

Re: Designing a PWM DC motor controller for under a car hood...

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- *From:* Jim Thompson <To-Email-Use-The-Envelope-Icon@xxxxxxxxxxxxxxxxx>
 - *Date:* Wed, 03 May 2006 09:05:38 -0700
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On 3 May 2006 08:51:50 -0700, "Paul Mathews" <optoeng@xxxxxxxxxxxxxxxxx> wrote:

[snip]

1) temperatures under the hood vary quite a bit, depending on location and operating condition. Worst case is obviously anywhere near exhaust components and away from airflow, and worst case for electronics is usually when starting up after a hot shutdown of the engine.

Called "soak"

Temperatures continue to rise for a while after shutting off the engine, since there may be no airflow or coolant flow.

When I was designing car parts I used a spec of -40°C to +140°C

- 2) Commercial temp range ICs may not be much different than industrial or military these days, except with respect to how much testing they've undergone before shipment. Lots of products use commercial temp range ICs at extended temp ranges. (Oh, horror!)
 - 3) Regardless of which type circuitry you choose, your main challenges are likely to be in packaging the electronics for shock, vibration, temperature changes, ESD, EMI. Find out about auto electronics operating conditions like 'load dump transients'.
 - 4) Brush-type motors generate lots of conducted EMI. Learn about bypassing and otherwise filtering this.
- Paul Mathews

...Jim Thompson

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

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