

# EMC components TDK offers 3-terminal filters for automotive applications at higher voltages and higher capacitances

- New 35-V products with 0.22  $\mu$ F in 1005 size and 10-V products with 4.7  $\mu$ F in 2012 size for automotive applications added to the lineup
- Contributes to the reduction of component count and the miniaturization of sets as well as reduces voltage fluctuation and high-frequency noise
- Qualified based on AEC-Q200

#### June 3, 2025

TDK Corporation (TSE: 6762) has expanded its YFF series of 3-terminal filters for automotive applications to include higher voltages up to 35 V and higher capacitances up to 4.7  $\mu$ F. Such components are used to suppress voltage variation and high-frequency noise, which can cause system malfunctions. Mass production of the product series began in June 2025.

With the miniaturization of automotive electronic systems, there is an increasing demand for measures to prevent system malfunctions. Usually, numerous capacitors are employed in such applications. On the other hand, the number of components must be reduced due to the miniaturization of these systems. To address these challenges, 3-terminal filters, characterized by a low ESL (equivalent series inductance), are gaining significant demand.

By optimizing the material selection and product design, the new products feature significantly higher withstand voltage, ranging now from 6.3 V to 35 V, and considerably higher capacitance, ranging now from 0.47  $\mu$ F to 4.7  $\mu$ F. The 35-V product with an insertion loss of 40 dB (4 MHz to 2 GHz) can be used for a broader range of power lines, including both input and output of power-supply systems, while the 4.7  $\mu$ F product with an insertion loss of 30 dB (300 kHz to 3 GHz) is more effective as input capacitors than conventional products in reducing voltage fluctuation and countering high-frequency noise. Moreover, depending on set usage conditions, it is possible to halve the component count required to suppress voltage fluctuations to the same extent from the MLCC.

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\*Source: TDK, as of June 2025

Article introducing the products: https://product.tdk.com/en/techlibrary/solutionguide/expansion-of-yff-series.html

#### Glossary

- AEC-Q200: Automotive Electronics Council standards for passive components for automobiles
- ESL: Abbreviation for equivalent series inductance

### **Main applications**

• For smoothing, filtering, and decoupling power lines in automobiles



### Main features and benefits

- Reduction of component count and the miniaturization of sets, as well as reduced voltage fluctuation and highfrequency noise by realizing high withstand voltage and large capacitance
- High reliability qualified based on AEC-Q200

Туре	Outer dimensions [mm]	Rated voltage [V]	Rated current [A]	Rated capacitance [µF]	Insertion Loss [dB]
YFF15AC1V224MT0Y0N	1.00 x 0.50 x 0.40	35	2	0.22	40dB (4MHz to 2GHz)
YFF21AC1A475MT0Y0N	2.00 x 1.25 x 0.85	10	4	4.7	30dB (0.3MHz to 3GHz)

Samples may be purchased from the product page that is displayed after clicking Type.

## **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. 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, software 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 2025, TDK posted total sales of USD 14.4 billion and employed about 105,000 people worldwide.

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