

Overview

The Modelithics COMPLETE+3D Library for Ansys HFSS brings incredible flexibility and accuracy to the high frequency electronic design process. The integration of Modelithics' high accuracy scalable parasitic models into the HFSS design environment makes EM co-simulation a seamless process. The advanced-feature models, along with electromagnetic layout analysis, results in very accurate model-to-measurement agreement and fewer design iterations. Full-wave 3D EM models are now included in the library. The 3D models take the design analysis a step further and capture electromagnetic interactions between components and surrounding elements. All models are measurement validated and designed to accelerate the design process.

Library Features

The Modelithics COMPLETE+3D Library is a comprehensive collection of models, representing thousands of components from many popular vendors, and offering powerful advanced features:

Modelithics Microwave Global Models™

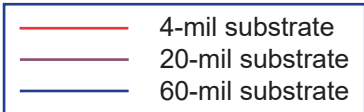
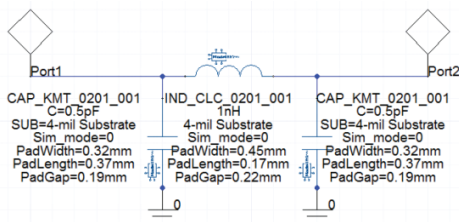
- Substrate scaling
- Part value scaling
- Pad dimension scaling
- Statistical analysis
- Seamless EM co-simulation

Modelithics 3D Geometry Models

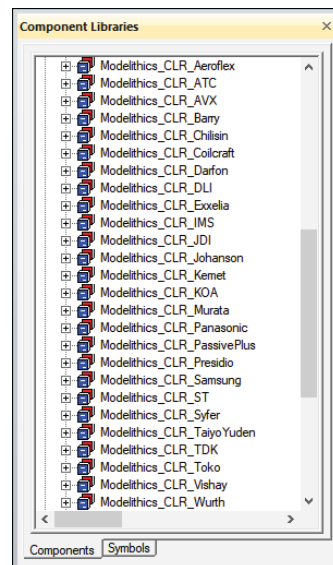
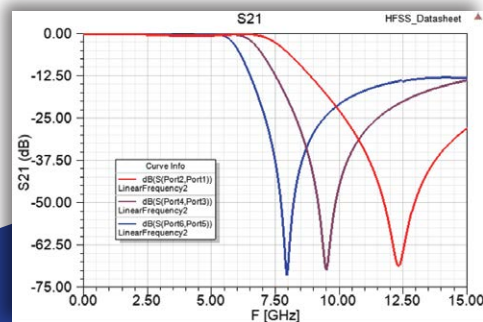
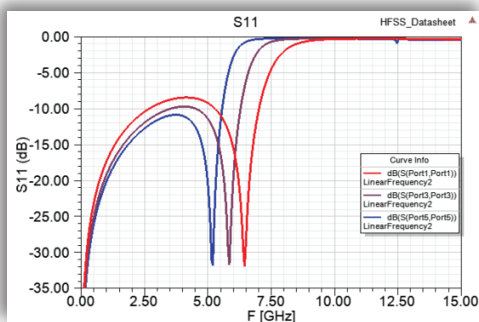
- Substrate independent
- Full-wave 3D EM simulation
- Predict coupling effects
- Design necessary shielding

All Modelithics Models

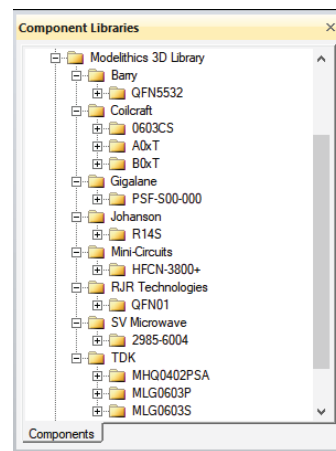
- **Measurement-based** — Each model is developed using specialized measurements under device-specific test conditions.
- **Model Documentation** — Each model contains a model datasheet that lists recommended model validity parameters, measurement and test fixture details, and model-to-measurement data comparisons.



Simulated S-parameters of a simple low-pass filter on three different substrates to 15 GHz. Modelithics models scale by substrate properties accurately capturing parasitic effects



Modelithics Microwave Global Models in Ansys circuit design component library window



