Modelithics®
Accelerating Your Design Success!

Modelithics® COMPLETE+3D Library
for Ansys® HFSS™

Modelithics® Vendor Partner
Ansys / HFSS

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. The Modelithics COMPLETE+3D Library is an indispensable collection of full-wave 3D EM models, 3D Brick EM Models™ as well as Modelithics extensive collection for CLR circuit simulation **Microwave Global Models™**. 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 over 30,000 components with circuit simulation models and more than 7700 components with **3D EM / 3D Brick EM™** models, and offering powerful advanced features:

Modelithics Microwave Global Models™

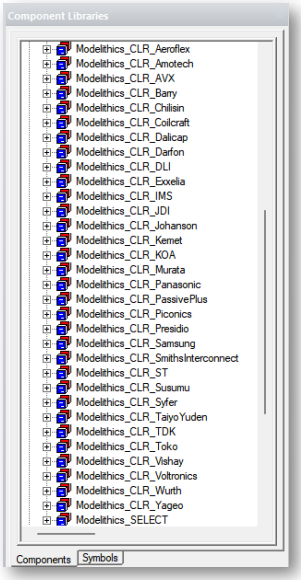
- Substrate scaling
- Part value scaling
- Pad dimension scaling
- Statistical analysis
- Seamless EM co-simulation

3D Geometry Models

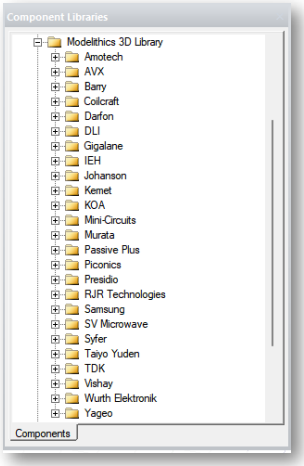
- Substrate independent
- Full-wave 3D EM simulation
- Predict coupling effects
- Design necessary shielding

3D Brick EM Models™

- Simplified capacitor 3D geometry
- Can capture component coupling effects between capacitors and environment
- Compatible with tuning, optimization, & statistical analyses.



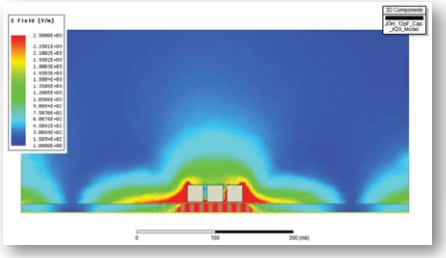
Modelithics Microwave Global Models in Ansys circuit design component library window



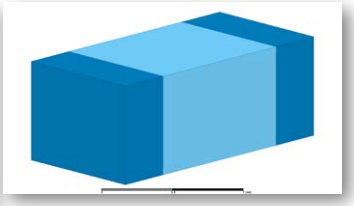
Modelithics 3D Geometry Models in Ansys HFSS component library window

All Modelithics Models

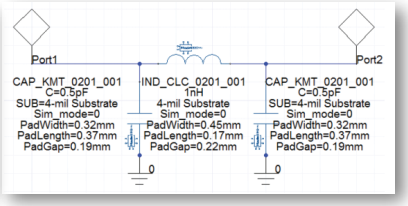
- **Measurement-based** — Each model is developed using specialized measurements under device-specific test conditions.
- **Model Documentation** — Each model contains a model datasheet that lists recommended model validity parameters, measurement and test fixture details, and model-to-measurement data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



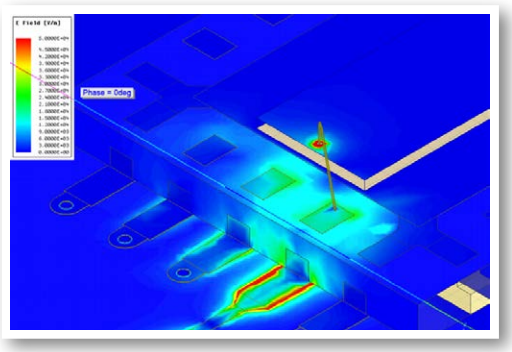
Above: Magnitude E-field simulation of 3 capacitors in shunt configuration in close proximity.



Above: Modelithics 3D brick models are available in a variety of case sizes: 01005, 0201, and 0402.

