

(2)

Technical Description of the Remote Control Car System:

A) The Remote Control Unit (Transmitter):

Once the push switch SW-PB is pressed, the 27MHz radio frequency (RF) signal is generated by the transistors Q3 & crystal X1 and is precisely tuned by inductor L1 & capacitor C7. On the other hand, transistors Q1 & Q2 generate the approximate 1KHz action control signal. Finally the modulated 27 MHz radio frequency is transmitted out via the transmission antenna Ant. 1.

B) The Remote Control Car Main Unit:

Case (1) once the power switch of the remote control car main unit is turned on, the DC motor will move in the forward direction (the push switch SW-PB on the remote control unit has not been pressed). This is because transistor Q101 is turned on and so the voltage at inductor L101 is tighten to approximately zero volt. The voltage across the DC motor will approximately equals to 3V (3V - 0V).

Case (2) once the power switch of the remote control car main unit is turned on, and at the same moment the push switch SW-PB on the remote control unit is pressed down. The DC motor will move in the backward (reverse) direction. Let us study the status more thoroughly. The receiving antenna Ant. 101 receives the modulated 27MHz radio frequency signal emitted from the transmission antenna Ant. 1 of the remote control unit. Inductor L103 & capacitor C112 has been tuned to only receive 27MHz signal. The impedance of the receiving RF signal is matched by transistor Q107. The received signal is sent to transistors Q106 for action control signal demodulation. Diode D101 only delivers the positive portion of the demodulated action control signal to transistor Q105. This amplified signal saturates transistors Q103 and Q102. With the consequence, transistor Q104 is turned on while transistor Q101 is turned off. So the voltage at inductor L101 is pushed up to about 6 volt. The voltage across the DC motor will approximately equals to -3V (3V - 6V).

Best Regards,

Pang Chi Ping

4th July, 2000.