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CUT OFF ALL POWER SOURCE OF ADAPTER AND BATTERY WHEN OPEN CHASSIS WITH NEW SCREW HOLE PAD SHAPE

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Title : Cut off all power source of Adapter and Battery when open chassis with New screw hole pad shape

Abstract :

When open chassis, all system power sources will be auto cut off rapidly.

This mechanism can prevent to damage MB if someone forget to remove battery or Adapter when open chassis.

Problems Solved :

When open chassis, all system power sources will be auto cut off rapidly.

This mechanism can prevent to damage MB if someone forget to remove battery or Adapter when open chassis such as Maintenance staff 、 service center 、 NPI phase and so on.

NO need additional electronic components (cost saving).

NO need additional GPIO pins.

NO need additional area to place extra components.

No need IC to control “Cut off all power source”.

Prior Solutions :

Need a vertical switch and occupy some PCB area to place switch.

Need keep EC alive, therefor it can't cut off EC power source. It still has risk to cause MB damaged.

Need addition GPIO pins.

Description :

1. Specific MB screw hole’s pad shape with circuitry change to achieve this mechanism.

Pad shape can be variety of different shape.

EX:



2. “Specific MB screw hole pad” can connect to several control circuitry such as MOSFET 、 POWER 、 GND and so on.

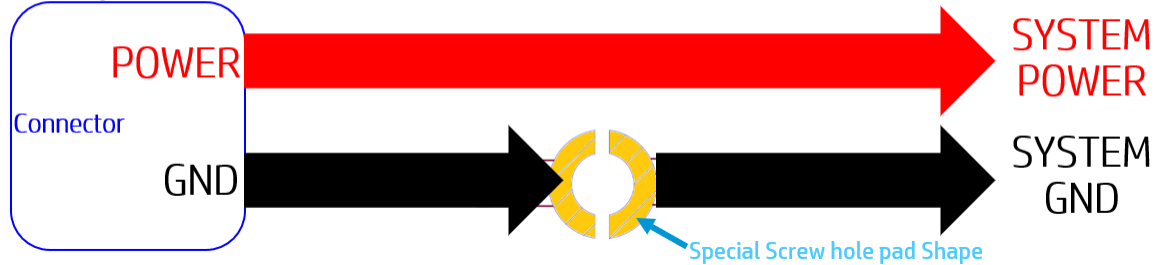
Ex: one of applications : cut off barrel (AC \ DC-IN) adapter \ Type-C adapter \ Battery

3. Circuitry block diagrams :

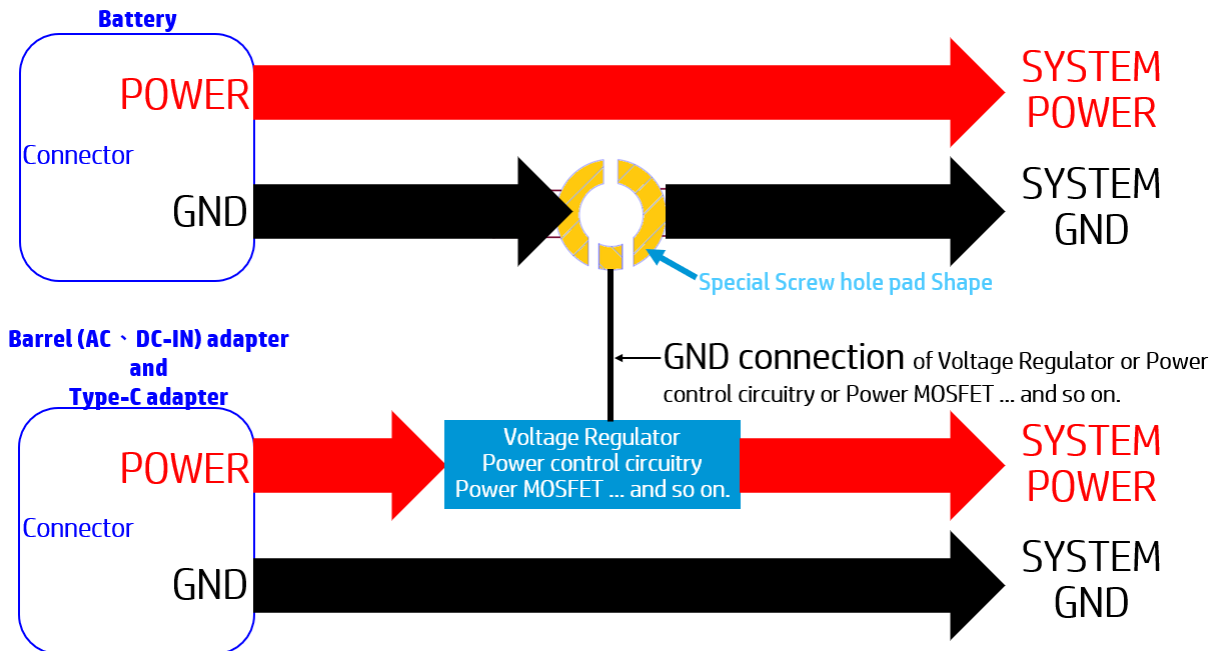
For motherboard design and layout flexibility, there are several solutions as below.

- I. All of “power source’s GND” connect to “Special Screw hole pad Shape”.

