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Flex Suppressor®

Noise Suppression Sheet

Overview

The KEMET Noise Suppression Sheet Flex Suppressor® is effectively designed for high frequency noise that is generated from the electronic devices. The flexible sheet is a polymer base, blended with micron-sized magnetic powders dispersed throughout the material. These sheets are effective for electromagnetic wave and resonance suppression, and can be cut into a variety of shapes and sizes.

Applications

- Radiation noise suppression for electronic equipment, especially mobile phone, display, digital still camera, digital video camera, notebook PC and tablet, car infortainment
- Quasi-microwave range interference prevention inside and in-between electronics, desense in FM radio, digital TV, LTE, GPS, Wi-Fi, Bluetooth and optical transceiver
- Electro static discharge (ESD) countermeasure
- Enhanced wireless power transfer

Benefits

- Electromagnetic wave suppression – the electromagnetic wave enters through the sheet and is suppressed by losing its magnetic structure
- Resonance suppression – controls the high frequency current and suppresses unwanted electromagnetic resonance by creating impedance
- Wide range of frequencies available from MHz band to GHz band
- Thin, flexible material used in portable equipment
- Virtually no limitation to where it can be used
- Less time required for installation
- Easily cut into any shape
- RoHS compliant and halogen-free
- AEC-Q200 (FF1 and EFF4)

Sheet Type

Roll Type

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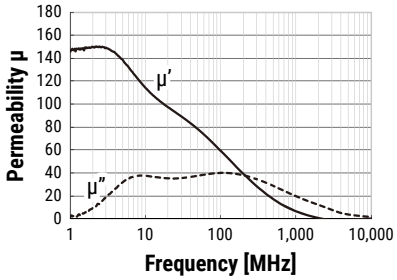
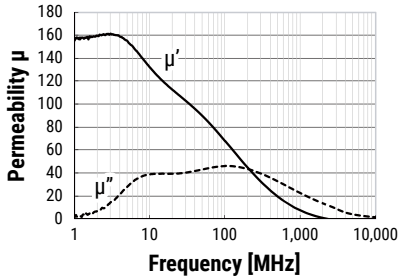
Fort Lauderdale, FL 33301 USA • 954-766-2800 • www.kemet.com

Part Number System

EFF4	(01)-	240 X 240	T0800
Series Type	Thickness	Standard Dimensions	Adhesive Tape Thickness
EFA EFF* EFF4 EFG* EFG2 EFH* EFR* EFX* EFX6 FF1 FG1 FX5	(003)- = 0.03 mm* (005)- = 0.05 mm (007)- = 0.07 mm* (01)- = 0.1 mm (02)- = 0.2 mm (03)- = 0.3 mm (05)- = 0.5 mm (10)- = 1.0 mm (25)- = 0.025 mm (50)- = 0.05 mm (75)- = 0.075 mm (100)- = 0.1 mm (200)- = 0.2 mm (300)- = 0.3 mm	240 X 240 = Sheet 240 x 240 mm 240 X 20 M = Roll 240 mm x 20 m 240 X 30 M = Roll 240 mm x 30 m 240 X 50 M = Roll 240 mm x 50 m	T0800 = 0.03 mm T1500 = 0.14 mm* T2200 = 0.05 mm* T2900 = 0.01 mm Blank = No adhesive tape

** Not for new design.*

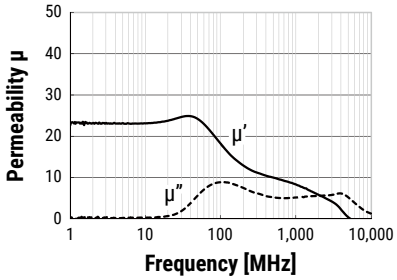
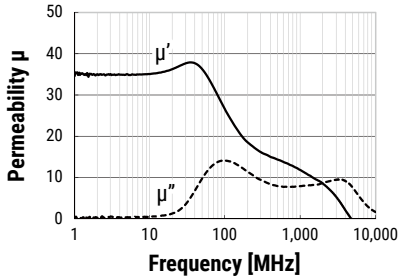
Specifications - High Permeability Type

Features		High Permeability Type	
Series Type		FX5	EFX6
Effective Frequency		Up to 10 GHz	
Operating Temperature (°C)		−40 to +105	
Thickness (mm)		0.025/0.05/0.075/0.1	0.1/0.2/0.3
Standard Dimensions (mm)		240 X 240 (Roll on request)	240 X 240
Permeability at 3 MHz		150 typical	160 typical
			
Specific Gravity[1]		3.3 typical	3.8 typical
Surface Resistivity (Ω/sq.)		1.0 X 10^6 typical	
Approved Standard		UL 94 HB UL File No. E176124	
Environment	RoHS	Compliant	
	Halogen	Free	
	PVC	Free	
	Lead	Free	
	Red Phosphorus	Free	
Reflow Temperature (°C)		Up to 260°C, special double-sided adhesive tape required, available upon request	

[1] *Value in 23°C atmosphere.*

Above specifications are for the Flex Suppressor® only (adhesives, etc., not included.)

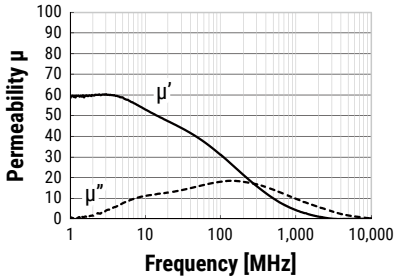
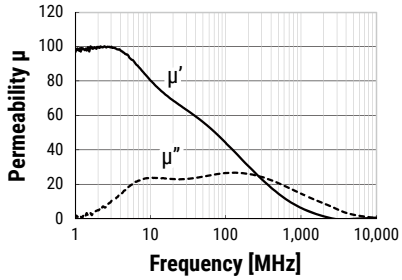
Specifications - GHz Band High Performance Type

Features		GHz Band High Performance Type	
Series Type		FG1	EFG2
Effective Frequency		1 to 10 GHz	
Operating Temperature (°C)		−40 to +105	
Thickness (mm)		0.025/0.05/0.075	0.1/0.2/0.3
Standard Dimensions (mm)		240 X 240 (Roll on request)	240 X 240
Permeability at 3 MHz		25 typical	35 typical
			
Specific Gravity[1]		3.1 typical	3.9 typical
Surface Resistivity (Ω/sq.)		1.0 X 10^6 typical	
Approved Standard		UL 94 HB UL File No. E176124	
Environment	RoHS	Compliant	
	Halogen	Free	
	PVC	Free	
	Lead	Free	
	Red Phosphorus	Free	
Reflow Temperature (°C)		Up to 260°C, special double-sided adhesive tape required, available upon request	

[1] *Value in 23°C atmosphere.*

Above specifications are for the Flex Suppressor® only (adhesives, etc., not included.)

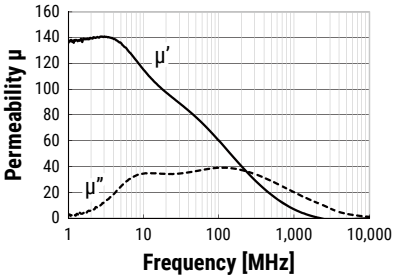
Specifications - UL 94 V-0 Flame Retardant Type

Features		UL 94 V-0 Flame Retardant Type	
Series Type		EFA	FF1
Effective Frequency		Up to 10 GHz	
Operating Temperature (°C)		–40 to +105	–40 to +125
Thickness (mm)		0.05/0.1/0.2/0.3	0.05/0.1/0.2/0.3
Standard Dimensions (mm)		240 X 240 (Roll on request)	240 X 240 (Roll on request)
Permeability at 3 MHz		60 typical	100 typical
			
Specific Gravity[1]		3.1 typical	3.1 typical
Surface Resistivity (Ω/sq.)		1.0 X 10^6 typical	
Approved Standard		UL 94 V-0 UL File No. E176124	
Environment	RoHS	Compliant	
	Halogen	Free	
	PVC	Free	
	Lead	Free	
	Red Phosphorus	Free	–
Reflow Temperature (°C)		Up to 260°C, special double-sided adhesive tape required, available upon request	

[1] *Value in 23°C atmosphere.*

Above specifications are for the Flex Suppressor® only (adhesives, etc., not included.)

Specifications - UL 94 V-0 Flame Retardant Type cont.

Features		UL 94 V-0 Flame Retardant Type
Series Type		EFF4
Effective Frequency		Up to 10 GHz
Operating Temperature (°C)		–40 to +125
Thickness (mm)		0.1/0.2/0.3/0.5
Standard Dimensions (mm)		240 X 240
Permeability at 3 MHz		140 typical 
Specific Gravity[1]		3.7 typical
Surface Resistivity (Ω/sq.)		1.0 X 10^6 typical
Approved Standard		UL 94 V-0 UL File No. E176124
Environment	RoHS	Compliant
	Halogen	Free
	PVC	Free
	Lead	Free
	Red Phosphorus	–
Reflow Temperature (°C)		Up to 260°C, special double-sided adhesive tape required, available upon request

[1] *Value in 23°C atmosphere.*

Above specifications are for the Flex Suppressor® only (adhesives, etc., not included.)

