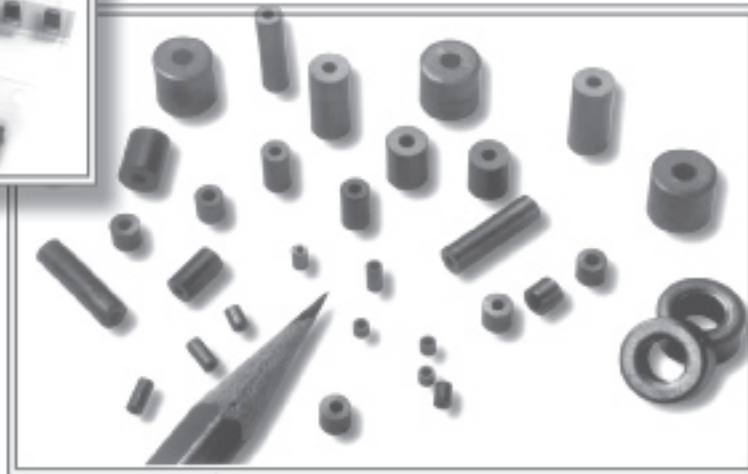


# Board Components



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# Engineering Kits

## Expanded Cable & Suppressor Kit

*Part Number 0199000005*

This is our most popular engineering kit. As the name implies, this kit contains a broad sampling of suppression cores to reduce conducted EMI over wires and cables.

## Chip Bead Kit

*Part Number 0199000018*

The chip bead kit has a number of different EIA size chip components with a range of impedance values and signal speeds. Also one of our chip arrays is included in this kit. Parts are RoHS compliant.

## Shield Bead Kit

*Part Number 0199000019*

The shield bead kit has 28 different beads in three suppression materials, 73, 43, and 61.

## Antenna/RFID Kit

*Part Number 0199000024*

The kit contains a range of rods in three low losses, high Q, materials, 78, 61 and 67, to cover frequencies from 10 kHz to 50 MHz.

## Surface Mount Bead Kit

*Part Number 0199000025*

An assortment of surface mount beads for differential and common-mode applications in 73 material for < 50 MHz, 43/44 material for 25-300 MHz and 52/61 material for 250-1000 MHz frequencies. Parts are RoHS compliant.

## Wound Bead Kit

*Part Number 0199000027*

The wound bead kit has twelve wound beads in two suppression materials, 44 and 61, wound in several winding configurations. Parts are RoHS compliant.

## Bead-On-Lead Kit

*Part Number 0199000028*

This bead-on-lead kit has three parts each in three materials, 73, 43 and 61, for through hole applications. Parts are RoHS compliant.

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# Engineering Kits

## Rod Kit (52 Matl)

Part Number 0199000029

A new rod kit in the new 52 material. Samples of seven sizes intended for open circuit applications that require a ferrite material with high saturation and Curie temperature.

## 31 Snap-It Kit

Part Number 0199000030

This 31 material snap-it kit has a range parts for different cable diameters. Suggested operating frequency 1-300 MHz.

## 43 Snap-It Kit

Part Number 0199000031

Snap-it assemblies suitable for the 25-300 MHz frequency range. Can accommodate cable diameters from .250 to .590 inches.

## 46 Core and Snap-It Kit

Part Number 0199000032

This kit has a selection of cable cores and snap-its in our new economical 46 material. This material has similar performance as our 43/44 grade materials over the 25-300 MHz frequency range.

## 61 Snap-It Kit

Part Number 0199000033

Our recommendation for suppressing conducted EMI in 200-1000 MHz is the 61 material. This kit has a selection of 61 snap-its.

## Chip Inductor Kit

Part Number 0199000035

The chip inductor kit has several EIA sizes in both ferrite and ceramic chip inductors. Parts are RoHS compliant.

## Multi-Aperture Core Kit

Part Number 0199000036

Kit contains several sizes in four materials, 73, 43, 61 and 67. This allows experimentation from a few kHz into the 50-100 MHz range.

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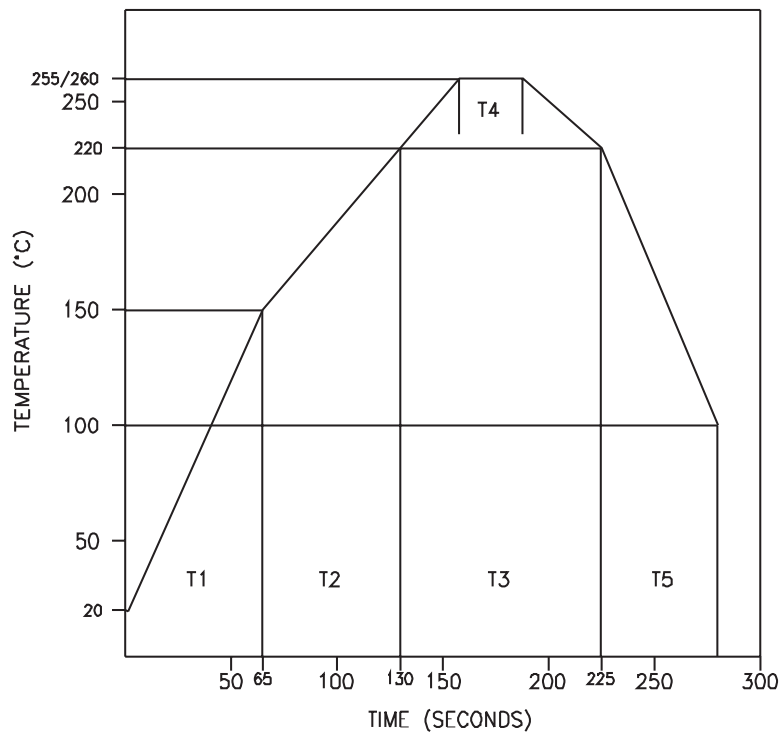
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# Solder Profile

## REFLOW SOLDER PROFILE FOR LEAD-FREE COMPONENTS



|                         |                    |
|-------------------------|--------------------|
| T1 - Pre Heat           | 50 - 80 Seconds    |
| T2 - Soak Time          | 60 - 90 Seconds    |
| T3 - Time Above 220°C   | 60 - 150 Seconds   |
| T4 - Reflow Solder Time | 20 - 40 Seconds    |
| T5 - Cool Down          | 40 Seconds Minimum |

Times might be adjusted to accommodate component size

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# PC Beads (Surface Mount)

Surface mount PC Beads are supplied in two suppression materials. SMPC Beads are available for 3, 4 and 5 line designs in the high resistivity 44 material for broadband applications and for the higher frequencies in the new 52 material grade.

Surface mount PC Beads are supplied taped and reeled on 13" reels per EIA 481 and IEC 60286 standards. These beads 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 flat wire conductors are oxygen free high conductivity copper, 0.30 x 0.65 mm (.012 x .025"), and a lead-free tin coating. If required SMPC Beads can be supplied with same size copper conductors but with a tin/lead coating. See page 28 for suggested solder profile for lead-free components
- The SMPC Beads can withstand a minimum breakdown voltage of 750 Vdc between wires. Leads co-planarity is < 0.10 mm (.004").
- SMPC Beads are controlled for impedance only. The impedances listed are typical values. Minimum impedance values are specified for the + marked frequencies.  
The minimum guaranteed impedance is the listed impedance less 20%.  
The 44 material beads are measured on the 4193A vector Impedance Analyzer. The 52 beads are tested for impedance on the 4191A RF Impedance Analyzer.
- SMPC Beads meet the solderability specifications when tested in accordance with MIL-STD-202, method 208.
- After preheating the SMPC Beads to within 100 °C of the soldering temperature, the beads will meet the resistance to soldering requirements of EIA-186-10E, temperature 260 +/- 5 °C and time of 10 +/- 1 seconds.
- Recommended storage and operating temperature range is -55 °C to 125 °C.
- Suggested land patterns are in accordance with the latest revision of IPC-7351.
- The maximum current rating for the SMPC Beads is 5 amps. The flat wire cross-sectional area is 5% less than the 24 AWG wire size.
- For equivalent PC Beads for through hole designs see pages 36 and 37.
- Performance curves of all SMPC Beads are compiled on the Fair-rite Products CD-ROM.
- Explanation of Part Numbers: Digits 1&2 = product class, 3&4 = material grade, last digit 6 = bulk packed, 7 = taped and reeled.

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# PC Beads (Surface Mount)

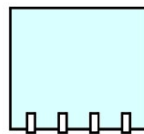
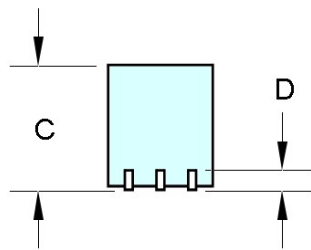
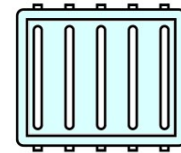
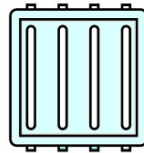
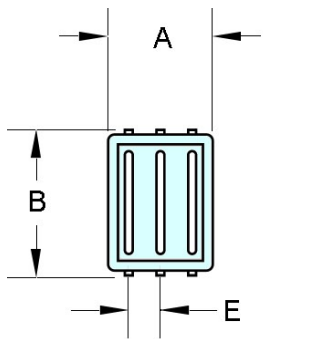
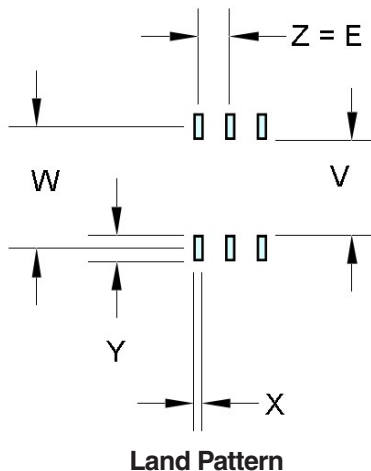


Figure 1

Figure 2

Figure 3



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# PC Beads (Surface Mount)

## Broadband Frequencies 10-300 MHz (44 material)

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

| Part Number | Fig. | A                         | B max               | C max               | D                      | E                       | Wt (g) | Tape Width mm | Pitch mm | Parts/Reel |
|-------------|------|---------------------------|---------------------|---------------------|------------------------|-------------------------|--------|---------------|----------|------------|
| 2744776147  | 1    | <b>8.0 - 0.35</b><br>.308 | <b>8.6</b><br>.338  | <b>11.8</b><br>.464 | <b>2.6±0.6</b><br>.102 | <b>2.54±0.1</b><br>.100 | 2.6    | 24            | 16       | 300        |
| 2744786147  | 1    | <b>8.0 - 0.35</b><br>.308 | <b>8.6</b><br>.338  | <b>7.0</b><br>.275  | <b>2.6±0.6</b><br>.102 | <b>2.54±0.1</b><br>.100 | 1.5    | 24            | 16       | 600        |
| 2744778147  | 2    | <b>11.2 - 0.5</b><br>.430 | <b>6.75</b><br>.265 | <b>11.8</b><br>.464 | <b>2.6±0.6</b><br>.102 | <b>2.54±0.1</b><br>.100 | 2.7    | 16            | 20       | 250        |
| 2744788147  | 2    | <b>11.2 - 0.5</b><br>.430 | <b>6.75</b><br>.265 | <b>7.0</b><br>.275  | <b>2.6±0.6</b><br>.102 | <b>2.54±0.1</b><br>.100 | 1.6    | 16            | 20       | 500        |
| 2744778347  | 2    | <b>11.2 - 0.5</b><br>.430 | <b>12.2</b><br>.480 | <b>11.8</b><br>.464 | <b>2.6±0.6</b><br>.102 | <b>2.54±0.1</b><br>.100 | 7.0    | 24            | 20       | 250        |
| 2744788347  | 2    | <b>11.2 - 0.5</b><br>.430 | <b>12.2</b><br>.480 | <b>7.0</b><br>.275  | <b>2.6±0.6</b><br>.102 | <b>2.54±0.1</b><br>.100 | 3.5    | 24            | 20       | 500        |
| 2744770347  | 3    | <b>13.45±0.25</b><br>.530 | <b>12.2</b><br>.480 | <b>11.8</b><br>.464 | <b>2.6±0.6</b><br>.102 | <b>2.54±0.1</b><br>.100 | 7.4    | 24            | 24       | 200        |
| 2744780347  | 3    | <b>13.45±0.25</b><br>.530 | <b>12.2</b><br>.480 | <b>7.0</b><br>.275  | <b>2.6±0.6</b><br>.102 | <b>2.54±0.1</b><br>.100 | 4.4    | 24            | 24       | 450        |

## Higher Frequencies 250-1000 MHz (52 material)

| Part Number | Fig. | A                         | B max               | C max               | D                      | E                       | Wt (g) | Tape Width mm | Pitch mm | Parts/Reel |
|-------------|------|---------------------------|---------------------|---------------------|------------------------|-------------------------|--------|---------------|----------|------------|
| 2752776147  | 1    | <b>8.0 - 0.35</b><br>.308 | <b>8.6</b><br>.338  | <b>11.8</b><br>.464 | <b>2.6±0.6</b><br>.102 | <b>2.54±0.1</b><br>.100 | 2.6    | 24            | 16       | 300        |
| 2752786147  | 1    | <b>8.0 - 0.35</b><br>.308 | <b>8.6</b><br>.338  | <b>7.0</b><br>.275  | <b>2.6±0.6</b><br>.102 | <b>2.54±0.1</b><br>.100 | 1.5    | 24            | 16       | 600        |
| 2752778147  | 2    | <b>11.2 - 0.5</b><br>.430 | <b>6.75</b><br>.265 | <b>11.8</b><br>.464 | <b>2.6±0.6</b><br>.102 | <b>2.54±0.1</b><br>.100 | 2.7    | 16            | 20       | 250        |
| 2752788147  | 2    | <b>11.2 - 0.5</b><br>.430 | <b>6.75</b><br>.265 | <b>7.0</b><br>.275  | <b>2.6±0.6</b><br>.102 | <b>2.54±0.1</b><br>.100 | 1.6    | 16            | 20       | 500        |
| 2752778347  | 2    | <b>11.2 - 0.5</b><br>.430 | <b>12.2</b><br>.480 | <b>11.8</b><br>.464 | <b>2.6±0.6</b><br>.102 | <b>2.54±0.1</b><br>.100 | 7.0    | 24            | 20       | 250        |
| 2752788347  | 2    | <b>11.2 - 0.5</b><br>.430 | <b>12.2</b><br>.480 | <b>7.0</b><br>.275  | <b>2.6±0.6</b><br>.102 | <b>2.54±0.1</b><br>.100 | 3.5    | 24            | 20       | 500        |
| 2752770347  | 3    | <b>13.45±0.25</b><br>.530 | <b>12.2</b><br>.480 | <b>11.8</b><br>.464 | <b>2.6±0.6</b><br>.102 | <b>2.54±0.1</b><br>.100 | 7.4    | 24            | 24       | 200        |
| 2752780347  | 3    | <b>13.45±0.25</b><br>.530 | <b>12.2</b><br>.480 | <b>7.0</b><br>.275  | <b>2.6±0.6</b><br>.102 | <b>2.54±0.1</b><br>.100 | 4.4    | 24            | 24       | 450        |

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# PC Beads (Surface Mount)

## Broadband Frequencies 10-300 MHz (44 material)

| Part Number | Typical Impedance( $\Omega$ ) |                     |                      |         | Max Rdc(m $\Omega$ ) | Land Pattern Dimensions |             |             |             |              |
|-------------|-------------------------------|---------------------|----------------------|---------|----------------------|-------------------------|-------------|-------------|-------------|--------------|
|             | 10 MHz                        | 25 MHz <sup>+</sup> | 100 MHz <sup>+</sup> | 250 MHz |                      | V                       | W (ref.)    | X           | Y           | Z            |
| 2744776147  | 115                           | 188                 | 288                  | 305     | 3.0                  | 2.0<br>.079             | 6.0<br>.236 | 1.0<br>.039 | 4.0<br>.158 | 2.54<br>.100 |
| 2744786147  | 66                            | 95                  | 150                  | 155     | 1.9                  | 2.0<br>.079             | 6.0<br>.236 | 1.0<br>.039 | 4.0<br>.158 | 2.54<br>.100 |
| 2744778147  | 115                           | 188                 | 288                  | 305     | 3.0                  | 2.0<br>.079             | 5.0<br>.197 | 1.0<br>.039 | 3.0<br>.118 | 2.54<br>.100 |
| 2744788147  | 66                            | 95                  | 150                  | 155     | 1.9                  | 2.0<br>.079             | 5.0<br>.197 | 1.0<br>.039 | 3.0<br>.118 | 2.54<br>.100 |
| 2744778347  | 142                           | 219                 | 338                  | 335     | 3.5                  | 5.0<br>.197             | 9.5<br>.374 | 1.0<br>.039 | 4.5<br>.177 | 2.54<br>.100 |
| 2744788347  | 76                            | 110                 | 175                  | 180     | 2.4                  | 5.0<br>.197             | 9.5<br>.374 | 1.0<br>.039 | 4.5<br>.177 | 2.54<br>.100 |
| 2744770347  | 142                           | 219                 | 338                  | 335     | 3.5                  | 5.0<br>.197             | 9.5<br>.374 | 1.0<br>.039 | 4.5<br>.177 | 2.54<br>.100 |
| 2744780347  | 76                            | 110                 | 175                  | 180     | 2.4                  | 5.0<br>.197             | 9.5<br>.374 | 1.0<br>.039 | 4.5<br>.177 | 2.54<br>.100 |

## Higher Frequencies 250-1000 MHz (52 material)

| Part Number | Typical Impedance( $\Omega$ ) |                      |                      |          | Max Rdc(m $\Omega$ ) | Land Pattern Dimensions |             |             |             |              |
|-------------|-------------------------------|----------------------|----------------------|----------|----------------------|-------------------------|-------------|-------------|-------------|--------------|
|             | 100 MHz                       | 250 MHz <sup>+</sup> | 500 MHz <sup>+</sup> | 1000 MHz |                      | V                       | W (ref.)    | X           | Y           | Z            |
| 2752776147  | 270                           | 380                  | 345                  | 250      | 3.0                  | 2.0<br>.079             | 6.0<br>.236 | 1.0<br>.039 | 4.0<br>.158 | 2.54<br>.100 |
| 2752786147  | 125                           | 180                  | 180                  | 170      | 1.9                  | 2.0<br>.079             | 6.0<br>.236 | 1.0<br>.039 | 4.0<br>.158 | 2.54<br>.100 |
| 2752778147  | 270                           | 380                  | 345                  | 250      | 3.0                  | 2.0<br>.079             | 5.0<br>.197 | 1.0<br>.039 | 3.0<br>.118 | 2.54<br>.100 |
| 2752788147  | 125                           | 180                  | 180                  | 175      | 1.9                  | 2.0<br>.079             | 5.0<br>.197 | 1.0<br>.039 | 3.0<br>.118 | 2.54<br>.100 |
| 2752778347  | 320                           | 460                  | 395                  | 300      | 3.5                  | 5.0<br>.197             | 9.5<br>.374 | 1.0<br>.039 | 4.5<br>.177 | 2.54<br>.100 |
| 2752788347  | 150                           | 220                  | 220                  | 210      | 2.4                  | 5.0<br>.197             | 9.5<br>.374 | 1.0<br>.039 | 4.5<br>.177 | 2.54<br>.100 |
| 2752770347  | 320                           | 460                  | 395                  | 300      | 3.5                  | 5.0<br>.197             | 9.5<br>.374 | 1.0<br>.039 | 4.5<br>.177 | 2.54<br>.100 |
| 2752780347  | 150                           | 220                  | 220                  | 210      | 2.4                  | 5.0<br>.197             | 9.5<br>.374 | 1.0<br>.039 | 4.5<br>.177 | 2.54<br>.100 |

<sup>+</sup> Test frequency

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# SM Beads (Differential-Mode)

**Surface mount beads are available from Fair-Rite in several materials and sizes. Their rugged construction lowers the dc resistance and increases current carrying capacity compared to plated beads.**

- SM Beads on 12mm tape width are supplied taped and reeled per EIA 481-1 and IEC 60286-3 standards. SM Beads on 16 and 24mm tape widths are supplied taped and reeled per EIA 481-2 and IEC 60286-3 standards. Taped and reeled parts are supplied on a 13" reel.
- SM Beads 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 lead-free tin coating. If required SM Beads can be supplied with copper conductors having a tin/lead coating. See page 28 for suggested solder profile for lead-free components.
- SM Beads meet the solderability specifications when tested in accordance with MIL-STD-202, method 208. After dipping the mounting site 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 latest revision of IPC-7351.
- SM Beads are controlled for impedance limits only. The impedances listed are typical values. Minimum impedance values are specified for the + marked frequencies.  
The minimum guaranteed impedance is the listed value less 20%.  
SM Beads in 73, 43 and 44 materials are measured for impedance on the 4193 Vector Impedance Analyzer. The 52 and 61 SM Beads are tested for impedance on the 4191A RF Impedance Analyzer.
- Recommended storage and operation temperature is -55 °C to 125 °C.
- The maximum current rating for these SM Beads is 5 amps.
- Performance curves of all the SM Beads are compiled on the Fair-Rite Products CD-ROM.
- For any SM Bead requirement not listed, please contact our customer service group for availability and pricing.
- Our "Surface Mount Bead Kit" (part number 0199000025) is available for prototype evaluation. See page 67.
- Explanation of Part Numbers: Digits 1&2 = product class, 3&4 = material grade, last digit 6 = bulk packed, 7 = taped and reeled.

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# SM Beads (Differential-Mode)

## Lower Frequencies < 50 MHz (73 material)

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    | <b>2.85±0.2</b><br>.112       | <b>3.05±0.1</b><br>.120 | <b>5.1 - 0.85</b><br>.184 | <b>1.5±0.5</b><br>.059  | — | .15    | 12            | 8        | 2800       |
| 2773021447  | 1    | <b>2.85±0.2</b><br>.112       | <b>3.05±0.1</b><br>.120 | <b>9.6 - 0.95</b><br>.359 | <b>1.5±0.5</b><br>.059  | — | .30    | 16            | 8        | 2800       |
| 2773037447  | 1    | <b>2.70±0.2</b><br>.106       | <b>4.6±0.2</b><br>.181  | <b>9.25 - 0.7</b><br>.350 | <b>1.4±0.4</b><br>.055  | — | .45    | 16            | 8        | 2800       |
| 2773044447  | 1    | <b>1.75 Max.</b><br>.068 Max. | <b>3.1±0.1</b><br>.122  | <b>5.65±0.45</b><br>.222  | <b>1.55±0.5</b><br>.061 | — | .09    | 12            | 8        | 4500       |

## Broadband Frequencies 25-300 MHz (43 & 44 material)

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 |
|-------------|------|-------------------------------|--------------------------|-------------------------------|-------------------------|--------------------------|--------|---------------|----------|------------|
| 2743019447  | 1    | <b>2.85±0.2</b><br>.112       | <b>3.05±0.1</b><br>.120  | <b>5.1 - 0.85</b><br>.184     | <b>1.5±0.5</b><br>.059  | —                        | .15    | 12            | 8        | 2800       |
| 2743021447  | 1    | <b>2.85±0.2</b><br>.112       | <b>3.05±0.1</b><br>.120  | <b>9.6 - 0.95</b><br>.359     | <b>1.5±0.5</b><br>.059  | —                        | .30    | 16            | 8        | 2800       |
| 2743037447  | 1    | <b>2.70±0.2</b><br>.106       | <b>4.6±0.2</b><br>.181   | <b>9.25 - 0.7</b><br>.350     | <b>1.4±0.4</b><br>.055  | —                        | .45    | 16            | 8        | 2800       |
| 2744044447  | 1    | <b>1.75 Max.</b><br>.068 Max. | <b>3.1±0.1</b><br>.122   | <b>5.65±0.45</b><br>.222      | <b>1.55±0.5</b><br>.061 | —                        | .09    | 12            | 8        | 4500       |
| 2744040447  | 2    | <b>1.95 Max.</b><br>.076 Max. | <b>4.5±0.2</b><br>.177   | <b>6.4 - 0.6</b><br>.240      | <b>1.4±0.4</b><br>.055  | <b>1.27±0.05</b><br>.050 | .14    | 12            | 8        | 4000       |
| 2744555567  | 4    | <b>5.0 Max.</b><br>.197 Max.  | <b>5.00±0.25</b><br>.197 | <b>11.0 Max.</b><br>.433 Max. | <b>2.5±0.5</b><br>.098  | —                        | .96    | 24            | 12       | 1500       |
| 2744555577  | 3    | <b>5.0 Max.</b><br>.197 Max.  | <b>5.00±0.25</b><br>.197 | <b>11.0 Max.</b><br>.433 Max. | <b>2.5±0.5</b><br>.098  | —                        | .96    | 24            | 12       | 1500       |

## Higher Frequencies 250-1000 MHz (52 & 61 material)

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 |
|-------------|------|------------------------------|--------------------------|-------------------------------|------------------------|---|--------|---------------|----------|------------|
| 2761019447  | 1    | <b>2.85±0.2</b><br>.112      | <b>3.05±0.1</b><br>.120  | <b>5.1 - 0.85</b><br>.184     | <b>1.5±0.5</b><br>.059 | — | .15    | 12            | 8        | 2800       |
| 2761021447  | 1    | <b>2.85±0.2</b><br>.112      | <b>3.05±0.1</b><br>.120  | <b>9.6 - 0.95</b><br>.359     | <b>1.5±0.5</b><br>.059 | — | .30    | 16            | 8        | 2800       |
| 2752555567  | 4    | <b>5.0 Max.</b><br>.197 Max. | <b>5.00±0.25</b><br>.197 | <b>11.0 Max.</b><br>.433 Max. | <b>2.5±0.5</b><br>.098 | — | .96    | 24            | 12       | 1500       |
| 2752555577  | 3    | <b>5.0 Max.</b><br>.197 Max. | <b>5.00±0.25</b><br>.197 | <b>11.0 Max.</b><br>.433 Max. | <b>2.5±0.5</b><br>.098 | — | .96    | 24            | 12       | 1500       |

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# SM Beads (Differential-Mode)

## Lower Frequencies < 50 MHz (73 material)

| Part Number | Typical Impedance( $\Omega$ ) |       |                     |                     | Max Rdc(m $\Omega$ ) | Land Pattern Dimensions |             |             |             |   |
|-------------|-------------------------------|-------|---------------------|---------------------|----------------------|-------------------------|-------------|-------------|-------------|---|
|             | 1 MHz                         | 5 MHz | 10 MHz <sup>+</sup> | 25 MHz <sup>+</sup> |                      | V                       | W (ref.)    | X           | Y           | Z |
| 2773019447  | 12                            | 25    | 31                  | 40                  | 0.8                  | 1.0<br>.040             | 4.0<br>.157 | 1.8<br>.071 | 3.0<br>.118 | - |
| 2773021447  | 25                            | 50    | 60                  | 78                  | 1.2                  | 4.5<br>.177             | 7.5<br>.295 | 1.8<br>.071 | 3.0<br>.118 | - |
| 2773037447  | 25                            | 50    | 60                  | 78                  | 1.2                  | 5.0<br>.197             | 8.0<br>.315 | 1.8<br>.071 | 3.0<br>.118 | - |
| 2773044447  | 9                             | 19    | 25                  | 33                  | 1.1                  | 1.5<br>.059             | 4.5<br>.177 | 1.8<br>.071 | 3.0<br>.118 | - |

## Broadband Frequencies 25-300 MHz (43 & 44 material)

| Part Number | Typical Impedance( $\Omega$ ) |                     |                      |         | Max Rdc(m $\Omega$ ) | Land Pattern Dimensions |             |             |             |              |
|-------------|-------------------------------|---------------------|----------------------|---------|----------------------|-------------------------|-------------|-------------|-------------|--------------|
|             | 10 MHz                        | 25 MHz <sup>+</sup> | 100 MHz <sup>+</sup> | 250 MHz |                      | V                       | W (ref.)    | X           | Y           | Z            |
| 2743019447  | 18                            | 29                  | 47                   | 49      | 0.8                  | 1.0<br>.040             | 4.0<br>.157 | 1.8<br>.071 | 3.0<br>.118 | -            |
| 2743021447  | 37                            | 56                  | 95                   | 100     | 1.2                  | 4.5<br>.177             | 7.5<br>.295 | 1.8<br>.071 | 3.0<br>.118 | -            |
| 2743037447  | 37                            | 56                  | 95                   | 100     | 1.2                  | 5.0<br>.197             | 8.0<br>.315 | 1.8<br>.071 | 3.0<br>.118 | -            |
| 2744044447  | 13                            | 21                  | 36                   | 39      | 1.1                  | 1.5<br>.059             | 4.5<br>.177 | 1.8<br>.071 | 3.0<br>.118 | -            |
| 2744040447  | 18                            | 29                  | 56                   | 60      | 1.6                  | 1.8<br>.071             | 4.8<br>.189 | 0.8<br>.032 | 3.0<br>.118 | 1.27<br>.050 |
| 2744555567  | 150                           | 250                 | 375                  | 385     | 3.8                  | 2.0<br>.079             | 7.0<br>.276 | 2.0<br>.079 | 5.0<br>.197 | -            |
| 2744555577  | 255                           | 425                 | 600                  | 575     | 6.2                  | 2.0<br>.079             | 7.0<br>.276 | 2.0<br>.079 | 5.0<br>.197 | -            |

## Higher Frequencies 250-1000 MHz (52 & 61 material)

| Part Number | Typical Impedance( $\Omega$ ) |                      |                      |          | Max Rdc(m $\Omega$ ) | Land Pattern Dimensions |             |             |             |   |
|-------------|-------------------------------|----------------------|----------------------|----------|----------------------|-------------------------|-------------|-------------|-------------|---|
|             | 100 MHz                       | 250 MHz <sup>+</sup> | 500 MHz <sup>+</sup> | 1000 MHz |                      | V                       | W (ref.)    | X           | Y           | Z |
| 2761019447  | 36                            | 50                   | 55                   | 59       | 0.8                  | 1.0<br>.040             | 4.0<br>.157 | 1.8<br>.071 | 3.0<br>.118 | - |
| 2761021447  | 69                            | 94                   | 106                  | 118      | 1.2                  | 4.5<br>.177             | 7.5<br>.295 | 1.8<br>.071 | 3.0<br>.118 | - |
| 2752555567  | 400                           | 490                  | 425                  | 250      | 3.8                  | 2.0<br>.079             | 7.0<br>.276 | 2.0<br>.079 | 5.0<br>.197 | - |
| 2752555577  | 700                           | 770                  | 440                  | 250      | 6.2                  | 2.0<br>.079             | 7.0<br>.276 | 2.0<br>.079 | 5.0<br>.197 | - |

+ Test frequency

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# SM Beads (Differential-Mode)

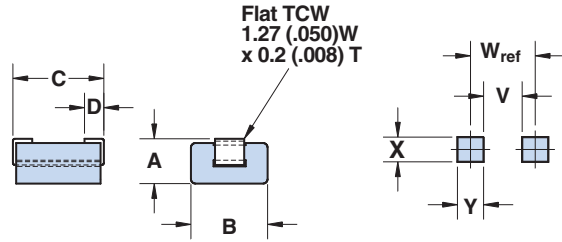


Figure 1

Land Pattern  
for Fig. 1

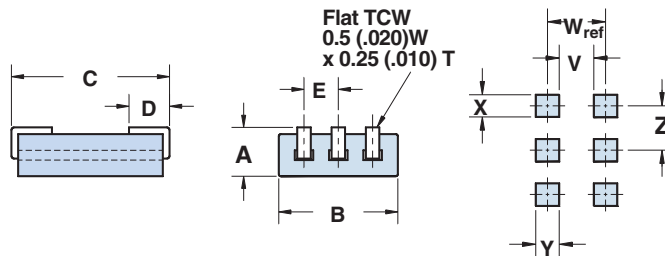


Figure 2

Land Pattern  
for Fig. 2  
E = Z

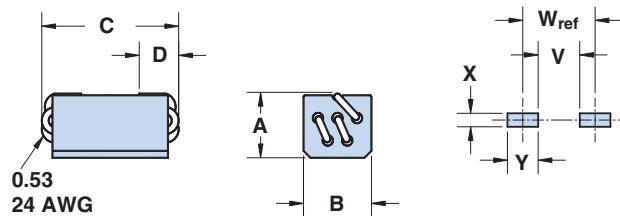


Figure 3

Land Pattern  
for Fig. 3

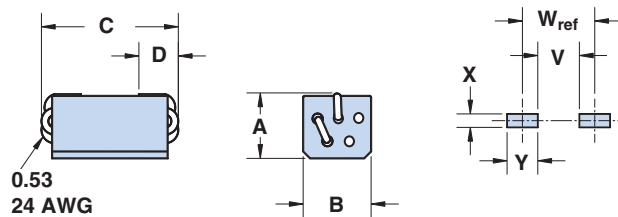


Figure 4

Land Pattern  
for Fig. 4

# SM Beads (Common-Mode)

**Surface mount common-mode beads are available from Fair-Rite in several materials and sizes. The common-mode bead provides a common magnetic path for the 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 bead.**

- SM Beads on 12mm tape width are supplied taped and reeled per EIA 481-1 and IEC 60286-3 standards. SM Beads on 16 and 24 mm tape widths are supplied taped and reeled per EIA 481-2 and IEC 60286-3 standards. Taped and reeled parts are supplied on a 13" reel.
- SM Beads 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 lead-free tin coating. If required SM Beads can be supplied with copper conductors having a tin/lead coating. See page 28 for suggested solder profile for lead-free components.
- SM Beads meet the solderability specifications when tested in accordance with MIL-STD-202, method 208. After dipping the mounting site 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 latest revision of IPC-7351.
- SM Beads are controlled for impedance limits only. The impedances listed are typical values. Minimum impedance values are specified for the + marked frequencies.  
The minimum guaranteed impedance is the listed value less 20%.  
SM Beads in 44 materials are measured for impedance on the 4193 Vector Impedance Analyzer. The 52 SM Beads are tested for impedance on the 4191A RF Impedance Analyzer.
- Recommended storage and operation temperature is -55 °C to 125 °C.
- The maximum current rating for these SM Beads is 5 amps.
- Performance curves of all the SM Beads are compiled on the Fair-Rite Products CD-ROM.
- For any SM Bead requirement not listed, please contact our customer service group for availability and pricing.
- Our "Surface Mount Bead Kit" (part number 0199000025) is available for prototype evaluation. See page 67.
- Explanation of Part Numbers: Digits 1&2 = product class, 3&4 = material grade, last digit 6 = bulk packed, 7 = taped and reeled.

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# SM Beads (Common-Mode)

## Broadband Frequencies 10-300 MHz (44 material)

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 |
|-------------|------|------------------------------|-------------------------------|-------------------------------|-------------------------|-------------------------|--------|---------------|----------|------------|
| 2744041447  | 1    | <b>2.85±0.2</b><br>.112      | <b>5.6±0.2</b><br>.220        | <b>5.0 - 0.6</b><br>.185      | <b>1.35±0.5</b><br>.053 | <b>2.54±0.1</b><br>.100 | .30    | 12            | 8        | 2400       |
| 2744045447  | 1    | <b>2.85±0.2</b><br>.112      | <b>5.6±0.2</b><br>.220        | <b>8.9 - 0.8</b><br>.335      | <b>1.35±0.5</b><br>.053 | <b>2.54±0.1</b><br>.100 | .53    | 16            | 8        | 2400       |
| 2744051447  | 2    | <b>4.5 Max.</b><br>.177 Max. | <b>6.65 Max.</b><br>.262 Max. | <b>12.0 Max.</b><br>.472 Max. | <b>2.5±0.5</b><br>.098  | <b>3.00±0.1</b><br>.118 | 1.0    | 24            | 12       | 1000       |
| 2744065447  | 2    | <b>5.3 Max.</b><br>.209 Max. | <b>7.00 Max.</b><br>.275 Max. | <b>14.8 Max.</b><br>.582 Max. | <b>2.5±0.5</b><br>.098  | <b>3.00±0.1</b><br>.118 | 1.8    | 24            | 12       | 1000       |

## Higher Frequencies 250-1000 MHz (52 material)

| Part Number | Fig. | A                            | B                             | C                             | D                       | E                       | Wt (g) | Tape Width mm | Pitch mm | Parts/Reel |
|-------------|------|------------------------------|-------------------------------|-------------------------------|-------------------------|-------------------------|--------|---------------|----------|------------|
| 2752041447  | 1    | <b>2.85±0.2</b><br>.112      | <b>5.6±0.2</b><br>.220        | <b>5.0 - 0.6</b><br>.185      | <b>1.35±0.5</b><br>.053 | <b>2.54±0.1</b><br>.100 | .30    | 12            | 8        | 2400       |
| 2752045447  | 1    | <b>2.85±0.2</b><br>.112      | <b>5.6±0.2</b><br>.220        | <b>8.9 - 0.8</b><br>.335      | <b>1.35±0.5</b><br>.053 | <b>2.54±0.1</b><br>.100 | .53    | 16            | 8        | 2400       |
| 2752051447  | 2    | <b>4.5 Max.</b><br>.177 Max. | <b>6.65 Max.</b><br>.262 Max. | <b>12.0 Max.</b><br>.472 Max. | <b>2.5±0.5</b><br>.098  | <b>3.00±0.1</b><br>.118 | 1.0    | 24            | 12       | 1000       |
| 2752065447  | 2    | <b>5.3 Max.</b><br>.209 Max. | <b>7.00 Max.</b><br>.275 Max. | <b>14.8 Max.</b><br>.582 Max. | <b>2.5±0.5</b><br>.098  | <b>3.00±0.1</b><br>.118 | 1.8    | 24            | 12       | 1000       |

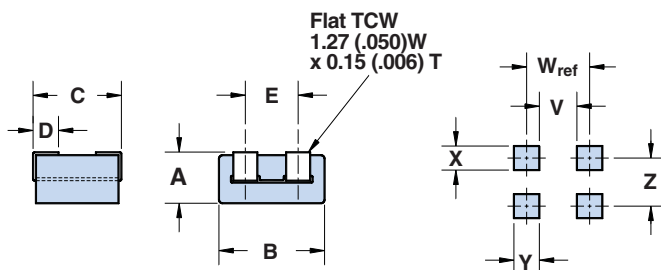


Figure 1  
Common-Mode Bead

Land Pattern  
for Fig. 1  
E = Z

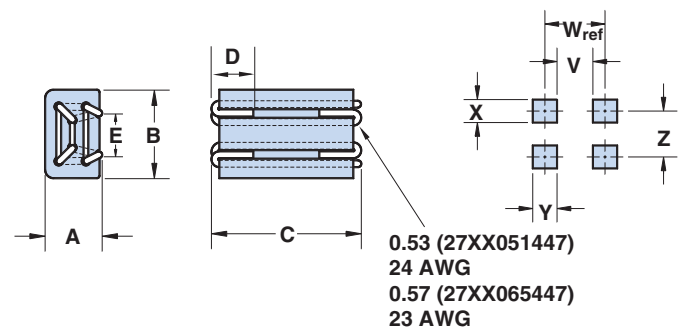


Figure 2  
Common-Mode Bead

Land Pattern  
for Fig. 2  
E = Z

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# SM Beads (Common-Mode)

## Broadband Frequencies 10-300 MHz (44 material)

| Part Number | Typical Impedance( $\Omega$ ) |                     |                      |                | Max Rdc(m $\Omega$ ) | Land Pattern Dimensions |              |             |             |              |
|-------------|-------------------------------|---------------------|----------------------|----------------|----------------------|-------------------------|--------------|-------------|-------------|--------------|
|             | 10 MHz                        | 25 MHz <sup>+</sup> | 100 MHz <sup>+</sup> | 250 MHz        |                      | V                       | W (ref.)     | X           | Y           | Z            |
| 2744041447  | 12                            | 20                  | 33                   | 41             | 1.1                  | 1.0<br>.040             | 4.0<br>.157  | 1.8<br>.071 | 3.0<br>.118 | 2.54<br>.100 |
| 2744045447  | 23                            | 38                  | 60                   | 78             | 1.4                  | 4.0<br>.158             | 7.0<br>.276  | 1.8<br>.071 | 3.0<br>.118 | 2.54<br>.100 |
| 2744051447  | 60                            | 100                 | 230                  | 275<br>@300MHz | 4.0                  | 4.0<br>.158             | 9.0<br>.354  | 1.0<br>.040 | 5.0<br>.197 | 3.0<br>.118  |
| 2744065447  | 95                            | 145                 | 255                  | 375<br>@300MHz | 4.1                  | 6.8<br>.268             | 11.8<br>.465 | 1.1<br>.043 | 5.0<br>.197 | 3.0<br>.118  |

## Higher Frequencies 250-1000 MHz (52 material)

| Part Number | Typical Impedance( $\Omega$ ) |                      |                      |          | Max Rdc(m $\Omega$ ) | Land Pattern Dimensions |              |             |             |              |
|-------------|-------------------------------|----------------------|----------------------|----------|----------------------|-------------------------|--------------|-------------|-------------|--------------|
|             | 100 MHz                       | 250 MHz <sup>+</sup> | 500 MHz <sup>+</sup> | 1000 MHz |                      | V                       | W (ref.)     | X           | Y           | Z            |
| 2752041447  | 32                            | 50                   | 63                   | 70       | 1.1                  | 1.0<br>.040             | 4.0<br>.157  | 1.8<br>.071 | 3.0<br>.118 | 2.54<br>.100 |
| 2752045447  | 58                            | 90                   | 115                  | 130      | 1.4                  | 4.0<br>.158             | 7.0<br>.276  | 1.8<br>.071 | 3.0<br>.118 | 2.54<br>.100 |
| 2752051447  | 200                           | 330                  | 400                  | 350      | 4.0                  | 4.0<br>.158             | 9.0<br>.354  | 1.0<br>.040 | 5.0<br>.197 | 3.0<br>.118  |
| 2752065447  | 230                           | 390                  | 460                  | 380      | 4.1                  | 6.8<br>.268             | 11.8<br>.465 | 1.1<br>.043 | 5.0<br>.197 | 3.0<br>.118  |

<sup>+</sup> Test frequency

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# Chip Beads

Fair-Rite offers a broad selection of cost effective chip beads to suppress conducted EMI in a wide variety of devices such as cellular phones, computers, laptops, pagers, etc.

The small standard package sizes accommodate automated installation and allow for a dense packaging of circuit boards.

Chip beads are 100% tested for impedance and dc resistance. They are available in standard, high and GHz signal speeds. Chip beads are organized and listed by increasing current carrying capacity.

- All multi-layer chip beads are supplied taped and reeled, if required bulk packed chip beads can be provided. See table on the next page with tape and reel particulars.
- Chip beads are controlled for impedance. The impedance values listed are typical values. A nominal impedance with a +/- 25% tolerance is specified for the + marked frequency.
- Chip beads are measured for impedance on the HP 4291A and fixture HP 16192A.
- Chip beads can accommodate both reflow and wave soldering technologies. See page 28 for the recommended soldering profile for chip components.
- Suggested land patterns are in accordance to the latest revision of IPC-7351.
- Chip beads have plated contacts, 100% tin over a nickel undercoating.
- Recommended storage and operating temperature range is -55°C to 125°C.
- Performance curves for all listed chip beads, with and without dc bias, are on the Fair-Rite Products CD-ROM.
- Our "Chip Bead Kit" (part number 0199000018) is available for prototype evaluation. See page 67.

