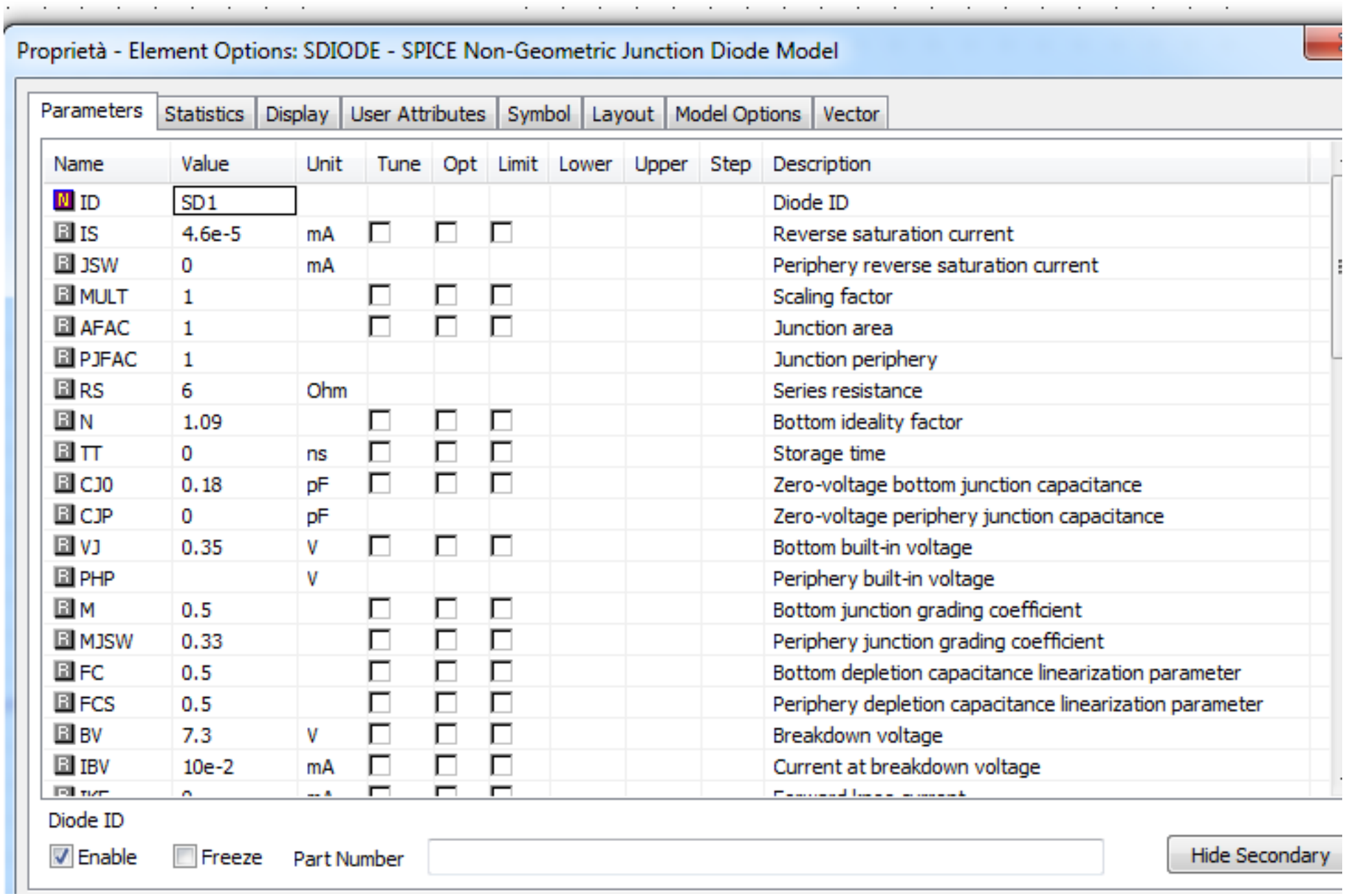
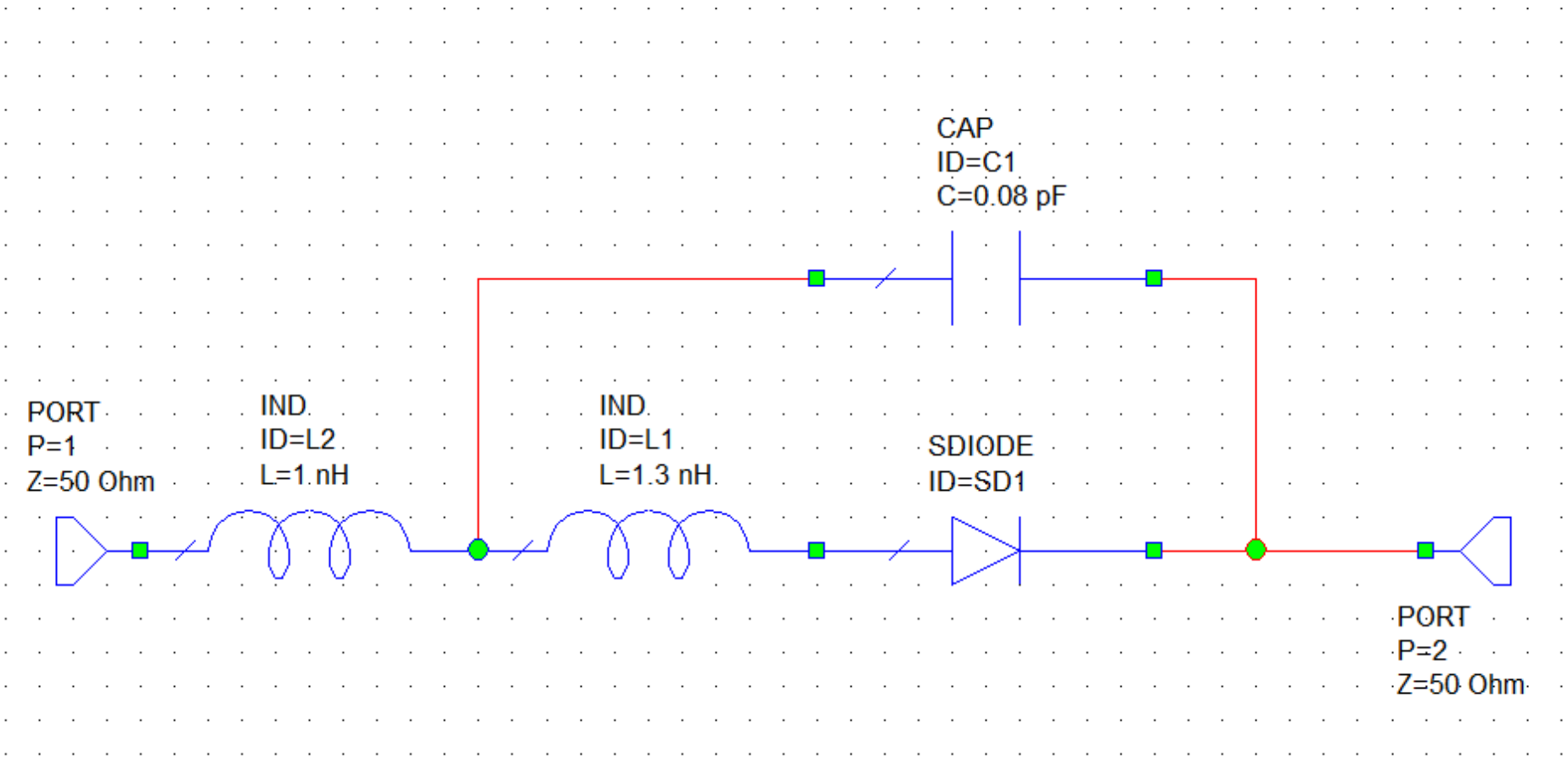
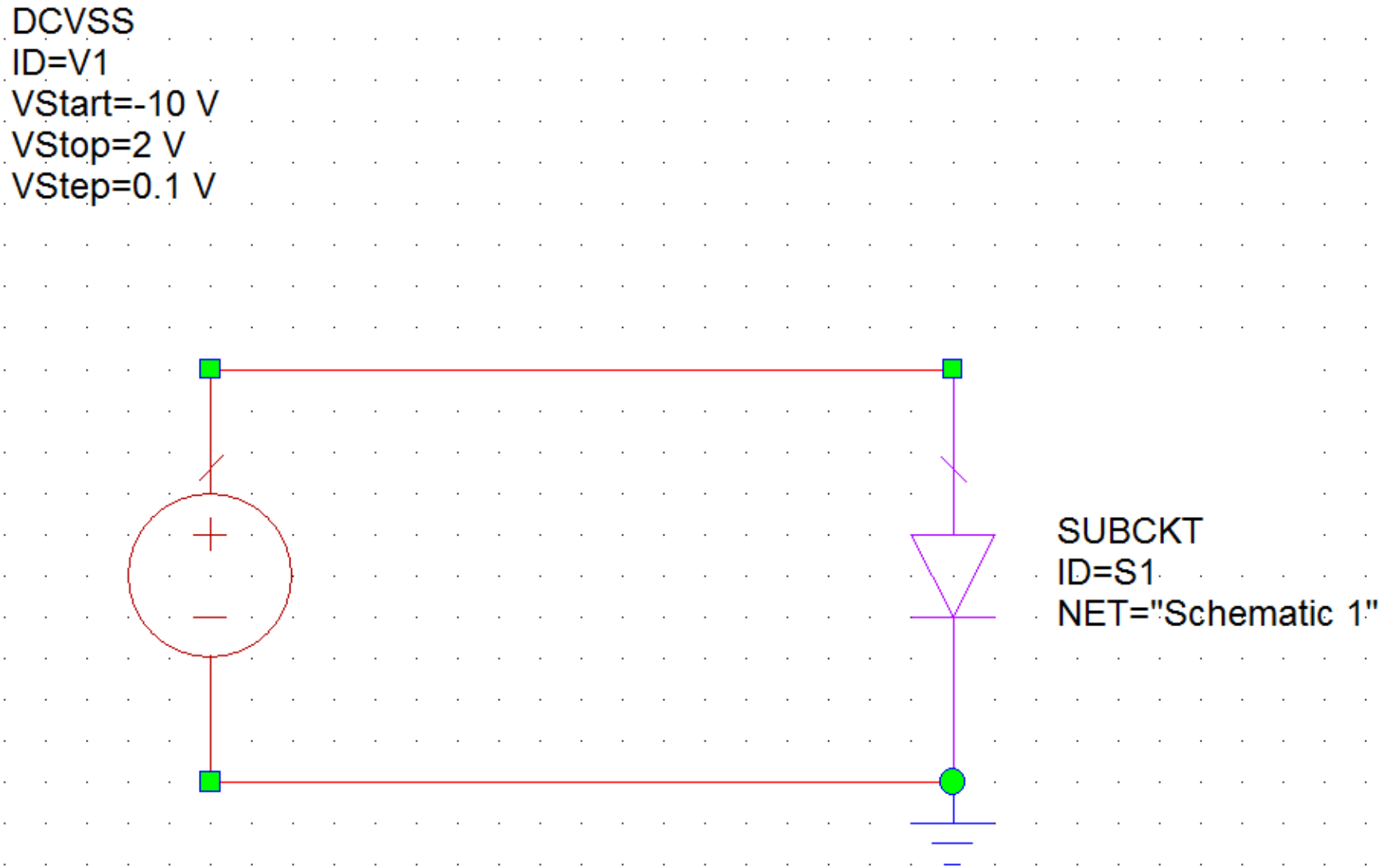
Progetto di base con MWO di un Mixer passivo con diodi Schottky

