



# Magnetic Sheets for RFID

Flexield

# IFW series

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# Magnetic Sheets for RFID

Flexield

Product compatible with RoHS directive

## Overview of IFW series

### FEATURES

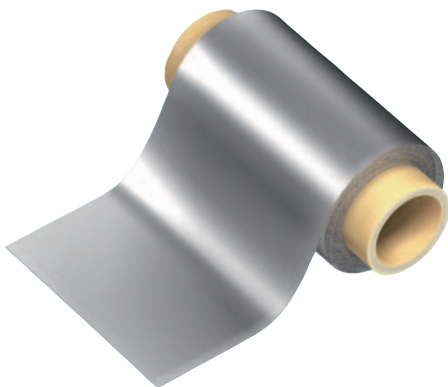
- Solution item for protecting your cards against interference and skimming
- Hybrid construction consisting of both magnetic and metal layers
- High flexibility which allows sheets to easily be formed to desired shape
- Non conductive surface allows for metal coils to be directly applied to magnetic sheet
- Available on a roll or in sheet form
- Protects system from metal objects located directly behind coils

### APPLICATION


- Improving antenna reception performance and sensitivity in RFID readers/writers
- Isolation of magnetic field in metal smart cards and tags
- NFC transmitters and receivers
- High EMI level conditions where magnetic layer alone those not have sufficient attenuation
- PCB, FPC, ribbon cable data/address lines

### STANDARD SHAPE LIST

Material name	Magnetic layer thickness (mm)	Sheet dimensions (mm)	Roll dimensions	
			Width (mm)	Length (m)
IFW16	0.060	300X200	300	50



RoHS Directive Compliant Product: See the following for more details related to RoHS Directive compliant products. <http://product.tdk.com/en/environment/rohs/>

 Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

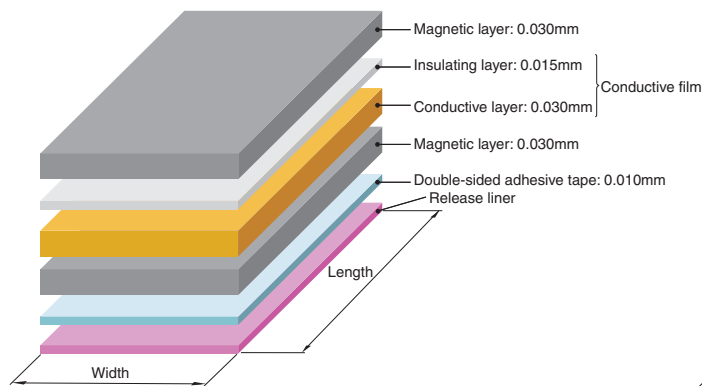
# IFW series for RFID Sheet Type

## ■ PART NUMBER CONSTRUCTION

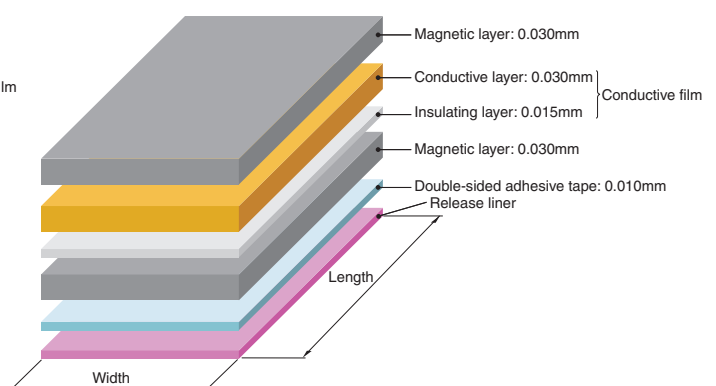
IFW	16	-	060	E*	N	300	×	200
Series name	Material symbol	Magnetic layer total thickness (mm)	Material of conductive film on the top surface layer side		Double-sided adhesive tape thickness (mm)		Length (mm)	Width (mm)
IFW	16	060 100	0.06 0.10	E G	Insulating Conductive	N B D	No 0.01 0.03	300 300
								200 200

