

Noise Suppression Sheets/Magnetic Sheets/Radio Wave Absorbers Flexield®

FOR NOISE SUPPRESSION IRL, IRJ, IVM, IRB, IRE MATERIALS

Flexield® is an absorptive electromagnetic shielding material consisting of magnetic material and resin. It suppresses noise radiated from electronic equipment over a wide range of frequencies, offers flexibility in fabrication and delivers particularly excellent performance in high frequency ranges. Flexield® is the ideal sheet-type noise reduction product for mobile devices including notebook PCs, digital cameras and cell phones.



FEATURES

- They are flexible(Will not crack).
- They are suited for thin and compact devices.
- Available in a wide range of dimensions and shapes.
- The products in the line-up support a wide range of frequency bands (50MHz to 30GHz).
- Excellent performance at high frequencies ($\geq 300\text{MHz}$).
- Environmentally products(All products: Lead-free) are also available.

APPLICATIONS

- Electromagnetic noise reduction for electric equipment (especially for mobile equipment)
Internal EMI, resonance reduction(mounting inside a shielded box)
 - RF-block
 - Amplifier
- Radiated noise reduction(Circuit, IC, flat cable)
Surface current suppression
- Improvement of noise immunity
- SAR reduction for mobile phone
- Improved antenna reception sensitivity.

PRODUCT IDENTIFICATIONS

$$\frac{\text{IRL02}}{(1)} \quad \frac{\text{A}}{(2)} \quad \frac{\text{H}}{(3)} \quad \frac{300}{(4)} \times \frac{300}{(5)} \times \frac{2}{(6)}$$

- (1) Material name
 (2) A denotes: Both adhesive taped products
 A: Standard type
 AB: Thin type
 (3) H denotes: Half-cutting products
 (4) Length(300: 300mm)
 (5) Width(300: 300mm)
 (6) Thickness(2: 2mm)

SPECIFICATIONS

NEW

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Material name	IRL04	IRL03	IRL02	IRB02	IRE02	IVM06	IRJ01
Recommended frequency range	50MHz to 10GHz	100MHz to 10GHz	100MHz to 10GHz	500MHz to 5GHz	3 to 30GHz	100MHz to 3GHz	100MHz to 10GHz
Operating temperature range (°C)	-40 to +85	-40 to +85	-40 to +85	-40 to +70	-40 to +85	-40 to +85	-40 to +125
Initial permeability μ min.	30	20	20	6	4	12	18
Resistivity ($\Omega \cdot \text{cm}$)	1M	1M	1M	1M	1M	1G	1M
Density (g/cm ³)	3.3	3.2	2.5 3.2	3.3	3.7 5	3.4	2.5
Environment	Lead / Halogen-free	Lead free	Lead / Halogen-free	Lead / Halogen-free	Lead / Halogen-free	Lead free	Lead / Halogen-free
Flame retardant	(Also available for UL94 approved products.)	—	—	—	—	UL94V-0	UL94V-1
Thermal conductivity (W/m · K)	1.4	1.4	1.4	1.2	0.8	1.3	1.0
Standard sheet dimensions (mm)	300×200	300×200	300×200 200×200	300×300	300×300	300×200	250×250
Standard sheet thickness (mm)	0.05 0.1	0.25 0.5	0.05 1 2	1 2 3 6	1 2 3	0.4	0.5
Standard sheet weight (g)	10 20	50 100	10 100 250	300 600 900 1800	250 500 750	80	85
Features	Thin High performance	High performance Wide band	High performance Wide band	For quasi-microwave band	For GHz	High insulation Flame retardant	High-resisting Flame retardant

※ It may not be allowed to export these Flexields due to Export Control regulations.

