

**MACOM**<sup>TM</sup>

*Partners from RF to Light*



**SPICE Model  
MA4P506-131**

Nov 14, 2022



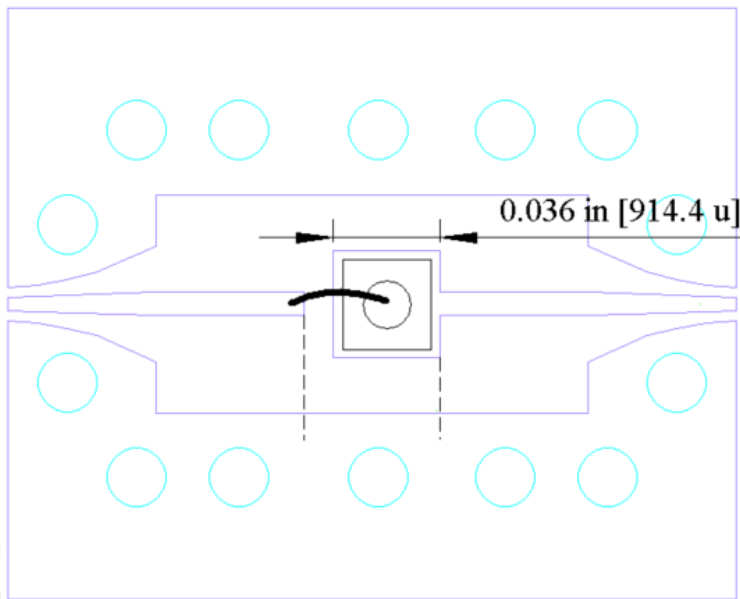
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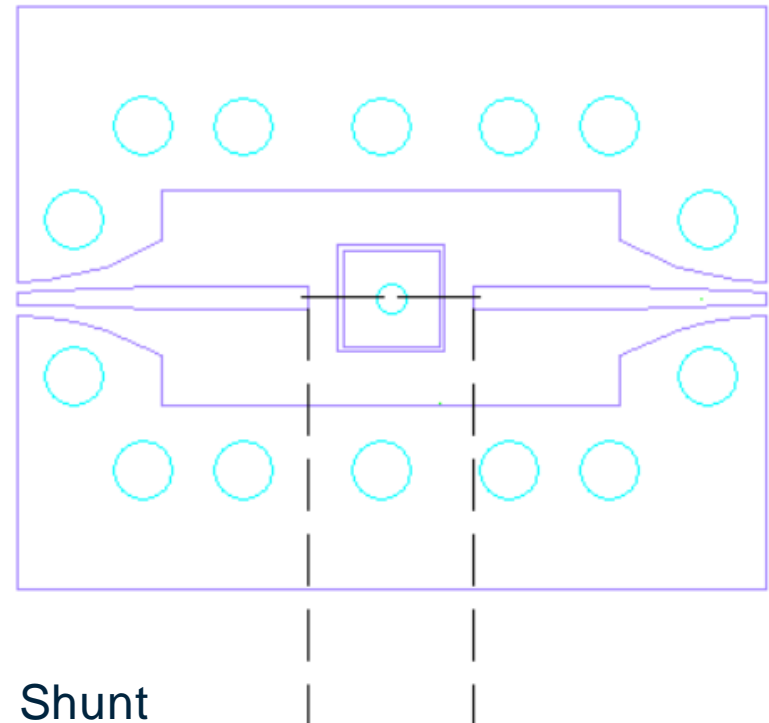
- **Test Fixtures**
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  - Series 100 mA
  - Series -40 V
  - Shunt 100 mA
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# Test Fixtures

- 10 mils Rogers RO3010 with 1/2 oz copper
- S-parameters measured with port extensions such that the reference planes are set to the dash lines on the input and output as shown below

