

## 7. Schematic Diagrams

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### Note

- For schematic Diagram
- Resistors are in ohms, 1/8W unless otherwise noted.


#### Special note :

Most semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the "electrostatically sensitive (ES) devices" section of this service manual.

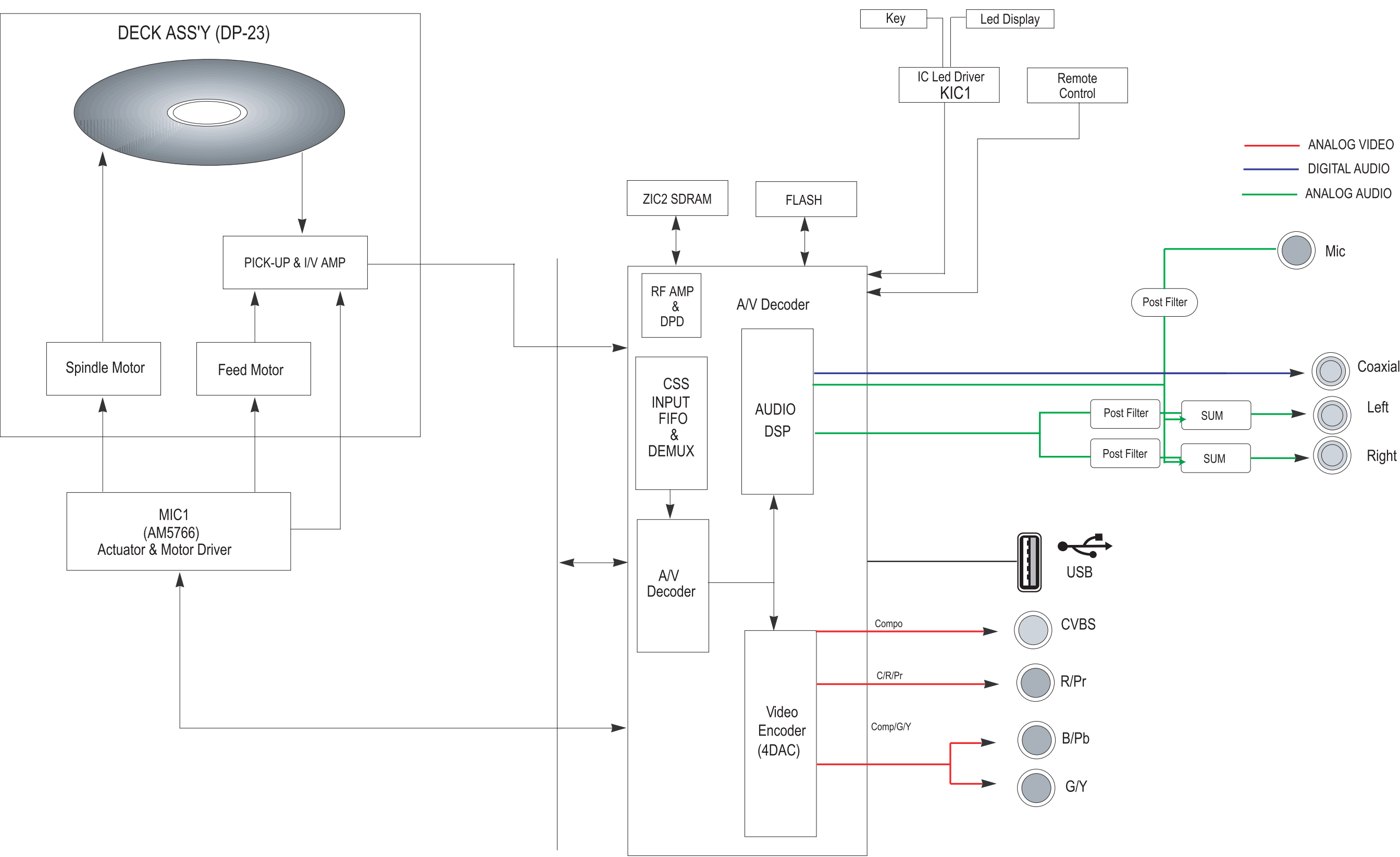
#### Note :

Do not use the part number shown on this drawing for ordering. The correct part number is shown in the parts list (may be slightly different or amended since this drawing was prepared).

#### Important safety notices :

Components identified with the mark  have the special characteristics for safety. When replacing any of these components. Use only the same type.

7-1 All block Diagram



## 7-2 Power

### 7-2-1 About S.M.P.S (Ringing Choke Converter Method)

#### ◆ Terms

- 1) 1st : Common power input to 1st winding.
- 2) 2nd : Circuit followings output winding of transformer.
- 3) f (Frequency) : Switching frequency (T : Switching cycle)
- 4) Duty :  $(T_{on}/T) \times 100$

### 7-2-2 Circuit description [FLY-Back RCC(Ringing Choke Converter)] Control

#### (a) AC Power Rectification/Smoothing Terminal

- 1) PDS01, PDS02, PDS03, PDS04 : Convert AC power to DC(Full wave rectification).
- 2) PEF10 : Smooth the voltage converted to DC.
- 3) PCD01, PCD02, PBS01 : Noise removal at power input/output.
- 4) PVA1 : SMPS protection at power surge input.

