

Project Title: 600V GaN dual gate bidirectional switch

Objectives: Develop a low cost 600V Bidirectional 70mOhm switch (BDS) based on Infineon's CoolGaN™ HEMT technology

Major Milestones:

- Month 5: demonstrating bidirectional working modes and validate design.
- Month 10: basic reliability proven
- Month 11: applications advantage of GaN BDS demonstrated

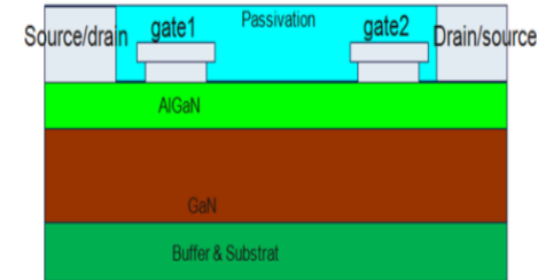
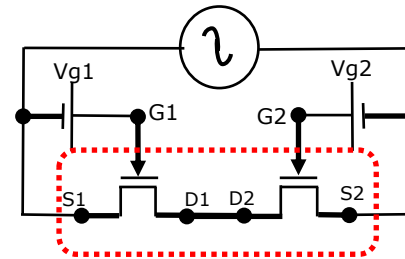
Deliverables:

Month 5: wafer probe report

Month 10: HTRB reliability report

Month 12: Application report of BDS

Month 12: Device samples for Power America device bank



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WBG Technology Impact

1. Validate the dual gate concept
2. Validate Solution for substrate voltage stabilization
3. Validate and prove advantage of GaN switch bi-directionality
4. Target Applications:
 - Matrix Converters (SMPS)
 - Battery Charging & Storage (HV, EV, UPS)
 - Solar (μ - Inverter)
 - Novel Power Conversion topologies (Vienna Rectifier)

Additional impacts

1. Use of the very unique nature of GaN HEMT: bi-directionality
2. Cost vs Silicon incumbent solution: Eliminates the need to use 2 series silicon device of half the R_{dson} and as such provides an economically attractive solution vs. Silicon incumbent already today
3. Enabling new topologies to gain application advantage (like use in a Vienna rectifier)