Modelithics®
Accelerating Your Design Success!

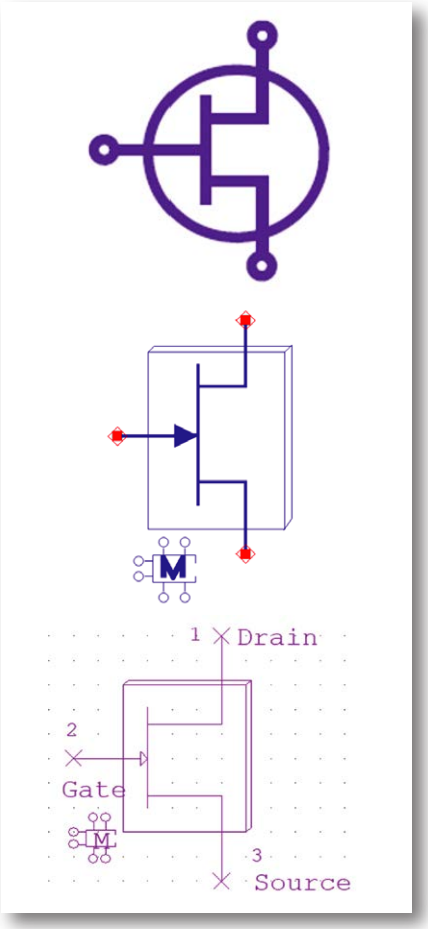
Modelithics® Qorvo GaN Library

qorvo®

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OVERVIEW

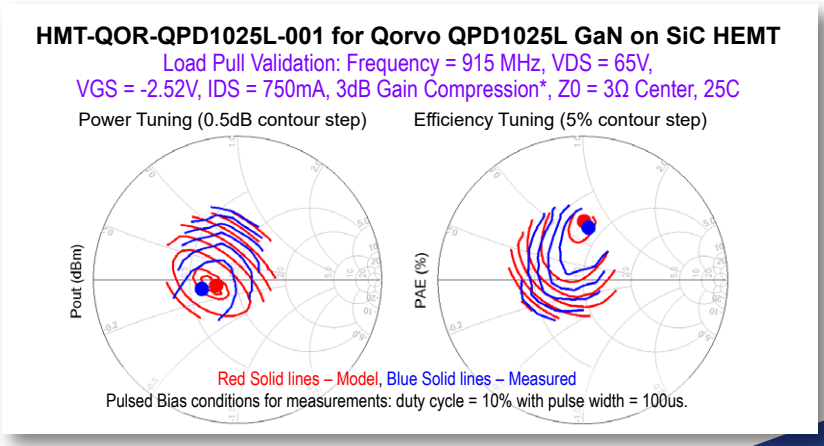
The **Modelithics Qorvo GaN Library** is a collection of precision nonlinear simulation models for Qorvo GaN die and packaged transistor devices. The GaN transistor models offer valuable features to allow for the most current and accurate design techniques, such as variable bias, temperature scaling, self-heating effects and intrinsic I-V sensing. The die transistor models offer bondwire on/off modes whenever applicable. Every model is validated with accurate broadband measurements.

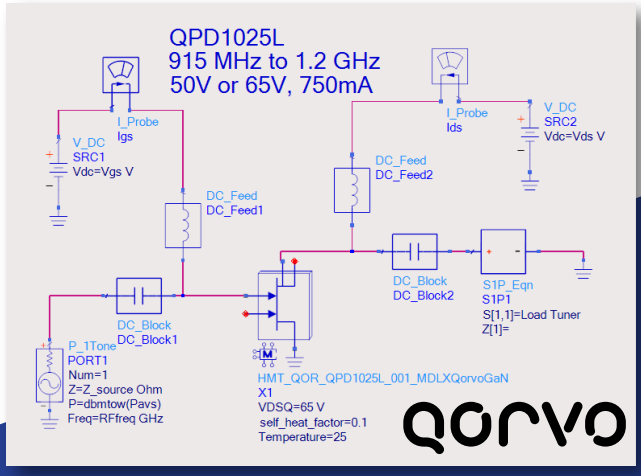


LIBRARY FEATURES

The Modelithics Qorvo GaN Library provides designers with a very flexible and accurate design tool that offers many advantages over ideal or file-based models. Valuable features include:

