



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 pad characteristics, 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.

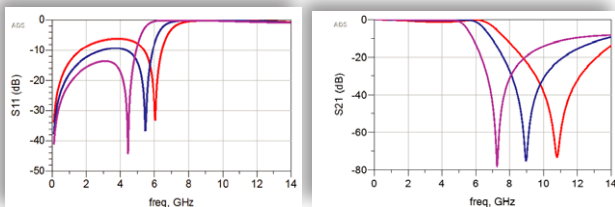
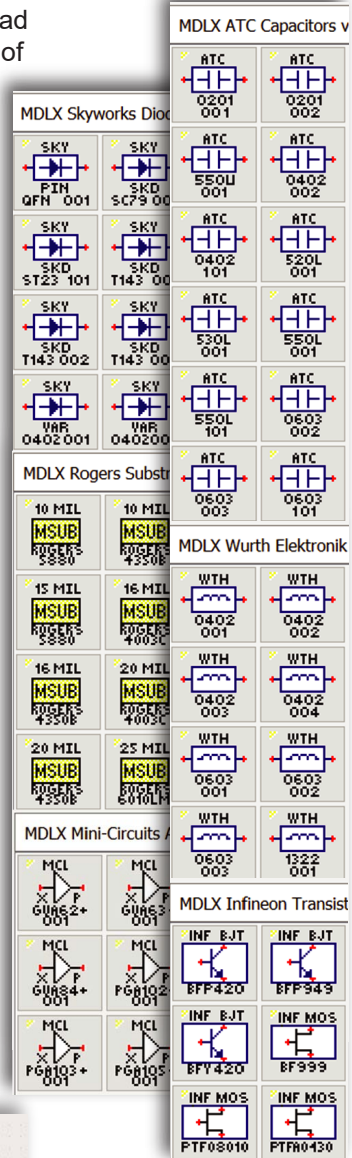
Library Features

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.

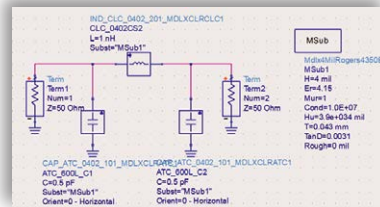
Sub-Libraries of the Modelithics COMPLETE Library

- **Modelithics CLR Library** — Contains all passive components from the Modelithics COMPLETE Library. It includes simulation models for various component body-sizes and part values for capacitor, inductor, and resistor families (RLC) from many popular vendors.
- **mmWave & 5G Library** — A collection of models focused on supporting the next generation of cellular communication standards. All models in the mmWave & 5G Library are validated to a minimum of 30 GHz, with some validated up to 125 GHz!
- **System Components Library** — Models for discrete die, surface mount and packaged devices.
- **Small Parts Sub-Library** — A sub-library of the Modelithics CLR Library of components with body sizes smaller than 0502, including 0402, 0201 and 01005.
- **Single-Vendor Sub-Library** — Includes all models for one selected vendor. Choose from the over 70 vendors within the Modelithics COMPLETE Library.



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

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

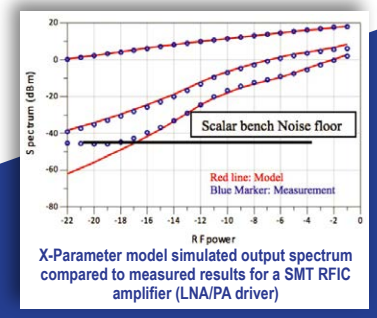


- Scalable Modelithics models accurately predict parasitic effects, providing excellent modeled-to-measured results.
- **Microwave Global Models™** can be tuned and optimized to quickly reach design goals in simulation.
- Evaluate tolerance effects with statistical analysis tools.
- Modelithics models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

Example Modelithics Capacitor Model in ADS

CAP_P1111N_001_MDLXCLRPP11
PAS_1111N_C1
C=0.2 pF
Subst="MSub1"

Sim_mode=0 - Full Parasitic Model
Tolerance=1.0
Pad_Width=3.3 mm
Pad_Length=1.3 mm
Pad_Gap=1.9 mm
Orient=0 - Horizontal



* "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.

