

Overview

The KEMET B-20 Series bead cores are designed for use on round cable. The wide range of MnZn and NiZn options allows for targeting of specific frequency ranges.

Benefits

- MnZn (≤ 100 MHz, AM band range) and NiZn (≤ 300 MHz, FM band range) options available
- Solid construction

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.

Figure 1 – How to count turns

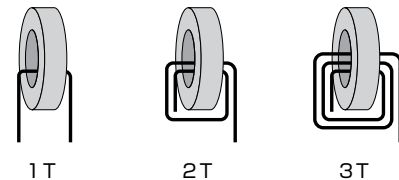
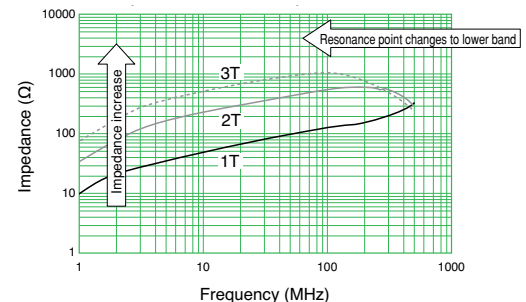


Figure 2 – Relationship between impedance and turn count. (Representative example: ESD-R-16C)



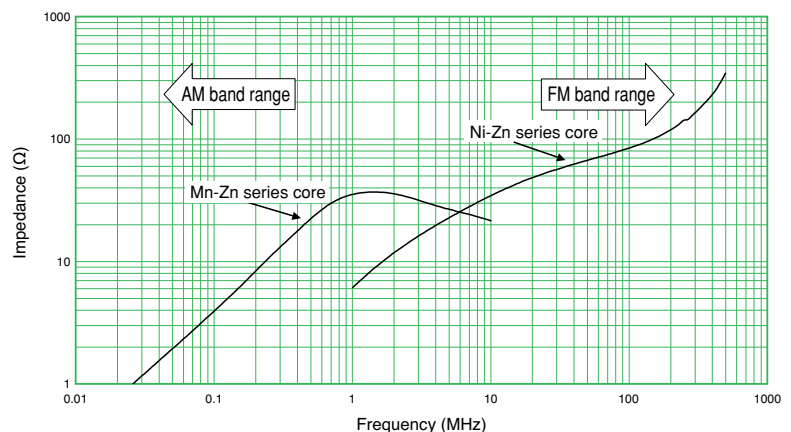
Core Material and Effective Frequency Range

There are two ferrite material options for KEMET EMI Cores: Nickel-Zinc (Ni-Zn) and Manganese-Zinc (Mn-Zn). Each core material has a different resistance and effective frequency range. The Mn-Zn core material has lower resistance compared to the Ni-Zn; therefore, be sure to provide adequate insulation before use.

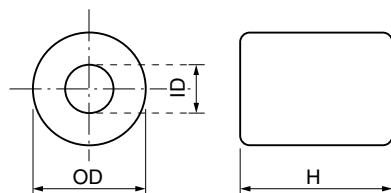
For reference, the Ni-Zn core material is typically effective for the frequencies in the MHz band range such as the FM-band, while the Mn-Zn core material is typically effective for the kHz band range such as the AM-band. See Figure 3.

It is recommended to verify actual effectiveness in the target application with measurements.

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



Dimensions – Millimeters



See Table 1 for dimensions

Environmental Compliance

All KEMET EMI cores are RoHS Compliant.



