

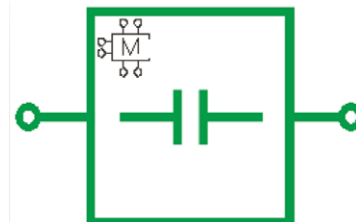
### OVERVIEW

The **Modelithics KEMET 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 20-30 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 KEMET 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, pad dimensions, 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' PathWave Advanced Design System (ADS), Cadence® AWR Design Environment®, Keysight Technologies' PathWave RF Synthesis (Genesys), Ansys® HFSS™, Sonnet® Suites™, and Cadence Spectre RF® Option.
- **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_KMT_0402_004_MDLXCLRKMT1
KMT_CBR04_C1
C=0.1 pF
Subst="MSub1"
Tolerance=1.0
    
```



```

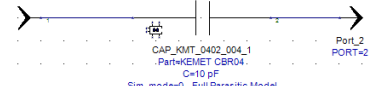
MODckmt0402004
ID=KMT_CBR04C_C1
C=0.1 pF
MSUB=
Tolerance=1
    
```



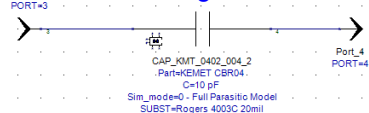
```

CAP_KMT_0402_004_1
Part=KEMET CBR04
C=0.1 pF
Tolerance=1
SUBST=
    
```

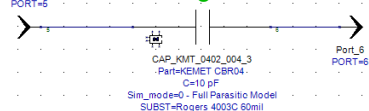
4-mil Rogers 4350B



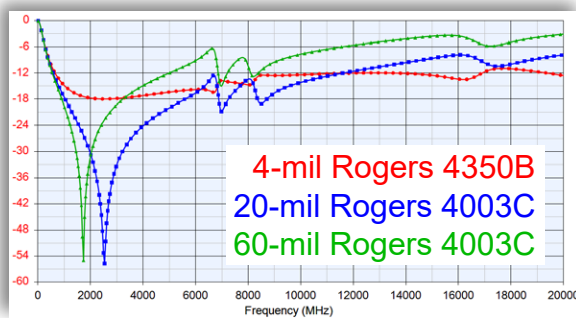
20-mil Rogers 4003C



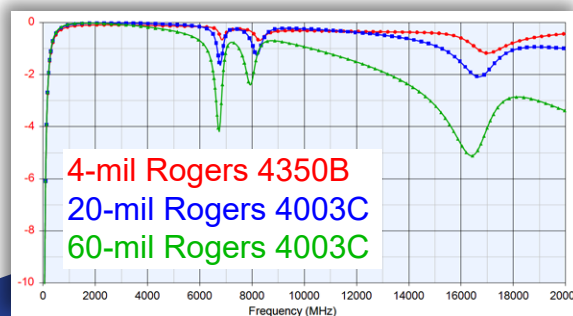
60-mil Rogers 4003C



S11



S21



Modelithics model for KEMET CBR04 capacitor series. 10pF capacitance simulated on three different substrates to 20 GHz.

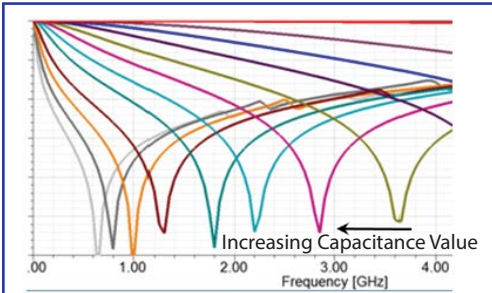
# List of Capacitors in the Modelithics® KEMET MVP Library

Capacitors		
CBR08	C0805(X7R)	C0603
CBR06	C0805(X5R)	C0402(X7R)
CBR04	C0805(NP0)	C0402(X5R)
CBR02	C0805(C0G)	C0402(C0G)
	C0805(BX)	

Visit our website for an updated complete list. ([www.Modelithics.com/MVP/KEMET](http://www.Modelithics.com/MVP/KEMET))

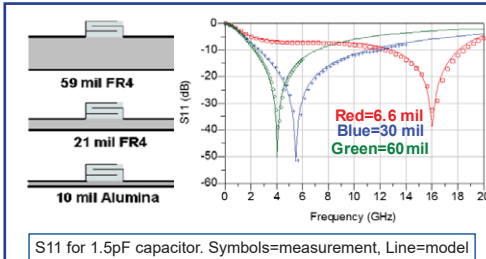
## Advanced Model Features for More Accurate High Frequency Design

### Part Value Scaling



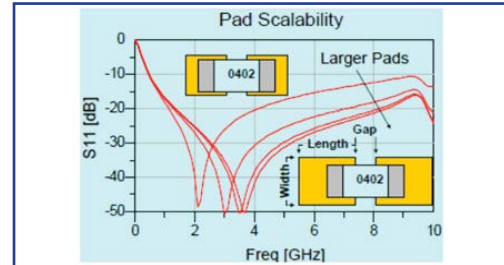
Modelithics Microwave Global Models™ for KEMET capacitors have all values within a part series within one model. This allows for tuning and optimization by capacitance and eliminates the need to manually substitute individual models during a design sequence.

### Substrate Scaling



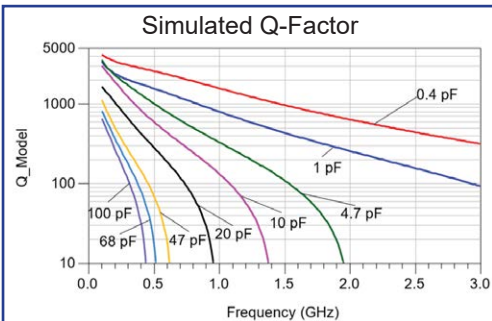
Variations in substrate properties have a significant effect on the response of surface mount capacitors in high frequency designs. Modelithics models are substrate scalable, validated over a continuous range of substrate properties, based on board thickness and dielectric constant.

### Pad Size Scaling



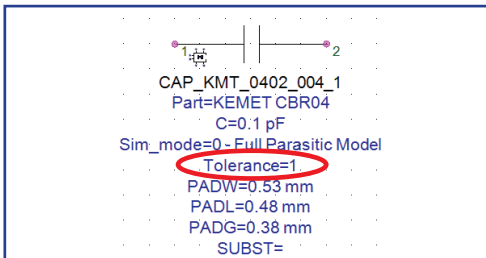
Modelithics models (in default mode) include the PCB pad with reference planes at the outer edges of the pads. The pad scaling feature lets designers adjust the dimensions to match their design, which is important for achieving maximum simulation-to-measurement agreement.

### Quality Factor



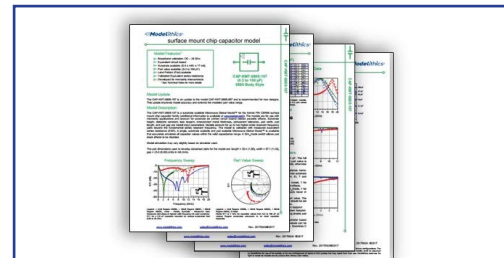
The models in the KEMET library use precise Effective Series Resistance (ESR) measurements. The data is used to generate a frequency-dependent expression and in determining the loss factor or Q-factor of low loss circuits.

### Statistical Analysis



The KEMET capacitor models have a "Tolerance" parameter that 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.

### 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](mailto:sales@modelithics.com)!

### Visit the KEMET MVP Page on the Modelithics website to:

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

[www.Modelithics.com/MVP/KEMET](http://www.Modelithics.com/MVP/KEMET)

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\*with approval and/or valid registration