SM Beads

Surface mount beads and common-mode surface mount beads are available from Fair-Rite in several sizes. Their rugged construction decreases dc resistance and increases current carrying capacity compared with plated beads.

The Common-Mode surface mount bead provides a common path for the magnetic flux generated by the current to the load and the return current from the load. The current compensation results in zero magnetic flux in the core.

- *12mm taped SM Beads are supplied taped and reeled per EIA Standard 481-1-A and IEC 60286-3. 16mm and 24mm taped SM Beads are supplied taped and reeled per EIA Standard 481-2-A and IEC 60286-3. Taped and reeled parts are supplied on a 13" reel.*
- *Parts can also be supplied not taped and reeled and then are bulk packed. This packing method will change the last digit of the part number to a "6".*
- *The copper conductors have a 300 μinch thickness tin/lead coating.*
- *SM Beads meet the solderability specifications when tested in accordance with MIL-STD-202, method 208. After dipping the mounting side of the bead, the solder surface shall be at least 95% covered with a smooth solder coating. The edges of the copper strip are not specified as solderable surfaces.*
- *After preheating the beads to within 100°C of the soldering temperature, the parts meet the resistance to soldering requirements of EIA-186-10E, temperature 260±5°C and time 10±1 seconds.*
- *Suggested land patterns are in accordance with the recommendations of "Surface Mount Land Patterns (Configuration and Design Rules) ANSI/IPC-SM-782".*
- *SM Beads are controlled for impedance limits only. They are tested for impedance with a single turn, using a Hewlett Packard HP 4191A RF Impedance Analyzer with spring clip fixture HP 16092A.*
- *Recommended storage and operating temperature is –55°C to 125°C.*
- *For impedance vs. frequency curves and DC bias curves for these parts, see Figures 7-21.*
- *The maximum current rating for these beads is 5 amps.*
- *Common-mode beads can withstand a minimum breakdown voltage of 500VDC.*
- *For any SM bead requirement not listed in the catalog, please contact our customer service group for availability and pricing.*
- *The Surface Mount Bead Kit (part number 0199000025) is available for prototype evaluation. See page 92.*

SM Beads

Dimensions (**Bold numbers are in millimeters**, light numbers are nominal in inches.)

Part Number*	Fig.	A	B	C	D	E	Wt (g)	Tape Width mm	Pitch mm	Parts/Reel
2773019447	1	**2.85±0.2** .112	**3.05±0.1** .120	**5.1 - 0.85** .184	**1.5±0.5** .059	–	.15	12	8	2800
2743019447	1	**2.85±0.2** .112	**3.05±0.1** .120	**5.1 - 0.85** .184	**1.5±0.5** .059	–	.15	12	8	2800
2761019447	1	**2.85±0.2** .112	**3.05±0.1** .120	**5.1 - 0.85** .184	**1.5±0.5** .059	–	.15	12	8	2800
2773021447	1	**2.85±0.2** .112	**3.05±0.1** .120	**9.6 - 0.95** .359	**1.5±0.5** .059	–	.30	16	8	2800
2743021447	1	**2.85±0.2** .112	**3.05±0.1** .120	**9.6 - 0.95** .359	**1.5±0.5** .059	–	.30	16	8	2800
2761021447	1	**2.85±0.2** .112	**3.05±0.1** .120	**9.6 - 0.95** .359	**1.5±0.5** .059	–	.30	16	8	2800
2773037447	1	**2.70±0.2** .106	**4.6±0.2** .181	**9.25 - 0.7** .350	**1.4±0.4** .055	–	.45	16	8	2800
2743037447	1	**2.70±0.2** .106	**4.6±0.2** .181	**9.25 - 0.7** .350	**1.4±0.4** .055	–	.45	16	8	2800
2773044447	1	**1.52 Max.** .060 Max.	**3.1±0.1** .122	**5.65±0.45** .222	**1.55±0.5** .061	–	.09	12	8	4500
2744044447	1	**1.52 Max.** .060 Max.	**3.1±0.1** .122	**5.65±0.45** .222	**1.55±0.5** .061	–	.09	12	8	4500
2744041447	2	**2.85±0.2** .112	**5.6±0.2** .220	**5.0 - 0.6** .185	**1.35±0.5** .053	**2.54±0.1** .100	.30	12	8	2400
2744045447	2	**2.85±0.2** .112	**5.6±0.2** .220	**8.9 - 0.8** .335	**1.35±0.5** .053	**2.54±0.1** .100	.53	16	8	2400
2744040447	3	**1.45±0.2** .057	**4.5±0.2** .177	**6.2 - 0.6** .232	**1.4±0.4** .055	**1.27±0.05** .050	.14	12	8	4000
2744051447	4	**4.5 Max.** .177 Max.	**6.65 Max.** .262 Max.	**12.0 Max.** .472 Max.	**2.5±0.5** .098	**3.00±0.1** .120	1.0	24	12	1000
2744555577	5	**5.0 Max.** .197 Max.	**5.00±0.25** .197	**11.0 Max.** .433 Max.	**2.0 Min.** .079 Min.	–	.96	24	12	1500

