TDK's Three Focus Areas and Main Products

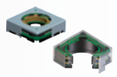
TDK currently focuses in particular on three areas that are expected to see further rapid growth in the future: ICT (Information and Communication Technology), automotive, and the industrial equipment and energy sectors. In ICT sector, the explosive growth in information volume is driving a trend toward further increases in communication speed and volume. In the automotive sector, where cars rely more and more on electronics, the spread of hybrid and electric vehicles has resulted in a drastic rise in the number of electronic components used. In the industrial equipment and energy sector as well, the demand for electronic components is expected to rise further, driven by trends such as factory automation and power-saving solutions, along with the realization of the smart grid (next-generation power distribution network). Looking toward the near future, the wearables & health-care market which is drawing a lot of attention and the emerging IoT (Internet of Things) are areas where customers will have a rising need for miniaturized components and ultra-compact modules.

ICT Sector

SESUB products for miniaturized high-performance modules

SESUB (Semiconductor Embedded in SUBstrate) is TDK's technique for embedding ICs directly in the substrate, made possible by our extensive expertise in a range of highly complex technologies. The profile of the IC chips has been reduced to 100 micron or less, and a super-advanced multilayer substrate is used that enables embedding. Transcending the boundaries of conventional methods has resulted in extremely small and thin modules that also have excellent thermal dissipation properties and reduced noise. TDK is supplying various kinds of SESUB products including ultra-compact power supply modules and Bluetooth modules that make for even smaller and thinner mobile devices. Other highly promising application areas for the technology are wearable devices and IoT products.

Compact actuators for cameras



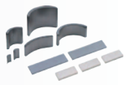
The camera functions of smartphones and tablets etc. are constantly evolving and therefore require more capable components, especially in the areas of focusing speed and image quality improvement. TDK is supplying a range of compact actuators that make the camera function of various devices much easier to use. This includes power-saving voice coil motors (VCM) with high positioning precision for high-speed focusing, and optical image stabilizers (OIS) with superior control characteristics to prevent blurry photos.

Automotive Sector

Mega Cap automotive grade multilayer ceramic chip capacitors

The Mega Cap product is a special type of multilayer ceramic chip capacitor fitted with metal terminals for the external electrodes. The metal terminals are soldered to the circuit board, which allows the stress of substrate deflection due to temperature fluctuations or vibrations to be absorbed by the terminal. This greatly reduces the impact on the capacitor body. Such capacitors are therefore increasingly in demand for automotive use where severe conditions are encountered. The stacked version of the capacitor provides the capacitance of two units with the footprint of one, thereby contributing to space savings in the circuit layout.

Magnets for electric motors in automobiles



Drive motors in hybrid electric and electric vehicles use very powerful NEOREC neodymium magnets from TDK which contribute to improved fuel economy and reduced electric power requirements. In addition, many small DC motors are used for wipers, power windows, power mirrors and many other applications, with some car models having as many as 100 or more. TDK ferrite magnets are extensively used in such motors. TDK is also actively engaged in the development of new types of magnets that significantly reduce the dependence on rare earth materials.

Industrial Equipment & Energy Sector

Wireless power transfer system for industrial equipment

Wireless power transfer systems employ a combination of coils and capacitors that utilize the magnetic resonance effect to transfer power between the sending and receiving units without direct physical contact. This also allows the batteries of automated guided vehicles and control equipment, robots etc. to be charged without cumbersome cable connections. Through measures such as using low-loss ferrite materials for the coil cores, TDK has successfully achieved wireless power transfer with high efficiency. As the technology advances further, wirelessly charging the batteries of electric vehicles while in motion is also expected to become feasible.

Power film capacitor for high-voltage direct current (HVDC) transmission systems

HVDC power transmission is an alternative method to conventional AC transmission, using high voltage direct current. In long-distance power transmission, losses are lower than with AC transmission, and the number of necessary wires is reduced. In view of these advantages, the system has been adopted for example in Europe and the U.S. A film capacitor uses a plastic film as the dielectric, resulting in excellent insulation characteristics and high reliability. TDK's large capacitance power film capacitors which are widely used in the power electronics sector also are playing a large role in HVDC transmission systems.

TDK Group Outline
(fiscal year ended March 2016)

Japan	Number of employees	8,920
	Consolidated subsidiaries	14
	Net sales	91,052 million yen (7.9%)
Asia and others	Number of employees	71,767
	Consolidated subsidiaries	58
	Net sales	813,893 million yen (70.6%)
Europe	Number of employees	7,763
	Consolidated subsidiaries	39
	Net sales	145,336 million yen (12.6%)
Americas	Number of employees	3,198
	Consolidated subsidiaries	18
	Net sales	101,974 million yen (8.9%)

Number of TDK Group employees	Consolidated subsidiaries
91,648	129

Net sales	1,152,255 million yen
Operating income	93,414 million yen
Net income	64,828 million yen

Net sales by product sector (in million yen)