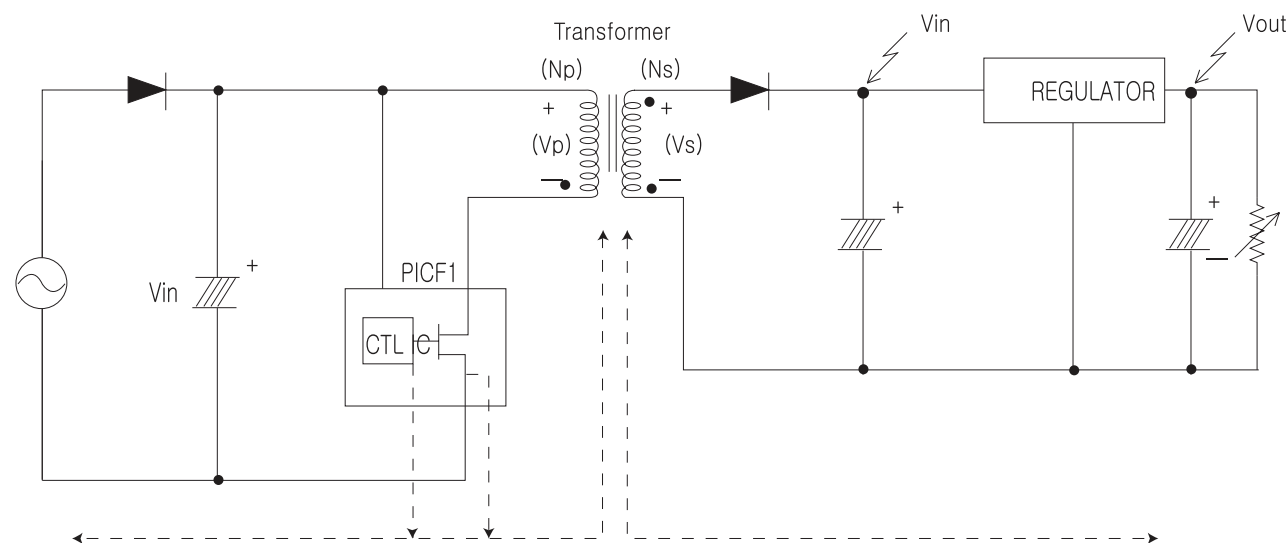
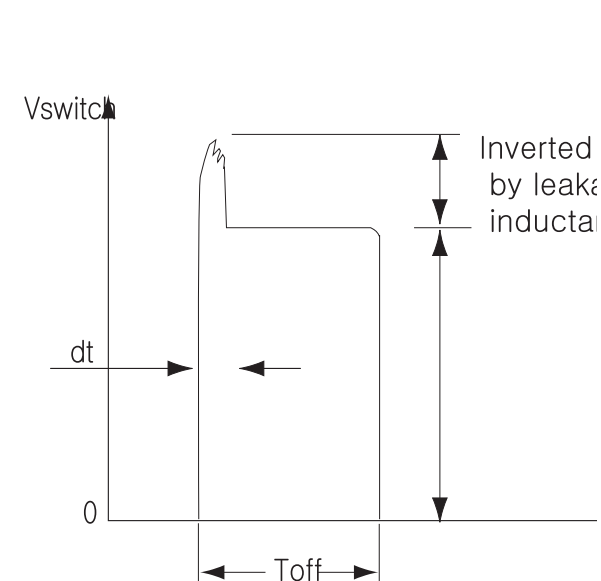


Fig. 7-1



#### (b) SNUBBER Circuit : PDS11, PCD12, PRS13, PCD11, PPS12

- 1) Prevent residual high voltage at the terminals of switch during switch off/Suppress noise. High inverted power occurs at switch (PQR11) off, because of the 1st winding of transformer :  $(V = -L1 \times di/dt)$ . L1 : Leakage Induction. A very high residual voltage exist on both terminals of PICF1 4, 5~8pin because dt is a very short.
- 2) SNUBBER circuit protects PQR11 from damage through leakage voltage suppression by RC, (Charges the leakage voltage to PDS11, PER13, PCD12 and discharges to PRS11, PRS12).

Fig. 7-2

#### (c) Driving circuit

When  $V_{in}$  supplied, driving current  $I_g$  occurs through the PICF1. By this  $I_1 (=H_{fe} \times I_g)$  occurs through the PICF1 and the  $V_b$  is induced to base winding coil NB. By induced  $V_b$ ,  $I_b$  start flow and the VCC voltage of PQR11 is sustained stable.  $I_b$  is constant and  $I_1$  increases in Proportion to time. After constant time passed  $I_b$  become to shortage and PICF1 is cut OFF (S/W OFF).

