

Overview

KEMET ESD-SR Series snap-on cores are designed for use on round cable and are available in a variety of sizes. EMI cores are part of a family of passive components which address the issues of noise or electromagnetic interference (EMI) in circuits or systems.

Benefits

- Snap-on convenience
- Split construction
- Temperature Index of 65°C
- Meets the requirements of UL94V-0
- CTI: Rank 0
- Broad range by simply adding turns

Applications

- Consumer electronics



Turns and Impedance Characteristics

When the desired performance of an EMI core cannot be obtained with a single pass through the core, the impedance characteristics can be changed with multiple turns.

A turn is counted by the number of lead-wire windings which pass through the inner hole of the core. Windings on the outside of the core do not count. See Figure 1 for examples of one, two, and three turns.

Adding turns will result in higher impedance while also lowering the effective frequency range. See Figure 2 for an example.

Core Material and Effective Frequency Range

There are two ferrite material options for KEMET EMI Cores: Nickel Zinc (NiZn) and Manganese Zinc (MnZn). Each core material has a different resistance and effective frequency range. The MnZn core material has a lower resistance compared to the NiZn; therefore, adequate insulation is required before use.

The NiZn core material is typically effective for frequencies in the MHz band range such as the FM-band, while the MnZn core material is typically effective for the kHz band range such as the AM-band. See Figure 3.

It is recommended to measure the actual frequency range effectiveness in the target application.

Figure 1 – How to count turns

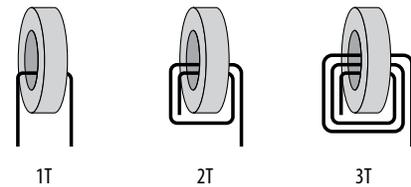


Figure 2 – Relationship between impedance and turn count. (Representative example: ESD-R-16C)

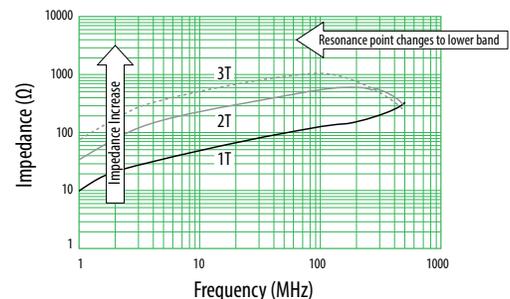
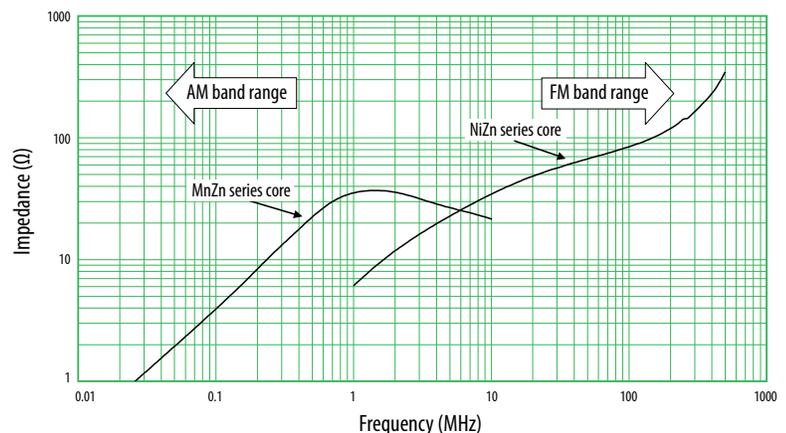
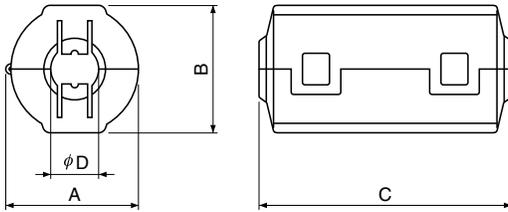


Figure 3 – Effective band range of MnZn and NiZn ferrite core material. (Representative example, measured with same-dimension ring core)