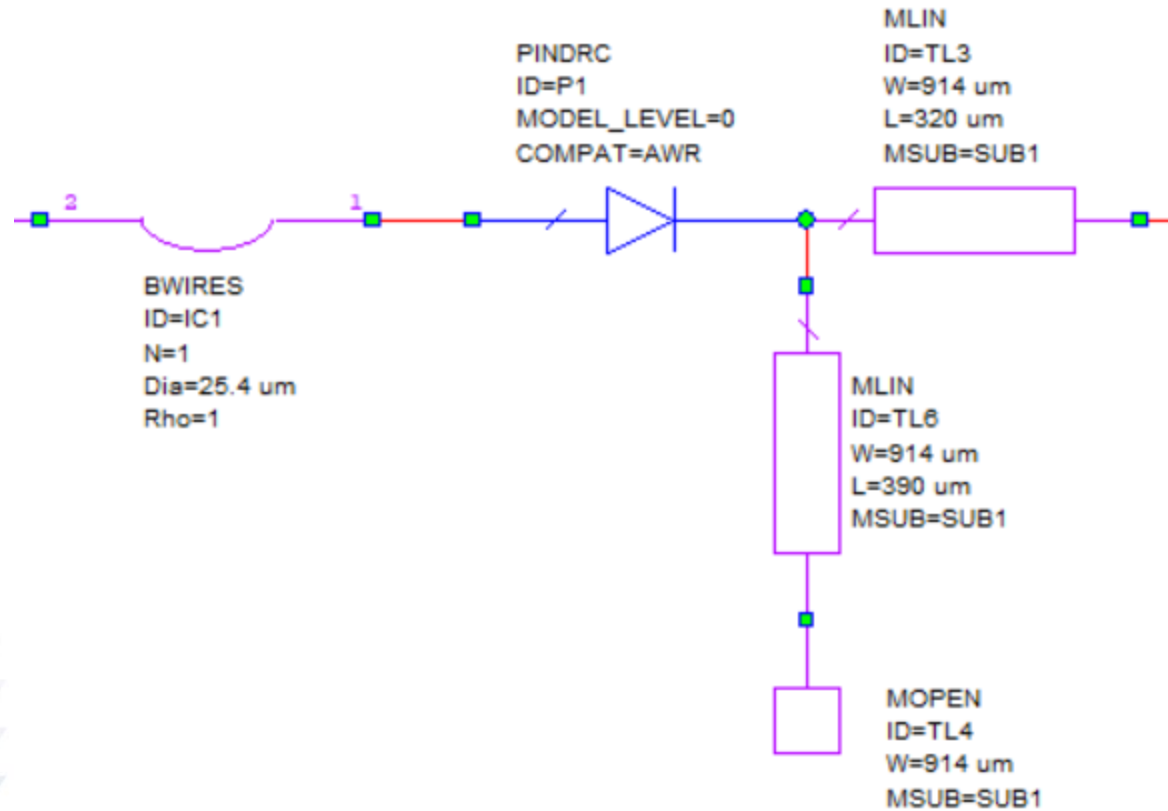


Series

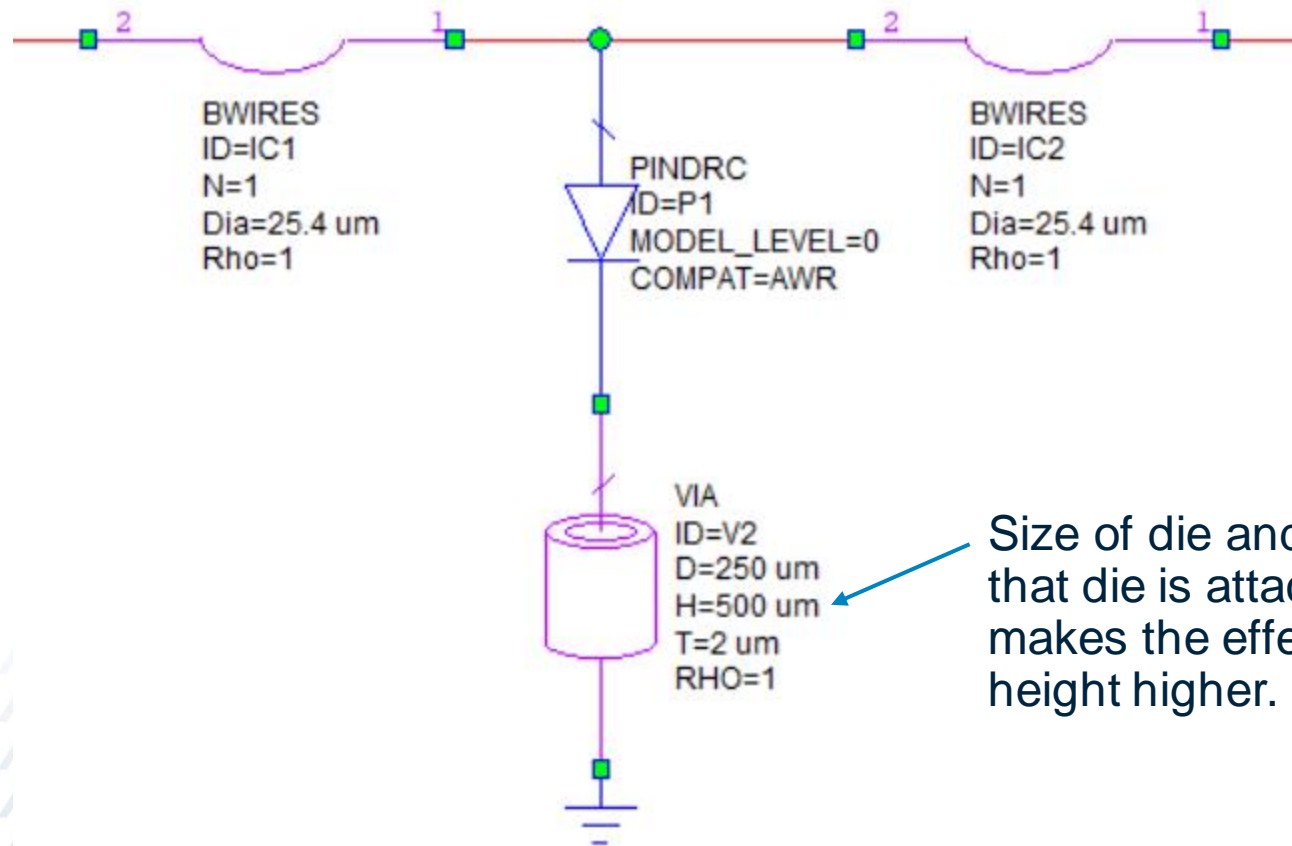


Shunt

# Series Test Fixture Model

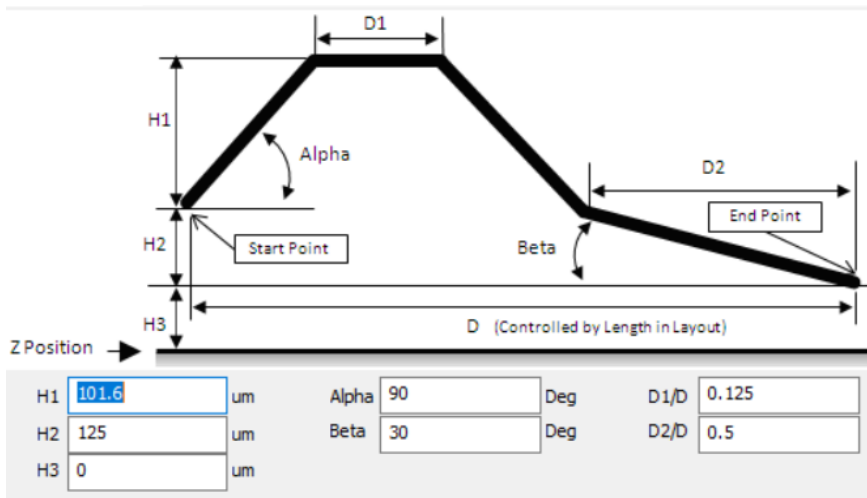


# Shunt Test Fixture Model



Size of die and bond pad that die is attached to makes the effective via height higher.

