

# Service

# Service

# Service

**SK6.0A**  
CA



H\_17230\_000.eps  
290607

# Service Manual

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**PHILIPS**

# 1. Technical Specifications, Connections, and Chassis Overview

## Index of this chapter:

- 1.1 Technical Specifications
- 1.2 Connection Overview
- 1.3 Chassis Overview

**Note:** Data below can deviate slightly from the actual situation, due to the different set executions.

## 1.1 Technical Specifications

### 1.1.1 Vision

Display type	:	CRT
Screen size	:	29" (72 cm), 4:3
Tuning system	:	VST/PLL
TV Colour systems	:	PAL D/K and I
Video playback	:	NTSC M/N 3.58, 4.43
	:	PAL 50
Presets/channels	:	256 channels
Tuner bands	:	VHF UHF

### 1.1.2 Sound

Sound systems	:	FM-stereo
Maximum power ( $W_{RMS}$ )	:	2 x 6

### 1.1.3 Miscellaneous

Power supply:		
- Mains voltage ( $V_{AC}$ )	:	160 - 260
- Mains frequency (Hz)	:	50 / 60
Ambient conditions:		
- Temperature range ( $^{\circ}C$ )	:	-5 to +45
- Maximum humidity	:	90% R.H.
Power consumption		
- Normal operation (W)	:	$\approx 150$
- Stand-by (W)	:	< 3

## 1.2 Connection Overview

**Note:** The following connector colour abbreviations are used (acc. to DIN/IEC 757): Bk= Black, Bu= Blue, Gn= Green, Gy= Grey, Rd= Red, Wh= White, and Ye= Yellow.

### 1.2.1 Side Connections

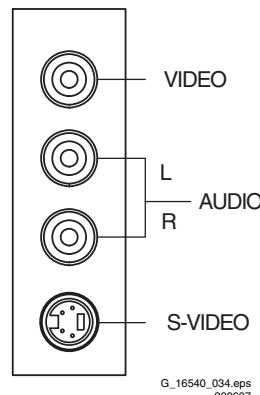


Figure 1-1 Side I/O connections

#### Cinch: Video CVBS - In, Audio - In

Ye - Video CVBS	1 V <sub>PP</sub> / 75 ohm	
Wh - Audio L	0.5 V <sub>RMS</sub> / 10 kohm	
Rd - Audio R	0.5 V <sub>RMS</sub> / 10 kohm	

#### S-Video (Hosiden): Video Y/C - In

1 - Ground Y	Gnd	
2 - Ground C	Gnd	
3 - Video Y	1 V <sub>PP</sub> / 75 ohm	
4 - Video C	0.3 V <sub>PP</sub> / 75 ohm	

### 1.2.2 Rear Connections

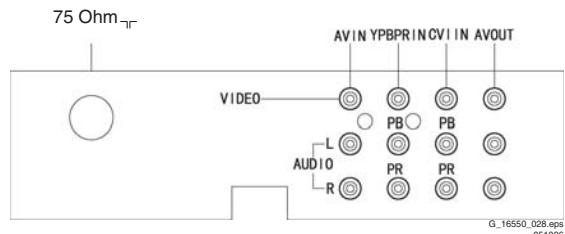


Figure 1-2 Rear connections

#### Aerial - In

- - IEC-type (EU)	Coax, 75 ohm	
-------------------	--------------	--

#### Cinch: Video CVBS - In, Audio - In

Ye - Video CVBS	1 V <sub>PP</sub> / 75 ohm	
Wh - Audio L	0.5 V <sub>RMS</sub> / 10 kohm	
Rd - Audio R	0.5 V <sub>RMS</sub> / 10 kohm	

#### Cinch: Video YPbPr - In

Gn - Video Y	1 V <sub>PP</sub> / 75 ohm	
Bu - Video Pb	0.7 V <sub>PP</sub> / 75 ohm	
Rd - Video Pr	0.7 V <sub>PP</sub> / 75 ohm	

#### Cinch: Video CVBS - Out, Audio - Out

Ye - Video CVBS	1 V <sub>PP</sub> / 75 ohm	
Wh - Audio L	0.5 V <sub>RMS</sub> / 10 kohm	
Rd - Audio R	0.5 V <sub>RMS</sub> / 10 kohm	

### 1.3 Chassis Overview

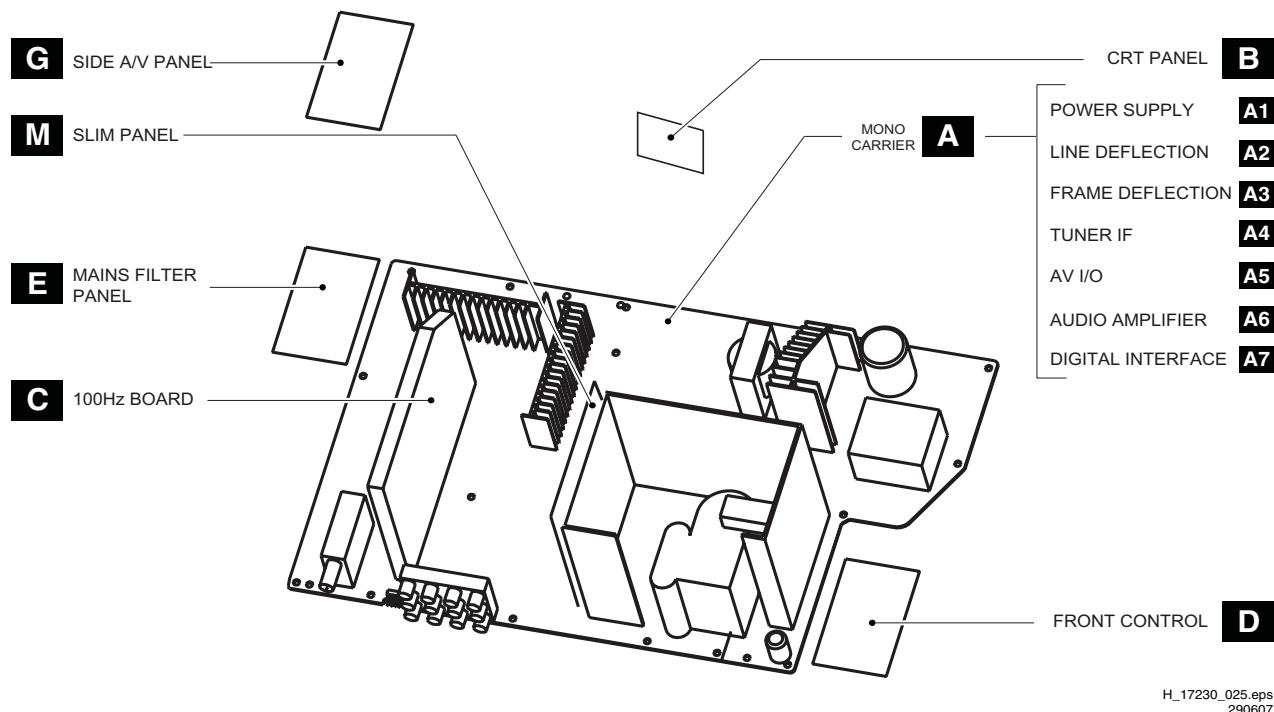


Figure 1-3 PWB location

## 2. Safety Instructions, Warnings, and Notes

### Index of this chapter:

- 2.1 Safety Instructions
- 2.2 Maintenance Instructions
- 2.3 Warnings
- 2.4 Notes

### 2.1 Safety Instructions

Safety regulations require the following **during** a repair:

- Connect the set to the Mains/AC Power via an isolation transformer (> 800 VA).
- Replace safety components, indicated by the symbol **▲**, only by components identical to the original ones. Any other component substitution (other than original type) may increase risk of fire or electrical shock hazard.
- Wear safety goggles when you replace the CRT.

Safety regulations require that **after** a repair, the set must be returned in its original condition. Pay in particular attention to the following points:

- General repair instruction: as a strict precaution, we advise you to re-solder the solder connections through which the horizontal deflection current flows. In particular this is valid for the:
  1. Pins of the line output transformer (LOT).
  2. Fly-back capacitor(s).
  3. S-correction capacitor(s).
  4. Line output transistor.
  5. Pins of the connector with wires to the deflection coil.
  6. Other components through which the deflection current flows.

**Note:** This re-soldering is advised to prevent bad connections due to metal fatigue in solder connections, and is therefore only necessary for television sets more than two years old.

- Route the wire trees and EHT cable correctly and secure them with the mounted cable clamps.
- Check the insulation of the Mains/AC Power lead for external damage.
- Check the strain relief of the Mains/AC Power cord for proper function, to prevent the cord from touching the CRT, hot components, or heat sinks.
- Check the electrical DC resistance between the Mains/AC Power plug and the secondary side (only for sets that have a Mains/AC Power isolated power supply):
  1. Unplug the Mains/AC Power cord and connect a wire between the two pins of the Mains/AC Power plug.
  2. Set the Mains/AC Power switch to the "on" position (keep the Mains/AC Power cord unplugged!).
  3. Measure the resistance value between the pins of the Mains/AC Power plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be between 4.5 Mohm and 12 Mohm.
  4. Switch "off" the set, and remove the wire between the two pins of the Mains/AC Power plug.
- Check the cabinet for defects, to prevent touching of any inner parts by the customer.

### 2.2 Maintenance Instructions

We recommend a maintenance inspection carried out by qualified service personnel. The interval depends on the usage conditions:

- When a customer uses the set under normal circumstances, for example in a living room, the recommended interval is three to five years.
- When a customer uses the set in an environment with higher dust, grease, or moisture levels, for example in a kitchen, the recommended interval is one year.
- The maintenance inspection includes the following actions:

1. Perform the "general repair instruction" noted above.
2. Clean the power supply and deflection circuitry on the chassis.
3. Clean the picture tube panel and the neck of the picture tube.

### 2.3 Warnings

- In order to prevent damage to ICs and transistors, avoid all high voltage flashovers. In order to prevent damage to the picture tube, use the method shown in figure "Discharge picture tube", to discharge the picture tube. Use a high voltage probe and a multi-meter (position  $V_{DC}$ ). Discharge until the meter reading is 0 V (after approx. 30 s).

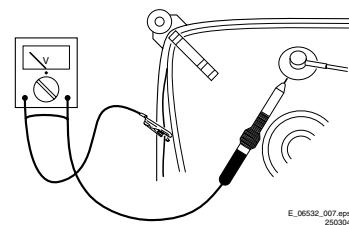


Figure 2-1 Discharge picture tube

- All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD **▲**). Careless handling during repair can reduce life drastically. Make sure that, during repair, you are connected with the same potential as the mass of the set by a wristband with resistance. Keep components and tools also at this same potential.
- Be careful during measurements in the high voltage section.
- Never replace modules or other components while the unit is switched "on".
- When you align the set, use plastic rather than metal tools. This will prevent any short circuits and prevents circuits from becoming unstable.

### 2.4 Notes

#### 2.4.1 General

- Measure the voltages and waveforms with regard to the chassis (= tuner) ground ( $\perp$ ), or hot ground ( $\downarrow$ ), depending on the tested area of circuitry. The voltages and waveforms shown in the diagrams are indicative. Measure them in the Service Default Mode (see chapter 5) with a colour bar signal and stereo sound (L: 3 kHz, R: 1 kHz unless stated otherwise) and picture carrier at 475.25 MHz for PAL, or 61.25 MHz for NTSC (channel 3).
- Where necessary, measure the waveforms and voltages with ( $\overline{\square}$ ) and without ( $\overline{\square}$ ) aerial signal. Measure the voltages in the power supply section both in normal operation (①) and in stand-by (②). These values are indicated by means of the appropriate symbols.
- The semiconductors indicated in the circuit diagram and in the parts lists, are interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.
- Manufactured under license from Dolby Laboratories. "Dolby", "Pro Logic" and the "double-D symbol", are trademarks of Dolby Laboratories.

#### 2.4.2 Schematic Notes

- All resistor values are in ohms, and the value multiplier is often used to indicate the decimal point location (e.g. 2K2 indicates 2.2 kohm).
- Resistor values with no multiplier may be indicated with either an "E" or an "R" (e.g. 220E or 220R indicates 220 ohm).
- All capacitor values are given in micro-farads ( $\mu = x 10^{-6}$ ), nano-farads ( $n = x 10^{-9}$ ), or pico-farads ( $p = x 10^{-12}$ ).
- Capacitor values may also use the value multiplier as the decimal point indication (e.g. 2p2 indicates 2.2 pF).
- An "asterisk" (\*) indicates component usage varies. Refer to the diversity tables for the correct values.
- The correct component values are listed in the Spare Parts List. Therefore, always check this list when there is any doubt.

#### 2.4.3 Lead-free Soldering

Due to lead-free technology some rules have to be respected by the workshop during a repair:

- Use only lead-free soldering tin Philips SAC305 with order code 0622 149 00106. If lead-free solder paste is required, please contact the manufacturer of your soldering equipment. In general, use of solder paste within workshops should be avoided because paste is not easy to store and to handle.
- Use only adequate solder tools applicable for lead-free soldering tin. The solder tool must be able:
  - To reach a solder-tip temperature of at least 400°C.
  - To stabilize the adjusted temperature at the solder-tip.
  - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature of around 360°C - 380°C is reached and stabilized at the solder joint. Heating time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400°C, otherwise wear-out of tips will increase drastically and flux-fluid will be destroyed. To avoid wear-out of tips, switch "off" unused equipment or reduce heat.
- Mix of lead-free soldering tin/parts with leaded soldering tin/parts is possible but PHILIPS recommends strongly **to avoid** mixed regimes. If this cannot be avoided, carefully clear the solder-joint from old tin and re-solder with new tin.

#### 2.4.4 Alternative BOM identification

In September 2003, Philips CE introduced a change in the way the serial number (or production number, see Figure 2-2) is composed. From this date on, the **third digit** in the serial number (example: AG2B033500001) indicates the number of the alternative BOM (Bill of Materials used for producing the specific model of TV set). It is possible that the same TV model on the market is produced with e.g. two different types of displays, coming from two different O.E.M.s.

By looking at the third digit of the serial number, the service technician can see if there is more than one type of B.O.M. used in the production of the TV set he is working with. He can then consult the At Your Service Web site, where he can type in the Commercial Type Version Number of the TV set (e.g. 28PW9515/12), after which a screen will appear that gives information about the number of alternative B.O.M.s used. If the third digit of the serial number contains the number 1 (example: AG1B033500001), then there is only one B.O.M. version of the TV set on the market. If the third digit is a 2 (example: AG2B033500001), then there are two different B.O.M.s. Information about this is important for ordering the correct spare parts!

For the third digit, the numbers 1...9 and the characters A...Z can be used, so in total: 9 plus 26 = 35 different B.O.M.s can be indicated by the third digit of the serial number.

#### 2.4.5 Practical Service Precautions

- **It makes sense to avoid exposure to electrical shock.** While some sources are expected to have a possible dangerous impact, others of quite high potential are of limited current and are sometimes held in less regard.
- **Always respect voltages.** While some may not be dangerous in themselves, they can cause unexpected reactions that are best avoided. Before reaching into a powered TV set, it is best to test the high voltage insulation. It is easy to do, and is a good service precaution.

### 3. Directions for Use

You can download this information from the following websites:

<http://www.philips.com/support>

<http://www.p4c.philips.com>

## 4. Mechanical Instructions

### Index of this chapter:

- 4.1 Set Disassembly
- 4.2 Assembly / Board Removal
- 4.3 Set Re-assembly

**Note:** Figures below can deviate slightly from the actual situation, due to the different set executions.

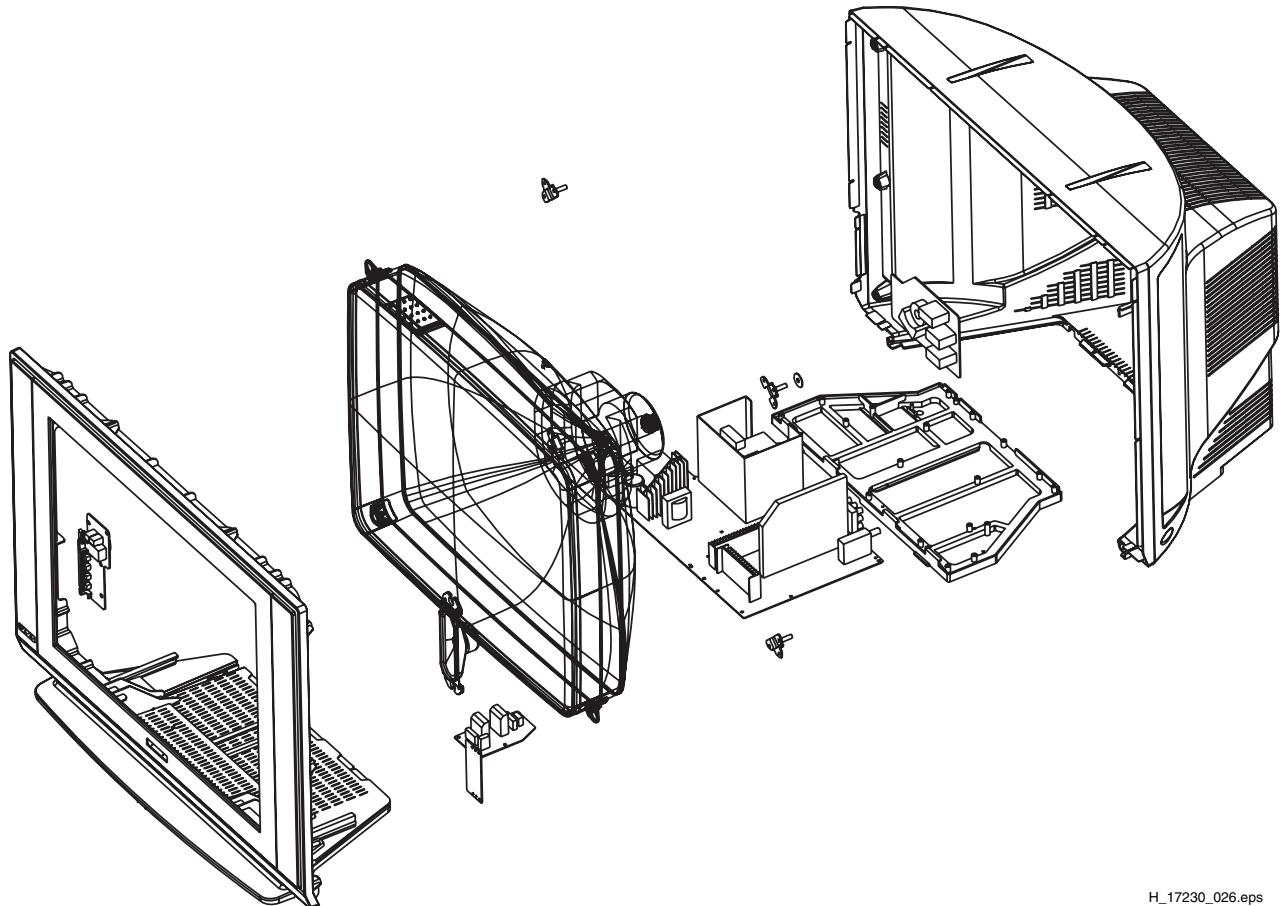
### 4.1.1 Rear Cover Removal

**Warning:** disconnect the mains power cord before you remove the rear cover.

1. Remove all the fixation screws of the rear cover.
2. Now, pull the rear cover backwards and remove it.

#### 4.1 Set Disassembly

Follow the disassemble instructions in described order.



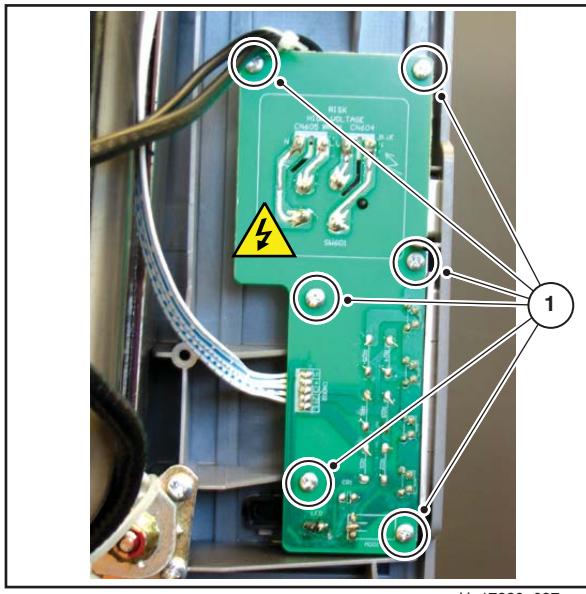
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Figure 4-1 Rear Cover removal

## 4.2 Assembly / Board Removal

### 4.2.1 Power Switch and Control Panel removal

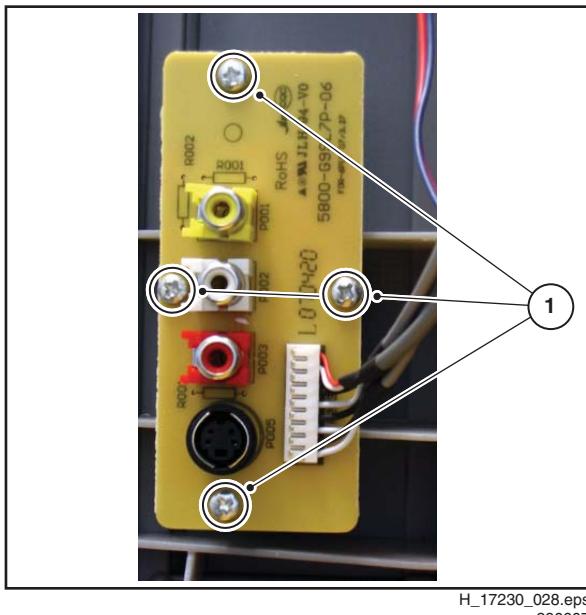
- From the mono carrier disconnect the main power and the keyboard circuit cables. Release the main power cord and the keyboard circuit cable from its strain reliefs.
- Then, remove the six fixation screws [1] of the power switch and control panel and remove the board.



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**Figure 4-2 Power Switch and Control Panel removal**

### 4.2.2 Side I/O Panel removal



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**Figure 4-3 Side-I/O panel removal**

- Disconnect the side panel cable from the mono carrier and remove the cable from its strain reliefs.
- Then, remove the four fixation screws [1] and remove the board.

## 4.3 Set Re-assembly

To re-assemble the whole set, do all processes in reverse order.

Be sure that, before the rear cover is mounted:

- The mains cord is positioned correctly in its guiding brackets (make sure that the strain reliefs are replaced in its correct position and that it will function correctly!).
- All wires/cables are returned in their original positions.

## 5. Service Modes, Error Codes, and Fault Finding

### Index of this chapter:

- 5.2 Test Points
- 5.3 Service Modes
- 5.4 Error Codes
- 5.5 Fault Finding

### 5.1 Service Tools

#### 5.1.1 ComPair

##### **Introduction**

ComPair features TV software upgrade possibilities.

##### **Specifications**

ComPair consists of a Windows based program and an interface box between PC and the product. The (new) ComPair II interface box is connected to the PC via an USB cable. For the TV chassis, the ComPair interface box and the TV communicate via a bi-directional cable via the service connector(s).

##### **How to Connect**

This is described in the chassis fault finding database in ComPair.

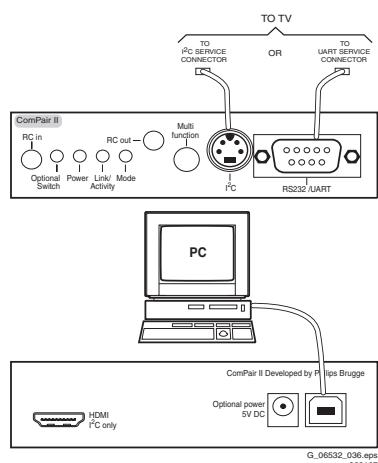


Figure 5-1 ComPair II interface connection

**Caution:** It is compulsory to connect the TV to the PC as shown in the picture above (with the ComPair interface in between), as the ComPair interface acts as a level shifter. If one connects the TV directly to the PC (via UART), ICs will be blown!

##### **How to Order**

ComPair II order codes:

- ComPair II interface: 3122 785 91020.
- ComPair32 CD (update): 3122 785 60160.
- ComPair interface cable: 3122 785 90004.
- ComPair interface extension cable: 3139 131 03791.
- ComPair UART interface cable: 3122 785 90630.
- ComPair UART interface cable for Q52x.x (using 3.5 mm Mini Jack connector): 3104 311 12742.

**Note:** If you encounter any problems, contact your local support desk

### 5.2 Test Points

See chapter 6 "Block Diagrams, Testpoint Overviews, and Waveforms".

Perform measurements under the following conditions:

- Service Default Mode.
- Video: colour bar signal.
- Audio: 3 kHz left, 1 kHz right.

### 5.3 Service Modes

This chassis does not contain a specific Service Mode. Service and Alignment of the TV set can be done via the Factory Mode by the service technician, see further down in this manual.

### 5.4 Error Codes

Not applicable.

### 5.5 Fault Finding

#### 5.5.1 Big Snow Dots Visible on the Screen.

Analysis and repair action: according to the problem phenomena, first check:

- (1) Is the antenna signal normal?
- (2) Is the tuner and intermediate-frequency circuit power supply working normally?
- (3) Is the AGC circuit of tuner working normally?
- (4) Is there a problem with the I2C data stream?
- (5) Is there an electricity leak in the circuit layers?

#### 5.5.2 Picture becomes more green after the TV set has been on for more than one hour.

Analysis and repair action: according to the problem phenomena, check the following:

- (1) Is the antenna signal normal?
- (2) If you suspect that there is a heating problem in the channel circuit, or the circuits after the tuner (colour decoder), use a blower to reduce the temperature, and check if this has any effect.
- (3) Interrupt and reconnect the antenna signal to find out if the trouble is in the tuner or the AGC circuit.
- (4) Is there a problem with the I2C data stream?
- (5) Also check the horizontal deflection pulse.

#### 5.5.3 White Raster Only (no Picture Visible).

Analysis and repair action: if the antenna signal is normal: according to the problem phenomena, the trouble range can be divided into six parts: the CPU, the memory chips, the data transport of the I2C circuit, the horizontal and vertical deflection pulse circuit, the CRT power supply circuit, and finally the entire video amplification circuit (including the IF stage). If the CPU or memory have problems, this will also cause problems of I2C data. If the problem still cannot be eliminated, check the load of the I2C lines, namely, the other ICs that are connected to the I2C bus (they may also have a defect and cause a too heavy load on the I2C bus. Interrupt the I2C bus to reduce the load and check again if the CPU puts I2C data on the I2C bus. If the problem seems to be in the deflection circuits, it may also be caused by randomly interrupted antenna signals.

#### 5.5.4 The TV set turns ON and OFF randomly when you attempt to turn ON the TV set.

- The chassis power supply of the horizontal deflection part of the circuit has loose or bad (corroded) connections, resulting in irregular power supply.

- Check also if the power supply to the CPU is not interrupted randomly. If the supply voltage is not available or not normal, change Q602 and Q603.

#### 5.5.5 The TV set is turned ON (indicator light is ON) but no picture and sound is observed.

- Measure the collector voltage of Q303 for 140 V to eliminate the possibility that the horizontal deflection circuit is causing the problem. During normal operation, the collector voltage should be in the range of 110 V.
- Next, measure the horizontal pulse output voltage at Pin11 of the digital board output terminal. In normal operation, the voltage is in the range of 2.8 V<sub>AC</sub>. If this is the case, check if the horizontal output transistors Q301 and Q302 are switching normally between their ON and OFF states.

#### 5.5.6 The TV displays a blue screen when it is turned ON.

The TV set is equipped with a video noise-reduction circuit. Therefore, when no video and synchronization signal is detected, the CPU decodes it as "no signal detected". Check the antenna signal, the tuner and the IF amplifier circuit. Replace the Ultimate One Chip of the third generation (UOCIII) and the peripheral components of the IF circuit, if needed.

#### 5.5.7 Horizontal Deflection Transistor is Defect.

Analysis and repair action: if the deflection time is decreased too much, this may result in an over-voltage in the deflection circuit and a defective horizontal transistor. In this case, check C303, C304 and C317 for defects.

#### 5.5.8 In the picture appears a horizontal bright line.

- Check the vertical deflection loop for poor contact.
- Check the vertical IC power supply for +15 V and -15 V.
  - If no voltage is present, check R331 for open circuit.
  - If the voltage is low, change the vertical deflection IC.
  - If the problem still exists, change the surrounding components in the circuit (eg. C325, C326 etc.).

#### 5.5.9 Poor picture and sound quality.

- Check if the signal line contact is good.
- Next, use a conductor to touch the IF input of the tuner, if no effect is observed, the problem is suspected to be in the IF amplification circuit.
- Use a 0.01 uF capacitance to short the input and output terminals of SAW101 to isolate if the SAW filter is faulty. If the picture and sound condition does not improve, check the AGC circuitry, and replace resistors and capacitors when needed.

#### 5.5.10 The colour disappears after the TV is turned ON for a while.

- Check if the colour system is selected correctly.
- If you suspect the 24.576 MHz crystal, replace it.
- If there is no effect, then replace suspected components in the decoding and colour circuitry.

#### 5.5.11 Soft volume can still be heard, even when volume level is reduced to "0".

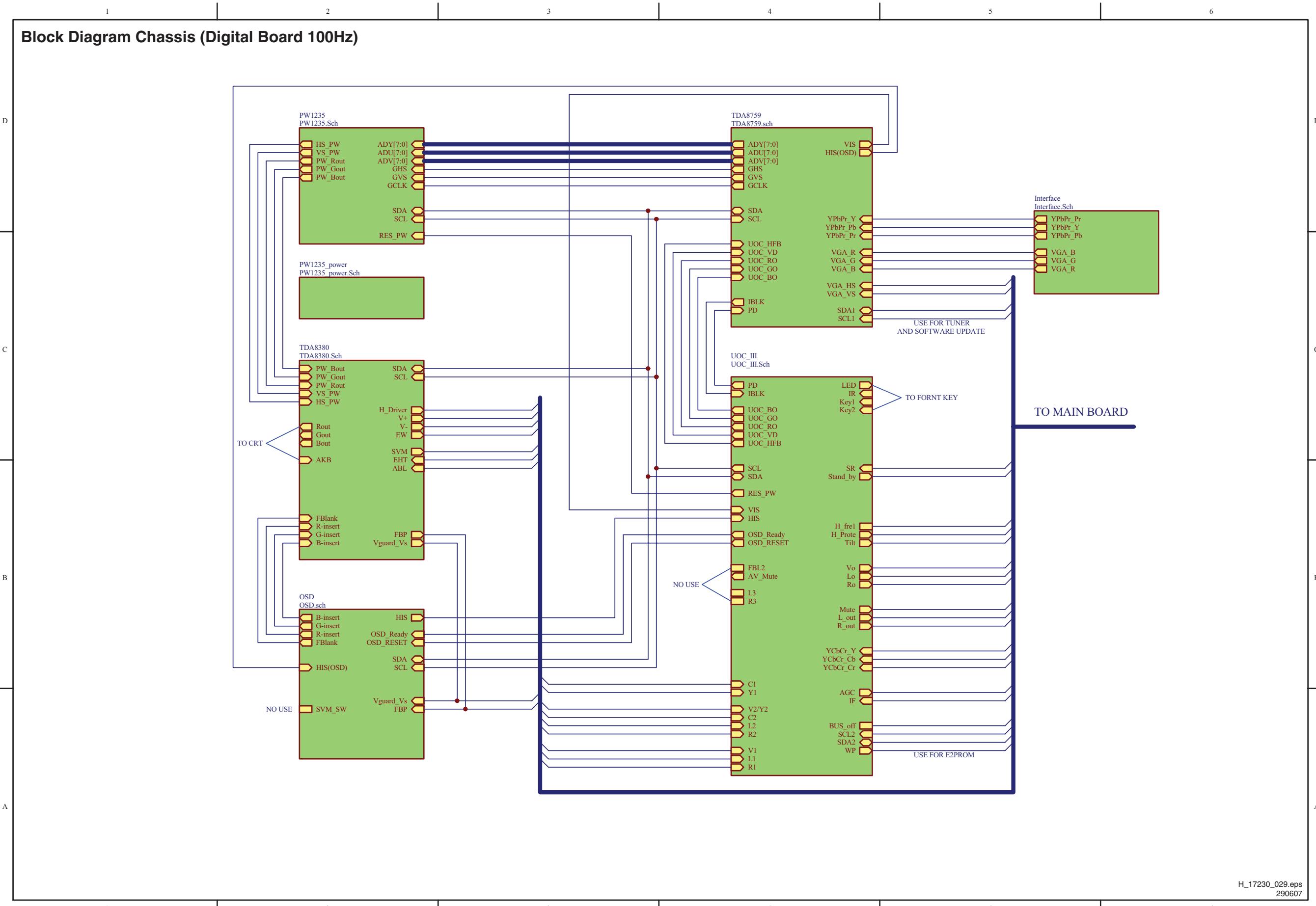
- Check if the peripheral networks connected to pin 122 (MUTE) and pin128 (AV MUTE) of UOCIII are well connected.
- Proceed to check the audio control and power amplifier module (IC401); check the surrounding components of IC401. For example check C407, if it is correctly connected and shows no leakage. Does Q401 switch normally between its saturation and cut-off states?.

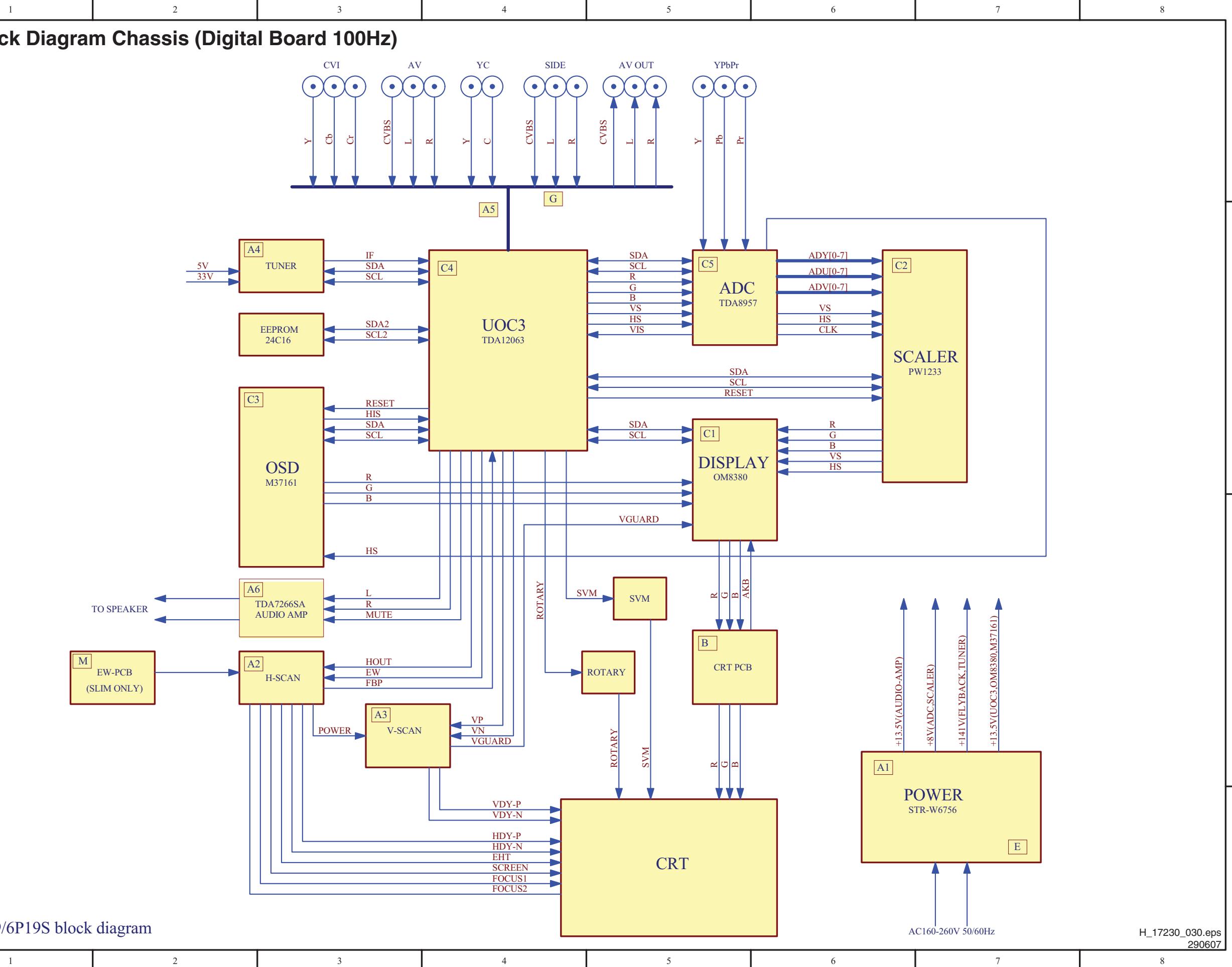
#### 5.5.12 No colour in AV state

- First, check the video input module.
- Second, check the A-D module.
- Next, check the video processor module.
- Finally, check if UOCIII has a defect.