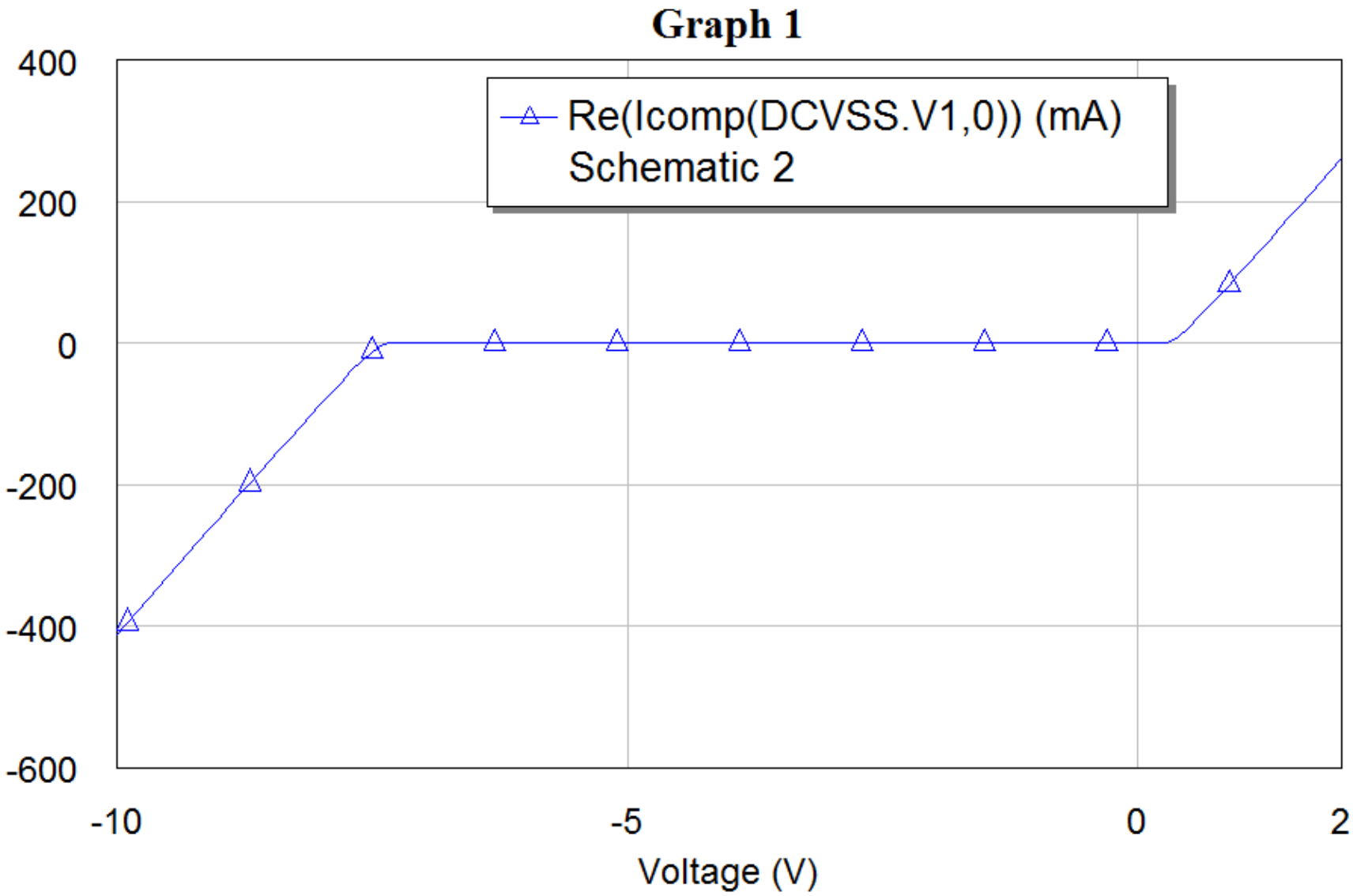

Proprietà - Element Options: SDIODE - SPICE Non-Geometric Junction Diode Model
Parameters
Statistics
Display
User Attributes
Symbol
Layout
Model Options
Vector
Name
Value
Unit
Tune
Opt
Limit
Lower
Upper
Step
Description
ID
SD1
Diode ID
IS
4.6e-5
mA
Reverse saturation current
JSW
0
mA
Periphery reverse saturation current
MULT
1
Scaling factor
AFAC
1
Junction area
PJFAC
1
Junction periphery
RS
6
Ohm
Series resistance
N
1.09
Bottom ideality factor
TT
0
ns
Storage time
CJ0
0.18
pF
Zero-voltage bottom junction capacitance
CJP
0
pF
Zero-voltage periphery junction capacitance
VJ
0.35
V
Bottom built-in voltage
PHP
V
Periphery built-in voltage
M
0.5
Bottom junction grading coefficient
MJSW
0.33
Periphery junction grading coefficient
FC
0.5
Bottom depletion capacitance linearization parameter
FCS
0.5
Periphery depletion capacitance linearization parameter
BV
7.3
V
Breakdown voltage
IBV
10e-2
mA
Current at breakdown voltage
Diode ID
Enable
Freeze
Part Number
Hide Secondary

