

## Inductors

# TDK expands compact high-current choke series ERU33 toward higher currents with new core material

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TDK Corporation (TSE:6762) expanded the EPCOS ERU33 high-current chokes with the even higher-current ERU33M using a new core material. As power densities and currents in automotive and industrial applications continue to increase, this new series meets these requirements by using an alloy powder core material that exhibits a softer saturation characteristic than the core material used previously.

These shielded components for through-hole (THT) mounting are designed for saturation currents from 55 A to 120 A at +100 °C. The three new types cover a range of inductance values from 1.4 µH to 7.2 µH and DC resistances as low as 0.46 mΩ to 1.2 mΩ. Thanks to the flat wire winding, the chokes have very compact dimensions of only 33 x 33 mm and a height of 11 mm or 15.3 mm, respectively. By thermally connecting the flat coils to the electrically insulated powder alloy core, the component can be attached to a heat sink to effectively dissipate the heat. In addition to these standard types, customized versions with other inductance values can also be realized.

The RoHS-compatible and AEC-Q200-qualified inductors are designed for operating temperatures from -40 °C to +150 °C. Typical automotive applications are buck-boost chokes for DC-DC converters (e.g., for 48 V on-board power supplies or differential mode chokes in the input filter of onboard chargers) as well as medium- and high-current battery chargers and inverters. In industrial electronics, they can be used as storage and output chokes in high-current supplies, solar inverters for PV systems, and PoL (Point of Load) converters.

To become familiar with the different models of this series, TDK provides a sample kit for the ERU33M chokes (B82579X0033); it contains four of each of the three variants.

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### Main applications

- Energy storage chokes for DC-DC converters, VRM modules, PoL converters, and inverters in automotive and industrial applications

### Main features and benefits

- High saturation currents from 55 A to 120 A
- Low DC resistances of 0.46 mΩ or 1.20 mΩ
- Very compact dimensions of only 33 x 33 mm and a height of 11 mm or 15.3 mm
- Effective heat dissipation by directly attaching a heat sink
- Easily customizable
- Qualified to AEC-Q200 Rev. E

### Key data

Internal Code	Ordering Code	$L_R$ [ $\mu$ H]	$I_{sat,100^\circ C}$ [A]	$R_{DC}$ [m $\Omega$ ]	Height [mm]	Weight [g]
B82579A1142A033	ERU33M-1R4L	1.4	120	0.46	11.0	58
B82579A1462A033	ERU33M-4R6L	4.6	75	0.85	15.3	76
B82579A1722A033	ERU33M-7R2L	7.2	55	1.20	15.3	77

### About TDK Corporation

TDK Corporation is a world leader in electronic solutions for the smart society based in Tokyo, Japan. Built on a foundation of material sciences mastery, TDK welcomes societal transformation by resolutely remaining at the forefront of technological evolution and deliberately “Attracting Tomorrow.” It was established in 1935 to commercialize ferrite, a key material in electronic and magnetic products. TDK’s comprehensive, innovation-driven portfolio features passive components such as ceramic, aluminum electrolytic and film capacitors, as well as magnetics, high-frequency, and piezo and protection devices. The product spectrum also includes sensors and sensor systems such as temperature and pressure, magnetic, and MEMS sensors. In addition, TDK provides power supplies and energy devices, magnetic heads and more. These products are marketed under the product brands TDK, EPCOS, InvenSense, Micronas, Tronics and TDK-Lambda. TDK focuses on demanding markets in automotive, industrial and consumer electronics, and information and communication technology. The company has a network of design and manufacturing locations and sales offices in Asia, Europe, and in North and South America. In fiscal 2024, TDK posted total sales of USD 14.6 billion and employed about 101,000 people worldwide.

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