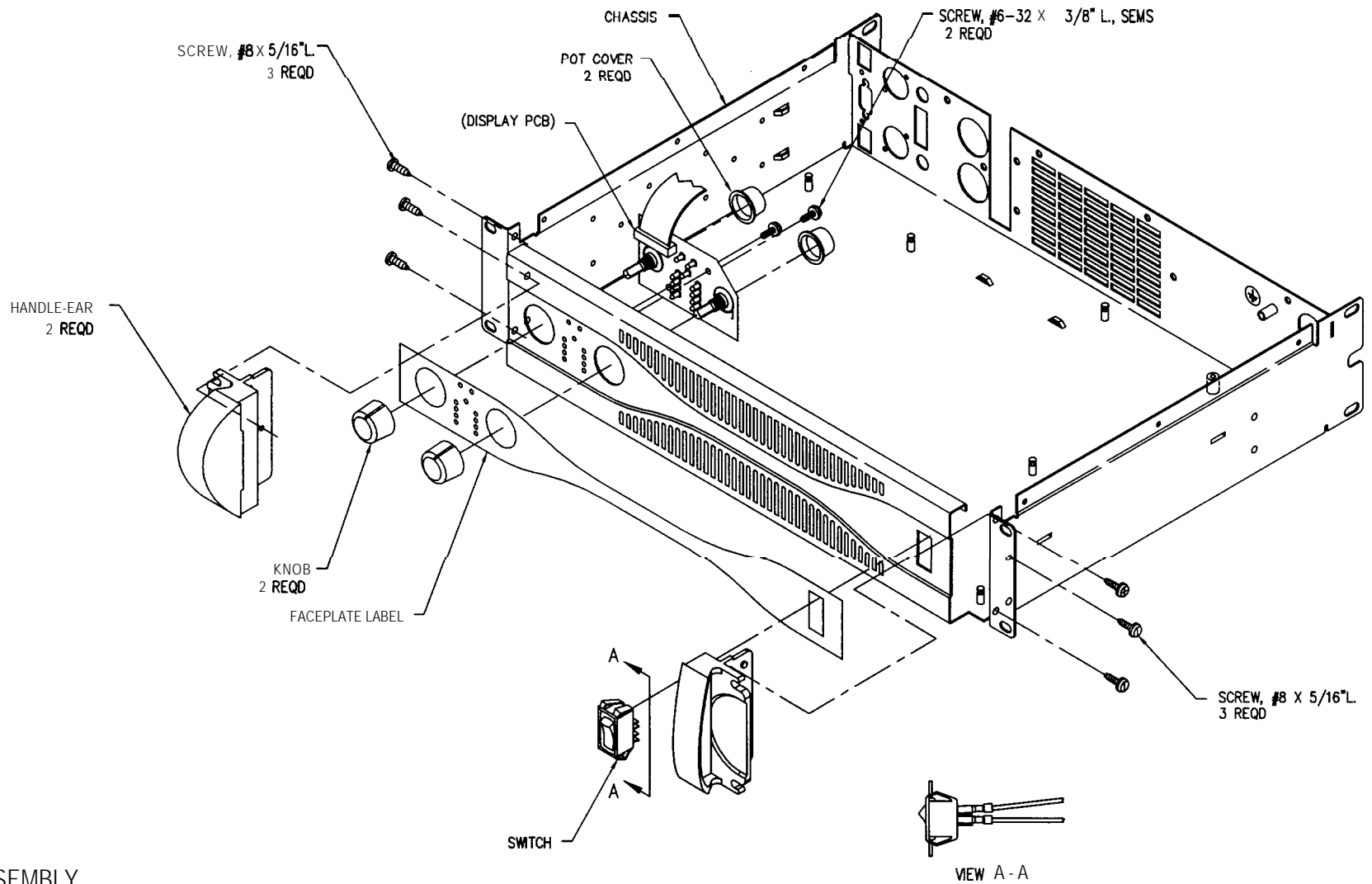
**COMPARATOR** LM393NE  
Low Power Dual Comparators



**COMPARATOR** LM339AM  
SOIC Quad Comparator



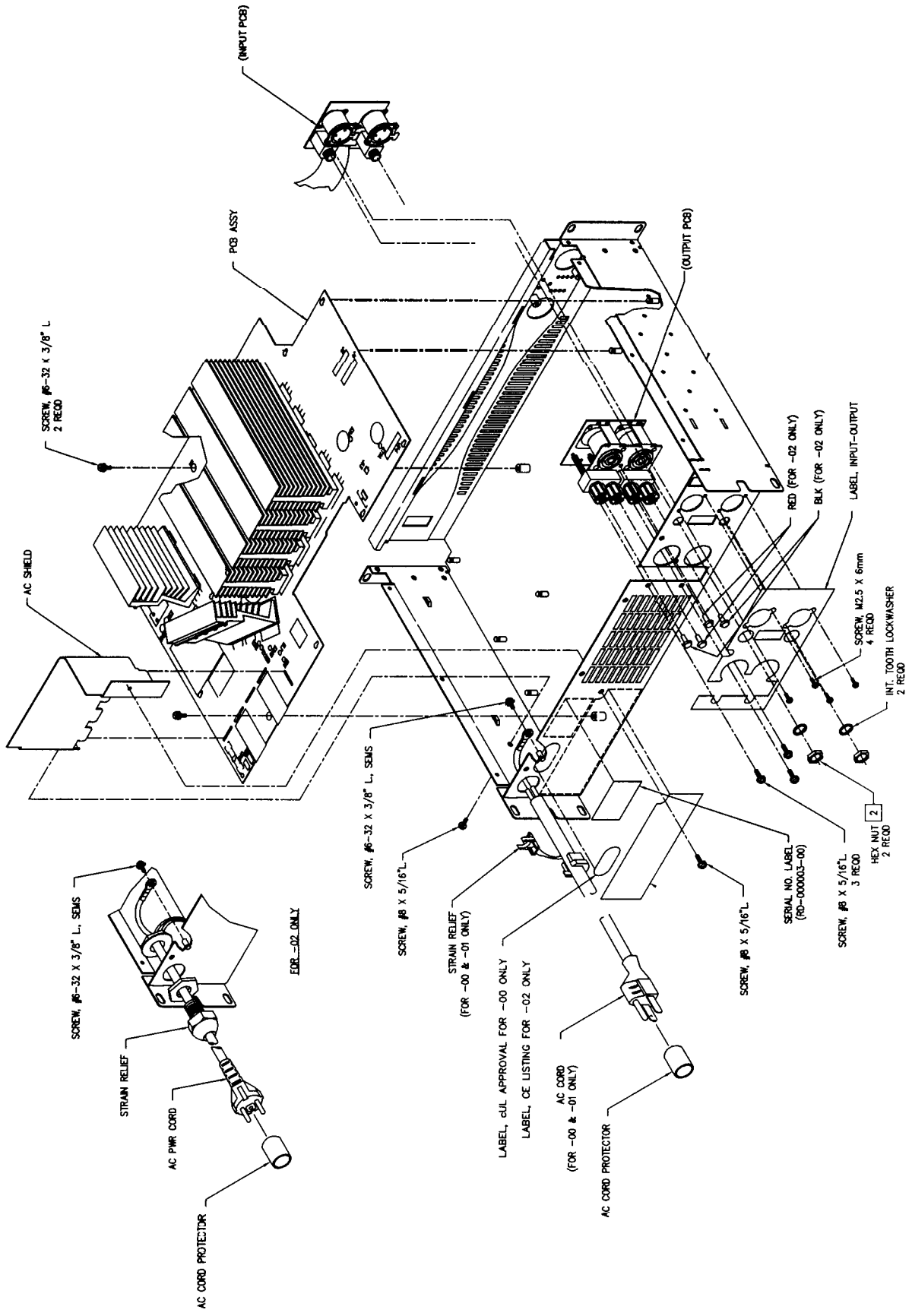


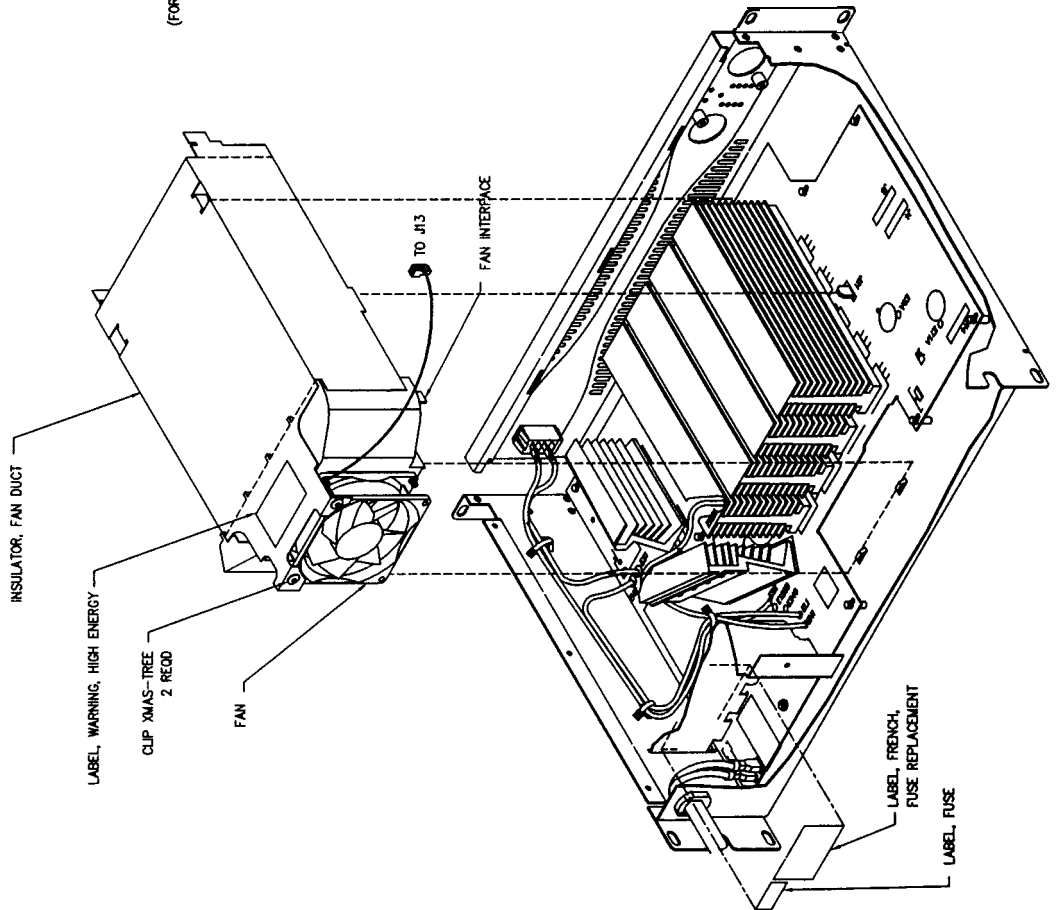
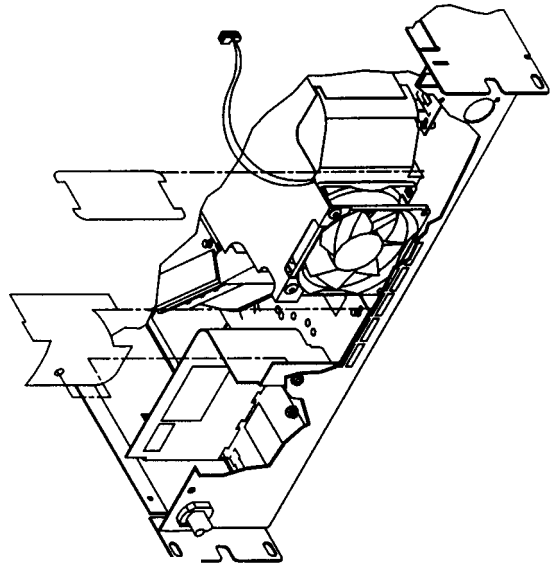
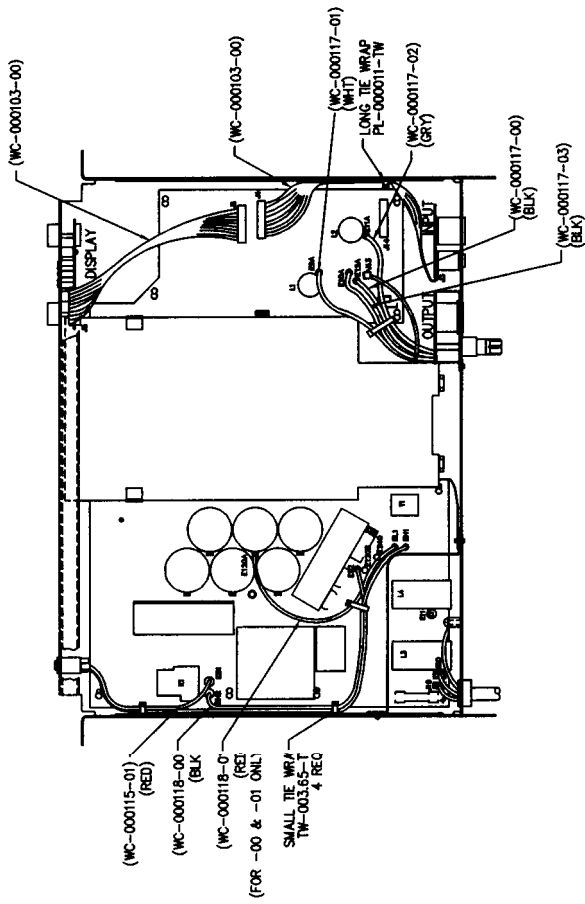


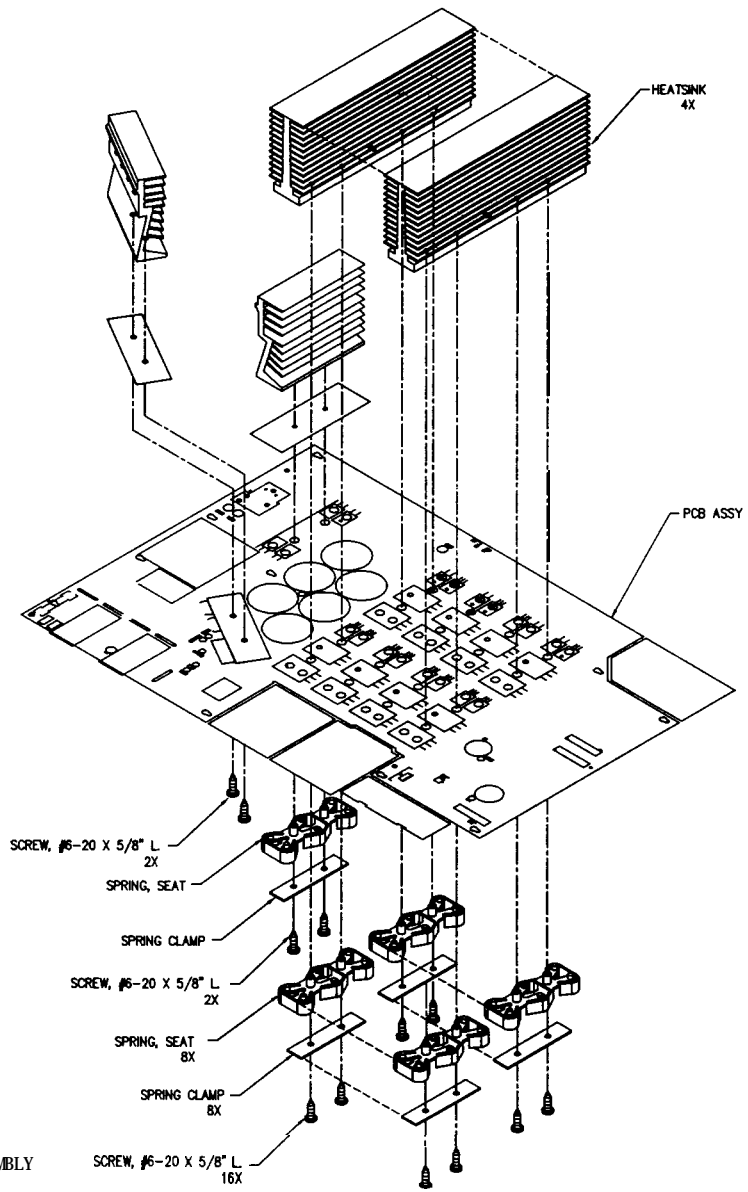
## CHASSIS ASSEMBLY

HEX NUT (NW-380803-HN) PART OF 1/4" PHONE JACK ON ITEM 39 (PCB ASSY).

1. THIS DRAWING USED IN CONJUNCTION WITH SCHEMATIC DWGS MAIN PCB ASSY SH-000541-00, WIRING DIAGRAM SH-000540-00 AND FINAL ASSY FG-000540-XX.

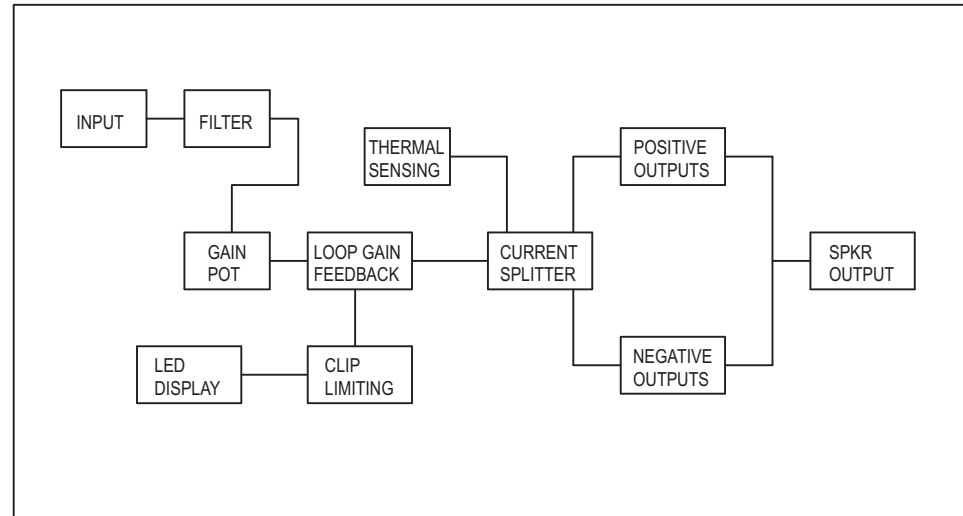




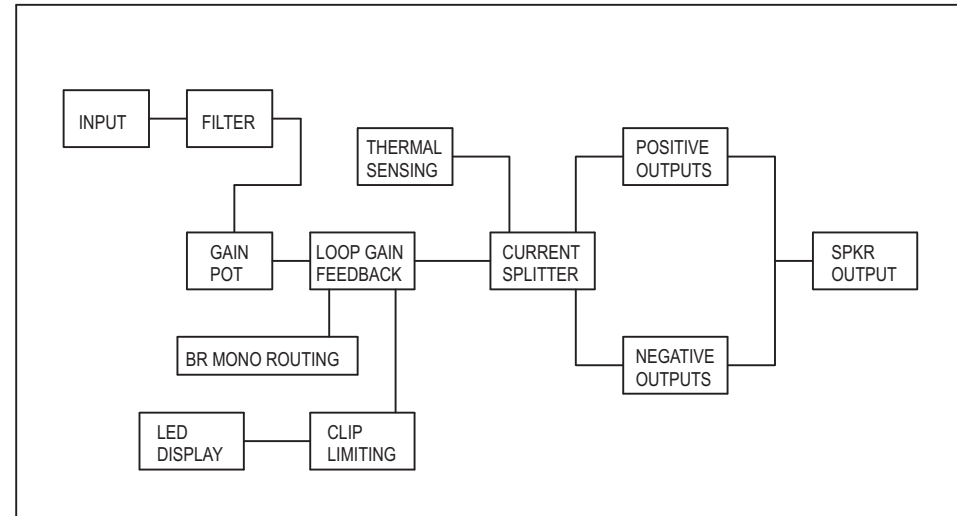


PLX MAIN MODULE ASSEMBLY

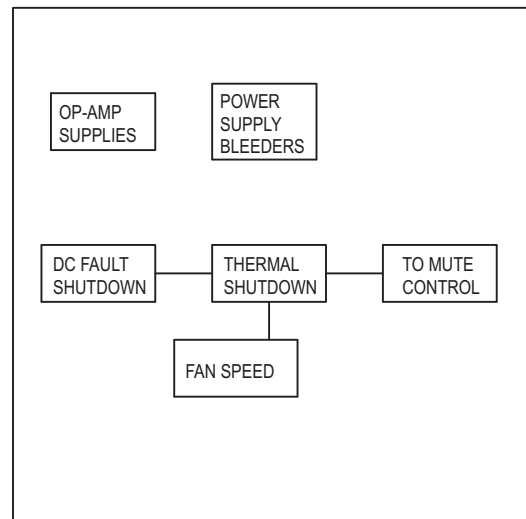
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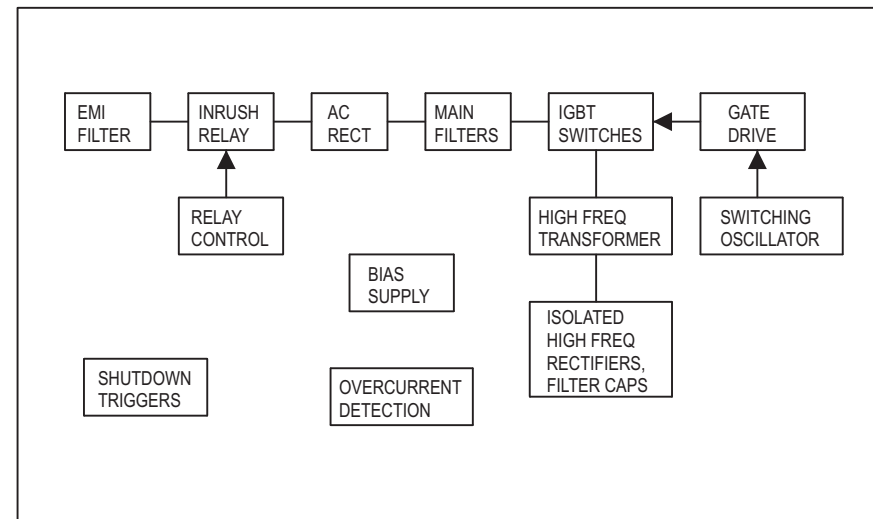
CHANNEL A  
AUDIO CIRCUITS  
SHEET 2



