



A Resonant-Mode Power Supplywith a Multi-Winding Inductor

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Major advantages

- scalability of the solution
- monitoring overvoltages and overcurrents
 in resonant and commutation circuit
- possibility of using soft switching ZVS technology
- possibility of operation in a wide frequency range (a couple of kHz to hundreds of kHz)
- current source nature of output circuit
- possibility of obtaining high efficiencie
- sinusoidal waves of currents in power circuit
- low emission of conducted and radiated interferences EMI.

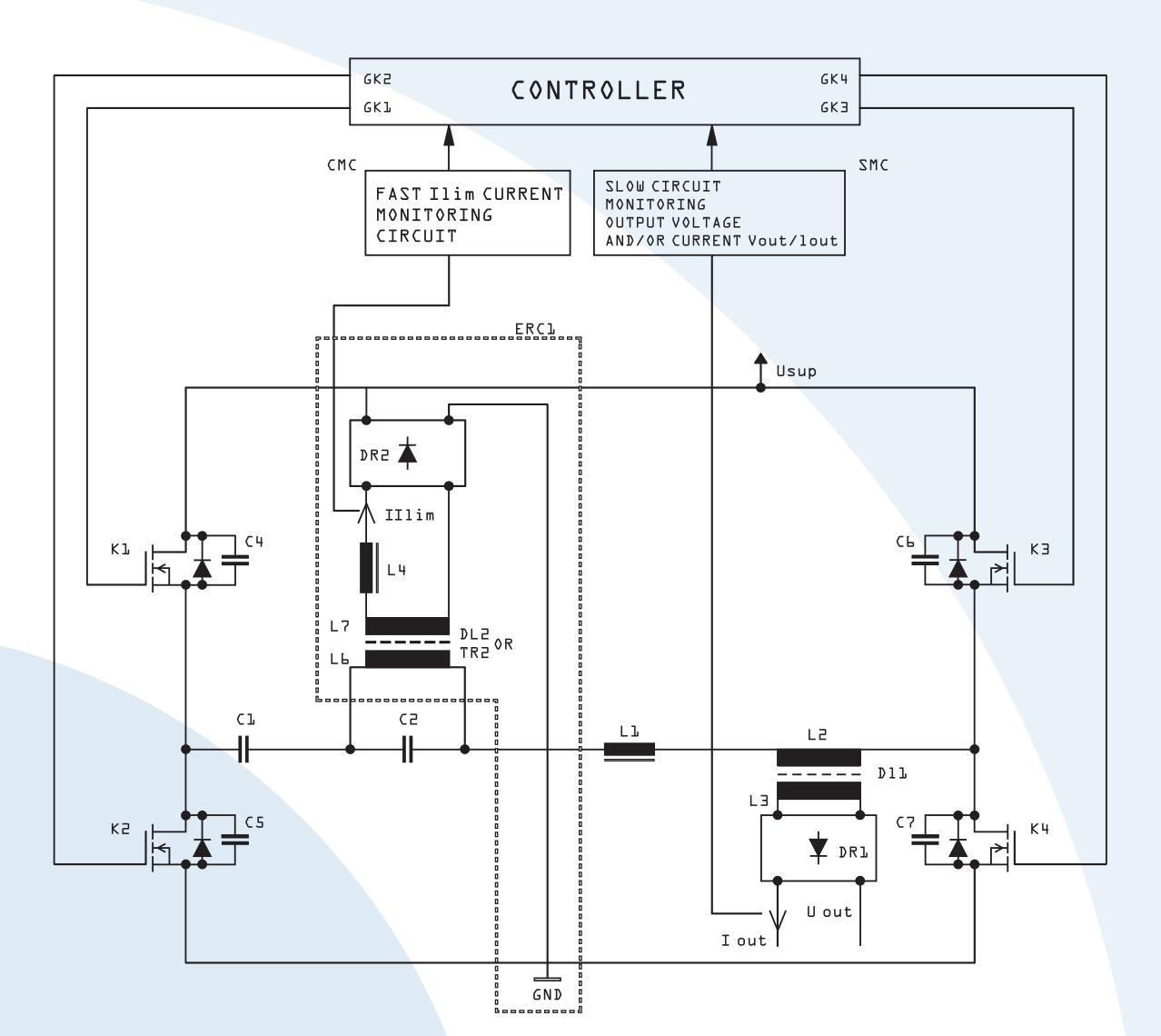


Fig. 1. The diagram of the converter with LLC series resonant circuit working in DE class with a resonant circuit energy recirculation system (ERC1) connected in parallel to the resonant capacitor C2.

Patent pending: PL: P.395846 PCT/EP2012/064401 Subject of the invention is a resonant-mode power supply with a multi-winding inductor based on a LLC type series resonant circuit with an energy recirculation system (ERC1), used to limit the quality factor of the resonant circuit, working in DE class and dedicated for professional applications in medium and high power systems - from hundreds of watts to more than dozen/tens of kW, with efficiency exceeding 94%. Flexibility of the solution will also allow its use in price-sensitive products.

Distinguishing features of thetopology

- quality factor limiters which secure the structure against overvoltages and overcurrents
- current excess detector in quality factor
 limiter increase safety operation area
- output transformer formed as a multiwinding inductor reducing power losses.

