

Overview

The KEMET ESD-FPL Series solid cores are designed for use on flat cable. A wide range of sizes and shapes are available.

Benefits

- Solid construction
- Thin and Minimal Gap types available

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 (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 1 – How to count turns

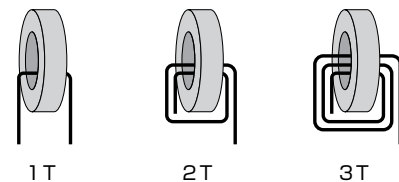


Figure 2 – Relationship between impedance and turn count. (Representative example: ESD-R-16C)

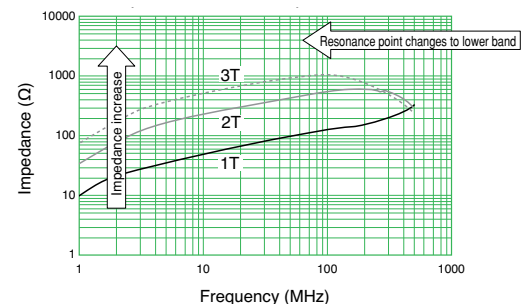
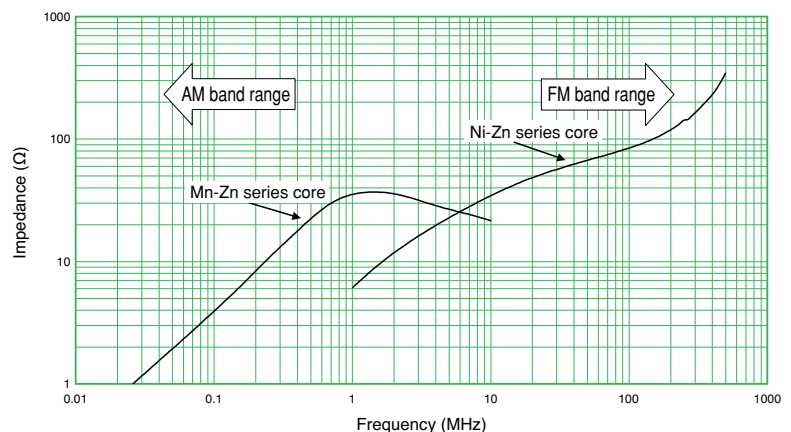
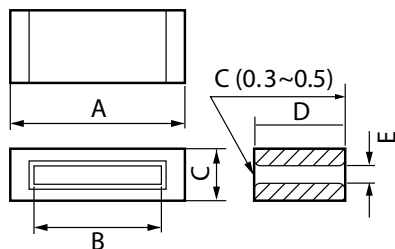


Figure 3 – Effective band range of Mn-Zn and Ni-Zn ferrite core material. (Representative example, measured with same-dimension ring core)



Dimensions – Millimeters

Figure 1



See Table 1 for dimensions

Figure 2

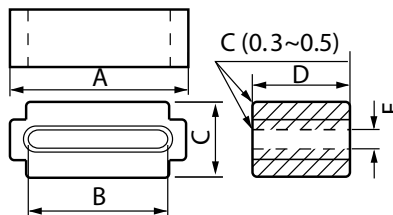
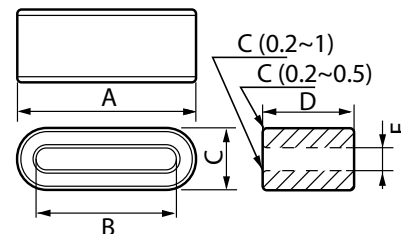
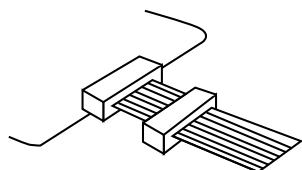


Figure 3



Installation Example



Environmental Compliance

All KEMET EMI cores are RoHS Compliant.