List of Components in the Modelithics COMPLETE Library for Keysight ADS

Modelithics Vendor Partners (MVPs)

Aeroflex / Metelics DIODES MSP2525G-70, MMP7065-11, MLP7100_7110_7120_7101, MSD710 Amotech CAPACITORS AB05, AB0F, AB0Z, AB0L, AB0B API-Inmet RESISTORS NPC-, ANC-, PPC- (high power) ATTENUATORS PCxAVPCAAWTCAF Avago AMPLIFIER MGA86576 NPBNT PACKAGES AT-41511, AT-41533, AT-64023	Gigalane INTERCONNECTS PSF-500-000 Gowanda INDUCTORS C060FL, C050SMC, C100FL, C100SM, C100SMC, C225FL, C060G3 Guerrilla RF AMPLIFIERS GRF2070DS, GRF2071DS, GRF2072DS, GRF2073DS, GRF2089, GRF2100, GRF2108, GRF2501DSR, GRF4002, GRF4014 Hexaware MESFET HWC27NC IMS RESISTORS RC4-0302PW, RC3-0402PW, NDX-1020EZW ATTENUATORS A-0402WA-C, A-0603-C, IA3-0805WA, IA3-1206WA, IMS2652, IMS2533, A-0805, IMS1141 Infineon DIODES BAR64-03W, BAR88-02V, BAS3010S-02LRH, BAS40, BAS40-04, BAS40-05, BAS40-06, BAS52-02V, BAS70, BAS70-04, BAS70-05, BB535, BB639, BB833, BBY51-02W, BBY52-02L NPBNT BFP420, BFR949F, BFY420, BFY193C MOSFET PTF080101S, PTF4043002E, BF999	Kyocera-AVX CAPACITORS C0G (NPO), X7R, X5R, CU01, 0402XU, 0603XU, 0805XU, 0805C1, 1206XC, 500Z, 500U, 550Z, 550U, Accu-P (01005, 0201, 0402, 0603), AQ12, UQCA, UQCB, UQCF, UQCL, UQCR, UQCS, SQCA, SQCB, SQCF, SQCS, ML03, DLA (0402, 0603), MP01, MP02, MP03 (ATC) 600L, 600S, 600F, 100A, 100B, 200A, 200B, 520L, 530L, 700A, 700B, 800A, 800B, 800R, 400Z, 400L, 400S INDUCTORS HL002, HLC02, HL02, Accu-L (0201, 0402, 0603, 0805), DLA (0402, 0603, 0805) (ATC) MOL RESISTORS RP-series (high power), URB0402 (ATC) Style CS, CT, CW, CZ (high power), 504L ATTENUATORS RP10975AxxDB (ATC) FA10975PxxDB COUPLERS CP0603, CP0402, DB0603, PC2025A2100, PC2025A2700 DIPLEXERS DP03, DP05, DP06 MACOM LIMITER 2690-1011 AMPLIFIER MAL010704 SWITCH MASWSS0204 GaN HEMT NPT1012B, NPTB000004A DIODES MA4PH235-1072, MA4P504-132, MAVR-00230-1141, MAVR-001330-1279, SM20413, MLP7100, MLP7101, MLP7110, MLP7120, MMP7065-11, MSD710, M4E1317 COUPLER MACP-011088 SPLITTER MAPD-011062 TRANSFORMER MABA-011125 Maxim AMPLIFIERS MAX2371, MAX2373 MIXER MAX2681 MDT DIODE MP6250-P2715 Microsemi DIODES UPP9401, GC1500879 NPBNT SD1495-03 Mimix MESFET CF003-01 Mini-Circuits BAND-PASS FILTERS XBF Series AMPLIFIERS AVA-183+, PMA2-133LN+, PMA2-33LN+, PMA2-43LN+, PMA3-83LN+, PMA-545+, PMA-5451+, PMA-5452+, PMA-5453+, PMA-5454+, PMA-5455+, PMA-5456+, PMA-5457+, PMA-5458+, PMA-5459+, PMA-5460+, PMA-5461+, PMA-5462+, PMA-5463+, PMA-5464+, PMA-5465+, PMA-5466+, PMA-5467+, PMA-5468+, PMA-5469+, PMA-5470+, PMA-5471+, PMA-5472+, PMA-5473+, PMA-5474+, PMA-5475+, PMA-5476+, PMA-5477+, PMA-5478+, PMA-5479+, PMA-5480+, PMA-5481+, PMA-5482+, PMA-5483+, PMA-5484+, PMA-5485+, PMA-5486+, PMA-5487+, PMA-5488+, PMA-5489+, PMA-5490+, PMA-5491+, PMA-5492+, PMA-5493+, PMA-5494+, PMA-5495+, PMA-5496+, PMA-5497+, PMA-5498+, PMA-5499+, PMA-5500+ PSAA-5043+, GVA-62+, GVA-63+, GVA-84+, PGA-102+, PGA-103+, PGA-105+, PHA-1+, PHA-22+, PSAA-5043+ ATTENUATORS RCAT, KAT, YAT, YAT-A	Mini-Circuits (Cont'd) PHEMT SAV-331+, SAV-541+, SAV-551+, SAV-581+, TAVZ-14LN+, TAVZ-501+ HIGH-PASS FILTERS XHF-Series, XHF2-Series, HFCN-2700+, HFCN-3800+, HFCN-5500+, HFCN-740+, HFCN880+ TRANSFORMERS NCS1-63+, NCS2-83+, NCS1-422+, NCS2-392+ LOW-PASS FILTERS LFCG-1000+, LFCG-1575+, LFCG-1700+, LFCG-2250+, LFCG-2850+, LFCG-320+, LFCG-400+, LFCG-530+, LFCN-1000+, LFCN-120+, LFCN1200+, LFCN-1200D+, LFCN-1575+, LFCN-1770+, LFCN-1800+, LFCN-1800D+, LFCN-2250+, LFCN-2850+, LFCN-3000+, LFCN-320+, LFCN-3800+, LFCN-400+, LFCN-4400+, LFCN-490+, LFCN-530+, LFCN-630+, LFCN-80+, XLF-Series COUPLER JR1BD+ SPLITTERS EP2C+, EP2K1+, EP2K+, EP2KADG+, EP2W1+, EP2W+, EPQ-133+ Mitsubishi HEMT MGF4953A, MGF4953B MOSFET RD01MUS1, RD01MUS2B, RD07MUS2B, RD07MUS2, RD07MUS1, RD12MUS1 Motorola MOSFET MRF1513, MRF1570 MWT MESFET MW1-1, MW1-7 Murata INDUCTORS LOG15HS, LOG18, LQP02HQ, LQP02T, LQP02TQ, LQP03HQ, LQP03TN, LQP15AN, LQP18M, LQW04A, LQW15AN, LQ0, LQW18AN_00 BAND-PASS FILTER SFELA10M/GAA0_B0 RESONATORS DRR02011G45, DRR0201G350, DRR204G100, DRR030KE1R2 CAPACITORS GJM022, GJM03, GQM1555C, GQM187, GQM188, GQM219, GQM22M, GRM022, GRM022 (X5R, X7R), GRM0335, GRM1555C1H, GRM155771E, GRM155771H, GRM1885C1H, GRM188771H, GRM188772A, GRM2165C2A, GRM219, GRM22C1R1J, GRP033, UBSC 935 151 423 510, UBSC 935 151 424 610, UBSC 935 151 723 510, XBSC 939 118 492 510-xxS TRIPLEXER LMP733AA148 FERRITE BEADS BLM15AG, BLM15EG, BLM18A, BLM18G102SN1, BLM21P, BLM31P, BLM41P NXP MOSFET BF1211, BF1212, BLF542, BLF548 JFET BF861B, BF862 NPBNT BFO540, BF5505, BF5520, BF5540, PBR941	On Semiconductor DIODES MMBD301LT1, MBD330DWT1 JFET MMBFU310LT1 NPBNT MMBT3904LT1 Panasonic INDUCTORS ELJRG, ELJRF, ELJRE, ERJ2G Passive Plus CAPACITORS 01005B104, 0201B6104, 0201N ultra-low-ESR, 0402N ultra-low-ESR, 0505C, 0603N ultra-low-ESR, 0708N, 0805N ultra-low-ESR, 1111C, 1111N ultra-low-ESR RESISTORS R35-1209BB, R35-2010BB Piconics INDUCTORS CCxxxTxxK240G5-C Premier Magnetics TRANSFORMERS DB2791S, DB2795S Presidio CAPACITORS 0402UP, 0505UP, 0603UP, BB0201X7R103M, BB0402X7R104M2, BB0502X7S104M Qorvo AMPLIFIERS AH101, RF2878, RF5110G GaAsPHEMT TGF2040, TGF2060, QPD2018D, QPD2025D, QPD2040D, QPD2060D, QPD2080D, QPD2120D, QPD2160D RF360 BAND PASS FILTER B7840 RJR PACKAGE QFN10 Rohm DIODE RB175F PNPBJT EMT1 NPBNT EMX1 Samsung CAPACITORS CL02xxxxxA, CL02CxxxxxG, CL03C RESISTORS RC0402 Sawtek DUPLXER 856321 SEDI GaN HEMT EGN010MK, EGN030MK MESFET FLL120MK, FLL800IQ, FSX017X Semicoa NPBNT ZC2857 Silicon Supplies NPBNT