Modelithics®
Accelerating Your Design Success!

Modelithics Microchip MVP Library
for High Accuracy Electronic Simulation

Modelithics® Vendor Partner

MICROCHIP

OVERVIEW

The **Modelithics Microchip MVP Library** is a collection of highly accurate measurement-based simulation models that are compatible with popular Electronic Design Automation (EDA) software tools. These models offer accurate broadband prediction including parasitic effects and feature scalable design parameters such as pad dimensions and substrate properties. These state-of-the-art models install seamlessly into the EDA software, placing high accuracy models at your fingertips and allowing for first pass design success!

LIBRARY FEATURES

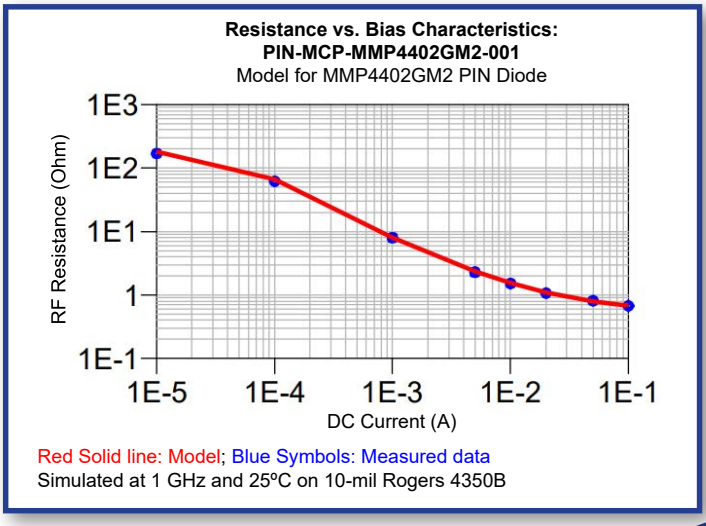
The Modelithics Microchip MVP Library offers a collection of **Microwave Global Models**™ that provide many advantages over ideal and S-parameter file-based models. Valuable features of the models include:

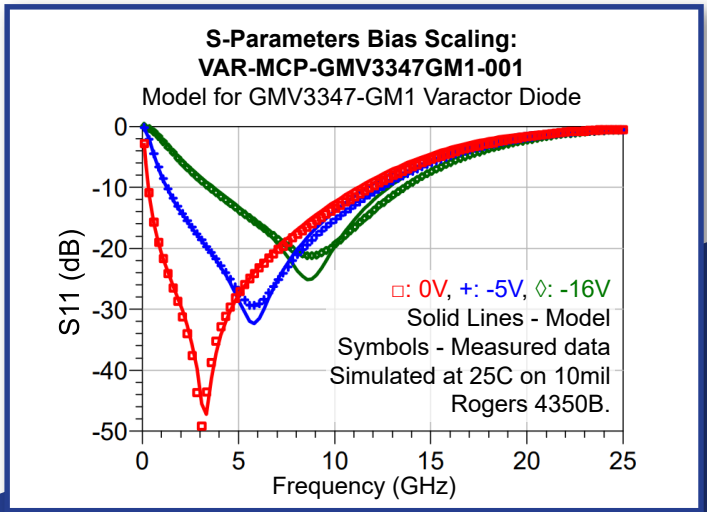
- **MEASUREMENT-BASED** — Each global model is developed using highly accurate measurements across multiple conditions including different substrates and pad dimensions. By developing models using measurements, designers can have confidence that their simulations will represent real-world conditions.
- **SCALABLE** — The models can be scaled for temperature, pad dimensions, and substrate properties (when applicable), allowing designers to simulate based on their specific conditions.
- **AVAILABLE FOR POPULAR EDA TOOLS** — Keysight Technologies' Advanced Design System (ADS), Cadence® AWR Design Environment®, and Keysight Technologies' RF Synthesis (Genesys).
- **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.

List of Components in the Modelithics® Microchip MVP Library

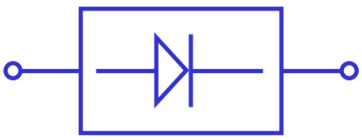
NPNBJT	Varactor Diodes		PIN Diodes		
SD1495-03	GMV3347-GM1	MV3903-P2010	MMP4402-GM2	MMP4405-GM2	UMX9989AP
	KV2151	GC1500879	MMP4403-GM2	MP6250-P2715	UPP9401
			MMP4404-GM2	MPP4204-206	

Visit the Modelithics website to view additional Pre-Release models.
Visit: www.Modelithics.com/MVP/Microchip



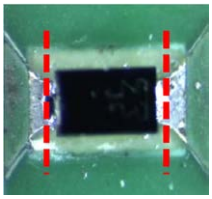


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VAR-MCP-MV3903P2010-101
Model for MV3903P2010 GaAs
Varactor Diode
Flip Chip 0201

Device Image



Model and Measurement Reference Planes are indicated with red dashed lines

11.8 (0.300) <=PADL<=14.17 (0.360)
11.8 (0.300) <=PADW<=13.0 (0.330)
5.1 (0.130) <=PADG<=7.87 (0.200)

