

# BASIC LED DRIVER



$$R_S = \frac{V_{IN} - V_{LED}}{I_{LED}}$$

$V_{IN}$  = INPUT VOLTAGE

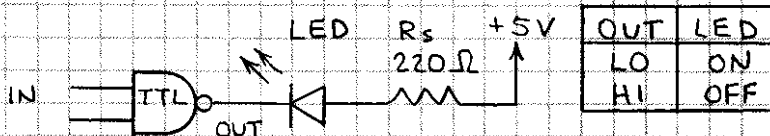
$I_{LED}$  = LED FORWARD CURRENT (DESIRED OR SPECIFIED)

$V_{LED}$  = LED VOLTAGE DROP

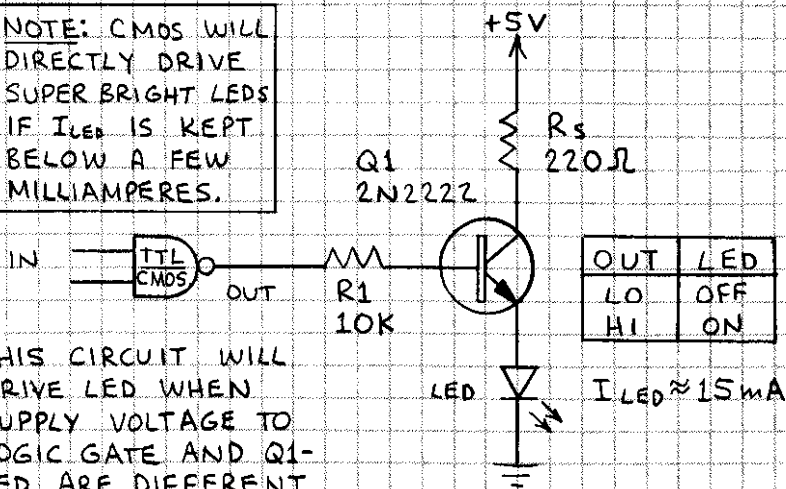
EXAMPLE: ASSUME  $V_{IN} = 9$  VOLTS AND  $V_{LED} = 1.7$  VOLTS. CALCULATE VALUE OF  $R_S$  FOR  $I_{LED} = 20$  mA.

$$R_S = \frac{9 - 1.7}{.02} = 365 \text{ OHMS (OK TO USE CLOSEST STANDARD VALUE)}$$

## LOGIC GATE LED DRIVERS



NOTE: CMOS WILL DIRECTLY DRIVE SUPER BRIGHT LEDs IF  $I_{LED}$  IS KEPT BELOW A FEW MILLIAMPERES.



THIS CIRCUIT WILL DRIVE LED WHEN SUPPLY VOLTAGE TO LOGIC GATE AND Q1-LED ARE DIFFERENT.