CHANNEL B  
AUDIO CIRCUITS  
SHEET 3



SUPPORT AND  
PROTECTION  
CIRCUITS  
SHEET 4



SWITCHING  
POWER  
SUPPLY  
SHEET 5

TABULATION BLOCK	
VOLTAGE	VARIABLE
120/230V	R321, 322, 326, 328 - 487K, *R 1206
100V	R321, 322, 326, 328 - 392K, *R 1206

2. COMPONENTS WITH VALUE PREFIXED WITH A "\*" REPRESENT SMT COMPONENTS.  
1. THIS DRAWING USED IN CONJUNCTION WITH ASSEMBLY WP-001203-00.  
NOTES: UNLESS OTHERWISE SPECIFIED

QTY	ITEM NO.	PART NO.	DESCRIPTION	VENDOR
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. DIMENSIONS PER ANSI Y14.5-1982 TOLERANCES ARE: DECIMALS    DECIMALS    ANGLES .XX *    .XXX *    °			CONTRACT NO.	
DRAWN: PAT QUILTER			DATE: 5-15-98	
CHECKED:			ISSUED:	
FINISH:			SIZE: D	
CAD SEED FILE NO.:			PLOT DATE: Fri Dec 11, 1998	
APPLICATION: WP-001203-00 PLX 1202			SCALE: NONE	
NEXT ASSY: USED ON:			CAD FILE NO. plx1202.sch	
DO NOT SCALE DRAWING			SHEET 1 OF 5	

**QSC** AUDIO PRODUCTS, INC.  
COSTA MESA, CALIFORNIA

**SCHEMATIC DIAGRAM**  
**PLX 1202**

DWG NO. **SH-001203-00**

DWG NO. SH-001203-00

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INPUT AND FILTER SECTION, CH A

DIP SWITCH TABLE, 10-POS  
 1- CLIP LIM, CH A  
 2- LF FILT, CH A  
 3- 30KHZ LF, CH A  
 4- PAR INPUT LED  
 5- PAR INPUTS, +  
 6- PAR INPUTS, -  
 7- BR MONO  
 8- 30KHZ LF, CH B  
 9- LF FILT, CH B  
 10- CLIP LIM, CH B

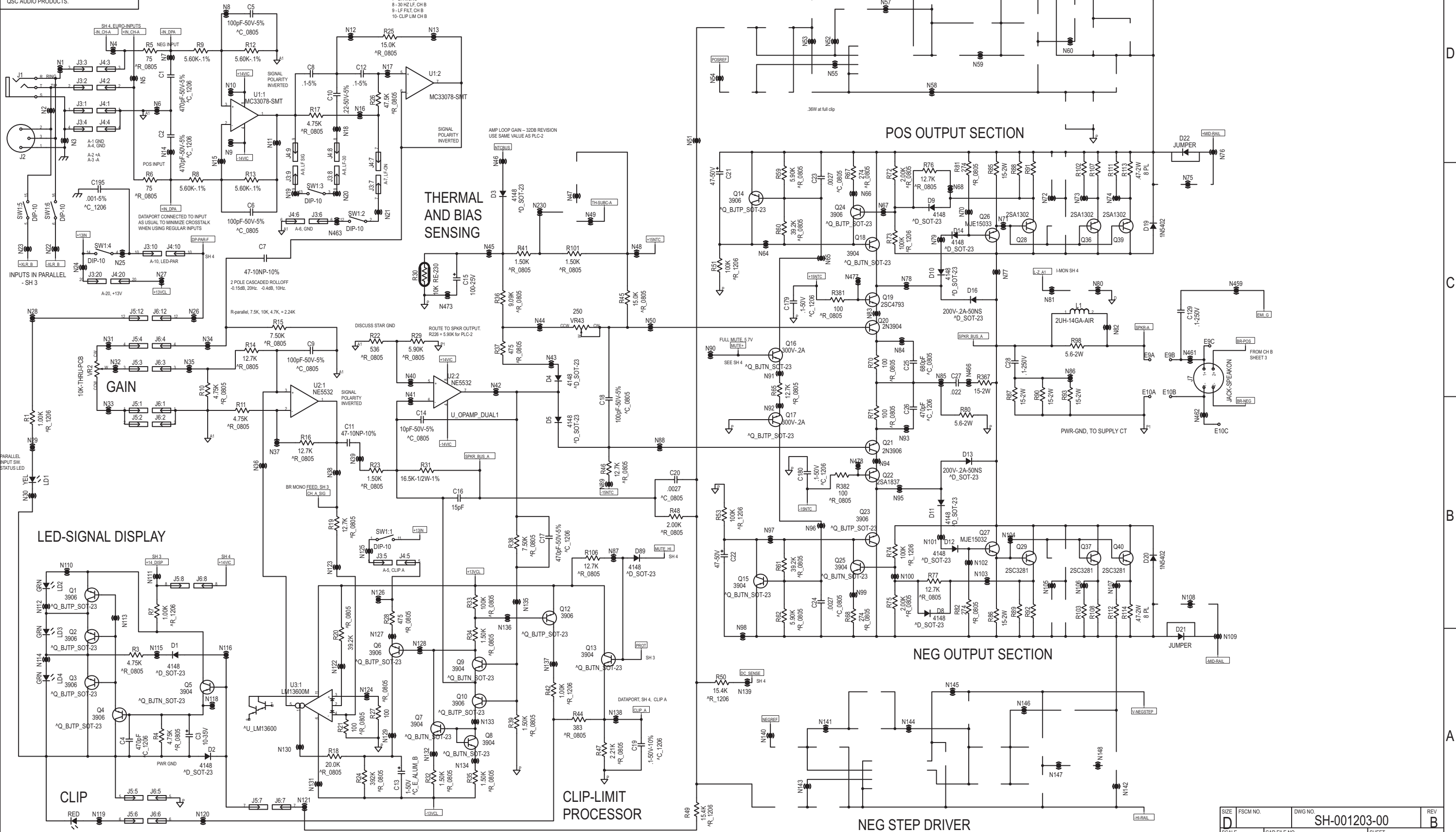
THERMAL AND BIAS SENSING

POS STEP DRIVER

POS OUTPUT SECTION

NEG OUTPUT SECTION

NEG STEP DRIVER



SIZE	FSCM NO.	DWG NO.	REV
D		SH-001203-00	B
SCALE	CAD FILE NO.	SHEET	2 OF 5
NONE	pl1202a.sch		

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### INPUT AND FILTER SECTION, CH B

- DIP SWITCH TABLE, 10-POS
- 1- CLIP LIM. CH A
  - 2- F.F. FLT. CH A
  - 3- 30 HZ LF. CH A
  - 4- PAR INPUT LED
  - 5- PAR INPUTS, +
  - 6- PAR INPUTS, -
  - 7- BR MONO
  - 8- 30 HZ LF. CH B
  - 9- F.F. FLT. CH B
  - 10- CLIP LIM CH B

### POS STEP DRIVER

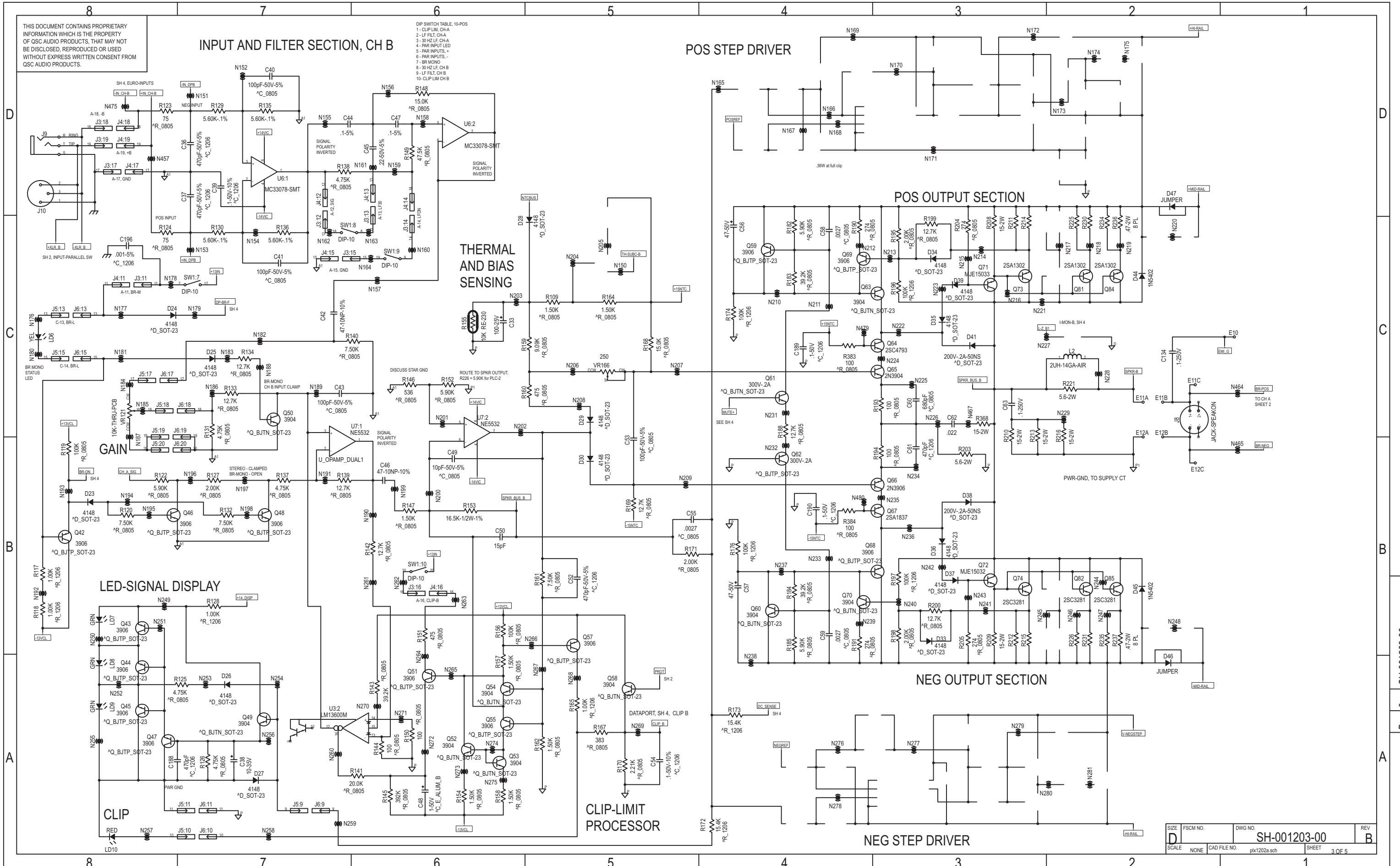
### POS OUTPUT SECTION

### THERMAL AND BIAS SENSING

### LED-SIGNAL DISPLAY

### CLIP-LIMIT PROCESSOR

### NEG STEP DRIVER

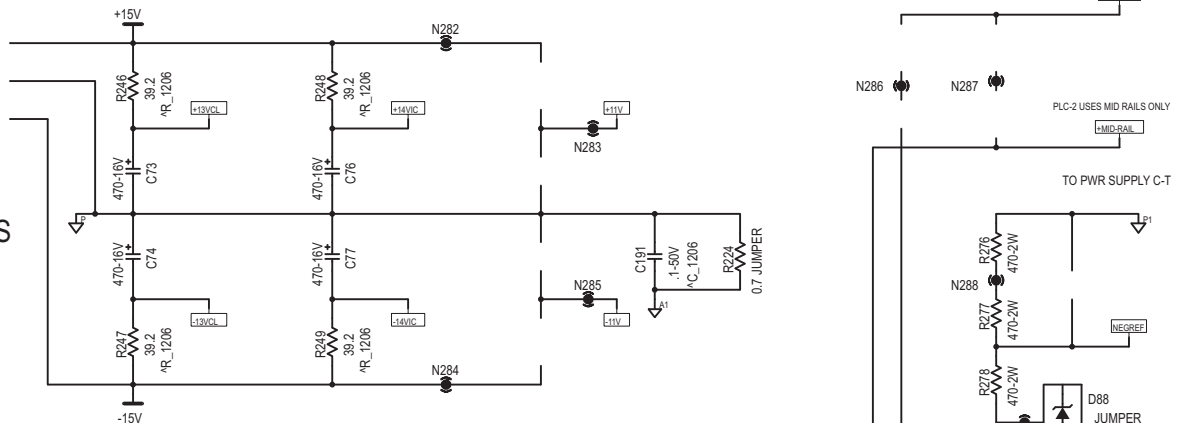


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D		SH-001203-00	B
SCALE	NONE	CAD FILE NO. p1x1202a.sch	SHEET 3 OF 5

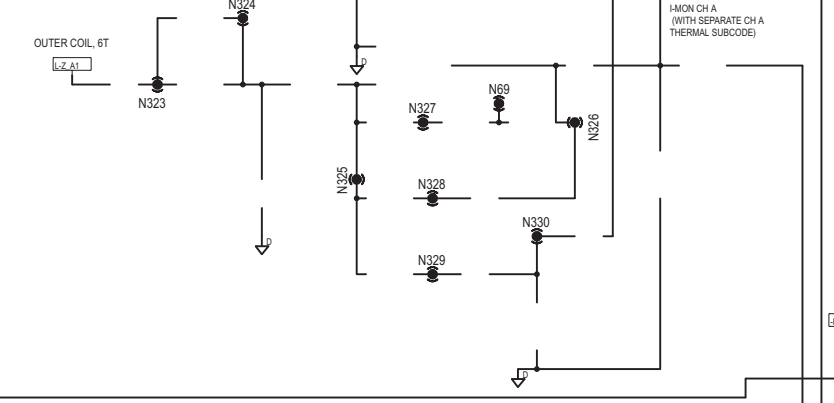
DWG. NO. SH-001203-00 REV. 3

THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION WHICH IS THE PROPERTY OF QSC AUDIO PRODUCTS. THAT MAY NOT BE DISCLOSED, REPRODUCED OR USED WITHOUT EXPRESS WRITTEN CONSENT FROM QSC AUDIO PRODUCTS.

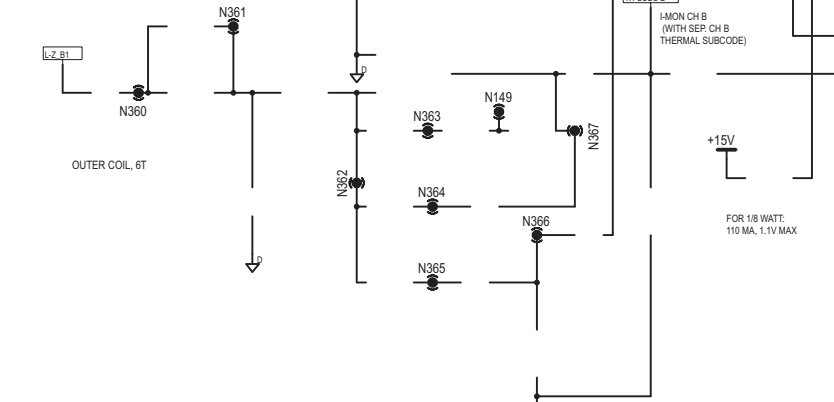
### OPAMP POWER SUPPLIES



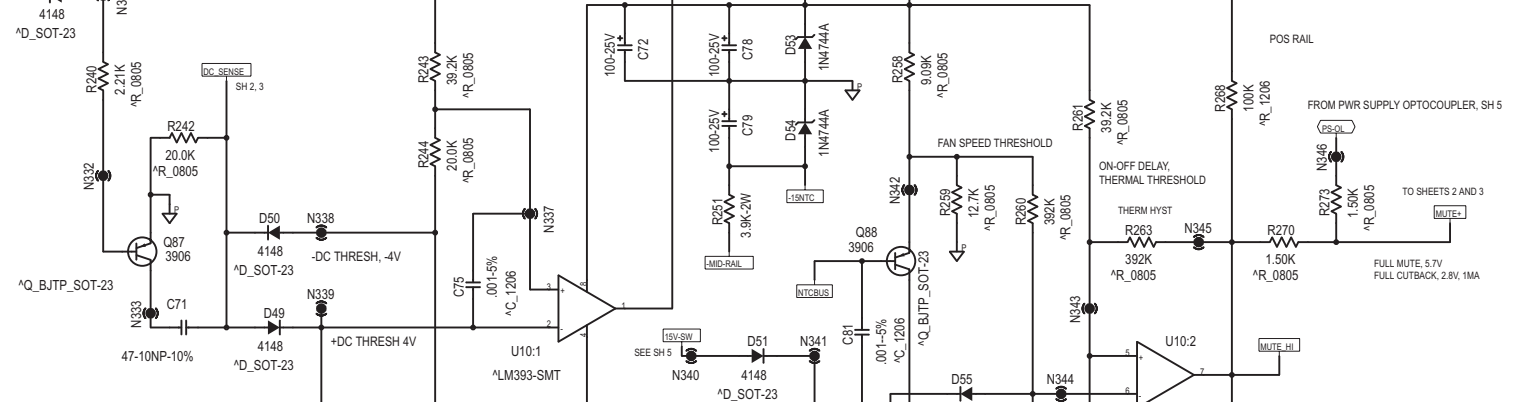
### CH A V-MON, I-MON



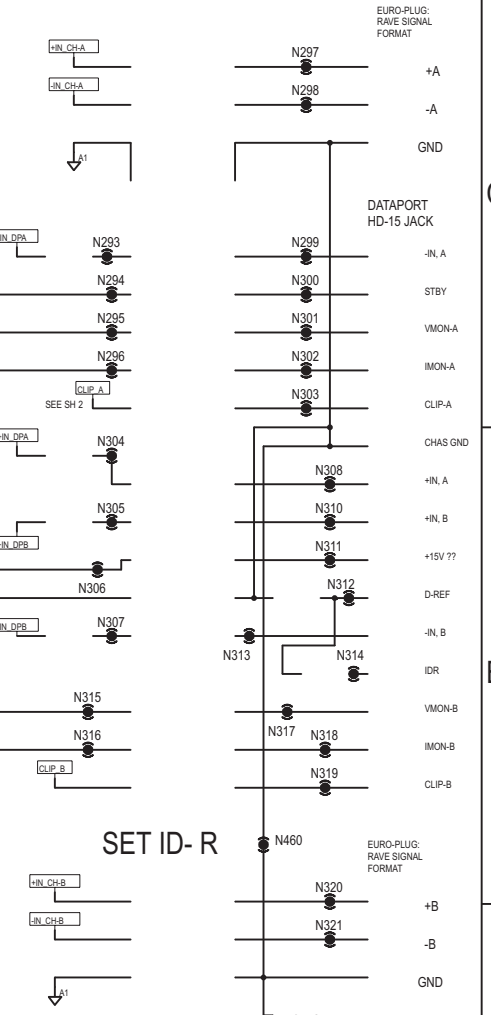
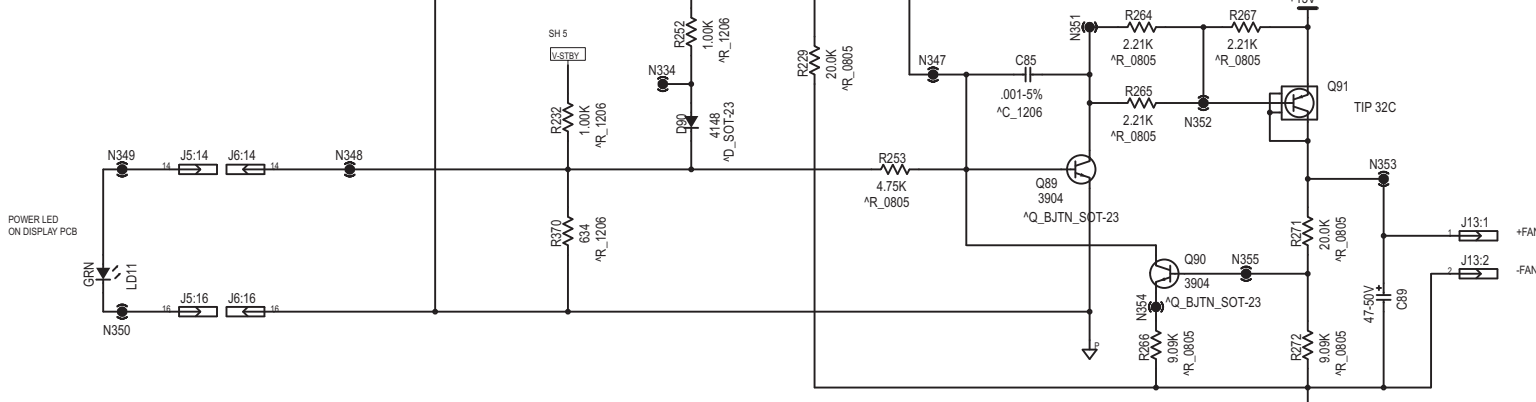
### CH B V-MON, I-MON



