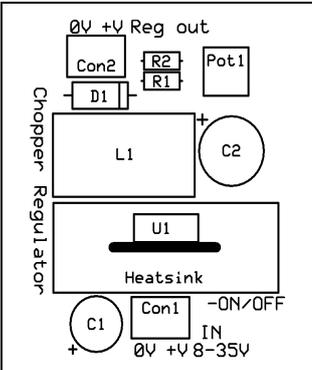
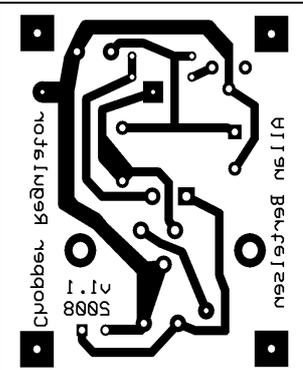


Switching power supply

This regulator is an adjustable type based on PQ1CG2032. Other regulators can be used. This one can switch a current up to 3.5A. The aim is to power a laptop computer from two lead-acid batteries in series by converting 24 VDC to about 16 VDC. Picture, silkscreen layer, bottom copper layer and list of components are shown here:



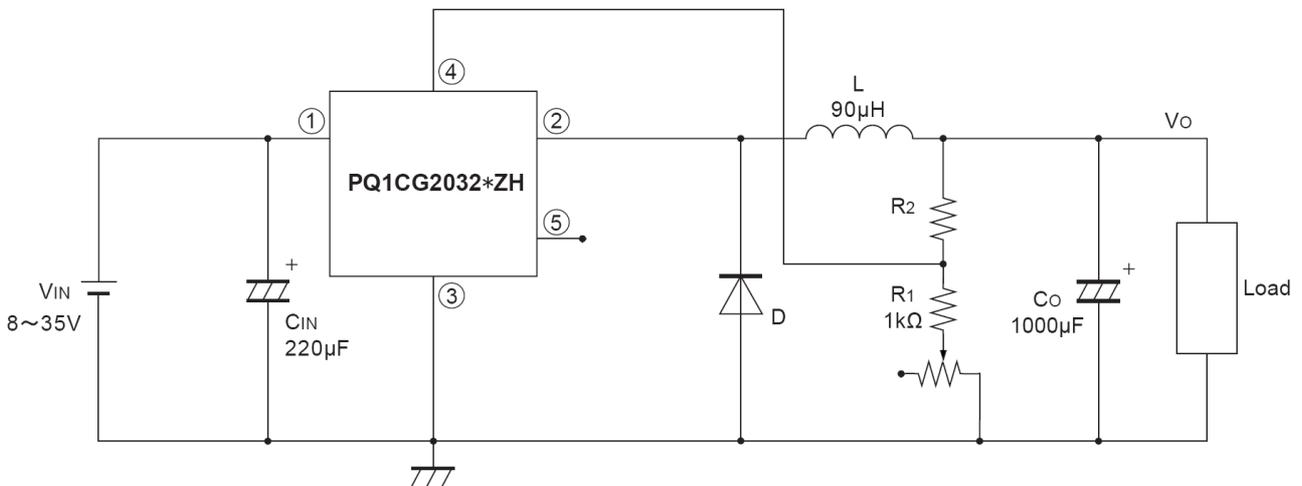




Components

U1	PQ1CG2032RZ
R1	1kΩ
R2	See text
D1	MBR360 Schottky
C1	220μF 35V
C2	1000 μF 25V
L1	90 μH
Pot1	1 kΩ

The circuit is based on the datasheet for PQ1CG2032. Pin 5 on PQ1CG2032 is not used thou. This pin can be used for an on/off signal, but it requires additional components. See datasheet for information.



The trimmer potentiometer is for fine tuning (Digi-Key Part Number D4AA13-ND). R2 should be selected according to witch interval the voltage should cover. For the laptop purpose, 15kΩ will do. If values around 5V is needed 3.3 kΩ is could be used. For this board I selected FIT68-1 as inductor (Digi-Key Part Number 237-1189-ND). It is 89.500 μH and goes up to 2.8A. The heat sink is Digi-Key Part Number 345-1030-ND.