

*Lecture 27 -- Stability, PCB Design Techniques*

What causes two-port S-parameter networks to become unstable?

What condition can we apply to S-parameter networks to check if they are stable?

What are  $\Gamma_{in}$  and  $\Gamma_{out}$  for a passively loaded S-parameter network?

What is a stability factor? What are two common factors? Is Rollett stability stable when it is greater or less than 1 (aside: Beware! The Linvill stability is stable if it is less than 1)

What is a stability circle? What does the region of the stability circle that overlaps the unit circle of the Smith chart indicate?

What is the difference between load and power supply instability? What should you do with your vias and bypass caps?

Are side-launch or right angle SMA connectors better for transitioning to PCB microstrips? How do you compensate for the worse case?

How should you route your traces on a high frequency board?

How do you taper to a PCB footprint or different transmission line width?

How do you compensate for corners in a route?

What is the dielectric loss of FR4? About what frequencies is it good for?

Do you want your ground plane close to or far from your RF signals?