

### **Electrical description of the controller (transmitter)**

The RF link (control method) is established by encoding a pulse train which includes 4 codes. These codes will be interpreted by receiver decoder for forward/backward and left/right control.

The controller is a pulse wide modulation transmitter which has 3 main parts, an encoder, an oscillator and a RF amplifier.

Whenever a key is pressed (SW1-L/R, SW2-F/B), the VSS of the encoder IC1 (U1) will be connected (via D3–D6) to the negative terminal of 9V battery and the battery power is applied to the VDD of the encoder via R3. The operating voltage (4.3V) is regulated by a zener diode (D1). At the same time, the IC(U1) is operating and generating a pulse train from pin8 to Q4. The content of pulse train depends on key(s) pressed.

Q2 is a crystal control oscillation and the power is applied when a key (SW1-L/R, SW2-F/B) is pressed. It outputs to RF amplifier via C16.

Q4 is a RF amplifier and it receives signal from oscillator (RF frequency) and modulating pulse from encoder. A band pass filter (C13, T1 & C14) is placed between the amplifier and antenna to reduce upper harmonic & spurious emission.