EL205 TigerCub 49.820 ~ 49.900MHz Transmitter Operation Description

The Microprocessor (U1, Figure 1) reads input commands (SW2/SW3/W2/W3,Figure 1),and then encodes them to digital codes. The codes are sent to RF oscillator via pin 6 of U1, Q6, Q7 and then modulates 49.820 ~ 49.900 MHz carry frequency signal via Q1 (Figure 2) to achieve AM signal .

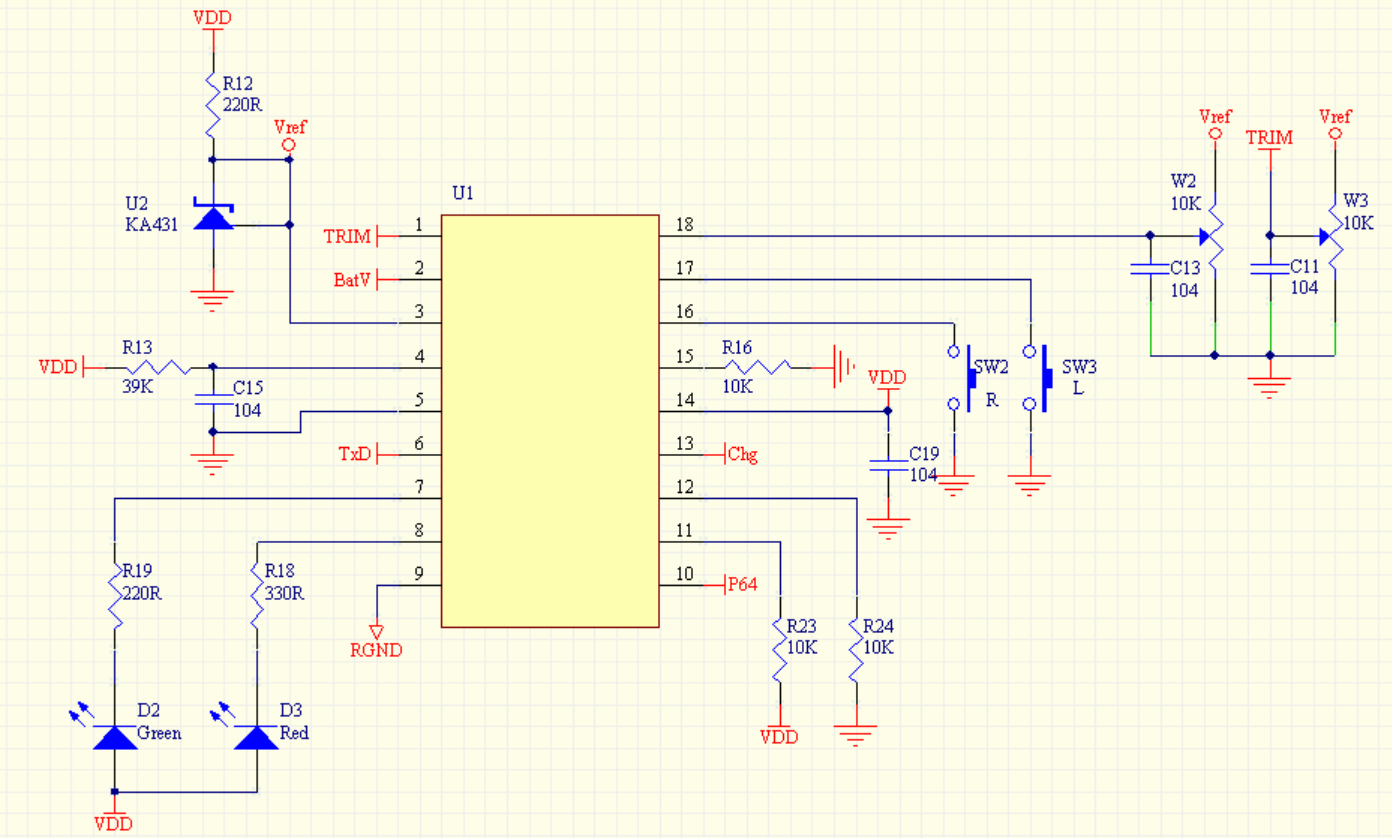

Figure 1

The Radio Frequency of the transmitter is based on standard 49MHz AM citizen's band. It generates low power 49.820 ~ 49.900MHz AM carrier frequency via major components of Q1, Y1, L1, C5, R4, R3 and R28 etc. (***Figure 2***). Please note that the value of the components may vary. Please see the attached schematics for more detail.