Specifications - Not for New Design

Features		Standard Specifications	High Magnetic Permeability Type	Extra High Magnetic Permeability Type	High Frequency	High Temperature Reflow
Type		EFR	EFX	EFF	EFG	EFH
Effective Frequency		Up to 10 GHz				
Operating Temperature (°C)		−40 to +105				
Thickness (mm)		0.05/0.1/0.2/0.3/0.5/1.0	0.05/0.1/0.2/0.3/0.5	0.07/0.1/0.2/0.3	0.05/0.1/0.2/0.3	0.05/0.1
Standard Dimensions (mm)		240 x 240				
Specific Gravity[1]		2.8 typical	3.2 typical	3.6 typical	3.0 typical	3.1 typical
Tensile Strength (Mpa)		3.6 minimum	6.8 minimum	6.9 minimum	3.5 minimum	6.8 minimum
Surface Resistivity (Ω/sq.)		1.0 x 10^7 typical	1.0 x 10^6 typical	1.0 x 10^6 typical	1.0 x 10^6 typical	1.0 x 10^7 typical
Thermal Conductivity (W/m K)		0.22	0.22	0.4	0.22	1.3
Approved Standard		UL 94 V-0	UL 94 HB	UL 94 V-0	UL 94 V-1	UL 94 V-0
		UL File No. E176124				
Environment	RoHS	Compliant				
	Halogen	Free				
	PVC	Free				
	Lead	Free				
	Red Phosphorus	–	Free	–	–	Free
Relative Magnetic Permeability (at 3MHz)		60 typical	100 typical	130 typical	20 typical	60 typical
Remarks		60 µ high permeability, various thickness flame retardant (UL 94 V-0 certified)	100 µ high permeability, various thickness	Industry's highest magnetic permeability of 130 µ with halogen free composition. Flame retardant (UL 94 V-0 certified)	Excellent suppression of high frequency noise in Wi-Fi and higher bandwidths.	Can be mounted before reflowing

[1] Value in 23°C atmosphere.
Above specifications are for the Flex Suppressor® only (adhesives, etc., not included.)

Table 1A – Ratings & Part Number Reference

Part Number	Series	Thickness	Tape Thickness	Permeability	Specific Gravity	Surface Resistivity	Weight
		mm	mm	at 3 MHz	Typical	Ω/sq. typical	g
FX5(25)-240X240T2900	FX5	0.025	0.01	150	3.3	1.0 X 10^6	10.97
FX5(25)-240X50M	FX5	0.025	--	150	3.3	1.0 X 10^6	990
FX5(25)-240X50MT2900	FX5	0.025	0.01	150	3.3	1.0 X 10^6	2285.4
FX5(50)-240X240T2900	FX5	0.05	0.01	150	3.3	1.0 X 10^6	15.73
FX5(50)-240X50M	FX5	0.05	--	150	3.3	1.0 X 10^6	1980
FX5(50)-240X50MT2900	FX5	0.05	0.01	150	3.3	1.0 X 10^6	3275.4
FX5(75)-240X240T2900	FX5	0.075	0.01	150	3.3	1.0 X 10^6	20.48
FX5(75)-240X50M	FX5	0.075	--	150	3.3	1.0 X 10^6	2970
FX5(75)-240X50MT2900	FX5	0.075	0.01	150	3.3	1.0 X 10^6	4265.4
FX5(100)-240X240T2900	FX5	0.1	0.01	150	3.3	1.0 X 10^6	25.26
FX5(100)-240X50M	FX5	0.1	--	150	3.3	1.0 X 10^6	3960
FX5(100)-240X50MT2900	FX5	0.1	0.01	150	3.3	1.0 X 10^6	5255.4
EFX6(01)-240X240T0800	EFX6	0.1	0.03	160	3.8	1.0 X 10^6	22.77
EFX6(02)-240X240	EFX6	0.2	--	160	3.8	1.0 X 10^6	43.78
EFX6(02)-240X240T0800	EFX6	0.2	0.03	160	3.8	1.0 X 10^6	44.66
EFX6(03)-240X240	EFX6	0.3	--	160	3.8	1.0 X 10^6	65.67
EFX6(03)-240X240T0800	EFX6	0.3	0.03	160	3.8	1.0 X 10^6	66.54
FG1(25)-240X240T2900	FG1	0.025	0.01	25	3.1	1.0 X 10^6	10.69
FG1(25)-240X50M	FG1	0.025	--	25	3.1	1.0 X 10^6	930
FG1(25)-240X50MT2900	FG1	0.025	0.01	25	3.1	1.0 X 10^6	2225.4
FG1(50)-240X240T2900	FG1	0.05	0.01	25	3.1	1.0 X 10^6	15.15
FG1(50)-240X50M	FG1	0.05	--	25	3.1	1.0 X 10^6	1860
FG1(50)-240X50MT2900	FG1	0.05	0.01	25	3.1	1.0 X 10^6	3155.4
FG1(75)-240X240T2900	FG1	0.075	0.01	25	3.1	1.0 X 10^6	19.61
FG1(75)-240X50M	FG1	0.075	--	25	3.1	1.0 X 10^6	2790
FG1(75)-240X50MT2900	FG1	0.075	0.01	25	3.1	1.0 X 10^6	4085.4
EFG2(01)-240X240T0800	EFG2	0.1	0.03	35	3.9	1.0 X 10^6	23.27
EFG2(02)-240X240	EFG2	0.2	--	35	3.9	1.0 X 10^6	44.93
EFG2(02)-240X240T0800	EFG2	0.2	0.03	35	3.9	1.0 X 10^6	45.74
EFG2(03)-240X240	EFG2	0.3	--	35	3.9	1.0 X 10^6	67.4
EFG2(03)-240X240T0800	EFG2	0.3	0.03	35	3.9	1.0 X 10^6	68.2
EFA(005)-240X240T0800	EFA	0.05	0.03	60	3.1	1.0 X 10^6	9.81
EFA(005)-240X50M	EFA	0.05	--	60	3.1	1.0 X 10^6	1860
EFA(005)-240X50MT0800	EFA	0.05	0.03	60	3.1	1.0 X 10^6	2042.4
EFA(01)-240X240T0800	EFA	0.1	0.03	60	3.1	1.0 X 10^6	18.74
		mm	mm	at 3 MHz	Typical	Ω/sq. typical	g
Part Number	Series	Thickness	Tape Thickness	Permeability	Specific Gravity	Surface Resistivity	Weight

Table 1A – Ratings & Part Number Reference (cont'd)

Part Number	Series	Thickness	Tape Thickness	Permeability	Specific Gravity	Surface Resistivity	Weight
		mm	mm	at 3 MHz	Typical	Ω/sq. typical	g
EFA(01)-240X50M	EFA	0.1	--	60	3.1	1.0 X 10^6	3720
EFA(01)-240X50MT0800	EFA	0.1	0.03	60	3.1	1.0 X 10^6	3902.4
EFA(02)-240X240	EFA	0.2	--	60	3.1	1.0 X 10^6	35.72
EFA(02)-240X240T0800	EFA	0.2	0.03	60	3.1	1.0 X 10^6	36.59
EFA(02)-240X30M	EFA	0.2	--	60	3.1	1.0 X 10^6	4464
EFA(02)-240X30MT0800	EFA	0.2	0.03	60	3.1	1.0 X 10^6	4573.44
EFA(03)-240X240	EFA	0.3	--	60	3.1	1.0 X 10^6	53.57
EFA(03)-240X240T0800	EFA	0.3	0.03	60	3.1	1.0 X 10^6	54.45
EFA(03)-240X20M	EFA	0.3	--	60	3.1	1.0 X 10^6	4464
EFA(03)-240X20MT0800	EFA	0.3	0.03	60	3.1	1.0 X 10^6	4536.96
FF1(50)-240X240T0800	FF1	0.05	0.03	100	3.1	1.0 X 10^6	9.81
FF1(50)-240X50M	FF1	0.05	--	100	3.1	1.0 X 10^6	1860
FF1(50)-240X50MT0800	FF1	0.05	0.03	100	3.1	1.0 X 10^6	2042.4
FF1(100)-240X240T0800	FF1	0.1	0.03	100	3.1	1.0 X 10^6	18.74
FF1(100)-240X50M	FF1	0.1	--	100	3.1	1.0 X 10^6	3720
FF1(100)-240X50MT0800	FF1	0.1	0.03	100	3.1	1.0 X 10^6	3902.4
FF1(200)-240X240	FF1	0.2	--	100	3.1	1.0 X 10^6	35.72
FF1(200)-240X240T0800	FF1	0.2	0.03	100	3.1	1.0 X 10^6	36.59
FF1(200)-240X30M	FF1	0.2	--	100	3.1	1.0 X 10^6	4464
FF1(200)-240X30MT0800	FF1	0.2	0.03	100	3.1	1.0 X 10^6	4573.44
FF1(300)-240X240	FF1	0.3	--	100	3.1	1.0 X 10^6	53.57
FF1(300)-240X240T0800	FF1	0.3	0.03	100	3.1	1.0 X 10^6	54.45
FF1(300)-240X20M	FF1	0.3	--	100	3.1	1.0 X 10^6	4464
FF1(300)-240X20MT0800	FF1	0.3	0.03	100	3.1	1.0 X 10^6	4536.96
EFF4(01)-240X240T0800	EFF4	0.1	0.03	140	3.7	1.0 X 10^6	23.66
EFF4(02)-240X240	EFF4	0.2	--	140	3.7	1.0 X 10^6	42.63
EFF4(02)-240X240T0800	EFF4	0.2	0.03	140	3.7	1.0 X 10^6	44.97
EFF4(03)-240X240	EFF4	0.3	--	140	3.7	1.0 X 10^6	63.94
EFF4(03)-240X240T0800	EFF4	0.3	0.03	140	3.7	1.0 X 10^6	66.28
EFF4(05)-240X240	EFF4	0.5	--	140	3.7	1.0 X 10^6	106.56
EFF4(05)-240X240T0800	EFF4	0.5	0.03	140	3.7	1.0 X 10^6	108.9
		mm	mm	at 3 MHz	Typical	Ω/sq. typical	g
Part Number	Series	Thickness	Tape Thickness	Permeability	Specific Gravity	Surface Resistivity	Weight