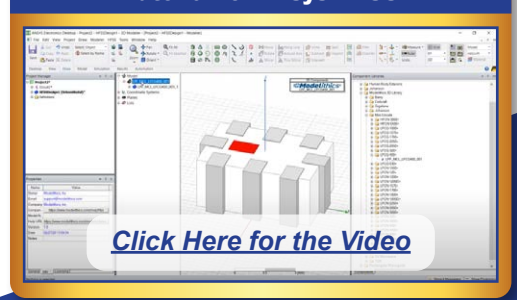


Above: Simulated S-parameters of a simple low-pass filter on three different substrates to 15 GHz. Modelithics models scale by substrate properties accurately capturing parasitic effects.



Left: Surface current density plotted along PCB trace, QFN package, and bondwire thru path of packaged MMIC amplifier 3D co-simulation.

Modelithics QuickStart Tutorial for Ansys HFSS



Literature Related to the Modelithics COMPLETE+3D Library

Application Note #63: Introduction to Modelithics 3D Models in HFSS

Application Note #78: Using 3D Brick Models™ for Full-wave EM/Circuit Model Co-simulation of MLCC Capacitors in Ansys HFSS

Article: Take Advantage of 3D EM Simulation for Densely Packed Designs

Excellence in Modeling Since 2001

©Modelithics, Inc. 08/2026

List of Components in the Modelithics COMPLETE+3D Library

Modelithics Vendor Partners (MVPs)

Aeroflex
ATTENUATORS
PCA, PCAA

Analog Devices
AMPLIFIER
ADL8142

Amotech
CAPACITORS
A60F, A60L, A60S, A60Z, A80B, ABCUA50S02x104, ABCUC1010XX104, ABCUC1010XX473, ABCUC1610XX103, ABCUC16S 01X104, ABCUC16S01X224, ABCUC25201X103, ABCUC1010XX223MNDG, ABCUC16S01X223MNDG

API Inmet
ATTENUATORS
PCA, PCAA

RESISTORS
ANC50-100W, ANC50-50W, NPC20-4-S, NPC50-100W, NPC50-50W, PPC100-200AW

Barry Industries
RESISTORS
RE0805CT, RE1005CT, REC1206CT, RK0603ZZ, RY0805CT, RY1005CT, RYC1206CT, RZC1206CT (1-port) & (2-port)

PACKAGES
QFN3312-0520, QFN3312-0521, QFN3312-0522, QFN4420-0520, QFN4420-0521, QFN4420-0522, QFN4424-0520, QFN4424-0521, QFN4424-0522, QFN6636-0520, QFN6636-0521, QFN6636-0522, QFN7744-0520, QFN7744-0521, QFN7744-0522, QFN8848-0520, QFN8848-0521, QFN8848-0522

CEL
TRANSISTOR
CE3512K2

Chilisin
INDUCTORS
CL2012, CLH1608, CLH2012

Coilcraft
INDUCTORS
016008C, 0201CT, 0201HL, 0201HT, 0201DS, 0302CS, 0402CS, 0402CT, 0402DC, 0402HP, 0402HQ, 0603CS, 0603CT, 0603DC, 0603HC, 0603HL, 0603HP, 0603LS, 0604HQ, 0805, 0805CS, 0805HP, 0805HQ, 0805HT, 0805LS, 0806SQ, 0807SQ, 0906, 0908SQ, 1008CS, 1008CT, 1008HQ, 1008HS, 1010VS, 1111SQ, 1206CS, 1212VS, 132-xxSM, 1508, 1512SP, 1515SQ, 1606, 1812CS, 1812SMs, 2222SQ, 2508, 2712SP, 2929SQ, 4310LC, Axxt, BCL, BCR, Bxxt, GA309X, XGL6020

