

Utmost IV Quick-Start

Model Extraction and Optimization Templates

Overview

One of the important features of Utmost IV is the extraction and optimization of SPICE model parameters to obtain an accurate fit between simulated and measured device characteristics. Utmost IV requires the user to set up the selection of data subsets, model parameters, and optimization algorithms in preparation for the model extraction process. To significantly speed up the setup procedure, Utmost IV now provides templates for the most commonly used MOSFET, TFT, HEMT, IGBT, BJT, and diode models.

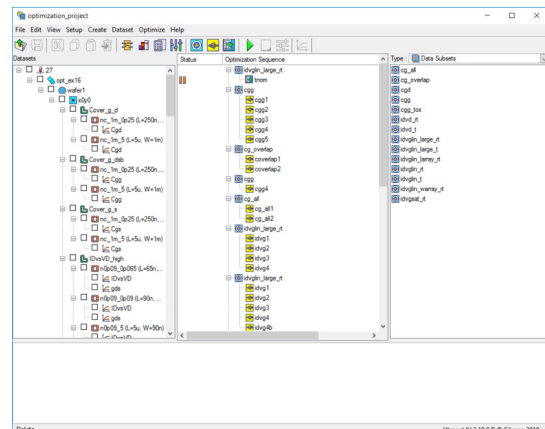
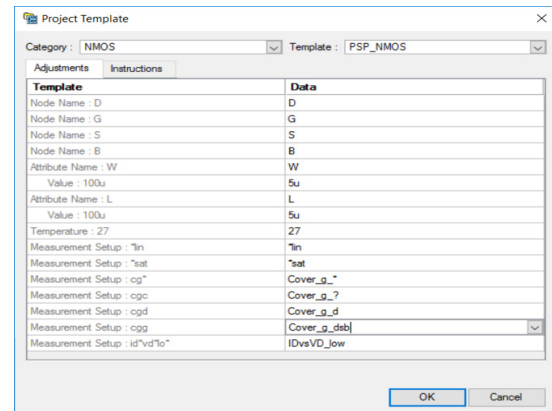
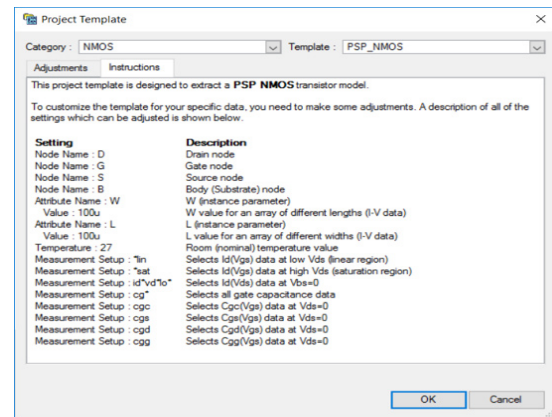
Features

- Templates available for the most common MOSFET, TFT, HEMT, IGBT, BJT, and diode models
- Easy project configuration based on your data
- Clear instructions along the way guide the configuration procedure
- Increase productivity and save days spent in generating models

Template Setup

The Quick-Start Project Templates use the following process:

- Read in the data
- Select a Quick-Start template
- Configure
- Create the optimization project
- Extract model parameters



Quick-Start template setup.

