

49.860MHz receiver operational description of hurricane car

The hurricane car is a full function radio controlled toy car .There is two types of supply voltage form for car ,one is 9.6 volts rechargeable Ni-Cd pack battery ,The other is 9.0volts with six batteries (size AA).This car is designed to operate on a signal fixed frequency in 49.82~49.90MHz .Please consult with added block diagram and schematic .

The modulated RF signal from the transmitter coupling to UA1(W55RFS27R3C) through CAB, then the R(right),L(left),F(forward),B(back)and F1 and F2 signal will be decoded by UA1.LR1,CA3 and CA4 makes up of oscillator ,which sends out basic oscillatory signal . The signal of F ,B,L and R from UA1 is processed by MCU (EM78P156) . the order signal of F,B,L ,R,F1,and F2 will be generated in the form of an electronic signal and then enter into drive circuit .When the R electronic signal enter into Q5 and left electronic signal enter into Q6 , MOTOR 2 will be controlled to run by Q13,Q14,Q11,Q12 .In the same way ,F electronic signal and B electronic enter into Q3,Q8 . MOTOR 1 will be controlled by Q1,Q2,Q18,Q4,Q17.

R16 is check resister of current , when the current which flow to R16 beyond 4A ,the D4 and D9 is changed low voltage by U3-A and U3-B,F and B electronic signal is changed low voltage .Thus ,the drive circuit is protected .P66(12 pin of MCU) is an I/O port of MCU to distinguish choose of voltage .When the P66 is high voltage ,the power is defaulted for 9.0 volts . When P66 is low voltage ,the power is defaulted for 9.6 volts . This transformation changes for PWM of F and B .

When there is not TX signal , F and B electronic signal is low voltage , U3-C began to work ,Q9 is cut off ,U3-B make Q15 cut-off .When the power under 8 volts , U4-C works ,LVP1(13pin of MCU) is changed from low to high voltage which changes output PWM of R and L. When the power under 5 volts ,U4-A works ,which controls U4-B output rectangle wave of 200Hz .After lvpl received rectangle wave of 200Hz ,F and B output is stopped . This is protection of low voltage .If the power switch is opened again , the circuit will reset .

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 .