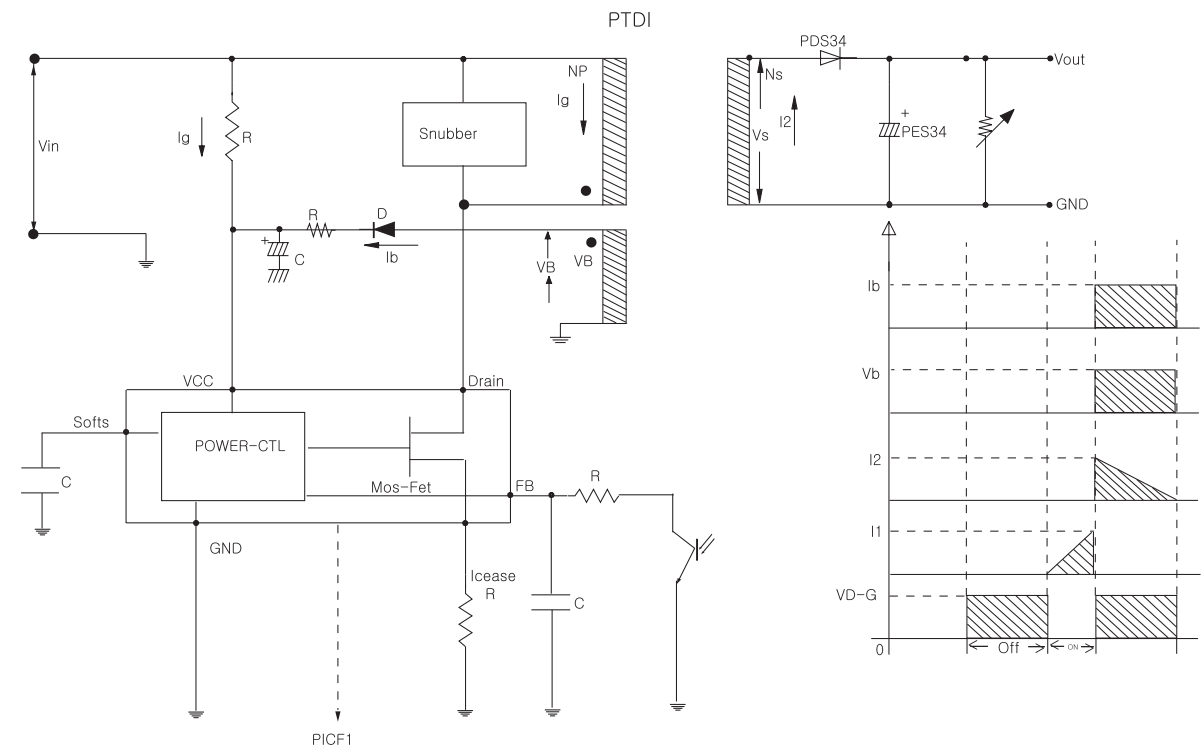


Fig. 7-3 Driving Circuit

(d) Feedback Control Circuit

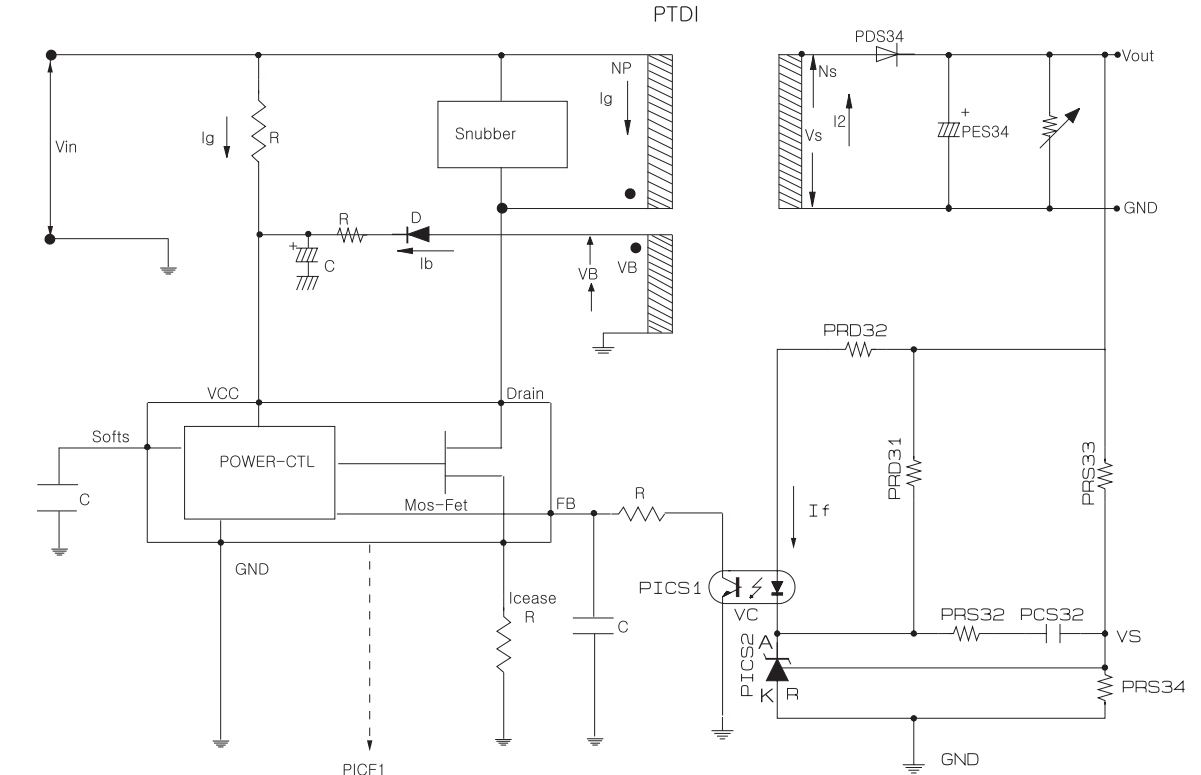


Fig. 7-4

◆ Operation descriptions

- 1) Internal OP-Amp '+' base potential of PICS2 is 2.5V and external '-' input potential is connected with PRS33 and PRS34 to maintain Vout of 4.4V.
- 2) If load of 4.4V terminal increase (or AC inout voltage decrease) and Vout decrease over 4.4V, Then : PICS2 "R" potential decrease over 2.5V --> PICS2 A-K BASE Current decrease --> PICS2 A-K Current decrease --> PICS1 DIODE Current decrease --> PICS1 C-E Current decrease --> PICS1 C-E Voltage increase - -> PICS1 F-B Voltage increase --> OUT DUTY increase TRANS Primary Current Increase --> TRANS Primary Power increase --> Vout increase --> Vout maintain 4.4V

- PRD31, PRD32 : Reduce 4.4V overshoot.
- PRS32, PCS32 : Prevent PICS2 oscillation (for phase correction).