Cornell Dubilier
CAPACITORS
MIN02

Dalicap
CAPACITORS
DLC85C, DLP70A, DLP75P, DLP75D, DLP70B

Darfon
CAPACITORS
C0402NP0, C0603NP0

Exxelia
CAPACITORS
CLE, CLX, SHF251xxx

Gowanda
INDUCTORS
CC0603, C050FL, C050SMC, C100FL, C100SM, C100SMC, C225FL

Guerrilla RF
AMPLIFIERS
GRF2070, GRF2071, GRF2072, GRF2073, GRF2093, GRF2100, GRF2106, GRF2501, GRF4002, GRF4014

Hirose
ATTENUATOR
IMS2533

IMS
RESISTORS
0510SWA, RC4-0302PW, RC3-0402PW, NDX-1020EZW, NDX-0402WA, ND3-0402PA, NDX-0505WA, TFI-0201SS, TFI-0402WA

SPLITTERS
IPS2346-C, IPS2668-C, IPT0402WA-C-U, IPT0603WA-C, IPT0805WA-C

Infineon
VARACTOR
BBY52-02L

JDI
CAPACITORS
R14, R15

Johanson
CAPACITORS
R05L, R07S, R14S, R15S, S42E, QCCF, QCCP, QCCT

INDUCTORS
L-05Cxxx, L-07Cxxx, L-07Wxxx, L-14C, L-14W

KEMET
CAPACITORS
C0402(C0G, X5R, X7R), C0603, C0805(BX), C0805 (C0G, X5R, X7R), CBR01, CBR02, CBR04, CBR04 Auto, CBR05, CBR06, CBR06 Auto, CBR08, C0201

KOA
RESISTORS
RK73B1J(RK73H), RK73B2A, RK73B2B, RK73x1E(RK73H), RK73x1H(RK73B), RK73x2E, RK73x3A, RK73H, WK73S3A

CAPACITORS
HFC1005

Knowles
CAPACITORS
(Syfer)
H-Range, H Range (0805), High-Q Ultra-Low ESR, 22252, 40402, 4040J
(Dielectric Labs)
C04BL121x, C04UL, C06BI, C06UL, C06CF, C08BL, C08BL102X, C11UL, Milli-cap, Opti-cap

INDUCTORS
CL1008

Kyocera-AVX
RESISTORS
CS12010T0050GTR, CS12010T0100GTR, CW12010T0050GTR, CW12010T0100GTR, CW137250T0050GTR, CW137250T0100GTR, CZ12010T0050GTR, CZ13725T0050GTR, CZ13737T0050GTR, CT11020T0050, CS13737

CAPACITORS
Accu-P, KGM03xR7, KGM2xCG, KGM15xCG, KGM15xR7, ML03, KGM21xCG, KGQ32xCG, DLA09024, DLA09025, PC2025A2100, PC2025A2700, CU01, CU10, KGQ05xCG, 0805hU, 02013A, 0201YC, 0201YD, U Series-0603, 520L, 530L, 100A, 100B, 200A, 200B, 550W103, 600F, 600L, 600S, 700A, 700B, 800A, 800B, 800R

INDUCTORS
DLA11017, DLA11018, DLA11019, Accu-L (L0201), Accu-L (L0402), Accu-L (L0603), Accu-L (L0805), HLQ02, HLC02, HL02

MACOM
VARACTOR
MAVR-000230, MACR-011020, MAVR-000230-1141, MAVR-001330-1279, MADP000907-14020

COUPLER
MACP-011088

SPLITTER
MAPD-011062

TRANSFORMER
MABA-011125

Mini-Circuits
AMPLIFIERS
AVA-183+, GA-103+, PMA2-133+, PMA2-33+, PMA2-43+, PMA3-83+, PMA-5451+, MA-5452+, PMA-5453+, PMA-5454+, PMA-5455+, PMA-5456+, PMA-545+, PSA4-5043+

FILTERS
DG1847, DQ1225, DG1677, DG1847, DQ1225, DQ1225, MC1630, DG1677

COUPLERS
JR1B-D+

SPLITTERS
EP2C+, EP2K1+, EP2KADG+, EP2K+, EP2W1+, EP2W+, EPQ133+

Murata
INDUCTORS
LQP02HQ, LQP02HV, LQP02T, LQP02TN, LQP02TQ, LQP03T, LQP03HQ, LQW04A, LQG15HS, LQGF15HS, LQP03TG, LQP15M, LQW15A, LQW15AN-80, LQW18, LQW18A, LQP03HQ

CAPACITORS
GCM1555C, GCM31C, GCM31M, GJM022, GJM03, GJM033, GJM15, GQM033, GQM1555C, GQM187, GQM188, GQM219, GQM22M, GRJ32DC7, GRM011, GRM022, GRM022 (X5R), GRM022 (X7R), GRM033, GRM0335, GRM1555C1H, GRM155R71E, GRM155R71H, GRM1885C1H, GRM188R71H, GRM188R72A, GRM2165C2A, GRM219, GRM32EC7, GRM32ER71J, UBSC 935 151 423 510, UBSC 935 151 723 510, UBSC 935 151 424 610, UBSC 935 152 492 510

