

## **49.860MHZ Receiver Operational Description**

The Roll Cage is full function radio controlled toy car, it operates on 9.6v volts supplied by a 9.6v NIMH battery pack , It is designed to operate on a single fixed frequency in the 49.82-49.90 MHz band . Please see the attached block diagram and schematic.

The vehicle receiver receives and demodulates the AM transmitted signal from the transmitter, using a standard super-regenerative AM receiver/demodulator circuit comprised of ANT1 Q4, L1, L3, L2 and associated passive components. L2 is a tunable core slug inductor that is used to tune the receiver for maximum sensitivity. The output of the AM receiver / demodulator is AC coupled to a high input impedance COMS inverter is connected to the U1 decoder IC, It is biased into their linear region through C9, C4, C5, R1, R4, R5 and R6 and function as amplifier, filter and shape the data. After passing through the last inverter stage, the incoming waveform is a digitized enough to be fed into the IN1 pin for on-chip decoding.

The left motor forward/reverse command is controlled by the U2 IC low power switching transistors Q21, Q22 and a high power H-bridge comprised of Q17, Q18, Q19, Q20. The right motor forward/reverse command is controlled by the U2 IC low power switching transistors Q5, Q6 and a high power H-bridge comprised of Q7, Q8, Q9 and Q10.

The opening /closing motor is controlled by the U2 IC low power switching transistors Q15, Q16 and a high power H-bridge comprised of Q11, Q12, Q13 and Q14.

The current protection is controlled by low switching transistors Q23, Q2 and Q3

A zener regulator circuit comprised of Q1, C20, R13, Z1, C19 and C17, it supplied voltage VDD for the super-regenerative radio ,decoder IC U1 , MCU IC U2.

All tuning and verifications are performed by the manufacturer and there are no adjustments which can be made by the user. No external ground is required or used with this receiver.