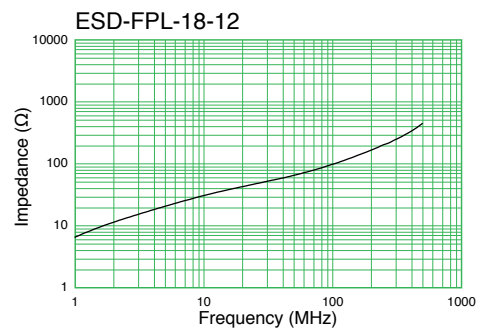
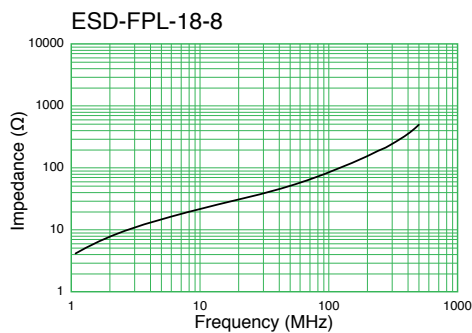
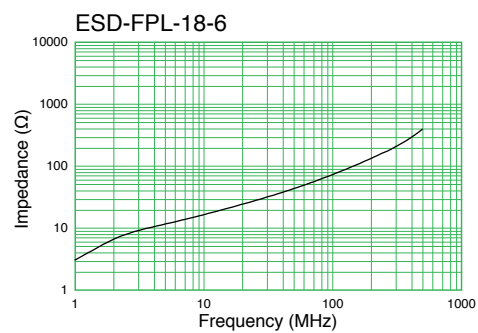
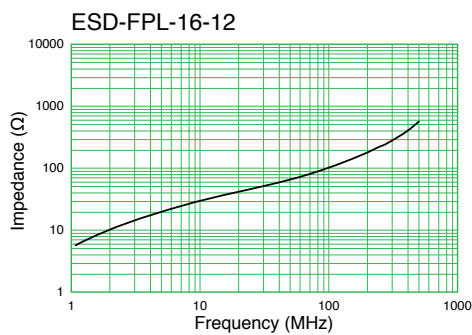
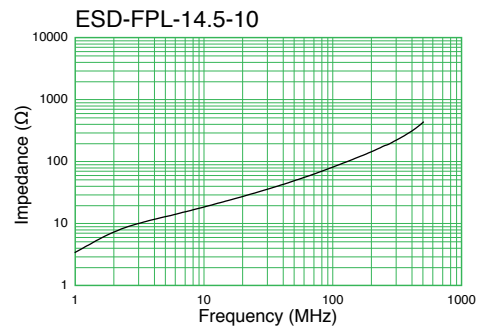
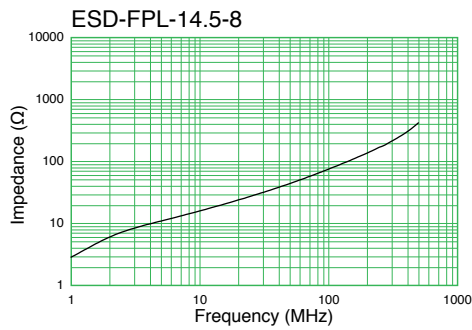
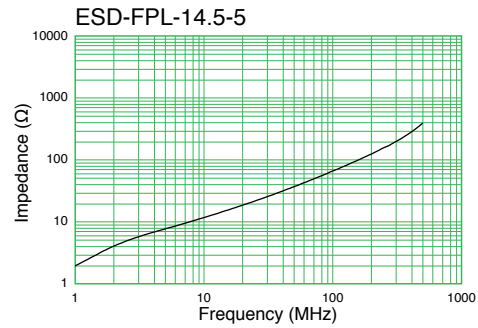
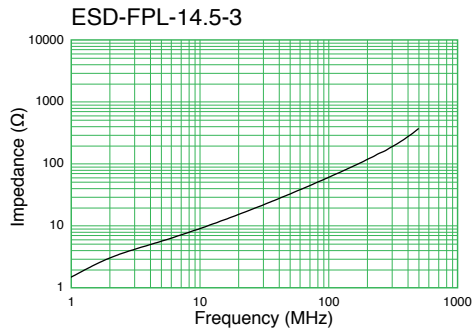
RoHS Compliant

