Biasing MSA and MAR/MAV Series Silicon MMICs

Al Ward

W5LUA

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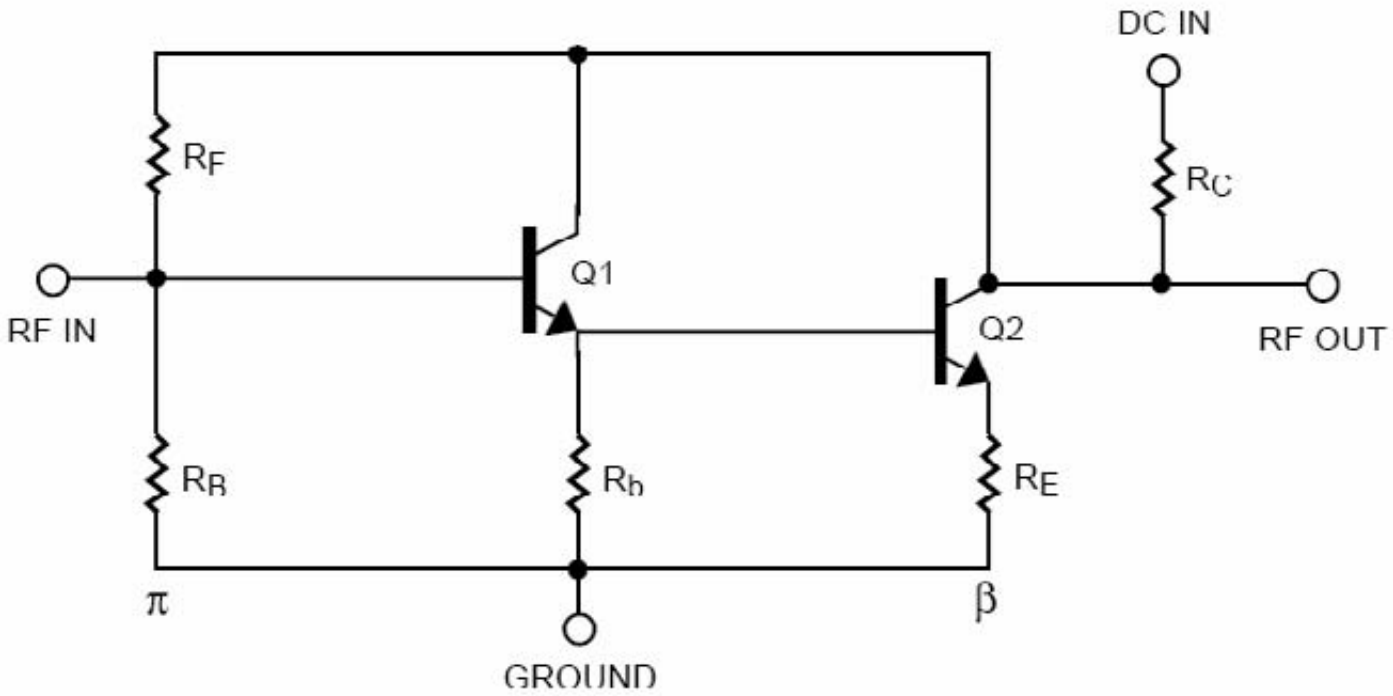
MSA and MAR/MAV Series Silicon MMICs



Darlington connected transistor pair

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MSA-1105

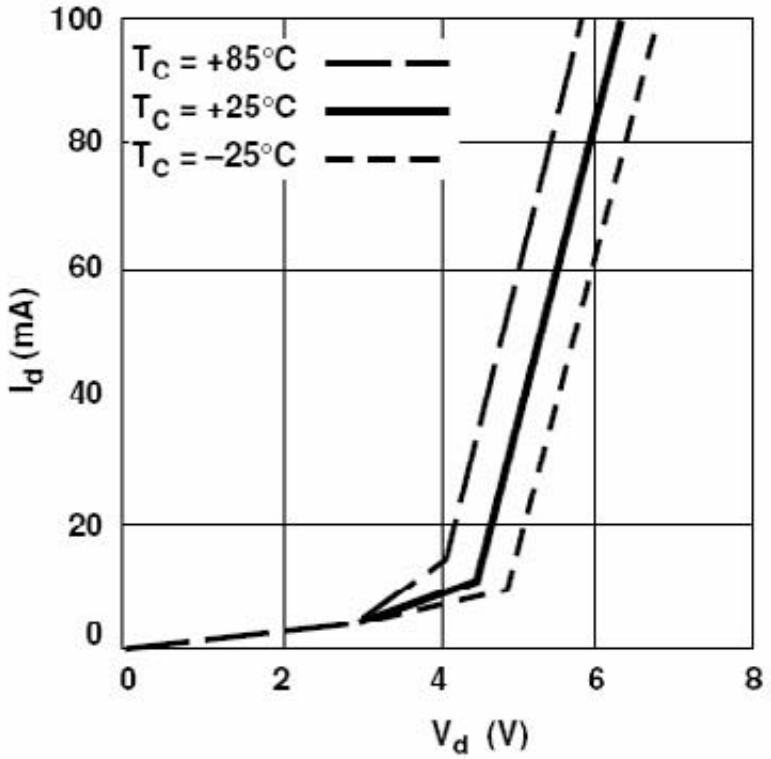
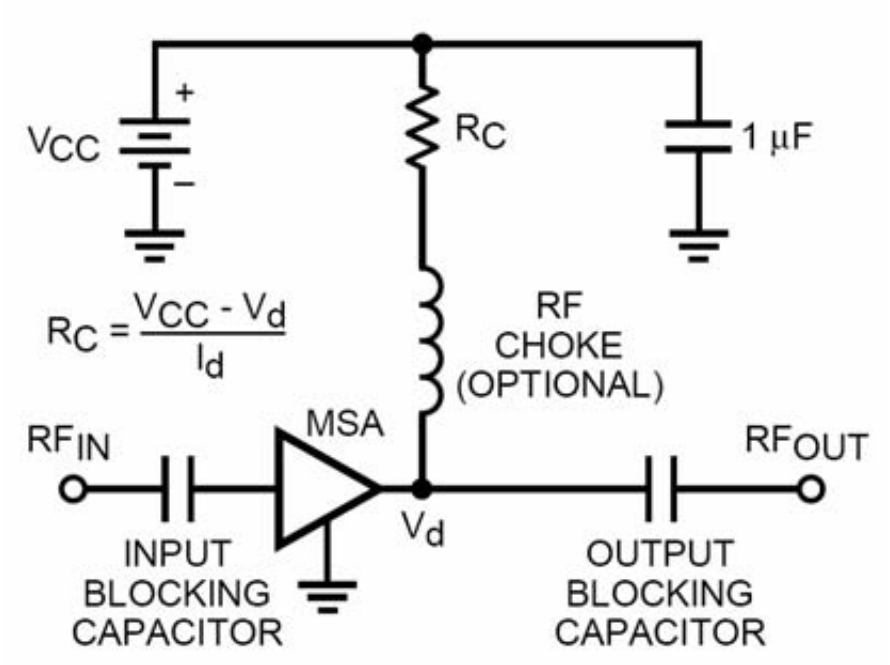