RoHS Compliant

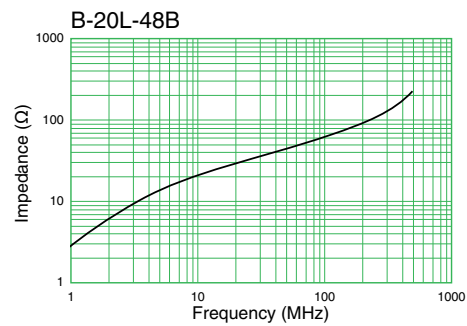
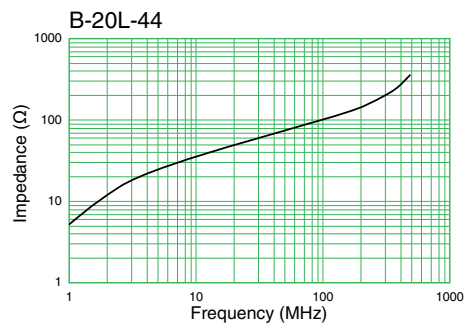
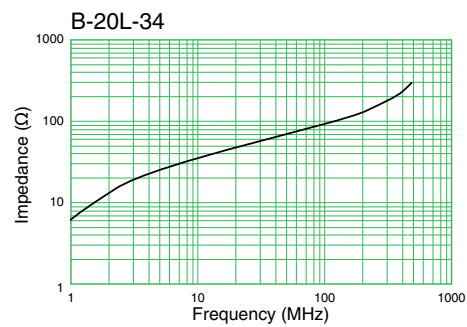
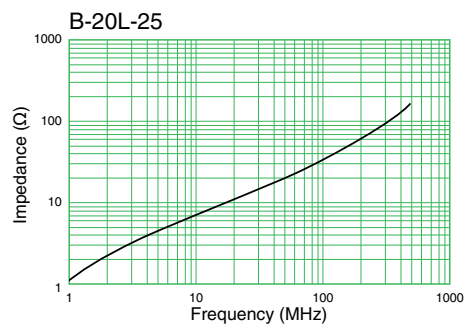
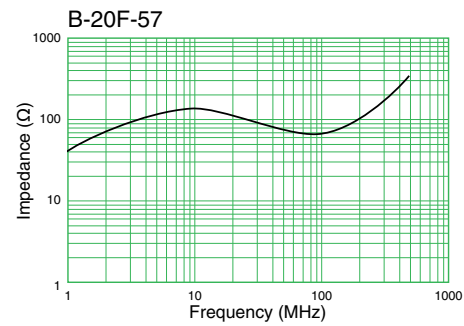
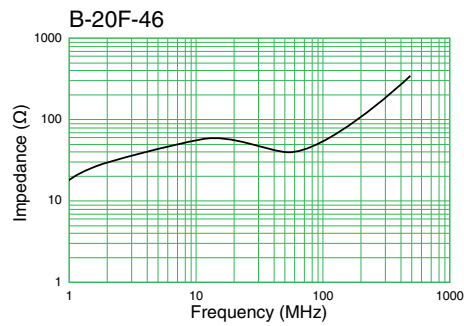
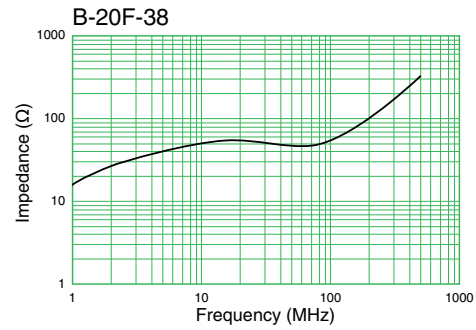
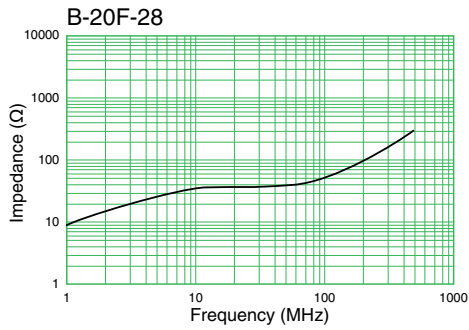
Table 1 – Ratings & Part Number Reference

Part Number	Dimensions (mm)			Frequency Range ¹	
	OD	ID	H	≤ 100 MHz (AM band range)	≤ 300 MHz (FM band range)
B-20F-28	2.8	1.3	3.0	X	
B-20F-38	3.8	1.5	4.3	X	
B-20F-46	4.6	1.5	4.3	X	
B-20F-57	5.7	1.5	8.0	X	
B-20L-25	2.5	1.0	1.2		X
B-20L-34	3.4	0.8	4.4		X
B-20L-44	4.4	1.6	7.0		X
B-20L-48B	4.8	2.4	4.8		X
B-20L-95B ²	9.7	4.8	4.2		X

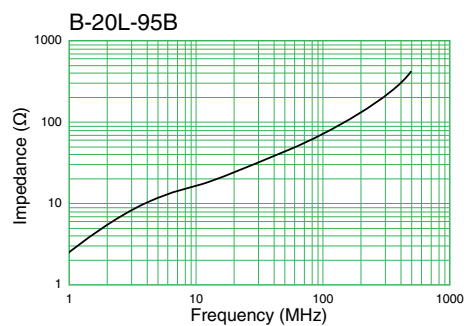
¹ Above frequency range is for reference only. Please test with actual device before use.

² Coated

Impedance vs. Frequency



Impedance vs. Frequency Cont'd



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