Table 1 – Ratings & Part Number Reference

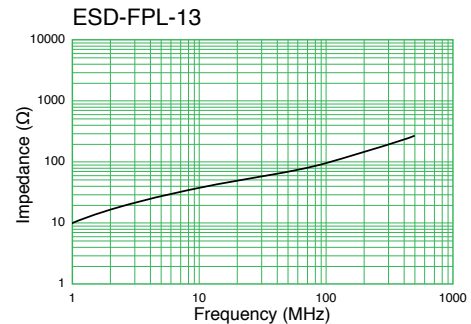
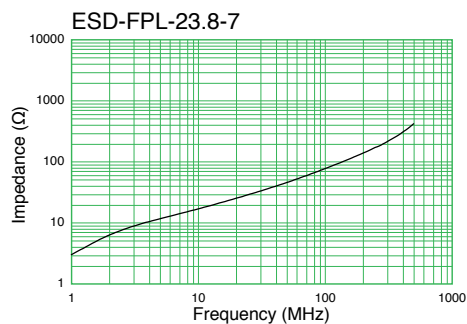
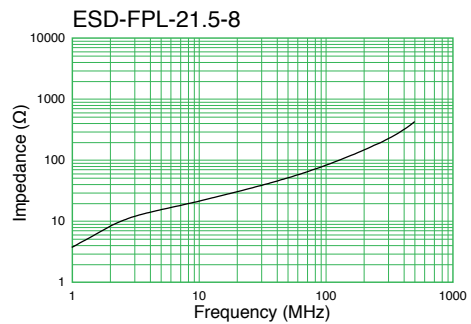
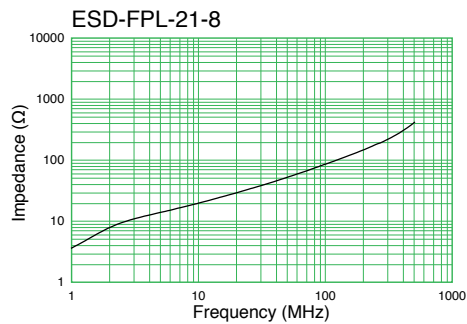
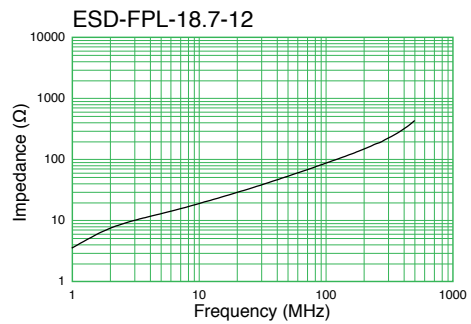
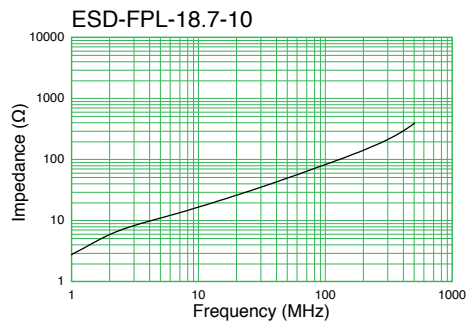
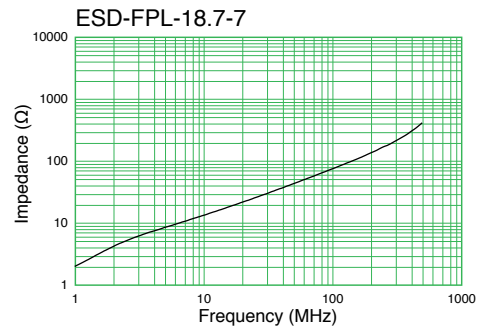
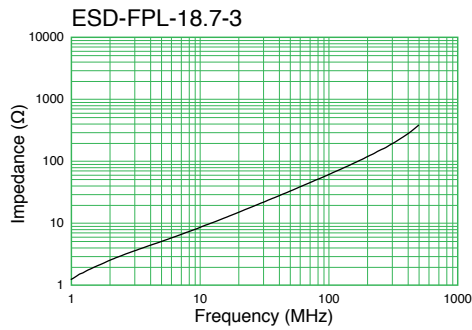
Part Number	Dimensions (mm)					Applicable Cable	Shape	Remarks
	A	B	C	D	E			
ESD-FPL-14.5-3	14.5	11.0	2.75	3.0	0.80	FPC, FFC	Figure 3	Thin Type
ESD-FPL-14.5-5	14.5	11.0	2.75	5.0	0.80	FPC, FFC	Figure 3	Thin Type
ESD-FPL-14.5-8	14.5	11.0	2.75	8.0	0.80	FPC, FFC	Figure 3	Thin Type
ESD-FPL-14.5-10	14.5	11.0	2.75	10.0	0.80	FPC, FFC	Figure 3	Thin Type
ESD-FPL-16-12	16.0	11.5	4.50	12.0	0.85	8 Core	Figure 3	
ESD-FPL-18-6	18.0	14.0	5.00	6.0	1.00	FPC, FFC	Figure 3	
ESD-FPL-18-8	18.0	14.0	5.00	8.0	1.00	10 Core	Figure 3	
ESD-FPL-18-12	18.0	14.0	5.00	12.0	1.00	FPC, FFC	Figure 3	
ESD-FPL-18.7-3	18.7	15.0	2.75	3.0	0.70	FPC, FFC	Figure 3	Thin Type
ESD-FPL-18.7-7	18.7	15.0	2.75	7.0	0.70	FPC, FFC	Figure 3	Thin Type
ESD-FPL-18.7-10	18.7	15.0	2.75	10.0	0.70	FPC, FFC	Figure 3	Thin Type
ESD-FPL-18.7-12	18.7	15.0	2.75	12.0	0.70	FPC, FFC	Figure 3	Thin Type
ESD-FPL-21-8	21.0	17.0	5.00	8.0	0.80	FPC, FFC	Figure 3	
ESD-FPL-21.5-8	21.5	16.5	6.50	8.0	1.30	12 Core	Figure 3	
ESD-FPL-23.8-7	23.8	18.8	6.30	7.0	1.10	12 Core	Figure 3	
ESD-FPL-13	23.8	18.8	6.30	15.0	1.10	13 Core	Figure 3	
ESD-FPL-24-8	24.0	19.0	6.50	8.0	1.30	14 Core	Figure 3	
ESD-FPL-24.5-6	24.5	20.0	4.50	6.0	0.90	FPC, FFC	Figure 3	
ESD-FPL-24.5-8	24.5	20.0	4.50	8.0	0.90	FPC, FFC	Figure 3	
ESD-FPL-25-12	25.0	21.0	5.00	12.0	0.85	16 Core	Figure 3	
ESD-FPL-27-8	27.0	22.0	6.50	8.0	1.30	16 Core	Figure 3	