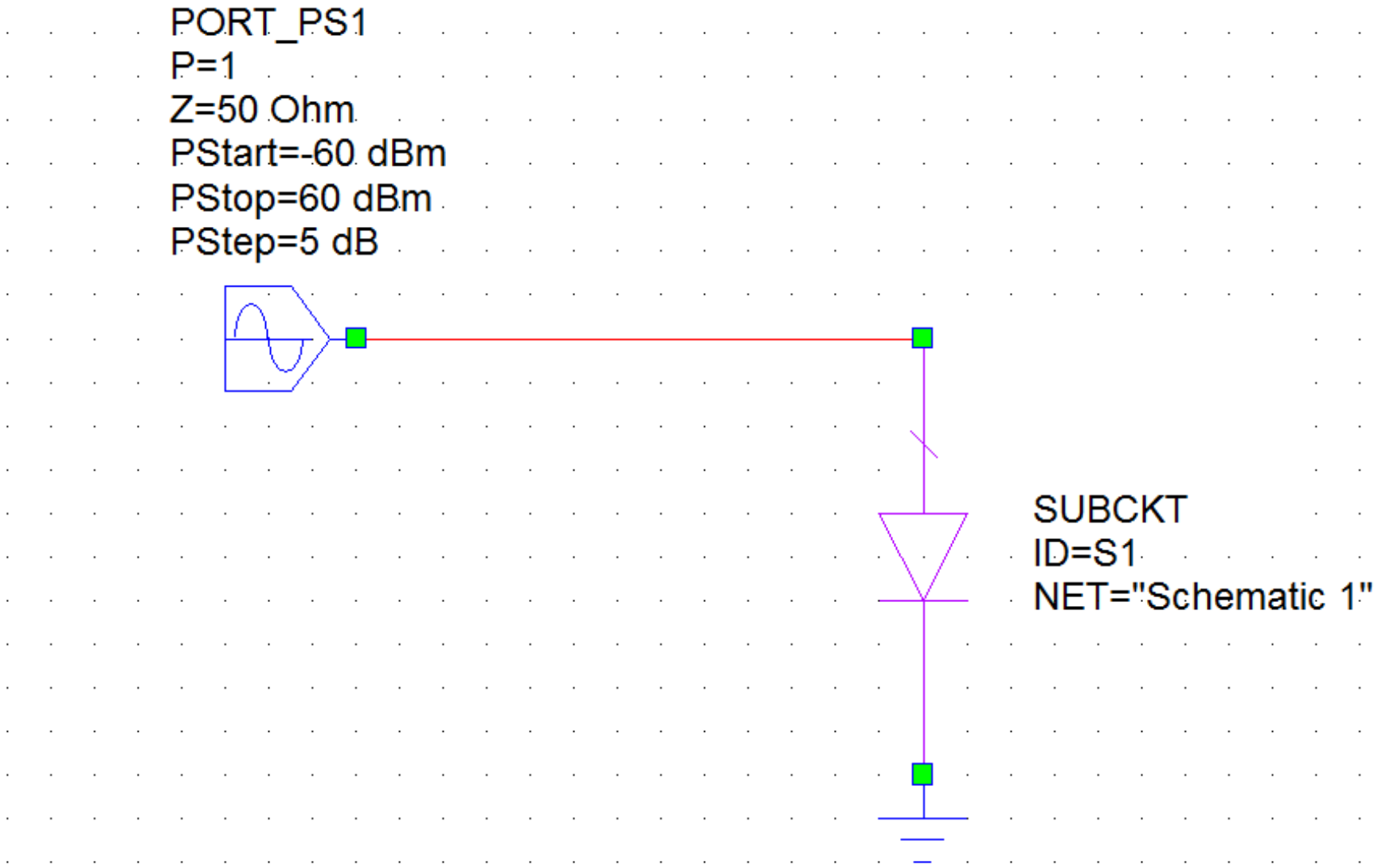
Diodo con parassiti

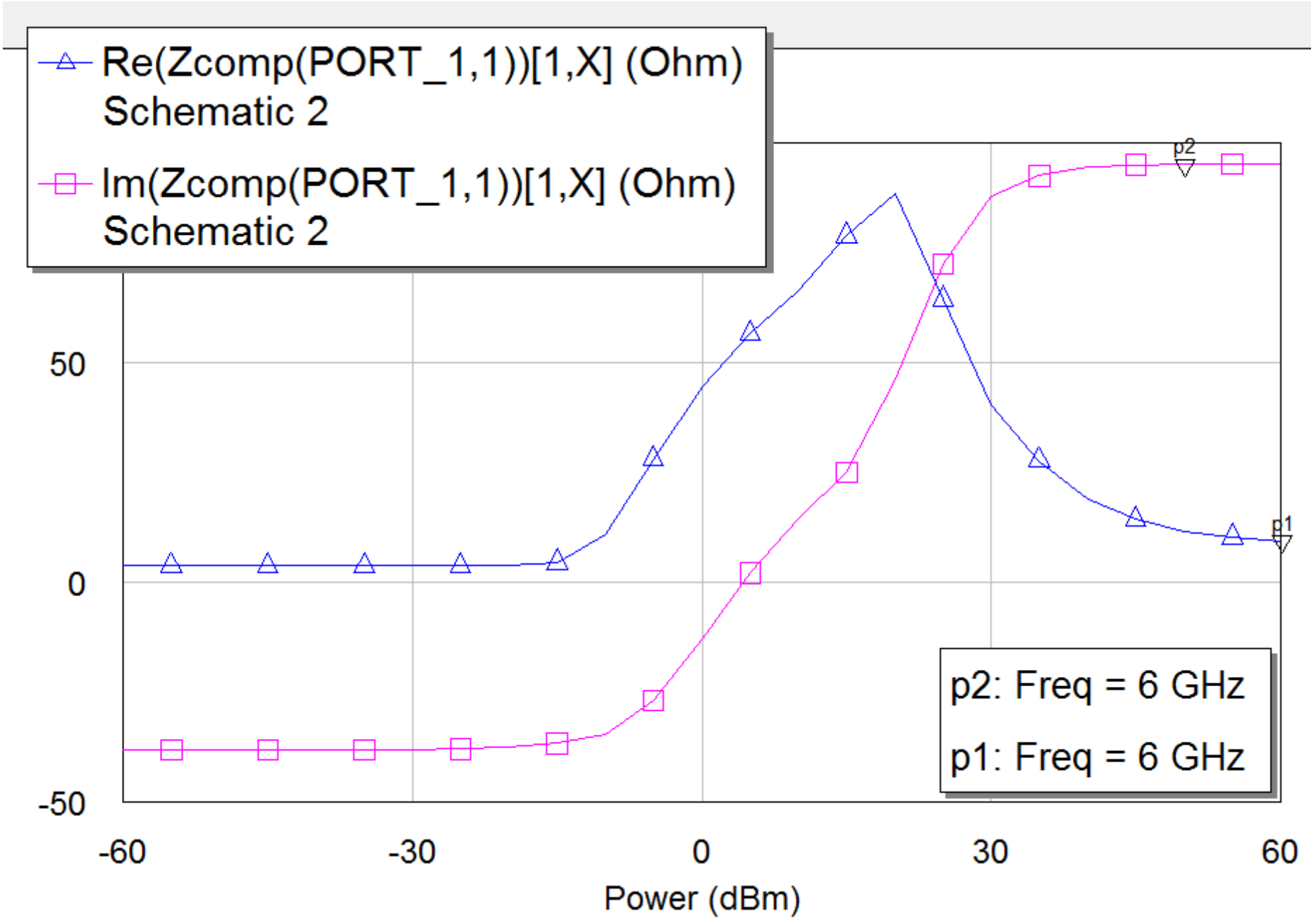


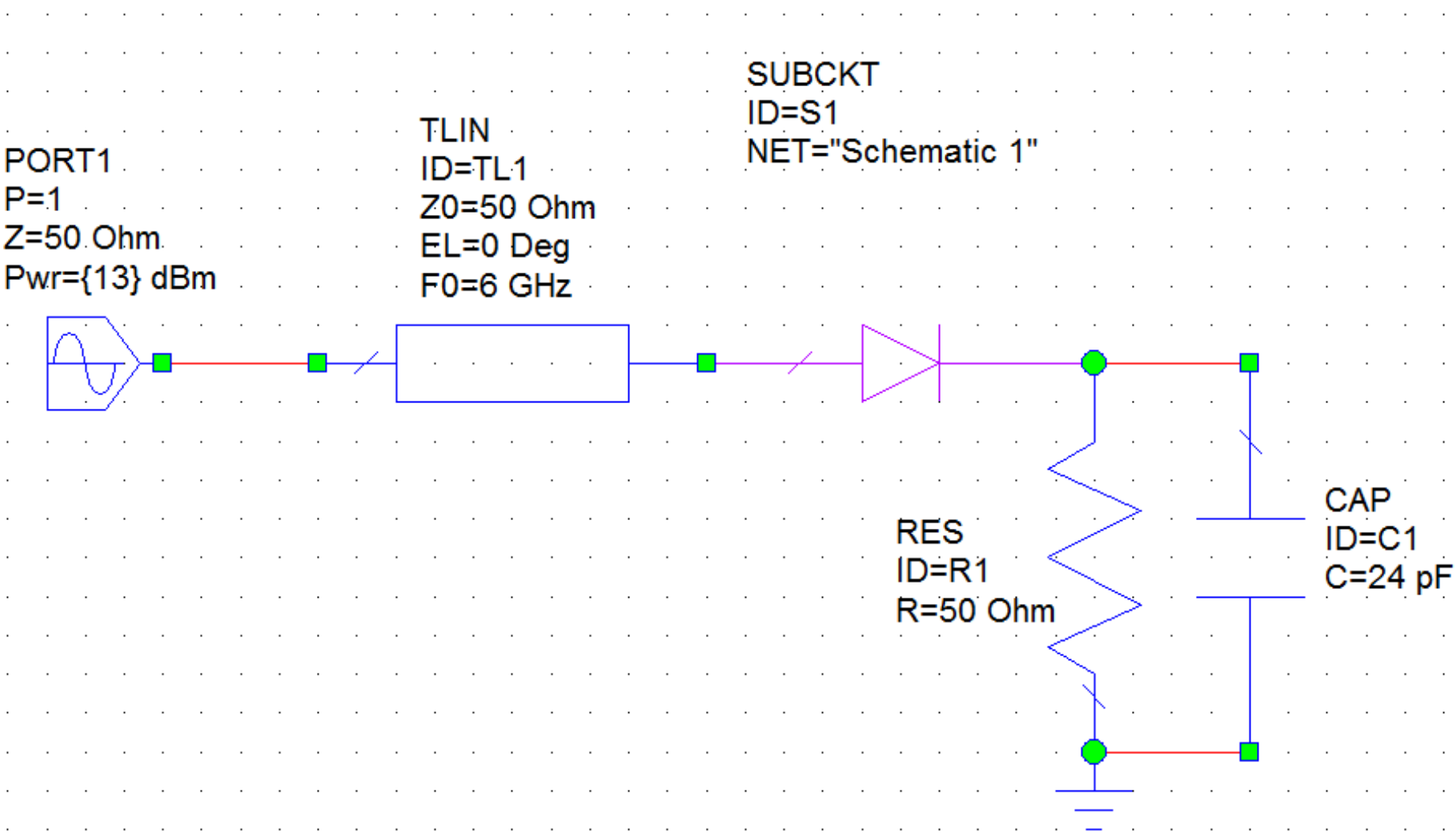

DCVSS
ID=V1
VStart=-10 V
VStop=2 V
VStep=0.1 V
SUBCKT
ID=S1
NET="Schematic 1"