# Bond Wire



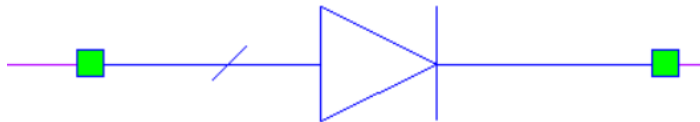
Element Options: BWIRES - Bond wire model (EIA/JEDEC Standard No. 59)

Bondwire Profile						
Parameters						
User Attributes						
Symbol						
Layout						
Model Option						
Name	Value	Unit	Tune	Optimize	Constrain	Lower
ID	IC1					
N	1					
Dia	25.4	um	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Rho	1		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
WModel	4 segments		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Alpha	90	Deg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Beta	30	Deg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
H1	101.6	um	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
H2	125	um	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
H3	0	um	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
D1_Ratio	0.125		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
D2_Ratio	0.5		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
P0	{0,0}	um				
P1	{BW_len,0}	um				
IndModel	RLC		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

BW\_len = 1110

# Robert Caverly PIN Diode Model

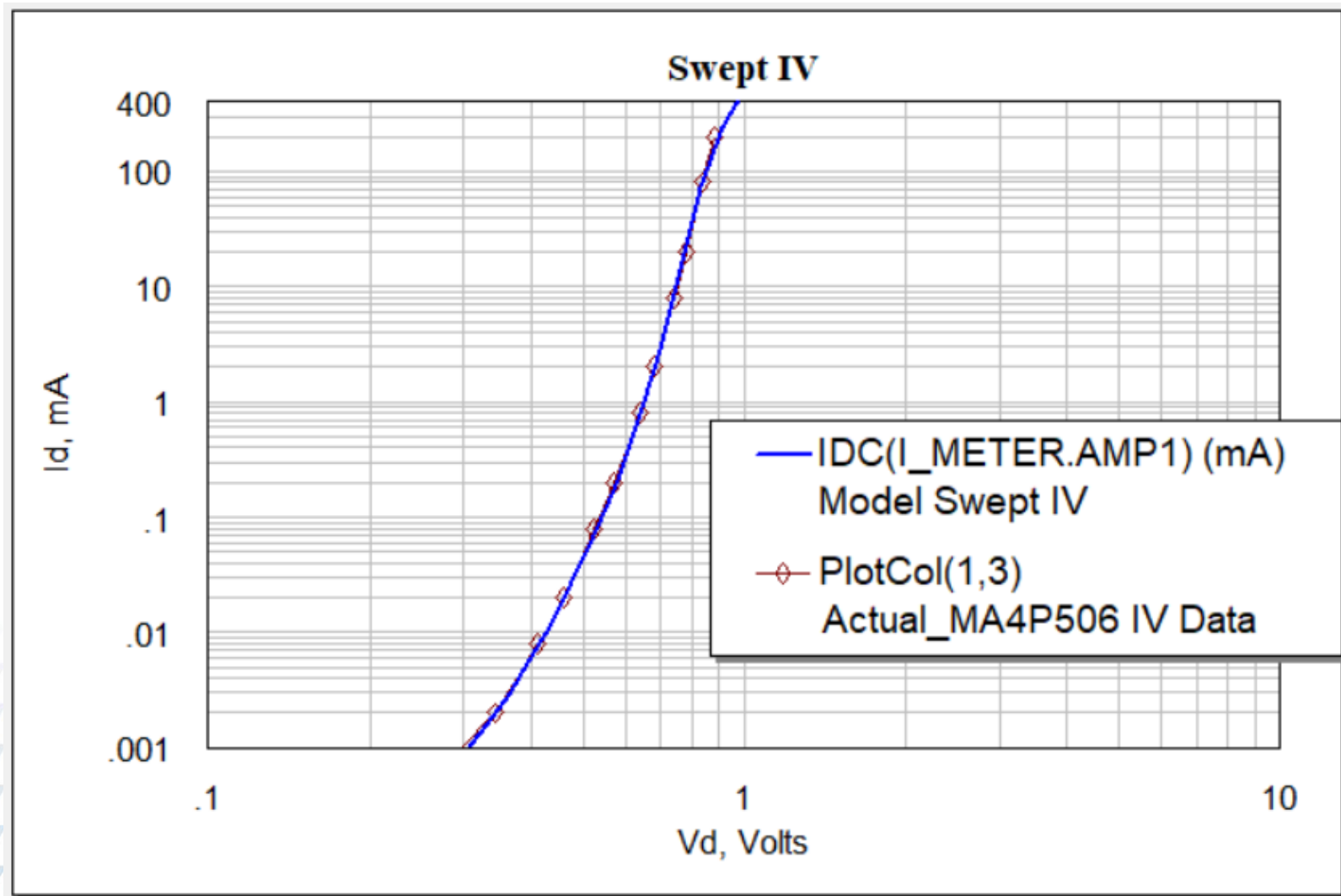
PINDRC  
 ID=P1  
 MODEL\_LEVEL=0  
 COMPAT=AWR



Name	Value	Unit
ID	P1	
IS	Is	mA
IKNEE	Iknee	mA
N	Npin	
RLIM	Rs	Ohm
REPI	Repi	Ohm
CJ	Cj	pF
CPKG	Cpkg	pF
TAU	LT	ns
W	W	
B	3	
LBOND	Lpkg	nH
TNOM	26.85	DegC
TEMP	26.85	DegC
AREA	1	
NFLAG	Noise Off	