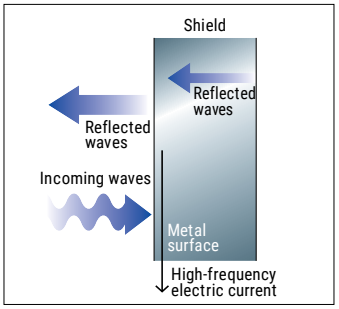
Table 1B – Not for New Design Ratings & Part Number Reference

Part Number	Series	Thickness	Tape Thickness	Permeability	Specific Gravity	Tensile Strength	Surface Resistivity	Thermal Conductivity
		mm	mm	at 3 MHz	Typical	Mpa Minimum	Ω/sq. typical	W/mK
EFR(005)-240x240T0800	EFR	0.05	0.03	60	2.8	3.6	$1.0 X 10^7$	0.22
EFR(01)-240x240T0800	EFR	0.1	0.03	60	2.8	3.6	$1.0 X 10^7$	0.22
EFR(02)-240x240	EFR	0.2	--	60	2.8	3.6	$1.0 X 10^7$	0.22
EFR(02)-240x240T0800	EFR	0.2	0.03	60	2.8	3.6	$1.0 X 10^7$	0.22
EFR(03)-240x240	EFR	0.3	--	60	2.8	3.6	$1.0 X 10^7$	0.22
EFR(03)-240x240T0800	EFR	0.3	0.03	60	2.8	3.6	$1.0 X 10^7$	0.22
EFR(05)-240x240	EFR	0.5	--	60	2.8	3.6	$1.0 X 10^7$	0.22
EFR(05)-240x240T1500	EFR	0.5	0.14	60	2.8	3.6	$1.0 X 10^7$	0.22
EFR(10)-240x240	EFR	1	--	60	2.8	3.6	$1.0 X 10^7$	0.22
EFR(10)-240x240T1500	EFR	1	0.14	60	2.8	3.6	$1.0 X 10^7$	0.22
EFX(005)-240x240T0800	EFX	0.05	0.03	100	3.2	6.8	$1.0 X 10^6$	0.22
EFX(01)-240x240T0800	EFX	0.1	0.03	100	3.2	6.8	$1.0 X 10^6$	0.22
EFX(02)-240x240	EFX	0.2	--	100	3.2	6.8	$1.0 X 10^6$	0.22
EFX(02)-240x240T0800	EFX	0.2	0.03	100	3.2	6.8	$1.0 X 10^6$	0.22
EFX(03)-240x240	EFX	0.3	--	100	3.2	6.8	$1.0 X 10^6$	0.22
EFX(03)-240x240T0800	EFX	0.3	0.03	100	3.2	6.8	$1.0 X 10^6$	0.22
EFX(05)-240x240	EFX	0.5	--	100	3.2	6.8	$1.0 X 10^6$	0.22
EFX(05)-240x240T1500	EFX	0.5	0.14	100	3.2	6.8	$1.0 X 10^6$	0.22
EFF(007)-240x240T0800	EFF	0.07	0.03	130	3.6	6.9	$1.0 X 10^6$	0.4
EFF(01)-240x240T0800	EFF	0.1	0.03	130	3.6	6.9	$1.0 X 10^6$	0.4
EFF(02)-240x240	EFF	0.2	--	130	3.6	6.9	$1.0 X 10^6$	0.4
EFF(02)-240x240T0800	EFF	0.2	0.03	130	3.6	6.9	$1.0 X 10^6$	0.4
EFF(03)-240x240	EFF	0.3	--	130	3.6	6.9	$1.0 X 10^6$	0.4
EFF(03)-240x240T0800	EFF	0.3	0.03	130	3.6	6.9	$1.0 X 10^6$	0.4
EFA(003)-240x240T0800	EFA	0.03	0.03	60	3.1	6.8	$1.0 X 10^7$	1.3
EFG(005)-240x240T0800	EFG	0.05	0.03	20	3	3.5	$1.0 X 10^6$	0.22
EFG(01)-240x240T0800	EFG	0.1	0.03	20	3	3.5	$1.0 X 10^6$	0.22
EFG(02)-240x240	EFG	0.2	--	20	3	3.5	$1.0 X 10^6$	0.22
EFG(02)-240x240T0800	EFG	0.2	0.03	20	3	3.5	$1.0 X 10^6$	0.22
EFG(03)-240x240	EFG	0.3	--	20	3	3.5	$1.0 X 10^6$	0.22
EFG(03)-240x240T0800	EFG	0.3	0.03	20	3	3.5	$1.0 X 10^6$	0.22
EFH(005)-240x240T2200	EFH	0.05	0.05	60	3.1	6.8	$1.0 X 10^7$	1.3
EFH(01)-240x240T2200	EFH	0.1	0.05	60	3.1	6.8	$1.0 X 10^7$	1.3
		mm	mm	at 3 MHz	Typical	Mpa Minimum	Ω/sq. typical	W/mK
Part Number	**Series**	**Thickness**	**Tape Thickness**	**Permeability**	**Specific Gravity**	**Tensile Strength**	**Surface Resistivity**	**Thermal Conductivity**

Shielding

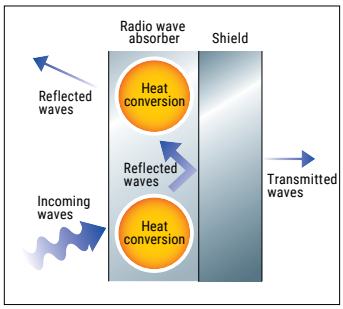
Shielding materials (metal, electrically conductive material)

While transmitted waves can be minimized, most of the incoming waves are reflected, causing internal interference.
High frequency electric current occurs on the metal surfaces and the reflected noise occurs at the shielding joints, metal openings, and other parts when the grounding is poor.



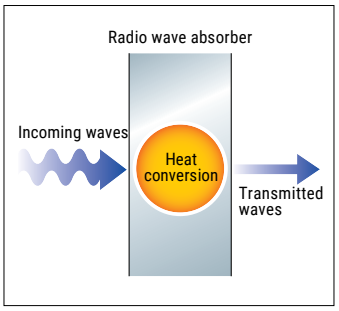
Shielding material with radio wave absorber

Shielding material with radio wave absorber, transmitted waves and reflected waves can be minimized by mounting metal plates on the back of the radio wave absorbers.



Radio wave absorbers

To prevent reflection, the electromagnetic energy is absorbed and converted into heat.



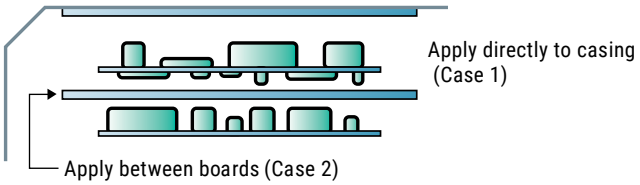
Reference: other absorbing and reflecting examples

	Absorbing	Reflecting
Radio Waves	Radio waves absorbers	Metals
Light	Black objects	White objects, mirrors
Sound	Absorbers, felt	Solid bodies (concrete, etc.)

