Press Information

Power Supplies
TDK launches patented non-isolated buck-boost DC-DC converters with up to 99 % efficiency

May 12, 2026

TDK Corporation (TSE: 6762) announces the launch of the TDK-Lambda i9C series, a 1500 W non-isolated DC-DC buck-boost power module designed to maximise system efficiency, reduce thermal stress, and extend battery runtime in demanding industrial and battery-powered applications. The i9C series launches with a 9 – 80 V input, 9.6 – 60 V output model delivering up to 30 A. A second configuration supporting a 9 – 40 V input range with 5 – 36 V output and up to 50 A is planned to follow, expanding the series' voltage and current options.

At the core of the i9C series is TDK-Lambda's patented programmable high-efficiency pass-through (PHEPT) technology. PHEPT allows designers to define an input-voltage window in which the module bypasses regulation and directly connects the input to the output, eliminating switching and conversion losses. When operating in this mode, efficiency can reach up to 99 %, significantly reducing heat generation and improving system reliability for engineers, particularly those designing battery-powered systems.

The i9C is packaged in a compact, wide quarter-brick form factor with an integral baseplate that supports convection, conduction, or forced-air cooling, making it well suited for high-ambient, low-airflow environments. Standard control and protection features include negative-logic on/off control, power-good, remote sense, user-adjustable overcurrent protection, low-power sleep mode, and full auto-recovery protection. The user-configurable sleep mode programs the power module into a low-power dissipation state during idle or light-load conditions. The adjustable overcurrent protection reduces stress on both the power module and load and helps engineers reduce or eliminate external circuitry.

The i9C series is designed for use in industrial, communications, test and measurement, and battery-powered applications, including AGVs, AMRs, commercial drones, and humanoid robotics. The modules are certified to IEC/UL/CSA/EN 62368-1 safety standards and carry CE and UKCA markings for the Low Voltage, EMC, and RoHS Directives.

Main applications
- Robotics AGVs, AMRs, commercial drones, and humanoids; test and measurement, communications, battery-powered equipment

Main features and benefits
- Up to 99 % efficient
- Supports 9 – 80 V or 9 – 40 V inputs and 9.6 – 60 V or 5 – 36 V outputs
- Adjustable overcurrent
- Compact, wide quarter-brick with baseplate for flexible cooling options

Type		i9C 30 A	i9C 50 A
Input voltage	Vdc	9 – 80	9 – 40
Output voltage	Vdc	9.6 – 60	5 – 36
Output power	W	1500	1500
Efficiency	%	Up to 99	Up to 97.5
Size (L x W x H)	mm	57.91 x 55.88x 15.25	57.91 x 55.88 x 15.25
Safety certifications		IEC/UL/CSA/EN62368-1, CE Mark, and UKCA Mark	IEC/UL/CSA/EN62368-1, CE Mark, and UKCA Mark

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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.

About TDK-Lambda Corporation

TDK-Lambda Corporation is a trusted, innovative leader and global supplier of highly reliable power conversion products for industrial and medical equipment worldwide.
TDK-Lambda Corporation is aligned for fast responses to any customer need with R&D, manufacturing, sales and service locations in five key geographic regions, namely Japan, EMEA, Americas, China and ASEAN.
For more details, please pay a visit to: www.jp.lambda.tdk.com/en/

Further information on the products can be found under product.tdk.com/en/power/i9C

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