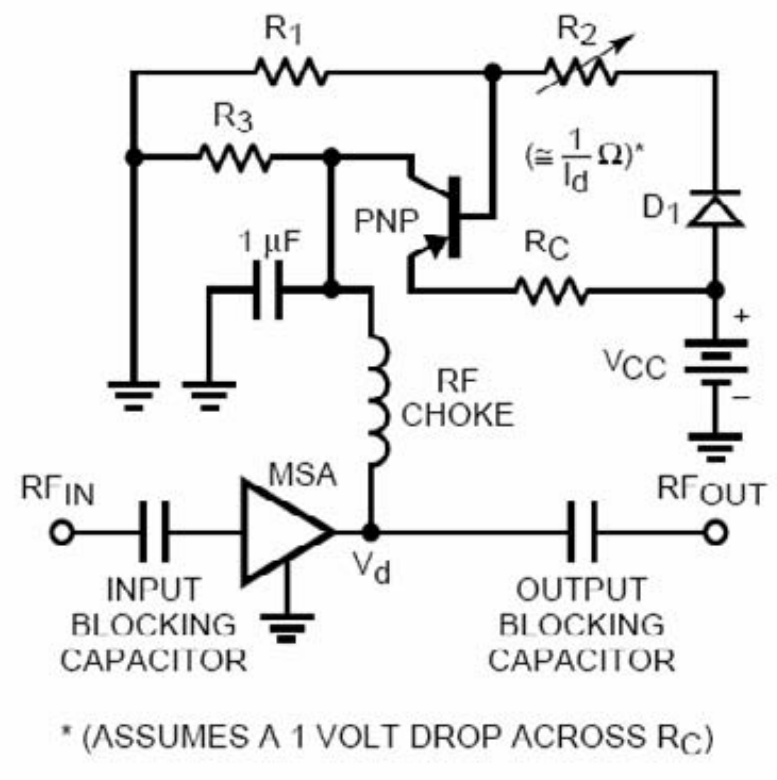
Figure 2. Device Current vs. Voltage.