7-2-3 Internal Block Diagram

◆ Internal Block Diagram

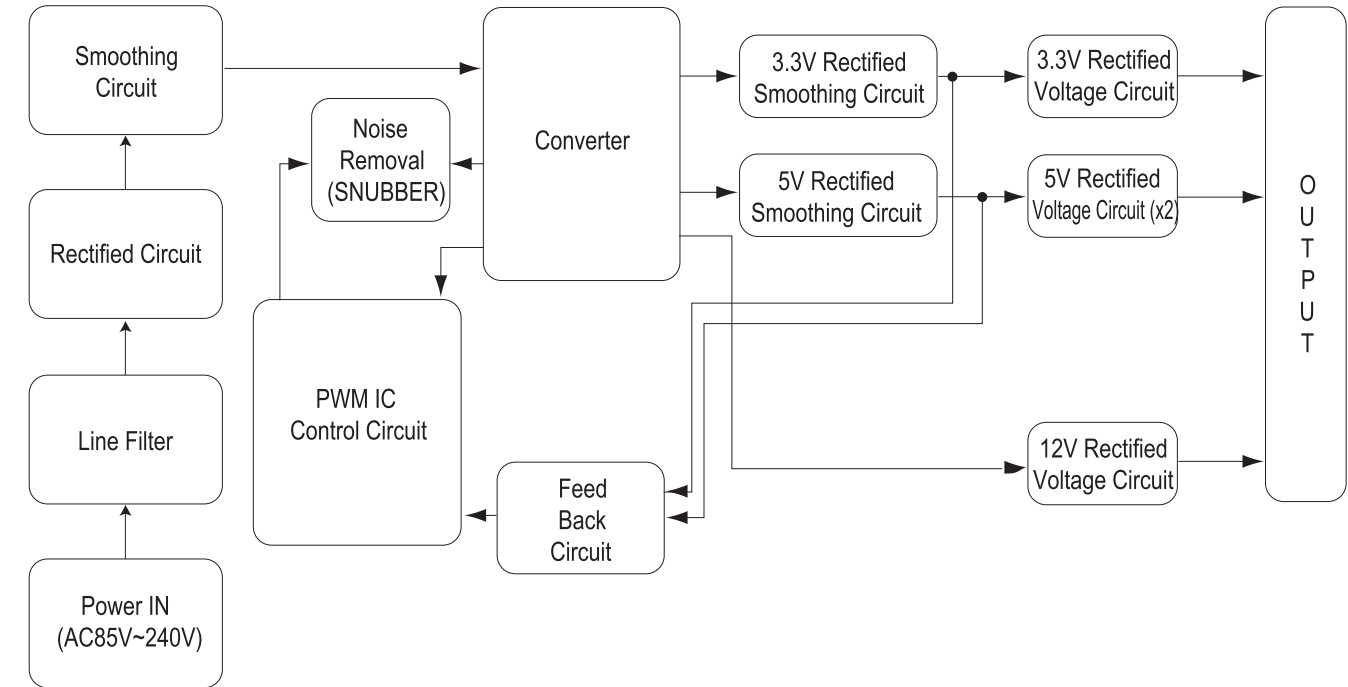