ESD-FPL-7	28.0	23.5	7.70	7.0	1.50	16 Core	Figure 2	
ESD-FPL-15	28.0	23.5	7.70	14.6	1.50	16 Core	Figure 2	
ESD-FPL-28-10	28.0	24.0	5.00	10.0	0.80	FPC, FFC	Figure 3	
ESD-FPL-31-9	31.0	27.0	5.00	9.0	0.55	FPC	Figure 3	Minimal Gap Type
ESD-FPL-31-12	31.0	27.0	5.00	12.0	0.55	FPC	Figure 3	Minimal Gap Type
ESD-FPL-32-8	32.0	28.0	5.00	8.0	0.80	FPC, FFC	Figure 3	
ESD-FPL-32-12	32.0	28.0	5.00	12.0	0.80	FPC, FFC	Figure 3	
ESD-FPL-20-12	33.2	27.0	8.00	12.0	1.50	20 Core	Figure 3	
ESD-FPL-20-15	33.2	27.0	8.00	15.0	1.50	20 Core	Figure 3	
ESD-FPL-33.5-8	33.5	27.5	6.50	8.0	1.30	20 Core	Figure 3	
ESD-FPL-33.5-10	33.5	27.5	6.50	10.0	1.30	20 Core	Figure 3	
ESD-FPL-33.5-12	33.5	27.5	6.50	12.0	1.30	20 Core	Figure 3	
ESD-FPL-34-15	34.0	30.0	6.00	15.0	0.80	FPC, FFC	Figure 3	
ESD-FPL-35-5	35.0	30.0	8.00	5.0	1.30	22 Core	Figure 3	
ESD-FPL-35-8	35.0	30.0	8.00	8.0	1.30	22 Core	Figure 3	
ESD-FPL-16	37.0	25.4	12.00	12.7	1.90	16 Core	Figure 1	
ESD-FPL-38-12	38.0	34.0	5.00	12.0	0.80	FPC, FFC	Figure 3	
ESD-FPL-38.5-8	38.5	35.0	4.00	8.0	0.80	FPC, FFC	Figure 3	
ESD-FPL-38.5-12	38.5	35.0	4.00	12.0	0.80	FPC, FFC	Figure 3	
ESD-FPL-40-10	40.0	34.8	6.50	10.0	1.30	26 Core	Figure 3	
ESD-FPL-40-12	40.0	34.8	6.50	12.0	1.30	26 Core	Figure 3	
ESD-FPL-40-15	40.0	34.8	6.50	15.0	1.30	26 Core	Figure 3	
ESD-FPL-26	41.2	35.0	7.70	15.0	1.50	26 Core	Figure 3	
ESD-FPL-45.2-8	45.2	40.0	6.50	8.0	1.30	30 Core	Figure 3	
ESD-FPL-45-12	45.2	40.0	6.50	12.0	1.50	30 Core	Figure 3	
ESD-FPL-49.6-12	49.6	44.5	6.50	12.0	1.30	32 Core	Figure 3	
ESD-FPL-57.6-12	57.6	52.0	6.50	12.0	1.30	40 Core	Figure 3	
ESD-FPL-34	60.0	48.5	12.00	12.7	2.20	34 Core	Figure 1	
ESD-FPL-50	80.0	68.6	12.00	12.7	1.90	50 Core	Figure 1	

