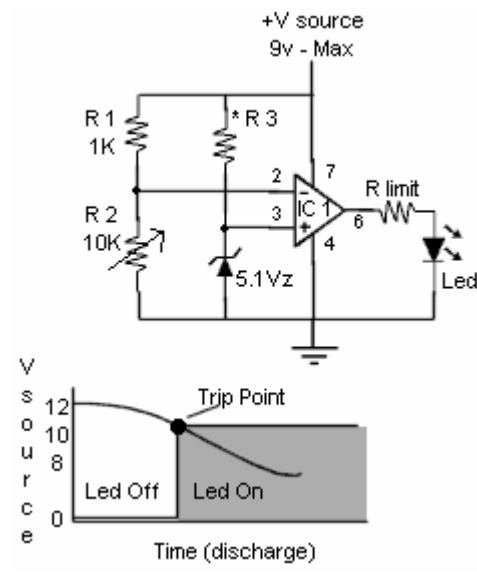


Low Battery Indicator



Description: Low Battery Indicator

I use this method of determining when to recharge batteries in my portable power supply. Without an independent power source for the op-amp indicator circuit, a reference via voltage divider method does not work. The LED would remain off because the reference and the circuit power drop in sync.

Circuit Operation:

Purpose - Illuminate LED once Battery drops below a certain voltage.

Method

- Reference V is created by a Zener diode.
- Advantages of the Zener is a steady output even in the event of battery voltage drop.
- Adjust R2 just until LED turns ON.

Testing

- Apply a source voltage that equals the would be battery trip voltage.
- Adjust R2 until LED turns ON.
- Return source to full potential or attach Battery.
- LED will turn Off.
- Attach a heavy load circuit under battery's power and wait.
- LED will turn on again to indicate "Low Power".

Parts List:

Part Label	Part Description	Qty.
IC1	LM741 Op-amp	1
R1	1K	1
R2	10K Pot	1
R3	100 ohm (zener dependent), can vary	1
Rlimit 100	1K current limiter	1
Z1	5.1v Zener Diode, can vary	1