FLEX SUPPRESSOR®

EMI Suppression Tape

Overview

The KEMET EMI Suppression Tape FLEX SUPPRESSOR is optimized for cable EMI issues and proposes a flexible noise suppression solution, by attenuating surface conduction noise and reducing radiation effectively. Its smart design allows to simply apply to wrap under the jacket or to wrap around outer surface.

The flexible tape is a polymer base, blended with micron-sized magnetic powders dispersed throughout the material.

Applications

- Charger cables
- Power cables
- Interface cables (HDMI, USB, LVDS, etc.)
- EMI debug

Benefits

- Electromagnetic wave suppression – electromagnetic wave conducting along cable is effectively absorbed by magnetic loss and radiation out from the cable can be reduced
- Resonance suppression – controls the high frequency current and suppresses unwanted electromagnetic resonance by adding resistive component of impedance
- Effective radiation suppression in wide frequency range beyond 30 MHz
- Replace bulky ferrite core for a smart cable design
- Applicable to wide range of cable diameter by 9 mm or 19 mm tape width
- Maintain cable flexibility
- Wrap around outer surface
- No space constraints
- No cutting tools required
- No liner of adhesive tape
- Easy to wrap due to vinyl tape size
- RoHS compliant and halogen-free

Tape Type





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Part Number System

ESTX	(100)-	19X5M	T0859
Series	Thickness	Standard Dimensions	Attached Tape Thickness
ESTX ESTV	(50) = 0.05 mm (100) = 0.1 mm	9X10M = Tape 9 mm x 10 m 19X5M = Tape 19 mm x 5 m	T0859 = 0.03 mm, with insulation film 0.03 mm

Specifications

Features		General EMI Type	Automotive Type
Series		ESTX	ESTV
Magnetic Layer		FX5	FF1
Effective Frequency		1 MHz to 3 GHz	1 MHz to 3 GHz
Operating Temperature (°C)		−40 to +105	−40 to +105
Permeability (μ)		150 typical, at 3 MHz	100 typical, at 3 MHz
Specific Gravity		3.3 typical	3.1 typical
Surface Resistivity (Ω/sq.)[1]		1.0 X 10^{10} typical	1.0 X 10^{10} typical
Approved Standard[2]		UL94 HB UL File No. E176124	UL94 V-0 UL File No. E176124
Environment	RoHS	Compliant	Compliant
	Halogen	Free	Free
	PVC	Free	Free
	Lead	Free	Free
	Red Phosphorus	Free	–

1 This value is due to the insulation film. The surface resistivity of the magnetic layer is 1.0 X 10^{6} (Ω / sq. typical).
2 Magnetic layer only (adhesives, etc., not included.)

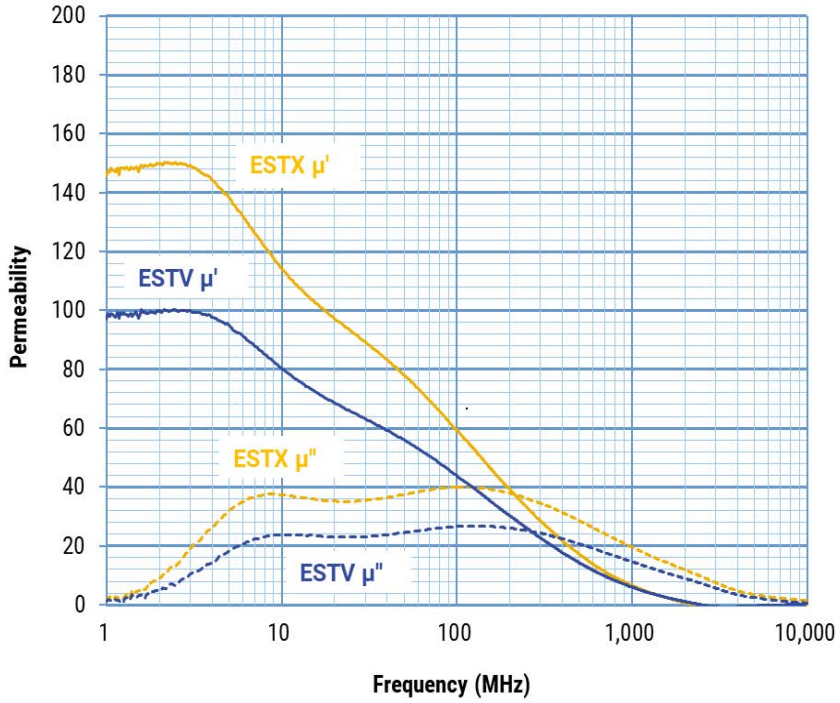
Table 1 – Ratings & Part Number Reference

