

MOTOR CONTROL BY PULSE WIDTH MODULATION

Benefits Of This Circuit

1. Wide supply range:
2. MOSFET copes with enormous load currents:
3. Unlimited MOSFETs may be paralleled.
4. Very few components per channel (two shown).

10-30v
upto 23A

5. Unlimited number of channels may be replicated.
6. Only modest heat sink required per MOSFET.
7. Control wiring carries v little power.
8. Control wiring is DC only and is protected electrically.
9. PWM ensures motors produce high torque.

10. PWM is very efficient (99% transfer battery to motor at any speed).
11. Loudspeaker could be connected to PWM to simulate traction sound.
12. Uses single supply rail (ie not split 12-0-12v).
13. All components are very cheap.
14. Very easily adapted for other uses eg Radio control.

Local Control

| | |
|------------------------------|---|
| D1= 1A 50v | Protection from wiring faults |
| C1= 100-1000u | General smoothing |
| R _v = 5k - 330k | DC control |
| Regulators = eg 78L08 | Any voltage will do for noise immunity (may be omitted) |
| V _{Supply} = 10-30v | Suitable for 12v or 24v battery supply. |
| Gnd = 0-2v | Ensure good grounding between local & remote ends |