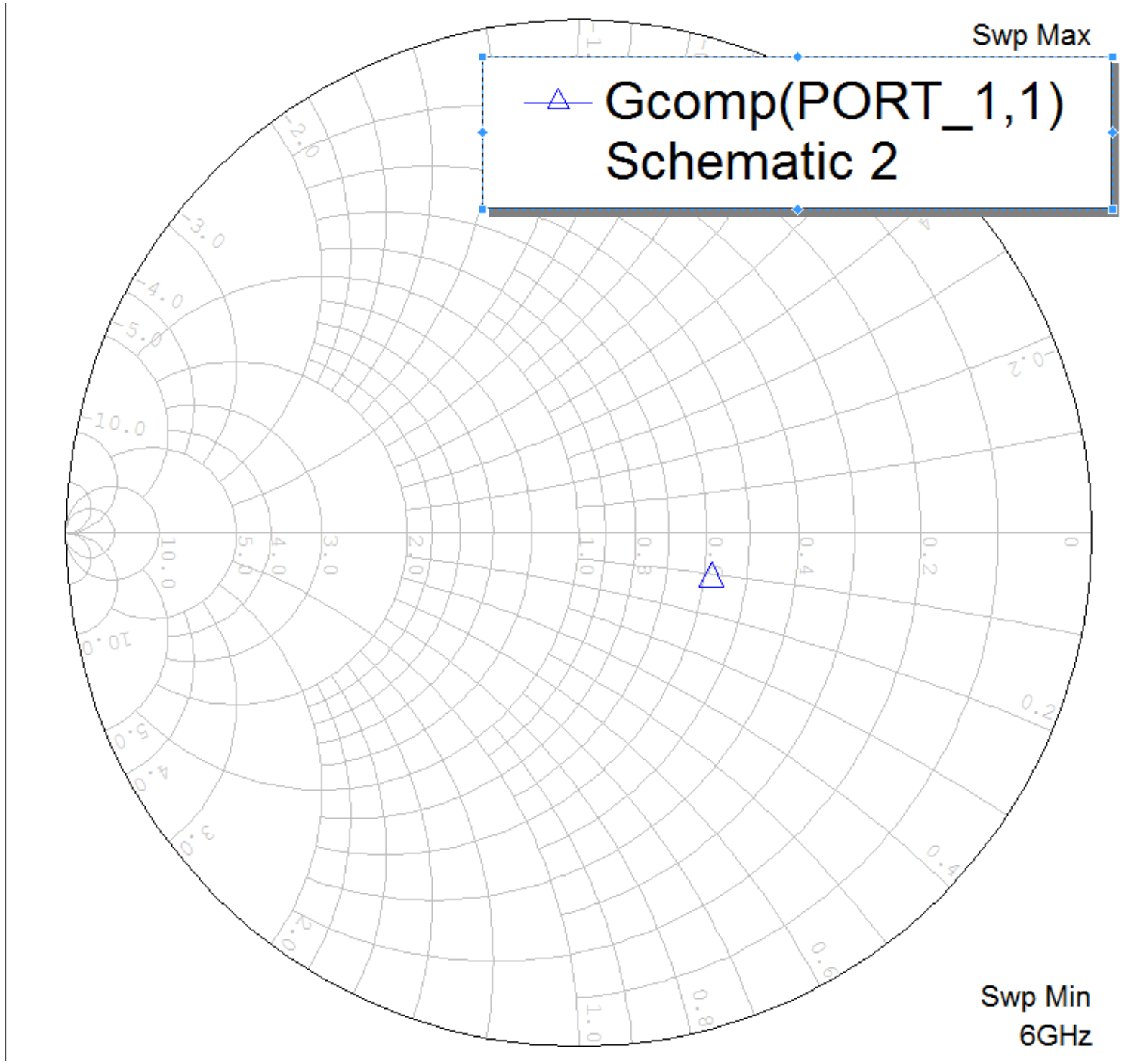
Harmonic Balance



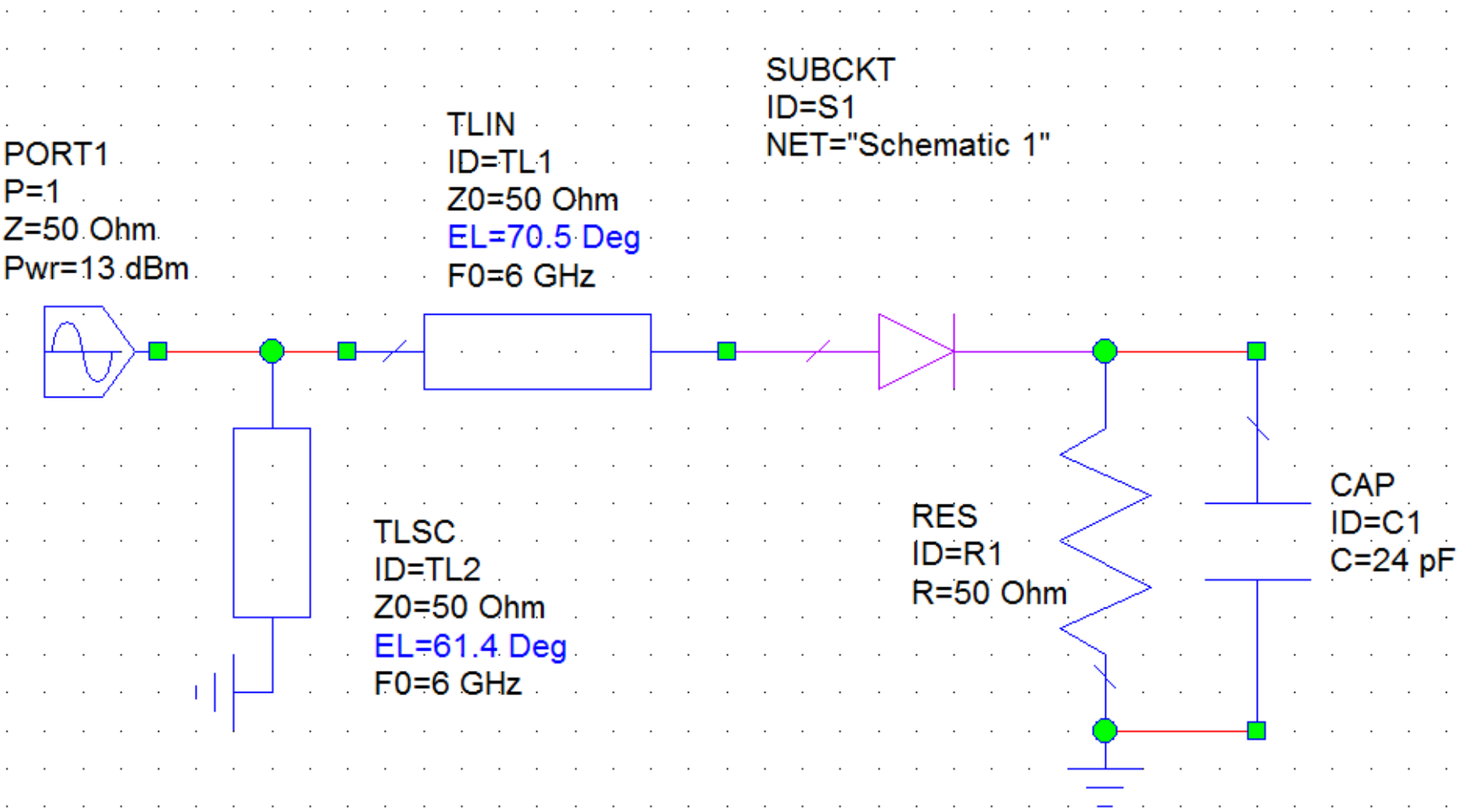

PORT_PS1
P=1
Z=50 Ohm
PStart=-60 dBm
PStop=60 dBm
PStep=5 dB
SUBCKT
ID=S1
NET="Schematic 1"

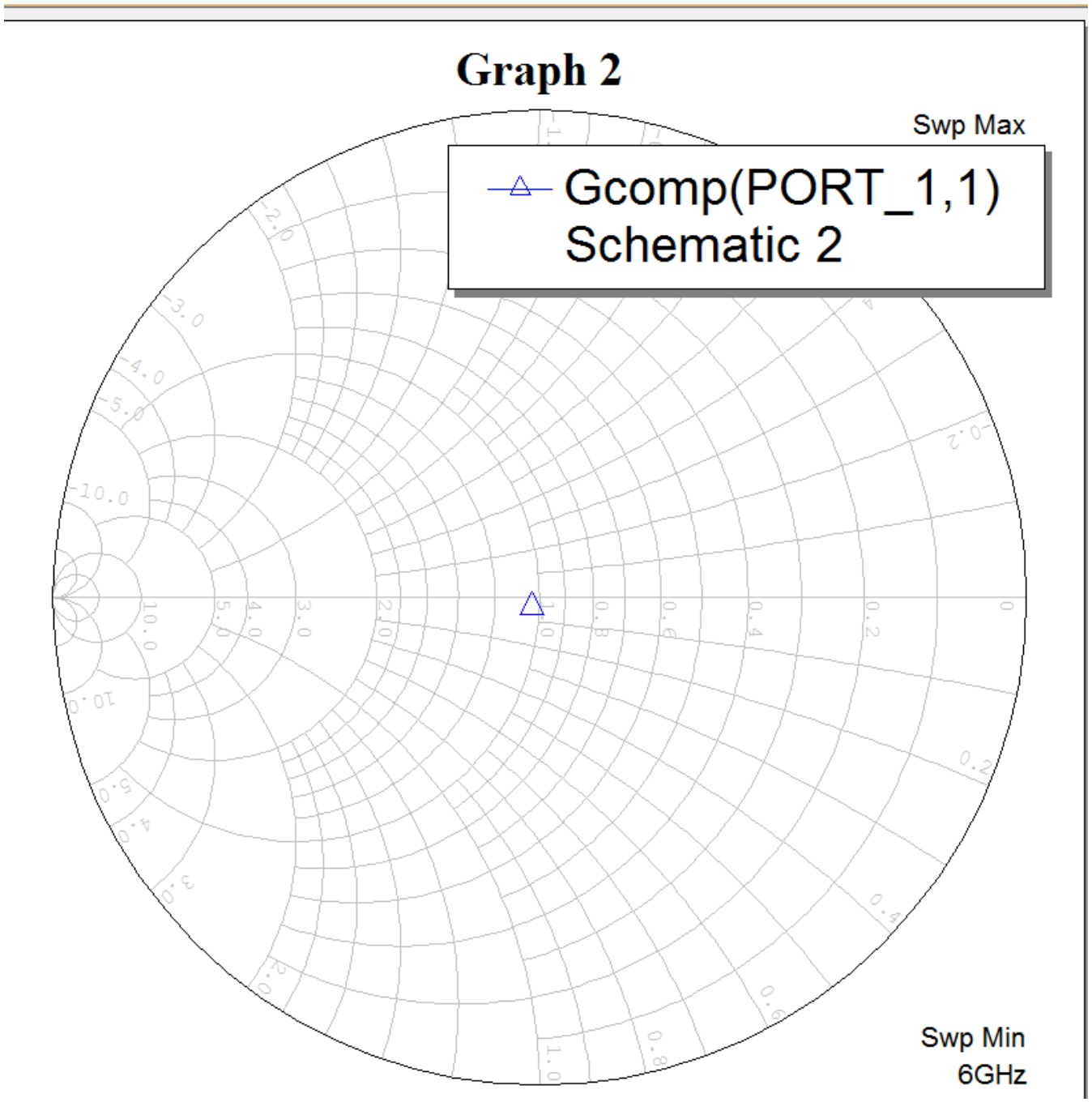

Re(Zcomp(PORT_1,1))[1,X] (Ohm)
Schematic 2
Im(Zcomp(PORT_1,1))[1,X] (Ohm)
Schematic 2
50
0
-50
-60
-30
0
30
60
Power (dBm)
p2
p1
p2: Freq = 6 GHz
p1: Freq = 6 GHz

