

SMPS Controller IC Enables Ultra-low Standby Power at No Loads and Enables EuP Lot 6 Compliance



NXP Semiconductors N.V. (NASDAQ: NXPI)

unveiled the GreenChip SPR TEA1716 switched-mode power supply (SMPS) controller IC – said to be the industry’s first resonant PFC and LLC combo controller enabling ultra-low standby power at low loads, compliant with EU Ecodesign Directive requirements taking effect in 2013. The company also announced several highly cost-effective SPF (smart power flyback) ICs available in very small packages, including the GreenChip SPF TEA1731, as well as new additions to the TEA172x family, which also offer outstanding no-load performance. In addition, NXP introduced a new GreenChip synchronous rectification (SR) control IC, the TEA1792T/TEA1792TS.

Building on NXP’s success as the market leader in energy-efficient AC/DC power adapter ICs for notebook computers, the new GreenChip ICs enable compact, slim designs for chargers, adapters and power supplies across a broad range of applications. These include mobile communication devices such as smartphones and media tablets; portable computing devices such as e-readers, audio/video players, netbooks, Ultrabooks™ and PC peripherals; white goods such as washing machines, refrigerators, dishwashers and induction cookers; and industrial and residential systems for smart lighting, smart metering, HVAC, and home and building automation and control. NXP will showcase the new GreenChip power ICs this week at APEC 2012 in Orlando, Florida (booth 910).

“Like ENERGY STAR in the US, the EU Ecodesign Directive is helping to drive broader awareness of the importance of minimizing standby power. Energy shortages around the world also underscore the fact that we can’t take ‘always-on’ for granted. NXP’s new GreenChip SPR TEA1716 is ahead of the curve in driving low-load standby power down to half a watt and below, and is now sampling with lead customers developing power adapters that will meet the new EuP Lot 6 requirements,” said Marcel van Roosmalen, general manager, power solutions product line, NXP Semiconductors.

Breakthrough in Low-Load Efficiency

The GreenChip SPR TEA1716 is a power factor correction (PFC) and LLC resonant combo converter featuring energy-saving operating modes that will help designers meet and exceed very stringent no-load and low-load standby requirements. Designed for use in 90-W to 500-W power supplies, the smart power resonant (SPR) TEA1716 combines PFC and a resonant half-bridge controller (HBC) in a SO24 package. With no-load power levels under 150 mW and an average efficiency of more than 91 percent over universal mains, the TEA1716 sets a new benchmark for standby efficiency as the first combo controller available today to enable standby consumption well below 0.5 watt at a load of approximately 250 mW, as specified under the EU Energy Using Products Directive (EuP) Lot 6.

Similarly, the new GreenChip SPF TEA1731 6-pin flyback converter offers best-in-class no-load IC power consumption, featuring a power-saving mode that enables less than 100 mW no load for adapters. In power-saving mode, the TEA1731 also enables power supplies to run below 0.5 W at 0.25-W load power – for example, in supplying standby systems, thus enabling EuP Lot 6 compliance as well.

Enabling Low-Cost, Miniature Power Supply Design

The TEA1731 is one of several new GreenChip smart power flyback ICs from NXP which are highly integrated, reduce the number of external components required, and are available in very small packages to enable the miniaturization of adapters and power supplies, thus minimizing the total bill of materials. These cost-effective GreenChip SPF ICs also feature a complete set of protections to help maximize reliability, and include:

The GreenChip SPF TEA172x family of highly integrated flyback regulators designed for systems under 15 W and featuring sub-10 mW standby capability at 230 VAC mains input. Available in a compact SO7 package with HV spacer, the TEA172x family includes an integrated power MOSFET and primary output voltage sensing, which helps to automatically reduce current consumption when a charger is left plugged in, even when there is no device attached to be charged. The TEA1721 (up to 5 W), TEA1722 (for up to 8 W) and TEA1723 (for up to 11 W) also include built-in energy save control modes to enable the highest possible efficiency, and are fully compliant to USB1.1 and USB1.2 battery charging specification, delivering constant voltage (5V) and constant current at maximum load.

The GreenChip SPF TEA1731, a flyback converter packaged in a sub-miniature TSOP6 package, designed for low-cost, compact power supplies for 10 to 70-W systems. With a very low IC operating current and switching frequency efficiency optimization modes, the controller achieves 90-percent average efficiency for low-cost power supplies, in addition to enabling best-in-class no-load standby performance.

NXP's new GreenChip TEA1792T/TEA1792TS is a 6-pin synchronous rectification controller capable of driving a wide range of SR MOSFETs of all brands to the lowest

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possible RDS(on). Available in a TSOP6 package, the TEA1792 SR control IC requires minimal external components and reduces PCB real estate for the sync-rec function significantly. Pairing the GreenChip TEA1792 alongside NXP's power SR MOSFETs in LFPACK, which offers automotive-grade ruggedness, enables high power density for very small charger designs. Other available packages for NXP's broad selection of Power MOSFETs include TO220, I2PAK and D2PAK.

Pricing and Availability

Samples of the new GreenChip SMPS controller ICs are available starting in February and March 2012.

Indicative pricing is available upon request..

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