Re: Automotive − reverse voltage protection thing

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- *From*: Jim Thompson <To−Email−Use−The−Envelope−Icon@xxxxxxxxxxxxxx>
- *Date*: Wed, 15 Nov 2006 20:23:23 −0700

On Thu, 16 Nov 2006 03:50:17 +0100, Przemyslaw Wegrzyn
<czajnik@xxxxxxxxxxx> wrote:

> Hi!
>
> I need to design a well−protected power supply for an automotive device,
> well protected from all the nasty things described in ISO 7637 and similar
> norms.
>
> It's a common way to use a transil to protect from "dump load" surge, it's
> perfectly ok for me. Yet another thing to protect from is a reverse
> voltage.
>
> My first idea was to use a series diode to protect from reverse voltage. I
> wanted to connect it as the first component, anode to the battery, and a
> transil just after that. Seems ok, but..
>
> Well, the diode itself need to have a high level of allowable reverse
> voltage (ISO 7637 says about −150V spikes, yet I've seen some papers saying
> that reality is much worse). At the same time this diode need to handle
> quite high peak current, other wise it will die after first "dump load"
> thing. I guess this leads to a big/expensive element.
>
> One possibility is not to use this diode at all, assuming that the transil
> itself is enough − in case of reverse polarity, it will conduct just like a
> normal diode, effectively limiting the spike to it's −Uf. It would need a
> fuse to protect the transil from permanently reversed power supply.
>
> What is actually used in practice for such a protection? Looking for some
> info I've found RBO40 component from ST, which uses a series diode, TVS
> across output for load dump protection, and another across the diode.
> Unfrotunately, this part is quite hard to get here.
>
> Best Regards,
> Przemyslaw

See...

http://www.analog−innovations.com/SED/PerfectDiodeForChargerIsolation.pdf

...Jim Thompson
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I love to cook with wine. Sometimes I even put it in the food.
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