

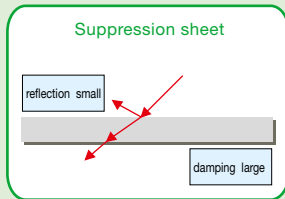
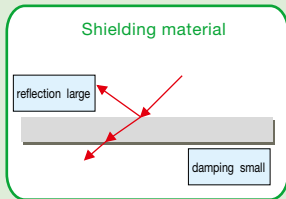
Effective suppression of electronic equipment noise

Feature

- Noise is easily suppressed with the simple assembly. Attach, sandwich and wrap around.
- Broad range of variations, sheet, core, heat-conductive types etc.
- Custom cutting and secondary processing are available.

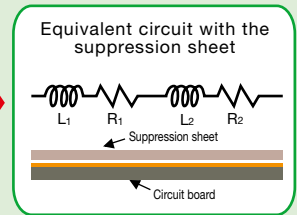
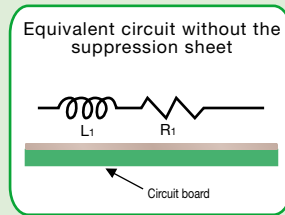
Noise damping

Noise level is lowered by loss effect of magnetic substance, with smaller reflection suffered by conductive shielding materials.



Suppression of antenna effects decreases the noise.

Radiation noise is emitted by cables or patterns acting as an antenna. The magnetic substance reduce the noise by minimizing such antenna effects.



Electromagnetic Noise Suppression Sheets

- Sheet
- Heat + Electromagnetic noise suppression sheet
- Plate type cores



MG-MAB
Flexible resin based product has a wide range of applications.

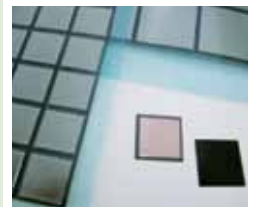


CGE-EMPV2
High thermal-conductivity type provides simultaneous heat solutions in applications where significant heat is generated such as IC, etc.



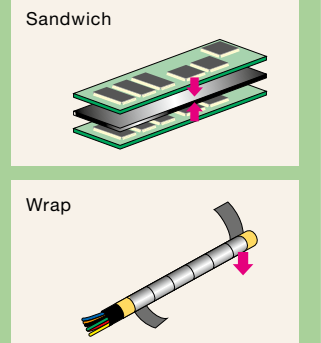
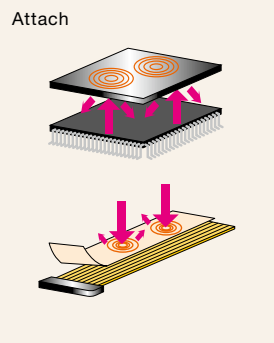
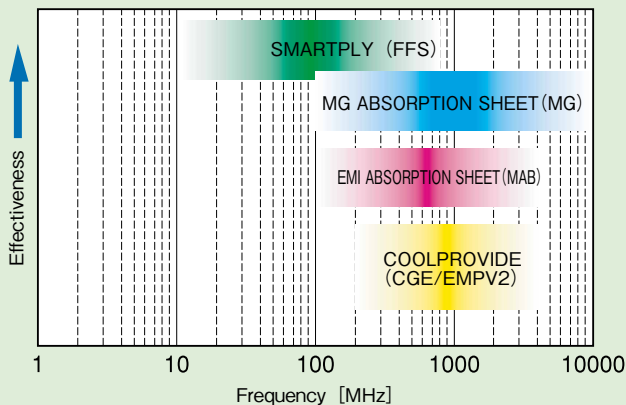
FFS
Achieve a good balance between thinned ferrite and high-performance with the new manufacturing process.

Magnetic foil film



MFM
Effective for reducing electromagnetic noise at low frequencies and against leakage of magnetic flux. Problems for which the usual absorption sheet is not sufficient.

Property comparison (reference)





High performance mixed with magnetic metal filler

Feature

- Excellent processability, with secondary processing provided to fit the specific application.

Material

- Refer to the table below.

Variations

●MG-03A

Heat-resistance has been improved up to 150°C.

- Heat-resistant rubber based material enables application at wide range of temperature from -40 to 150°C.
- No chlorine or bromine materials are used.