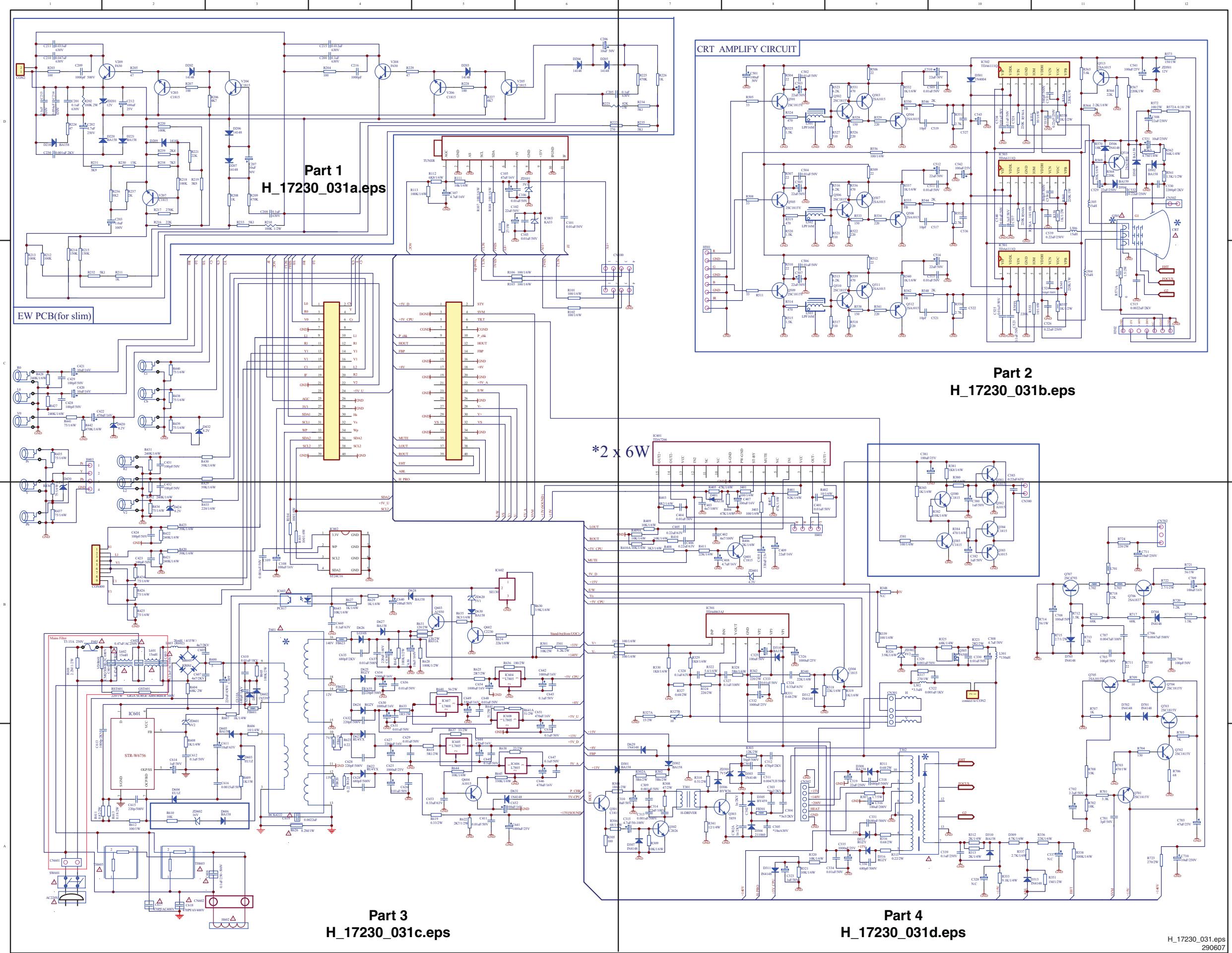
## 6. Block Diagrams, Test Point Overviews, and Waveforms

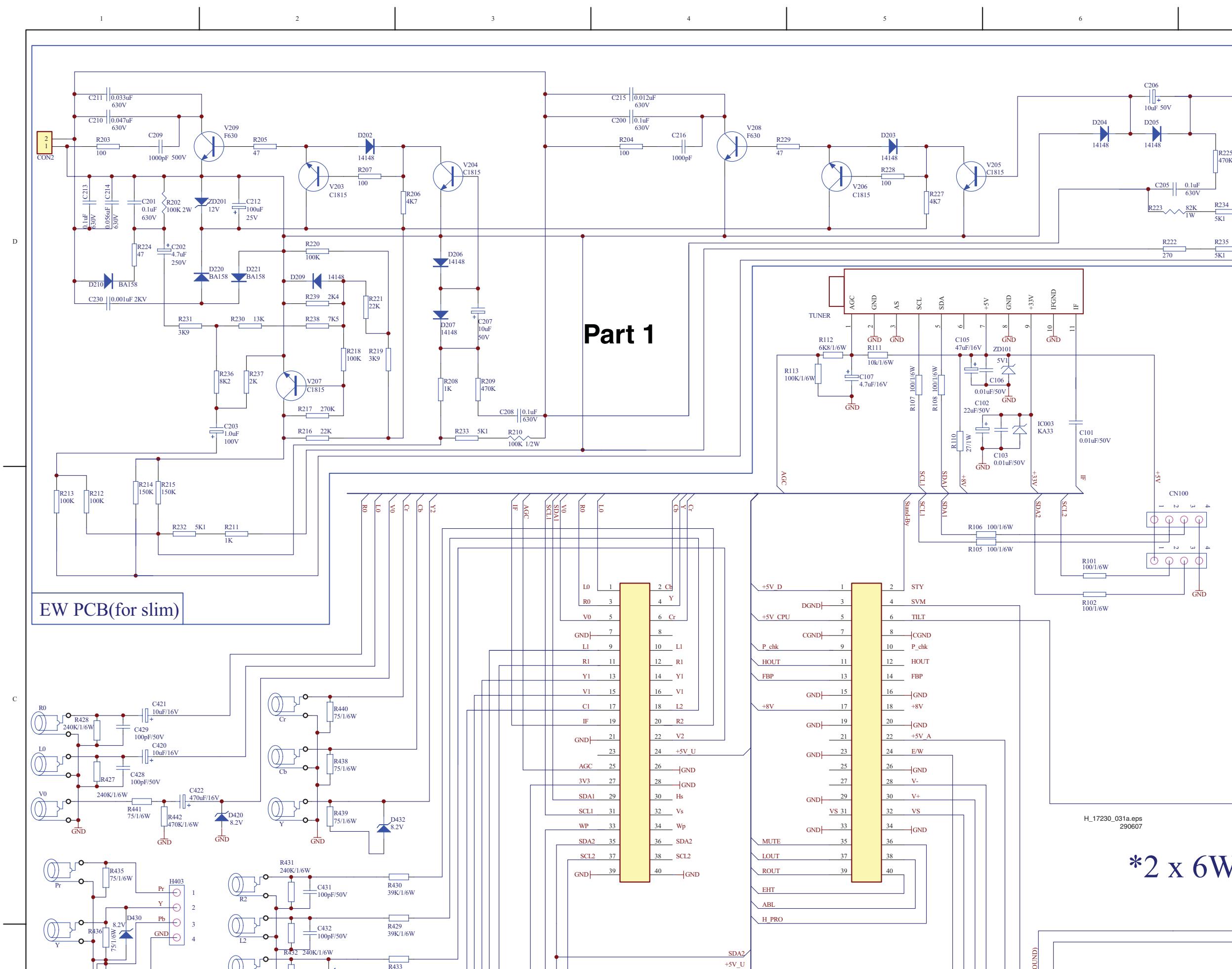
### Block Diagram Chassis (Digital Board 100Hz)



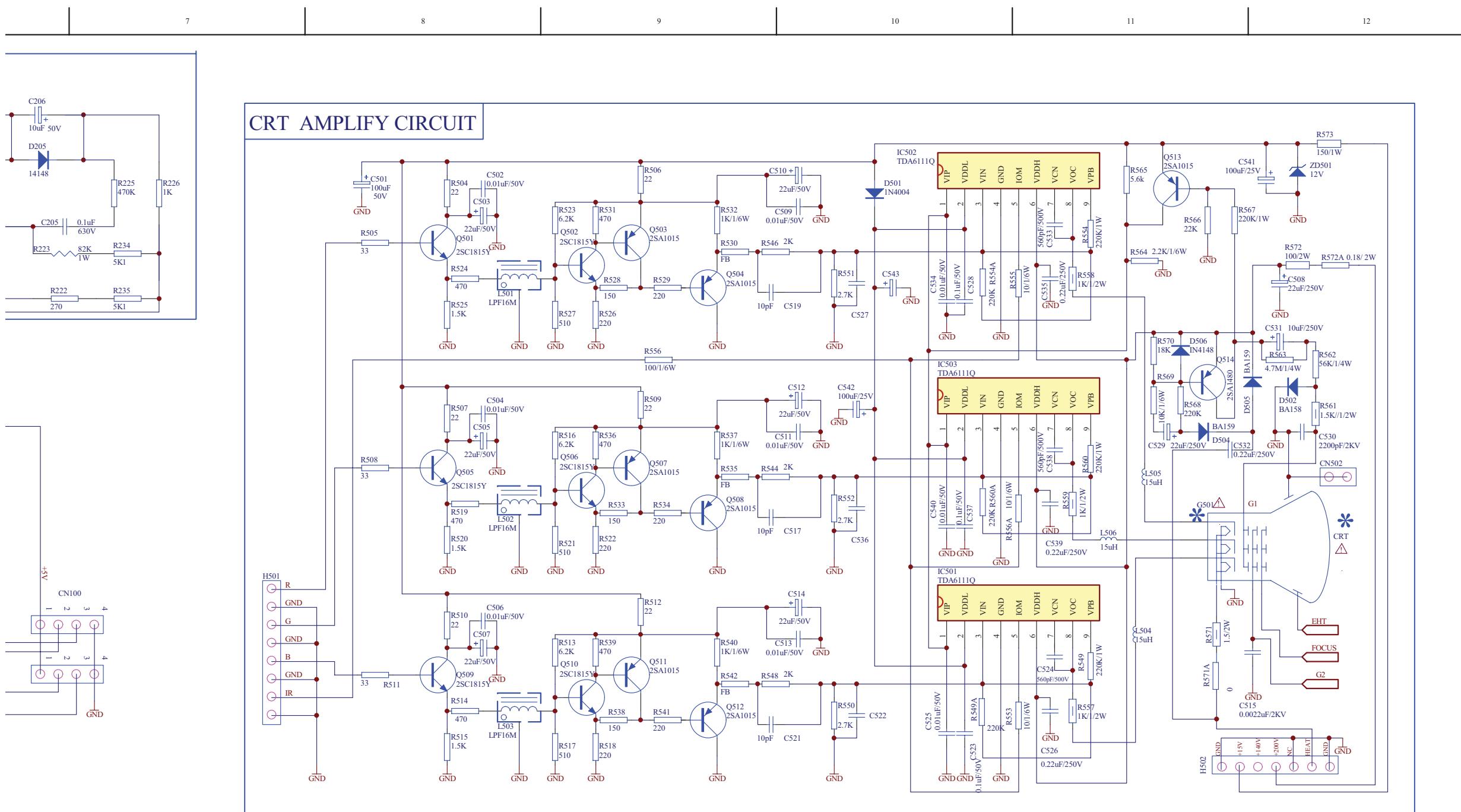
**Block Diagram Chassis (Digital Board 100Hz)**

## Schematic Diagram Chassis (Overview)

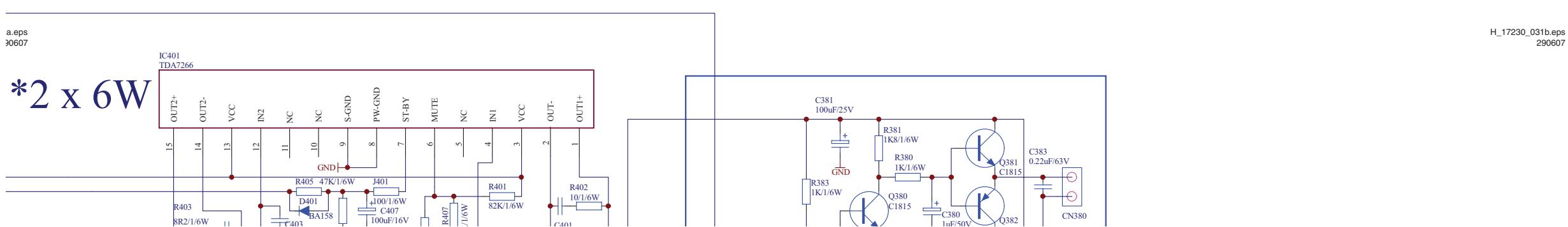


**Schematic Diagram Chassis (Part 1)**

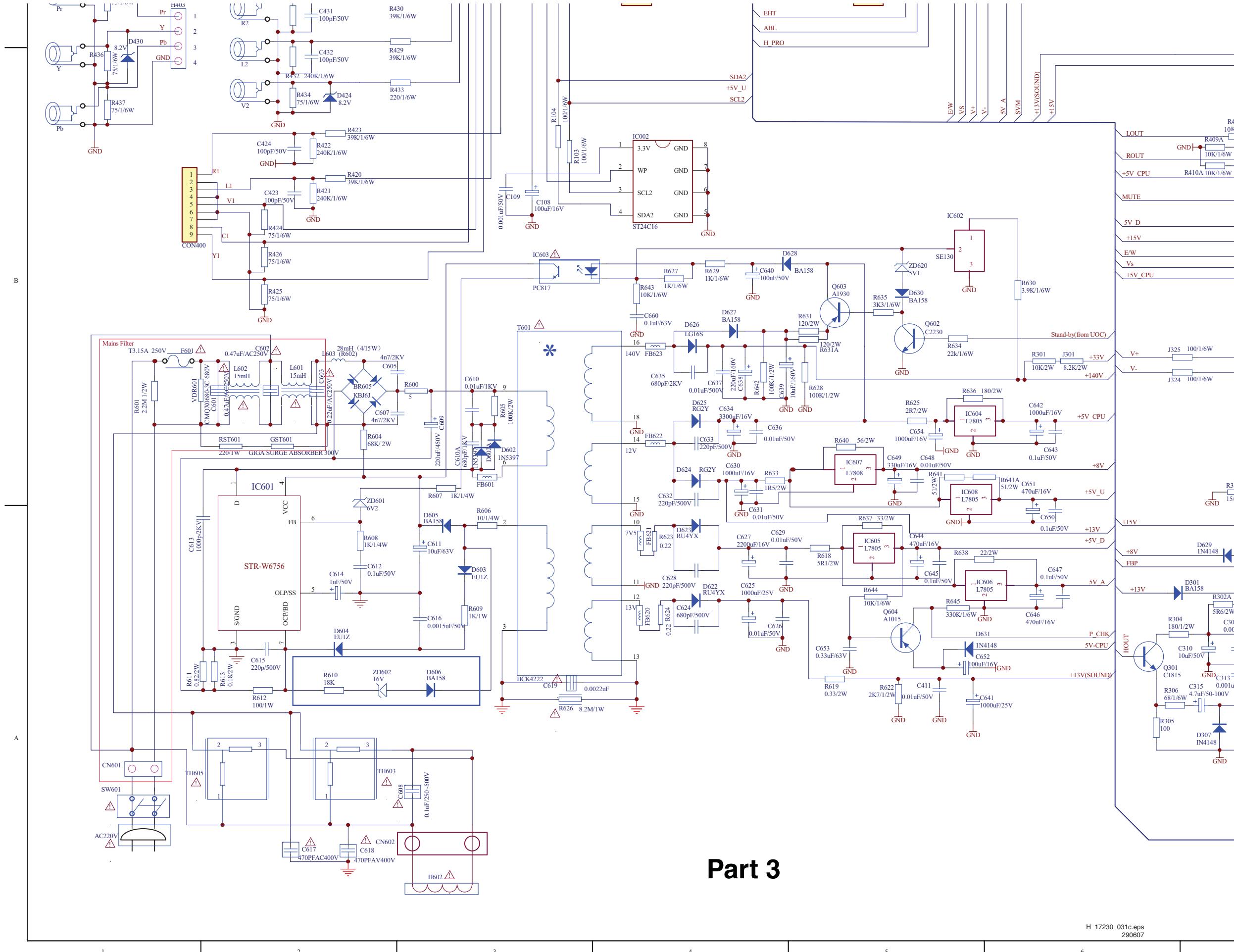
## Schematic Diagram Chassis (Part 2)



## Part 2

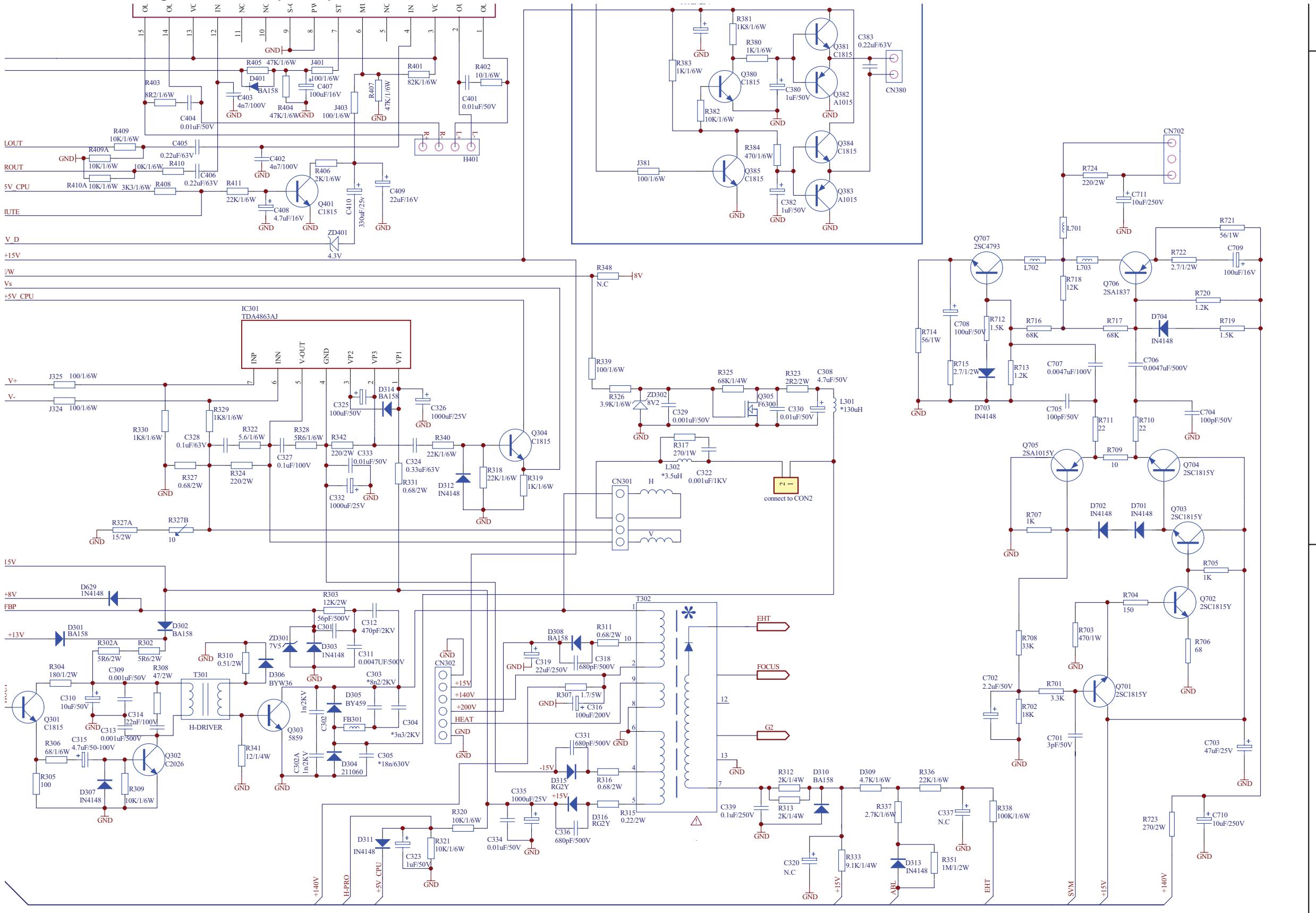


## Schematic Diagram Chassis (Part 3)



## Part 3

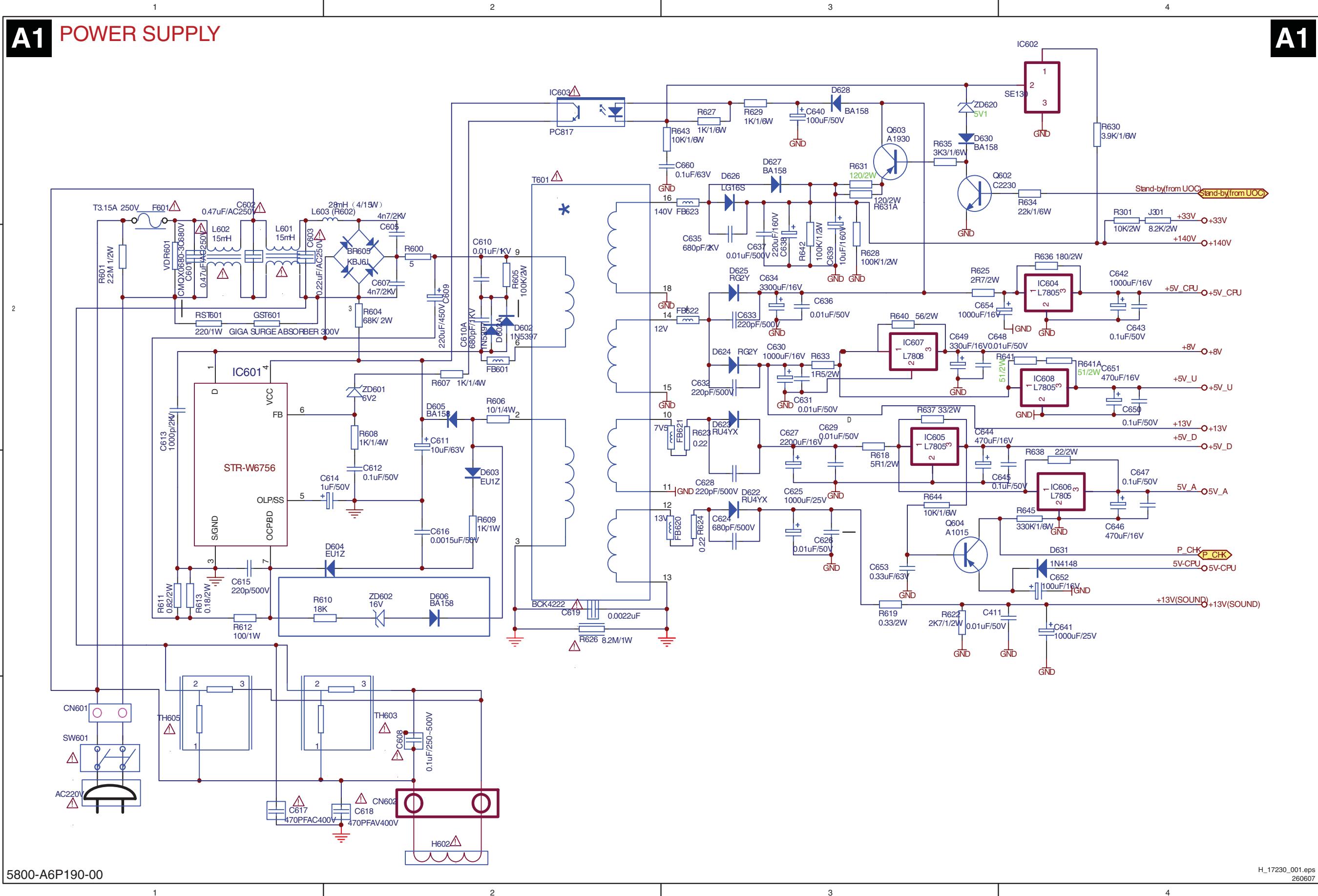
## Schematic Diagram Chassis (Part 4)



