

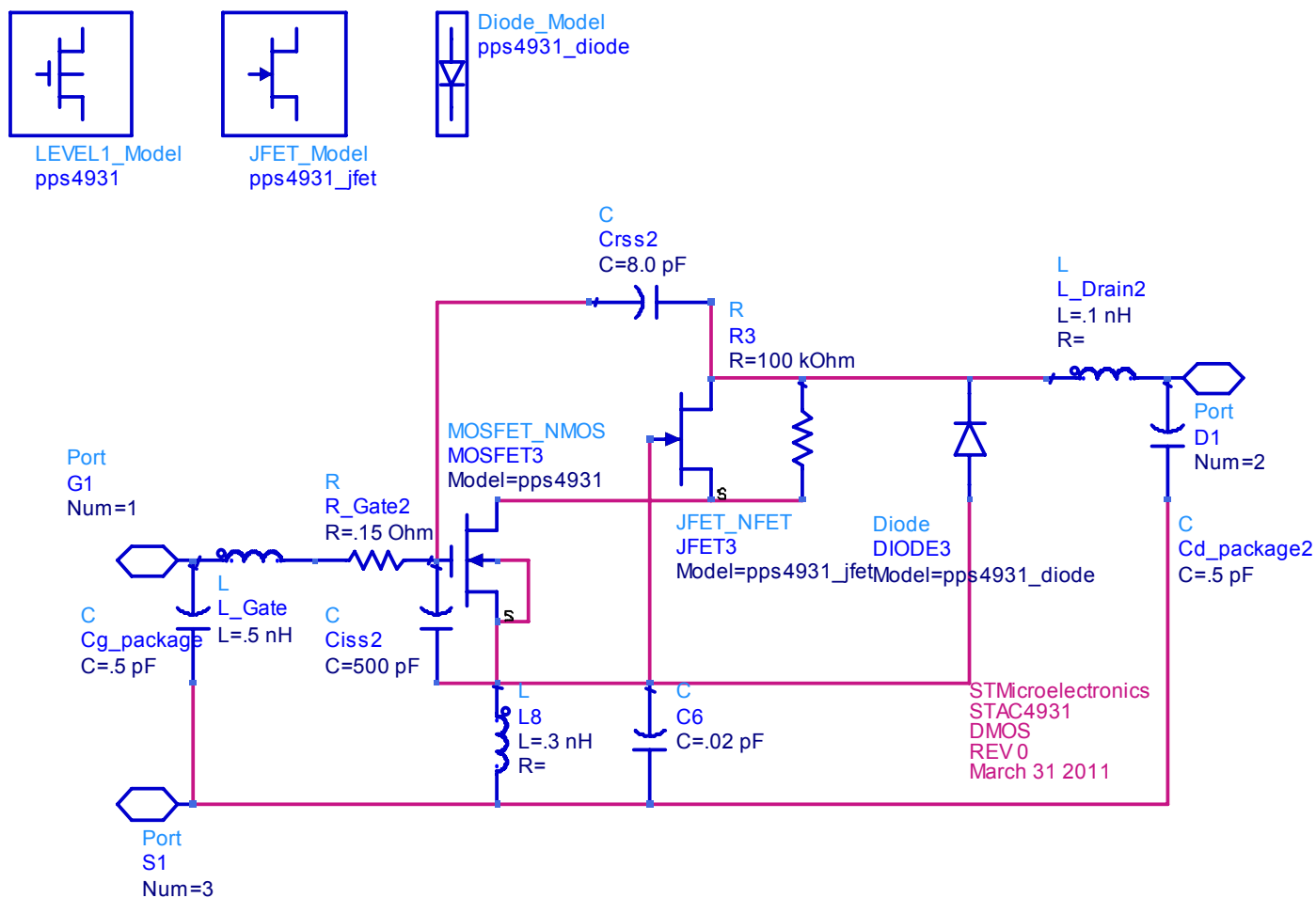


SD4931

model information

*Power Transistor Division
IMS , Industrial and Multisegment Sector
Model and Simulation
Quakertown , PA
Qtn-ms-11012-rev0
March 30 ,2011*