*Other sizes available. Please contact KEMET.

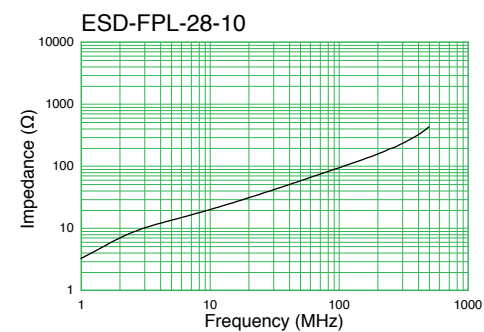
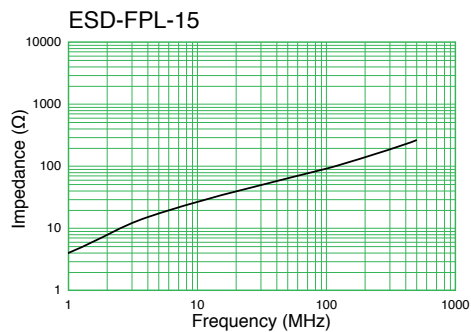
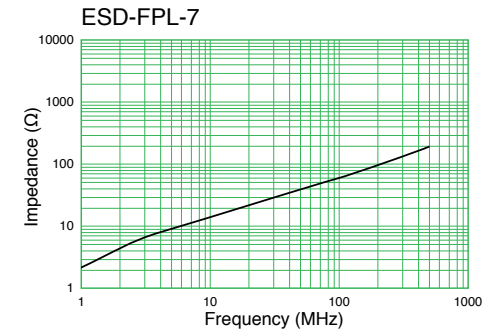
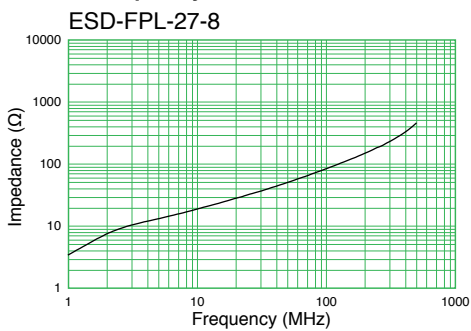
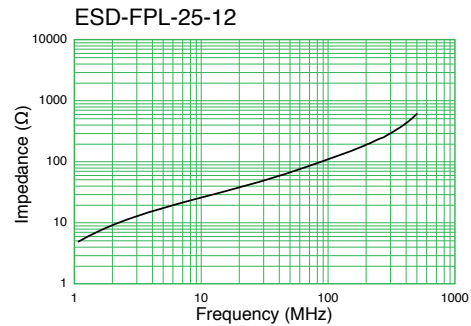
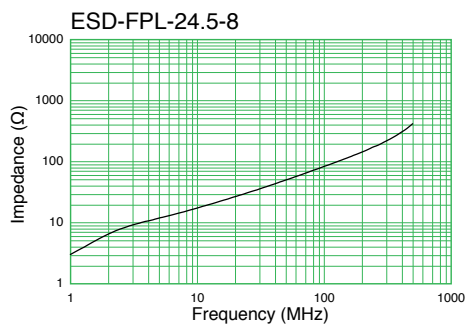
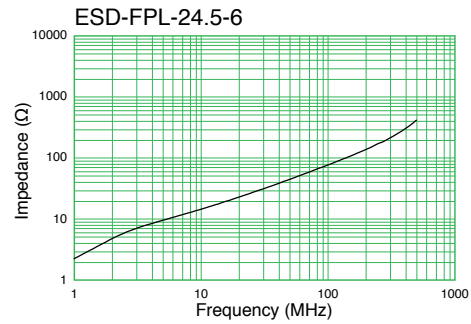
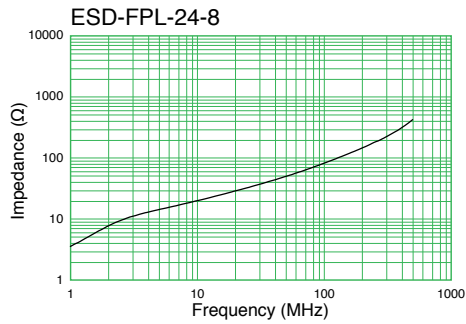
Impedance vs. Frequency