## Part Number System: Example 2512063017Y1

| 25                    | 1206                     | 301   | 7                     | Y   | 1   |
|-----------------------|--------------------------|---|-----------------------|---|---|
| <b>Chip Bead Code</b> | <b>Package Size Code</b> | <b>Impedance Code</b>   | <b>Packaging Code</b> | <b>Material Code</b>  | <b>Current Code</b>                                   |
|                       |                          | 6= Bulk Packed<br>7= Taped and Reeled 7" Reel<br>8= Taped and Reeled 13" Reel |                       | Y = Standard Signal Speed<br>Z = High Signal Speed<br>H = GHz Speed | 0 < 1.0A<br>1 ≥ 1.0A < 2.0A<br>3 ≥ 3.0A < 4.0A<br>ETC |

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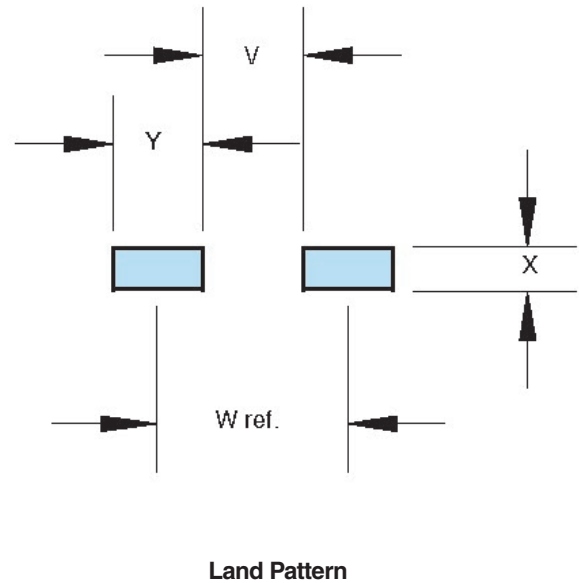
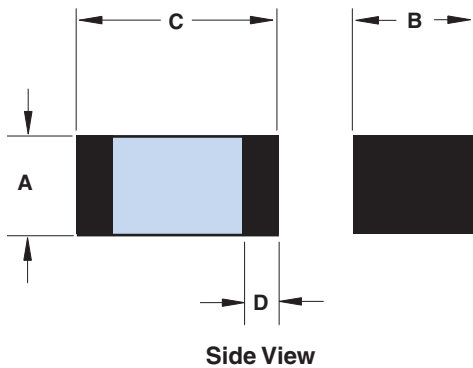
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• E-Mail: ferrites@fair-rite.com



# Chip Beads

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

| Pkg. Size                    | Dimensions              |                         |                         |                          |              | Land Patterns       |                     |                     |                     | Tape Width mm | Pitch mm | Parts per Reel |               |
|------------------------------|-------------------------|-------------------------|-------------------------|--------------------------|--------------|---------------------|---------------------|---------------------|---------------------|---------------|----------|----------------|---------------|
|                              | A                       | B                       | C                       | D                        | Wt(g)        | V                   | W ref               | X                   | Y                   |               |          | 7"             | 13"           |
| <b>0402</b><br><b>(1005)</b> | <b>0.5±0.15</b><br>.020 | <b>0.5±0.15</b><br>.020 | <b>1.0±0.15</b><br>.040 | <b>0.25±0.15</b><br>.010 | <b>0.002</b> | <b>0.40</b><br>.016 | <b>1.30</b><br>.051 | <b>0.70</b><br>.028 | <b>0.90</b><br>.035 | <b>8</b>      | <b>4</b> | <b>10,000</b>  | <b>N/A</b>    |
| <b>0603</b><br><b>(1608)</b> | <b>0.8±0.3</b><br>.031  | <b>0.8±0.3</b><br>.031  | <b>1.6±0.15</b><br>.063 | <b>0.4±0.2</b><br>.016   | <b>0.006</b> | <b>0.60</b><br>.024 | <b>1.70</b><br>.067 | <b>1.00</b><br>.039 | <b>1.10</b><br>.043 | <b>8</b>      | <b>4</b> | <b>4,000</b>   | <b>10,000</b> |
| <b>0805</b><br><b>(2012)</b> | <b>0.9±0.2</b><br>.035  | <b>1.25±0.2</b><br>.049 | <b>2.0±0.2</b><br>.079  | <b>0.5±0.3</b><br>.020   | <b>0.01</b>  | <b>0.60</b><br>.024 | <b>1.90</b><br>.075 | <b>1.50</b><br>.059 | <b>1.30</b><br>.051 | <b>8</b>      | <b>4</b> | <b>4,000</b>   | <b>10,000</b> |
| <b>1206</b><br><b>(3216)</b> | <b>1.1±0.2</b><br>.043  | <b>1.6±0.2</b><br>.063  | <b>3.2±0.2</b><br>.126  | <b>0.7±0.3</b><br>.028   | <b>0.03</b>  | <b>1.20</b><br>.047 | <b>2.80</b><br>.110 | <b>1.80</b><br>.071 | <b>1.60</b><br>.063 | <b>8</b>      | <b>4</b> | <b>3,000</b>   | <b>10,000</b> |
| <b>1806</b><br><b>(4516)</b> | <b>1.6±0.2</b><br>.063  | <b>1.6±0.2</b><br>.063  | <b>4.5±0.2</b><br>.177  | <b>0.7±0.3</b><br>.028   | <b>0.06</b>  | <b>2.00</b><br>.079 | <b>3.90</b><br>.154 | <b>1.80</b><br>.071 | <b>1.90</b><br>.075 | <b>12</b>     | <b>8</b> | <b>2,000</b>   | <b>10,000</b> |
| <b>1812</b><br><b>(4532)</b> | <b>1.6±0.2</b><br>.063  | <b>3.2±0.2</b><br>.126  | <b>4.5±0.2</b><br>.177  | <b>0.7±0.3</b><br>.028   | <b>0.09</b>  | <b>2.00</b><br>.079 | <b>3.90</b><br>.154 | <b>3.40</b><br>.134 | <b>1.90</b><br>.075 | <b>12</b>     | <b>8</b> | <b>1,000</b>   | <b>5,000</b>  |



# Chip Beads

| Current      | Pkg. Size      | Signal Speed   | Part Number  | Z (Ω)<br>50 MHz | Z (Ω) ± 25%<br>100 MHz <sup>+</sup> | Z (Ω)<br>500 MHz | Z (Ω)<br>1000 MHz | Max.DCR<br>(Ω) | Max Cur.<br>mA |
|--------------|----------------|----------------|--------------|-----------------|-------------------------------------|------------------|-------------------|----------------|----------------|
| Low          | 0402<br>(1005) | Standard       | 2504021007Y0 | 8               | 10                                  | 13               | 14                | 0.05           | 500            |
|              |                |                | 2504026007Y0 | 48              | 60                                  | 79               | 79                | 0.4            | 200            |
|              |                |                | 2504021217Y0 | 88              | 120                                 | 170              | 157               | 0.5            | 200            |
|              |                |                | 2504023017Y0 | 234             | 300                                 | 370              | 264               | 0.75           | 100            |
|              |                |                | 2504026017Y0 | 421             | 600                                 | 652              | 362               | 1.1            | 50             |
|              | 0603<br>(1608) | Standard       | 2506033007Y0 | 23              | 30                                  | 46               | 48                | 0.1            | 400            |
|              |                |                | 2506036007Y0 | 45              | 60                                  | 94               | 82                | 0.15           | 400            |
|              |                |                | 2506038007Y0 | 59              | 80                                  | 121              | 102               | 0.15           | 400            |
|              |                |                | 2506031017Y0 | 77              | 100                                 | 144              | 131               | 0.15           | 400            |
|              |                |                | 2506031217Y0 | 90              | 120                                 | 179              | 142               | 0.15           | 400            |
|              |                |                | 2506031517Y0 | 109             | 150                                 | 224              | 179               | 0.15           | 400            |
|              |                |                | 2506033017Y0 | 213             | 300                                 | 326              | 205               | 0.3            | 400            |
|              |                |                | 2506036017Y0 | 426             | 600                                 | 405              | 226               | 0.35           | 400            |
|              |                |                | 2506031027Y0 | 653             | 1000                                | 241              | 110               | 0.55           | 300            |
|              |                | High           | 2506036007Z0 | 28              | 60                                  | 145              | 96                | 0.25           | 450            |
|              |                |                | 2506031217Z0 | 60              | 120                                 | 278              | 192               | 0.3            | 450            |
|              |                |                | 2506033017Z0 | 112             | 300                                 | 314              | 142               | 0.35           | 450            |
|              |                | GHz            | 2506030707H0 | 4               | 7                                   | 30               | 38                | 0.1            | 700            |
|              |                |                | 2506031007H0 | 5               | 10                                  | 43               | 50                | 0.1            | 700            |
|              |                |                | 2506031217H0 | 50              | 120                                 | 600              | 500               | 0.5            | 200            |
|              |                |                | 2506032217H0 | 100             | 220                                 | 800              | 1000              | 0.8            | 100            |
|              |                |                | 2506033317H0 | 150             | 330                                 | 1300             | 1500              | 1.2            | 50             |
|              |                | 0805<br>(2012) | Standard     | 2508051107Y0    | 8                                   | 11               | 16                | 16             | 0.1            |
|              | 2508053007Y0   |                |              | 22              | 30                                  | 46               | 49                | 0.1            | 300            |
|              | 2508055007Y0   |                |              | 36              | 50                                  | 73               | 76                | 0.15           | 300            |
|              | 2508056007Y0   |                |              | 45              | 60                                  | 88               | 89                | 0.15           | 300            |
|              | 2508059007Y0   |                |              | 68              | 90                                  | 125              | 107               | 0.2            | 300            |
|              | 2508051017Y0   |                |              | 75              | 100                                 | 134              | 120               | 0.2            | 300            |
|              | 2508051217Y0   |                |              | 89              | 120                                 | 172              | 127               | 0.2            | 300            |
|              | 2508051817Y0   |                |              | 134             | 180                                 | 198              | 111               | 0.2            | 300            |
|              | 2508053017Y0   |                |              | 216             | 300                                 | 161              | 84                | 0.25           | 300            |
|              | 2508056017Y0   |                |              | 428             | 600                                 | 284              | 141               | 0.35           | 300            |
|              | High           |                | 2508051027Y0 | 688             | 1000                                | 300              | 148               | 0.45           | 300            |
|              |                |                | 2508051527Y0 | 989             | 1500                                | 235              | 118               | 0.7            | 300            |
|              |                |                | 2508056007Z0 | 28              | 60                                  | 111              | 122               | 0.15           | 300            |
|              |                |                | 2508051217Z0 | 45              | 120                                 | 253              | 191               | 0.2            | 250            |
| 2508053017Z0 |                |                | 118          | 300             | 280                                 | 139              | 0.25              | 200            |                |
| GHz          | 2508052027Z0   | 440            | 2000         | 160             | 80                                  | 0.4              | 200               |                |                |
|              |                | GHz            | 2508050507H0 | 2               | 5                                   | 17               | 22                | 0.07           | 500            |

+ Test frequency

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# Chip Beads

| Current      | Pkg. Size      | Signal Speed | Part Number  | Z (Ω)<br>50 MHz | Z (Ω) ± 25%<br>100 MHz <sup>+</sup> | Z (Ω)<br>500 MHz | Z (Ω)<br>1000 MHz | Max.DCR<br>(Ω) | Max Cur.<br>mA |
|--------------|----------------|--------------|--------------|-----------------|-------------------------------------|------------------|-------------------|----------------|----------------|
| Low          | 1206<br>(3216) | Standard     | 2512063007Y0 | 21              | 30                                  | 49               | 52                | 0.1            | 800            |
|              |                |              | 2512065007Y0 | 38              | 50                                  | 68               | 67                | 0.15           | 800            |
|              |                |              | 2512067007Y0 | 53              | 70                                  | 101              | 102               | 0.15           | 500            |
|              |                |              | 2512069007Y0 | 72              | 90                                  | 121              | 113               | 0.2            | 450            |
|              |                |              | 2512061017Y0 | 72              | 100                                 | 127              | 86                | 0.2            | 450            |
|              |                |              | 2512061217Y0 | 87              | 120                                 | 151              | 109               | 0.2            | 450            |
|              |                |              | 2512063017Y0 | 203             | 300                                 | 233              | 118               | 0.2            | 350            |
|              |                |              | 2512066017Y0 | 581             | 600                                 | 116              | 67                | 0.25           | 350            |
|              |                |              | 2512061027Y0 | 784             | 1000                                | 230              | 117               | 0.35           | 350            |
|              |                |              | 2512061527Y0 | 1500            | 1500                                | 250              | 200               | 0.4            | 350            |
|              | 1806<br>(4516) | Standard     | 2518061017Y0 | 73              | 100                                 | 153              | 155               | 0.3            | 400            |
|              |                |              | 2518061517Y0 | 110             | 150                                 | 205              | 167               | 0.5            | 200            |
| Medium       | 0603<br>(1608) | Standard     | 2506033007Y3 | 23              | 30                                  | 40               | 41                | 0.04           | 3000           |
|              |                |              | 2506036007Y3 | 48              | 60                                  | 84               | 81                | 0.04           | 3000           |
|              |                |              | 2506031217Y2 | 90              | 120                                 | 170              | 152               | 0.05           | 2000           |
|              | 0805<br>(2012) | Standard     | 2508053007Y3 | 23              | 30                                  | 41               | 41                | 0.03           | 3000           |
|              |                |              | 2508056007Y3 | 49              | 60                                  | 84               | 84                | 0.04           | 3000           |
|              |                |              | 2508051217Y3 | 91              | 120                                 | 165              | 135               | 0.05           | 3000           |
|              |                |              | 2508053017Y3 | 239             | 300                                 | 218              | 117               | 0.05           | 3000           |
|              |                |              | 2508056017Y2 | 449             | 600                                 | 293              | 159               | 0.1            | 2000           |
|              |                |              | 2508051027Y1 | 764             | 1000                                | 402              | 216               | 0.3            | 1000           |
|              |                |              | 2508052027Y1 | 599             | 2000                                | 350              | 189               | 0.3            | 1000           |
|              | 1206<br>(3216) | Standard     | 2512063007Y3 | 24              | 30                                  | 40               | 38                | 0.03           | 3000           |
|              |                |              | 2512065007Y3 | 39              | 50                                  | 69               | 70                | 0.03           | 3000           |
|              |                |              | 2512067007Y3 | 53              | 70                                  | 102              | 103               | 0.04           | 3000           |
|              |                |              | 2512061517Y3 | 120             | 150                                 | 173              | 130               | 0.05           | 3000           |
|              |                |              | 2512063017Y3 | 212             | 300                                 | 150              | 88                | 0.06           | 3000           |
|              |                |              | 2512066017Y1 | 460             | 600                                 | 260              | 120               | 0.08           | 1000           |
|              |                |              | 2512061027Y1 | 925             | 1000                                | 210              | 117               | 0.30           | 1000           |
|              | 1806<br>(4516) | Standard     | 2518066007Y3 | 44              | 60                                  | 91               | 94                | 0.04           | 3000           |
|              |                |              | 2518068007Y3 | 64              | 80                                  | 114              | 114               | 0.04           | 3000           |
|              | 1812<br>(4532) | Standard     | 2518127007Y3 | 54              | 70                                  | 96               | 96                | 0.04           | 3000           |
| 2518121217Y3 |                |              | 92           | 120             | 150                                 | 106              | 0.04              | 3000           |                |
| High         | 0805<br>(2012) | Standard     | 2508056007Y6 | 47              | 60                                  | 88               | 68                | 0.02           | 6000           |
|              |                |              | 2508051217Y6 | 94              | 120                                 | 158              | 132               | 0.025          | 6000           |
|              | 1206<br>(3216) | Standard     | 2512065007Y6 | 39              | 50                                  | 68               | 56                | 0.02           | 6000           |
|              |                |              | 2512061217Y5 | 96              | 120                                 | 137              | 91                | 0.025          | 5000           |
|              | 1806<br>(4516) | Standard     | 2518065007Y6 | 36              | 50                                  | 63               | 61                | 0.01           | 6000           |
|              |                |              | 2518061017Y6 | 75              | 100                                 | 139              | 132               | 0.02           | 6000           |
| 1812         | Standard       | 2518121217Y6 | 92           | 120             | 149                                 | 105              | 0.02              | 6000           |                |

+ Test frequency

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# Chip Arrays

Fair-Rite offers an effective cost and real estate reduction by our line of chip arrays. Four chip beads, packaged in a 1206 (3216) size, for suppression of conducted EMI where size is at a premium. Chip arrays are 100% tested for impedance and dc resistance. They are available in standard and high signal speeds.

- Chip arrays have plated contacts, 100% tin over a nickel undercoating.
- Chip arrays are supplied taped and reeled, if required bulk packed arrays can be supplied. For particulars on the taped and reeled parts see the Part Number System below.
- Chip arrays are controlled for impedance. The impedance values listed are typical values. The nominal impedance with a +/- 25% tolerance is specified for the + marked 100 MHz frequency. Chip arrays are measured for impedance on the HP 4291A and fixture HP 16192A.
- The arrays can accommodate both reflow and wave soldering technologies. See page 28 for the recommended soldering profile for lead-free chip components.
- Suggested land patterns are in accordance to the IPC-7351.
- Recommended storage and operating temperature range is -55 °C to 125 °C.
- Performance curves for the chip arrays, with and without dc bias, are on the Fair-Rite Products CD-ROM.
- "Chip Bead Kit" (part number 0199000018) contains the high speed 220 ohm 4 line chip array. See page 67.

## Part Number Sytem: Example 2512066007Y0A4

| 25                               | 1206            | 600               | 7                          | Y                                     | 0               | A4               |
|----------------------------------|-----------------|-------------------|----------------------------|---------------------------------------|-----------------|------------------|
| Chip<br>Suppression<br>Component | Package<br>Size | Impedance<br>Code | Packaging<br>Code          | Material<br>Code                      | Current<br>Code | Array<br>4 Lines |
|                                  |                 | 600 = 60 Ω        | 6 = Bulk Packed<br>7 = T&R | Y = Std Signal Speed<br>Z = GHz Speed | 0 < 1A          |                  |

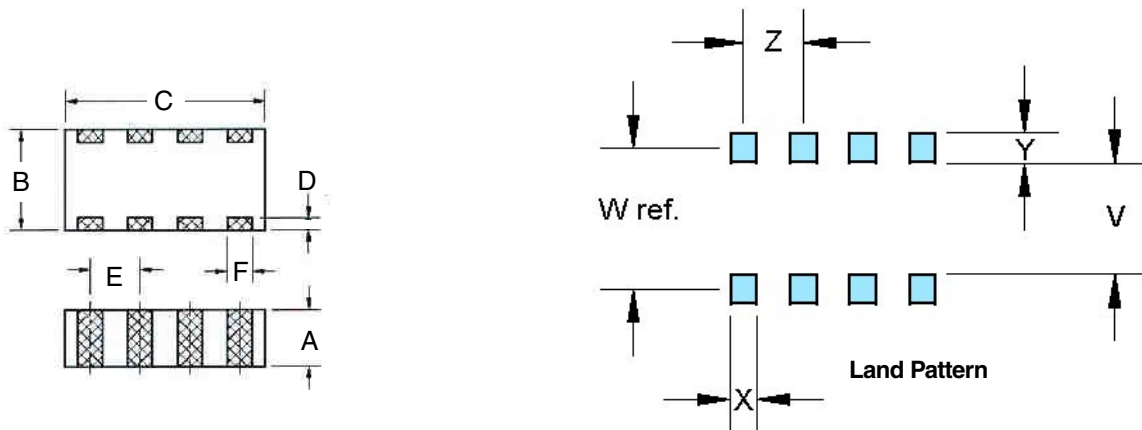
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# Chip Arrays



| Pkg. Size | Dimensions | A    | B       | C       | D       | E       | F       | Wgt (g) |
|-----------|------------|------|---------|---------|---------|---------|---------|---------|
|           | 1206       | mm   | 0.8±0.2 | 1.6±0.2 | 3.2±0.2 | 0.3±0.2 | 0.8±0.1 |         |
|           | inches     | .031 | .063    | .126    | .011    | .031    | .016    |         |

| Land Pattern |      |        |      |      |      | Reel Information |          |                   |
|--------------|------|--------|------|------|------|------------------|----------|-------------------|
|              | V    | W ref. | X    | Y    | Z    | Tape Width mm    | Pitch mm | Parts per 7" reel |
| mm           | 0.7  | 1.3    | 0.5  | 0.6  | 0.8  | 8                | 4        | 3000              |
| inches       | .028 | .051   | .020 | .024 | .032 |                  |          |                   |

| Part Number    | Speed      | Z (Ω)  | Z (Ω)           | Z (Ω)   | Z (Ω)    | Max DCR (Ω) | Max Current (mA) |
|----------------|------------|--------|-----------------|---------|----------|-------------|------------------|
|                |            | 50 MHz | ±25%<br>100 MHz | 500 MHz | 1000 MHz |             |                  |
| 2512066007Y0A4 | Standard   | 48     | 60              | 77      | 75       | 0.25        | 200              |
| 2512061217Y0A4 | Standard   | 95     | 120             | 150     | 118      | 0.3         | 150              |
| 2512063017Y0A4 | Standard   | 225    | 300             | 280     | 160      | 0.3         | 150              |
| 2512066017Y0A4 | Standard   | 460    | 600             | 400     | 205      | 0.5         | 100              |
| 2512061027Y0A4 | Standard   | 770    | 1000            | 400     | 200      | 0.7         | 50               |
| 2512061217Z0A4 | High Speed | 68     | 120             | 215     | 205      | 0.3         | 200              |
| 2512062217Z0A4 | High Speed | 95     | 220             | 360     | 205      | 0.45        | 150              |

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# Chip Inductors

Multi-Layer chip inductors have complimented our line of chip components. These chip inductors have silk-screened windings on a ferrite or non-magnetic ceramic body which after sintering forms a monolithic structure which is a self shielding, closed magnetic unit.

Chip inductors come in two types, with a ferrite body and with a non-magnetic ceramic core. Both types provide excellent solderability and heat resistance for either flow or reflow soldering processes.

Both chip inductor types are used in tuned applications and for energy storage devices for frequencies in the hundreds of MHz into the GHz range.

- Chip inductors are supplied taped and reeled, if required bulk packed parts can be supplied. See table on the next page for tape and reel particulars.
- Chip inductors are 100% tested for a toleranced inductance and minimum Q at specified test frequencies.
- Suggested land patterns are in accordance to the latest revision of IPC-7351.
- Chip inductors have plated contacts, 100% tin over a nickel undercoating.
- Suggested temperature soldering profile is shown page 28.
- Recommended storage and operating temperature range is -40 °C to +85 °C.
- The Fair-Rite Products CD-ROM has a number of typical performance curves for the ferrite and ceramic multi-layer chip inductors.
- The new "Chip Inductor Kit" (part number 0199000035) contains a cross section of both types of multi-layer chip inductors. See page 68.

## Part Number Sytem: Example 2212061R2K7F

| 22                           | 1206            | 1R2   | K   | 7  | F  |
|------------------------------|-----------------|---|---|--|--|
| Multi-Layer<br>Chip Inductor | Package<br>Size | Inductance<br>Code  | Inductance<br>Tolerance                           | Packaging<br>Code                                | Material<br>Code   |
|                              |                 | N = Decimal point for nH<br>(4N7 = 4.7nH = 0.0047µH)<br>(47N = 47nH = 0.047µH)<br>R = Decimal point for µH (>99nH)<br>(R22 = 0.22µH)<br>(2R2 = 2.2µH) | S = ± 0.3nH<br>J = ± 5%<br>K = ± 10%<br>M = ± 20% | 6 = Bulk Packed<br>7 = T&R (7")<br>8 = T&R (13") | F = Ferrite Body<br>For general signal usage<br>C = Ceramic Body<br>For high frequency usage |

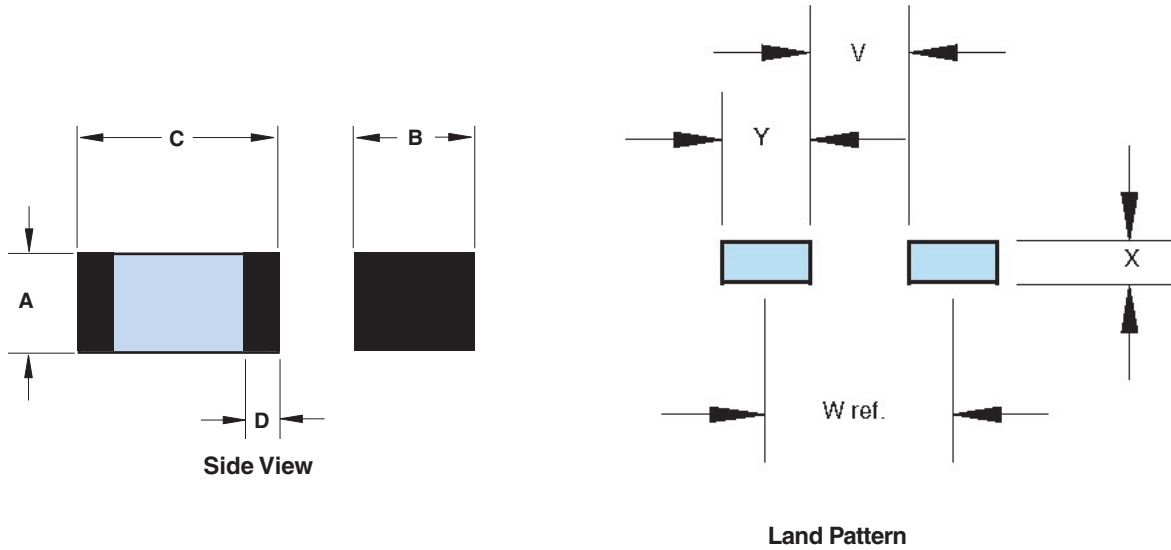
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# Chip Inductors



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

| Pkg. Size                    | Dimensions              |                         |                         |                          |              | Land Patterns       |                     |                     |                     | Tape Width mm | Pitch mm | Parts per Reel |               |
|------------------------------|-------------------------|-------------------------|-------------------------|--------------------------|--------------|---------------------|---------------------|---------------------|---------------------|---------------|----------|----------------|---------------|
|                              | A                       | B                       | C                       | D                        | Wt(g)        | V                   | W ref               | X                   | Y                   |               |          | 7"             | 13"           |
| <b>0402</b><br><b>(1005)</b> | <b>0.5±0.1</b><br>.020  | <b>0.5±0.1</b><br>.020  | <b>1.0±0.1</b><br>.040  | <b>0.25±0.15</b><br>.010 | <b>0.002</b> | <b>0.40</b><br>.016 | <b>1.30</b><br>.051 | <b>0.70</b><br>.028 | <b>0.90</b><br>.035 | <b>8</b>      | <b>4</b> | <b>10,000</b>  | <b>N/A</b>    |
| <b>0603</b><br><b>(1608)</b> | <b>0.8±0.15</b><br>.031 | <b>0.8±0.15</b><br>.031 | <b>1.6±0.15</b><br>.063 | <b>0.4±0.2</b><br>.016   | <b>0.006</b> | <b>0.60</b><br>.024 | <b>1.70</b><br>.067 | <b>1.00</b><br>.039 | <b>1.10</b><br>.043 | <b>8</b>      | <b>4</b> | <b>4,000</b>   | <b>10,000</b> |
| <b>0805</b><br><b>(2012)</b> | See Part Table          | <b>1.25±0.2</b><br>.049 | <b>2.0±0.2</b><br>.079  | <b>0.5±0.3</b><br>.020   | <b>0.01</b>  | <b>0.60</b><br>.024 | <b>1.90</b><br>.075 | <b>1.50</b><br>.059 | <b>1.30</b><br>.051 | <b>8</b>      | <b>4</b> | <b>4,000</b>   | <b>10,000</b> |
| <b>1206</b><br><b>(3216)</b> | <b>1.1±0.3</b><br>.043  | <b>1.6±0.2</b><br>.063  | <b>3.2±0.2</b><br>.126  | <b>0.7±0.3</b><br>.028   | <b>0.03</b>  | <b>1.20</b><br>.047 | <b>2.80</b><br>.110 | <b>1.80</b><br>.071 | <b>1.60</b><br>.063 | <b>8</b>      | <b>4</b> | <b>3,000</b>   | <b>10,000</b> |

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# Chip Inductors (Ferrite)

## Package Size - 0603

| Part Number  | Inductance<br>( $\mu$ H) | Tolerance  | Q<br>Min | Test<br>Frequency<br>L, Q (MHz) | Self<br>Resonant<br>Frequency<br>(Min MHz) | DCR<br>(Ohm)<br>Max | Rated<br>Current<br>(mA Max) |
|--------------|--------------------------|------------|----------|---------------------------------|--|---------------------|------------------------------|
| 22060347NM7F | 0.047                    | $\pm 20\%$ | 10       | 50                              | 260  | 0.30                | 50                           |
| 22060368NM7F | 0.068                    | $\pm 20\%$ | 10       | 50                              | 250  | 0.30                | 50                           |
| 22060382NM7F | 0.082                    | $\pm 20\%$ | 10       | 50                              | 245  | 0.30                | 50                           |
| 220603R10K7F | 0.10                     | $\pm 10\%$ | 15       | 25                              | 240  | 0.50                | 50                           |
| 220603R12K7F | 0.12                     | $\pm 10\%$ | 15       | 25                              | 205  | 0.50                | 50                           |
| 220603R15K7F | 0.15                     | $\pm 10\%$ | 15       | 25                              | 180  | 0.60                | 50                           |
| 220603R18K7F | 0.18                     | $\pm 10\%$ | 15       | 25                              | 165  | 0.60                | 50                           |
| 220603R22K7F | 0.22                     | $\pm 10\%$ | 15       | 25                              | 150  | 0.80                | 50                           |
| 220603R27K7F | 0.27                     | $\pm 10\%$ | 15       | 25                              | 136  | 0.80                | 50                           |
| 220603R33K7F | 0.33                     | $\pm 10\%$ | 15       | 25                              | 125  | 0.85                | 35                           |
| 220603R39K7F | 0.39                     | $\pm 10\%$ | 15       | 25                              | 110  | 1.00                | 35                           |
| 220603R47K7F | 0.47                     | $\pm 10\%$ | 15       | 25                              | 105  | 1.35                | 35                           |
| 220603R56K7F | 0.56                     | $\pm 10\%$ | 15       | 25                              | 95   | 1.55                | 35                           |
| 220603R68K7F | 0.68                     | $\pm 10\%$ | 15       | 25                              | 90   | 1.70                | 35                           |
| 220603R82K7F | 0.82                     | $\pm 10\%$ | 15       | 25                              | 85   | 2.10                | 35                           |
| 2206031R0K7F | 1.0                      | $\pm 10\%$ | 35       | 10                              | 75   | 0.60                | 25                           |
| 2206031R2K7F | 1.2                      | $\pm 10\%$ | 35       | 10                              | 65   | 0.80                | 25                           |
| 2206031R5K7F | 1.5                      | $\pm 10\%$ | 35       | 10                              | 60   | 0.80                | 25                           |
| 2206031R8K7F | 1.8                      | $\pm 10\%$ | 35       | 10                              | 55   | 0.95                | 25                           |
| 2206032R2K7F | 2.2                      | $\pm 10\%$ | 35       | 10                              | 50   | 1.15                | 15                           |
| 2206032R7K7F | 2.7                      | $\pm 10\%$ | 35       | 10                              | 45   | 1.35                | 15                           |
| 2206033R3K7F | 3.3                      | $\pm 10\%$ | 35       | 10                              | 40   | 1.55                | 15                           |
| 2206033R9K7F | 3.9                      | $\pm 10\%$ | 35       | 10                              | 35   | 1.70                | 15                           |
| 2206034R7K7F | 4.7                      | $\pm 10\%$ | 35       | 10                              | 33   | 2.10                | 15                           |
| 2206035R6K7F | 5.6                      | $\pm 10\%$ | 35       | 4                               | 22   | 1.55                | 5                            |
| 2206036R8K7F | 6.8                      | $\pm 10\%$ | 35       | 4                               | 20   | 1.70                | 5                            |
| 2206038R2K7F | 8.2                      | $\pm 10\%$ | 35       | 4                               | 18   | 2.10                | 5                            |
| 22060310RK7F | 10                       | $\pm 10\%$ | 30       | 2                               | 17   | 1.85                | 3                            |
| 22060312RK7F | 12                       | $\pm 10\%$ | 30       | 2                               | 15   | 2.10                | 3                            |
| 22060315RK7F | 15                       | $\pm 10\%$ | 20       | 1                               | 14   | 1.70                | 1                            |

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# Chip Inductors (Ferrite)

## Package Size - 0805

| Part Number  | Inductance (μH) | Tolerance | Q Min | Test Frequency L, Q (MHz) | Self Resonant Frequency (Min MHz) | DCR (Ohm) Max | Rated Current (mA Max) | A dim (mm)       |
|--------------|-----------------|-----------|-------|---------------------------|-----------------------------------|---------------|------------------------|------------------|
| 22080547NM7F | 0.047           | ± 20%     | 15    | 50                        | 320                               | 0.20          | 300                    | 0.85±0.2 (.033") |
| 22080568NM7F | 0.068           | ± 20%     | 15    | 50                        | 280                               | 0.20          | 300                    | 0.85±0.2 (.033") |
| 22080582NM7F | 0.082           | ± 20%     | 15    | 50                        | 255                               | 0.20          | 300                    | 0.85±0.2 (.033") |
| 220805R10K7F | 0.10            | ± 10%     | 20    | 25                        | 235                               | 0.30          | 250                    | 0.85±0.2 (.033") |
| 220805R12K7F | 0.12            | ± 10%     | 20    | 25                        | 220                               | 0.30          | 250                    | 0.85±0.2 (.033") |
| 220805R15K7F | 0.15            | ± 10%     | 20    | 25                        | 200                               | 0.40          | 250                    | 0.85±0.2 (.033") |
| 220805R18K7F | 0.18            | ± 10%     | 20    | 25                        | 185                               | 0.40          | 250                    | 0.85±0.2 (.033") |
| 220805R22K7F | 0.22            | ± 10%     | 20    | 25                        | 170                               | 0.50          | 250                    | 0.85±0.2 (.033") |
| 220805R27K7F | 0.27            | ± 10%     | 20    | 25                        | 150                               | 0.50          | 250                    | 0.85±0.2 (.033") |
| 220805R33K7F | 0.33            | ± 10%     | 20    | 25                        | 145                               | 0.55          | 250                    | 0.85±0.2 (.033") |
| 220805R39K7F | 0.39            | ± 10%     | 25    | 25                        | 135                               | 0.65          | 200                    | 0.85±0.2 (.033") |
| 220805R47K7F | 0.47            | ± 10%     | 25    | 25                        | 125                               | 0.65          | 200                    | 0.85±0.2 (.033") |
| 220805R56K7F | 0.56            | ± 10%     | 25    | 25                        | 115                               | 0.75          | 150                    | 0.85±0.2 (.033") |
| 220805R68K7F | 0.68            | ± 10%     | 25    | 25                        | 105                               | 0.80          | 150                    | 0.85±0.2 (.033") |
| 220805R82K7F | 0.82            | ± 10%     | 25    | 25                        | 100                               | 1.00          | 150                    | 0.85±0.2 (.033") |
| 2208051R0K7F | 1.0             | ± 10%     | 45    | 10                        | 75                                | 0.40          | 50                     | 0.85±0.2 (.033") |
| 2208051R2K7F | 1.2             | ± 10%     | 45    | 10                        | 65                                | 0.50          | 50                     | 0.85±0.2 (.033") |
| 2208051R5K7F | 1.5             | ± 10%     | 45    | 10                        | 60                                | 0.50          | 50                     | 0.85±0.2 (.033") |
| 2208051R8K7F | 1.8             | ± 10%     | 45    | 10                        | 55                                | 0.60          | 50                     | 0.85±0.2 (.033") |
| 2208052R2K7F | 2.2             | ± 10%     | 45    | 10                        | 50                                | 0.65          | 30                     | 0.85±0.2 (.033") |
| 2208052R7K7F | 2.7             | ± 10%     | 45    | 10                        | 45                                | 0.75          | 30                     | 1.25±0.2 (.049") |
| 2208053R3K7F | 3.3             | ± 10%     | 45    | 10                        | 41                                | 0.80          | 30                     | 1.25±0.2 (.049") |
| 2208053R9K7F | 3.9             | ± 10%     | 45    | 10                        | 38                                | 0.90          | 30                     | 1.25±0.2 (.049") |
| 2208054R7K7F | 4.7             | ± 10%     | 45    | 10                        | 35                                | 1.00          | 30                     | 1.25±0.2 (.049") |
| 2208055R6K7F | 5.6             | ± 10%     | 50    | 4                         | 32                                | 0.90          | 15                     | 1.25±0.2 (.049") |
| 2208056R8K7F | 6.8             | ± 10%     | 50    | 4                         | 29                                | 1.00          | 15                     | 1.25±0.2 (.049") |
| 2208058R2K7F | 8.2             | ± 10%     | 50    | 4                         | 26                                | 1.10          | 15                     | 1.25±0.2 (.049") |
| 22080510RK7F | 10              | ± 10%     | 50    | 2                         | 24                                | 1.15          | 15                     | 1.25±0.2 (.049") |
| 22080512RK7F | 12              | ± 10%     | 50    | 2                         | 22                                | 1.25          | 15                     | 1.25±0.2 (.049") |
| 22080515RK7F | 15              | ± 10%     | 30    | 1                         | 19                                | 0.80          | 5                      | 1.25±0.2 (.049") |
| 22080518RK7F | 18              | ± 10%     | 30    | 1                         | 18                                | 0.90          | 5                      | 1.25±0.2 (.049") |
| 22080522RK7F | 22              | ± 10%     | 30    | 1                         | 16                                | 1.10          | 5                      | 1.25±0.2 (.049") |
| 22080527RK7F | 27              | ± 10%     | 30    | 1                         | 14                                | 1.15          | 5                      | 1.25±0.2 (.049") |
| 22080533RK7F | 33              | ± 10%     | 30    | 0.4                       | 13                                | 1.25          | 5                      | 1.25±0.2 (.049") |
| 22080539RK7F | 39              | ± 10%     | 35    | 2                         | 8                                 | 2.90          | 4                      | 1.25±0.2 (.049") |
| 22080547RM7F | 47              | ± 20%     | 35    | 2                         | 7.5                               | 3.00          | 4                      | 1.25±0.2 (.049") |

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# Chip Inductors (Ferrite)

## Package Size - 1206

| Part Number  | Inductance (μH) | Tolerance | Q Min | Test Frequency L, Q (MHz) | Self Resonant Frequency (Min MHz) | DCR (Ohm) Max | Rated Current (mA Max) |
|--------------|-----------------|-----------|-------|---------------------------|-----------------------------------|---------------|------------------------|
| 22120647NM7F | 0.047           | ± 20%     | 20    | 50                        | 320                               | 0.15          | 300                    |
| 22120668NM7F | 0.068           | ± 20%     | 20    | 50                        | 280                               | 0.25          | 300                    |
| 22120682NM7F | 0.082           | ± 20%     | 20    | 50                        | 255                               | 0.25          | 300                    |
| 221206R10K7F | 0.10            | ± 10%     | 20    | 25                        | 235                               | 0.25          | 250                    |
| 221206R12K7F | 0.12            | ± 10%     | 20    | 25                        | 220                               | 0.30          | 250                    |
| 221206R15K7F | 0.15            | ± 10%     | 20    | 25                        | 200                               | 0.30          | 250                    |
| 221206R18K7F | 0.18            | ± 10%     | 20    | 25                        | 185                               | 0.40          | 250                    |
| 221206R22K7F | 0.22            | ± 10%     | 20    | 25                        | 170                               | 0.40          | 250                    |
| 221206R27K7F | 0.27            | ± 10%     | 20    | 25                        | 150                               | 0.50          | 250                    |
| 221206R33K7F | 0.33            | ± 10%     | 20    | 25                        | 145                               | 0.60          | 250                    |
| 221206R39K7F | 0.39            | ± 10%     | 25    | 25                        | 135                               | 0.50          | 200                    |
| 221206R47K7F | 0.47            | ± 10%     | 25    | 25                        | 125                               | 0.60          | 200                    |
| 221206R56K7F | 0.56            | ± 10%     | 25    | 25                        | 115                               | 0.70          | 150                    |
| 221206R68K7F | 0.68            | ± 10%     | 25    | 25                        | 105                               | 0.80          | 150                    |
| 221206R82K7F | 0.82            | ± 10%     | 25    | 25                        | 100                               | 0.90          | 150                    |
| 2212061R0K7F | 1.0             | ± 10%     | 45    | 10                        | 75                                | 0.40          | 100                    |
| 2212061R2K7F | 1.2             | ± 10%     | 45    | 10                        | 65                                | 0.50          | 100                    |
| 2212061R5K7F | 1.5             | ± 10%     | 45    | 10                        | 60                                | 0.50          | 50                     |
| 2212061R8K7F | 1.8             | ± 10%     | 45    | 10                        | 55                                | 0.50          | 50                     |
| 2212062R2K7F | 2.2             | ± 10%     | 45    | 10                        | 50                                | 0.60          | 50                     |
| 2212062R7K7F | 2.7             | ± 10%     | 45    | 10                        | 45                                | 0.60          | 50                     |
| 2212063R3K7F | 3.3             | ± 10%     | 45    | 10                        | 41                                | 0.70          | 50                     |
| 2212063R9K7F | 3.9             | ± 10%     | 45    | 10                        | 38                                | 0.80          | 50                     |
| 2212064R7K7F | 4.7             | ± 10%     | 45    | 10                        | 35                                | 0.90          | 50                     |
| 2212065R6K7F | 5.6             | ± 10%     | 50    | 4                         | 32                                | 0.70          | 25                     |
| 2212066R8K7F | 6.8             | ± 10%     | 50    | 4                         | 29                                | 0.80          | 25                     |
| 2212068R2K7F | 8.2             | ± 10%     | 50    | 4                         | 26                                | 0.90          | 25                     |
| 22120610RK7F | 10              | ± 10%     | 35    | 2                         | 24                                | 1.00          | 25                     |
| 22120612RK7F | 12              | ± 10%     | 50    | 2                         | 22                                | 1.05          | 15                     |
| 22120615RK7F | 15              | ± 10%     | 35    | 1                         | 19                                | 0.70          | 5                      |
| 22120618RK7F | 18              | ± 10%     | 35    | 1                         | 18                                | 0.70          | 5                      |
| 22120622RK7F | 22              | ± 10%     | 35    | 1                         | 16                                | 0.90          | 5                      |
| 22120627RK7F | 27              | ± 10%     | 35    | 1                         | 14                                | 0.90          | 5                      |
| 22120633RK7F | 33              | ± 10%     | 35    | 0.4                       | 13                                | 1.05          | 5                      |
| 22120639RK7F | 39              | ± 10%     | 40    | 2                         | 11                                | 3.00          | 10                     |
| 22120647RK7F | 47              | ± 10%     | 40    | 2                         | 10                                | 3.40          | 10                     |

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# Chip Inductors (Ceramic)

## Package Size - 0402

| Part Number  | Inductance (nH) | Tolerance | Q Min | Test Frequency L, Q (MHz) | Self Resonant Frequency (Min MHz) | DCR (Ohm) Max | Rated Current (mA Max) |
|--------------|-----------------|-----------|-------|---------------------------|-----------------------------------|---------------|------------------------|
| 2204021N0S7C | 1.0             | ± 0.3 nH  | 8     | 100                       | 4000                              | 0.12          | 300                    |
| 2204021N2S7C | 1.2             | ± 0.3 nH  | 8     | 100                       | 4000                              | 0.12          | 300                    |
| 2204021N5S7C | 1.5             | ± 0.3 nH  | 8     | 100                       | 4000                              | 0.13          | 300                    |
| 2204021N8S7C | 1.8             | ± 0.3 nH  | 8     | 100                       | 4000                              | 0.14          | 300                    |
| 2204022N2S7C | 2.2             | ± 0.3 nH  | 8     | 100                       | 4000                              | 0.16          | 300                    |
| 2204022N7S7C | 2.7             | ± 0.3 nH  | 8     | 100                       | 4000                              | 0.17          | 300                    |
| 2204023N3S7C | 3.3             | ± 0.3 nH  | 8     | 100                       | 4000                              | 0.19          | 300                    |
| 2204023N9S7C | 3.9             | ± 0.3 nH  | 8     | 100                       | 4000                              | 0.22          | 300                    |
| 2204024N7S7C | 4.7             | ± 0.3 nH  | 8     | 100                       | 4000                              | 0.24          | 300                    |
| 2204025N6S7C | 5.6             | ± 0.3 nH  | 8     | 100                       | 4000                              | 0.27          | 300                    |
| 2204026N8J7C | 6.8             | ± 5%      | 8     | 100                       | 3900                              | 0.32          | 300                    |
| 2204028N2J7C | 8.2             | ± 5%      | 8     | 100                       | 3600                              | 0.37          | 250                    |
| 22040210NJ7C | 10              | ± 5%      | 8     | 100                       | 3200                              | 0.42          | 250                    |
| 22040212NJ7C | 12              | ± 5%      | 8     | 100                       | 2700                              | 0.50          | 250                    |
| 22040215NJ7C | 15              | ± 5%      | 8     | 100                       | 2300                              | 0.55          | 250                    |
| 22040218NJ7C | 18              | ± 5%      | 8     | 100                       | 2100                              | 0.65          | 200                    |
| 22040222NJ7C | 22              | ± 5%      | 8     | 100                       | 1900                              | 0.80          | 200                    |
| 22040227NJ7C | 27              | ± 5%      | 8     | 100                       | 1600                              | 0.90          | 200                    |

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# Chip Inductors (Ceramic)

## Package Size - 0603

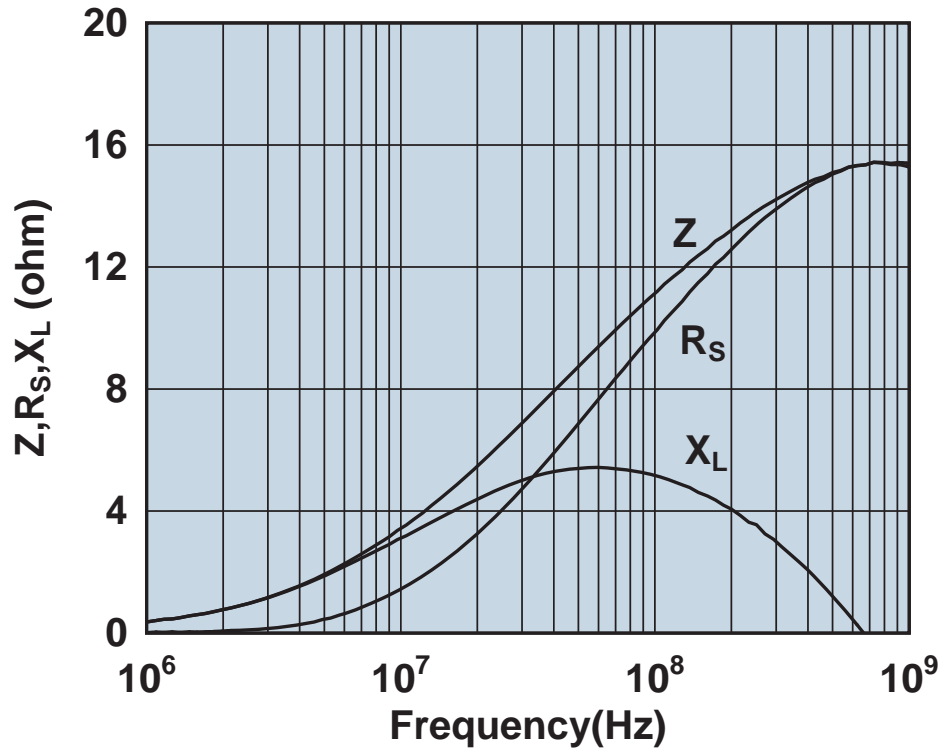
| Part Number  | Inductance (nH) | Tolerance | Q Min | Test Frequency L, Q (MHz) | Self Resonant Frequency (Min MHz) | DCR (Ohm) Max | Rated Current (mA Max) |
|--------------|-----------------|-----------|-------|---------------------------|-----------------------------------|---------------|------------------------|
| 2206031N0S7C | 1.0             | ± 0.3 nH  | 8     | 100                       | 4000                              | 0.10          | 300                    |
| 2206031N2S7C | 1.2             | ± 0.3 nH  | 8     | 100                       | 4000                              | 0.10          | 300                    |
| 2206031N5S7C | 1.5             | ± 0.3 nH  | 8     | 100                       | 4000                              | 0.10          | 300                    |
| 2206031N8S7C | 1.8             | ± 0.3 nH  | 8     | 100                       | 4000                              | 0.10          | 300                    |
| 2206032N2S7C | 2.2             | ± 0.3 nH  | 8     | 100                       | 4000                              | 0.10          | 300                    |
| 2206032N7S7C | 2.7             | ± 0.3 nH  | 10    | 100                       | 4000                              | 0.10          | 300                    |
| 2206033N3S7C | 3.3             | ± 0.3 nH  | 10    | 100                       | 4000                              | 0.12          | 300                    |
| 2206033N9S7C | 3.9             | ± 0.3 nH  | 10    | 100                       | 4000                              | 0.14          | 300                    |
| 2206034N7S7C | 4.7             | ± 0.3 nH  | 10    | 100                       | 4000                              | 0.16          | 300                    |
| 2206035N6S7C | 5.6             | ± 0.3 nH  | 10    | 100                       | 4000                              | 0.18          | 300                    |
| 2206036N8J7C | 6.8             | ± 5%      | 10    | 100                       | 4000                              | 0.22          | 300                    |
| 2206038N2J7C | 8.2             | ± 5%      | 10    | 100                       | 4000                              | 0.24          | 300                    |
| 22060310NJ7C | 10              | ± 5%      | 12    | 100                       | 3000                              | 0.26          | 300                    |
| 22060312NJ7C | 12              | ± 5%      | 12    | 100                       | 3000                              | 0.28          | 300                    |
| 22060315NJ7C | 15              | ± 5%      | 12    | 100                       | 2000                              | 0.32          | 300                    |
| 22060318NJ7C | 18              | ± 5%      | 12    | 100                       | 2000                              | 0.35          | 300                    |
| 22060322NJ7C | 22              | ± 5%      | 12    | 100                       | 2000                              | 0.40          | 300                    |
| 22060327NJ7C | 27              | ± 5%      | 12    | 100                       | 1000                              | 0.45          | 300                    |
| 22060333NJ7C | 33              | ± 5%      | 12    | 100                       | 1000                              | 0.55          | 300                    |
| 22060339NJ7C | 39              | ± 5%      | 12    | 100                       | 1000                              | 0.60          | 300                    |
| 22060347NJ7C | 47              | ± 5%      | 12    | 100                       | 1000                              | 0.70          | 300                    |
| 22060356NJ7C | 56              | ± 5%      | 12    | 100                       | 1000                              | 0.75          | 300                    |
| 22060368NJ7C | 68              | ± 5%      | 12    | 100                       | 1000                              | 0.85          | 300                    |
| 22060382NJ7C | 82              | ± 5%      | 12    | 100                       | 1000                              | 0.95          | 300                    |
| 220603R10J7C | 100             | ± 5%      | 12    | 100                       | 1000                              | 1.00          | 300                    |
| 220603R12J7C | 120             | ± 5%      | 8     | 50                        | 800                               | 1.20          | 300                    |
| 220603R15J7C | 150             | ± 5%      | 8     | 50                        | 800                               | 1.20          | 300                    |
| 220603R18J7C | 180             | ± 5%      | 8     | 50                        | 700                               | 1.30          | 300                    |
| 220603R22J7C | 220             | ± 5%      | 8     | 50                        | 600                               | 1.30          | 300                    |

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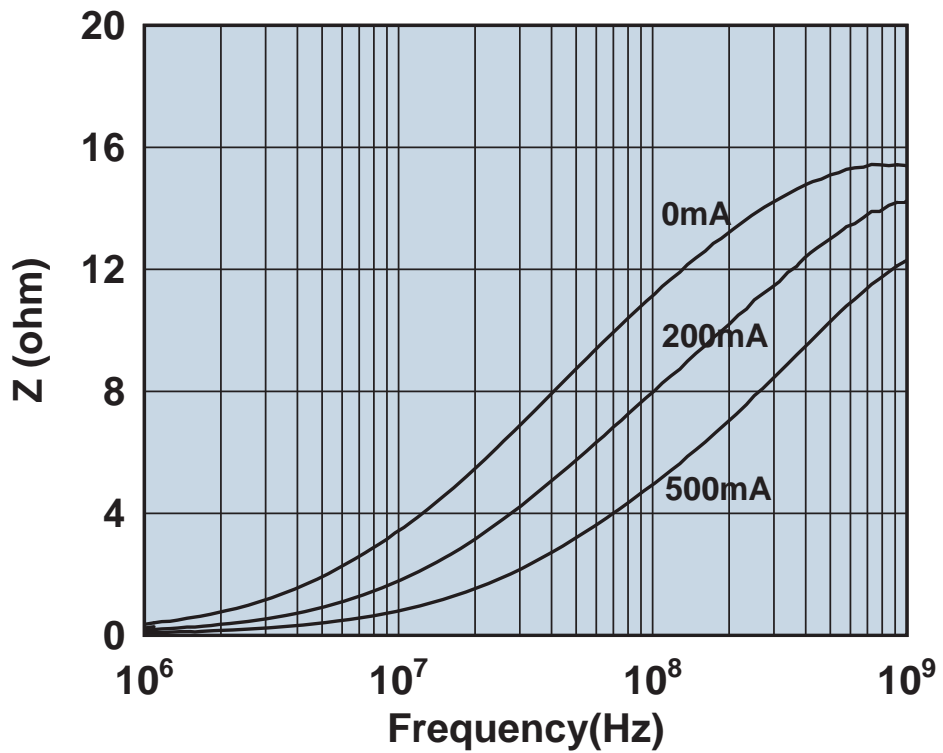
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# 2504021007Y0

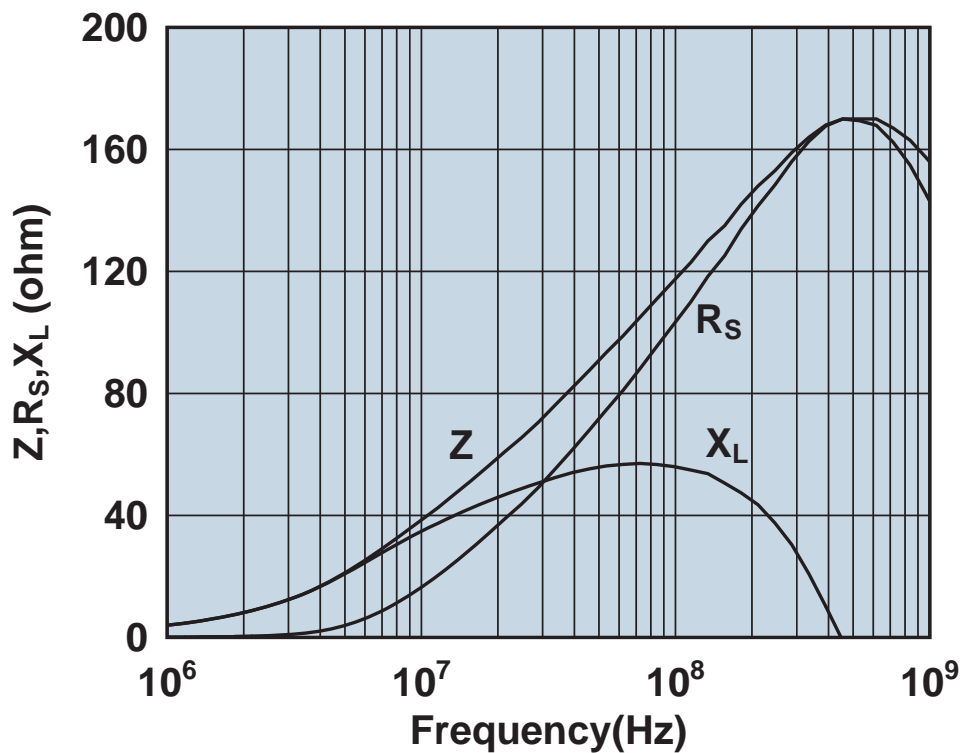


Impedance, reactance, and resistance vs. frequency.

