

## Re: Diodes for Li coin cell protection

**Source:** <http://coding.derkeiler.com/Archive/General/comp.arch.embedded/2005-02/0400.html>

---

**From:** CBFalconer (cbfalconer\_at\_yahoo.com)

**Date:** 02/06/05

Date: Sat, 05 Feb 2005 23:35:24 GMT

rickman wrote:

>

> *I had to look pretty hard to find a small, inexpensive diode pair to  
> allow an RTC to be powered by both a Li coin cell and the power rail.  
> The RTC I am using is very low current when not being controlled, but  
> starts using a lot more current when controlled over the I2C bus. This  
> would exhaust the cell long before the expected 5 year life, so I  
> needed a way to power it from the Vcc rail when the board is powered.  
> Diodes are the right idea, but primary Li cells have a very low  
> tolerance for reverse current (charging). It seems that reverse  
> current builds up a layer inside that reduces the capacity of the cell.*

>

> *I have looked at a lot of diodes and I finally found some that have a  
> low enough reverse current. Maybe I have missed a whole family of low  
> reverse current parts somewhere, but I was not finding very many and  
> mostly they were not cheap. Finally I stumbled on some Varactors which  
> seems to be built with very low reverse currents to work optimally in  
> tuning apps.*

>

> *The ON MMBV432LT1 is a dual, common cathode varactor diode in a SOT23  
> package. Digikey sells it for under \$0.10 qty 1000. The reverse  
> current at 125C and 5 volts is under 5 nA.*

>

> *So if anyone needs to power an RTC or an MCU from both Li coin cell and  
> other power, this is a good part to isolate the two.*

Use a vacuum tube :->) 6AL5 IIRC will do.

--

"If you want to post a followup via groups.google.com, don't use the broken "Reply" link at the bottom of the article. Click on "show options" at the top of the article, then click on the "Reply" at the bottom of the article headers." - Keith Thompson