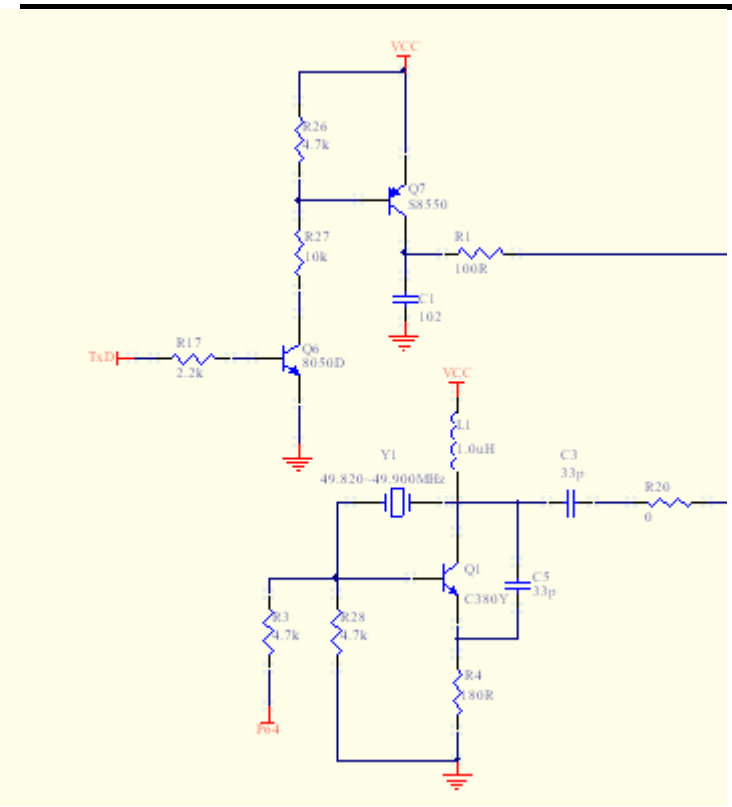

Figure 2

The AM signal (via capacitor C3) is passed to RF amplifier ***(Figure 3***,Q2,C8,R9,and L2), which amplifies the signal and then couples the signal into the antenna (ANT1) via components C4,C6,L4,C7 and L3.