\* Note : If you don't need double-sided adhesive tape, there is no specification difference between E and G.  
(IFW16-060EN is equal to IFW16-060GN)

### IFW16-060EB



### IFW16-060GB



## ■ STANDARD PART NUMBER LIST

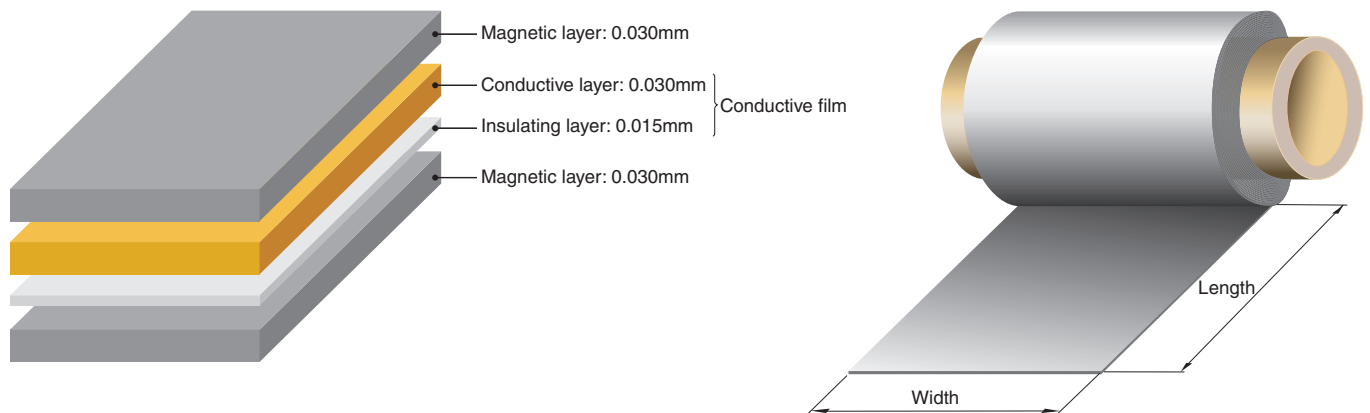
Material name	Sheet dimensions (mm)	Magnetic layer thickness (mm)	Total thickness (mm)typ.	Part number
IFW16	300X200	0.060	0.105	IFW16-060EN300X200

# IFW series for RFID Roll Type

## PART NUMBER CONSTRUCTION

IFW	16	-	060	E*	N	50R	×	300	
Series name	Material symbol	Magnetic layer total thickness (mm)		Material of conductive film on the top surface layer side		Double-sided adhesive tape thickness (mm)		Length (m)	Width (mm)
IFW	16	060	0.06	E	Insulating	N	No	50R	50
		100	0.10	G	Conductive	B	0.01		300
						D	0.03		300

\* If you don't need double-sided adhesive tape, there is no specification difference between E and G.  
(IFW16-060EN is equal to IFW16-060GN)



## STANDARD PART NUMBER LIST

Material name	Roll dimensions		Magnetic layer thickness (mm)	Total thickness (mm)typ.	Part number
	Width (mm)	Length (m)			
IFW16	300	50	0.060	0.105	IFW16-060EN50RX300