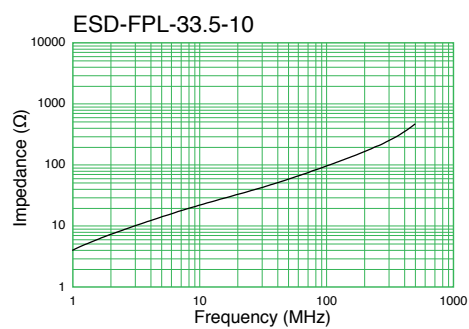
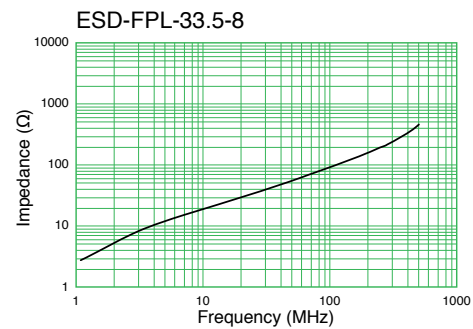
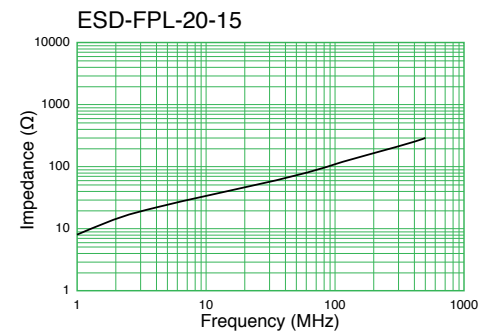
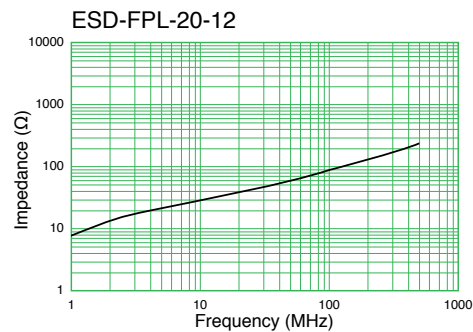
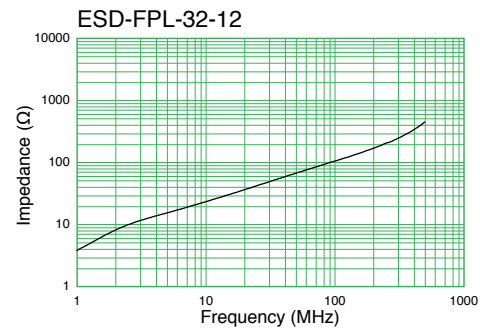
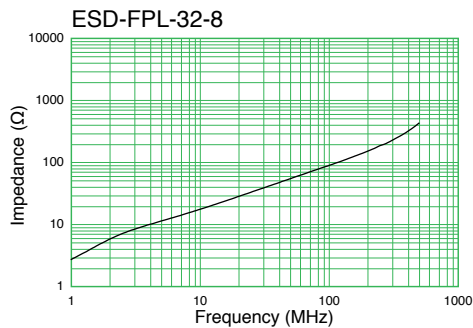
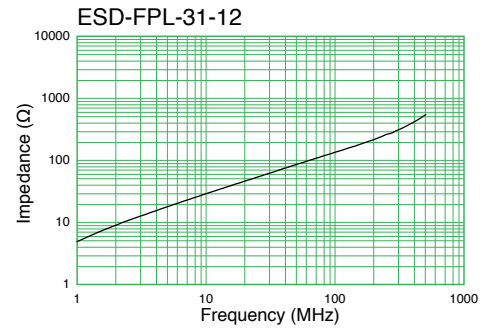
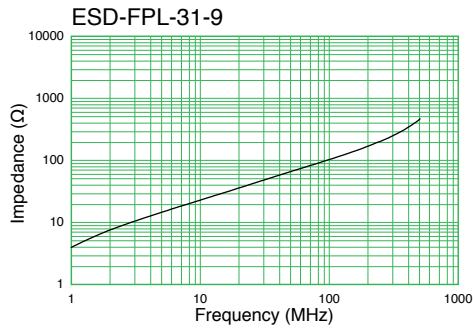
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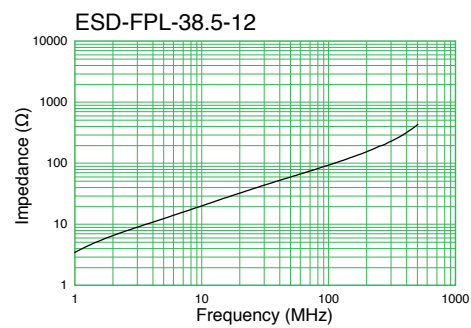
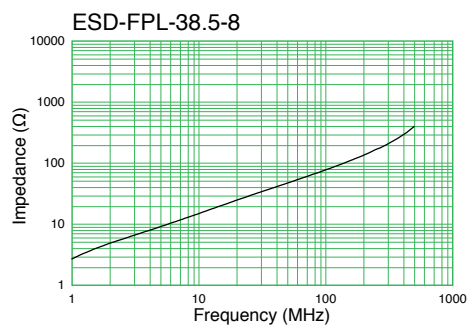