### DC MUTING



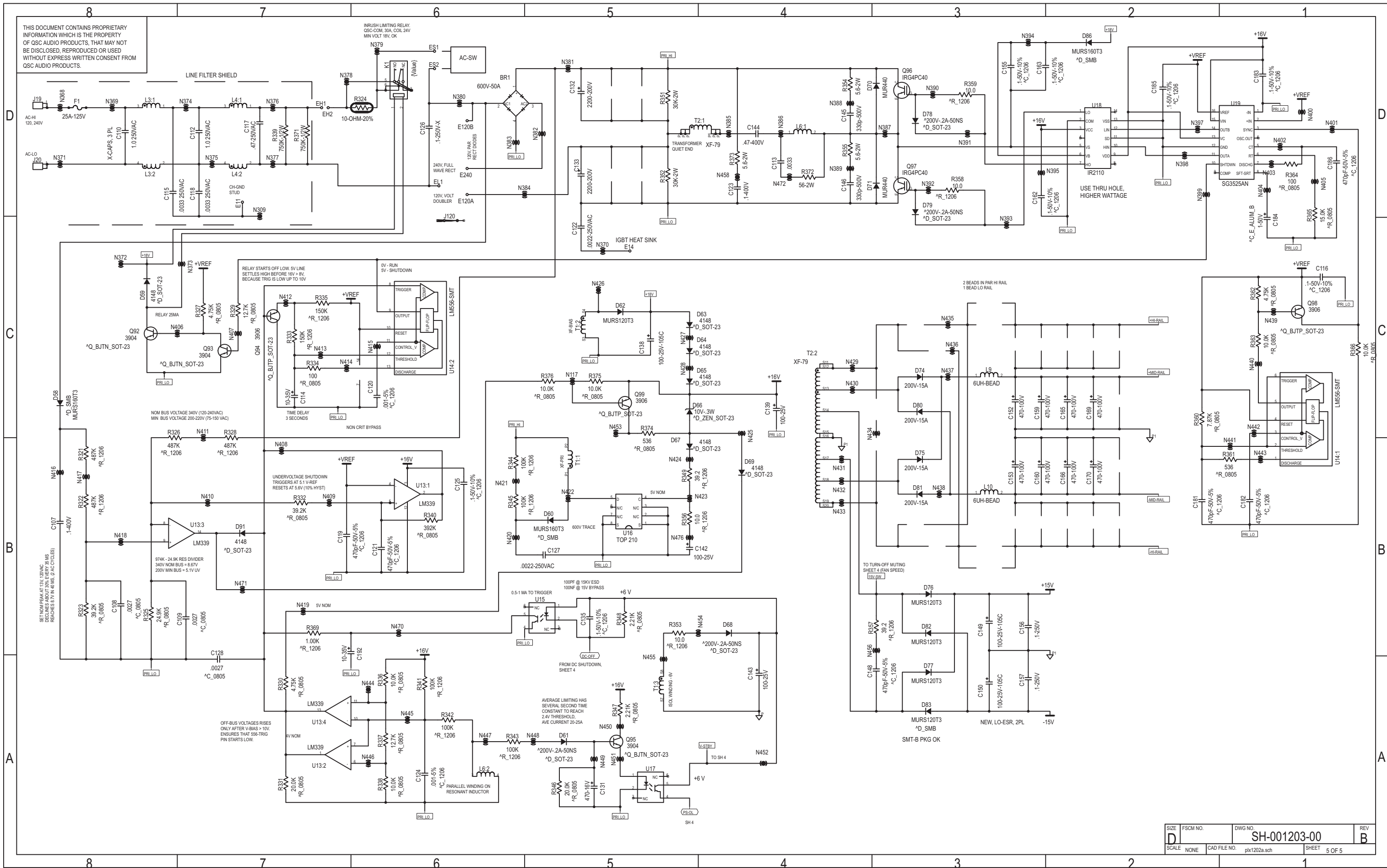
### FAN SPEED CONTROL



SIZE	FSCM NO.	DWG NO.	REV
D		SH-001203-00	B
SCALE	NONE	CAD FILE NO. plx1202a.sch	SHEET 4 OF 5



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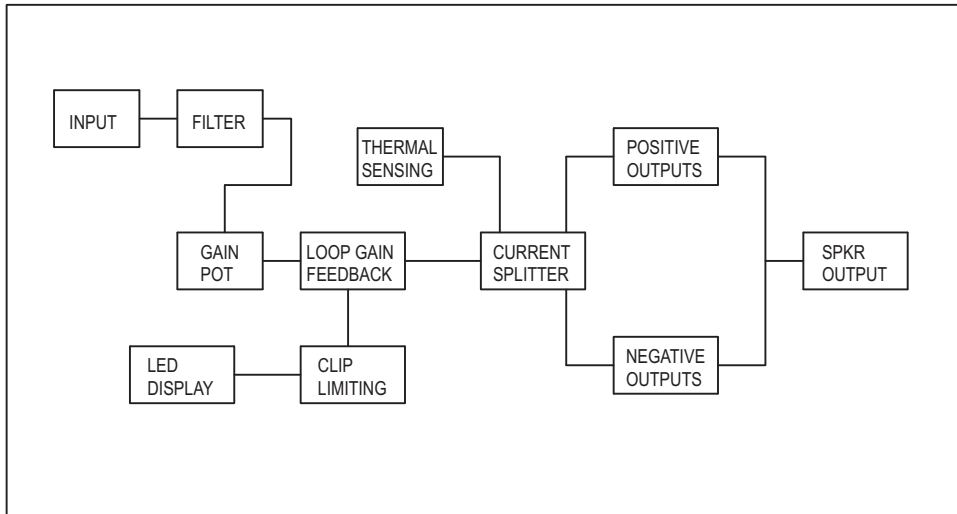


SIZE	FSCM NO.	DWG NO.	REV
D		SH-001203-00	B
SCALE	CAD FILE NO.	SHEET	5 OF 5
NONE	plx1202a.sch		

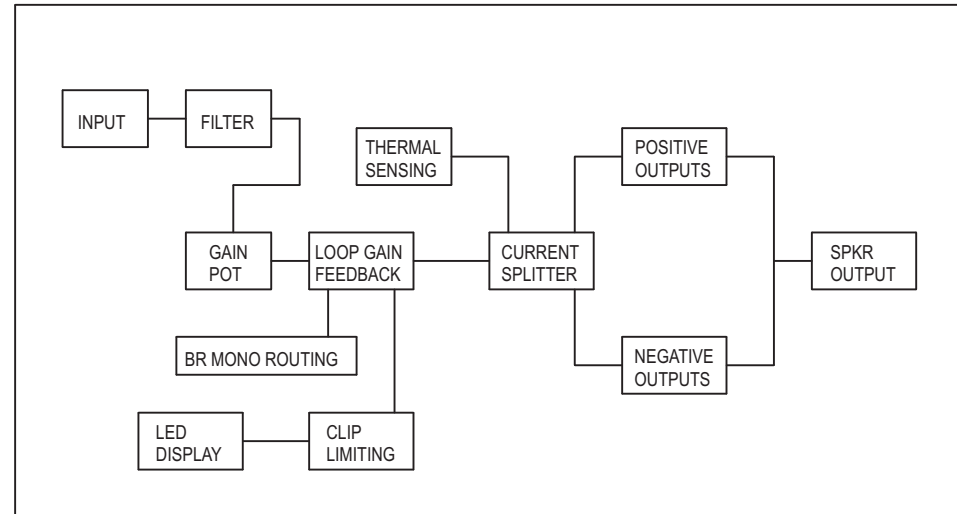
B REV 5 SH SH-001203-00 DWG NO.

THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION WHICH IS THE PROPERTY OF QSC AUDIO PRODUCTS. THAT MAY NOT BE DISCLOSED, REPRODUCED OR USED WITHOUT EXPRESS WRITTEN CONSENT FROM QSC AUDIO PRODUCTS.

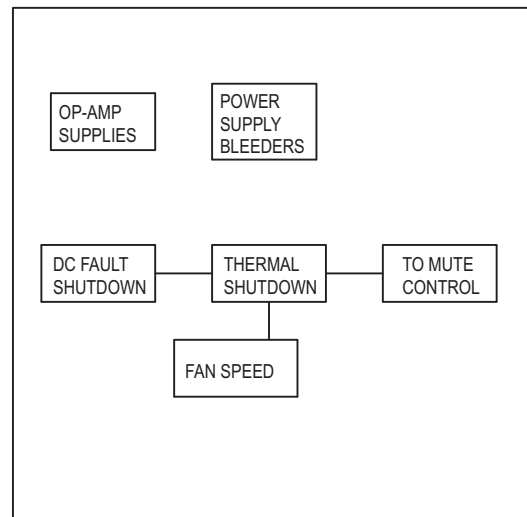
REVISION				
REV	DESCRIPTION	EFF DATE	CHK	APPROVED / DATE
A	PRODUCTION RELEASE PER ECO 3724 AC	6-26-98	KM	TS 6/30/98
B	REVISE PER ECO 3803 AC	8-28-98		



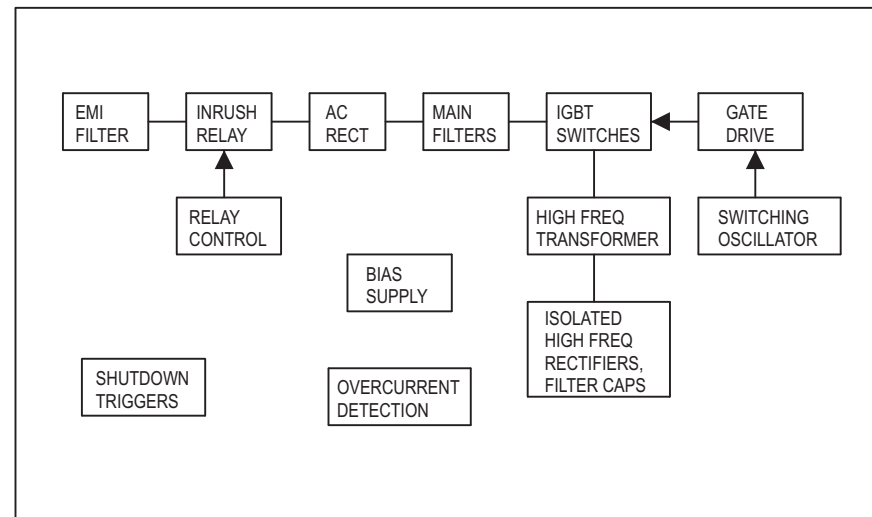
CHANNEL A  
AUDIO CIRCUITS  
SHEET 2



CHANNEL B  
AUDIO CIRCUITS  
SHEET 3



SUPPORT AND  
PROTECTION  
CIRCUITS  
SHEET 4



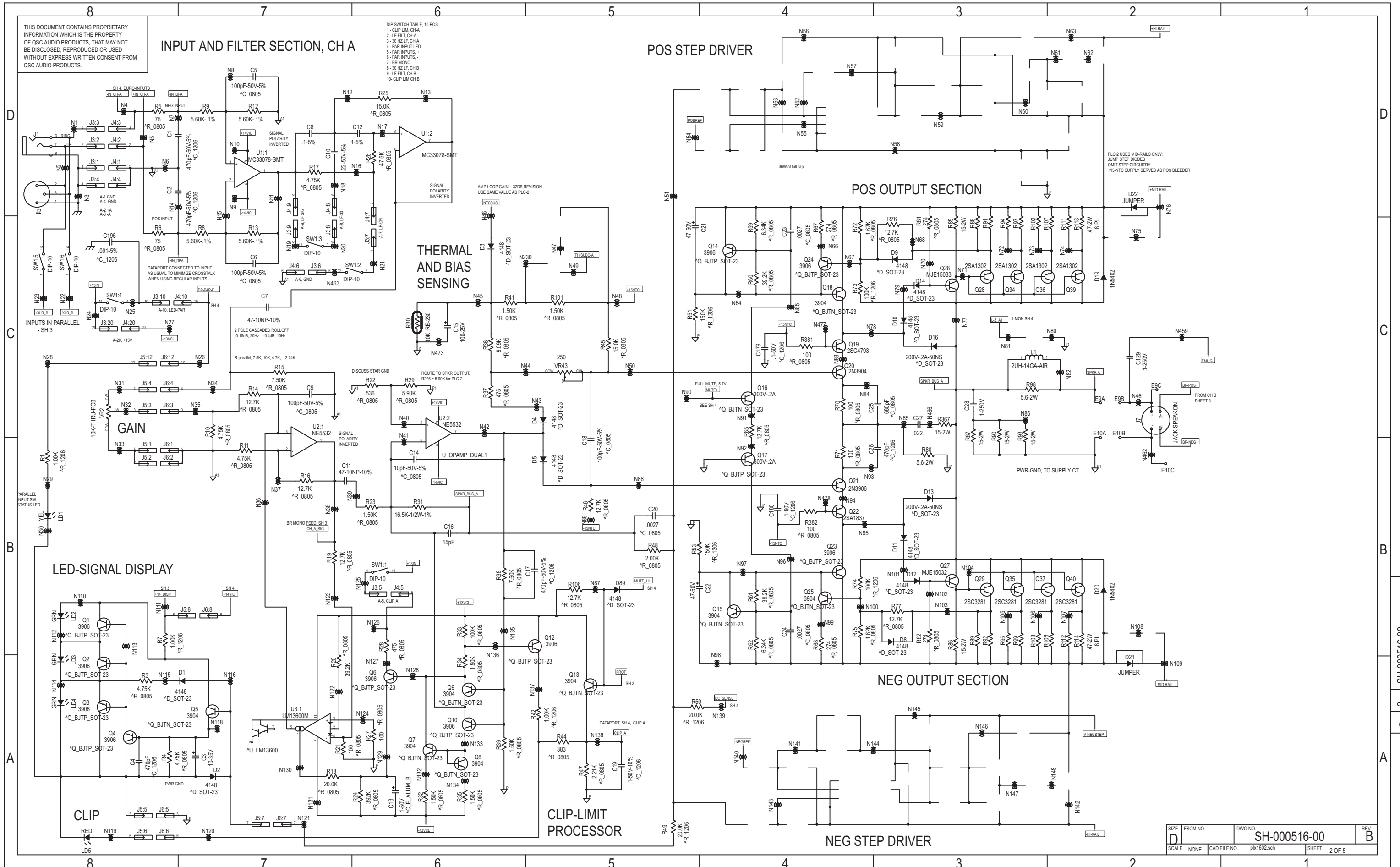
SWITCHING  
POWER  
SUPPLY  
SHEET 5

TABULATION BLOCK	
VOLTAGE	VARIABLE
120/230V	R321, 322, 326, 328 - 487K, *R 1206
100V	R321, 322, 326, 328 - 392K, *R 1206

QTY	ITEM NO.	PART NO.	DESCRIPTION	VENDOR
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES DIMENSIONS PER ANSI Y14.5-1982 TOLERANCES ARE: DECIMALS    DECIMALS    ANGLES .XX *        .XXX *        0			CONTRACT NO.	
DRAWN: PAT QUILTER			DATE: 5-15-98	
CHECKED:			ISSUED:	
MATERIAL:			SIZE: D	
FINISH:			FSCM NO.:	
NEXT ASSY: WP-000516-00			DWG NO. SH-000516-00	
USED ON: PLX 1602			SCALE: NONE	
APPLICATION: APPLICATION			CAD FILE NO. P:\TANGOPRO\PLX\PLX1602	
DO NOT SCALE DRAWING			PLOT DATE: 1/28/02 08:19:58	
			SHEET 1 OF 5	

2. COMPONENTS WITH VALUE PREFIXED WITH A "\*" REPRESENT SMT COMPONENTS.  
1. THIS DRAWING USED IN CONJUNCTION WITH ASSEMBLY WP-000516-00.  
NOTES: UNLESS OTHERWISE SPECIFIED

DWG NO. SH-000516-00 REV 1



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### INPUT AND FILTER SECTION, CH B

DIP SWITCH TABLE, 10-POS  
1 - CLIP LIM. CHA  
2 - LF FILT. CHA  
3 - 30 HZ LF. CHA  
4 - PAR INPUT LED  
5 - PAR INPUTS +  
6 - PAR INPUTS -  
7 - BR MONO  
8 - 30 HZ LF. CHB  
9 - LF FILT. CHB  
10 - CLIP LIM CHB

### THERMAL AND BIAS SENSING

### POS STEP DRIVER

### POS OUTPUT SECTION

### LED-SIGNAL DISPLAY

### CLIP

### CLIP-LIMIT PROCESSOR

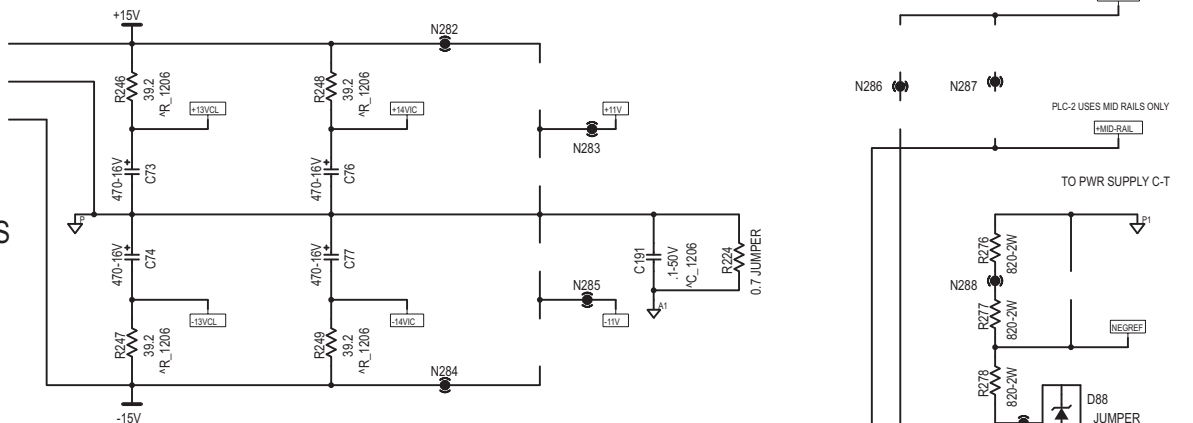
### NEG OUTPUT SECTION

### NEG STEP DRIVER

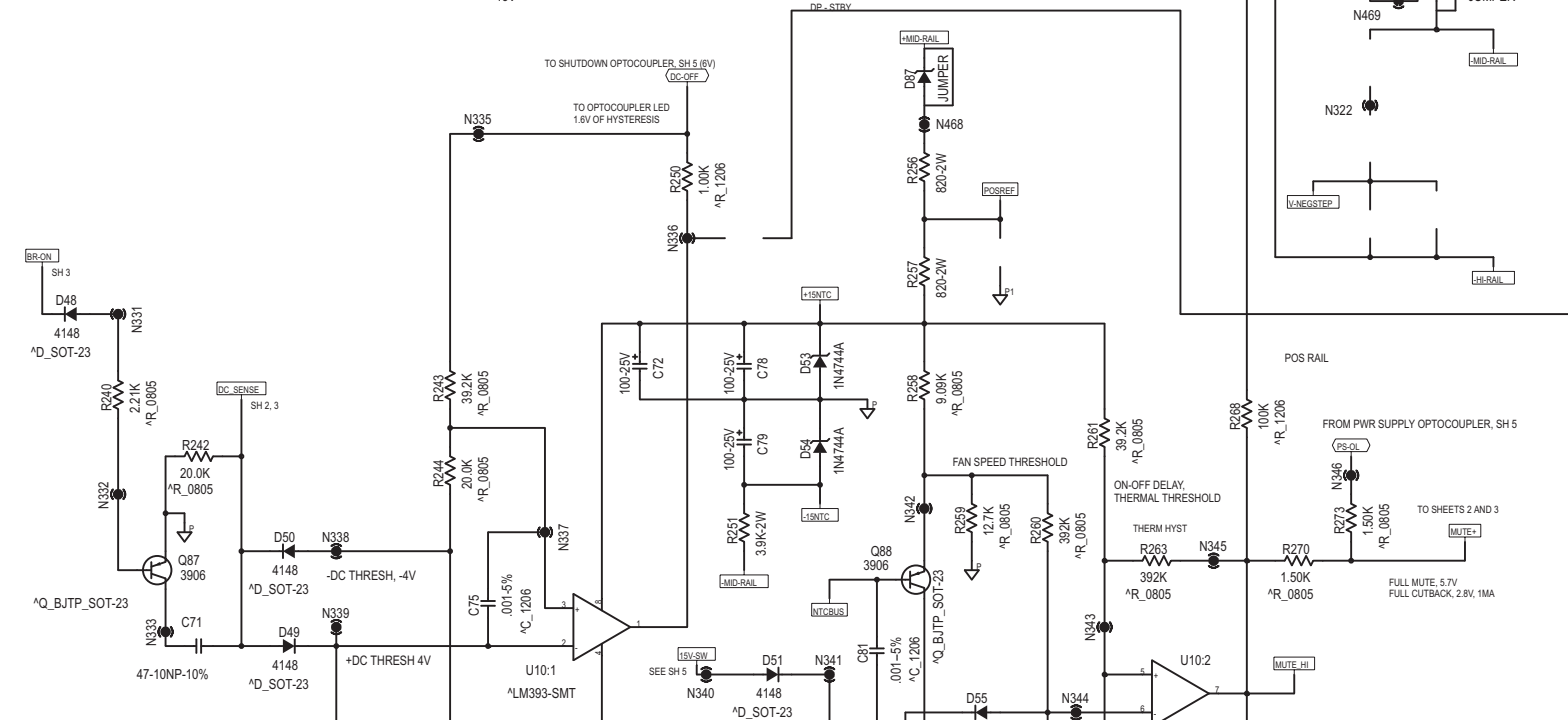
SIZE	FSCM NO.	DWG NO.	REV
D		SH-000516-00	B
SCALE	NONE	CAD FILE NO.	SHEET 3 OF 5
		plx1602.sch	