- **SUPPORT FOR POPULAR EDA TOOLS** – Model versions are available for Keysight Advanced Design System (ADS) and the Cadence® AWR Design Environment® platform.
- **MEASUREMENT-BASED** – Each non-linear model is developed using multiple precision measurements under device-specific test conditions.
- **EXAMPLES** – The library includes example design project files that demonstrate the model features, show various test bench simulation setups, and plot simulated results.
- **WELL-DOCUMENTED** – Each model comes with a model datasheet that lists recommended model validity parameters, measurement and test fixture details, and model-to-measurement comparisons.
- **POWER AMPLIFIER (PA) VALIDATIONS** – Select Modelithics Qorvo GaN models have an associated PA example design.
- **EMBEDDING MODELS** – Make it possible for power amplifiers (PAs) to be designed without comprehensive load-pull analysis, allowing designers to directly synthesize the needed extrinsic impedances for a desired intrinsic waveform. After the extrinsic impedances are determined, a suitable matching network can be designed.





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Devices in the Modelithics Qorvo GaN Library

Packaged Devices					Die Devices	
QPD0005	QPD1015	QPD1426 (282W)	T1G2028536-FS*	T2G6001528-SG*	TGF2023-2-01	TGF2933†
QPD0020	QPD1015L	QPD1426L (282W)	T1G3000532-SM*	T2G6003028-FL^	TGF2023-2-02	TGF2934*†
QPD0030	QPD1016	QPD2560L (350W)	T1G4004532-FL*	T2G6003028-FS	TGF2023-2-05	TGF2935*†
QPD0060	QPD1016L	QPD1823*	T1G4004532-FS*	TGF2819-FL	TGF2023-2-10	TGF2936†
QPD1000	QPD1017	QPD1881L*	T1G4012036-FL*	TGF2819-FS	TGF2023-2-20	TGF2941*†
QPD1004	QPD1020	QPD2017*	T1G4012036-FS*	TGF2929-FL	TGF2952*	TGF2942*†
QPD1006	QPD1022	QPD2194*	T1G4020036-FL	TGF2929-FS*	TGF2953*	
QPD1008	QPD1025L	QPD2195*	T1G4020036-FS	TGF2965-SM	TGF2954	
QPD1008L	QPD1028L	QPD2560L	T1G6001032-SM*	TGF2977-SM	TGF2955*	
QPD1009	QPD1029L	QPD2562L	T2G4003532-FL*	TGF2978-SM	TGF2956*	
QPD1010	QPD1035	QPD2796*	T2G4003532-FS*	TGF2979-SM	TGF2957*	
QPD1011	QPD1035L	QPD3601*	T2G4005528-FS	TGF3015-SM		
QPD1013	QPD1425	QPD3800*	T2G6000528-Q3^	TGF3020-SM		
QPD1014	QPD1425L	T1G2028536-FL*	T2G6001528-Q3	TGF3021-SM		
				TQP0104*		

*Moved to legacy palate – not currently recommended for new designs.

† Both small- and large-signal model versions

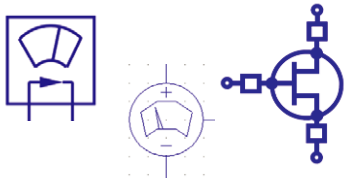
^ Embedding model version available

v26.5.11

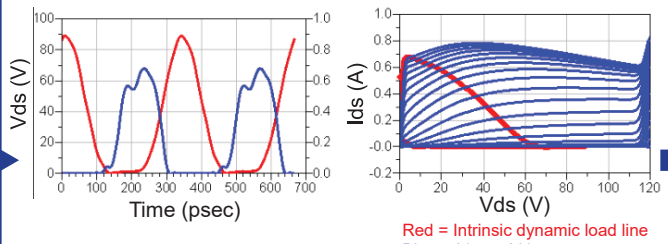
More to come! New models are added continually. Visit our website for an updated complete list.