** Bold part numbers designate preferred parts.*

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SM Beads

Dimensions (**Bold numbers are in millimeters**, light numbers are nominal in inches.)

Part Number*	Typical Impedance(Ω) [1]				Rdc(mΩ)	Land Pattern Dimensions					Z, R_s, X_L vs. Frequency Curve	DC Bias Curve
	10 MHz	25 MHz	100 MHz	250 MHz		V	W (ref.)	X	Y	Z		
2773019447	31	40	–	–	0.6 Max.	**1.0** .040	**4.0** .157	**1.8** .071	**3.0** .118	–	Figure 7A	Figure 7B
2743019447	–	29	47	–	0.6 Max.	**1.0** .040	**4.0** .157	**1.8** .071	**3.0** .118	–	Figure 8A	Figure 8B
2761019447	–	–	38	50	0.6 Max.	**1.0** .040	**4.0** .157	**1.8** .071	**3.0** .118	–	Figure 9A	Figure 9B
2773021447	60	78	–	–	0.9 Max.	**4.5** .177	**7.5** .295	**1.8** .071	**3.0** .118	–	Figure 10A	Figure 10B
2743021447	–	56	95	–	0.9 Max.	**4.5** .177	**7.5** .295	**1.8** .071	**3.0** .118	–	Figure 11A	Figure 11B
2761021447	–	–	75	100	0.9 Max.	**4.5** .177	**7.5** .295	**1.8** .071	**3.0** .118	–	Figure 12A	Figure 12B
2773037447	60	78	–	–	0.7 Max.	**5.0** .197	**8.0** .315	**1.8** .071	**3.0** .118	–	Figure 13A	Figure 13B
2743037447	–	56	95	–	0.7 Max.	**5.0** .197	**8.0** .315	**1.8** .071	**3.0** .118	–	Figure 14A	Figure 14B
2773044447	25	33	–	–	0.8 Max.	**1.5** .059	**4.5** .177	**1.8** .071	**3.0** .118	–	Figure 15A	Figure 15B
2744044447	–	21	36	–	0.8 Max.	**1.5** .059	**4.5** .177	**1.8** .071	**3.0** .118	–	Figure 16A	Figure 16B
2744041447	–	20	33	–	0.8 Max.	**1.0** .040	**4.0** .157	**1.8** .071	**3.0** .118	**2.54** .100	Figure 17A	Figure 17B
2744045447	–	38	60	–	1.2 Max.	**4.0** .158	**7.0** .276	**1.8** .071	**3.0** .118	**2.54** .100	Figure 18A	Figure 18B
2744040447	–	29	56	–	1.4 Max.	**1.8** .071	**4.8** .189	**0.8** .032	**3.0** .118	**1.27** .050	Figure 19A	Figure 19B
2744051447	–	100	230	275 @300MHz	3.0 Max.	**4.0** .158	**9.0** .354	**1.0** .040	**5.0** .197	**3.0** .118	Figure 20A	Figure 20B
2744555577	–	425	600	–	7.5 Max.	**2.0** .079	**7.0** .276	**2.0** .079	**5.0** .197	–	Figure 21A	Figure 21B

** Bold part numbers designate preferred parts.*

[1] Guaranteed Z Min is Z Typ -20%

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SM Beads

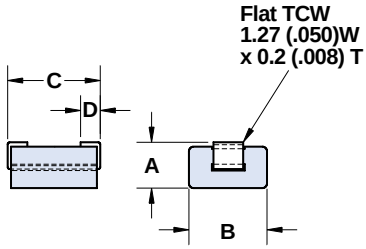
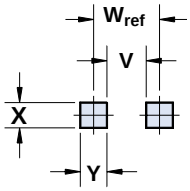