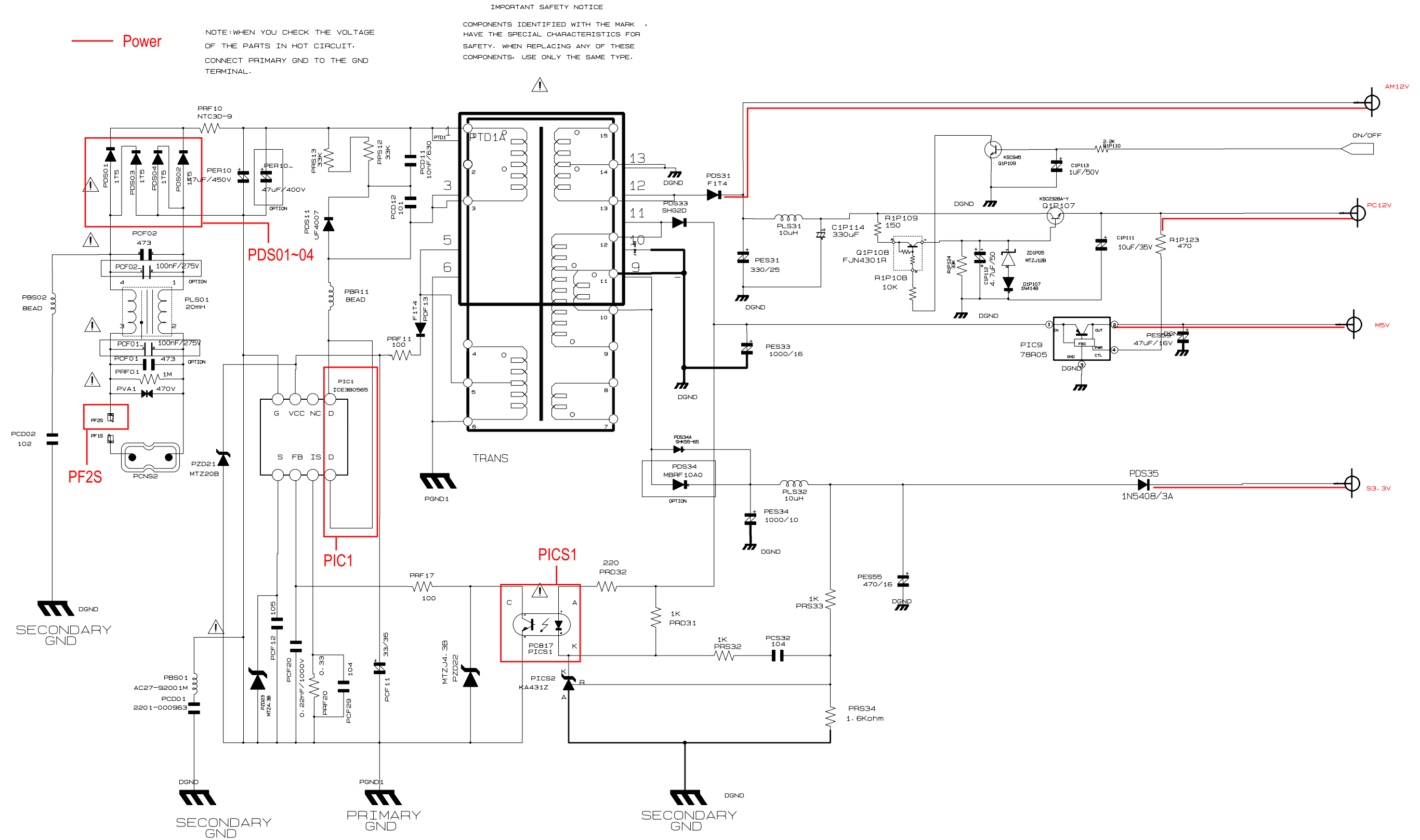
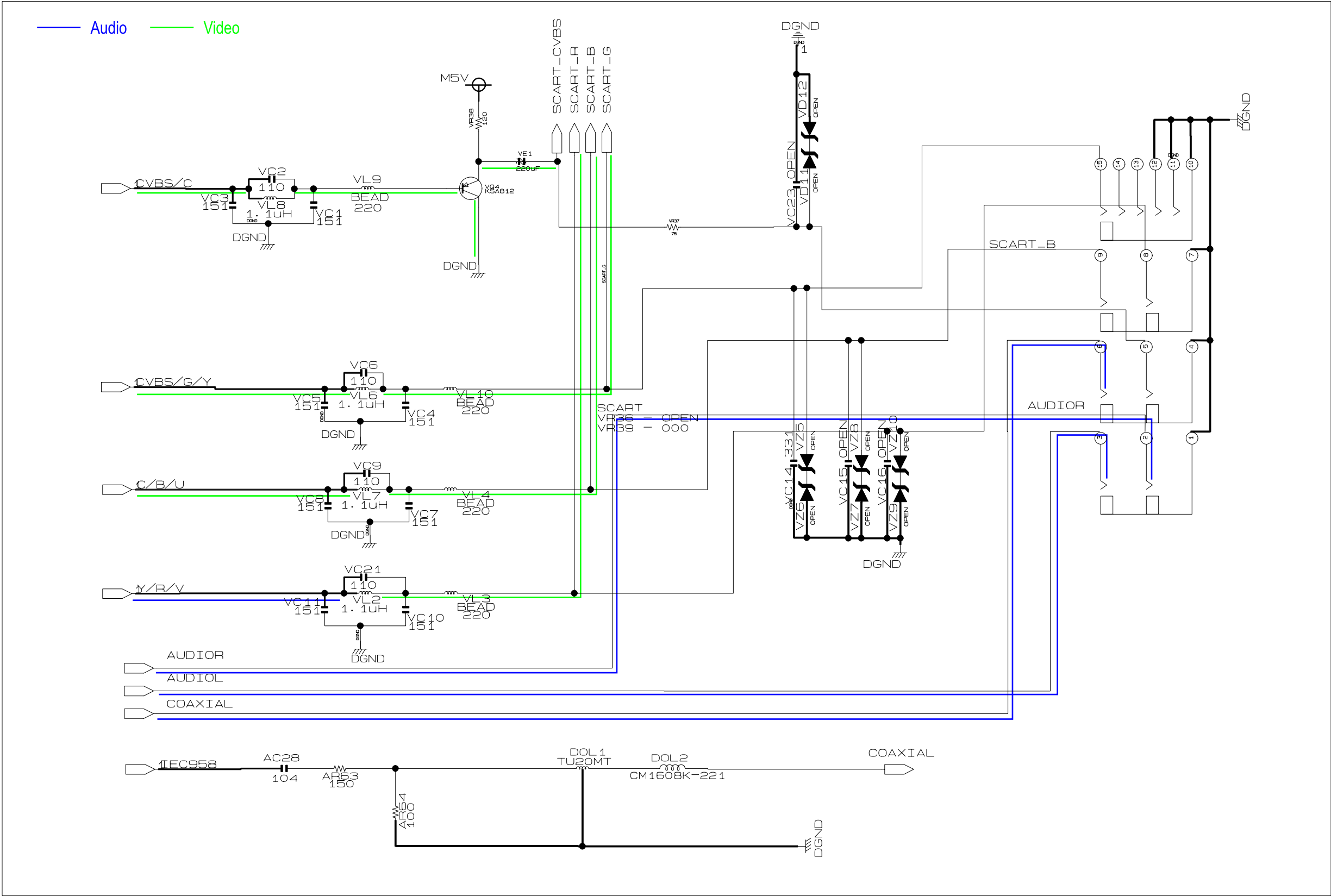