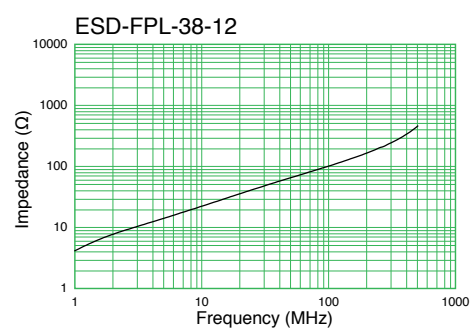
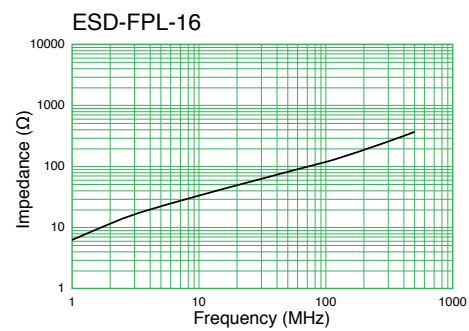
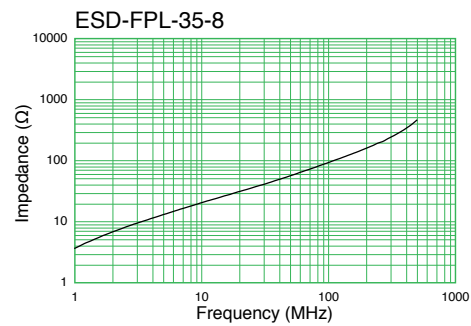
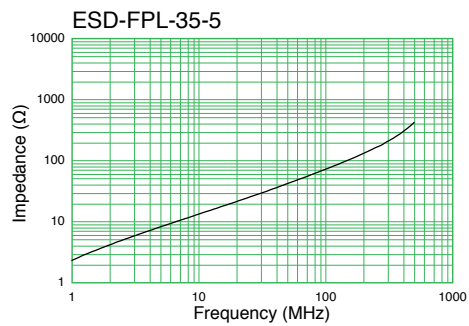
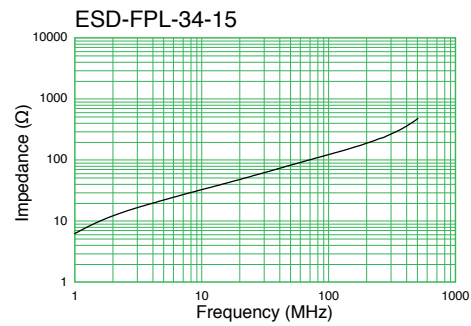
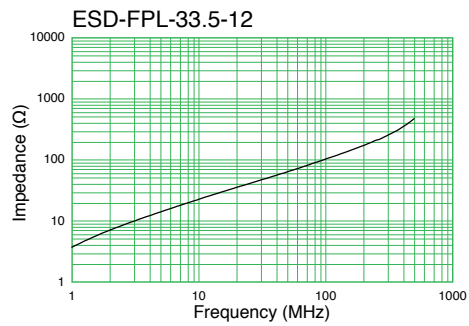
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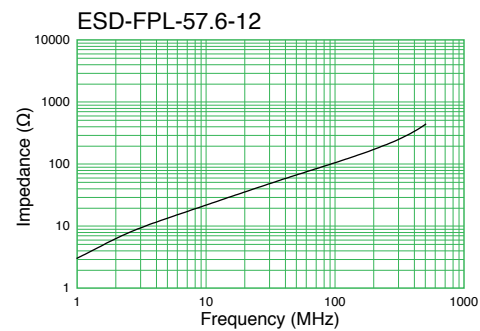
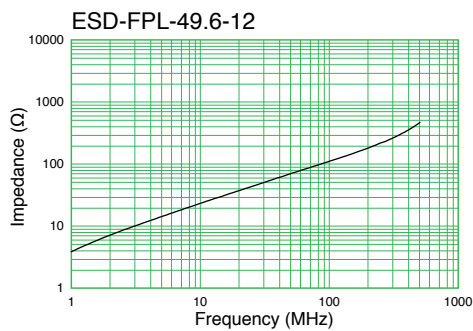
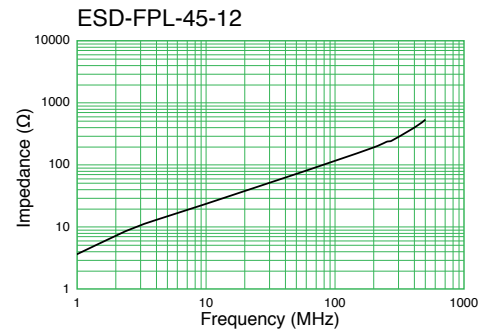
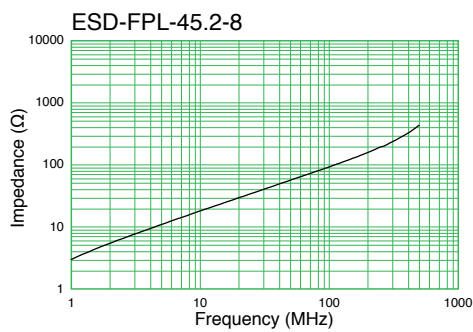