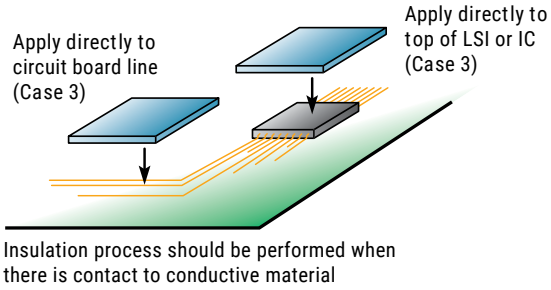
Applications

Case 1 – Suppressing noise reflected by casing

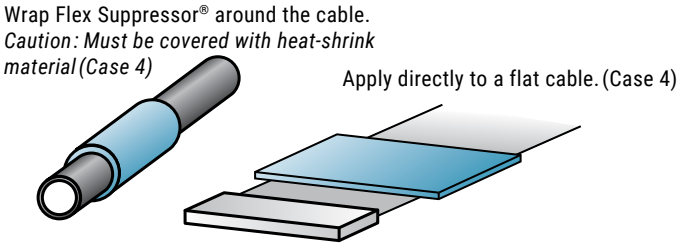
Case 2 – Suppressing crosstalk between substrates



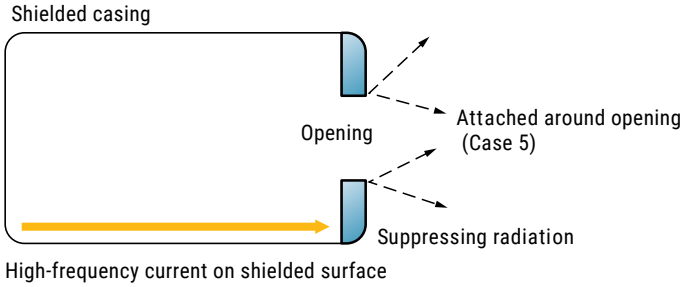
Case 3 – Suppressing radiation noise from LSI and IC



Case 4 – Suppressing noise from cables

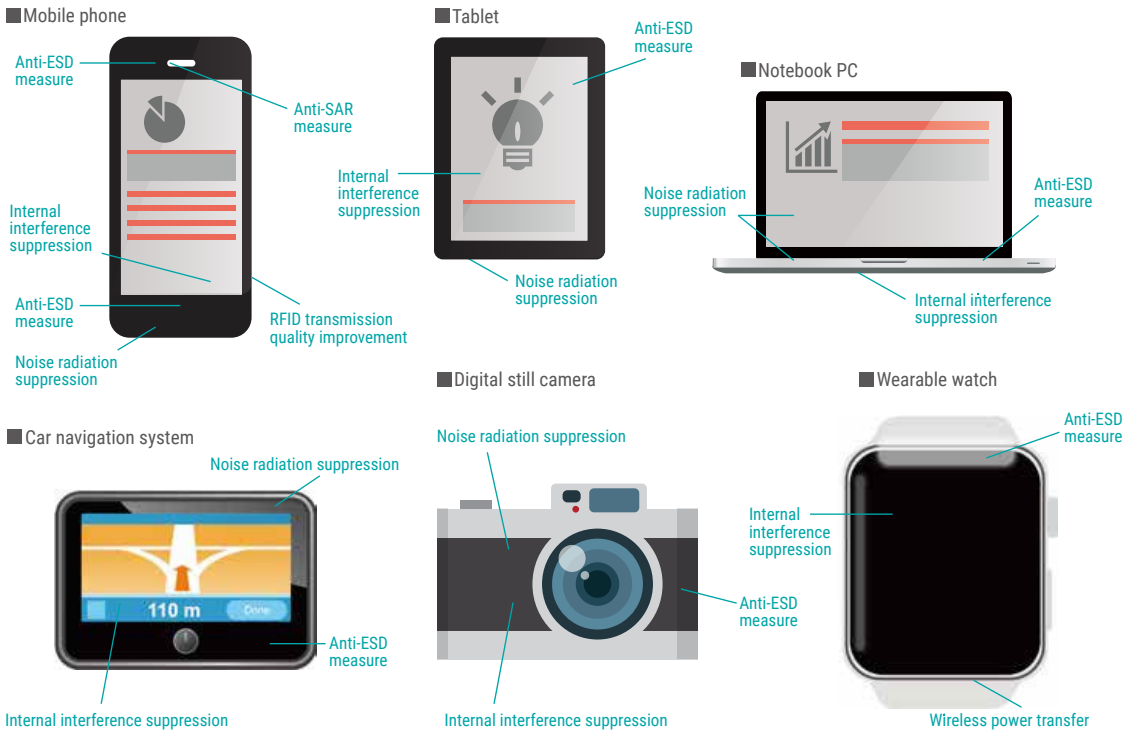


Case 5 – Suppressing noise radiation (reflected noise) from the opening of the shield, the casing, etc.



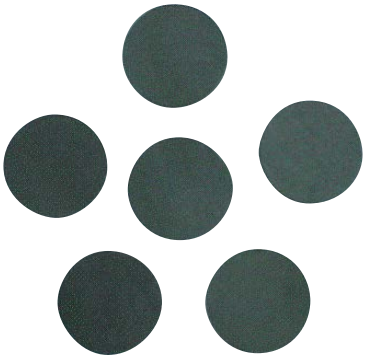
Applications (cont'd)

Devices	Noise Radiation Suppression	Internal Interference Suppression	RFID Transmission Quality Improvement	Anti-ESD Measure	Anti-SAR Measure
Mobile phone	On main CPU	On FPC and LSI for LCD module and camera module On main CPU for reception improvement	On loop antenna for distance communication improvement	On FPC and LSI for LCD module and camera module On metal parts such as chassis	Near antenna and on chassis
Digital still camera and digital video camera	On CCD module FPD On image processing LSI On a memory slot	On the board	On loop antenna for distance communication improvement	On the board and FPC On metal parts such as chassis	–
Notebook PC and tablet	On CPU and GPU On cables inside LCD panel	On memory and SSD On wireless LAN and LTE module	On loop antenna and metal parts near antenna for distance communication improvement	On CPU and GPU On metal parts such as chassis	Near antenna and on chassis
Car infotainment	On LCD and FPC On control box	On GPS receiver and TV tuner On LSI for LCD for radio reception improvement	–	On metal parts such as chassis	–
Near field communication tag (NFC tag)	–	–	On loop antenna and metal parts near antenna for distance communication improvement	–	–
Base station, optical transceiver module	–	On the interior of the chassis and on LSI for error rate improvement	–	–	–
Wireless LAN and Wi-Fi.	–	On cable and co-axial cable for reception improvement	–	–	–



Examples of Shapes

KEMET Flex Suppressor® sheets can be cut into a variety of shapes and sizes:

With holes, cut-out shapes, and circular shapes		Precut
		

Reel	Roll	With Aluminum or PET sheet
		

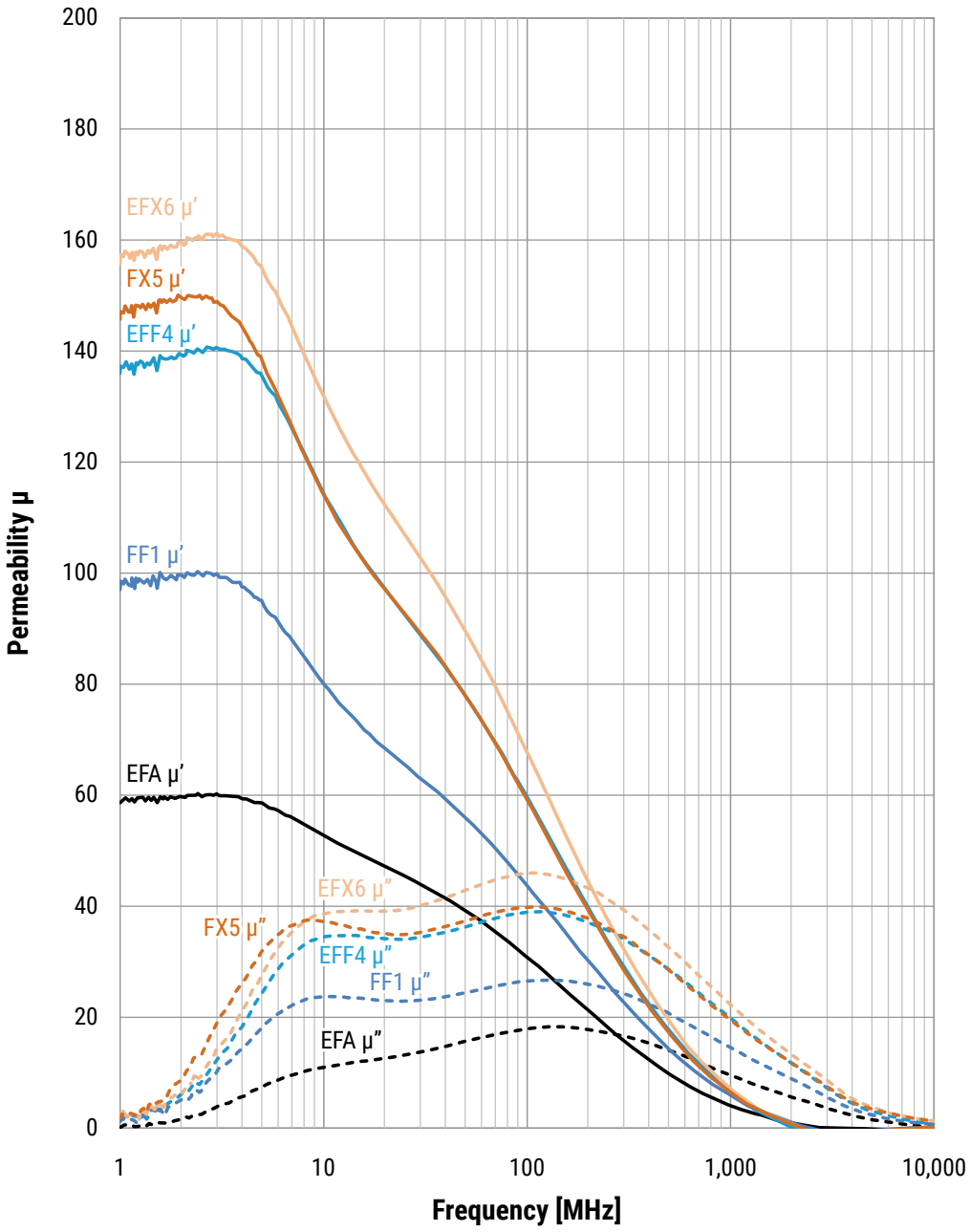
Some examples of customization, available upon request:

