

# BACK TO BASICS:

## TRANSISTOR CURRENT SOURCES



- FIXED CURRENT
- POSITIVE OR NEGATIVE
- HIGH OUTPUT IMPEDANCE

vs.



- FIXED VOLTAGE
- POSITIVE OR NEGATIVE
- LOW OUTPUT IMPEDANCE

### SOME APPLICATIONS:

#### END FUNCTIONS

- LED DRIVER
- BATTERY CHARGER
- SENSOR DRIVER

#### TEST & MEASUREMENT

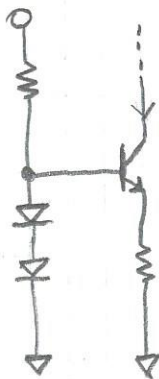
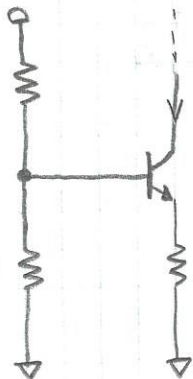
- RESISTANCE MEAS.
- DIODE TEST
- BRIDGE DRIVER

#### BUILDING BLOCKS

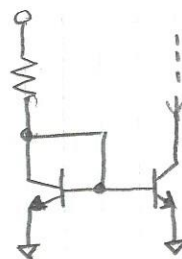
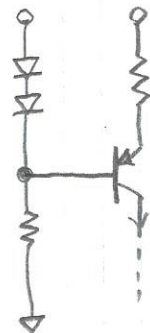
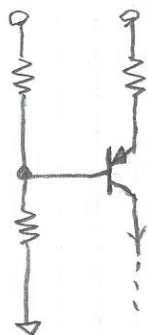
- BIAS CIRCUITS
- ACTIVE LOAD
- RAMP GENERATOR

### MAIN CONFIGURATIONS:

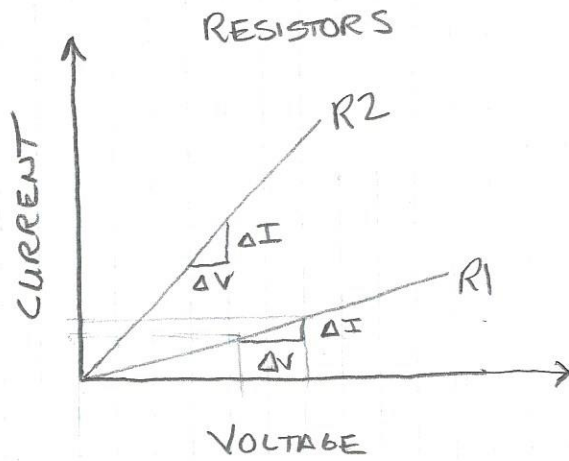
"SINK"



"SOURCE"



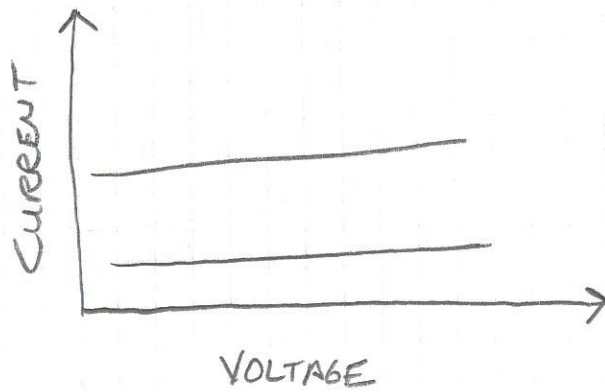
OUTPUT IMPEDANCE



OBEYS OHMS LAW

$$R = \frac{V}{I}$$

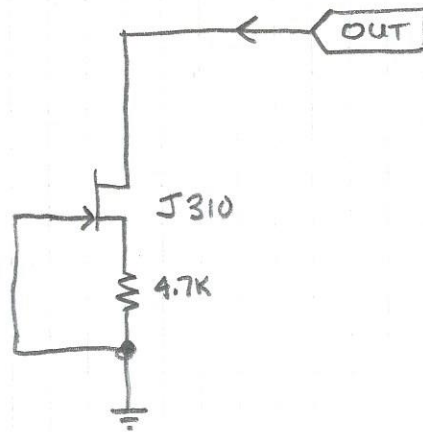
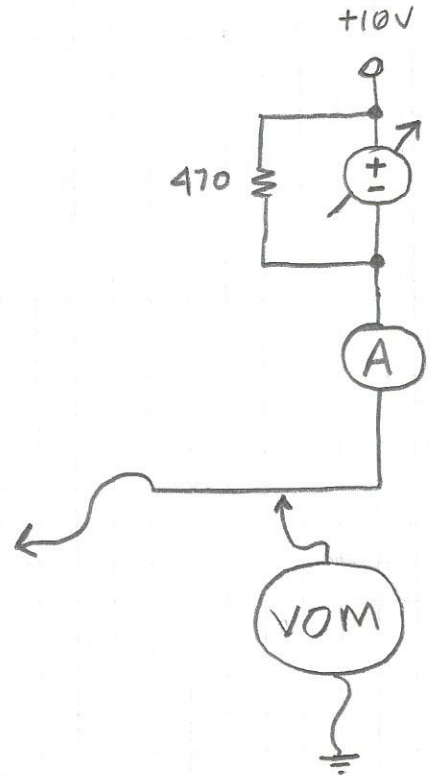
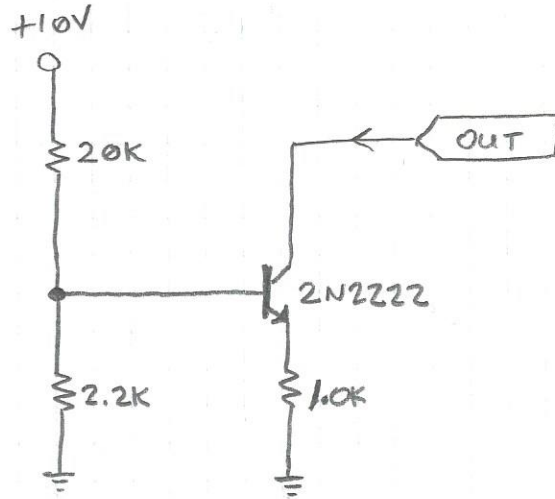
CURRENT SOURCE



VERY LITTLE CHANGE IN  
CURRENT VS. VOLTAGE

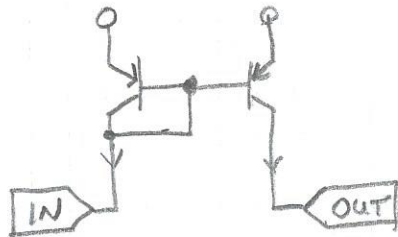
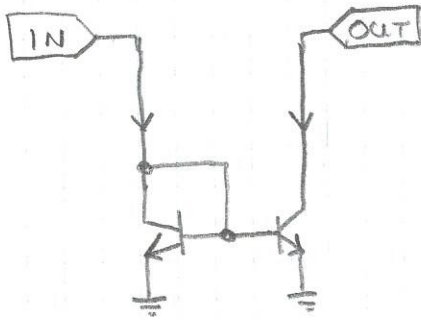
# TRANSISTOR CURRENT SOURCE TEST CIRCUITS

$\frac{10V - 2V}{419\mu A - 377\mu A}$



TURNING IT AROUND WITH A...

### CURRENT MIRROR



STRING OF CURRENT SOURCES...

