Operational Description

Power section

Input stage is made of 4 parts : the resistor R10 (fuse) , diode D5, capacitor C8C9 and resistor R11(fuse). Fuse's function is to limit the inrush current of rectifier D5 in a safe range, attenuation of differential-mode noise ,fault occurs in anywhere else, bring the protection of circuit. MOV keeps input voltage.

The power processing stage consists of the LNK304GN, L1, D6, and C11. Diode D6 adopts a reverse recovery time (Trr = 35ns) of the quick reply diode. Inductor L1 with appropriate RMS current rating (to meet the temperature rise requirements), capacitor C11 is the output filtering capacitance, the main function is to limit the output voltage ripple. The output is a steady 24V DC voltage.

Diodes D6 and D7's forward voltage drop is the same, both sides of the C11 voltage tracks the output voltage. The resistance divider which is made of R12 and R13 will proceed detection and regulation of C11 voltage. Using of switch cycles to maintain a steady output voltage. When the output voltage rises, the current into the U3   1.2.7.8 pin increases. if the current checks IFB value, then the cycle will not lose, when the current is less than IFB value, it will perform the switching operation cycle , so as to reduce the load, there will be more cycle will be lost, and when the load increased, only a few cycles to be lost.

Then after C12 filter to U2 step-down regulator, The RC filter circuit consists of C14, C15 will proceed filtering of output voltage. The output voltage of U2 is 5V DC.

RF receive part

In the case of power supply,receiving module stays in the receivng state.If in an effective space, and the frequency range is 315MHz, wireless signal will be received. After RF received the signal ,then send to MCU. The MCU proceeds the signal received by RF module.

Recognition control

The MCU receives the signal from RF module, will recognition, judgment, and then execution after confirm the signal is effective. During the execution section, it will detect zero-crossing signal to make the relay work during the zero-crossing action. It detects zero-crossing signal through R9,C7,R6,C6.