

	Simulated gm/Id	Long Channel Estimate	% error
NMOS, L=0.18um, Vov=50mV	18.4079	40	-54%
NMOS, L=0.36um, Vov=50mV	19.5968	40	-51%
NMOS, L=0.36um, Vov=250mV	7.4286	8	-7%
NMOS, L=1um, Vov=250mV	7.8576	8	-2%
PMOS, L=0.18um, Vov=50mV	19.052	40	-52%
PMOS, L=0.36um, Vov=50mV	19.3004	40	-52%
PMOS, L=0.36um, Vov=250mV	7.6539	8	-4%
PMOS, L=1um, Vov=250mV	7.8037	8	-2%

As you can see, the long channel estimate is only appropriate for higher overdrive voltages (Vov).