Model electrical schematic





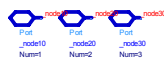
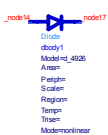
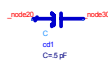
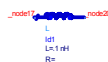
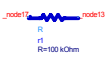
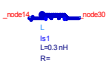
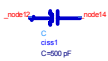
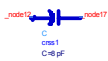
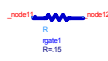
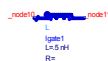
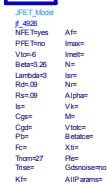
Model generic net list

- *SD4931_rev1_0
- *March 30 ,2011
- *STMicroelectronics
- *port 1 = GATE , 2 = Drain , 3 = Source
- *
- .SUBCKT SD4931_10 10 20 30

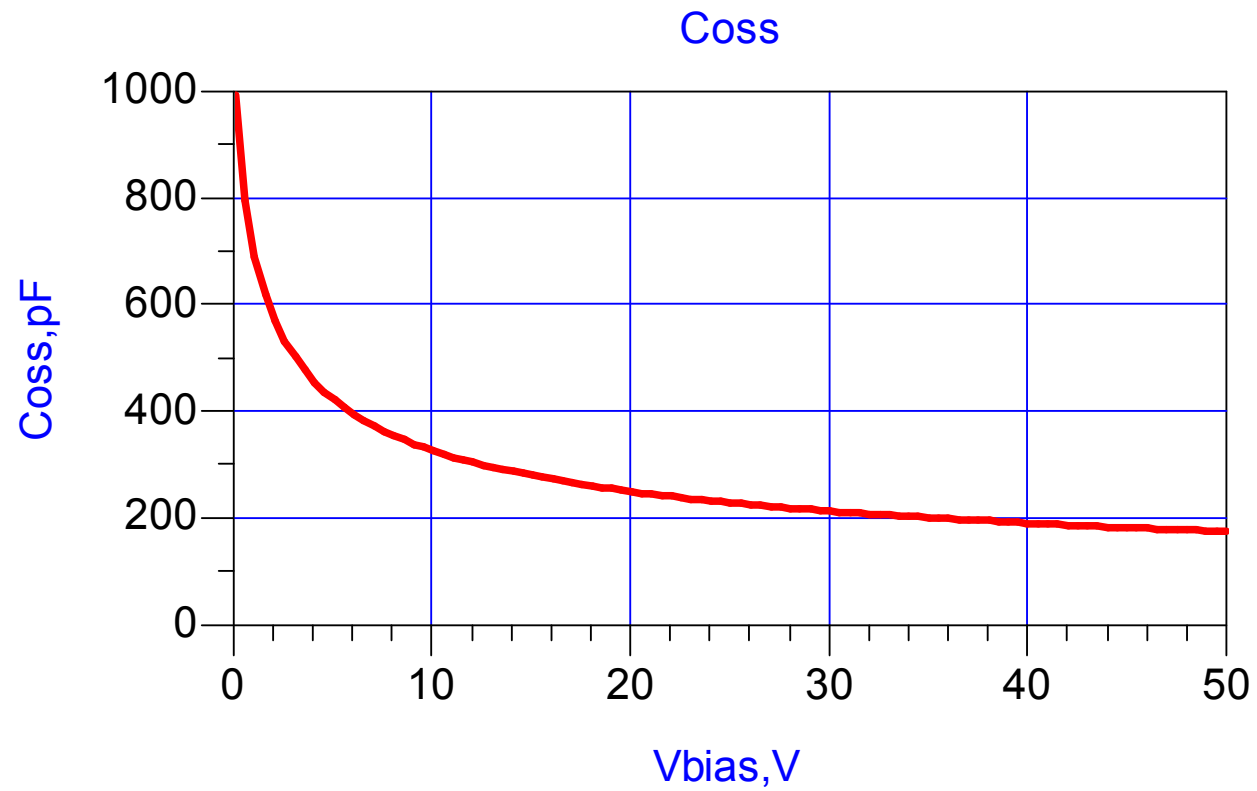
- LGATE1 10 11 .5N
- RGATE1 11 12 .15
- CG1 10 30 .5P
- CRSS1 12 17 8P
- CISS1 12 14 500P
- LS1 14 30 0.3N
- CS1 14 30 .02P
- R1 17 13 100K
- LD1 17 20 .1N
- CD1 20 30 .5P
- MOS1 13 12 14 14 mos_4926 L=.2UM W= 925mM
- JFET1 17 14 13 jf_4926
- DBODY1 14 17 d_4926
-