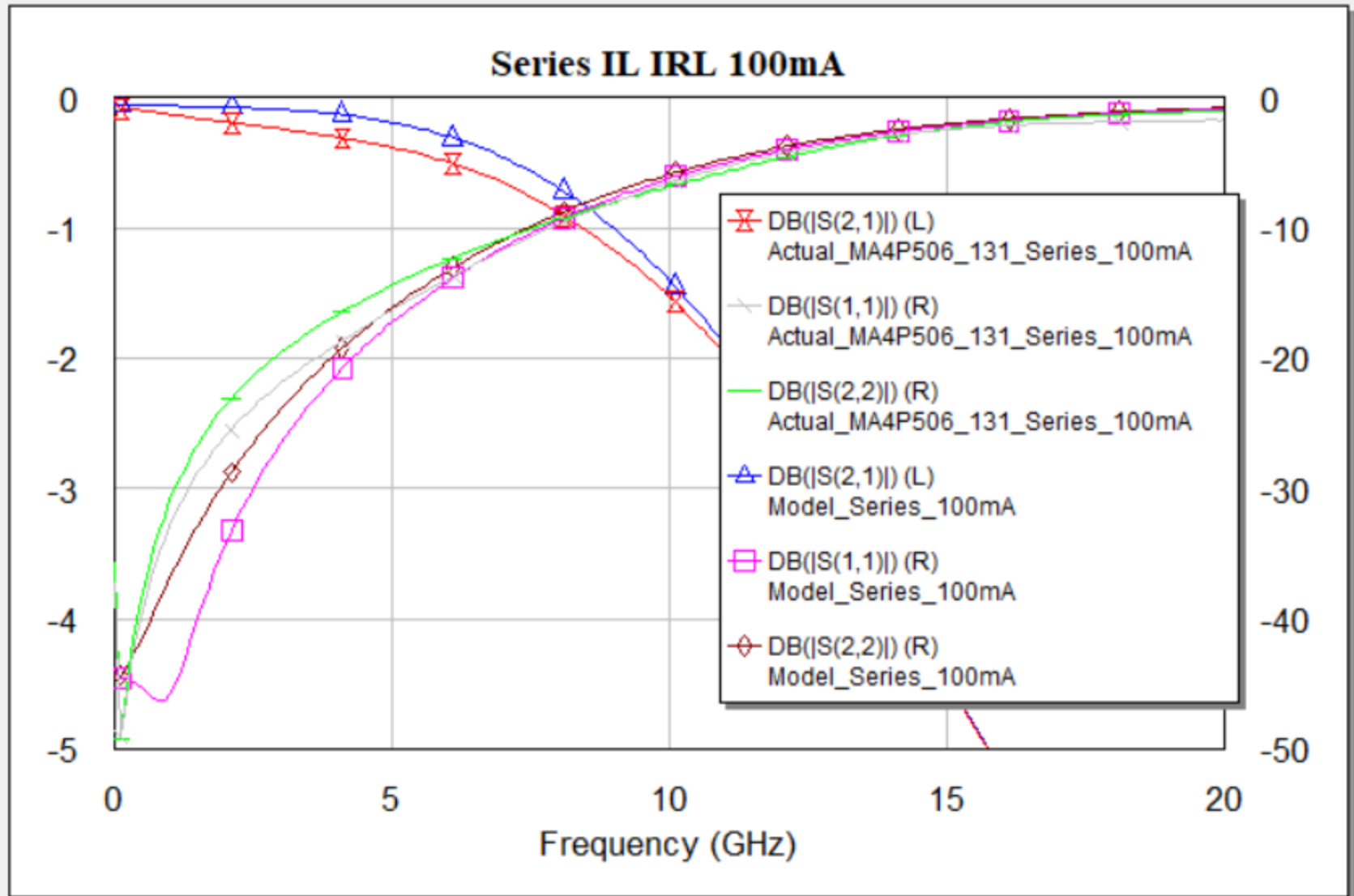
$I_s=2.5e-06$   
 $I_{knee}=3.7$   
 $N_{pin}=0.98$   
 $R_{epi}=1000$   
 $LT=2180$   
 $W=51$   
 $C_j=0.64$   
 $R_s=0.15$   
 $C_{pkg}=0$   
 $L_{pkg}=0$