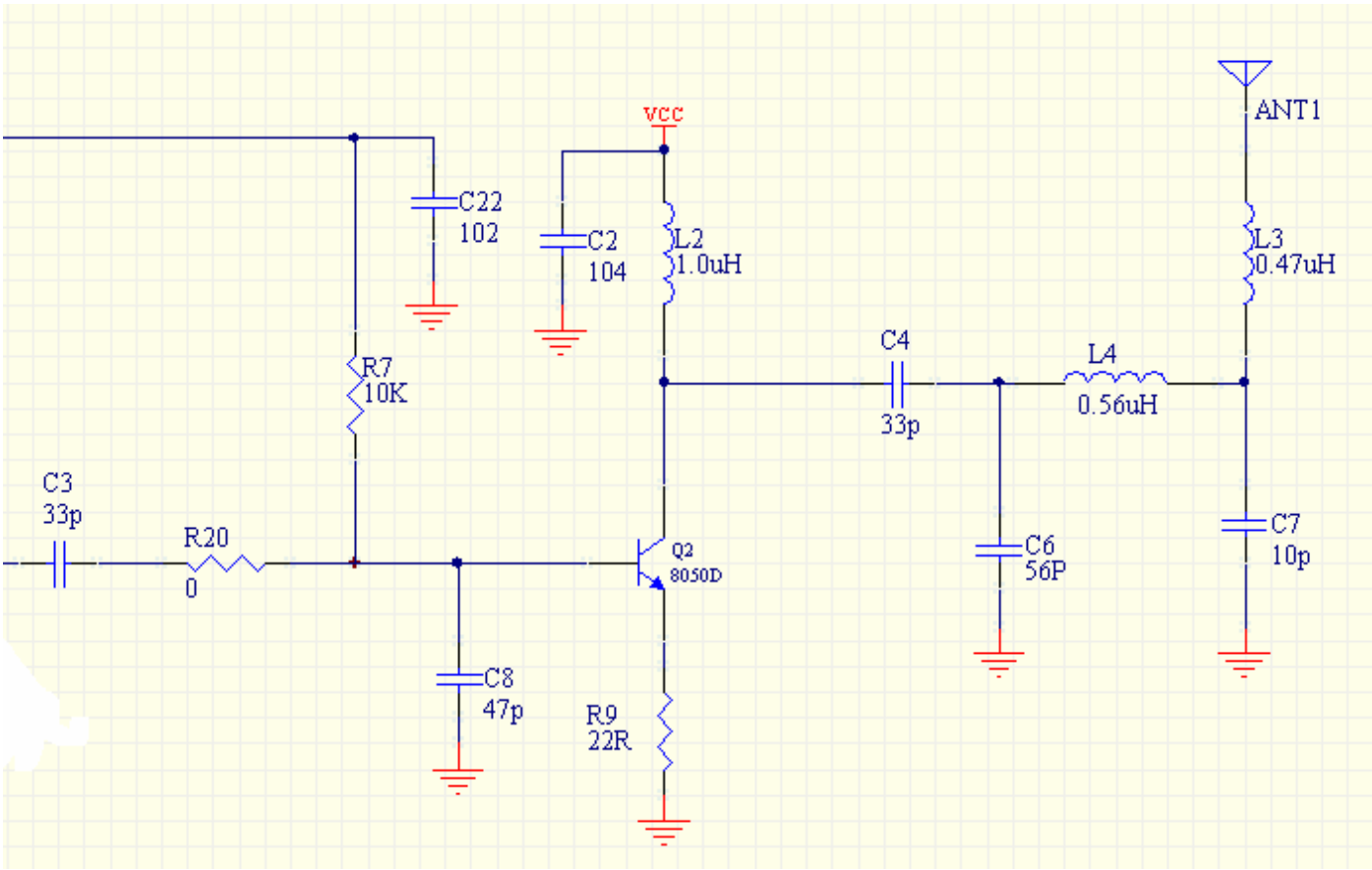
VCC
ANT1
C22
102
C2
104
L2
1.0uH
L3
0.47uH
R7
10K
C4
33p
L4
0.56uH
C3
33p
R20
0
Q2
8050D
C6
56P
C7
10p
C8
47p
R9
22R

Figure 3

EL205 TigerCub 49.820 ~ 49.900MHz Receiver Operation Description

The Radio Frequency of the receiver is based on standard 49MHz AM (Amplitude Modulation) citizen's band. A low power local oscillator frequency of 49.820 ~ 49.900MHz, generated by components of Q1, C1, L1, C8, R5, C9, R3, C20 and T1(***Figure 1***), couple with antenna input via components of C2 (***Figure 1***) to discriminate RF signals from transmitter.