MicroChip
VARACTOR
MV3903-P2010

Microsemi
DIODES
GC15008-79

NIC Components
RESISTORS
NRC06

Panasonic
INDUCTORS
ELJRE, ELJRF, ELJRG

RESISTOR
ERJ2GE0R00X

Passive Plus
CAPACITORS
01005BB104, 0201BB104, 0201N, 0402N, 0505C, 0603N, 0708N, 0805N, 1111C, 1111N

RESISTORS
R35-1209BB, R35-2010BB

Piconics
INDUCTORS
CCxxxTxxK240G5-C, CCxxTxxK240G5-004, MK Series

Presidio
CAPACITORS
0402UP, 0603UP, MVP0505, BB0201X7R103M, BB0402X7R104M2, BB0502X7R104M

Samsung
CAPACITORS
CL02CxxxxxxA, CL02CxxxxxxG, CL03C, CL32B475K

RESISTOR
RC0402, RC1005

Skyworks
DIODES
SMV2201-040LF, SMV2202-040LF, SMV2203-040LF, SMV2204-040LF, SMV2205-040LF, SMV1147, SMV1253-079

SOTA
RESISTORS
S0202AF50R0FEB, S0303AF50R0FWB, S0505AF50R0FEB, S0505CF50R0FHB, S0505DF50R0FEW, S0505EF50R0FEW, S0603CF50R0FHB

Smiths Interconnect
RESISTORS
CT0404ALN1WB1, CT0404ALN2WB1, CT0603ALN1SMTF

ATTENUATORS
TSXWB, TSXWB2, TT9, K2TVA, WTVA

SPLITTERS
RPD02-50EAF, RPD04-50EHF, WPD02-1525EEF, WPD02-1525UDF, WPD02-2535ECF, WPD03-1525EEF, WPD04-1525EFF, WPD04-2535EGF

ST Micro
CAPACITOR
pTIC

Susumu
RESISTORS
RFD0603, RG0603, RG1005, RG1608, RG2012, RG3216

Taiyo Yuden
CAPACITORS
EMK042, EMK063, JMK063, LMK042, JMK042, TMK063, TVS042, UMK105

INDUCTORS
HK0603, HK1005, HK1608, HK2125, HKQ0603S, HKQ0603U, HKQ0603W

TDK
INDUCTORS
MHQ0402PSA, MHQ1005P, MLF2012, MLG0402Q, MLG0603P, MLG0603S, MLG1005S, MLG1608B, MLK1005S, NLV25T

CAPACITORS
C0402C0G, C0603C0G, C1005CH, C1005X5R, C3225, CGA1A2C0G, CGA1A2X7R, CGB1T3X5R0J104M

Toko
INDUCTORS
LL1005-FHL, LL1608-FSL, LL2012-FHL, LLV0603-F

Toshiba
DIODES
1SV229, 1SV305, 1SV329, 1SV325, 1SV280, 1SV281, 1SV279

TTM Tech
RESISTOR
C05N50Z4

Vanguard
INDUCTORS
50000 Series, 26000 Series, 30000 Series, 33000 Series, 34000 Series,

TRANSFORMERS
K Series, M Series, R Series, S Series

Vishay
RESISTORS
CH02016, CH0402, CH0603, CHTA02016, CRCW01005, CRCW0201, CRCW1206, CRCW0402, D10, D11, FC0402, FHCP, MCT0603, MMA0204, CH02016, TNPW0201

CAPACITORS
HPC0402A, VJ0402D, VJ0603D

Voltronics
CAPACITOR
JR030

Würth Elektronik
CAPACITORS
WCAP-CSRF 0201 & 0402, WCAP-CSRF(NP0), WCAP-CSMH 0603 (NP0/X7R) & 0805 (NP0/X7R, 0.8mm & 1.25mm)

INDUCTORS
WE-CAIR, WE-MK, WE-KI, WE-KI HC, WE-KI HC (0402), WE-KI (0402), WE-KI (0603), WE-TCI, WE-AC HC 1010 / 1212

Yageo
RESISTOR
RC0100, RC0201

CAPACITORS
AQ0402, AQ0603, CC0201, CQ0100, CQ0201,CQ0805, CQC0402, CQ0603

See the latest list of available models with datasheets and the model features for each!