# IV Curve

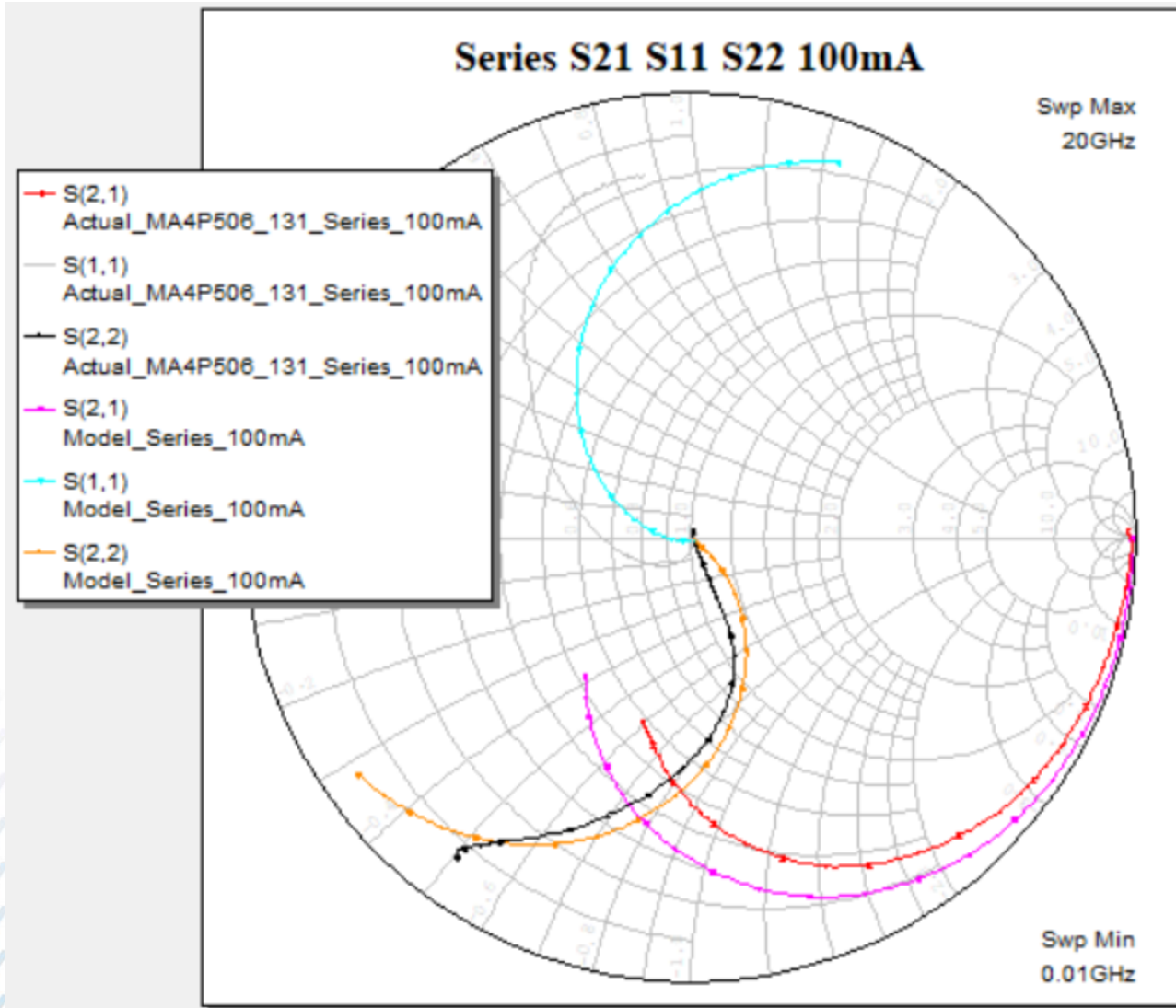




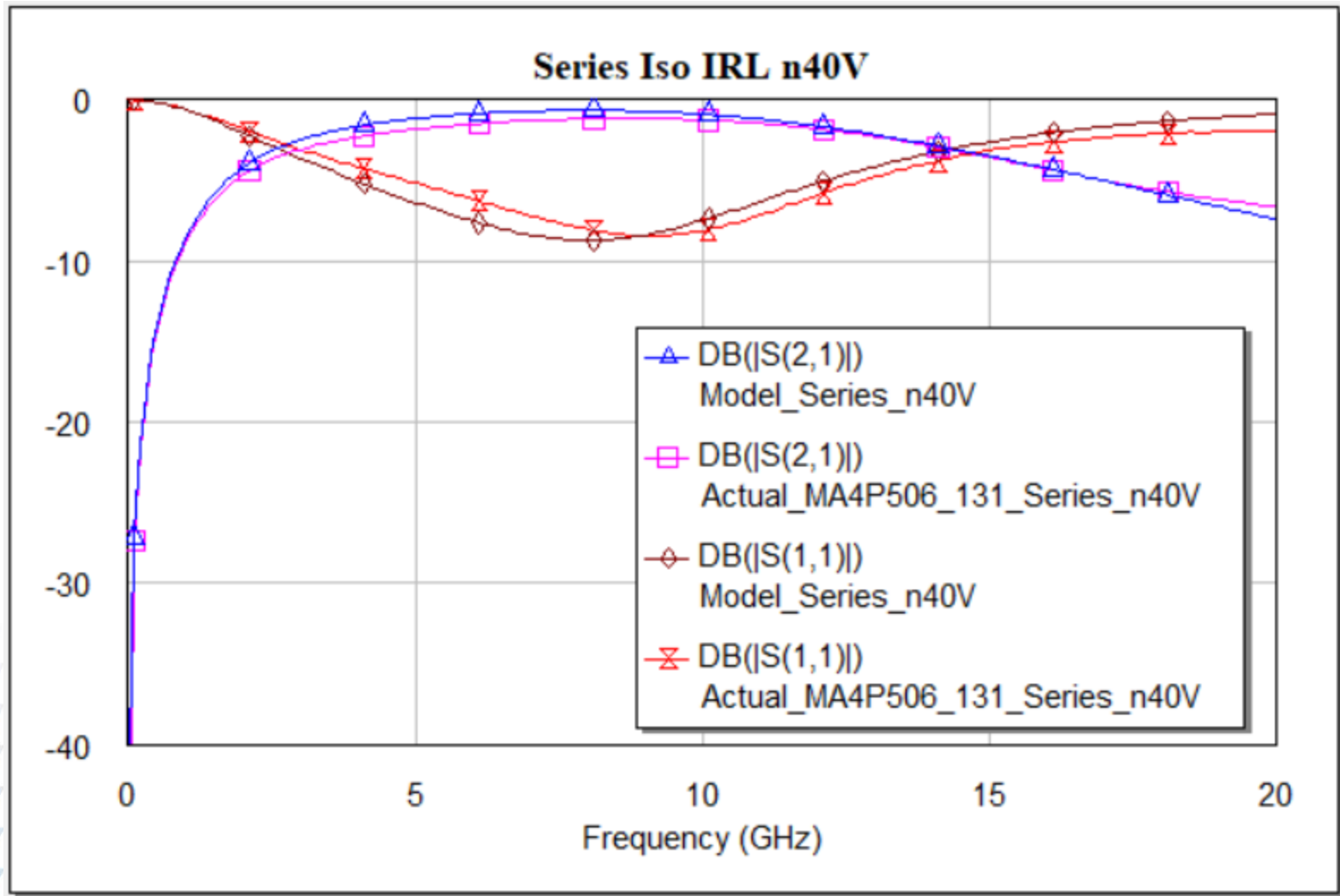
# Series 100 mA



