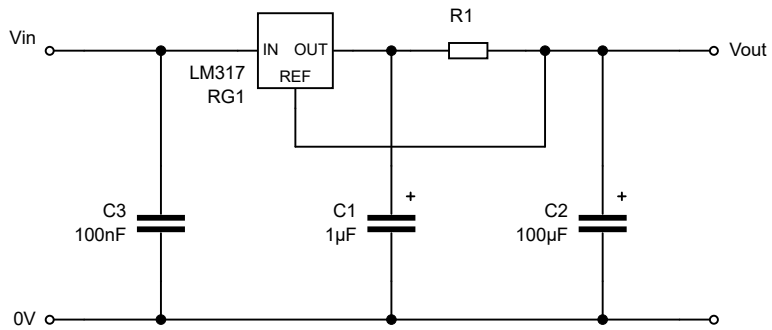
CONSTANT CURRENT GENERATOR

This circuit uses the LM317 voltage regulator. Normally this regulator works using a reference voltage Vref, of 1.25v between the output and the adjustment terminals. This combined with an external resistor, normally 240ohms, regulates it's output according to the formula:

$V_o = V_{ref} \times 1 + (R2/R1)$, (ignoring I_{adj} error)

Vref can also be used to control the current in the output by adjusting its voltage to achieve the required current flow through R1.



The current is found using:

$I_{out} = V_{ref} / R1$

So for a charge current of 500mA:

$R1 = V_{ref} / I_{out} = 1.25 / 0.5 = 2.5$ ohms

Other current can be set up to the maximum current rating of the regulator. The LM317T will provide about 1.5Amps and LM317K around 5Amps, but you must use a heatsink. Also the supply to the charger must be carefully chosen to insure minimal power loss through heat in the regulator.

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