Press Information

Power management products

TDK expands micro POL power module portfolio for high-density AI edge systems

– Ultra-compact micro POL module FS3303 delivers 3 A in a 2.5 × 2.5 mm footprint with only 1.2 mm height, enabling high-density power for optical modules and AI edge systems
– High efficiency up to 95% with operation up to +90 °C (and +125 °C with derating), supporting low-voltage rails from 0.4 V to 3.3 V for ASICs, SoCs, DSPs, and AI chipsets
– Integrates controller, driver, MOSFETs, and inductor in TDK's advanced 3D chip-embedded package, minimizing external components and maximizing board space savings

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TDK Corporation (TSE: 6762) today announced the FS3303, the first member of a major expansion of its micro POL family of ultra-compact, non-isolated DC-DC power modules for optical modules in AI edge systems and other space-constrained designs. Despite its small footprint of just 2.5 x 2.5 mm and a height of only 1.2 mm, the FS3303 can deliver 3 A at ambient temperatures of up to +90 °C (up to +125 °C with derating) and boasts a peak efficiency of around 95%. The FS3303-0400-AL is in full production and is sampling at major distributors.

The FS3303 and the upcoming high-performance point-of-load (POL) converter lineup spans 3 A to 80 A output across 0.3 V to 3.3 V rails. They enable next-generation optical networking and AI accelerator platforms to push performance without sacrificing board space. An example is compact optical modules, which are scaling from 10 Gbit/s to 1.6 Tbit/s. The new portfolio delivers height profiles between 1.2 mm and 1.7 mm.

Engineered for low-voltage rails, the FS3303 supports input voltages from 2.7 V to 6 V and output voltages from 0.4 V to 3.3 V. This makes it a versatile solution for ASICs, SoCs, DSPs, and emerging AI chipsets requiring tight regulation and high transient performance.

The FS3303 leverages TDK's proprietary 3D chip-embedded packaging technology, integrating the controller, driver, MOSFETs, and power inductor. This architecture minimizes external components and delivers a complete DC-DC solution with exceptional area and height savings—ideal for next-generation optical transceivers and edge AI modules.

About TDK Corporation
TDK Corporation (TSE:6762) is a global technology company and innovation leader in the electronics industry, based in Tokyo, Japan. With the tagline “In Everything, Better” TDK aims to realize a better future across all aspects of life, industry, and society. For over 90 years, TDK has shaped the world from within; from the pioneering ferrite cores to cassette tapes that defined an era, to powering the digital age with advanced components, sensors, and batteries, leading the way towards a more sustainable future. United by TDK Venture Spirit, a start-up mentality built on visions, courage and mutual trust, TDK’s passionate team members around the globe pursue better—for ourselves, customers, partners, and the world. Today, the state-of-the-art technologies of TDK are in everything, from industrial applications, energy systems, electric vehicles, to smartphones and gaming, at the core of modern life. TDK’s comprehensive, innovative-driven portfolio includes cutting-edge passive components, sensors and sensor systems, power supplies, lithium-ion and solid-state batteries, magnetic heads, AI and enterprise software solutions, and more—featuring numerous market-leading products. These are marketed under the product brands TDK, InvenSense, Micronas, Tronics, TDK-Lambda, TDK SensEI, and ATL. Positioning the AI ecosystem as a key strategic area, TDK leverages its global network across the automotive, information and communication technology, and industrial equipment sectors to expand its business in a wide range of fields. In fiscal 2026, TDK posted total sales of USD 16.6 billion and employed about 107,000 people worldwide.

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Further information on the products can be found at
https://product.tdk.com/system/files/dam/doc/product/power/switching-power/micro-pol/data_sheet/fs3303_datasheet.pdf

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