

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.

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

Applications

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

- Wrap around outer surface
- No space constraints
- No cutting tools required
- Easy to cut or tear by hand
- No liner of adhesive tape, simplifying the wrapping process
- Easy to wrap due to vinyl tape size
- RoHS compliant and halogen-free

Tape Type



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 0.02 mm

Specifications

Features		EMI Suppression Tape 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 +85	-40 to +85
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		UL94 HB	UL94 V-0
		UL File No. E176124	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 10⁶ (Ω / sq. typical).

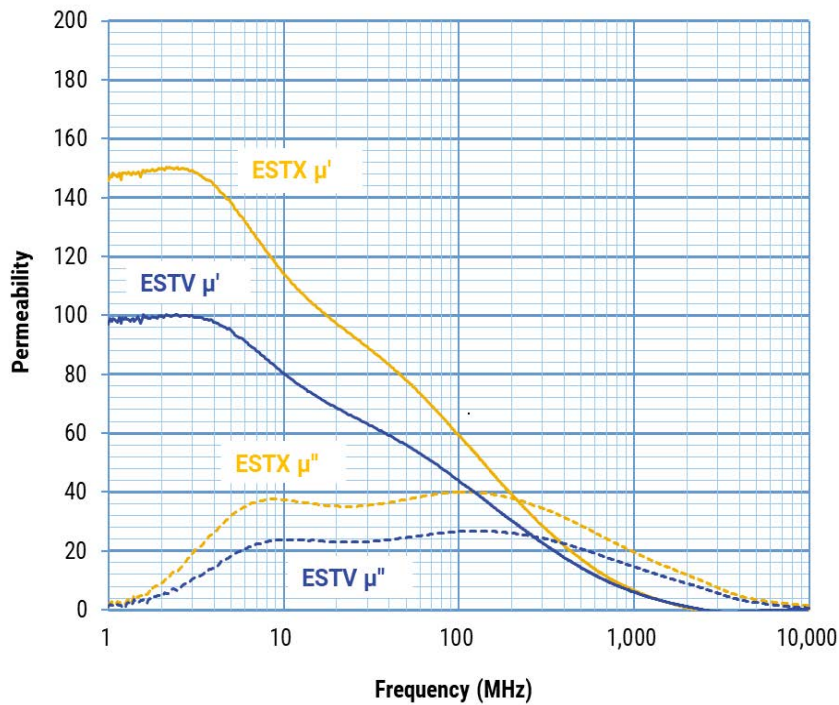
Table 1 – Ratings & Part Number Reference

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	0.02	150	3.3	1.0 X 10 ¹⁰	46.00
ESTX(100)-19X5MT0859	ESTX	0.1	0.03	0.02	150	3.3	1.0 X 10 ¹⁰	46.00
ESTV(50)-9X10MT0859	ESTV	0.05	0.03	0.02	100	3.1	1.0 X 10 ¹⁰	44.00
ESTV(100)-19X5MT0859	ESTV	0.1	0.03	0.02	100	3.1	1.0 X 10 ¹⁰	44.00

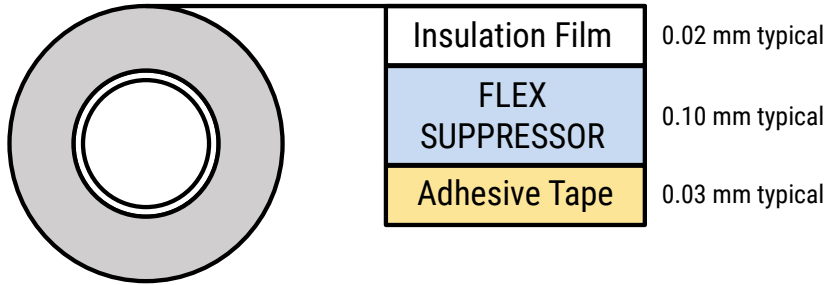
¹ This value is due to the insulation film. The surface resistivity of the magnetic layer is 1.0 X 10⁶ (Ω / sq. typical).