Two Biasing Techniques for MSA Devices

Passive Biasing

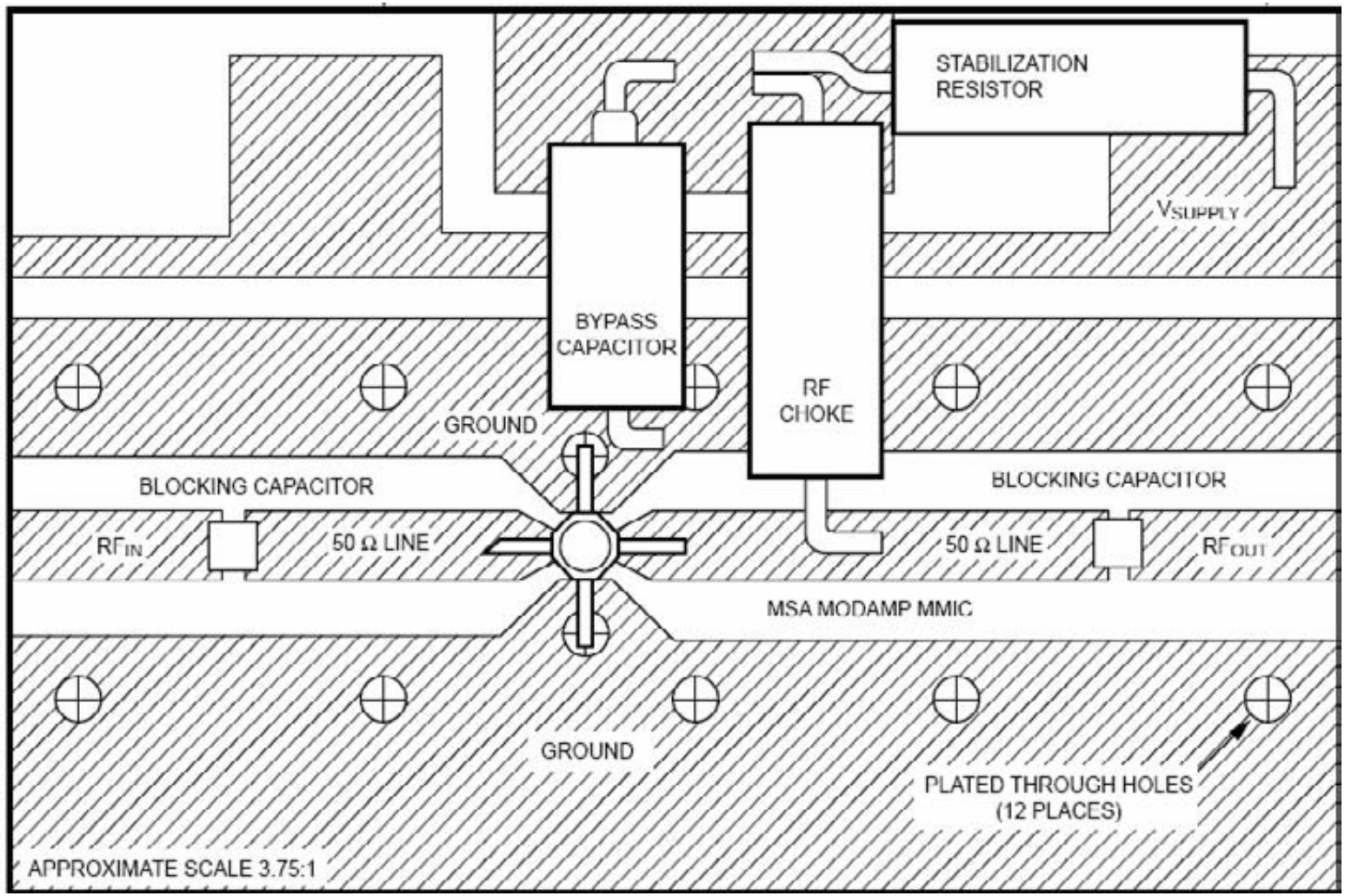


Active Biasing

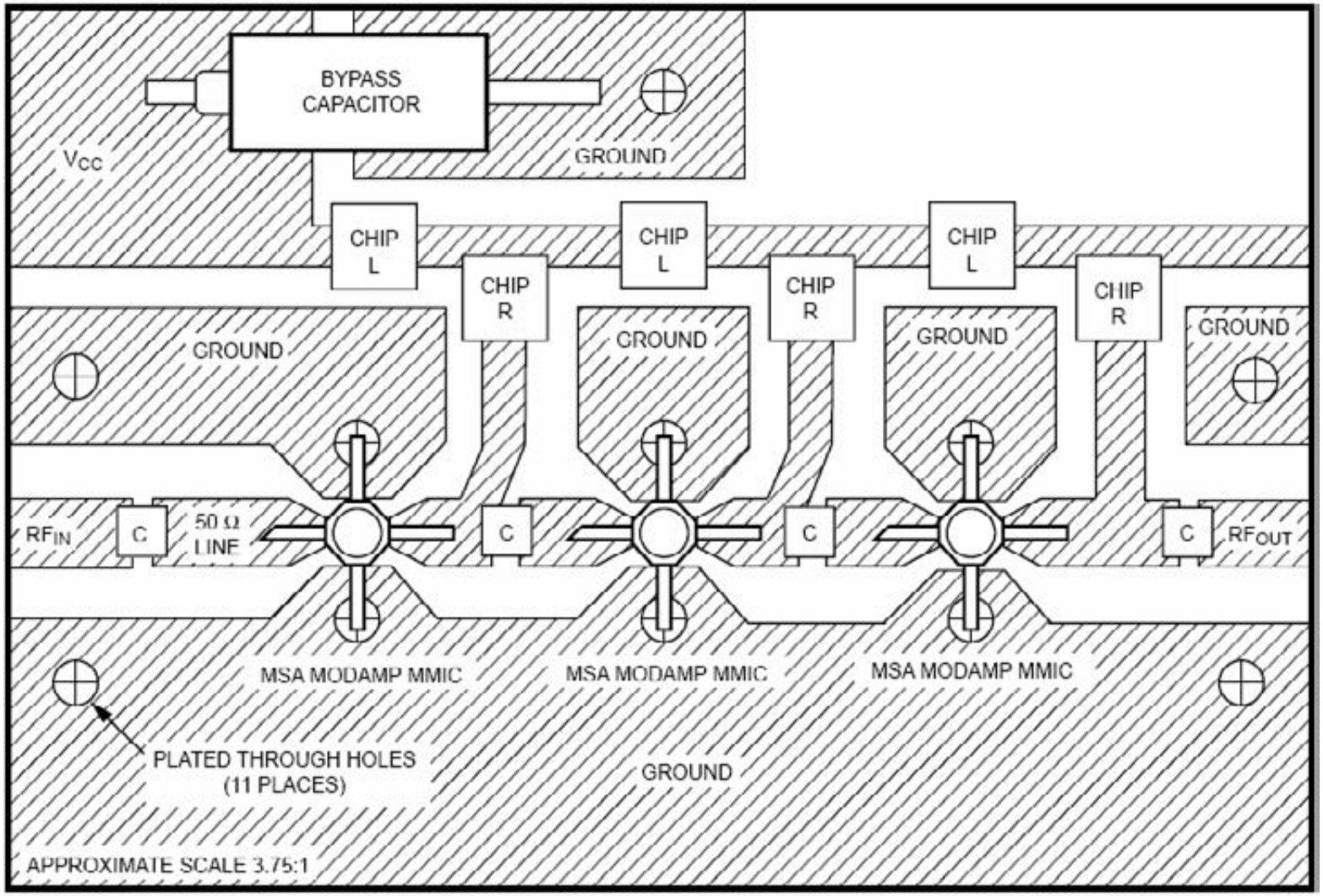


R=(12-5.5)/.059
= 110Ω

Typical MSA Demo Board



