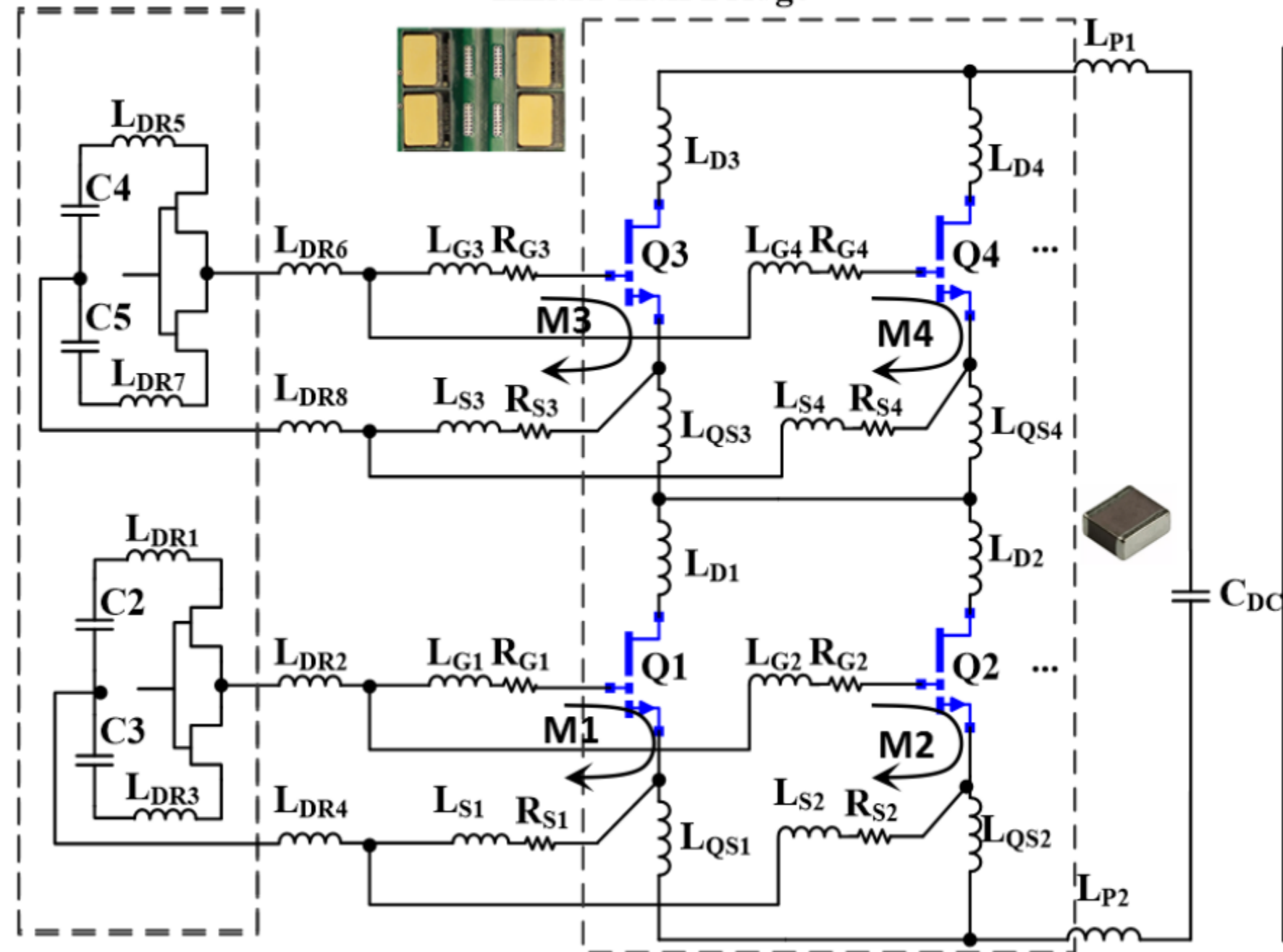


GaN Enhancement-mode HEMT Half Bridge



Effects of Parasitics

Parameter	Description	Effect	Priority	Design Rules
L _{P1} , L _{P2} L _{D1-4}	Commutation Loop Inductance	Increase V _{ds} spike during P3 of Switching off	High	Smaller the better
L _{DR1} -L _{DR8}	Gate drive loop inductance	Increase V _{gs} ringing and overshoot	Medium	Smaller the better
L _{G1} -L _{G4} L _{S1} -L _{S4}		1. Increase V _{gs} ringing and overshoot, 2. susceptible to gate oscillation if very unbalanced	Medium	Smaller the better, as equal as possible for paralleled devices
M1-4		1. Feedback di/dt to V _{gs} , 2. Slowdown switching 3. potentially cause gate oscillation	Extremely High	
L _{QS1-6}	Quasi-common source inductance	1. Feedback the difference of di/dt to V _{gs} , 2. Balance current sharing 3. Potentially cause gate oscillation	Extremely High	