Readme First File

This Readme First document outlines how to install the latest Customer Example Motorola LDMOS project directory for ADS v1.5 SP1A and how to use the examples within successfully.

I.   ADS v1.5 SP1A Users: Installing the customer_ads_1p5_prj directory

The first step is to download the customer_ads_1p5_prj.zip file with the web browser by right clicking with the mouse on the hyperlink and performing a save as to the directory in which you want to "unzip" the directory.
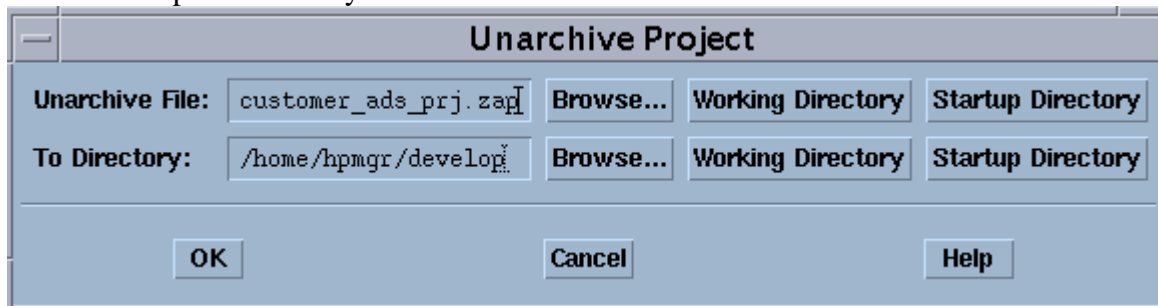
A. ADS v1.5 SP1A Unix Users: Downloaded file is customer_ads_1p5_prj.zap

1.)   Unzip the downloaded file by using ADS's unzip utility found in the bin directory of the ADS installation directory. For example, from a UNIX csh shell command prompt:

>   setenv HPEESOF_DIR /rf/apps/ads/1.5
> $HPEESOF_DIR/bin/unzip customer_ads_1p5_prj.zip
>   *Archive: customer_ads_1p5_prj.zip*
>   *inflating: customer_ads_1p5_prj.zap*

Resultant file is an ADS zap archive file called:
>   customer_ads_1p5_prj.zap

2.)   Open ADS as normal and from the File menu select **"Unarchive Project…"** to unzap the directory.

The resultant project directory will be called: customer_ads_1p5_prj

3.)   The directory is just like any other ADS project Directory and is ready to use. Choose Open Project from the File directory to open this project.
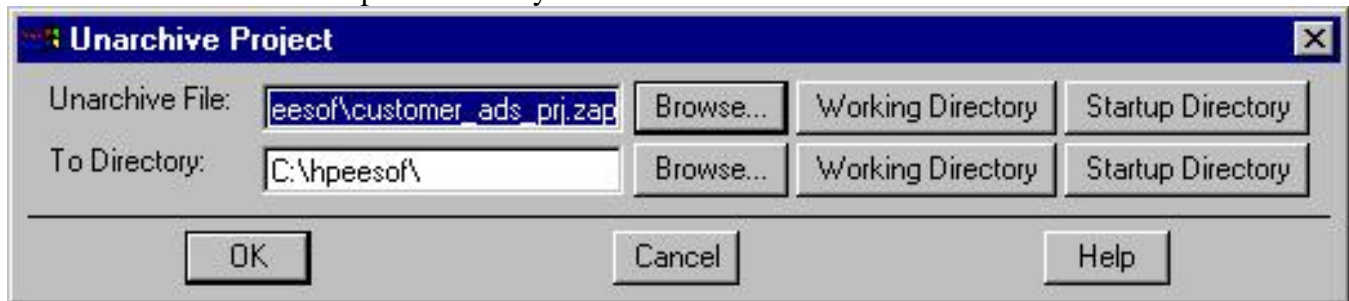
The results will be the customer_ads_1p5_prj directory.