Figure 1



Land Pattern
for Fig. 1

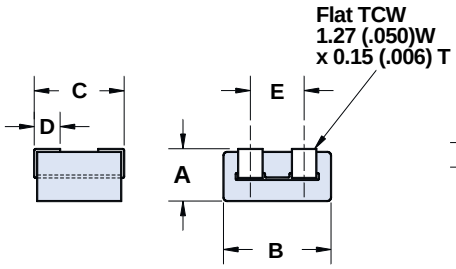
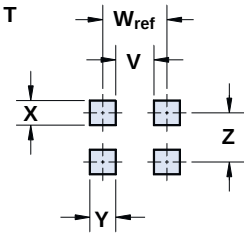
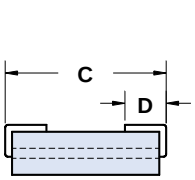


Figure 2
Common-Mode Bead



Land Pattern
for Fig. 2
E = Z



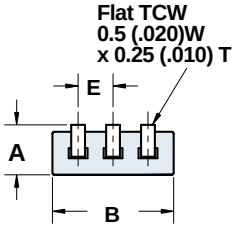
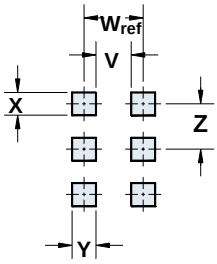


Figure 3



Land Pattern
for Fig. 3
E = Z

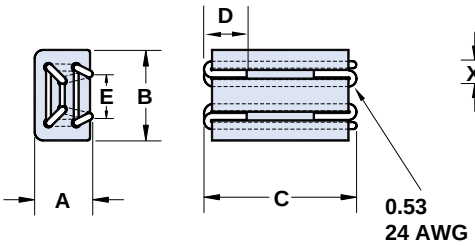
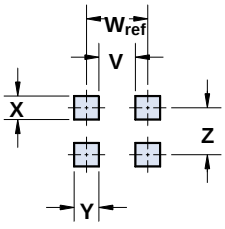


Figure 4
Common-Mode Bead



Land Pattern
for Fig. 4
E = Z

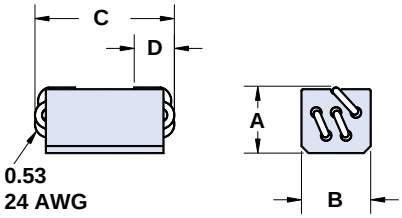
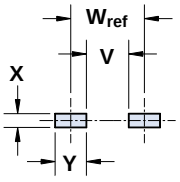


Figure 5



Land Pattern
for Fig. 5

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SM Beads

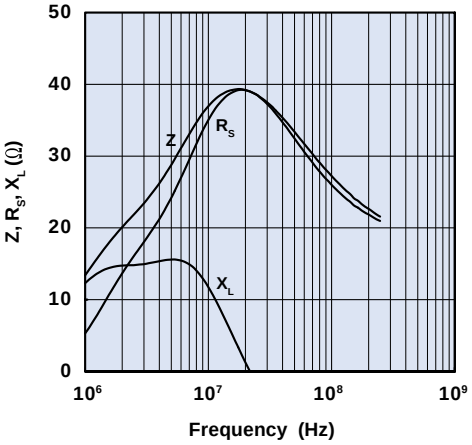

Figure 7A Impedance, reactance, and resistance vs. frequency for SM bead 2773019447.

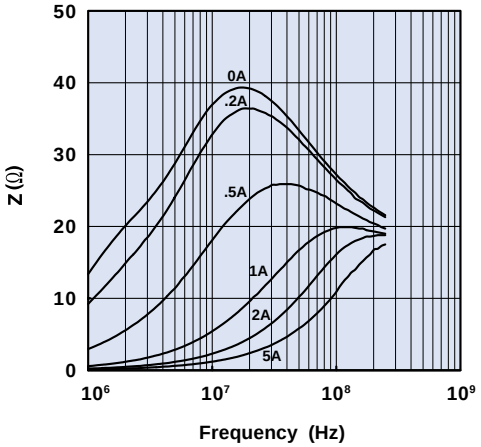

Figure 7B Impedance vs. frequency with dc bias as parameter for SM bead 2773019447.

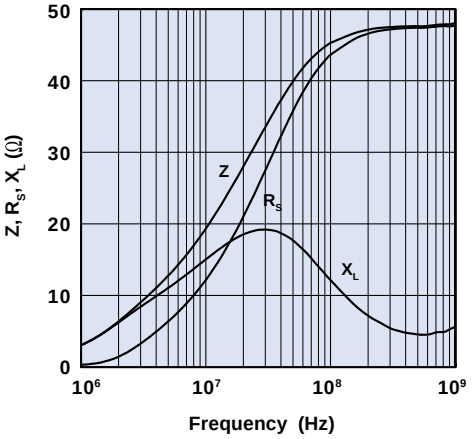

Figure 8A Impedance, reactance, and resistance vs. frequency for SM bead 2743019447.

