

Switching loss measurement for Wide-bandgap semiconductors

- Measuring switching losses under real working conditions **without** commutation loop current measurement
- This measurement method does not add parasitics to the switching cell and does not influence the switching behavior
- Principle:
 - Measuring the input power with a high class power analyzer and subtract the known losses of the inductor
 - Measuring short period of time to reduce the thermal influence (100 ms)
 - Well known air core inductor with low losses
 - Very accurate PWM Unit
 - Forced air cooling of semiconductors and inductor
- Features:
 - Separating turn-on and turn-off losses by different control modes
 - Zero Voltage switching to measure the switching-off losses
 - Hard switching mode for measuring switching-on and -off losses
 - System controlled by software
 - Software communicates with
 - Precision power meter
 - PWM signal timer
 - Oscilloscope
 - Power supply
 - High resolution control signal
 - Up to 4 gate signals
 - Pulse and dead time resolution up to 250 ps
 - Coil for measurement purpose
 - Calibrated up to 100 MHz
 - Low stray field due to toroid shape
 - Low HF losses due to litz wire
 - Pulse resistant up to 150 A because no magnetic material is used
 - Inductor losses can be determined precisely due to calculation and impedance measurement

