Modelithics®
Accelerating Your Design Success!

Modelithics Dalicap MVP Library
for High Accuracy Electronic Simulation

Modelithics® Vendor Partner

Dalicap
DALICAP TECH. CORPORATION

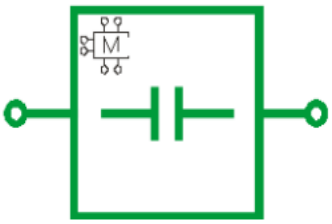
OVERVIEW

The **Modelithics Dalicap 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 from DC to up 50 GHz and offer scalable design parameters such as capacitance value, pad dimensions, and substrate conditions. 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

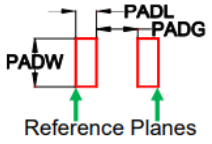
The Modelithics Dalicap MVP Library offers a collection of **Microwave Global Models™** that provide many advantages over ideal and S-parameter file-based models. Valuable features of the models include:

- **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 capacitance value and substrate properties, allowing designers to simulate based on their specific conditions.
- **OPTIMIZATION AND STATISTICAL ANALYSIS** — Model parameters can be tuned and optimized in the EDA software to provide best case parameter selection rapid achievement of design goals. Model parameters can also be set up for statistical analysis.
- **AVAILABLE FOR POPULAR EDA TOOLS** — Keysight Technologies' Advanced Design System (ADS), Cadence® AWR Design Environment®, Keysight Technologies' RF Synthesis (Genesys), Ansys® HFSS™, Sonnet® Suites™, Cadence Spectre RF® Option, and Mathworks MATLAB®.
- **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.



CAP-DLP-0505-001
(0.3 to 1000 pF)
0505 Body Style

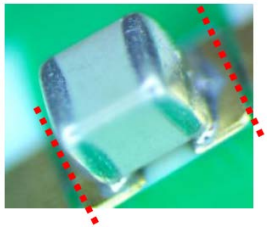
PC Board Footprint



23.6 (0.600) <= PADL <=48.0 (1.220)
51.2 (1.300) <= PADW <=74.4 (1.890)
7.9 (0.200) <= PADG <= 27.6 (0.700)

Units in mil (mm)

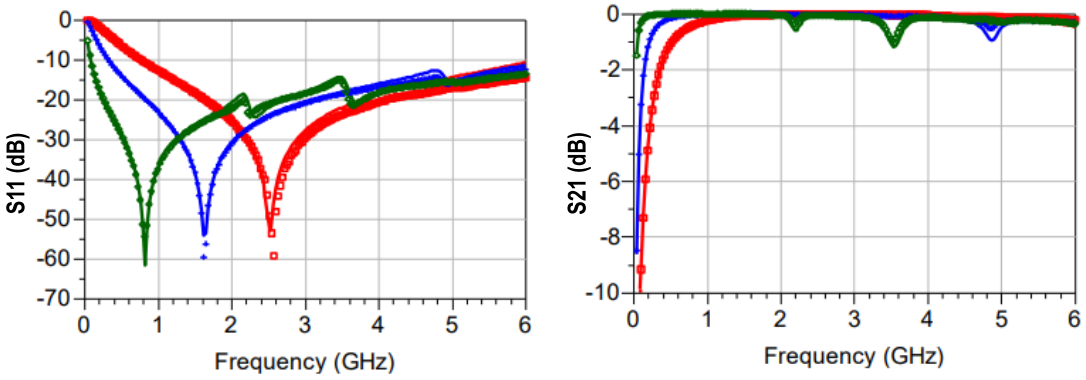
Device Image



Reference Planes at pad edge

CAP-DLP-0505-001 (0.3 to 1000 pF) 0505 Body Style

Model vs. Measured Series 2-port S-parameter Data; 60 mil Rogers 4003C Substrate (H/Er = 16.4 mil):