- The use of PET film in the front, for insulation or mechanical support
- The use of aluminum sheet in the front, for shielding effect
- The use of different adhesive tapes on the back - stronger, thinner, thicker, etc.

Customization Examples	Where	Function
PET Film	Front	Insulation or mechanical support
Aluminum sheet	Front	Shielding effect
Different adhesive tape	Back	Stronger adhesive tape Thinner or thicker tape Reflow capable, double-sided tape

Permeable Characteristics

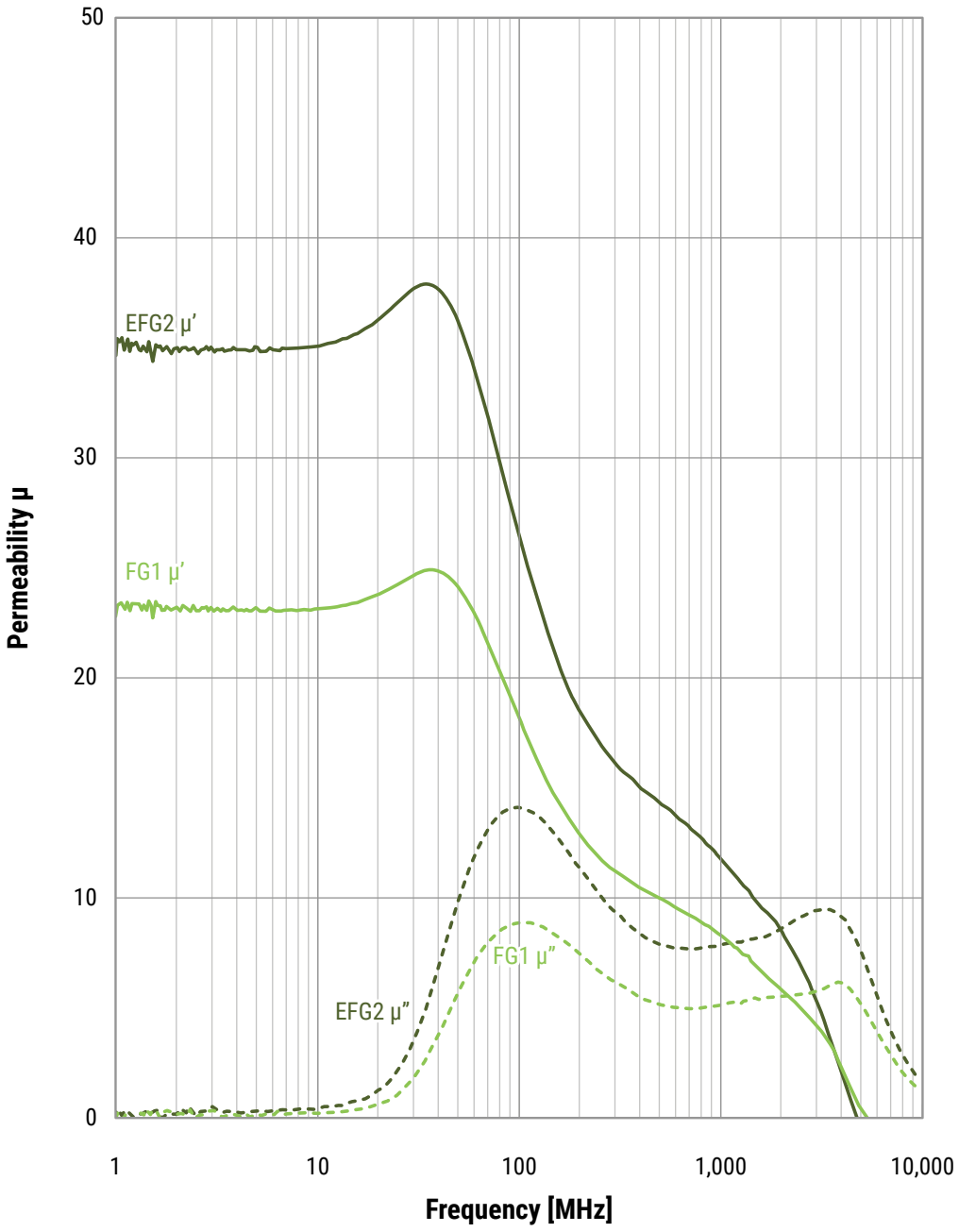
EFA, FF1, EFF4, FX5 & EFX6



Above data are not guaranteed values.

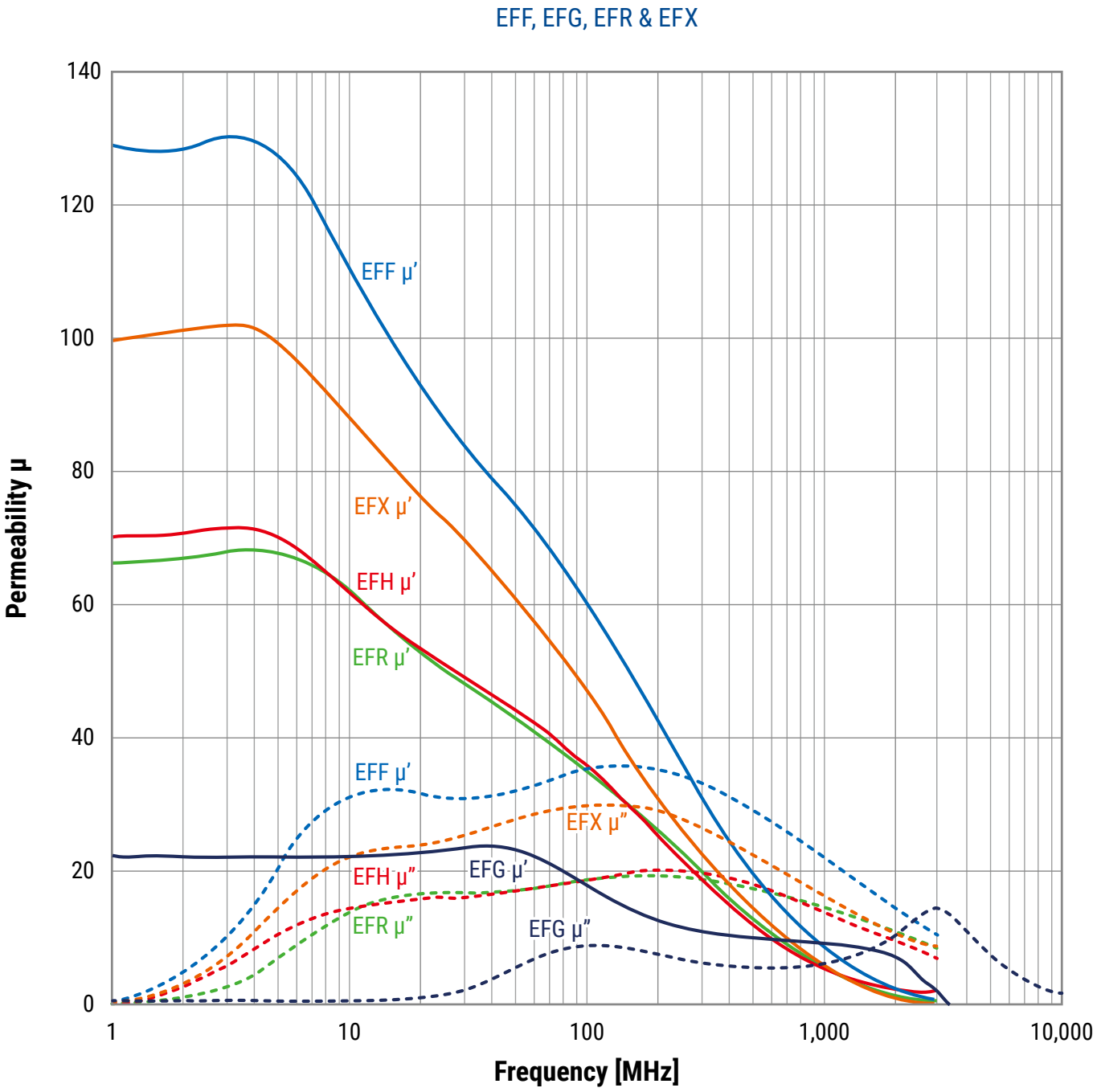
Permeable Characteristics cont.

