Modelithics®

World's Best RF & Microwave Simulation Models

Custom Modeling Services

Versatility

Through **Modelithics' Custom Modeling Service** customers can order linear, bias-dependent small signal, noise and/or non-linear models for components and devices in chip or packaged format. Model topologies may be customer-specified or determined based on the advice of Modelithics.

Models for active and passive surface-mount components are generated using standard or application-specific test fixtures to ensure accuracy in the user's design environment. Using efficient extraction techniques, these models can be made substrate-scalable to substantially expand the usability into a wide range of products. Non-linear model capability addresses a wide range of prediction needs including power, efficiency and distortion for PAE and harmonic generation and compression characteristics for diodes and other active components.

Microwave Global Models™ for passive components, which represent an entire range or family of parts, can also be provided - these models speed-up design time by facilitating automated circuit optimization algorithms that are integrated into most computer-aided-engineering (CAE) simulation tools. Modelithics Global Models can be driven by the nominal part value, substrate characteristics, and (soon to be added) temperature. Designers can optimize the part selection for a given circuit requirement while simultaneously including all parasitics and substrate effects, significantly cutting design time.

System Level Component (SLC) models, our latest introduction allow linear and non-linear prediction for higher level functional components like amplifiers, mixers, filters, switches, resonators, etc. The same aspects of Modelithics passive- and active-model developments are now extended to our system-level component modeling, including the establishment of well-defined reference planes and the documentation of test conditions used for model validation and development.

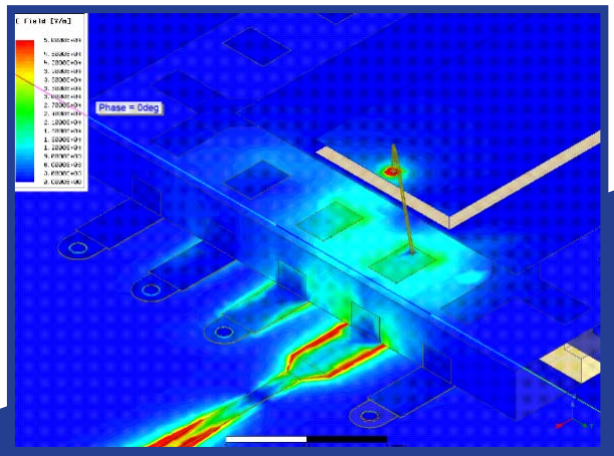
Technologies

Accurate, measurement-driven models for a wide range of customer-specified devices, components and assemblies can be provided. Fast turn-around model delivery is currently available for:

Amplifier	Attenuator	BJT / HBT
Capacitor	CMOS	Coupler
Diplexer	Duplexer	Equalizer
Ferrite Bead	Filters	GaAs PHEMT
GaN HEMT	HEMT	Inductor
Interconnects	JFET	Limiter
Low Noise FET	MESFET	Mixer
MOS / LDMOS	MOSFET	NPN BJT
Package	pHEMT	PIN Diode
Resistor	Resonator	Schottky
Splitter	Step Recovery Diode	Switch
Varactor	Transformer	Triplexer

3D Modeling

Custom full-wave 3D electromagnetic device models for use in Ansys® HFSS™ can be provided. 3D models are based on physical dimensions and material properties. 3D models can simulate the effects of parts that are located close to other devices or objects, making them very useful for compact designs. 3D EM simulation lets you visualize electric and magnetic fields. This enables you to identify the origin of any coupling that may be present.



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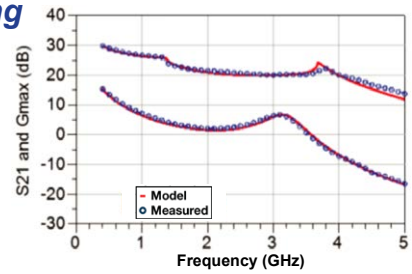
Custom Modeling Services

GaN Measurement and Modeling

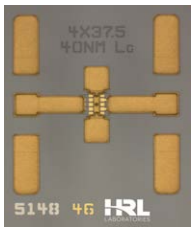
Modelithics modeling services for GaN HEMT devices include the same measurements discussed earlier. On-wafer and on-board testing can be performed. Model development available for packaged and die GaN devices. Model features include bias and temperature dependency, self heating, intrinsic IV for waveform analysis, bond-wire removal, and more.

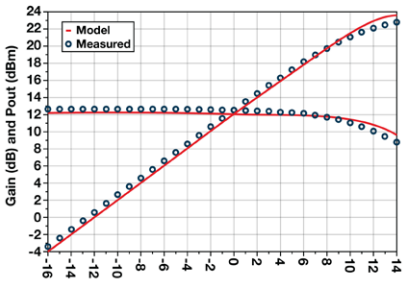
Packaged Device Modeling





Die Device Modeling





Model Validation and Library Maintenance

Characterization and validation can be performed to ensure that models are consistent with current device technology and/or manufacturing methods, or to extend the operating conditions and range of validity of existing models.

CAE model library development and maintenance combines custom modeling, database and periodic model verification services in a single package. Records include historical documentation on measurement calibration and device data, model validation results and relevant CAE platform specific information.

For inquiries about other simulation platforms, please contact:

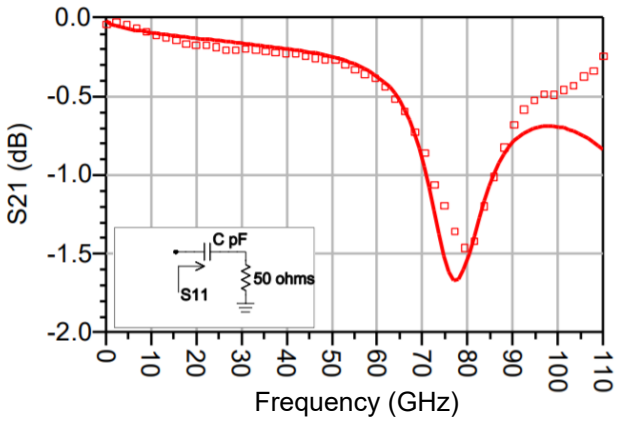
sales@modelithics.com

Documentation

All models are provided with complete documentation pertaining to the measurement conditions, model-to-measurement comparisons, and typical range of validity. Depending on the models intended applications, advanced features validated, and documented within the data sheets included with each model, include aspects like substrate and pad scaling, temperature effects and broad-band frequency coverage, nonlinear performance and noise predictions.



Murata XBSC 939 118 492 510 Capacitor - Frequency Sweep



CAP-MUR-0201M-003:

Modelithics Model for Murata XBSC 939 118 492 510 capacitor.

□ *10mil Quartz*
Lines - Model
Symbols - Measured data.

S21 for 10nF capacitor from 0.01 to 110 GHz.

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