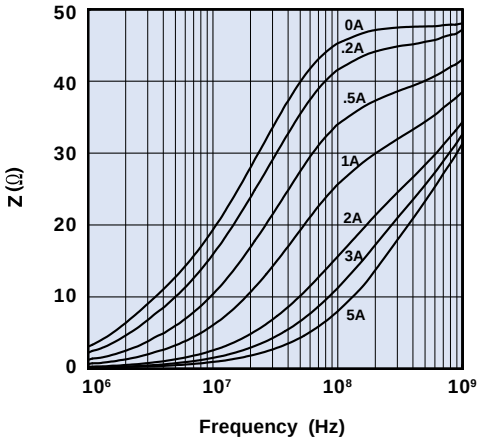

Figure 8B Impedance vs. frequency with dc bias as parameter for SM bead 2743019447.

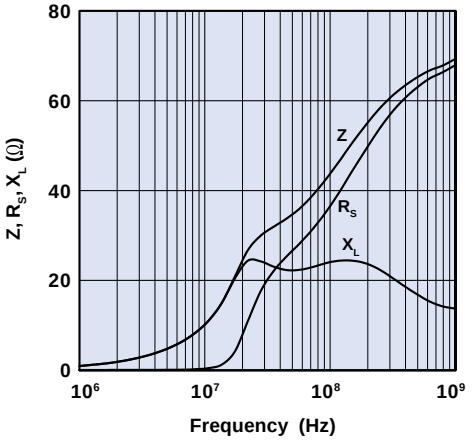

Figure 9A Impedance, reactance, and resistance vs. frequency for SM bead 2761019447.

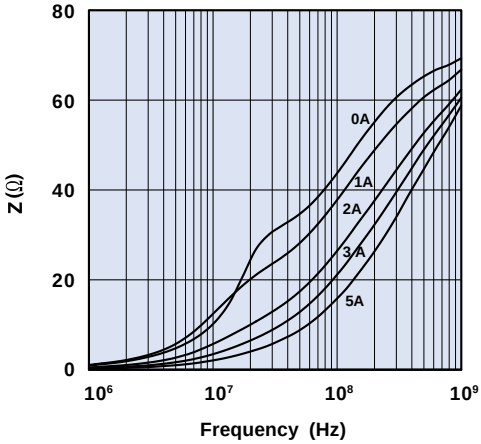

Figure 9B Impedance vs. frequency with dc bias as parameter for SM bead 2761019447.

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SM Beads

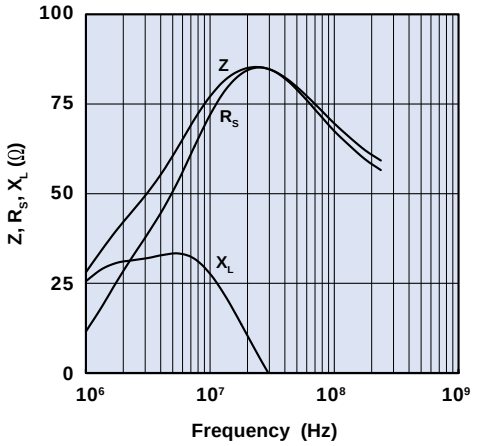

Figure 10A Impedance, reactance, and resistance vs. frequency for SM bead 2773021447.

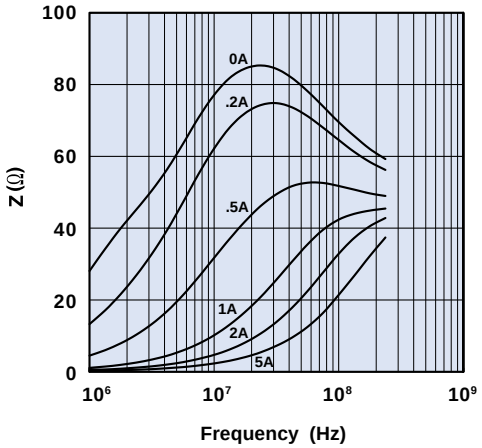

Figure 10B Impedance vs. frequency with dc bias as parameter for SM bead 2773021447.