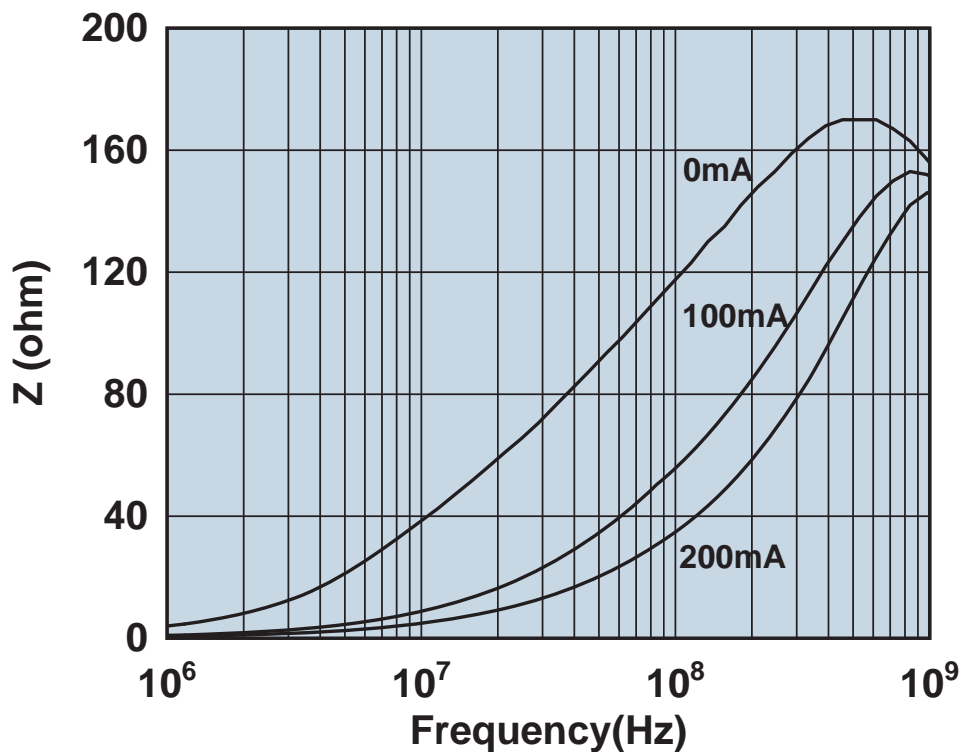


Impedance vs. frequency with dc bias.

2504021217Y0

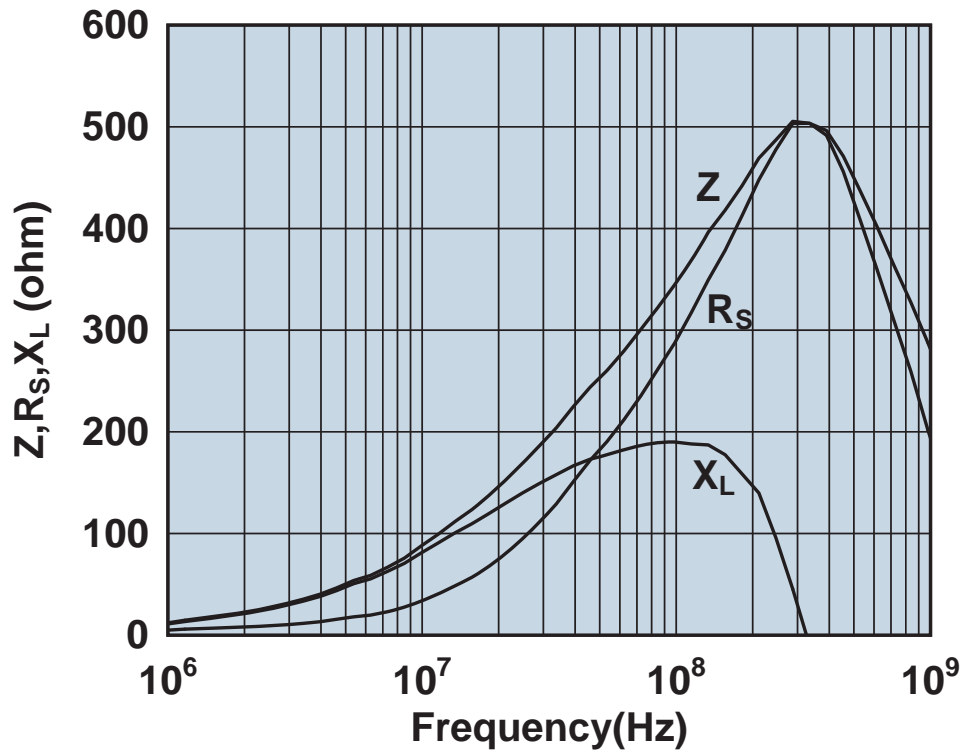


Impedance, reactance, and resistance vs. frequency.

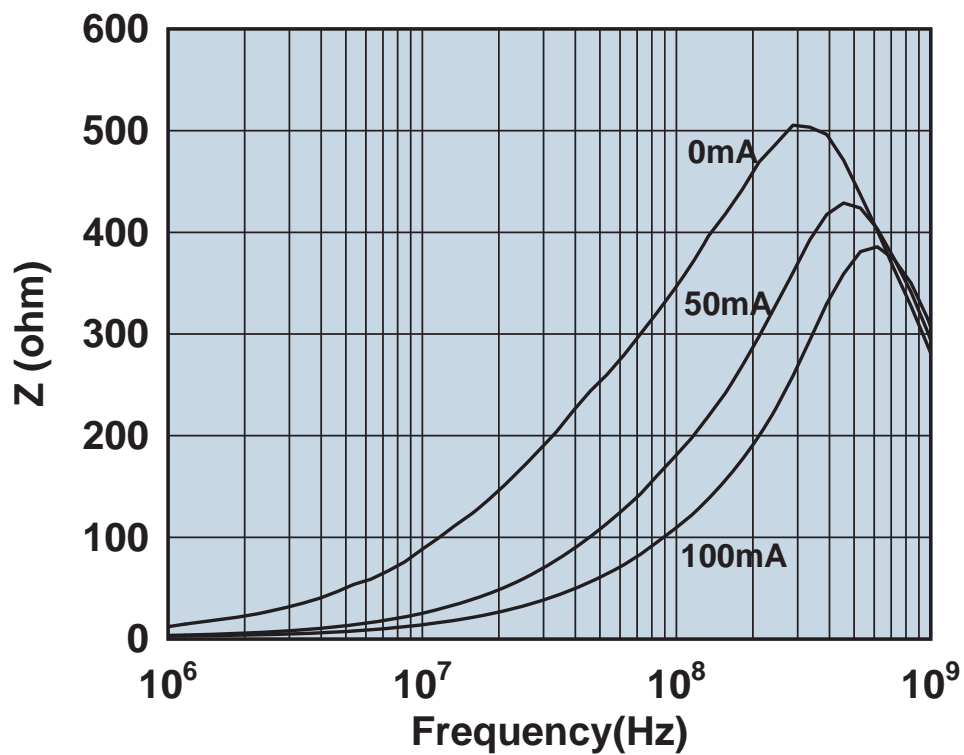


Impedance vs. frequency with dc bias.

## 2504023017Y0

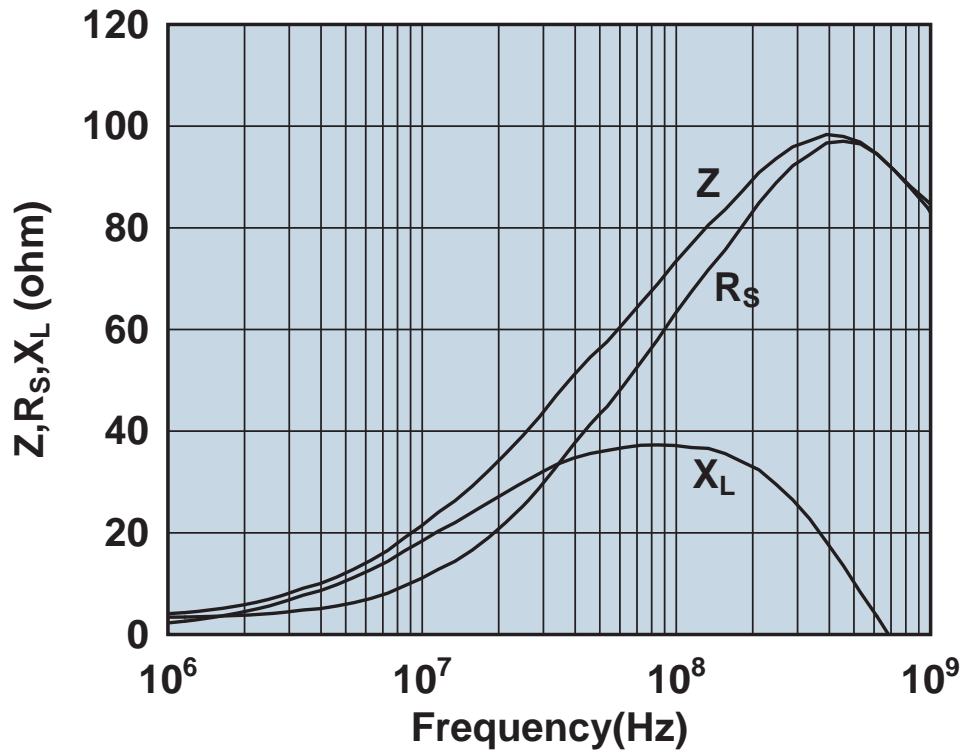


Impedance, reactance, and resistance vs. frequency.

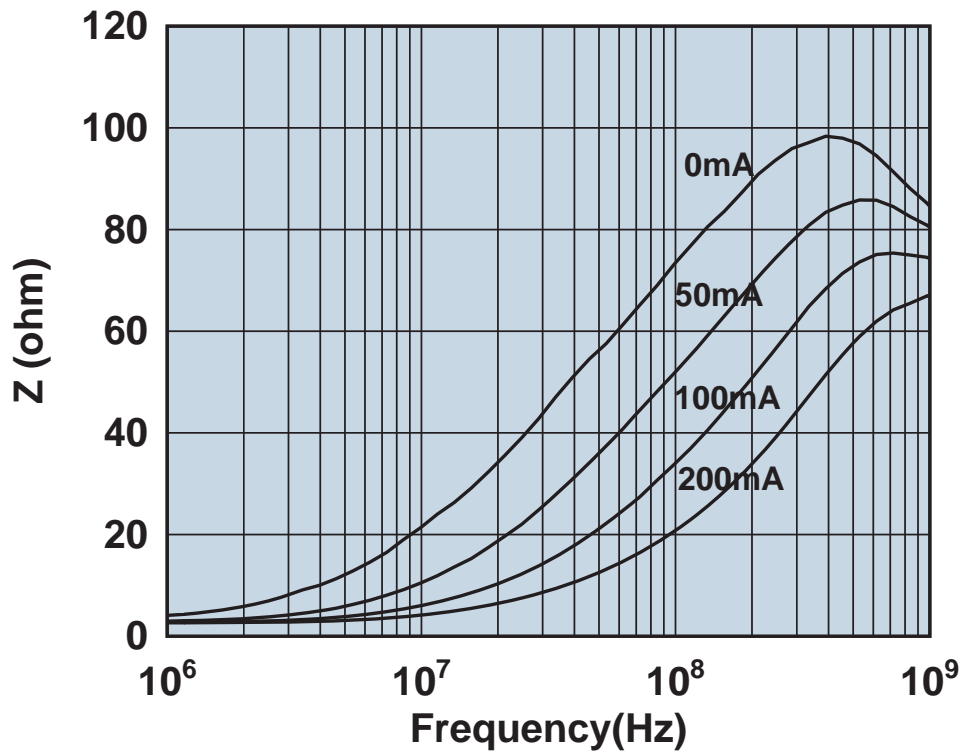


Impedance vs. frequency with dc bias.

# 2504026007Y0



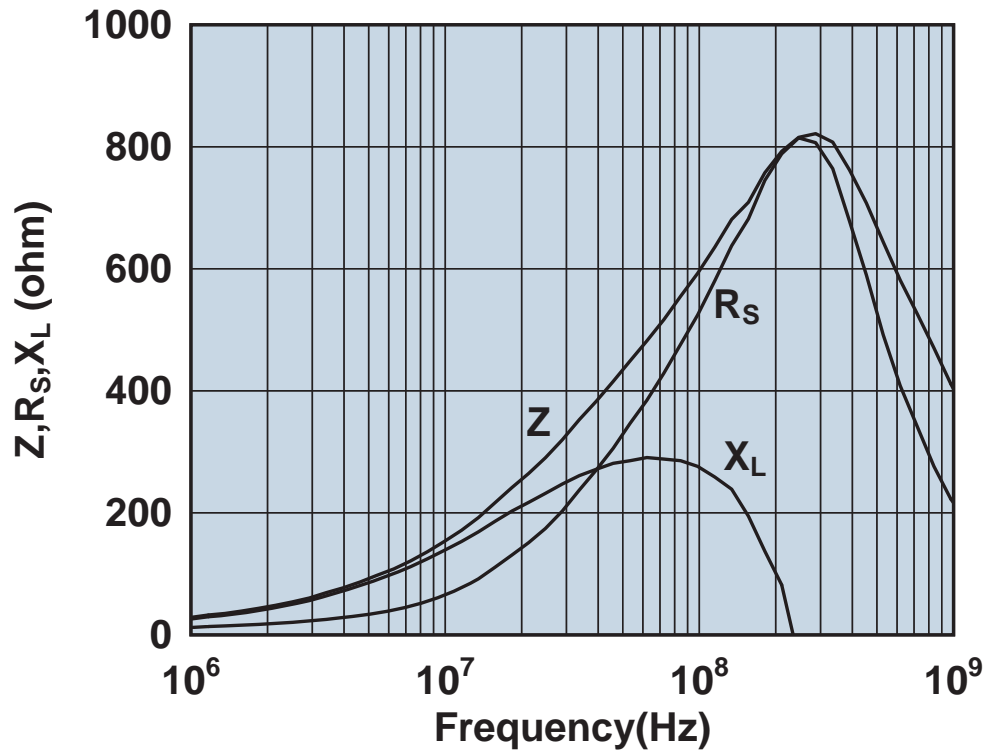
Impedance, reactance, and resistance vs. frequency.



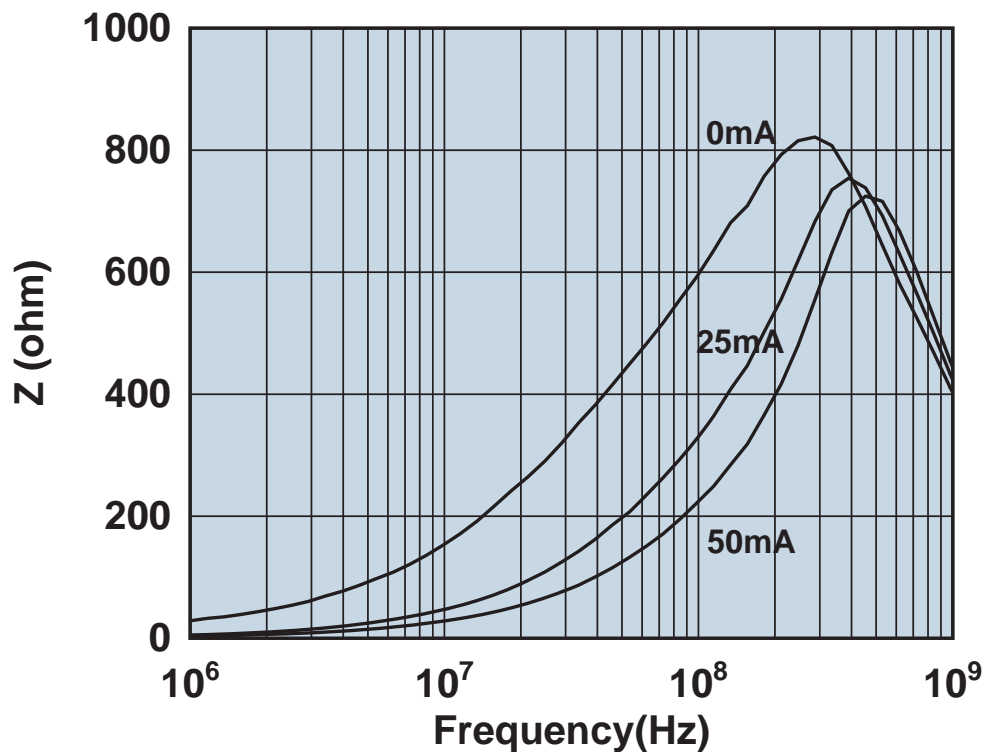
Impedance vs. frequency with dc bias.



## 2504026017Y0

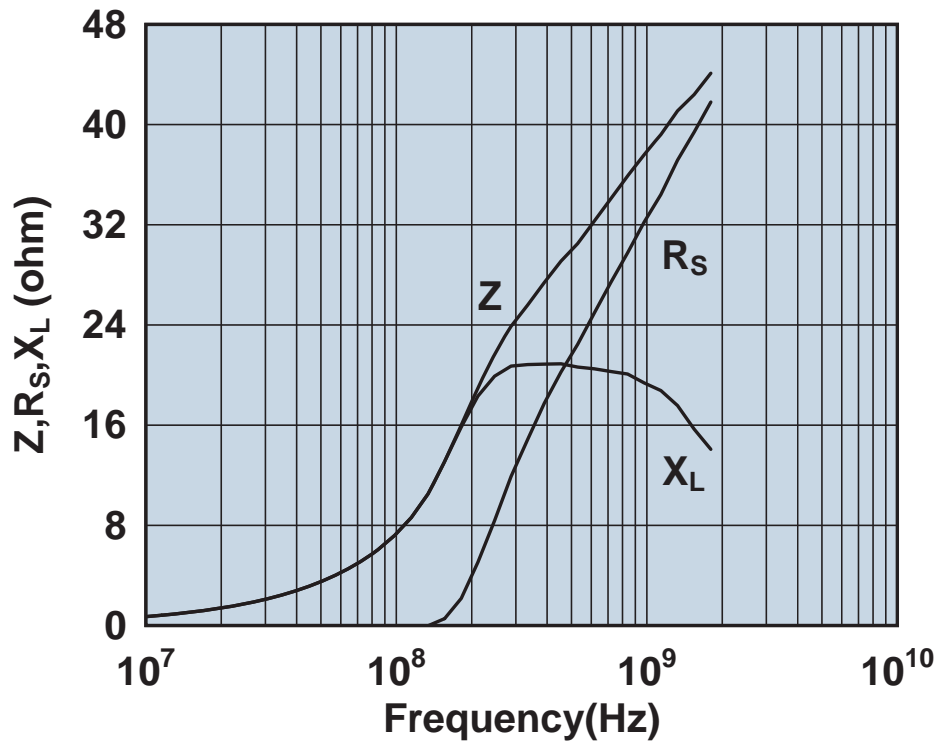


Impedance, reactance, and resistance vs. frequency.

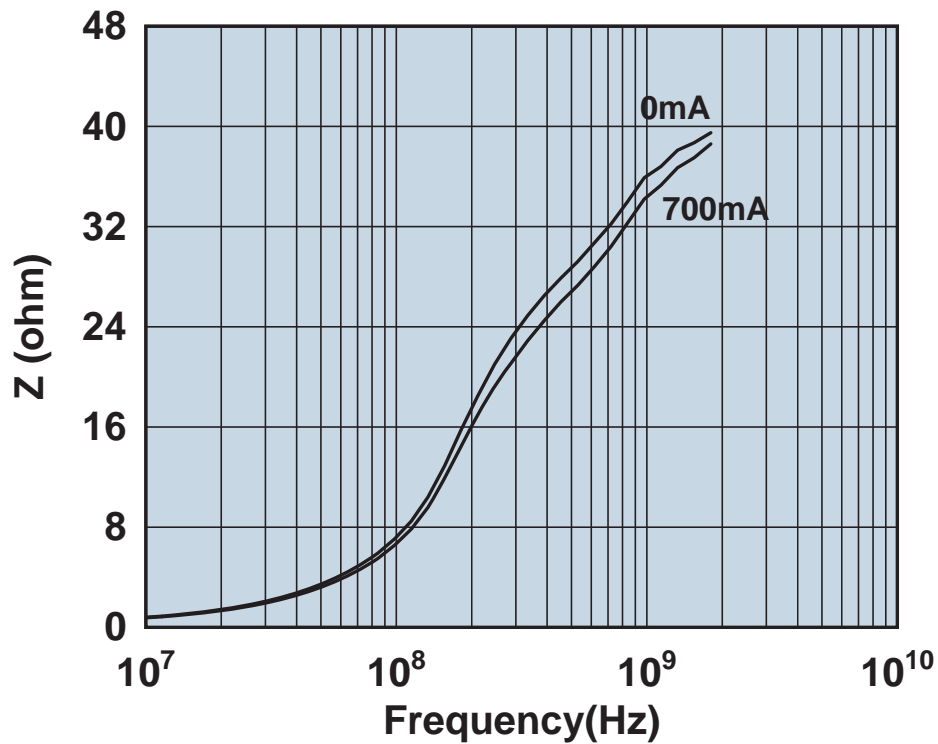


Impedance vs. frequency with dc bias.

# 2506030707H0

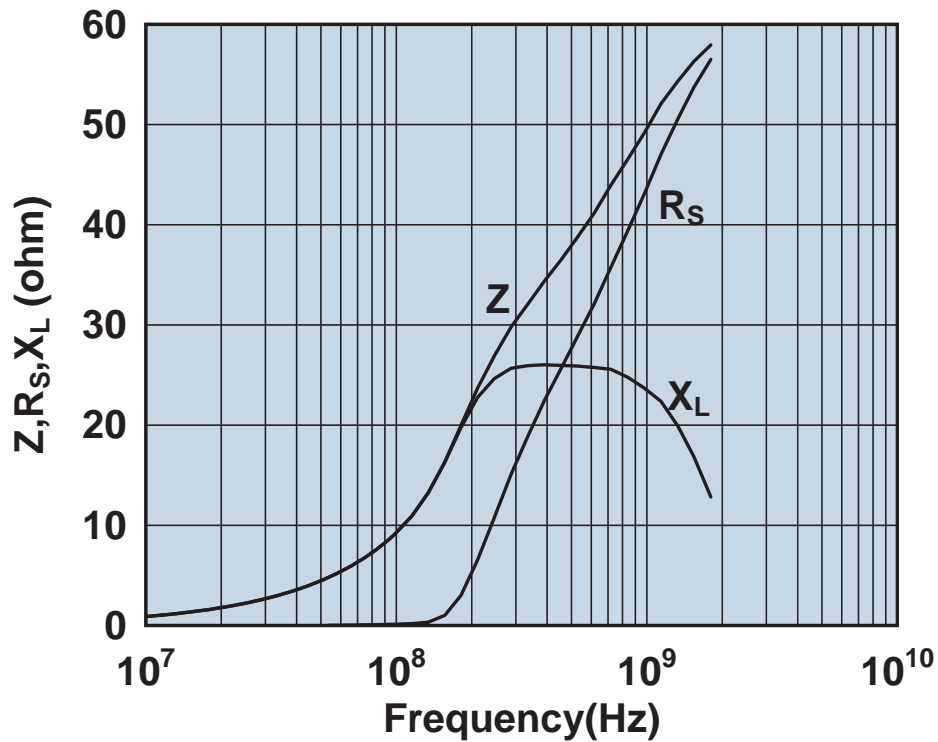


Impedance, reactance, and resistance vs. frequency.

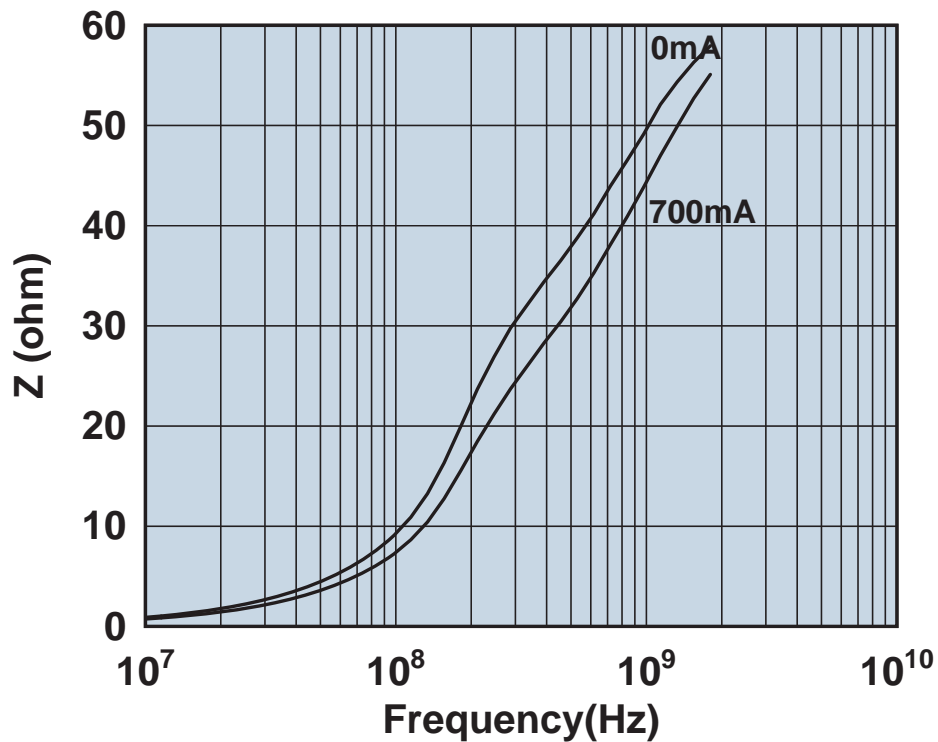


Impedance vs. frequency with dc bias.

# 2506031007H0

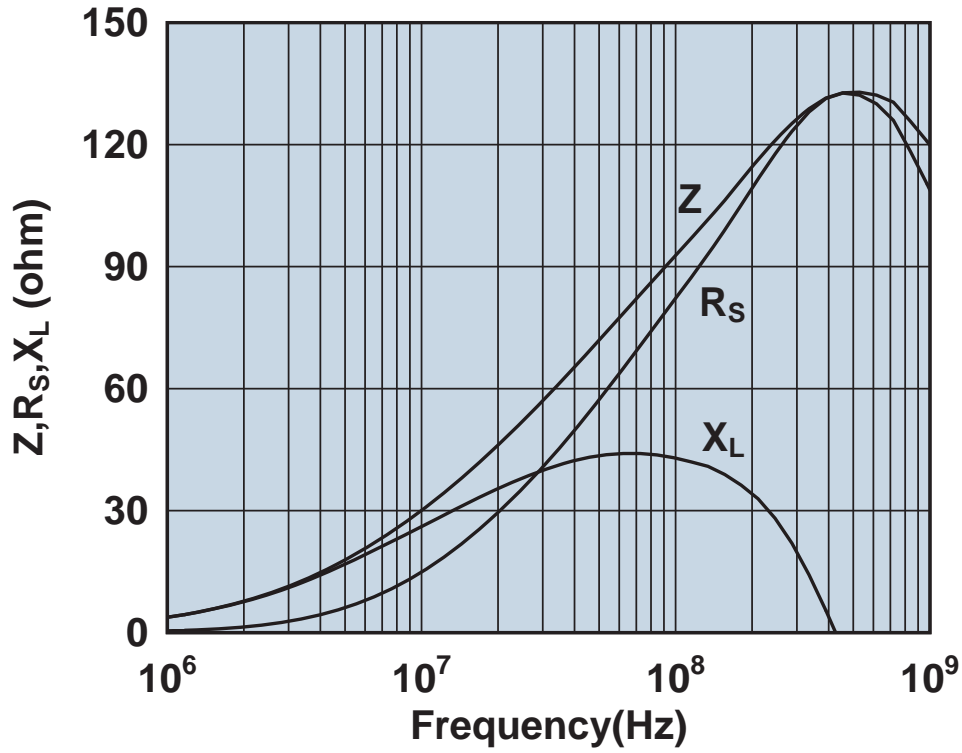


Impedance, reactance, and resistance vs. frequency.

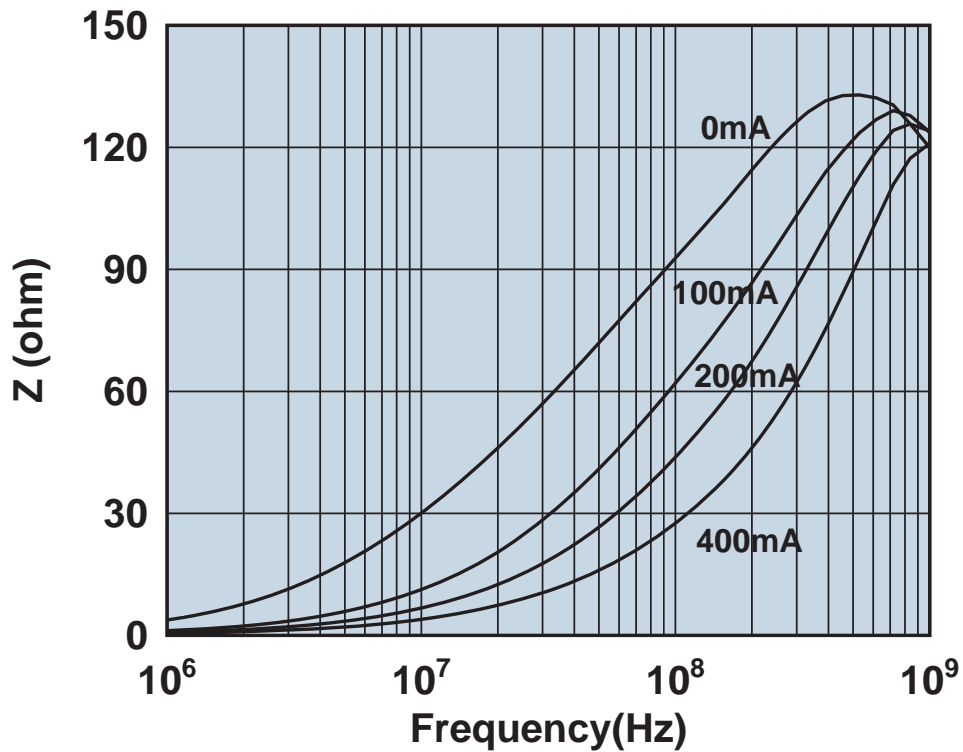


Impedance vs. frequency with dc bias.

2506031017Y0

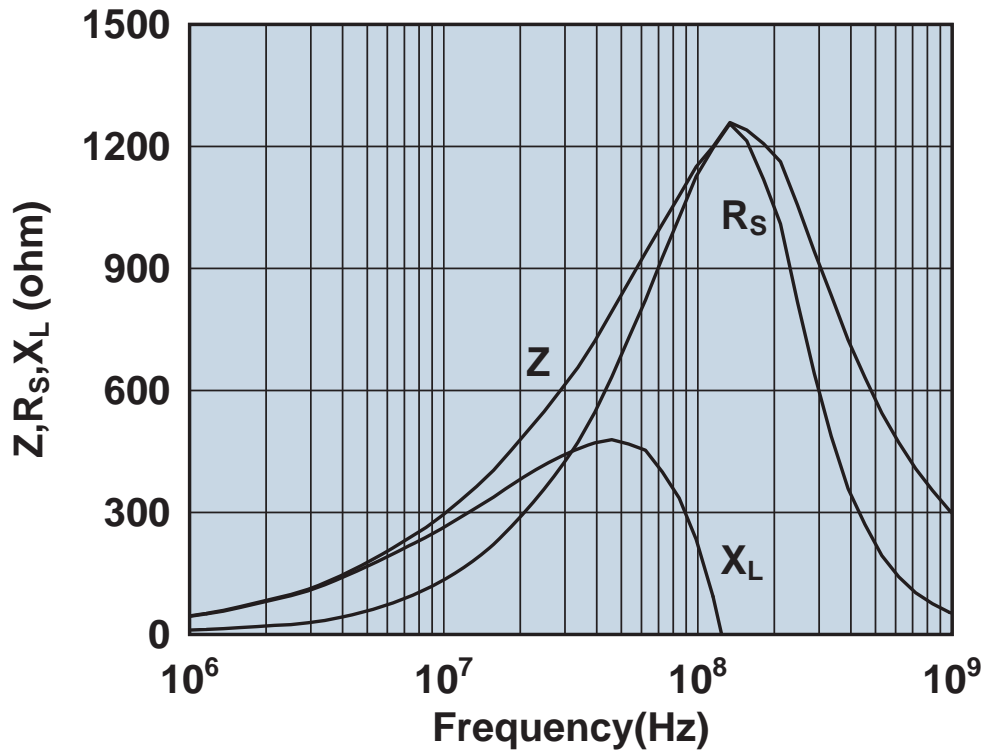


Impedance, reactance, and resistance vs. frequency.

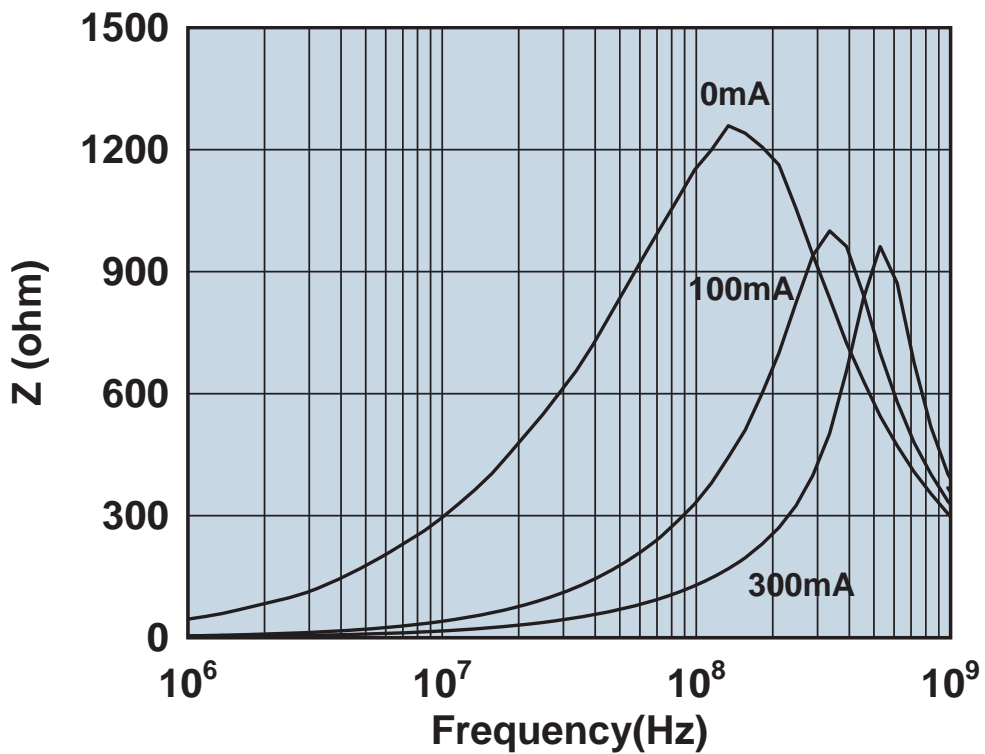


Impedance vs. frequency with dc bias.

2506031027Y0

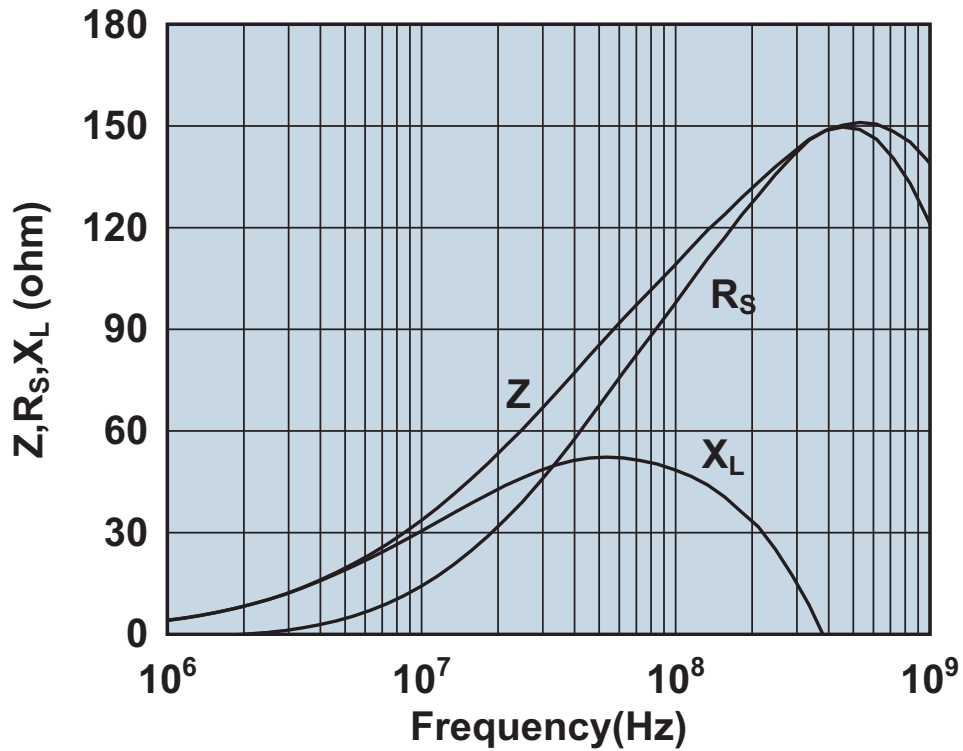


Impedance, reactance, and resistance vs. frequency.

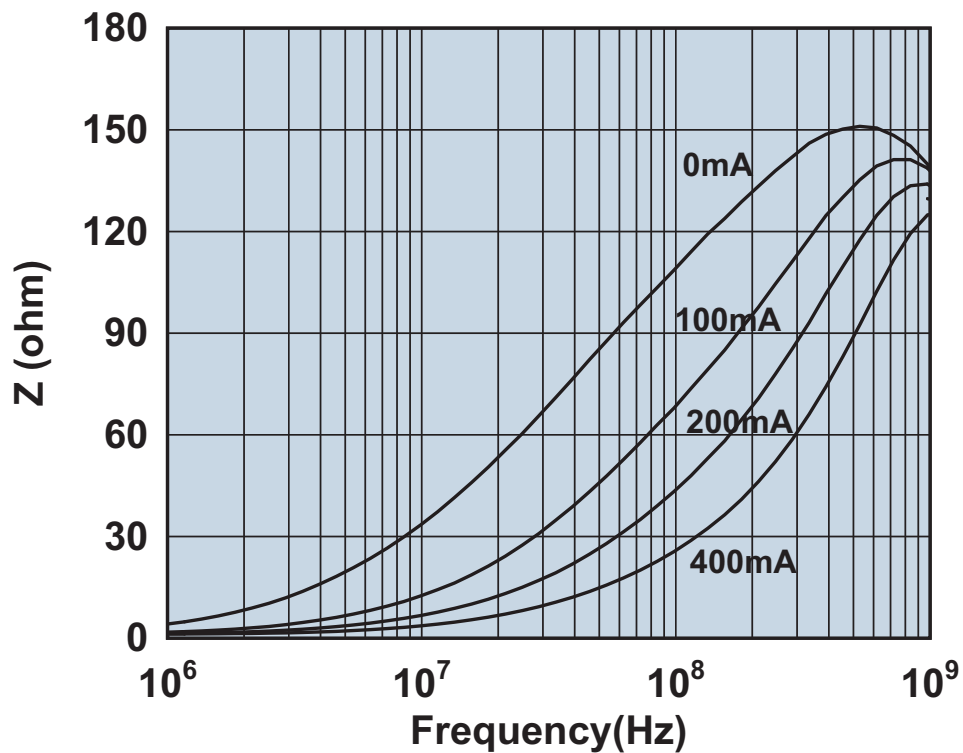


Impedance vs. frequency with dc bias.

# 2506031217Y0

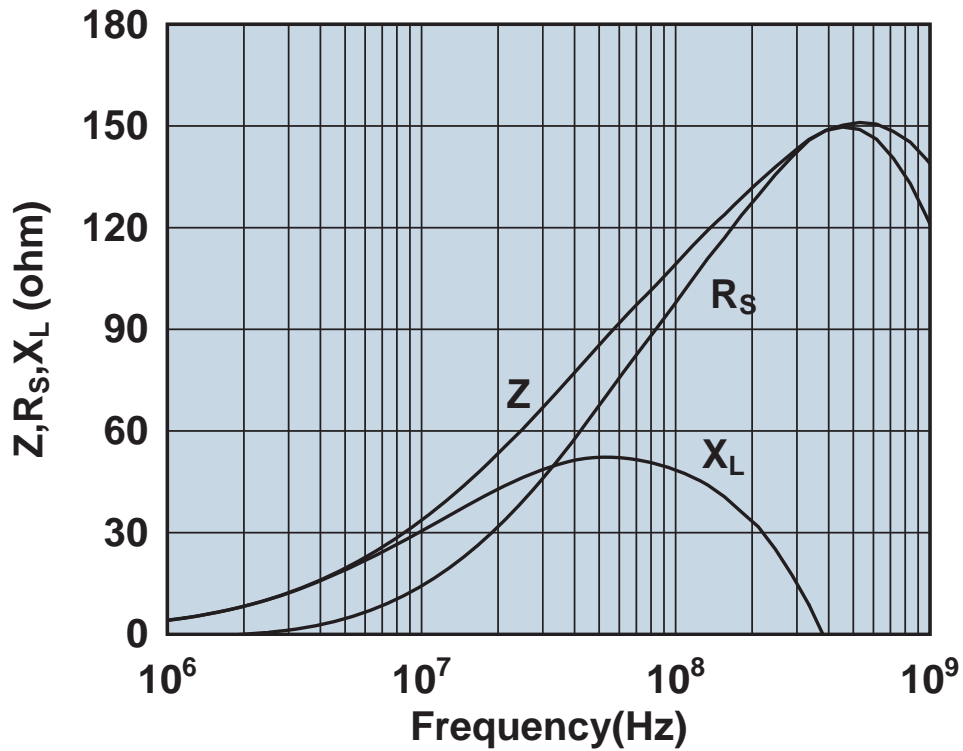


Impedance, reactance, and resistance vs. frequency.

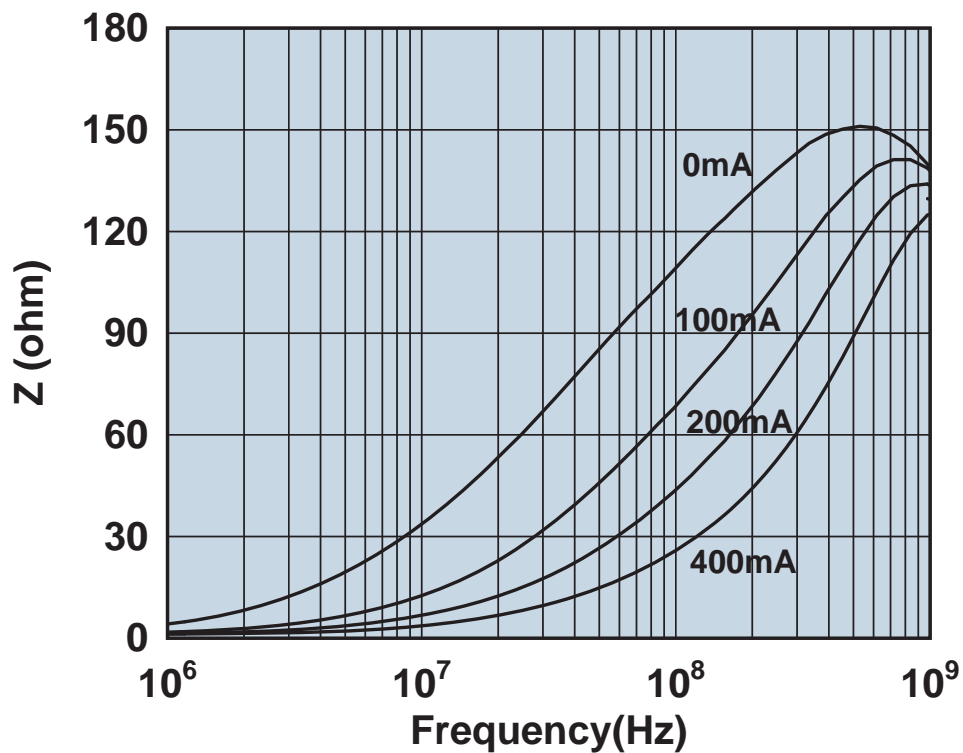


Impedance vs. frequency with dc bias.

# 2506031217Y0

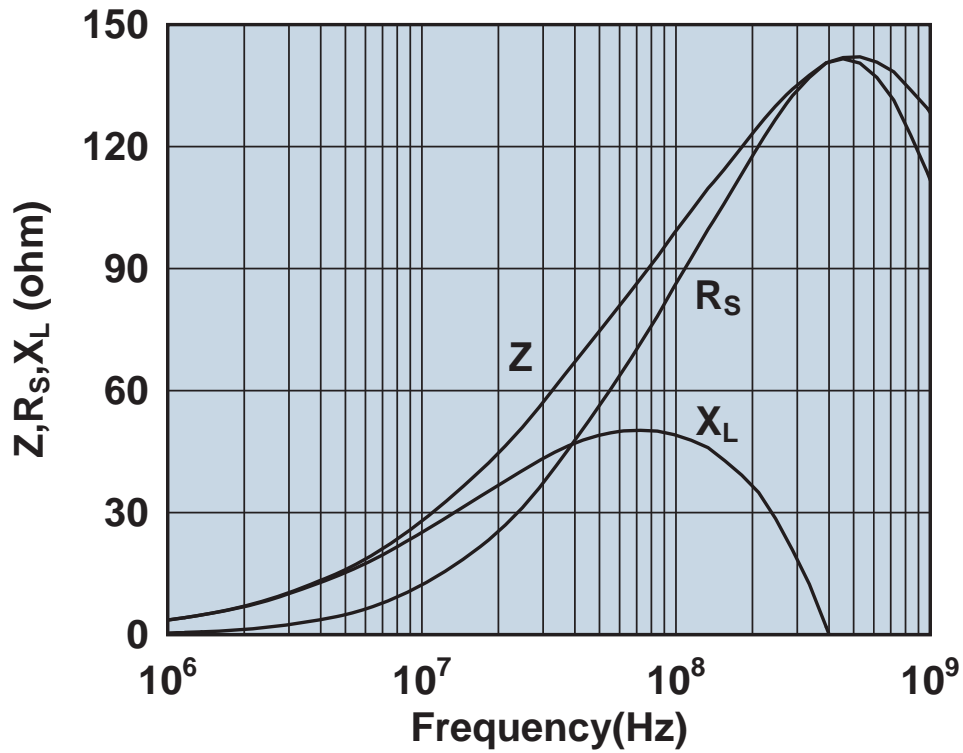


Impedance, reactance, and resistance vs. frequency.

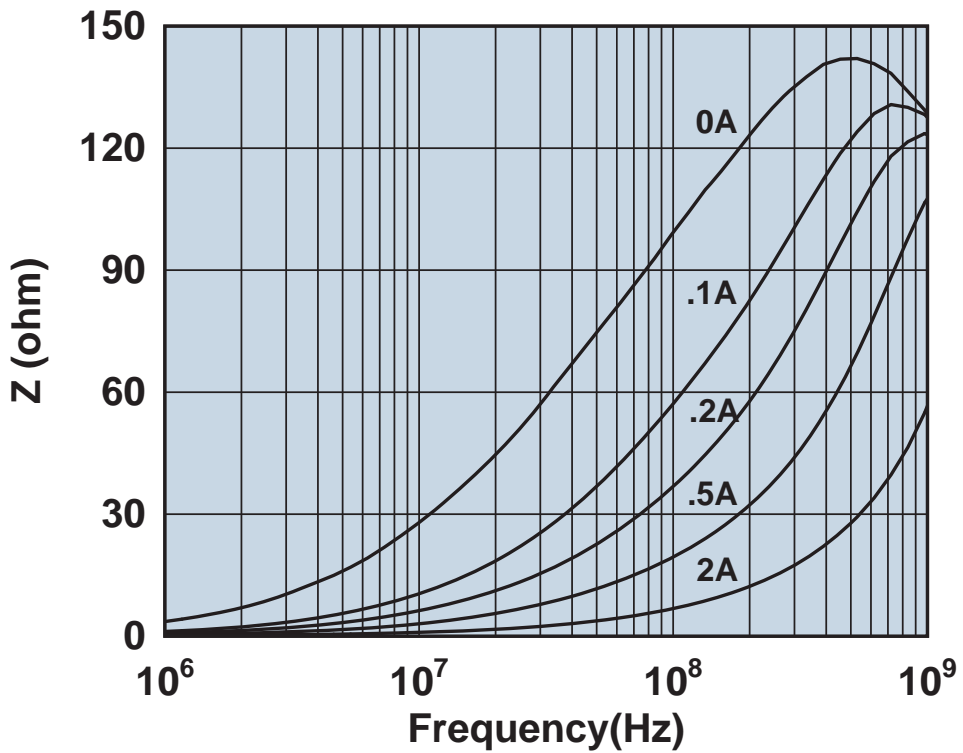


Impedance vs. frequency with dc bias.

