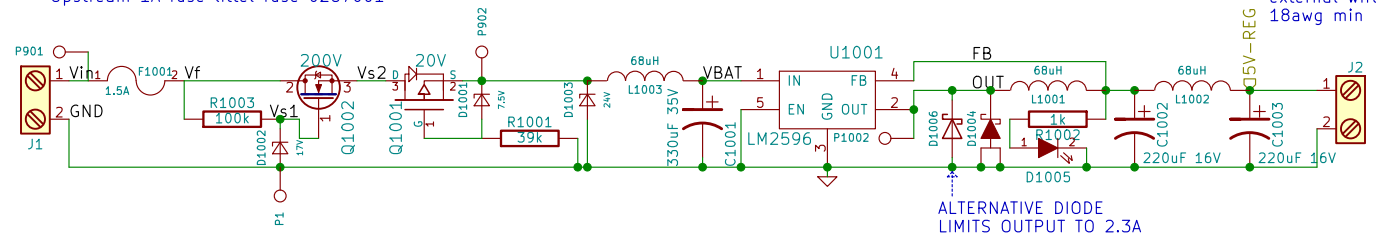


Brief overview

- Q1002, R1003, D1002 preform an active transient protection. It will suppress voltages up to 200V down to 19V.
  - Q1001, R1001, D1001 preform a reverse polarity protection. If the input signal is the wrong polarity, the gate will not conduct which will prevent current from flowing.
  - D1003 is a second transient suppressor, it would catch faster transients allowing a brief amount of time for Q1002 to preform it's duty.
  - L1003 is a choke, it simple prevents switching noise from going up the power wire where it can get into other circuits.
  - C1001 is a bulk cap, it simply stores energy locally such that the regulator can draw large currents in short periods of time.
  - U1001 and the components to the right, are a buck style switching regulator, that will pull the 5V line up to 5V. It will not pull it down from 5V if there is an external voltage.
- The U1001 circuit has been designed for 3A output and up to 20V input, but typically 14.4V or 12.4V input. L1001 wants to be about 68uH to 100uH with less than 0.3 ohms resistance.

200V surge, 18V to 7V typical.  
Suggested mininium 16awg  
Upstream 1A fuse littel fuse 0287001

5V 5mVp-p 3A  
Suggested  
external wires  
18awg min



ALTERNATIVE DIODE  
LIMITS OUTPUT TO 2.3A

Alternate options

- Q1002 Microchip, DN2625K4-G with FAIRCHILD, 1N5247B
- D1002 IXYS, IXTA6N50D2 with FAIRCHILD, 1N5244B
- D1004 VISHAY, VS-50WQ04FN-M3 with VISHAY, VS-50WQ04FNPBF

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