

Sensing resistor limits power-supply current

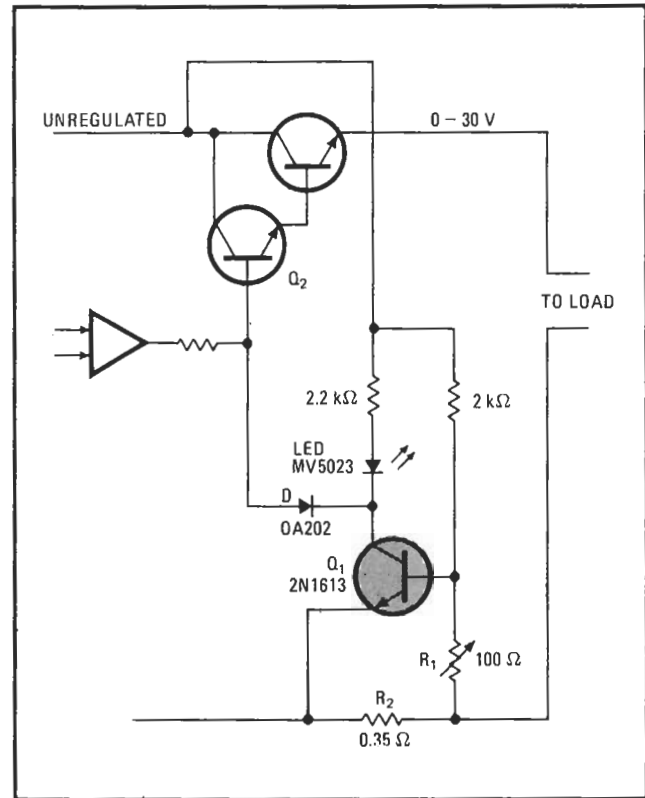
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To protect a power supply against the excessive currents that would flow if the load were short-circuited, a simple drive-shunting transistor controlled by a sensing resistor is all that is necessary. As described here, the protection circuit is adjustable and includes an indicator light to warn of the current-limited condition.

The schematic diagram shows the current limiter connected in a 30-volt/2-ampere power supply. If adjustable resistor R_1 is set at zero, then the load current is limited to 2 A. If the current exceeds this level, the voltage drop across R_2 turns on transistor Q_1 , which sinks the input current to driver transistor Q_2 . Thus the load current is limited to the 2-A level.

If R_1 is set greater than zero, Q_1 turns on at a current less than 2 A, limiting the load to this reduced level.

The light-emitting diode lights up when Q_1 conducts, indicating that the current limiter is in operation. Diode D prevents the LED from lighting if Q_1 is off. □



Protective limiter. To limit current in power-supply circuit, voltage drop across resistor R_2 turns on transistor Q_1 when load current exceeds 2 amperes (current value will be lower if R_1 is greater than 0 ohm). Q_1 then shunts drive current away from Q_2 , reducing current to the load. LED turns on to indicate conduction in Q_1 .