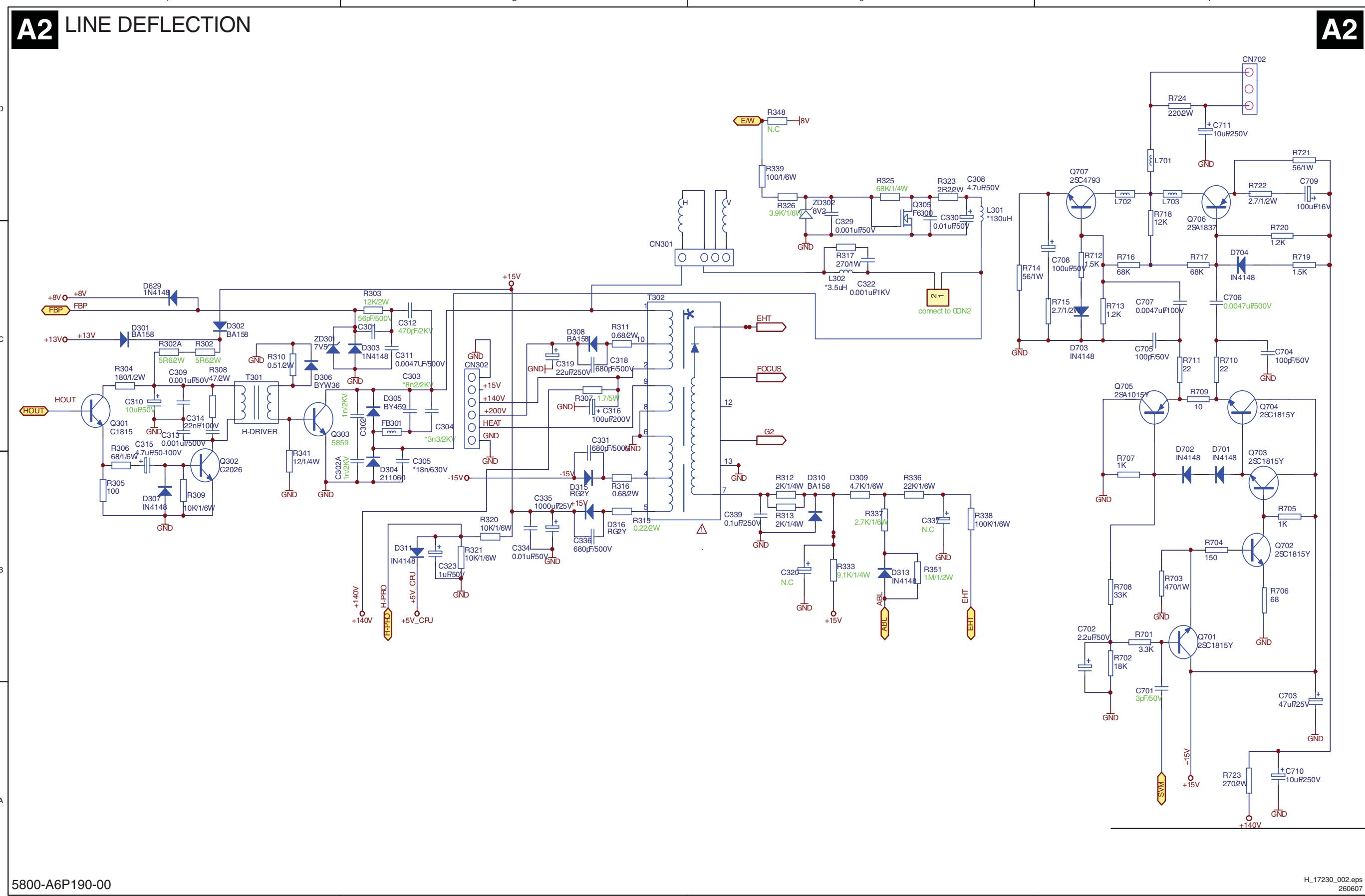
## Part 4

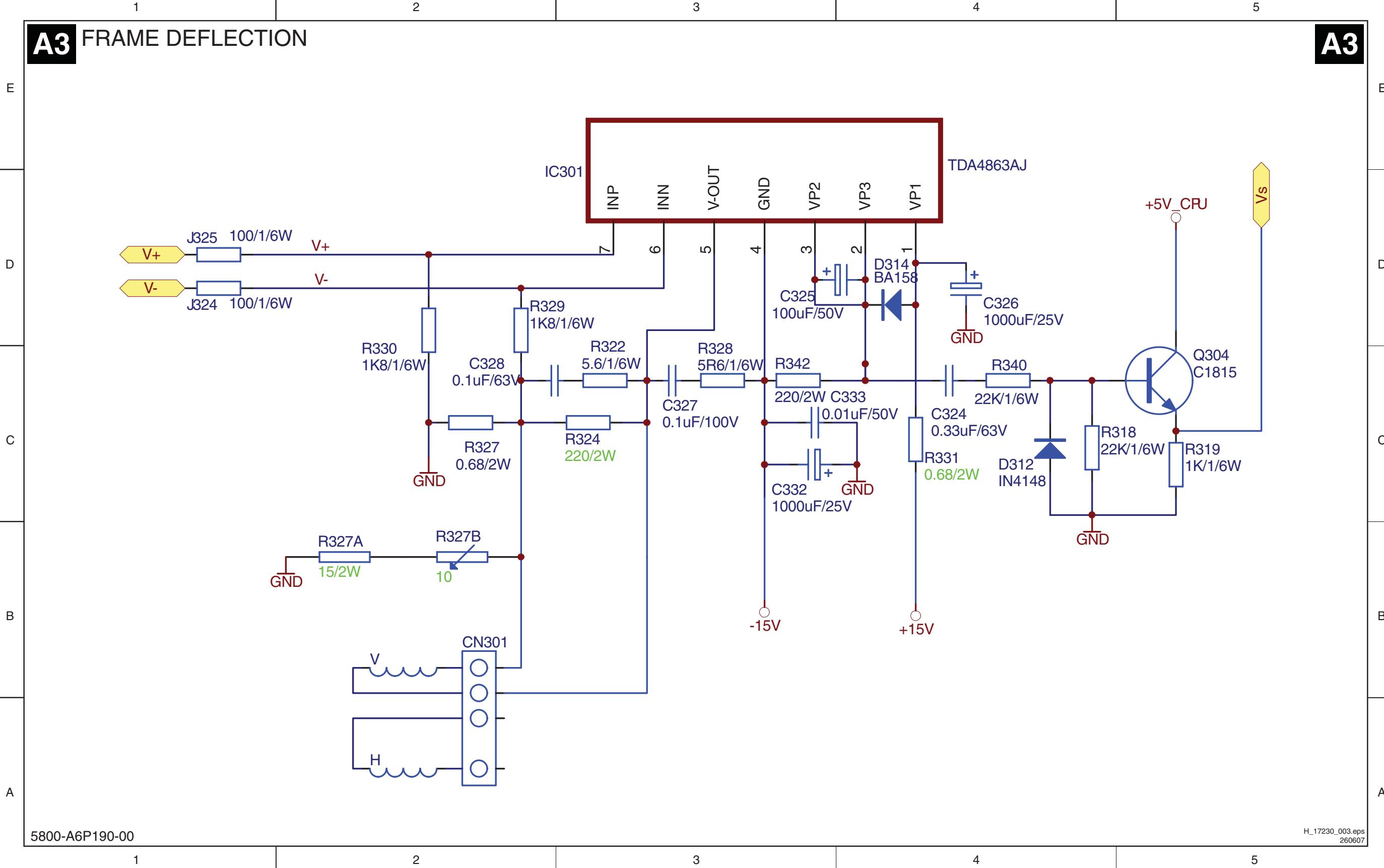
## 7. Circuit Diagrams and PWB Layouts

### Mono Carrier: Power Supply

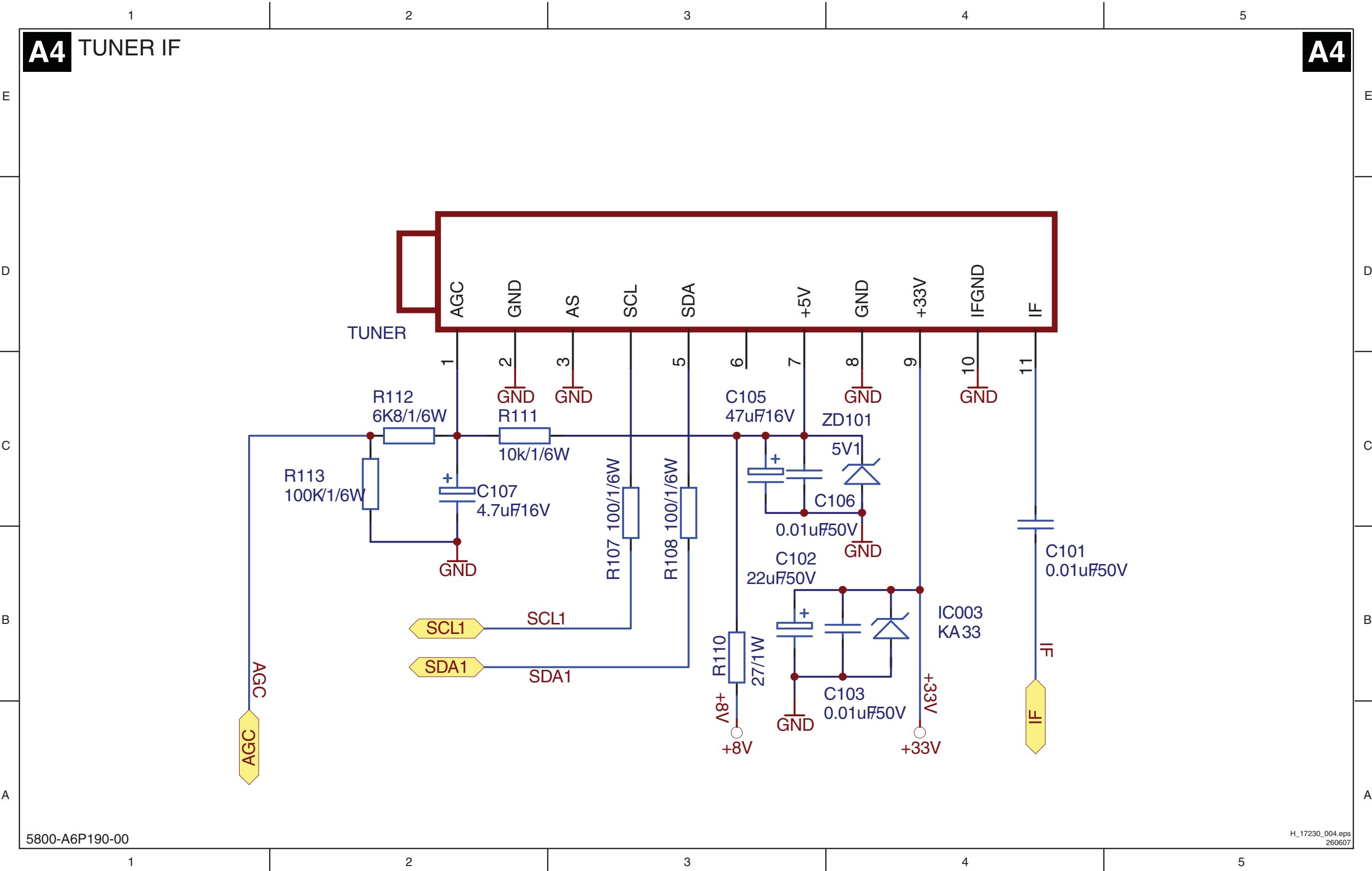


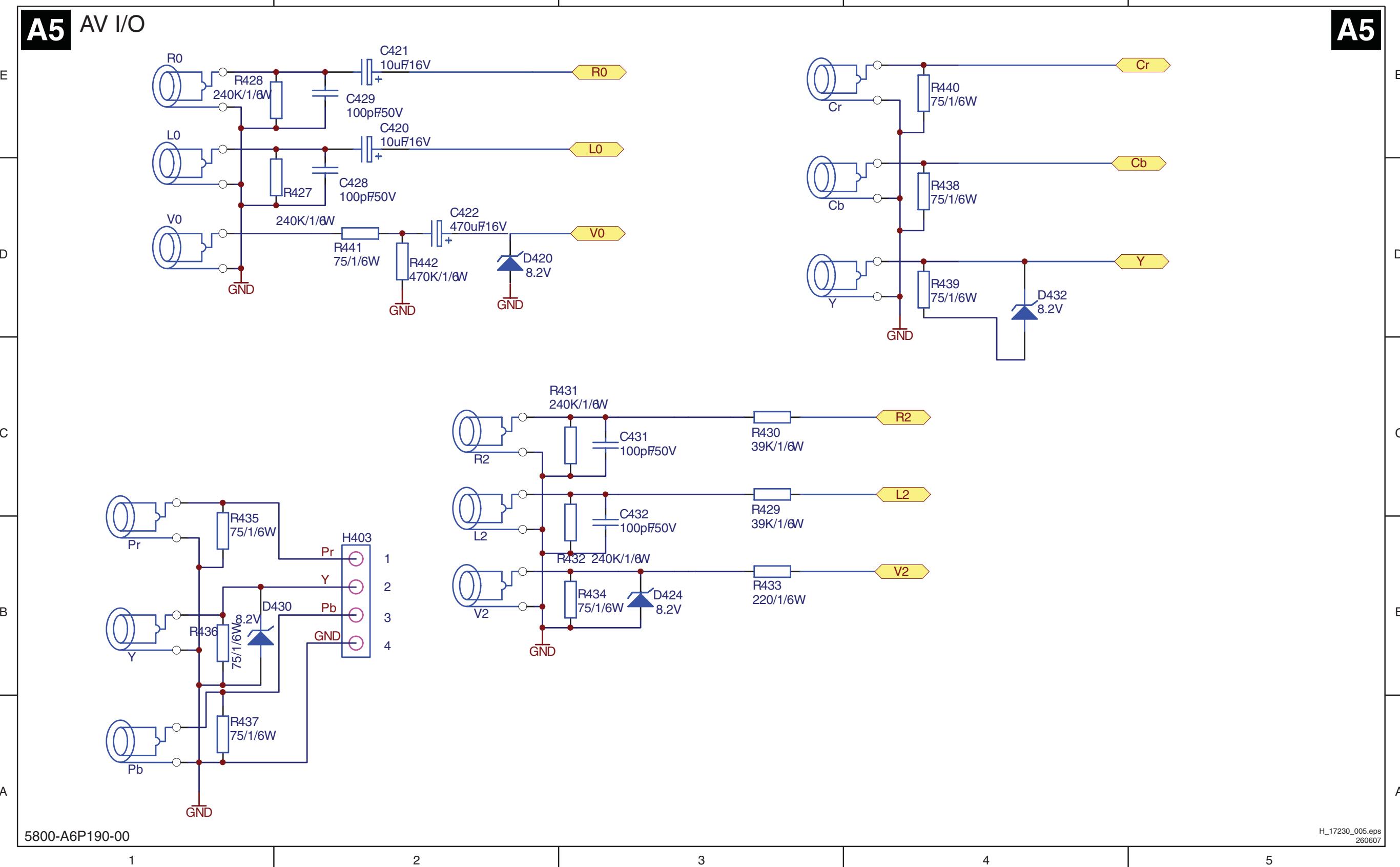
## Mono Carrier: Line Deflection

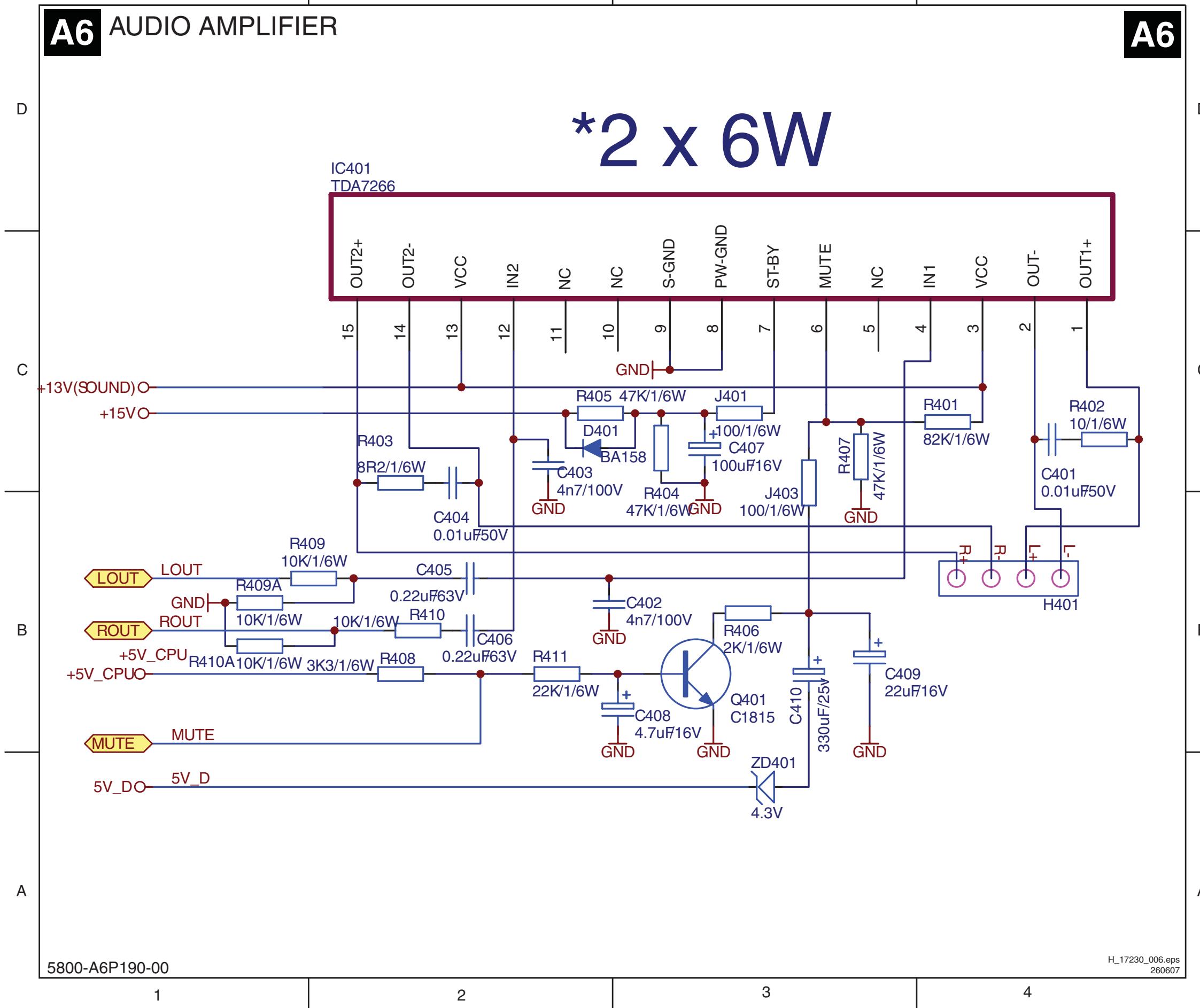


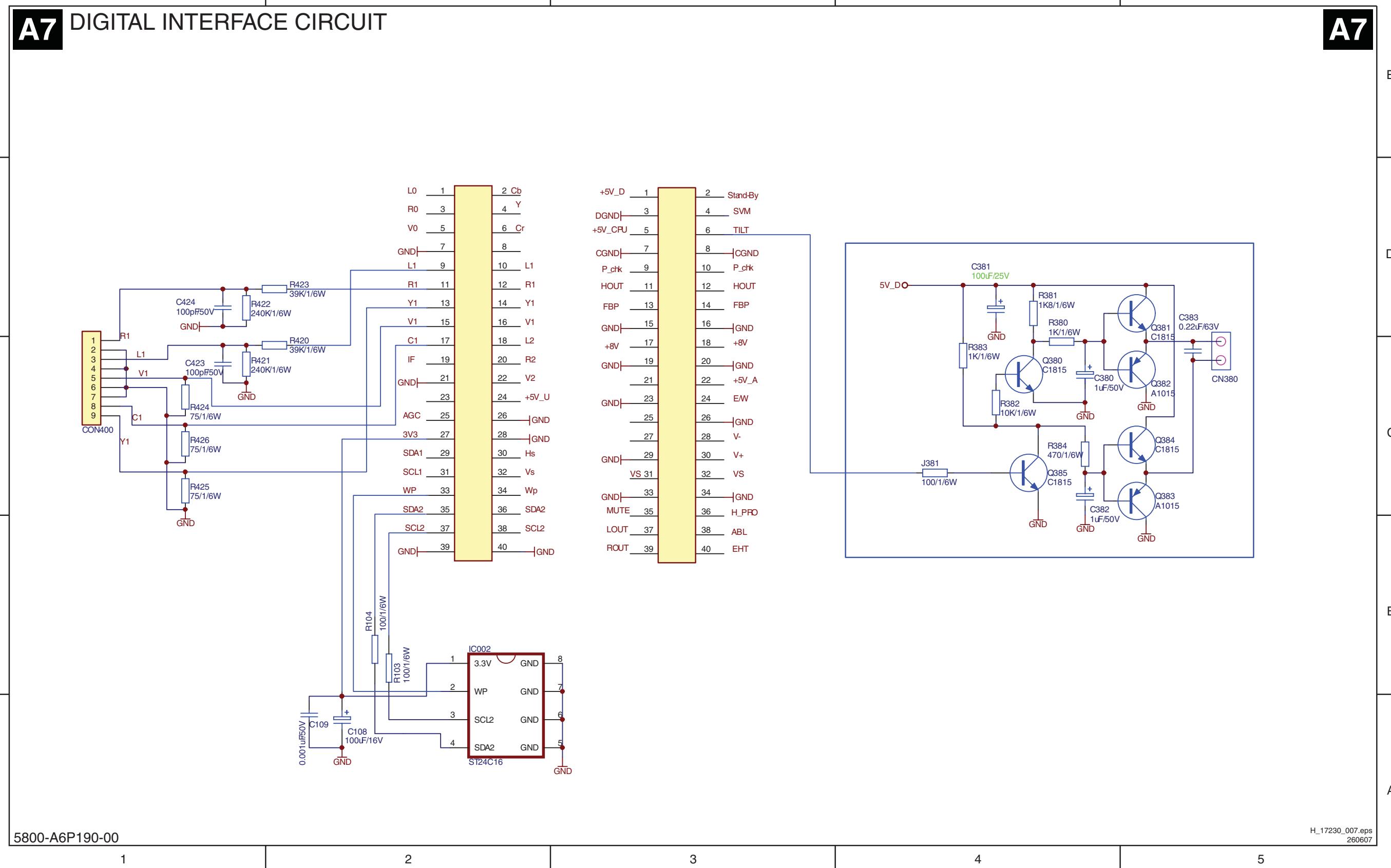
**Mono Carrier: Frame Deflection**

## Mono Carrier: Tuner IF

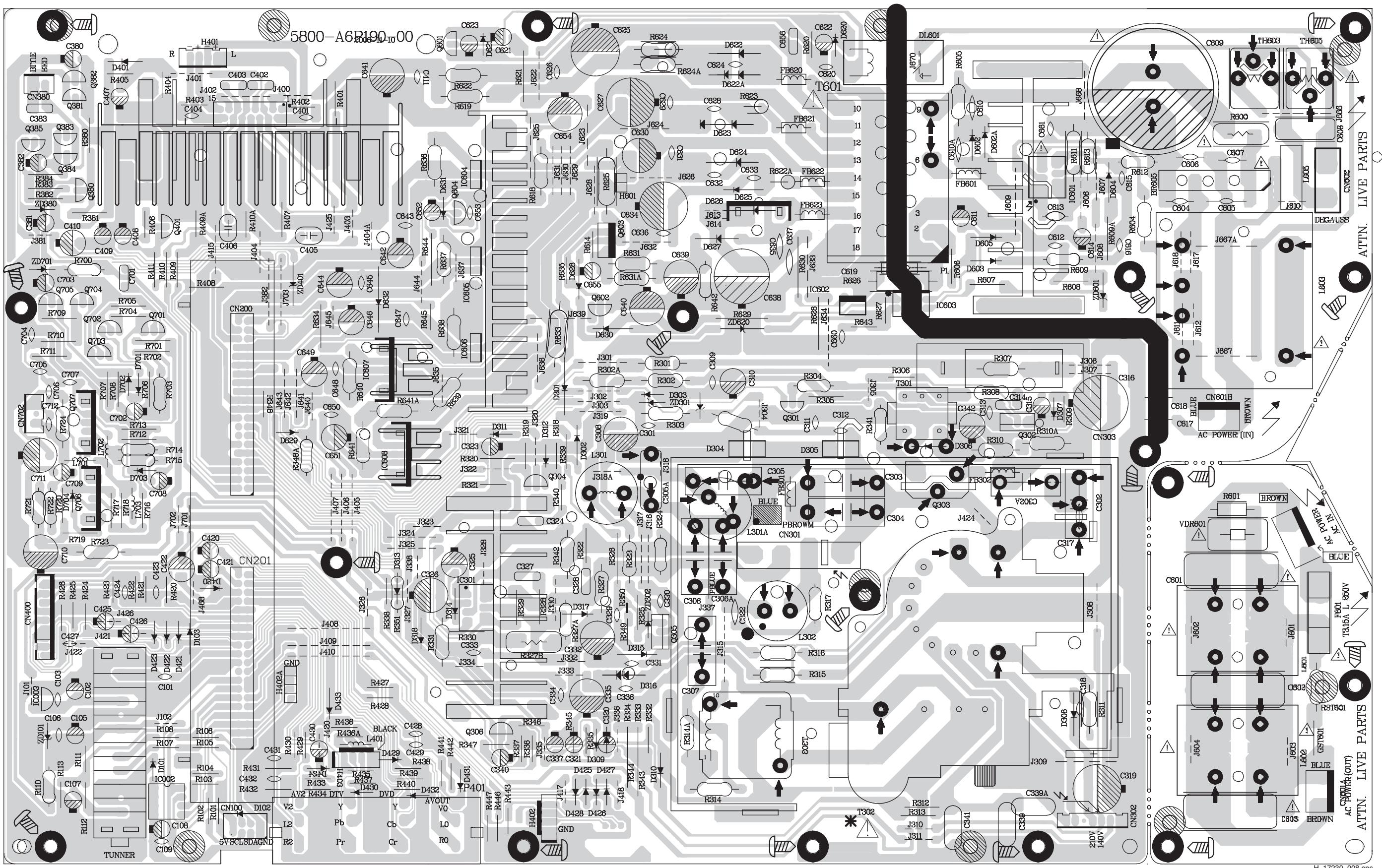


**Mono Carrier: AV I/O Interface**

**Mono Carrier: Audio Amplifier**

**Mono Carrier: Digital Interface Circuit**

## **Layout Mono Carrier (Top Side)**

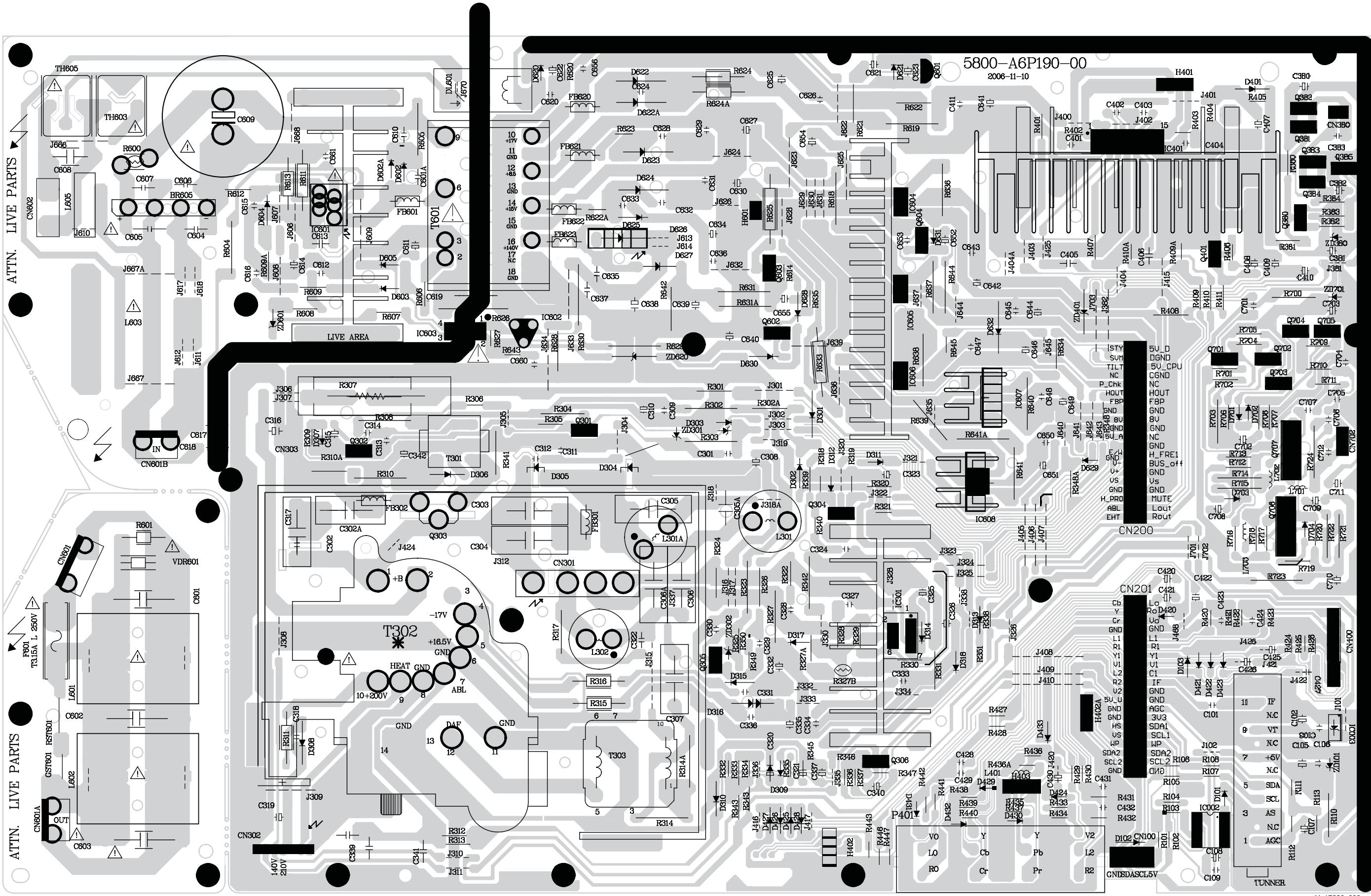


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5800-A6P190-00

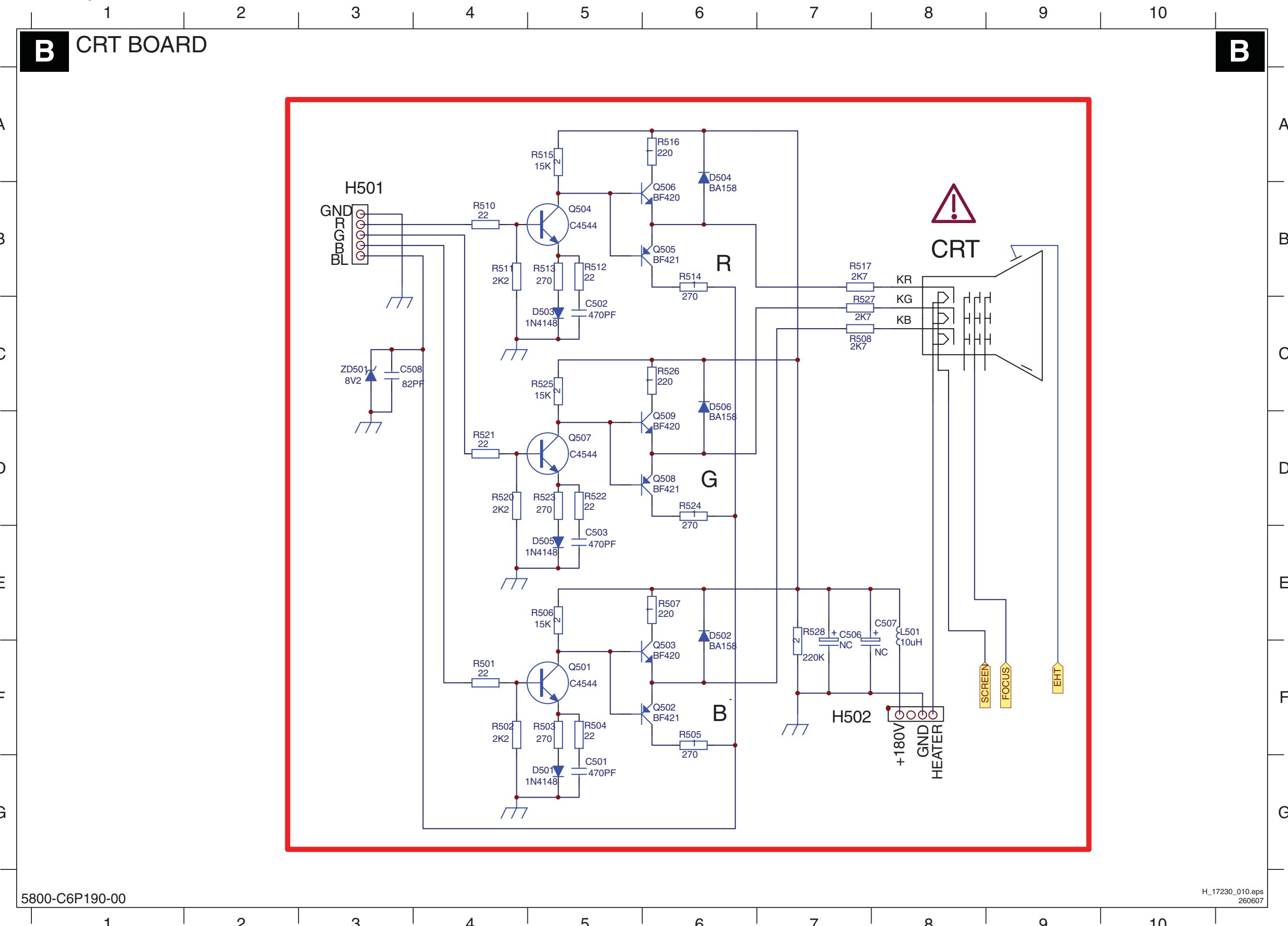
H\_17230\_008.eps  
260607

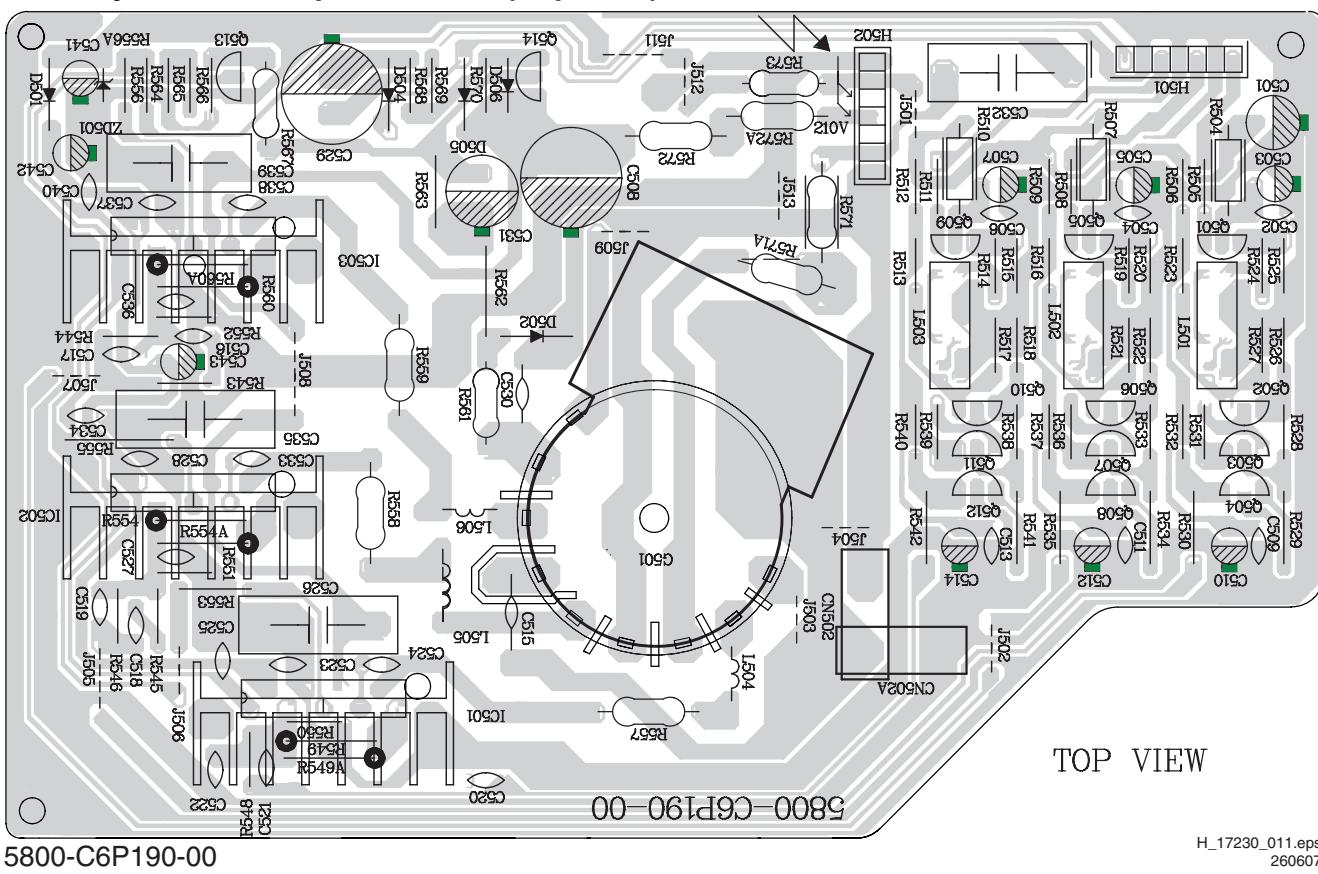
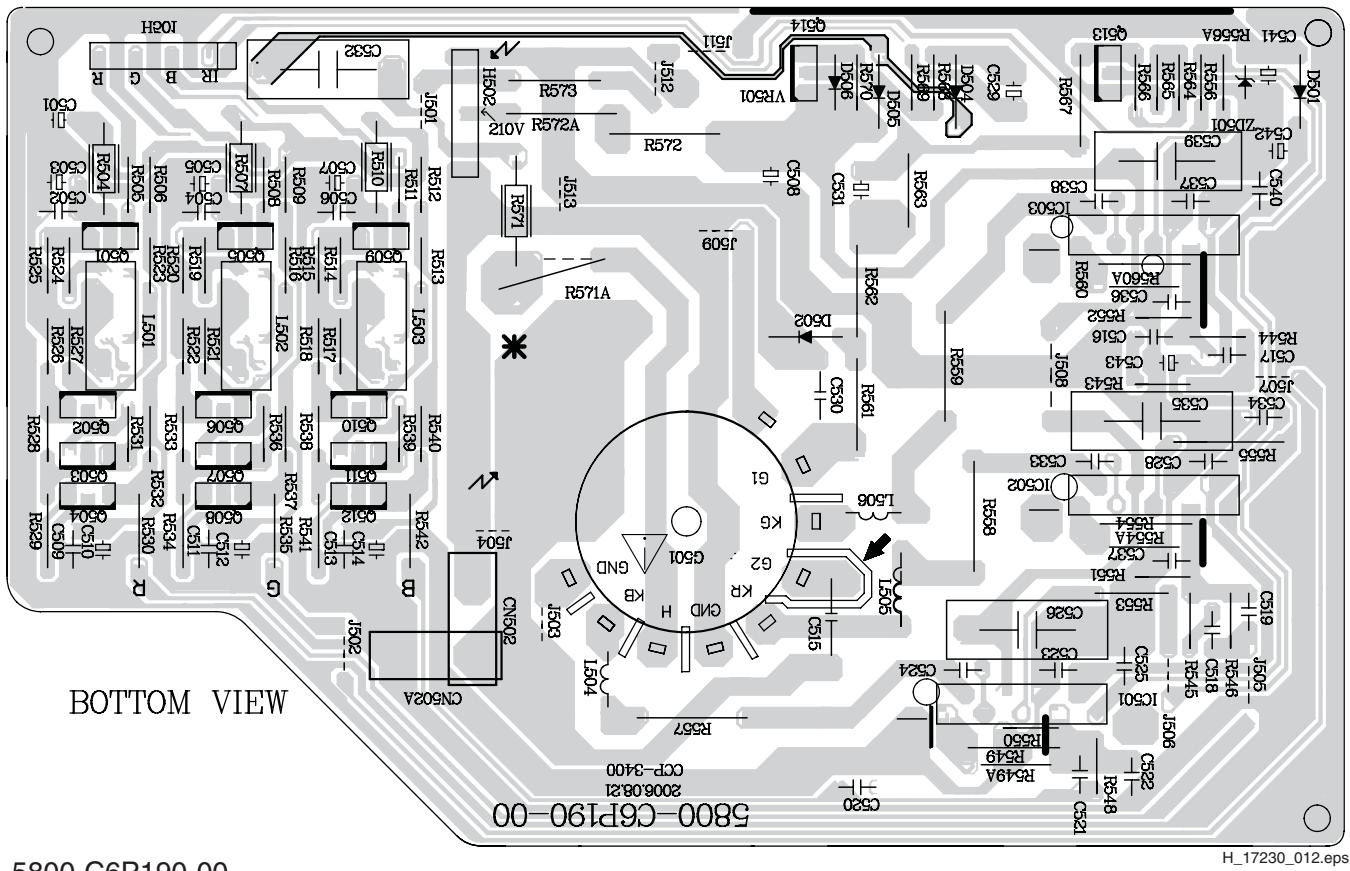
## **Layout Mono Carrier (Bottom Side)**



5800-A6P190-00

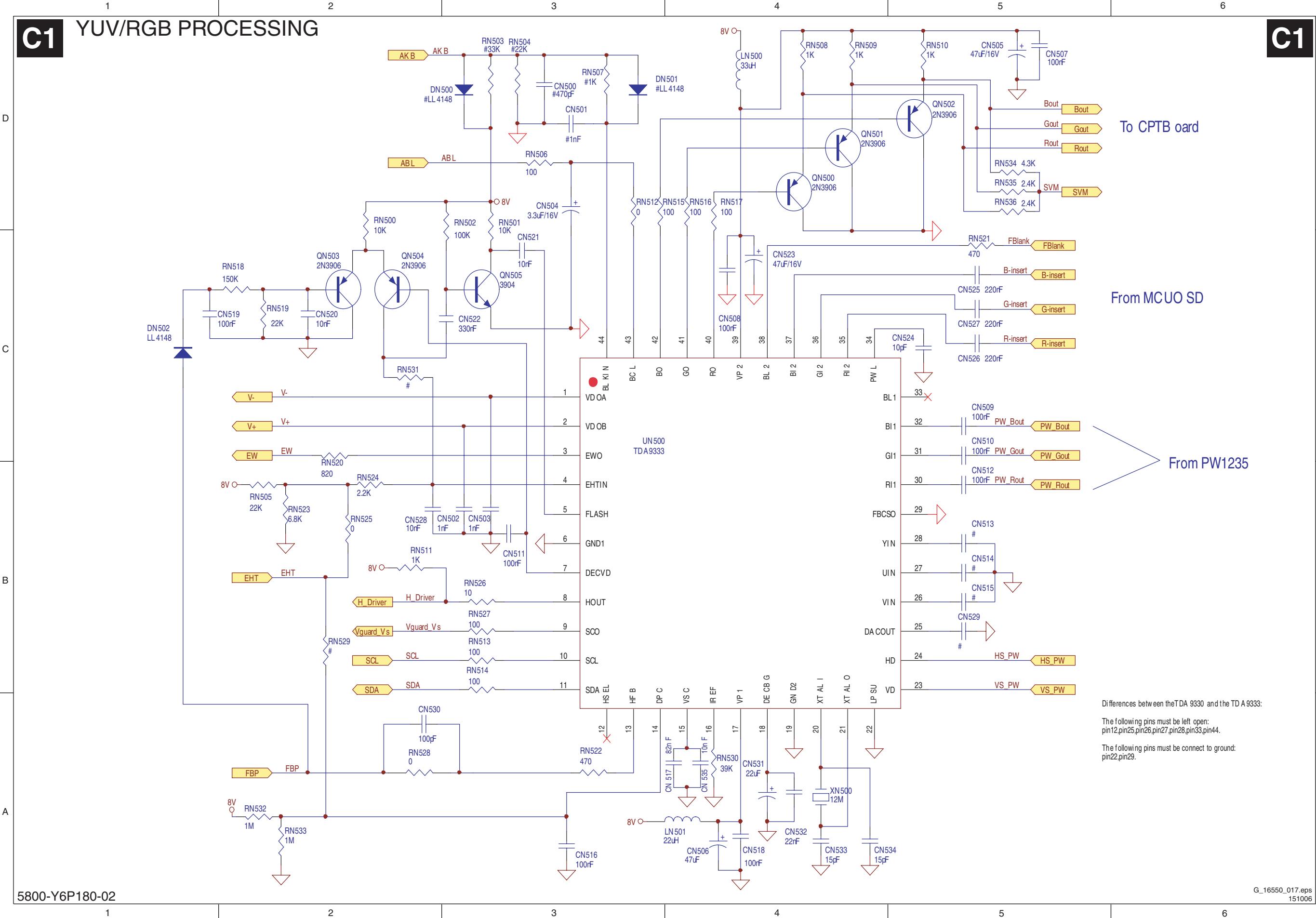
H\_17230\_009.eps  
260607

**CRT Amplifier Panel**

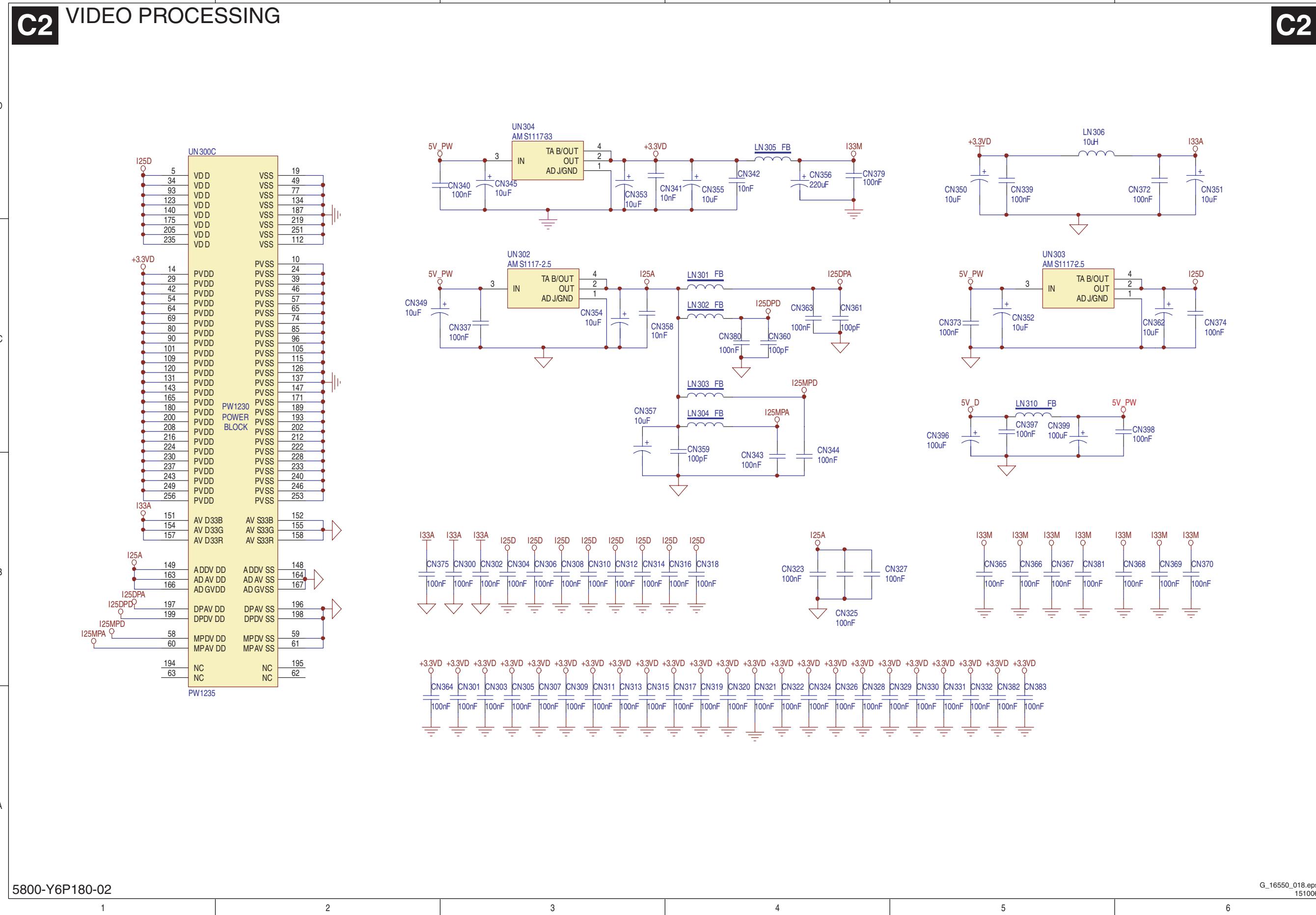
**Layout CRT Amplifier Panel (Top Side)****Layout CRT Amplifier Panel (Bottom Side)****Personal Notes:**