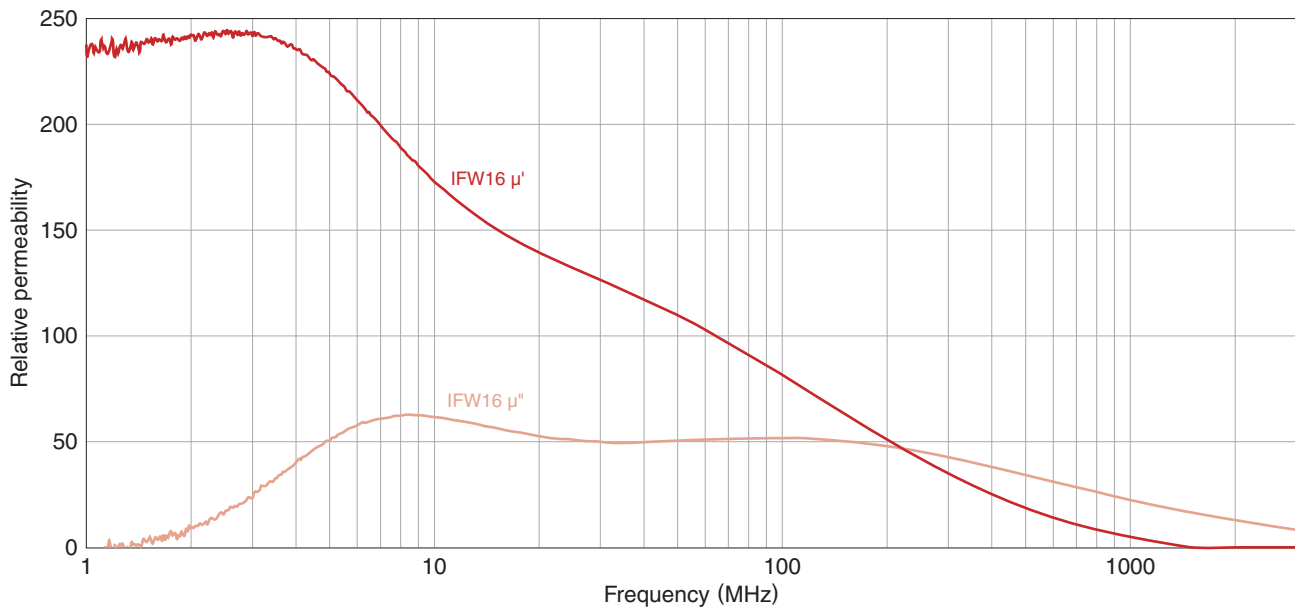
# IFW series

## MATERIAL CHARACTERISTIC

### MATERIAL CHARACTERISTIC SPECIFICATION TABLE

Material name	Recommended specification frequency range	Relative permeability [at 13.56MHz]			Surface resistivity ( $\Omega/\text{sq.}$ )typ.	Thermal conductivity ( $\text{W}/\text{m} \cdot \text{K}$ )	Saturated magnetic flux density (mT)	Curie temperature ( $^{\circ}\text{C}$ )	Relative Permittivity (at 1MHz)typ.	Operating temperature ( $^{\circ}\text{C}$ )
		$\mu'$	$\mu''$	$\mu'/\mu''$						
IFW16	0.1MHz to 10GHz	140	60	2.3	10k	1.5	230 [H=1194A/m]	> 500	1700	-40 to +85