2506031217Y2



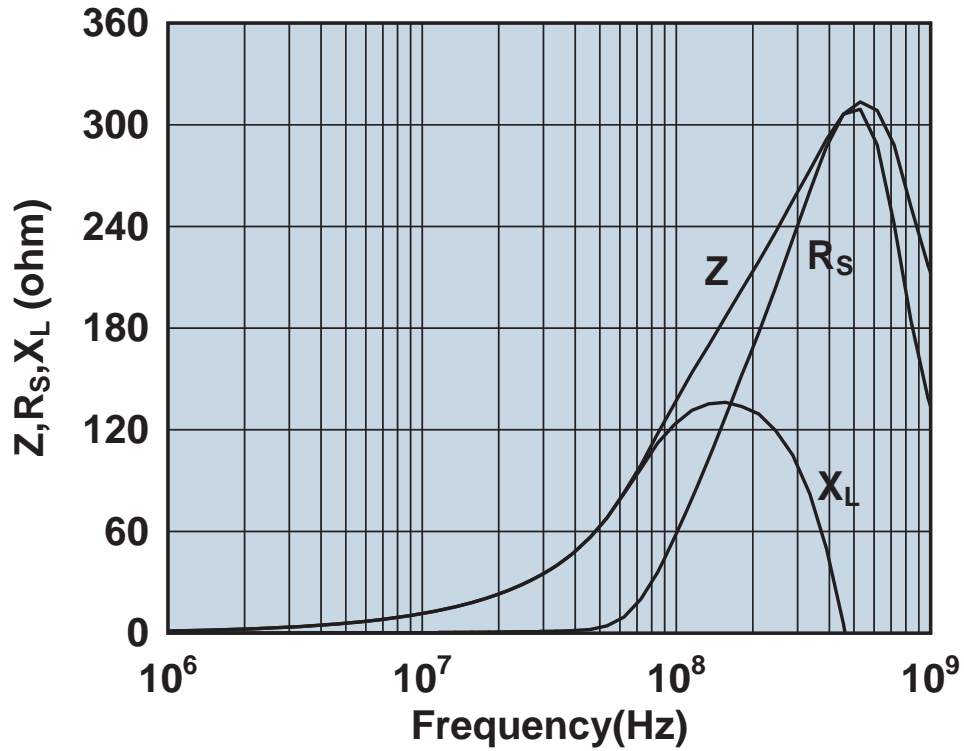
Impedance, reactance, and resistance vs. frequency.



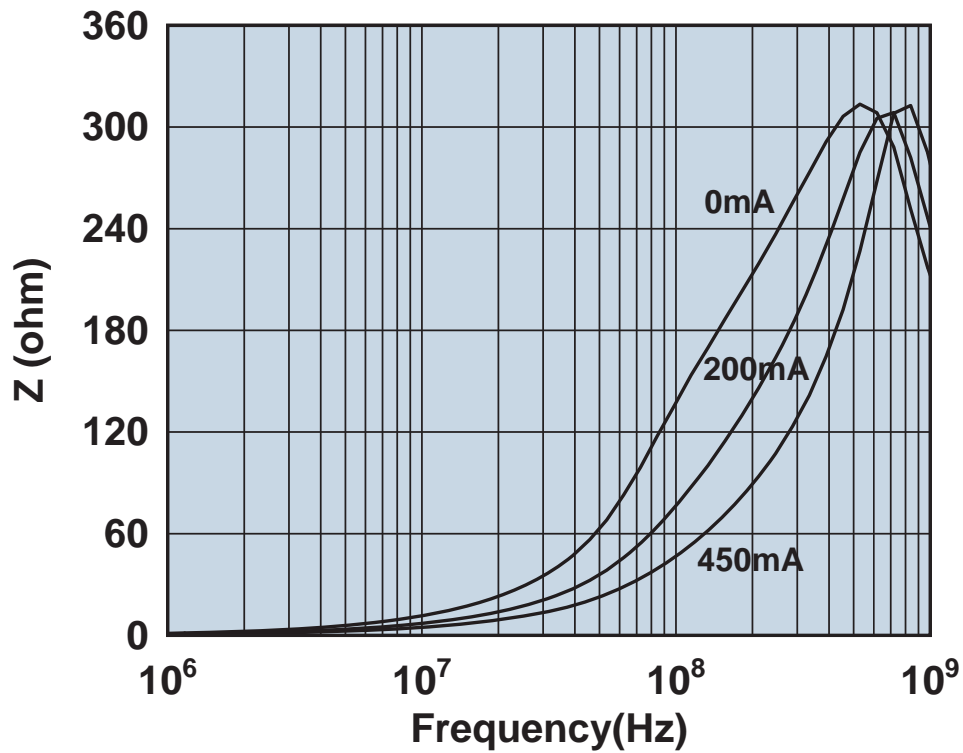
Impedance vs. frequency with dc bias.



# 2506031217Z0

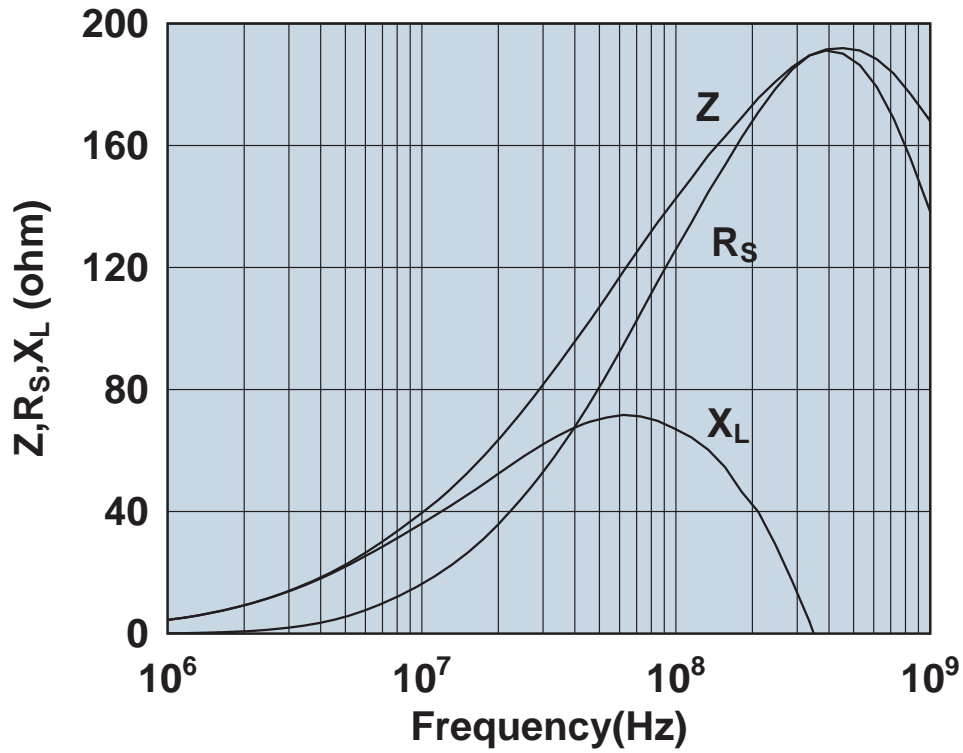


Impedance, reactance, and resistance vs. frequency.

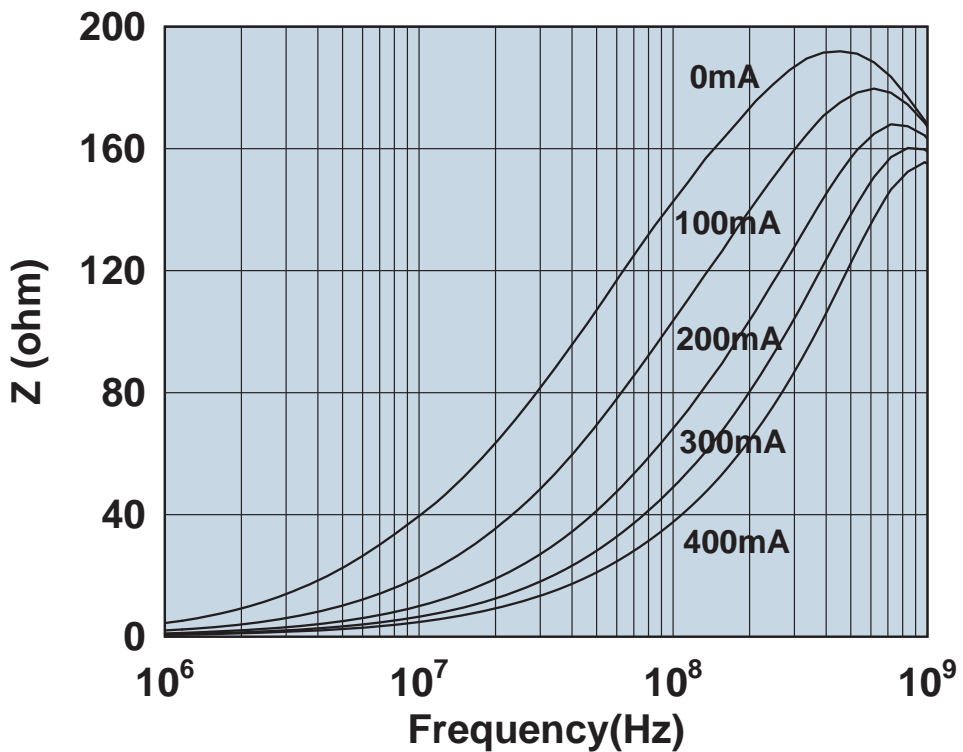


Impedance vs. frequency with dc bias.

# 2506031517Y0



Impedance, reactance, and resistance vs. frequency.



Impedance vs. frequency with dc bias.

**2506032217H0**

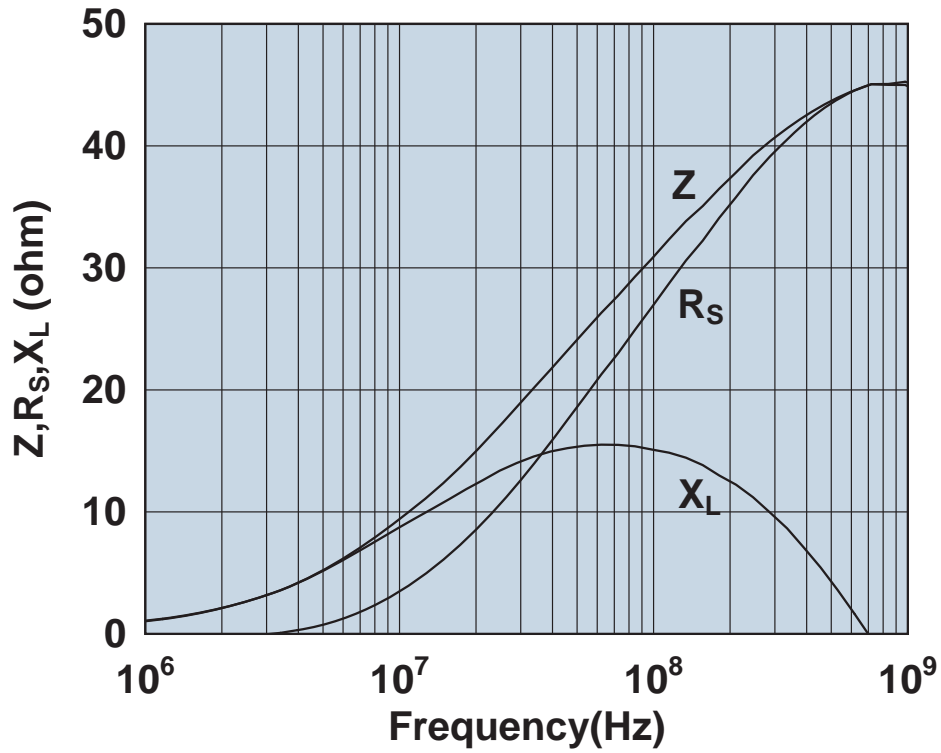
**Not yet available.**

Impedance, reactance, and resistance vs. frequency.

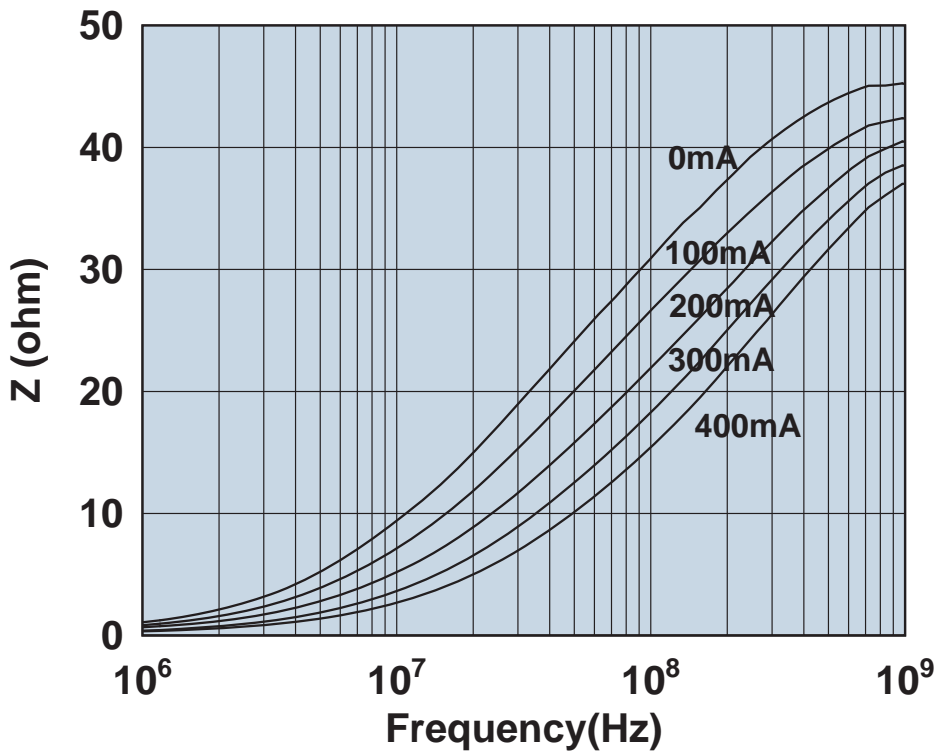
**Not yet available.**

Impedance vs. frequency with dc bias.

# 2506033007Y0

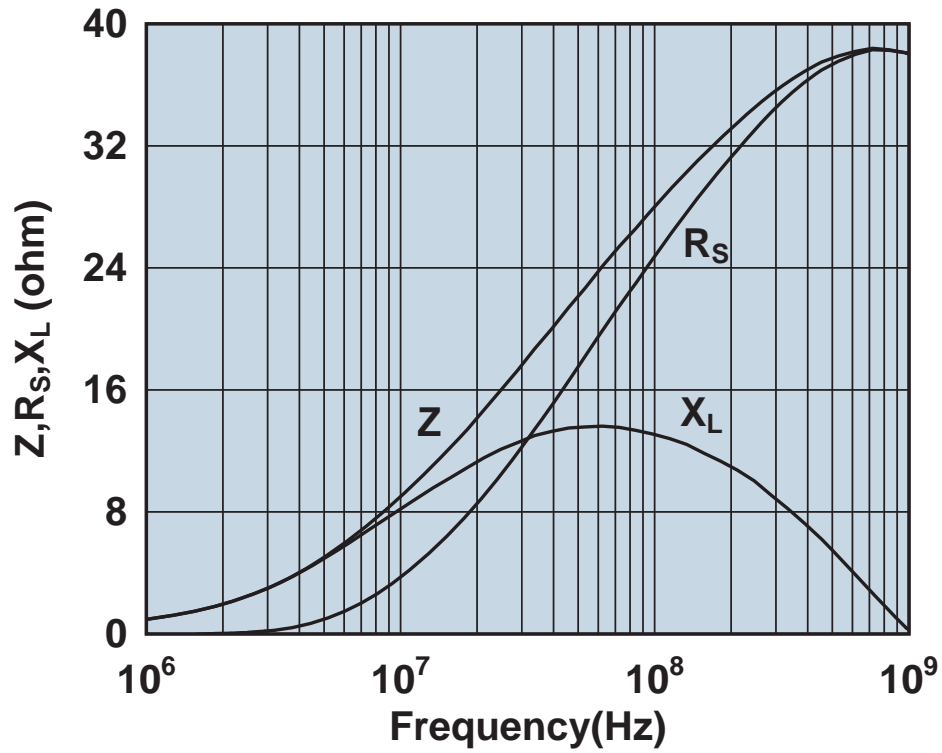


Impedance, reactance, and resistance vs. frequency.

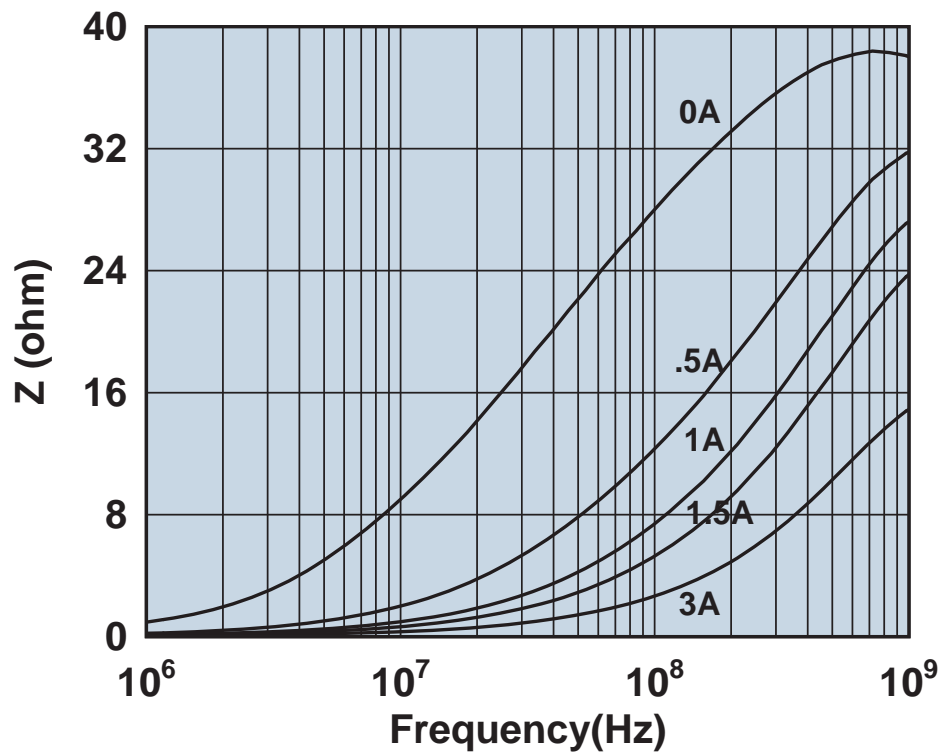


Impedance vs. frequency with dc bias.

# 2506033007Y3

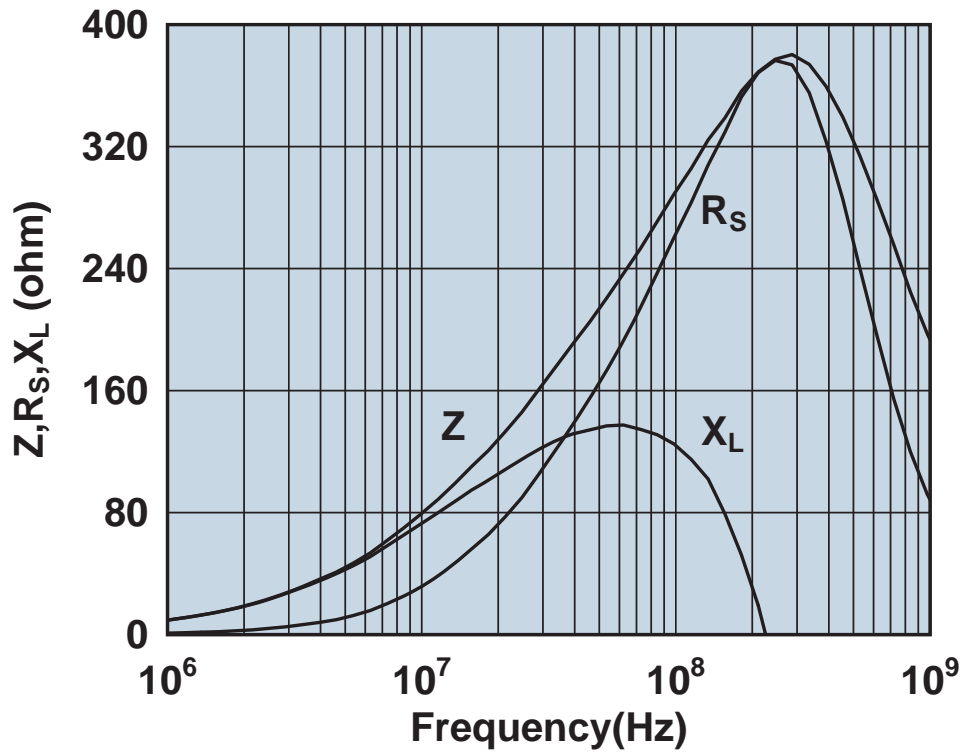


Impedance, reactance, and resistance vs. frequency.

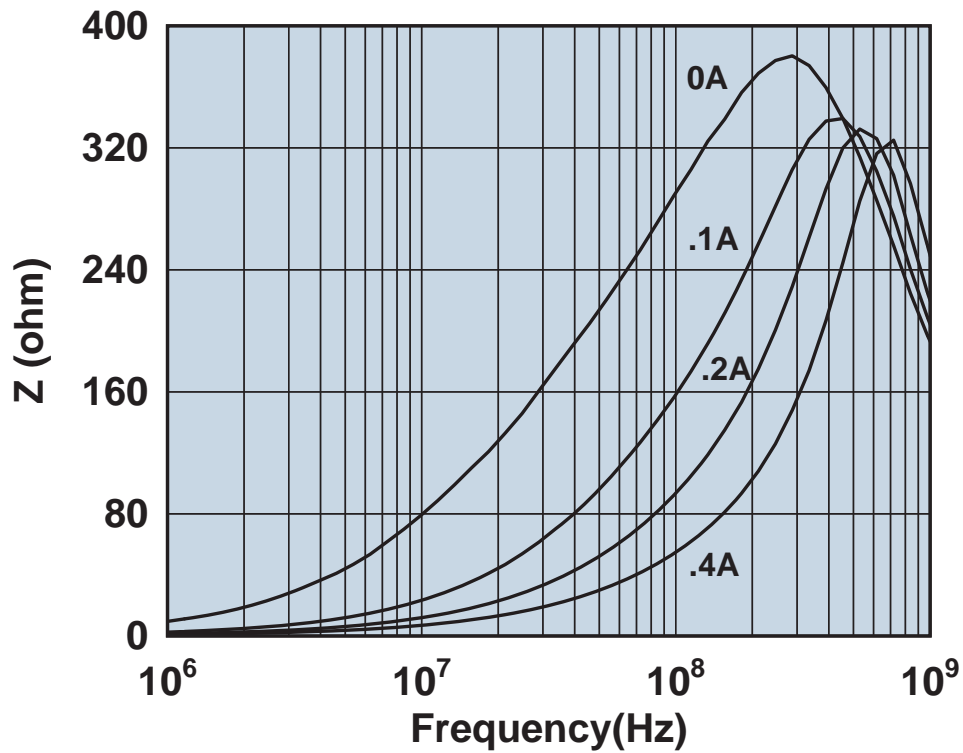


Impedance vs. frequency with dc bias.

# 2506033017Y0

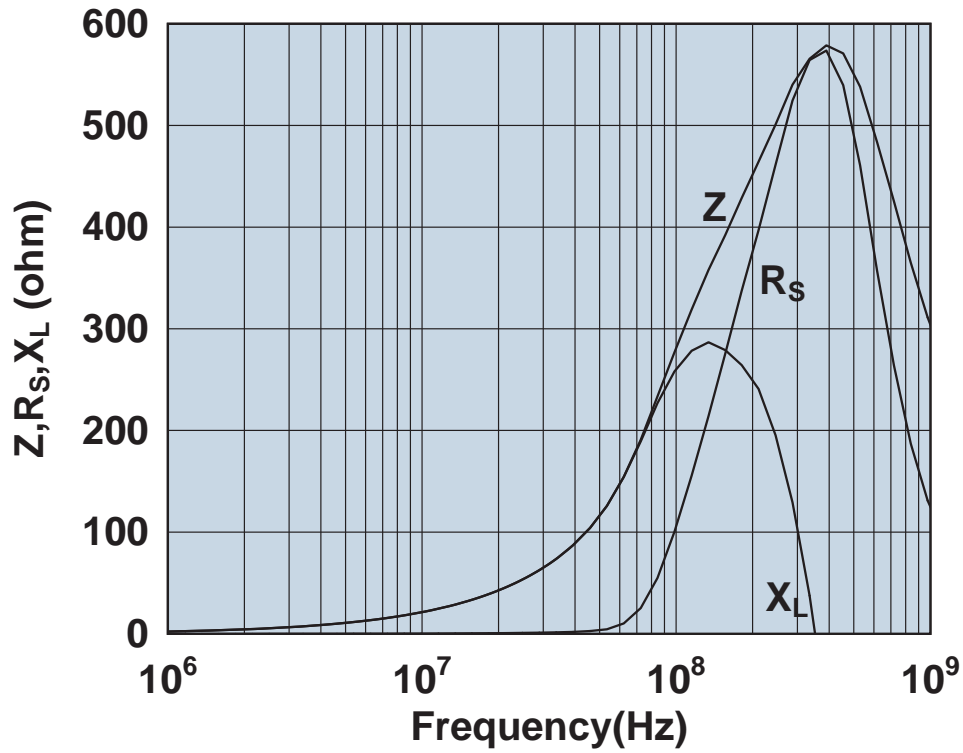


Impedance, reactance, and resistance vs. frequency.

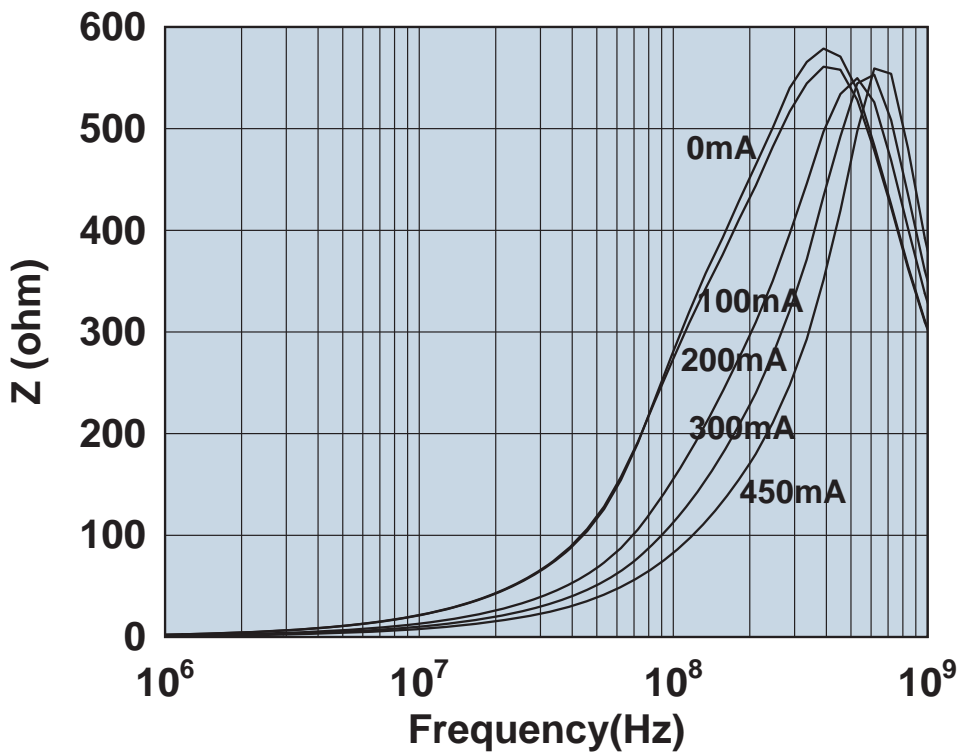


Impedance vs. frequency with dc bias.

# 2506033017Z0

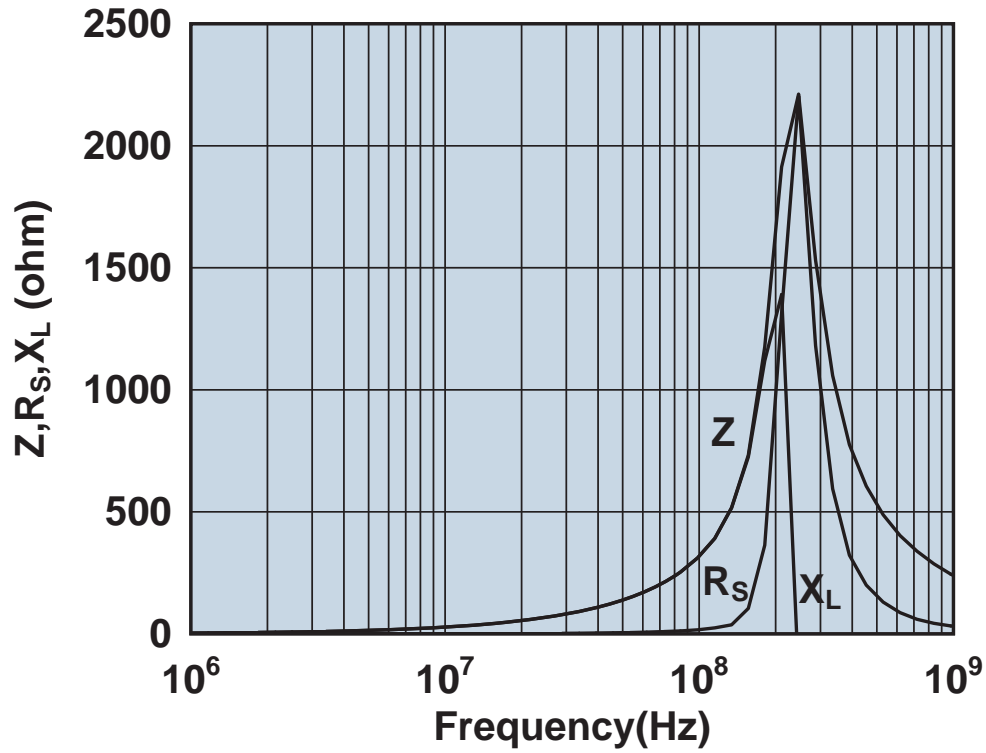


Impedance, reactance, and resistance vs. frequency.

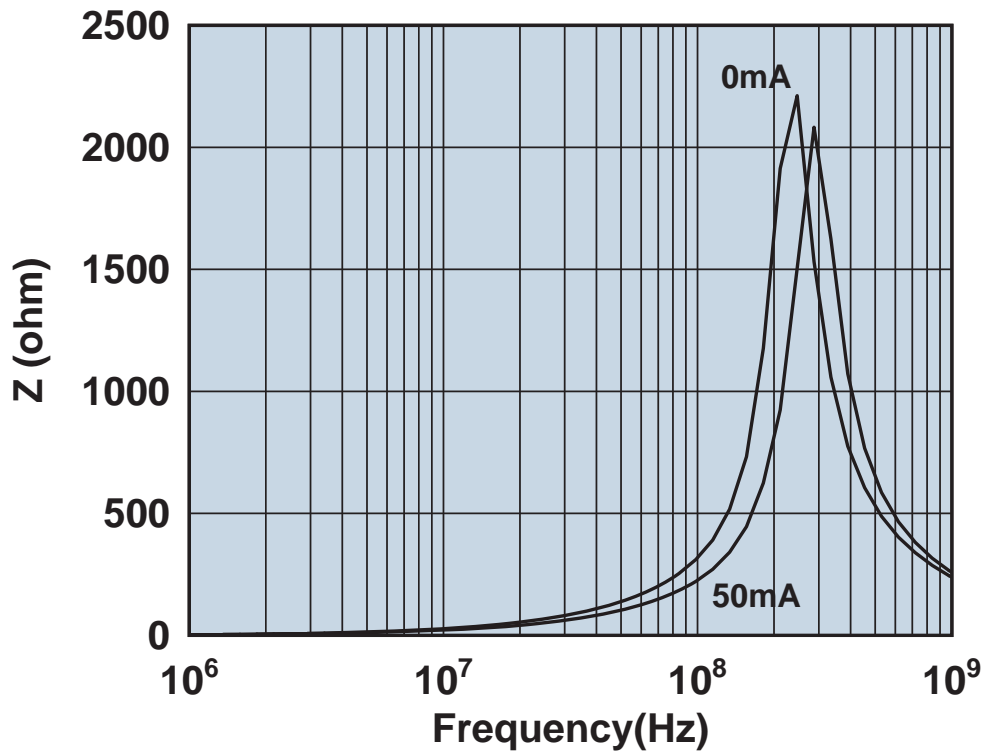


Impedance vs. frequency with dc bias.

# 2506033317H0



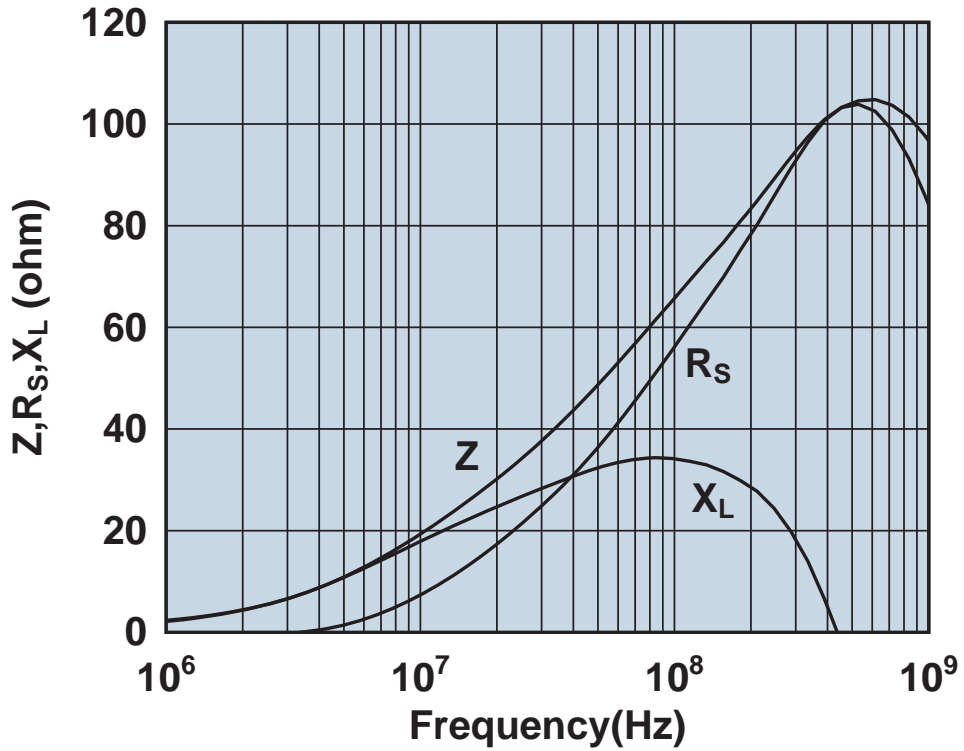
Impedance, reactance, and resistance vs. frequency.



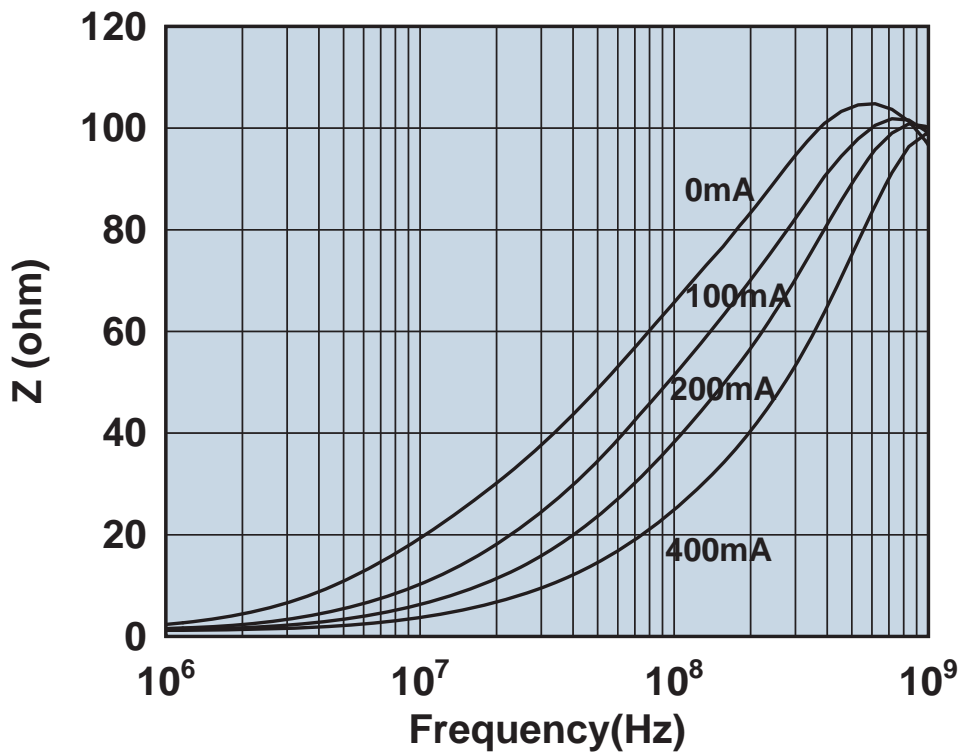
Impedance vs. frequency with dc bias.



# 2506036007Y0

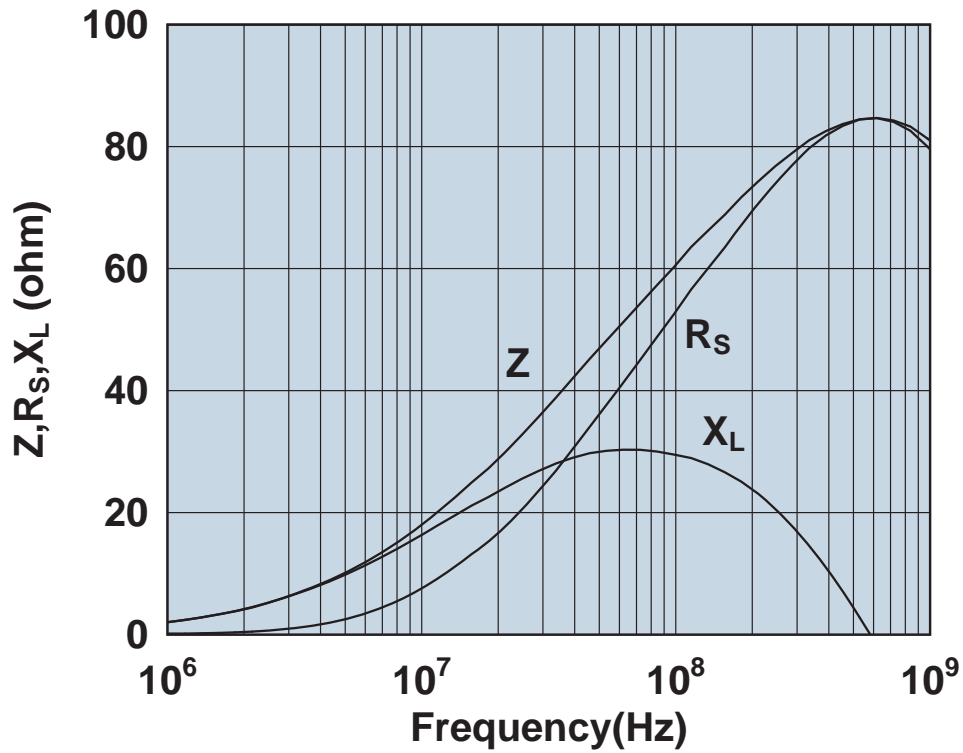


Impedance, reactance, and resistance vs. frequency.

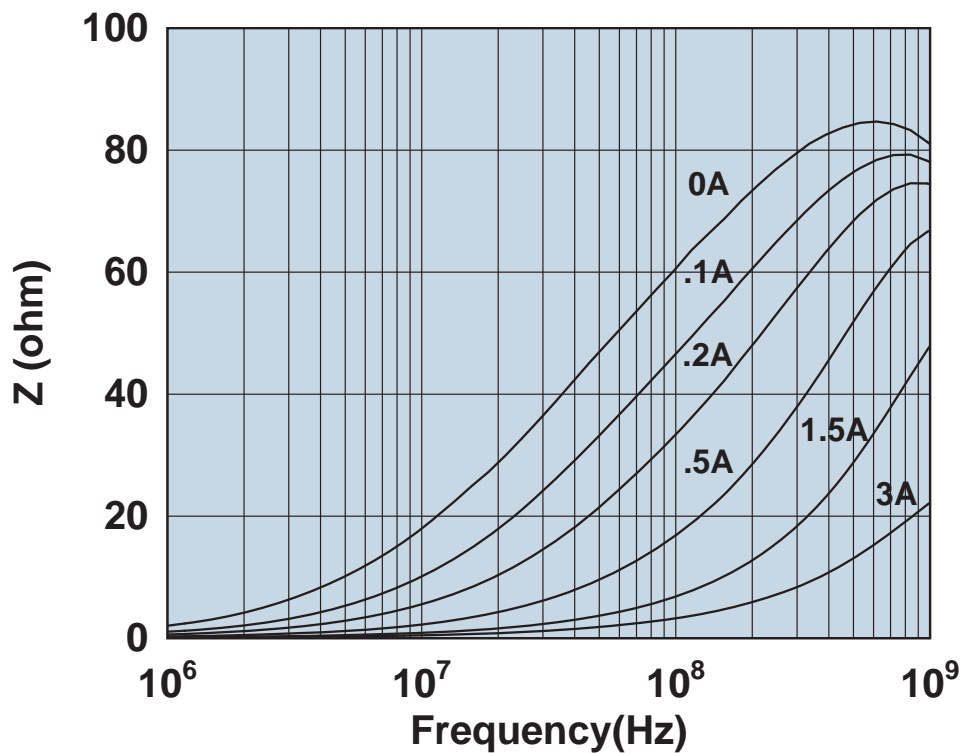


Impedance vs. frequency with dc bias.

## 2506036007Y3

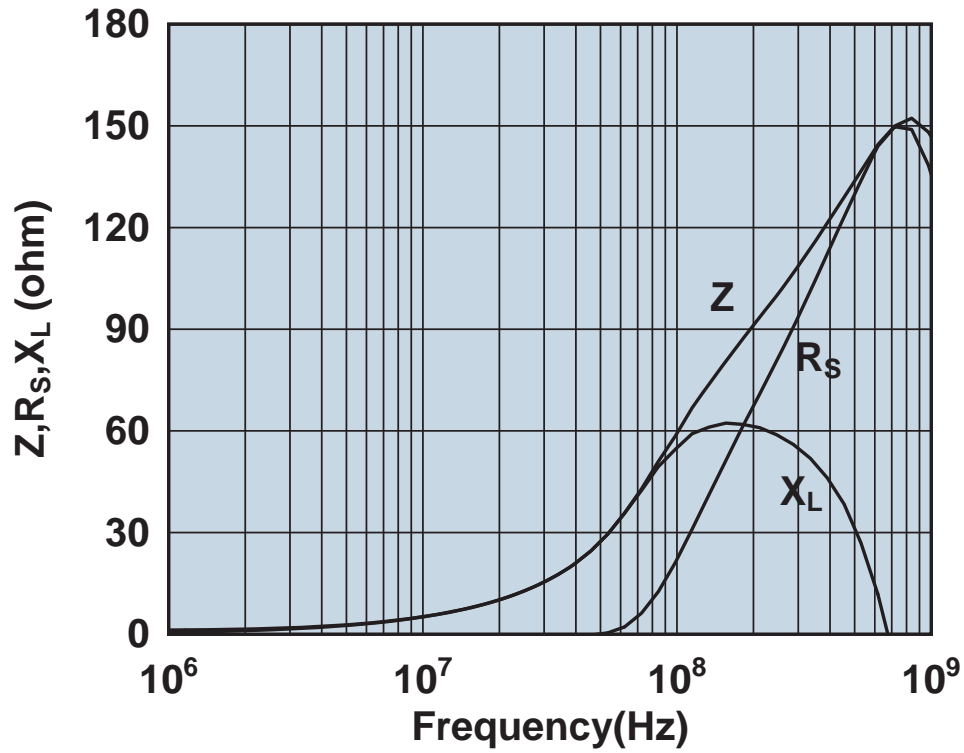


Impedance, reactance, and resistance vs. frequency.

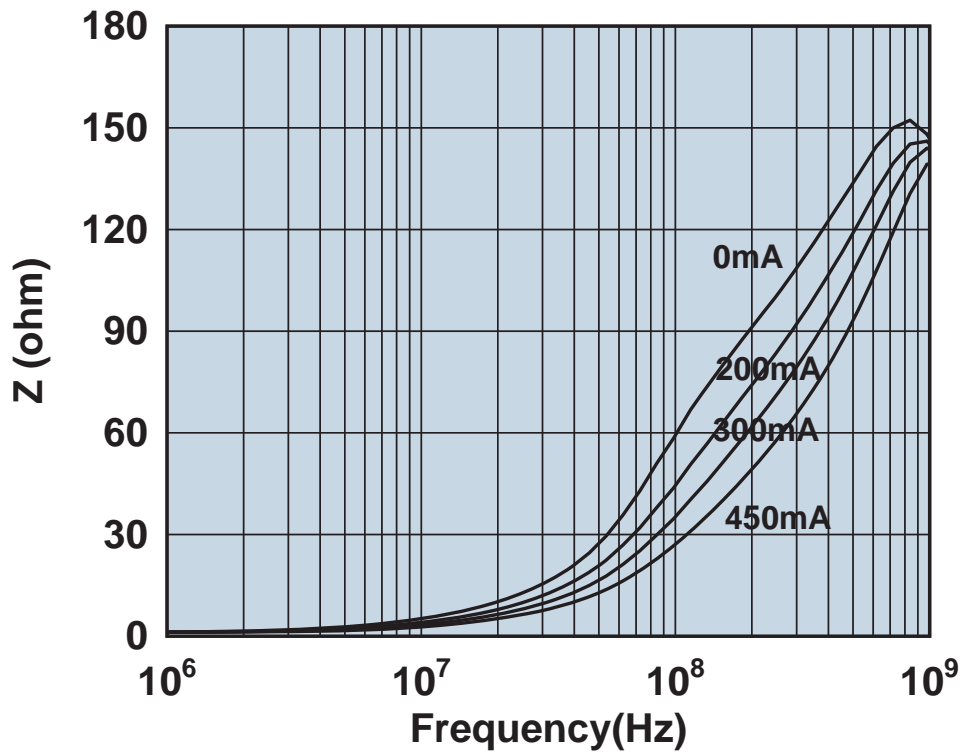


Impedance vs. frequency with dc bias.

2506036007Z0

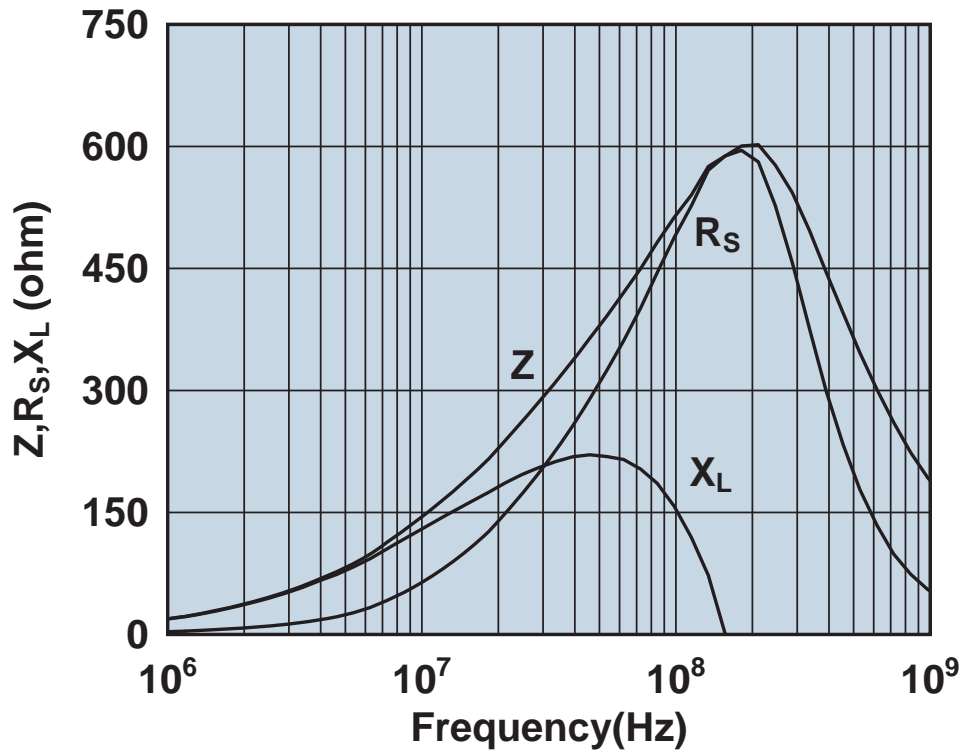


Impedance, reactance, and resistance vs. frequency.