Permeability Characteristics

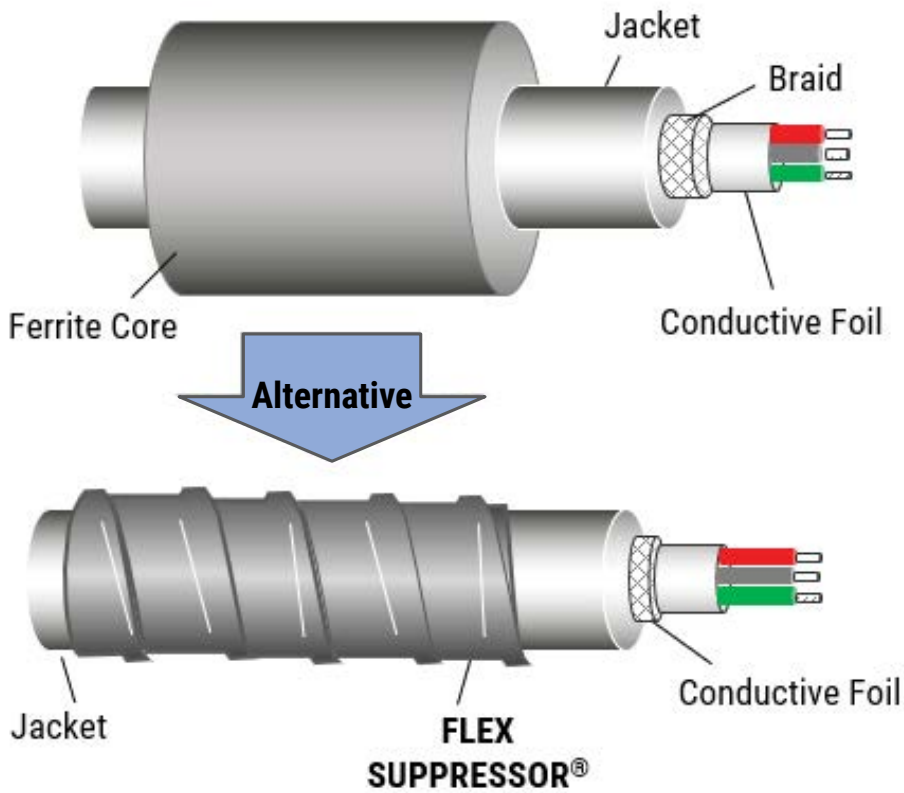
ESTX / ESTV



Layer Structure

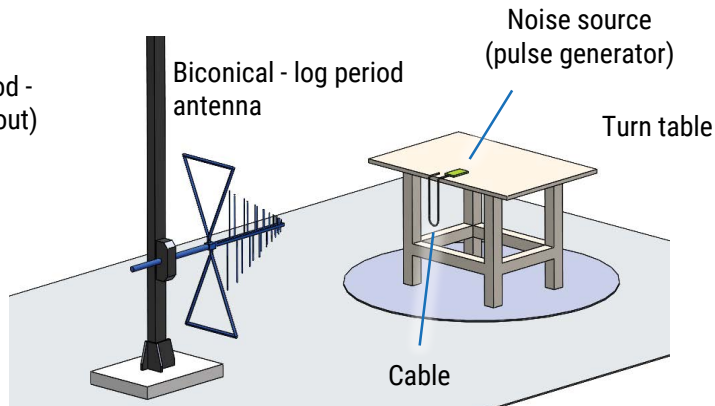


An Alternate EMI Solution to Ferrite Cores

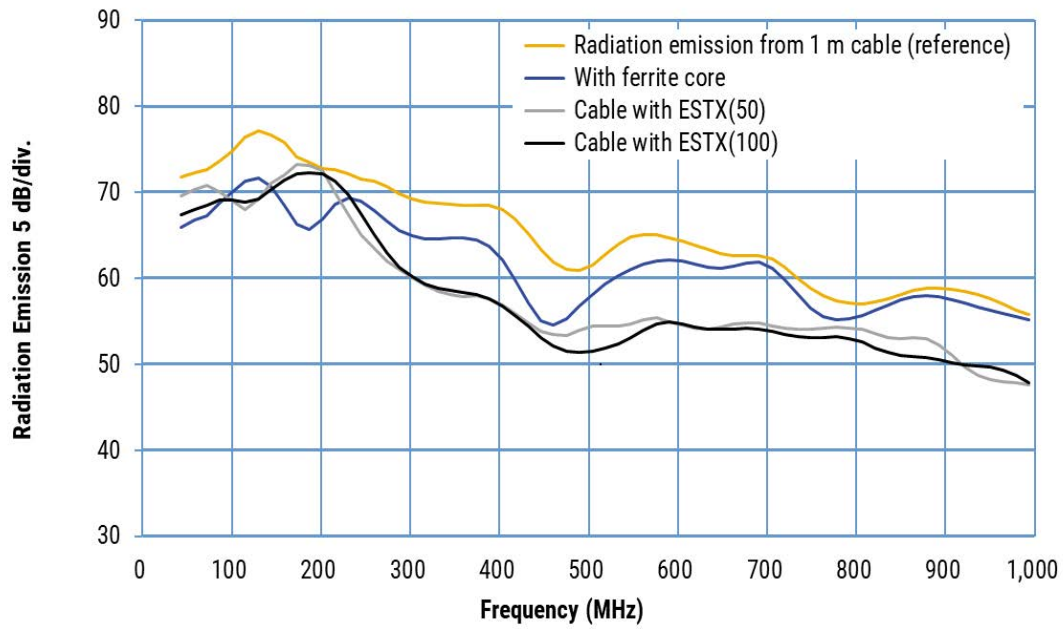


Radiation Suppression Example

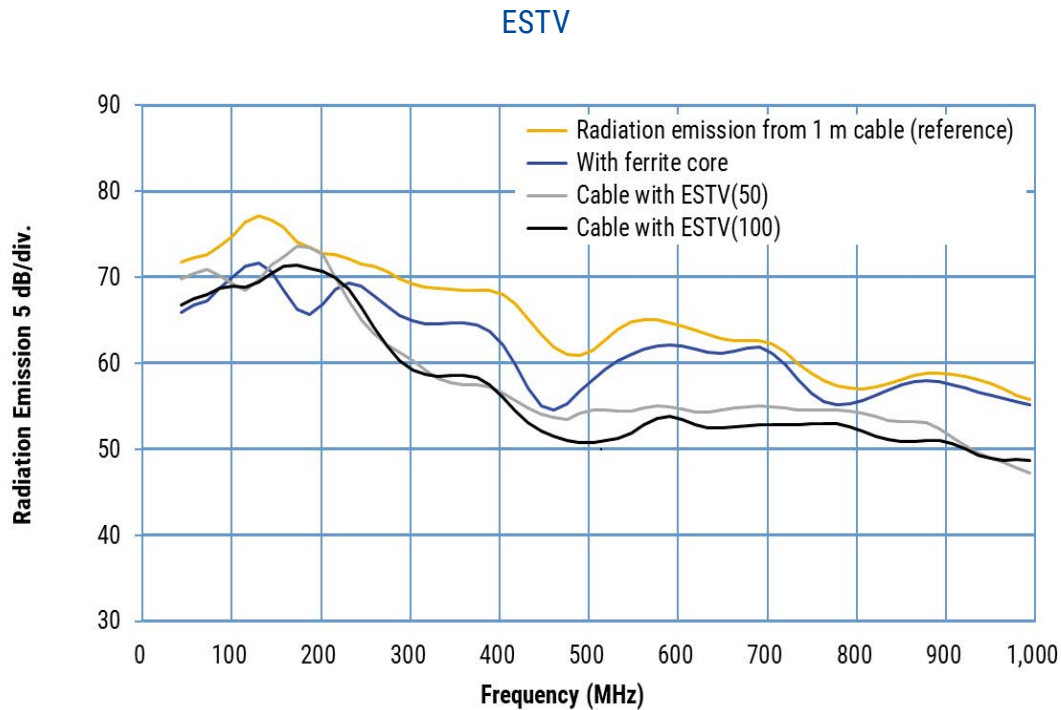
Measurement
- Class B, 3m method -
(Tabletop EUT layout)



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 (hydrobromfluorocarbon)
- 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

KEMET Electronics Corporation Sales Offices

For a complete list of our global sales offices, please visit www.kemet.com/sales.

Disclaimer

YAGEO Corporation and its affiliates do not recommend the use of commercial or automotive grade products for high reliability applications or manned space flight.

All product specifications, statements, information and data (collectively, the "Information") in this datasheet are subject to change. The customer is responsible for checking and verifying the extent to which the Information contained in this publication is applicable to an order at the time the order is placed. All Information given herein is believed to be accurate and reliable, but it is presented without guarantee, warranty, or responsibility of any kind, expressed or implied.

Statements of suitability for certain applications are based on KEMET Electronics Corporation's ("KEMET") knowledge of typical operating conditions for such applications, but are not intended to constitute – and KEMET specifically disclaims – any warranty concerning suitability for a specific customer application or use. The Information is intended for use only by customers who have the requisite experience and capability to determine the correct products for their application. Any technical advice inferred from this Information or otherwise provided by KEMET with reference to the use of KEMET's products is given gratis, and KEMET assumes no obligation or liability for the advice given or results obtained.

Although KEMET designs and manufactures its products to the most stringent quality and safety standards, given the current state of the art, isolated component failures may still occur. Accordingly, customer applications which require a high degree of reliability or safety should employ suitable designs or other safeguards (such as installation of protective circuitry or redundancies) in order to ensure that the failure of an electrical component does not result in a risk of personal injury or property damage.

Although all product-related warnings, cautions and notes must be observed, the customer should not assume that all safety measures are indicated or that other measures may not be required.

When providing KEMET products and technologies contained herein to other countries, the customer must abide by the procedures and provisions stipulated in all applicable export laws and regulations, including without limitation the International Traffic in Arms Regulations (ITAR), the US Export Administration Regulations (EAR) and the Japan Foreign Exchange and Foreign Trade Act.

KEMET is a registered trademark of KEMET Electronics Corporation.