

Re: ? on small battery operated fluorescents

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- *From:* [emailaddress@xxxxxxxxxxxxxx](mailto:emailaddress@xxxxxxxxxxxxxx)
  - *Date:* Sat, 21 Feb 2009 00:16:04 -0800 (PST)
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On Feb 20, 9:55 pm, "Dave" <db5...@xxxxxxxxxxxx> wrote:

<emailaddr...@xxxxxxxxxxxx> wrote in message

[news:1a613160-944e-47ea-8636-76abab39c34f@xx](mailto:news:1a613160-944e-47ea-8636-76abab39c34f@xx)

For some reason I'd thought you mentioned using 2 x AA cells while you instead wrote 4. Ignore the parts of my prior reply which were based on that mistake.

No problem. I hadn't thought about that being an older and less efficient part (the fluorescent tube). Would obviously rather work towards something that worked well. That was just the best thing I found at the time. Have since found that the manufacturer of the parts used in that project is based in the UK (I am in the US) and has recently been bought by someone else. Nobody seems to be able to locate a transformer core or form, and the US sales office doesn't answer their phone/hasn't replied to my email. Also, the transistor called for is an obsolete part for which there is no exact substitute. I could use the next part in line (tolerant of higher emitter/collector voltages etc.) but it's still not a late design. Would rather work with something more recent.

Recently found a couple of these at my local electronics candy store...

<http://www.logical-lighting.com/pdf/LEDHPModuleWhitePDF.pdf>

and built an emergency lantern out of them, using a couple of six-cell AA holders and a 7812 voltage regulator. It's not very impressive though, and I was thinking of doing something similar with the two LEDs for the flashlight and a fluorescent tube down the side, with a three-position rocker switch to select which function is activated. Would love it if someone could point me in the right direction for something like this. Do appreciate the help so far...

Dave

## Re: ? on small battery operated fluorescents

Unless you have a severe itch to proceed with local parts, I don't see why you'd use that.

Also, I hate to see something running off battery power using a linear regulator, unless this project is only about cheapest way with parts you have on hand.

For a replacement to something that lasted 20 years, I think you deserve more. As always, with a simple circuit homebrew product the trickiest part isn't the parts as much as the case, what is reasonable to use instead of being a chunky box when it comes to a flashlight that has to satisfy a significant other.

You have not listed all your design requirements, so there isn't an easy answer. One popular alternative among mountain biking circles is to make the body of the flashlight out of tubular or square/rectangular aluminum, then the body of the light becomes the heatsink and the driver board, then for handheld use.. plus cells (battery) is contained within. One caveat with this type of design is if the handle is a heatsink, if it runs for a few minutes it starts to get hot at higher current levels. Size becomes one of the design criteria.

When it comes to implementing a driver board and LEDs, the sky is the virtual limit on how you want to shoe-horn these into a finished product if you only keep the cooling vs current requirements per light output in mind. Basically, I suggest you try the modern Cree XR-E LEDs, with a driver board that suits your average voltage for whatever battery you want to use, then as far as the rest of the housing, it's up to your imagination so long as you remember to keep the heatsinking reasonable for the driving current used. More light requires a larger flashlight, though all else being equal, the more LEDs you use, the more investment in buying more per the light output you want, the resultant lower drive current will reduce the size of the heatsink you need since you reduce the heat density per LED. Driving XR-E's at 350MA per seems to be a sweet spot for good efficiency vs cost, but this still requires at least a minimal heatsink.

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