FG1 & EFG2



Above data are not guaranteed values.

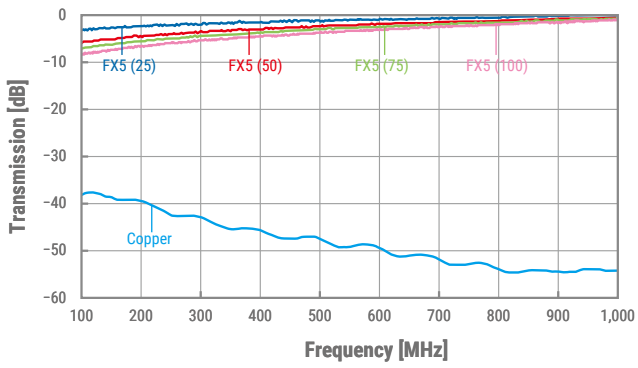
Permeable Characteristics - Not for New Design



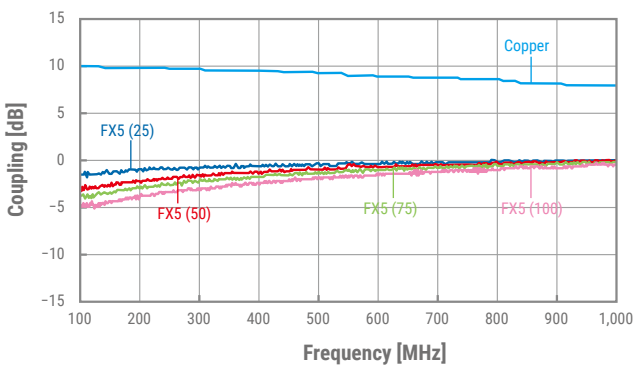
Above data are not guaranteed values.

Electrical Characteristics

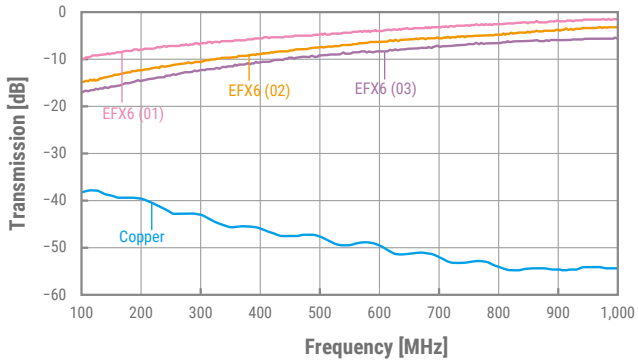
FX5 – Attenuation of Transmission Noise



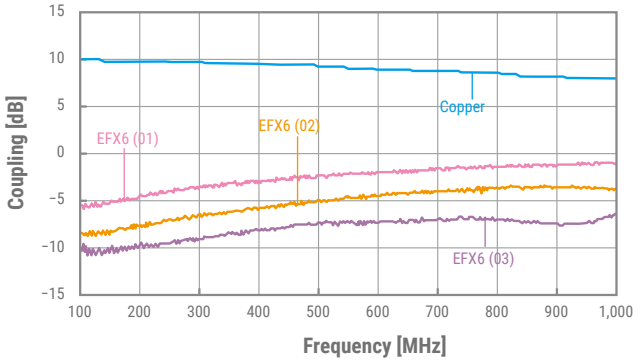
FX5 – Attenuation of Coupling Noise



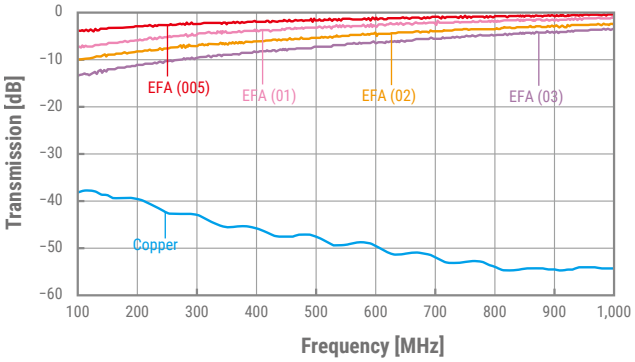
EFX6 – Attenuation of Transmission Noise



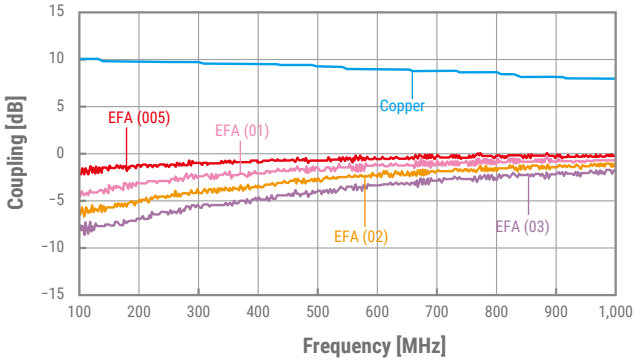
EFX6 – Attenuation of Coupling Noise



EFA – Attenuation of Transmission Noise



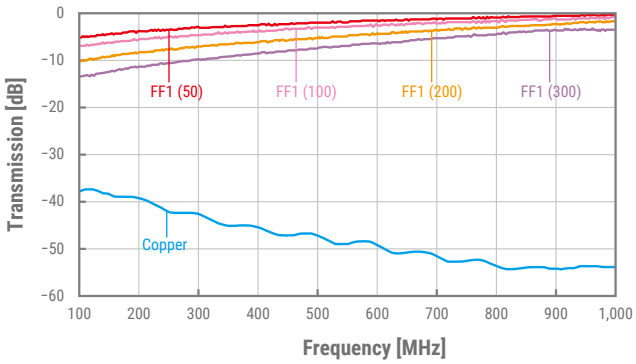
EFA – Attenuation of Coupling Noise



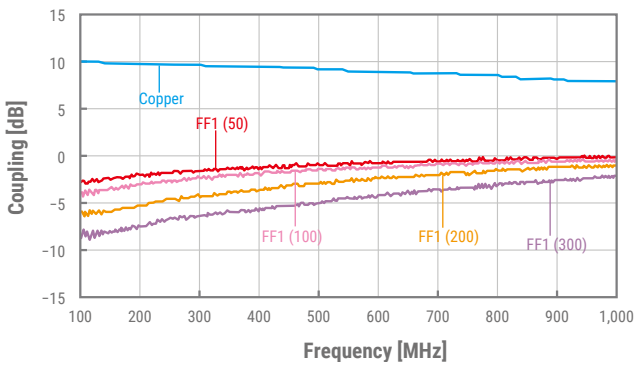
Above data are not guaranteed values.

Electrical Characteristics cont.