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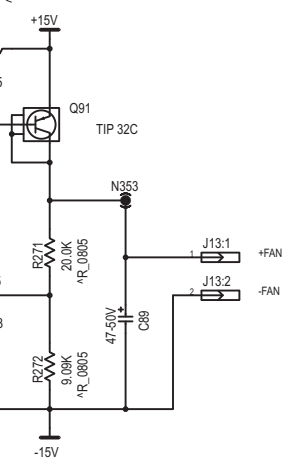
### OPAMP POWER SUPPLIES



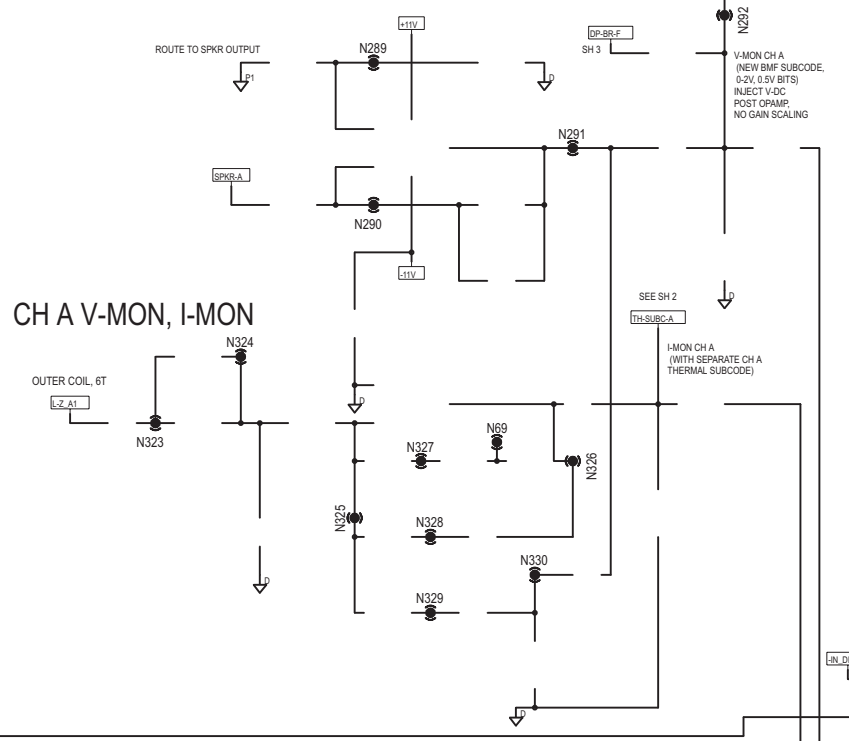
### DC MUTING



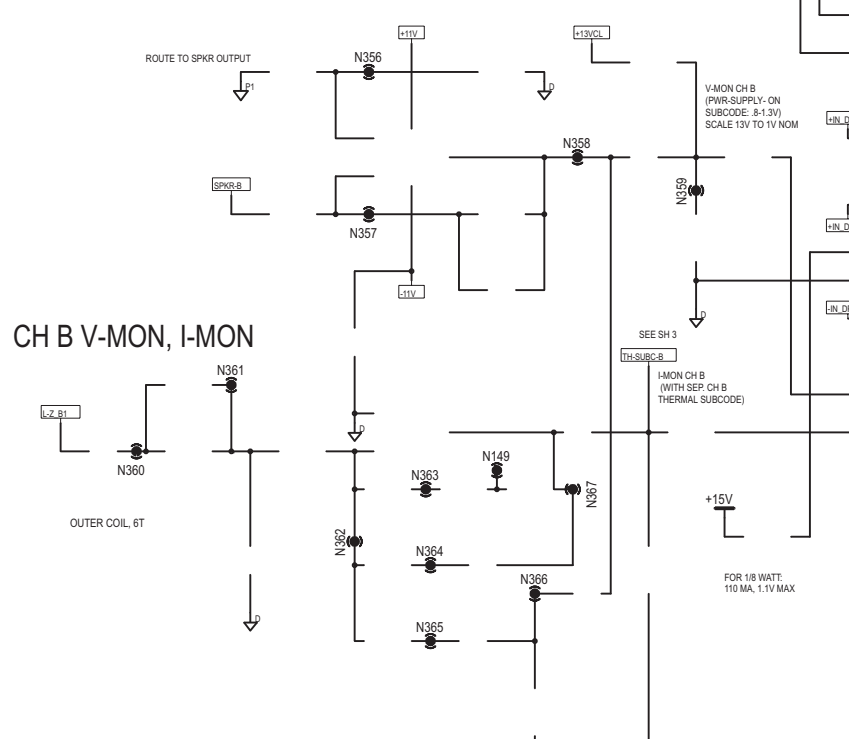
### FAN SPEED CONTROL



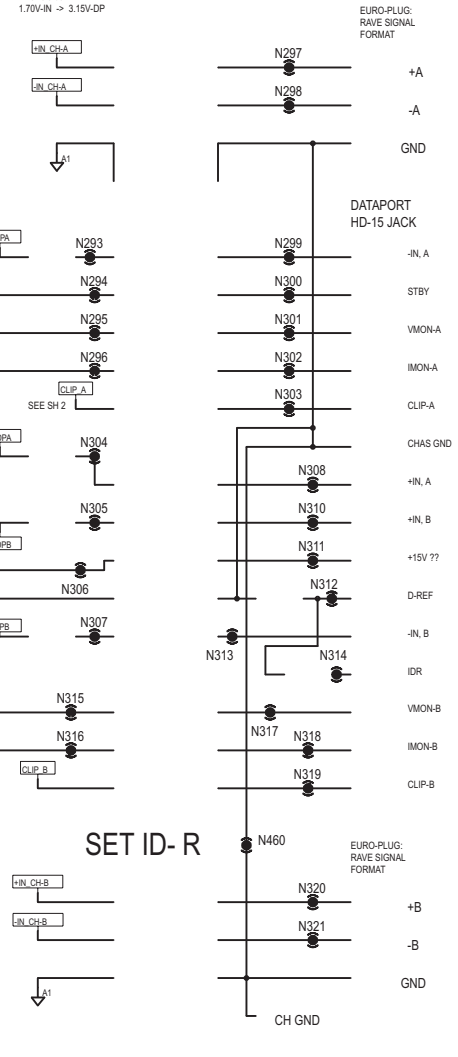
### CH A V-MON, I-MON



### CH B V-MON, I-MON



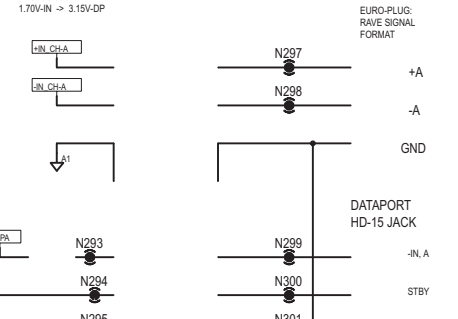
### SET ID-R



V-MON CONVERSION SCALES:  
 PLC-2: (aim to 1.4) 30.1K / 2.00K = 15.05 Volt/Vmon  
 PLC-3: (between 1.8, 2.0) 33.2K / 1.5K = 22.13 Volt/Vmon

BMF VOLTAGE SCHEME: BINARY CODING, 2 BITS  
 SOURCE VOLTAGE, 13V NOM, 11V-14.5V (UNREG)  
 STEREO (NORMAL); BINARY 0.0 = 0V OUT  
 0-2V, 0.5V BITS  
 INPUTS PARALLEL; BINARY 0.1 = 5V NOM, 42-57S  
 BR-MONO; BINARY 1.0 = 1.0V NOM, 85-115  
 BR-MONO + PAR; BINARY 1.1 = 1.5V NOM, 1.27-1.72  
 NOM THRESHOLDS: 0.25, 75, 1.25  
 FOR UNREG TRACKING DECODING, USE V-ON (1V NOM) AS REF

DATAPORT INPUT SENSITIVITY:  
 PLC-2:  
 7.87K / 5.60 K,  
 1.23V-IN -> 2.95V-DP  
 PLC-3:  
 4.75K / 5.60K,  
 1.70V-IN -> 3.15V-DP



SIZE	FSCM NO.	DWG NO.	REV
D		SH-000516-00	B
SCALE	NONE	CAD FILE NO. plx1602.sch	SHEET 4 OF 5

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LINE FILTER SHIELD

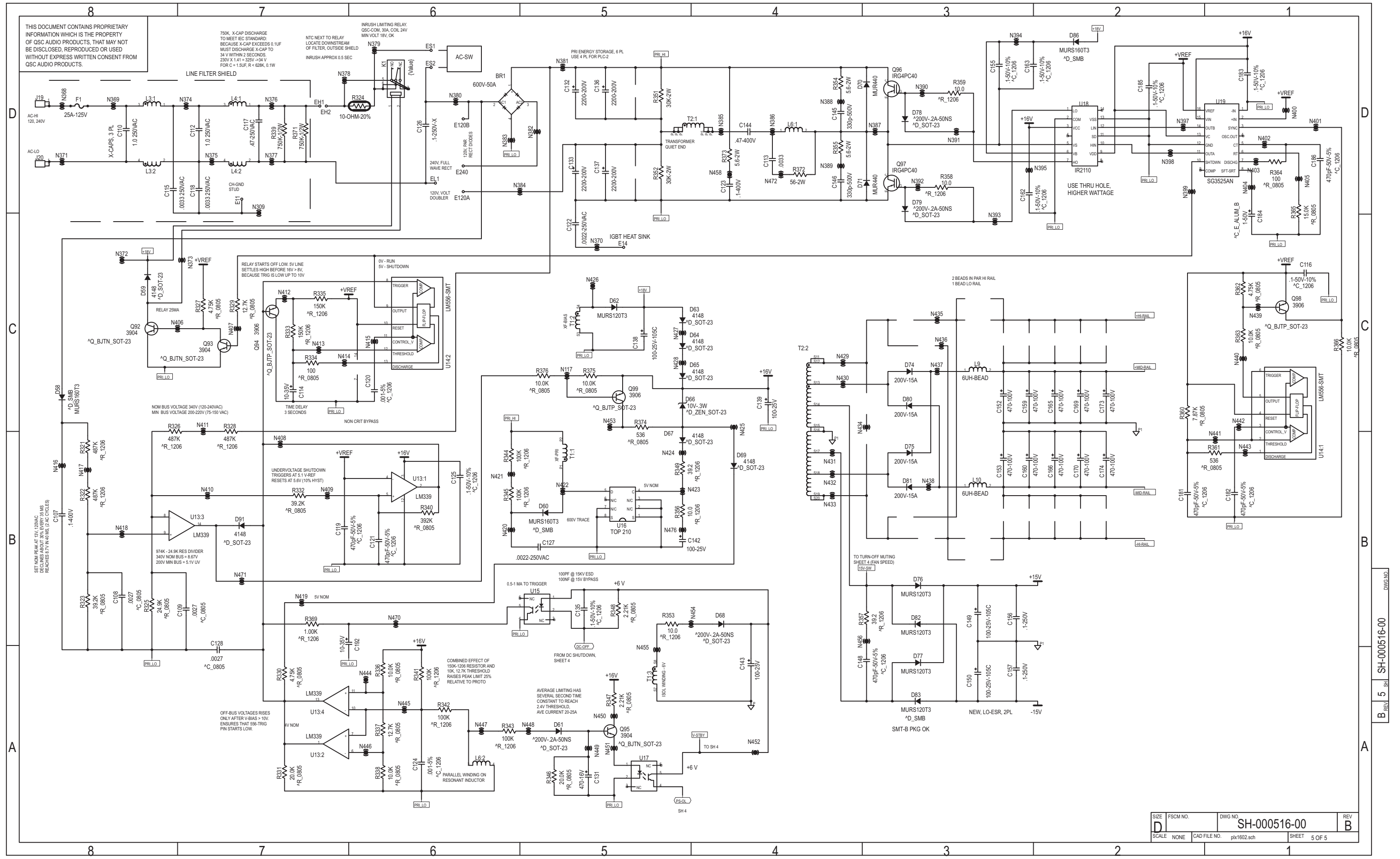
750K X-CAP DISCHARGE TO MEET IEC STANDARD. BECAUSE X-CAP EXCEEDS 0.1UF MUST DISCHARGE X-CAP TO 34 V WITHIN 2 SECONDS. 230V X 1.41 = 325V >34 V FOR C = 0.1UF, R < 625K, 0.1W

NTC NEXT TO RELAY LOCATE DOWNSTREAM OF FILTER, OUTSIDE SHIELD INRUSH APPROX 0.5 SEC

INRUSH LIMITING RELAY. QSC-COM. 30A. COIL 24V MIN VOLT. 18V, 0K

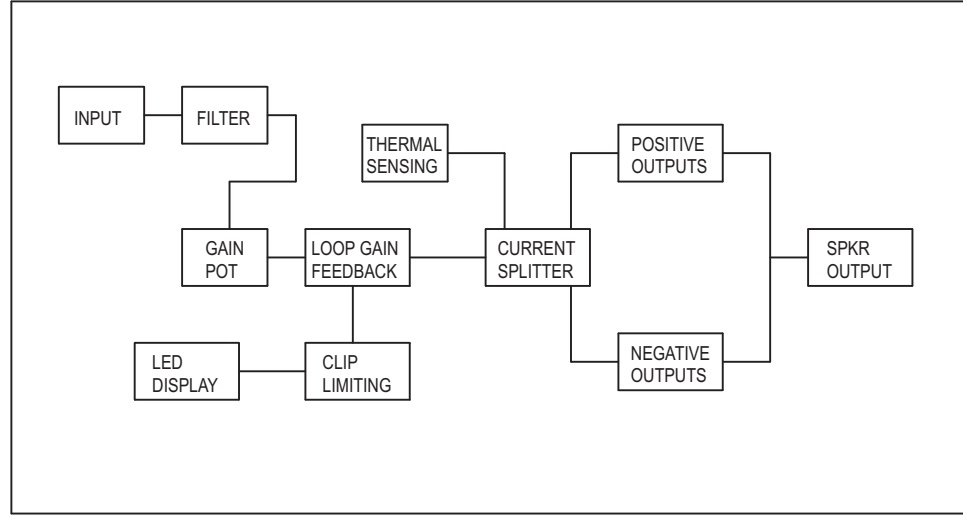
PRI ENERGY STORAGE, 6 PL USE 4 PL FOR PLC-2

USE THRU HOLE, HIGHER WATTAGE

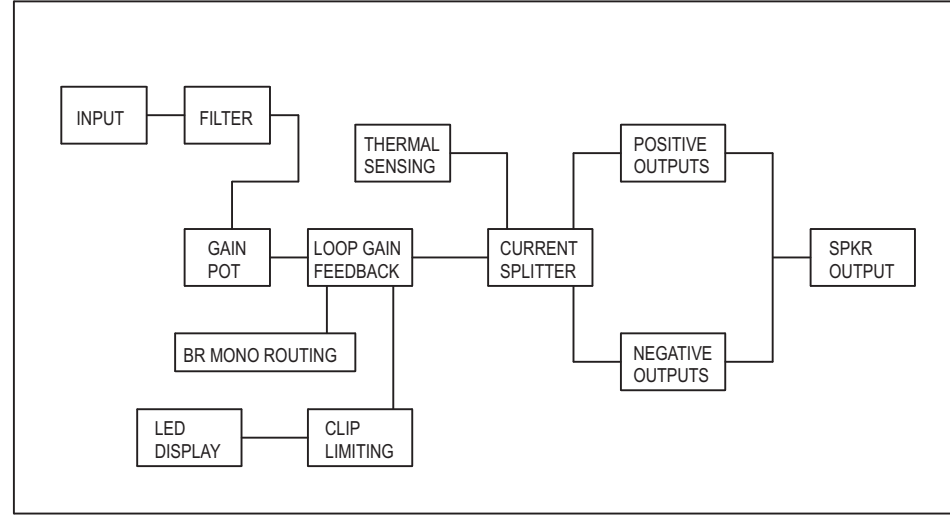


SIZE	FSCM NO.	DWG NO.	REV
D		SH-000516-00	B
SCALE	NONE	CAD FILE NO.	SHEET 5 OF 5
		plx1602.sch	

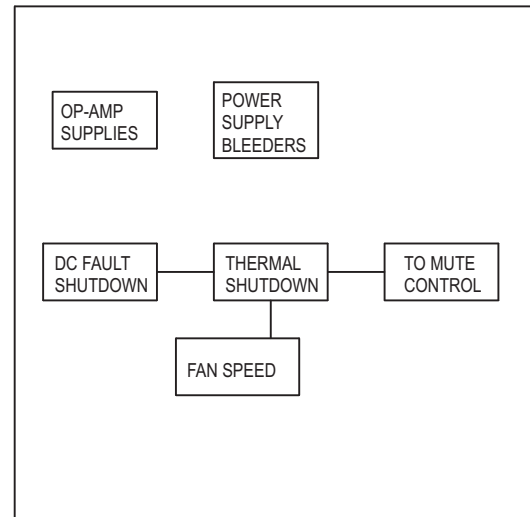
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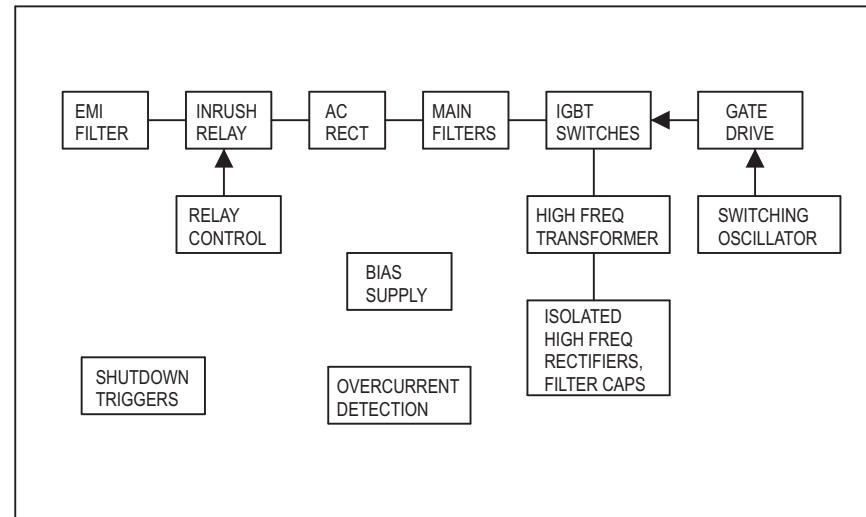
CHANNEL A  
AUDIO CIRCUITS  
SHEET 2



CHANNEL B  
AUDIO CIRCUITS  
SHEET 3



SUPPORT AND  
PROTECTION  
CIRCUITS  
SHEET 4



SWITCHING  
POWER  
SUPPLY  
SHEET 5

TABULATION BLOCK	
VOLTAGE	VARIABLE
120/230V	R321, 322, 326, 328 - 487K, *R 1206
100V	R321, 322, 326, 328 - 392K, *R 1206

2. COMPONENTS WITH VALUE PREFIXED WITH A "\*" REPRESENT SMT COMPONENTS.  
1. THIS DRAWING USED IN CONJUNCTION WITH ASSEMBLY WP-002403-00.  
NOTES: UNLESS OTHERWISE SPECIFIED

