Modelithics®
Accelerating Your Design Success!

Modelithics Guerrilla RF MVP Library
for High Accuracy Electronic Simulation

Modelithics® Vendor Partner

GUERRILLA RF®

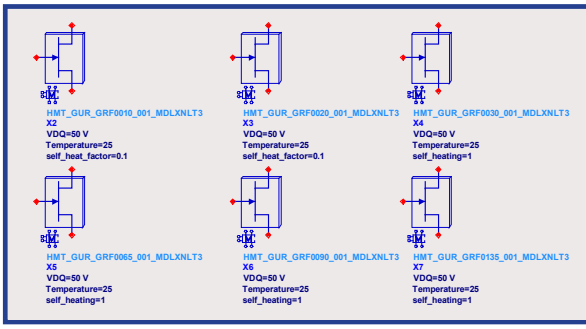
OVERVIEW

The **Modelithics Guerrilla RF MVP Library** is a collection of highly accurate measurement-based models that can be simulated in popular Electronic Design Automation (EDA) software tools. These models offer broadband parasitic prediction (many up to 8 GHz) and other features, including intrinsic waveform sensing, accurate small signal and larger signal prediction, and wideband large signal prediction. These state-of-the-art models install seamlessly into the EDA software, placing high accuracy models at your fingertips, which allow for first pass design success!

LIBRARY FEATURES

The Modelithics Guerrilla RF MVP Library offers a collection of **Microwave Global Models™** that provide many advantages over ideal and S-parameter file-based models. Valuable features of the models include:

- **MEASUREMENT-BASED** — Each global model is developed using highly accurate measurements across multiple conditions including different bias conditions and frequencies. By extracting models using measurements, designers can have confidence that their simulations will represent real-world conditions.
- **AVAILABLE FOR POPULAR EDA TOOLS** — Keysight Technologies' Advanced Design System (ADS) and Cadence® AWR Design Environment®.
- **COMPLETE DOCUMENTATION** — Each model contains a comprehensive model datasheet that lists recommended model validity parameters, measurement and test fixture details, and model-to-measurement data comparisons.

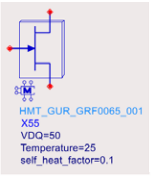


Device #	Device Overview
GRF0005	Un-Matched GaN HEMT, 5W, DC - 12GHz
GRF0010	Un-Matched GaN HEMT, 15W, DC - 8GHz
GRF0012	Un-Matched GaN HEMT, 12W, DC - 12GHz
GRF0020	Un-Matched GaN HEMT, 30W, DC - 7GHz
GRF0030	Un-Matched GaN HEMT, 50W, DC - 6GHz
GRF0065	Un-Matched GaN HEMT, 80W, DC - 3.7GHz
GRF0090	Un-Matched GaN HEMT, 110W, DC - 3.7GHz
GRF0135	Un-Matched GaN HEMT, 150W, DC - 3.2GHz

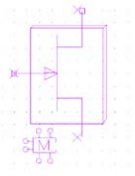


HMT-GUR-GRF0065-001
Unmatched GaN HEMT GRF0065 package device, a 80W unmatched discrete GaN-on-SiC HEMT in 6x3 mm surface mount DFN-14 package