- .MODEL mos_4926 nmos (vto=2.5 KP=.71E-6 LAMBDA=1 RD=0.1001 RS=0.1001)
- .MODEL jf_4926 njf (VTO=-6 BETA=3.26 LAMBDA=3 Rd=.09 Rs=.09)
- .MODEL d_4926 d (CJO=1050p RS=0.25 VJ=.6 M=0.416 BV=255)

- .ENDS



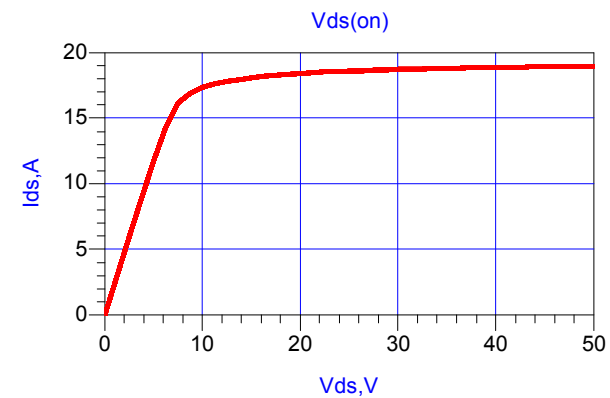
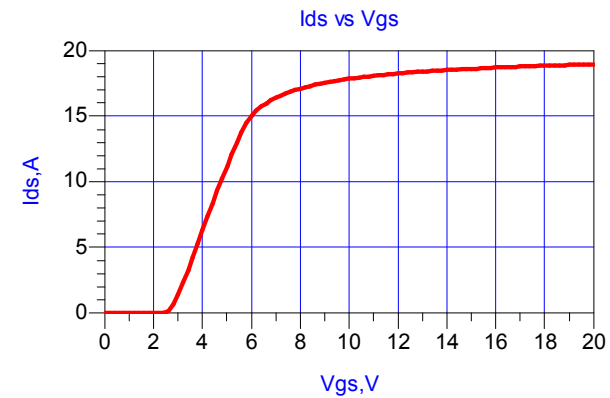
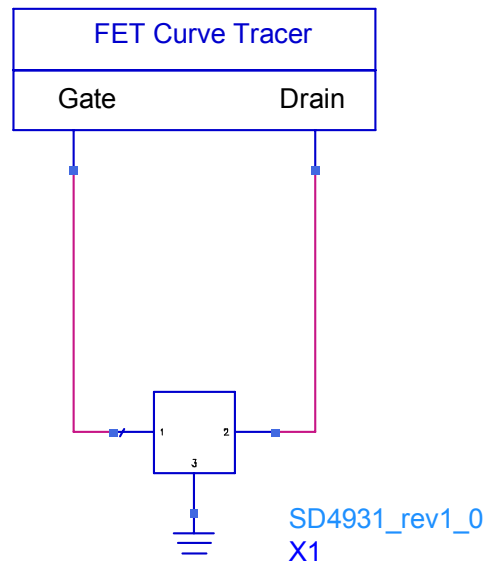
Coss



Example of imported generic netlist connected to EDA curve tracer with output data



```
DC_FET
DC_FET1
VGS_start=0
VGS_stop=20
VGS_points=101
VDS_start=0
VDS_stop=50.0
VDS_points=41
```