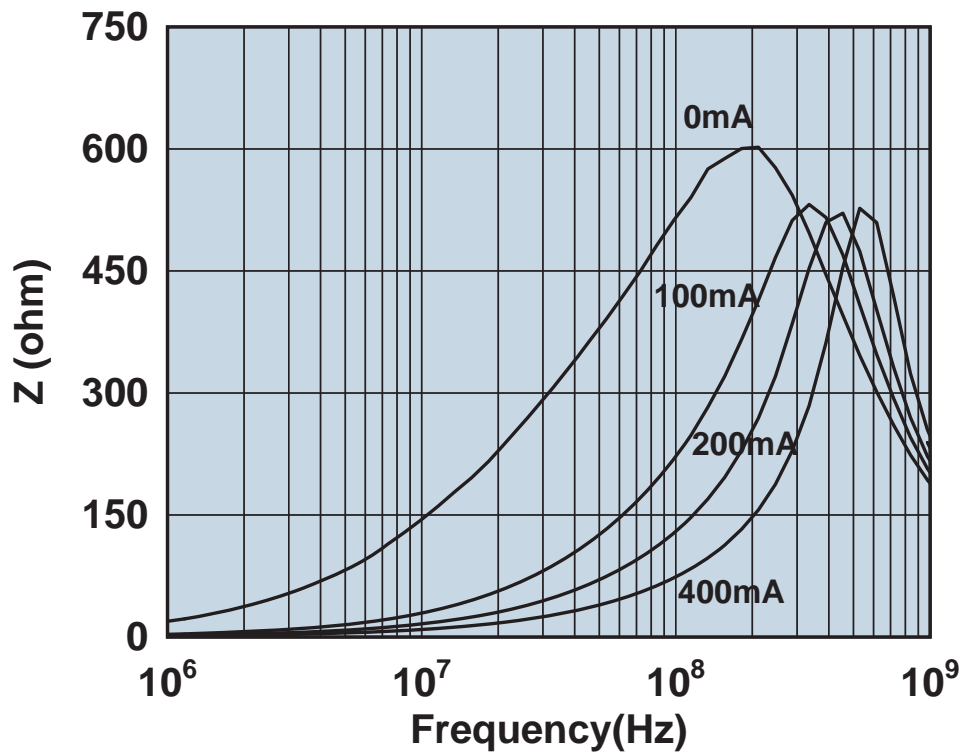


Impedance vs. frequency with dc bias.

# 2506036017Y0

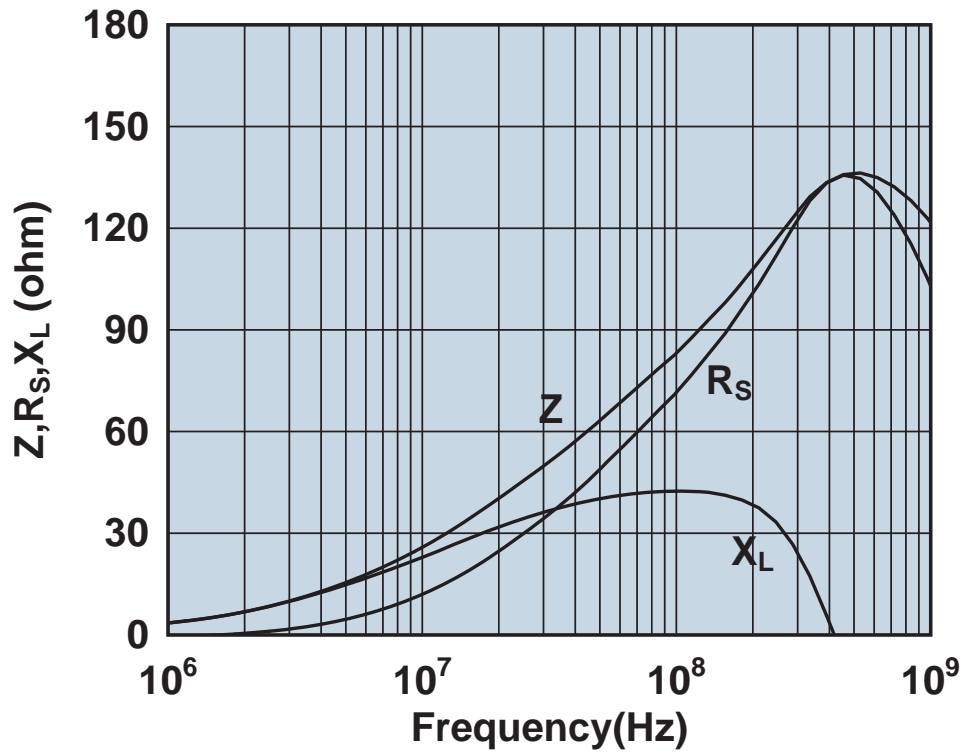


Impedance, reactance, and resistance vs. frequency.

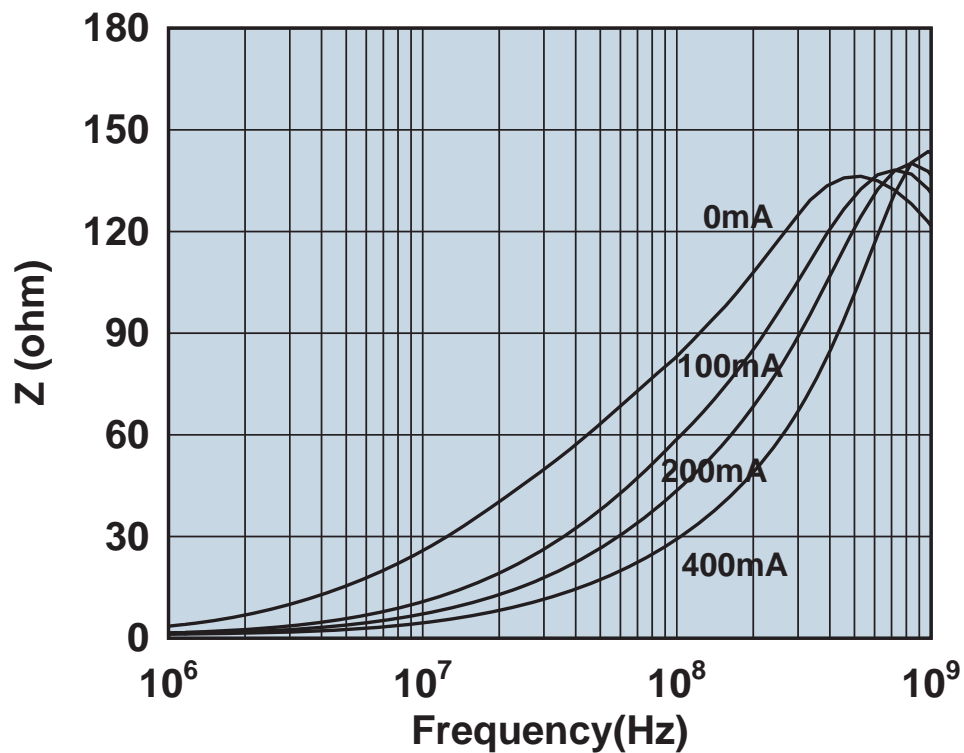


Impedance vs. frequency with dc bias.

## 2506038007Y0

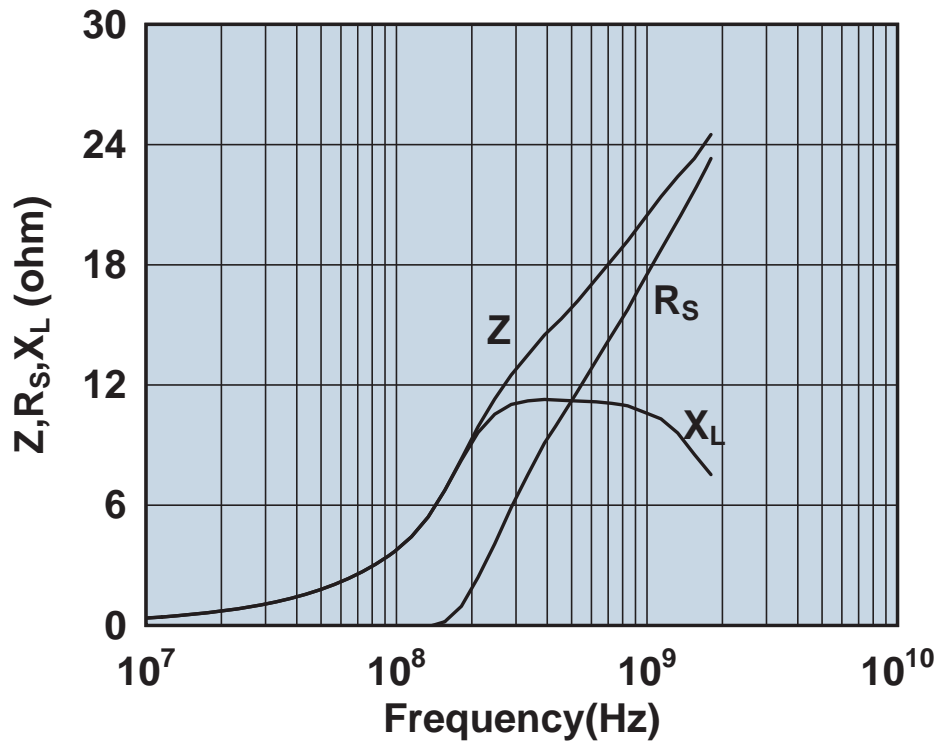


Impedance, reactance, and resistance vs. frequency.

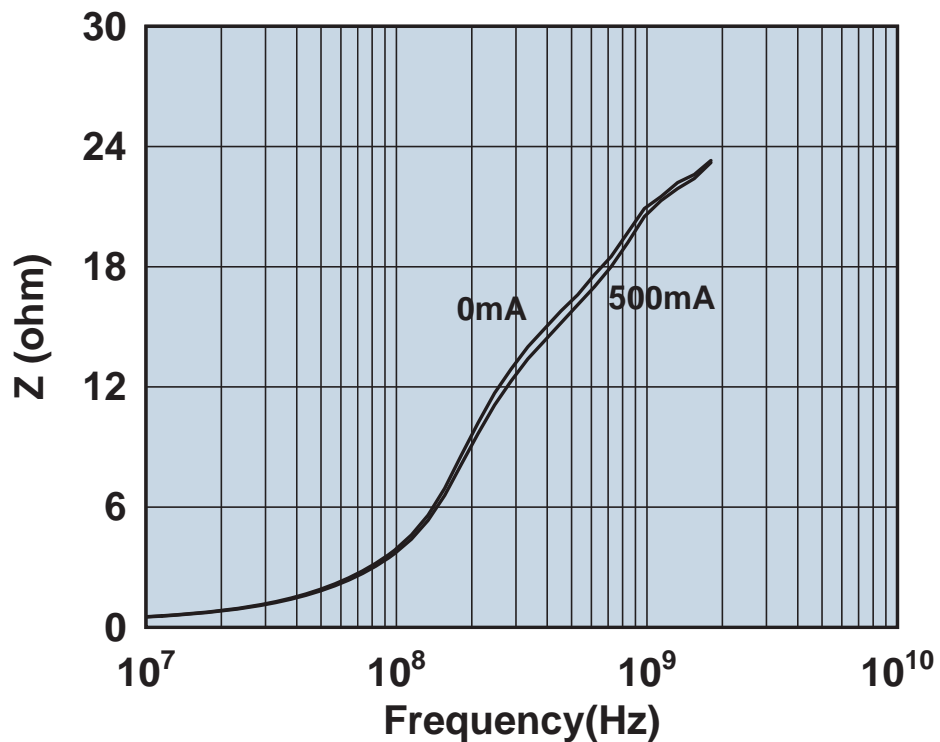


Impedance vs. frequency with dc bias.

# 2508050507H0

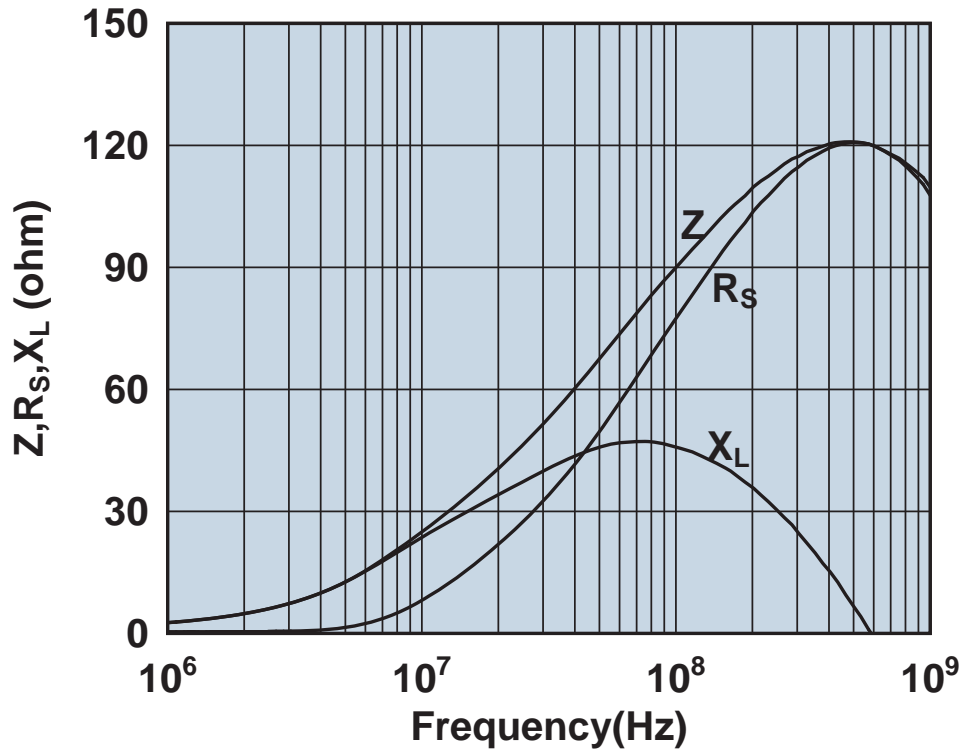


Impedance, reactance, and resistance vs. frequency.

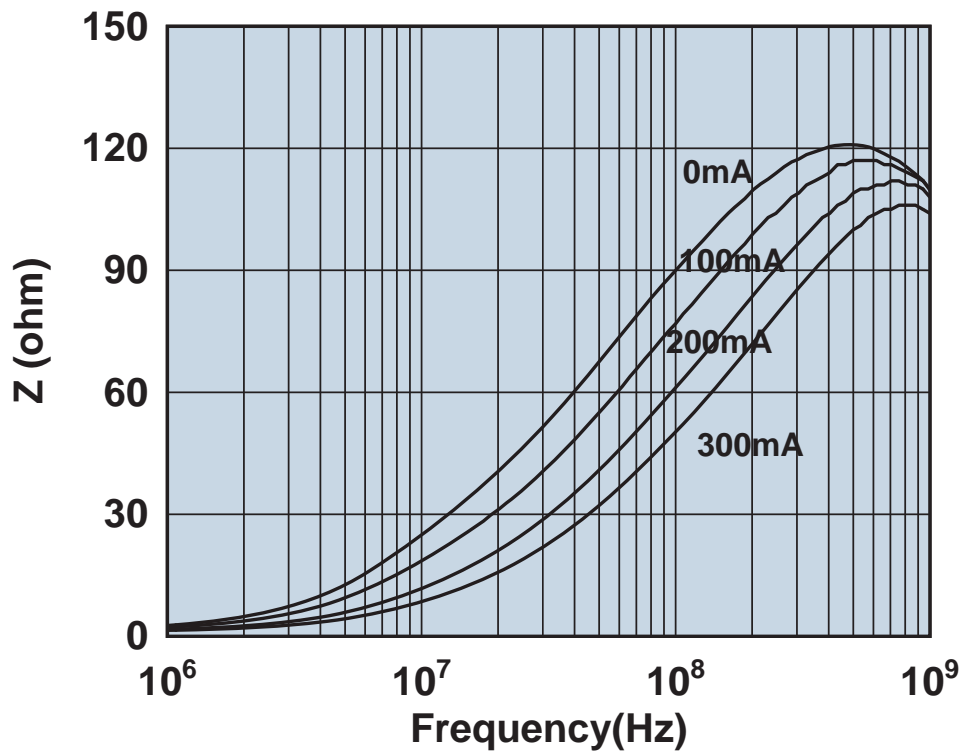


Impedance vs. frequency with dc bias.

# 2508051017Y0

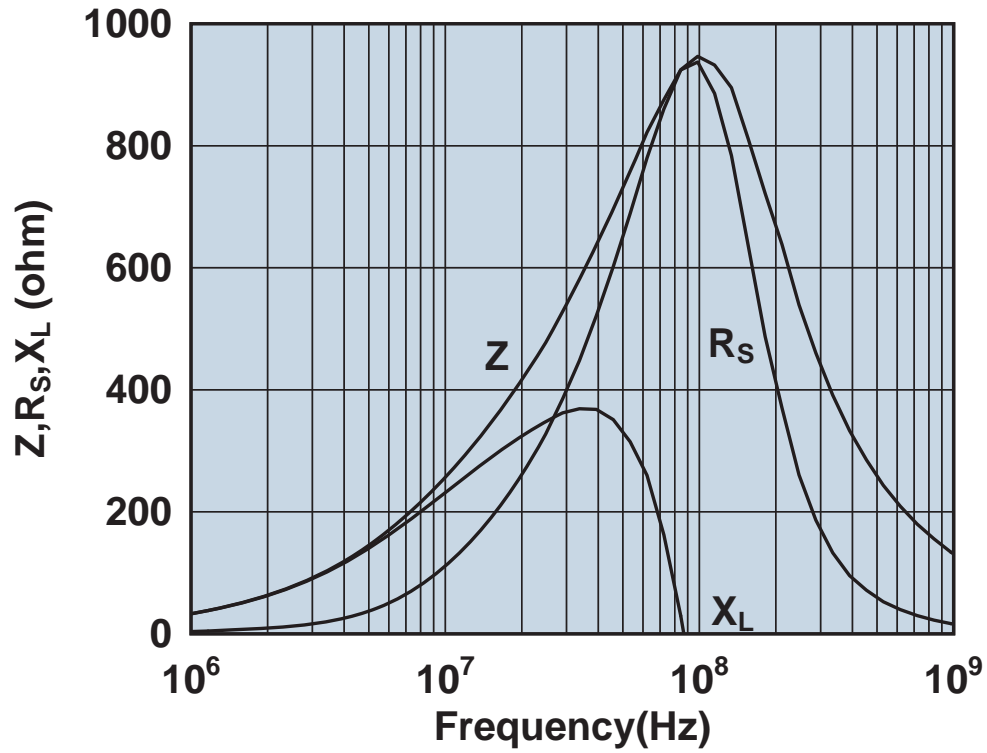


Impedance, reactance, and resistance vs. frequency.

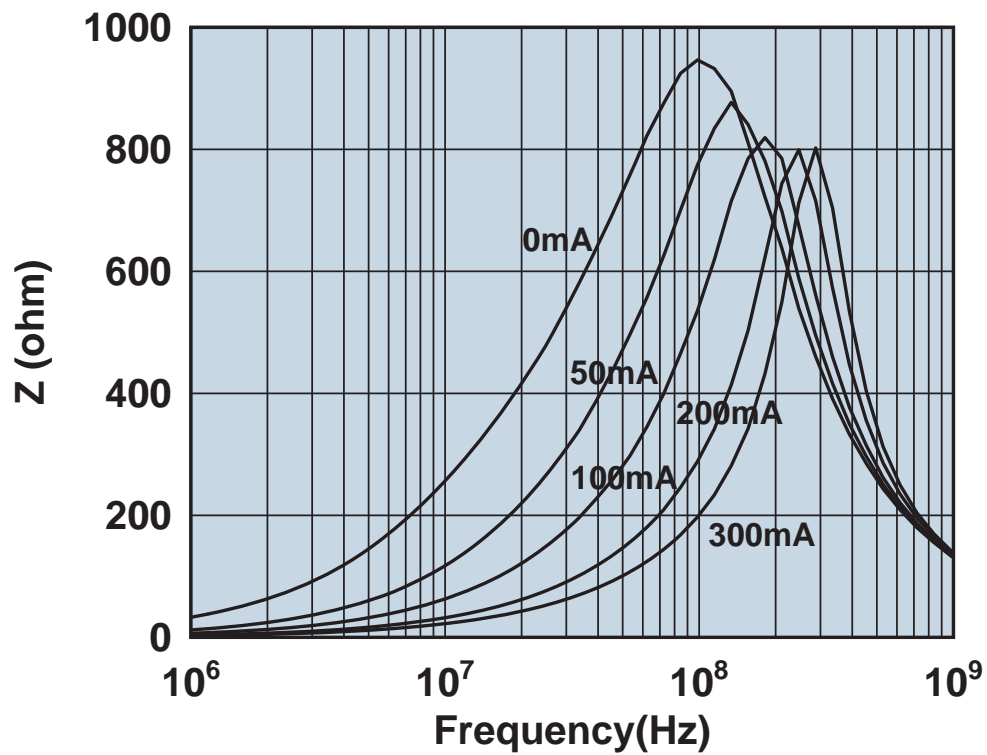


Impedance vs. frequency with dc bias.

# 2508051027Y0



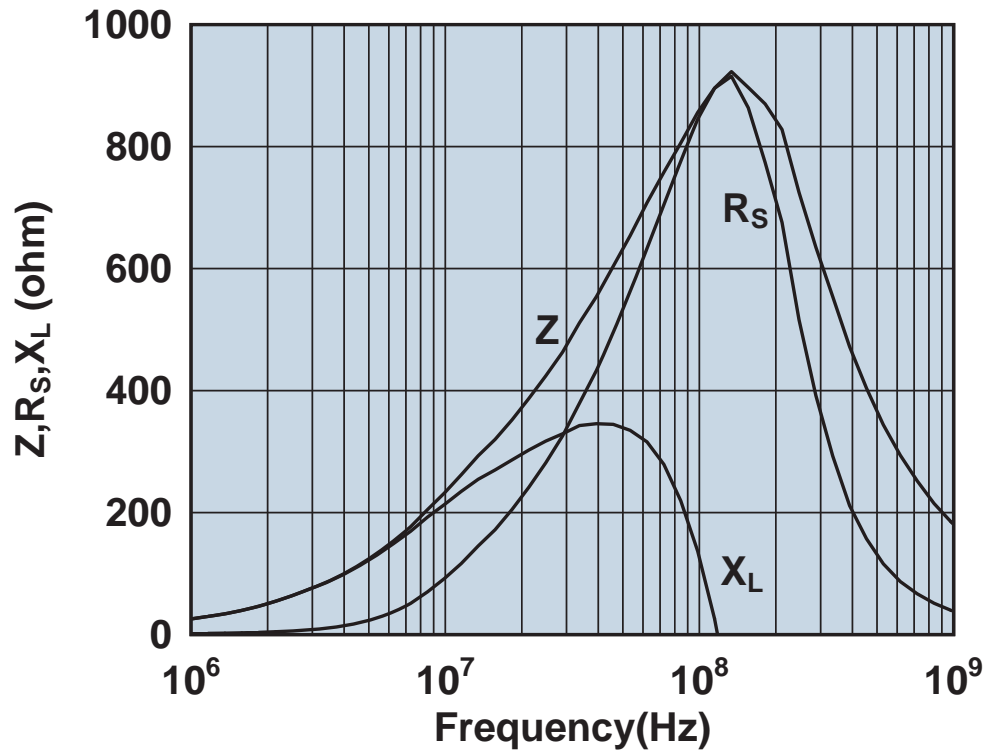
Impedance, reactance, and resistance vs. frequency.



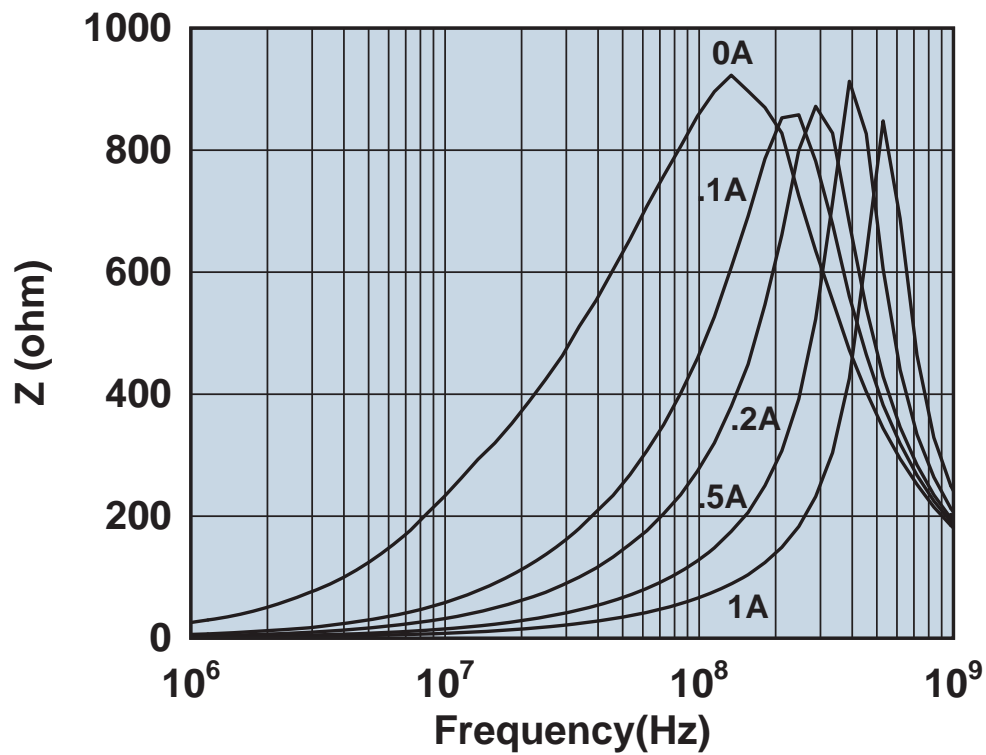
Impedance vs. frequency with dc bias.



# 2508051027Y1

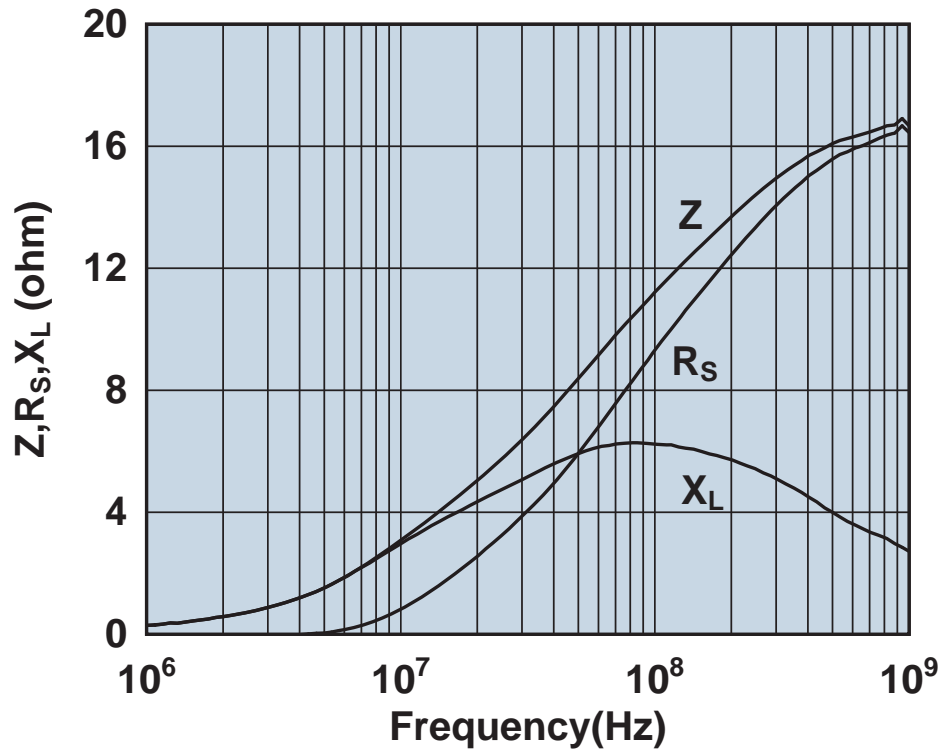


Impedance, reactance, and resistance vs. frequency.

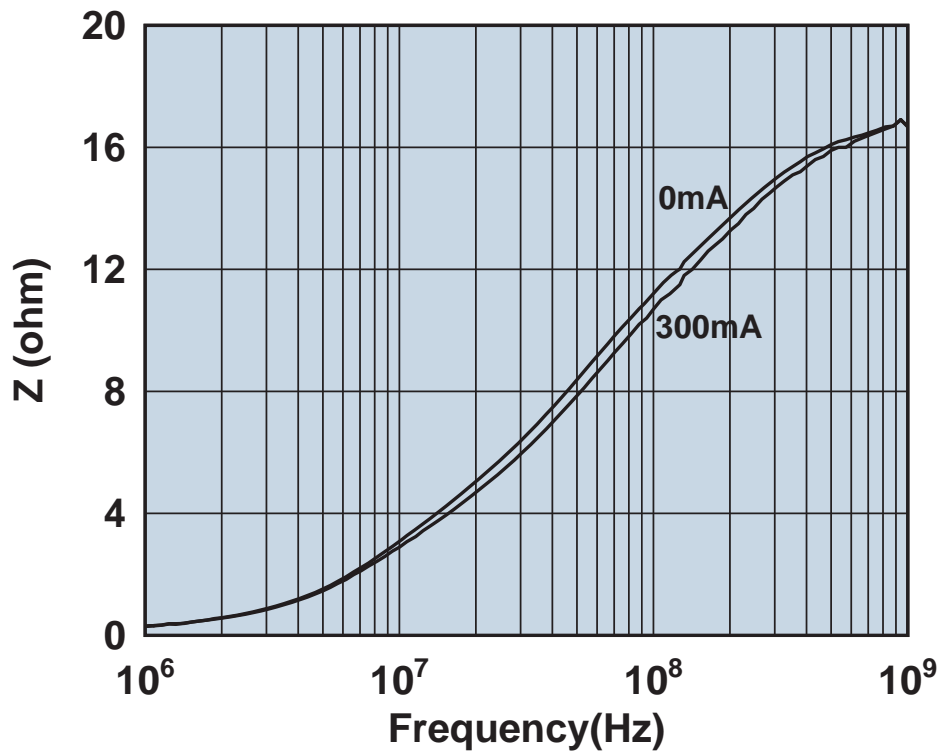


Impedance vs. frequency with dc bias.

# 2508051107Y0

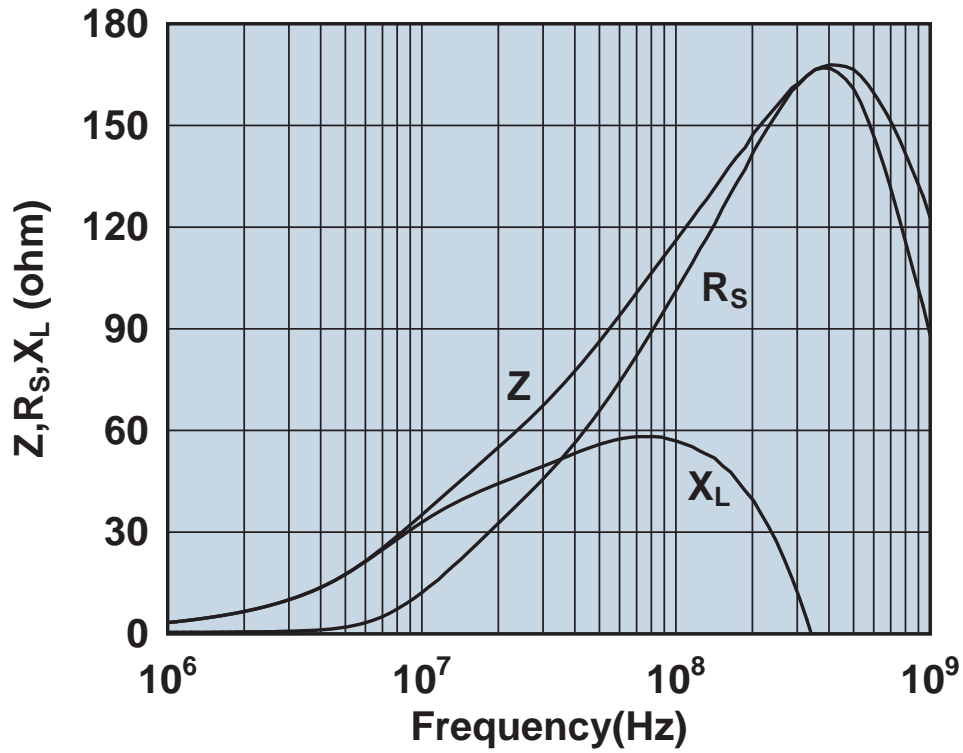


Impedance, reactance, and resistance vs. frequency.

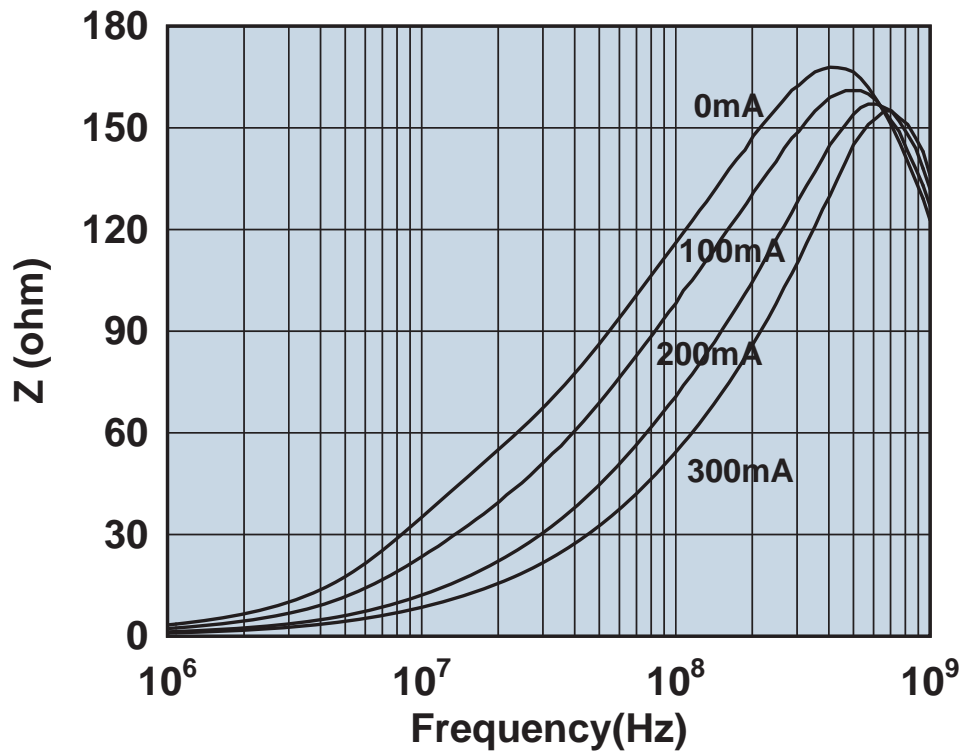


Impedance vs. frequency with dc bias.

2508051217Y0

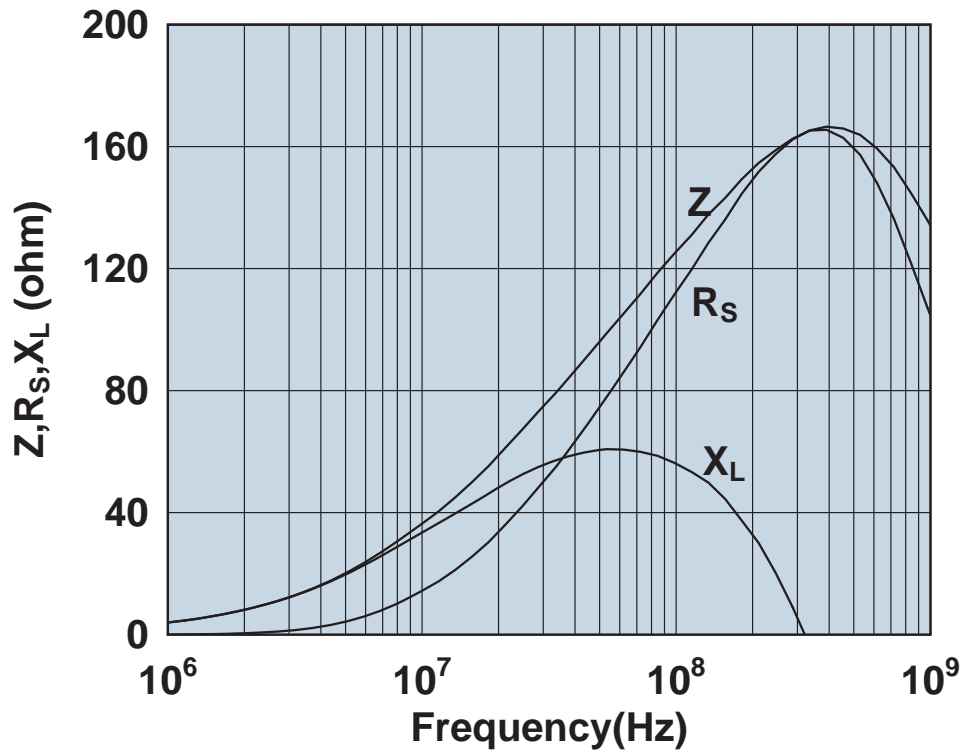


Impedance, reactance, and resistance vs. frequency.

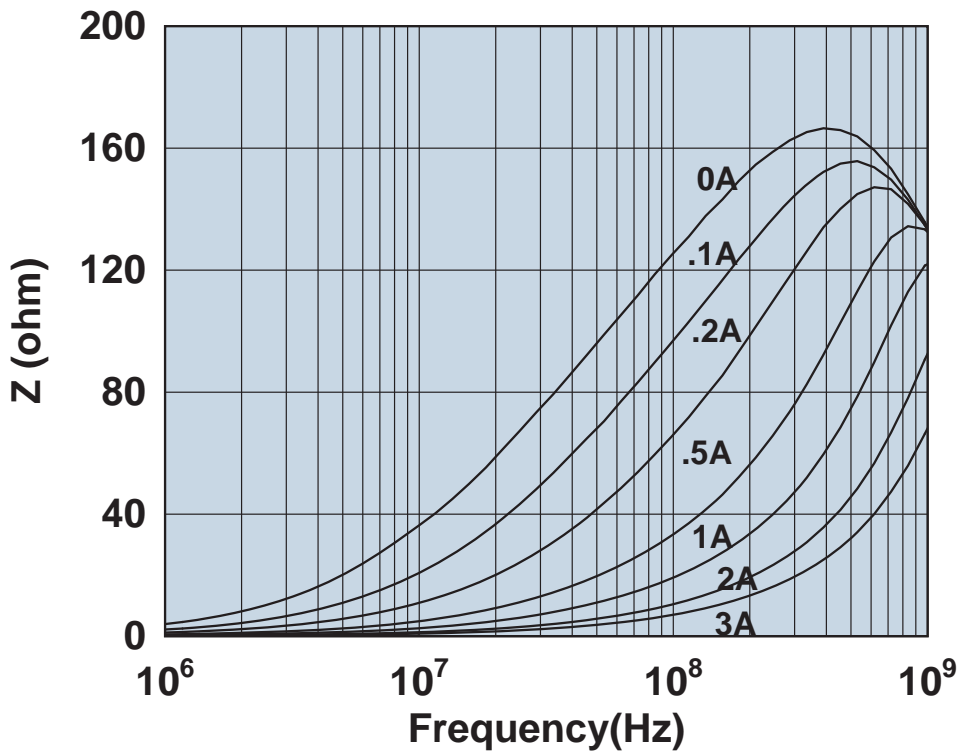


Impedance vs. frequency with dc bias.

2508051217Y3

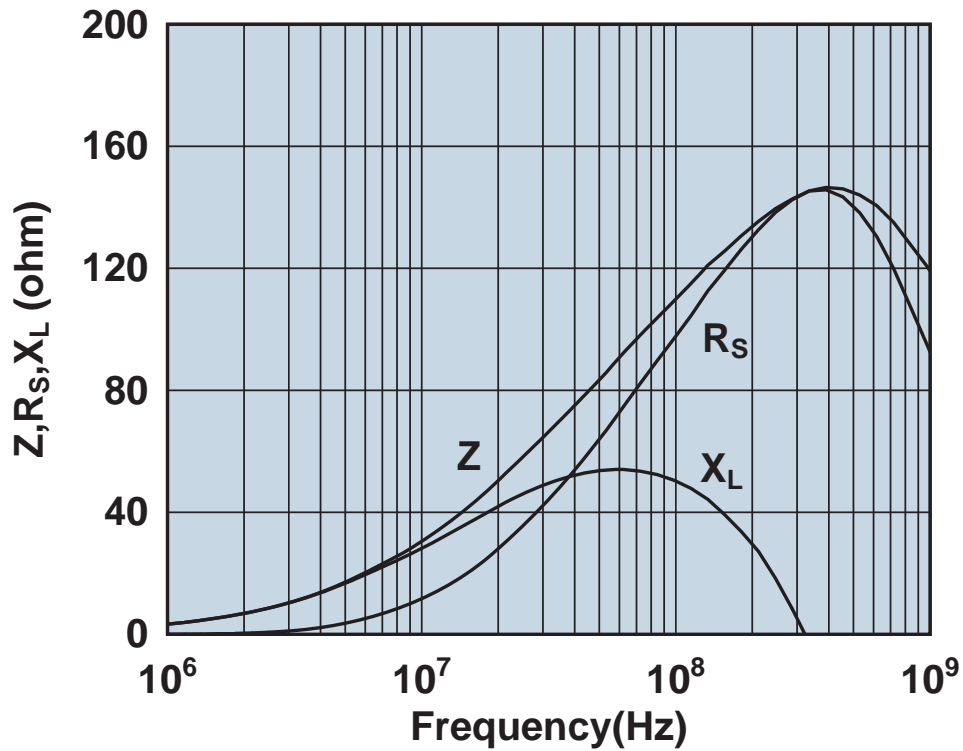


Impedance, reactance, and resistance vs. frequency.

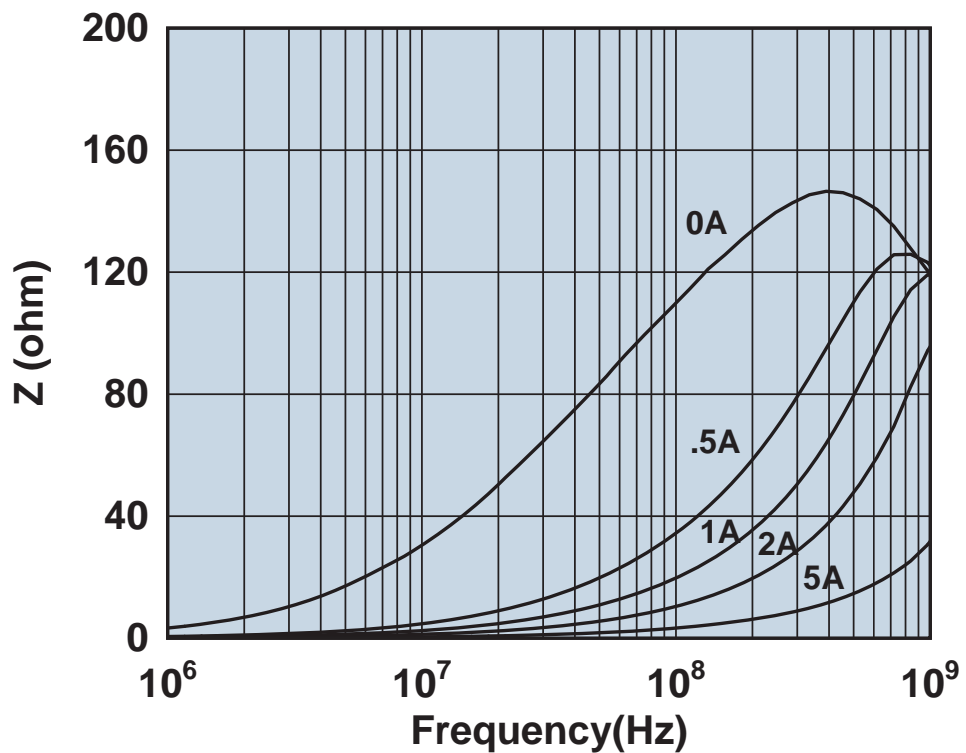


Impedance vs. frequency with dc bias.

# 2508051217Y6

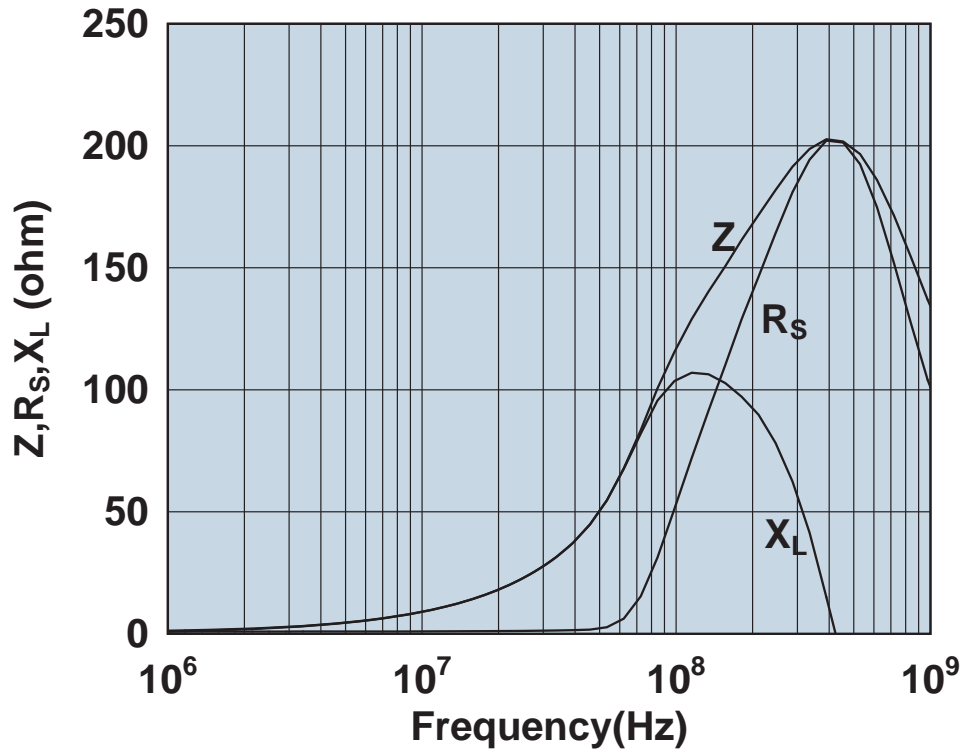


Impedance, reactance, and resistance vs. frequency.

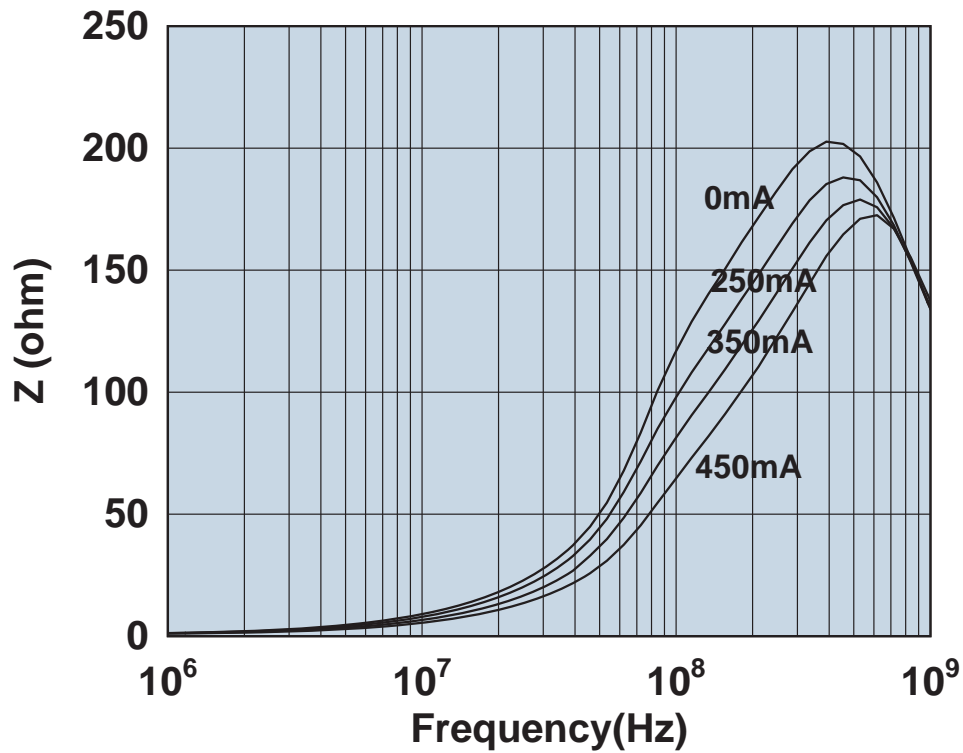


Impedance vs. frequency with dc bias.