QTY	ITEM NO.	PART NO.	DESCRIPTION	VENDOR
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. DIMENSIONS PER ANSI Y14.5-1982 TOLERANCES ARE: DECIMALS    DECIMALS    ANGLES XX ±        XXX ±        °			CONTRACT NO.	
DRAWN PAT QUILTER			DATE 5-15-98	
CHECKED			ISSUED	
NEXT ASSY USED ON			PLOT DATE Wed Dec 09, 1998	
APPLICATION DO NOT SCALE DRAWING			SCALE NONE	
FINISH			CAD SEED FILE NO.	
WP-002403-00    PLX 2402			SIZE    FSCM NO.    DWG NO.	
			D    NONE    SH-002403-00	
			PLOT DATE Wed Dec 09, 1998	
			SCALE NONE	
			CAD FILE NO. plx2402.sch	
			SHEET 1 OF 5	
			P:\TANGOPRO\PLX\PLX2402	

**QSC** AUDIO PRODUCTS, INC.  
COSTA MESA, CALIFORNIA

**SCHEMATIC DIAGRAM**  
**PLX 2402**

SH-002403-00

DRAWING NO. SH-002403-00

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INPUT AND FILTER SECTION, CH A

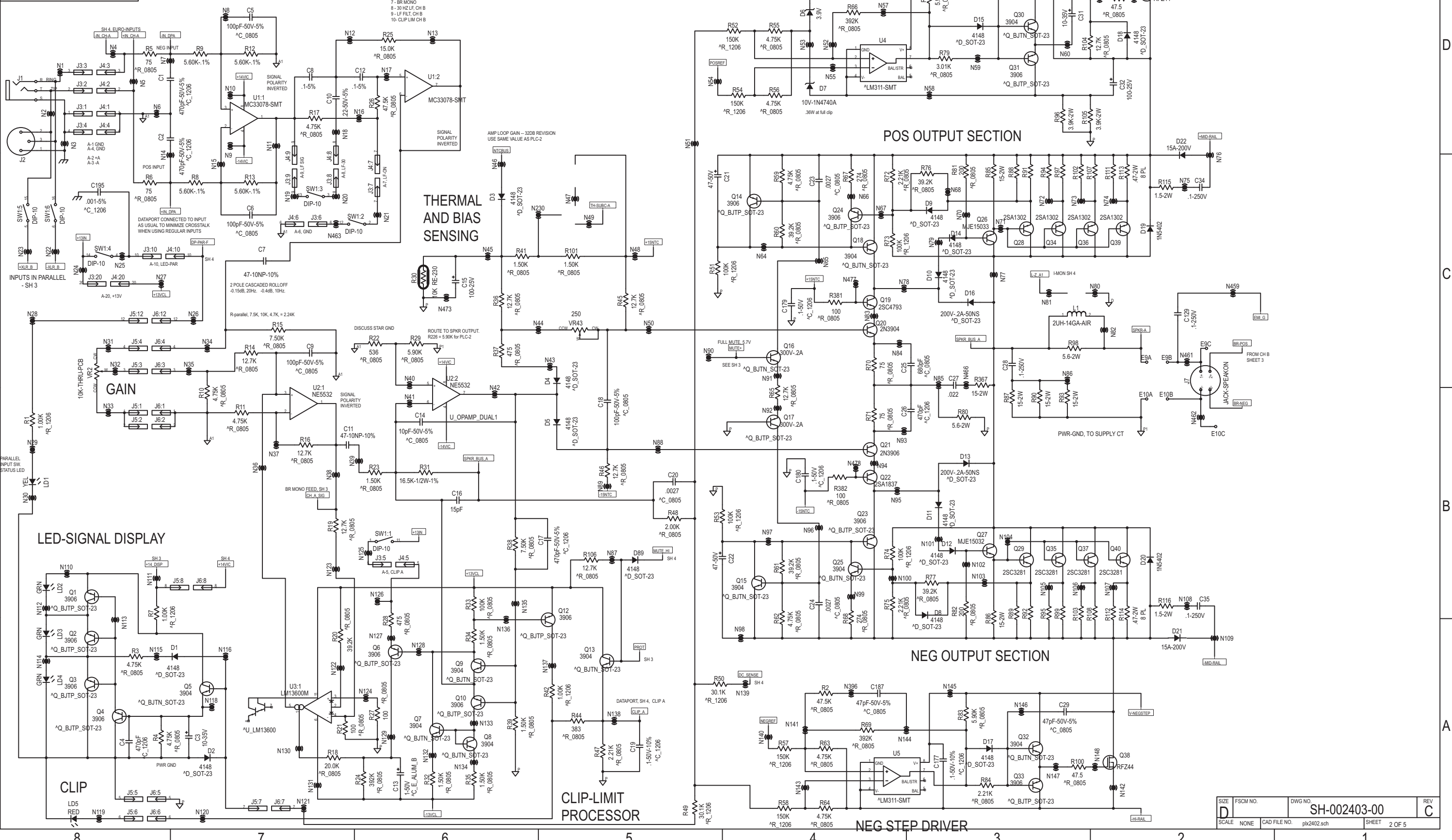
- DIP SWITCH TABLE, 10-POS  
 1- CLIP LIM, CH A  
 2- LF FILT, CH A  
 3- 30 HZ LF, CH A  
 4- PAR INPUT LED  
 5- PAR INPUTS, +  
 6- PAR INPUTS, -  
 7- BR MONO  
 8- 30 HZ LF, CH B  
 9- LF FILT, CH B  
 10- CLIP LIM CH B

THERMAL AND BIAS SENSING

POS STEP DRIVER

POS OUTPUT SECTION

NEG STEP DRIVER



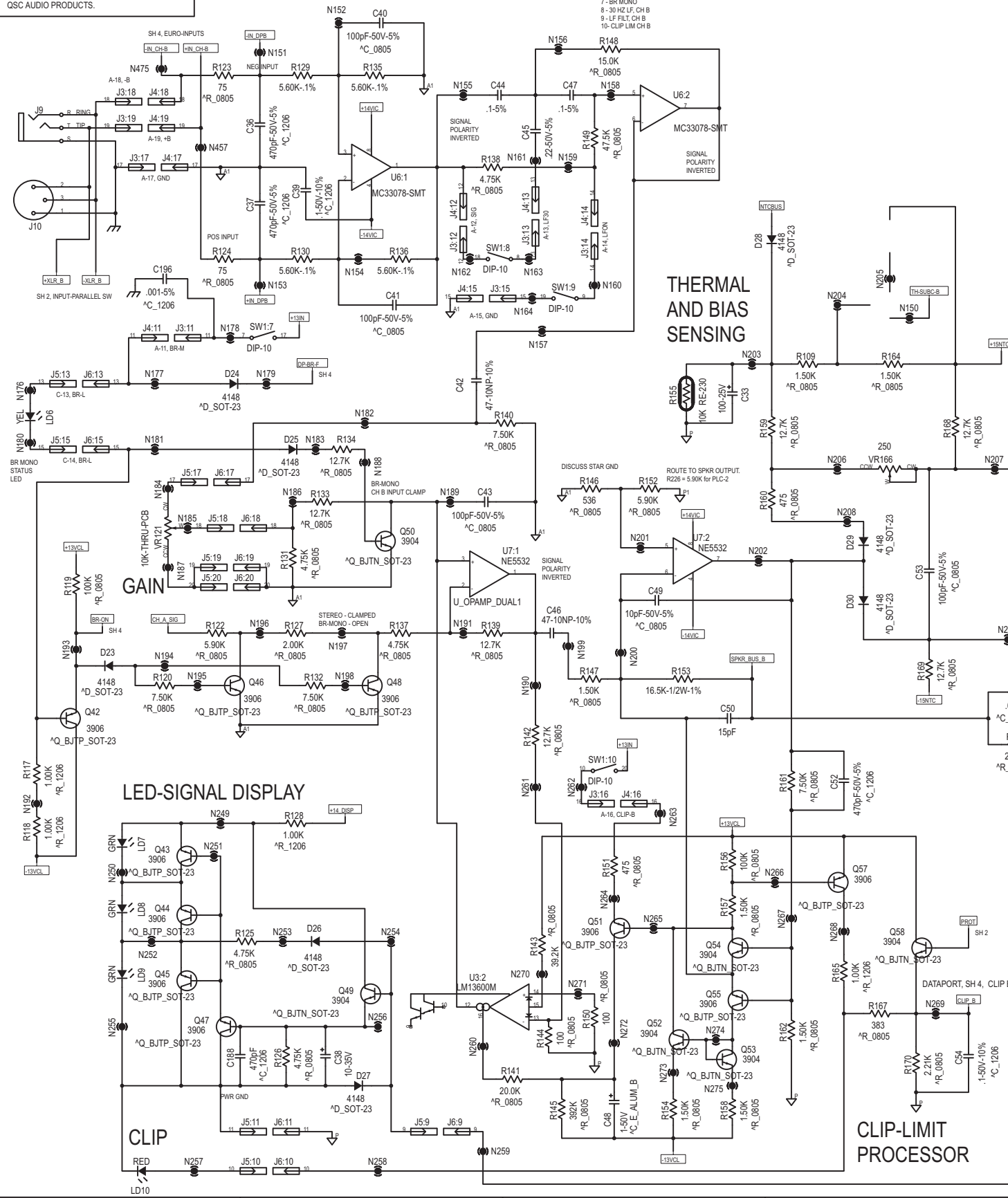
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D		SH-002403-00	C
SCALE	CAD FILE NO.	SHEET	2 OF 5
NONE	plk2402.sch		



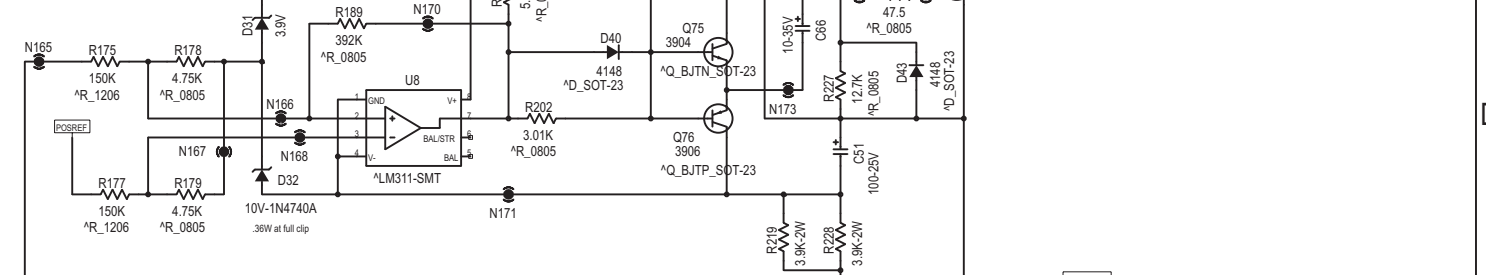
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### INPUT AND FILTER SECTION, CH B

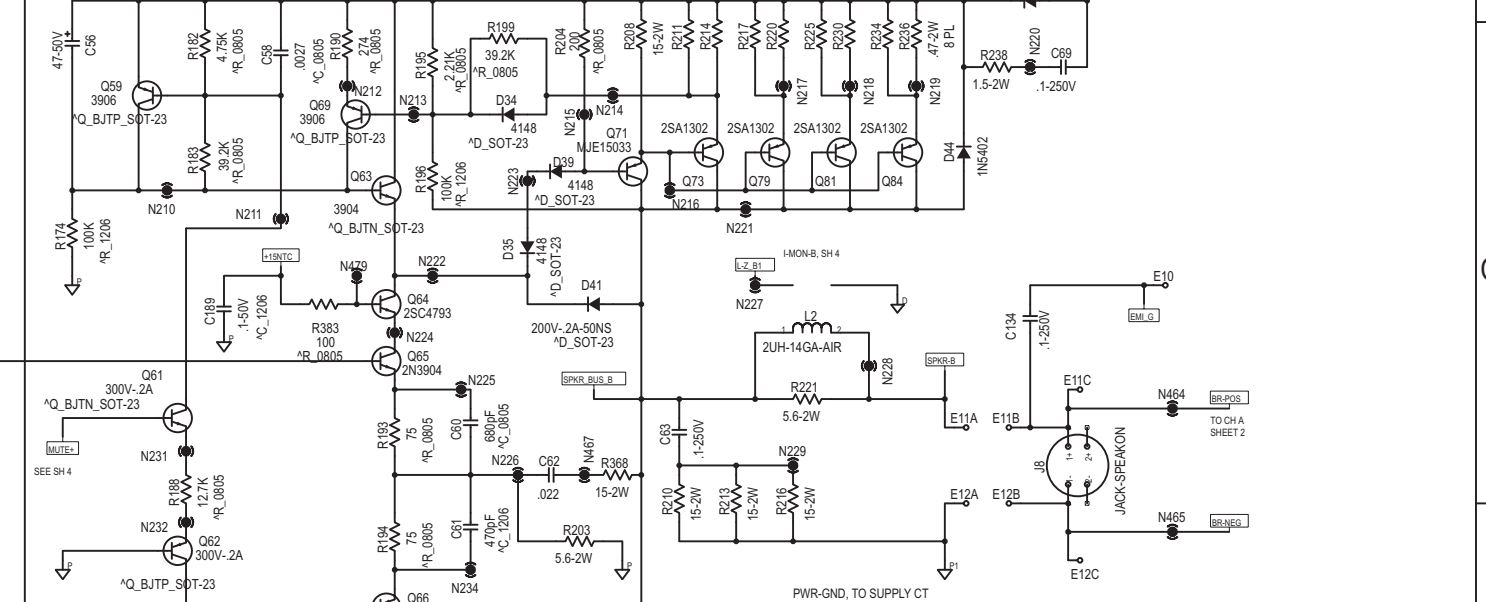
- DIP SWITCH TABLE, 10-POS
- 1- CLIP LIM. CH A
  - 2- LF FLT. CH A
  - 3- HF LF. CH A
  - 4- PAR INPUT LED
  - 5- PAR INPUTS, +
  - 6- PAR INPUTS, -
  - 7- BR MONO
  - 8- 30 HF LF. CH B
  - 9- LF FLT. CH B
  - 10- CLIP LIM CH B



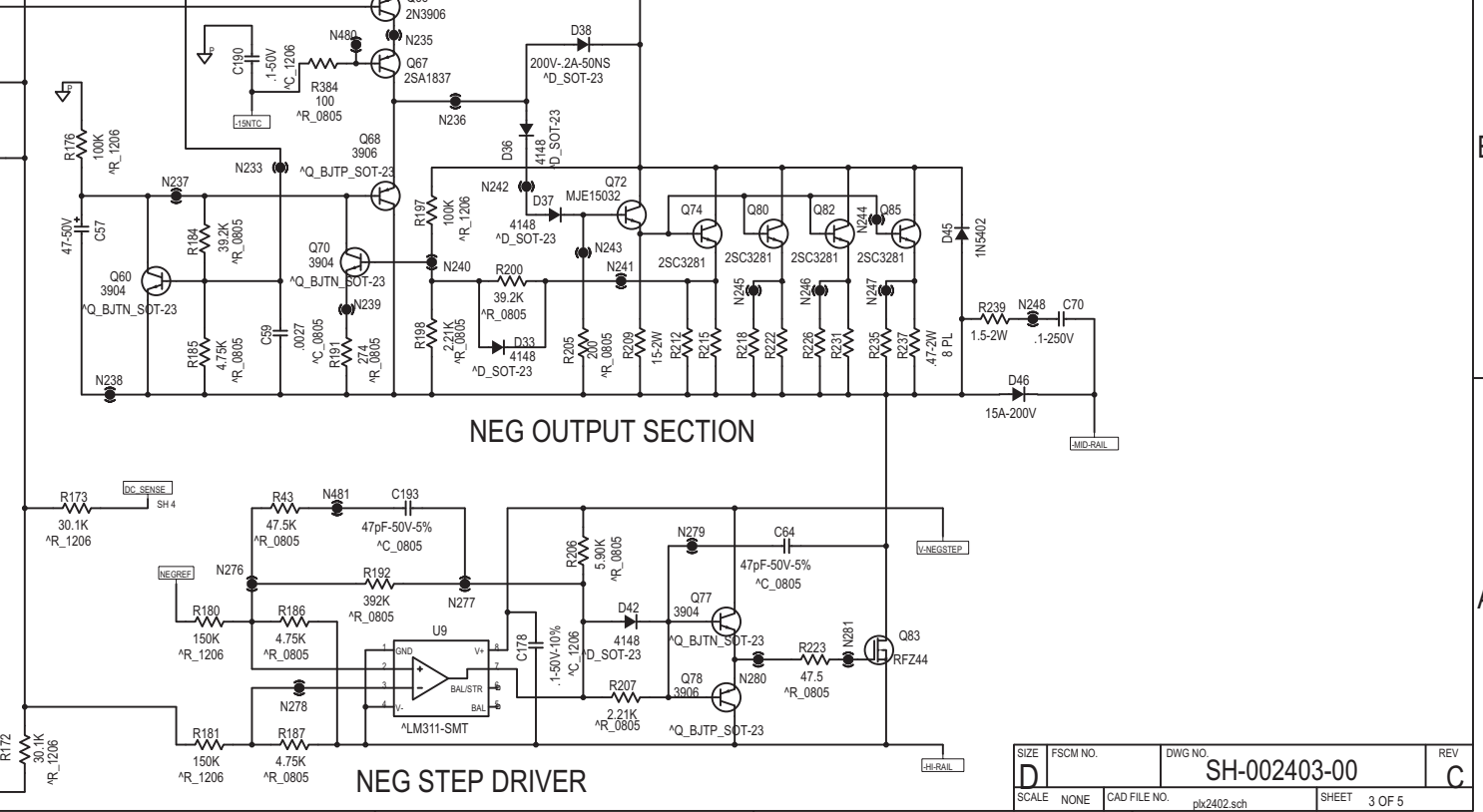
### POS STEP DRIVER



### POS OUTPUT SECTION



### NEG OUTPUT SECTION



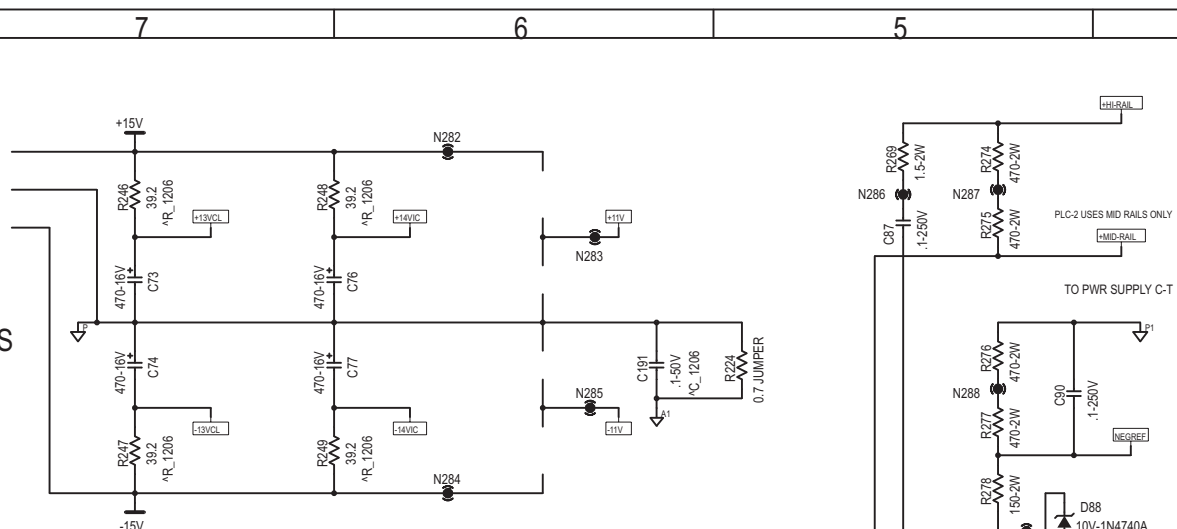
### CLIP-LIMIT PROCESSOR

### NEG STEP DRIVER

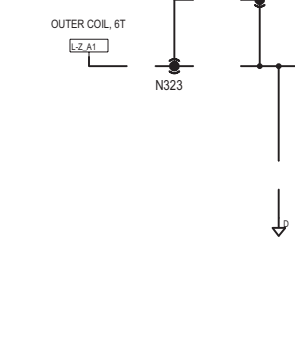
SIZE	FSCM NO.	DWG NO.	REV
D		SH-002403-00	C
SCALE	NONE	CAD FILE NO.	SHEET
		plz2402.sch	3 OF 5

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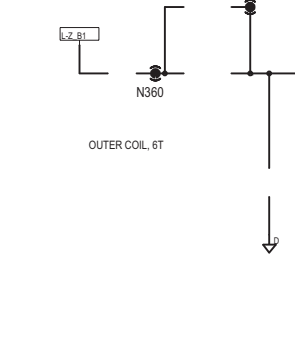
OPAMP POWER SUPPLIES