Cascading MSA MMICs



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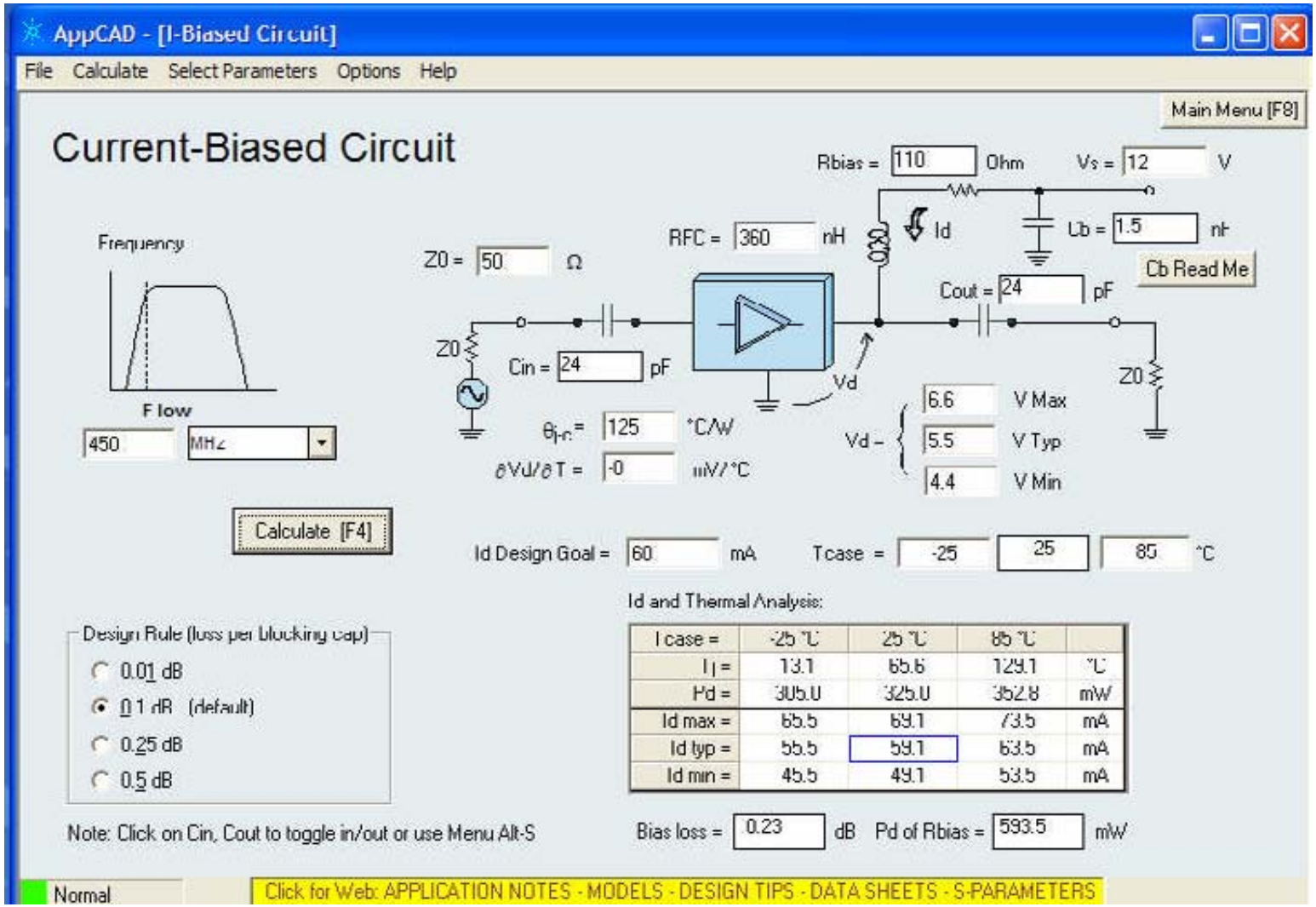
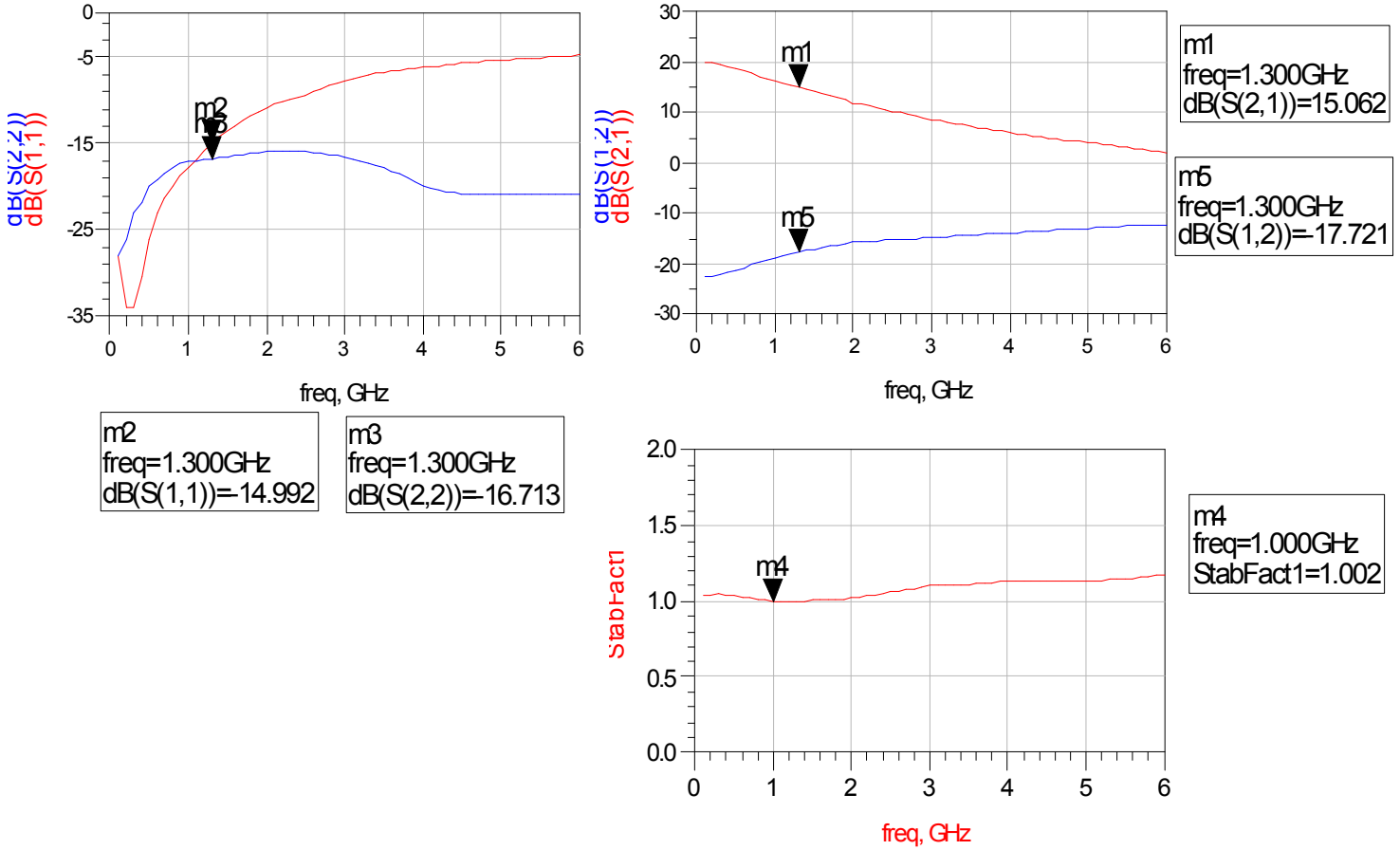
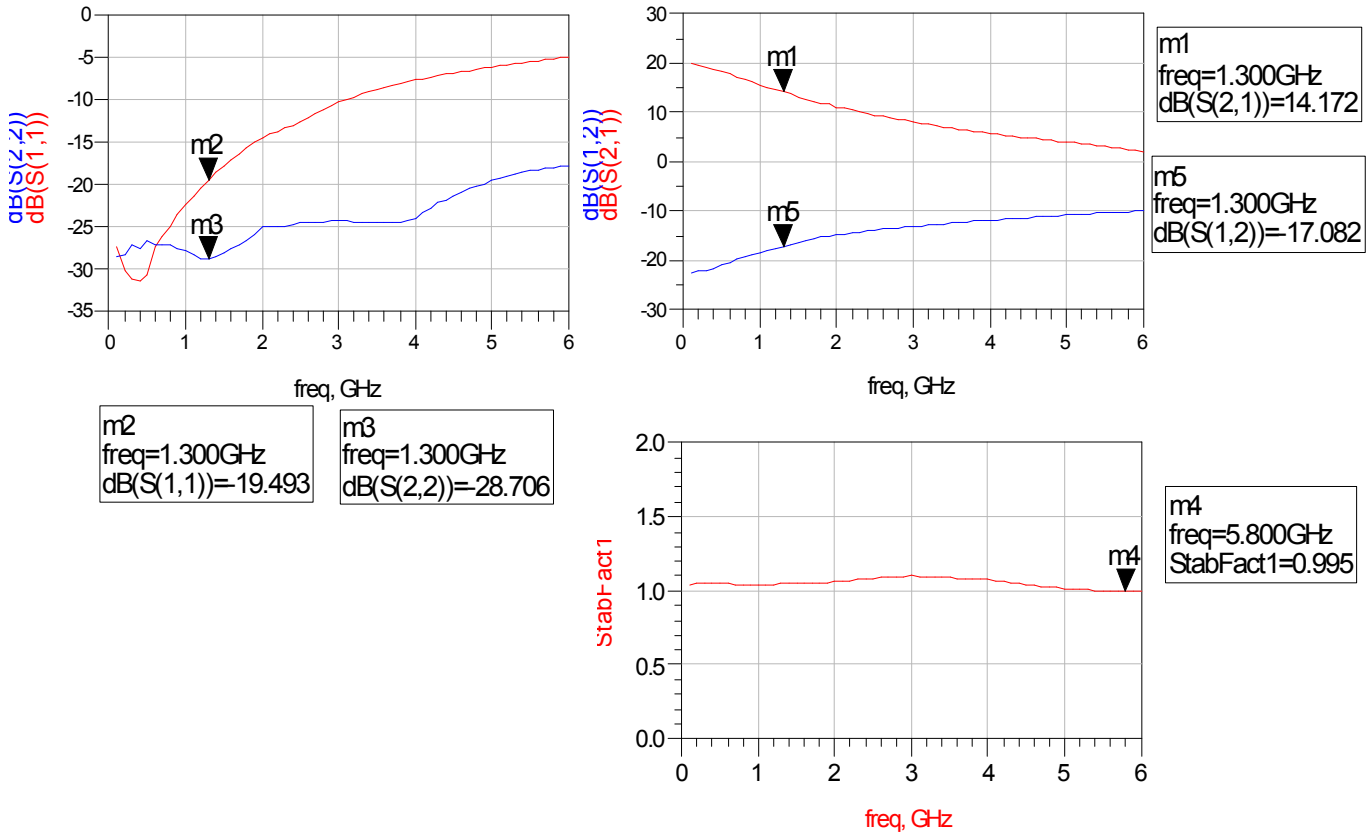