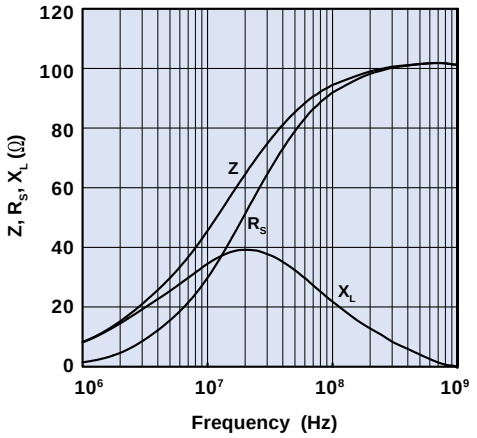

Figure 11A Impedance, reactance, and resistance vs. frequency for SM bead 2743021447.

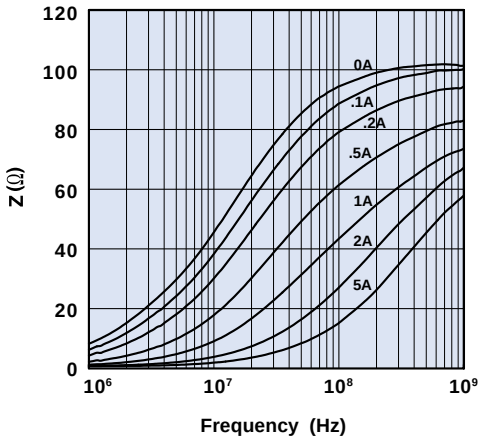

Figure 11B Impedance vs. frequency with dc bias as parameter for SM bead 2743021447.

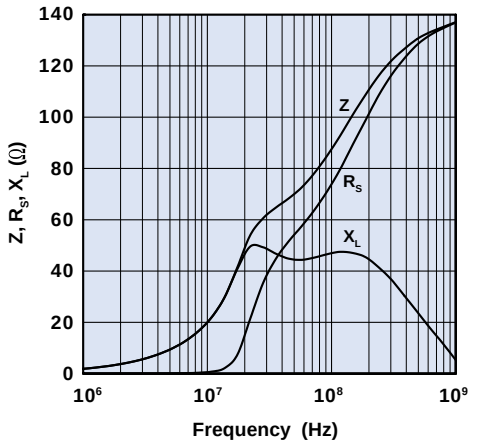

Figure 12A Impedance, reactance, and resistance vs. frequency for SM bead 2761021447.

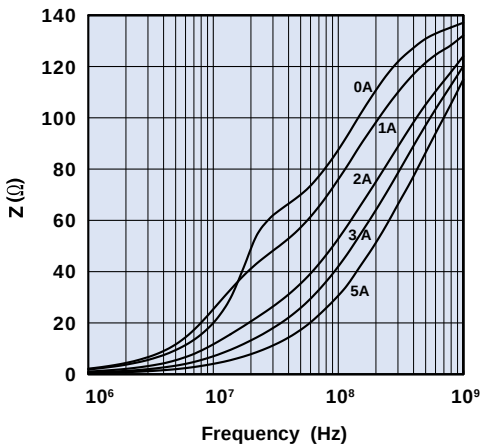

Figure 12B Impedance vs. frequency with dc bias as parameter for SM bead 2761021447.

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SM Beads

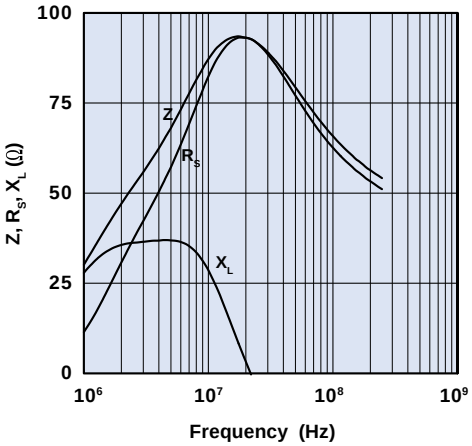

Figure 13A Impedance, reactance, and resistance vs. frequency for SM bead 2773037447.