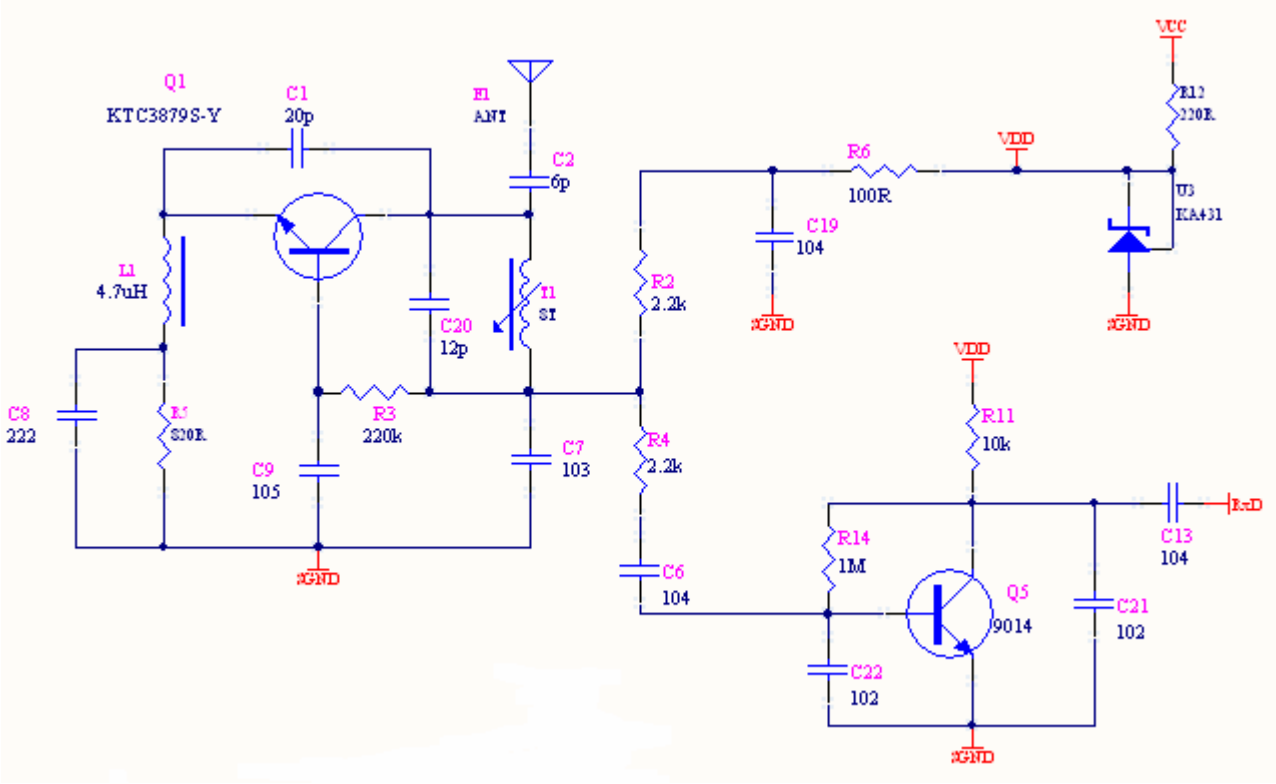

Figure 1

The demodulated signal is sent to Q5 by R4 and C6(see ***Figure1)*** , and then is amplified by Q5,R14,C22, R11 and C21. The amplified signal is passed to the pin 11 of U1 via C13, R18 and is decoded to control commands by internal circuit of U1 (***Figure 2***) .