2508051217Z0

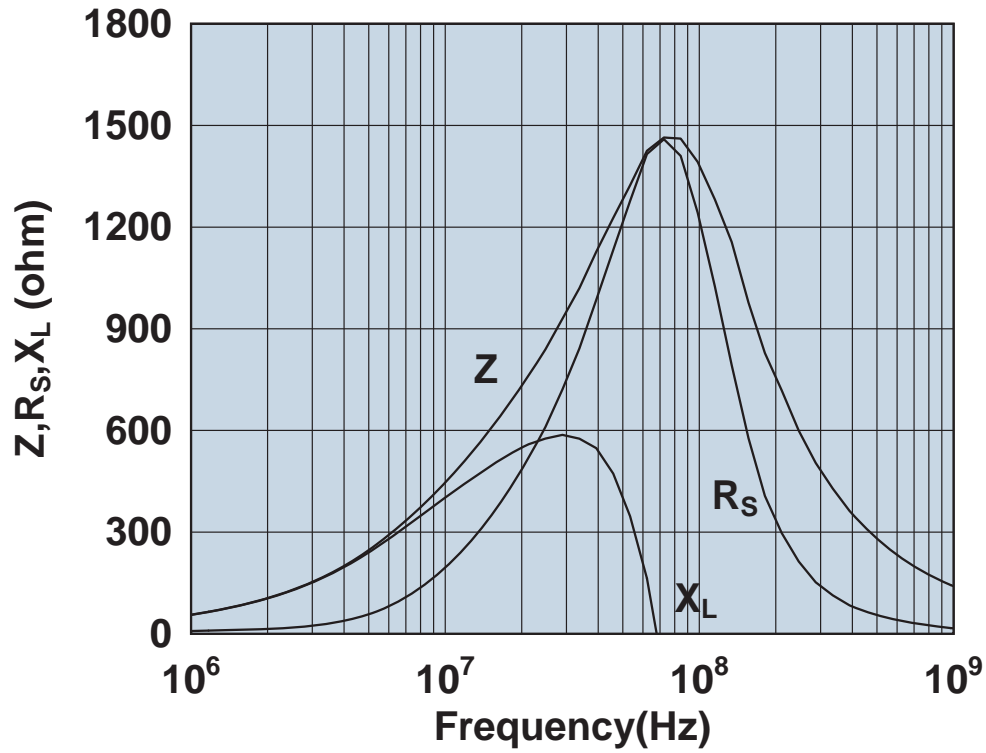


Impedance, reactance, and resistance vs. frequency.

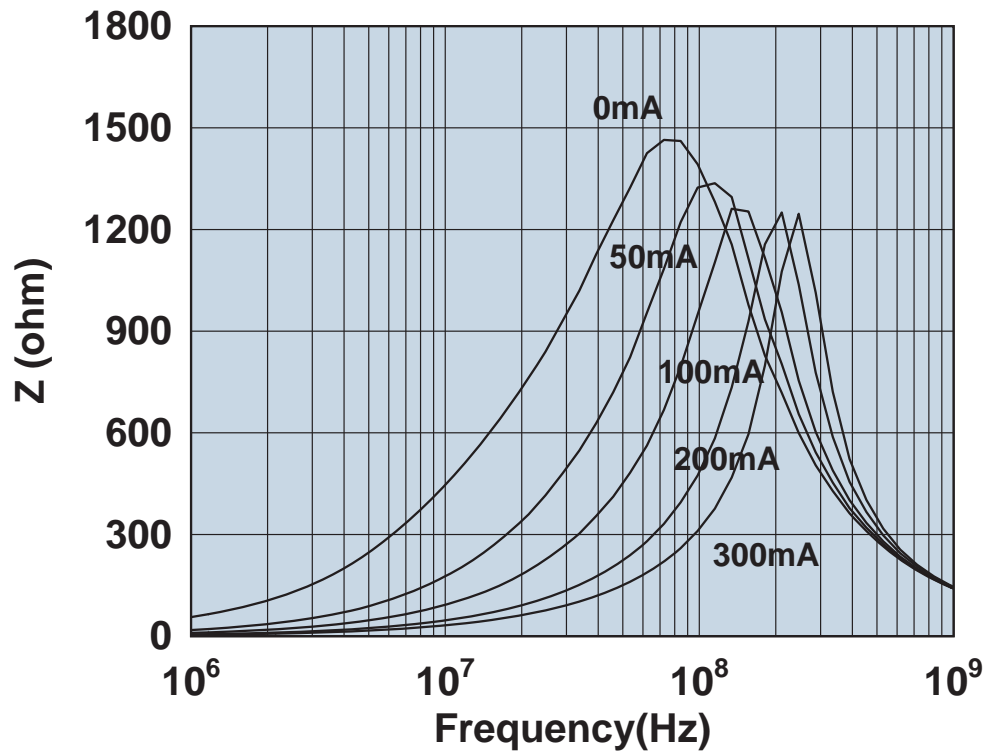


Impedance vs. frequency with dc bias.

2508051527Y0

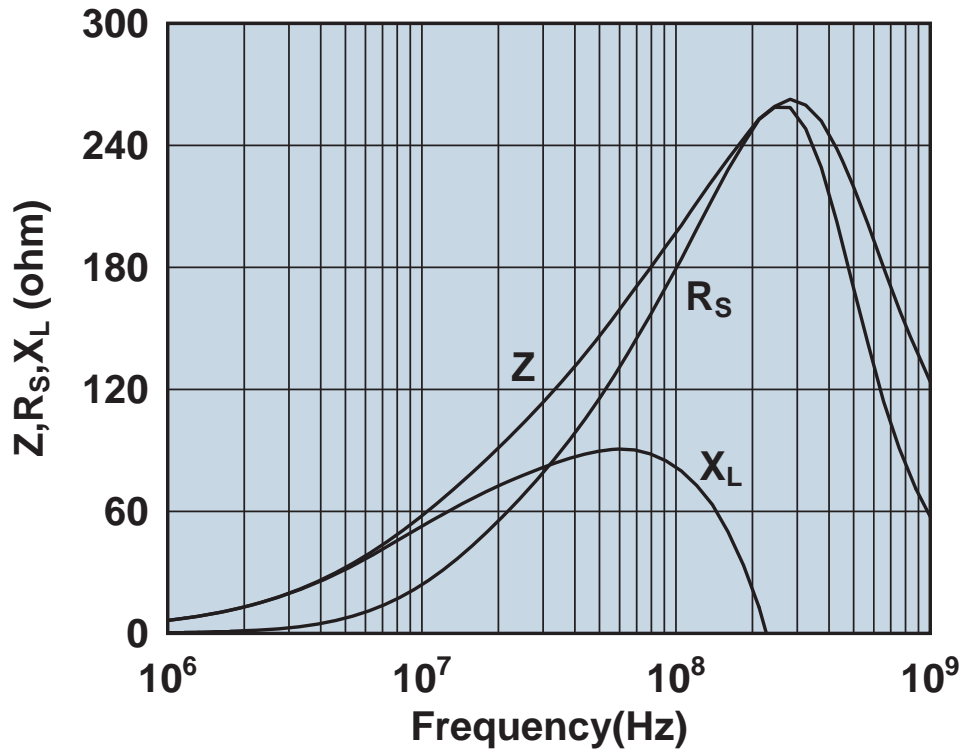


Impedance, reactance, and resistance vs. frequency.

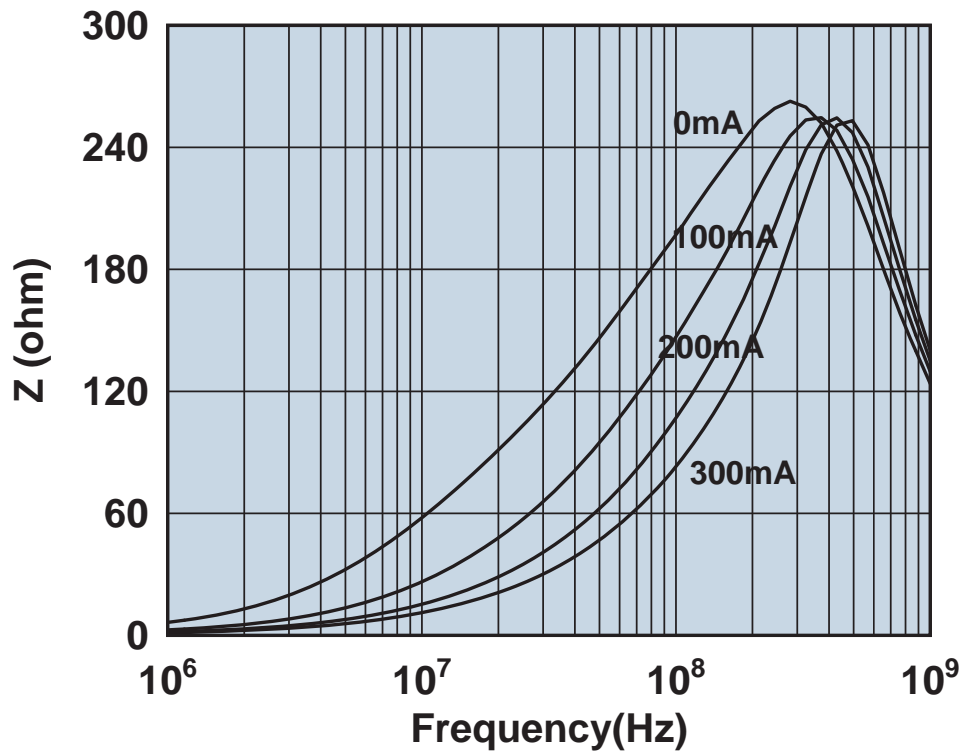


Impedance vs. frequency with dc bias.

2508051817Y0



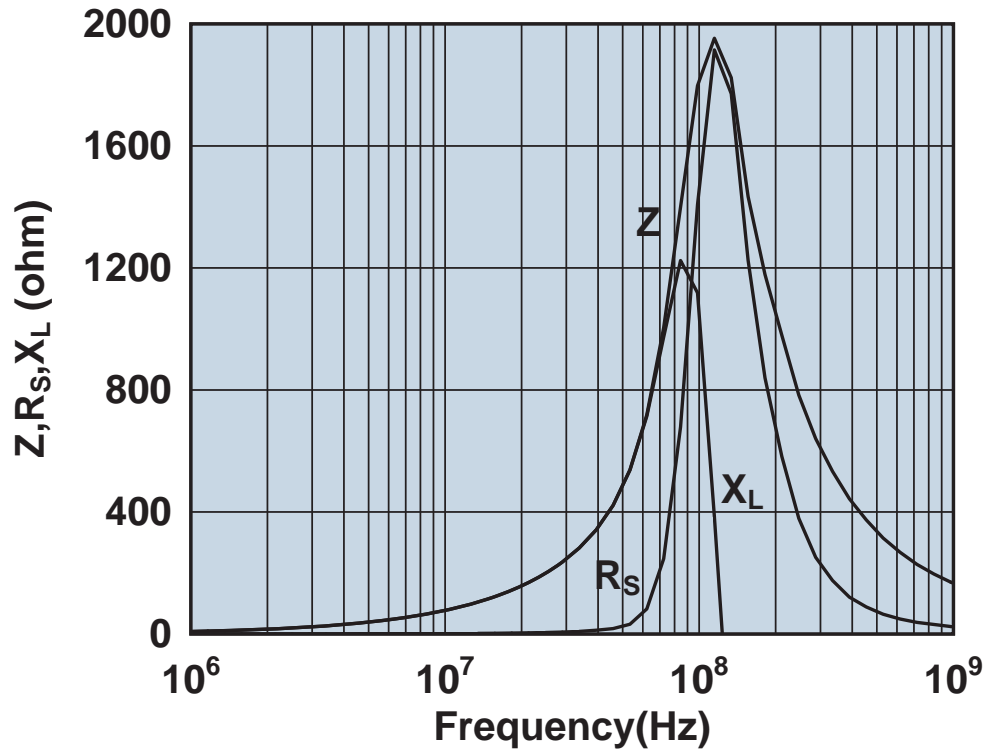
Impedance, reactance, and resistance vs. frequency.



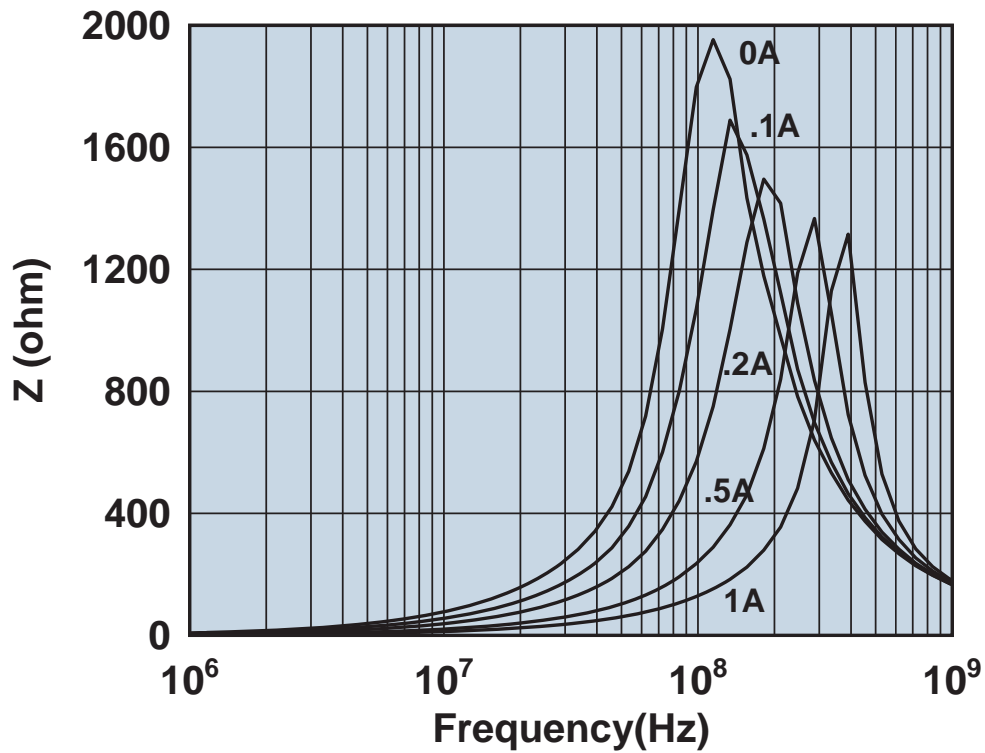
Impedance vs. frequency with dc bias.



2508052027Y1

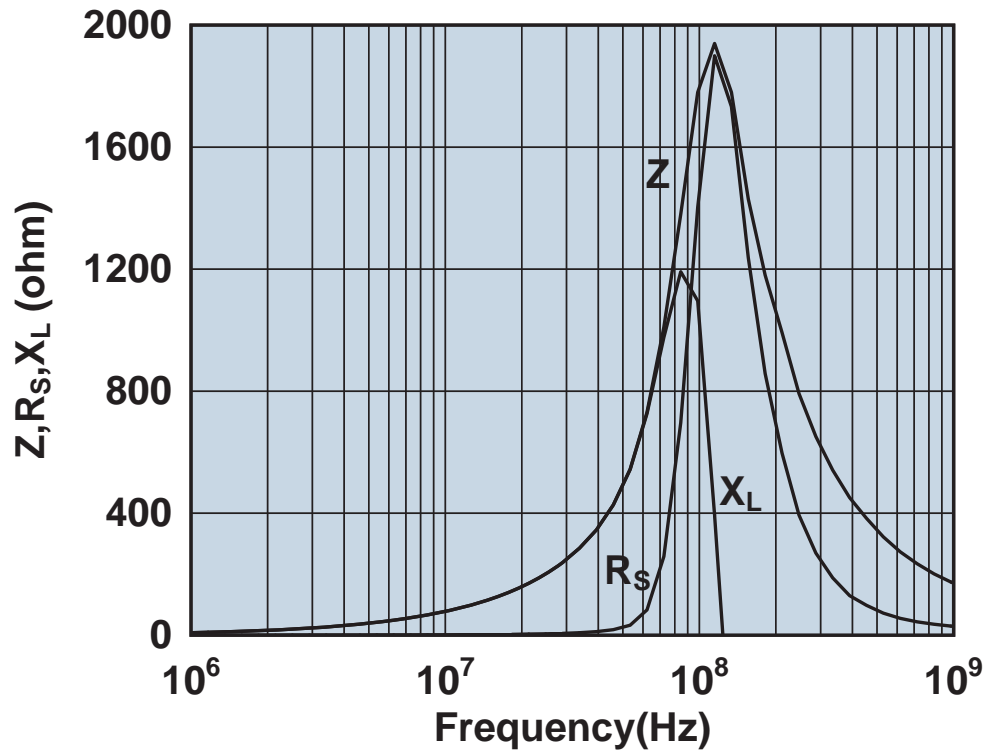


Impedance, reactance, and resistance vs. frequency.

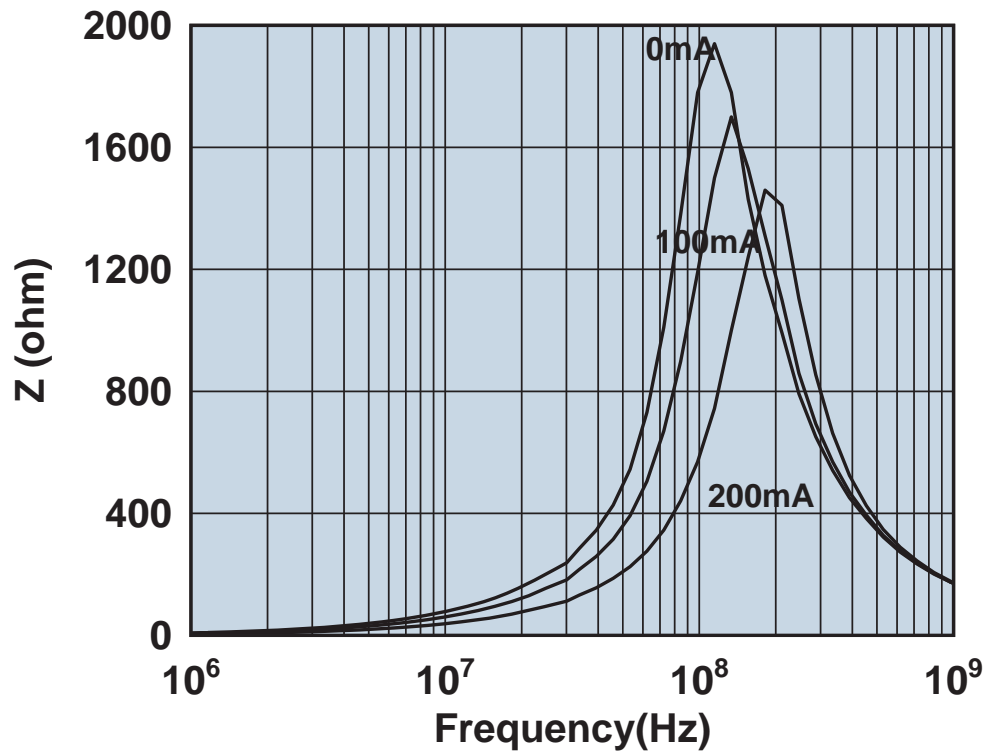


Impedance vs. frequency with dc bias.

2508052027Z0

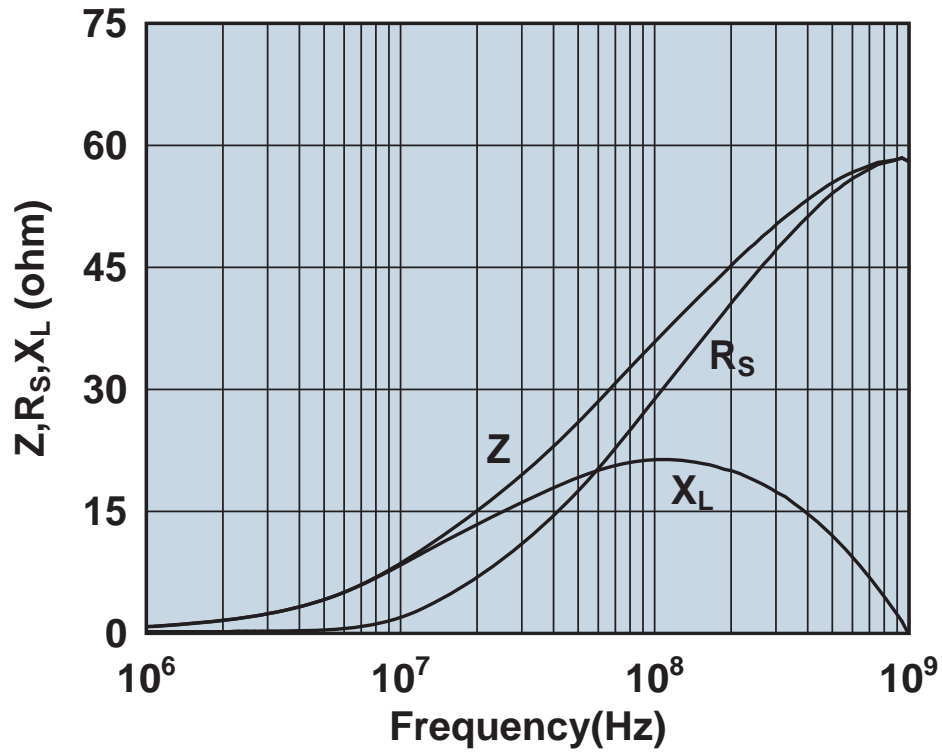


Impedance, reactance, and resistance vs. frequency.

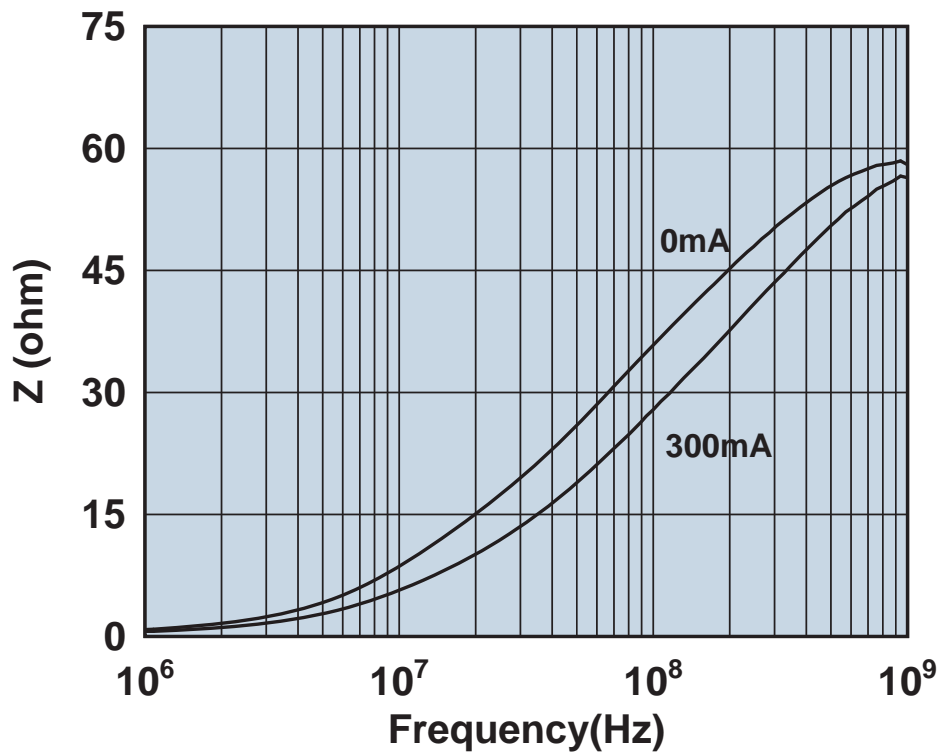


Impedance vs. frequency with dc bias.

2508053007Y0

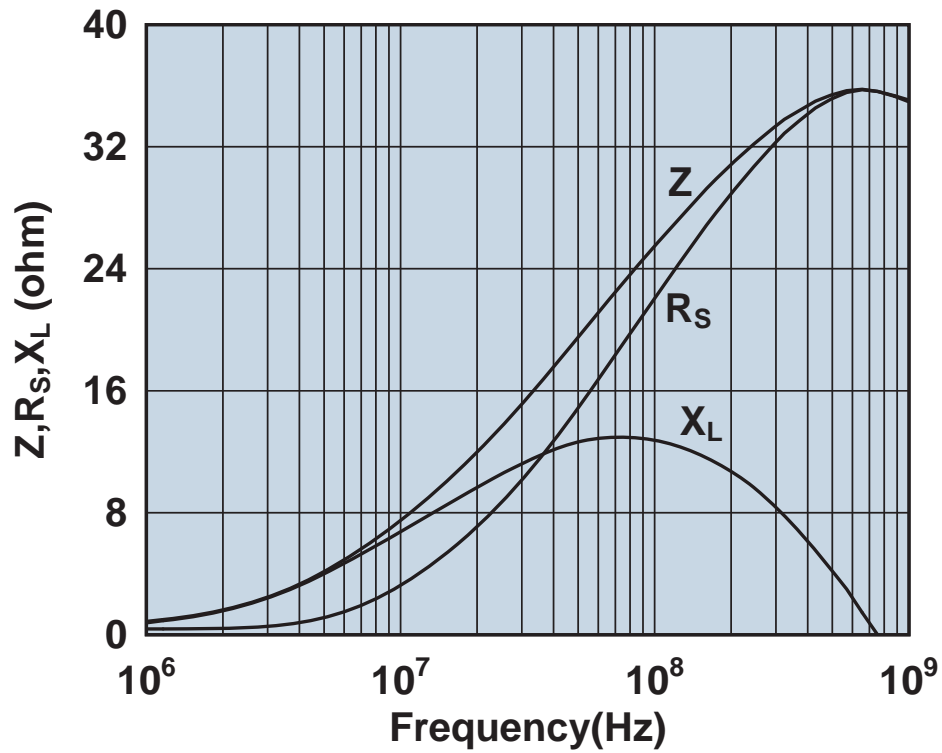


Impedance, reactance, and resistance vs. frequency.

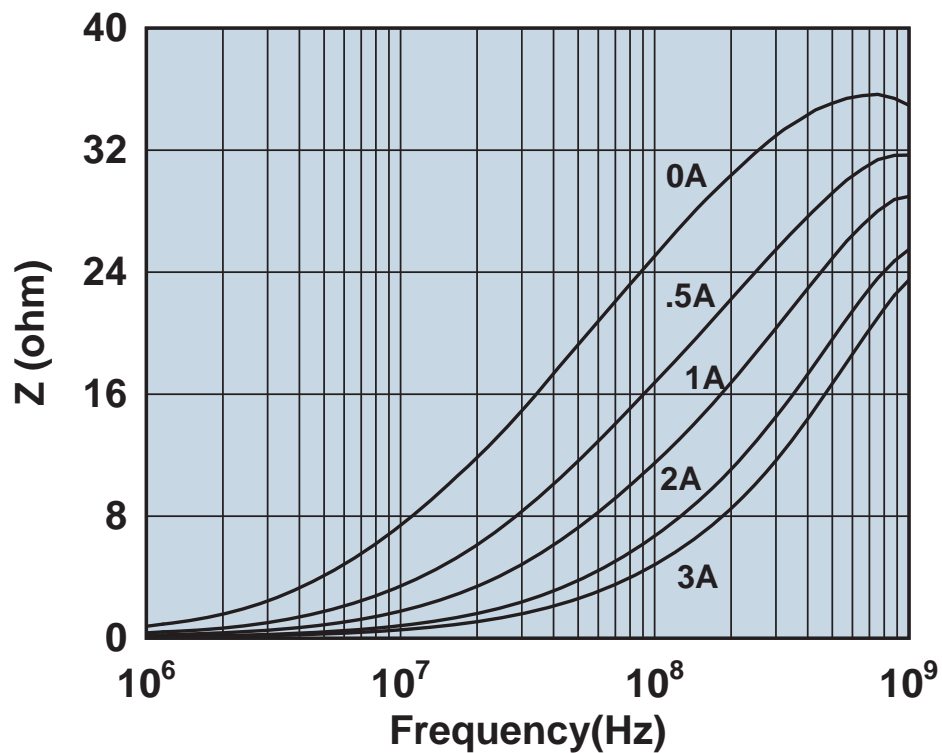


Impedance vs. frequency with dc bias.

2508053007Y3

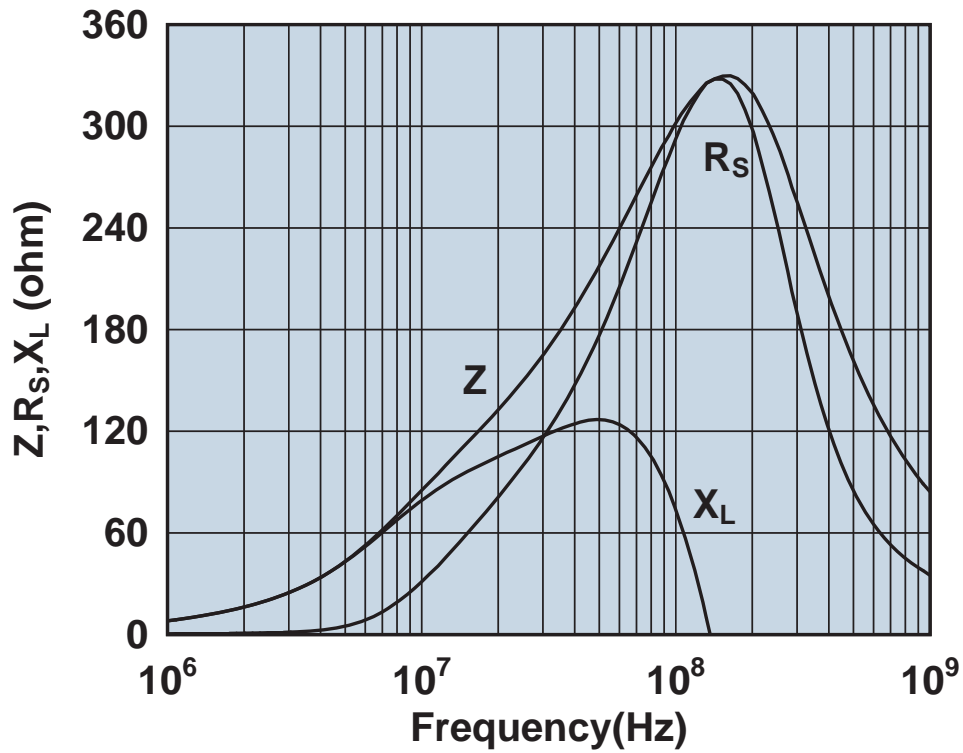


Impedance, reactance, and resistance vs. frequency.

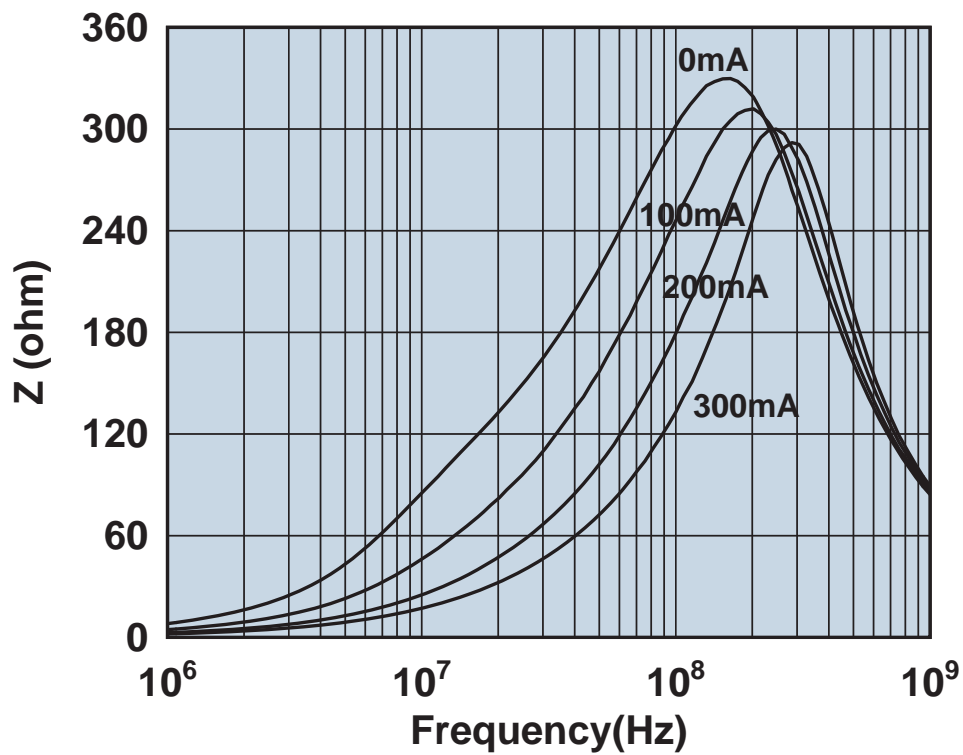


Impedance vs. frequency with dc bias.

# 2508053017Y0

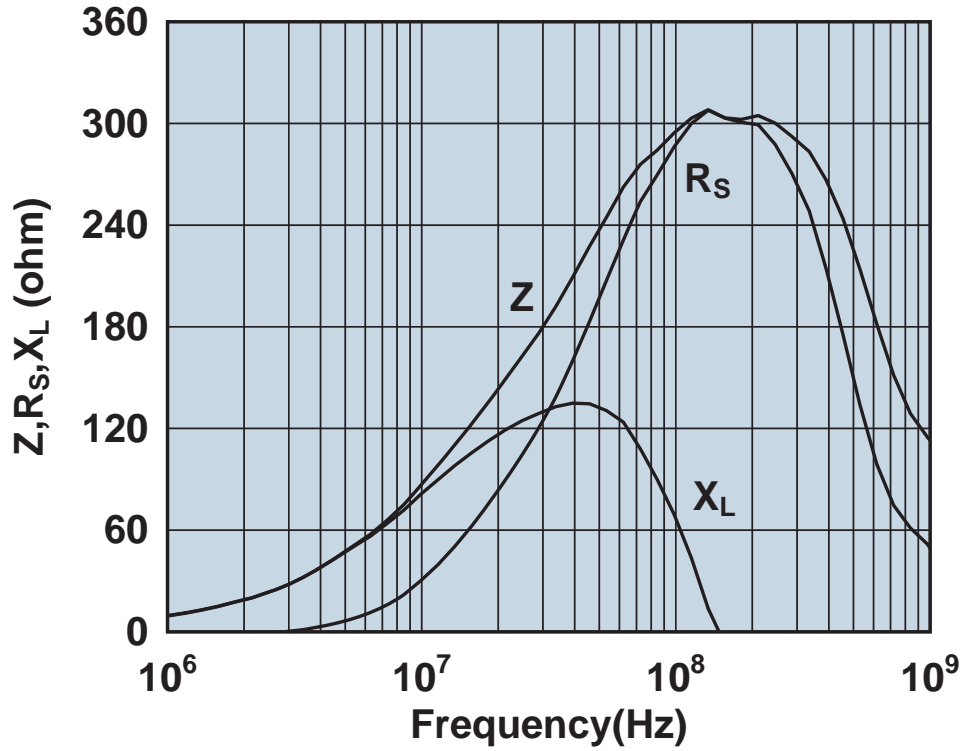


Impedance, reactance, and resistance vs. frequency.

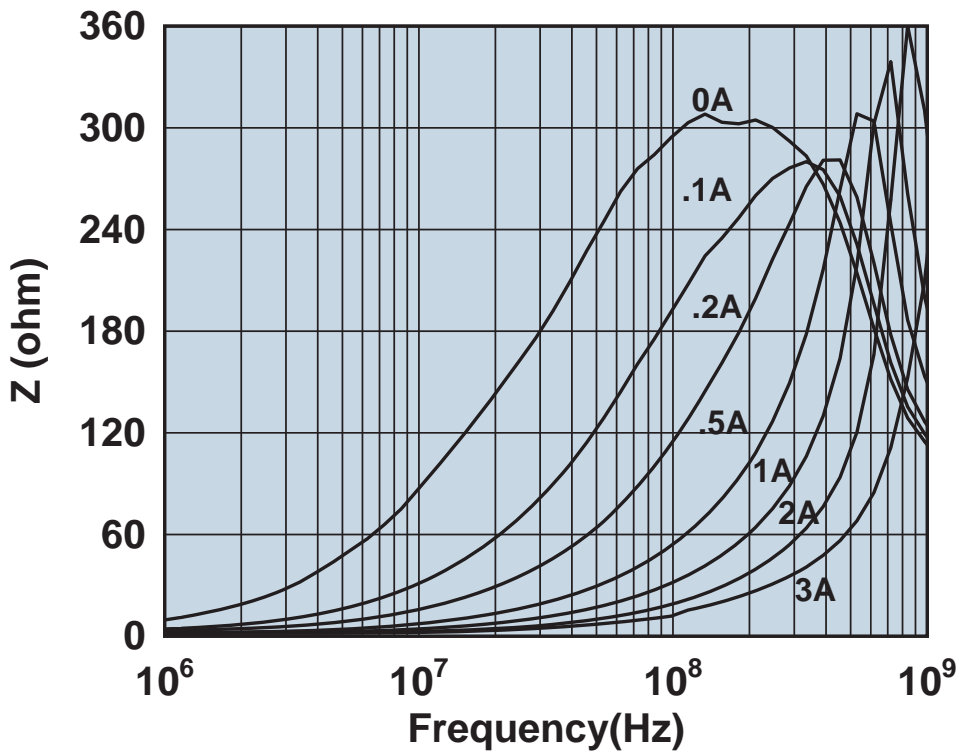


Impedance vs. frequency with dc bias.

# 2508053017Y3

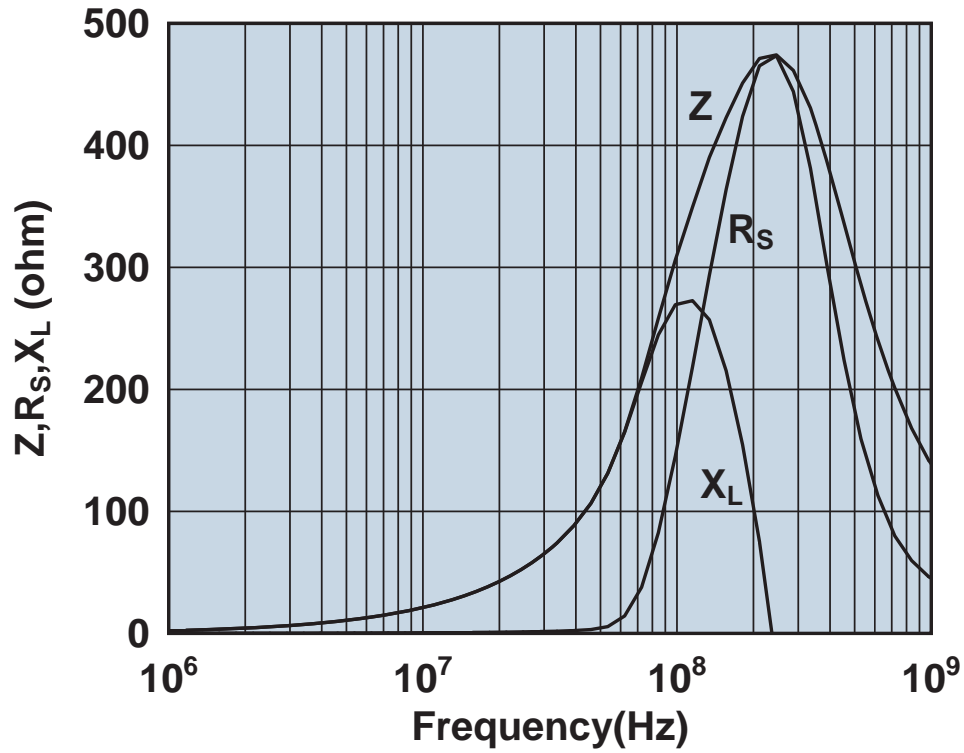


Impedance, reactance, and resistance vs. frequency.

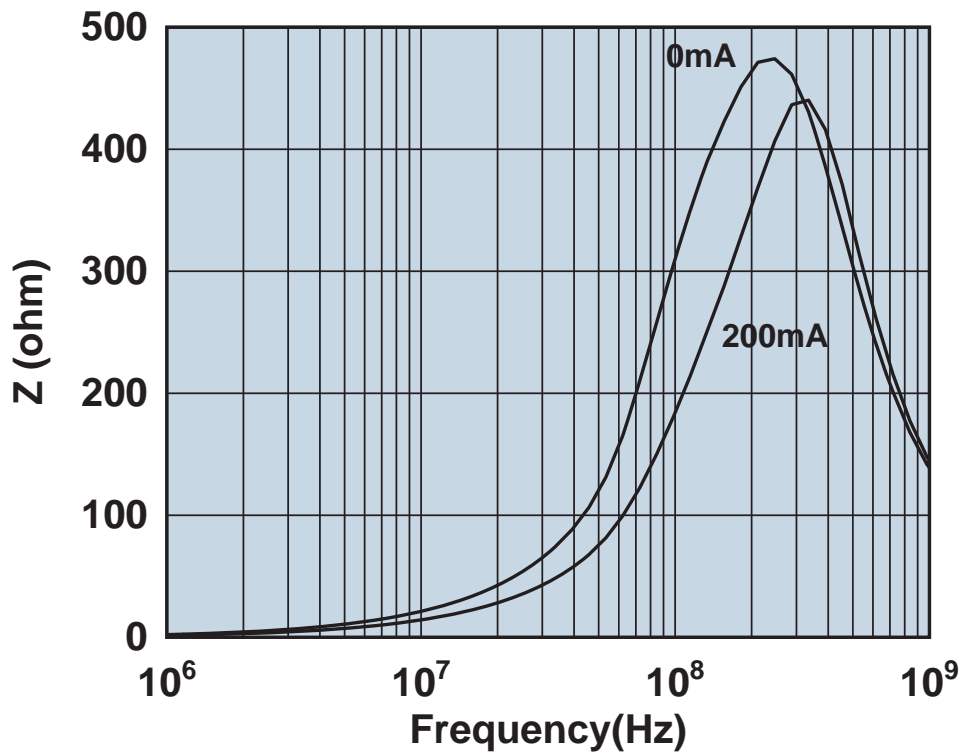


Impedance vs. frequency with dc bias.

2508053017Z0

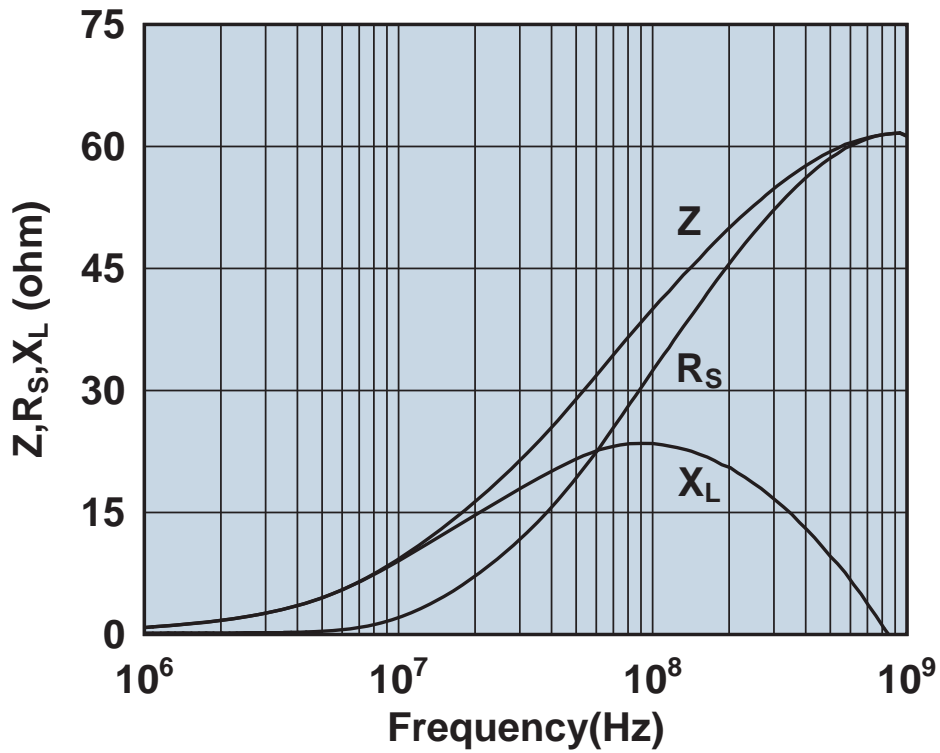


Impedance, reactance, and resistance vs. frequency.

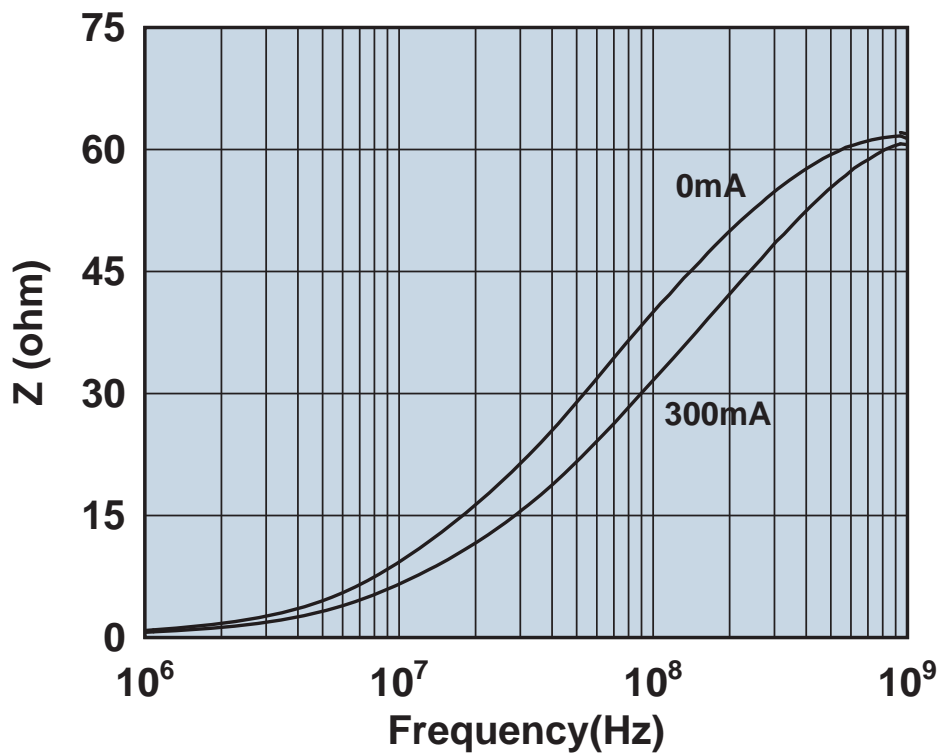


Impedance vs. frequency with dc bias.

# 2508055007Y0



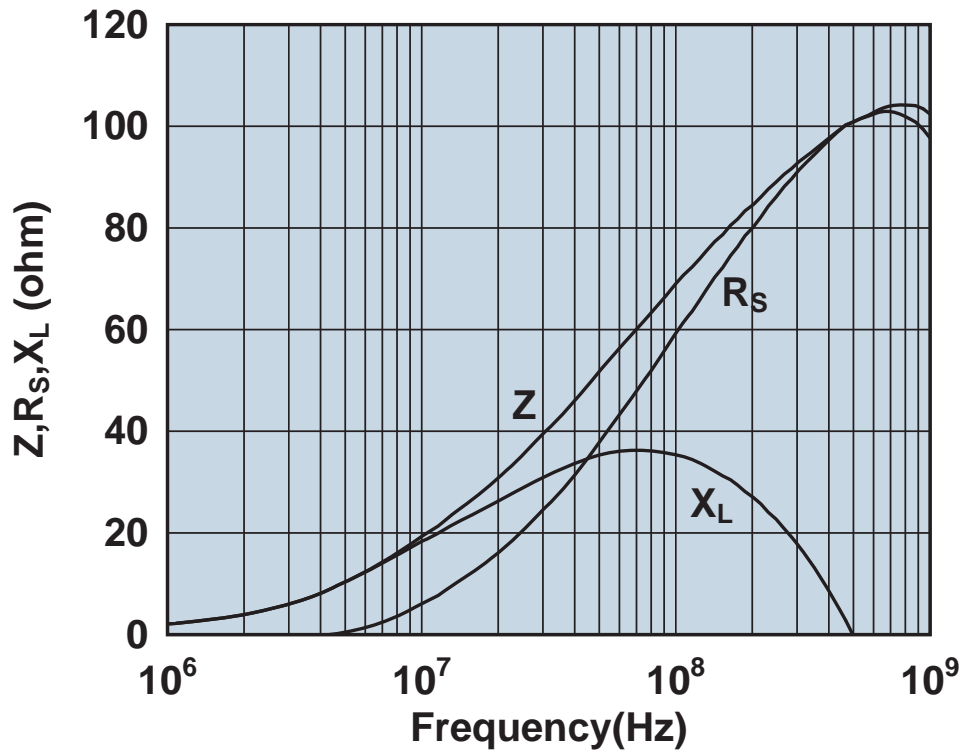
Impedance, reactance, and resistance vs. frequency.



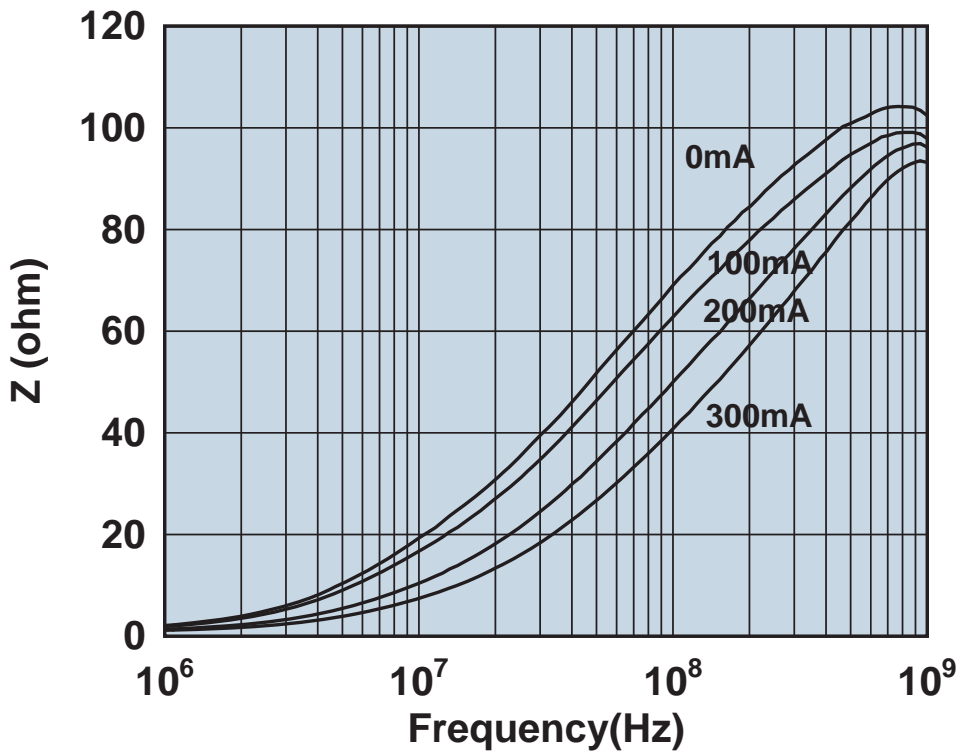
Impedance vs. frequency with dc bias.