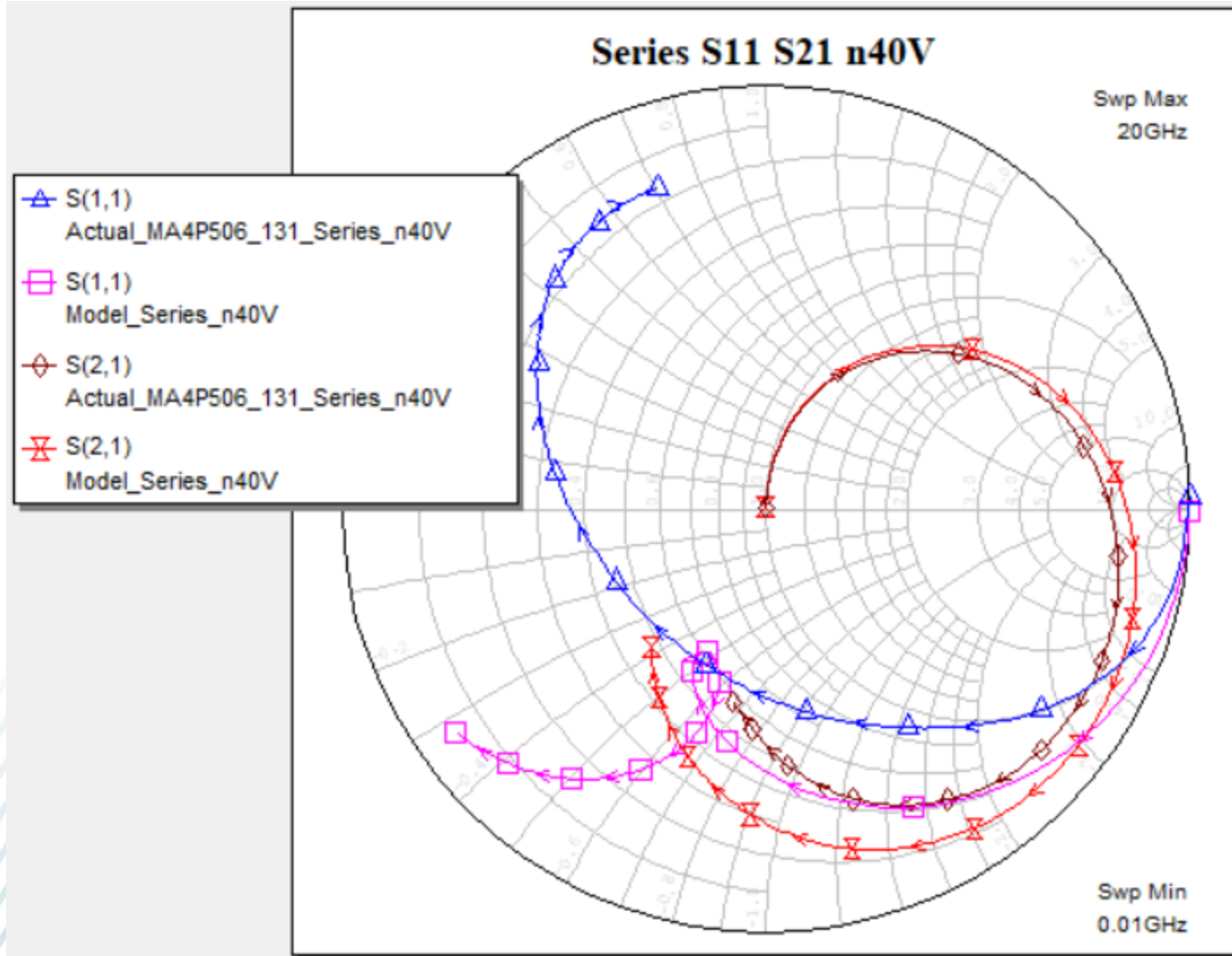
# Series 100 mA



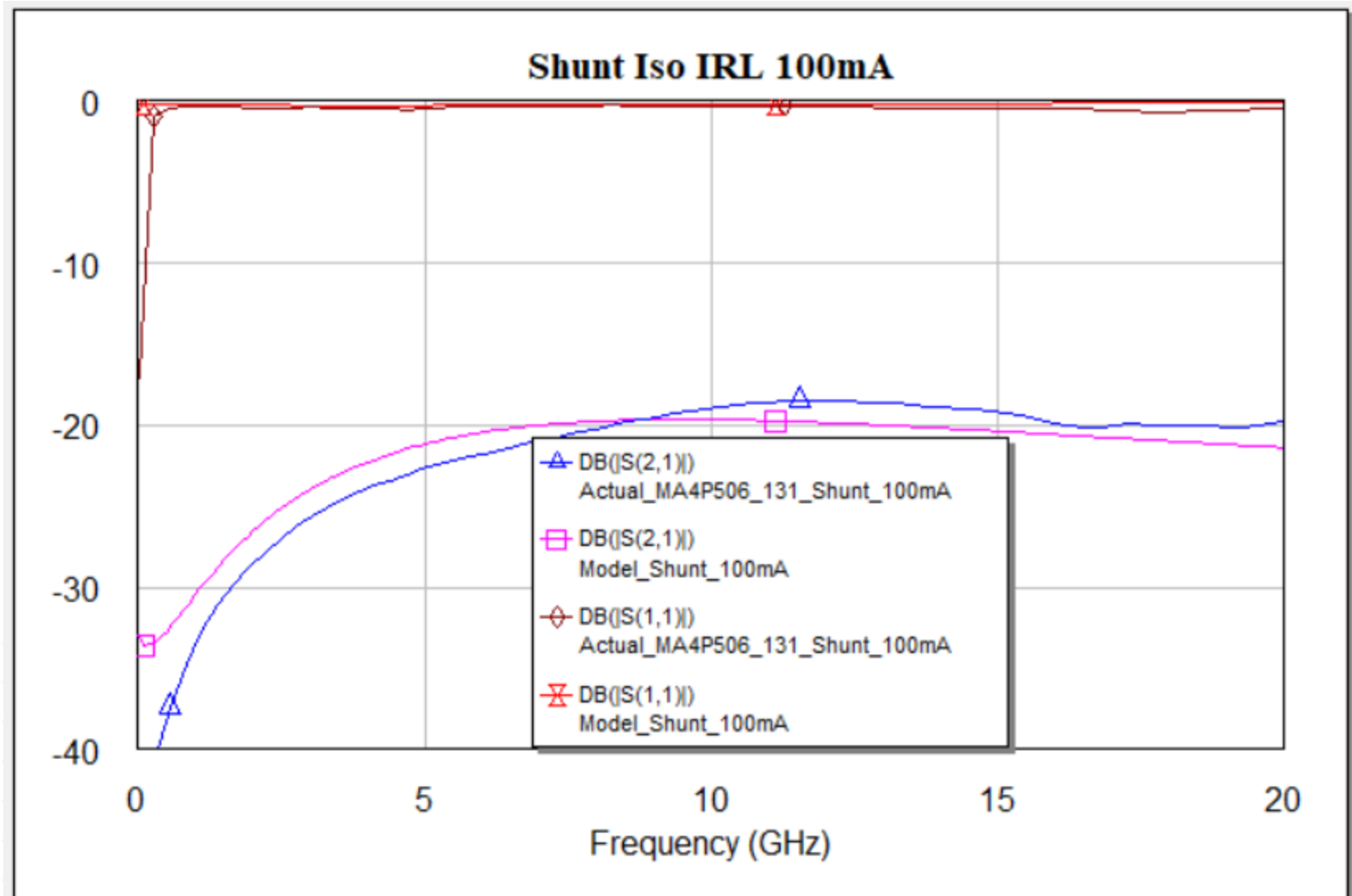
# Series -40 V



