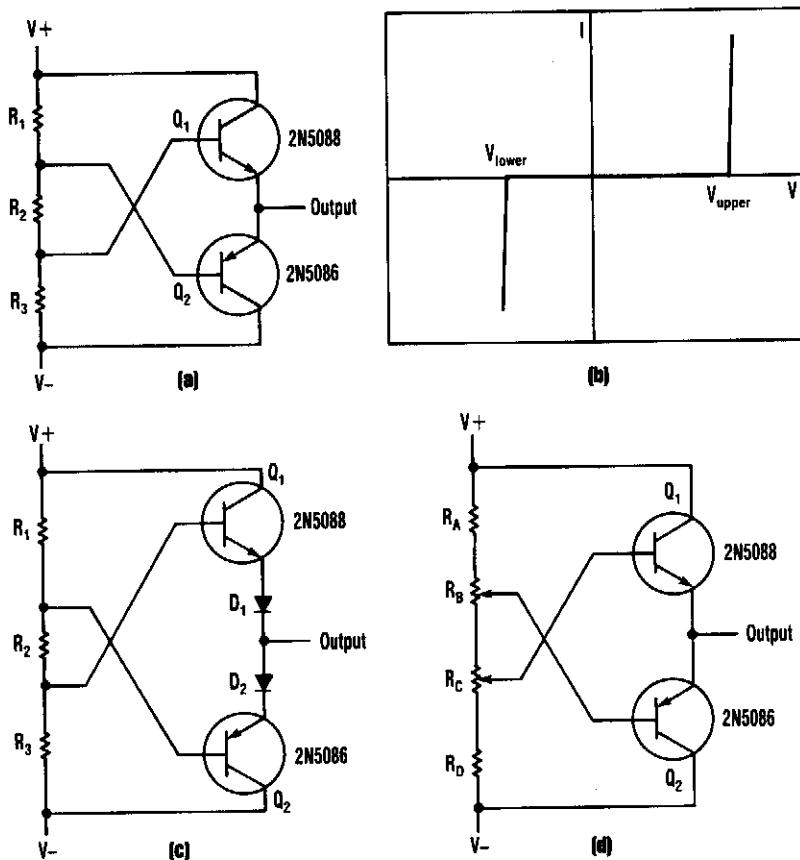# ADJUSTABLE VOLTAGE LIMITER



ELECTRONIC DESIGN

Fig. 44-1

This bipolar voltage clipper can be built with two transistors, two resistors, and two potentiometers. Notice that the maximum p-p range must be $\leq BV_{ebo}$ of the transistors used. The design equations are:

$$V_{\text{upper}} = V_- + \frac{(V_+ - V_-)\,(R_2 + R_3)}{(R_1 + R_2 + R_3\ )} + V_{be}(Q_2)$$

$$V_{\text{lower}} = V_- + \frac{(V_+ - V_-)\,(R_3)}{(R_1 + R_2 + R_3)} - V_{be}(Q_1)$$