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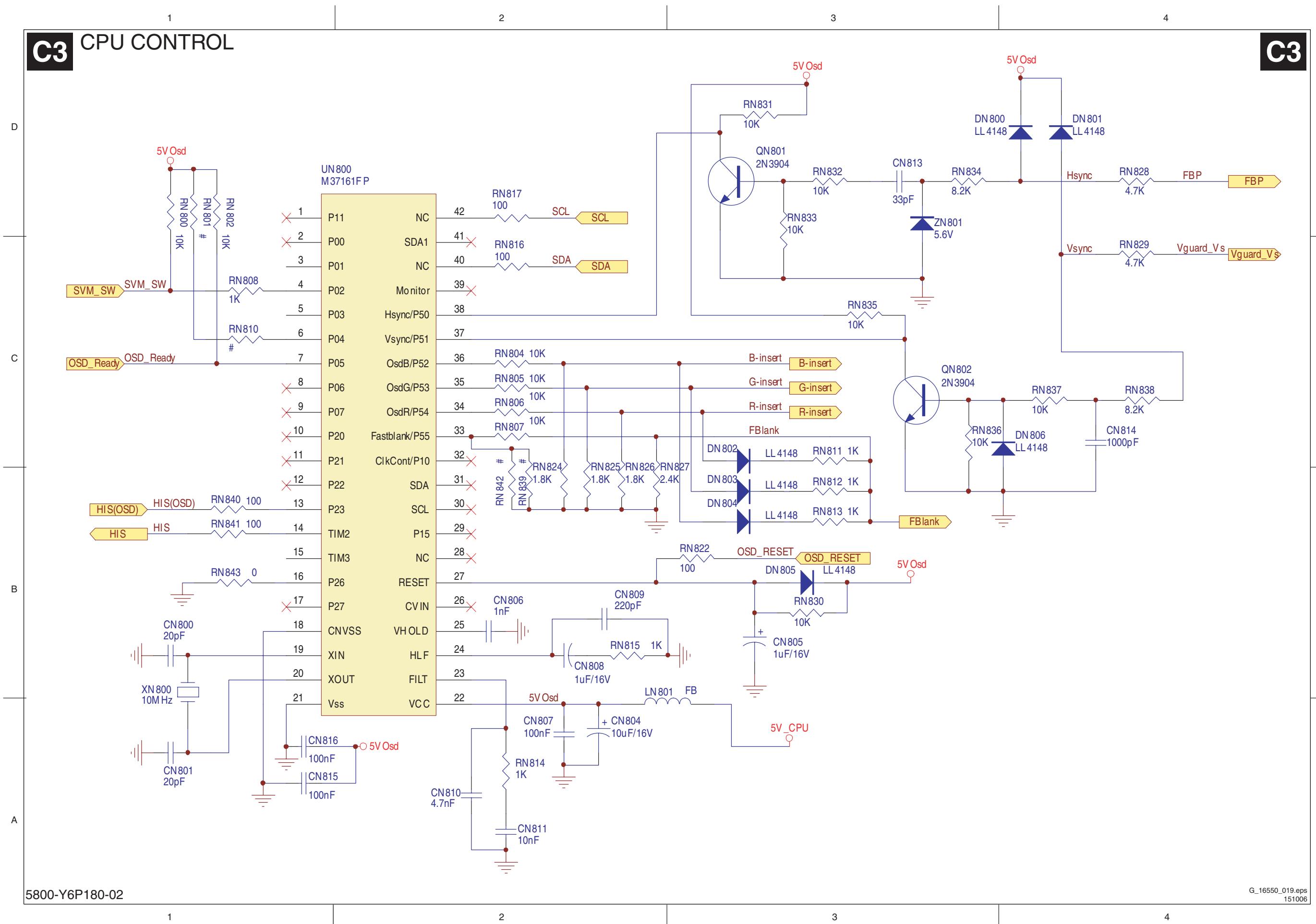
## Digital Board: YUV/RGB Processing Panel



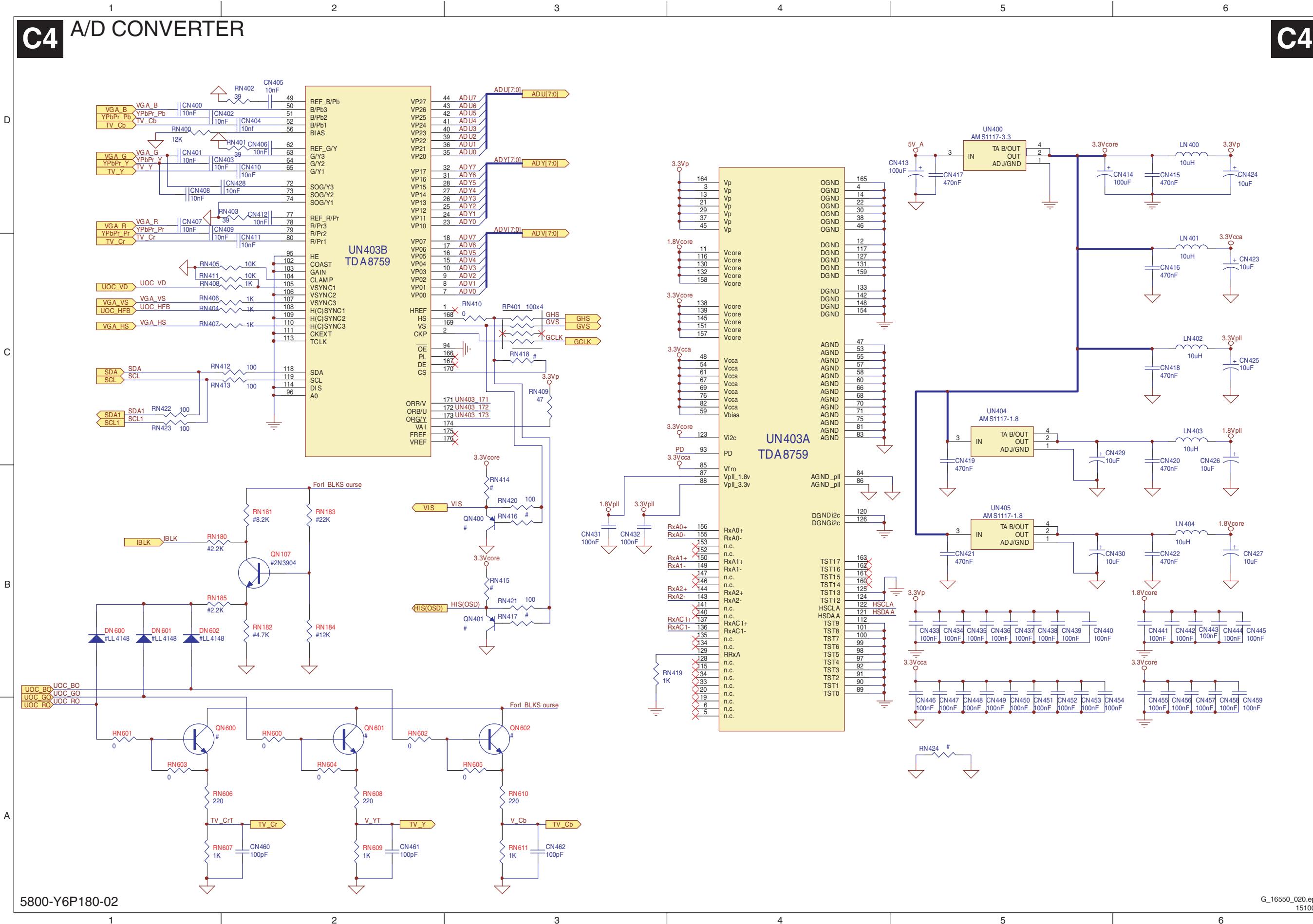
## Digital Board: Video Processing



# Digital Board: CPU Control

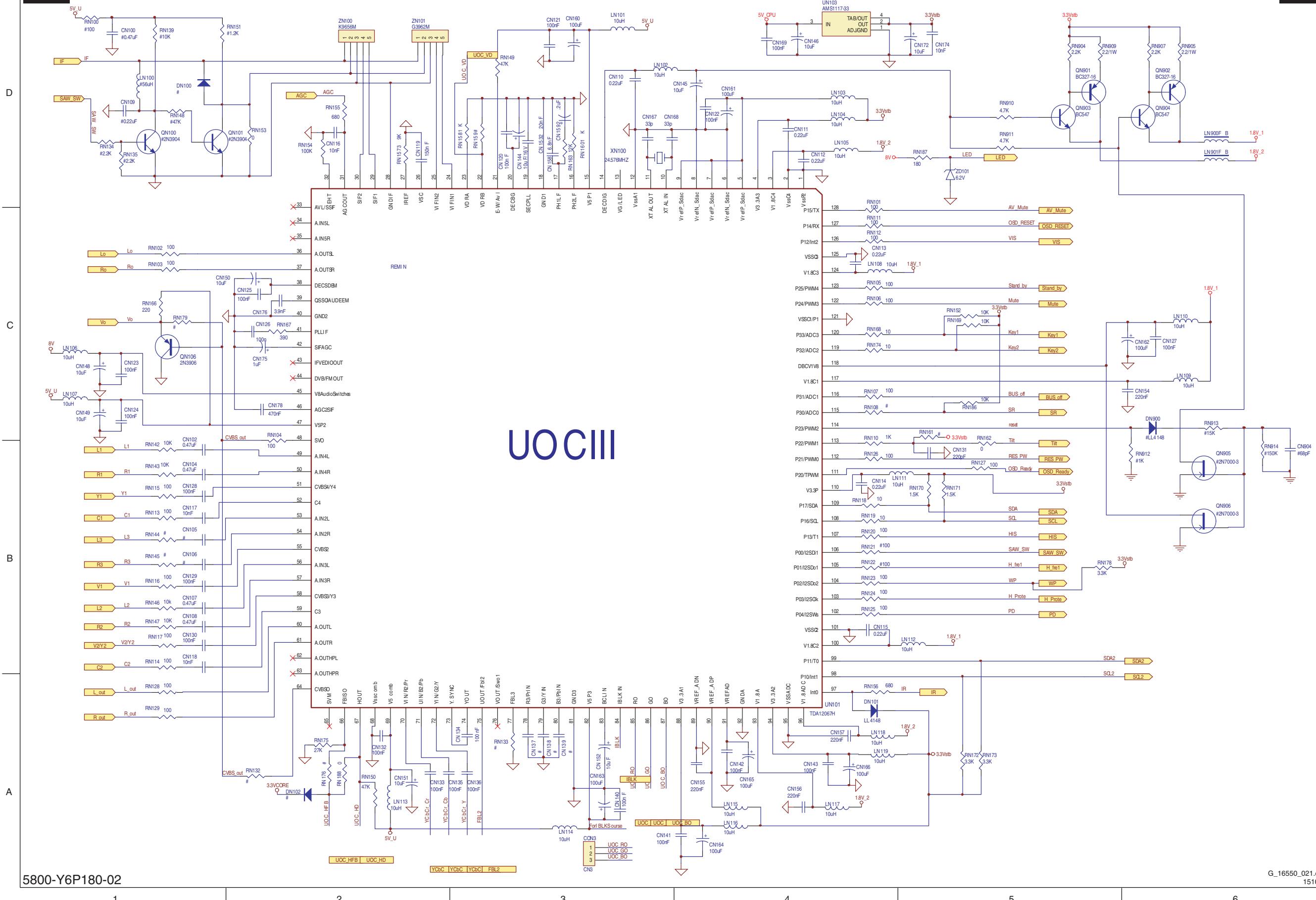


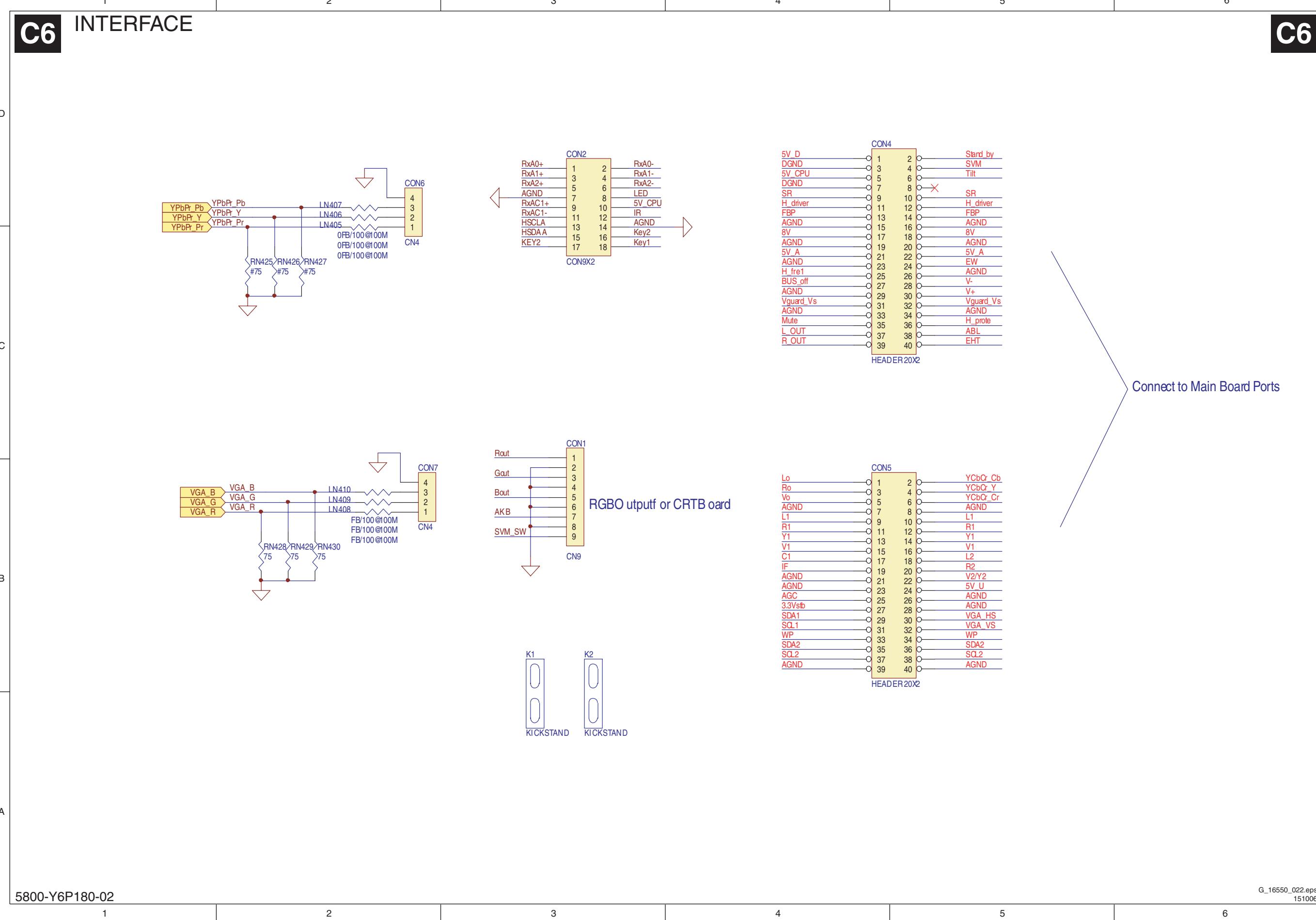
## Digital Board: A/D Converter



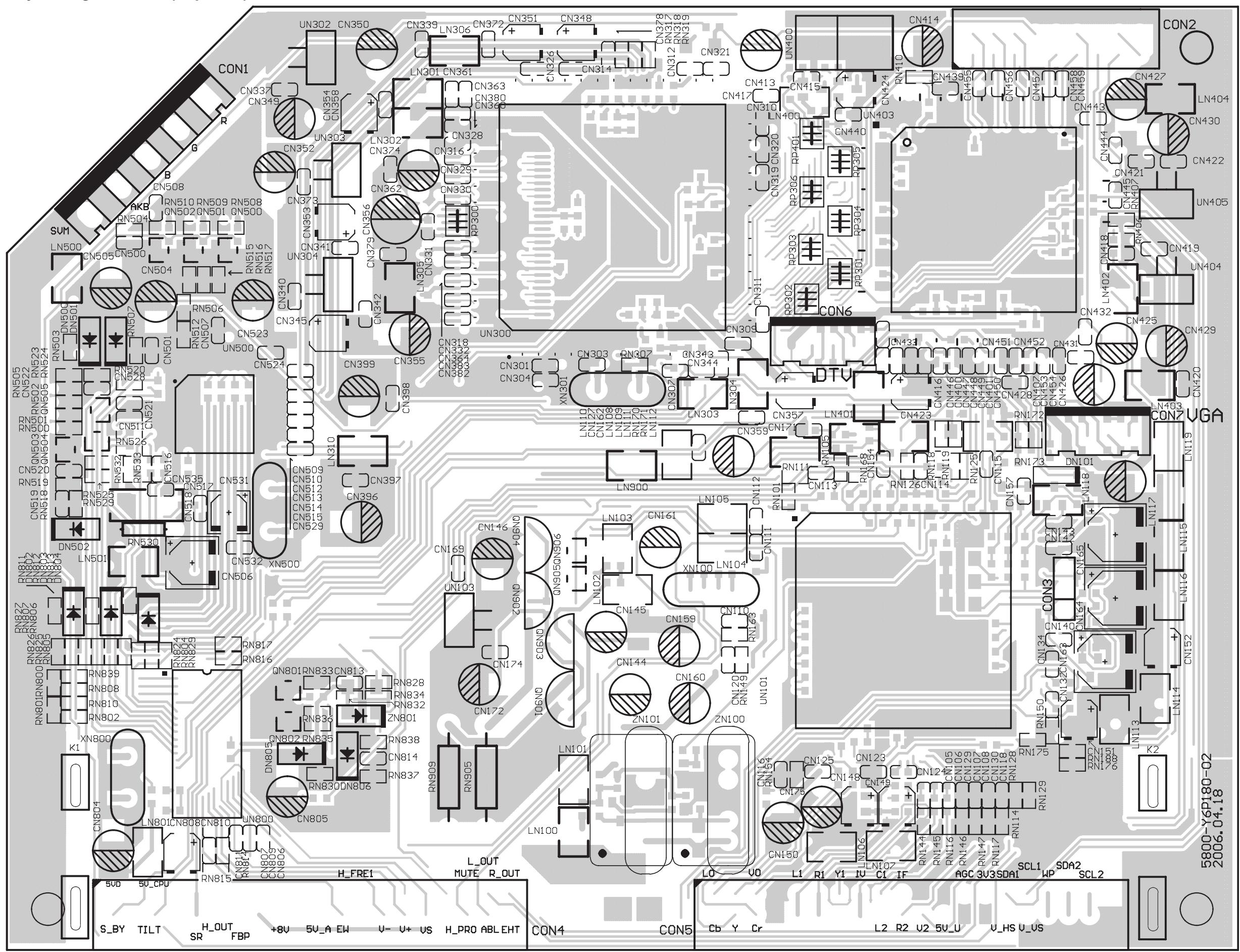
## Digital Board: IF and AV Decoder

# C5 | IF AND AV DECODER



**Digital Board: Interface**

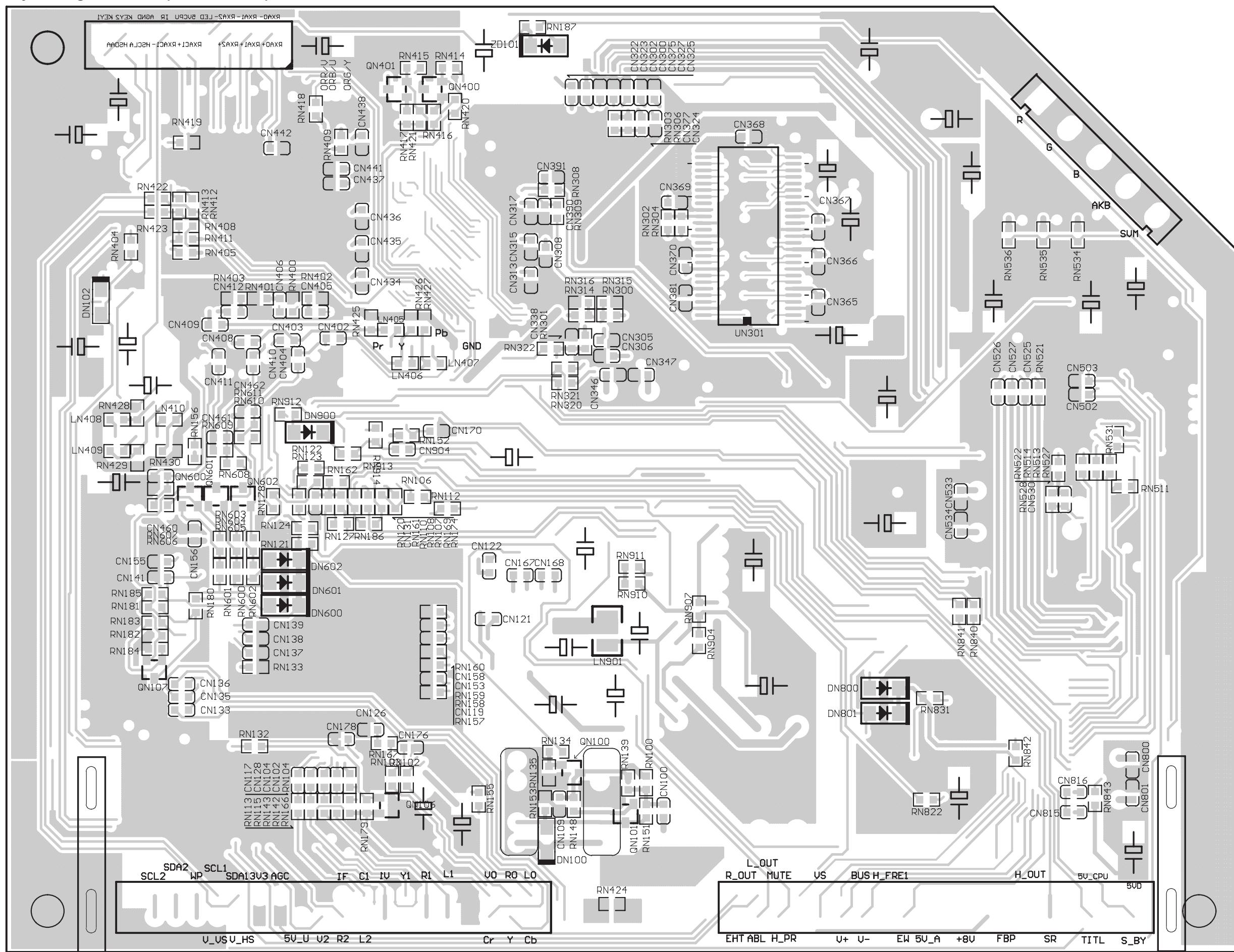
## **Layout Digital Board (Top Side)**



5800-Y6P180-02

G\_16550\_035.eps  
151006

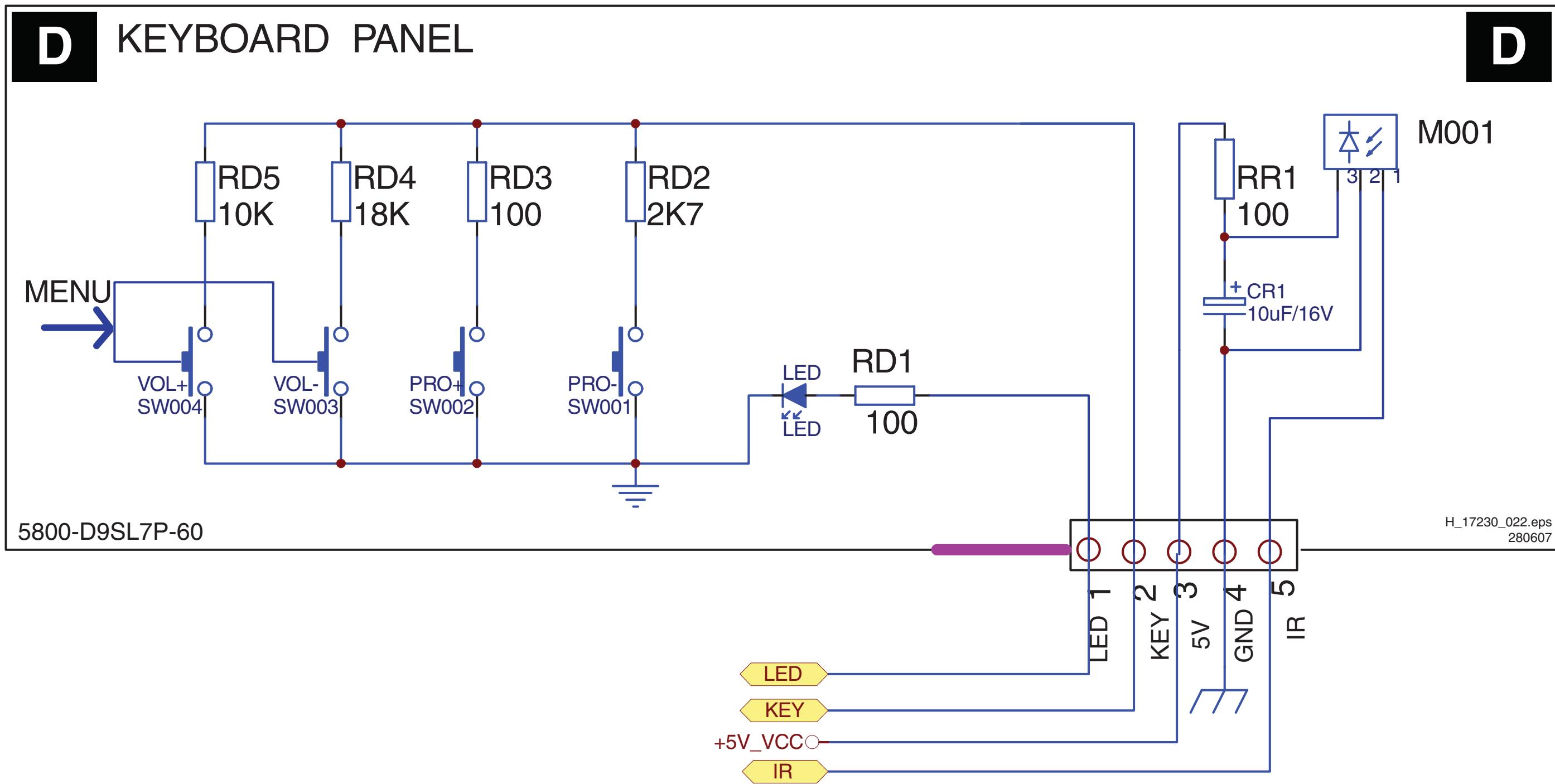
## **Layout Digital Board (Bottom Side)**

