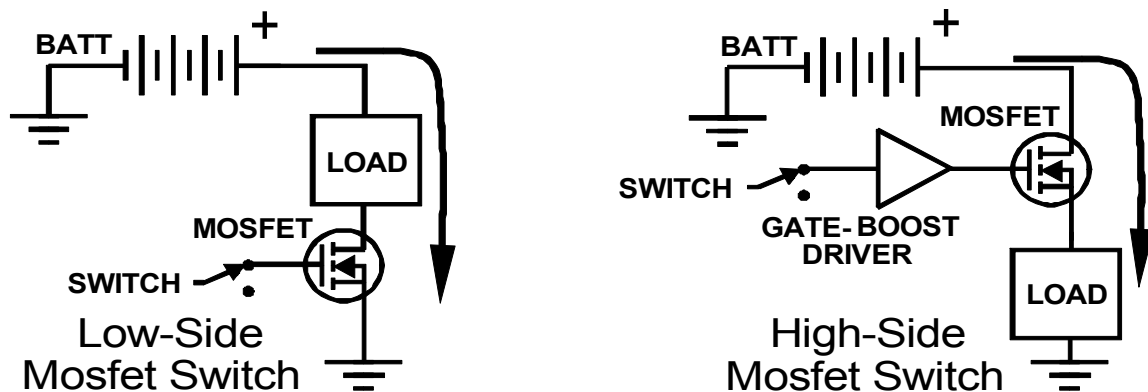


Operating Notes on Solid-State Mosfet Switches and Relays

Mosfets (Metal Oxide Semiconductor Field Effect Transistors) are solid-state switches that have a huge number of advantages compared to regular transistors or relays. They are simple to use and very dependable. But to use them successfully and avoid frustration, several things should be noted:

- 1) Be aware that most (but not all!) mosfets used in cars and aircraft are configured to switch electrical loads that are grounded to the vehicle's metal chassis or a common ground. These mosfet devices are designed as a switch between the positive voltage and the grounded load and are called "high-side" switches. Only these mosfet switches use a gate boost driver needed to raise the gate voltage above the input voltage.

Less common, "low-side" switches connect the low side of the load to ground. High-side and low-side devices are not interchangeable with each other. Connecting a "high-side" mosfet switch between the load and ground will not work and can destroy it.



- 2) When an electromechanical relay is turned OFF the relay will not conduct in either direction. But mosfet switches are not the same as relays. When the mosfet is OFF, current can flow from the output to the input unless additional steps are taken are added to prevent it (Usually this will not matter). These include an additional diode or (better) an additional but reversed mosfet.
- 3) No-load output voltage will appear on the output of these (and most solid state devices). This is normal and won't matter since essentially no current will flow.

Regards,
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