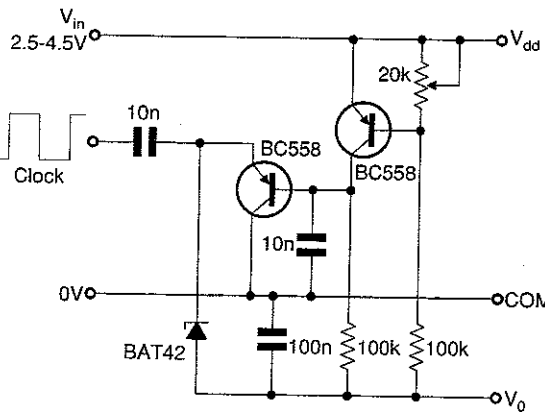


Battery lcd voltage supply

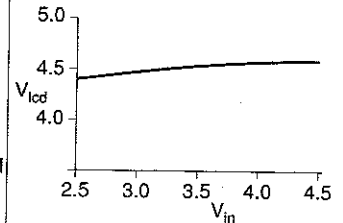
Providing a dot-matrix lcd supply in battery-powered equipment can be wasteful of battery life; it should be adjustable for contrast, it must be stable and it must be around 4.5V below the positive supply. This circuit meets these conditions, line regulation being shown by the graph for a load of 22kΩ.

The clock, whose frequency as shown is 200kHz but is not critical, may already be present in the rest of the circuit, but if not may be generated by an HC14 or similar gate ic. Temperature coefficient is 0.1V for 7°C. Removing the clock signal powers the circuit down.

David Stephen
Aylesbeare, Devon



Running dot-matrix lcds from a battery supply is an awkward business and heavy on battery current. This little circuit avoids the problem.



(A71)

Voltage tuning from a variable capacitor

If you need to incorporate an fm band into an old am receiver, there is the problem of tuning if you use a voltage-tuned fm tuner and the old tuning capacitor is to be retained. This is an easy way of doing it.

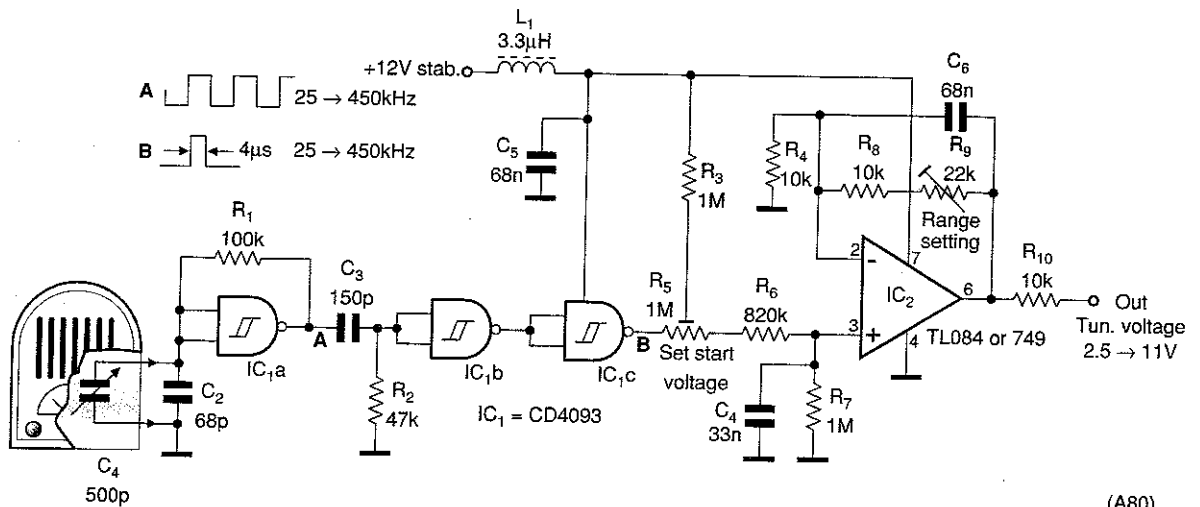
An astable flip-flop using IC1a oscillates at 25-150kHz, tuned by the old capacitor and C2 in parallel. The resultant square wave is differentiated by C3 and R2 to give

variable-frequency 4μs pulses at the output of IC1c. These go to the op-amp integrator to give a voltage level dependent on the setting of the variable capacitor.

The low end of the range is set by R5 and the span by R9.

Vlastimil Novotny
Harrachov
Czech Republic

Using the variable capacitor of an old am receiver to provide a tuning voltage for an fm tuner.



(A80)

555 switched-mode power supply

In yet another form of existence, this 555 becomes a switched-mode psu, since it has all the necessary components on board.

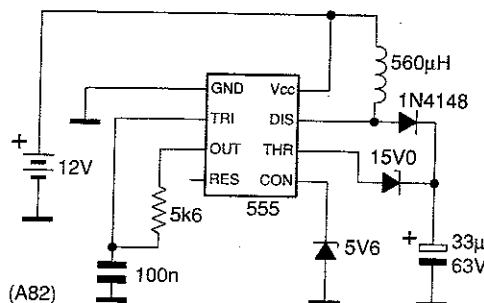
Having said that, it has been a problem that the dis-

charge transistor seemed to be fully occupied with timing. But driving the timing directly from the output pin frees the transistor to drive the inductor in a standard smps configuration. This makes for an efficient design, since the switching m:s ratio varies and also stops the oscillator completely when there is a low load current; there is therefore a low supply current in that condition.

As shown, the circuit comfortably delivers 20V at 20mA. With a stabilised input supply, there is no need for the 5.6V zener and, if it is omitted, the output will be the 15V from the other zener plus twice the supply voltage divided by three. The zener can be varied to suit the output requirement.

Jack Paterson
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Scotland

The 555 soldiers on in another guise, this time as a switched-mode supply giving 20V at 20mA.



(A82)