Fig. 7-5

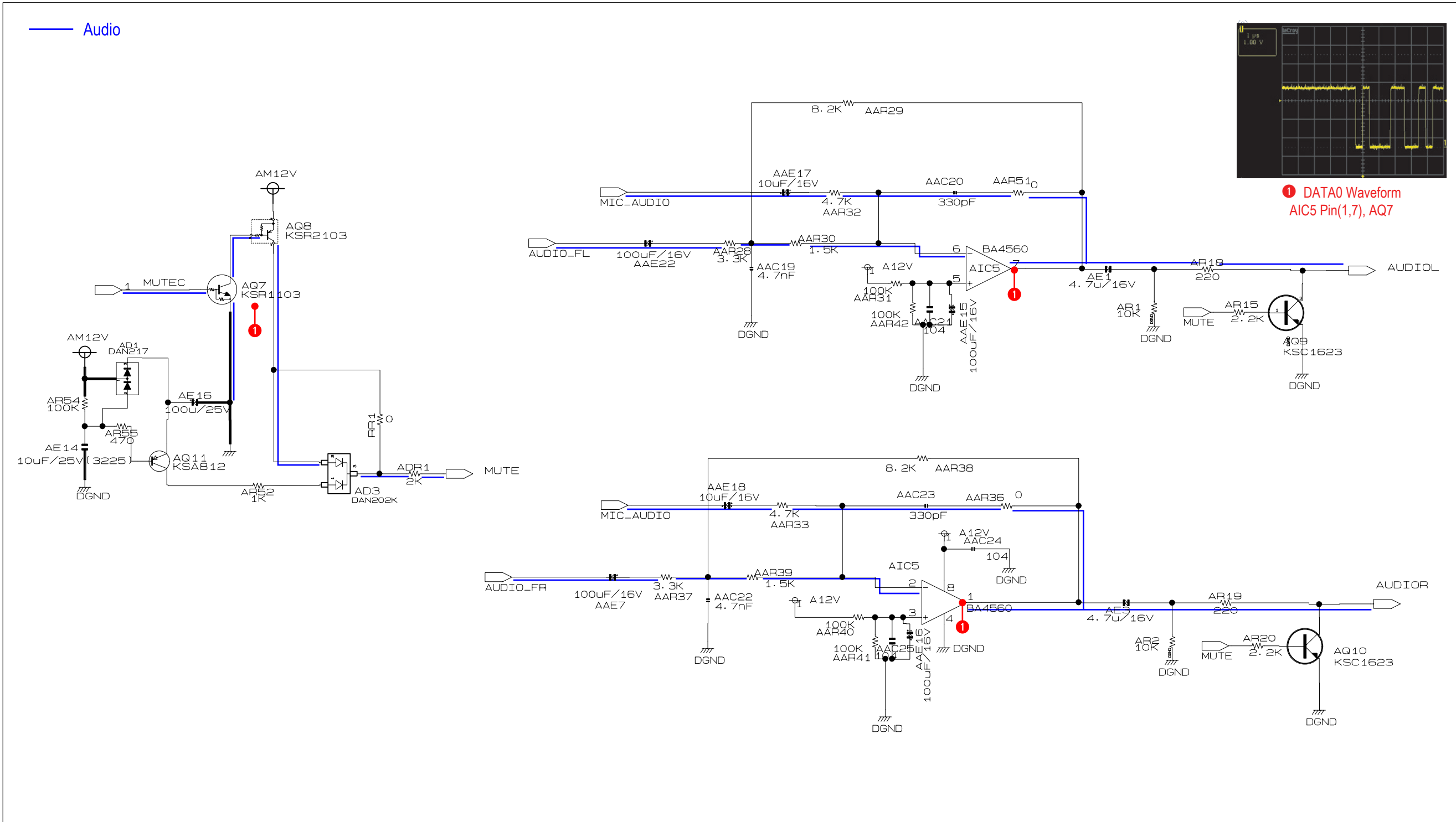
# 7-3 S.M.P.S (S.M.P.S PCB)



7-4 Video (Main PCB)

