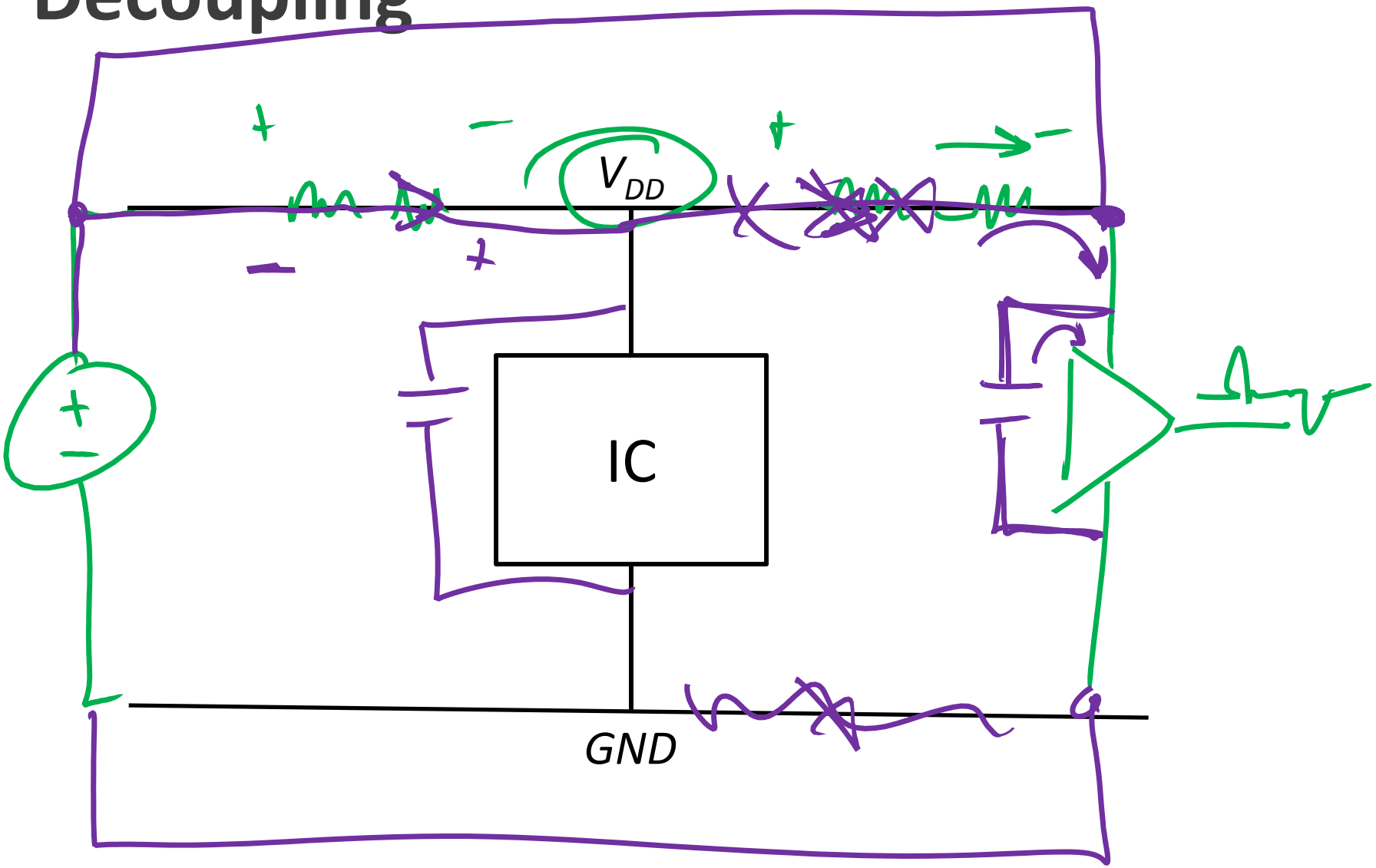
Complete Routing of Signal

- Always consider return path
- Ground plane can help, but still need to consider the path and optimize

Decoupling

- Always add bypass capacitor at power supply for any IC/reference
- Use small-valued (~100nf), low ESR and ESL capacitors (ceramic)
- Limit loop for any di/dt

