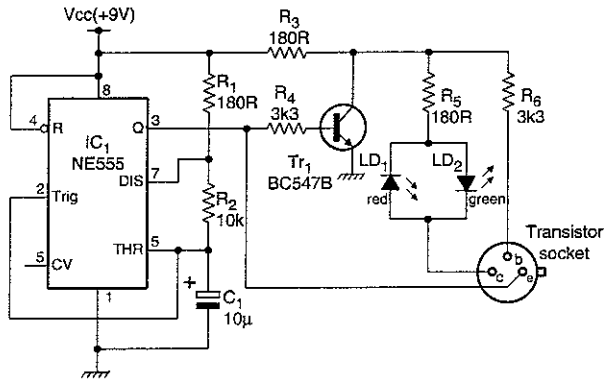


Go/no-go transistor and diode tester

This is a simple device to indicate the basic health or sickness of transistors and diodes and also to show their polarity



A 555, connected as an astable multivibrator, drives Tr_1 with a square wave, the device under test thereby having the same signal applied to its base and collector and an antiphase one to its emitter; both n-p-n and p-n-p types can now be tested.

With a component in the socket, current flows into or out of the collector and flashes led 1 for p-n-p and led 2 for n-p-n devices. If neither flashes, there is an open circuit; if both flash alternately, a short.

Connect diodes to emitter and base terminals, any way round. One of the leds will flash for a working diode, both for a short and neither for open circuit.

Darko Skokic
Krivevci
Croatia

Tester indicates whether your transistor or diode is still alive and if so, which polarity it is.

Precise timing via the pc's RS-232 port

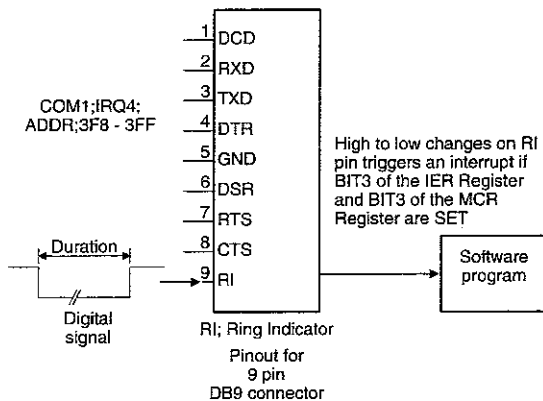
An RS-232C port and very little external circuitry allows the timing of external events – in the original, the 'time-of-flight' of an ultrasonic pulse. Depending on the computer used, time/count can be about 1µs

External hardware is merely required to provide a low signal for the duration of the event being measured, a set/reset flip-flop in my application, the output of which being taken to the Ring Indicator of the Com port, pin 9 of the 9-pin port connector. As the RI line goes from high to low, it generates an interrupt, which triggers a software routine to count in a loop until the RI line again goes high, all other interrupts except the keyboard being suppressed. Interrupt-driven software speeds up system response to external events

Calibrate time/count by feeding the output of a square-wave generator at a known frequency to the RI line. A 50MHz 486SL laptop gave 1.9µs/count, the use of assembler code in the interrupt handling procedure improving this to 1.697µs/count. A 75MHz Pentium laptop gave 1.1µs/count.

Richard Weir
Northwestern University Medical School
Chicago
USA

Simple method of providing event timing, using the Ring Indicator line of an RS-232C port and not much else.



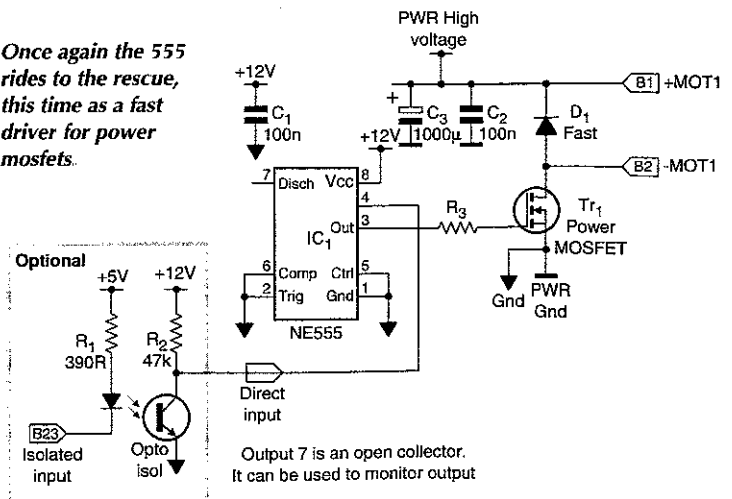
555 drives power mosfets

Parasitic gate capacitance in a power mosfet detracts to some extent from the image these devices possess of being easy to drive. To reduce switching losses, switching time should be around 100ns, which requires the handling of currents of hundreds of milliamps. There are special ic gate drivers, some of which are somewhat fragile and others more than somewhat expensive. The 555 timer ic is neither and provides a solution, yet again.

555s have a robust output buffer, switching at under 100ns and make a good, cheap gate driver, as shown in the circuit diagram. Operating frequency is 0-100kHz; output turn-on delay is 0.25µs and turn-off delay 1µs; rise and fall 60ns with a load such as 50A mosfet. I developed the circuit for the dc controller of a light electric vehicle.

Dominic Bergogne
Saint-Etienne
France

Once again the 555 rides to the rescue, this time as a fast driver for power mosfets.



Output 7 is an open collector. It can be used to monitor output