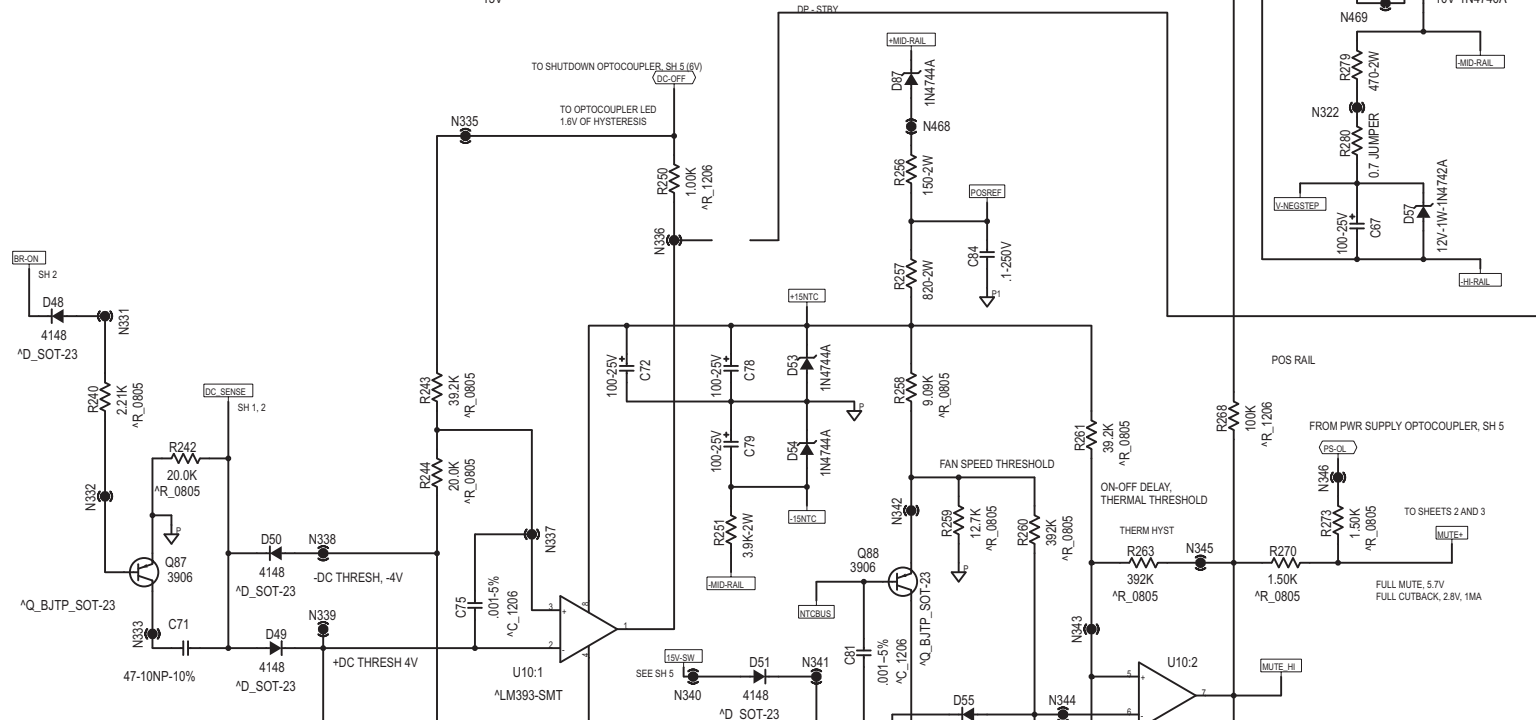
CH A V-MON, I-MON



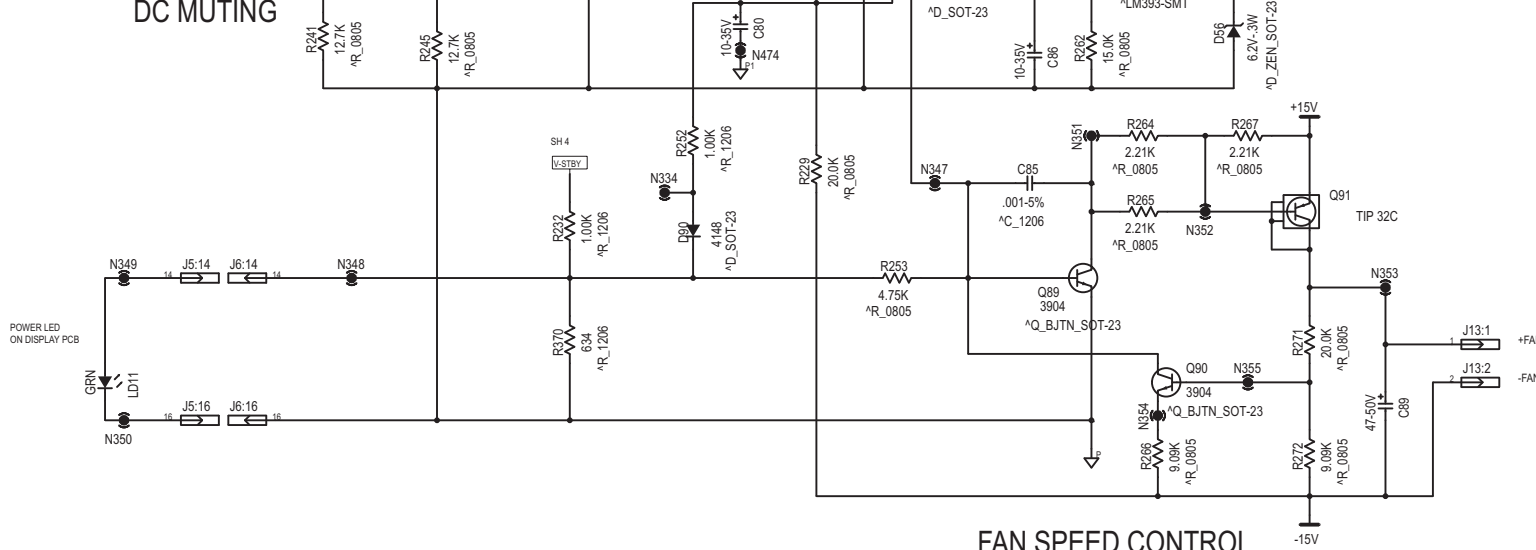
CH B V-MON, I-MON



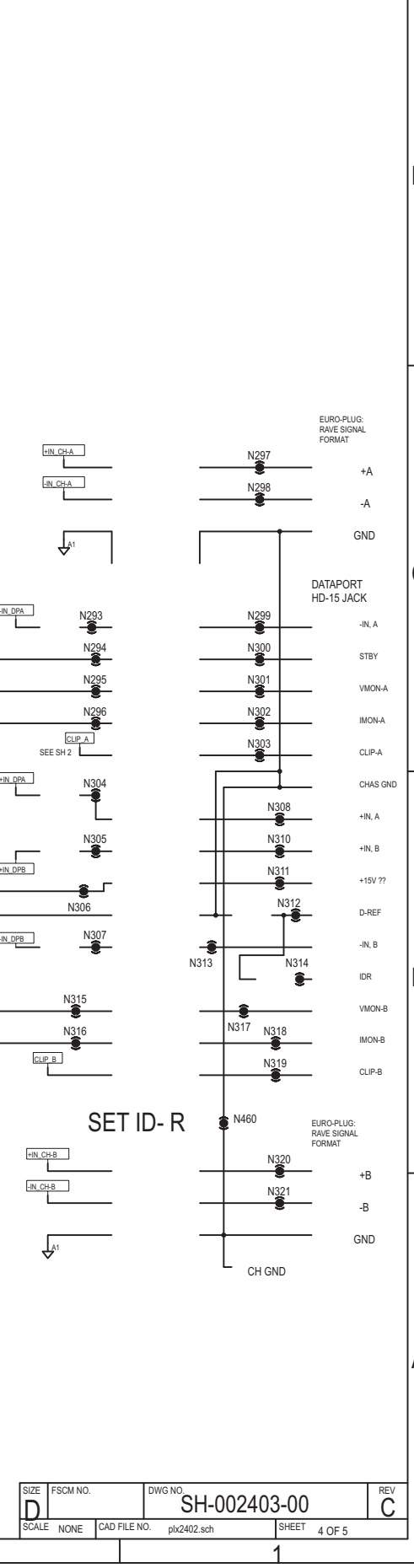
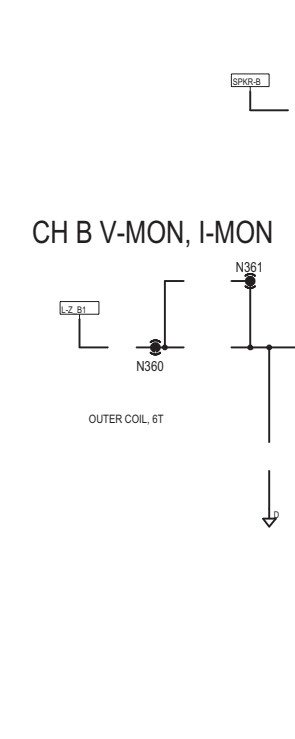
DC MUTING



FAN SPEED CONTROL

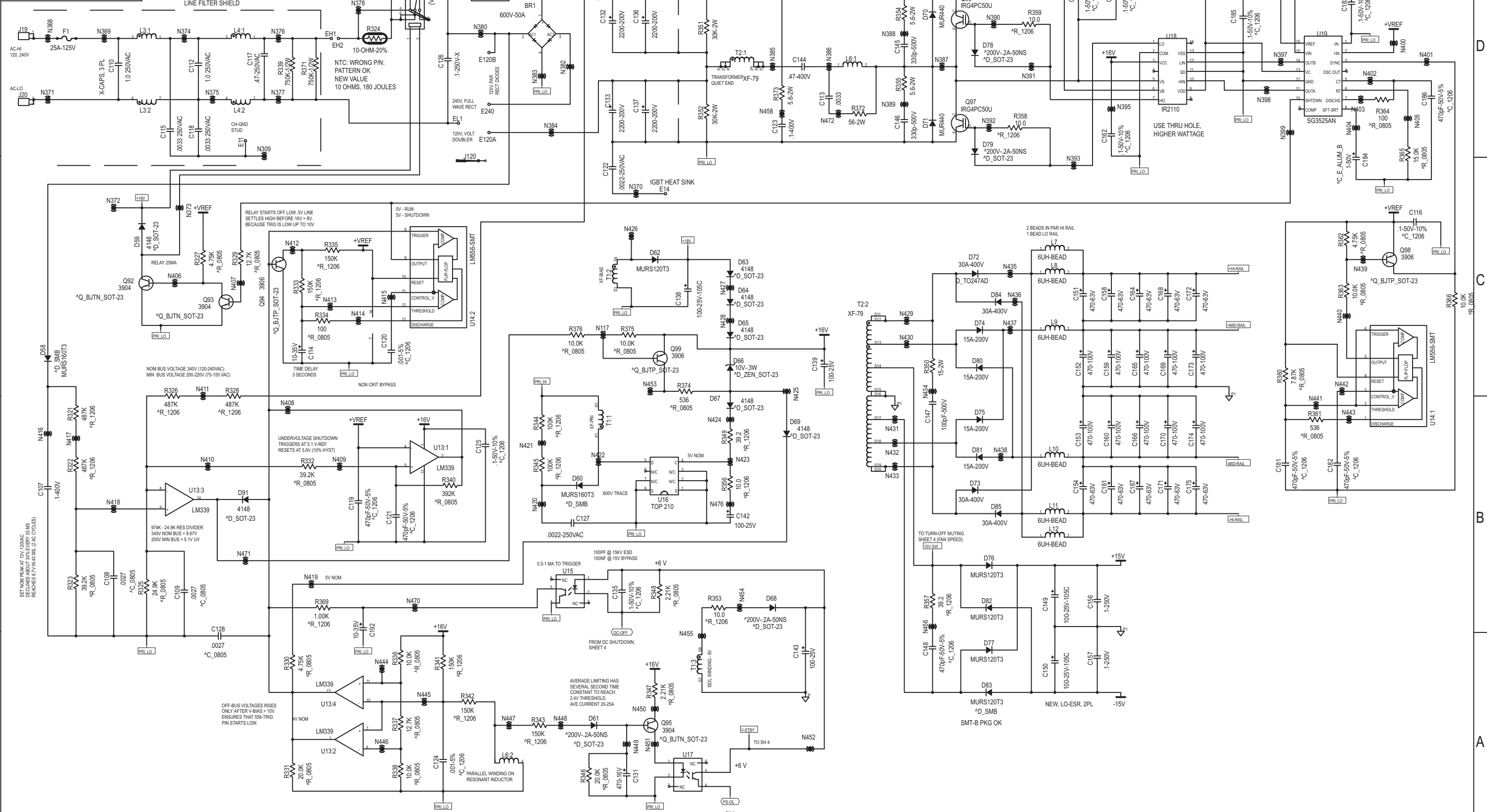


SET ID-R



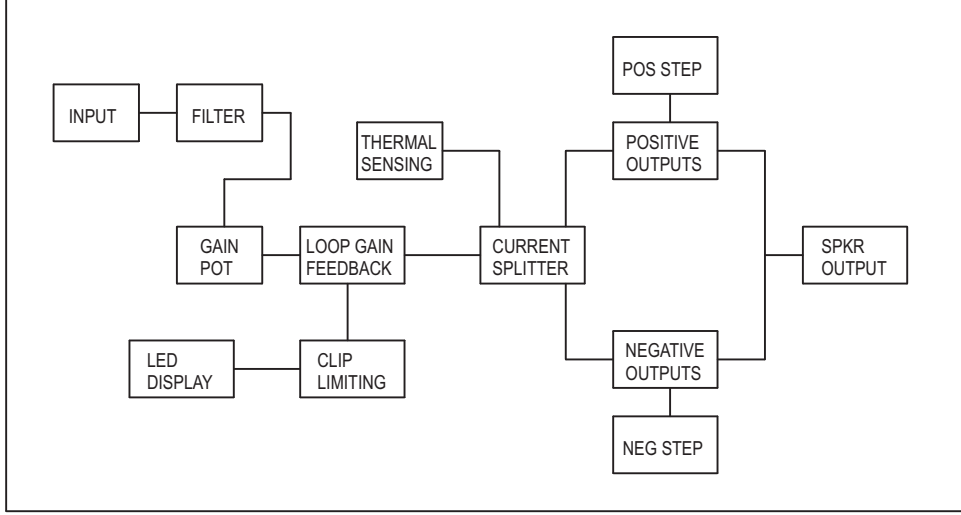
SIZE D	FSCM NO.	DWG NO. SH-002403-00	REV C
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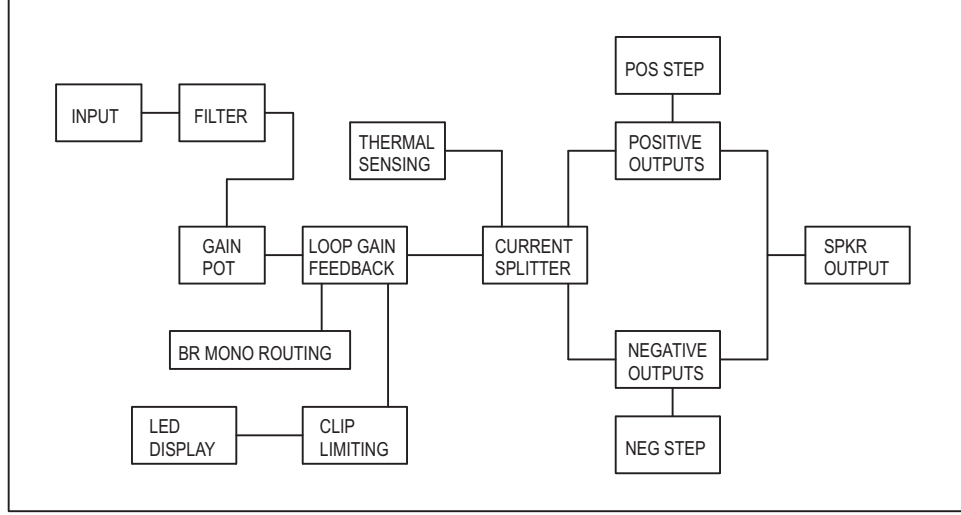


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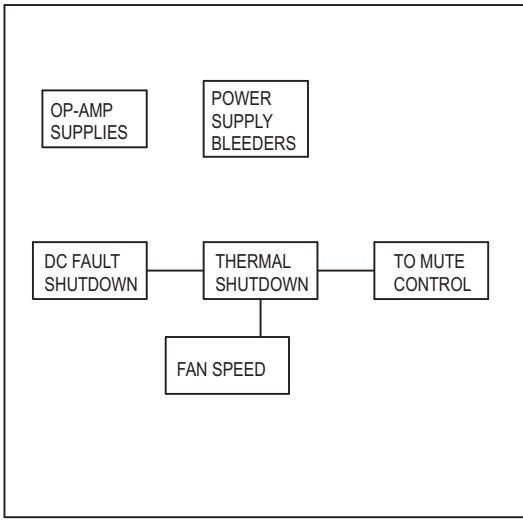
REVISION



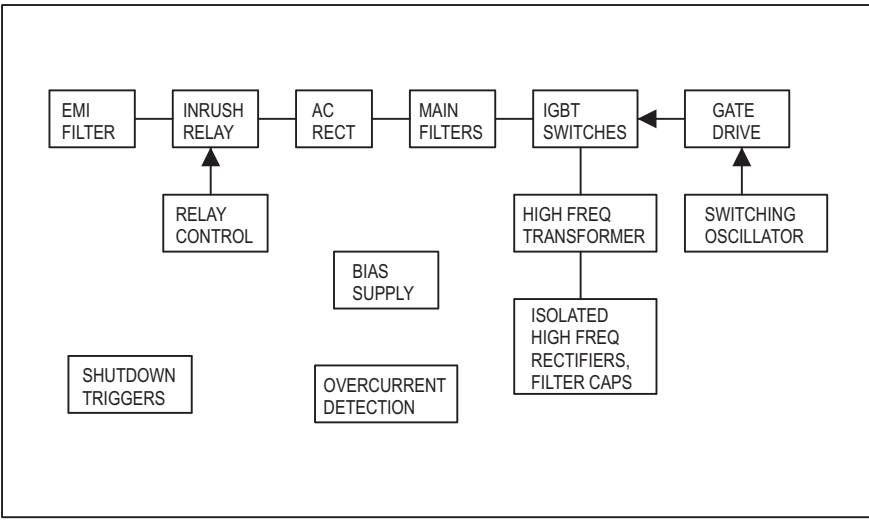
CHANNEL A AUDIO CIRCUITS SHEET 2



CHANNEL B AUDIO CIRCUITS SHEET 3



SUPPORT AND PROTECTION CIRCUITS SHEET 4



SWITCHING POWER SUPPLY SHEET 5

TABULATION BLOCK	
VOLTAGE	VARIABLE
120/230V	R321, 322, 326, 328 - 487K, ^R 1206
100V	R321, 322, 326, 328 - 392K, ^R 1206

2. COMPONENTS WITH VALUE PREFIXED WITH A "\*" REPRESENT SMT COMPONENTS.  
 1. THIS DRAWING USED IN CONJUNCTION WITH ASSEMBLY WP-000541-00.  
 NOTES: UNLESS OTHERWISE SPECIFIED

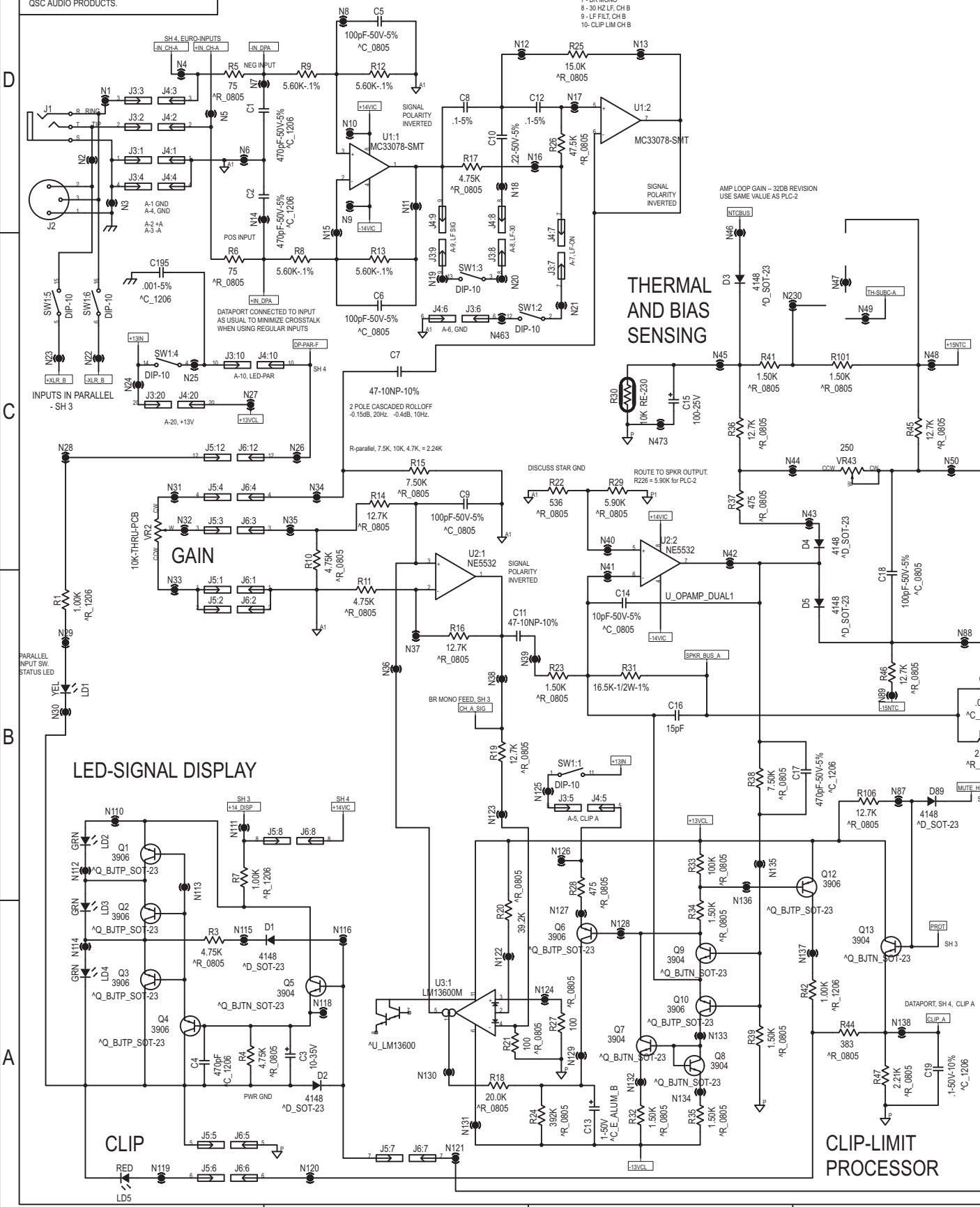
QTY	ITEM NO.	PART NO.	DESCRIPTION	VENDOR
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. DIMENSIONS PER ANSI Y14.5-1982 TOLERANCES ARE: DECIMALS DECIMALS ANGLES XX * XXX * DEBURR EDGES .XXX R MAX MATERIAL			CONTRACT NO.	
FINISH			APPROVALS DATE	
NEXT ASSY USED ON			DRAWN PAT QUILTER 5-15-98	
APPLICATION			CHECKED	
DO NOT SCALE DRAWING			ISSUED	
CAD SEED FILE NO.			SIZE FSCM NO. DWG NO.	
PLOT DATE: Wed Dec 09, 1998			D SH-000541-00	
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C 1 SH-000541-00 DWG NO.

