Modelithics®

World's Best RF & Microwave Simulation Models

Modelithics® COMPLETE Library

for Keysight Advanced Design System (ADS)

KEYSIGHT TECHNOLOGIES
Solutions Partner

Overview

The Modelithics COMPLETE Library for Keysight ADS brings incredible flexibility and accuracy to electronic designs. Modelithics models are scalable, allowing design details, such as substrate and padcharacteristics, to be specified and simulated. The Modelithics COMPLETE Library includes thousands of popular passive and active devices with modeling accuracy to deliver first-pass design success.

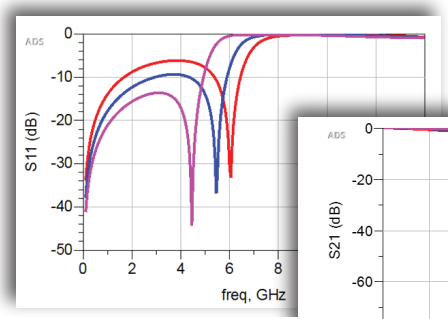
Library Features

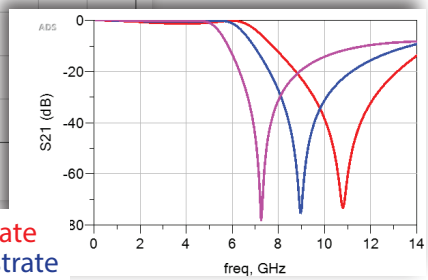
The Modelithics COMPLETE Library for Keysight ADS offers an extensive selection of models, representing thousands of components. The installed models are fully integrated with Keysight ADS electronic design automation (EDA) software. Modelithics COMPLETE also features a substrate library containing measurement-based substrate parameters for many of the most commonly used substrates.

- Measurement-based—Each model is developed using specialized measurements under device-specific test conditions.
- Scalability—part-value, substrate, pad-size and temperature scalability are incorporated into many models.
- 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.
- X-Parameter* models—an alternative to compact non-linear equivalent circuit models for transistors that can speed up non-linear simulations and facilitate model portability between simulation platforms. They provide accurate non-linear model representations of complex integrated circuits for which equivalent circuit modeling is not practical.

Modelithics COMPLETE at a Glance

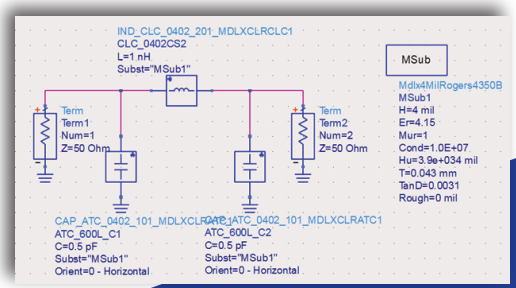
- CLR Library—Capacitor, inductor and resistor Microwave Global Models™
- NLD Library—Non-linear diode models
- NLT Library—Non-linear transistor models
- SLC Library—System level component models (filters, amplifiers, etc)
- Substrate Library—Measurement-based MSub substrate definitions

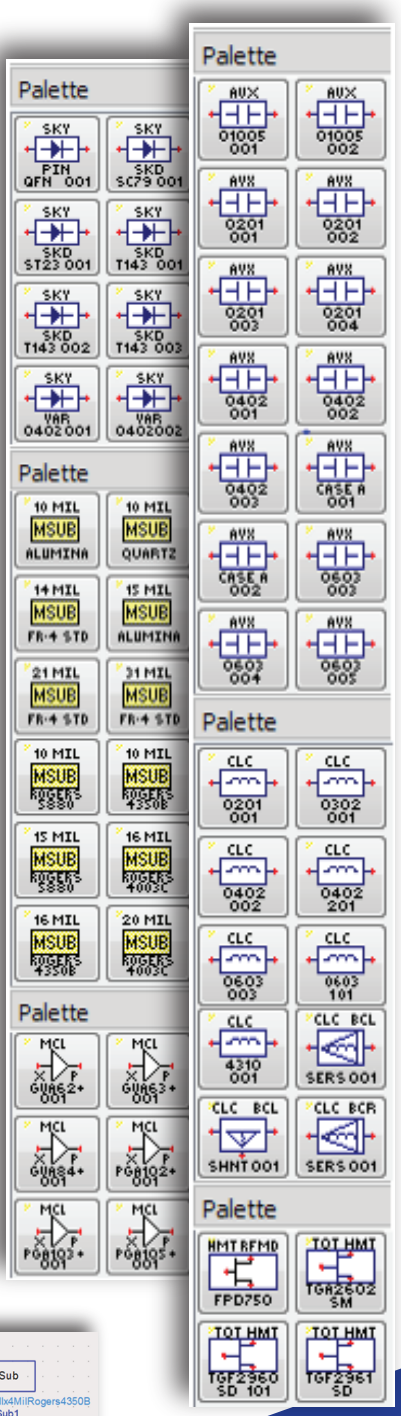




Simulated S-parameters of a simple low-pass filter on three different substrates. Modelithics models account for substrate parasitics.