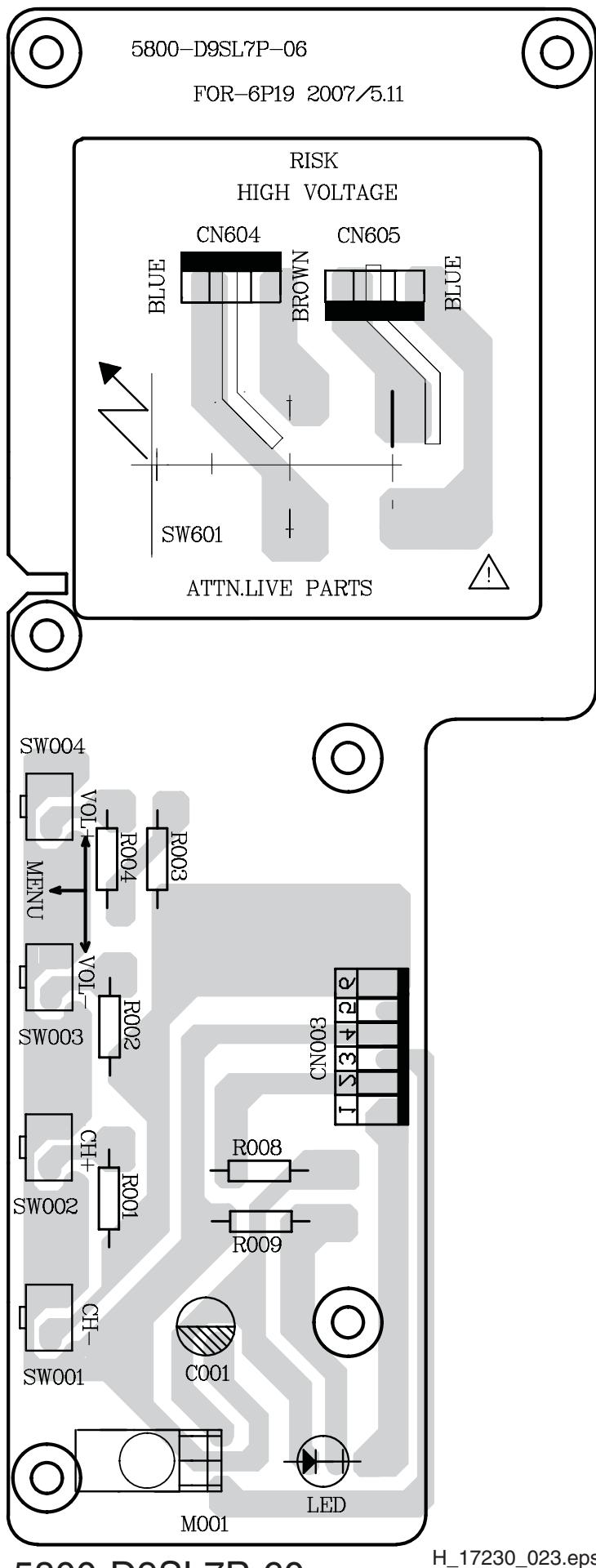


5800-Y6P180-02

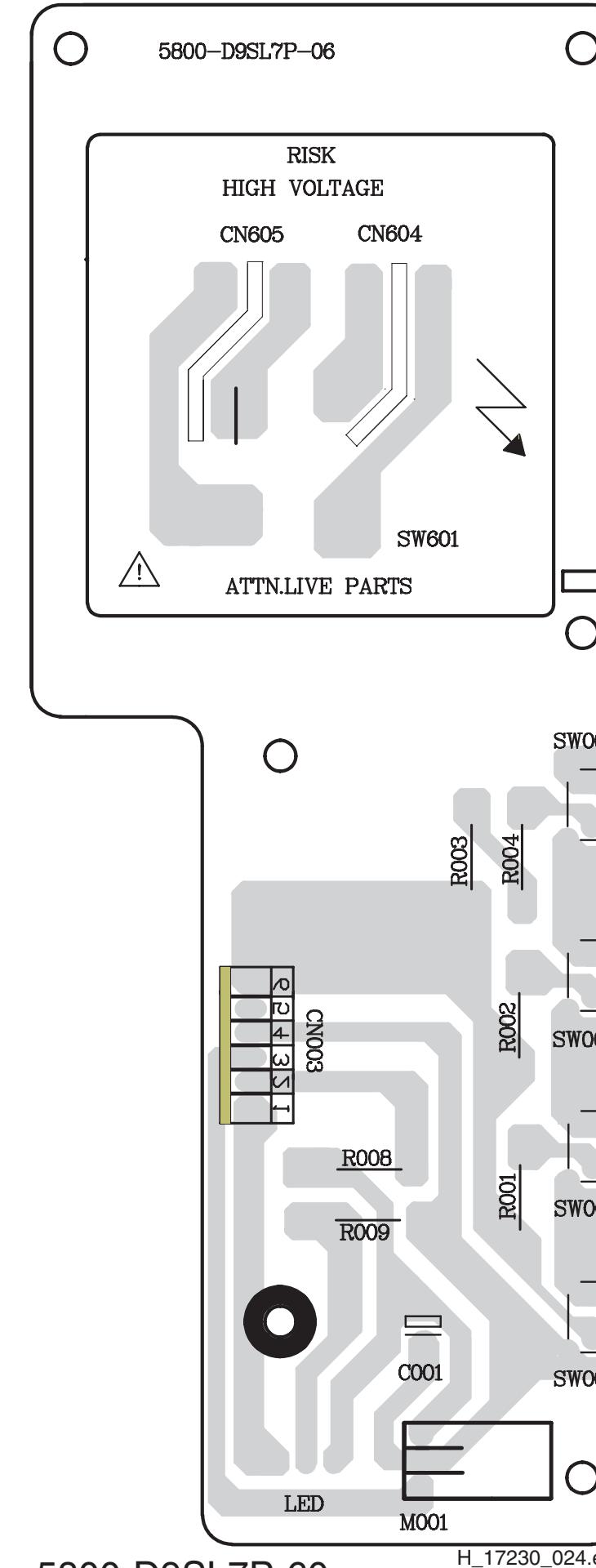
G\_16550\_036.eps  
151006

## Front Control



**Layout Front Control (Top Side)**

5800-D9SL7P-60

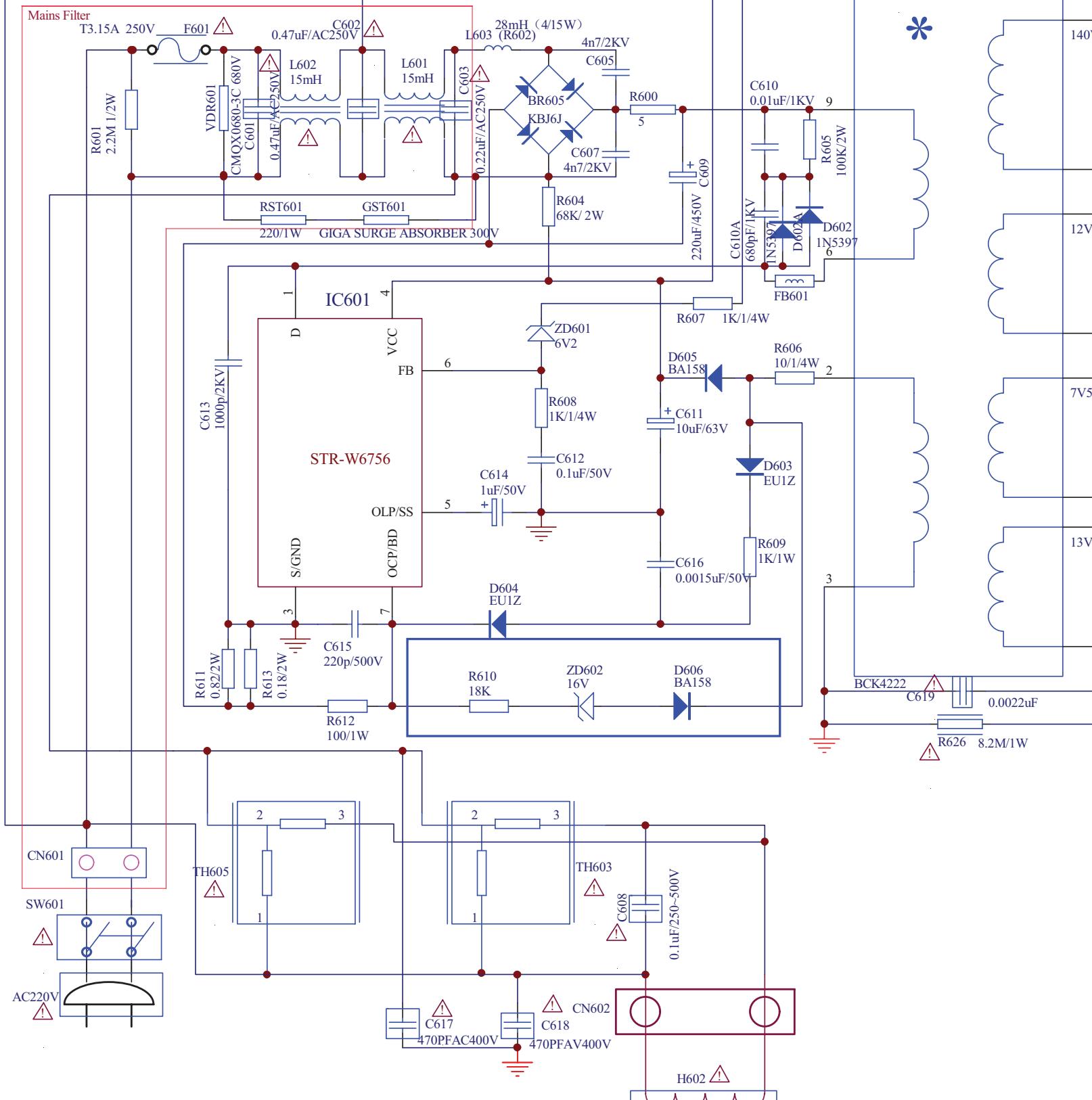
**Layout Front Control (Bottom Side)**

5800-D9SL7P-60

## Mains Filter Panel

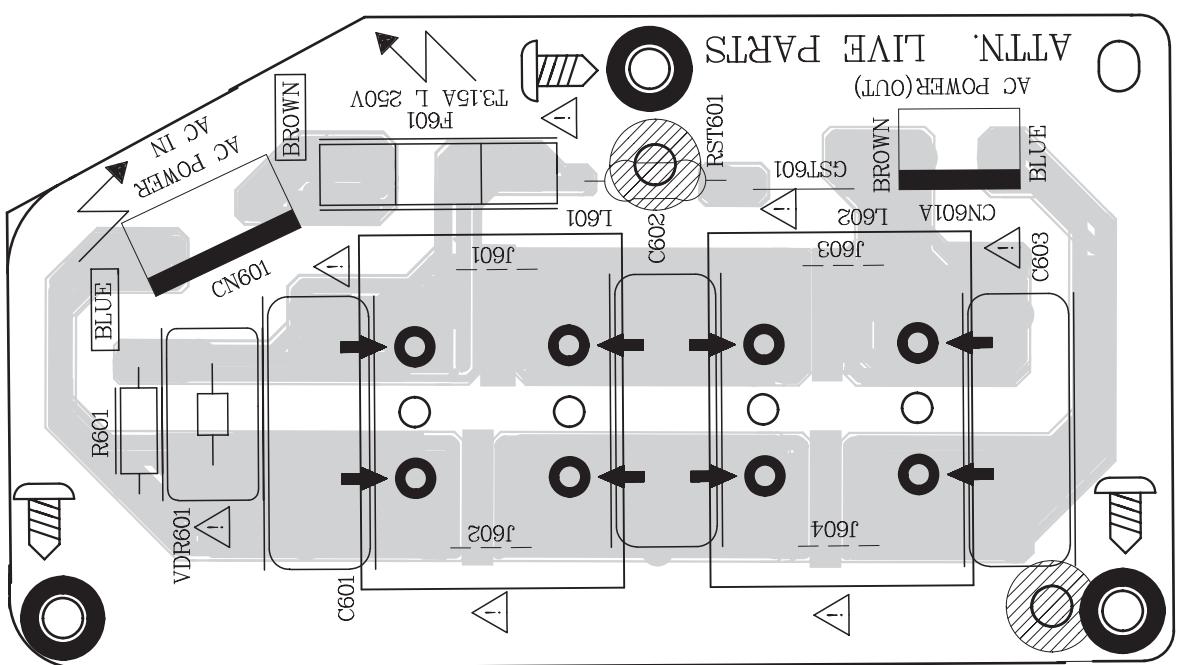
## **F MAINS FILTER PANEL**

3

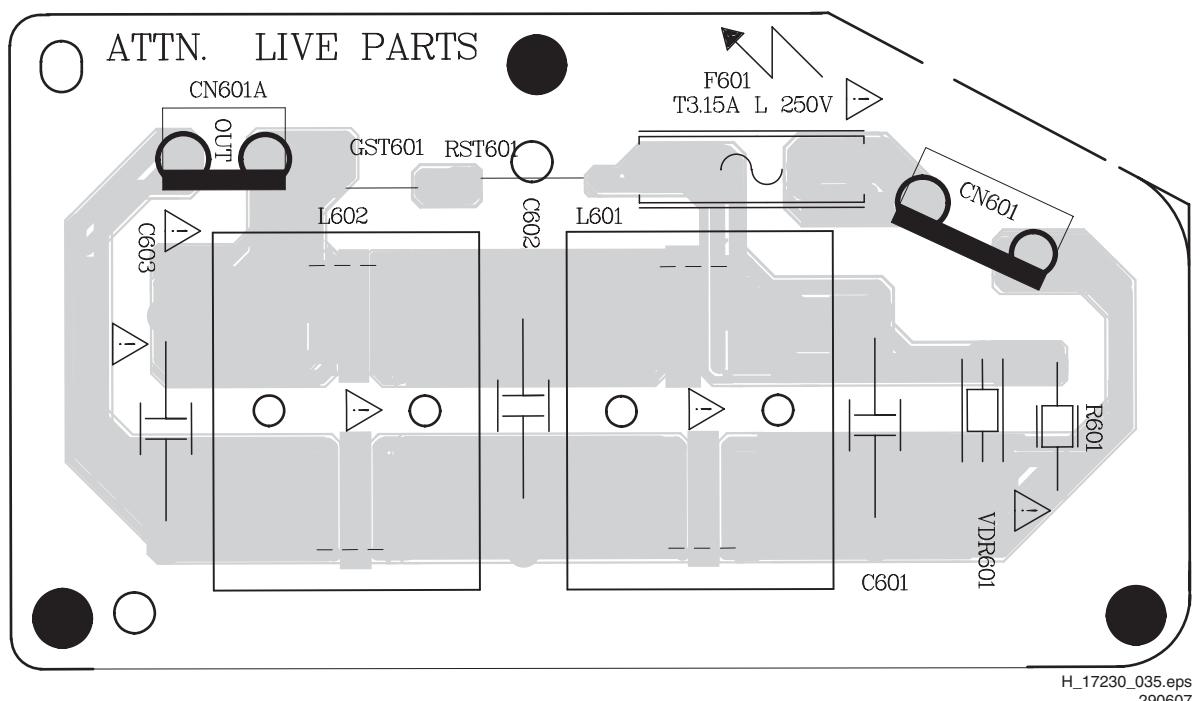


## **Layout Mains Filter Panel**

## Layout Mains Filter (Top Side)



## Layout Mains Filter (Bottom Side)

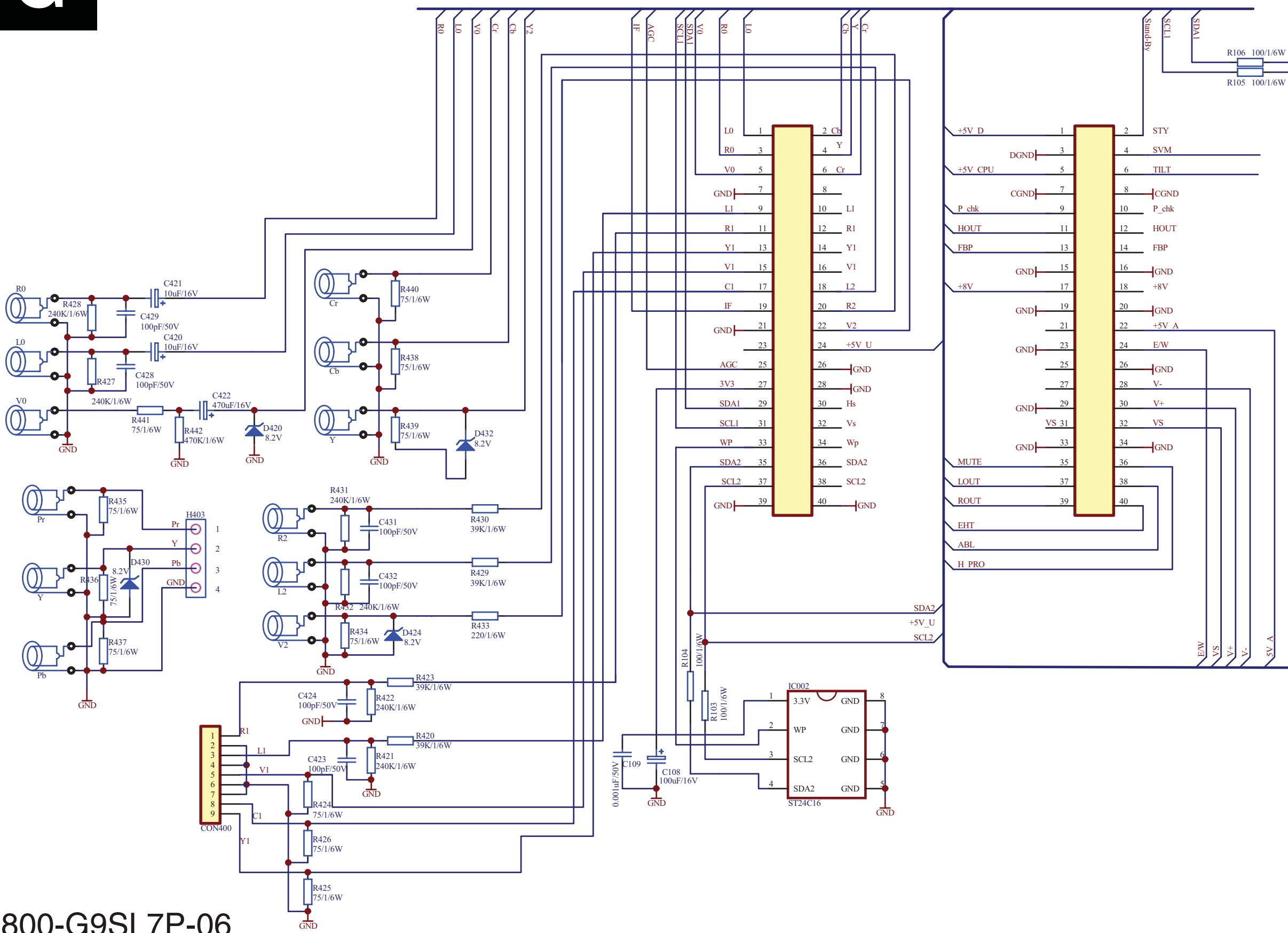


## ***Personal Notes:***

Side A/V Panel

# G SIDE AV PANEL

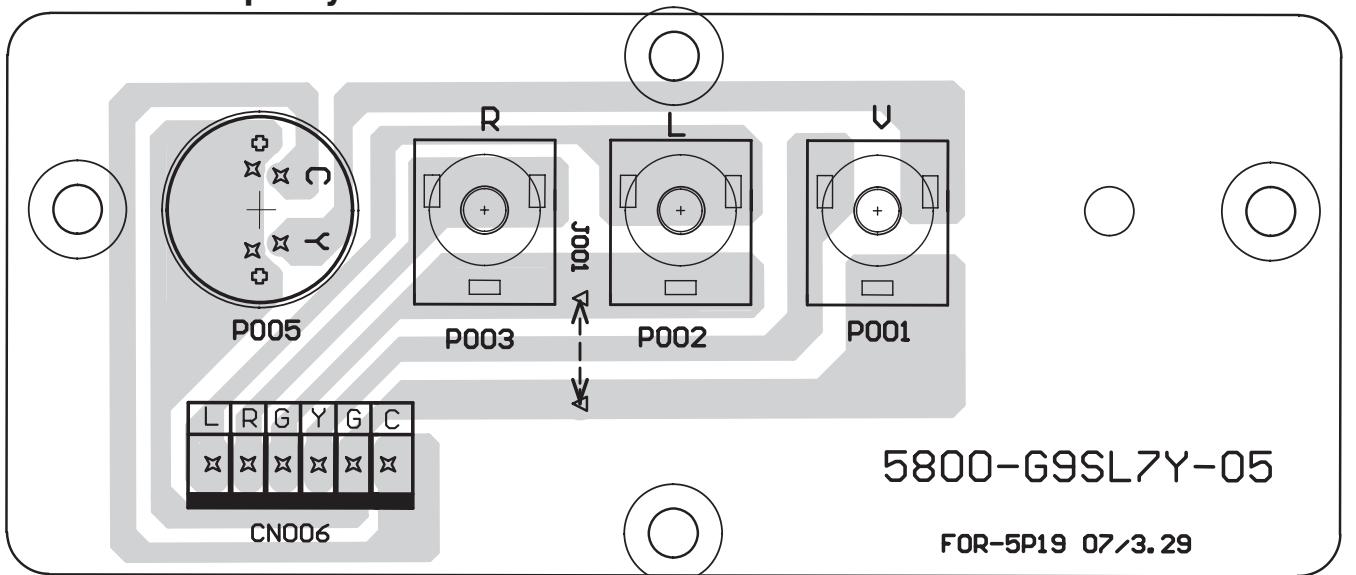
G



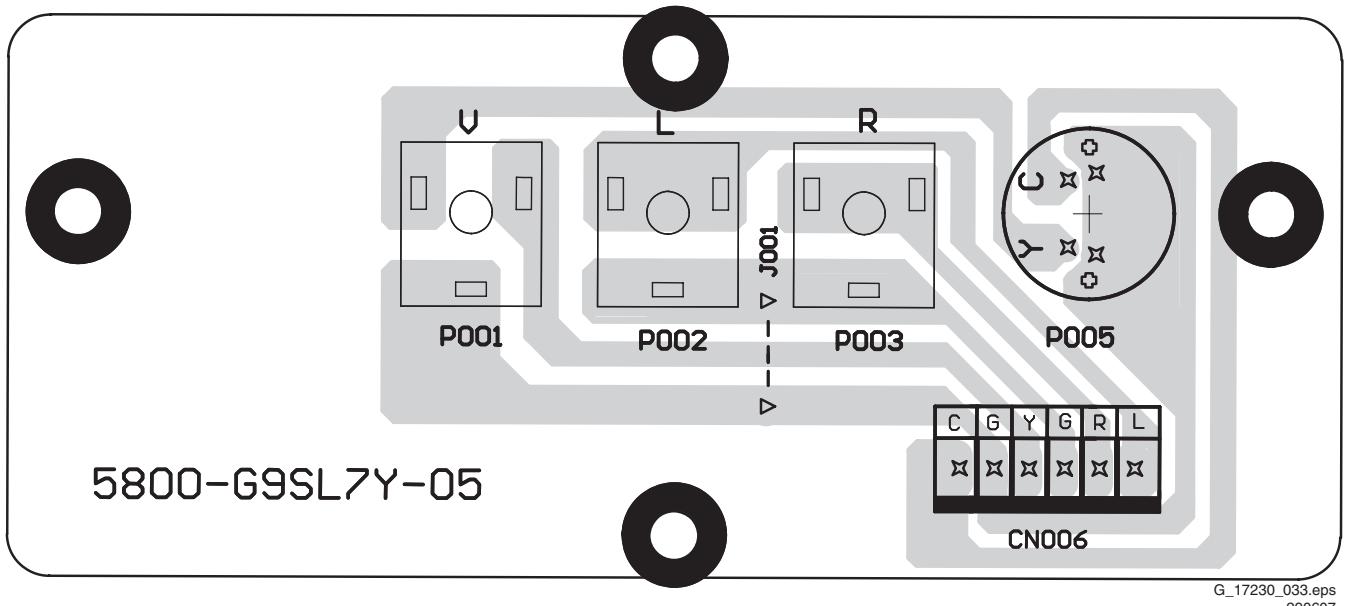
**5800-G9SL7P-06**

G\_17230\_032.eps  
290607

## **Layout Side A/V Panel (Top Side) Side AV Top Layer**

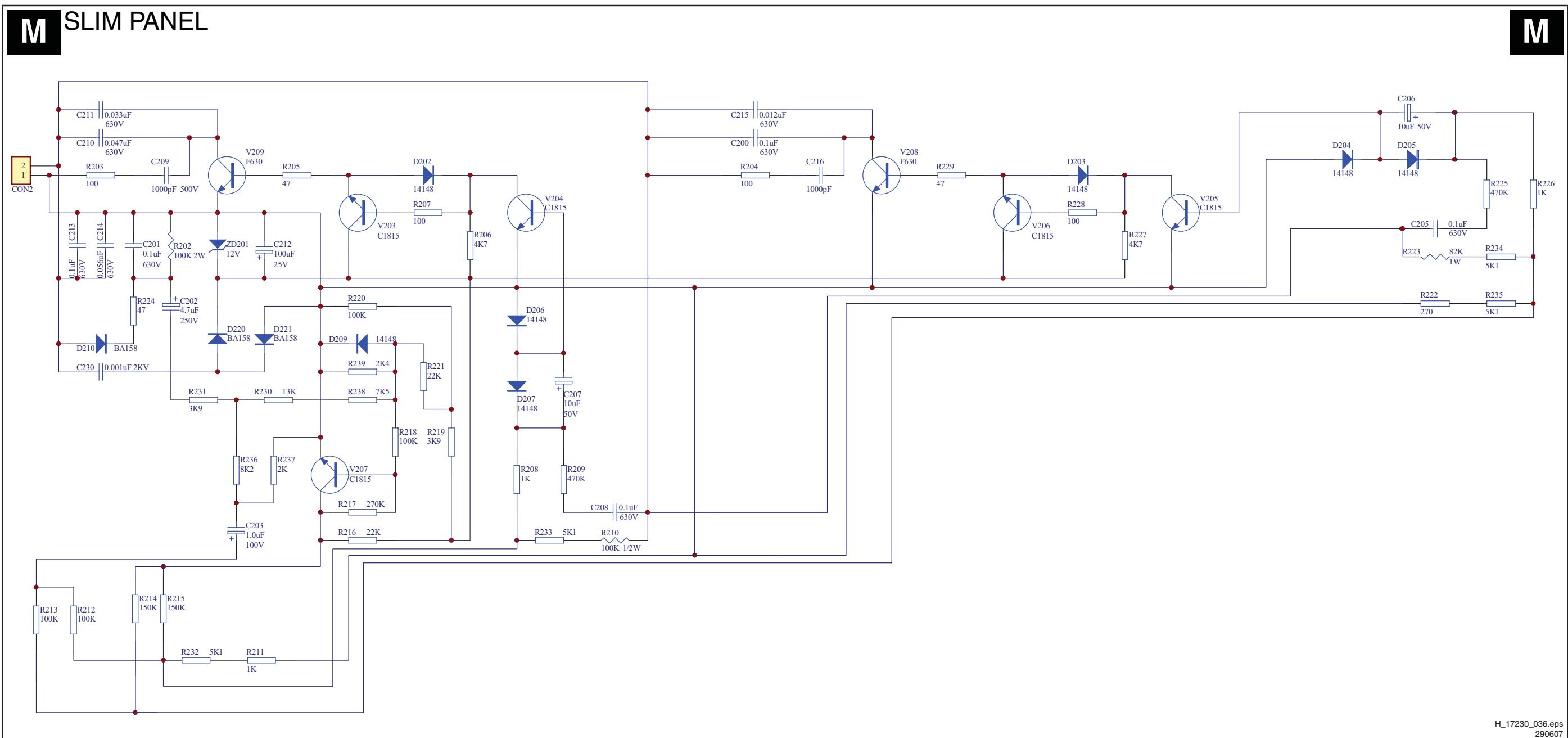


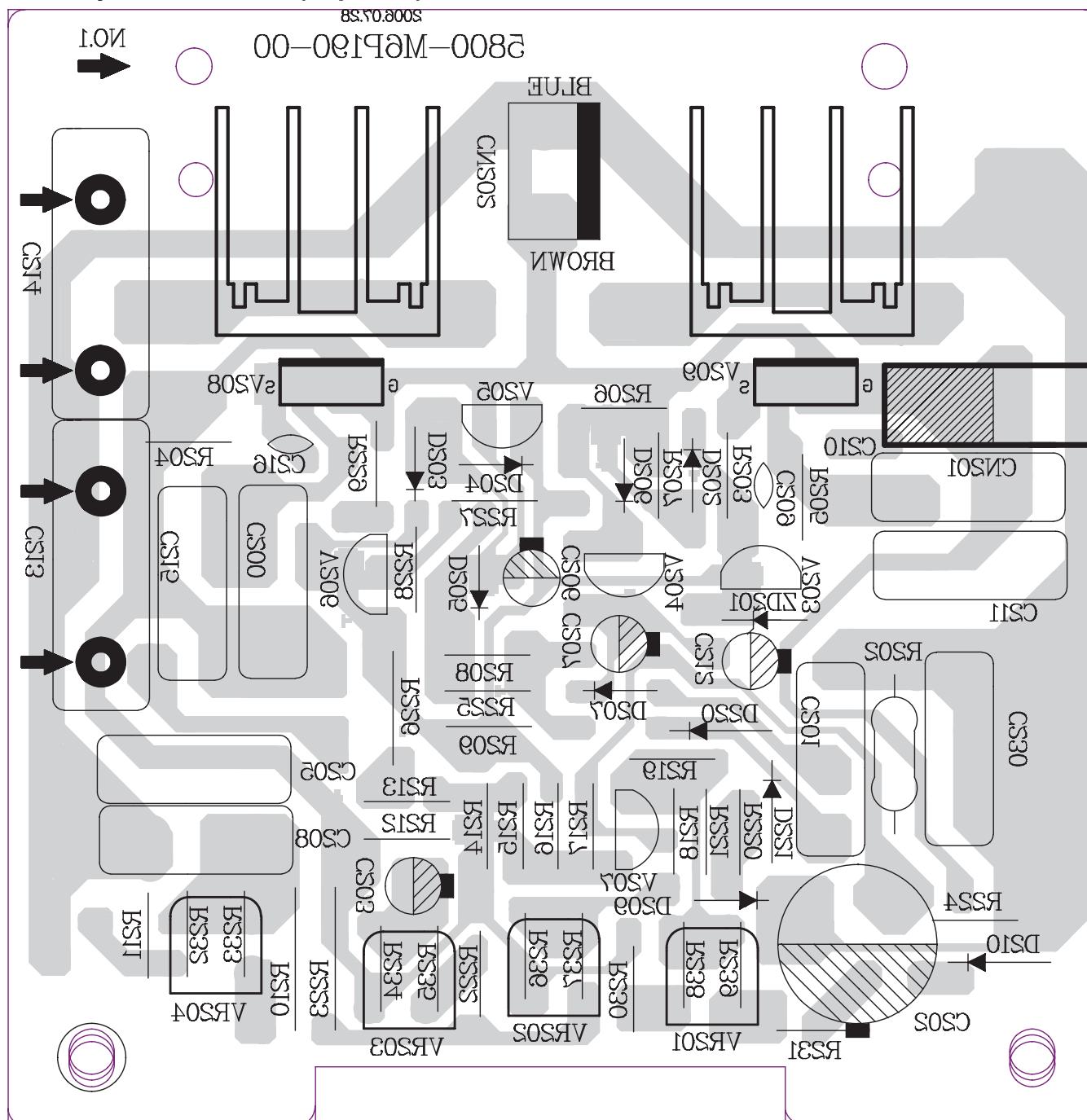
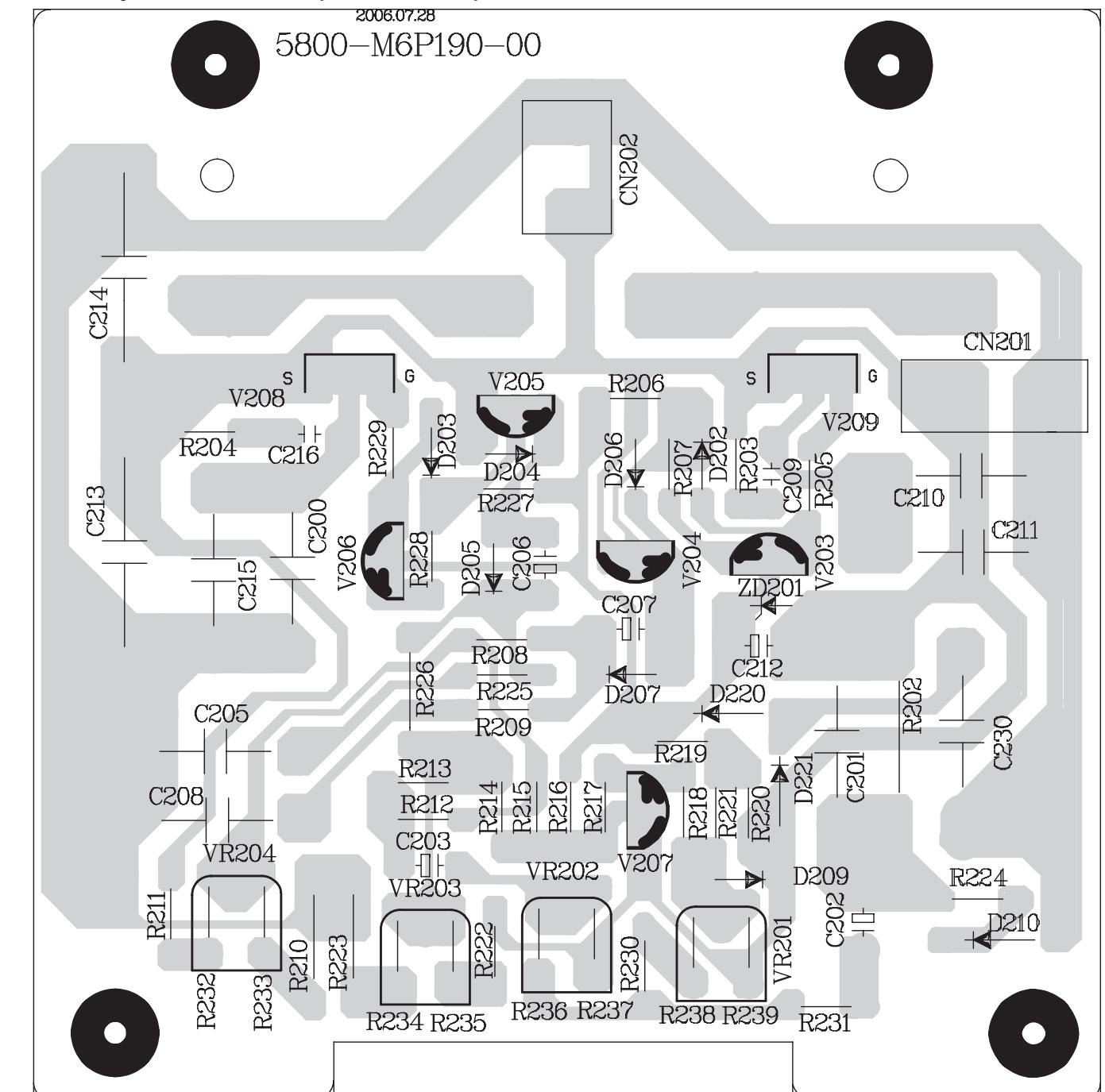
## Side AV Bottom Layer



## ***Personal Notes:***

E\_06532\_012.eps  
131004

**Slim Panel**

**Layout Slim Panel (Top Side)****Layout Slim Panel (Bottom Side)**

## 8. Alignments

### Index of this chapter:

- 8.1 General Alignment Conditions
- 8.2 Hardware Alignments
- 8.3 Software Alignments
- 8.5 Option Settings

### 8.1 General Alignment Conditions

#### 8.1.1 Default Alignment Settings

Perform all electrical adjustments under the following conditions:

- Power supply voltage: 230 V<sub>AC</sub> / 50 Hz ( $\pm 10\%$ ).
  - Connect the set to the mains via an isolation transformer with low internal resistance.
  - Allow the set to warm up for approximately 20 to 30 minutes.
  - Measure voltages and waveforms in relation to chassis ground (with the exception of the voltages on the primary side of the power supply).
- Caution:** never use heatsinks as ground.
- Test probe: 100 : 1,  $R_i > 10 \text{ Mohm}$ ,  $C_i < 3.5 \text{ pF}$ .
  - Use an isolated trimmer/screwdriver to perform alignments.

### 8.2 Hardware Alignments

**Note:** The only hardware alignment in this TV set is the adjustment of the main voltage (B+), see below.

#### 8.2.1 Main Voltage Adjustment

In order to adjust the main voltage, connect a voltage meter to J601, and adjust VR601 to a voltage of 110 V.

### 8.3 Software Alignments

Put the set in its MENU mode (factory mode or otherwise) as follows (see also figure "Factory Mode" on the next page):

- Set the volume to "0" via the volume button on the TV set.
  - Select the [i+] button on the RC while depressing the volume key.
  - Use the "up" or "down" button on the RC to navigate to a different Peripheral Menu, if necessary.
  - Use the "MENU" button on the RC to navigate to a different Core Menu, if necessary.
  - Press the "MENU" button on the RC to switch from the Peripheral Menu to the Core Menu.
  - Press the "6" button on the RC to switch from the Core Menu to the Peripheral Menu.
  - In the Peripheral Menu (after pressing "6"), enter the code "789" will make available the extra six core Menu blocks PE-1, PE-2, PE-3, PE-4, PE-5 and EP2-WRITE for editing. Press the "MENU" button on the RC to switch from the Peripheral Menu to the Core Menu, using MENU key to navigate through the available 6 core menu blocks.
- The different alignment parameters are described further on.

#### 8.3.1 GEOMETRY

##### Notes:

- Set an **external** pattern generator to a crosshatch video signal and connect the RF output to the aerial input of the TV. Set the amplitude at least 1 mV<sub>RMS</sub> (60 dB $\mu$ V) and the frequency to 475.25 MHz. Use system PAL B/G if possible, otherwise match the system of your generator with the received signal in the set.

### 8.4 Factory mode specification adjustment

#### Notes:

- Attention: of each menu item, first make a note of the current value; secondly, note the minimum/maximum value of the range that can be adjusted.
- **(default value / adjustment range)** - this item must be set up to its default value within the possible range;
- **(reference value)** - this item can depend on the production circumstances and the product parameters (which may show slight variations), so only reference values are given here;
- **(unnecessary to adjust)** - this item is unnecessary to adjust.

The factory mode includes 10 periphery menus and 6 core menus. You must input the code "789" in the eleventh periphery menu if you want to enter the last two core menus. The switching between the periphery menus takes place using the PRO key "+" and "-". The switching between the core menus is done via the "MENU" key.

All the values found in the various menu items can be adjusted via the VOL key ("+" and "-"). The values found in the Core menu must be adjusted via the PRO key ("+" and "-"). Adjustment details are given below.

Press the factory mode key to enter the factory mode. The PRO key "-" will give the opposite result, you will then leave the factory mode again.

- Brightness balance RED adjustment menu (press key "1" to enter this menu)
  - WPR - 20 / 00-3F (default value / adjustment range)
- Brightness balance GREEN adjustment menu (press key "2" to enter this menu)
  - WPG - 20 / 00-3F (default value / adjustment range)
- Brightness balance BLUE adjustment menu (press key "3" to enter this menu)
  - WPB - 20 / 00-3F (default value / adjustment range)
- Dark balance RED adjustment menu (press key "4" to enter this menu)
  - RED - 07 / 00-0F (default value / adjustment range)
- Dark balance GREEN adjustment menu (press key "5" to enter this menu)
  - GRN - 07 / 00-0F (default value / adjustment range)
- RFAGC adjustment menu:
  - RFAGC - 16 / 00-3F (default value / adjustment range)

Adjustment method: First, receive a video signal of 60 dB $\mu$ V; next, enter the factory mode and adjust the level of the RFAGC, until the image is completely noise-free (without snowflakes).

- Aging mode menu:
  - AGING
- SCREEN adjustment menu (make sure you have set the VG2-B item of the core menu PE-2 to 3F before you adjust this item)
  - VG2: IS OK

Adjustment method: Receive a video signal of any content, then set the Brightness and Contrast values of the image menu at their middle positions (level 50).

- Adjustment of the screen voltage of the horizontal output transformer: make sure the screen displays the message
  - VG2: IS OK
- Code input menu (press key "6" will enter the menu quickly):
  - P-MOD\_ \_ \_

**Enter factory mode:**

1. Set volume to "0" with the volume button on the set.
2. Select "I+" button on RC while depressing the volume key.
3. Select "up" or "down" button to navigate to different peripheral menu
4. Select "MENU" key to navigate to different core menu.
5. Switch from peripheral menu to core press "Menu" key.
6. Switch from core to peripheral menu press "6".
7. Enter code "789" at the peripheral menu after pressing "6" or scroll to the menu in the red box below



Periphery menu  
Main core menu  
"Menu" key  
Additional core menu after the "789" code

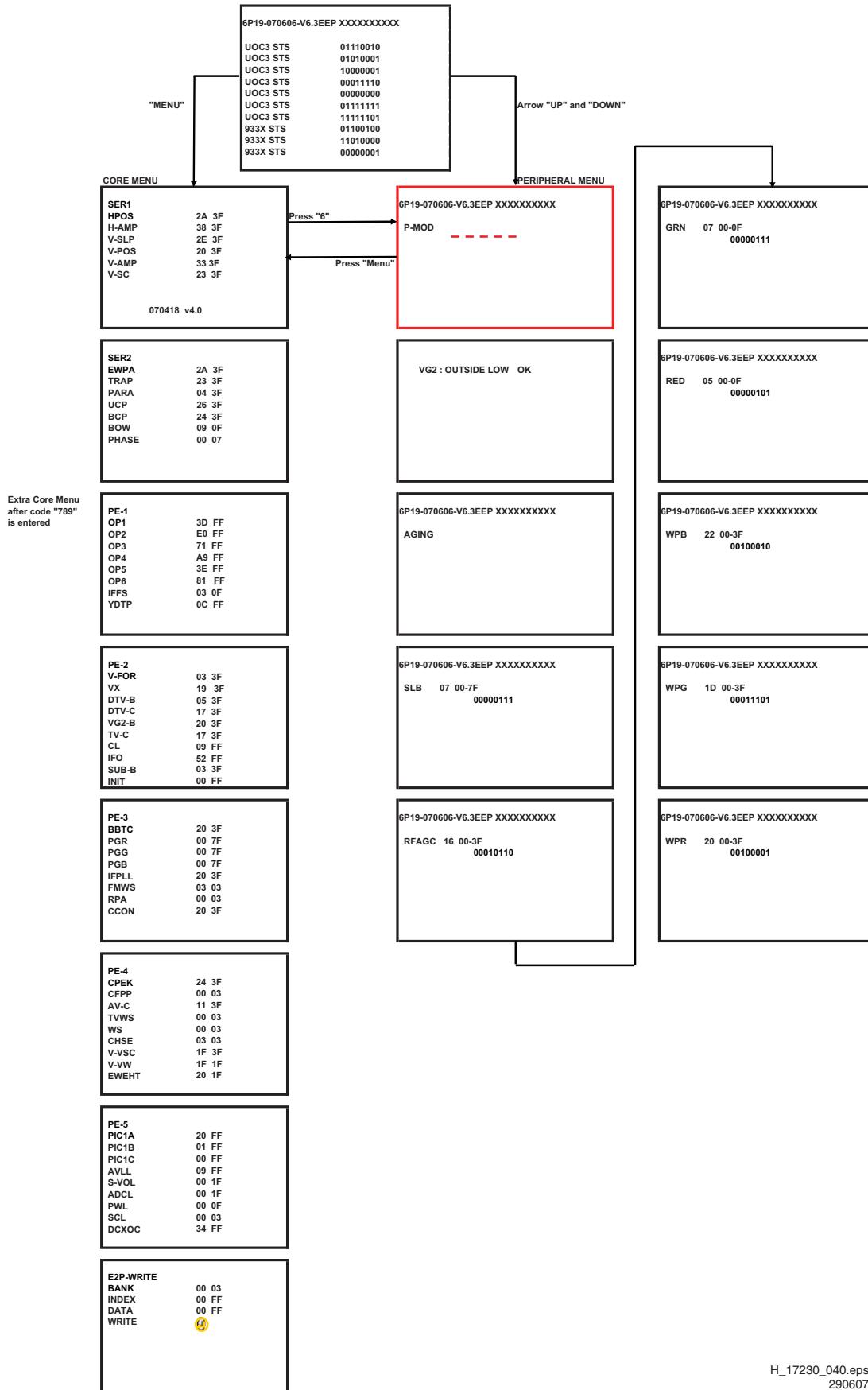


Figure 8-1 Factory Mode

After entering the code "789" and pressing the "menu" key, the core menu will be displayed orderly, or only 2 core menus will be displayed. The content of the core menu is given below:

i. Press key "menu" to display the core menu as below:

- Horizontal parameter adjustment menu (Before adjusting the items of this menu, receive the pane signal or P-card signal, then enter the factory mode to start adjustment)
  - i. SER50HZ.
  - ii. H-POS 1C /00-3F (reference value) Horizontal center.
  - iii. H-AMP 2D /00-3F (no value) Horizontal amplitude.
  - iv. V-SLP 1E /00-3F (reference value) Vertical slope.
  - v. V-POS 1D /00-3F (reference value) Vertical center.
  - vi. V-AMP 16 /00-3F (reference value) Vertical amplitude.
  - vii. V-SC 1C /00-3F (reference value) Vertical linearity.

The above items are all ordinary parameter adjustments. It is unnecessary to explain those in detail. However, pay attention to the fact that the NTSC and PAL Vertical parameter adjustments of this chassis must take place separately from each other.

- Linearity adjustment menu: (the adjustment of the items under this menu is unnecessary)
  - i. SER50HZ.
  - ii. EWPA 32 /00-3F.
  - iii. TRAP 29 /00-3F.
  - iv. PARA 08 /00-3F.
  - v. UCP 2A /00-3F.
  - vi. BCP 27 /00-3F.
  - vii. BOW 05 /00-0F.
  - viii. PHASE 00 /00-07.

Character position, SPK system etc. adjustment menu:  
(Attention:OP1 and OP2 are different from each other depending on different modes).

**Attention:** The menu given below can only be entered when the code "789" is input in the eleventh periphery menu.

• **PE-1**

- i. OP1 as below 3F /00-FF (default value / adjustment range) Switch setup of video control, commutative flat. etc.
- ii. OP2 as below E0 /00-FF (default value / adjustment range) Switch setup of SPK system, menu mode. etc.
- iii. OP3 D1 /00-FF (default value / adjustment range) Switch setup of Vertical protection, super incpt. etc.
- iv. OP4 A9 /00-FF (default value / adjustment range) rest of setup
- v. OP5 3E /00-FF (default value / adjustment range) rest of setup
- vi. OP6 81 /00-FF (default value / adjustment range) rest of setup
- vii. YDTP 0C /00-0F (default value / adjustment range) rest of setup
- viii. YDSAV 0C /00-FF (default value / adjustment range) rest of setup

• **PE-2**

- i. FOR 03 /00-3F (default value / adjustment range) Vertical frequency setup.
- ii. VX 19 / 3F (unnecessary to adjust) Vertical amplitude
- iii. OSD-H 06 / CF (default value / adjustment range). OSD horizontal position adjustment
- iv. 5/6VOSD 42/24 (default value / adjustment range). OSD vertical posiont adjustment
- v. VG2-B 20 / 00-3F (default value / adjustment range) Screen brightness adjustment.
- vi. SUB-S 17/ 00-FF (default value / adjustment range) Subsidiary saturation
- vii. CL 0C / 00-0F (default value / adjustment range) RGB output extent (cathode voltage).
- viii. IFO 0A / 00-1F (unnecessary to adjust) Fine-adjustment of intermediate frequency.

- ix. SUB-B FF / 06 (unnecessary to adjust) Subsidiary brightness adjustment
- x .INIT 00 FF Replace all factory settings.

• VG2-B adjustment method: If you cannot reach the desired effect via the tenth item of the periphery menu, you should try to change the value of this item properly (hardware adjustment), and then adjust the screen in the tenth item of the periphery menu (software adjustment).

• **PE-3**

- i. BBTC 20 /00-3F (default value / adjustment range) Colour temperature keynote setup.
- ii. PGR 00 /00-7F (default value / adjustment range) White balance red setup
- iii. PGG 00 /00-7F (default value / adjustment range). White balance green setup
- iv. PGB 00 /00-7F (default value / adjustment range). White balance blue setup
- v. IFPLL 20 / 00-3F (default value / adjustment range) IF adjustment.
- vi. FMWS 03 / 00-03 (default value / adjustment range) FM demodulation bandwidth
- vii. RPA 00 / 00-03 (default value / adjustment range) Peak RPA.
- viii. CCON 20 / 00-3F (default value / adjustment range) Contrast center point.