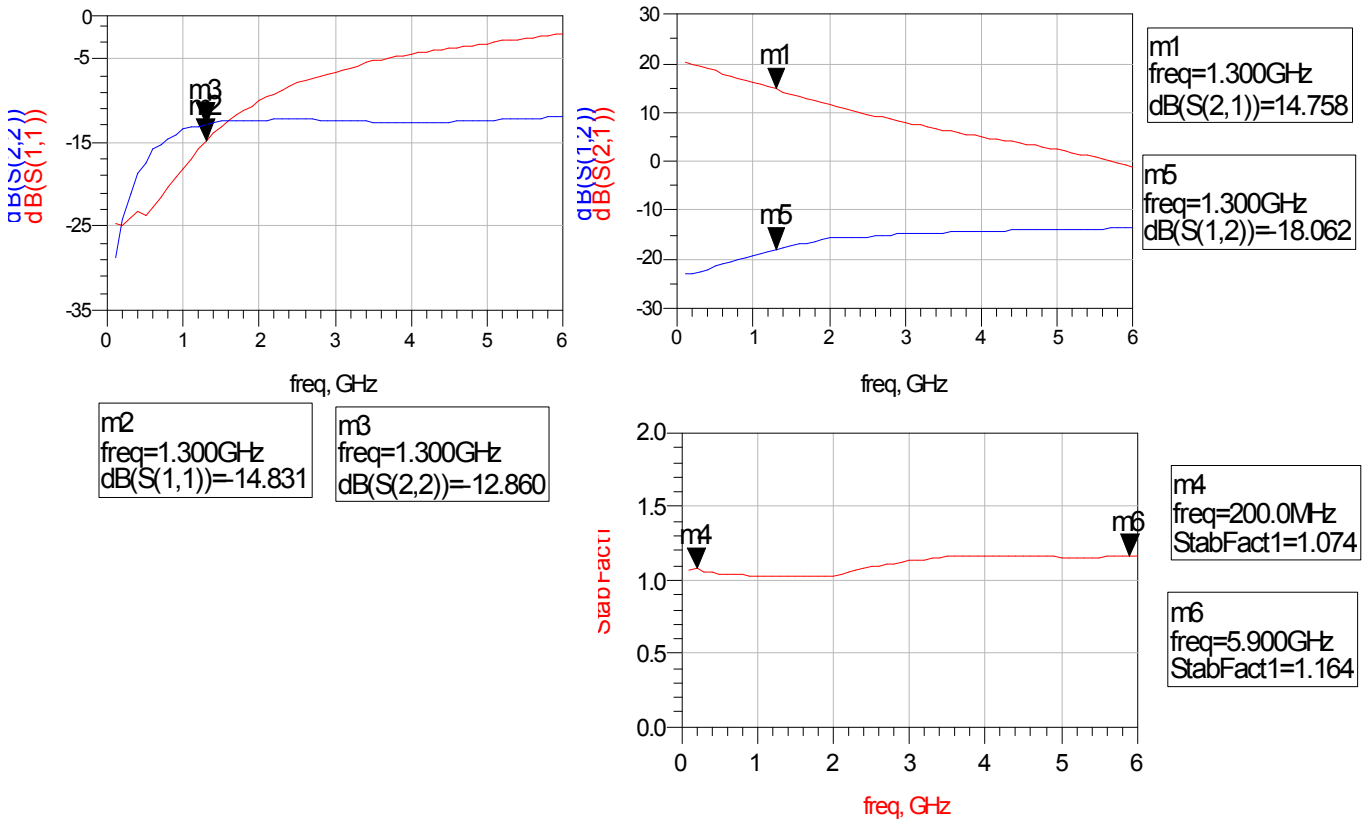
MSA-0686 with Common Leads Hard Grounded