S-parameters

SD4931-10 S-parameters Vdd=50 V , Vgs=2.67 V

freq	S(1,1)	S(2,1)	S(1,2)	S(2,2)
30.00 MHz	0.864 / -169.521	13.160 / 71.269	0.007 / -9.673	0.665 / -146.034
40.00 MHz	0.884 / -170.748	9.257 / 62.617	0.006 / -13.986	0.713 / -149.513
50.00 MHz	0.901 / -171.619	6.880 / 55.567	0.005 / -15.057	0.757 / -152.245
60.00 MHz	0.916 / -172.368	5.305 / 49.721	0.004 / -11.896	0.795 / -154.638
70.00 MHz	0.928 / -173.055	4.203 / 44.832	0.003 / -2.068	0.826 / -156.778
80.00 MHz	0.938 / -173.694	3.402 / 40.714	0.002 / 17.861	0.852 / -158.692
90.00 MHz	0.947 / -174.289	2.804 / 37.223	0.002 / 44.740	0.873 / -160.396
100.0 MHz	0.954 / -174.841	2.347 / 34.244	0.003 / 65.870	0.890 / -161.912
110.0 MHz	0.959 / -175.353	1.990 / 31.687	0.004 / 77.950	0.904 / -163.262
120.0 MHz	0.964 / -175.827	1.707 / 29.480	0.004 / 84.500	0.915 / -164.466
130.0 MHz	0.968 / -176.266	1.479 / 27.565	0.005 / 88.161	0.924 / -165.544
140.0 MHz	0.971 / -176.675	1.293 / 25.896	0.006 / 90.272	0.932 / -166.512
150.0 MHz	0.974 / -177.056	1.139 / 24.438	0.007 / 91.502	0.939 / -167.386
160.0 MHz	0.976 / -177.412	1.011 / 23.160	0.008 / 92.208	0.944 / -168.178
170.0 MHz	0.978 / -177.747	0.903 / 22.039	0.009 / 92.585	0.949 / -168.899
180.0 MHz	0.980 / -178.063	0.811 / 21.055	0.010 / 92.752	0.953 / -169.558
190.0 MHz	0.981 / -178.362	0.733 / 20.193	0.011 / 92.781	0.957 / -170.163
200.0 MHz	0.982 / -178.645	0.665 / 19.439	0.012 / 92.716	0.960 / -170.720
210.0 MHz	0.983 / -178.915	0.606 / 18.783	0.013 / 92.588	0.962 / -171.235
220.0 MHz	0.984 / -179.174	0.555 / 18.216	0.014 / 92.417	0.965 / -171.713
230.0 MHz	0.985 / -179.421	0.510 / 17.730	0.014 / 92.216	0.967 / -172.158
240.0 MHz	0.986 / -179.658	0.470 / 17.318	0.015 / 91.996	0.969 / -172.574
250.0 MHz	0.986 / -179.887	0.435 / 16.977	0.016 / 91.762	0.970 / -172.963
260.0 MHz	0.987 / -179.891	0.403 / 16.700	0.017 / 91.519	0.972 / -173.330
270.0 MHz	0.987 / -179.677	0.375 / 16.485	0.018 / 91.272	0.973 / -173.674
280.0 MHz	0.988 / -179.470	0.350 / 16.328	0.019 / 91.022	0.974 / -174.000
290.0 MHz	0.988 / -179.268	0.327 / 16.226	0.019 / 90.771	0.975 / -174.309
300.0 MHz	0.988 / -179.072	0.307 / 16.177	0.020 / 90.520	0.976 / -174.601
310.0 MHz	0.988 / -178.880	0.288 / 16.179	0.021 / 90.270	0.977 / -174.880
320.0 MHz	0.989 / -178.693	0.272 / 16.230	0.022 / 90.022	0.978 / -175.145
330.0 MHz	0.989 / -178.510	0.256 / 16.328	0.023 / 89.777	0.978 / -175.398
340.0 MHz	0.989 / -178.331	0.242 / 16.472	0.023 / 89.534	0.979 / -175.640
350.0 MHz	0.989 / -178.155	0.230 / 16.661	0.024 / 89.293	0.979 / -175.873
360.0 MHz	0.989 / -177.983	0.218 / 16.894	0.025 / 89.056	0.980 / -176.095
370.0 MHz	0.989 / -177.813	0.207 / 17.169	0.026 / 88.821	0.981 / -176.310
380.0 MHz	0.989 / -177.646	0.197 / 17.485	0.027 / 88.589	0.981 / -176.516
390.0 MHz	0.989 / -177.482	0.188 / 17.842	0.027 / 88.360	0.981 / -176.715
400.0 MHz	0.989 / -177.320	0.180 / 18.238	0.028 / 88.134	0.982 / -176.907
410.0 MHz	0.989 / -177.160	0.172 / 18.672	0.029 / 87.911	0.982 / -177.093
420.0 MHz	0.989 / -177.003	0.165 / 19.143	0.030 / 87.690	0.982 / -177.273
430.0 MHz	0.989 / -176.847	0.158 / 19.650	0.031 / 87.472	0.983 / -177.447
440.0 MHz	0.989 / -176.693	0.152 / 20.193	0.031 / 87.256	0.983 / -177.616
450.0 MHz	0.989 / -176.540	0.146 / 20.769	0.032 / 87.043	0.983 / -177.780
460.0 MHz	0.989 / -176.390	0.141 / 21.377	0.033 / 86.832	0.983 / -177.940
470.0 MHz	0.989 / -176.241	0.136 / 22.017	0.034 / 86.624	0.984 / -178.096
480.0 MHz	0.989 / -176.093	0.131 / 22.686	0.034 / 86.417	0.984 / -178.247
490.0 MHz	0.989 / -175.946	0.127 / 23.383	0.035 / 86.213	0.984 / -178.395
500.0 MHz	0.988 / -175.801	0.123 / 24.107	0.036 / 86.010	0.984 / -178.539