------Red = 4 mil substrate
------Blue = 16 mil substrate
------Pink = 60 mil substrate





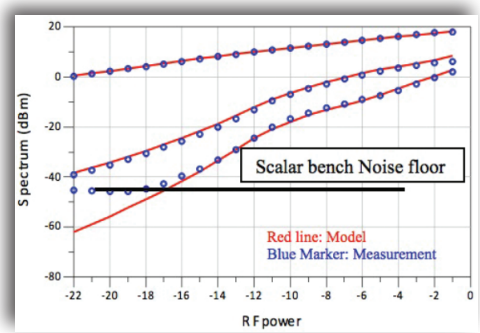
* "X-parameters" is a trademark of Keysight Technologies, Inc. The X-parameters format and underlying equations are open and documented. For more information, refer to X-parameters Open Documentation, Trademark Usage & Partnerships.

Excellence in Modeling Since 2001

Example List of Components in the Modelithics COMPLETE Library for Keysight ADS

NLT	SLC	CLR		NLD
NXP BFS505, BFS520, BFS540, PBR941, BF1211, BF1212, BF861B, BF862, BLF542, BLF548, BFQ540	**AVX** CP0603, CP0402, DB0603, PC2025 Couplers, RP10975 Attenuator, DP03, DP05, DP06 Diplexers	**TDK** C0603, C1005, MLG0402, MLG0603, MLK1005, MLG1005, MLG1608, NLV25T, MLF2012, C0402, C3225	**Taiyo Yuden** EMK042, LMK042, JMK042, TMK063, JMK063, EMK063, UMK105, HK0603, HK1005, HK1608, HK2125, TVS042	**Aeroflex/Metelics** MSSP25250-70, MMP7065-11, MLP7100, -7110,-7120, -7101, MSD710
On Semiconductor MMBT3904LT1, MMBFU310LT1	**Alpha** AAA101-80 Attenuator	**API-Inmet Resistors** NPC-, ANC-, PPC- (high power)	**Panasonic** ELJRG, ELJRF, ELJRE, ERJ2G	**Virginia Diodes** W Band Single Anode and ZBD
Avago AT41511, AT41533, AT64023, AT32032, ATF35143, ATF501P8, ATF511P8, ATF54143, ATF33143, ATF551M4	**Mini-Circuits** HFCN High-Pass Filters (5), LFCN Low-Pass Filters (15), GVA-62+ (XP), GVA-63+ (XP), PHA-1+ (XP), GVA-84+ (XP), PGA-102+ (XP), PGA-103+ (XP), PGA-105+ (XP), PHA-22+ (XP), PSA-5043+ (XP) Amplifiers, RCAT, YAT Attenuators	**Coilcraft Inductors** 0201DS, 0302CS, 0402CS, 0603CS, 0402HP, 0603HP, 0603LS, 0604HQ, 0805CS, 0805HT,0805HQ, 0906, 1008CS, 1606, 1008HQ, 1008HS, 1008CT, 1206CS, MAXI, MIDI, MINI, 0806/0807/0908SQ, 1812CS, 1111SQ, 1515SQ, 2222SQ, 2929SQ, 4310LC, GA309X, BCL, BCR	**Murata** GRM022, GJM022, GJM03, GRM033, GRM155, GJM15, GRM188, GRM21, GQM18, ERB21, GQM219, GQM22, BLM18, LQP02T, LQP03T, LQW15,LQP15,LQW18,LQP18,LQG18, LQW04A, LQG15, BLM21P, BLM31P, BLM41P, BLM15	**Avago** HSMP-3823, HSMP-3895, HSMS-8202, HSMS-2829 **Rohm** RB715F
Qorvo TGA2602-SM, TGF2960-SD, TGF2961-SD, FPD750				**Toshiba** 1SVxxx Varactor Diodes (7), JDV2Sxx Varactor Diodes (3)
Excelics EPA1200A, EPA240BV, EFA060BS5	**Epcos** B7840 Bandpass Filter	**AVX Resistors** RP-series	**Darfon** C0402 (01005), C0603 (0201)	**MDT** MP6250-P2715
Freescale MRF281, MRF9030, MRF1517, MRF1518	**Barry Industries** AK0405CB , AT0904CB Attenuators, QFN5532 Package	**KEMET Capacitors** C0402, C0603, C0805, CBR02, CBR04, CBR05, CBR06, CBR08	**Vishay** HPC0402, D10, D11, VJ0402, VJ0603	**Infineon** BARxx Pin Diodes, BASxx Schottky Diodes (7), BBxx Varactors (5)
SEDI FLL120MK, FLL800IQ, EGN010MK, EGN030MK, FSX017X	**Avago** MGA-635P8 (XP), MGA-86576 Amplifier	**Würth Elektronik** WE-MK, WE-KI, WE-TCI Inductors 7427922xx Bead	**Piconics** CCxx SMT broadband conical inductors	**MA-COM** MA4PH235-1072, MAVRxx, MA4P504-132
Hexawave HWC27NC	**Freescale** MWE6IC9100NR1 (XP) Amplifier	**ATC Inductors** MOL	**Presidio** BB0502, MVP0505	**Microsemi** UPP9401 Pin Diode
Microsemi SD1495-03	**MA-COM** MASWSS0204 Switch	**ATC Resistors** Style CS, CT, CW, CZ (high power)	**Samsung** CL03, CL02	**On Semiconductor** MMBD301LT1, MBD330DWT1
