Noise suppressing sheets
Flexield sheets improve performance of RFID tags

- Polymeric sheets can be precisely cut to customers' specifications
- Ultra-thin sheets ideal for space-constrained applications

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TDK-EPC, a group company of the TDK Corporation, has introduced a new TDK Flexield family of flexible RFID magnetic polymer sheets that can be shaped to the precise specifications set by manufacturers of RFID stickers and other emerging RFID device types.

Flexield is a soft sheet that is created by depositing a magnetic powder on a polymeric resin base layer. Both flexible and shock-resistant, it is a highly effective noise suppressant when attached to RFID tags and stickers as well as other RFID devices operating at the 13.56 MHz frequency.

Because Flexield sheets are manufactured from a polymeric resin, they can be precisely cut and shaped to the requirements of individual customers' applications. This is particularly important in the emerging classes of RFID tags such as stickers attached to the metal casing of mobile phones. Such ultra-thin miniature devices cannot use standard shield form factors, and require the production of customized sheet shapes.

Flexield is available in thicknesses as low as 0.05 mm. The IFL12 type offers high magnetic permeability (125 μ' typical at 13.56 MHz and μ'' of 50). The IFL04 type offers a typical low loss value of 1.3 μ'' and a permeability of 45 μ'.

The high magnetic permeability of Flexield sheets shields RFID emitters from adjacent metal surfaces, which would otherwise generate reverse magnetic radiation and cancel out the device's RFID signals. In this case the signal attenuation reduces the effective range and can lead to the abrupt loss of communication between tag and reader.

Flexield noise-suppressing sheets are now available directly from TDK Electronics Europe or from authorized distributors.

Glossary

- RFID: Radio frequency identification is a wireless technology for contactless sensing and identification of people and objects. The 13.56-MHz RFID frequency is commonly used in logistics and personal access control applications, and in contactless payment terminals.
- Magnetic permeability: The ability of a material to resist the formation of a magnetic field within itself. Magnetic permeability is typically represented by the symbol μ.

Main applications

- Magnetic shielding between an RFID antenna and a metal surface. Suitable for application to RFID stickers affixed to mobile phones for use with contactless payment terminals.

Main features and benefits

- Available as polymeric magnetic sheets in a variety of thicknesses, and also as flexible ferrite plates
- Can be cut to precisely fit the shape of an RFID antenna or tag
- High magnetic permeability and low loss values

Key data

Sheet Series	IFL12	IFL04	IRLG5
Magnetic permeability [µ']	125	45	50
Loss [µ'']	50	1.3	0.9
Minimum sheet thickness [mm]	0.05	0.05	0.25

About TDK-EPC Corporation

TDK-EPC Corporation (TDK-EPC), a TDK group company, is a leading manufacturer of electronic components, modules and systems headquartered in Tokyo, Japan. TDK-EPC has emerged from the combination of the electronic components business of TDK and the EPCOS Group and markets its products under the product brands, TDK and EPCOS.

The product portfolio includes ceramic, aluminum electrolytic and film capacitors, ferrites and inductors, high-frequency components such as surface acoustic wave (SAW) filter products and modules, piezo and protection components, and sensors. With this product spectrum TDK-EPC offers a broad range of products and solutions of outstanding value from a single source and focuses on demanding markets in the areas of information and communication technology and automotive, industrial and consumer electronics. The company has design and manufacturing locations and sales offices in Asia, Europe, and in North and South America.

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