• **PE-4**

- i. CPEK 0D /00-3F (default value / adjustment range) Peak volume center point.
- ii. CFPP 00 /00-03 (default value / adjustment range) PAL peak center frequency
- iii. AV-C 17 /00-3F (default value / adjustment range). NTSC peak center frequency
- iv. TVWS 00 /00-03 (default value / adjustment range). YUV peak center frequency
- v. WS 01 / 00-03 (default value / adjustment range) Gamma and white amplitude setup
- vi. CHSE 03 /00-03 (default value / adjustment range) PAL/NTSC identification sensitivity
- vii. V-VSC 1F/00-3F (default value / adjustment range) Vertical adjustment.
- viii. V-VW 1B/00-1F (default value / adjustment range) Horizontal amplitude.
- ix. EWEHT 20 / 00-1F (default value / adjustment range)

• **PE-5**

- i. PIC1A 20 /00-FF (default value / adjustment range) Image upgrade IC.
- ii. PIC1B 01 /00-FF (default value / adjustment range) Image upgrade IC
- iii. PIC1C 00 /00-FF (default value / adjustment range). Image upgrade IC
- iv. AVLL 09 /00-FF (default value / adjustment range). Auto V-controll offset
- v. S-VOL 00 / 00-1F (default value / adjustment range) Mono output adjustment
- vi. ADCL 00 /00-0F (default value / adjustment range) ADC output adjustment
- vii. PWL 00 /00-1F (default value / adjustment range) 933x Peak white limit adjustment.
- viii. SCL 02 /00-03 (default value / adjustment range) 933x Soft clipping level adjustment.
- ix. DCXOC 34 / 00-FF (default value / adjustment range) Colour in-phase range adjustment.

• **E2P - WRITE**

- BANK 00 03
- INDEX 00 FF
- DATA 00 FF
- WRITE

## 8.5 Option Settings

### 8.5.1 Introduction

The microprocessor communicates with a large number of I<sup>2</sup>C ICs in the set. To ensure good communication and to make digital diagnosis possible, the microprocessor has to know which ICs to address. The presence / absence of these specific ICs (or functions) is made known by the option codes.

### 8.5.2 Changing options

Enter the factory mode, as has been described earlier in this chapter. All changes in the option settings are saved as soon as you leave the menu. Some changes will only take effect after the set has been switched OFF and ON with the mains switch (cold start).

### 8.5.3 Option Settings

In the following table, you will find the (PE-1) option settings.

**Table 8-1 Option bits (can be switched ON or OFF in factory mode; 0 = OFF; 1 = ON)**

Option Byte Number (OP1... OP6)	Bit Number (Dec. value)	Option Name	Features	SK6.0A CA
1	0 (1)	OP_BG_SOUND	BG System on/off	1
	1 (2)	OP_M_SOUND	M System on/off	1
	2 (4)	OP_AV2	AV2 socket selection	1
	3 (8)	OP_SVHS	S-video socket selection	1
	4 (16)	OP_DVD	DVD input selection	1
	5 (32)	OP_AV_OUT	AV output	1
	6 (64)	OP_AUTO_SOUND	automatic sound switch	0
	7 (128)	OP_ON_SOURCE	Power ON mode selection	1
2	0 (1)	OP_COMB	Comb filter on/off (available for AV and NTSC)	0
	1 (2)	OP_REFRESH	Factory parameter refurbish	0
	2 (4)	OP_FMWS	bandwidth of sound channel	0
	3 (8)	OP_DSK	Dynamic Skin Tone Correction (TV)	0
	4 (16)	OP_DUB	DUB, DBE vol-effect selection (1 = small speaker 25 inch; 0 = big speaker)	0
	5 (32)	OP_RESET	Power ON inspect circuit; 1: open; 2: close	1
	6 (64)	OP_SENSI	sensitivity (during search mode)	1
	7 (128)	OP_TEMP	Colour temperature function	1
3	0 (1)	OP_XDT	X ray test mode (1 = on; 0 = off)	1
	1 (2)	OP_MUTE	Volume interrupt mode	0
	2 (4)	OP_FCO	colour system selection (automatic - non automatic)	0
	3 (8)	OP_EVG	Horizontal protection mode (0 = protection mode; 1 = test mode)	0
	4 (16)	OP_MUS	N system selection (1 = American system; 0 = Japanese system)	1
	5 (32)	OP_FFI	fast filter IF-PLL	0
	6 (64)	OP_CMSS	UOC CMSS bit	1
	7 (128)	OP_SUPERWOOFER	sound effect selection	1
4	0 (1)	OP_DSP	Audio channels treated by DSP	1
	1 (2)	OPLOUDNESS	Loudness selection	1
	2 (4)	OP_PROG_SCAN	Automatic scan function on/off	1
	3 (8)	OP_IDENT_SENSI	PAL/NTSC colour sensitivity	1
	4 (16)	OP_ACL	Auto colour limit	0
	5 (32)	OP_IDENT_SL	Search Identification signal SL (see Note below)	1
	6 (64)	OP_IDENT_SID	Search Identification signal SID (see Note below)	0
	7 (128)	OP_TILT	Geomagnetism compensation	1
<b>Note:</b> bit 5, bit 6: 00 = SL or SID; 01 = SID; 10 = SL; 11 = SL and SID				
5	0 (1)	OP_V12_ENGINE	V12	1
	1 (2)	OP_M37161	OSD selection (1 = Mitsubishi; 0 = UOCIII)	1
	2 (4)	OP_EQ	Equalizer selection	1
	3 (8)	OP_SMU	restore factory settings	1
	4 (16)	OP_RGB	RGB input selection	1
	5 (32)	OP_SPATIAL	Spatial effect selection	1
	6 (64)	OP_A12	A12 selection	1
	7 (128)	OP_BARCODE	barcode	0
6	0 (1)	OP_16_9	16:9 mode selection	1
	1 (2)	OP_9333	1 = 9333; 0 = 9330	0
	2 (4)	OP_STILL	Frozen picture function	1
	3 (8)	OP_AI	Rear AV	1
	4 (16)	OP_SCREEN_SAVER	screen saver on/off	1
	5 (32)	OP_MUSIC_TV	Allow audio throughput ("0") or not ("1") without the presence of a video signal	1
	6 (64)	OP_CALENDAR	perpetual calendar	1
	7 (128)	OP_SCAN_MODE	Scan mode selection	1

## 9. Circuit Descriptions, Abbreviation List, and IC Data Sheets

### Index of this chapter:

- 9.1 Introduction
- 9.2 The various circuits
- 9.3 Abbreviation List
- 9.4 IC Data Sheets

### 9.1 Introduction

The SK6.0A CA is a CRT TV for the year 2007, based on the 6P19 platform. In this chapter, only a general description of the various circuits is given. For more detailed information, see the circuit diagrams in this manual.

### 9.2 The various circuits

#### 9.2.1 Tuner

The function of the tuner is to select the channel to be received and suppress the interference of neighboring channels, to amplify the high frequency signal, to improve the receiving sensitivity and SNR, and to generate a PIF signal through frequency conversion.

#### 9.2.2 IF Channel

The IF Channel mainly ensures the sensitivity and selectivity of the complete TV set. The IF AMP integrated in the Ultimate One Chip of the third generation (UOCIII) is made up of a three-stage dual-differential amplifier with a gain value above 70 dB, a SNR of 55 dB and a bandwidth of 7 MHz. The video demodulation circuit is made from the built-in PLL Sync Detector. The spectrum of the demodulation carrier is unitary and it is not affected by the content of the video signal. The built-in PLL circuit of the UOCIII generates a 38.0 MHz or 38.9 MHz demodulation reference signal for the sync detector to demodulate the video signal; this is called "PLL sync demodulation".

#### 9.2.3 Sound Channel

An external ceramic filter is used to select the second SIF signal for the sound channel of UOCIII from the signal output of the video detector. The audio signal is obtained after limiting amplification and demodulation by the intermediate frequency detector for the SIF signal, and then the audio signal is output to the audio amplifier TDA7266., which drives the speaker to provide the sound. The intermediate frequency detector and volume-control attenuator that are built in the UOCIII are set and adjusted via the CPU.

#### 9.2.4 CRT Drive Circuit

In the driver circuit, both the voltage and current of the RGB signal are amplified, after which the CRT drive circuit modulates the cathode beam current of the CRT. The RGB signal input into the driver circuit is of negative polarity.

#### 9.2.5 Power Supply Circuit

The function of the power supply circuit is to supply various stabilized operating voltages and to provide protections against excessive voltages and currents.

### 9.3 Abbreviation List

2CS	2 Carrier Sound
A2	Commonly known as 2 Carrier Sound (2CS) system
AC	Alternating Current
ACI	Automatic Channel Installation: algorithm that installs TV channels directly from a cable network by means of a predefined TXT page
ADC	Analogue to Digital Converter
AFC	Automatic Frequency Control: control signal used to tune to the correct frequency
AGC	Automatic Gain Control: algorithm that controls the video input of the feature box
AM	Amplitude Modulation
AMP	Amplifier
ANC	Automatic Noise Reduction; One of the algorithms of Auto TV
AP	Asia Pacific
AR	Aspect Ratio: 4 by 3 or 16 by 9
AV	Audio Video
AVL	Automatic Volume Level control
B/G	Monochrome TV system. Sound carrier distance is 5.5 MHz
BCL	Beam Current Limiter
CBA	Circuit Board Assembly (or PWB)
CFR	Carbon Film Resistor
ComPair	Computer aided rePair
CPU	Central Processor Unit
CRT	Cathode Ray Tube (or picture tube)
CVBS	Composite Video Blanking and Synchronisation
CVI	Component Video Input
D/K	Monochrome TV system. Sound carrier distance is 6.5 MHz. D= VHF-band, K= UHF-band
DAC	Digital to Analogue Converter
DC	Direct Current
DC-filament	Filament supply voltage
DFU	Directions For Use: owner's manual
DPL	Dolby Pro Logic
DRAM	Dynamic RAM; dynamically refreshed RAM
DVD	Digital Versatile Disc
EEPROM	Electrically Erasable and Programmable Read Only Memory
EHT	Extreme High Tension; the voltage between the cathode and the shadow mask that accelerates the electrons towards the screen (around 25 kV)
EMI	Electro Magnetic Interference; Leakage of high-frequency radiation from a transmission medium
EU	Europe
EW	East West, related to horizontal deflection of the set
EW-DRIVE	East -West correction drive signal.
EXT	EXternal (source), entering the set by SCART or by cinches (jacks)
FBL	Fast Blanking: DC signal accompanying RGB signals
FE	Front End; Tuner and RF part together
Field	Each interlaced broadcast FRAME is composed of two Fields, each Field consists of either Odd or Even lines
Filament	Filament of CRT
FM	Field Memory / Frequency Modulation

Frame	A complete TV picture comprising all lines (625/525)		America (colour carrier PAL M= 3.575612 MHz and PAL N= 3.582056 MHz)
FTV	Flat TeleVision	PCB	Printed Circuit Board (or PWB)
G	Green	PIF	Picture Intermediate Frequency
H	H_sync to the module	PLL	Phase Locked Loop; Used for e.g. FST tuning systems. The customer can directly provide the desired frequency
H-DRIVE	Horizontal Drive		
H-FLYBACK	Horizontal Flyback		
H-OUT	H_sync output of the module / Horizontal Output pulse	Progressive Scan	Scan mode where all scan lines are displayed in one frame at the same time, creating a double vertical resolution.
HA	Horizontal Acquisition; horizontal sync pulse		
HFB	Horizontal Flyback Pulse; Horizontal sync pulse from large signal deflection		
HW	Hardware	PTC	Positive Temperature Coefficient, non linear resistor (resistance increases if temperature increases)
I	Monochrome TV system. Sound carrier distance is 6.0 MHz. VHF- and UHF-band	PWB	Printed Wiring Board (also called PCB or CBA)
I <sup>2</sup> C	Inter IC bus (also called IIC)	QSS	Quasi Split Sound
I <sup>2</sup> S	Inter IC Sound bus	R	Right audio channel / Red
IC	Integrated Circuit	RAM	Random Access Memory
IF	Intermediate Frequency	RC	Remote Control transmitter
IIC	Inter IC bus (also called I2C)	RC5 (6)	Remote Control system 5 (6), the signal from the remote control receiver
Interlaced	Scan mode where two fields are used to form one frame. Each field contains half the number of the total amount of lines. The fields are written in "pairs", causing line flicker.	RF	Real Flat (picture tube) or Radio Frequency
IO	In/Out	RGB	Red, Green, and Blue colour space; The primary colour signals for TV. By mixing levels of R, G, and B, all colours (Y/C) are reproduced
IR	Infra Red		
L	Left audio channel	RGBHV	Red, Green, Blue, Horizontal sync, and Vertical sync
L/L'	Monochrome TV system. Sound carrier distance is 6.5 MHz. L' is Band I, L is all bands except for Band I	RMS	Root Mean Square value
LATAM	LATin AMerica	ROM	Read Only Memory
LED	Light Emitting Diode	SAP	Secondary Audio Program; Generally used to transmit audio in a second language
LOT	Line Output Transformer (also called FBT); The transformer in which the EHT is generated	SAW	Surface Acoustic Wave
LS	Loud Speaker	SC	SandCastle: two-level pulse derived from sync signals
M/N	Monochrome TV system. Sound carrier distance is 4.5 MHz. M= 525 lines @ 60 Hz, N= 625 lines @ 50 Hz	S/C	Short Circuit
MOFR	Metal Oxide Film Resistor	SCL	Serial Clock signal on I <sup>2</sup> C bus
MOSFET	Metal Oxide Semiconductor Field Effect Transistor	SD	Standard Definition
MPX	MultiPleX	SDA	Serial Data line of I <sup>2</sup> C bus
NAFTA	North American Free Trade Association: Trade agreement between Canada, USA and Mexico	SDRAM	Synchronous DRAM
NC	Not Connected	SIF	Sound Intermediate Frequency
NICAM	Near Instantaneously Companded Audio Multiplexing; This is a digital sound system, mainly used in Europe	SMC	Surface Mounted Component
NTC	Negative Temperature Coefficient, non-linear resistor (resistance decreases if temperature increases)	SMD	Surface Mounted Device
NTSC	National Television Standard Committee. Colour system used mainly in North America and Japan. Colour carrier NTSC M/N = 3.579545 MHz, NTSC 4.43 = 4.433619 MHz (this is a VCR norm, it is not transmitted off-air)	SMPS	Switched Mode Power Supply
NVM	Non Volatile Memory; IC containing data such as alignment values, preset stations	SND	Sound
OB	Option Byte	SNR	Signal to Noise Ratio
OC	Open Circuit	SRAM	Static RAM
OP	OPtion byte	STBY	STandBY
OSD	On Screen Display	SVHS	Super Video Home System
P50	Project 50; Communication protocol between TV and peripherals	TBD	To Be Defined
PAL	Phase Alternating Line; Colour system mainly used in West Europe (colour carrier= 4.433619 MHz) and South	TXT	Teletext; TXT is a digital addition to analogue TV signals that contain textual and graphical information (25 rows x 40 columns). The information is transmitted within the first 25 lines during the Vertical Blank Interval (VBI)
		µC	Microcontroller
		UOC	Ultimate One Chip
		µP	Microprocessor
		UV	Colour difference signals
		V	V_sync
		V-BAT	Main supply for deflection (usually 141 V)
		VA	Vertical Acquisition
		VBI	Vertical Blanking Interval; Time during which the video signal is blanked when going from bottom to top of the display
		VCR	Video Cassette Recorder
		VGA	Video Graphics Array
		VIF	Video Intermediate Frequency

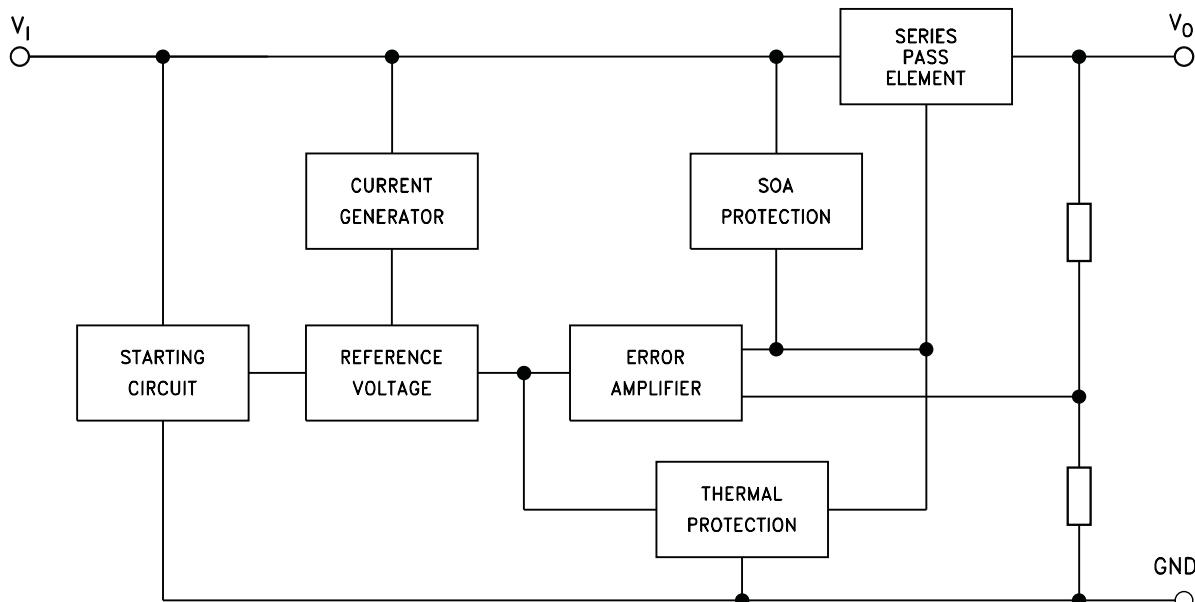
WE	Write Enable control line
WST	World System Teletext
XTAL	Quartz crystal
Y	Luminance signal

## 9.4 IC Data Sheets

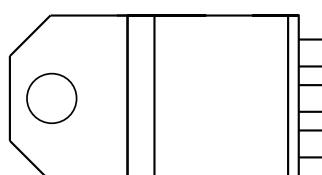
This section shows the internal block diagrams and pin layouts of ICs that are drawn as "black boxes" in the electrical diagrams.

### 9.4.1 Diagram A1, L7800 (IC604:608)

#### Block Diagram

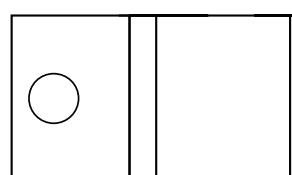


#### Pin Configuration



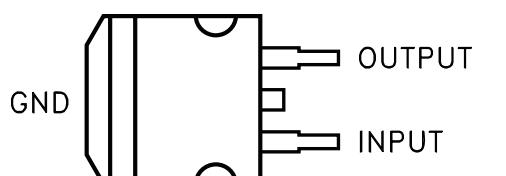
CS05710

TO-220

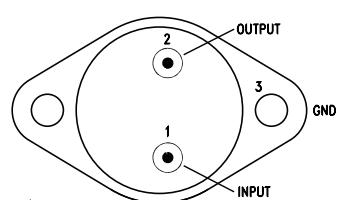


CS05700

TO220FP



PC11920

D<sup>2</sup>PAK (Any Type)

TO-3

Figure 9-1 Internal block diagram and pin configuration

## 9.4.2 Diagram A1, STR-W6756 (IC601)

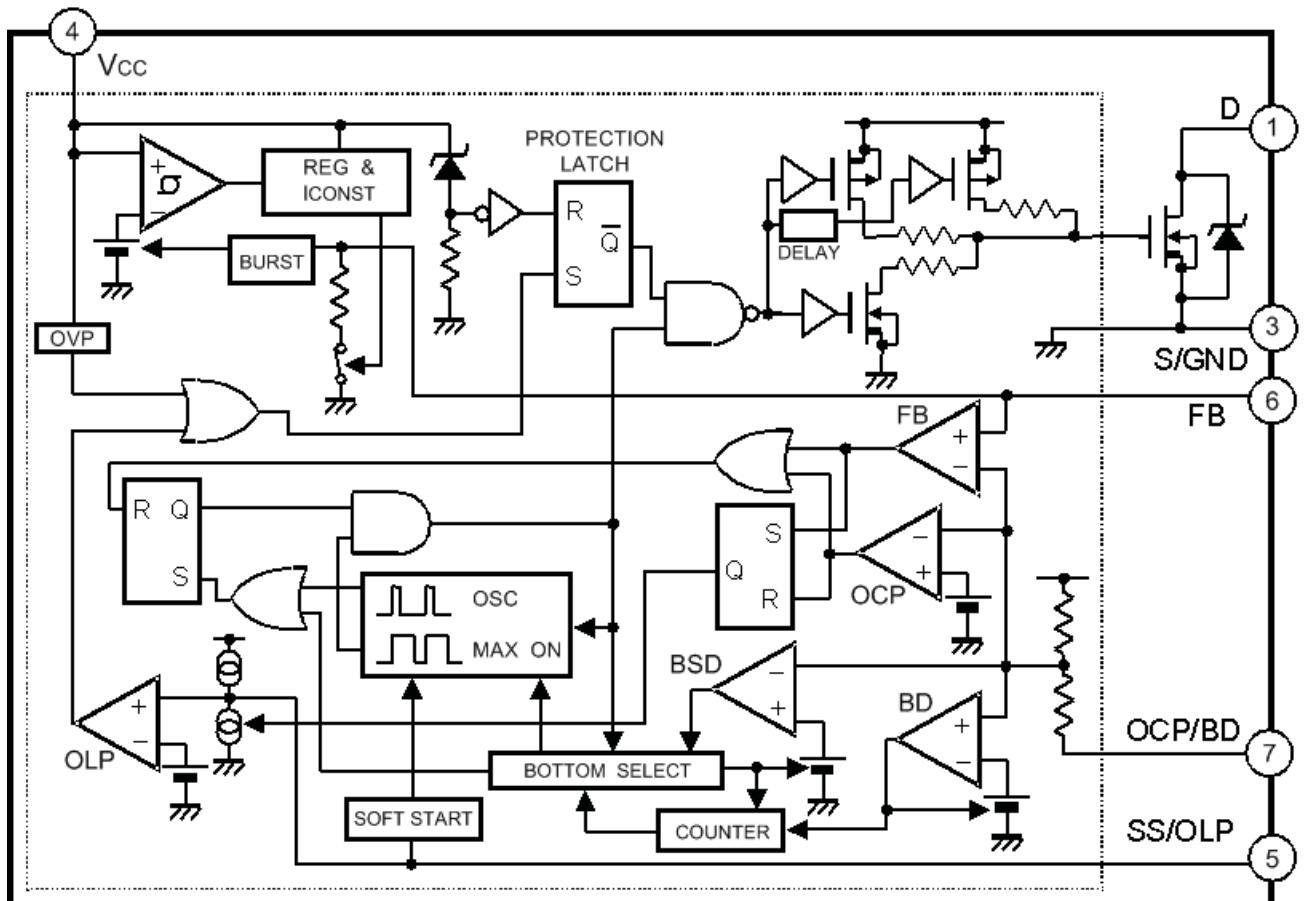
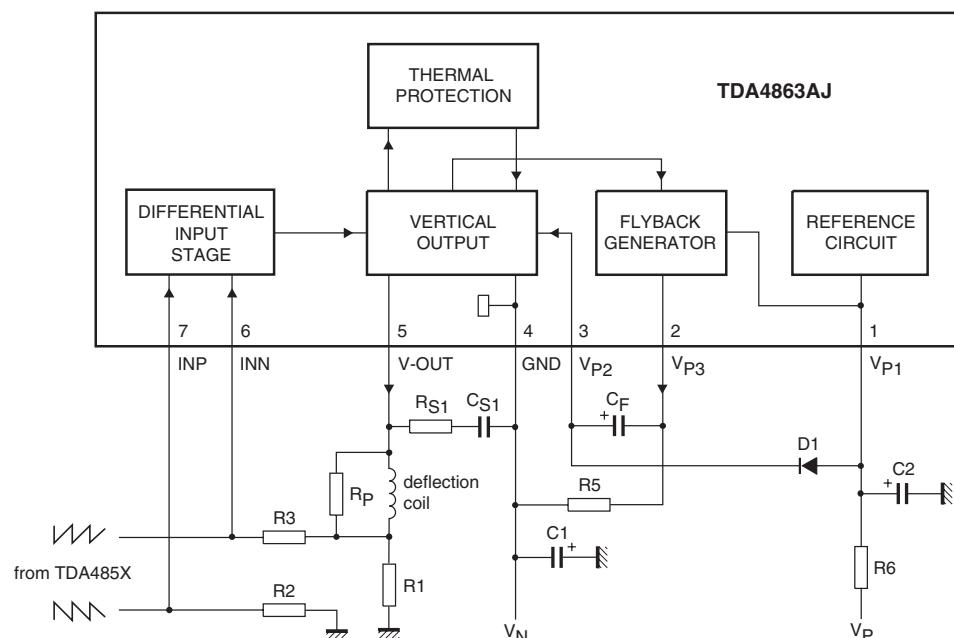
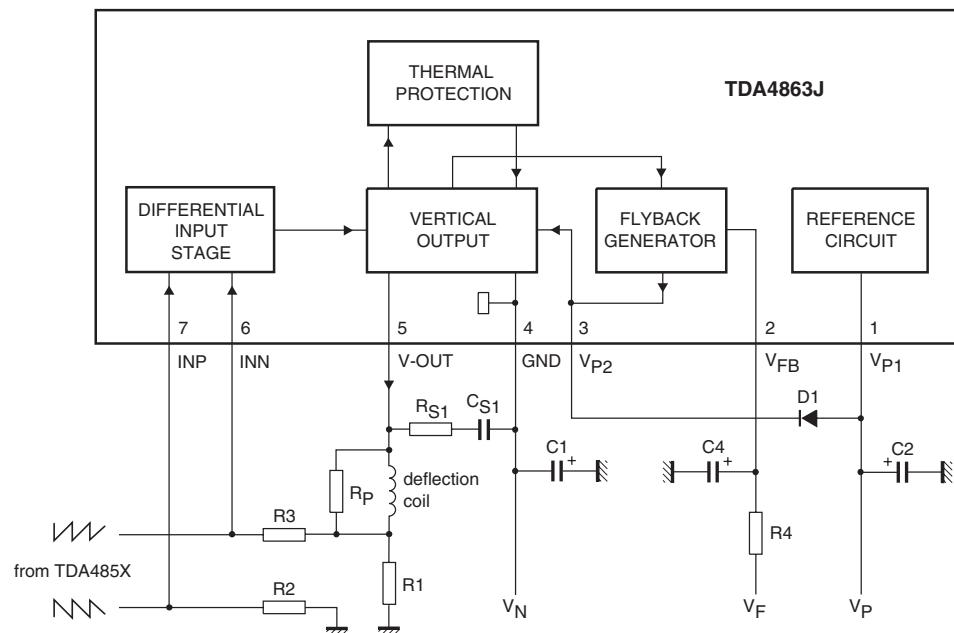
**Block Diagram****Pin Configuration**G\_16550\_046.eps  
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Figure 9-2 Internal block diagram and pin configuration

## 9.4.3 Diagram A3, TDA4863 (IC301)

## Block Diagram



## Pin Configuration

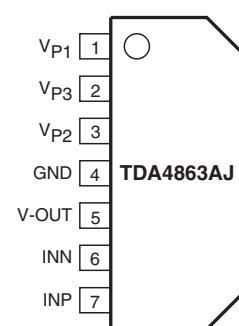
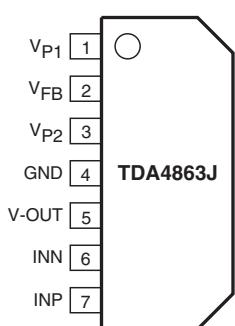
G\_16550\_043.eps  
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Figure 9-3 Internal block diagram and pin configuration

## 9.4.4 Diagram A6, TDA7266B (IC401)

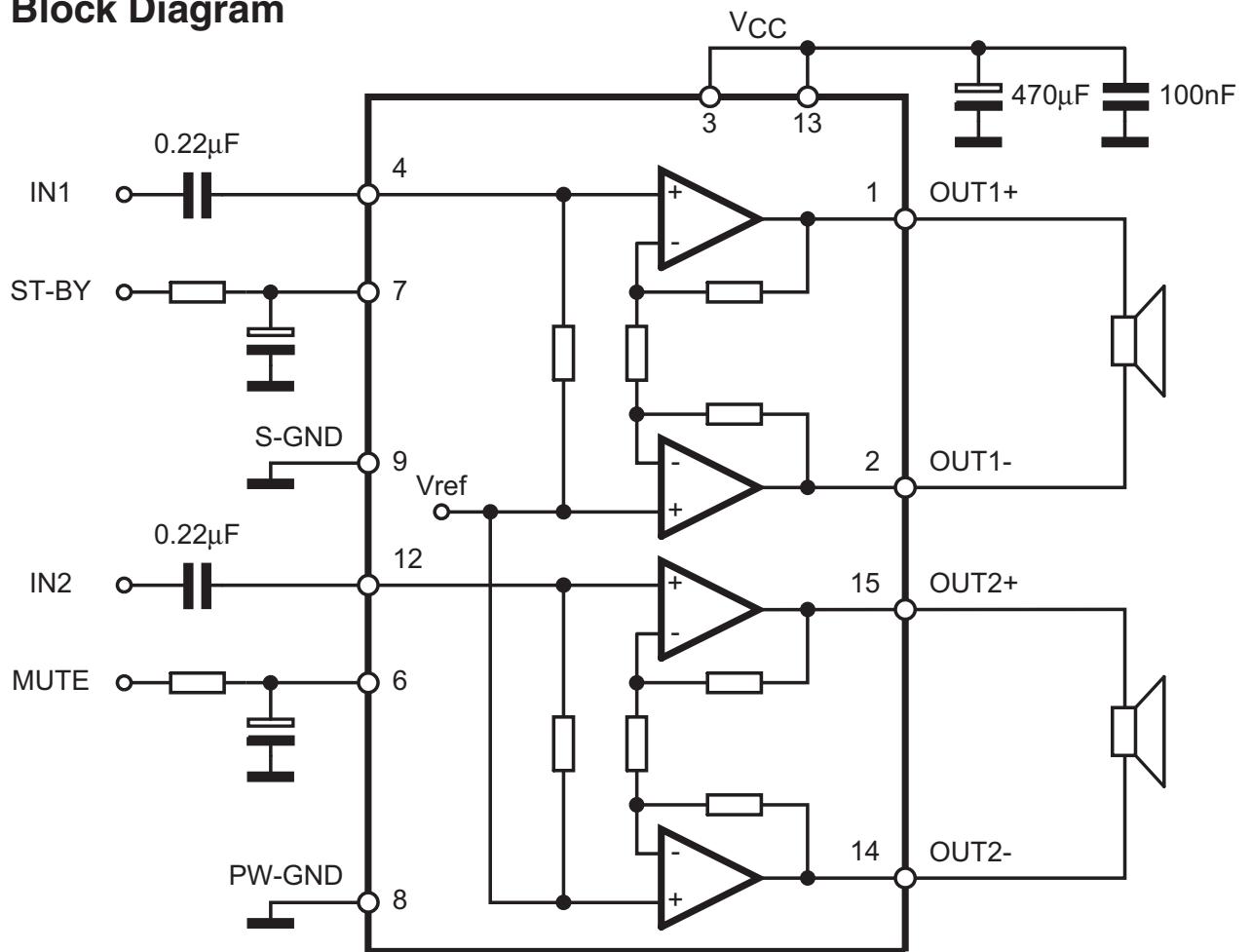
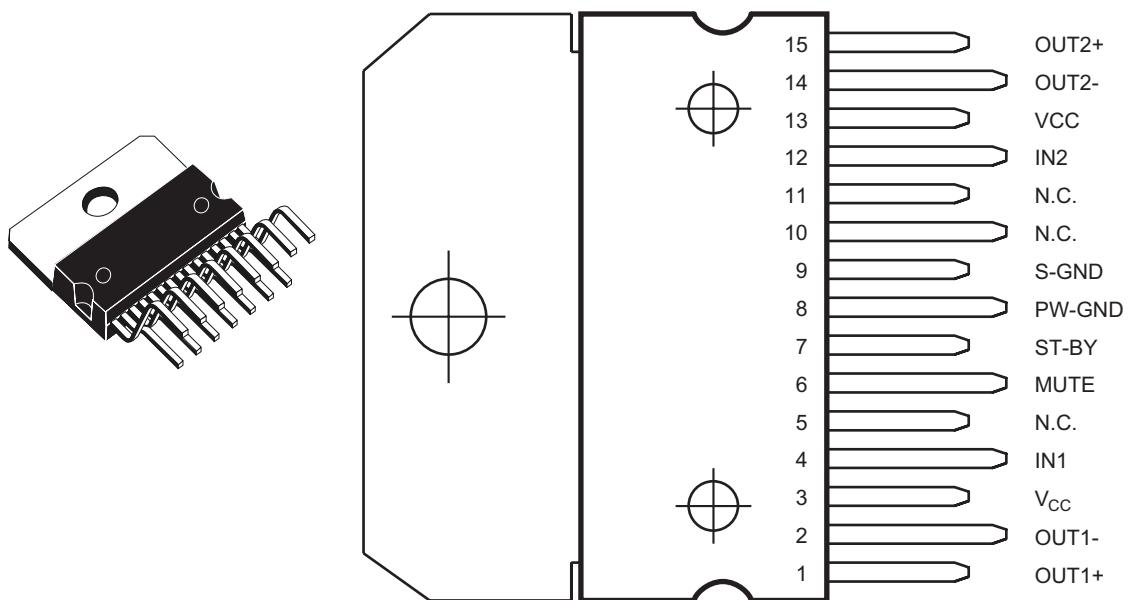
**Block Diagram****Pin Configuration**G\_16550\_045.eps  
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Figure 9-4 Internal block diagram and pin configuration

## 9.4.5 Diagram B1, TDA6111Q (IC501:503)

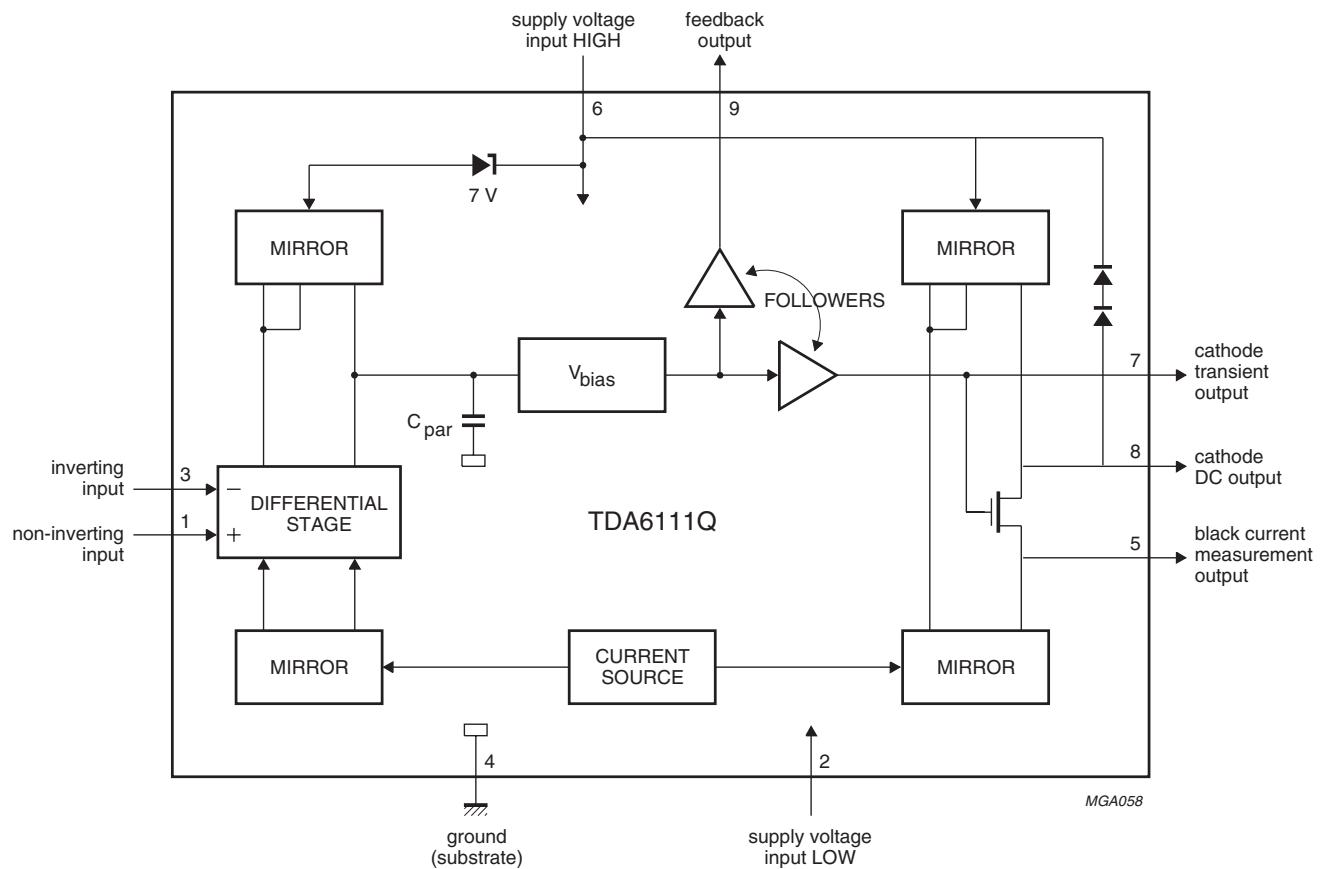
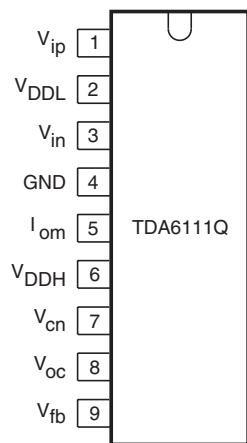
**Block Diagram****Pin Configuration**G\_16550\_044.eps  
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Figure 9-5 Internal block diagram and pin configuration