**Barrel (AC \ DC-IN) adapter and
Type-C adapter and
Battery ... and so on.**

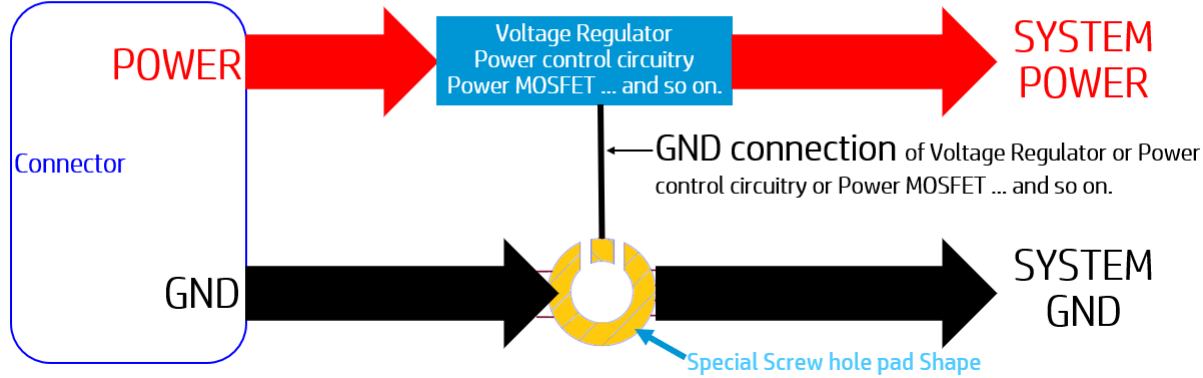


- II. Battery’s GND connect to “Special Screw hole pad Shape” and GND of “adapter power’s control circuitry” connect to “Special Screw hole pad Shape”.



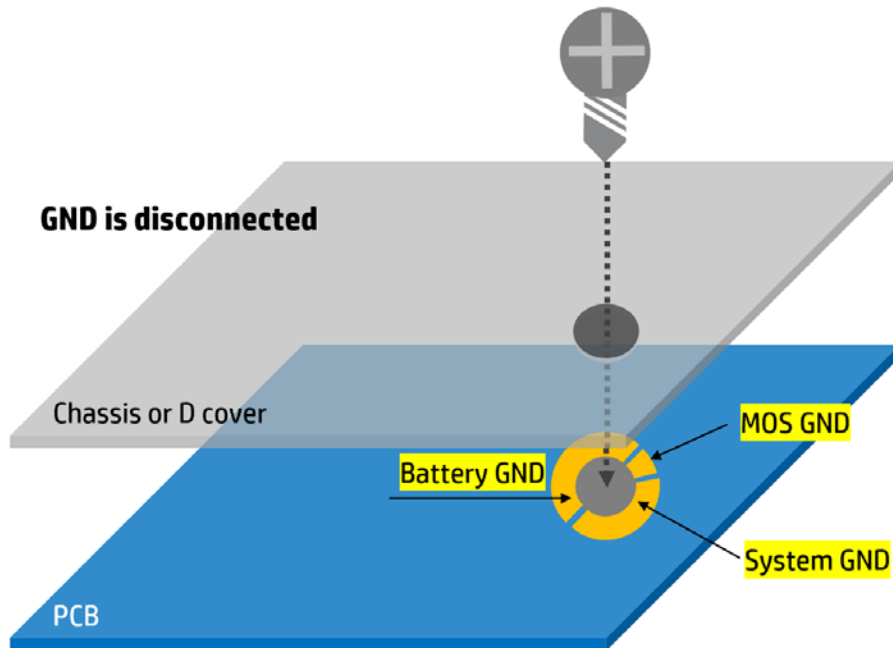
III. GND of “All power’s control circuitry” connect to “Special Screw hole pad Shape”.

Barrel (AC \ DC-IN) adapter and
Type-C adapter and
Battery ... and so on.

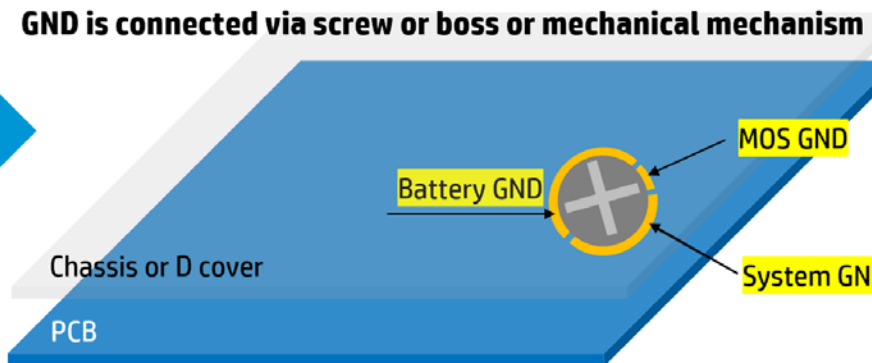


4. Mechanical construction and operation

All system power sources be auto cut off rapidly



All system power sources are normally



Advantages :

- Modify screw hole pad shape only (Easy to implement).
- Modify three circuitry connection only (Easy to implement).
- NO need additional electronic components (cost saving).
- NO need additional GPIO pins.
- NO need additional area to place extra components.
- No need IC to control "Cut off all power source".
- When open chassis, all system power sources will be auto cut off rapidly.
- This mechanism can prevent to damage MB if someone forget to remove battery or Adapter when open chassis such as Maintenance staff 、 service center 、 NPI phase and so on.

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