Model Representation



Keysight ADS



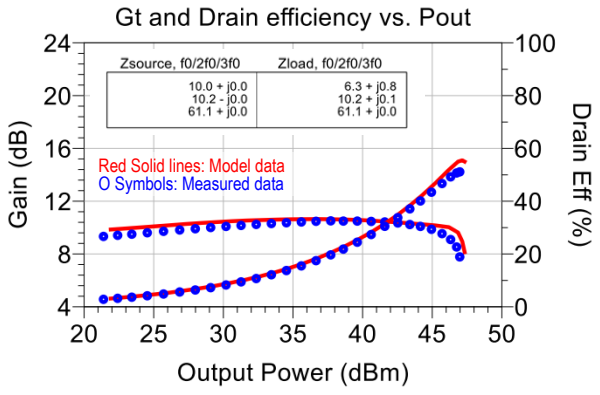
Cadence AWR

Reference Planes

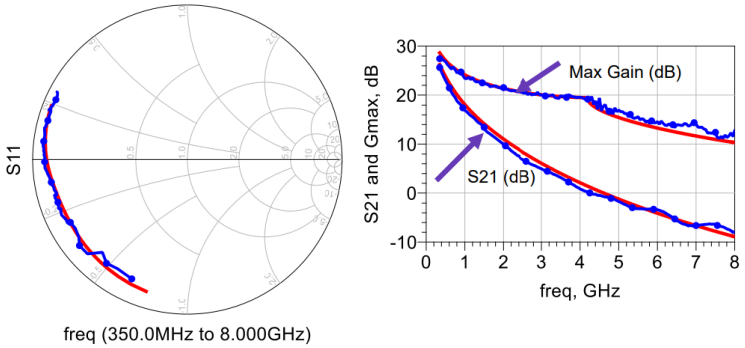


Model and Measurement Reference Planes
3mm apart

HMT-GUR-GRF0030-001 for GRF0030 Package
Single Tone Power Sweep: Frequency = 5GHz;VDS = 50V, VGS = -2.505V, IDS = 47mA, 25C; Load Condition: Measured Power Tuned



HMT-GUR-GRF0030-001 for GRF0030 Package
S-Parameters Model vs. Measured: VDS = 50V, VGS = -2.505V, IDS = 47mA, 25C



Red Solid lines - Model data, O Symbols - Measured data
Simulated at 25C with the frequency range from 0.35 – 8GHz. 50Ω Smith Charts

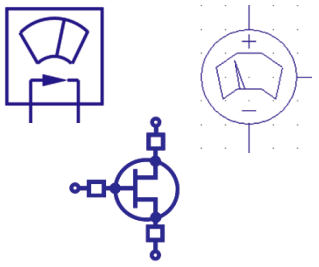
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List of Components in the Modelithics® Guerrilla RF MVP Library

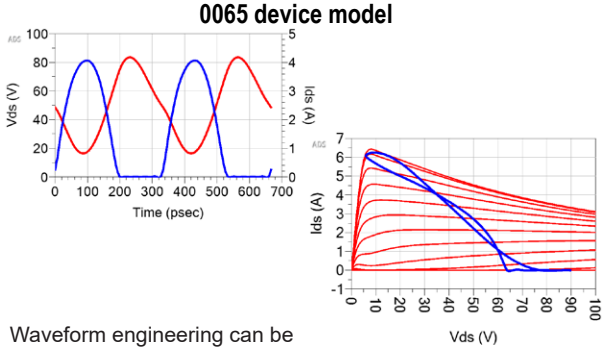
Amplifiers			Transistors	
GRF2070	GRF2073	GRF2106	GRF0005	GRF0030
GRF2071	GRF2093	GRF2501	GRF0012	GRF0065
GRF2072	GRF2100	GRF4002	GRF0010	GRF0090
		GRF4014	GRF0020	GRF0135

Visit our website for an updated complete list of the Modelithics Guerrilla RF models:
www.Modelithics.com/MVP/GuerrillaRF

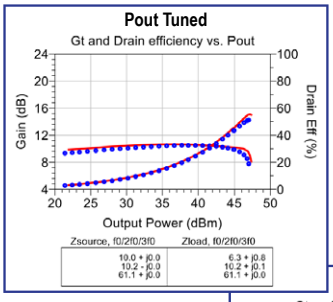
Advanced Model Features for More Accurate High Frequency Design



Intrinsic voltage and current access allows for simulation of the waveforms and dynamic load line.



