

Operational Description of 9S936 & F9S936

1. Power supply circuit

1) AC Inlet(EMI filter)

The AC power is supplied to the EMI filtering circuit which consists of an X-Cap and two Y-Caps. This filter reduces the conducted noise through power line.

2) Bridge Rectifier circuit

This circuit converts AC input voltage into DC voltage by rectifying through bridge diode(Location D850) and bulk capacitor(C802).

3) Output voltages

The power supply circuit makes DC output voltages : 5V, 12V, 14.5V, 27V, 80V, 190V.

4) Power On/Off

When the voltages of the Microprocessor pin #5 & #9 become high levels, Q823 & Q825 is turned on, and then the DC voltage is supplied to the boards and the state is power on.

2. Horizontal & Vertical Deflection circuit

The H/V oscillation IC TDA9113 makes Horizontal drive pulse for Horizontal drive circuit and Vertical ramp pulse for Vertical driver(TDA8172). The Horizontal drive pulse frequency range is from 30KHz to 96KHz. Horizontal drive pulse is supplied to Horizontal drive transistor(Q411).

When the vertical sync is supplied to IC TDA9113 pin 2, vertical ramp pulse is made. The OSC IC TDA9113 is controlled by the I²C bus control of the microprocessor, and the 8bit I²C bus controls Geometric Distortion, Horizontal size, Phase and Vertical size, Position.

3. Microprocessor

The microprocessor applied to this monitor is made by Motorola, and the name is WT62P1.

The following is the major functions of the microprocessor.

- H/V sync processing, Power on/off, DPMS function.
- CS port output, Recall, Degaussing function.
- OSD, H/V OSC, Video preamp IC control.

The operating clock of the microprocessor is 12MHz, and has an I²C interface to control above ICs.

4. Horizontal drive and output part

The output of Horizontal oscillator goes out of the pin #26 of IC TDA9113, and it is supplied to the base of Horizontal drive transistor Q411. A large amount of drive current necessary for horizontal output transistor Q405 is made by Q411 and T402(Horizontal drive transformer). Q405 is switched by pulse voltage provided by T402, and when On-time pulse is charged on the base of Q405, Q405 is turned on having collector current flow which increase linearly through horizontal deflection coil. At the moment of Off time, pulse is charged on the base of Q405, collector current stops increasing and it is turned off. All the above chain of actions becomes a cycle, and it goes on and on. And the high voltage of FBT is obtained from the same methods. The high voltage supports to CRT Anode.

5. Video Pre-Amp and OSD processing

The Analog R.G.B signal is supplied from signal source, passed through capacitors C201, C202, C203 and inputted to the pin 5, 6, 7 of the Video Pre-Amp IC201(LM1267NA). Also, R, G, B OSD outputs are supplied to the pin 1, 2, 3 of IC201 coming out from the pin 10, 11, 12 of OSD generator IC501(MC141543).Fast-blanking signal of OSD is provided from the pin 13 of IC501 to the pin 4 of the IC201.

Video Pre-Amp and OSD IC is controlled by I²C bus control of the microprocessor.

6. CRT output driver

This video output circuit is consisted of the 3 channels video output amp IC. Also this device is integrated a internal CRT bias circuits and is supplied DC voltage +80V. The output voltage gain is obtained from the Pre-Amp output voltage level controlled by the microprocessor. The output voltage supplied to the CRT cathode is about 35V-40V and the output video bandwidth is maximum 100MHz.