## 9.4.6 Diagram C1, TDA9333 (UN500)

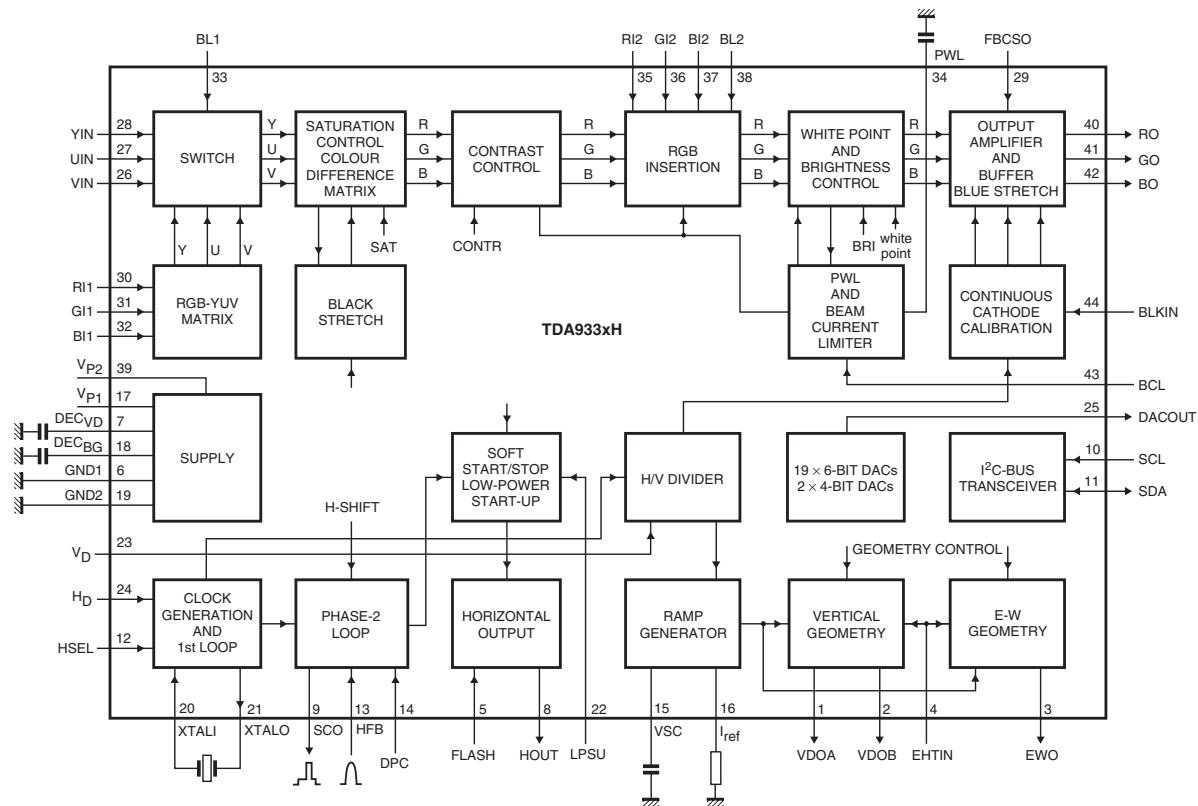
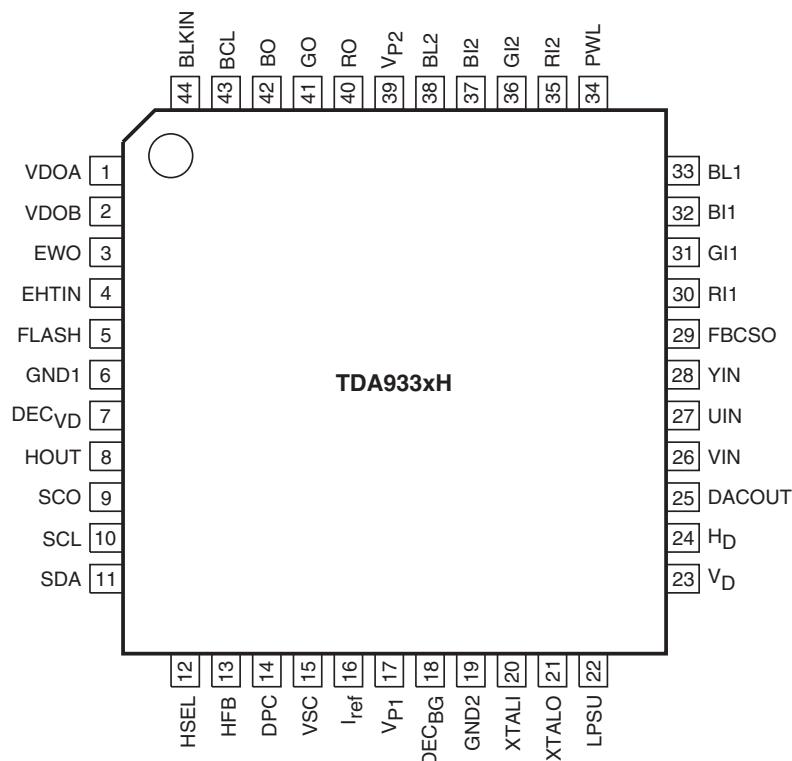
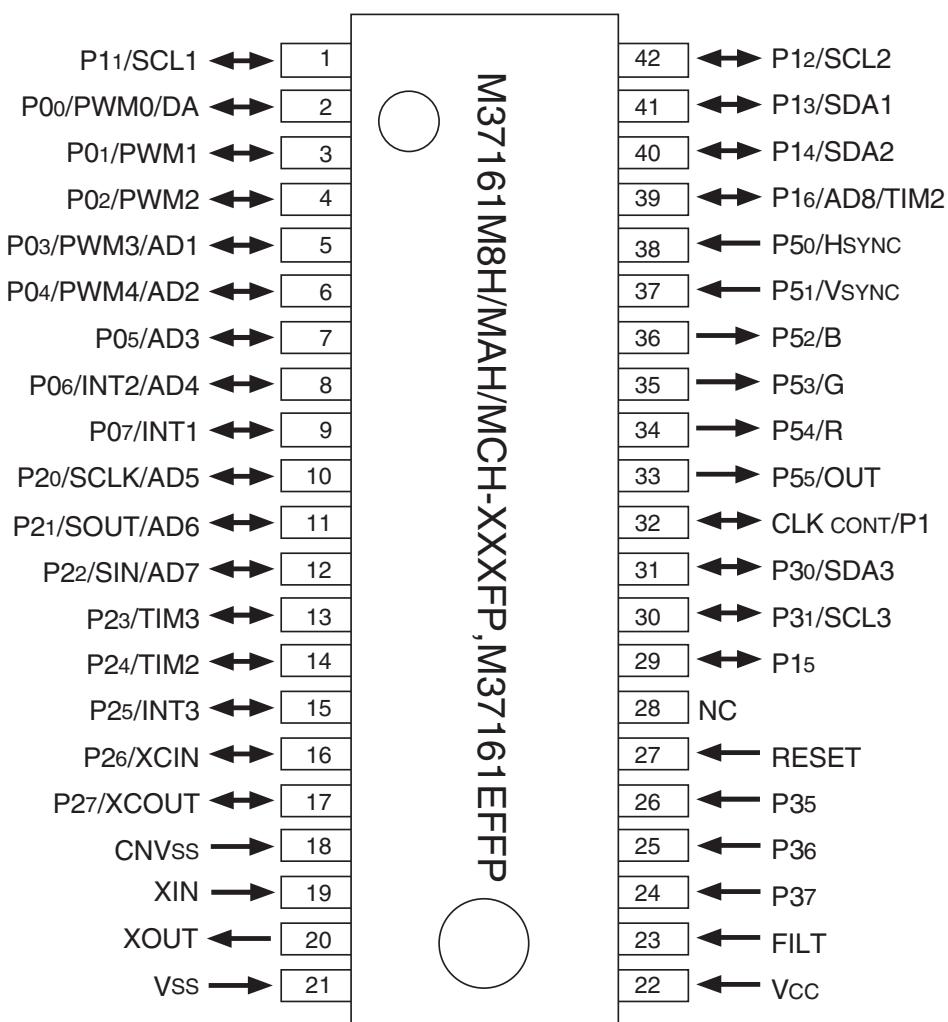
**Block Diagram****Pin Configuration**

Figure 9-6 Internal block diagram and pin configuration

## 9.4.7 Diagram C1, TDA9333 (UN500)

## Block Diagram (not available)

## Pin Configuration

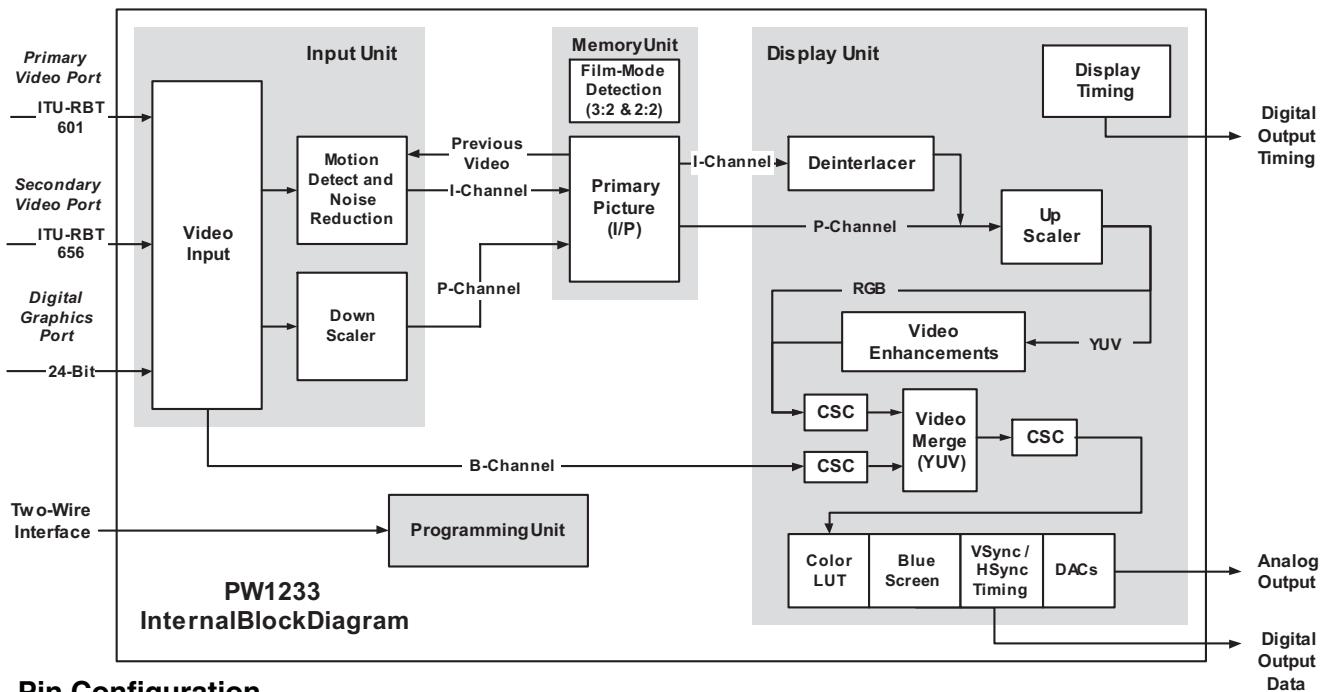


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Figure 9-7 Internal block diagram and pin configuration

## 9.4.8 Diagram C2, PW123x (UN300)

**Block Diagram****Pin Configuration**

MCLKFB	192	MCUDR	193	MCUDR	194	NC	195	NC	196	NC	197	NC	198	NC	199	NC	200	NC	201	PVSS	202	MA4	203	MA3	204	VDD	205	MA5	206	MA2	207	PVDD	208	MA6	209	MA1	210	MA7	211	PVSS	212	MA0	213	MA8	214	MA10	215	PVDD	216	MA9	217	MA13	218	VSS	219	MA11	220	MA12	221	PVSS	222	MCLKFB	223	PVDD	224	MRAS	225	MCAS	226	MWE	227	PVSS	228	MCLK	229	PVDD	230	MD8	231	MD7	232	PVSS	233	MD9	234	VDD	235	MD6	236	PVDD	237	MD10	238	MD5	239	PVSS	240	MD11	241	MD4	242	PVDD	243	MD12	244	MD3	245	PVSS	246	MD13	247	MD2	248	PVDD	249	MD14	250	VSS	261	MD1	262	PVSS	263	MD15	264	MD0	265	PVDD	266
VBO	1	VB1	2	VB2	3	VB3	4	VB4	5	VB5	6	VB6	7	VB7	8	VB8	9	VB9	10	PVSS	11	SVHS	12	SVHS	13	PVDD	14	VGA	15	VGA	16	VGA	17	VGA	18	VGA	19	VGA	20	VGA	21	VGA	22	VGA	23	PVSS	24	PVSS	25	REF	26	PMS	27	PMS	28	PVDD	29	VRO	30	VRO	31	VRO	32	VRO	33	VRO	34	VRO	35	VRO	36	VRO	37	VRO	38	PVSS	39	PVSS	40	XTALE	41	PVDD	42	2WA1	43	2WA2	44	2WCLK	45	PVSS	46	2WDAT1	47	TDO	48	VSS	49	TCX	50	TDI	51	TMS	52	TRSTN	53	PVDD	54	RESETn	55	TEST1	56	MPDVS5	57	MPDVS5	58	MPAVDD16	59	MPAVDD16	60	NC	61	NC	62	NC	63	PVDD	64		
DG5	128	DG4	127	PVSS	126	DG3	125	DG2	124	VDD	123	DG1	122	DG1	121	DG0	120	PVDD	119	D97	118	D96	117	D95	116	D94	115	PVSS	114	D93	113	D92	112	VSS	111	DB1	110	DB0	109	PVDD	108	DENR	107	DENB	106	DENG	105	PVSS	104	DHS	103	DVS	102	DCLK	101	PVDD	100	DGR7	99	DGR6	98	DGR5	97	DGR4	96	PVSS	95	DGR3	94	DGR2	93	VDD	92	DGR1	91	DGR0	90	PVDD	89	DGG7	88	DGG6	87	DGG5	86	DGG4	85	PVSS	84	DGG3	83	DGG2	82	DGG1	81	DGG0	80	PVDD	79	DB7	78	DB6	77	VSS	76	DGB5	75	DGB4	74	PVSS	73	DGB3	72	DGB2	71	DGB1	70	DGB0	69	PVDD	68	DGCKL	67	DGVIS	66	DGHIS	65	PVSS	64

Figure 9-8 Internal block diagram and pin configuration

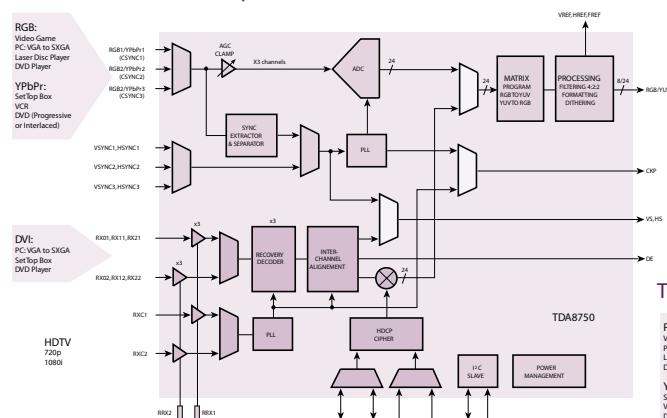
## 9.4.9 Diagram C4, TDA8759 (UN403)

**TDA8750/TDA8751/TDA8754/TDA8756/TDA8759**

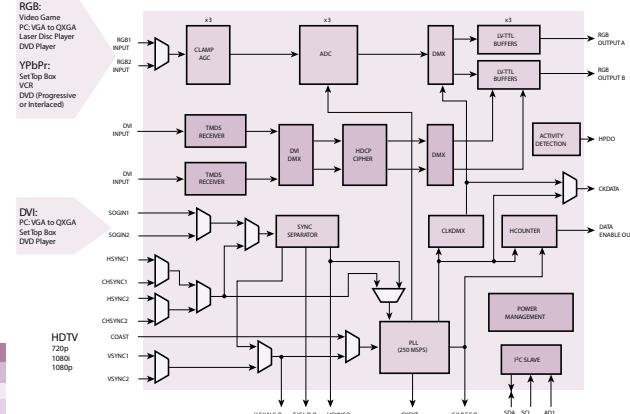
Universal data converter interface products for flat panel applications



TDA8750: 8-Bit 81/110 Msps video converter interface + DVI



TDA8756: 8-Bit 110/270 Msps video converter interface + DVI



Summary table of data converter interface products and features for displays systems

Features	TDA8756	TDA8754	TDA8751	TDA8750	TDA8759
Analog Path					
Resolution	8-Bit	8-Bit	10-Bit	8-Bit	8-Bit
Analog Supply	3.3V/1.8V	3.3V	3.3V/1.8V	3.3V/1.8V	3.3V
Speed (Msps)	205, 250, 270	110, 140, 170, 205, 250, 270	81	81, 110	81, 110
Analog Input	2(RGB/YUV)	2(RGB/YUV)	3(RGB/YUV)	3(RGB/YUV)	3(RGB/YUV)
PGA	Yes	Yes	Yes	Yes	Yes
AGC	No	No	Yes	Yes	Yes
Sync-on Green	Yes	Yes	Yes	Yes	Yes
Sync Separator	Yes	Yes	Yes	Yes	Yes
RGB <-> YUV Matrix	No	No	Yes	Yes	Yes
YUV output formatting	No	No	Yes	Yes	Yes
Frame/field detection	Yes	Yes	Yes	Yes	Yes
Input activity detection	Yes	Yes	Yes	Yes	Yes
DVI Path					
Two Link	Yes	N/A	Yes	Yes	N/A
Dual link	Yes	N/A	No	No	N/A
Speed per link (Msps)	165	N/A	110	110	N/A
HDCP	Yes	N/A	Yes	Yes	N/A
Package	LQFP208	LQFP144/LBGA208	LQFP176	LQFP176	LQFP176

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Figure 9-9 Internal block diagram and pin configuration

# 10. Spare Parts List

29PT8667/93		C406	9965 000 40187	0.22μF 10% 63-100V	C641	9965 000 40544	1000μF 20% 25V
<b>Various</b>		C407	9965 000 40172	100μF 20% 16V	C642	9965 000 40173	1000μF
CRT		C408	9965 000 41112	4.7μF 20% 16V	C643	9965 000 40157	0.1μF 50V
F601		C409	9965 000 40540	22μF 20% 16V	C644	9965 000 40176	470μF 20% 16V
H602		C410	9965 000 41114	470μF 20% 25V	C645	9965 000 40157	0.1μF 50V
SW001		C411	9965 000 40156	0.01μF 50V	C646	9965 000 40176	470μF 20% 16V
SW002		C420	9965 000 40171	10μF 20% 16V	C647	9965 000 40157	0.1μF 50V
SW003		C421	9965 000 40171	10μF 20% 16V	C648	9965 000 40156	0.01μF 50V
SW004		C422	9965 000 40176	470μF 20% 16V	C649	9965 000 40543	330μF 20% 16V
TUNER		C423	9965 000 41097	100pF 50V	C650	9965 000 40157	0.1μF 50V
TWL		C424	9965 000 41097	100pF 50V	C651	9965 000 40176	470μF 20% 16V
TWR		C428	9965 000 41097	100pF 50V	C652	9965 000 40172	100μF 20% 16V
ZN100		C429	9965 000 41097	100pF 50V	C653	9965 000 41146	0.33μF 10% 63-100V
ZN101		C431	9965 000 41097	100pF 50V	C654	9965 000 40173	1000μF
		C432	9965 000 41097	100pF 50V	C656	9965 000 40209	Mylar 0.0022μF 100V
		C501	9965 000 40547	100μF 20% 50V	C660	9965 000 40186	0.1μF 10% 63-100V
		C502	9965 000 40156	0.01μF 50V	C701	9965 100 05183	0.3pF 63V +/-0.25pF
		C503	9965 100 05173	22μF 20% 25V	C702	9965 000 40180	2.2μF 20% 50V
		C504	9965 000 40156	0.01μF 50V	C703	9965 000 40546	47μF 20% 25V
		C505	9965 100 05173	22μF 20% 25V	C704	9965 000 41097	100pF 50V
		C506	9965 000 40156	0.01μF 50V	C705	9965 000 41097	100pF 50V
		C507	9965 100 05173	22μF 20% 25V	C706	9965 000 41100	0.0047μF 500V
		C508	9965 000 41119	22μF 20% 250V	C707	9965 000 40212	Mylar 0.0047μF 100V
		C509	9965 000 40156	0.01μF 50V	C708	9965 000 40547	100μF 20% 50V
		C510	9965 100 05173	22μF 20% 25V	C709	9965 000 40172	100μF 20% 16V
		C511	9965 000 40156	0.01μF 50V	C710	9965 000 40185	10μF 20% 250V
		C512	9965 100 05173	22μF 20% 25V	C711	9965 000 40185	10μF 20% 250V
		C513	9965 000 40156	0.01μF 50V	CN102	9965 000 41122	0.47μF
		C514	9965 100 05173	22μF 20% 25V	CN104	9965 000 41122	0.47μF
		C515	9965 000 41106	0.0022μF 2kV	CN107	9965 000 41122	0.47μF
		C517	9965 000 41096	10pF 50V	CN108	9965 000 41122	0.47μF
		C519	9965 000 41096	10pF 50V	CN110	9965 000 41120	0.22μF
		C521	9965 000 41096	10pF 50V	CN111	9965 000 41120	0.22μF
		C523	9965 000 40157	0.1μF 50V	CN112	9965 000 41120	0.22μF
		C524	9965 000 41101	560pF 500V	CN113	9965 000 41120	0.22μF
		C525	9965 000 40156	0.01μF 50V	CN114	9965 000 41120	0.22μF
		C526	9965 000 41149	0.22μF 5% 250V	CN115	9965 000 41120	0.22μF
		C528	9965 000 40157	0.1μF 50V	CN116	9965 000 41133	0.01μF 10% 50V
		C529	9965 000 41119	22μF 20% 250V	CN117	9965 000 41133	0.01μF 10% 50V
		C530	9965 000 41106	0.0022μF 2kV	CN119	9965 000 41134	0.1μF 10% 50V
		C531	9965 000 40185	10μF 20% 250V	CN120	9965 000 41134	0.1μF 10% 50V
		C532	9965 000 41149	0.22μF 5% 250V	CN121	9965 000 41134	0.1μF 10% 50V
		C533	9965 000 41101	560pF 500V	CN122	9965 000 41134	0.1μF 10% 50V
		C534	9965 000 40156	0.01μF 50V	CN123	9965 000 41134	0.1μF 10% 50V
		C535	9965 000 41149	0.22μF 5% 250V	CN124	9965 000 41134	0.1μF 10% 50V
		C537	9965 000 40157	0.1μF 50V	CN125	9965 000 41134	0.1μF 10% 50V
		C538	9965 000 41101	560pF 500V	CN126	9965 000 41134	0.1μF 10% 50V
		C539	9965 000 41149	0.22μF 5% 250V	CN127	9965 000 41134	0.1μF 10% 50V
		C540	9965 000 40156	0.01μF 50V	CN128	9965 000 41134	0.1μF 10% 50V
		C541	9965 000 41113	100μF 20% 25V	CN129	9965 000 41134	0.1μF 10% 50V
		C542	9965 000 41113	100μF 20% 25V	CN130	9965 000 41134	0.1μF 10% 50V
		C601	9965 000 40217	0.22μF 250V - 500V	CN131	9965 000 41135	220pF 5% 50V
		C602	9965 000 41164	0.47μF 250V	CN132	9965 000 41134	0.1μF 10% 50V
		C603	9965 000 41164	0.47μF 250V	CN133	9965 000 41134	0.1μF 10% 50V
		C605	9965 000 40538	0.0047μF 2kV	CN134	9965 000 41134	0.1μF 10% 50V
		C607	9965 000 40538	0.0047μF 2kV	CN135	9965 000 41134	0.1μF 10% 50V
		C608	9965 000 40567	0.1μF A C250V-500V	CN136	9965 000 41134	0.1μF 10% 50V
		C609	9965 000 40564	220μF	CN140	9965 000 41134	0.1μF 10% 50V
		C610	9965 100 05169	0.0022μF 10% 1kV	CN141	9965 000 41134	0.1μF 10% 50V
		C611	9965 000 40179	10μF 20% 50V-63V	CN142	9965 000 41134	0.1μF 10% 50V
		C612	9965 000 40186	0.1μF 10% 63-100V	CN143	9965 000 41134	0.1μF 10% 50V
		C613	9965 000 41105	CerCap 0.001μF 2kV	CN144	9965 000 40171	10μF 20% 16V
		C614	9965 000 40178	1μF 20% 50V	CN145	9965 000 40171	10μF 20% 16V
		C615	9965 000 40163	220pF 500V	CN146	9965 000 40171	10μF 20% 16V
		C616	9965 000 41098	0.0015μF 50V	CN148	9965 000 41153	10μF
		C617	9965 000 41162	470pF 20% 400VAC	CN149	9965 000 41153	10μF
		C618	9965 000 41162	470pF 20% 400VAC	CN150	9965 000 40171	10μF 20% 16V
		C619	9965 000 41163	0.0022μF 20% 250V	CN151	9965 000 41153	10μF
		C620	9965 000 40157	0.1μF 50V	CN152	9965 000 41153	10μF
		C621	9965 000 40174	220μF 20% 16V	CN153	9965 000 41120	0.22μF
		C622	9965 000 40172	100μF 20% 16V	CN154	9965 000 41120	0.22μF
		C623	9965 000 40171	10μF 20% 16V	CN155	9965 000 41120	0.22μF
		C624	9965 000 40166	680pF 500V	CN156	9965 000 41120	0.22μF
		C625	9965 000 40544	1000μF 20% 25V	CN157	9965 000 41120	0.22μF
		C626	9965 000 40156	0.01μF 50V	CN158	9965 000 41141	CerCap 0.06μF
		C627	9965 000 40541	2200μF	CN159	9965 000 40180	2.2μF 20% 50V
		C628	9965 000 40163	220pF 500V	CN160	9965 000 40172	100μF 20% 16V
		C629	9965 000 40156	0.01μF 50V	CN161	9965 000 40172	100μF 20% 16V
		C630	9965 000 41110	EICap 2200μF 20% 16V	CN162	9965 000 40172	100μF 20% 16V
		C631	9965 000 40156	0.01μF 50V	CN163	9965 000 41154	EICap 100μF
		C632	9965 000 40163	220pF 500V	CN164	9965 000 41154	EICap 100μF
		C633	9965 000 40163	220pF 500V	CN165	9965 000 41154	EICap 100μF
		C634	9965 100 05171	EC.	CN166	9965 000 40172	100μF 20% 16V
		C635	9965 000 41107	CerCap 680pF 2kV	CN167	9965 000 41134	0.1μF 10% 50V
		C636	9965 000 40156	0.01μF 50V	CN170	9965 000 41134	0.1μF 10% 50V
		C637	9965 000 40533	CerCap 0.01μF 500V	CN171	9965 000 41134	0.1μF 10% 50V
		C638	9965 000 41118	EICap 220μF	CN172	9965 000 40171	10μF 20% 16V
		C639	9965 100 05184	EC.	CN174	9965 000 41133	0.01μF 10% 50V
		C640	9965 000 40547	100μF 20% 50V	CN175	9965 000 40178	1μF 20% 50V

CN176	9965 000 41138	0.0039μF 10% 50V	CN409	9965 000 41133	0.01μF 10% 50V	CN811	9965 000 41133	0.01μF 10% 50V
CN178	9965 000 41122	0.47μF	CN410	9965 000 41133	0.01μF 10% 50V	CN813	9965 000 41134	0.1μF 10% 50V
CN300	9965 000 41134	0.1μF 10% 50V	CN411	9965 000 41133	0.01μF 10% 50V	CN814	9965 000 41127	0.001μF 10% 50V
CN301	9965 000 41134	0.1μF 10% 50V	CN412	9965 000 41133	0.01μF 10% 50V		-WW-	
CN302	9965 000 41134	0.1μF 10% 50V	CN413	9965 000 40172	100μF 20% 16V	J301	9965 000 40788	MOFR 10kΩ
CN303	9965 000 41134	0.1μF 10% 50V	CN414	9965 000 40172	100μF 20% 16V	J302	9965 000 39999	CFR 220Ω
CN304	9965 000 41134	0.1μF 10% 50V	CN415	9965 000 41122	0.47μF	J324	9965 000 40691	CFR 220Ω 1/16W
CN305	9965 000 41134	0.1μF 10% 50V	CN416	9965 000 41122	0.47μF	J325	9965 000 40691	CFR 220Ω 1/16W
CN306	9965 000 41134	0.1μF 10% 50V	CN417	9965 000 41122	0.47μF	J381	9965 000 39975	CFR 100Ω 1/16W
CN307	9965 000 41134	0.1μF 10% 50V	CN418	9965 000 41122	0.47μF	J401	9965 000 39975	CFR 100Ω 1/16W
CN308	9965 000 41134	0.1μF 10% 50V	CN419	9965 000 41122	0.47μF	J403	9965 000 40304	CFR 1KΩ 1/16W
CN309	9965 000 41134	0.1μF 10% 50V	CN420	9965 000 41122	0.47μF	J622	9965 000 41088	MOFR 47Ω
CN310	9965 000 41134	0.1μF 10% 50V	CN421	9965 000 41122	0.47μF	R001	9965 000 40709	CFR 20kΩ 1/4W
CN311	9965 000 41134	0.1μF 10% 50V	CN422	9965 000 41122	0.47μF	R002	9965 000 39990	CFR 100kΩ
CN312	9965 000 41134	0.1μF 10% 50V	CN423	9965 000 41153	10μF	R003	9965 100 05150	91kΩ 5% 1/4W
CN313	9965 000 41134	0.1μF 10% 50V	CN424	9965 000 41153	10μF	R004	9965 100 05148	82kΩ 5% 1/4W
CN314	9965 000 41134	0.1μF 10% 50V	CN425	9965 000 40171	10μF 20% 16V	R008	9965 000 39987	CFR 100Ω
CN315	9965 000 41134	0.1μF 10% 50V	CN426	9965 000 40171	10μF 20% 16V	R009	9965 000 39988	CFR 1kΩ 1/4W
CN316	9965 000 41134	0.1μF 10% 50V	CN427	9965 000 40171	10μF 20% 16V	R101	9965 000 39975	CFR 100Ω 1/16W
CN317	9965 000 41134	0.1μF 10% 50V	CN428	9965 000 41133	0.01μF 10% 50V	R102	9965 000 39975	CFR 100Ω 1/16W
CN318	9965 000 41134	0.1μF 10% 50V	CN429	9965 000 40171	10μF 20% 16V	R103	9965 000 39975	CFR 100Ω 1/16W
CN319	9965 000 41134	0.1μF 10% 50V	CN430	9965 000 40171	10μF 20% 16V	R104	9965 000 39975	CFR 100Ω 1/16W
CN320	9965 000 41134	0.1μF 10% 50V	CN431	9965 000 41134	0.1μF 10% 50V	R105	9965 000 39975	CFR 100Ω 1/16W
CN321	9965 000 41134	0.1μF 10% 50V	CN432	9965 000 41134	0.1μF 10% 50V	R106	9965 000 39975	CFR 100Ω 1/16W
CN322	9965 000 41134	0.1μF 10% 50V	CN433	9965 000 41134	0.1μF 10% 50V	R107	9965 000 39975	CFR 100Ω 1/16W
CN323	9965 000 41134	0.1μF 10% 50V	CN434	9965 000 41134	0.1μF 10% 50V	R108	9965 000 39975	CFR 100Ω 1/16W
CN324	9965 000 41134	0.1μF 10% 50V	CN435	9965 000 41134	0.1μF 10% 50V	R110	9965 000 40130	MOFR 27Ω
CN325	9965 000 41134	0.1μF 10% 50V	CN436	9965 000 41134	0.1μF 10% 50V	R111	9965 000 39976	CFR 10kΩ 1/16W
CN326	9965 000 41134	0.1μF 10% 50V	CN437	9965 000 41134	0.1μF 10% 50V	R112	9965 000 40706	CFR 6.8kΩ 1/16W
CN327	9965 000 41134	0.1μF 10% 50V	CN438	9965 000 41134	0.1μF 10% 50V	R113	9965 000 39977	CFR 100kΩ
CN328	9965 000 41134	0.1μF 10% 50V	CN439	9965 000 41134	0.1μF 10% 50V	R202	9965 000 40789	MOFR 100kΩ
CN329	9965 000 41134	0.1μF 10% 50V	CN440	9965 000 41134	0.1μF 10% 50V	R203	9965 000 39975	CFR 100Ω 1/16W
CN330	9965 000 41134	0.1μF 10% 50V	CN441	9965 000 41134	0.1μF 10% 50V	R204	9965 000 39975	CFR 100Ω 1/16W
CN331	9965 000 41134	0.1μF 10% 50V	CN442	9965 000 41134	0.1μF 10% 50V	R205	9965 100 04846	47Ω 5% 1/16-1/6W
CN332	9965 000 41134	0.1μF 10% 50V	CN443	9965 000 41134	0.1μF 10% 50V	R206	9965 000 40700	CFR 4.7kΩ 1/16W
CN337	9965 000 41134	0.1μF 10% 50V	CN444	9965 000 41134	0.1μF 10% 50V	R207	9965 000 39975	CFR 100Ω 1/16W
CN338	9965 000 41134	0.1μF 10% 50V	CN445	9965 000 41134	0.1μF 10% 50V	R208	9965 000 40304	CFR 1KΩ 1/16W
CN339	9965 000 41134	0.1μF 10% 50V	CN446	9965 000 41134	0.1μF 10% 50V	R209	9965 000 40702	CFR 470kΩ 1/16W
CN340	9965 000 41134	0.1μF 10% 50V	CN447	9965 000 41134	0.1μF 10% 50V	R210	9965 000 40502	CFR 100kΩ 1/2W
CN341	9965 000 41133	0.01μF 10% 50V	CN448	9965 000 41134	0.1μF 10% 50V	R211	9965 000 40304	CFR 1KΩ 1/16W
CN342	9965 000 41133	0.01μF 10% 50V	CN449	9965 000 41134	0.1μF 10% 50V	R212	9965 000 39977	CFR 100kΩ
CN343	9965 000 41134	0.1μF 10% 50V	CN450	9965 000 41134	0.1μF 10% 50V	R213	9965 000 39977	CFR 100kΩ
CN344	9965 000 41134	0.1μF 10% 50V	CN451	9965 000 41134	0.1μF 10% 50V	R214	9965 100 05139	150kΩ 5% 1/16-1/6W
CN345	9965 000 41153	10μF	CN452	9965 000 41134	0.1μF 10% 50V	R215	9965 100 05139	150kΩ 5% 1/16-1/6W
CN346	9965 000 41161	22pF 5% 50V	CN453	9965 000 41134	0.1μF 10% 50V	R216	9965 000 39980	CFR 22kΩ 1/8W
CN347	9965 000 41161	22pF 5% 50V	CN454	9965 000 41134	0.1μF 10% 50V	R217	9965 100 05142	270kΩ 5W 1/16-1/6W
CN348	9965 000 41153	10μF	CN455	9965 000 41134	0.1μF 10% 50V	R218	9965 000 39977	CFR 100kΩ
CN349	9965 000 40171	10μF 20% 16V	CN456	9965 000 41134	0.1μF 10% 50V	R219	9965 000 40697	CFR 3.9kΩ 1/16W
CN350	9965 000 40171	10μF 20% 16V	CN457	9965 000 41134	0.1μF 10% 50V	R220	9965 000 39977	CFR 100kΩ
CN351	9965 000 41153	10μF	CN458	9965 000 41134	0.1μF 10% 50V	R221	9965 000 39980	CFR 22kΩ 1/8W
CN352	9965 000 40171	10μF 20% 16V	CN459	9965 000 41134	0.1μF 10% 50V	R222	9965 100 05141	270Ω 5% 1/16-1/6W
CN353	9965 000 41153	10μF	CN460	9965 000 41125	100pF 10% 50V	R223	9965 100 05155	82kΩ 5% 1W
CN354	9965 000 41153	10μF	CN461	9965 000 41125	100pF 10% 50V	R224	9965 100 04846	47Ω 5% 1/16-1/6W
CN356	9965 000 40174	220μF 20% 16V	CN462	9965 000 41125	100pF 10% 50V	R225	9965 000 40702	CFR 470kΩ 1/16W
CN357	9965 000 41153	10μF	CN500	9965 000 41139	470pF 5% 50V	R226	9965 000 40304	CFR 1KΩ 1/16W
CN358	9965 000 41133	0.01μF 10% 50V	CN501	9965 000 41127	0.001μF 10% 50V	R227	9965 000 40700	CFR 4.7kΩ 1/16W
CN359	9965 000 41125	100pF 10% 50V	CN502	9965 000 41127	0.001μF 10% 50V	R228	9965 000 39975	CFR 100Ω 1/16W
CN360	9965 000 41125	100pF 10% 50V	CN503	9965 000 41127	0.001μF 10% 50V	R229	9965 100 04846	47Ω 5% 1/16-1/6W
CN361	9965 000 41125	100pF 10% 50V	CN504	9965 000 40179	10μF 20% 50V-63V	R230	9965 100 05138	13kΩ 5% 1/16-1/6W
CN362	9965 000 40171	10μF 20% 16V	CN505	9965 000 40175	47μF 20% 16V	R231	9965 000 40697	CFR 3.9kΩ 1/16W
CN363	9965 000 41134	0.1μF 10% 50V	CN506	9965 000 41156	47μF	R232	9965 100 05144	5.1kΩ 5% 1/16-1/6W
CN364	9965 000 41134	0.1μF 10% 50V	CN507	9965 000 41134	0.1μF 10% 50V	R233	9965 100 05144	5.1kΩ 5% 1/16-1/6W
CN365	9965 000 41134	0.1μF 10% 50V	CN508	9965 000 41134	0.1μF 10% 50V	R234	9965 100 05144	5.1kΩ 5% 1/16-1/6W
CN366	9965 000 41134	0.1μF 10% 50V	CN509	9965 000 41134	0.1μF 10% 50V	R235	9965 100 05144	5.1kΩ 5% 1/16-1/6W
CN367	9965 000 41134	0.1μF 10% 50V	CN510	9965 000 41134	0.1μF 10% 50V	R236	9965 100 05146	8.2kΩ 5% 1/16-1/6W
CN368	9965 000 41134	0.1μF 10% 50V	CN511	9965 000 41134	0.1μF 10% 50V	R237	9965 000 40689	CFR 2kΩ 1/16W
CN369	9965 000 41134	0.1μF 10% 50V	CN512	9965 000 41134	0.1μF 10% 50V	R238	9965 100 05145	7.5kΩ 5% 1/16-1/6W
CN370	9965 000 41134	0.1μF 10% 50V	CN516	9965 000 41134	0.1μF 10% 50V	R239	9965 100 05140	2.4kΩ 5% 1/16-1/6W
CN372	9965 000 41134	0.1μF 10% 50V	CN517	9965 000 41147	0.1μF 5% 250V	R301	9965 000 41090	MOFR 8.2kΩ
CN373	9965 000 41134	0.1μF 10% 50V	CN518	9965 000 41134	0.1μF 10% 50V	R302	9965 000 40785	MOFR 5.6Ω
CN374	9965 000 41134	0.1μF 10% 50V	CN519	9965 000 41134	0.1μF 10% 50V	R303	9965 000 40517	MOFR 5.6Ω
CN375	9965 000 41134	0.1μF 10% 50V	CN520	9965 000 41133	0.01μF 10% 50V	R304	9965 000 41084	MOFR 180Ω
CN377	9965 000 41134	0.1μF 10% 50V	CN521	9965 000 41133	0.01μF 10% 50V	R305	9965 000 39987	CFR 100Ω
CN378	9965 000 41134	0.1μF 10% 50V	CN522	9965 000 41127	0.001μF 10% 50V	R306	9965 000 40705	CFR 68Ω 1/16W
CN379	9965 000 41134	0.1μF 10% 50V	CN523	9965 000 40175	47μF 20% 16V	R307	9965 100 05165	1.7Ω 5% 5W
CN380	9965 000 41134	0.1μF 10% 50V	CN524	9965 000 41124	10pF 5% 50V	R308	9965 000 41088	MOFR 47Ω
CN381	9965 000 41134	0.1μF 10% 50V	CN525	9965 000 41120	0.22μF	R309	9965 000 39976	CFR 10kΩ 1/16W
CN382	9965 000 41134	0.1μF 10% 50V	CN526					