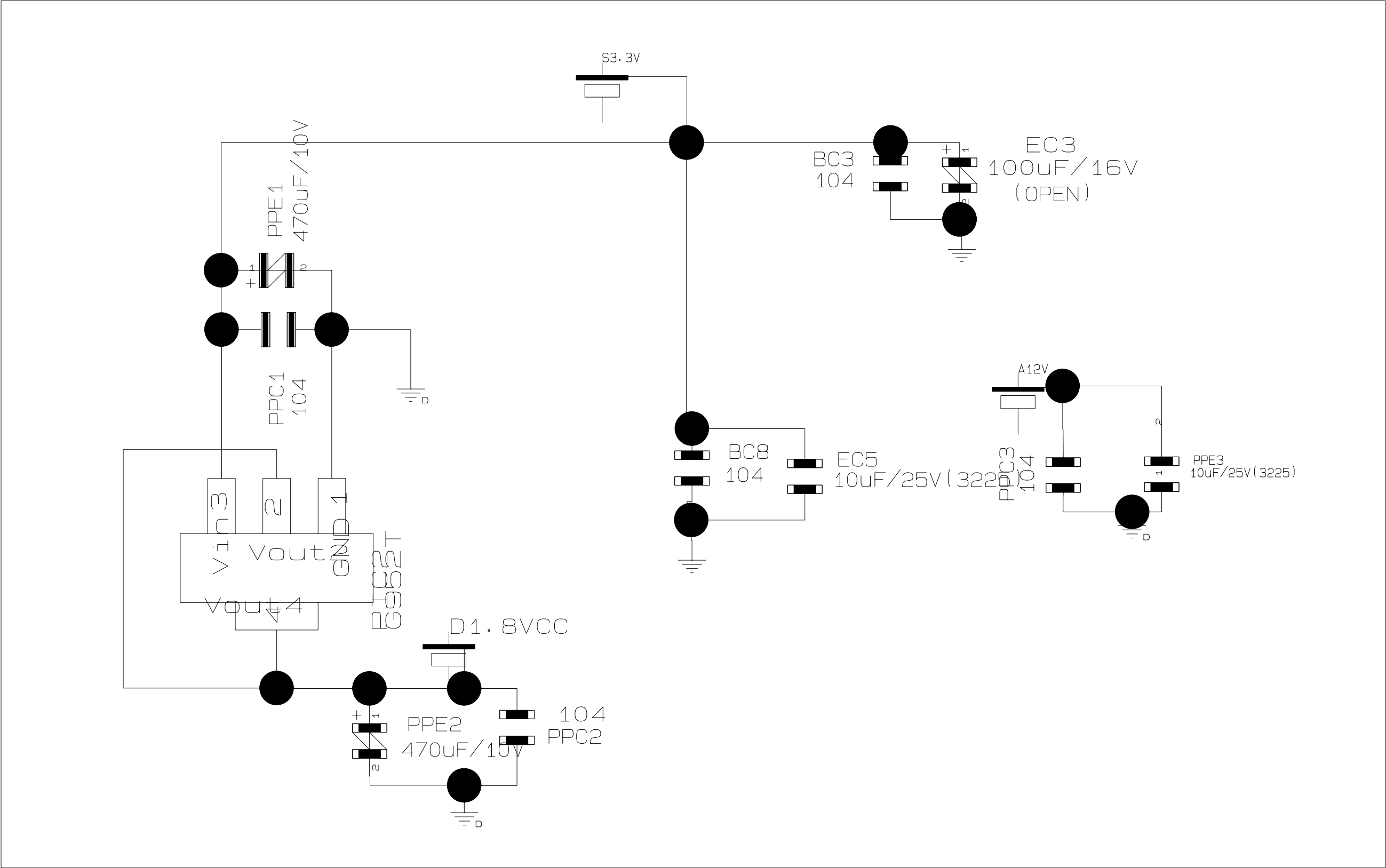


# 7-5 Audio (Main PCB)

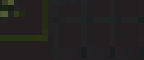
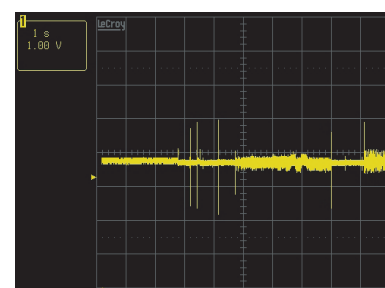


◆ These are the waveforms of DVD-P280K.  
Caution There can be some differences (Voltage, Frequency, etc.) among cameras.

7-6 Power (Main PCB)







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In [10]: plt.imshow(Z, cmap=cm.viridis)
In [11]: plt.colorbar()
In [12]: plt.show()

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7-9

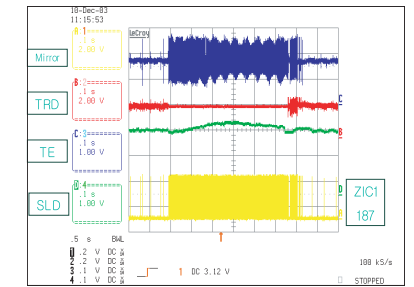


Figure 1 consists of four scatter plots arranged in a 2x2 grid, labeled 'a', 'b', 'c', and 'd'. Each plot has 'Number of children in the household' on the X-axis (ranging from 0 to 10) and 'Number of children in the neighborhood' on the Y-axis (ranging from 0 to 10). A regression line is shown in each plot, indicating a positive linear relationship. The data points are represented by small circles. The plots are arranged in a 2x2 grid, with 'a' in the top-left, 'b' in the top-right, 'c' in the bottom-left, and 'd' in the bottom-right.

[illegible]

