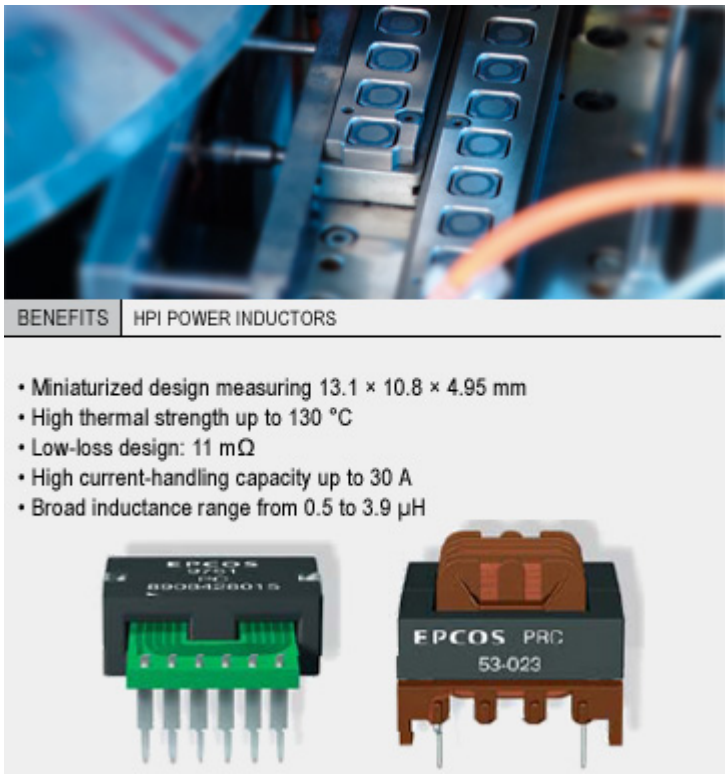
Inductors

July 2004

Packed with power



AC/DC and DC/DC converters for high-power and high-current applications are enjoying high growth rates throughout the electronics industry. Today, these devices are designed exclusively as switchmode power supplies (SMPS) for maximum efficiency. Powerful, low-loss storage chokes are vital components of SMPS. Bernd Stettner, product marketing director for transformers and chokes, explains: "Our customers in the power supply market demand storage chokes of minimum volume that can handle currents up into the middle of the double-digit ampere range." With its HPI (helical power inductor) series, EPCOS has managed to develop veritable packages of power that take up a minimum of space. The smallest representatives of the HPI-13 series measure only 13.1 × 10.8 × 4.95 mm.

"We currently offer the world's smallest power inductors with superior electrical properties at the same time."

BERND STETTNER

Product marketing director, transformers and chokes

"We currently offer the smallest power storage chokes worldwide", says Stettner. Despite their diminutive volume, they can handle currents of 30 A and, with a minimal resistance of 11 mΩ, have unrivaled low losses. The new series

Applications & Cases

covers an inductance range from 0.5 to 3.9 µH. The high packaging density of today's DC/DC converters makes the thermal stability of the storage chokes used a key assessment factor. EPCOS has therefore specified the new series for ambient temperatures up to 130 °C. Large contact areas reduce thermal resistance and thus enhance overall thermal behavior even more.

More advanced variants of power line chokes are also available from EPCOS. These include new chokes based on the EF6, EF10 and EF20 ferrite cores. "They are mainly used in electronic ballasts for fluorescent lamps, power supplies for TV sets, and other consumer electronics products", explains Stettner. As these are typical products for mass applications, the chokes have been designed for automatic placement. An outstanding feature of the choke based on the EF20 core is its immunity to interference even at frequencies above 40 kHz. Thanks to their higher leakage inductance, they can suppress common-mode interference as effectively as D-core chokes. The EF core chokes are manufactured with inductances from 3.3 to 100 µH. A sample kit containing two chokes for each inductance value is available under ordering code B82731. Approvals to EN 60938-2 and UL 1283 are pending.

APPLICATION | ENERGY-SAVING LIGHTING SYSTEMS

Thanks to energy-saving lamps, luminous efficacy can be increased to more than 80%. These lamps need electronic ballasts for ignition and operation. Chokes are important components of ballasts. Compact dimensions, hermal strength and cost efficiency are key criteria for serving this growing market.