Decoupling



Star-Grounding Vs. Daisy Chain

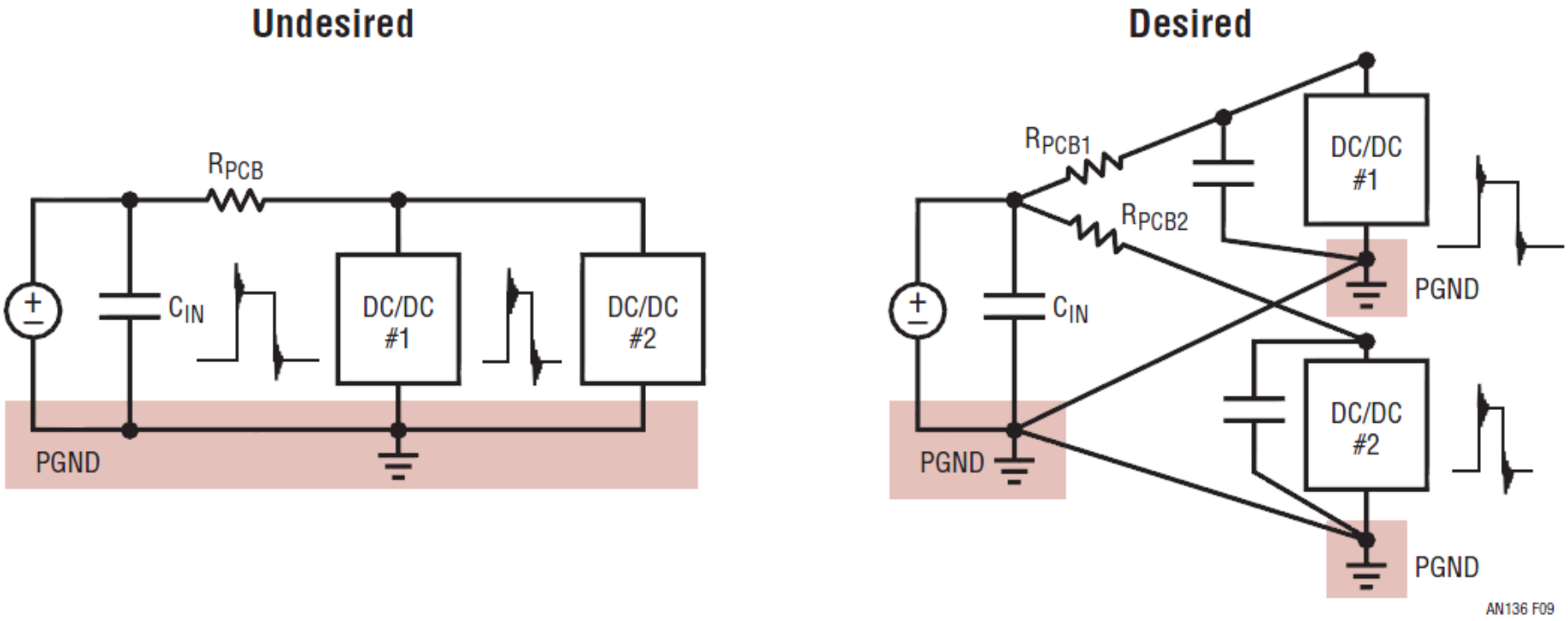
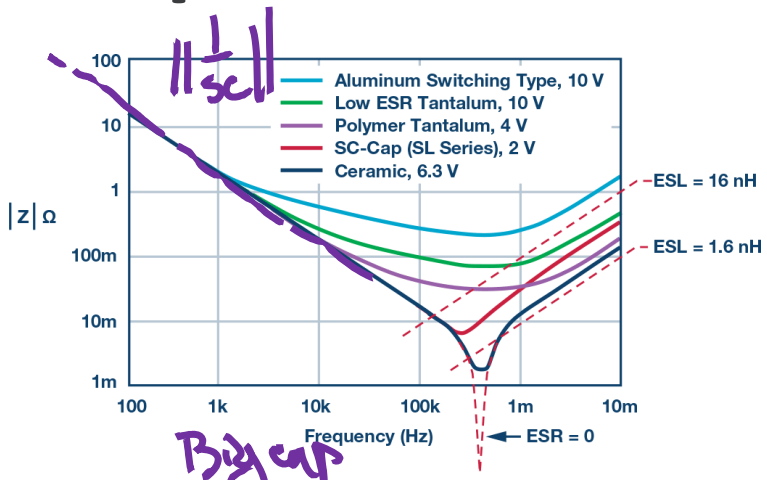


