

EMC components

TDK launches noise suppression filters for audio lines of high sound quality devices

- Support for wide frequency bandpass, extending from the FM band to the cellular band
- Particularly well-suited for devices where high sound quality is crucial because they control sound distortions with only minimal reductions in volume, thanks to their low resistance
- Impedance of up to 2600 Ω at 900 MHz and insertion loss of more than 25 dB; wide operating temperature range of -55 °C to +125 °C

November 21, 2023

TDK Corporation (TSE:6762) has announced its latest compact noise suppression filters MAF1005FR series, measuring 1.0 mm (L) x 0.5 mm (W) x 0.5 mm (H). These multilayer chip components are designed to improve sound quality and reduce noise interference in the audio lines (sound lines) of smartphones and other devices such as tablets, wearables, and portable games. Mass production of the product series began this month, November 2023.

The audio lines in smartphones and similar devices emit electromagnetic noise, which can interfere with built-in antennas and degrade reception quality. This noise can be problematic, especially when high-quality audio and effective noise suppression are required. Chip beads are commonly used to control noise in audio lines. However, although they effectively reduce noise, they can also distort the audio quality, impacting the sound in these lines.

The new MAF1005FR series of noise suppression filters can improve sound quality and reduce noise interference, with a typical impedance of up to 2600 Ω at 900 MHz and insertion loss of more than 25 dB. This is achieved by newly developed low-distortion ferrite materials. As a result, the sound quality is maintained, and the issue of sound deterioration caused by chip beads is addressed.

These components have a wide frequency bandpass, extending from the FM band to the cellular band. Unlike conventional products, which require two noise suppression filters for each frequency range, only one MAF1005FR component is required. This simplifies the design and implementation of noise suppression in electronic devices. The noise suppression filters are extremely compact, and an operating temperature range of -55 °C to +125 °C is supported.

TDK plans to expand its product lineup to include smaller components for high-frequency bandpass noise control, ranging from 900 MHz to 5 GHz. The company will also continue to provide products for applications requiring large current support, such as speakers, to meet market demands.

Main applications

- Audio lines for smartphones, tablets, wearable devices and portable games (earphones, microphones, speakers)

Main features and benefits

- Reduce electromagnetic noise across a wide range of frequencies, spanning from the FM band to the cellular band
- Reduce audio distortions when inserted into devices, with newly developed low-distortion ferrite materials
- Controlled sound distortions with only minimal reductions in volume, due to low resistance

Key data

Type	Impedance [Ω] @100MHz	Impedance [Ω] typ. @900MHz	DC resistance [Ω] max.	Rated current [mA] max.
MAF1005FRQ601AT000	600 ±25%	1800	1.00	280
MAF1005FRQ801AT000	800 ±25%	2200	1.35	270
MAF1005FRQ102AT000	1000 ±25%	2600	1.65	240

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 2023, TDK posted total sales of USD 16.1 billion and employed about 103,000 people worldwide.

You can download this text and associated images from
https://www.tdk.com/en/news_center/press/20231121_01.html

Further information on the products can be found under
https://product.tdk.com/system/files/dam/doc/product/emc/emc/suppression-filter/catalog/suppression-filter_commercial_maf1005fr_en.pdf

Contacts for regional media

Region	Contact		Phone	Mail
Japan	Mr. Daiki ITO	TDK Corporation Tokyo, Japan	+813 6778-1055	TDK.PR@tdk.com
ASEAN	Ms. Jiang MAN Ms. Pei Lu LEE	TDK Singapore (Pte) Ltd. Singapore	+65 6273 5022	asean.inquiry@sg.tdk.com
Greater China	Ms. Clover XU	TDK China Co., Ltd. Shanghai, China	+86 21 61962307	TDK.PR-CN@tdk.com
Europe	Mr. Frank TRAMPNAU	TDK Management Services GmbH Duesseldorf, Germany	+49 211 9077 127	frank.trampnau@tdk.com
America	Ms. Sara M. LAMBETH	TDK Corporation of America Irving, TX, USA	+1 972-409-4519	sara.lambeth@us.tdk.com