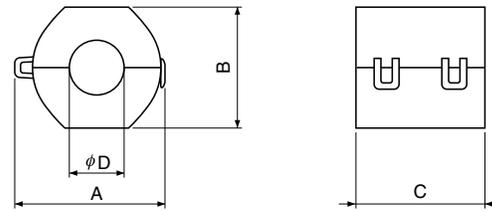


Dimensions – Millimeters

ESD-SR



ESD-SR-S



See Table 1 for dimensions

Environmental Compliance

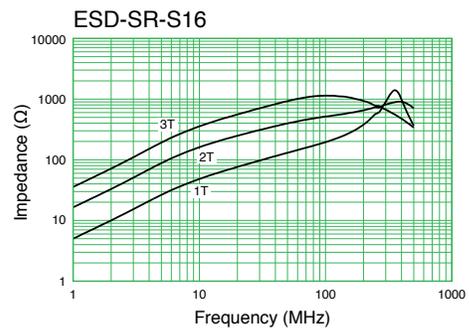
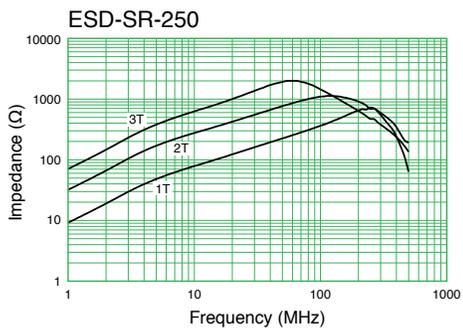
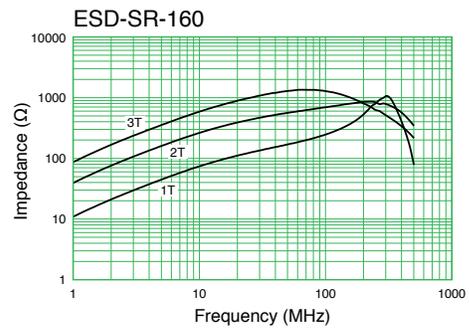
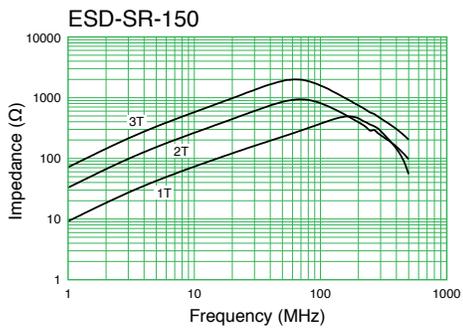
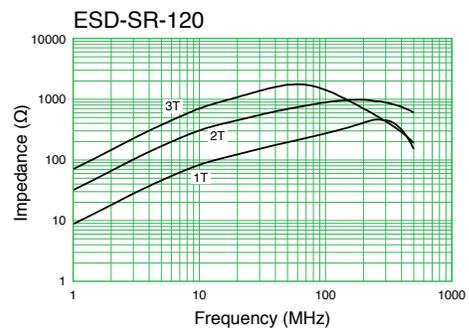
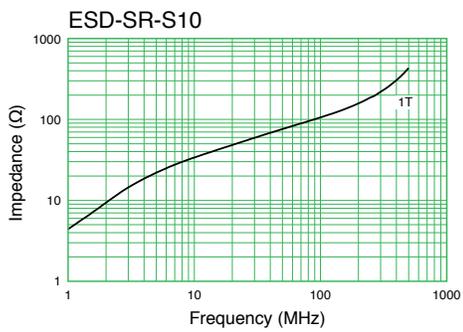
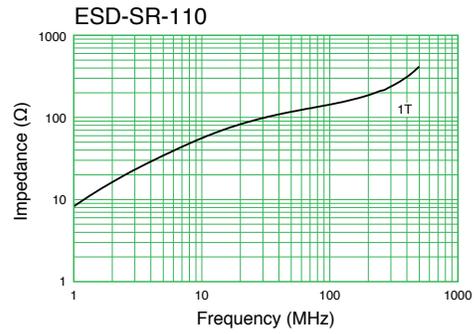
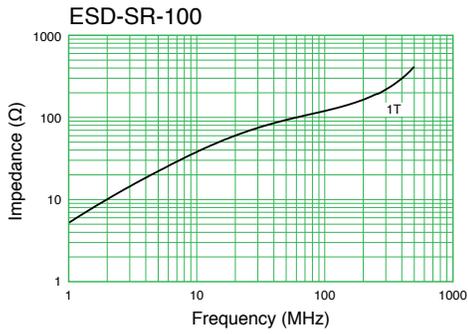
All KEMET EMI cores are RoHS Compliant.

Table 1 – Ratings & Part Number Reference

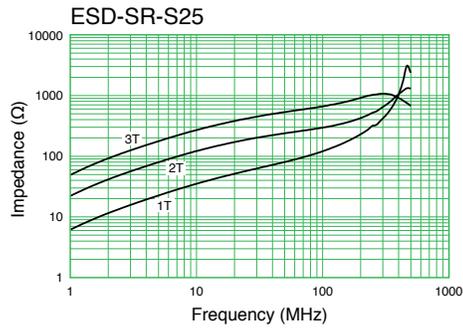
Part Number	Dimensions (mm)				Weight (g)	Case Color ¹
	A Maximum	B Maximum	C Maximum	ø D		
ESD-SR-100	16.5	16.5	21.0	≤ 6.0	7.2	Black, Gray, Violet
ESD-SR-110	14.4	14.2	28.0	≤ 5.0	6.9	Black, Gray, Violet
ESD-SR-S10	15.5	14.0	18.5	≤ 6.0	4.1	Black
ESD-SR-120	16.0	16.4	33.0	≤ 6.0	13.3	Black, Gray, Violet
ESD-SR-150	19.6	20.3	37.4	≤ 7.0	23.4	Black, Gray, Violet
ESD-SR-160	20.2	20.0	39.0	≤ 9.0	22.7	Black, Gray, Violet
ESD-SR-250	31.5	31.6	38.0	≤ 13.0	59.5	Black, Gray, Violet
ESD-SR-S16	23.0	20.0	20.5	≤ 8.0	12.9	Black
ESD-SR-S25	33.0	29.0	15.5	≤ 14.5	21.3	Black

¹ Case color code added to end of ESD-SR part number: Blank = black, G = gray, V = violet. ESD-SR-S series only available in black.

Impedance vs. Frequency



Impedance vs. Frequency Cont'd



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