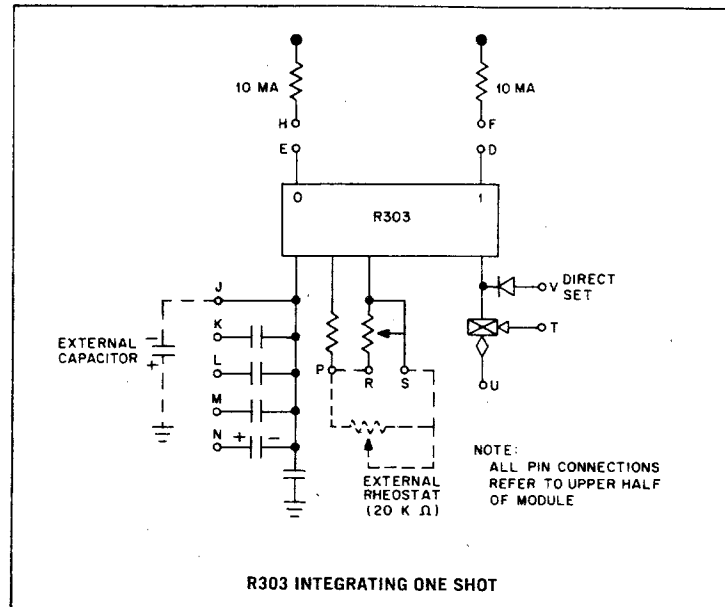


# INTEGRATING ONE SHOT TYPE R303

**R  
SERIES**



The R303 contains a zero recovery time multivibrator and complementary output buffers. Its unusual characteristics include the ability to respond to inputs even while in the ONE state, so that successive inputs above a preset frequency can postpone the return to ZERO indefinitely. This characteristic can be used, for example, to detect gaps in an otherwise continuous pulse train, or to determine whether an input pulse rate is above or below a preset frequency threshold. The module can also be used to establish initial conditions after system power is interrupted, since it always goes to the ONE state when the power is first applied.

Delay is 3.5 microseconds to 0.9 second. Jitter is less than 1.4% peak-to-peak. Precision: Delay time will change less than 2% for a change of 20% in supply voltage.

**INPUTS: Direct Set** — A standard 100 nsec pulse or a ground level of at least 100 nsec duration starts the delay. The load at ground is 1 ma. At least 90% to 99.5% of total delay (for 0 and 20 kilohm rheostat setting, respectively) will not be measured out until  $-3v$  is restored, a fact which may be important if this input is grounded for longer than 300 nsec. DCD Gate — Same as R302.

**OUTPUTS:** Each output can drive 18 ma at ground, 0 ma at  $-3v$ . Extra 10 ma clamped loads may be connected to change the driving capability at each output to 8 ma at ground, 7 ma at  $-3v$ . The ONE output will be at  $-3v$  during the delay period and ground otherwise. The ZERO output is grounded during the delay period and  $-3v$  otherwise.

**POWER:**  $+10v(A)/6$  ma;  $-15v/75$  ma.

**CONTROLS:** To choose desired range of delay, ground the appropriate capacitor pin K through N (for minimum delay range, ground none of these). Ranges are separated by approximately a factor of ten. For extra long delays, connect an external capacitor from pin J to ground. To use the internal rheostat, connect pin P to pin R. For external control, connect a variable resistance no larger than 20,000 ohms from pin P to pin S.

**EXTERNAL CONTROL:** Delay times may be controlled by external R and C in the same manner as described for R302. Substantially the same R and C are required in the R303 as in the R302 for a given delay, taking into account the ten times larger minimum capacitance built into the R303. If electrolytic capacitors are used, at least a 6-volt rating is required.

**Capacitor Values (MFD):** Internal — 0.0022. Pin K — 0.027. Pin L — 0.39. Pin M — 3.9. Pin N — 39.0.