R322	9965 000 39985	CFR 5.6Ω	R533	9965 000 39979	CFR 150Ω 1/6W	R714	9965 000 40134	MOFR 56Ω
R323	9965 000 40783	MOFR 2.2Ω	R534	9965 000 40691	CFR 220Ω 1/16W	R715	9965 000 40714	CFR 2.7Ω 1/2W
R324	9965 000 40138	MOFR 220Ω	R535	9965 000 40473	Bead 3 x 1 x 7mm	R716	9965 000 40115	CFR 68kΩ
R325	9965 100 05166	68kΩ 1% 1/4W	R536	9965 000 40699	CFR 470Ω 1/16W	R717	9965 000 40115	CFR 68kΩ
R326	9965 000 40104	CFR 3.9kΩ	R537	9965 000 40304	CFR 1kΩ 1/16W	R718	9965 000 40708	CFR 12kΩ 1/4W
R327	9965 000 40781	MOFR 0.82Ω	R538	9965 000 39979	CFR 150Ω 1/6W	R719	9965 000 39993	CFR 1.5kΩ
R327A	9965 100 05152	8.2Ω 5% 1W	R539	9965 000 40699	CFR 470Ω 1/16W	R720	9965 000 39992	CFR 1.2kΩ
R327B	9965 100 05168	10Ω 3.7A	R540	9965 000 40304	CFR 1kΩ 1/16W	R721	9965 000 40134	MOFR 56Ω
R328	9965 000 39985	CFR 5.6Ω	R541	9965 000 40691	CFR 220Ω 1/16W	R722	9965 000 40714	CFR 2.7Ω 1/2W
R329	9965 000 39996	CFR 1.8kΩ	R542	9965 000 40473	Bead 3 x 1 x 7mm	R723	9965 000 41086	MOFR 270Ω
R330	9965 100 05151	1.8kΩ 1% 1/4W	R544	9965 000 40689	CFR 2kΩ 1/16W	R724	9965 000 40138	MOFR 220Ω
R331	9965 000 40512	MOFR 0.68Ω	R546	9965 000 40689	CFR 2kΩ 1/16W	RN102	9965 000 40720	SMD 100Ω 5% 1/16W
R333	9965 100 05149	9.1kΩ 5% 1/4W	R548	9965 000 40689	CFR 2kΩ 1/16W	RN103	9965 000 40720	SMD 100Ω 5% 1/16W
R336	9965 000 39980	CFR 22kΩ 1/8W	R549	9965 100 05154	200kΩ 1W	RN104	9965 000 40720	SMD 100Ω 5% 1/16W
R337	9965 100 05143	3kΩ 5% 1/16-1/6W	R549A	9965 100 05154	200kΩ 1W	RN105	9965 000 40720	SMD 100Ω 5% 1/16W
R338	9965 000 39977	CFR 100kΩ	R550	9965 000 40693	CFR 2.7kΩ 1/16W	RN106	9965 000 40720	SMD 100Ω 5% 1/16W
R339	9965 000 39975	CFR 100Ω 1/16W	R551	9965 000 40693	CFR 2.7kΩ 1/16W	RN107	9965 000 40720	SMD 100Ω 5% 1/16W
R340	9965 000 39980	CFR 22kΩ 1/8W	R552	9965 000 40693	CFR 2.7kΩ 1/16W	RN108	9965 000 40720	SMD 100Ω 5% 1/16W
R341	9965 000 40124	MOFR 12Ω	R553	9965 000 40684	CFR 10Ω 1/16W	RN110	9965 000 40721	SMD 1kΩ 5% 1/16W
R342	9965 000 40138	MOFR 220Ω	R554	9965 100 05154	200kΩ 1W	RN111	9965 000 40720	SMD 100Ω 5% 1/16W
R349	9965 000 40701	CFR 47kΩ 1/16W	R554A	9965 100 05154	200kΩ 1W	RN112	9965 000 40720	SMD 100Ω 5% 1/16W
R350	9965 100 05167	15kΩ 5%	R555	9965 000 40684	CFR 10Ω 1/16W	RN113	9965 000 40720	SMD 100Ω 5% 1/16W
R351	9965 000 40508	MOFR 1MΩ	R556	9965 000 39975	CFR 100Ω 1/16W	RN115	9965 000 40720	SMD 100Ω 5% 1/16W
R380	9965 000 40304	CFR 1kΩ 1/16W	R556A	9965 000 40684	CFR 10Ω 1/16W	RN116	9965 000 40720	SMD 100Ω 5% 1/16W
R381	9965 000 40687	CFR 1.8kΩ 1/16W	R557	9965 000 40717	CCR 1kΩ	RN117	9965 000 40720	SMD 100Ω 5% 1/16W
R382	9965 000 39976	CFR 10kΩ 1/16W	R558	9965 000 40717	CCR 1kΩ	RN118	9965 000 40719	SMD 10Ω 5% 1/16W
R383	9965 000 40304	CFR 1kΩ 1/16W	R559	9965 000 40717	CCR 1kΩ	RN119	9965 000 40719	SMD 10Ω 5% 1/16W
R384	9965 000 40699	CFR 470Ω 1/16W	R560	9965 100 05154	200kΩ 1W	RN120	9965 000 40720	SMD 100Ω 5% 1/16W
R401	9965 000 40707	CFR 82kΩ 1/16W	R560A	9965 100 05154	200kΩ 1W	RN123	9965 000 40720	SMD 100Ω 5% 1/16W
R402	9965 000 40684	CFR 10Ω 1/16W	R561	9965 000 40715	CFR 1.5kΩ 1/2W	RN124	9965 000 40720	SMD 100Ω 5% 1/16W
R403	9965 000 40684	CFR 10Ω 1/16W	R562	9965 000 40712	CFR 56kΩ 1/4W	RN125	9965 000 40720	SMD 100Ω 5% 1/16W
R404	9965 000 40701	CFR 47kΩ 1/16W	R563	9965 000 40711	CFR 4.7MΩ 1/4W	RN126	9965 000 40720	SMD 100Ω 5% 1/16W
R406	9965 000 40689	CFR 2kΩ 1/16W	R564	9965 100 04839	2.2kΩ 5% 1/6W	RN127	9965 000 40720	SMD 100Ω 5% 1/16W
R407	9965 000 40701	CFR 47kΩ 1/16W	R565	9965 100 04848	5.6kΩ 5% 1/16-1/6W	RN128	9965 100 05177	SMD 4.7μF 10V
R408	9965 000 40695	CFR 3.3kΩ 1/16W	R566	9965 000 39980	CFR 22kΩ 1/8W	RN129	9965 100 05177	SMD 4.7μF 10V
R409	9965 000 39976	CFR 10kΩ 1/16W	R567	9965 000 40775	MOFR 220kΩ	RN142	9965 000 40722	SMD 10kΩ 5% 1/16W
R409A	9965 000 39976	CFR 10kΩ 1/16W	R568	9965 000 39981	CFR 220Ω	RN143	9965 000 40722	SMD 10kΩ 5% 1/16W
R410	9965 000 39976	CFR 10kΩ 1/16W	R569	9965 000 39976	CFR 10kΩ 1/16W	RN146	9965 000 40722	SMD 10kΩ 5% 1/16W
R410A	9965 000 39976	CFR 10kΩ 1/16W	R570	9965 000 40688	CFR 18kΩ 1/16W	RN149	9965 000 40768	SMD 47kΩ 5% 1/16W
R411	9965 000 39980	CFR 22kΩ 1/8W	R571	9965 100 05162	1Ω 5% 2W	RN150	9965 000 40768	SMD 47kΩ 5% 1/16W
R420	9965 000 40698	CFR 39kΩ 1/16W	R572	9965 000 40519	MOFR 68Ω	RN152	9965 000 40723	SMD 100kΩ 5% 1/16W
R421	9965 000 40686	CFR 15kΩ 1/16W	R572A	9965 100 05158	22Ω 5% 1/2W	RN153	9965 000 40718	SMD 0Ω 5% 1/16W
R422	9965 000 40686	CFR 15kΩ 1/16W	R573	9965 000 41083	MOFR 150Ω	RN154	9965 000 40723	SMD 100kΩ 5% 1/16W
R423	9965 000 40698	CFR 39kΩ 1/16W	R600	9965 000 40524	NTC 5/5A	RN155	9965 000 40769	SMD 680Ω 5% 1/16W
R424	9965 000 39984	CFR 75Ω 1/16W	R601	9965 000 40150	High Volt. 2.2MΩ 1/2W	RN156	9965 000 40769	SMD 680Ω 5% 1/16W
R425	9965 000 39984	CFR 75Ω 1/16W	R604	9965 000 41089	MOFR 68kΩ	RN157	9965 000 40741	SMD 39kΩ 5% 1/16W
R426	9965 000 39984	CFR 75Ω 1/16W	R605	9965 000 40789	MOFR 100kΩ	RN158	9965 000 40721	SMD 1kΩ 5% 1/16W
R427	9965 000 40692	CFR 240kΩ 1/16W	R606	9965 100 05153	10Ω 5% 1W	RN160	9965 000 40721	SMD 1kΩ 5% 1/16W
R428	9965 000 40692	CFR 240kΩ 1/16W	R607	9965 000 39988	CFR 1kΩ 1/4W	RN162	9965 000 40718	SMD 0Ω 5% 1/16W
R429	9965 000 40698	CFR 39kΩ 1/16W	R608	9965 000 39988	CFR 1kΩ 1/4W	RN163	9965 000 40725	SMD 12kΩ 5% 1/16W
R430	9965 000 40698	CFR 39kΩ 1/16W	R609	9965 000 40774	MOFR 1kΩ	RN166	9965 000 40730	SMD 220Ω 5% 1/16W
R431	9965 000 40692	CFR 240kΩ 1/16W	R611	9965 100 05161	0.68Ω 5% 2W	RN167	9965 000 40740	SMD 390Ω 5% 1/16W
R432	9965 000 40692	CFR 240kΩ 1/16W	R612	9965 000 40773	MOFR 100Ω	RN168	9965 000 40719	SMD 10Ω 5% 1/16W
R434	9965 000 39984	CFR 75Ω 1/16W	R613	9965 000 40144	Fusible Res. 0.18Ω 2W	RN169	9965 000 40723	SMD 100kΩ 5% 1/16W
R435	9965 000 39984	CFR 75Ω 1/16W	R618	9965 000 40780	MOFR 0.51Ω	RN170	9965 000 40726	SMD 1.5kΩ 5% 1/16W
R436	9965 000 39984	CFR 75Ω 1/16W	R620	9965 000 40692	CFR 240kΩ 1/16W	RN171	9965 000 40726	SMD 1.5kΩ 5% 1/16W
R436A	9965 100 05147	15Ω 5% 1/4W	R621	9965 000 40107	CFR 4.7kΩ	RN172	9965 000 40737	SMD 3.3kΩ 5% 1/16W
R437	9965 000 39984	CFR 75Ω 1/16W	R622	9965 000 40120	CFR 2.7kΩ	RN173	9965 000 40737	SMD 3.3kΩ 5% 1/16W
R438	9965 000 39984	CFR 75Ω 1/16W	R623	9965 100 05160	0.22Ω 5% 2W	RN174	9965 000 40719	SMD 10Ω 5% 1/16W
R439	9965 000 39984	CFR 75Ω 1/16W	R624	9965 100 05160	0.22Ω 5% 2W	RN175	9965 000 40735	SMD 27kΩ 5% 1/16W
R440	9965 000 39984	CFR 75Ω 1/16W	R625	9965 100 05164	2.7Ω 5% 2W	RN178	9965 000 40737	SMD 3.3kΩ 5% 1/16W
R441	9965 000 39984	CFR 75Ω 1/16W	R626	9965 000 40154	High Volt. 8.2MΩ 1W	RN187	9965 000 40728	SMD 180Ω 5% 1/16W
R442	9965 000 40702	CFR 470kΩ 1/16W	R627	9965 000 40706	CFR 6.8kΩ 1/16W	RN188	9965 000 40718	SMD 0Ω 5% 1/16W
R446	9965 000 40304	CFR 1kΩ 1/16W	R628	9965 000 40502	CFR 100kΩ 1/2W	RN300	9965 000 40737	SMD 3.3kΩ 5% 1/16W
R447	9965 000 40304	CFR 1kΩ 1/16W	R629	9965 000 40304	CFR 1kΩ 1/16W	RN301	9965 000 40722	SMD 10kΩ 5% 1/16W
R504	9965 100 05158	22Ω 5% 1/2W	R631	9965 000 41082	MOFR 120Ω	RN302	9965 000 40736	SMD 33Ω 5% 1/16W
R505	9965 000 40694	CFR 33Ω 1/16W	R631A	9965 000 41082	MOFR 120Ω	RN303	9965 000 40731	SMD 2.2kΩ 5% 1/16W
R506	9965 000 40690	CFR 22Ω 1/16W	R633	9965 100 05163	1.5Ω 2W 5%	RN304	9965 000 40736	SMD 33Ω 5% 1/16W
R507	9965 100 05158	22Ω 5% 1/2W	R634	9965 000 40304	CFR 1kΩ 1/16W	RN306	9965 000 40731	SMD 2.2kΩ 5% 1/16W
R508	9965 000 40694	CFR 33Ω 1/16W	R635	9965 000 40695	CFR 3.3kΩ 1/16W	RN307	9965 000 40733	SMD 2.2MΩ 5% 1/10W
R509	9965 000 40690	CFR 22Ω 1/16W	R636	9965 000 41084	MOFR 180Ω	RN308	9965 000 40720	SMD 100Ω 5% 1/16W
R510	9965 100 05158	22Ω 5% 1/2W	R637	9965 000 41087	MOFR 33Ω	RN309	9965 000 40720	SMD 100Ω 5% 1/16W
R511	9965 000 40694	CFR 33Ω 1/16W	R638	9965 000 41085	MOFR 22Ω	RN314	9965 000 40737	SMD 3.3kΩ 5% 1/16W
R512	9965 000 40690	CFR 22Ω 1/16W	R639	9965 000 40516	MOFR 10Ω	RN317	9965 000 40771	SMD 75Ω 5% 1/16W
R513	9965 000 40704	CFR 6.2kΩ 1/16W	R640	9965 100 05157	56Ω 2W 5%	RN318	9965 000 40771	SMD 75Ω 5% 1/16W
R514	9965 000 40699	CFR 470Ω 1/16W	R641	9965 000 41088	MOFR 47Ω	RN319	9965 000 40771	SMD 75Ω 5% 1/16W
R515	9965 000 40685	CFR 1.5kΩ 1/16W	R641A	9965 000 41088	MOFR 47Ω	RN320	9965 000 40720	SMD 100Ω 5% 1/16W
R516	9965 000 40704	CFR 6.2kΩ 1/16W	R642	9965 000 40502	CFR 100kΩ 1/2W	RN321	9965 000 40720	SMD 100Ω 5% 1/16W
R517	9965 000 40703	CFR 510Ω 1/16W						

RN420	9965 000 40720	SMD 100Ω 5% 1/16W	RP301	9965 000 41093	SMD Network (100Ω x4)	D205	9965 000 40218	1N4148 150mA/100V
RN421	9965 000 40720	SMD 100Ω 5% 1/16W	RP302	9965 000 41093	SMD Network (100Ω x4)	D206	9965 000 40218	1N4148 150mA/100V
RN422	9965 000 40720	SMD 100Ω 5% 1/16W	RP303	9965 000 41093	SMD Network (100Ω x4)	D207	9965 000 40218	1N4148 150mA/100V
RN423	9965 000 40720	SMD 100Ω 5% 1/16W	RP304	9965 000 41093	SMD Network (100Ω x4)	D209	9965 000 40218	1N4148 150mA/100V
RN428	9965 000 40771	SMD 75Ω 5% 1/16W	RP305	9965 000 41093	SMD Network (100Ω x4)	D210	9965 000 40219	BA158 600V/1A
RN429	9965 000 40771	SMD 75Ω 5% 1/16W	RP306	9965 000 41093	SMD Network (100Ω x4)	D220	9965 000 40219	BA158 600V/1A
RN430	9965 000 40771	SMD 75Ω 5% 1/16W	RP401	9965 000 41093	SMD Network (100Ω x4)	D221	9965 000 40219	BA158 600V/1A
RN500	9965 000 40722	SMD 10kΩ 5% 1/16W	RST601	9965 000 40138	MOFR 220Ω	D301	9965 000 40219	BA158 600V/1A
RN501	9965 000 40722	SMD 10kΩ 5% 1/16W				D302	9965 000 40219	BA158 600V/1A
RN502	9965 000 40723	SMD 100kΩ 5% 1/16W				D303	9965 000 40218	1N4148 150mA/100V
RN503	9965 000 40738	SMD 33kΩ 5% 1/16W				D304	9965 000 41177	High Speed Rect. Diode
RN504	9965 000 40732	SMD 22kΩ 5% 1/16W	FB301	9965 000 41227	Bead 3.5 x 1 x 9mm	D305	9965 000 41179	High Speed Rect. Diode
RN505	9965 000 40732	SMD 22kΩ 5% 1/16W	FB601	9965 000 41227	Bead 3.5 x 1 x 9mm	D306	9965 000 41178	HSRD.BYW36 2A/600V
RN506	9965 000 40720	SMD 100Ω 5% 1/16W	FB620	9965 000 40473	Bead 3 x 1 x 7mm	D307	9965 000 40218	1N4148 150mA/100V
RN507	9965 000 40721	SMD 1kΩ 5% 1/16W	FB621	9965 000 40473	Bead 3 x 1 x 7mm	D308	9965 000 40219	BA158 600V/1A
RN508	9965 000 40721	SMD 1kΩ 5% 1/16W	FB622	9965 000 40473	Bead 3 x 1 x 7mm	D309	9965 000 40700	CFR 4.7kΩ 1/16W
RN509	9965 000 40721	SMD 1kΩ 5% 1/16W	FB623	9965 000 40473	Bead 3 x 1 x 7mm	D310	9965 000 40219	BA158 600V/1A
RN510	9965 000 40721	SMD 1kΩ 5% 1/16W	L301A	9965 100 05192	Choke 130µH 10%	D311	9965 000 40218	1N4148 150mA/100V
RN511	9965 000 40721	SMD 1kΩ 5% 1/16W	L302	9965 100 05193	Linear 3.3µH 25%	D312	9965 000 40218	1N4148 150mA/100V
RN512	9965 000 40718	SMD 0Ω 5% 1/16W	L401	9965 100 05190	PEAKING COIL 1.5uH	D313	9965 000 40218	1N4148 150mA/100V
RN513	9965 000 40720	SMD 100Ω 5% 1/16W	L501	9965 000 41204	Low Band Filter Coil	D314	9965 000 40219	BA158 600V/1A
RN514	9965 000 40720	SMD 100Ω 5% 1/16W	L502	9965 000 41204	Low Band Filter Coil	D315	9965 000 41171	High Speed Rect. Diode
RN515	9965 000 40720	SMD 100Ω 5% 1/16W	L503	9965 000 41204	Low Band Filter Coil	D316	9965 000 41171	High Speed Rect. Diode
RN516	9965 000 40720	SMD 100Ω 5% 1/16W	L504	9965 000 40254	Peaking coil 15µH 10%	D401	9965 000 40219	BA158 600V/1A
RN517	9965 000 40720	SMD 100Ω 5% 1/16W	L505	9965 000 40254	Peaking coil 15µH 10%	D420	9965 000 40224	Zener 8V2 1/2W 5%
RN518	9965 000 40727	SMD 150kΩ 5% 1/16W	L506	9965 000 40254	Peaking coil 15µH 10%	D421	9965 000 40224	Zener 8V2 1/2W 5%
RN519	9965 000 40732	SMD 22kΩ 5% 1/16W	L601	9965 000 40607	AC Line Filter 15MHz	D422	9965 000 40224	Zener 8V2 1/2W 5%
RN520	9965 000 40720	SMD 100Ω 5% 1/16W	L602	9965 000 40607	AC Line Filter 15MHz	D423	9965 000 40224	Zener 8V2 1/2W 5%
RN521	9965 000 40743	SMD 470Ω 55 1/16W	L603	9965 000 40259	PFC coil 28mH	D424	9965 000 40224	Zener 8V2 1/2W 5%
RN522	9965 000 40743	SMD 470Ω 55 1/16W	L701	9965 000 40473	Bead 3 x 1 x 7mm	D430	9965 000 40224	Zener 8V2 1/2W 5%
RN523	9965 000 40770	SMD 6.8kΩ 5% 1/16W	L702	9965 000 40473	Bead 3 x 1 x 7mm	D431	9965 000 40224	Zener 8V2 1/2W 5%
RN524	9965 000 40731	SMD 2.2kΩ 5% 1/16W	L703	9965 000 40473	Bead 3 x 1 x 7mm	D432	9965 000 40224	Zener 8V2 1/2W 5%
RN525	9965 000 40718	SMD 0Ω 5% 1/16W	LED001	9965 000 41221	LED 5.3mm x 3mm	D433	9965 000 40218	1N4148 150mA/100V
RN526	9965 000 40719	SMD 10Ω 5% 1/16W	LN101	9965 000 41226	Bead (3.2 x 1.6mm)	D501	9965 000 41166	1N4004
RN527	9965 000 40720	SMD 100Ω 5% 1/16W	LN102	9965 000 41226	Bead (3.2 x 1.6mm)	D502	9965 000 40219	BA158 600V/1A
RN528	9965 000 40718	SMD 0Ω 5% 1/16W	LN103	9965 000 41226	Bead (3.2 x 1.6mm)	D504	9965 000 41169	BA159 1000V/1A
RN530	9965 000 40122	MOFR 39kΩ	LN104	9965 000 41226	Bead (3.2 x 1.6mm)	D505	9965 000 41169	BA159 1000V/1A
RN531	9965 000 40718	SMD 0Ω 5% 1/16W	LN105	9965 000 41226	Bead (3.2 x 1.6mm)	D506	9965 000 40218	1N4148 150mA/100V
RN532	9965 000 40724	SMD 1MΩ 5% 1/16W	LN106	9965 000 41226	Bead (3.2 x 1.6mm)	D602	9965 000 41167	1N5397 1.5A/600V
RN533	9965 000 40724	SMD 1MΩ 5% 1/16W	LN107	9965 000 41226	Bead (3.2 x 1.6mm)	D602A	9965 000 41167	1N5397 1.5A/600V
RN534	9965 000 40744	SMD 4.7kΩ 5% 1/16W	LN108	9965 000 41226	Bead (3.2 x 1.6mm)	D603	9965 000 40570	EU1Z 200V/0.5A
RN535	9965 000 40731	SMD 2.2kΩ 5% 1/16W	LN109	9965 000 41226	Bead (3.2 x 1.6mm)	D604	9965 000 40570	EU1Z 200V/0.5A
RN536	9965 000 40722	SMD 10kΩ 5% 1/16W	LN110	9965 000 41226	Bead (3.2 x 1.6mm)	D605	9965 000 40219	BA158 600V/1A
RN600	9965 000 40718	SMD 0Ω 5% 1/16W	LN111	9965 000 41226	Bead (3.2 x 1.6mm)	D620	9965 000 40218	1N4148 150mA/100V
RN601	9965 000 40718	SMD 0Ω 5% 1/16W	LN112	9965 000 41226	Bead (3.2 x 1.6mm)	D621	9965 000 40218	1N4148 150mA/100V
RN602	9965 000 40718	SMD 0Ω 5% 1/16W	LN113	9965 000 41226	Bead (3.2 x 1.6mm)	D622	9965 000 41172	High Speed Rect. Diode
RN603	9965 000 40718	SMD 0Ω 5% 1/16W	LN114	9965 000 41226	Bead (3.2 x 1.6mm)	D623	9965 000 41172	High Speed Rect. Diode
RN604	9965 000 40718	SMD 0Ω 5% 1/16W	LN115	9965 000 41226	Bead (3.2 x 1.6mm)	D624	9965 000 41171	High Speed Rect. Diode
RN605	9965 000 40718	SMD 0Ω 5% 1/16W	LN116	9965 000 41226	Bead (3.2 x 1.6mm)	D625	9965 000 41171	High Speed Rect. Diode
RN606	9965 000 40730	SMD 220Ω 5% 1/16W	LN117	9965 000 41226	Bead (3.2 x 1.6mm)	D626	9965 000 41168	High Speed Rect. Diode
RN607	9965 000 40721	SMD 1kΩ 5% 1/16W	LN118	9965 000 41226	Bead (3.2 x 1.6mm)	D627	9965 000 40219	BA158 600V/1A
RN608	9965 000 40730	SMD 220Ω 5% 1/16W	LN119	9965 000 41226	Bead (3.2 x 1.6mm)	D628	9965 000 40219	BA158 600V/1A
RN609	9965 000 40721	SMD 1kΩ 5% 1/16W	LN301	9965 000 41226	Bead (3.2 x 1.6mm)	D629	9965 000 40218	1N4148 150mA/100V
RN610	9965 000 40730	SMD 220Ω 5% 1/16W	LN302	9965 000 41226	Bead (3.2 x 1.6mm)	D630	9965 000 40219	BA158 600V/1A
RN611	9965 000 40721	SMD 1kΩ 5% 1/16W	LN303	9965 000 41226	Bead (3.2 x 1.6mm)	D631	9965 000 40218	1N4148 150mA/100V
RN800	9965 000 40722	SMD 10kΩ 5% 1/16W	LN304	9965 000 41226	Bead (3.2 x 1.6mm)	D701	9965 000 40218	1N4148 150mA/100V
RN802	9965 000 40722	SMD 10kΩ 5% 1/16W	LN305	9965 000 41226	Bead (3.2 x 1.6mm)	D702	9965 000 40218	1N4148 150mA/100V
RN804	9965 000 40722	SMD 10kΩ 5% 1/16W	LN306	9965 000 41226	Bead (3.2 x 1.6mm)	D703	9965 000 40218	1N4148 150mA/100V
RN805	9965 000 40722	SMD 10kΩ 5% 1/16W	LN310	9965 000 41226	Bead (3.2 x 1.6mm)	D704	9965 000 40218	1N4148 150mA/100V
RN806	9965 000 40722	SMD 10kΩ 5% 1/16W	LN400	9965 000 41226	Bead (3.2 x 1.6mm)	DL601	9965 100 05207	Pow Relay OMIT112LM
RN807	9965 000 40722	SMD 10kΩ 5% 1/16W	LN401	9965 000 41205	Chip Coil 10mH 5%	DN101	9965 000 41170	PMLL4148/LL4148
RN808	9965 000 40721	SMD 1kΩ 5% 1/16W	LN402	9965 000 41226	Bead (3.2 x 1.6mm)	DN500	9965 000 41170	PMLL4148/LL4148
RN811	9965 000 40721	SMD 1kΩ 5% 1/16W	LN403	9965 000 41226	Bead (3.2 x 1.6mm)	DN501	9965 000 41170	PMLL4148/LL4148
RN812	9965 000 40721	SMD 1kΩ 5% 1/16W	LN404	9965 000 41226	Bead (3.2 x 1.6mm)	DN502	9965 000 41170	PMLL4148/LL4148
RN813	9965 000 40721	SMD 1kΩ 5% 1/16W	LN405	9965 000 40718	SMD 0Ω 5% 1/16W	DN800	9965 000 41170	PMLL4148/LL4148
RN814	9965 000 40721	SMD 1kΩ 5% 1/16W	LN406	9965 000 40718	SMD 0Ω 5% 1/16W	DN801	9965 000 41170	PMLL4148/LL4148
RN815	9965 000 40721	SMD 1kΩ 5% 1/16W	LN407	9965 000 40718	SMD 0Ω 5% 1/16W	DN802	9965 000 41170	PMLL4148/LL4148
RN816	9965 000 40720	SMD 100Ω 5% 1/16W	LN408	9965 000 41225	Bead (1.6 x 0.8mm)	DN803	9965 000 41170	PMLL4148/LL4148
RN817	9965 000 40720	SMD 100Ω 5% 1/16W	LN409	9965 000 41225	Bead (1.6 x 0.8mm)	DN804	9965 000 41170	PMLL4148/LL4148
RN822	9965 000 40720	SMD 100Ω 5% 1/16W	LN410	9965 000 41225	Bead (1.6 x 0.8mm)	DN805	9965 000 41170	PMLL4148/LL4148
RN824	9965 000 40729	SMD 1.8kΩ 5% 1/16W	LN500	9965 000 41226	Bead (3.2 x 1.6mm)	DN806	9965 000 41170	PMLL4148/LL4148
RN825	9965 000 40729	SMD 1.8kΩ 5% 1/16W	LN501	9965 000 41226	Bead (3.2 x 1.6mm)	M001	9965 000 40270	IR receiver mod. 36kHz
RN826	9965 000 40729	SMD 1.8kΩ 5% 1/16W	LN801	9965 000 41226	Bead (3.2 x 1.6mm)	ZD101	9965 000 40221	Zener 5V1 1/2W 5%
RN827	9965 000 40734	SMD 2.4kΩ 5% 1/16W	T301	9965 000 40196	29° Flyback Transformer	ZD101	9965 000 41174	ZMM55-C6V2
RN828	9965 000 40744	SMD 4.7kΩ 5% 1/16W	T302	9965 100 05197	Focus Transformer Bct	ZD201	9965 000 40575	Zener 12V 1/2W 5%
RN829	9965 000 40744	SMD 4.7kΩ 5% 1/16W	T601	9965 100 05198	Switching Transformer	ZD301	9965 000 40223	Zener 7V5 1/2W 5%
RN830	9965 000 40722	SMD 10kΩ 5% 1/16W	TH603	9965 000 40523	PTC 18Ω	ZD302	9965 000 40224	Zener 8V2 1/2W 5%
RN831	9965 000 40722	SMD 10kΩ 5% 1/16W	TH605	9965 000 40523	PTC 18Ω	ZD401	9965 000 4	

IC601	9965 000 41192	STR-W6756 LF2007 Sanken
IC602	9965 000 40592	SE140N Sanken
IC603	9965 000 40601	PC817C Sharp
IC604	9965 000 40599	L7805CV SGS
IC605	9965 000 40599	L7805CV SGS
IC606	9965 000 40599	L7805CV SGS
IC607	9965 000 40247	L7808CV
IC608	9965 000 40599	L7805CV SGS
Q301	9965 000 40232	2SC1815Y/2PC1815
Q302	9965 000 41184	KTC2026
Q303	9965 100 05187	2SC5859
Q304	9965 000 40232	2SC1815Y/2PC1815
Q305	9965 000 41191	FQPF630
Q380	9965 000 41189	2SC1815Y
Q381	9965 000 41189	2SC1815Y
Q382	9965 000 40231	2SA1015Y\2PA1015
Q383	9965 000 40231	2SA1015Y\2PA1015
Q384	9965 000 41189	2SC1815Y
Q385	9965 000 41189	2SC1815Y
Q401	9965 000 40232	2SC1815Y/2PC1815
Q501	9965 000 40232	2SC1815Y/2PC1815
Q502	9965 000 40232	2SC1815Y/2PC1815
Q503	9965 000 40231	2SA1015Y\2PA1015
Q504	9965 000 40231	2SA1015Y\2PA1015
Q505	9965 000 40232	2SC1815Y/2PC1815
Q506	9965 000 40232	2SC1815Y/2PC1815
Q507	9965 000 40231	2SA1015Y\2PA1015
Q508	9965 000 40231	2SA1015Y\2PA1015
Q509	9965 000 40232	2SC1815Y/2PC1815
Q510	9965 000 40232	2SC1815Y/2PC1815
Q511	9965 000 40231	2SA1015Y\2PA1015
Q512	9965 000 40231	2SA1015Y\2PA1015
Q513	9965 000 40231	2SA1015Y\2PA1015
Q514	9965 000 41181	2SA1480
Q601	9965 000 40232	2SC1815Y/2PC1815
Q602	9965 000 40583	2SC2230Y/3DG2230Y
Q603	9965 000 40587	2SA1930 TOSHIBA
Q604	9965 000 40231	2SA1015Y\2PA1015
Q701	9965 000 40232	2SC1815Y/2PC1815
Q702	9965 000 40232	2SC1815Y/2PC1815
Q703	9965 000 40232	2SC1815Y/2PC1815
Q704	9965 000 40232	2SC1815Y/2PC1815
Q705	9965 000 40231	2SA1015Y\2PA1015
Q706	9965 000 41182	2SA1837 PA
Q707	9965 000 41186	2SC4793 PA
QN106	9965 000 41188	SST3906MMBT3906PM
QN500	9965 000 41188	SST3906MMBT3906PM
QN501	9965 000 41188	SST3906MMBT3906PM
QN502	9965 000 41188	SST3906MMBT3906PM
QN503	9965 000 41188	SST3906MMBT3906PM
QN504	9965 000 41188	SST3906MMBT3906PM
QN505	9965 000 41187	SST3904MMBT3904PM
QN801	9965 000 41187	SST3904MMBT3904PM
QN802	9965 000 41187	SST3904MMBT3904PM
QN901	9965 000 41185	BC327 PNP
QN902	9965 000 41185	BC327 PNP
QN903	9965 000 41183	BC547 NPN
QN904	9965 000 41183	BC547 NPN
BR605	9965 000 41180	Bridge Rec.Diode KBJ6J
G501	9965 000 41223	CRT Sckt GZS10-301-2F
GST601	9965 000 40274	Surge Abs. 300V 30%
UN101	9965 000 41194	TDA12063H/N1F00
UN103	9965 000 41200	CP1117E33 ANAChip
UN300	9965 000 41202	PW1233L Pixelwork
UN301	9965 000 41203	M12L64164A-7T
UN302	9965 000 41201	CP1117E18LA ANAChip
UN303	9965 000 41201	CP1117E18LA ANAChip
UN304	9965 000 41200	CP1117E33 ANAChip
UN400	9965 000 41200	CP1117E33 ANAChip
UN403	9965 000 41197	TDA8759
UN404	9965 000 41201	CP1117E18LA ANAChip
UN405	9965 000 41201	CP1117E18LA ANAChip
UN500	9965 000 41196	OM8380H
UN800	9965 100 05189	M37161M8H RENESAS
V203	9965 000 40232	2SC1815Y/2PC1815
V204	9965 000 40232	2SC1815Y/2PC1815
V205	9965 000 40232	2SC1815Y/2PC1815
V206	9965 000 40232	2SC1815Y/2PC1815
V207	9965 000 40232	2SC1815Y/2PC1815
V208	9965 100 05188	Trans. FQPF630
V209	9965 100 05188	Trans. FQPF630

## 11. Revision List

Manual 3122 785 17230

- First release.