

Inductors

TDK offers compact inductors with enhanced performance capabilities to address smartphone power circuit demands

- Rated current increased by 10 % compared to conventional products to reach 5.5 A, with DC resistance reduced by 22 % to 25 mΩ.
- Use of proprietary metallic magnetic material technology pivotal in these improvements
- Compact low-profile form factor with 2.0 (L) x 1.2 (W) x 0.8 (H) mm dimensions

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TDK Corporation (TSE:6762) has developed the new TFM201208BLE series of inductors optimized for space-constrained smartphone power circuits. These are available in 0.24, 0.33 and 0.47 μH versions. Mass production will begin in June 2022.

Each supplied in a 2.0 (L) x 1.2 (W) x 0.8 mm (H) form factor, the inductors in this latest TDK series feature significantly better electrical properties than the previous TFM201208BLD products - in terms of their current and resistance levels. A 10% higher rated current of 5.5 A (I_{sat}), plus a 22% lower DC resistance of 25 m Ω than conventional products have been attained.* These parameters are the best in the industry for inductors of this size.** The major boost in performance has been achieved through TDK's innovative metallic magnetic material technology and structural design.

SoCs with elevated arithmetic throughput will be required as smartphone performance further progresses, and the accompanying passive components must exhibit higher current characteristics. In addition, integration of ever more functionality into smartphone designs is increasing the number of power circuits involved. Consequently, the inductors employed must have low resistance and contribute minimal losses to extend battery life. The TFM201208BLE series offer the much-needed value to smartphone OEMs delivering the necessary high current and low resistance.

TDK's overall TFM series also has a wide variety of inductors for automotive applications, including products with 40 V voltage ratings for use in EV powertrains. TDK is constantly expanding its array of products, enabling a wider range of power circuit needs.

*Source: Comparison based on 0.33 uH inductor models

**Source: TDK, as of June 2022

Glossary

- Isat: Current value based on inductance variation (30% lower than the initial L value)
- SoC: System on a Chip

Main applications

- Smartphone
- Tablet

Main features and benefits

- Compared to conventional products (0.33 uH), the rated current has been increased 10% to 5.5 A, and DC resistance has been reduced by 22 % to 25 mΩ.
- The operating temperature range is from -40 °C to +125 °C.
- A compact and low-profile size of 2.0 (L) x 1.2 (W) x 0.8 (H) mm to facilitate space saving

Type	Inductance [μH]	DC resistance [mΩ] max.	Isat [A]max.	Itemp [A]max.	Rated voltage [V]
TFM201208BLE-R24MTCF	0.24 ± 20 %	20	6.5	5.0	20
TFM201208BLE-R33MTCF	0.33 ± 20 %	25	5.5	4.2	20
TFM201208BLE-R47MTCF	0.47 ± 20 %	29	5.0	4.0	20

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 2022, TDK posted total sales of USD 15.6 billion and employed about 117,000 people worldwide.

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