

## IDEA OF THE MONTH

### Transformerless voltage doubler

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This circuit shows a convenient method of supplying a 24 V motor from a 12 V battery.

The 555 timer operates in astable mode to produce a square wave at about 1 kHz. When pin 3 of the 555 goes high Q1 con-

ducts and charges C4 to just under 12 V, whilst D1 prevents C3 from discharging. When pin 3 goes low Q2 conducts and similarly charges C3, while D2 prevents the discharge of C4.

The resultant voltage across

C3 and C4 supplies the motor. Output is around 22 V with no load, dropping to about 20 V with a motor drawing its maximum of 200 mA. The transistors should be heat sunk.