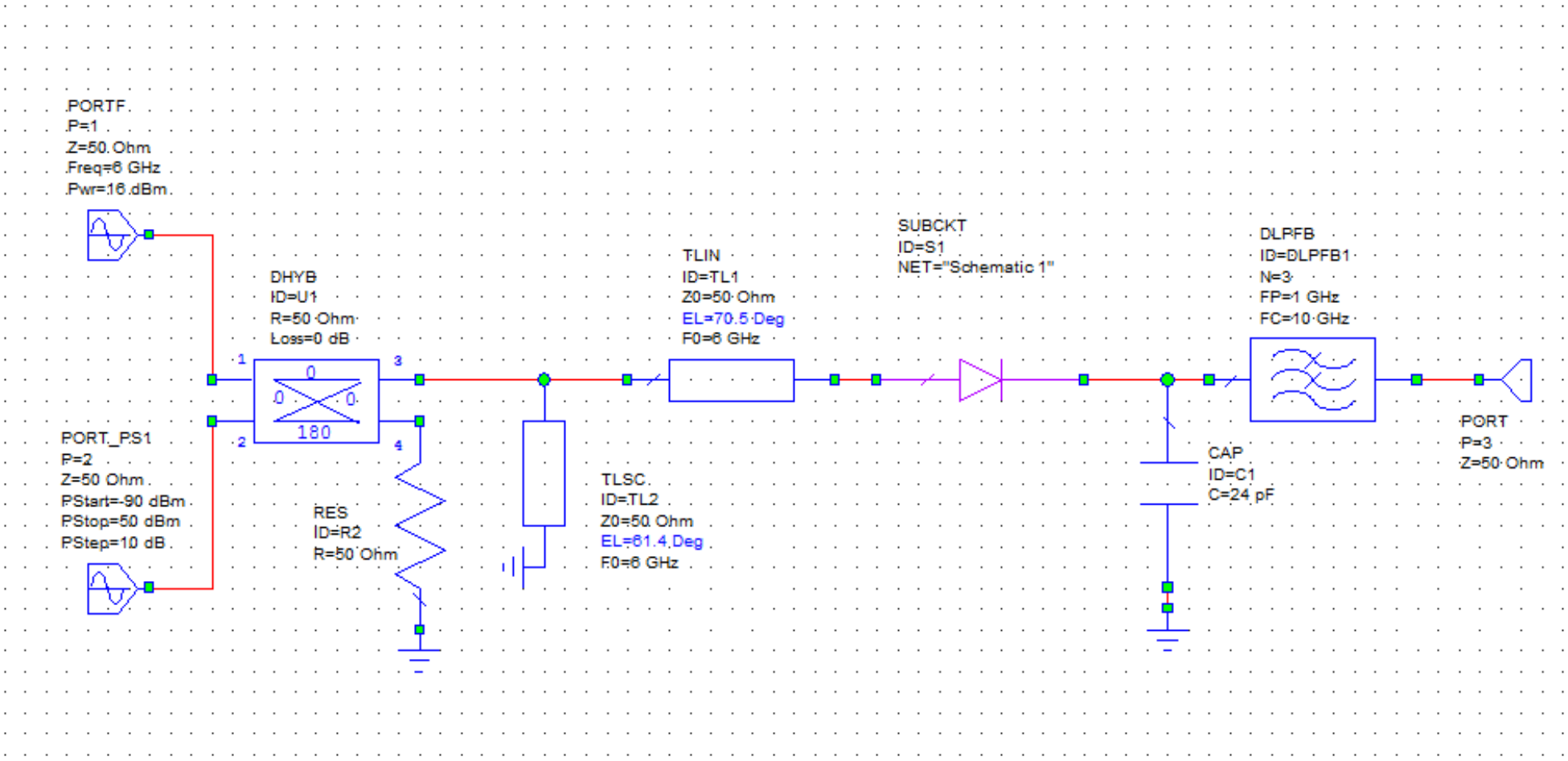

PORT1
P=1
Z=50 Ohm
Pwr={13} dBm
TLIN
ID=TL1
Z0=50 Ohm
EL=0 Deg
F0=6 GHz
SUBCKT
ID=S1
NET="Schematic 1"
RES
ID=R1
R=50 Ohm
CAP
ID=C1
C=24 pF