B. ADS v1.5 SP1A PC Users: Downloaded file is customer_ads_1p5_prj.zip

1.) Unzip the downloaded file by using ADS's unzip utility found in the bin directory of the ADS installation directory. For example, from a DOS prompt:

> set HPEESOF_DIR=X:\ads\1.5
> %HPEESOF_DIR%\bin\unzip customer_ads_1p5_prj.zip
> > *Archive: customer_ads_1p5_prj.zip*
> > *inflating: customer_ads_1p5_prj.zap*

Resultant file is an ADS zap archive file called:

> customer_ads_1p5_prj.zap

2.) Open ADS as normal and from the File menu select **"Unarchive Project…"** to unzap the directory.

The resultant project directory will be called: customer_ads_1p5_prj

3.) The directory is just like any other ADS project Directory and is ready to use. Choose Open Project from the File directory to open this project.

II. Utilizing the Customer_ads_1p5_prj successfully.

The instructions below assume that you are using ADS v1.5 SP1A for UNIX or PC and currently have the customer_ads_1p5_prj project already open. A schematic file called Base_Model.dsn is used as the DUT, device under test, within all of the example test schematics (*at the lowest subcircuit level, See Figure 1*) except for the Main_Transient, Main_1HB_Loadpull and Main_2HB_Loadpull designs. Therefore, it is easy to replace the current product model by editing the FET element and selecting a new model from the list. Or replace the MET LDMOS model with a Root LDMOS model from the Motorola LDMOS Models Palette and select the appropriate model from the list given.
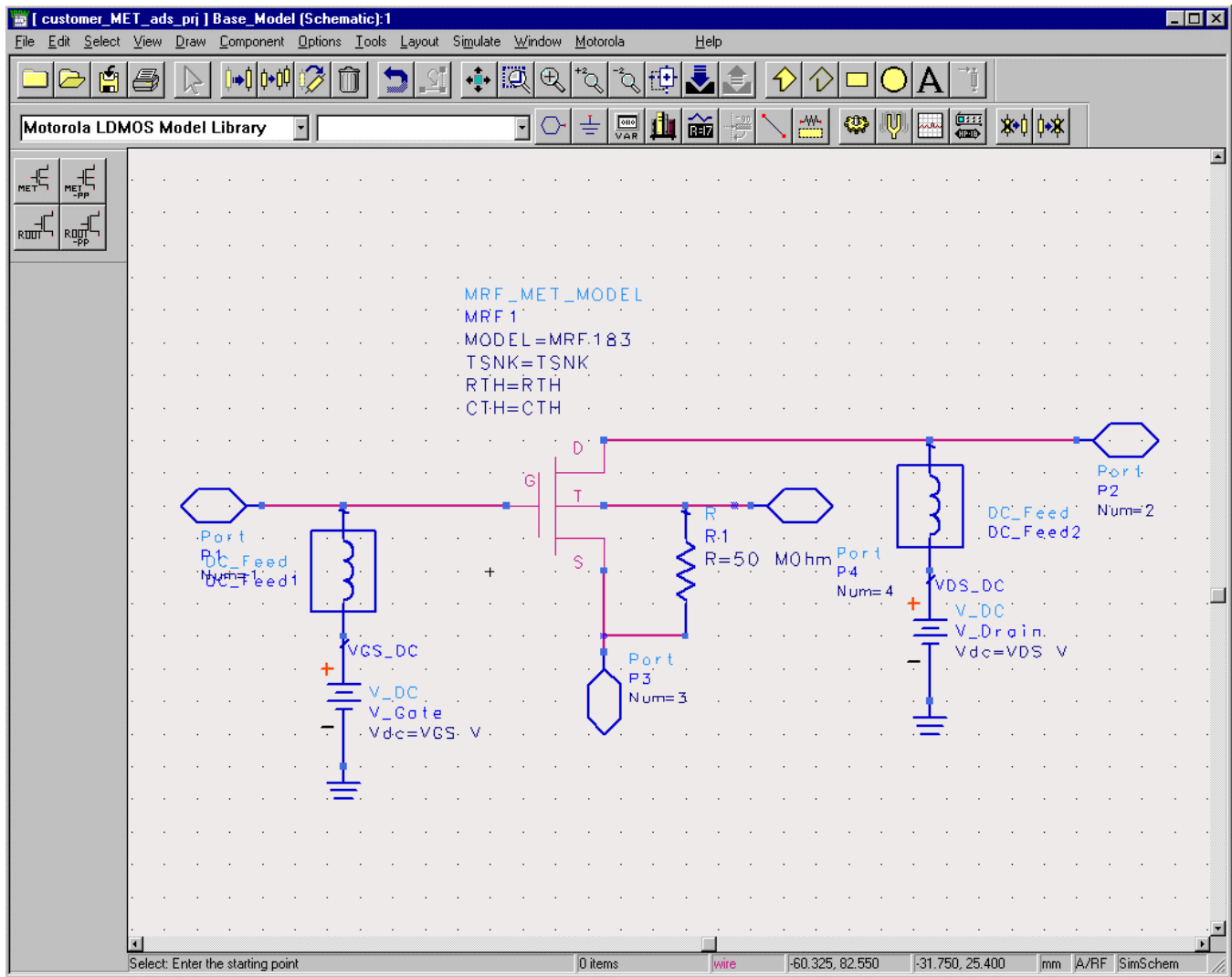

