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Tunneling magnetoresistance sensors for high fidelity current waveforms monitoring

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Highlights

- We present high fidelity MHz current monitoring by magnetoresistance microsensors.
- The effectiveness is confirmed by monitoring current waveforms occurring in RPCs.
- Nonlinearity (<0,015%), hysteresis (close to 0%) and phase shift (close to 0°).
- FFT analysis clearly emphasizes superb reproduction of MHz signals.
- The sensors are especially well-suited for overcurrent protection applications.

Abstract — This paper addresses the problem of current monitoring in resonant power converters for overcurrent protection. Since the demand for higher power density suppliers is constantly growing, resonant power converters (RPC) have been receiving more and more attention recently, due to its high efficiency and high switching frequency capability. However, to make practical use of this approach there are still crucial issues, such as overcurrent protection of converter components. Therefore, it is required to implement dedicated protection methods based on a quick feedback loop and additional, modern design solutions. To ensure high reliability of any protection method, as well as

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