

Inductors

High-current SMD power inductor for automotive applications

- Temperature range extended to up to +125 °C for automotive applications
- Mass production began in April 2011

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TDK-EPC Corporation, a group company of TDK Corporation, completed development of the SPM6530-H SMD power inductor series with an extended temperature range. The new TDK power inductors are now rated for temperatures of up to 125 °C and currents up to 28.5 A. The components are thus suitable for use as choke coils in the DC-DC converters of automotive brake systems, headlights, and engine control units (ECU). Mass production began in April 2011.

Because applications in automotive electronics are exposed to severe environmental conditions, the heat resistance properties of the new series has been greatly improved over those of existing products, which are used as choke coils in notebook PCs and servers. The new TDK SPM6530-H SMD power inductor can be used over a broad temperature range from -40°C to +125°C. The coil features a solid body made from a high saturation flux density metallic material. The 6.5 mm square coil achieves the same DC superimposition characteristics as a 10 mm square ferrite coil, thus allowing the new inductor to be made smaller and lighter. In addition, the leadframe design of the SMD power inductors offers outstanding mechanical stability and high dimension accuracy.

Main applications

- Choke coil in the DC-DC converters of automotive brake systems, headlights, engine control units, and other components.

Main features and benefits

- The operating temperature range has been extended to -40°C to +125°C for automotive use.
- Use of metallic magnetic material provides outstanding DC superimposition characteristics in a compact unit.
- RoHS compatible and suitable for lead-free soldering.

Key data

Type	Inductance [μH]	DC resistance [mΩ] max.	Rated current [A]	
			IDC 1*	IDC 2**
SPM6530T-R25M230-H	0.25 ±20%	2.31	28.5	23.0
SPM6530T-R47M170-H	0.47 ±20%	3.63	20.5	20.0
SPM6530T-R68M140-H	0.68 ±20%	5.39	16.6	16.0
SPM6530T-1R0M120-H	1.00 ±20%	7.81	14.1	13.0
SPM6530T-1R5M100-H	1.50 ±20%	10.67	11.5	11.0
SPM6530T-2R2M-H	2.20 ±20%	19.0	8.4	8.2
SPM6530T-3R3M-H	3.30 ±20%	29.7	7.3	6.8
SPM6530T-4R7M-H	4.70 ±20%	39.4	6.2	5.6

Dimensions: 7.1 × 6.5 × 3.0 mm³ (max.)

*IDC 1: The current (typical) at which the inductance value drops 20% due to the DC superimposition characteristics.

**IDC 2: The current (typical) at which the coil temperature increases by 40°C when DC current flows through the coil.

About TDK-EPC Corporation

TDK-EPC Corporation (TDK-EPC), a TDK group company, is a leading manufacturer of electronic components, modules and systems headquartered in Tokyo, Japan. TDK-EPC has emerged from the combination of the electronic components business of TDK and the EPCOS Group and markets its products under the product brands, TDK and EPCOS.

The product portfolio includes ceramic, aluminum electrolytic and film capacitors, ferrites and inductors, high-frequency components such as surface acoustic wave (SAW) filter products and modules, piezo and protection components, and sensors. With this product spectrum TDK-EPC offers a broad range of products and solutions of outstanding value from a single source and focuses on demanding markets in the areas of information and communication technology and automotive, industrial and consumer electronics. The company has design and manufacturing locations and sales offices in Asia, Europe, and in North and South America.

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