Part Number	Series	Thickness	Tape Thickness	Insulation Film Thickness	Permeability at 3 MHz	Specific Gravity	Surface Resistivity[1]	Weight
		mm	mm	mm	μ	Typical	Ω/sq. Typical	g
ESTX(50)-9X10MT0859	ESTX	0.05	0.03	0.03	150	3.3	1.0×10^{10}	25.00
ESTX(100)-19X5MT0859	ESTX	0.1	0.03	0.03	150	3.3	1.0×10^{10}	46.00
ESTV(50)-9X10MT0859	ESTV	0.05	0.03	0.03	100	3.1	1.0×10^{10}	25.00
ESTV(100)-19X5MT0859	ESTV	0.1	0.03	0.03	100	3.1	1.0×10^{10}	46.00

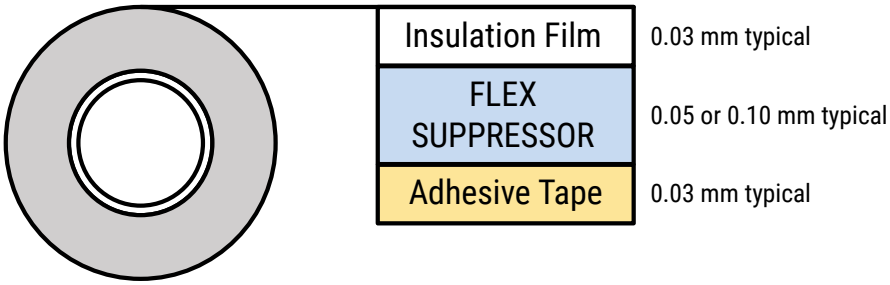
[1] This value is due to the insulation film. The surface resistivity of the magnetic layer is 1.0×10^{6} (Ω / sq. typical).