●MG-09, 09A

Flexible Electromagnetic wave suppression sheet

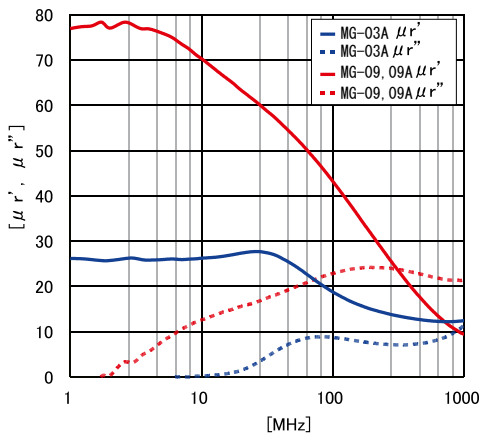
- Reduce radiated emission by simply attaching MG-09 or MG-09A on ICs such as CPUs, cables or enclosures.
- Provide the cutting service upon request.
- UL 94 V-0 certified. UL 94 V-0 rated (Adhesive tape not included)

Part No.	MG-03A	MG-09	MG-09A
Thickness*	0.5/1.0	0.12	0.2/0.3/0.5
Volume resistivity	10 ⁷	10 ⁷	
Flammability	Equivalent to UL 94 HB	UL94V-0*	
Material	Magnetic metal material + rubber	Magnetic metal material + resin	
Feature	Heat-resistance improved	High permeability ($\mu = 75/1\text{MHz}$)	

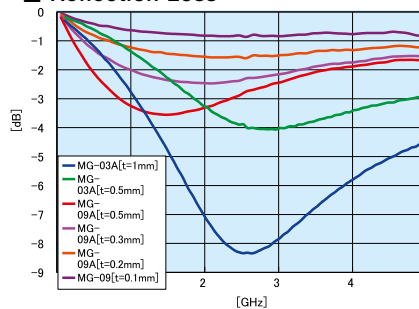
※ Adhesive tape not included

Properties

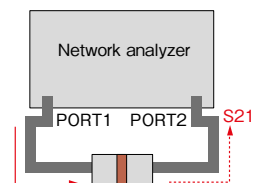
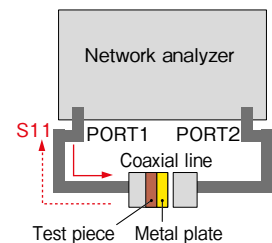
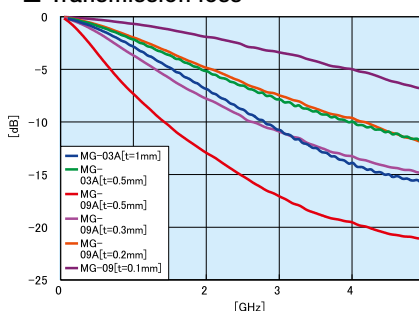
■ Permeability



■ Reflection Loss



■ Transmission loss





Flexible sheet consists of resin with soft ferrite filler

Feature

- Sheet thickness, 0.4 - 4.0mm are available.
- Flexible and easy handling.

Material

- Soft ferrite + resin

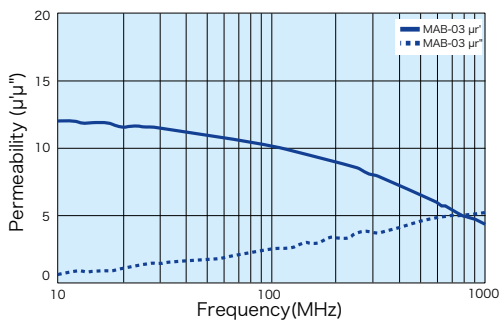
Part No.	MAB-03
Thickness (mm)* ¹	0.4/1.0/2.0/4.0
Volume resistivity (Ω · cm)	10 ¹²
Flammability	UL94V-0* ²
Material	Soft ferrite + resin
Feature	Various thickness

*¹ Adhesive tape not included

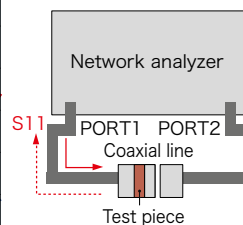
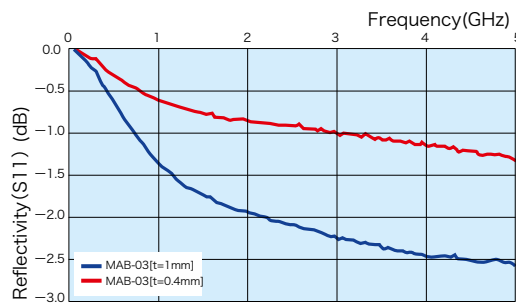
*² Flammability of 4mm-thick product is equivalent to UL94V-0