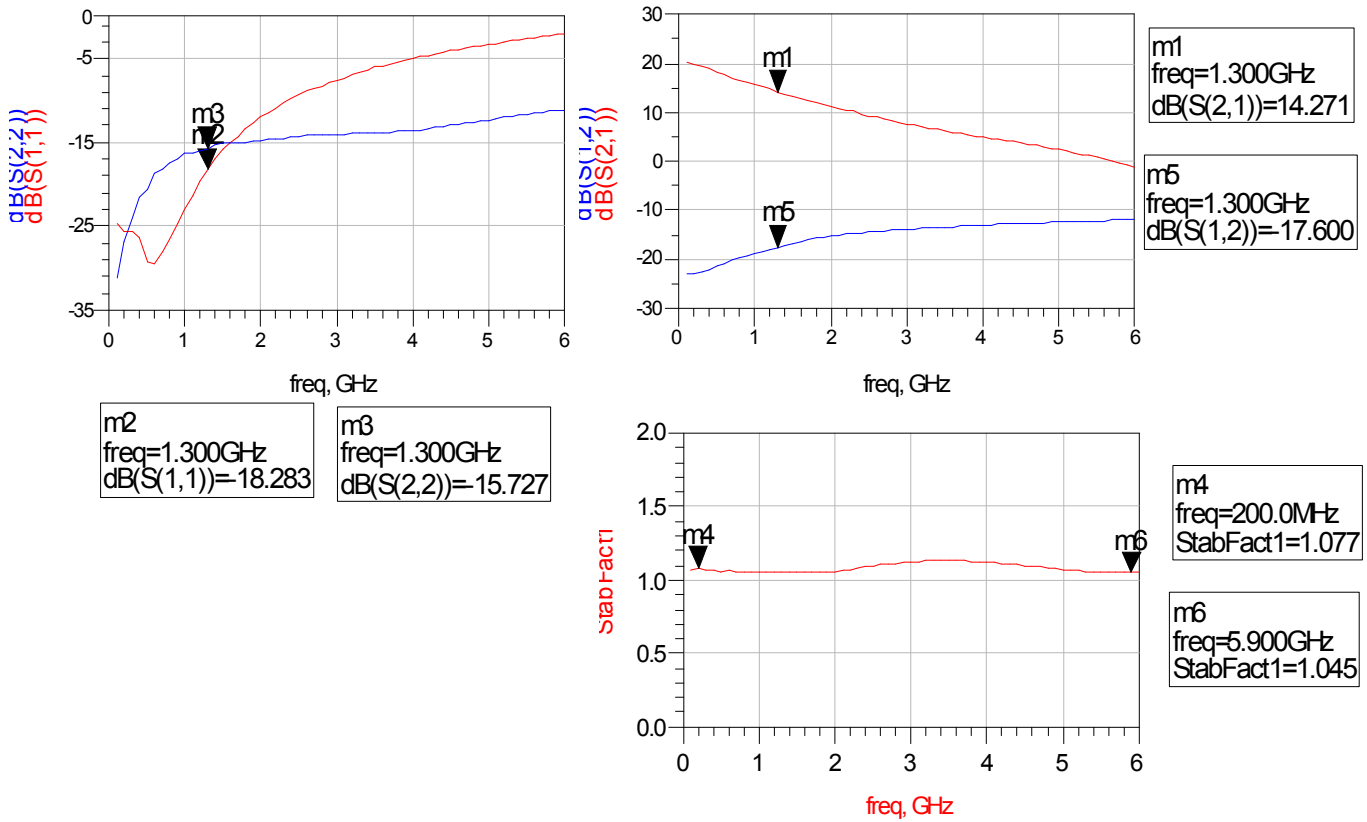
MSA-0686 with .25 nH of Common Lead Inductance



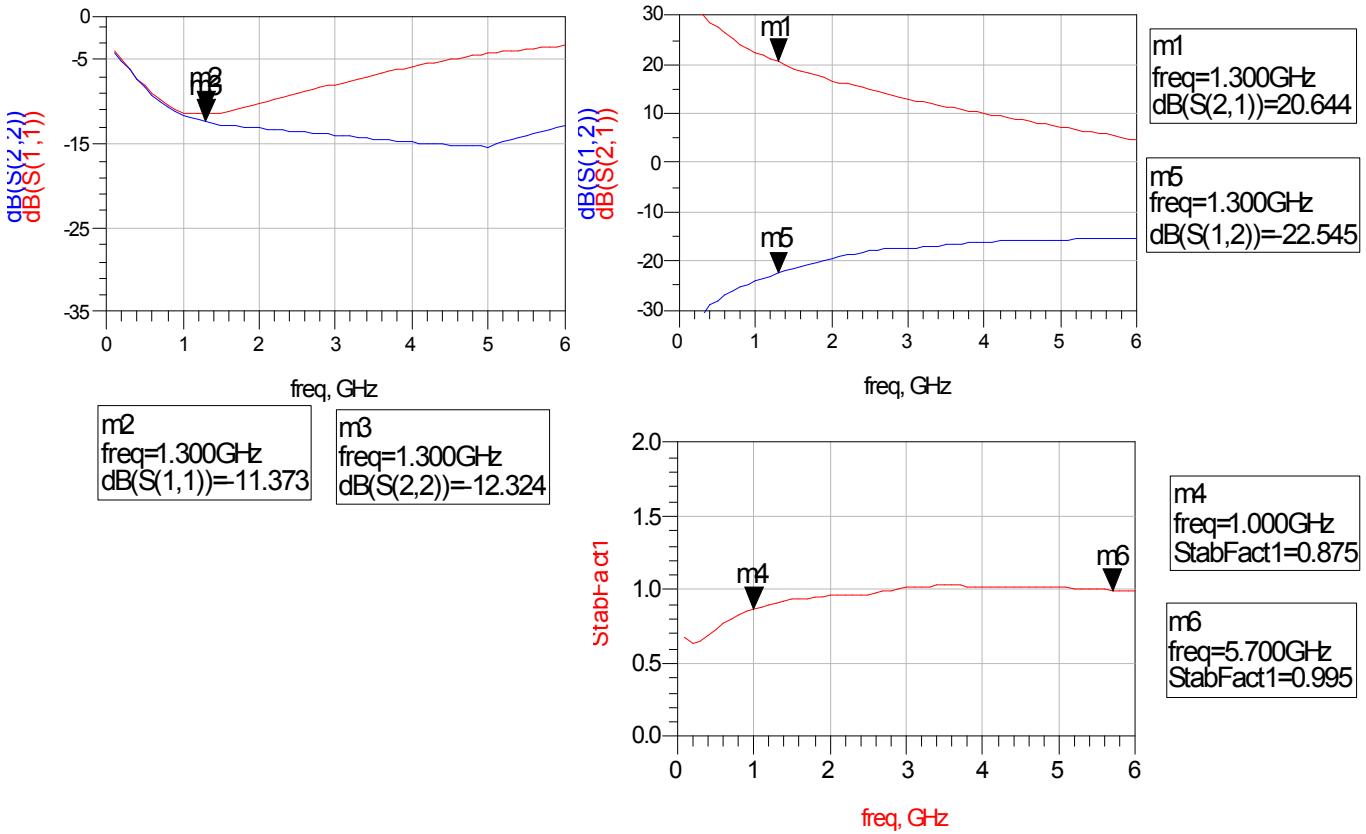
MSA-0686 with 2 PTHs on .031 inch thickness printed circuit board