Modelithics 3D Geometry and 3D Brick EM Models™

Amotech
CAPACITORS
A60Z, A60L, ABCUC1610XX103, ABCUC1010XX473, ABCUC0610XX104, ABCUC16S01X103, ABCUC16S01X104, ABCUA50S02X104, CU1005

Barry Industries
PACKAGES
QFN5532-050x, QFN3312-0520, QFN3312-0521, QFN3312-0522, QFN4420-0520, QFN4420-0521, QFN4420-0522, QFN4424-0520, QFN4424-0521, QFN4424-0522, QFN6636-0520, QFN6636-0521, QFN6636-0522, QFN7744-0520, QFN7744-0521, QFN7744-0522, QFN8848-0520, QFN8848-0521, QFN8848-0522

Coilcraft
INDUCTORS
0603CS, AxxT, BxxT

Darfon
CAPACITORS
C0402NP0, C0603NP0

Gigalane
CONNECTORS
PSf-S00-000

IEH
CONNECTORS
HGM010MDE2X71A200, HGM010SDE2X71A200, HKC110BCAD420, HKC110DCAD020, HMK200FDA3A989E5C2, HMK200MDA3A97E5C2, HMM122FDE2A71E400, HMM122RDE3A97E400, HRM060FDE2X71A000, HRM060RDE2H97D000, HVM030FDE2A71E0020, HVM030MDE2A71E0020

Johanson
CAPACITORS
QCCF, R05L, R07S, R14S

Kemet
CAPACITORS
CBR01, CBR02, C0402(C0G), C0402(X7R), C0402(X5R), CBR04, CBR04 Auto, C0201

KOA
CAPACITORS
HFC1005, RK73x1H, RK73x1E, RK73x2E

Kyocera-AVX
CAPACITORS
0101YA, 520L, 530L, 550W103, 550Z, 550Z104, 550Z224, 550W103, 550W104, 560W104, 560Z104, 560Z224, 0101YA, Accu-P, Accu-P (0201), Accu-P (0402), CU01, CU1005, KGM03xR7, MP01, 02013A, 0201YC, 02013A, 0201YC, 0201YD, UQCL(NP0), DLA09024, 0402xU, MP02

Knowles
CAPACITORS
(Syfer)
H-Range
(Dielectric Labs)
C04BL, C04UL, Milli-Cap

MACOM
DIODES
MADP000907-14020

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+, LFNC-1800+, LFCN-1800D+, LFCN-2250+, LFCN-2850+, LFCN-3000+, LFCN-3800+, LFCN-4400+

Murata
CAPACITORS
GCM1555C, GRM022 (X5R, X7R), GRM022, GJM022, GJM03, GJM033, GRP033, GRM0335, GRM155R71E, GJM15, GJM022, GQM033, GQM1555, GQM1555C, GRM1555C1H, GRM155R71H

INDUCTORS
LQW15AN-80, LQP02HQ, LQP03HQ, LQW15AN-80,

Passive Plus
CAPACITORS
01005BB104, 0201N, 0201BB104, 0201-ultra-low-ESR, 0402N-ultra-low-ESR

RESISTORS
R35-1209BB, R35-2010BB

Piconics
INDUCTORS
CCxxTxxK240G5-C, MK Series

Presidio
CAPACITORS
BB0201X7R103M, BB0402X7R104M2, 0402UP

Samsung
CAPACITORS
CL02CxxxxxxA, CL02CxxxxxxG, CL03C

SV Microwave
CONNECTORS
2985-6004

Taiyo Yuden
CAPACITORS
LMK042 / JMK042, EMK042, TVS042, TMK063, JMK063, EMK063, UMK105

TDK
INDUCTORS
MHQ0402PSA, MLG0402Q, MLG0603S, MLG0603P, MHQ1005P

TDK (Cont'd)
CAPACITORS
C0402C0G, CGA1A2C0G, CGA1A2X7R, CGB1T3X5R0J104M, C0603C0G, C1005CH, C1005X5R

Tecdia
SINGLE LAYER CAPACITORS
CMS40, CMS90, CMS280, CMSK280, CMSK1600, CMSK2800

TTM Tech
COUPLERS
X4C20L1-03G

RESISTORS
C05N50Z4

Vishay
CAPACITORS
HPC0402A, VJ0402

RESISTORS
CH02016

Würth Elektronik
CAPACITORS
WCAP-CSRF(NP0)

Yageo
CAPACITORS
AQ0402, CC0201, CQ01005, CQ0201, CQ0402

Email sales@Modelithics.com or visit www.Modelithics.com to request a FREE trial!

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!

Connect with Us!

Learn More About Modelithics' Library and Licensing Options

Excellence in Modeling Since 2001

©Modelithics, Inc. 08/2026