

October 16, 2017
Hitachi Metals, Ltd.

Hitachi Metals Announces the Development of the FT-3K10Q Series, Common Mode Choke Coils/ Cores with High Impedance Using FINEMET® Nanocrystalline Magnetic Materials

Hitachi Metals, Ltd. is pleased to announce the successful development of the FT-3K10Q series, common mode choke coils/ cores having both high impedance*¹ and excellent high temperature characteristics by using FINEMET® nanocrystalline magnetic materials. This product will help achieve smaller, lighter, and highly reliable noise filters for electronic devices used in next-generation vehicles such as EVs*².

1. Background

Hitachi Metals has produced and sold FINEMET® nanocrystalline magnetic materials as one of the soft magnetic materials used in various electronic circuits such as automotive electronic components. Since its stable quality is highly recognized, FINEMET® is adopted as magnetic cores by many customers.

As the number of electrical components installed in automobiles continues to increase, demand for the higher efficiency and reliability of those components is growing, and densely mounted electronic parts are required to be much smaller and lighter, and to have higher performance and reliability across a wide temperature range.

2. Outline

The FT-3K10Q series, common mode choke coils/ cores Hitachi Metals has developed using FINEMET® nanocrystalline magnetic materials and our unique technology, has achieved high impedance across a wide frequency range from the kHz to MHz order (approximately 30% at 100 kHz and 10% at 1 MHz compared to our conventional material FT-3K50T) and offers efficient noise suppression.

Its small impedance fluctuations from low to high temperatures make it possible to use the cores in electrical components for automobiles that work across a wide temperature range. Using this product, noise filters used for power supply parts in automotive on board chargers will be smaller, lighter and more reliable.

By adding the FT-3K10Q series made of FINEMET® nanocrystalline magnetic materials to our product lineup, Hitachi Metals will address an even more extensive range of customer needs.

We will continue to focus on the development of new materials, contributing to smaller and lighter electronic components with higher efficiency and reliability.

■ Features of FT-3K10Q series (Compared to Hitachi Metals' conventional product FT-3K50T)

- (1) Improved impedance across a wide frequency range (Approximately 30% at 100 kHz and 10% at 1 MHz)
- (2) Stable impedance properties across a wide temperature range (Rate of change: 12% (from -40 to +150°C))

3. Production Status

Sample shipment: January 2018
Mass production: April 2018

4. Production Base

Hitachi Metals (Thailand) Ltd.

5. Applications

Automotive noise filters

6. Patents

Basic patents have been obtained.

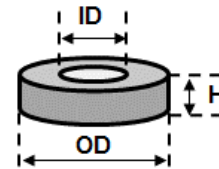


Photo: FINEMET®
Common mode choke coil/ core
FT-3K10Q series

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Supplementary Explanations

Impedance frequency response (Typical)
 (Core size: OD: 27.5 mm, ID: 21.0 mm, H: 7.5 mm)



	Impedance (Ω)		
	10 kHz	100 kHz	1 MHz
FT-3K10Q (new product)	2.32	9.57	21.05
FT-3K50T	1.02	7.31	18.72
Mn-Zn Ferrite (MP70D by Hitachi Metals)	0.19	2.05	6.73

Glossary

- *1 Impedance is an electrical resistance in an AC circuit, symbolized by the letter "Z."
 It is a complex number with a unit of Ω and the real part of impedance is the resistance and the imaginary part is the reactance.
- *2 "EV" is the including term for hybrid electric vehicles (HEV) and plug-in hybrid electric vehicles (PHEV).