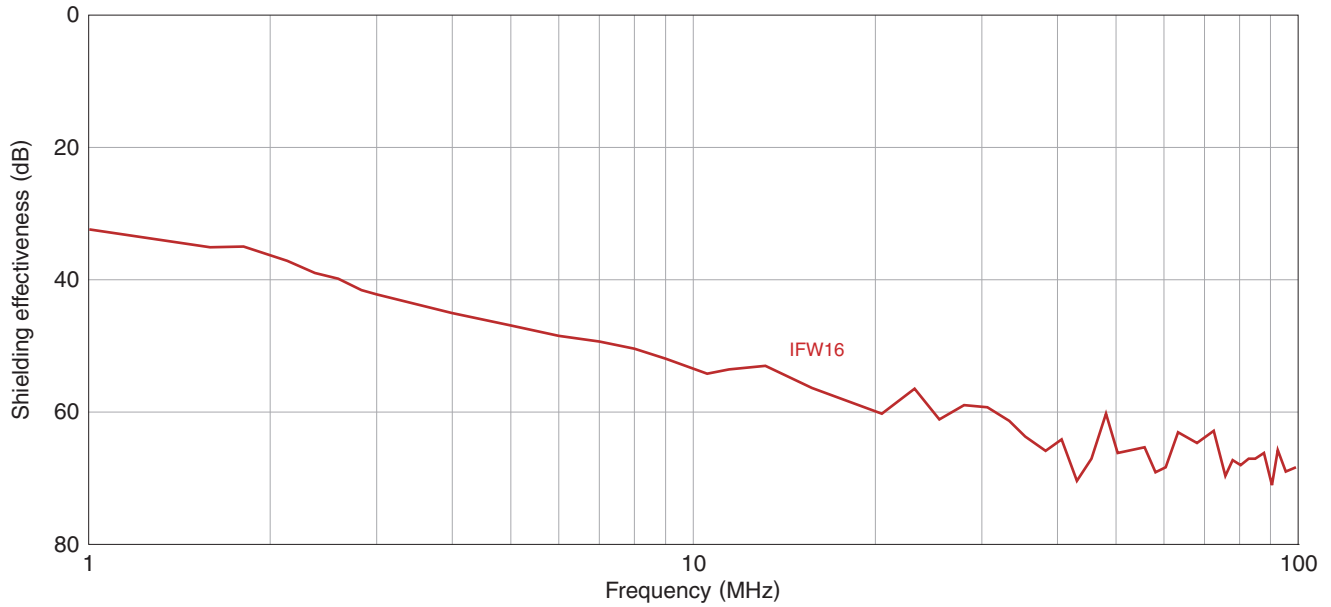
### RELATIVE PERMEABILITY



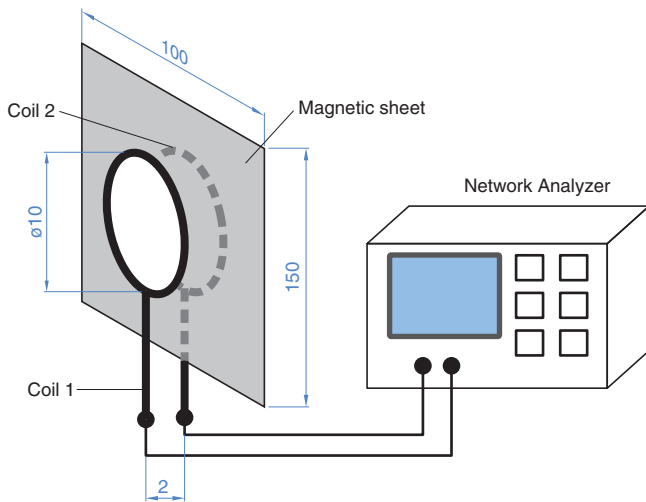
# IFW series

## ■ MATERIAL CHARACTERISTIC

### □ SHIELDING EFFECTIVENESS (Up to 100MHz)



### □ MEASUREMENT SETUP (Up to 100MHz)



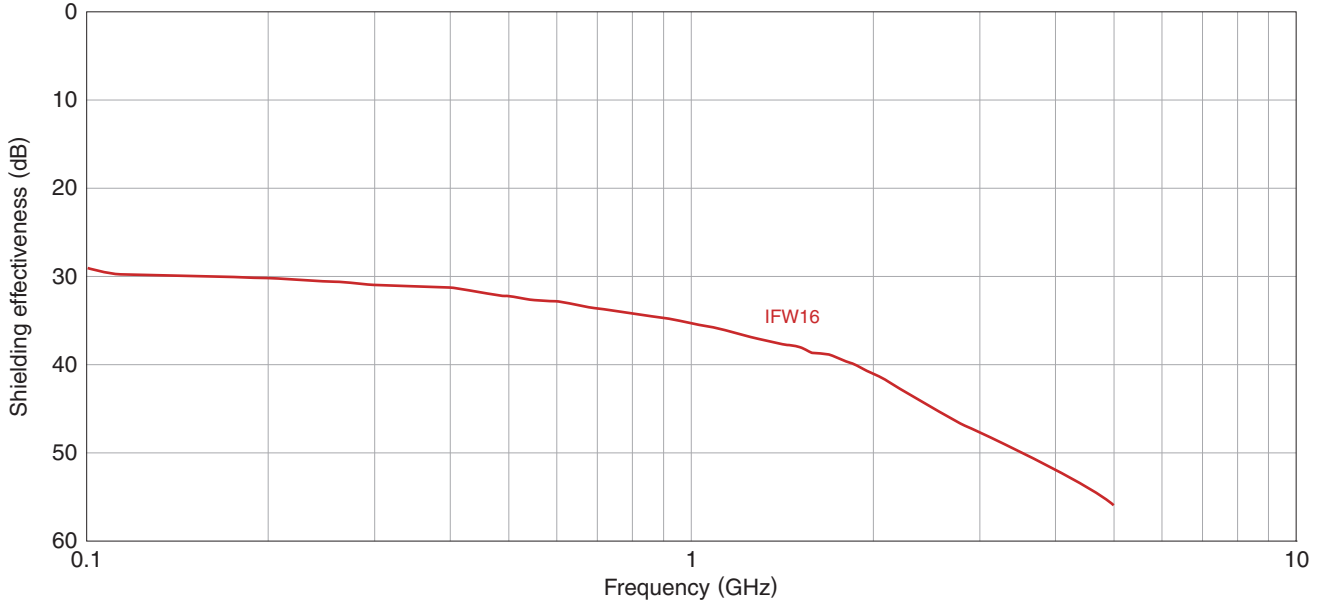
# IFW series

## ■ MATERIAL CHARACTERISTIC

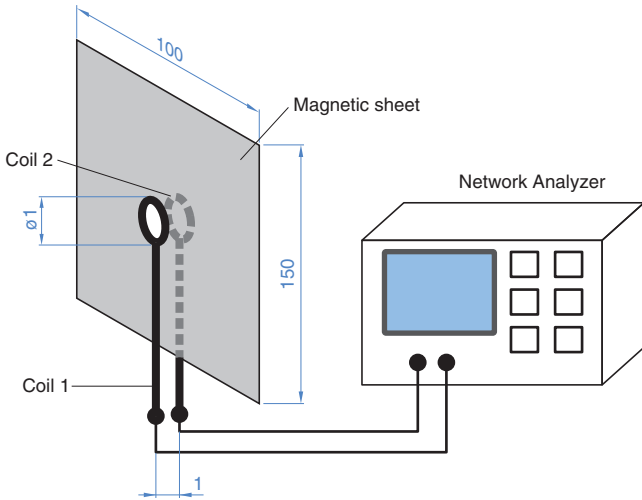
### □ SHIELDING EFFECTIVENESS (100MHz to 6GHz)\*


\* Note that there is no continuity with data below 100MHz.

Gain is low due to the use of a small coil for high frequencies.



### □ MEASUREMENT SETUP (100MHz to 6GHz)



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## REMINDERS FOR USING THESE PRODUCTS

Before using these products, be sure to request the delivery specifications.

### SAFETY REMINDERS

Please pay sufficient attention to the warnings for safe designing when using these products.

#### REMINDERS

- The products listed on this catalog are intended for use in general electronic equipment (AV equipment, telecommunications equipment, home appliances, amusement equipment, computer equipment, personal equipment, office equipment, measurement equipment, industrial robots) under a normal operation and use condition.

The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require a more stringent level of safety or reliability, or whose failure, malfunction or trouble could cause serious damage to society, person or property.

If you intend to use the products in the applications listed below or if you have special requirements exceeding the range or conditions set forth in the each catalog, please contact us.

- |  |  |
|--|--|
| (1) Aerospace/aviation equipment   | (8) Public information-processing equipment                                  |
| (2) Transportation equipment (cars, electric trains, ships, etc.)                    | (9) Military equipment   |
| (3) Medical equipment (excepting Pharmaceutical Affairs Law classification Class1,2) | (10) Electric heating apparatus, burning equipment                           |
| (4) Power-generation control equipment   | (11) Disaster prevention/crime prevention equipment                          |
| (5) Atomic energy-related equipment  | (12) Safety equipment  |
| (6) Seabed equipment   | (13) Other applications that are not considered general-purpose applications |
| (7) Transportation control equipment   |  |

When designing your equipment even for general-purpose applications, you are kindly requested to take into consideration securing protection circuit/device or providing backup circuits in your equipment.