Figure 1: Schematic of Base_Model.dsn

Notice that Base_Model has as its parameters TSNK, RTH, CTH, VDS, and VGS. Therefore, any test circuit which uses Base_Model as its DUT is able to pass thermal parameters to the MET LDMOS model as well as Bias information.

Note: Keep these parameters in mind when replacing the given MET LDMOS model with another MET or Root LDMOS model. Also, setting TSNK, RTH, and CTH to a value of –1, tells the simulator to use the default value of the model.

A. Selecting a new MET LDMOS product model

A Library and Palette Group called "Motorola LDMOS Model Library" has been created with all of the current product models. Select a model type by clicking "Component Library" icon button and then click on the "Motorola LDMOS Model Library". There are four model types:

1) MRF_MET_MODEL, which is the MET LDMOS model,
2) MRF_MET_PP_MODEL, which is the MET LDMOS Push-Pull Model,
3) MRF_ROOT_MODEL, which is the Root LDMOS model, and
4) MRF_ROOT_PP_MODEL, which is the Root LDMOS Push-Pull Model.

Figure 2., shows editing the current MRF_MET_MODEL and selecting a new product model to simulate inside the Base_Model design.
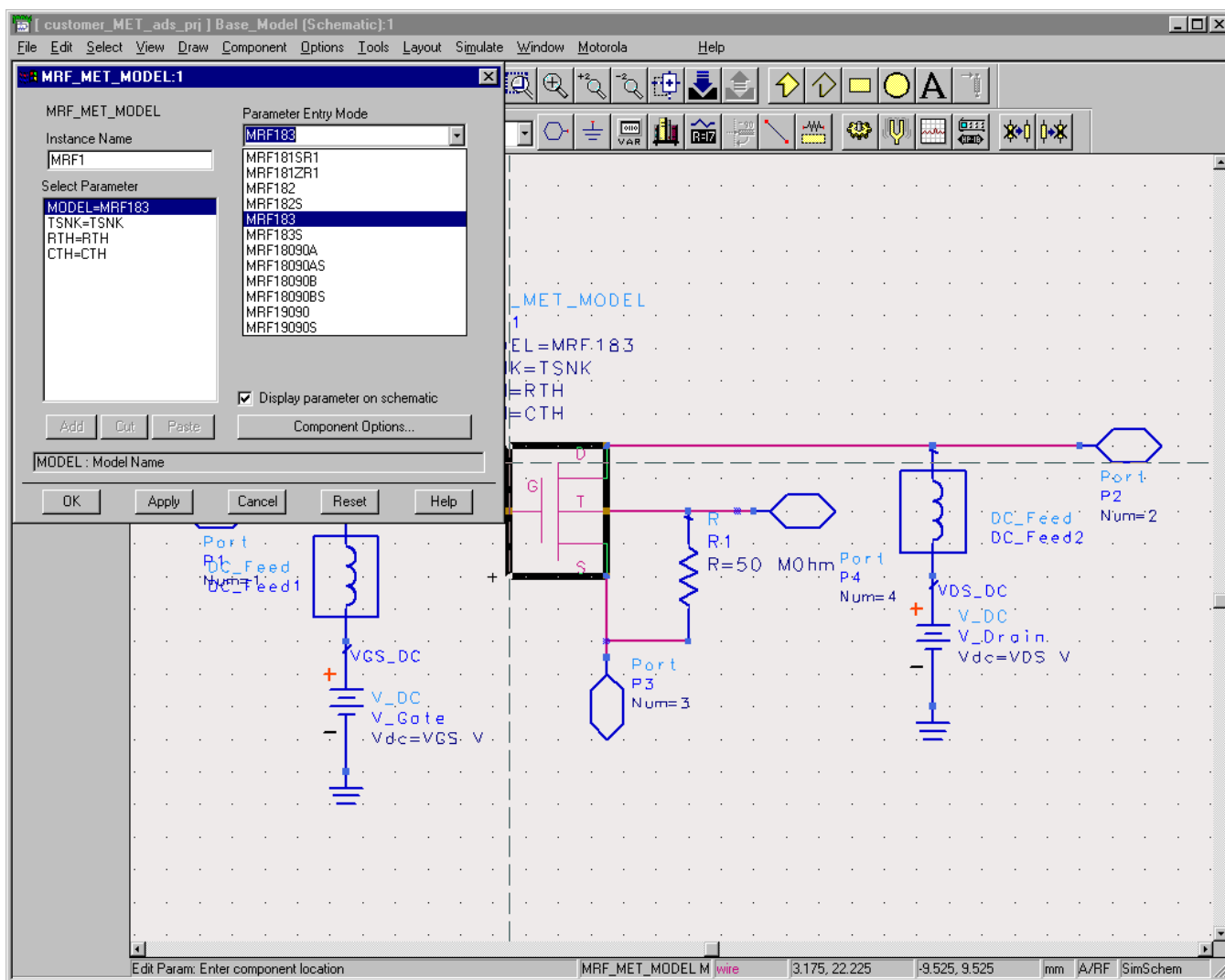

Figure 2: Selecting a new MET LDMOS Product Model

B. Selecting a Root Product Model.

The procedure above can be duplicated to also select a Root LDMOS model from the palette or library group and replace the present MRF_MET_MODEL element. Since the Root

model has no temperature component, the Fourth Node of Base_Model remains unconnected. This, however, is not a problem when simulating. Also, the parameters of Base_Model, TSNK, RTH, and CTH do not affect the circuit when the Root LDMOS model is used.