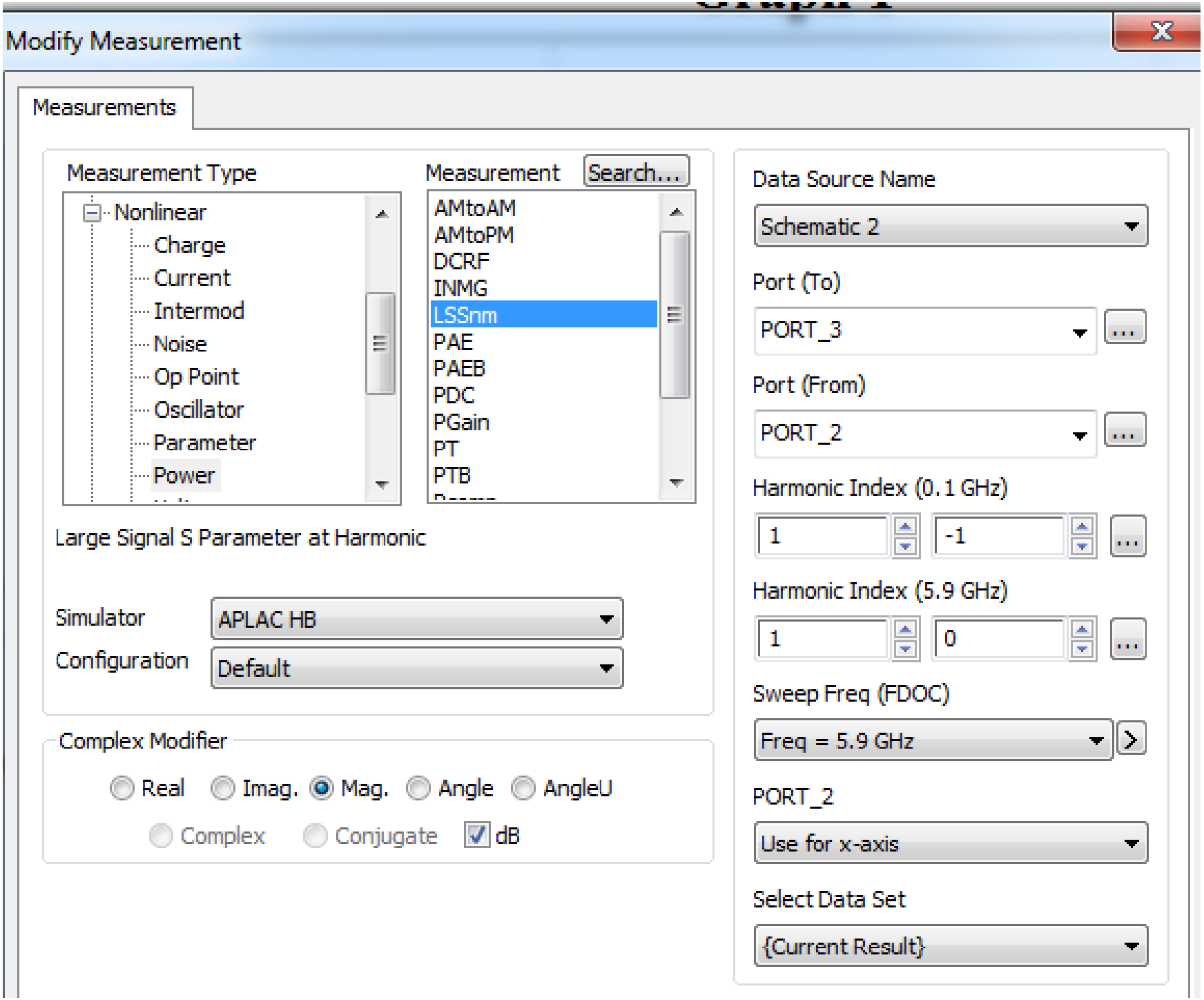

Swp Max
Gcomp(PORT_1,1)
Schematic 2
Swp Min
6GHz

Adattamento di impedenza

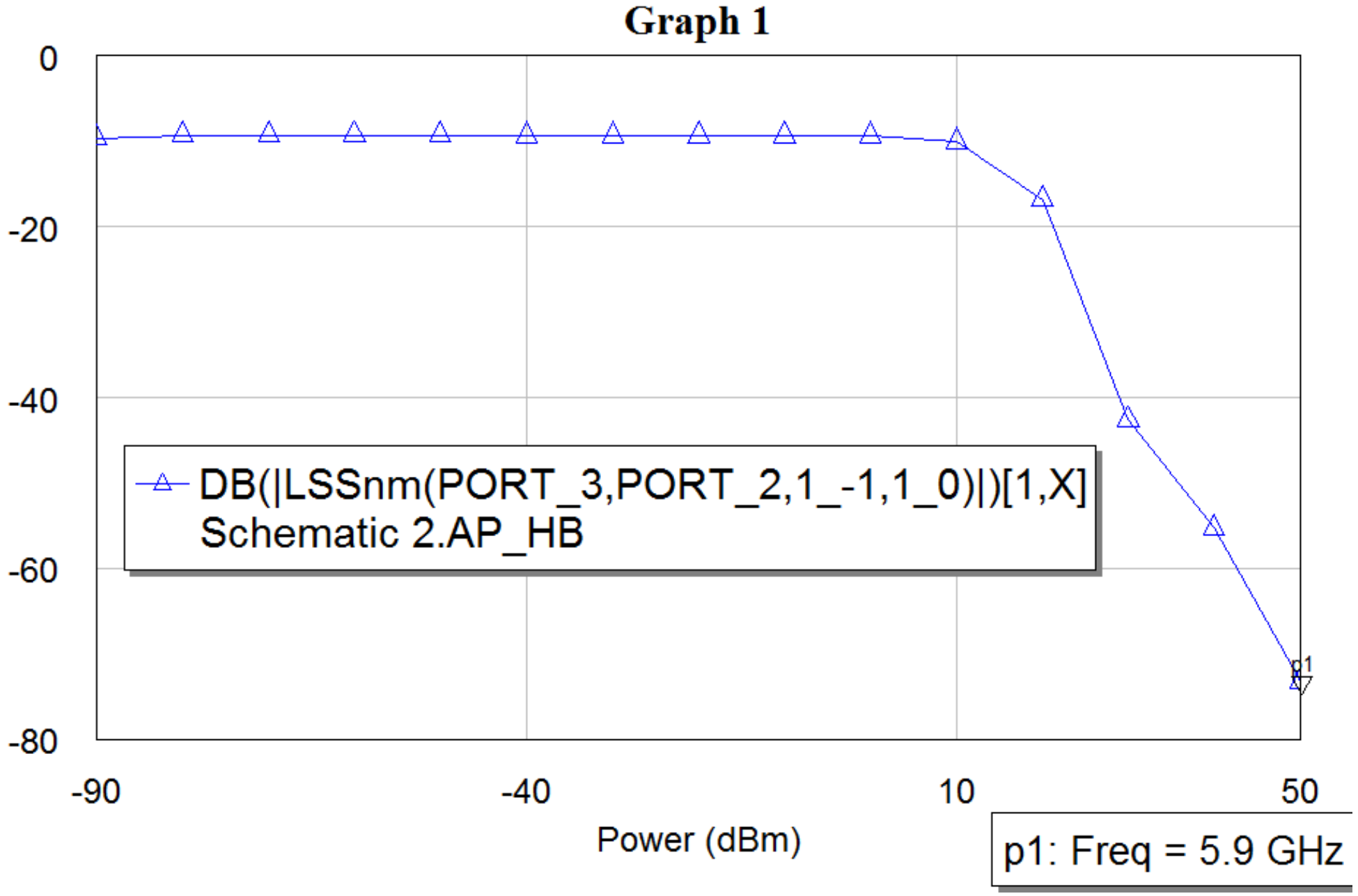



Graph 2
Swp Max
Gcomp(PORT_1,1)
Schematic 2
Swp Min
6GHz

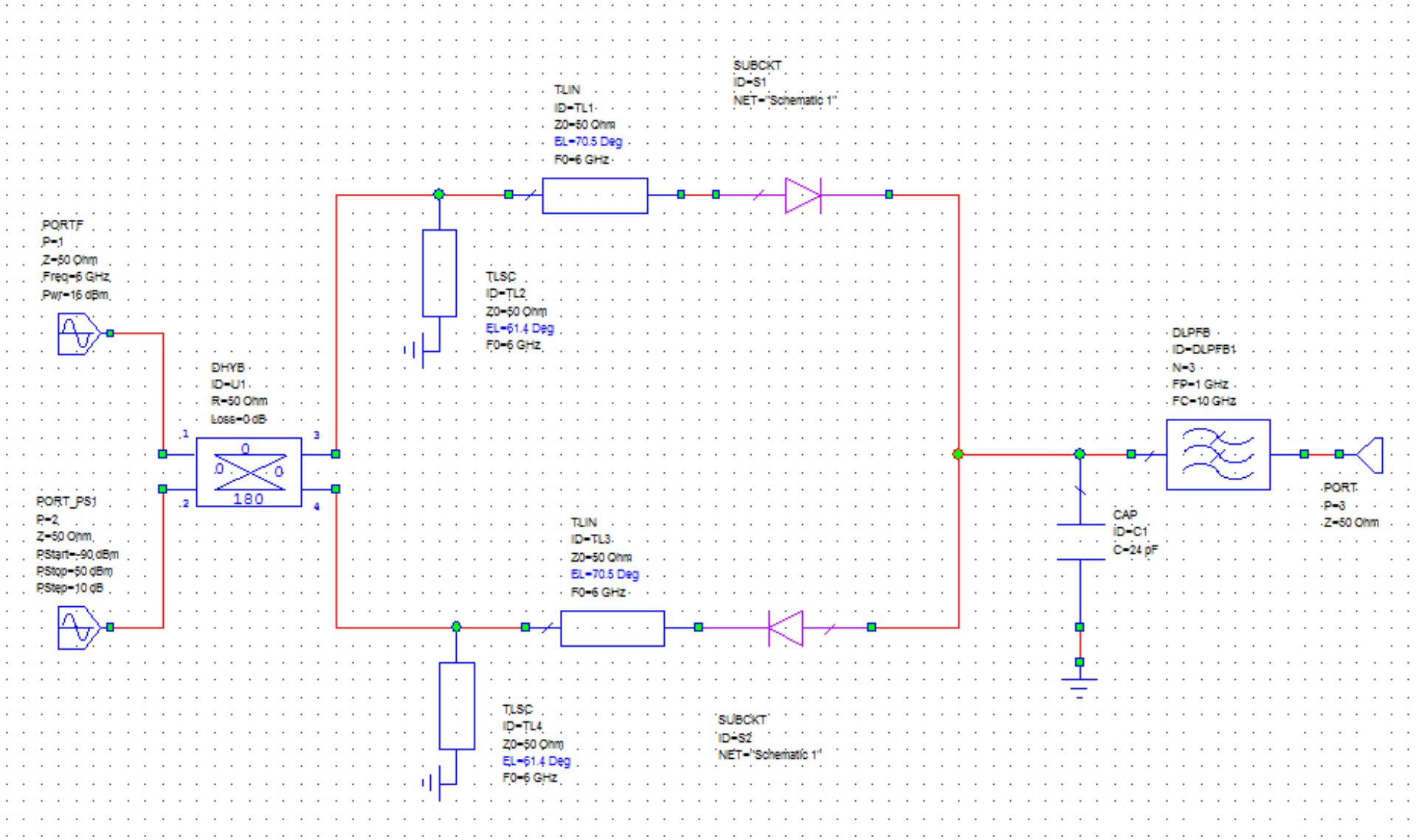

PORTF
P=1
Z=50 Ohm
Freq=6 GHz
Pwr=16 dBm
PORT_PS1
P=2
Z=50 Ohm
PStart=-90 dBm
PStop=50 dBm
PStep=10 dB
DHYB
ID=U1
R=50 Ohm
Loss=0 dB
0
0
0
180
1
2
3
4
RES
ID=R2
R=50 Ohm
TLSC
ID=TL2
Z0=50 Ohm
EL=61.4 Deg
F0=6 GHz
TLIN
ID=TL1
Z0=50 Ohm
EL=70.5 Deg
F0=6 GHz
SUBCKT
ID=S1
NET="Schematic 1"
CAP
ID=C1
C=24 pF
DLPFB
ID=DLPFB1
N=3
FP=1 GHz
FC=10 GHz
PORT
P=3
Z=50 Ohm