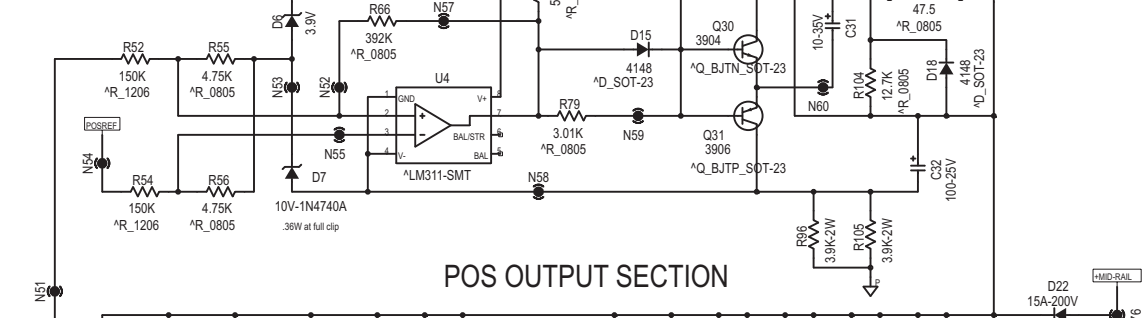
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### INPUT AND FILTER SECTION, CH A

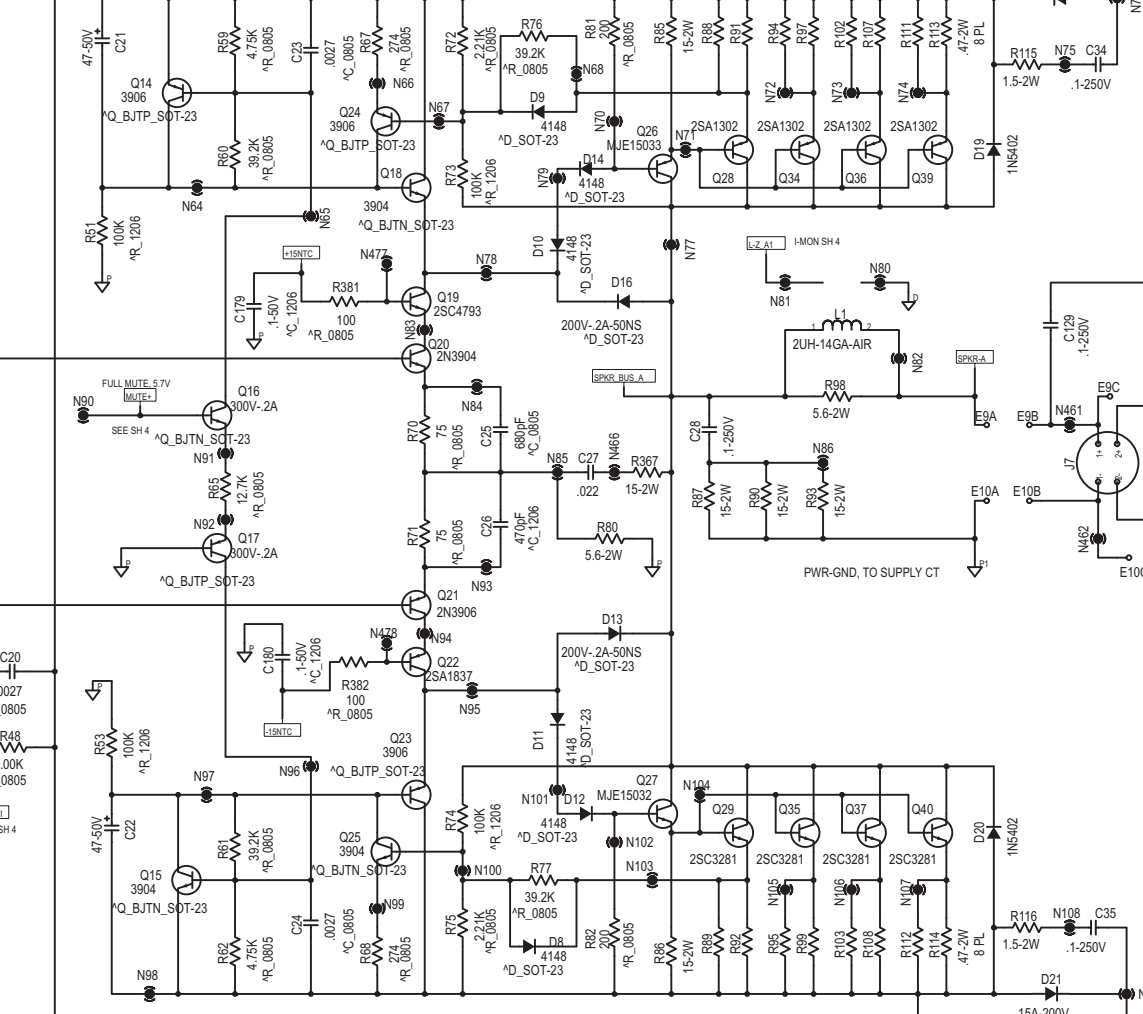
- DIP SWITCH TABLE, 10-POS  
 1- CLIP LIM CHA  
 2- LF FLT CHA  
 3- 30 HZ LF CHA  
 4- PAR INPUT LED  
 5- PAR INPUTS +  
 6- PAR INPUTS -  
 7- BR MONO  
 8- 30 HZ LF CHB  
 9- LF FLT CHB  
 10- CLIP LIM CHB



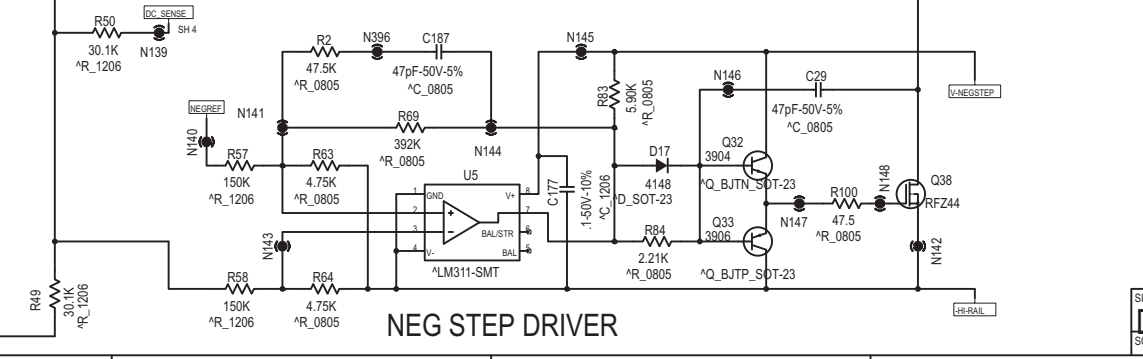
### POS STEP DRIVER



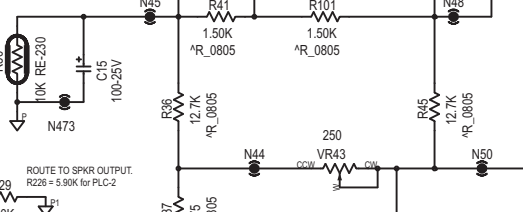
### POS OUTPUT SECTION



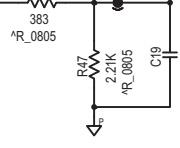
### NEG OUTPUT SECTION



### THERMAL AND BIAS SENSING



### CLIP-LIMIT PROCESSOR

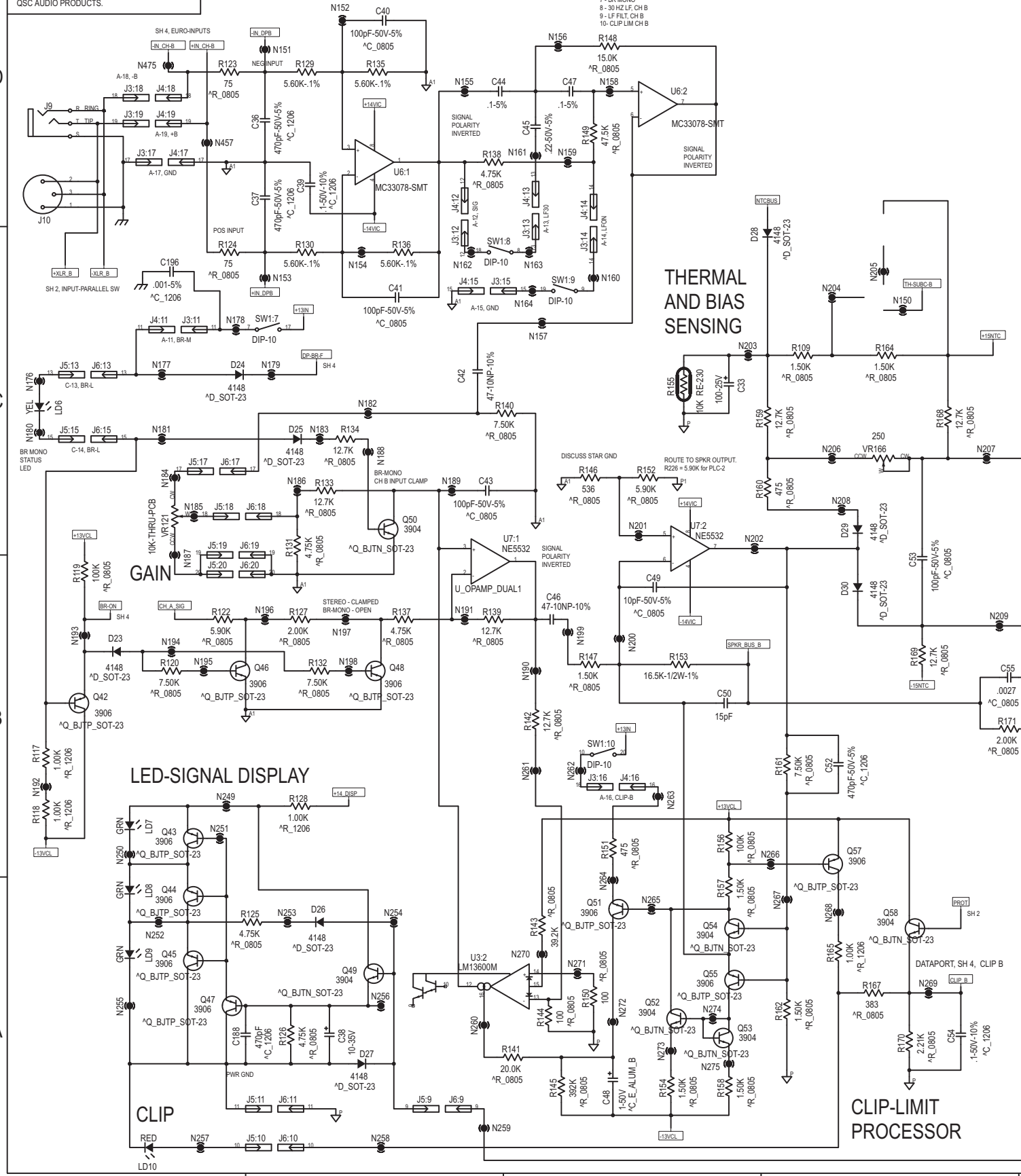


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SCALE	CAD FILE NO.	SHEET	2 OF 5
NONE	plx3002.sch		

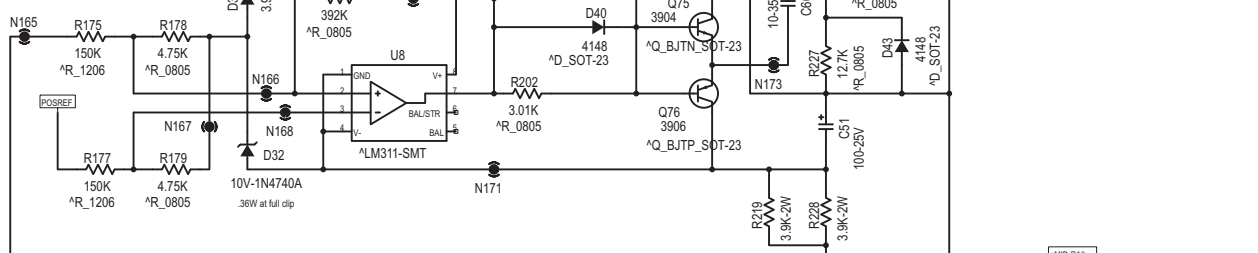
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### INPUT AND FILTER SECTION, CH B

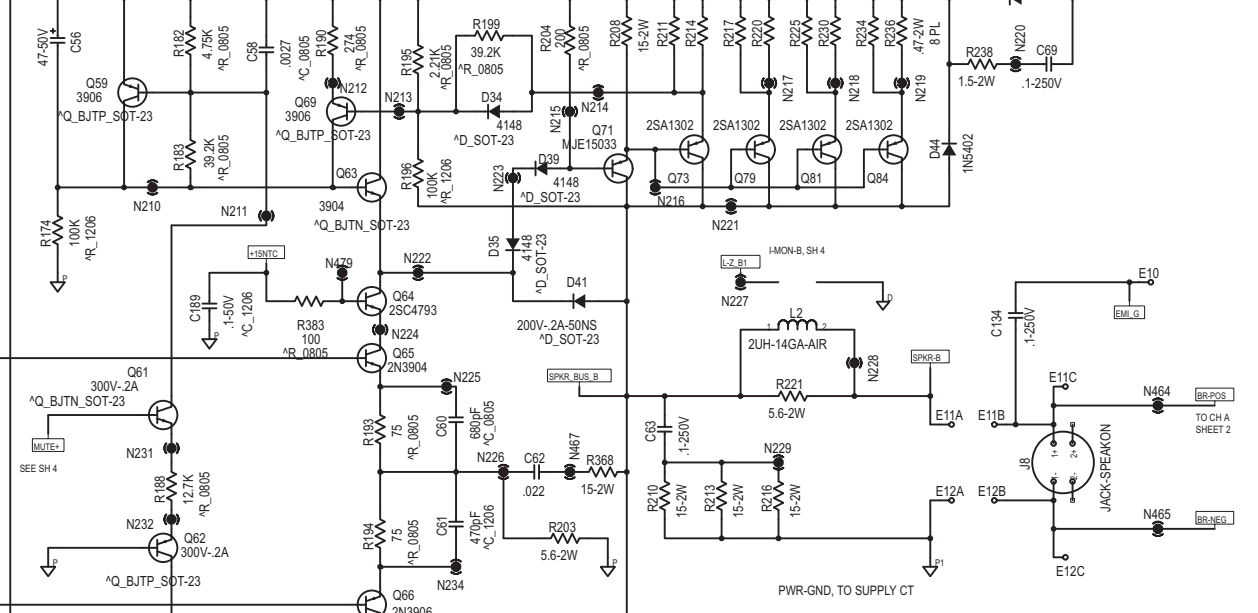
- DIP SWITCH TABLE, 10-POS  
 1 - CLIP LIM. CH A  
 2 - LF FLT. CH A  
 3 - 30 HZ LF. CH A  
 4 - PAR INPUT LED  
 5 - PAR INPUTS +  
 6 - PAR INPUTS -  
 7 - BR MONO  
 8 - 30 HZ LF. CH B  
 9 - LF FLT. CH B  
 10 - CLIP LIM CH B



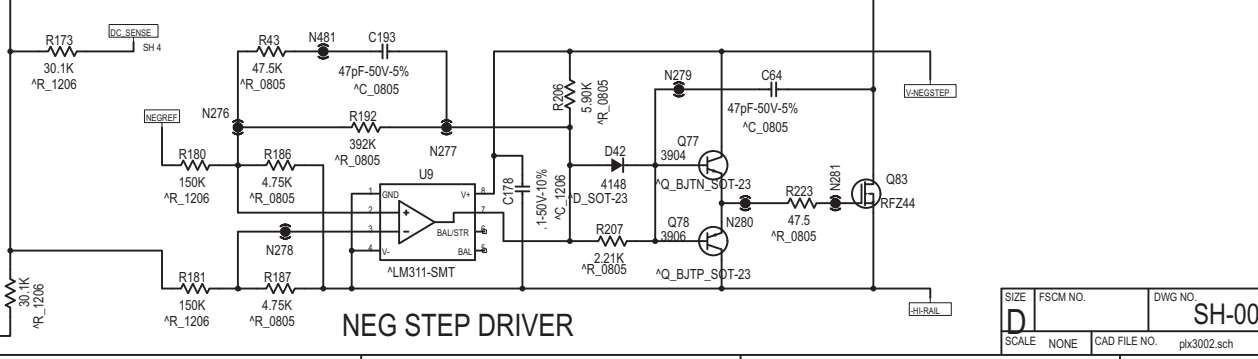
### POS STEP DRIVER



### POS OUTPUT SECTION



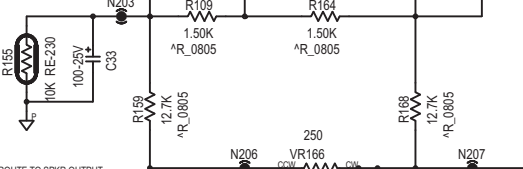
### NEG OUTPUT SECTION



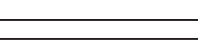
### NEG STEP DRIVER



### THERMAL AND BIAS SENSING

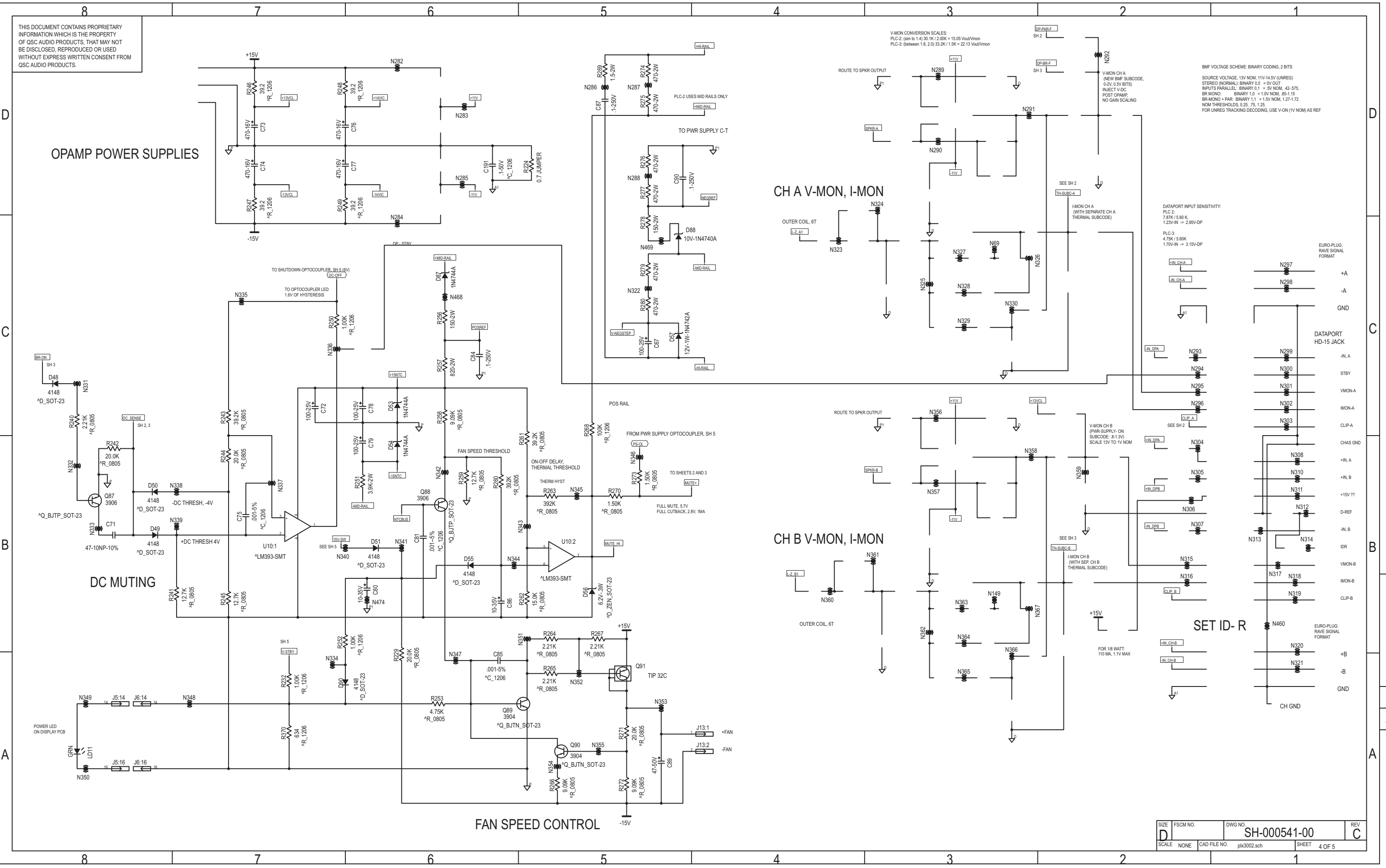


### CLIP-LIMIT PROCESSOR



SIZE	FSCM NO.	DWG NO.	REV
D		SH-000541-00	C
SCALE	NONE	CAD FILE NO.	pk3002.sch
		SHEET	3 OF 5

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BMF VOLTAGE SCHEME: BINARY CODING, 2 BITS  
SOURCE VOLTAGE, 13V NOM, 11V-14.5V (UNREG)  
STEREO (NORMAL): BINARY 0.0 = 0V OUT  
IN/PTS PARALLEL: BINARY 0.1 = 5V NOM, 42-575,  
BR MONO: BINARY 1.0 = 1.0V NOM, 85-115  
BR MONO + PAR: BINARY 1.1 = 1.5V NOM, 1.27-1.72  
NOM THRESHOLDS 0.28, 75, 1.25  
FOR UNREG TRACKING DECODING, USE V-ON (1V NOM) AS REF