# 2508056007Y0

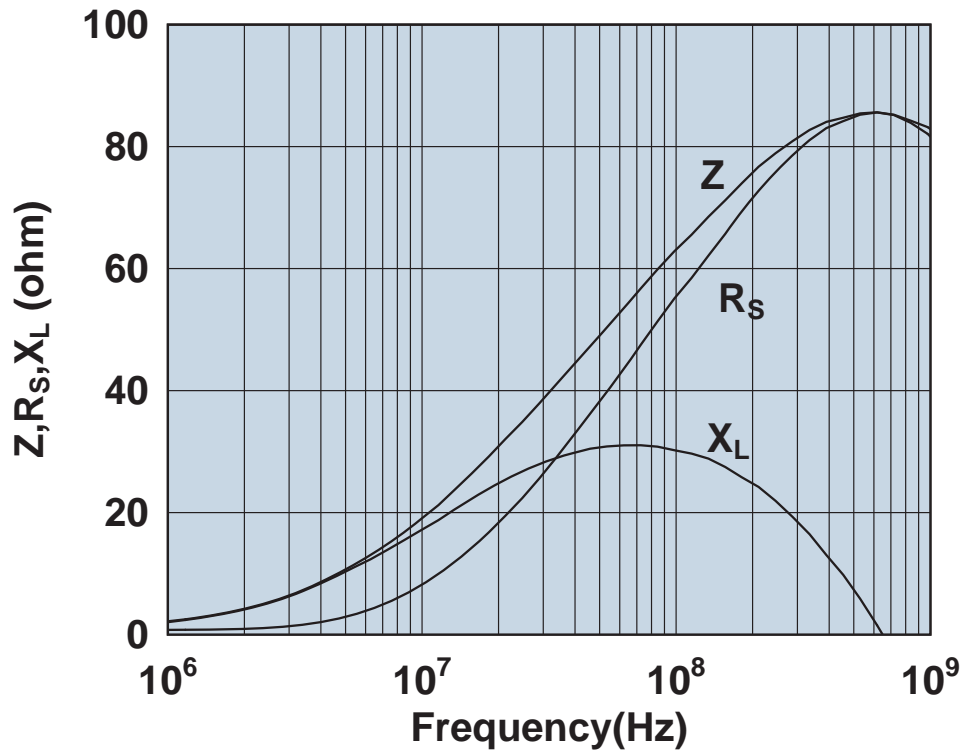


Impedance, reactance, and resistance vs. frequency.

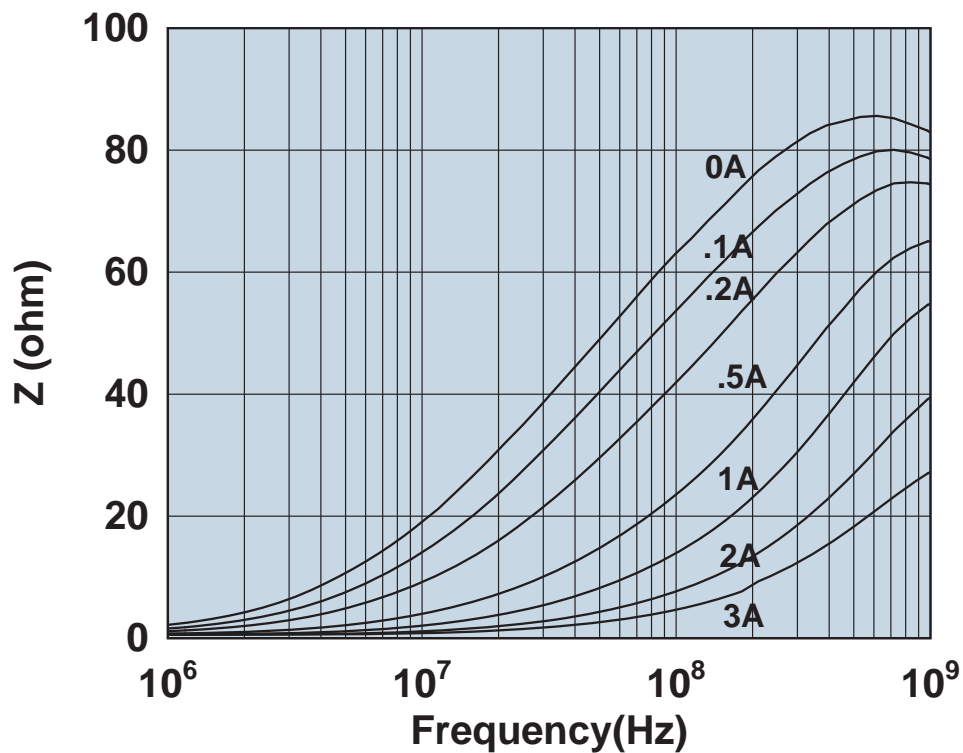


Impedance vs. frequency with dc bias.

# 2508056007Y3

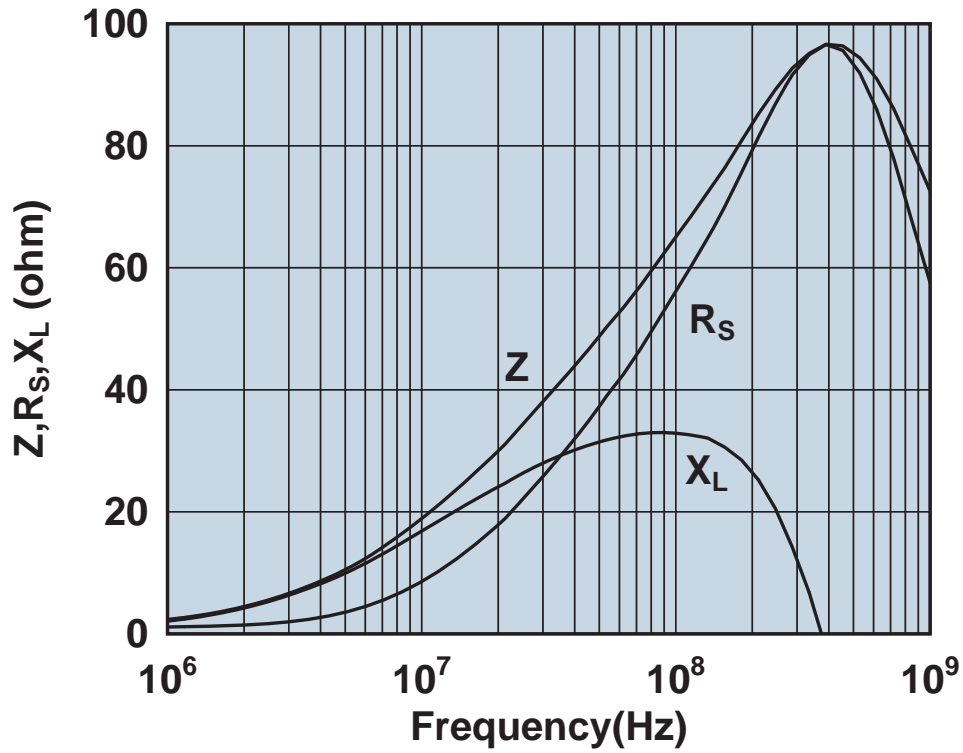


Impedance, reactance, and resistance vs. frequency.

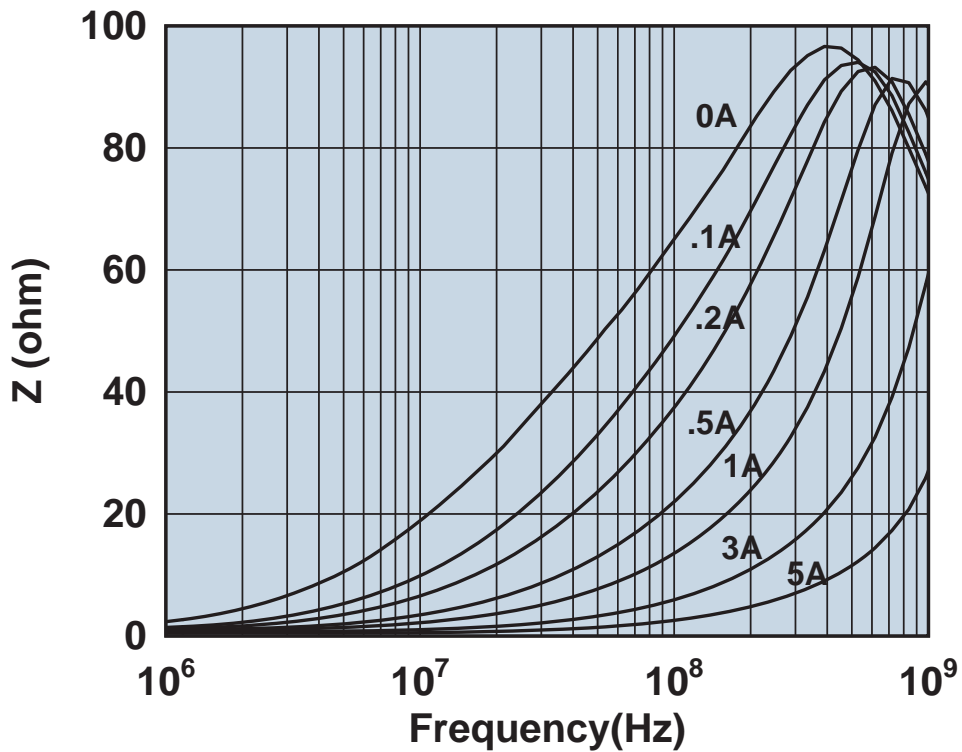


Impedance vs. frequency with dc bias.

# 2508056007Y6

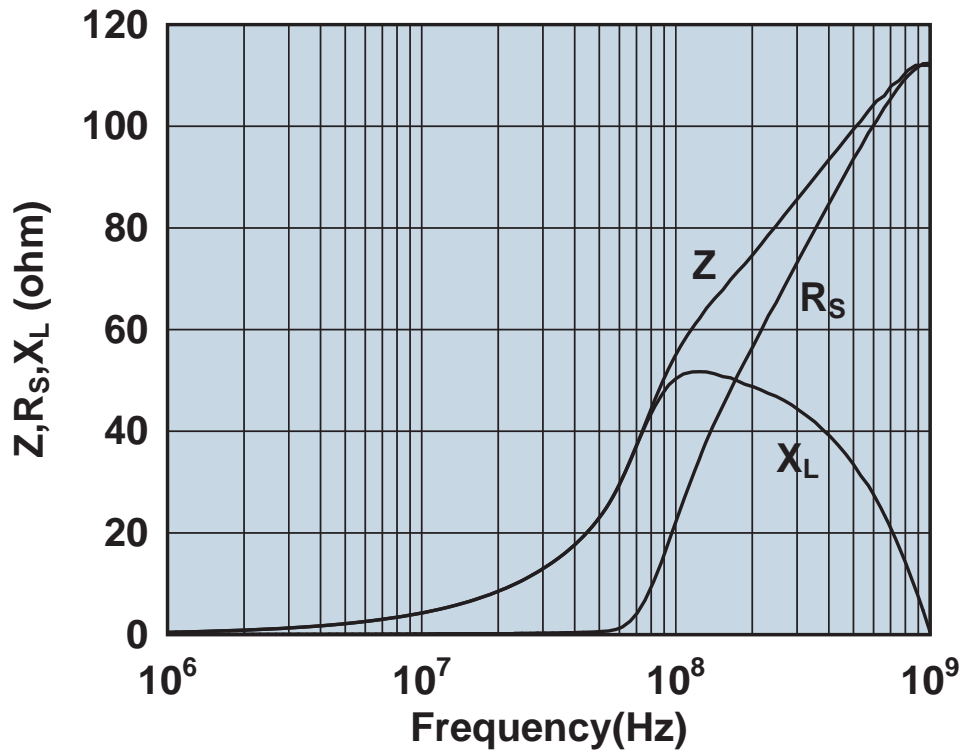


Impedance, reactance, and resistance vs. frequency.

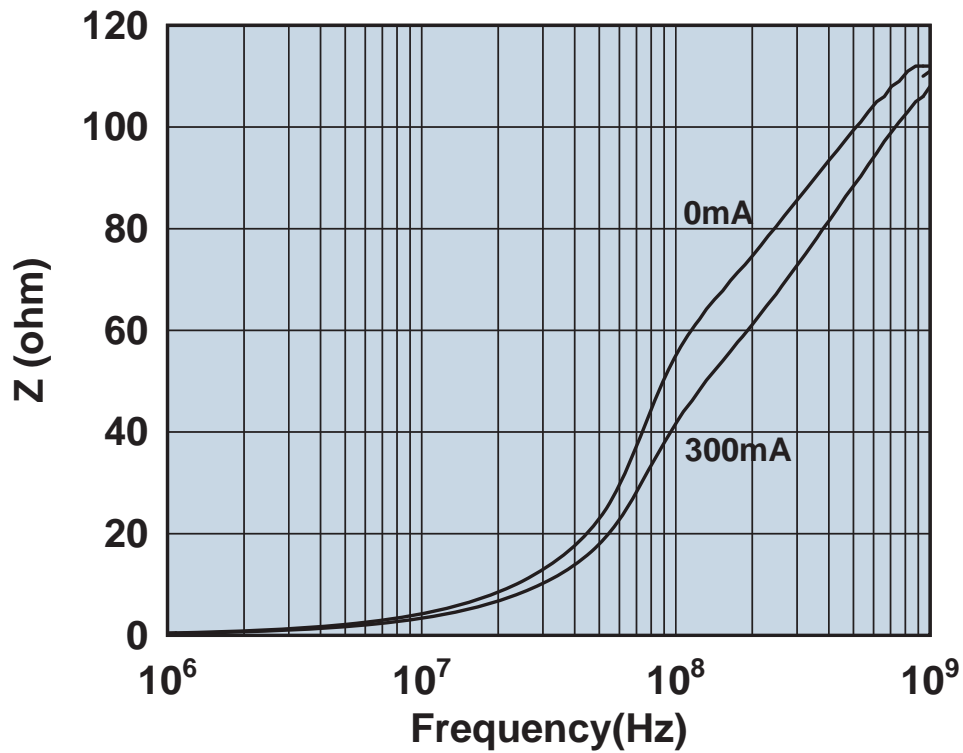


Impedance vs. frequency with dc bias.

2508056007Z0

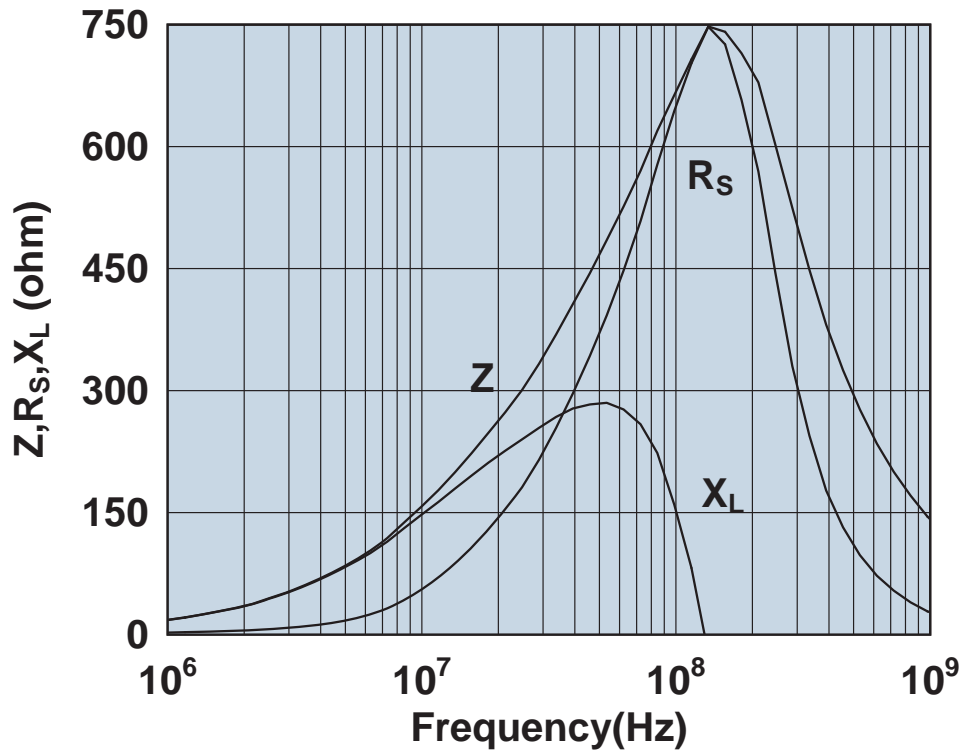


Impedance, reactance, and resistance vs. frequency.

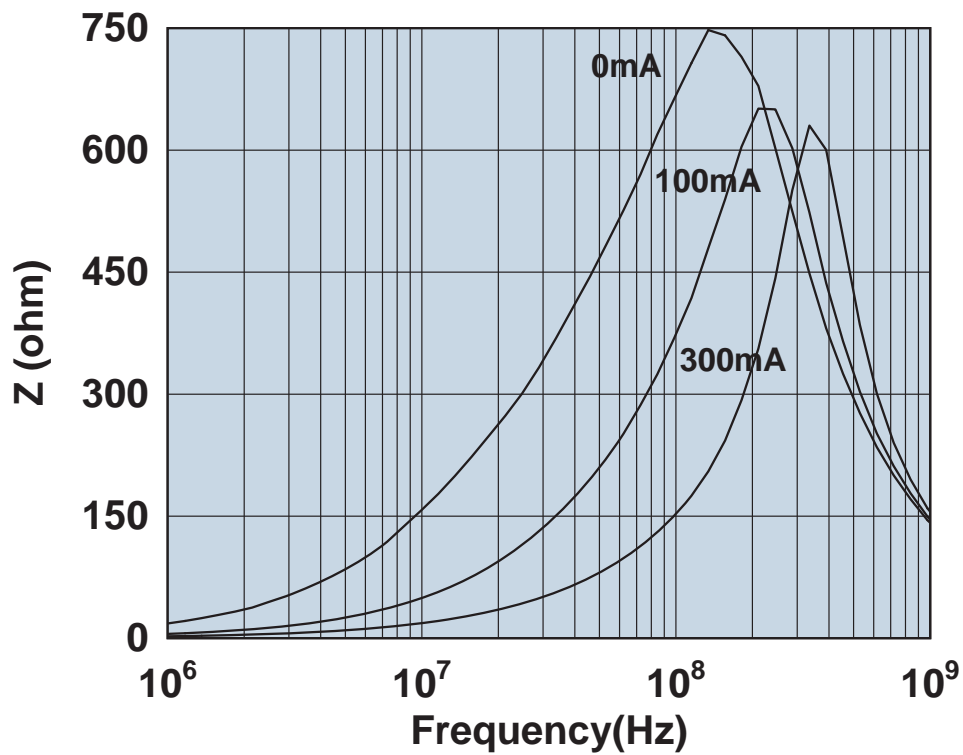


Impedance vs. frequency with dc bias.

# 2508056017Y0

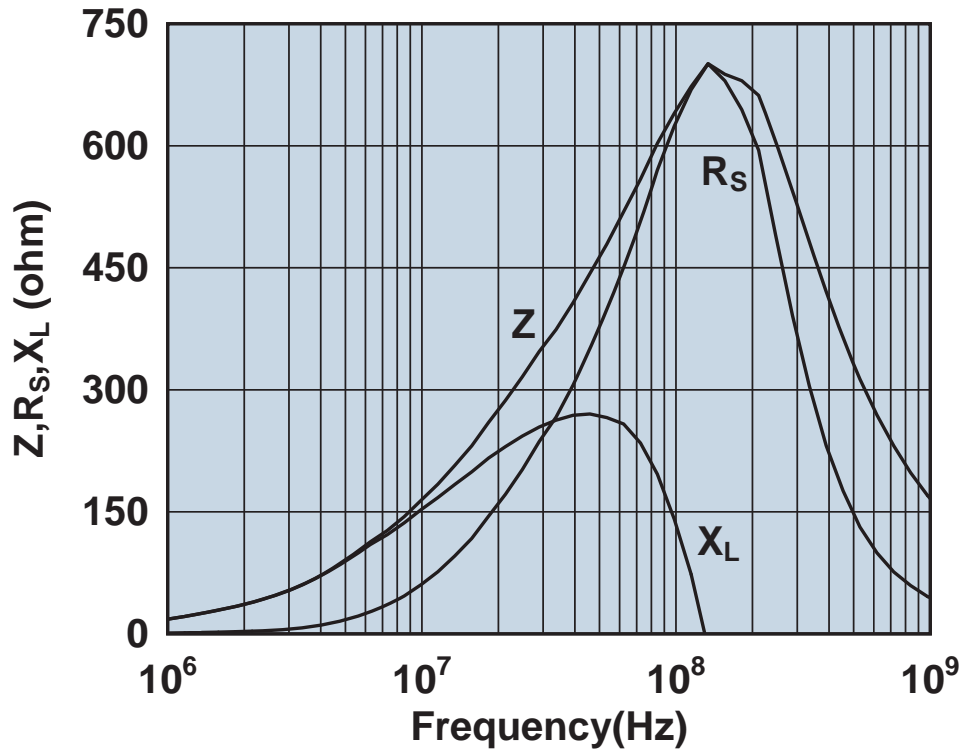


Impedance, reactance, and resistance vs. frequency.

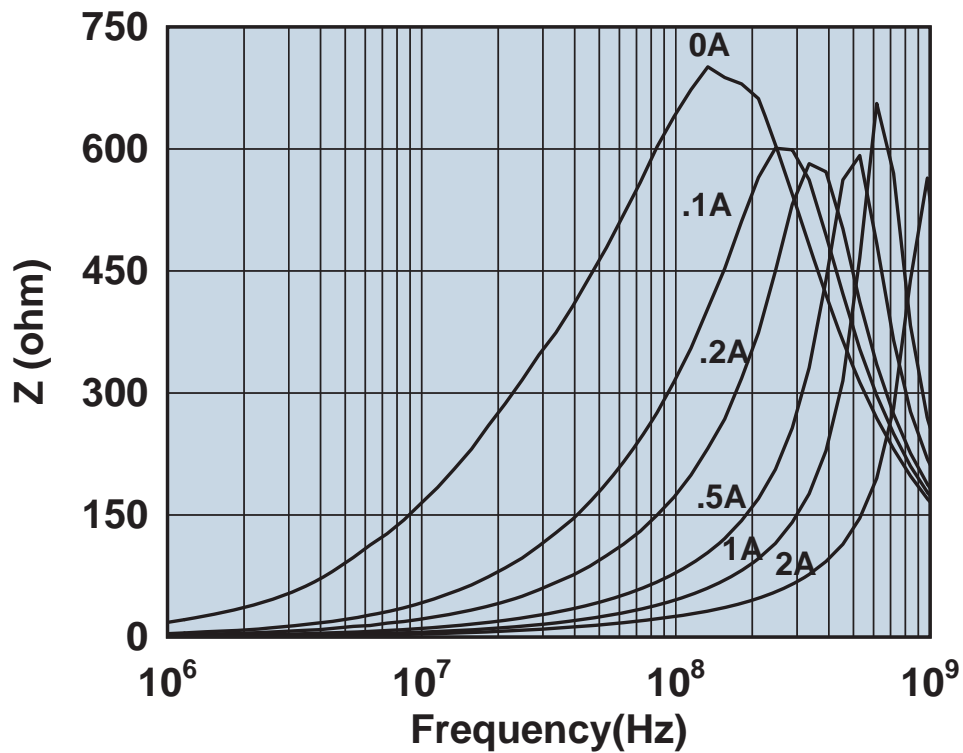


Impedance vs. frequency with dc bias.

# 2508056017Y2

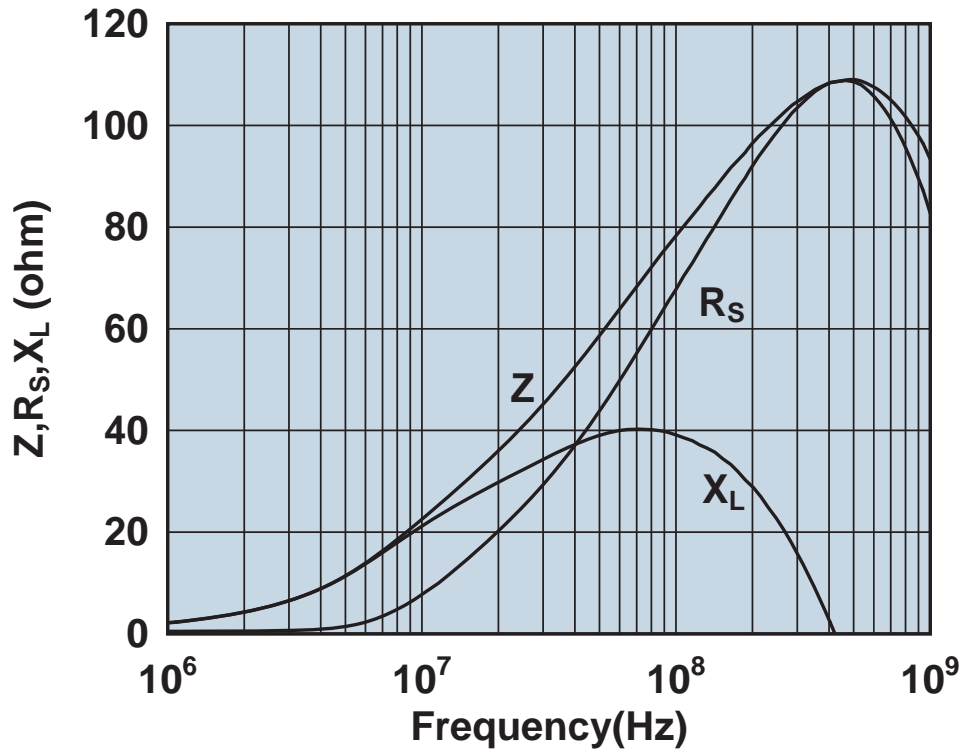


Impedance, reactance, and resistance vs. frequency.

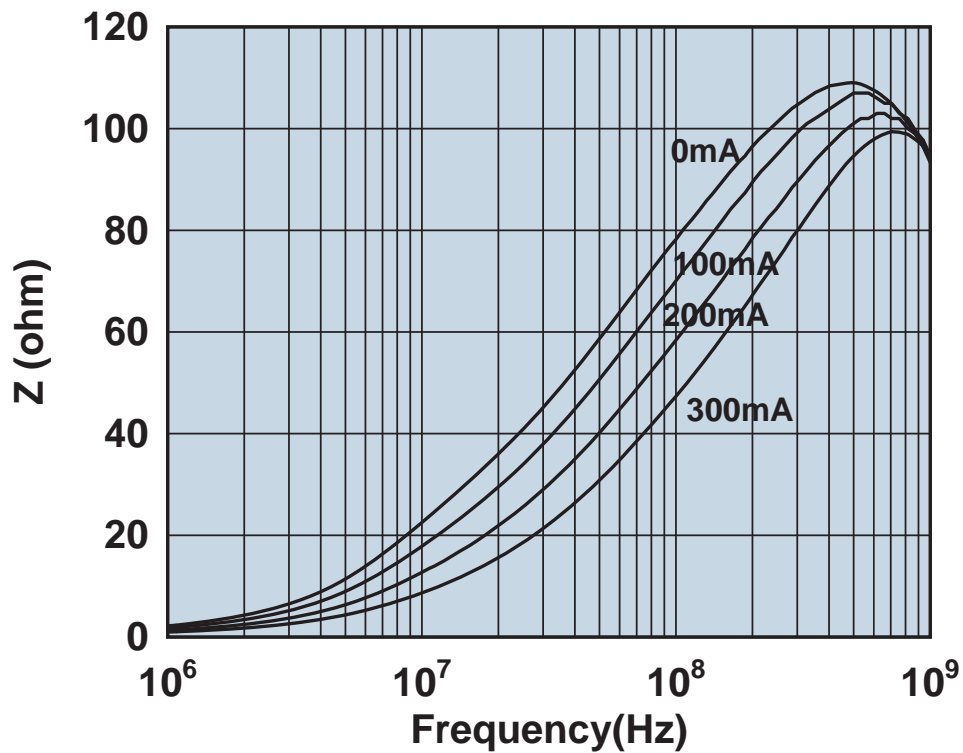


Impedance vs. frequency with dc bias.

# 2508059007Y0

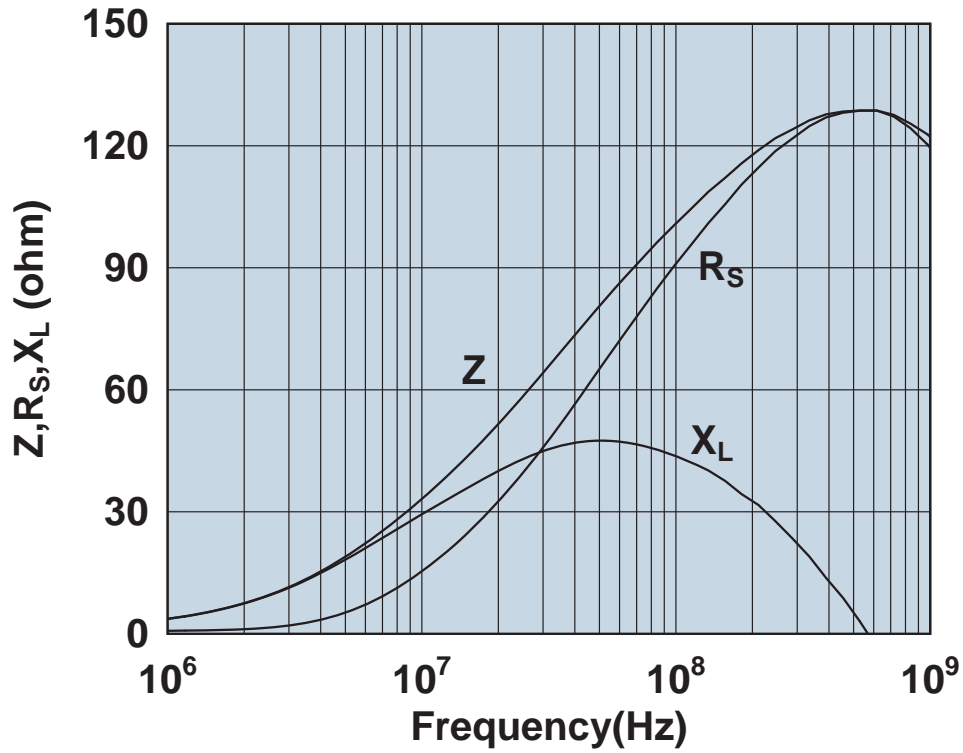


Impedance, reactance, and resistance vs. frequency.

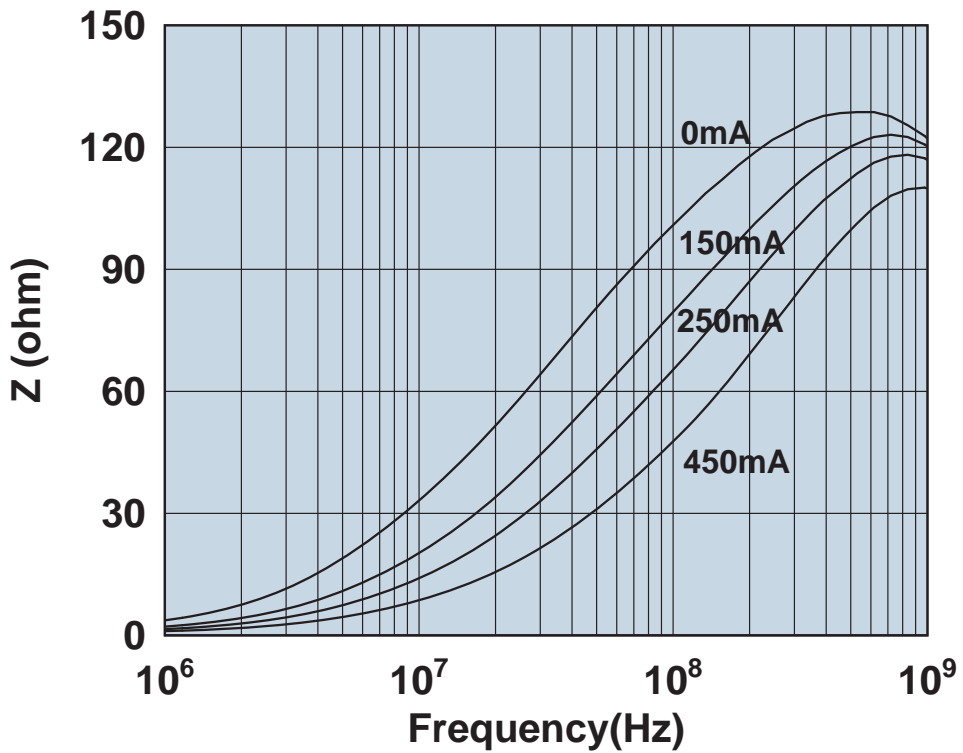


Impedance vs. frequency with dc bias.

# 2512061017Y0



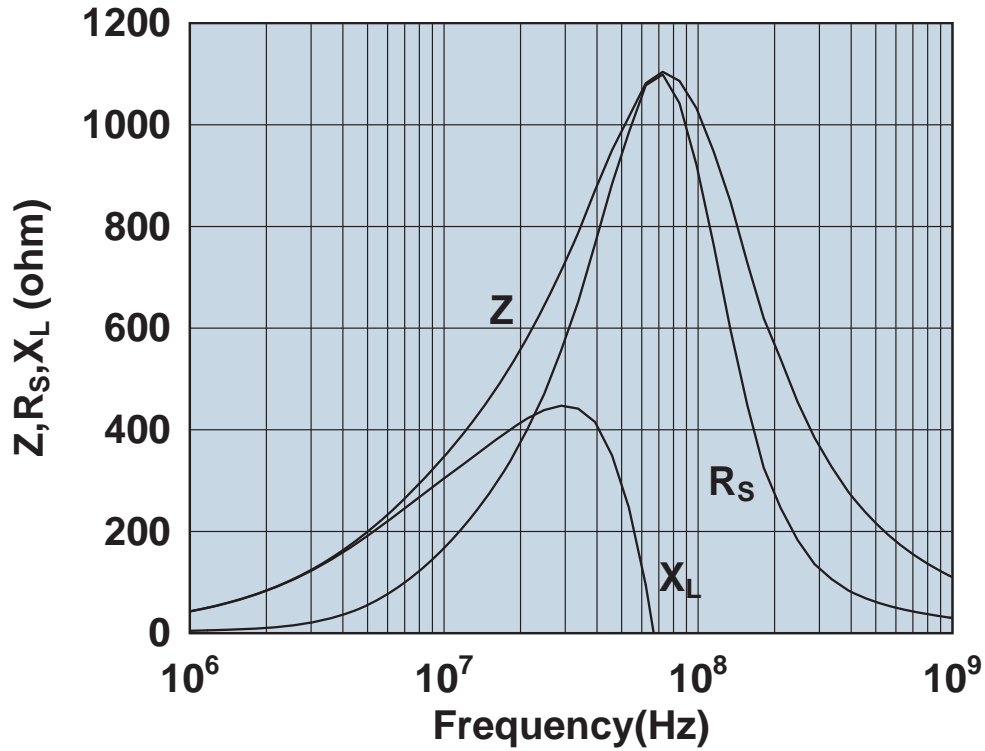
Impedance, reactance, and resistance vs. frequency.



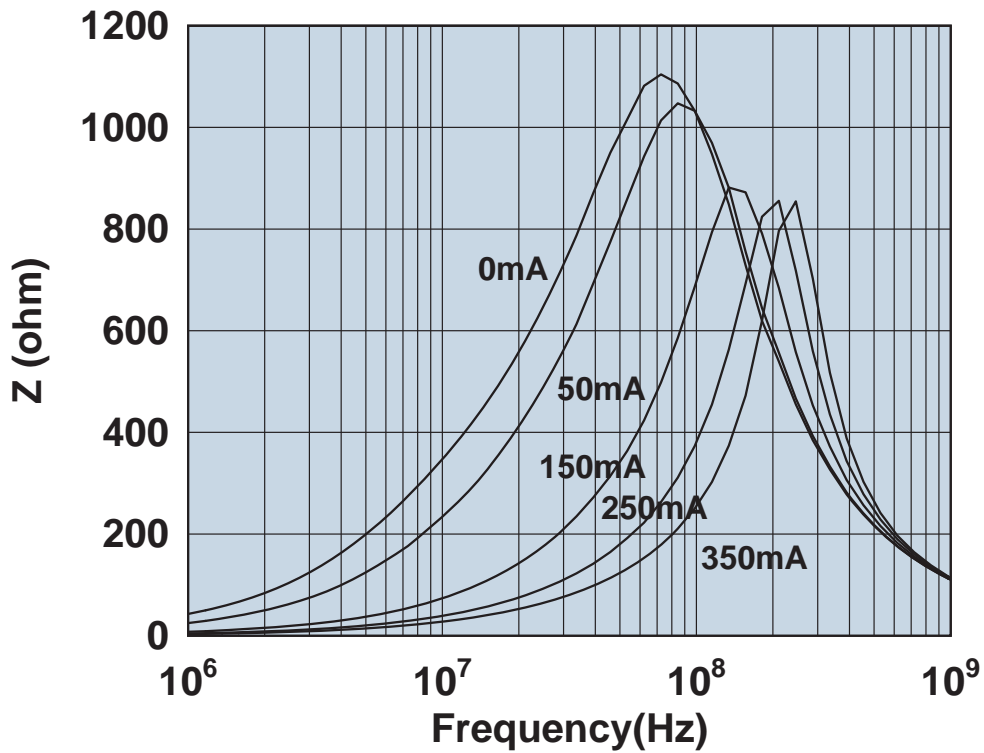
Impedance vs. frequency with dc bias.



# 2512061027Y0

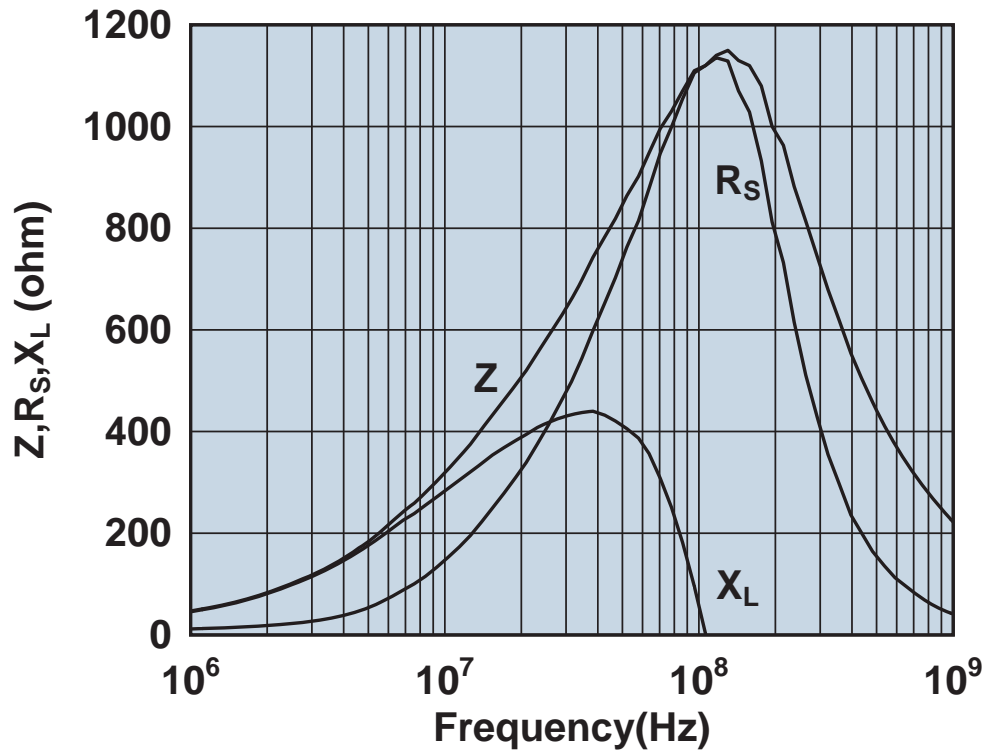


Impedance, reactance, and resistance vs. frequency.

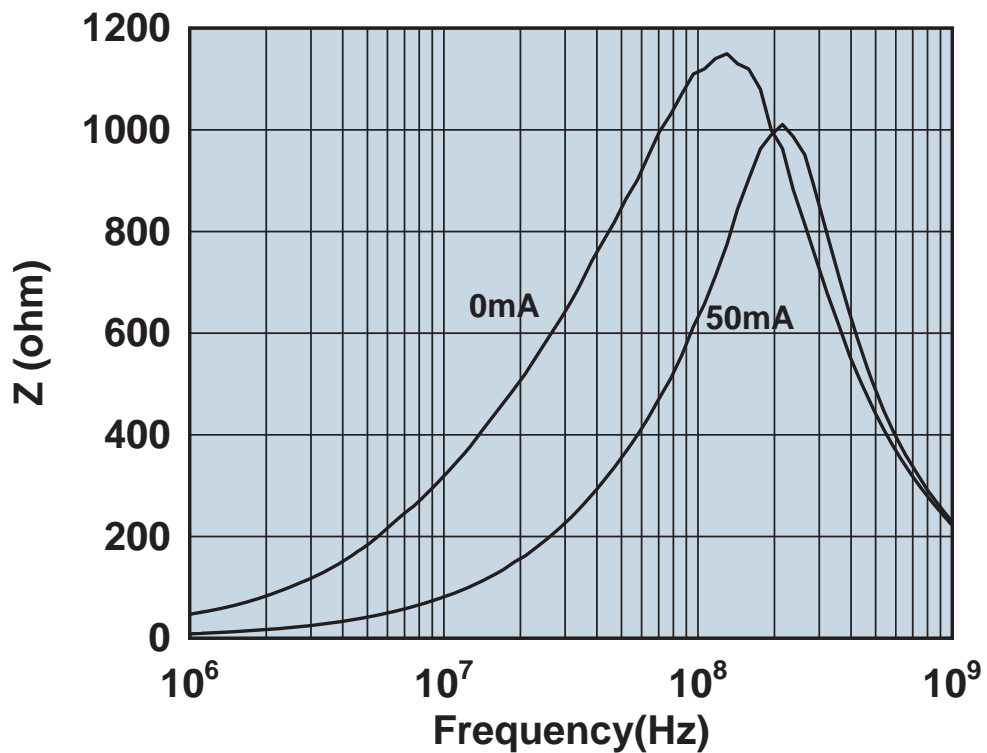


Impedance vs. frequency with dc bias.

2512061027Y0A4

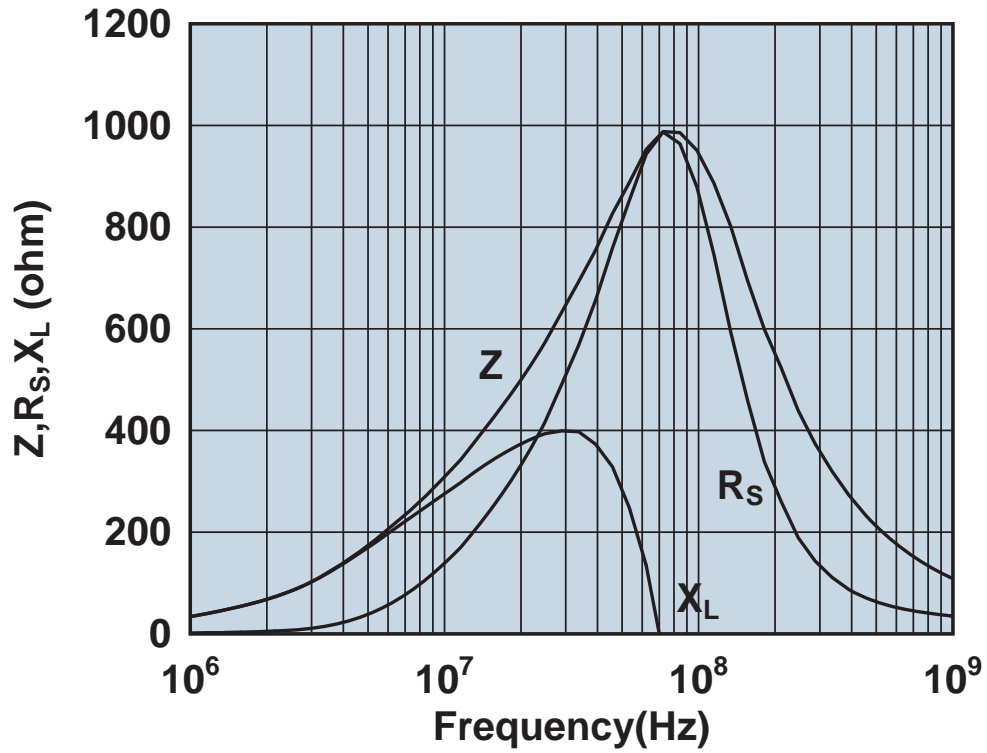


Impedance, reactance, and resistance vs. frequency.

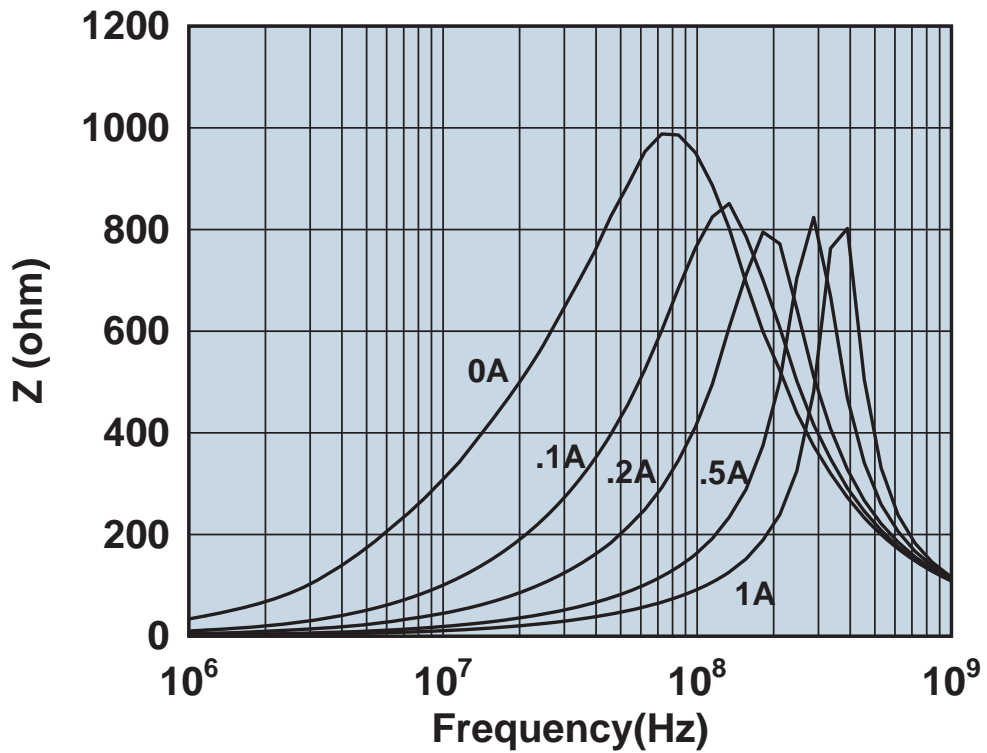


Impedance vs. frequency with dc bias.

2512061027Y1

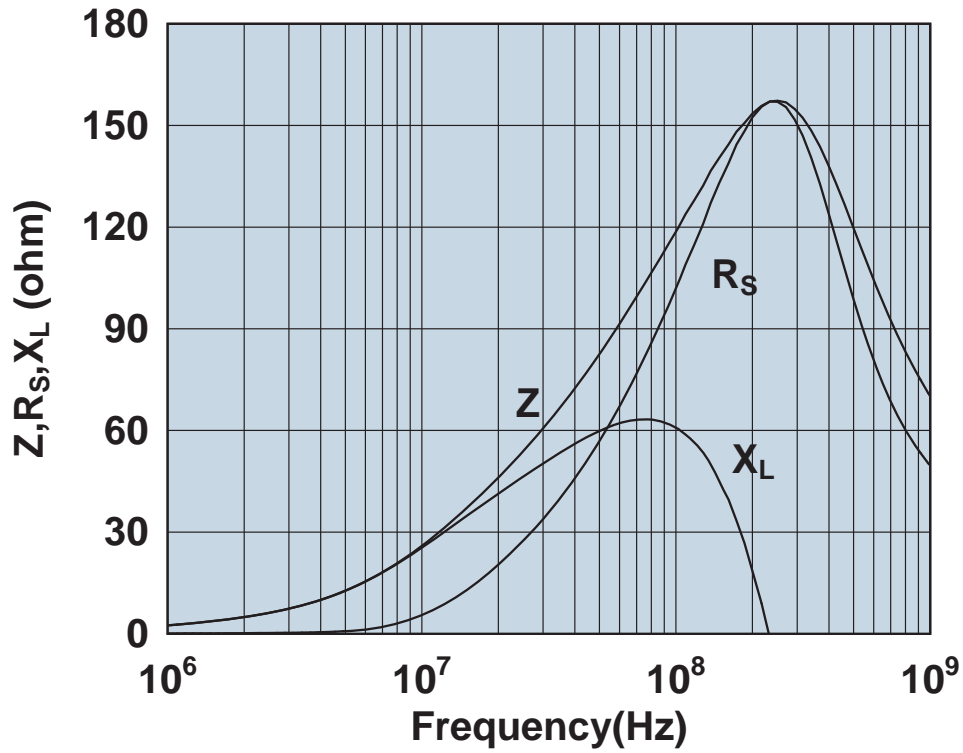


Impedance, reactance, and resistance vs. frequency.