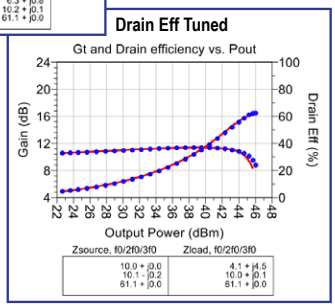
Waveform engineering can be used for the design of advanced PA modes of operation.



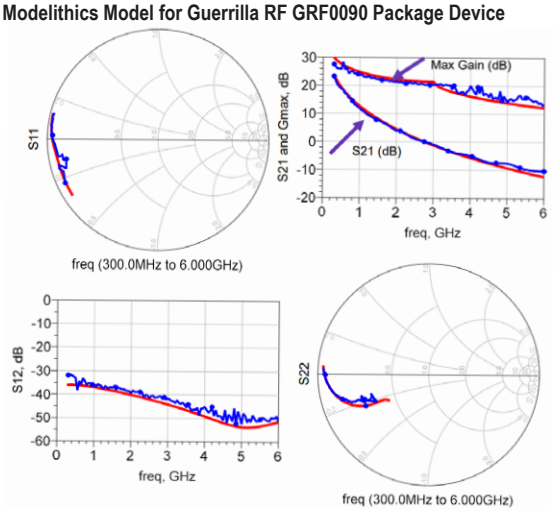
HMT-GUR-GRF0030-001 for GRF0030 Package Device

Single Tone Power Sweep:
Frequency = 5GHz
VDS = 50V, VGS = -2.505V
IDS = 47mA, 25C
Load Condition: Measured Power Tuned

Red Solid lines - Model data,
O Symbols - Measured data



HMT-GUR-GRF0090-001
Modelithics Model for Guerrilla RF GRF0090 Package Device



S-Parameters Model vs. Measured:
VDS = 50V, VGS = -2.505V, IDS = 110mA, 25C

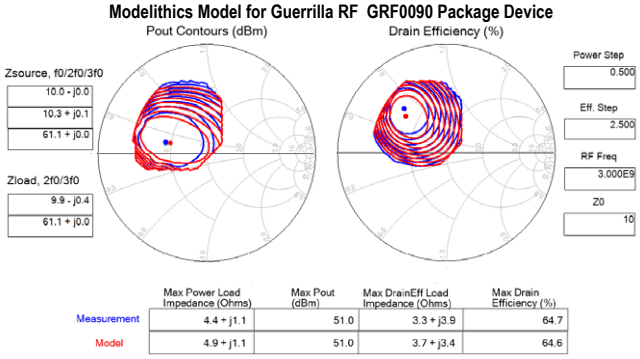
Red Solid lines - Model data
O Symbols - Measured data

Simulated at 25C with the frequency range from 0.3 – 6GHz, self_heat_factor at 1. 50Ω Smith Charts

Modelithics Guerrilla RF package device models predict accurately both the small signal S-parameter and large signal power sweep / loadpull performances within the operating frequency range.

Modelithics Guerrilla RF models enable rapid design success and demonstrate excellent model to measurement agreement.

HMT-GUR-GRF0090-001
Modelithics Model for Guerrilla RF GRF0090 Package Device



	Max Power Load Impedance (Ohms)	Max Pout (dBm)	Max DrainEff Load Impedance (Ohms)	Max Drain Efficiency (%)
Measurement	4.4 + j1.1	51.0	3.3 + j3.9	64.7
Model	4.9 + j1.1	51.0	3.7 + j3.4	64.6

What's in YOUR DREAM LIBRARY?

Help us build ***YOUR*** dream library! Pre-Release models are added based on customer demand. Share your desired models with **sales@modelithics.com**!

Visit the Guerrilla RF MVP Page on the Modelithics website to:

- Explore the current list of available Guerrilla RF component models
- View model datasheets
- Browse literature collection for application notes, presentations, etc.
- Request a FREE* 90 day trial of the Modelithics Guerrilla RF model library: www.Modelithics.com/MVP/GuerrillaRF

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*with approval and/or valid registration

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