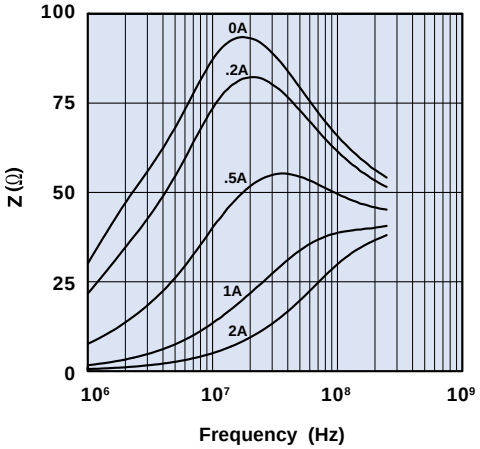

Figure 13B Impedance vs. frequency with dc bias as parameter for SM bead 2773037447.

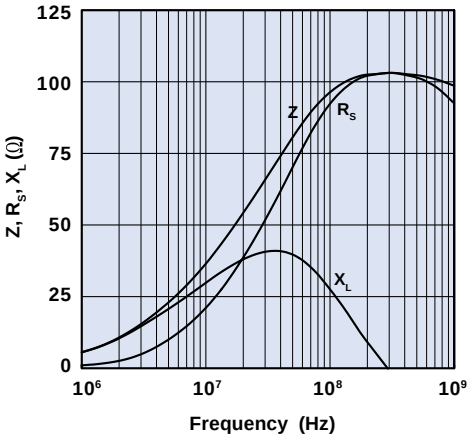

Figure 14A Impedance, reactance, and resistance vs. frequency for SM bead 2743037447.

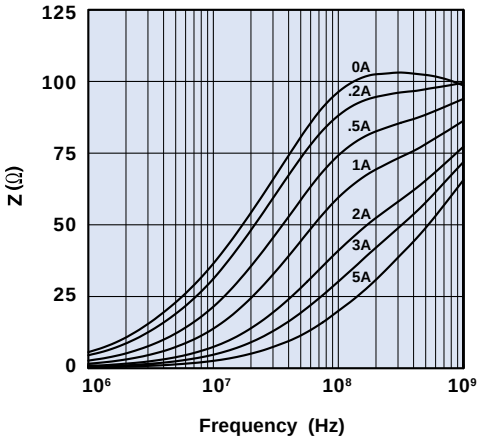

Figure 14B Impedance vs. frequency with dc bias as parameter for SM bead 2743037447.

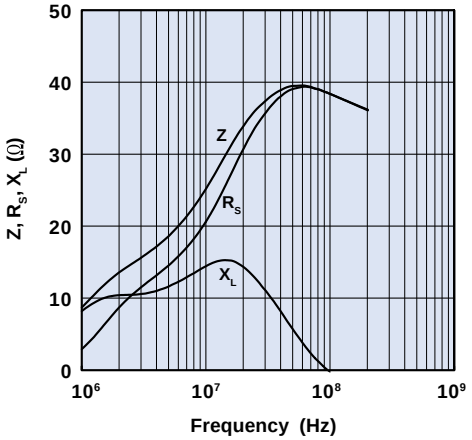

Figure 15A Impedance, reactance, and resistance vs. frequency for SM bead 2773044447.

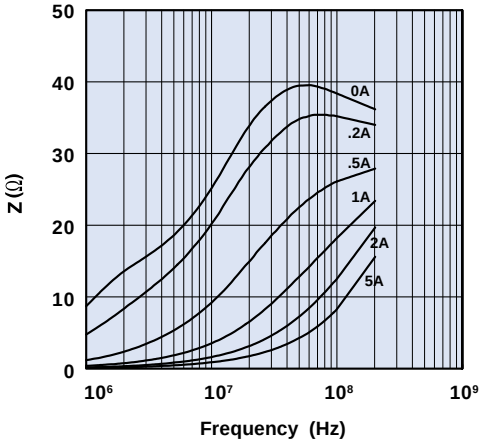

Figure 15B Impedance vs. frequency with dc bias as parameter for SM bead 2773044447.

SM Beads

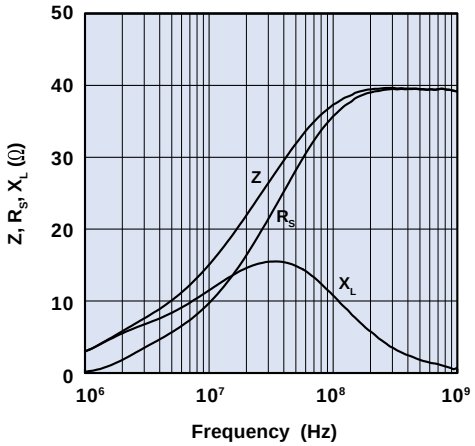

Figure 16A Impedance, reactance, and resistance vs. frequency for SM bead 2744044447.