DATAPORT INPUT SENSITIVITY:  
PLC-2:  
7.87K / 5.60 K,  
1.23V-IN -> 2.95V-DP  
PLC-3:  
4.75K / 5.60K  
1.70V-IN -> 3.15V-DP

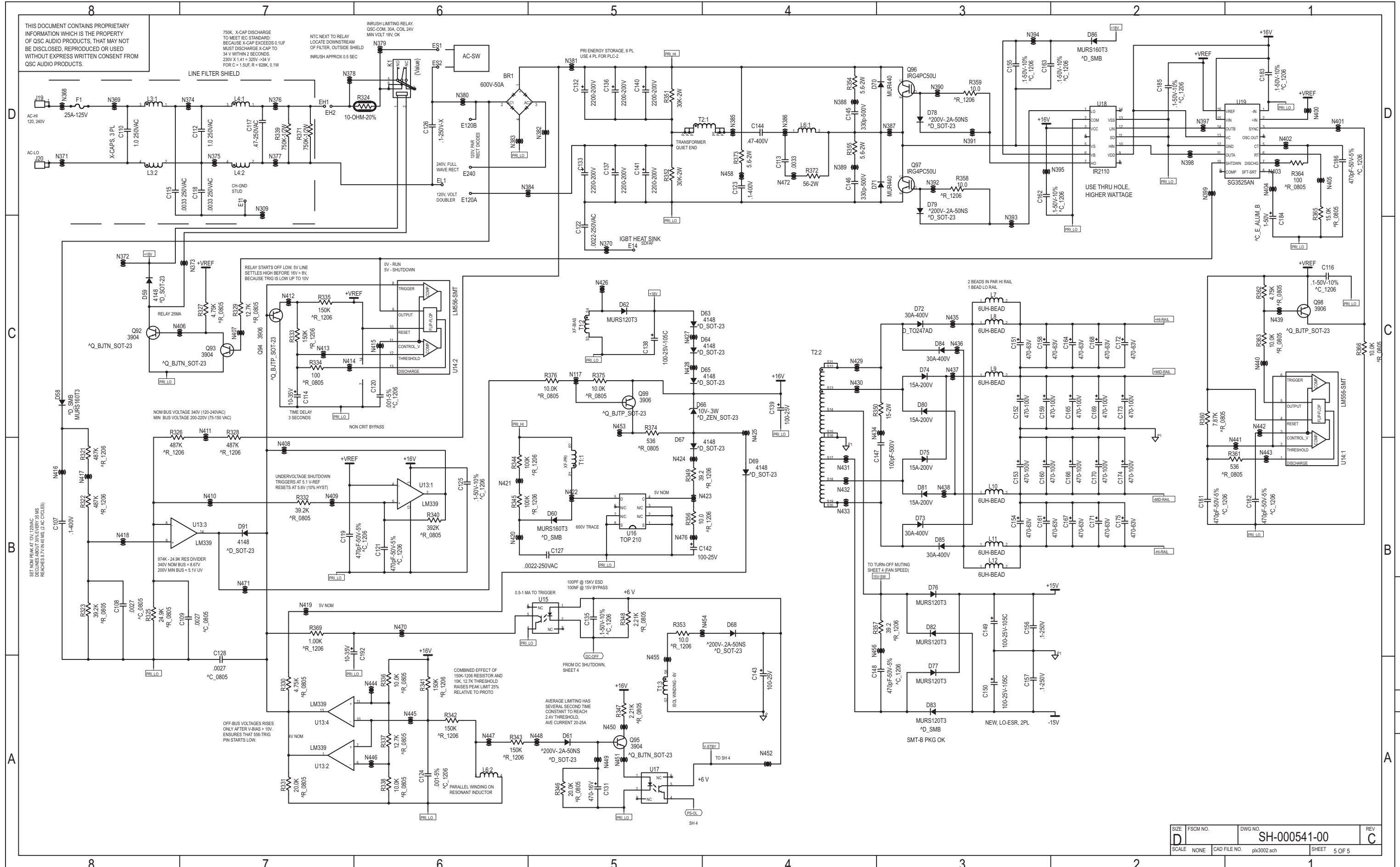
EURO-PLUG:  
RAVE SIGNAL  
FORMAT  
+A  
-A  
GND

DATAPORT  
HD-15 JACK  
+IN\_A  
-IN\_A  
STBY  
VMON-A  
IMON-A  
CLIP-A  
CHAS GND  
+IN\_B  
-IN\_B  
+15V ??  
D-REF  
-IN\_B  
IDR  
VMON-B  
IMON-B  
CLIP-B  
+B  
-B  
GND  
CH GND

EURO-PLUG:  
RAVE SIGNAL  
FORMAT  
+B  
-B  
GND  
CH GND

SIZE	FSCM NO.	DWG NO.	REV
D		SH-000541-00	C
SCALE	NONE	CAD FILE NO.	plk3002.sch
		SHEET	4 OF 5

C:REV 4 SH-000541-00 DWG NO.



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LINE FILTER SHIELD

750K X-CAP DISCHARGE TO MEET IEC STANDARD. BECAUSE X-CAP EXCEEDS 0.1UF MUST DISCHARGE X-CAP TO 34 V WITHIN 2 SECONDS. 230V X 1.41 = 325V >34 V FOR C = 1.5UF, R < 629K 0.1W

INRUSH LIMITING RELAY. QSC-COM. 30A. COIL 24V MIN VOLT 15V, OK

NTC NEXT TO RELAY LOCATE DOWNSTREAM OF FILTER, OUTSIDE SHIELD INRUSH APPROX 0.5 SEC

PRN ENERGY STORAGE, 6 PL USE 4 PL FOR PLC-2

IGBT HEAT SINK

USE THRU HOLE, HIGHER WATTAGE

SET NOM BEAT 4% (0.1/250VAC) DECREASES ABOUT 0.3% EVERY 18 MS REACHES 8.7V IN 40 MS (2 AC CYCLES)

NOM BUS VOLTAGE 340V (120-240VAC) MIN BUS VOLTAGE 200-220V (75-150 VAC)

UNDERVOLTAGE SHUTDOWN TRIGGERS AT 5.1V REF RESETS AT 5.6V (10% HYST)

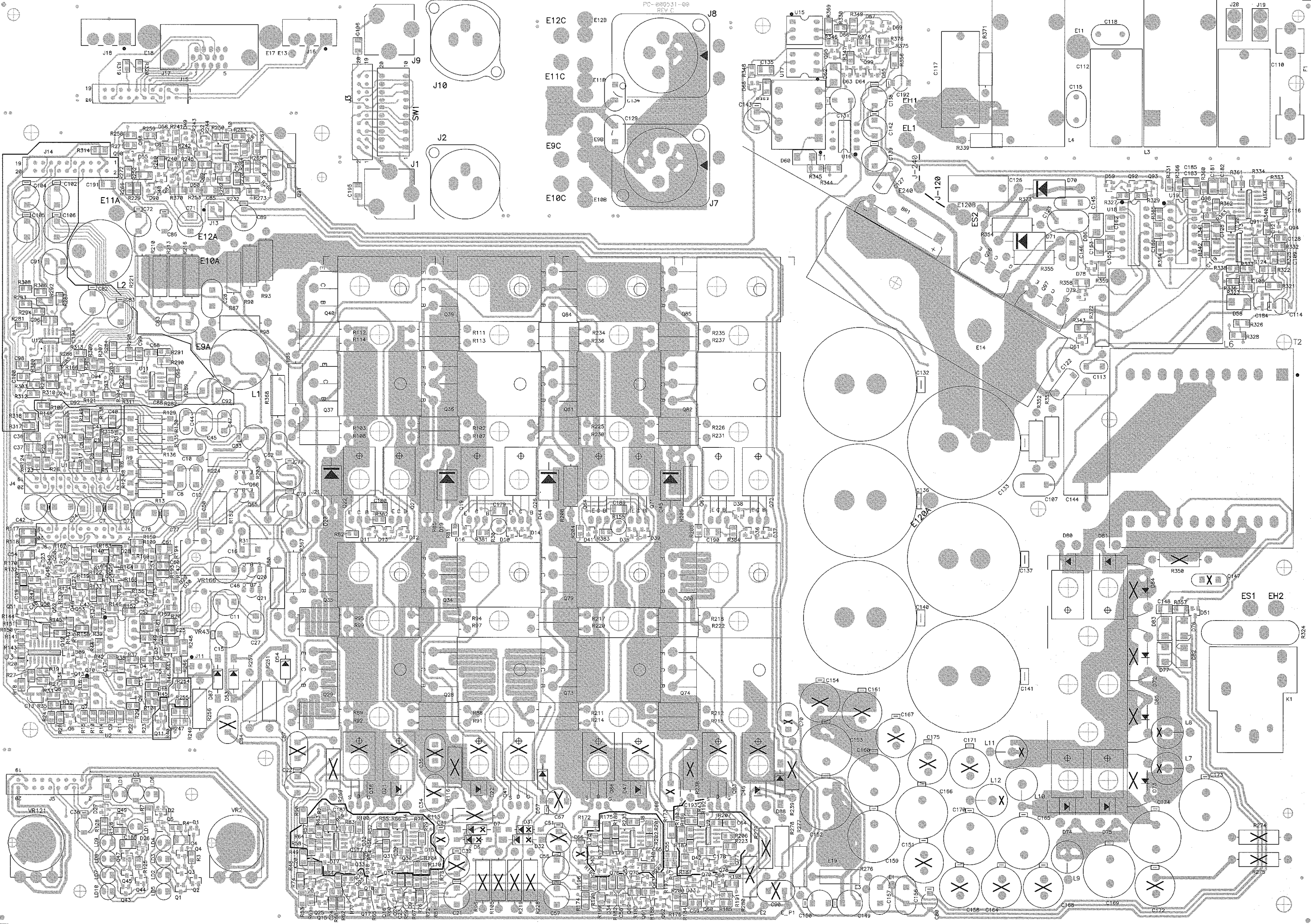
OFF-BUS VOLTAGES RISES ONLY AFTER VBIAS > 10V. ENSURES THAT 555 TRIG PIN STARTS LOW.

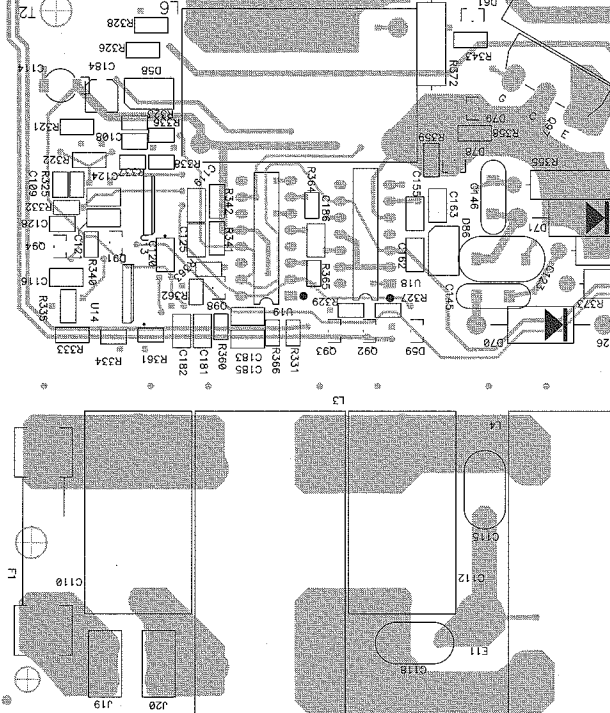
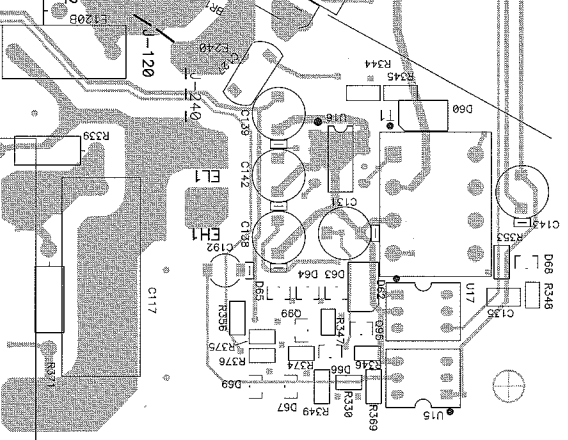
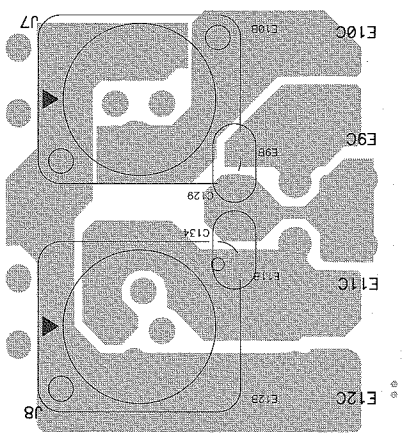
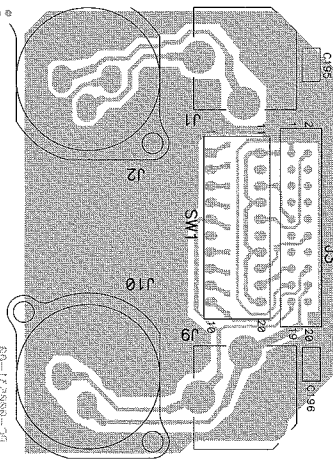
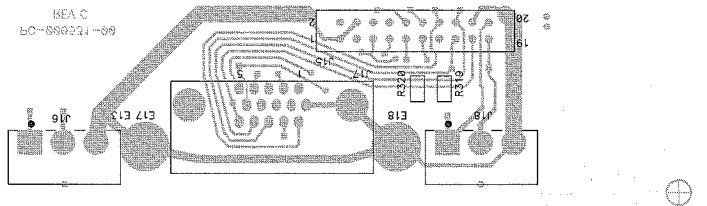
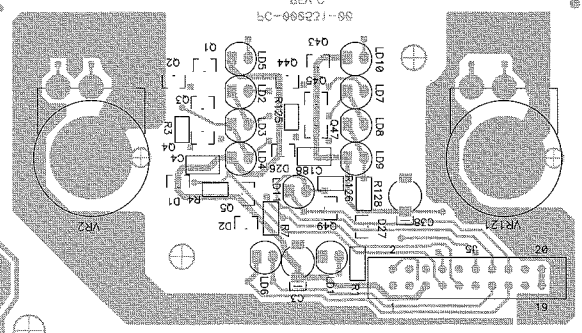
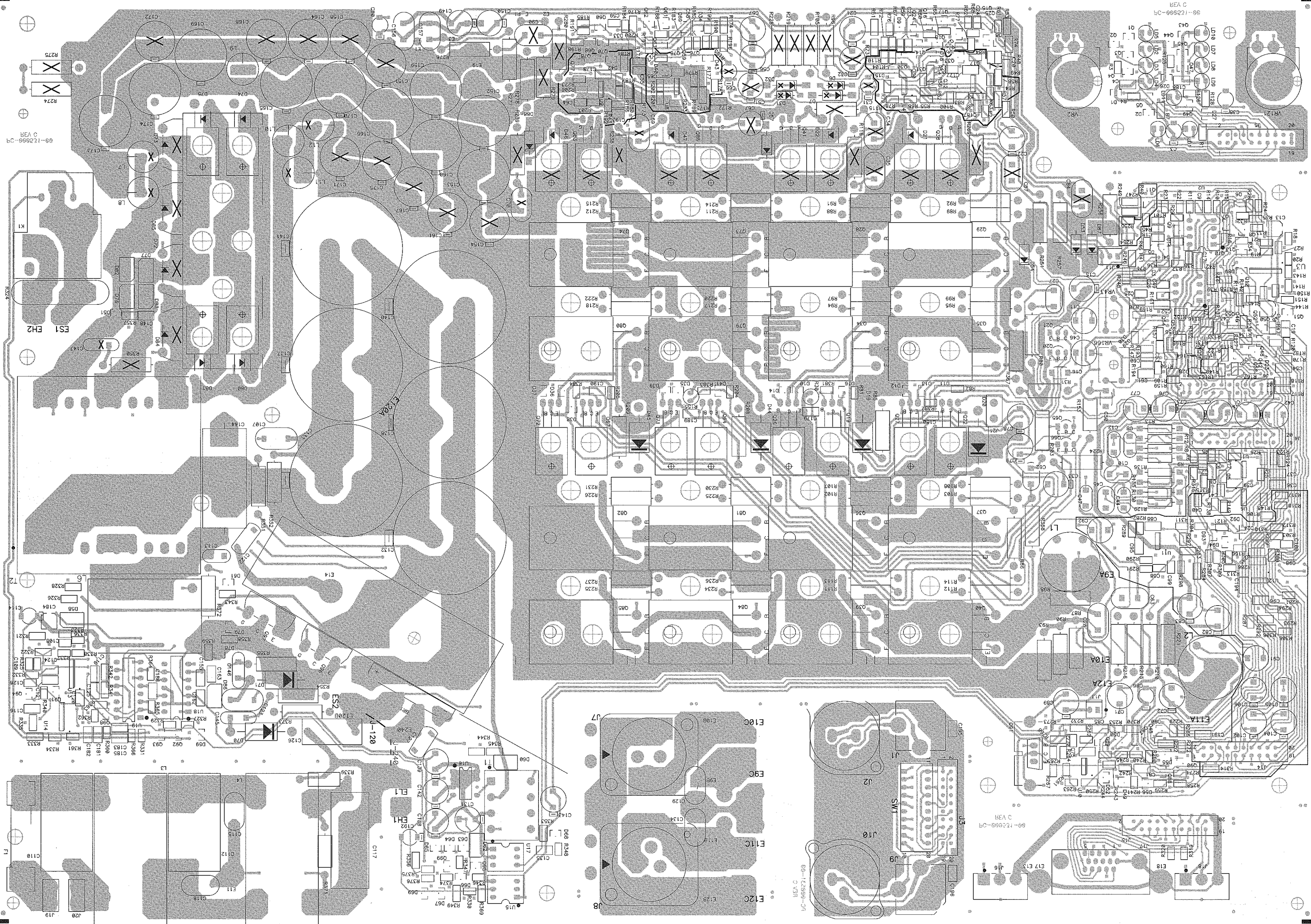
COMBINED EFFECT OF 150K-120K RESISTOR AND 15K 12.7K THRESHOLD RAISES PEAK LIMIT 25% RELATIVE TO PROTO

AVERAGE LIMITING HAS SEVERAL SECOND TIME CONSTANT TO REACH 2.4V THRESHOLD. AVE CURRENT 20-25A

SIZE	FSCM NO.	DWG NO.	REV
D		SH-000541-00	C
SCALE	NONE	CAD FILE NO. plx3002.sch	SHEET 5 OF 5









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