

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

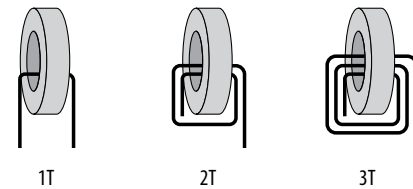


Figure 2 – Relationship between impedance and turn count. (Representative example: ESD-R-16C)

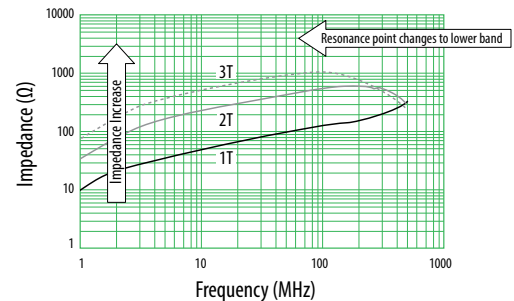
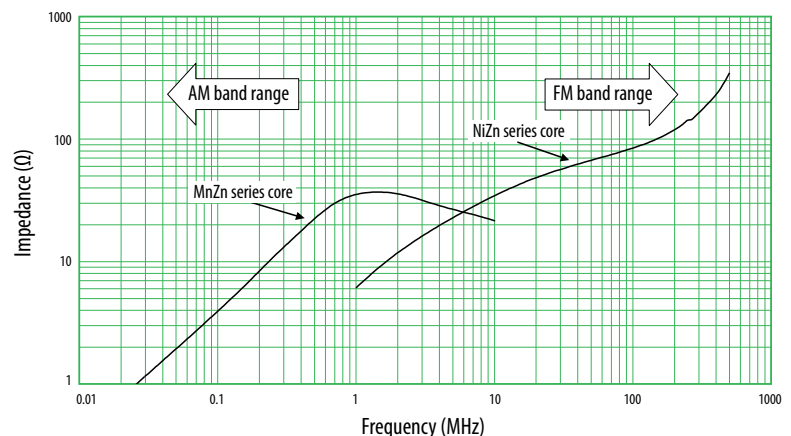
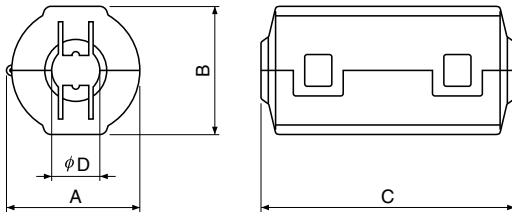


Figure 3 – Effective band range of MnZn and NiZn ferrite core material. (Representative example, measured with same-dimension ring core)