Model Extraction

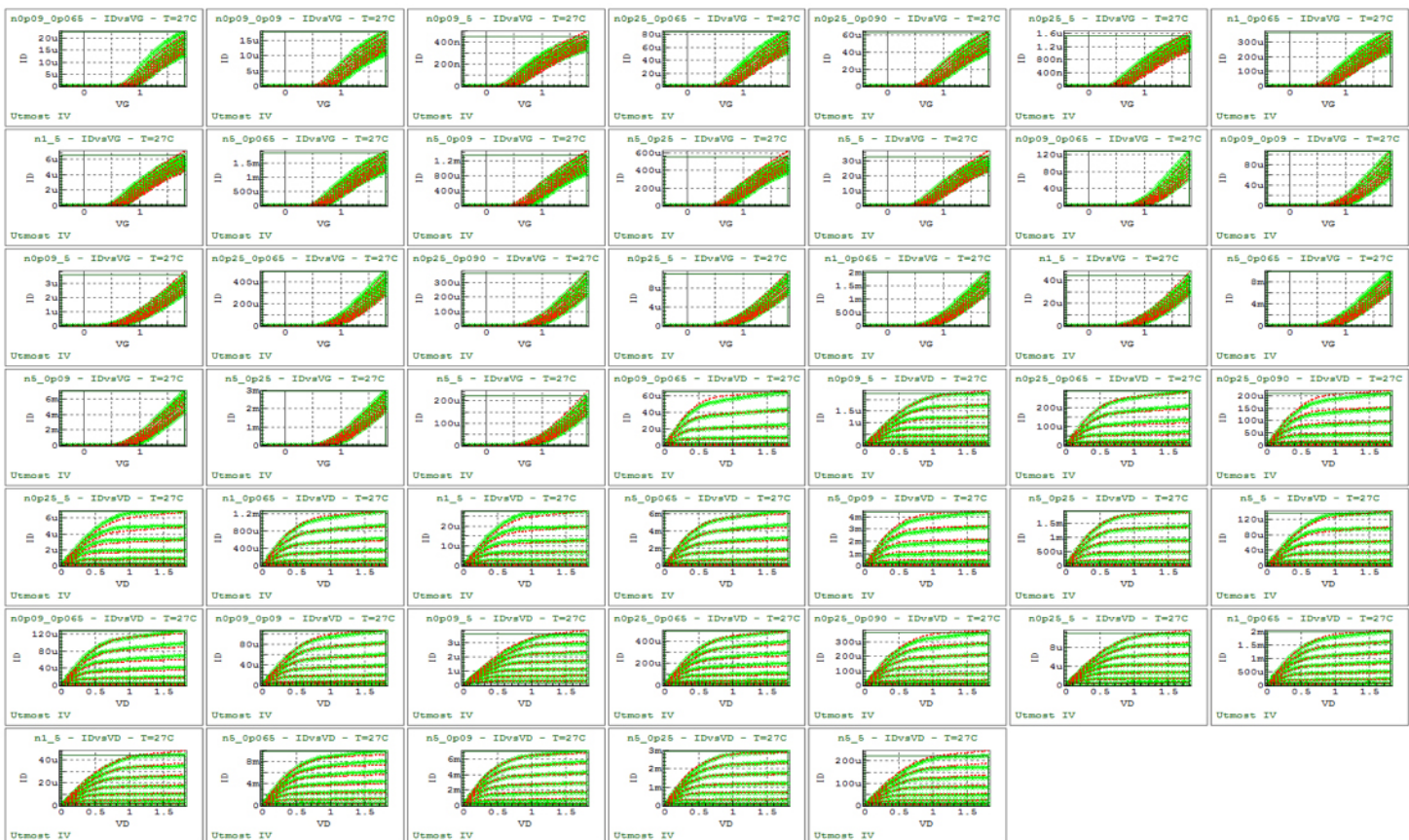
Typical model extraction time is fast even for the most demanding models, with global model card generation in less than 2 hours. Accuracy can be further refined as needed. In the MOSFET example below, the final extracted model fit of I_d vs V_{gs} and I_d vs V_{ds} for multiple device geometries, at multiple temperatures, is illustrated.

Available Project Templates

Quick-Start Project Templates which cover the following model types are available now.

Type	Model Templates
MOSFET	BSIM3v3, BSIM4, BSIM-BULK, HiSIM2, HiSIM_HV2, PSP
TFT	RPI poly-Si TFT, RPI amorphous Si TFT
GaN HEMT	MVSG
BJT	Gummel-Poon, VBIC, Mextram 504
IGBT	HiSIM-IGBT
Diode	Level 1

Additional templates can be easily supported for either compact models or macro-models.



Quick-Start template MOSFET model optimization example for multiple device geometries at multiple temperatures.