Modelithics 3D Geometry Models in Ansys HFSS component library window

List of Components in the Modelithics COMPLETE+3D Library

CLR

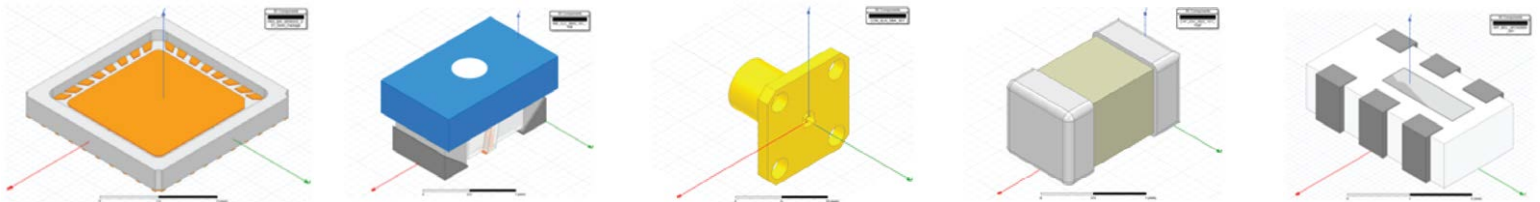
<p>AVX (Inductors) Accu-L(L0201), Accu-L(L0402), Accu-L(L0603), Accu-L(L0805), HL02, HLC02, HLQ02, DLA11017, DLA11018, DLA11019</p> <p>ATC (Inductor) MOL</p>	<p>AVX (Resistors) RP81020T0050, RP42010R0050GTTR, RP42010R0100GTTR, RP43737, RP52010R0050, RP52010R0100, RP53725R0050, RP3725R0100, RP92010T0050, RP93725T0050, RP93737T0050</p> <p>ATC (Resistors) 504L, CS12010T0050GBK, CS12010T0100GBK, CS13737T, CT11020T0050, CW12010T0050GBK, CW12010T0100GBK, CW13725T0050GBK CW13725T0100GBK, CZ12010T0050GBK, CZ13725T0050GBK, CZ13737T0050GBK</p>	<p>API Inmet (Resistors) ANC50-100W, ANC50-50W, NPC20-4-S, NPC50-100W, NPC50-50W, PPC100-200AW</p> <p>Chilislin (Inductors) CL2012, CLH1608, CLH2012</p> <p>Darfon (Capacitors) C0402NP0, C0603NP0</p> <p>Johanson (Capacitors) R05L, R07S, R14S, R15G, R15S, S42E</p> <p>Johanson (Inductors) L-05Cxxx, L-07Cxxx, L-07Wxxx, L-14C, L-14W</p> <p>Passive Plus (Capacitors) 01005BB104, 0201BB104, 0201N, 0402N, 0505C, 0603N, 0708N, 0805N, 1111C, 1111N</p> <p>Taiyo Yuden (Capacitors) EMK042, EMK063, JMK063, LMK042, JMK042, TMK063, TVS042, UMK105</p> <p>Taiyo Yuden (Inductors) HK0603, HK1005, HK1608, HK2125</p>	<p>Barry (Resistors) RE0805CT, RE1005CT, REC1206CT, RK0603ZZ, RY0805CT, RY1005CT, RYC1206CT, RZC1206CT (1-port) & (2-port)</p> <p>Coilcraft (Inductors) 0201DS, 0302CS, 0402CS, 0402DC, 0402HP, 0402HQ, 0603CS, 0603HP, 0603LS, 0604HQ, 0805, 0805CS, 0805HP, 0805HQ, 0805HT, 0806SQ, 0807SQ, 0906, 0908SQ, 1008CS, 1008CT, 1008HQ, 1008HS, 1010VS, 1111SQ, 1206CS, 1212VS, 132-xxSM, 1508, 1515SQ, 1606, 1812CS, 1812SMs, 2222SQ, 2508, 2929SQ, 4310LC, AxxT, BCL, BCR, BxxT, GA309X</p> <p>JDI (Capacitors) R14, R15</p> <p>KOA (Capacitors) HFC1005</p> <p>KOA (Resistors) RK73B1J(RK73H), RK73B2A, RK73B2B, RK73x1E(RK73H), RK73x1H(RK73B), RK73x2E, RK73x3A, WK73S3A</p> <p>Knowles - DLI (Capacitors) C04BL121x, C04UL, C06BI, C06UL, C06CF, C08BL, C08BL102X, C11UL, Milli-cap, Opti-cap</p> <p>Presidio (Capacitors) 0402UP, 0603UP, MVP0505, BB0201X7R103M, BB0402X7R104M2, BB0502X7R104M</p>	<p>Murata (Inductors) LQP02HQ, LQP02T, LQP02TQ, LQP03T, LQW04A, LQG15HS, LQP15M, LQW15A, LQG18, LQP18M, LQW18A, LQP03HQ</p> <p>Murata Silicon (Capacitor) UBSC_935_152_492_510</p> <p>Murata (Capacitors) GJM022, GJM03, GJM15, GQM1555C, GQM187, GQM188, GQM219, GQM22M, GRM022, GRM033, GRM0335, GRM1555C1H, GRM155R71E, GRM155R71H, GRM1885C1H, GRM188R71H, GRM188R72A, GRM2165C2A, GRM219, GRM32ER71J</p> <p>ST Micro (Capacitors) pTIC</p> <p>TDK (Inductors) MHQ0402PSA, MHQ1005P, MLF2012, MLG0402Q, MLG0603P, MLG0603S, MLG1005S, MLG1608B, MLK1005S, NLV25T</p> <p>Knowles - Syfer (Capacitors) H-Range, High-Q Ultra-Low ESR</p> <p>TDK (Capacitors) C0402C0G, C0603C0G, C1005CH, C1005X5R, C3225</p> <p>Toko (Inductors) LL1005-FHL, LL1608-FSL, LL2012-FHL, LLV0603-F</p>					
<p>AVX (Capacitors) 0101YA, 02013A, 0201YC, 0201YD, 0603xU, 0603xA(C0G), 0603xC(X7R), 08051A, 12101U, 1201U, Accu-P (01005), Accu-P (0201), Accu-P (0402), Accu-P (0603), AQ12, DLA09024, DLA09025, SQCA(NP0), SQCA(X7R), SQCA(P90), ML03, SQCB(NP0), SQCB(P90), SQCB(X7R), SQCF, SQCS(NP0), UQCA(NP0), UQCB, UQCF, UQCL(NP0), UQCR(NP0), UQCS(NP0), CU01, 0402xU, 0806xU</p> <p>ATC (Capacitors) 100A, 100B, 200A, 200B, 400L, 400S, 400Z, 520L, 530L, 600F, 600L, 600S, 700A, 700B, 800A, 800B, 800R</p>	<p>Exxelia (Capacitors) CLE, CLX, SHF251xxx</p> <p>KEMET (Capacitors) C0402(C0G, X5R, X7R), C0603, C0805(BX), C0805(C0G, X5R, X7R), CBR02, CBR04, CBR05, CBR06, CBR08</p>	<p>IMS (Resistors) RC4-0302PW, RC3-0402PW, NDX-1020EZV</p>	<p>Würth Elektronik (Capacitors) WCAP-CSRF 0201 & 0402, WCAP-CSMH 0603 (NP0/X7R) & 0805 (NP0/X7R, 0.8mm & 1.25mm)</p>	<p>Würth Elektronik (Inductors) WE-CAIR, WE-MK, WE-KI, WE-KI HC, WE-TCI, WE-AC HC 1010 / 1212</p>	<p>Panasonic (Inductors) ELJRE, ELJRF, ELJRG</p> <p>Panasonic (Resistor) ERJ2GE0R00X</p> <p>Samsung (Capacitors) CL02CxxxxxA, CL02CxxxxxG, CL03C</p>	<p>Vishay (Resistors) CRCW1206, D10, D11, FC0402, MCT0603, MMA0204</p> <p>Vishay (Capacitors) HPC0402A, VJ0402D, VJ0603D</p>	<p>Knowles - DLI (Capacitors) C04BL121x, C04UL, C06BI, C06UL, C06CF, C08BL, C08BL102X, C11UL, Milli-cap, Opti-cap</p>	<p>Knowles - Syfer (Capacitors) H-Range, High-Q Ultra-Low ESR</p>	<p>TDK (Capacitors) C0402C0G, C0603C0G, C1005CH, C1005X5R, C3225</p>