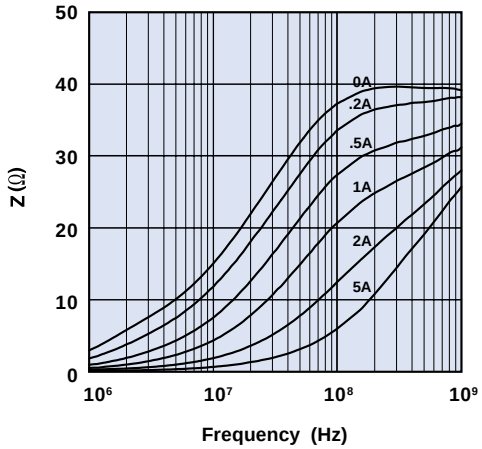

Figure 16B Impedance vs. frequency with dc bias as parameter for SM bead 2744044447.

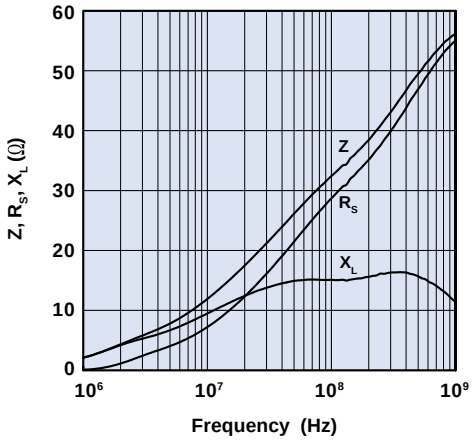

Figure 17A Impedance, reactance, and resistance vs. frequency for SM bead 2744041447.

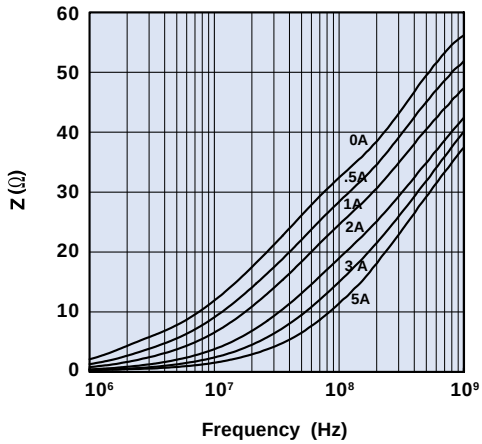

Figure 17B Impedance vs. frequency with dc bias as parameter for SM bead 2744041447.

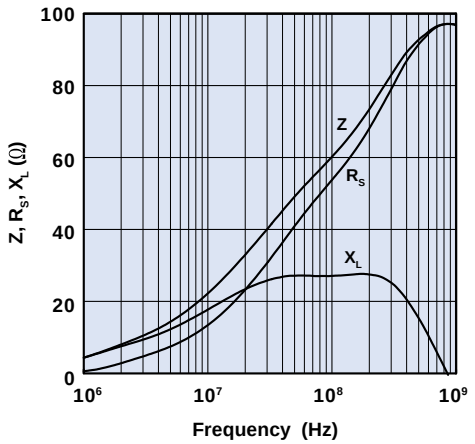

Figure 18A Impedance, reactance, and resistance vs. frequency for SM bead 2744045447.

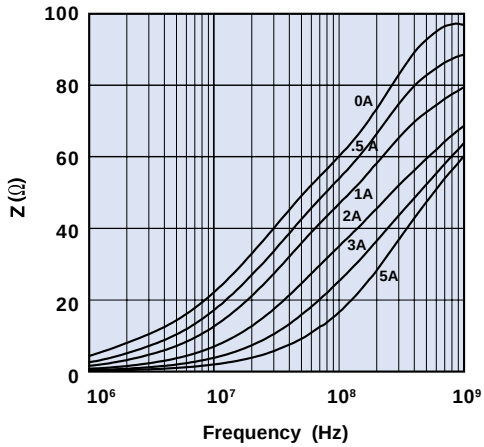

Figure 18B Impedance vs. frequency with dc bias as parameter for SM bead 2744045447.

