

TIMERS

SINGLE
DUAL
PRECISION
RESETTABLE

276-1614

IC TIMERS



TECHNICAL DATA

THEORY

A time IC is a highly stable monolithic circuit capable of producing accurate time delays, or oscillation. In the time delay mode of operation the time is precisely controlled by an external resistor and capacitor. The circuit may be triggered and reset on falling waveforms, and the output can drive TTL, DTL, and CMOS circuits directly. The basic timer is made up of 4 different circuit configurations, consisting of 2 comparators, a flip flop, and a final driver or output stage (See Fig. 1). Timers can be used in either of two modes (1) monostable operation or (2) astable operation. In the monostable operation, the time functions as a one shot. Referring to Fig. 2 the external capacitor is initially held discharged by a transistor inside the timer. Upon application of a negative trigger pulse to pin 2, the flip-flop is set which releases the short circuit across the external capacitor and drives the output high. When the voltage across the capacitor equals $2/3 V_{CC}$, the comparator resets the flip-flop which in turn discharges the capacitor rapidly and drives the output to the low state. Figure 2 shows the actual wave forms generated in this mode of operation.

The circuit triggers on a negative going input signal when the level reaches $1/3 V_{CC}$. Once triggered, the circuit will remain in this state until the set time is elapsed, even if it is triggered again during this interval.

In the astable operation the circuit will trigger itself and free run as a multi vibrator. The external capacitor charges and thus the duty cycle may be set.

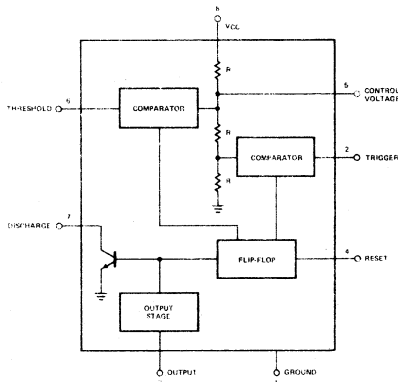


FIG. 1

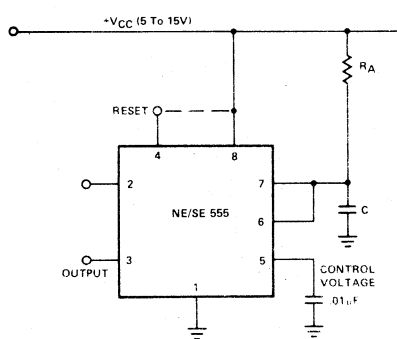


FIG. 2

Monostable Operation

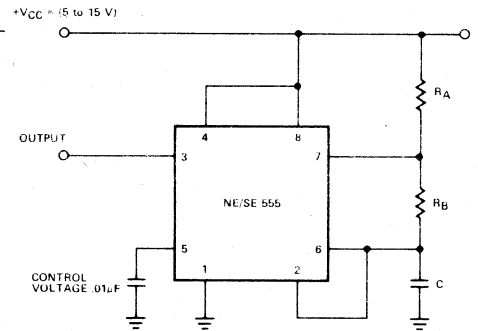
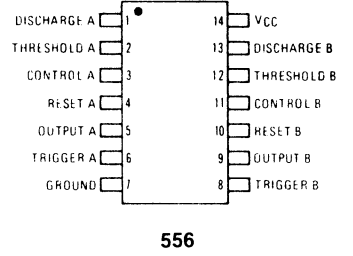
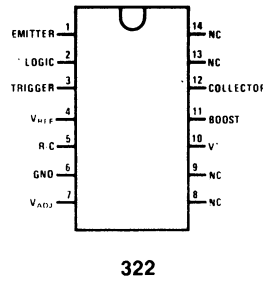
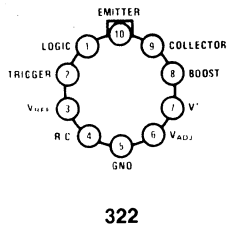
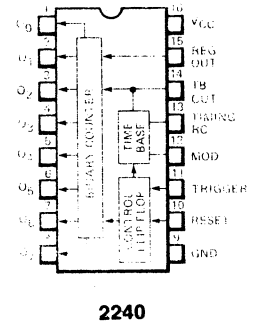
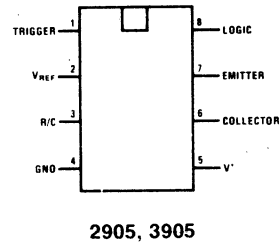
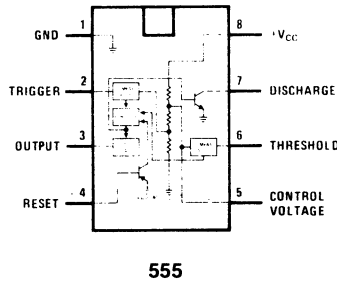
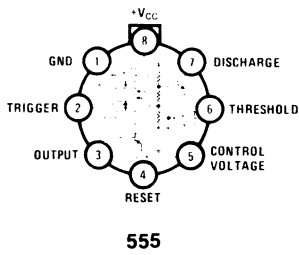


FIG. 3

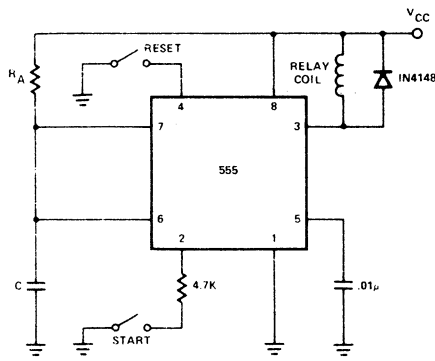
Astable Operation

All devices supplied in this Archer Pak are 100% functional devices. They may not meet all of the manufacturers minimum or maximum specifications. All parts have been tested in functional test circuits at reduced voltage and current ratings. The parts can be identified by the part number either on the top or bottom side or the circuit. The pin diagram of the types that may be in this Pak are as follows. (See reverse side.)

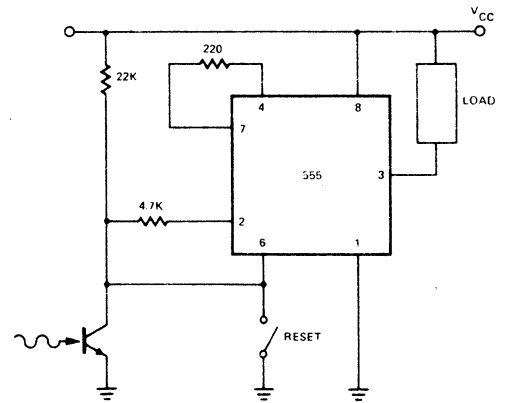
PIN DIAGRAMS



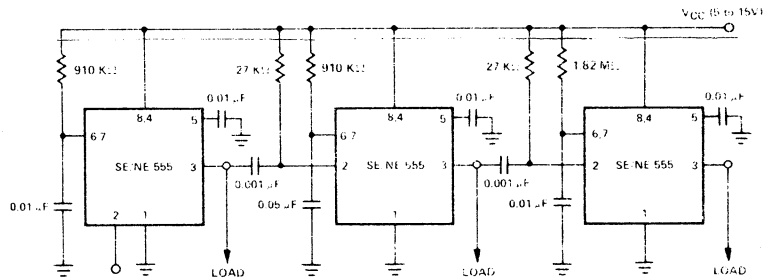
TYPICAL APPLICATIONS:



SIMPLE TIMER



BURGULAR ALARM



SEQUENTIAL TIMER (LONG DELAY)

TANDY CORPORATION

RADIO SHACK  A TANDY CORPORATION COMPANY

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