Infineon BFP420, BF999, BFR949F, PTF080101S, PTFA043002E, BFY420	**Maxim** MAX2371/2373 Amplifiers, MAX2681 Mixer	**Barry Industries** RK0603, RE0805, RY0805, RE1005, RY1005, REC1206, RYC1206, RZC1206	**Chilisin** CLH1608, CLH2012, CL2012 inductors, GBY1608, PBY1608, SBY1005 ferrite bead	**Skyworks** SMPxx Pin Diode, SMSxx Schottky Diodes (5), SMVxx Varactors (8)
Cree CGH35030F	**RJR Technologies** QFN01 Package	**EMC/RF Labs Resistors** CR and CT series	**Toko** LLV0603, LL1005, LL1608, LL2012	**SPAR (Data Models)**
Motorola MRF1513, MRF1570	**CEL** UPC8179TK Amplifier	**Epcos Capacitors** B3792, B3793	**Exxelia Temex** CLX, CLE	**SOTA** S0202, S0303, S0505, S0603
CEL NE68519, NE68533, NE851M13, NE85608, NE85633, NE3210S01, NE38018, NE55xx, NE722S01, NE41607, NESG303xx, NE350184C	**Murata** SFELA10M7GAA0_B0 BPF, DRR/DRMxxx Resonators, LMTP33AA148 Triplexer	**AVX Capacitors** C0G (NPO), X7R, X5R, ACCU-P, AQ12, UQCA, UQCB, UQCF, UQCL, UQCR, UQCS, SQCA, SQCB, SQCF, SQCS, CDR12, ML03, DLA	**ATC Capacitors** 600L, 600S, 600F, 100A, 100B, 200B, 520L, 530L, 700B, 800A, 800B, 800R, 400Z, 400L, 400S	**Gowanda** C050FL, C050SMC, C100FL, C100SM, C100SMC, C225FL, CC0603
Toshiba 2SK3078A, 2SK3476, RFM04U6P, RFM03U3CT	**API-Inmet** PCAx/PCAAx/TCAF Attenuators	**Passive Plus Capacitors** 0201N, 0402N, 0603N, 0805N, 1111N, 0201BB, 01005BB, 0505C, 1111C	**Murata Integrated Passive Solutions** 0201M	**Vanguard Electronics** 26,000 / 26,200 / 27,000 / 30,000 / 33,000 / 34,000 / 50,000
MIMIX CF003_01	**Qorvo** RF2132, RF2878 (XP), RF5110G (XP), TGA8xx, AH101 (XP) Amplifiers	**Knowles-Dielectric Labs** C06UL, C06BL, C08BL, C11UL, Millicap, Opticap	**Johanson Technology** R05L, R07S, R14S, R15S, R15G, S42E, L-05C, L-07W, L-07C	**Murata Integrated Passive Solutions** USBC Silicon Capacitors
Nitronex NPT1012, NPTB00004	**Sawtek** 856331 Duplexer	**Knowles-Syfer** 0603 High-Q	**KOA** HFC1005 capacitor, RK73x1H, RK73x1E, RK73x1J, RK73B2A, RK73B2B, RK73x2E, RK73x3A, WK73S3A resistors	**** 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)**
Mitsubishi MGF4953A, MGF4953B, RD01MUS1, RD07MUS2B, RD07MVS1, RD12MVS1, RD01MUS2B, RD07MUP2B	**Toko** ELFxx BPF's, 617DB-1007 Transformer	**AVX Inductors** HLQ02, HLC02, HL02, ACCU-L, DLA		
	Gigalane PSF-S00-000 Coax Connector	**ST Micro** PTIC capacitor		
MwT MwT-1, MwT-7 MESFET's	**Skyworks** AS193-73, AS204-80 Switches			
Rohm UMT1NR, EMT1, EMX1	**Toyocom** HFxxx Band-Pass Filters			
Semicoa 2C2857	**UBE** K020-03, AO-K016-08 Resonators			
Sirenza SLD-1083CZ, SLD-2083-CZ	**Vanguard** 100205 Transformer			
(XP) = X-Parameters-based models	**ATC** BFA10975PxxDB Attenuator			

X-Parameter model simulated output spectrum compared to measured results for a SMT RFIC amplifier (LNA/PA driver)



- Scalable Modelithics models accurately predict parasitic effects, providing excellent modeled-to-measured results.
- Microwave Global Models™ can be tuned and optimized to quickly reach design goals in simulation.
- Evaluate tolerance effects with statistical analysis tools.
- Modelithics models are precision measurement-based equivalent circuit models, and will exhibit physical behavior, even beyond the measurement frequency.

Contact Modelithics at sales@Modelithics.com or visit www.Modelithics.com to request a FREE trial.

Excellence in Modeling Since 2001