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PHYSICAL PROPERTIES LIST ACCORDING TO MATERIAL

Material	Recommended frequency range	Operating temperature range (°C)	Initial permeability	Resistivity ($\Omega \cdot \text{cm}$)	Thermal conductivity ($\text{W/m} \cdot \text{K}$)	Environment	Flame retardant	Features
IRL02	100MHz to 10GHz	-40 to +85	≥ 20	$\geq 1\text{M}$	1.4	Lead/Halogen-free	—	High performance, Wide band
IRL03	100MHz to 10GHz	-40 to +85	≥ 20	$\geq 1\text{M}$	1.4	Lead free	—	High performance, Wide band
IRL04	50MHz to 10GHz	-40 to +85	≥ 30	$\geq 1\text{M}$	1.4	Lead/Halogen-free	(UL94V)	Thin, High performance
IRJ01	100MHz to 10GHz	-40 to +125	≥ 18	$\geq 1\text{M}$	1.4	Lead/Halogen-free	UL94V-1	High-resisting, Flame retardant
IVM05	100MHz to 3GHz	-40 to +85	≥ 7	$\geq 1\text{G}$	1.2	Lead/Halogen-free	UL94V-0	High insulation, Flame retardant
IVM06	100MHz to 3GHz	-40 to +85	≥ 12	$\geq 1\text{G}$	1.3	Lead free	UL94V-0	High insulation, Flame retardant
IRB02	500MHz to 5GHz	-40 to +70	≥ 6	$\geq 1\text{M}$	1.2	Lead/Halogen-free	—	For quasi-microwave band
IRE02	3GHz to 30GHz	-40 to +85	≥ 4	$\geq 1\text{M}$	0.8	Lead/Halogen-free	—	For GHz

NEW
STANDARD SHEET SIZE ACCORDING TO TYPE
HIGH PERFORMANCE, WIDE BAND TYPE: IRL02/IRL03

Material	Standard thickness (mm)	Standard thickness with tape (mm)	Standard tape type	Standard sheet dimensions (mm)	Standard sheet weight (g)	Density (g/cm^3)
IRL02	0.05	0.08	AB	300×200	10	2.5
IRL03	0.25	0.28	AB	300×200	50	3.2
IRL03	0.5	0.53	AB	300×200	100	3.2
IRL02	1	1.17	A	200×200	100	3.2
IRL02	2	1.17	A	200×200	250	3.2

THIN, HIGH PERFORMANCE TYPE: IRL04

Material	Standard thickness (mm)	Standard thickness with tape (mm)	Standard tape type	Standard sheet dimensions (mm)	Standard sheet weight (g)	Density (g/cm^3)
IRL04	0.05	0.08	AB	300×200	10	3.3
	0.1	0.13	AB	300×200	20	3.3

HIGH-RESISTING, FLAME RETARDANT TYPE: IRJ01

Material	Standard thickness (mm)	Standard thickness with tape (mm)	Standard tape type	Standard sheet dimensions (mm)	Standard sheet weight (g)	Density (g/cm^3)
IRJ01	0.5	0.6	AG	250×250	85	2.5

HIGH INSULATION, FLAME RETARDANT TYPE: IVM05/IVM06

Material	Standard thickness (mm)	Standard thickness with tape (mm)	Standard tape type	Standard sheet dimensions (mm)	Standard sheet weight (g)	Density (g/cm^3)
IVM05	0.4	0.57	A	300×200	80	3.2
IVM06	0.4	0.57	A	300×200	80	3.3

For QUASI-MICROWAVE BAND TYPE: IRB02

Material	Standard thickness (mm)	Standard thickness with tape (mm)	Standard tape type	Standard sheet dimensions (mm)	Standard sheet weight (g)	Density (g/cm^3)
IRB02	1	1.17	A	300×300	300	3.3
	2	2.17	A	300×300	600	3.3
	3	3.17	A	300×300	900	3.3
	6	6.17	A	300×300	1800	3.3

For GHz type : IRE02

Material	Standard thickness (mm)	Standard thickness with tape (mm)	Standard tape type	Standard sheet dimensions (mm)	Standard sheet weight (g)	Density (g/cm^3)
IRE02	1	1.17	A	300×300	250	3.75
	2	2.17	A	300×300	500	3.75
	3	3.17	A	300×300	750	3.75

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