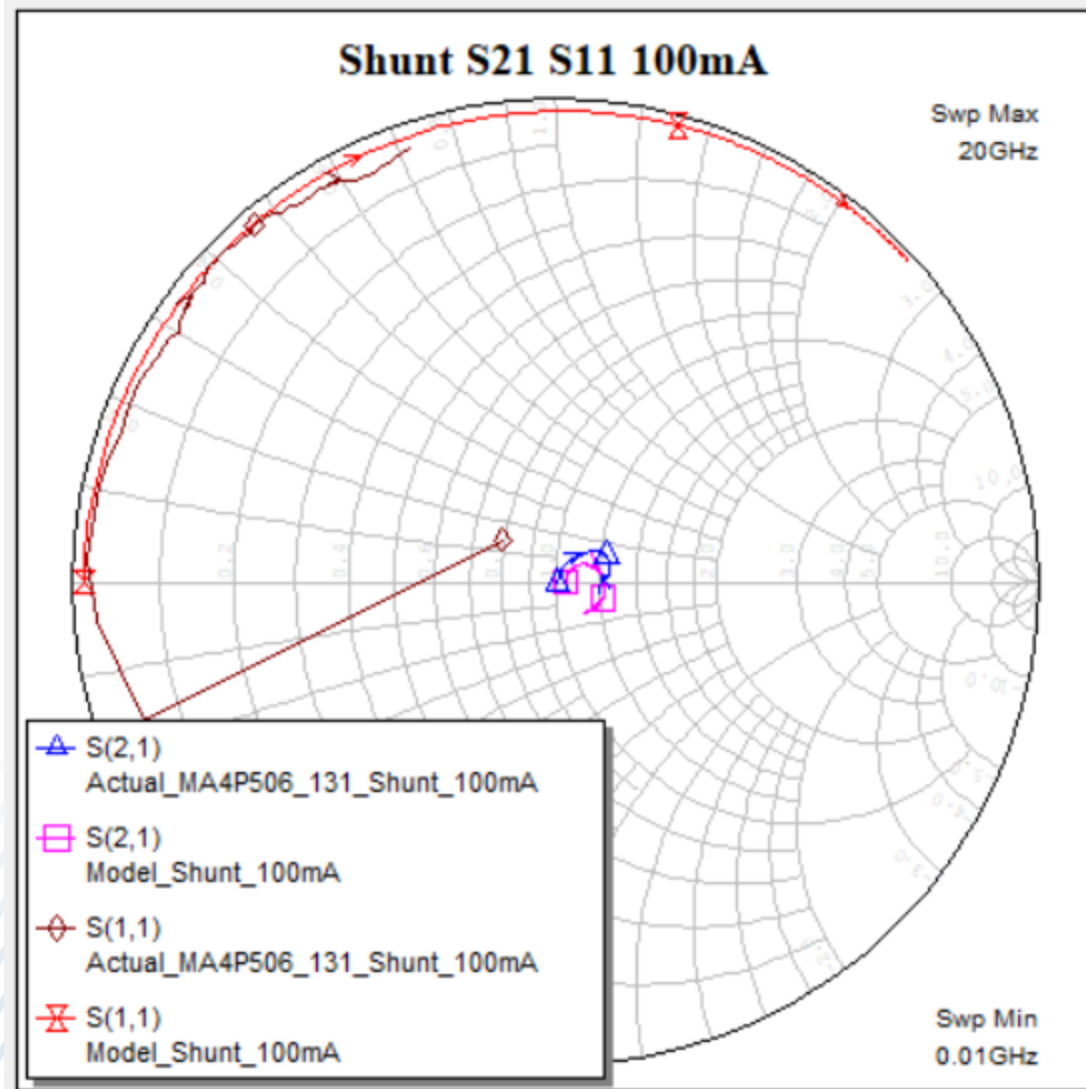
# Series -40 V

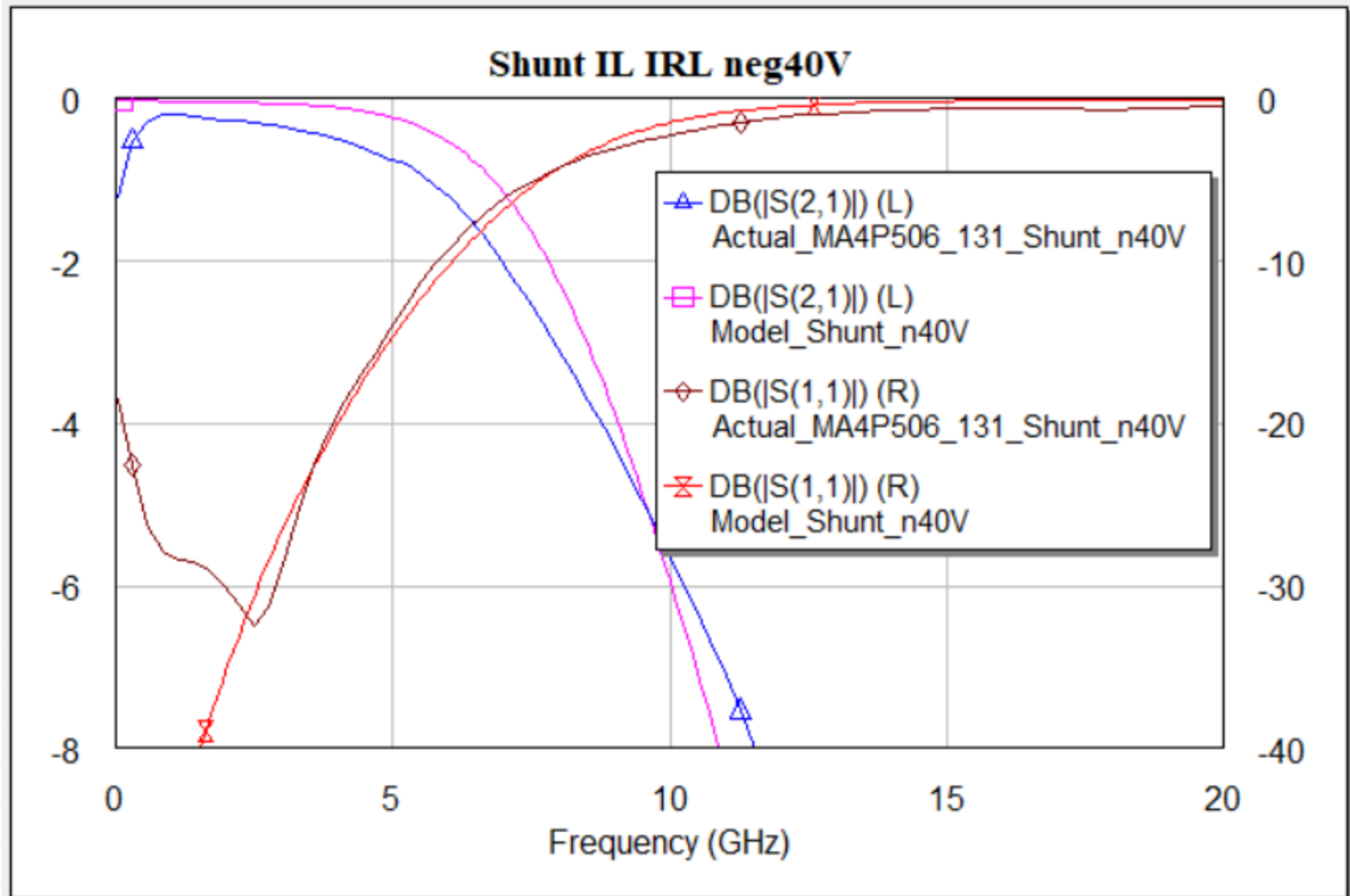


