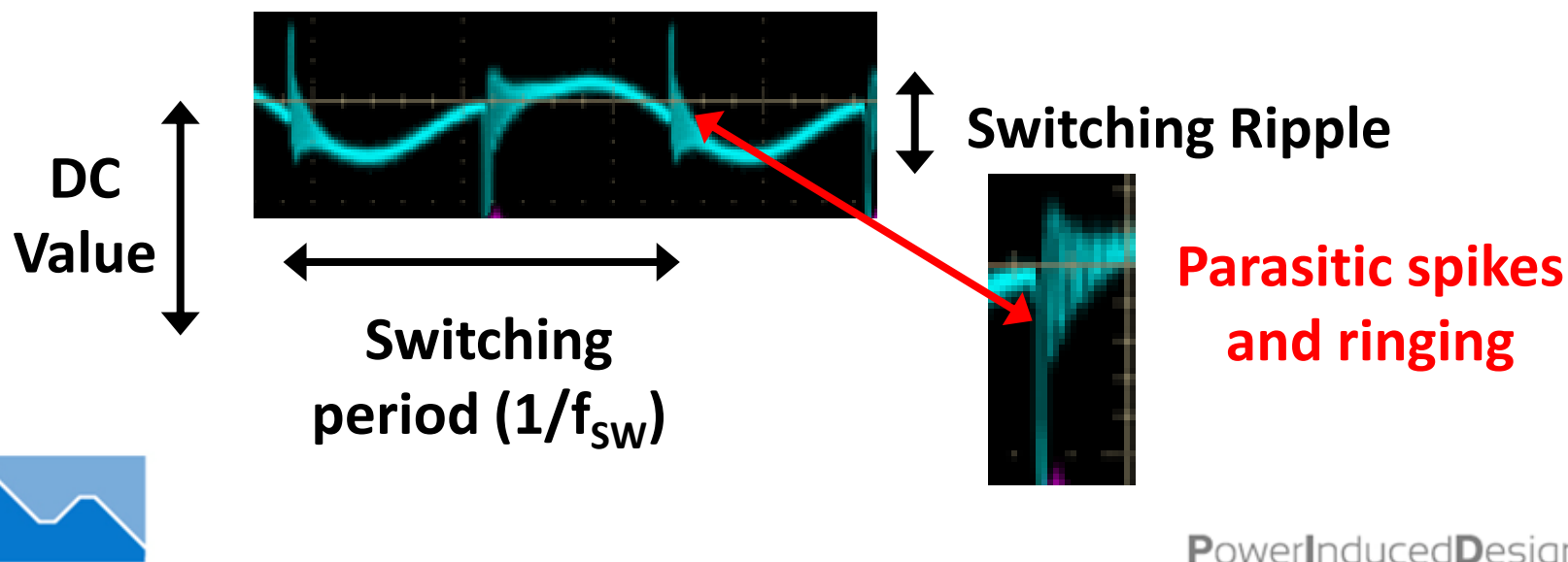


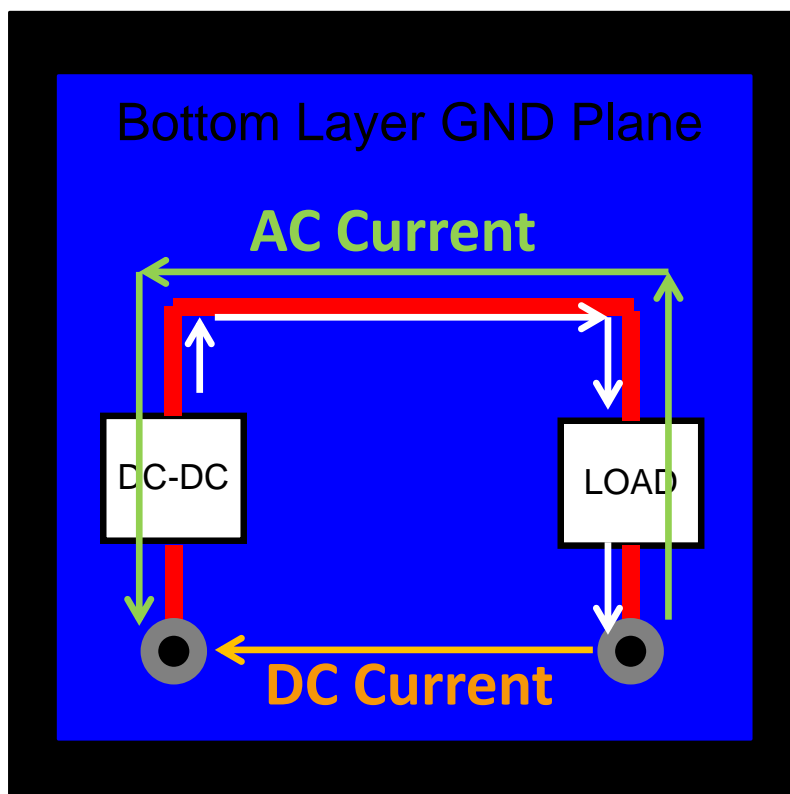
Accidental Antennas, Part 1

- Typical voltages in a switcher have at least three components:
 1. The DC portion
 2. The AC ripple due to switching, with $f_o = f_{sw}$
 3. The high frequency ringing from parasitic L and C, with $50 \text{ MHz} < f_o < 200 \text{ MHz}$



Accidental Antennas, Part 2

- Putting vias into GND and power planes requires careful planning:



- Output current **MUST** follow the TopLayer trace
- The DC return current follows the lowest R
- The AC current follows the lowest impedance – more L than R



Accidental Antennas, Part 3

- A carelessly placed via puts a gap in the GND plane:
- Two Problems created by this via:
 1. It increases the loop area = more radiation
 2. A new frequency of radiated EMI develops from the via diameter (Slot antenna created!)