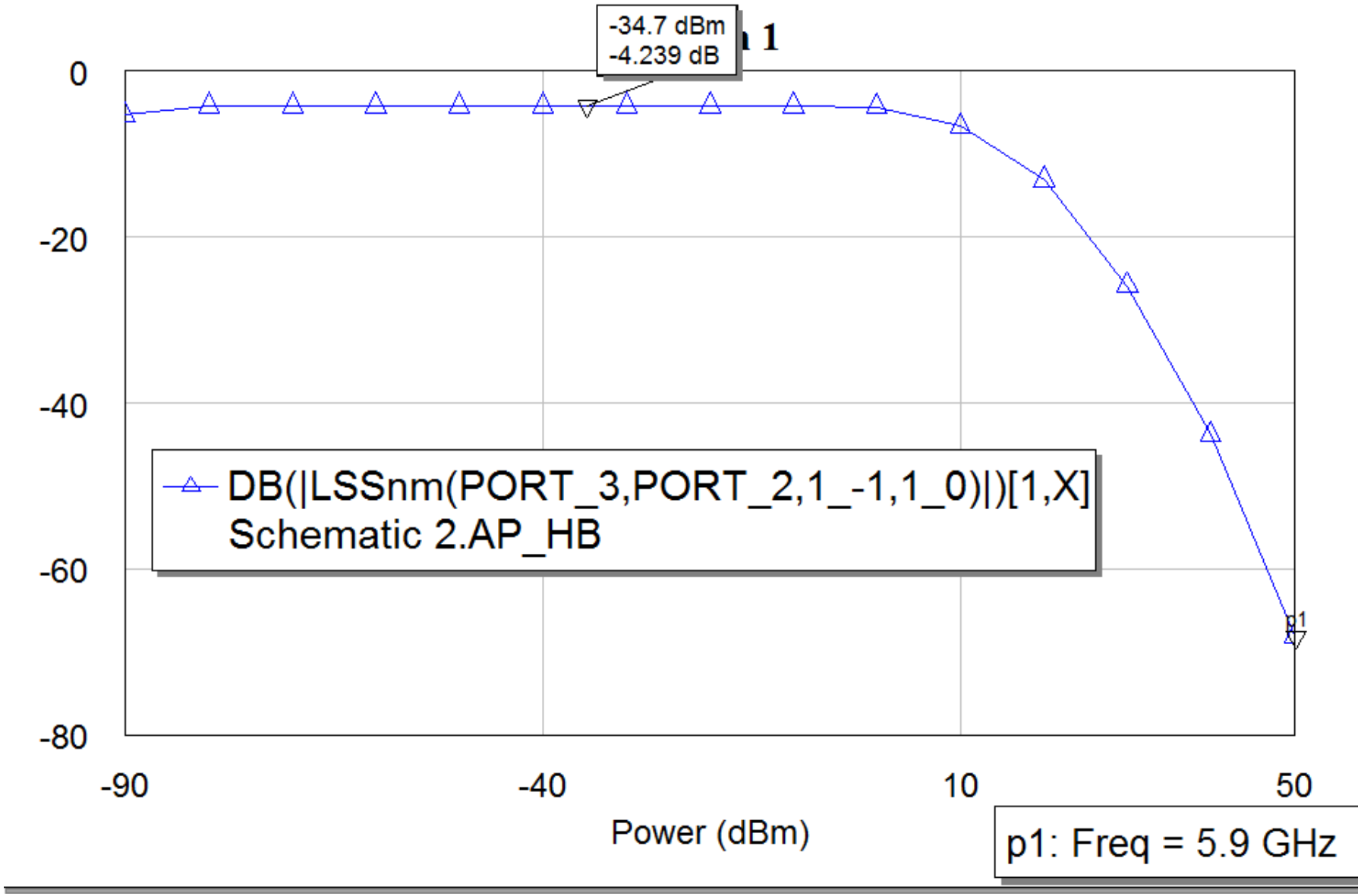

Modify Measurement
Measurements
Measurement Type
Nonlinear
Charge
Current
Intermod
Noise
Op Point
Oscillator
Parameter
Power
Measurement
Search...
AMtoAM
AMtoPM
DCRF
INMG
LSSnm
PAE
PAEB
PDC
PGain
PT
PTB
Large Signal S Parameter at Harmonic
Simulator
APLAC HB
Configuration
Default
Complex Modifier
Real
Imag.
Mag.
Angle
AngleU
Complex
Conjugate
dB
Data Source Name
Schematic 2
Port (To)
PORT_3
Port (From)
PORT_2
Harmonic Index (0.1 GHz)
1
-1
Harmonic Index (5.9 GHz)
1
0
Sweep Freq (FDOC)
Freq = 5.9 GHz
PORT_2
Use for x-axis
Select Data Set
{Current Result}

Perdita di conversione

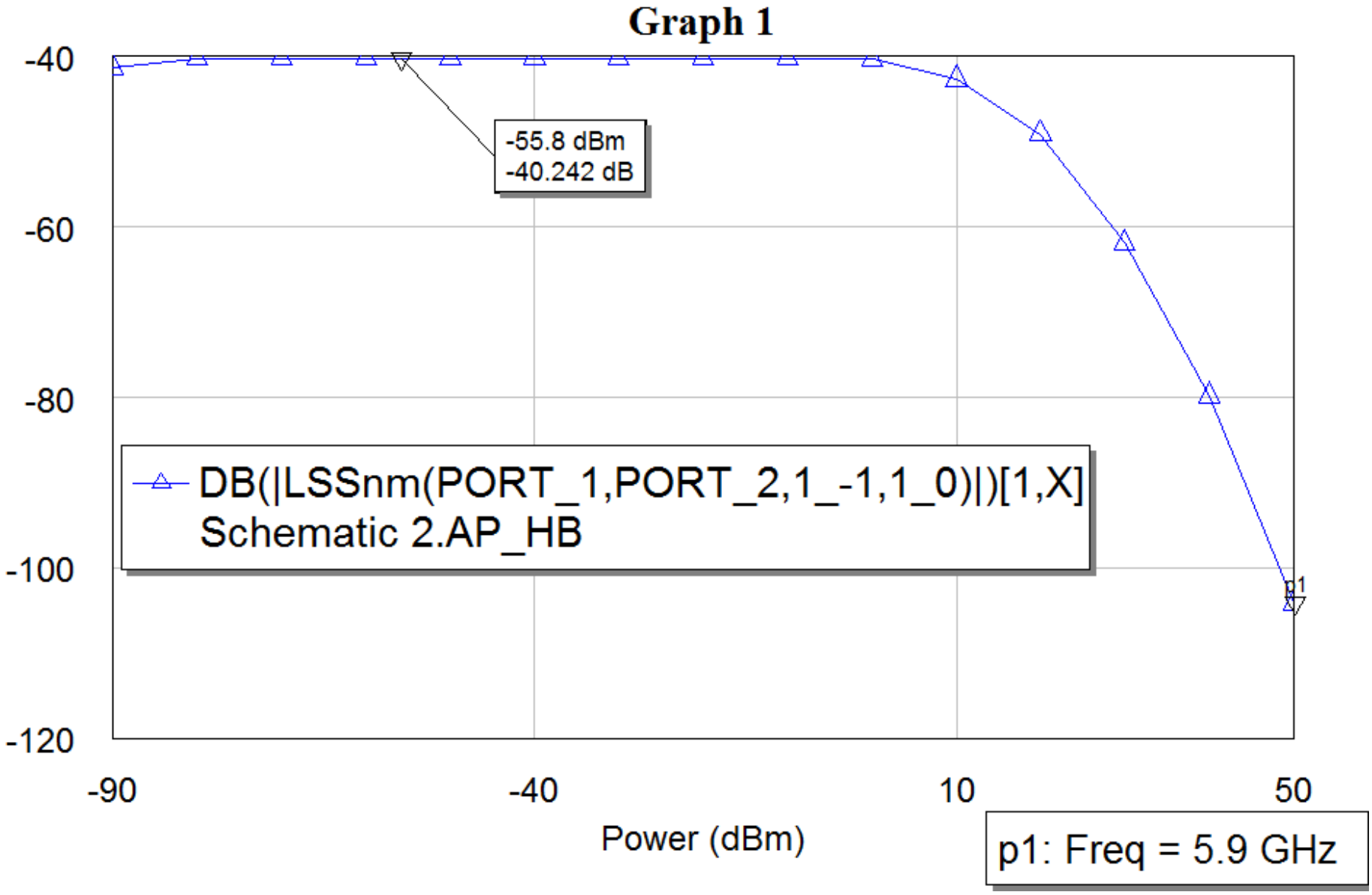


Mixer Bilanciato




-34.7 dBm
-4.239 dB
0
-20
-40
-60
-80
-90
-40
10
50
DB(|LSSnm(PORT_3,PORT_2,1_-1,1_0)|)[1,X]
Schematic 2.AP_HB
Power (dBm)
p1: Freq = 5.9 GHz

Isolamento


Graph 1
-40
-60
-80
-100
-120
-55.8 dBm
-40.242 dB
DB(|LSSnm(PORT_1,PORT_2,1_-1,1_0)|)[1,X]
Schematic 2.AP_HB
p1
-90
-40
10
50
Power (dBm)
p1: Freq = 5.9 GHz