

Title (en)
NON-SATURATING MAGNETIC ELEMENT(S) POWER CONVERTERS AND SURGE PROTECTION

Title (de)
STROMWANDLER MIT NICHTSÄTTIGENDEN MAGNETISCHEN ELEMENTEN UND ÜBERSpannungSSCHUTZVORRICHTUNG

Title (fr)
CONVERTISSEURS DE PUISSANCE COMPRENANT DES ELEMENTS MAGNETIQUES DE NON SATURATION ET PROTECTION CONTRE LA SURTENSION

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Application
EP 00966867 A 20000926

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Abstract (en)
[origin: WO0126207A2] Single, multistage, and distributed magnetic switched and tank resonant power conversion systems utilizing NSME. The NSME provide, superior protection to conducted lightning transients, superior thermal operating bandwidth, higher magnetizing efficiency, greater flux/power density potential and form factor flexibility when implemented with the disclosed circuit strategies. Output voltage is maintained substantially constant and ripple free in the presence of line and load variations by the action of various feedback strategies. These mechanisms combine to produce compensations by controlling the duration and/or frequency of a switch or switches. A novel function generator implementation supplies a signal, which is a function of magnetic flux tracking, AC line phasing, and output voltage feedback to provide output regulation, active ripple rejection, and power factor correction to the AC line. Efficient energy storage and transfer is achieved by the optimized application of NSME. The use of efficient rectifying flyback management techniques protects switches and provides additional output. A second novel generator implementation supplies a two-phase signal, which is a function of switching frequency/duty cycle, and output voltage, provides regulation. Further efficiencies are realized by the inclusion of switching buffers that substantially reduce switching losses by presenting a high slew rate, low source impedance critically damped drive current to the main switch or switches.

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IPC 8 full level
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