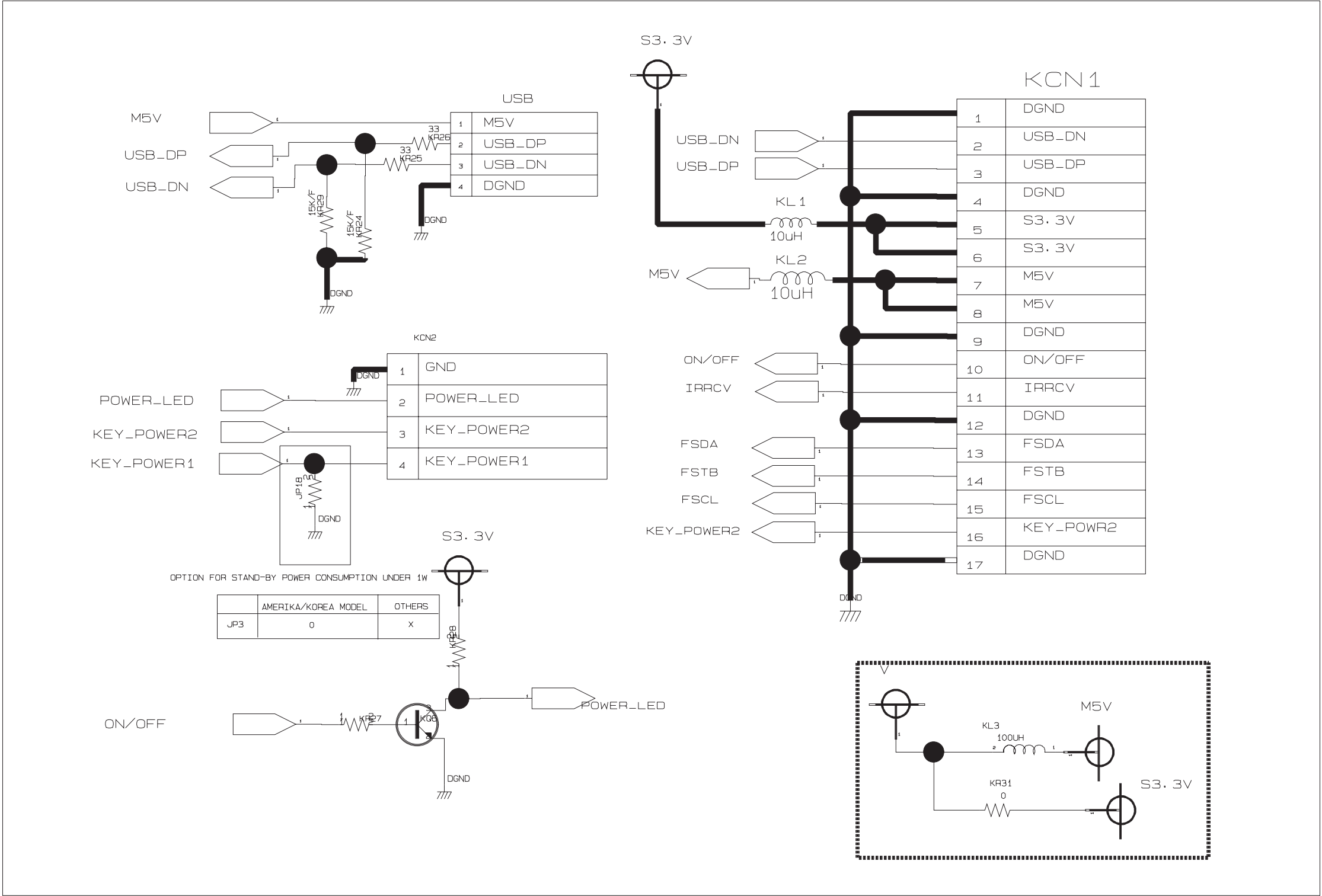
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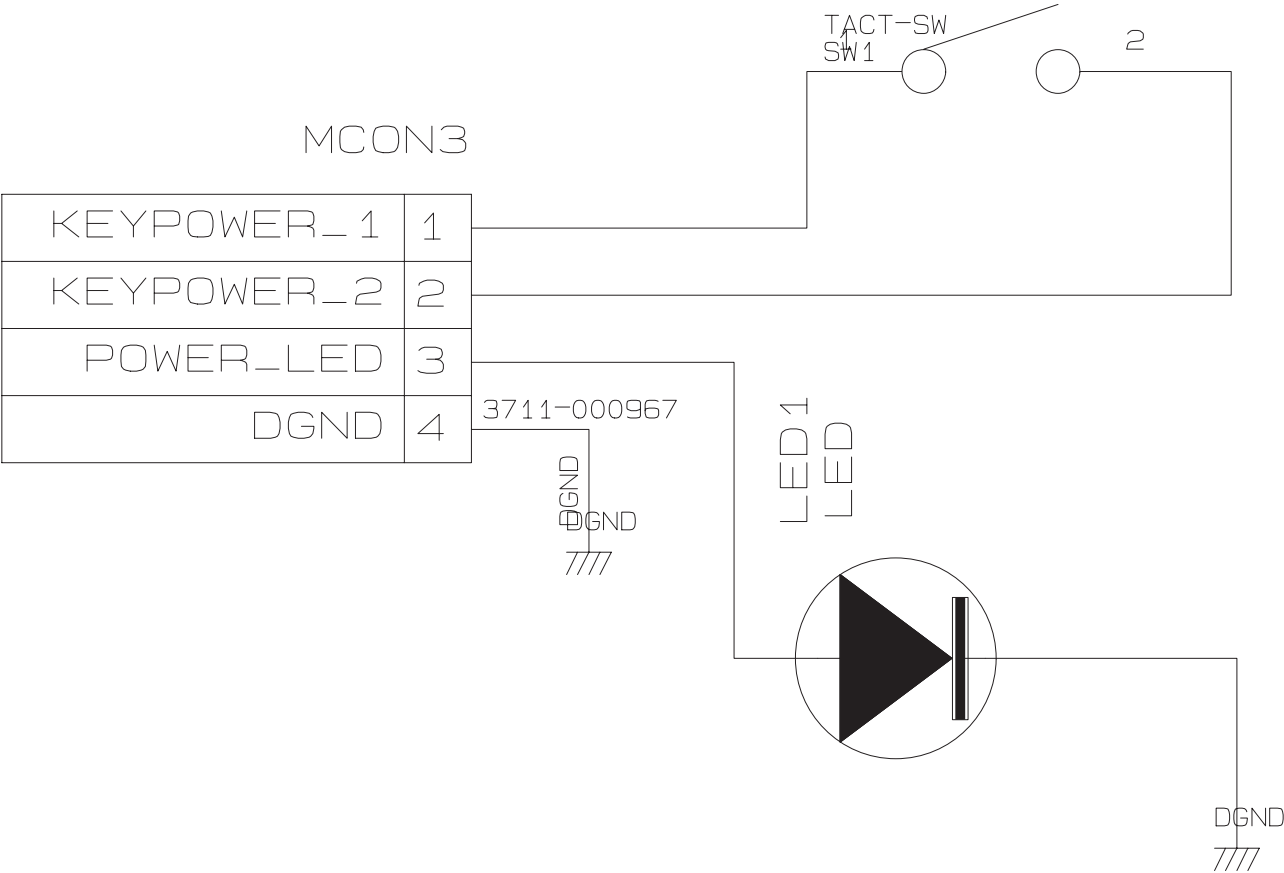




7-12 Front Key Connector (Front PCB)



7-13 Power Key (Power PCB)



M E M O