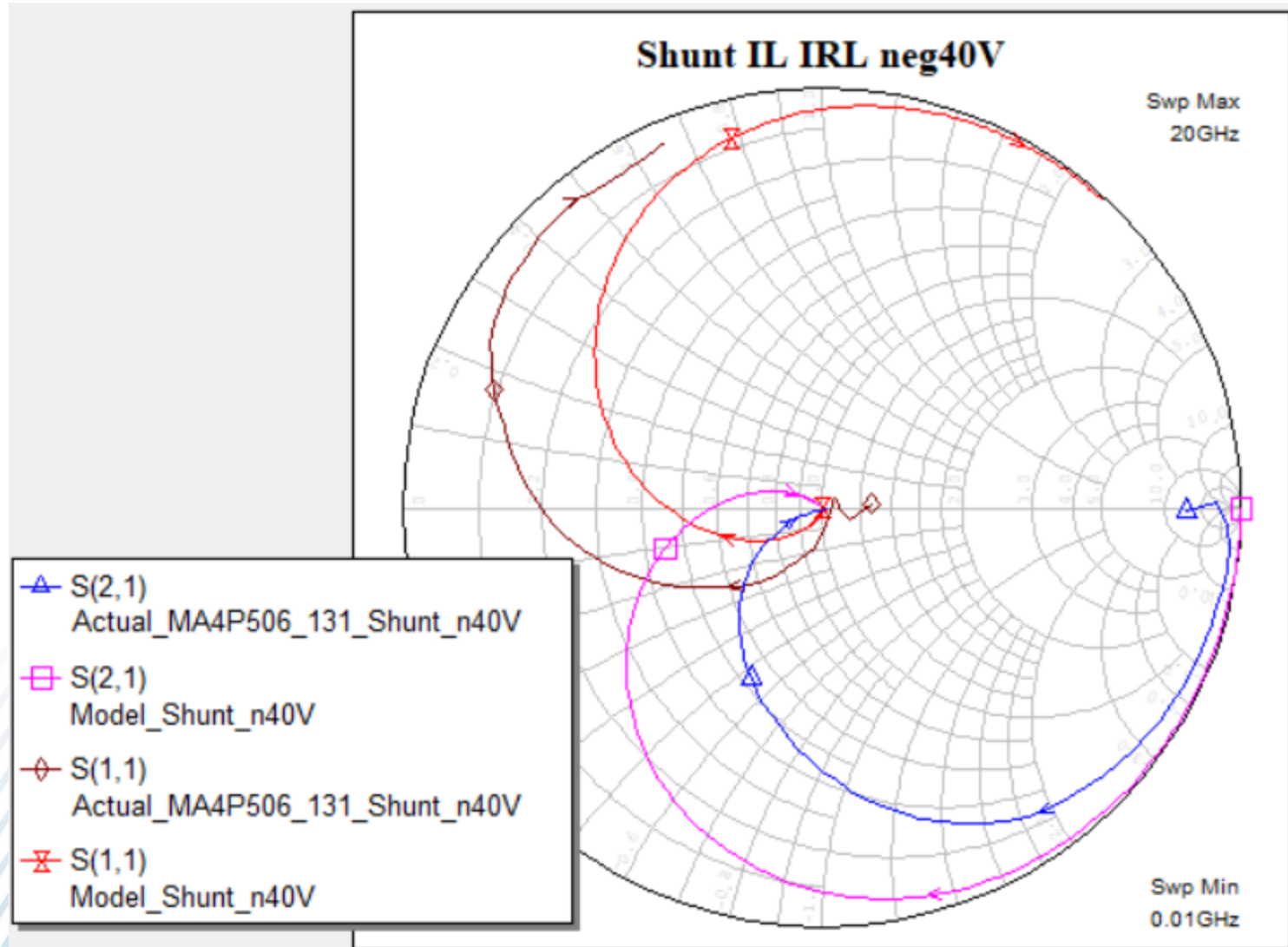
# Shunt 100 mA



# Shunt 100 mA









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