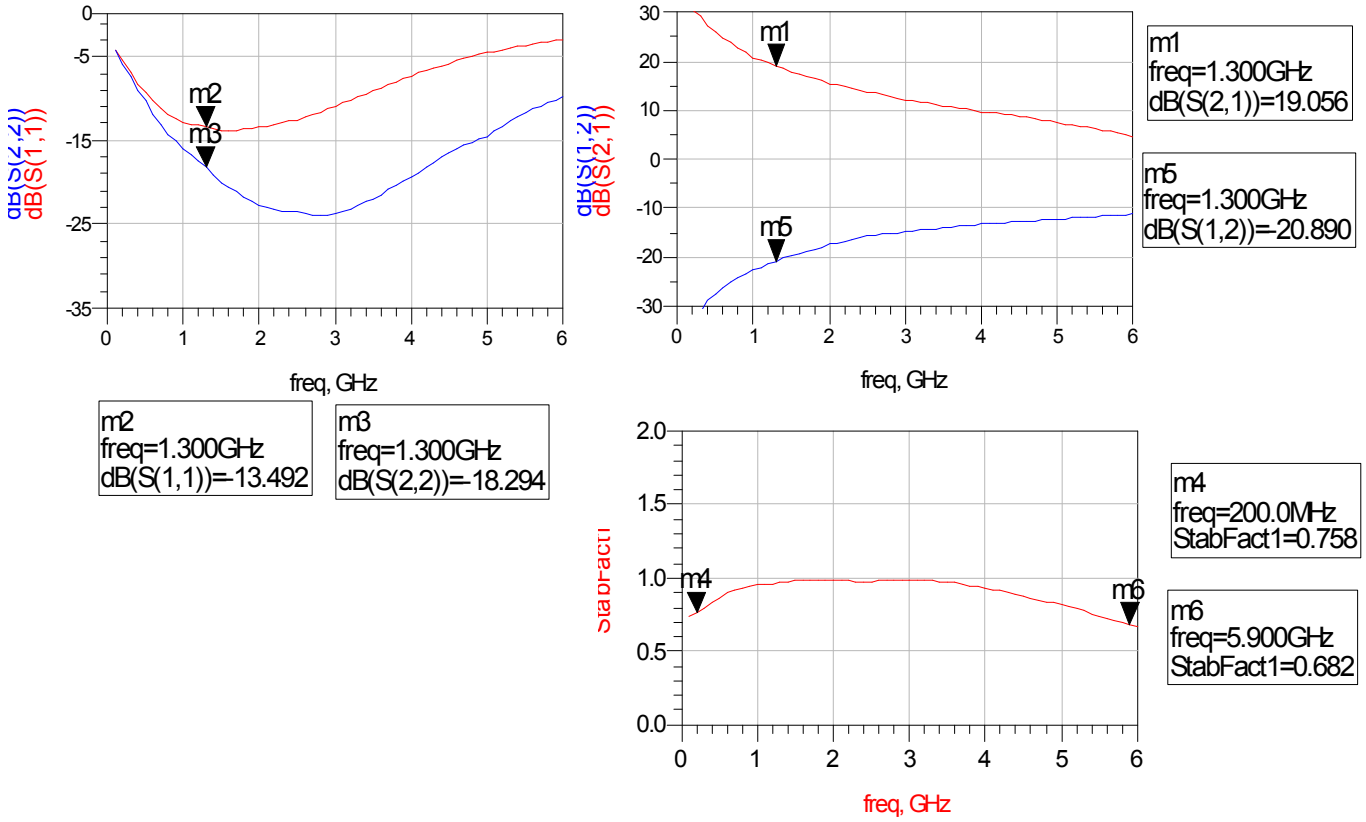
MSA-0686 with 2 PTHs on .062 inch thickness printed circuit board



