* Configurable Amplifiers Using Small-Signal MOS Resistors

Results Sheet for Laboratory Exercises

NAME: LAB SECTION:

1. Characterizing MOS Transistors
* Attach annotated HP 4155B plot of *ID* vs. *VDS*/*VGS* curves for both *M*1 and *M*2. Show all calculations on the plot.

*rds*1(for *M*1 with *VGS*1=5V) =

*rds*2(for *M*2 with *VGS*2=5V) =

* Attach annotated HP 4155B plot of *ID* versus *VGS*. Show all calculations on the plot.

*Vt*1(for *M*1) =

*Vt*2(for *M*2) =

* Attach annotated HP 4155B plot of *rds* versus *VGS*.
* Gain-Controllable Amplifier
* Fill in the columns associated with the “measured” portions of Table LR3.2.

Attach the required annotated plots.

* Explain any distortion seen.
1. Fill in the columns associated with the “calculated” portions of Table LR3.2.

Plot gain versus *VC* and 3dB bandwidth versus *VC* on the same graphs as the measured data 

Are there any discrepancies between the model and the measured data?

* Attach an annotated plot of the output waveform.

Does the waveform look strange? Why?

Gain, *Vo*/*Vi* =

1. GENERAL QUESTIONS

Using the data obtained in Part 3(a) of the laboratory exercises, determine the percent mismatch in *Kn* and *Vt* between the two transistors you measured. Percent mismatch can be determined using the following formula:

$\%Mismatch=100×\frac{P\_{2}-P\_{1}}{P\_{avg}}=2×100×\frac{P\_{2}-P\_{1}}{P\_{2}+P\_{1}}$.

% Mismatch in *Kn* =

% Mismatch in *Vt* =