

## Re: Flyback Diode

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*Source:* <http://sci.tech--archive.net/Archive/sci.electronics.basics/2007-02/msg00829.html>

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- *From:* John Popelish <jpopelish@xxxxxxxx>
  - *Date:* Fri, 16 Feb 2007 20:05:16 -0500
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Michael wrote:

"John Popelish" <jpopelish@xxxxxxxx> wrote in message  
[news:o6-dnV7dFte71EvYnZ2dnUVZ\\_uMlnZ2d@xxxxxxxxxxxxxxxx](news:o6-dnV7dFte71EvYnZ2dnUVZ_uMlnZ2d@xxxxxxxxxxxxxxxx)

Michael wrote:

I was told by an electrical engineer that when the nameplate on the motor states "Voltage 36V Current 50A" this is the stall current.

I think those ratings would be the normal load, full speed voltage and current ratings.

Motors driven by constant voltage (at name plate voltage) sources have stall currents that may be 8 to 10 times rated current, which would not be a safe stall current for very long, and may even degauss a permanent magnet motor's magnets, almost instantaneously.

But if you are driving the motor with a PWM drive, it may have a built in current limit function that drops the average voltage to the motor to limit the current if it exceeds some settable value, and a good current to set that limit might be the full rated current.

Do you know if your PWM drive includes a current limit?

Could you please explain what you mean by 'normal load'?

I am referring to the full rated load (the torque the motor can produce at name plate current) assuming that it is getting enough cooling to keep it at a safe temperature. The torque a permanent magnet or shunt wound motor produces is proportional (roughly) to the armature current.

I would have thought that could be just about anything.....

## Re: Flyback Diode

The normal range is between no load current (the current it takes to spin the motor with no external load) and full rated current that drives full rated torque.

No it doesn't – I'm building the drive :-)

Lets hope you decide to add this feature. It protects not only the motor, but the PWM components, battery and wiring, as well. The current sense might be based on the voltage drop across a current shunt (a low value series resistor) in series with the motor, or some magnetic field sensing mechanism (like a hall effect sensor) that reacts to the magnetic field around a motor lead, produced by the motor current.