

Re: CD4013 Vdd?

Source: <http://sci.tech-archive.net/Archive/sci.electronics.design/2004-11/3239.html>

From: Tim Wescott (tim_at_wescottnospamdesign.com)

Date: 11/11/04

Date: Wed, 10 Nov 2004 18:19:46 -0800

Mark Jones wrote:

> *Ken Smith wrote:*

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>> *In article <4191559A.4861DDF5@rica.net>,*

>> *John Popelish <jpopelish@rica.net> wrote:*

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>>> *Mark Jones wrote:*

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>>>> *Question, the CMOS 4013 flip-flop datasheet says Vdd can be -0.5 to*

>>>> *+18v, and recommended operating range is from 3.0v to 15v. But will it*

>>>> *operate at 2.0v? Speed is not an issue.*

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>>>> <http://www.megatronics.lk/data/4000/hcf4013.pdf>

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>>>> *Don't expect any two to operate similarly, though you might find some*

>>>> *that work. I suggest you start with a chip based on a lower voltage*

>>>> *process like the HC, HCT, ACT, AHC family.*

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>>>> *No-one else said it so "just use a PIC". They work down to 2.0V at*

>>>> *slow clock speeds.*

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>>>> *If you care about the low static Idd, most HC parts are OK in that*

>>>> *regard but you have to spec. the suppliers because others aren't.*

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>>>> *Thanks. Actually I'm looking for a way to switch on power to a*

>>>> *PIC16LF876A design running from a single lithium ion AA battery*

>>>> *(4.2v-2.5v.) The design only has one button, so a low-going signal must*

>>>> *turn it on (and consume next to nothing when off.) I was wondering if a*

>>>> *4013 connected to Vdd and Vss via this button, could be turned on by the*

>>>> *button (which then latches and powers up the PIC.) A MOSFET was also a*

>>>> *consideration, great off resistance but it's hard to get good conduction*

>>>> *with only 2.5v gate voltage. K.I.S.S...*

>>>>

Re: CD4013 Vdd?

> -M

The 4013 _is_ a MOSFET design, so there's no free lunch there. There are 3.3V "Logic" MOSFETs out there, so there's hope.

Use a P-channel MOSFET to turn it on, with an NPN "logic" transistor from the PIC to keep it on. Connect the gate of the MOSFET to the transistor collector and the switch. Make sure to scan the state of the switch on power up, or delay for a bit when you turn on -- I've had power supply decoupling caps bounce up in voltage when the current drain is removed, turning the uP back on.

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