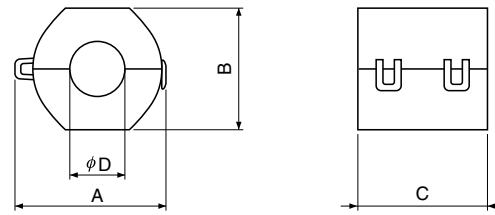


Dimensions – Millimeters

ESD-SR



ESD-SR-S



See Table 1 for dimensions

Environmental Compliance

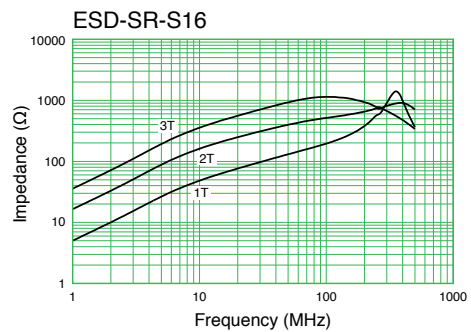
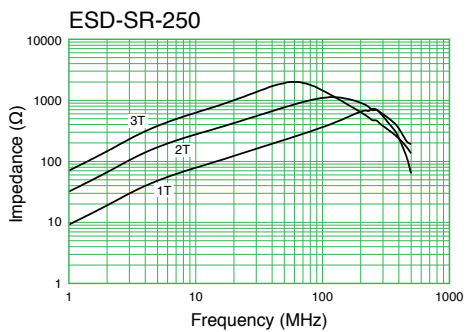
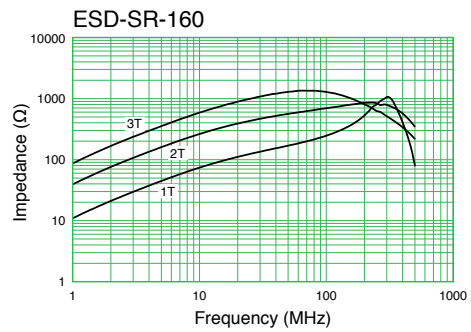
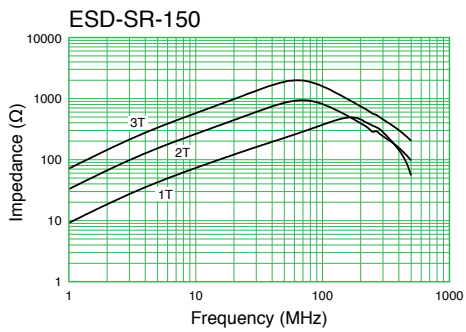
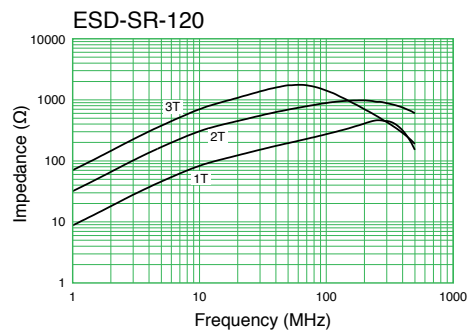
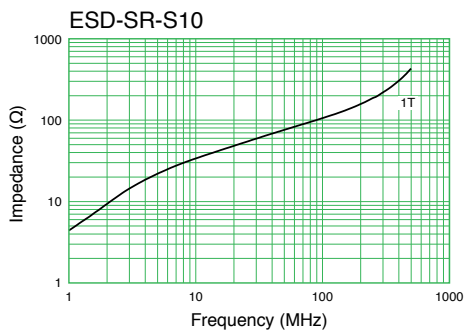
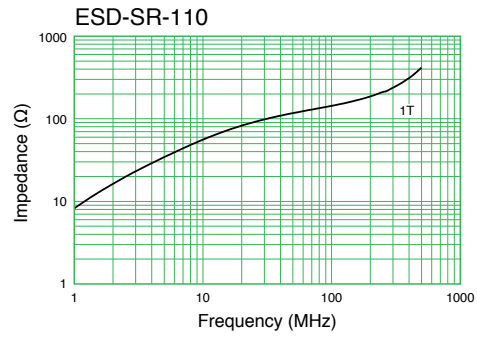
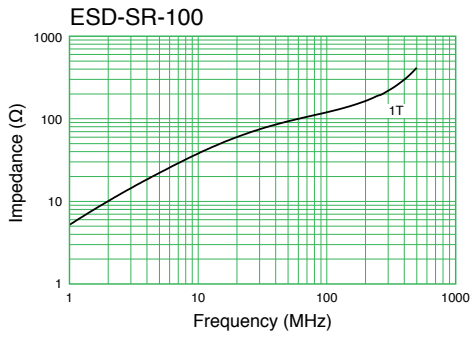
All KEMET EMI cores are RoHS Compliant.

Table 1 – Ratings & Part Number Reference

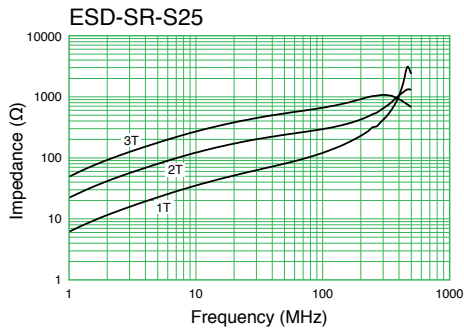
| Part Number | Dimensions (mm) | | | | Weight (g) | Case Color ¹ |
|-------------|-----------------|-----------|-----------|-------------|------------|-------------------------|
| | A Maximum | B Maximum | C Maximum | ϕD | | |
| ESD-SR-100 | 16.5 | 16.5 | 21.0 | ≤ 6.0 | 7.2 | Black, Gray, Violet |
| 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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