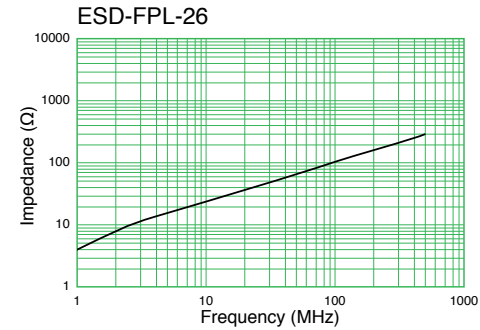
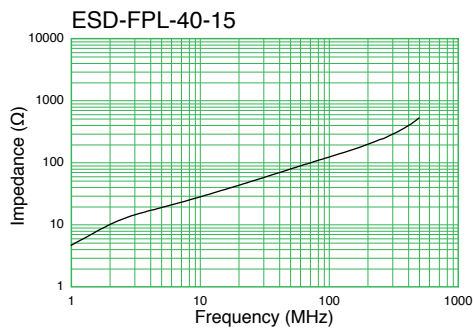
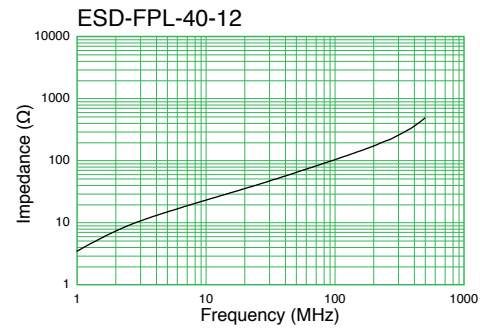
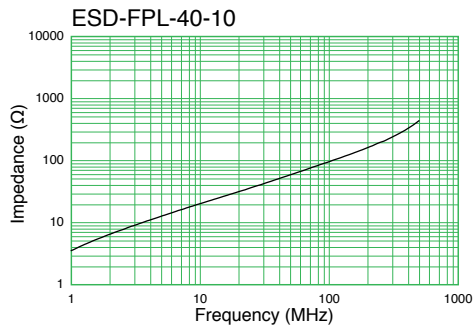
Impedance vs. Frequency Cont'd



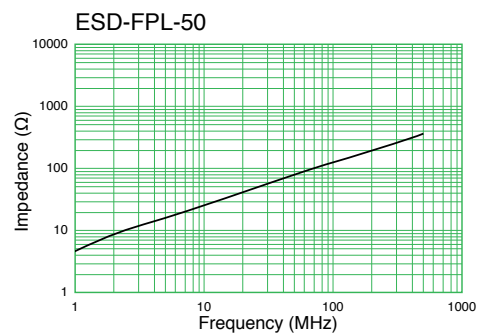
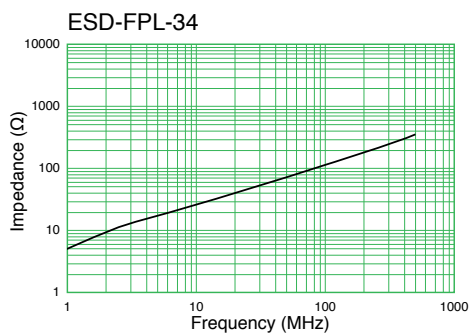
Impedance vs. Frequency Cont'd



Impedance vs. Frequency Cont'd



Impedance vs. Frequency Cont'd



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