

## Inductors

# Highly efficient power inductors for automotive applications

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- Operating temperature range extended up to 150 °C
- Rated current significantly increased compared to existing products

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TDK-EPC Corporation, a group company of TDK Corporation, developed the VLM13580-D1 and DR SMD power inductors with an extended operating temperature range and increased rated current. Thus, the new TDK power inductors are suitable for use as choke coils in the DC-DC converters of automotive engine control units (ECU). Mass production of the D1 and DR specification inductors is scheduled to begin in October 2011.

Components used in automotive electronics applications are exposed to severe environmental conditions. For this reason, TDK-EPC has greatly improved the heat resistance properties of the VLM13580-D1 and DR series of SMD power inductors. They can now be used at a temperature range from -40 °C to +150 °C. In addition, the use of a ferrite core with low loss and improved DC superimposition characteristics achieves much higher efficiency. The new series feature a much higher rated current. For example, the new VLM13580T-2R2M-D1 is rated at 20 A (max.) versus 15 A (max.) of the existing VLM10555T-2R5M8R0-2H types. The product lineup comprises eight components (six D1 products and two DR products) with various inductances.

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### Main applications

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

### Main features and benefits

- The operating temperature range has been extended by 25°C compared to existing TDK products to a maximum of +150°C.
- High current and low resistance.
- RoHS compatible and suitable for lead-free soldering.

## Key data

Type	Inductance [μH]	DC resistance [mΩ] max.	Rated current [A]	
			IDC 1*	IDC 2**
VLM13580T-R82M-D1	0.82 ±20%	2.0	36	12.6
VLM13580T-1R5M-D1	1.5 ±20%	2.5	26	11.7
VLM13580T-2R2M-D1	2.2 ±20%	3.9	20	10.5
VLM13580T-3R3M-D1	3.3 ±20%	4.5	18	8.4
VLM13580T-4R3M-D1	4.3 ±20%	7.5	15	6.5
VLM13580T-5R6M-D1	5.6 ±20%	8.5	13	5.9
VLM13580T-270M-DR	27 ±20%	44	5.4	2.7
VLM13580T-560M-DR	56 ±20%	101	3.6	1.8

Dimensions: 13.0 × 13.5 × 8.0 mm<sup>3</sup> (max.)

\*IDC 1: The current (typical) at which the initial inductance value drops 30% due to DC superimposition characteristics

\*\*IDC 2: The current (typical) at which the coil temperature increases by 20°C when DC current flows through the coil

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## 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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