Properties

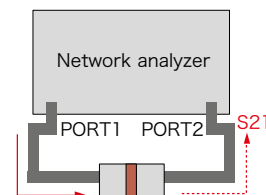
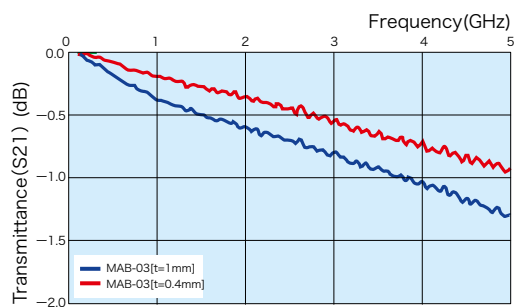
■ Permeability



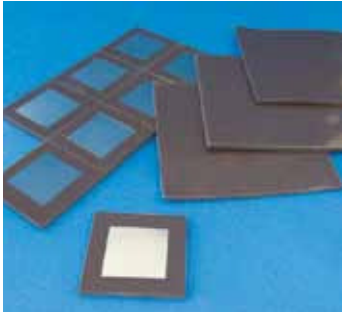
■ Reflection Loss



■ Transmission loss



COOLPROVIDE/EMPV2



Thermally conductive electromagnetic noise suppression sheet

Feature

- Easy to process, flexible sheet.
- Self-tackiness allows temporary fixing.
- Performance can be further improved by integration with magnetic foil.

Material

- Acrylic electromagnetic noise suppression thermally conductive material

Part No.	EMPV2
Thickness (mm)	0.5/1.0/2.0
Permeability (10MHz)	7
Thermal conductivity (W/m·K)	1.8
Volume resistivity ($\Omega \cdot \text{cm}$)	5.0×10^{13}
Flammability	UL94HB (t=0.5), UL94V-0 (t=2.0)
Material	Acrylic electromagnetic noise suppression thermally conductive material

CHANGE GEL/CGE



Electromagnetic noise suppression sheet with thermal conductivity, phase-change type

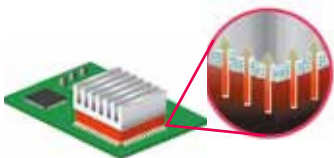
Feature

- Liquefied into high viscosity at 50°C to secure close contact with heating elements.
- GEL solidifies at room temperature providing easy handling.

Material

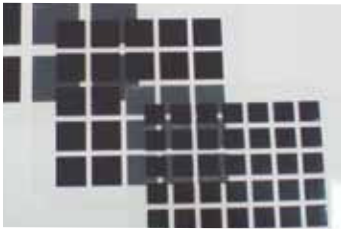
- Soft ferrite + resin

Phase-change type
CHANGE GEL liquefies into high viscosity at a pre-determined temperature. Provides secure thermal conductivity on non-uniform surfaces.



Part No.	CGE-0.25
Thickness (MM)	0.25
Permeability (100 MHz)	7
Thermal conductivity (W/m·K)	1.5
Volume resistivity ($\Omega \cdot \text{cm}$)	10^{13}
Flammability	—
Material	Soft ferrite + resin
Feature	Double-sided adhesive

Easy to peel off when solidified again.