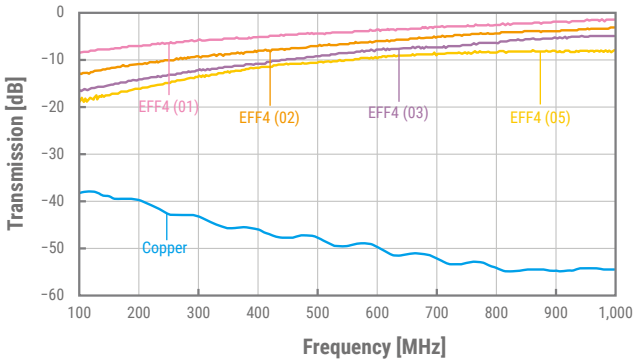
FF1 – Attenuation of Transmission Noise



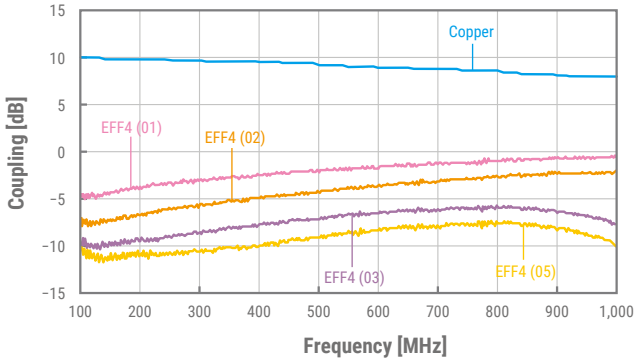
FF1 – Attenuation of Coupling Noise



EFF4 – Attenuation of Transmission Noise



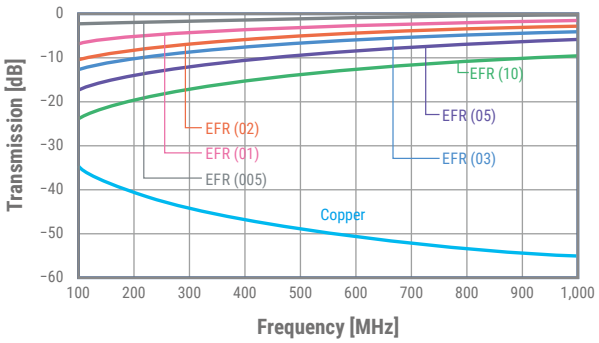
EFF4 – Attenuation of Coupling Noise



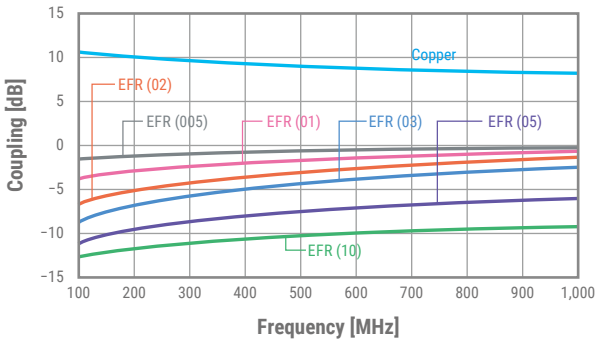
Above data are not guaranteed values.

Electrical Characteristics - Not for New Design

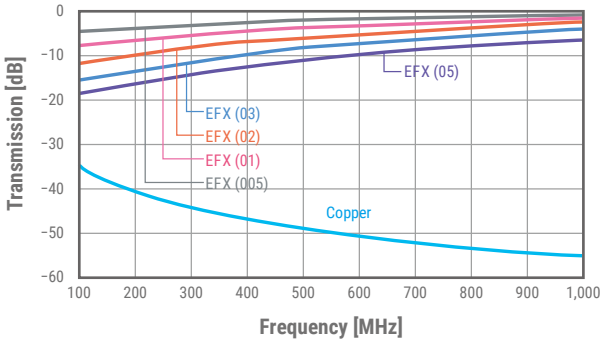
EFR – Attenuation of Transmission Noise



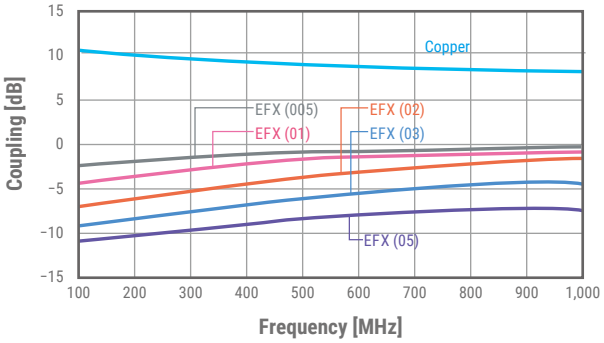
EFR – Attenuation of Coupling Noise



EFX – Attenuation of Transmission Noise



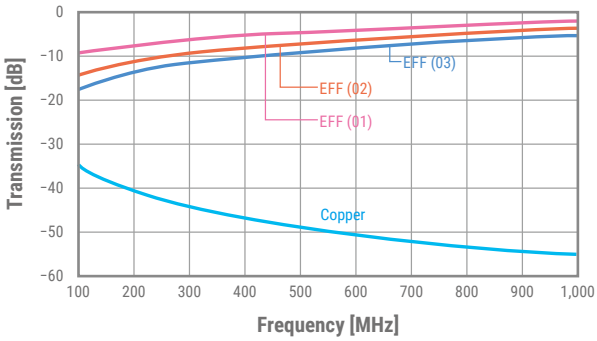
EFX – Attenuation of Coupling Noise



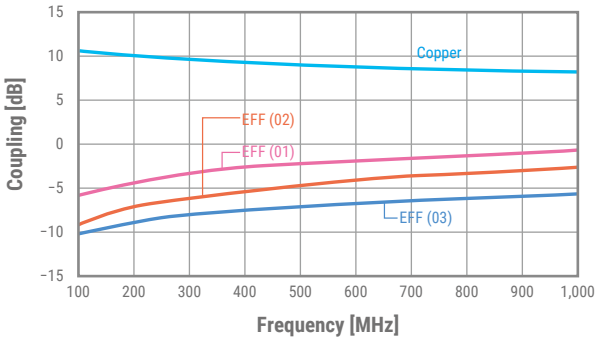
Above data are not guaranteed values.

Electrical Characteristics - Not for New Design cont.

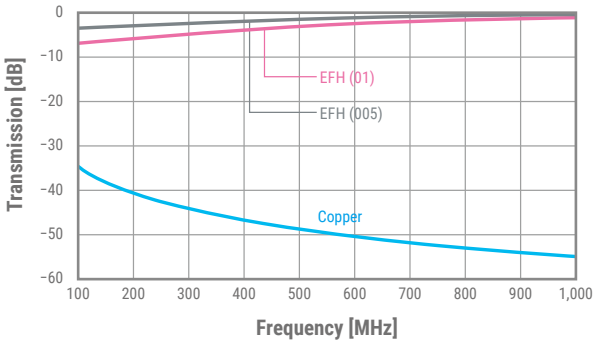
EFF – Attenuation of Transmission Noise



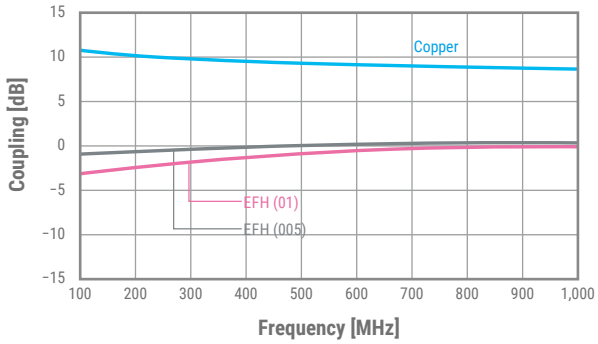
EFF – Attenuation of Coupling Noise



EFH – Attenuation of Transmission Noise



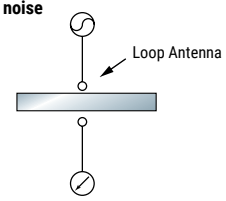
EFH – Attenuation of Coupling Noise



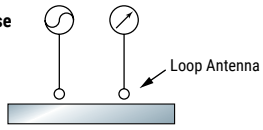
Above data are not guaranteed values.

