Re: SD21x spice model?

Source: http://sci.tech−archive.net/Archive/sci.electronics.design/2006−06/msg06579.html

- *From*: "Helmut Sennewald" <helmutsennewald@xxxxxxxxxxx>
- *Date*: Fri, 30 Jun 2006 18:38:26 +0200

"Klaus Bahner" <Klaus.Bahner@xxxxxxxx> schrieb im Newsbeitrag
news:e83h4s$b7r$1@xxxxxxxxxxxxxxxxxxxx

> Helmut Sennewald wrote:
>
> > Does anyone have spice models for the SD210/SD214
> > DMOS Fets?
> > I've found the models from Linear Systems, but they produce
> > clearly wrong results at least when used in OrCAD PSPICE.
>
> Hello Klaus,
>
> Every Spice model is an approximation for typical parameters of a device.
> What's not correctly simulated?

Well, it's not just an approximation thing. Even applying 20V as gate−source voltage, doesn't switch the Fet completely on. In
this case the model just creates a drain current of about 600uA (@Vds ~13V) corresponding to an on resistance in the order of 20k,
although it should be only 45 Ohms max.

Wouldn't call this just the usual difference between modelled and real circuit :−)

Cheers,
Klaus

Hello Klaus,

You have to specify the size W and L depending on what FET you want.
Then you will get for the SD210DE about Id=11.9mA @ Vgs=2.5V, Vds=5V.
The Rds_on is only 10 Ohm with Vgs=10V, but the model is
only specified for Vgs up to 2.5V.

Best regards,
Helmut

***** MODEL NAMES: *****
***** SD210DE: DMOS device model W=889um L=0.5um T=27C. *****
***** BIAS RANGE: VDSmax=20V VGSmax=2.5V VBSmax=−2V *****
***** *****
***** SD214DE: DMOS device model W=889um L=0.5um T=27C. *****
***** BIAS RANGE: VDSmax=12V VGSmax=2.5V VBSmax=−2V *****
***** *****
***** SD5400: DMOS device model W=889um L=0.5um T=27C. *****
***** BIAS RANGE: VDSmax=20V VGSmax=3.5V VBSmax=−2V *****
***** *****
***** SD5400CY: DMOS device model W=889um L=0.5um T=27C. *****
***** BIAS RANGE: VDSmax=12V VGSmax=3.5V VBSmax=−2V *****
***** *****
***** SST211: DMOS device model W=889um L=0.5um T=27C. *****
***** BIAS RANGE: VDSmax=30V VGSmax=2.5V VBSmax=−2V *****
***** *****
***** SST213: DMOS device model W=889um L=0.5um T=27C. *****
***** BIAS RANGE: VDSmax=10V VGSmax=3.5V VBSmax=−2V *****
***** *****
***** SST215: DMOS device model W=889um L=0.5um T=27C. *****
***** BIAS RANGE: VDSmax=20V VGSmax=3.5V VBSmax=−2V *****
***** *****

.