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SM Beads

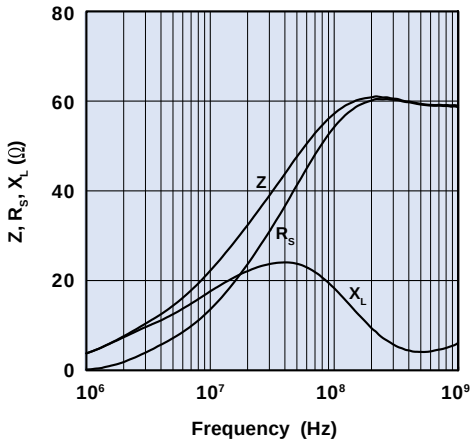

Figure 19A Impedance, reactance, and resistance vs. frequency for SM bead 2744040447.

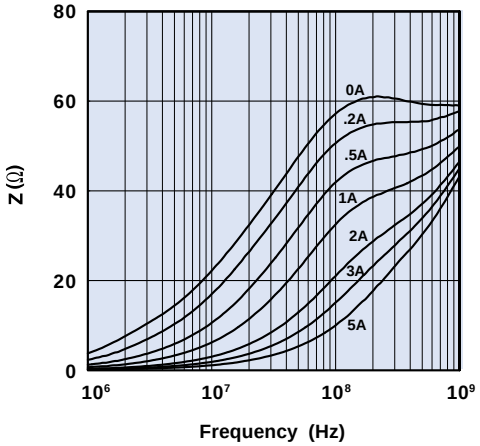

Figure 19B Impedance vs. frequency with dc bias as parameter for SM bead 2744040447.

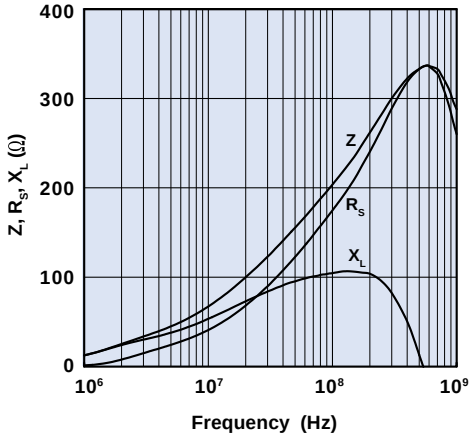

Figure 20A Impedance, reactance, and resistance vs. frequency for SM bead 2744051447.

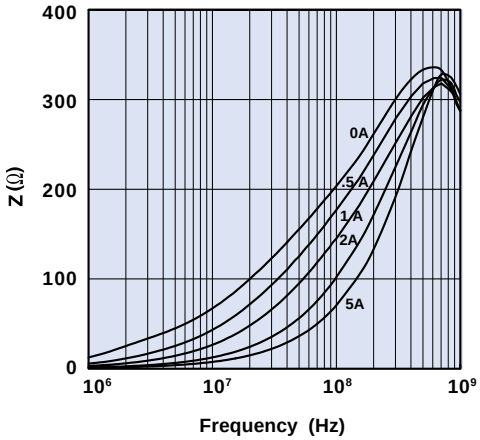

Figure 20B Impedance vs. frequency with dc bias as parameter for SM bead 2744051447.

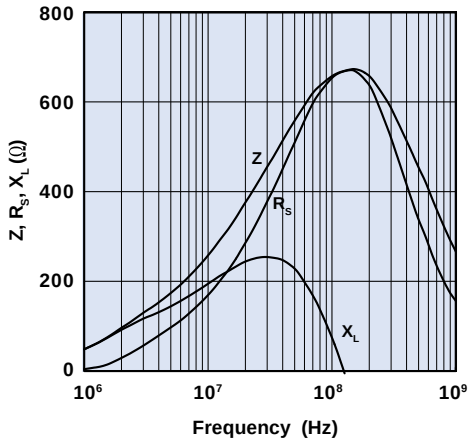

Figure 21A Impedance, reactance, and resistance vs. frequency for SM bead 2744555577.

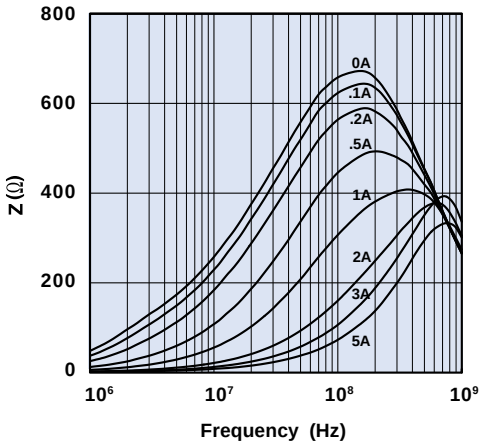

Figure 21B Impedance vs. frequency with dc bias as parameter for SM bead 2744555577.