

Operational Description of 5Q740

1. Power supply circuit

1) 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 diodes(Location D801~D804) and bulk capacitor(C805).

3) Output voltage

The power supply circuit makes DC output voltages; 5V, 6.3V, 12V, 52V, 100V.

4) Power On/Off

When the voltages of the Microprocessor pin #5 & #6 become high levels, Q806 & Q807 is turned on, and then the DC voltage is supplied to the loads and the state is power on.

2. Horizontal & Vertical Deflection circuit

The H/V deflection IC TDA9109A makes Horizontal drive pulse for Horizontal drive circuit and Vertical ramp pulse for Vertical driver(TDA9302H). The Horizontal drive pulse frequency range is from 30KHz to 70KHz. Horizontal drive pulse is supplied to Horizontal drive transistor(Q403).

When the vertical sync is supplied to IC TDA9109A pin 2, vertical ramp pulse is made. The OSC IC TDA9109 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 Weltrend, 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 frequency 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 TDA9109A, and it is supplied to the gate of Horizontal drive transistor Q403. A large amount of drive current necessary for horizontal output transistor Q405 is made by Q403 and T401(Horizontal drive transformer). Q405 is switched by pulse voltage provided by T401, and when On-time positive pulse is applied to 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, negative pulse is applied to the base of Q405, collector current stops increasing and it is resonated with DY coil and CS capacitors. 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(Video Card of PC), passed through capacitors C204, C205, C206 and inputted to the pin 1, 3, 5 of the Video Pre-Amp IC201 (TDA9210).

Also, R, G, B OSD outputs are supplied to the pin 8, 9, 10 of IC201 coming out from the pin 15, 14, 13 of OSD generator IC501(NT6827). Fast-blanking signal of OSD is provided from the pin 12 of IC501 to the pin 11 of the IC201. The output voltage gain is adjusted through I²C bus by the Microprocessor.

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

6. CRT output driver

This video output circuit consists of the 3 channels video output amp IC. Also this device integrates an internal CRT bias circuit and is supplied by DC voltage +100V.

The output voltage supplied to the CRT cathode is about 35V-40Vpp and the output video bandwidth is maximum 100MHz.