High Performance AC-DC Converters

Background and challenges

Restrictive Standards impose nearly sinusoidal input current on Switch Mode Power Supplies. To comply there is a need of two conversion stages (boost PFC & Isolated DC-DC) which results in a low efficiency and high cost solution.

Typical Two Stages Topologies


Description and main innovation

Single Stage Power Factor Correctors Full Bridge AC-DC Converters:

The optimization of the most promising topologies resulted in new high performance converters for 1 kW output power with less and cost effective components that fully comply with standards.

Innovation
1. Symmetrical transistors’ current distribution
2. No minimum power operation restriction
3. Full compliance with standards
4. High efficiency >94%
5. Reduced number of components
6. Lower cost

Achievements

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