Measuring Method of Electrical Characteristics

●Attenuation of transmission noise

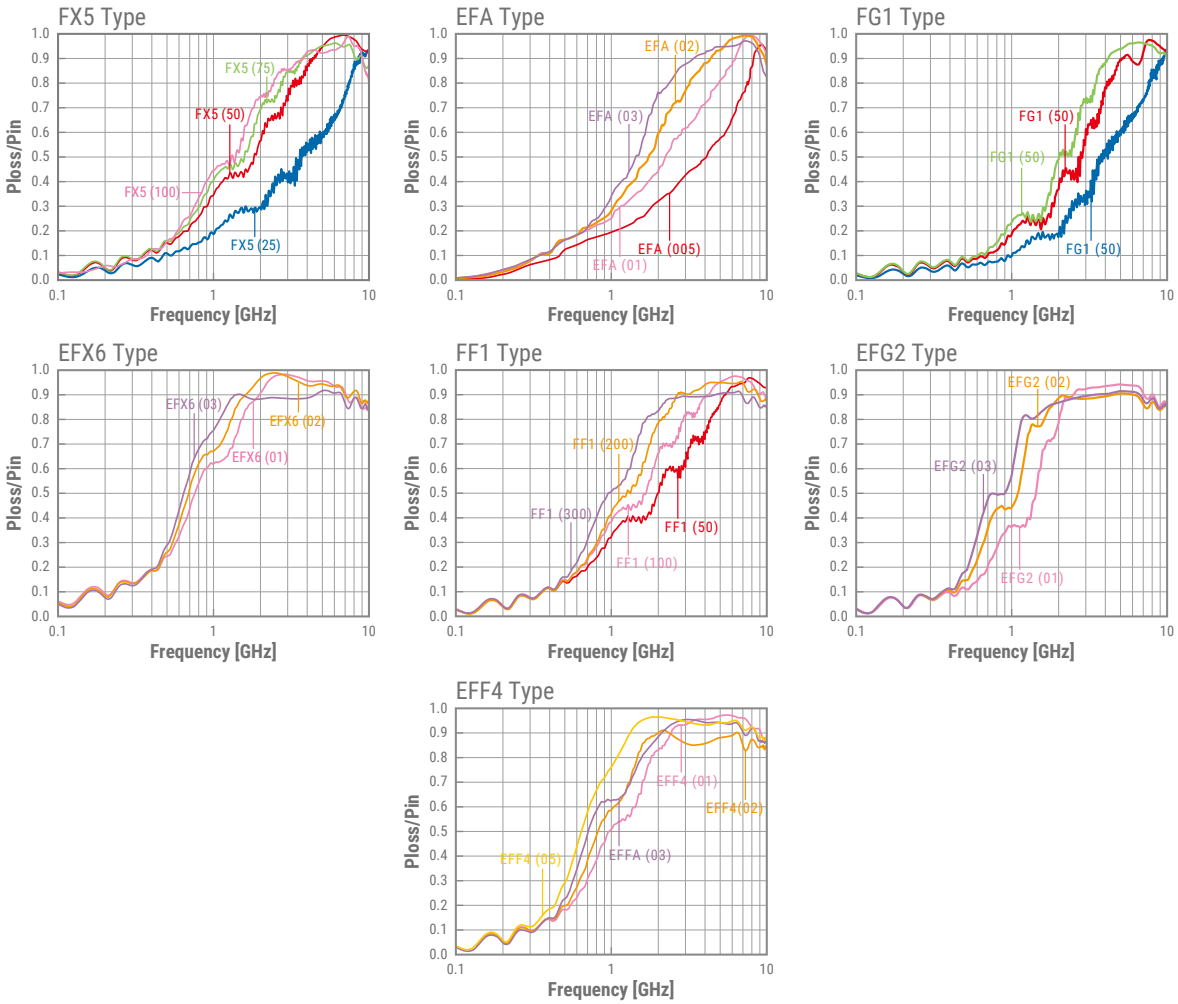


●Attenuation of coupling noise



Transmission Noise Attenuation Characteristics

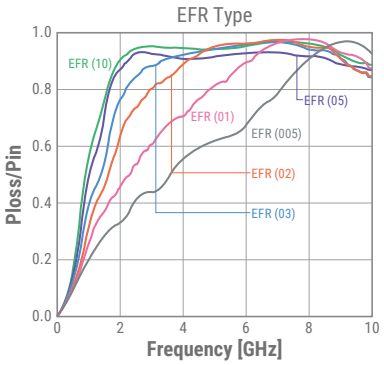
Shown in the graphs below are values of transmission loss calculated from the transmission characteristics S11 and S21, measured on Z_0 = 50 Ω type micro strip line (MSL) with a Flex Suppressor® attached.

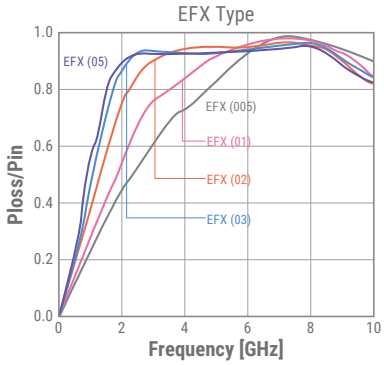


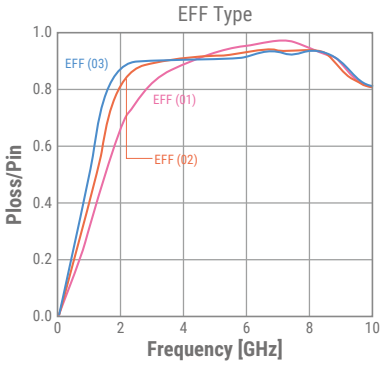
Above data are not guaranteed values.

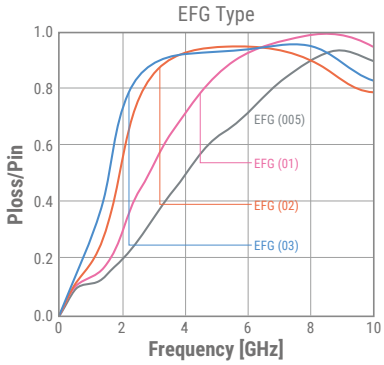
Transmission Noise Attenuation Characteristics - Not for New Design

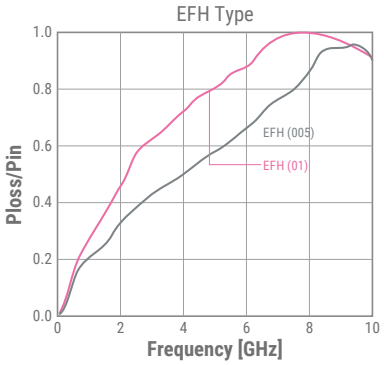
Shown in the graphs below are values of transmission loss calculated from the transmission characteristics S11 and S21 measured on Z_0 = 50 Ω type MSL (micro strip line) with a Flex Suppressor® attached.





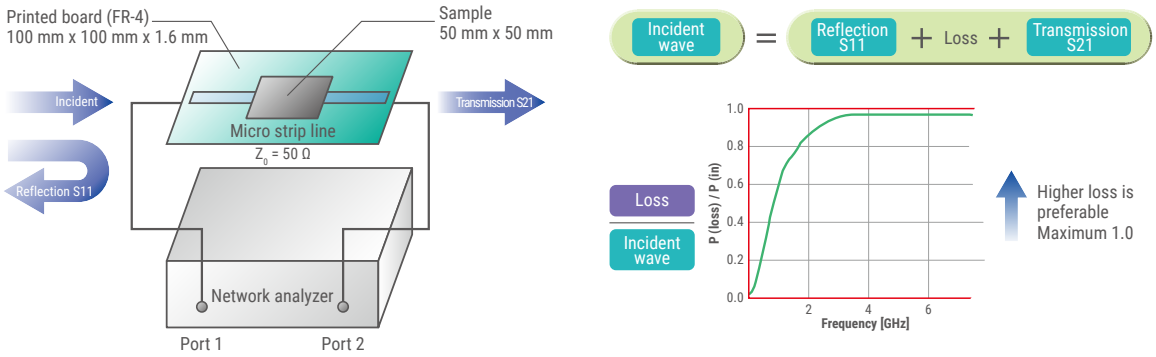






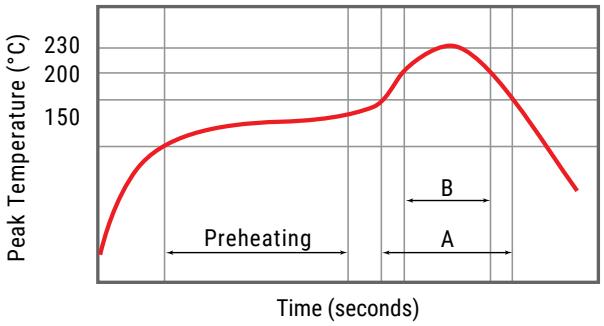
Above data are not guaranteed values.

Measuring Method of Transmission Noise Attenuation Characteristics



Soldering Process

Reflow Profile



Peak Temperature	+260°C
Preheating	150 – 180°C 90 seconds maximum
A	200°C or more, 60 seconds maximum
B	230°C or more, 40 seconds maximum
Number of Times	2 times maximum

All noise suppression sheets are reflow capable, if used with special double-sided adhesive tape. Available upon request. Please contact KEMET respresentative for more details.

Handling Precautions

Avoid high temperature, humidity and direct sunlight. Storage environment should be below 40ºC and below 70% relative humidity.

The surface resistance value listed in this catalog is a reference value of the circuit parameter to indicate noise suppression. The value does not represent the product's insulation characteristics. The value may become lower if an excess pressure is applied to the product.

The products in this datasheet are not insulators, they need to be handled as conductors. Care must be taken when in use, so that conductive material does not contact the surface or the edge of the Flex Suppressor® sheet. Insulation process should be performed when contact to conductive material is probable.

Depending on the processing procedure, powdery substance may drop out from sheet surface or the edge, if the cutting of the sheet is performed. Depending on the location, care must be taken, as this powder may effect the component's performance.

Any dust, oil or moisture must be cleaned from the surface of the installation area when using an adhesive tape to attach the sheet.

The adhesive tape may begin to lose some of its adhesiveness after being in storage for six months. This has no impact on the EMI filtering effectiveness.

Export Control

For customers in Japan
For products that are controlled items subject to the "Foreign Exchange and Foreign Trade Law" of Japan, the export license specified by the law is required for export.

For customers outside Japan
Flex Suppressor® products should not be used or sold for the use in the development, production, stockpiling or utilization of any conventional weapons, mass-destruction weapons (nuclear, chemical, biological weapons or missiles) or any other weapons.