\www.Modelithics.com/MVP/Qorvo

Power Amplifier Design

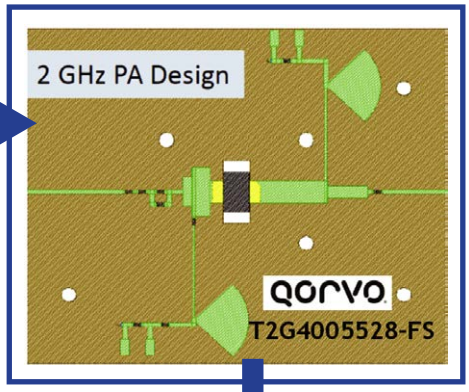


Intrinsic voltage and current access allows for simulation of the waveforms and dynamic load line.

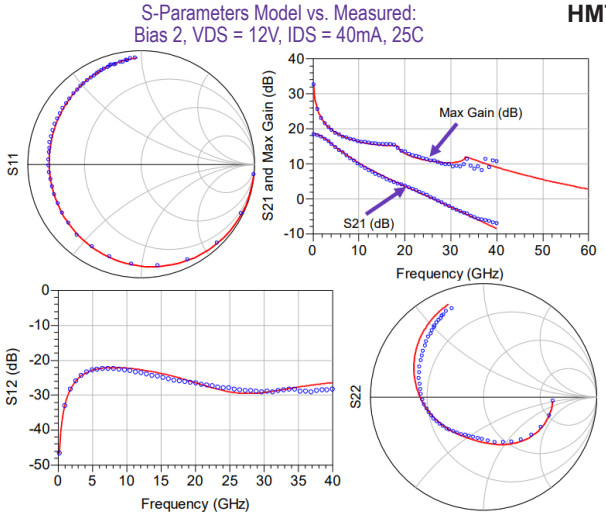


Red = Intrinsic dynamic load line
Blue = Ids vs. Vds

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



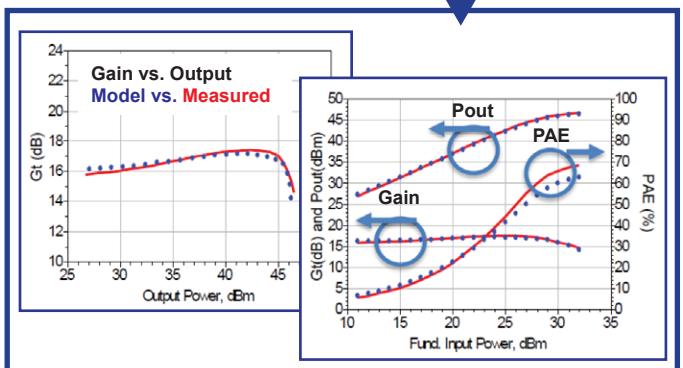
Substrate Scaling



HMT-QOR-TGF2942-SS-001
Modelithics Model for Qorvo TGF2942 GaN on SiC HEMT

Modelithics models accurately predict multi-bias S-parameters. Additionally, die models have a ON/OFF wire/test fixture removal parameter. Large-signal models with substrate scalability are also available.

Red Solid lines - Model data
O Symbols - Measured data
Simulated at 25C with the frequency range from 0.2 - 40GHz. 50Ω Smith Charts



The Modelithics Qorvo GaN Library enables rapid design success and demonstrates excellent model to measurement agreement.

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 Qorvo MVP Page on the Modelithics website to:

- Explore the current list of available Qorvo component models
- View model datasheets
- Browse literature collection for application notes, presentations, etc.
- Request* the Modelithics Qorvo GaN Library

www.Modelithics.com/MVP/Qorvo

*with approval and/or valid registration

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