Modelithics 3D Geometry Models

<p>Barry (Packages) QFN5532-050x</p>	<p>Coilcraft (Inductors) 0603CS, AxxT, BxxT</p>	<p>Gigalane (Connectors) PSF-S00-000</p>	<p>Johanson (Capacitors) R14S</p>	<p>SV Microwave (Connectors) 2985-6004</p>
<p>Mini-Circuits (Filters) HFCN-740+, HFCN-880+, HFCN-2700+, HFCN-3800+, HFCN-5500+, LFCG-320+, LFCG-400+, LFCG-530+, LFCG-1000+, LFCG-1575+, LFCG-1700, LFCG-2250+, LFCG-2850+, LFCN-80+, LFCN-120+, LFCN-320+, LFCN-400+, LFCN-490+, LFCN-530+, LFCN-1000+, LFCN-1200+, LFCN-1200D+, LFCN-1575+, LFCN-1700+, LFCN-1800+, LFCN-1800D+, LFCN-2250+, LFCN-2850+, LFCN-3000+, LFCN-3800+, LFCN-4400+</p>				<p>TDK (Inductors) MHQ0402PSA, MLG0402Q, MLG0603S, MLG0603P</p>

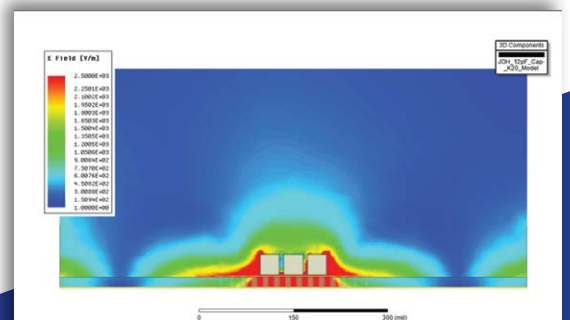
** More to come! New models are added continually.

Visit our website for an updated complete list, and see our available Pre-Release models (www.Modelithics.com)



Above: Images of Modelithics 3D Geometry models for various components in HFSS.

Right: Magnitude E-field simulation of 3 capacitors in shunt configuration in close proximity.



Visit the Ansys MVP landing page on the Modelithics website to:

- Explore the current list of available component models
- View [Modelithics Quickstart Tutorial Video for Ansys HFSS](#)
- View model datasheets
- Browse literature collection for application notes, videos, etc.
- Request a **FREE** trial of the Modelithics COMPLETE+3D Library: www.Modelithics.com/MVP/HFSS *with approval