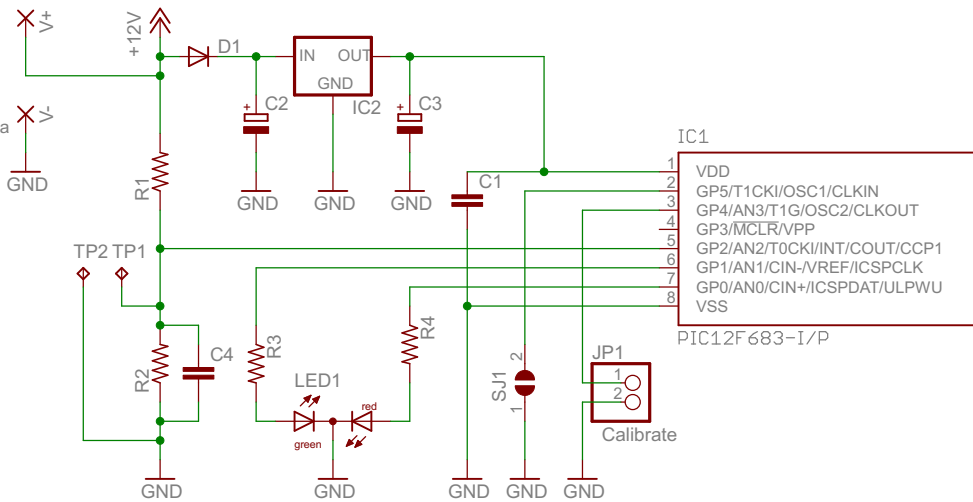# Automotive Voltage Monitor and Alerting

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Connect to vehicle electrical supply

This should be a switched connection, fused and on a low load cable to avoid excess volatage drop in the cable used to sense the voltage

V+

V-

GND

+12V

D1

IN OUT
GND
IC2

C2

C3

GND GND GND

C1

R1

TP2 TP1

R2

C4

R3

R4

LED1

green   red

SJ1

JP1
1
2
Calibrate

GND GND GND GND GND

IC1

1 VDD
2 GP5/T1CKI/OSC1/CLKIN
3 GP4/AN3/T1G/OSC2/CLKOUT
4 GP3/MCLR/VPP
5 GP2/AN2/T0CKI/INT/COUT/CCP1
6 GP1/AN1/CIN-/VREF/ICSPCLK
7 GP0/AN0/CIN+/ICSPDAT/ULPWU
8 VSS

PIC12F683-I/P

Components

R1   10K0   1%, 0.4 watt metal film
R2   3K30   1%, 0.4 watt metal film
R3,4 270R   5%, 0.125 watt carbon film

C1   100nF multi-layer ceramic 2.5mm pitch
C2   100nF multi-layer ceramic 2.5mm pitch
C3   47uF / 10V electrolytic
C4   (Optional, not used)

D1   1N4148
IC1   PIC12F683-I/P (requires programming)
IC2   LM2931A-5.0
LED1 HLMP4000 (5mm red/green C/C LED)

JP1   Wire link for calibration only

SJ1 / TP1 / TP2 are solder pads on the PCB

To calibrate

Fit jumper/link to JP1

Power on circuit and adjust supply voltage until

voltage at TP1/TP2 is 2.50 volts

Remove / cut JP1

Calibration is complete. LED will blink

Power cycle the circuit to restart normally