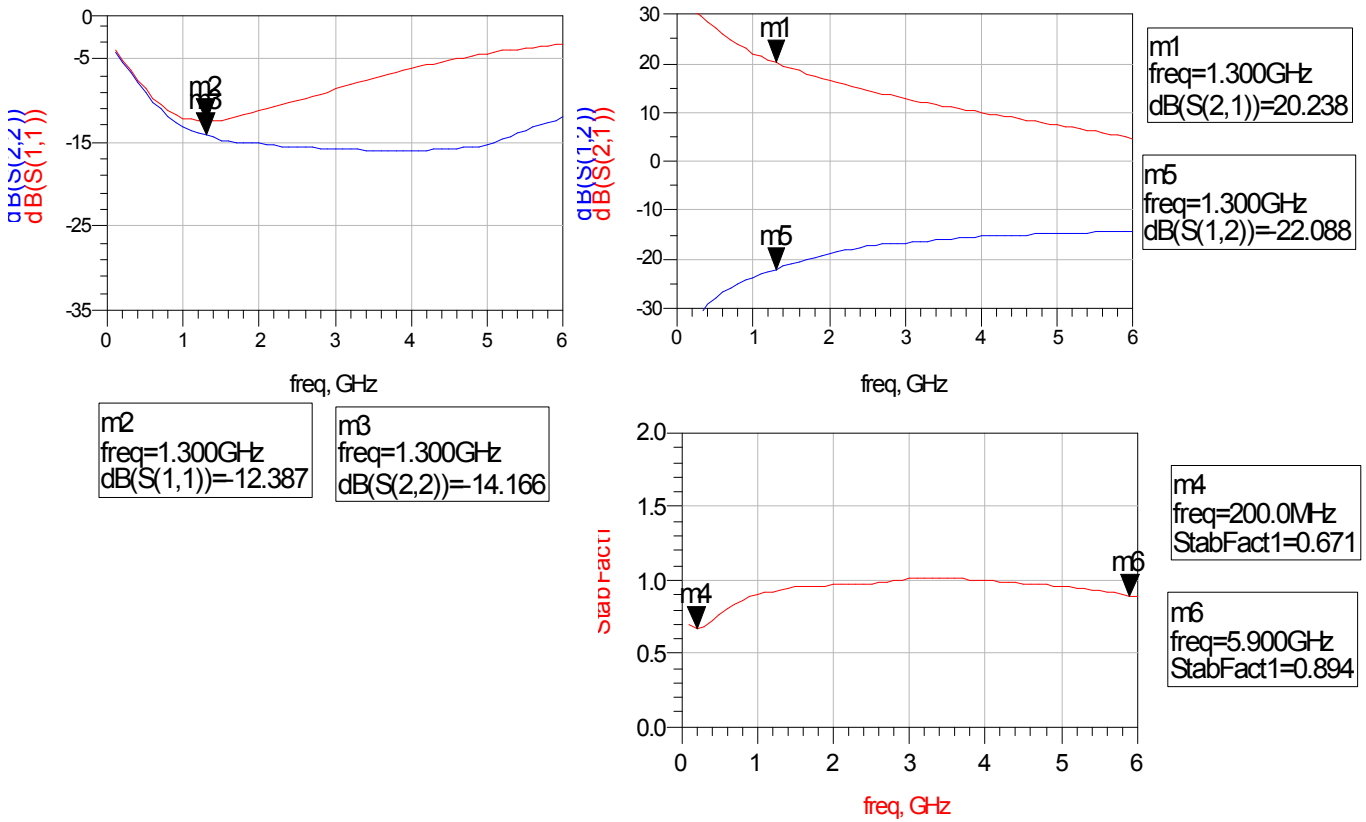
MSA-0886 with Common Leads Hard Grounded



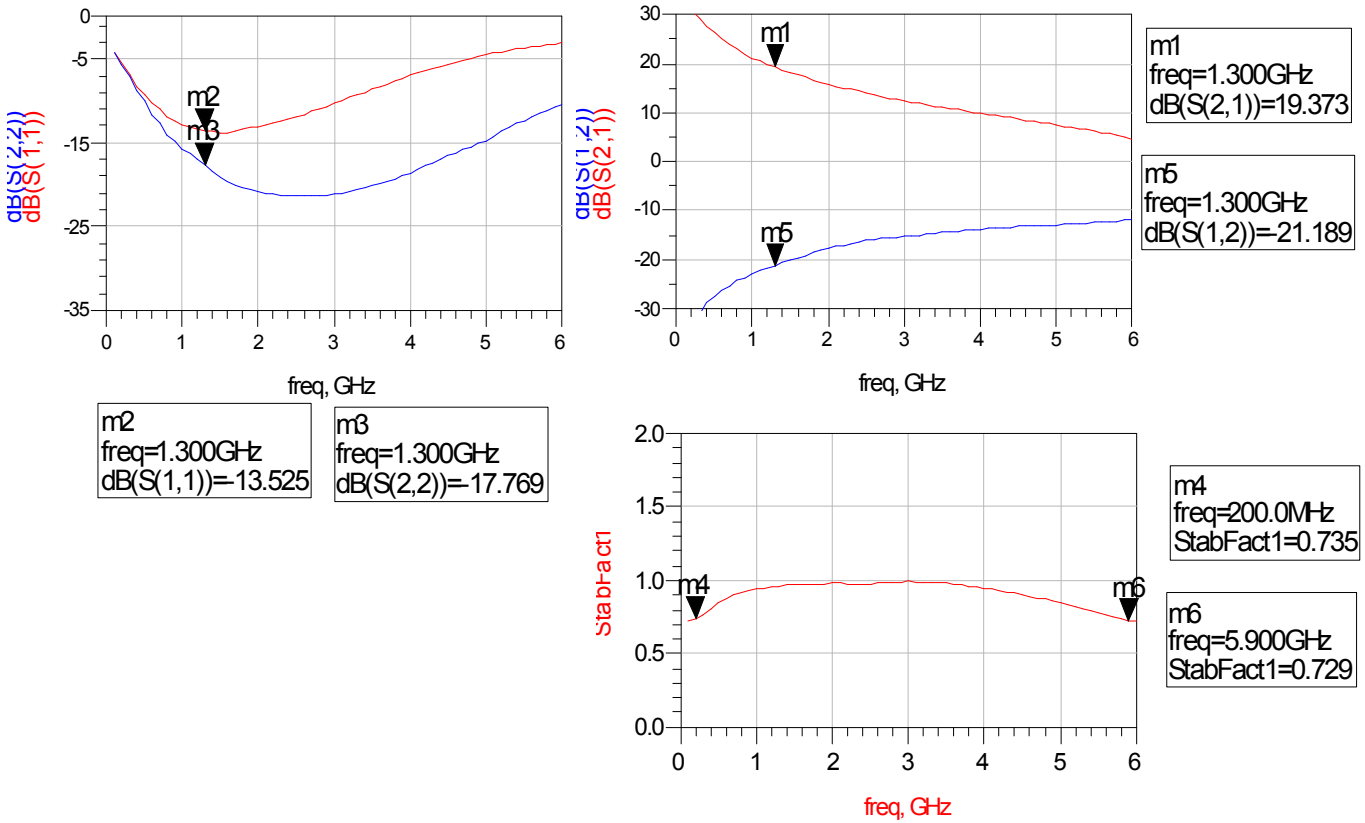
MSA-0886 with .25 nH of Common Lead Inductance



MSA-0886 with 2 PTHs on .031 inch thickness printed circuit board



MSA-0886 with 2 PTHs on .062 inch thickness printed circuit board



Related Application Notes and Articles

AN S001 Basic MODAMP MMIC Circuit Techniques – 5967-5924E (11/99)

AN S003 Biasing MSA Series RF Integrated Circuits – 5965-8669E (11/99)

AN S005 Using MSA Series MMIC Amplifiers as Frequency Converters – 5965-7391E (11/99)

Summary

MSAs are current driven devices

Grounding can be important on high gain MMICs – prefer .031 inch thickness PCB material

Series RL combination for biasing MMICs

Use series decoupling elements when biasing 2 or more MMICs in cascade