Units in mil (mm)

Model Representation

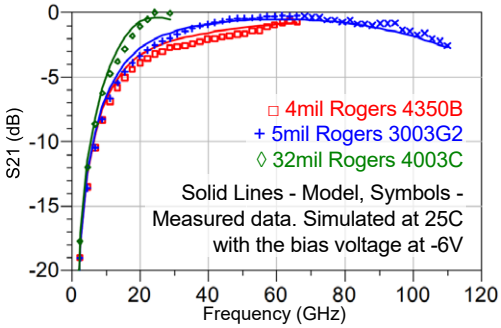


VAR_MCP_MV3903P2010_101_MDLXNLD3
MDLX_D11
Subst="MSub1"
Sim_mode=0 - Full Parasitic Model
Temperature=25.0
Pad_Width=0.3 mm
Pad_Length=0.3 mm
Pad_Gap=0.15 mm

Advanced Model Features for More Accurate High Frequency Design

Substrate Scaling

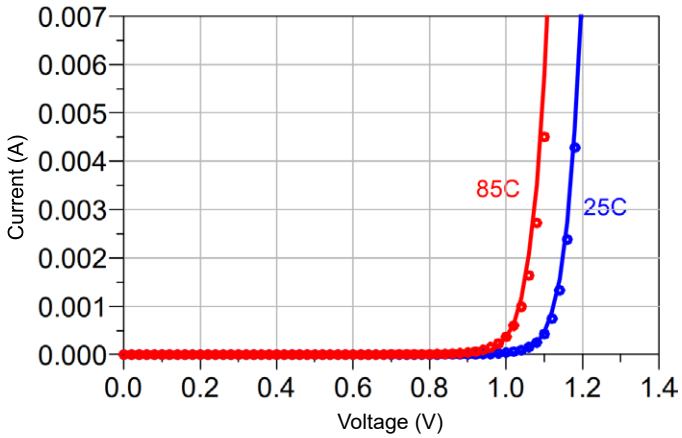
VAR-MCP-MV3903P2010-101: Model for MV3903P2010 GaAs Varactor Diode S-Parameters Substrate Scaling



Variations in substrate properties have a significant effect on the response of surface mount components in high frequency designs. Modelithics models are substrate scalable and validated over a continuous range of substrate properties based on board thickness and dielectric constant.

Temperature Scaling

VAR-MCP-GMV3347GM1-001
Model for GMV3347-GM1 Varactor Diode
Capacitance vs. Bias Characteristics



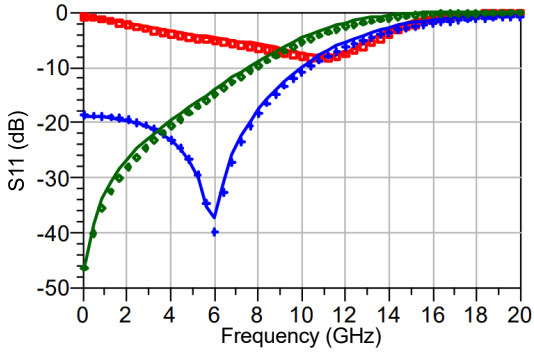
Modelithics added temperature dependence input parameter so the model predicts associated capacitance change for a particular DC voltage and temperature environment. The model solution was validated with RF / mm-wave measurements performed at Modelithics lab facility.

Red: 85C, Blue: 25C

Solid Lines - Model, Symbols - Measured data

Broadband Validation

PIN-MCP-MMP4405GM2-001: Model for MMP4405GM2 PIN Diode S-Parameters Bias Scaling



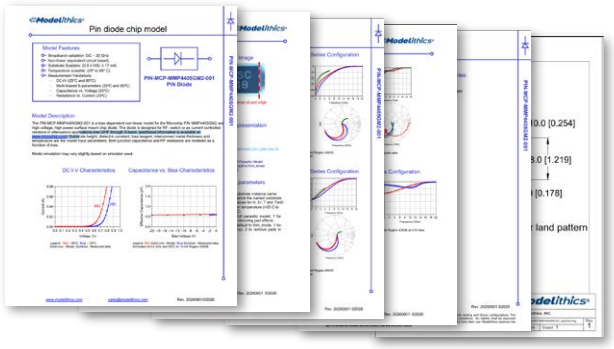
Solid Line - model data

Symbols - measured data

Simulated on 6.6mil Rogers 4350B at 25ºC

Modelithics world class models are developed by performing accurate lab measurements with techniques that have been refined over 20 years. Models are validated against broadband measurements made possible by Modelithics wide array of test capabilities.

Datasheets



Each Modelithics model has a datasheet that provides detailed information about the model, such as the validation frequencies, reference planes, part value / pad scalability / substrate scalability ranges, model performance, and details about other features and model parameters.

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 Modelithics COMPLETE Library Page on the Modelithics website to:

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

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*with approval and/or valid registration

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