Extracted device large signal impedance

Z_{in}

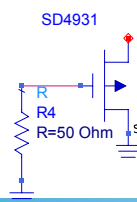
RF_freq	Rs	Xs
30.000	2.298	-9.361
35.000	1.812	-8.060
40.000	1.495	-7.051
45.000	1.282	-6.249
50.000	1.139	-5.602
55.000	1.032	-5.055
60.000	0.962	-4.598
65.000	0.916	-4.210
70.000	0.892	-3.882
75.000	0.874	-3.595
80.000	0.862	-3.347
85.000	0.856	-3.129
90.000	0.853	-2.934
95.000	0.855	-2.763
100.000	0.861	-2.611
105.000	0.871	-2.475
110.000	0.884	-2.353
115.000	0.900	-2.243
120.000	0.917	-2.145
125.000	0.936	-2.058
130.000	0.954	-1.980
135.000	0.973	-1.911
140.000	1.039	-1.852
145.000	1.047	-1.792
150.000	1.056	-1.743
155.000	1.063	-1.703
160.000	1.073	-1.669
165.000	1.085	-1.640
170.000	1.100	-1.615
175.000	1.116	-1.592

Z_{in}

$Z_{drain\ load}$

RF_freq	Rs_load	Xs_load
30.000	4.720	0.735
35.000	4.678	0.849
40.000	4.630	0.961
45.000	4.577	1.068
50.000	4.520	1.171
55.000	4.458	1.270
60.000	4.392	1.365
65.000	4.323	1.454
70.000	4.250	1.539
75.000	4.175	1.619
80.000	4.097	1.694
85.000	4.018	1.764
90.000	3.937	1.829
95.000	3.855	1.889
100.000	3.772	1.944
105.000	3.688	1.995
110.000	3.605	2.041
115.000	3.521	2.083
120.000	3.438	2.120
125.000	3.355	2.153
130.000	3.273	2.183
135.000	3.192	2.209
140.000	3.112	2.231
145.000	3.034	2.250
150.000	2.956	2.266
155.000	2.880	2.278
160.000	2.806	2.289
165.000	2.733	2.296
170.000	2.662	2.301
175.000	2.592	2.304

Z_{dl}



Large signal 175 MHz characteristics