ZSC3356	Skyworks SWITCHES AS193-73, AS204-80 DIODES SMP1324-087LF, SMS3927-023, SMS3940-029LF, SMS7621-005, SMS7621-015, SMS7621-079, SMS7630-005LF, SMS7630-006LF, SMS7630-061, SMS7630-079LF, SMV1147, SMV1253-079, SMV1763-040LF, SMV2201-040LF, SMV2202-040LF, SMV2203-040LF, SMV2204-040LF, SMV2205-040LF Smiths Interconnect EQUALIZER CE_XXX_N_XXX_SMTF RESISTORS CT404ALN1WB1, CT404ALN2WB1, CT0603ALN1SMTF, CRxxx0D, CTxxx0D ATTENUATOR T19, TSX Southwest Microwave INTERCONNECTS 1092-01A-5, 1093-04A-5 SOTA RESISTORS S0202AF50R0FEB, S0303AF50R0FEB, S0505AF50R0FEB, S0505CF50R0FEB, S0505DF50R0FEV, S0505EF50R0FEV, S0603CF50R0FEB ST Micro CAPACITOR P1IC Taiyo Yuden CAPACITORS EMK042, EMK063, JMK063, LMK042_and_JMK042, TMK063, TMS042, MKM105 INDUCTORS HK0603, HK1005, HK1608, HK2125, HKQ0603S, HKQ0603U, HKQ0603W TDK CAPACITORS C0402C0G, C0603C0G, C1005CH, C1005X5R, C3225, CGA1A2C0G, CGA1A2X7R, CG1T3X5R0J104M INDUCTORS MH0402PSA, MH01005P, MLG2012, MLG0402Q, MLG0603P, MLG0603S, MLG1005S, MLG1608B, MLK1005S, NLV25T Teclia VARACTOR CAPACITORS HBCR22AY20X10X5A02, HBCR2KY20X10X5A02 Toko TRANSFORMER 617DB-1007 BAND PASS FILTERS ELFC455E, ELFY455G INDUCTORS LL1005-FHL, LL1608-FSL, LL2012-FHL, LLV0603-F	Toshiba DIODES 1SV229, 1SV279, 1SV280, 1SV282, 1SV305, 1SV325, 1SV329, JDV2507FS, JDV2509FS, JDV2541FS MOSFET 2SK3078A, 2SK3476, RFM03U3CT, RFM04URP Toyocon BAND PASS FILTERS HF373A, HFF-101A, HFF-101B Transom pHEMT TC2381, TC2384 UBE RESONATORS AO-K016-08, K020-03 Vanguard TRANSFORMERS 100205, K Series, M Series, R Series, S Series INDUCTORS Series2600, Series2700, Series3000, Series3300, Series3400, Series50000 Virginia Diodes DIODES W Band Single Anode, W Band ZBD Vishay CAPACITORS HPC0402, VJ0402, VJ0402D, VJ0603D RESISTORS CH02016, CH0402, CH0603, CRCW01005, CRCW1206, D10, D11, FC0402, MCT0603, MMA0240, FCHP0402xxx0BGT, FCH0402xxx0BT Würth Elektronik INDUCTORS WE-ACHC, WE-CAIR, WE-KI, WE-KIHC, WE-MK, WE-TCI FERRITE BEADS 74279223560, WE-CBA0402 (High Current), WE-CBA0402 (Wide Band), WE-CBA0603 (High Current), WE-CBA0603 (High Speed), WE-CBA0603 (Wide Band), WE-CBA0805 (High Current), WE-CBA0805 (High Speed), WE-CBA1206 (High Current), WE-CBA1206 (Wide Band), WE-CBA1806 (High Current) CAPACITORS WCAP-CSMH(NP0), WCAP-CSMH(X7R), WCAP-CSMH(X7R) 0.8mm, WCAP-CSMH(X7R) 1.25mm, WCAP-CSRF(NP0) Yageo RESISTORS RC0100 CAPACITORS CQ0201, CQ0402, CQ0603, AQ0402, AQ0603
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What's in YOUR DREAM LIBRARY?

More to come! New models are added continually. Be sure to check out the models on the Modelithics Pre-Release List: www.Modelithics.com/Model/PreRelease

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)

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