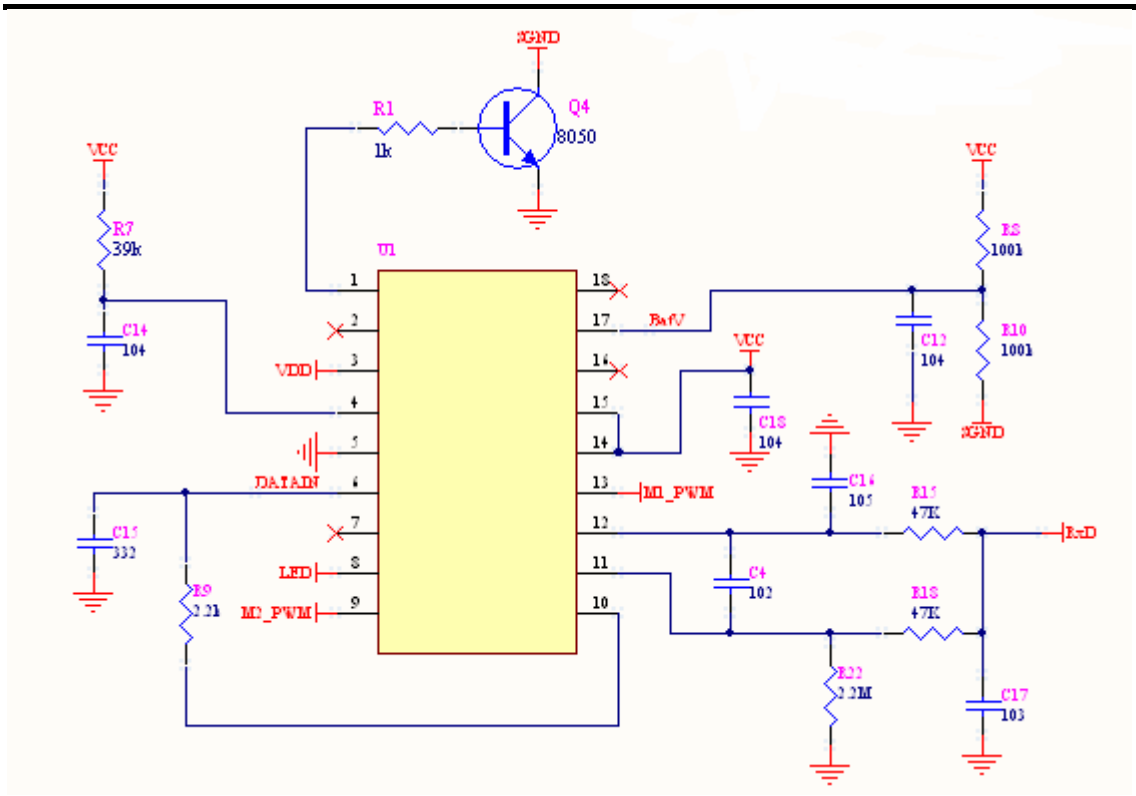

Figure2

The control command signals drive the motors via MOSFET Q2 and Q3 accordingly (***Figure 3***).

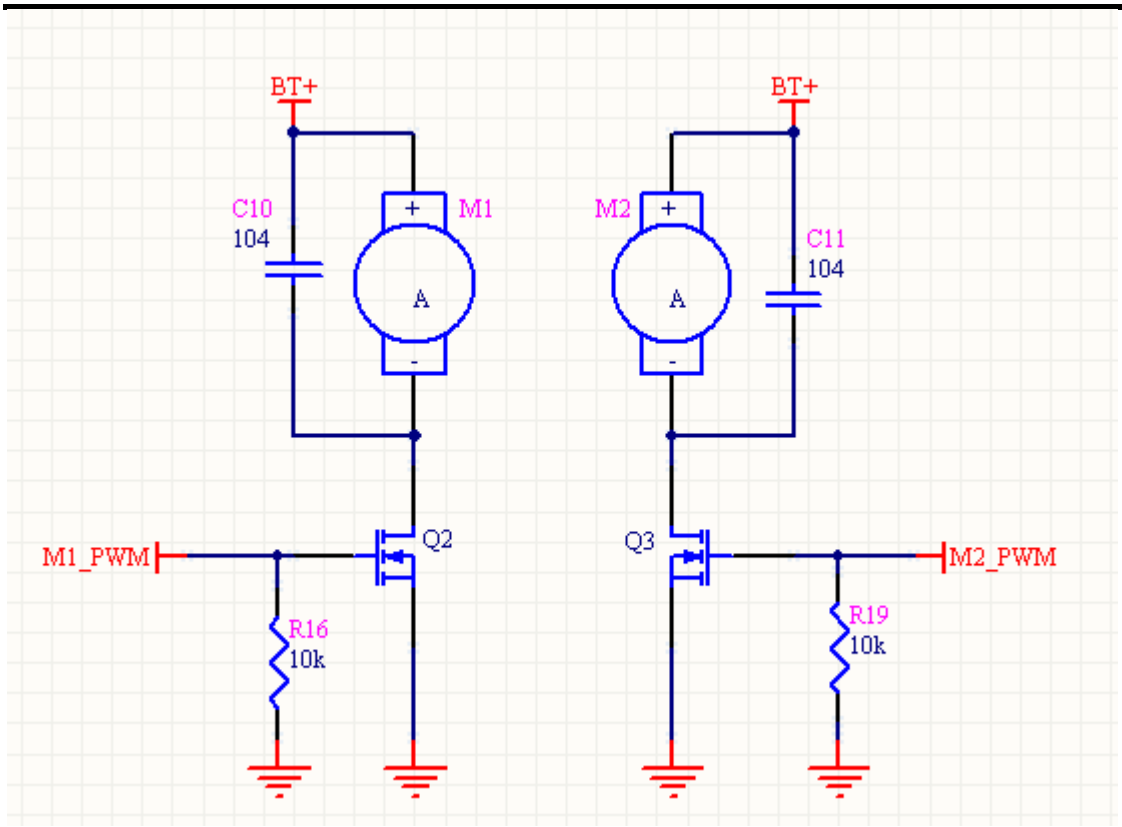

Figure3