Permeability Characteristics

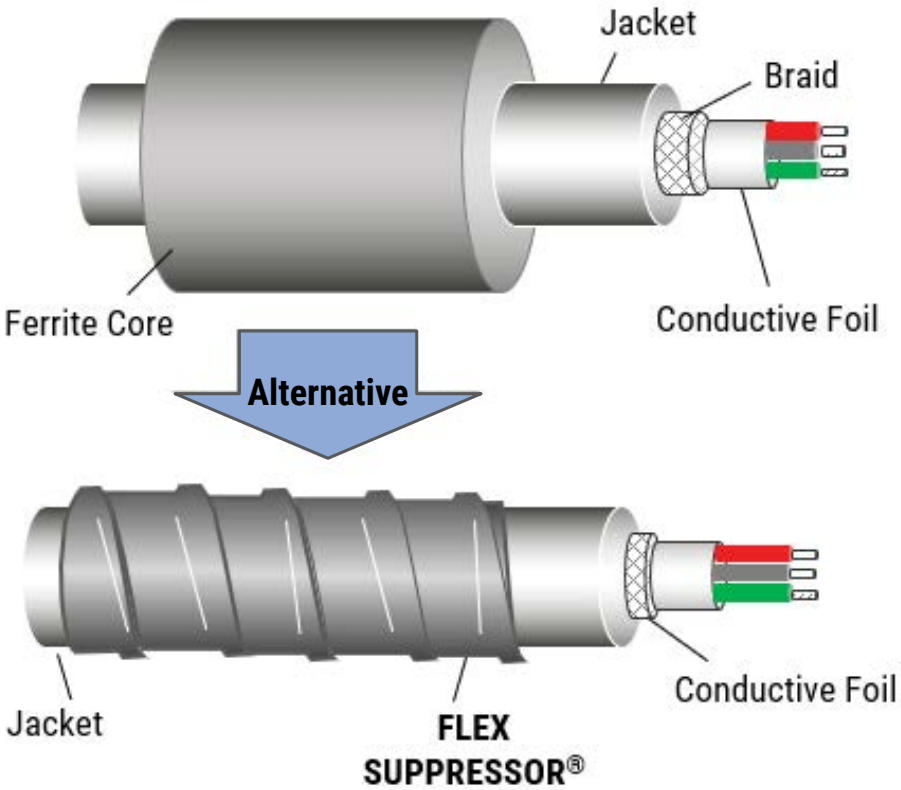
ESTX / ESTV



Layer Structure

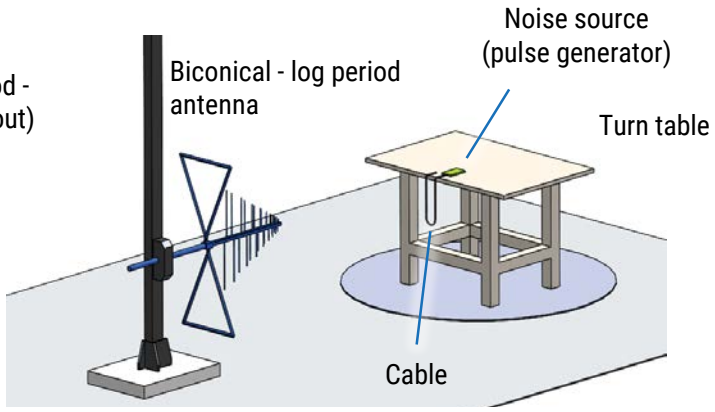


An Alternate EMI Solution to Ferrite Cores

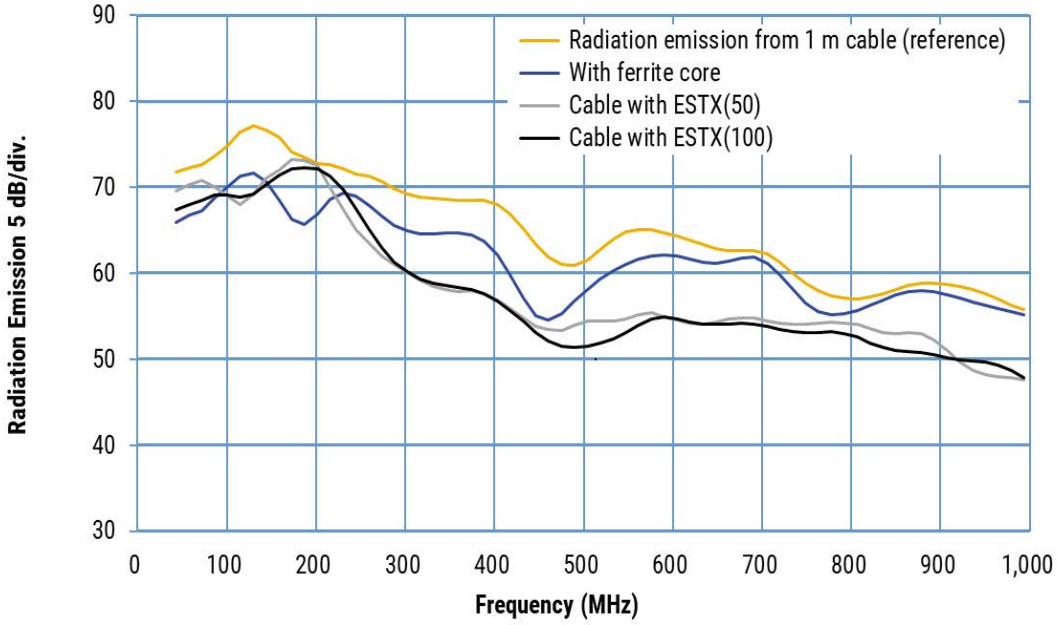


Radiation Suppression Example

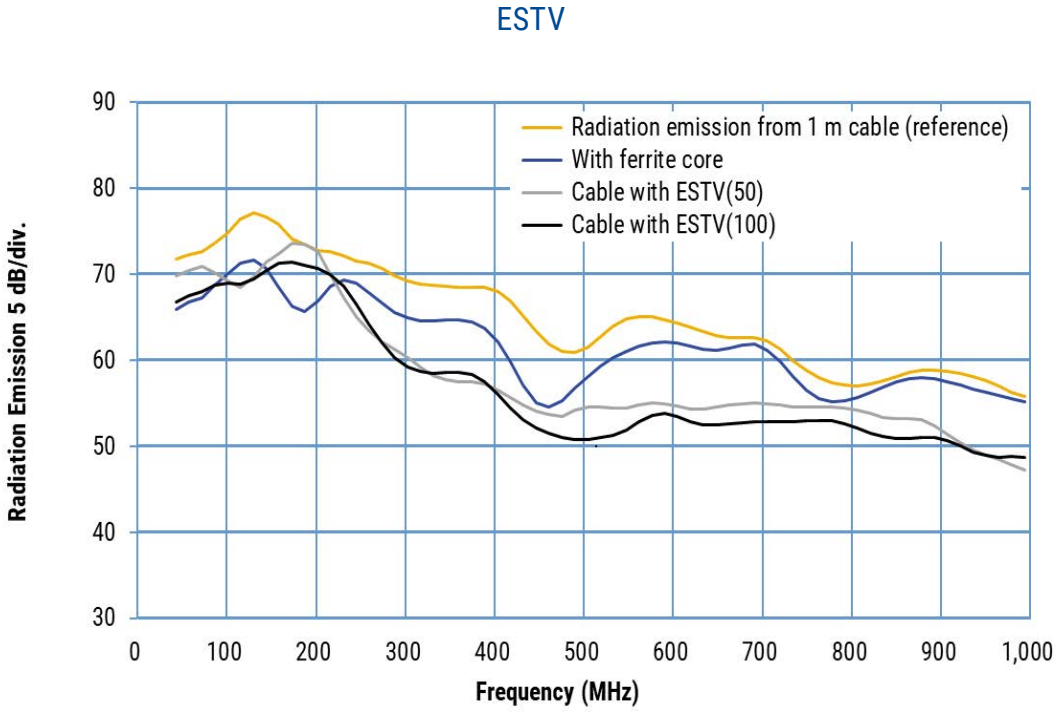
Measurement
- Class B, 3m method -
(Tabletop EUT layout)



ESTX



Radiation Suppression Example cont.



Handling Precautions

Avoid high temperature, humidity and direct sunlight. Storage environment should be below 40°C 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 affect 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.

Information on Environmentally Influential Substances

The FLEX SUPPRESSOR does not contain any of the substances listed below:

(1) Ozone depleting substance
- CFC (chlorofluorocarbon)
- Halon
- Carbon tetrachloride
- 1,1,1-Trichloroethane
- HCFC (hydrochlorofluorocarbon)
- HBFC (hydrobromfluorcarbon)
- Methyl bromide

(2) Substances regulated by EU RoHS Directive 2011/65/EU and EU Directive 2015/863
- Lead and lead compound
- Mercury and mercury compound
- Cadmium and cadmium compound (content of plastics that are below 5 ppm)
- Hexavalent chromium and hexavalent chromium compound
- PBB (polybrominated biphenyl) and its kind
- PBDE (polybrominated diphenylether)
- DEHP (bis-(2-ethylhexy) phthalate)
- BBP (benzylbuty phthalate)
- DBP (dibutyl phthalate)
- DIBP (diisobuty phthalate)

(3) Other environmentally influential substances (examples)
- PCB (polychlorinated biphenyl)
- Polychlorinated naphthalene
- Hexachlorobenzene
- Organotin compounds (tributyl tin, triphenyl tin)
- Asbestos
- Azo compound
- Chlorinated paraffin and its kind (paraffin chloride, chlorinated paraffin and chloroparaffin)
- Radioactive substance
- PVC

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