

Re: The mechanism behind bouncing...

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- *From:* John Larkin <jjlarkin@xx>
 - *Date:* Sat, 03 Feb 2007 10:40:06 -0800
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On Sat, 03 Feb 2007 08:13:46 GMT, "Jon Slaughter"
<Jon_Slaughter@xxxxxxxxxxx> wrote:

"KILOWATT" <[kilowatt"nospam"@softhome.net](mailto:kilowatt)> wrote in message
[news:45c3aa6d\\$0\\$31564\\$c3e8da3@xxxxxxxxxxxxxxxxxxxxxxxx](mailto:news:45c3aa6d$0$31564$c3e8da3@xxxxxxxxxxxxxxxxxxxxxxxx)

Hi... thanks for your attention.

I just wish to know the precise reason why for example, a digital counter may count many pulses on it's clock input when the clock is feed via a non noise-free source like a mechanical switch. It is because when the contacts makes/breaks, arcing (i've read somewhere that there can be a possibility of arcing even at low voltage) occurs, or if it's because of the very rough surface (microscopically-speaking) of the switch contacts, were the metal molecules grinds (and possibly flexes) together, during switch activation? TIA for your reply.

The atoms of the two materials are not configured in such a way that there is complete contact. If they were then the materials would be fused. Since there are not fused and they slide there is friction involved and this friction causes the contacts to move farther a part and then closer together. So the average distance between the constants is changing significantly campared to when is not moving and they are making good contact. So now the electric field is changing because of the distances changing between the contacts. As the contacts move farther away the field becomes weaker but now we have a capacitive effect. This effect creates a force between the contacts that attract them. One now has a kinematic force pulling the contacts away(so it can slide), one of friction that wants to stop the slide, and one of capacitance that is attractive(I'm sure there are more too).

Re: The mechanism behind bouncing...

Sorry, but that's all nonsense. At low voltages and currents, switch contacts bounce for purely mechanical reasons.

If your field theories were true, the applied voltage would radically change the bounce waveform. It doesn't. Try it.

Anyways, So there are all these forces that are interacting and the end result is this oscillation of the contacts moving toward and away from each other. One always gets "arcing" but that's kinda relative turn. (In some sense all electronic flow is "arcing".)

Metallic conduction is not "arcing." Arcing is gaseous conduction. Vacuum tunneling happens too, but the range is just on the order of an atomic diameter, not important for things like switch contacts.

John