Figure 3., shows replacing the MRF_MET_MODEL with a new MRF_ROOT_MODEL and editing and selecting a new product model from the list given.
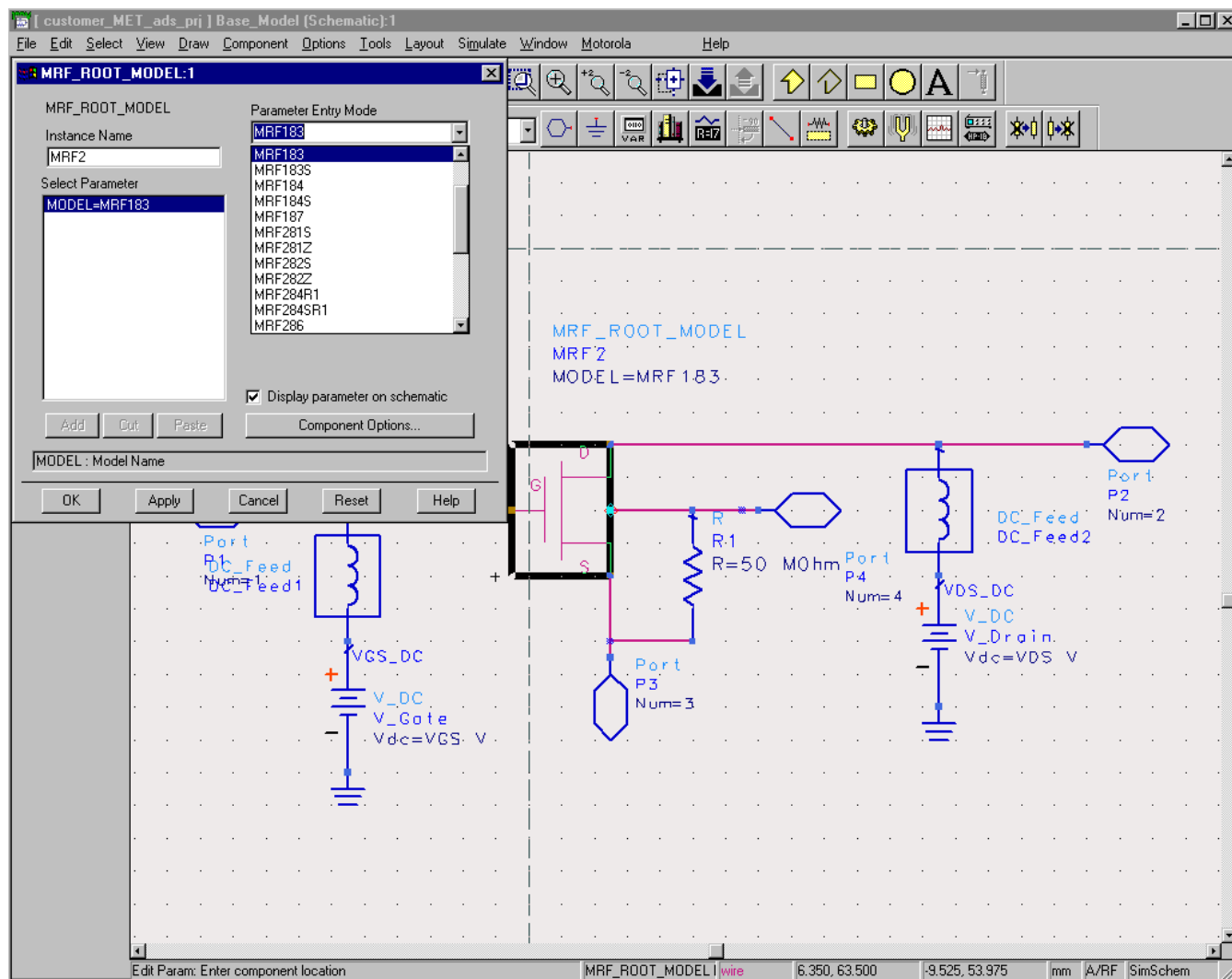

Figure 3: Selecting and Editing Choice of the MRF_ROOT_MODEL

C. Simulating product models correctly in the example test schematic designs.

As stated previously, the Base_Model.dsn schematic is the DUT for all of the example test schematic designs except for the Main_Transient, Main_1HB_Loadpull and Main_2HB_Loadpull designs. By following the above procedure for selecting the desired product model, each example test circuit is ready to simulate. Before simulation, however, be sure to adjust the frequency, bias, and power stimulus controls for your desired test setup. The VAR block in each test bench may also contain some variables that affect the test setup and may also need to be modified.