Figure 9. Separate the Input Current Paths Among Supplies

Capacitor Sizing – Filter Caps



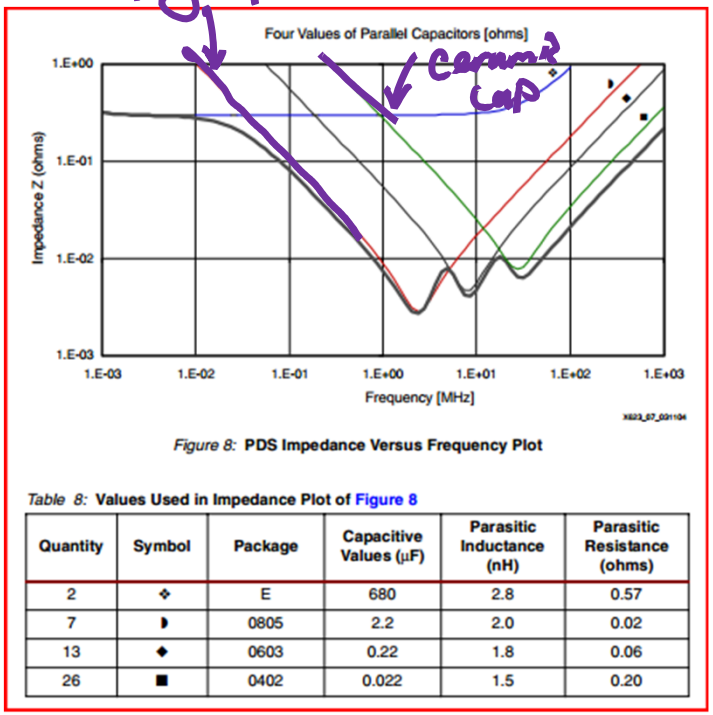


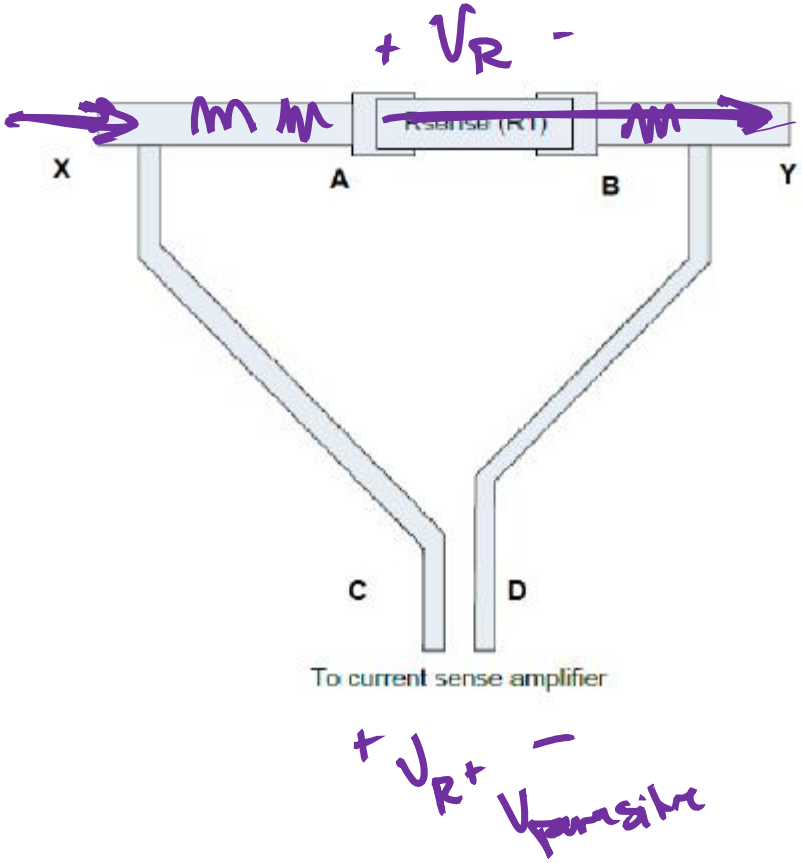
Figure 8: **PDS Impedance Versus Frequency Plot**

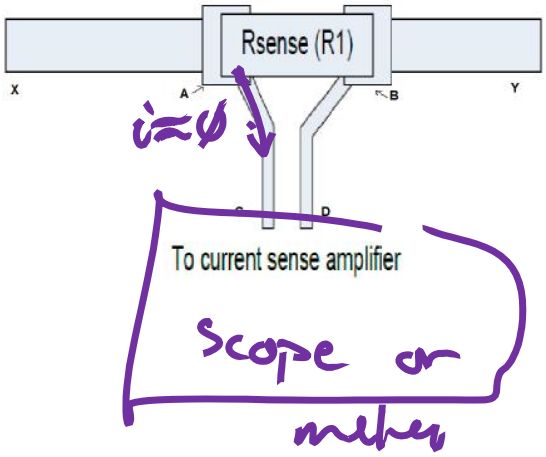
Table 8: **Values Used in Impedance Plot of Figure 8**

Quantity	Symbol	Package	Capacitive Values (µF)	Parasitic Inductance (nH)	Parasitic Resistance (ohms)
2	❖	E	680	2.8	0.57
7	◗	0805	2.2	2.0	0.02
13	◆	0603	0.22	1.8	0.06
26	■	0402	0.022	1.5	0.20

https://www.intersil.com/content/dam/Intersil/documents/an13/an1325.pdf

Kelvin Connection





Efficiency Measurement

Boost Converter

i_{in}

i_{out}

V_g

V_{out}

V_g

High Impedance Nodes