

Chokes

TDK Offers SMD Coupled Inductors for Power Applications with High Efficiency

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TDK Corporation (TSE:6762) has expanded its family of flat wire inductors with the high-performance EPCOS ERUC23 coupled inductor series (B82559S*). In such components, two windings share a single magnetic core. The new series comprises six types covering a coupled inductance range from 1.4 μH to 4.1 μH and saturation currents from 50 A to 97 A. The AEC-Q200-qualified and RoHS-compliant components, which can be picked and placed automatically, have dimensions of just 26.8 x 13.8 mm², with heights varying between 13.7 mm and 14.0 mm depending on the type. They are specified for a wide temperature range from -40 °C to +150°C, and depending on the type, the DC resistance of a single winding is 0.82 m Ω to 1.85 m Ω .

Coupled inductors are very versatile: They are suitable for dual-phase buck and boost converters as well as for buck/boost converters - particularly also for hybrid voltage converters that convert 48 V to 12 V. Since the two windings are coupled, the ripple current is reduced which improves efficiency. Using coupled inductors instead of two individual chokes saves significant space on the circuit board.

Main Application Areas

- Dual-phase buck and boost converters as well as buck/boost converters
- Hybrid converter for 48 V to 12 V (flying capacitor converters)

Main Features and Benefits

- High saturation currents
- Low DC resistance
- Automatic pick and place, surface mounting
- Reduced ripple with improved efficiency in a compact package

Type	Coupled Inductance (nom.) [μH]	DC resistance of one winding [mΩ]	Saturation current (typ., 25 °C) [A]	Saturation current (typ., 100 °C) [A]
ERUC23-4R1K	4.1	1.85	50	39.5
ERUC23-3R2K	3.2	1.85	63.5	49
ERUC23-2R8K	2.8	1.25	61	47
ERUC23-2R2K	2.2	1.25	77	58
ERUC23-1R8K	1.8	0.82	81	62
ERUC23-1R4K	1.4	0.82	97	73

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 2023, TDK posted total sales of USD 16.1 billion and employed about 103,000 people worldwide.

You can download this text and associated images from www.tdk-electronics.tdk.com/en/231017
 Further information on the products can be found under <https://www.tdk-electronics.tdk.com/en/eruc23>

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