□ 5.6 pF, + 14 pF, ◊ 56 pF, Solid lines - Model data, Symbols - Measured data

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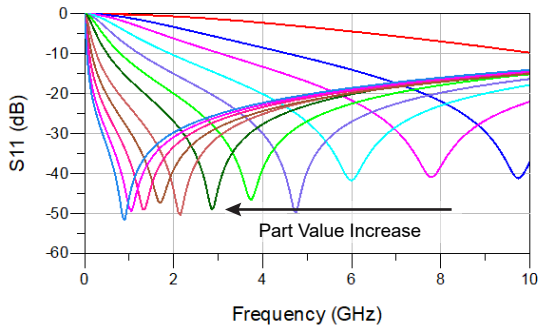
List of Components in the Modelithics® Dalicap MVP Library

Capacitors				
DLC70A	DLC70B	DLC75P	DLC75D	DLC85B

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

Advanced Model Features for More Accurate High Frequency Design

Part Value Scaling



Modelithics Microwave Global Models™ for Dalicap components have all values within a part series within one model. This allows for tuning and optimization by capacitance and eliminates the need to manually substitute individual models during a design sequence.

Substrate Scaling

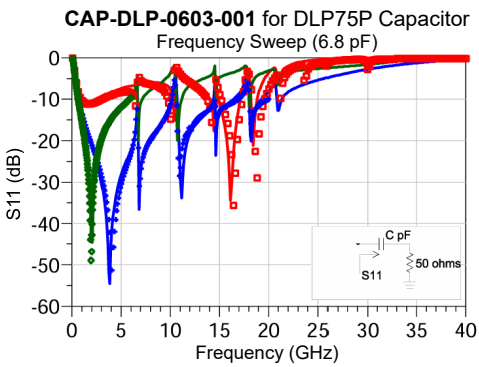
□ 4 mil Rogers 4350B
+ 20 mil Rogers 4350B
◊ 60 mil Rogers 4003C

Lines - Model
Symbols - Measured data

Measured data stops at highest valid frequency for each substrate.

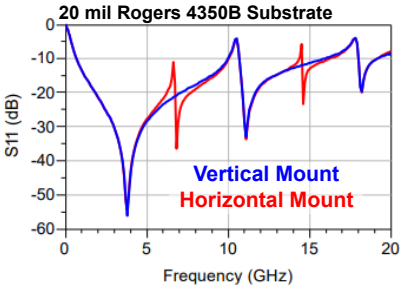
S11 for a 6.8 pF capacitor mounted on various substrates from 0.045 to 40.0 GHz.

The pad dimensions used to develop datasheet plots for the model are: length = 35.4 (0.900), width = 35.4 (0.900), gap = 27.6 (0.700). Units in mil (mm).



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

Orientation Selection



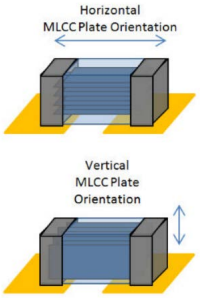
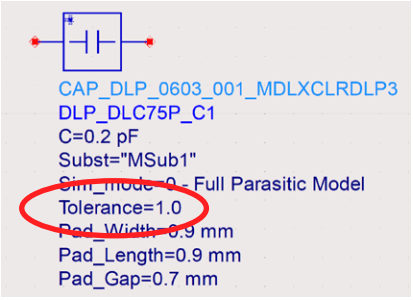


Fig. 1. MLCC internal plate orientation compared to fixture pad metal in horizontal and vertical configurations.

Some Dalicap capacitor models include orientation selectability. This represents the physical orientation in which the component is attached to the pads. The change in orientation is a 90° rotation of the part along one edge of the part length. Capacitors show different response depending on the mounting orientation.

Statistical Analysis



Dalicap component models have a "Tolerance" parameter which enables compatibility with statistical analysis tools in some EDA software. Powerful analyses, such as yield prediction and tolerance analysis, can be done to help optimize design performance and reduce production cost.

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 Dalicap MVP Page on the Modelithics website to:

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

*with approval and/or valid registration

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