Soft ferrite sintered into plate form

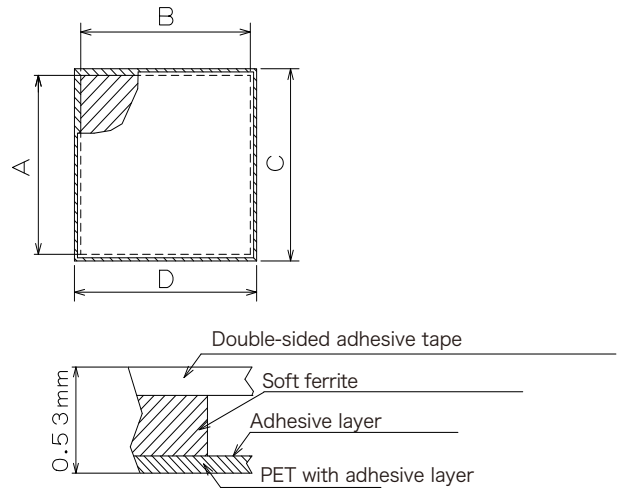
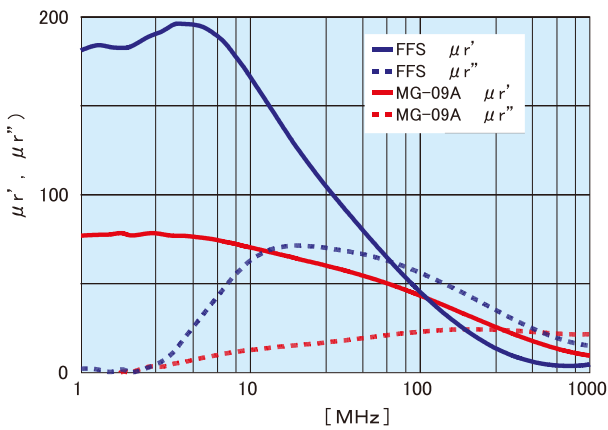
Feature

- Achieve a good balance between thinned ferrite and high-performance with the new manufacturing process
- Better insulation properties and more effective in suppression at low frequency compared to electromagnetic suppression sheets
- Attached easily with double-sided adhesive tape

Material

- PET with adhesive layer
- Soft ferrite
- Double-sided adhesive tape

Property



Unit : mm

Part No.	A	B	C	D
FFS-0.3-1010T	10	10	11.5	11.5
FFS-0.3-1515T	15	15	16.5	16.5
FFS-0.3-2020T	20	20	21.5	21.5
FFS-0.3-2525T	25	25	26.5	26.5
FFS-0.3-3030T	30	30	31.5	31.5
FFS-0.3-5050T	50	50	55	55
FFS-0.3-1020T	10	20	11.5	21.5
FFS-0.3-2030T	20	30	21.5	31.5



Various Smartplys in one booklet

FFPC

Feature
Thin and Flexible Ferrite Sheet

No fixture is necessary to roll over ferrite.
Double-sided ferrite.
Pre-cutting and splicing of ferrite with PET and adhesive.

Dimensions

Part No.	W	H	L	D
FFPC-0.3-08-10	10	8	24.0	0.8
FFPC-0.3-10-10	10	10	30	1.0
FFPC-0.3-10-15	10	10	38.0	1.0
FFPC-0.3-10-20	10	10	46.0	1.0
FFPC-0.3-15-10	15	10	36.0	1.0
FFPC-0.3-15-15	15	15	42.0	1.0
FFPC-0.3-15-20	15	15	48.0	1.0
FFPC-0.3-20-10	20	10	46.0	1.0
FFPC-0.3-20-15	20	15	54.0	1.0
FFPC-0.3-20-20	20	20	62.0	1.0
FFPC-0.3-25-10	25	10	54.0	1.0
FFPC-0.3-25-15	25	15	62.0	1.0
FFPC-0.3-25-20	25	20	70.0	1.0

Properties
Get higher loss in low frequency range and higher effect compared to electromagnetic wave absorbing sheet

30 MHz ~ 300MHz

300 MHz ~ 1GHz

Impedance vs. Frequency

Mounting FFPC onto ribbon cable

SAMPLES

FFS

Feature Ferrite sheet with High loss and Flexibility

Pre-cutting and splicing of ferrite with PET and adhesive.
No fixture is necessary to roll over ferrite.
Double-sided ferrite.

Dimensions

Part No.	W	H	L	D
FFS-0.3-08-10	10	8	24.0	0.8
FFS-0.3-10-10	10	10	30	1.0
FFS-0.3-10-15	10	10	38.0	1.0
FFS-0.3-10-20	10	10	46.0	1.0
FFS-0.3-15-10	15	10	36.0	1.0
FFS-0.3-15-15	15	15	42.0	1.0
FFS-0.3-15-20	15	15	48.0	1.0
FFS-0.3-20-10	20	10	46.0	1.0
FFS-0.3-20-15	20	15	54.0	1.0
FFS-0.3-20-20	20	20	62.0	1.0
FFS-0.3-25-10	25	10	54.0	1.0
FFS-0.3-25-15	25	15	62.0	1.0
FFS-0.3-25-20	25	20	70.0	1.0

Properties(Permeability)

APPLICATION
EM Noise suppression for IC
Connector IC cable shield

Mounting FFS onto IC device