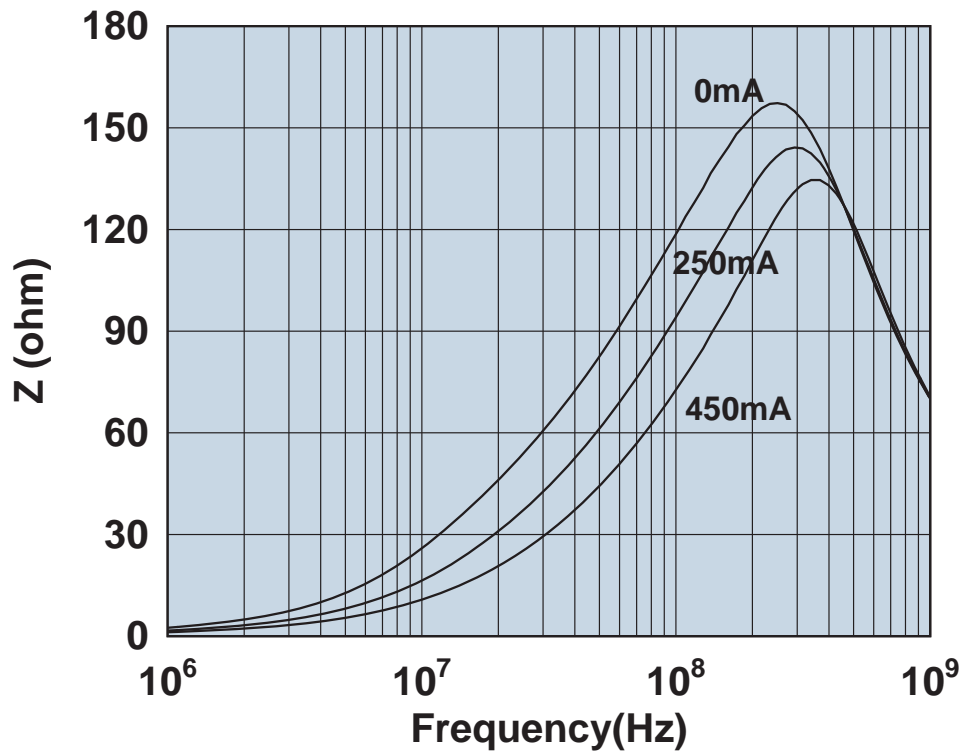


Impedance vs. frequency with dc bias.

# 2512061217Y0

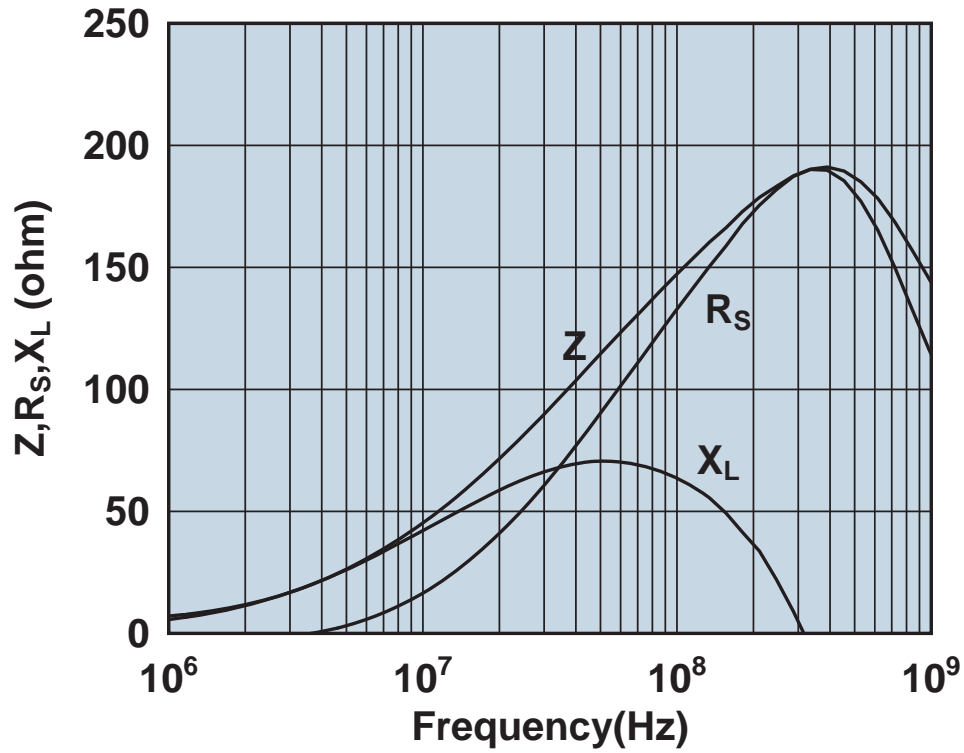


Impedance, reactance, and resistance vs. frequency.

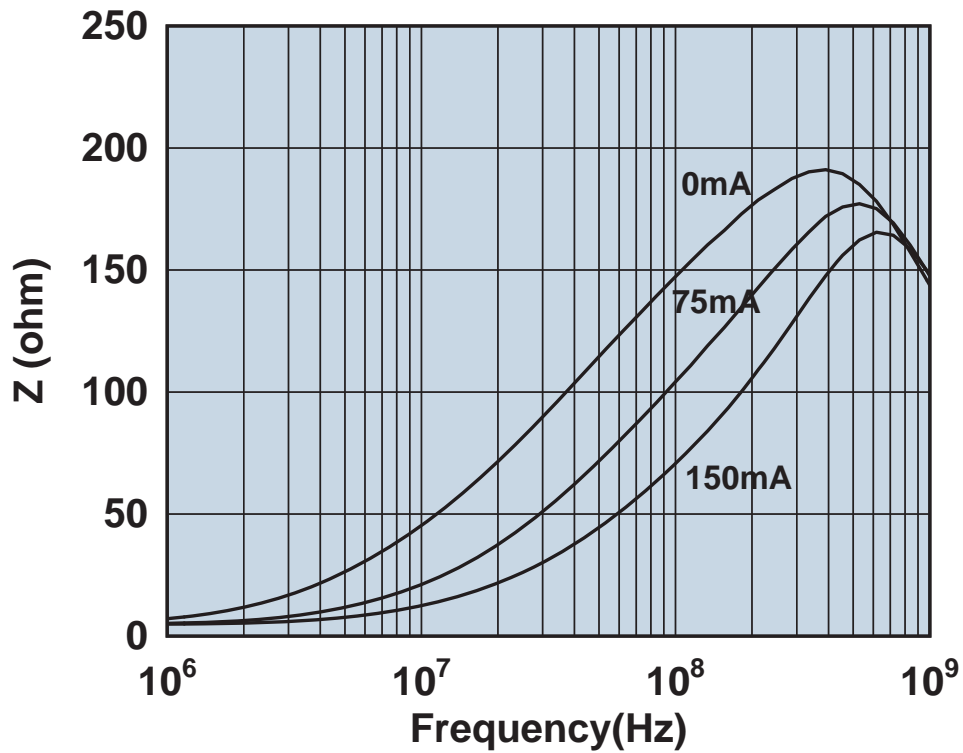


Impedance vs. frequency with dc bias.

2512061217Y0A4

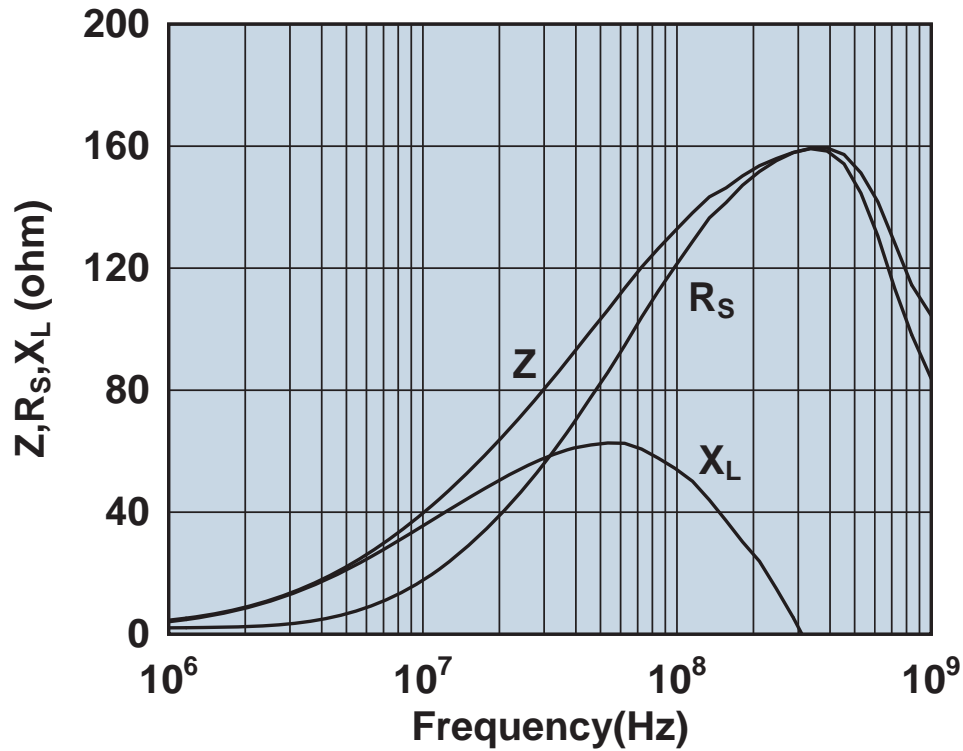


Impedance, reactance, and resistance vs. frequency.

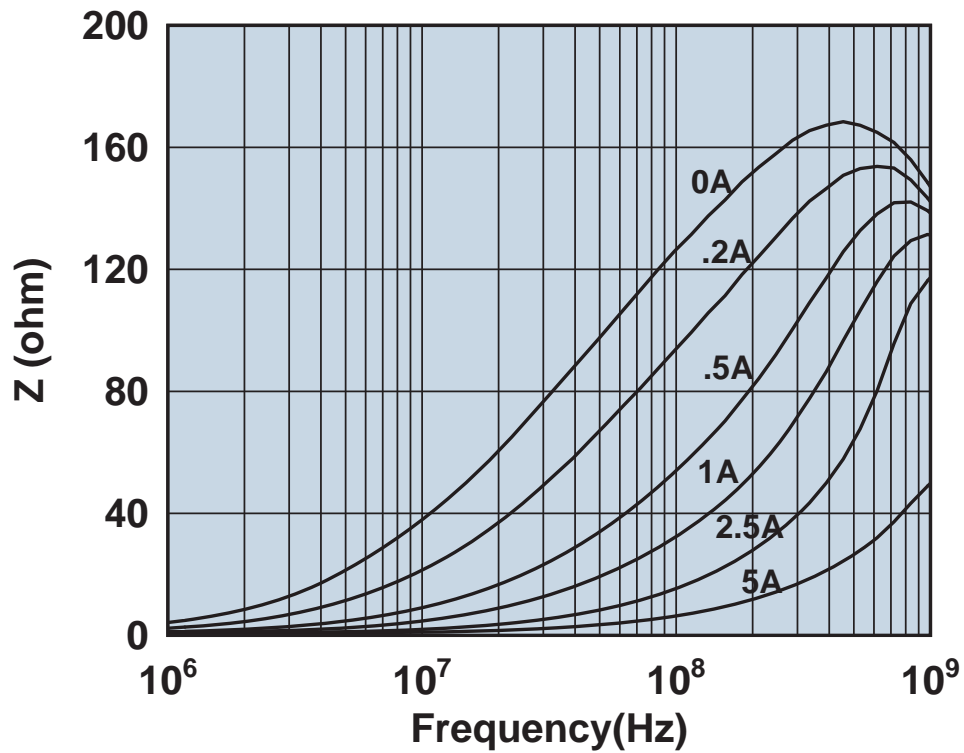


Impedance vs. frequency with dc bias.

# 2512061217Y5

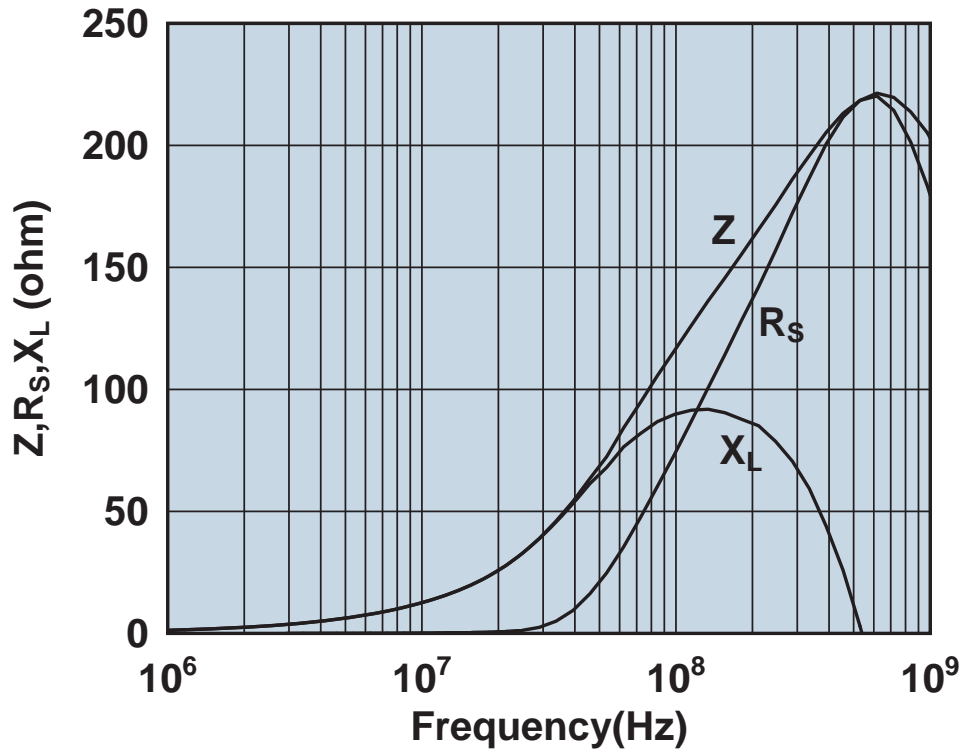


Impedance, reactance, and resistance vs. frequency.

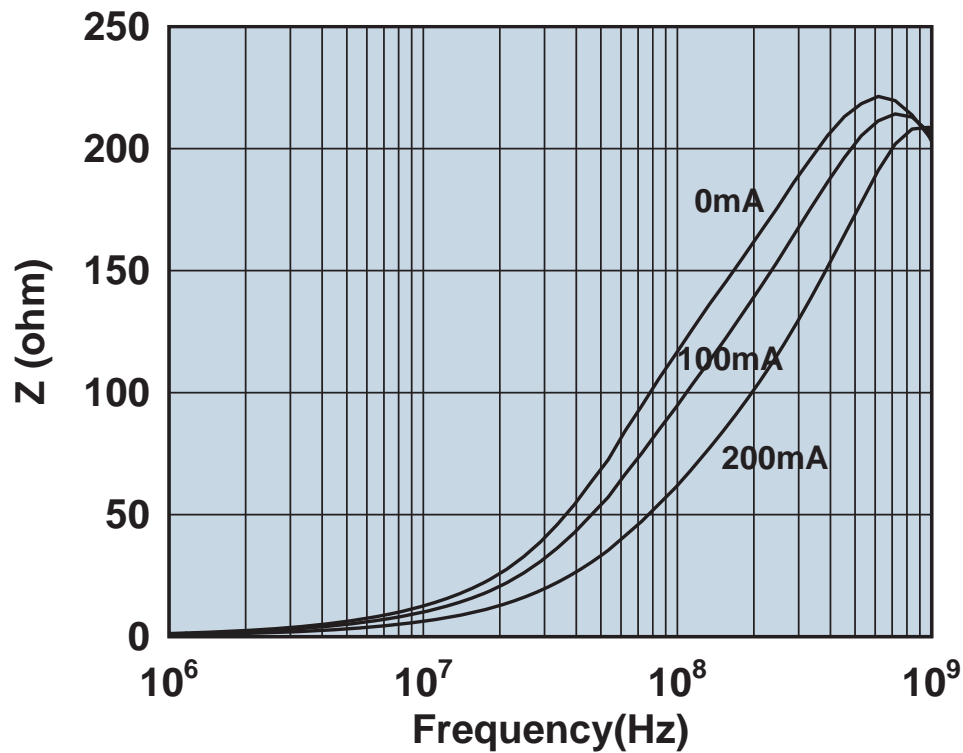


Impedance vs. frequency with dc bias.

# 2512061217Z0A4

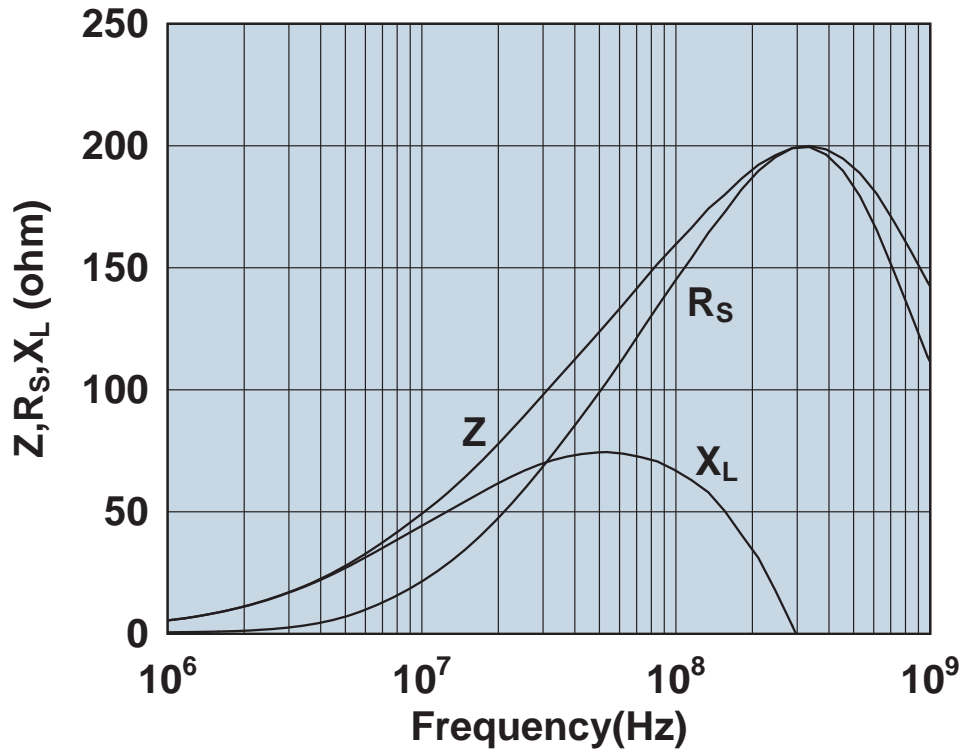


Impedance, reactance, and resistance vs. frequency.

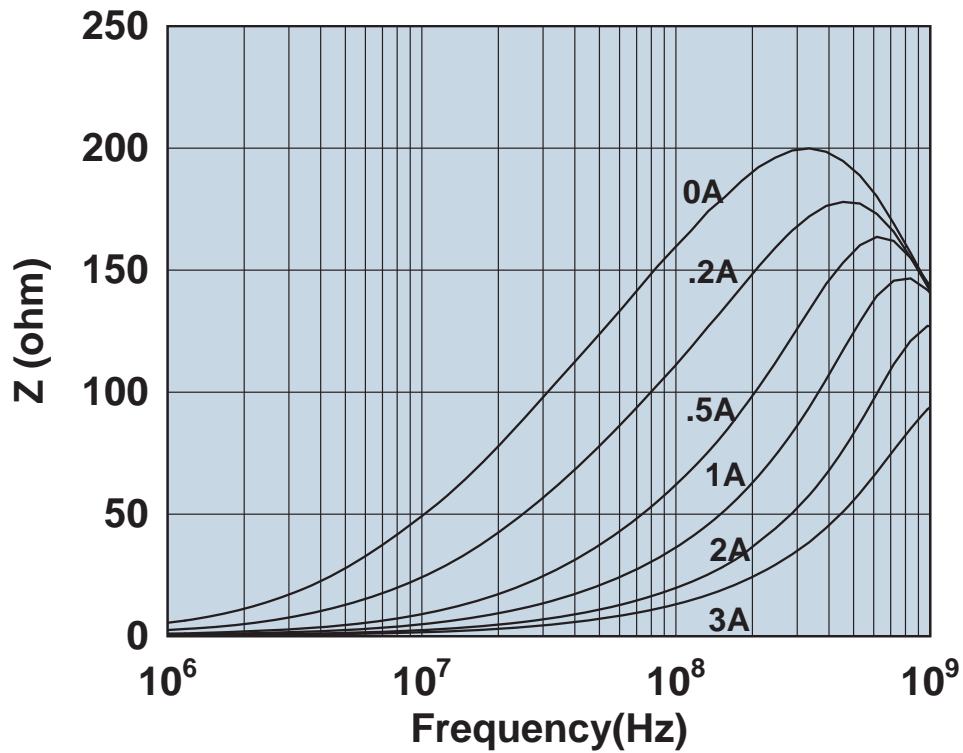


Impedance vs. frequency with dc bias.

# 2512061517Y3



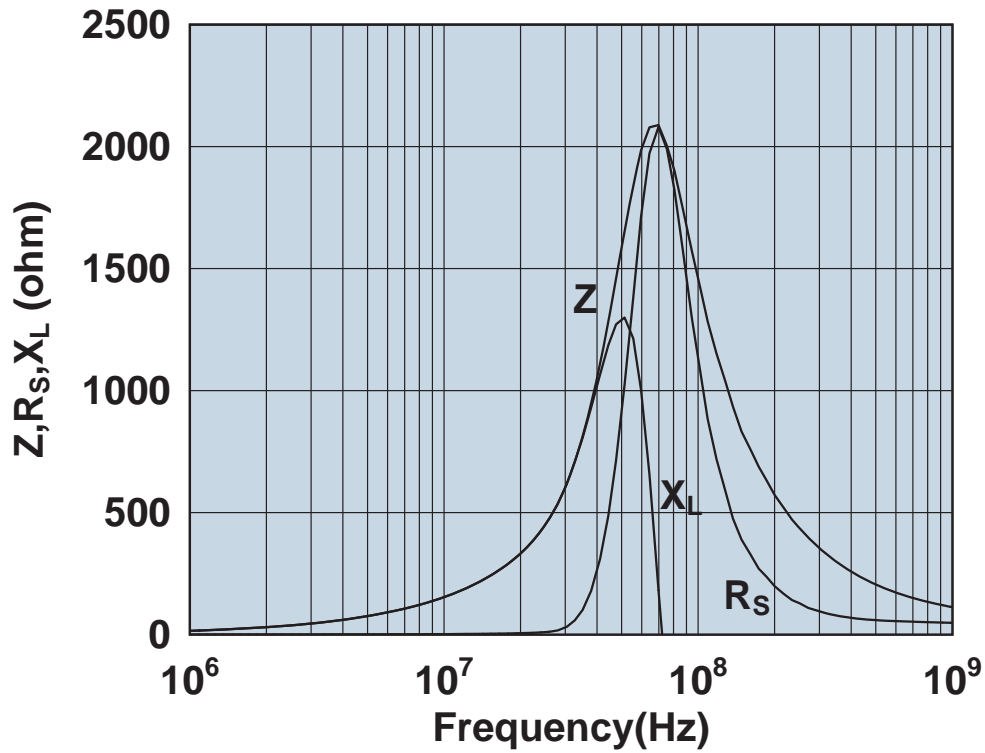
Impedance, reactance, and resistance vs. frequency.



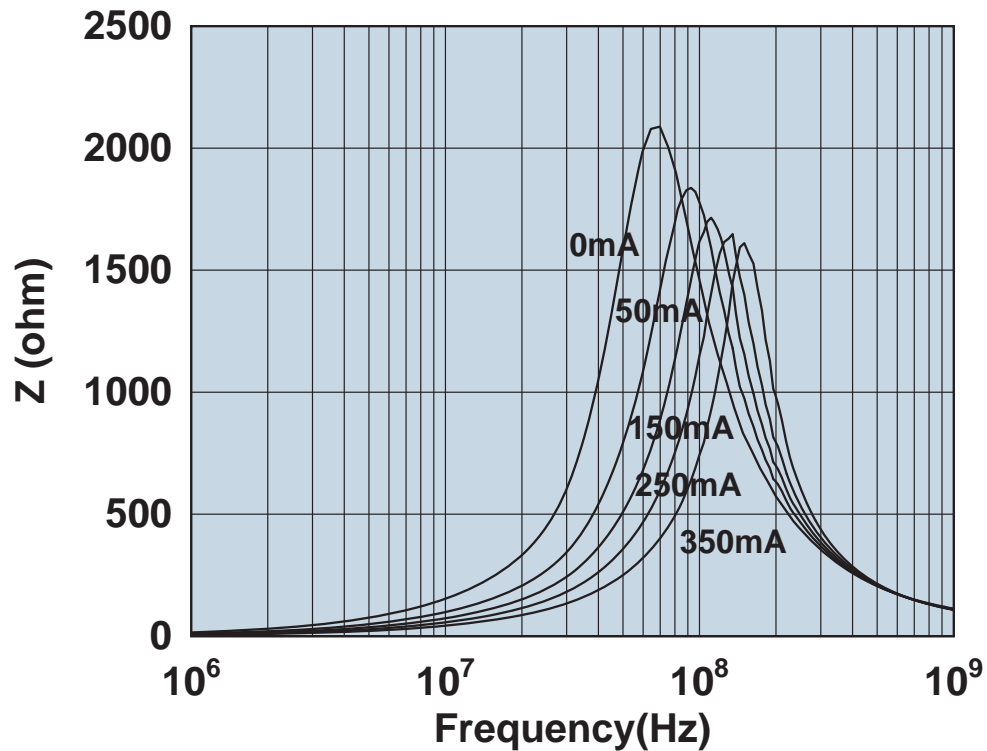
Impedance vs. frequency with dc bias.



# 2512061527Y0

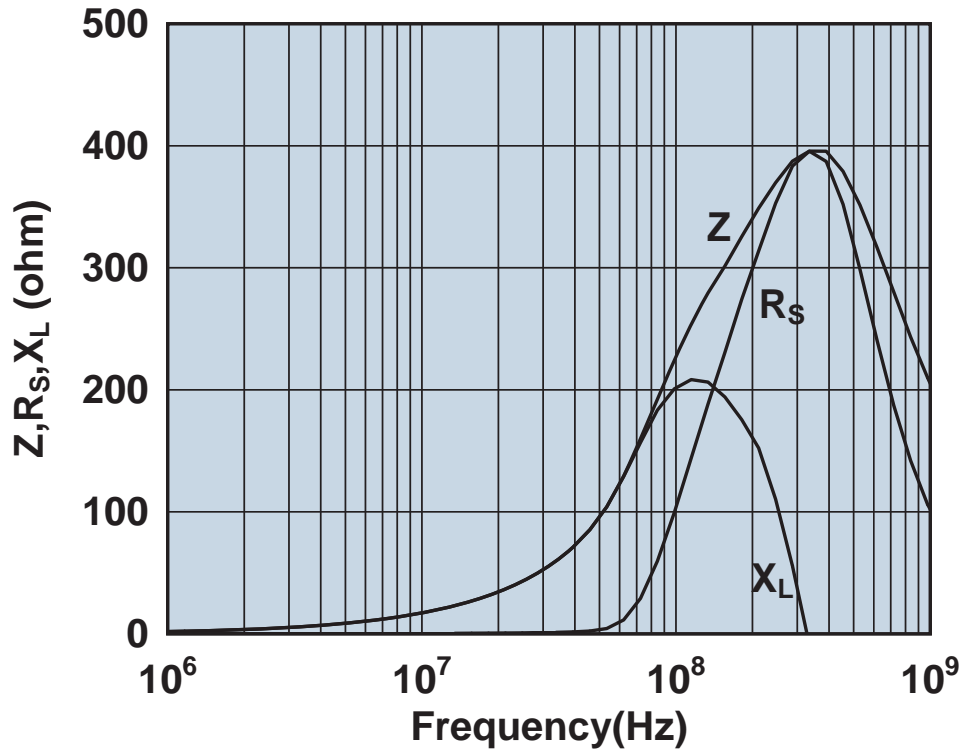


Impedance, reactance, and resistance vs. frequency.

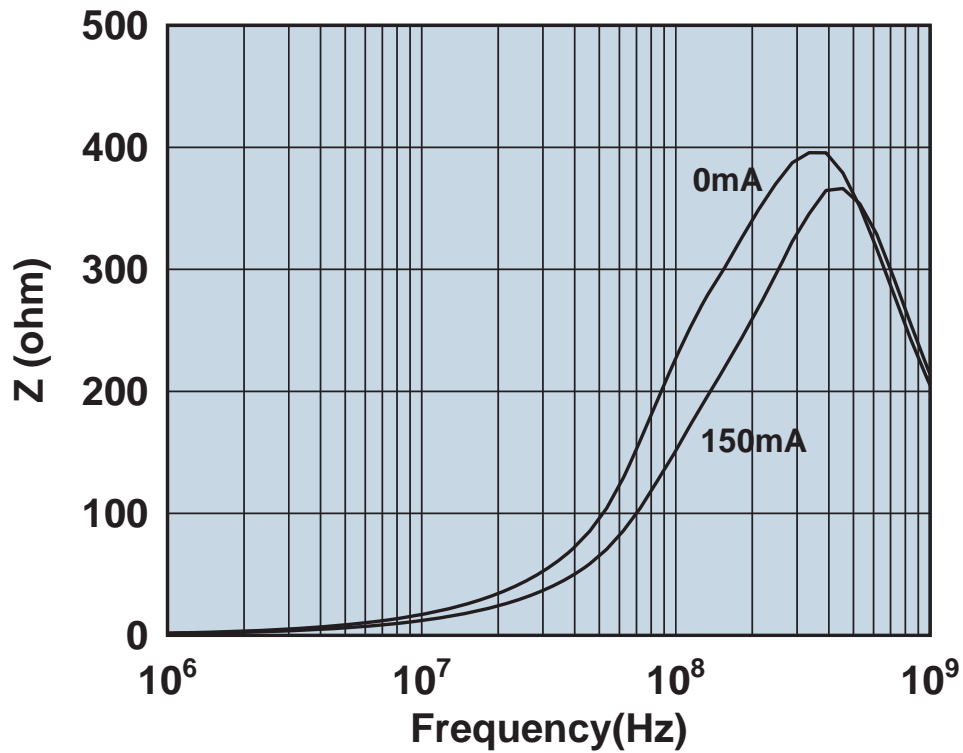


Impedance vs. frequency with dc bias.

# 2512062217Z0A4

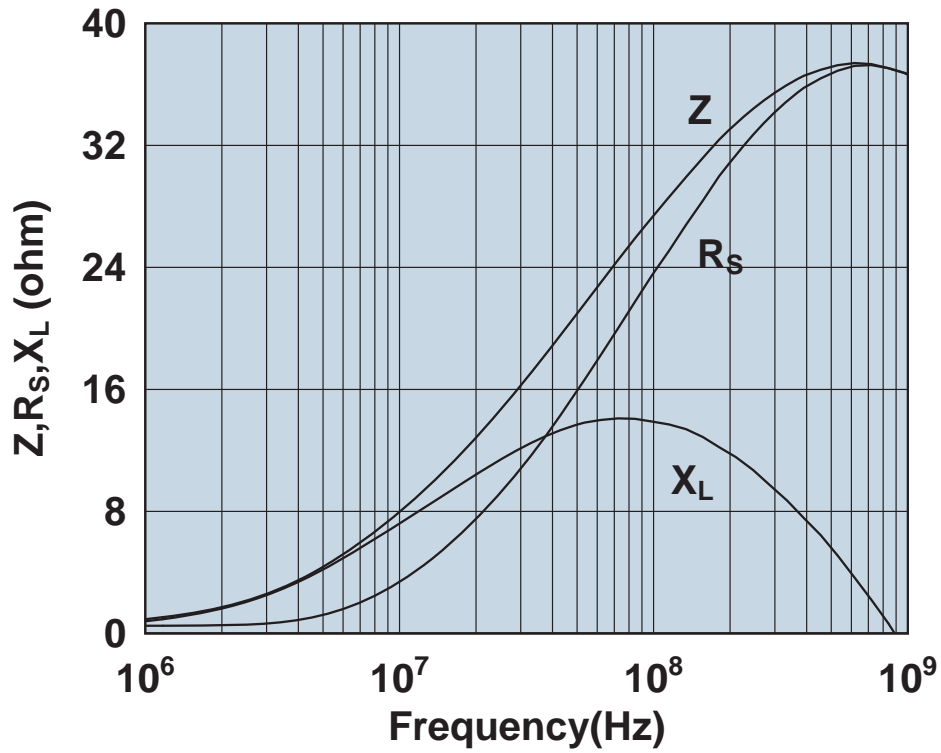


Impedance, reactance, and resistance vs. frequency.

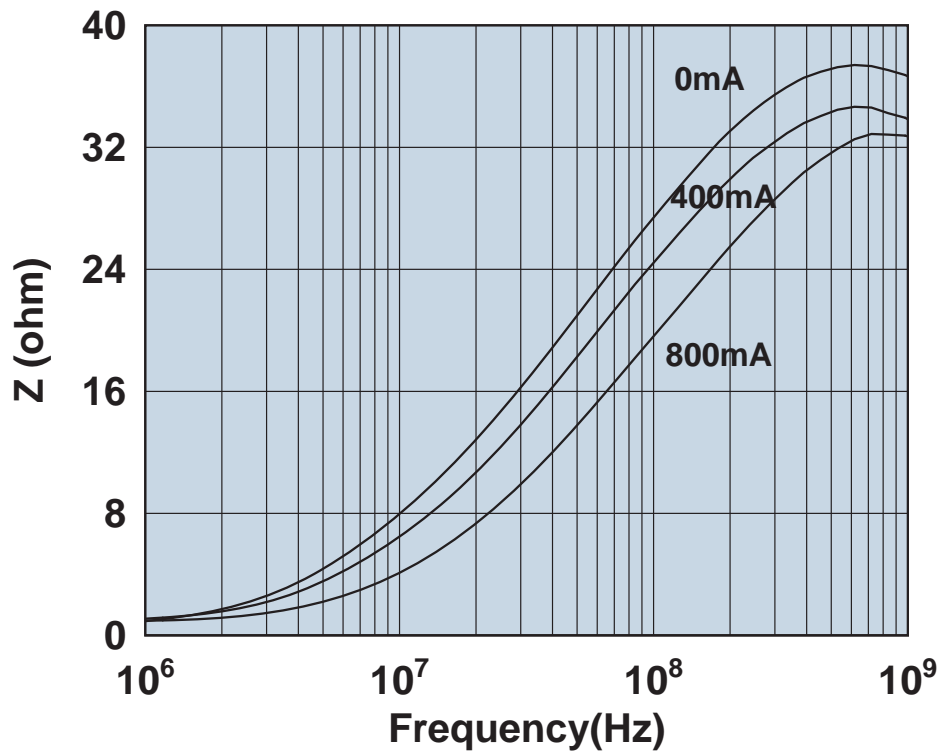


Impedance vs. frequency with dc bias.

2512063007Y0

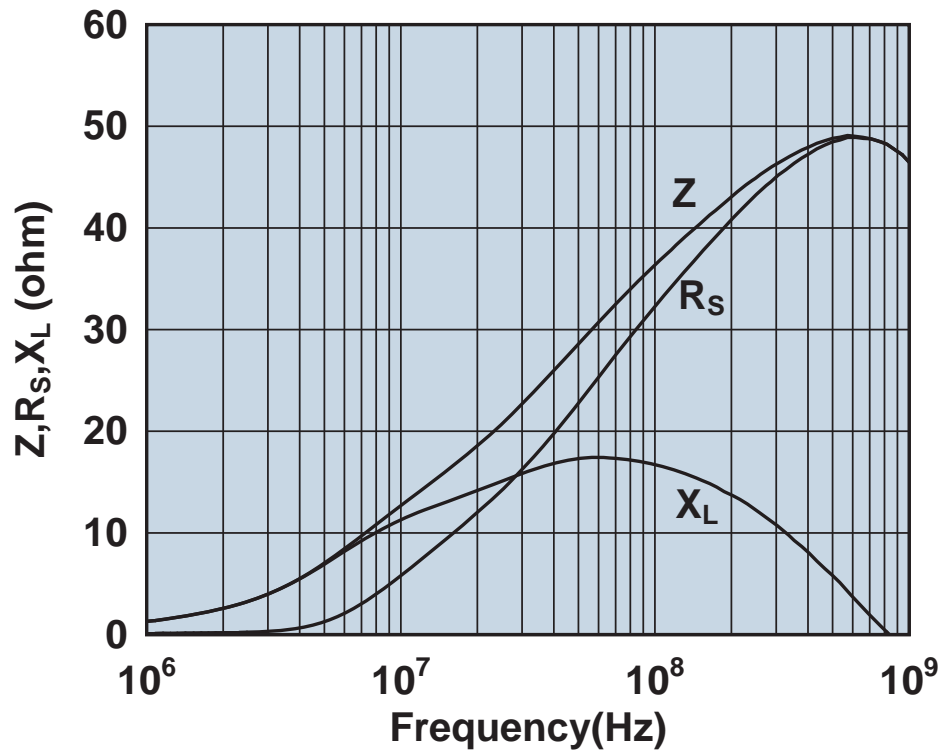


Impedance, reactance, and resistance vs. frequency.

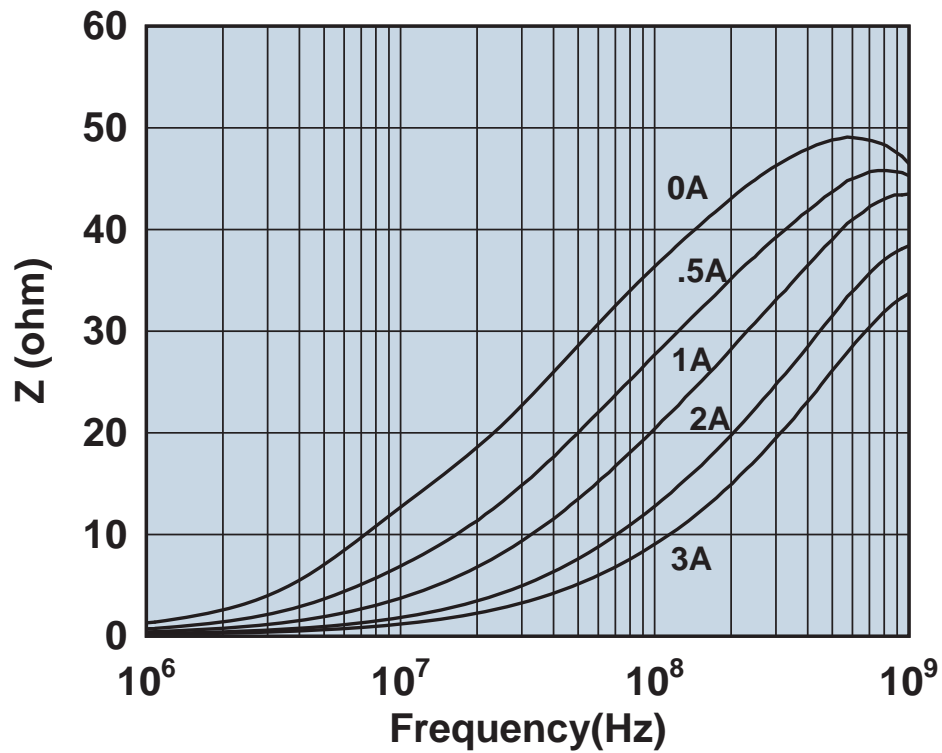


Impedance vs. frequency with dc bias.

# 2512063007Y3

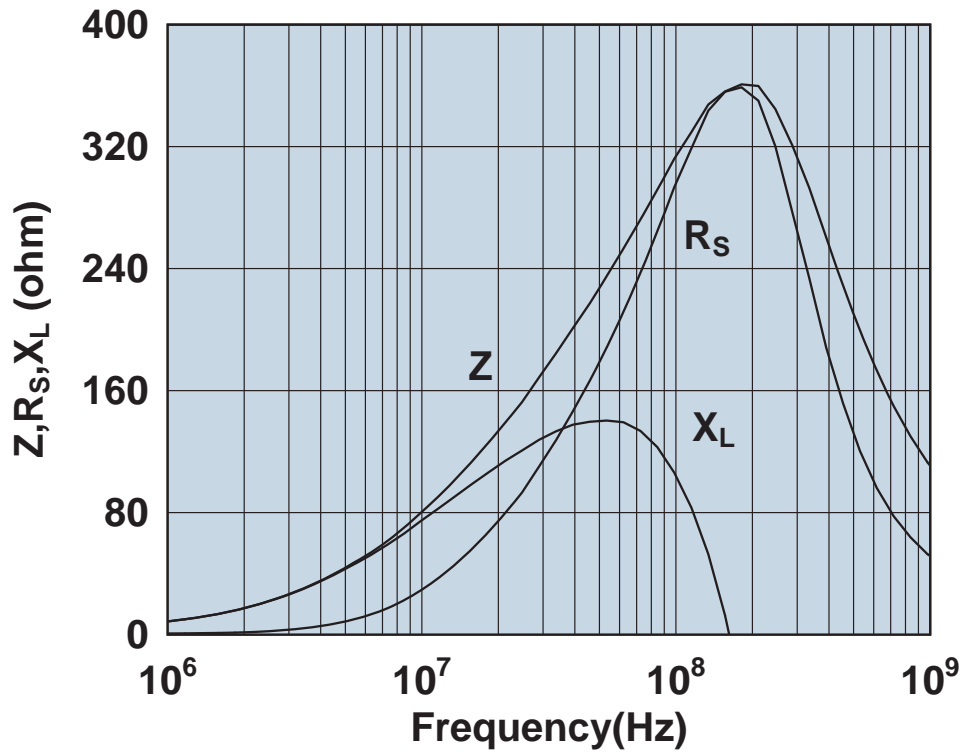


Impedance, reactance, and resistance vs. frequency.

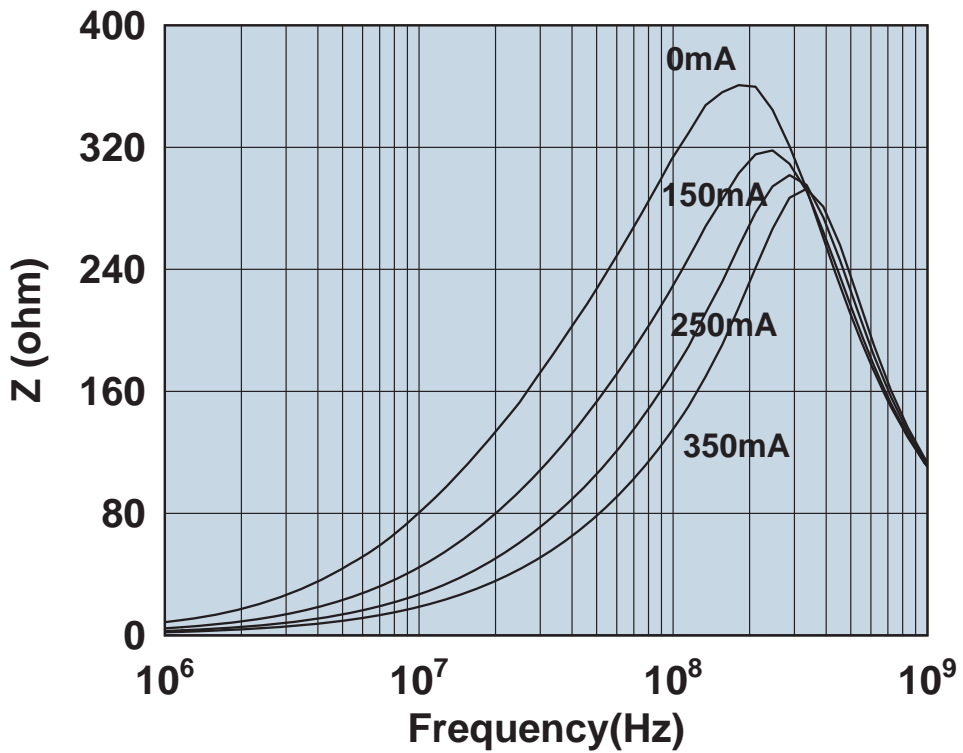


Impedance vs. frequency with dc bias.

# 2512063017Y0

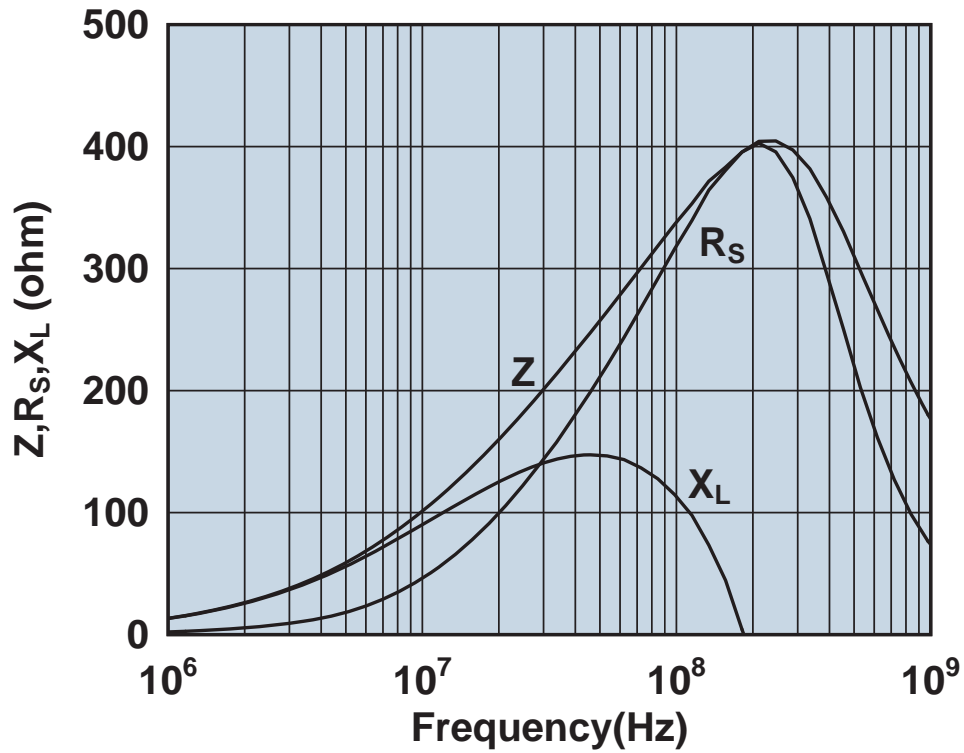


Impedance, reactance, and resistance vs. frequency.

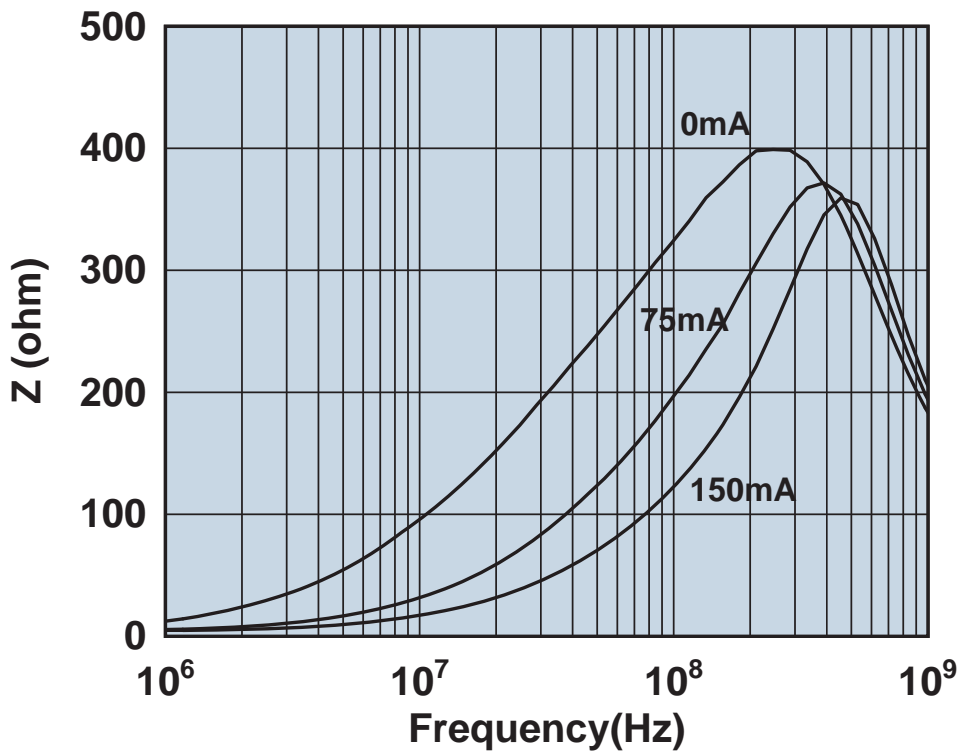


Impedance vs. frequency with dc bias.

# 2512063017Y0A4

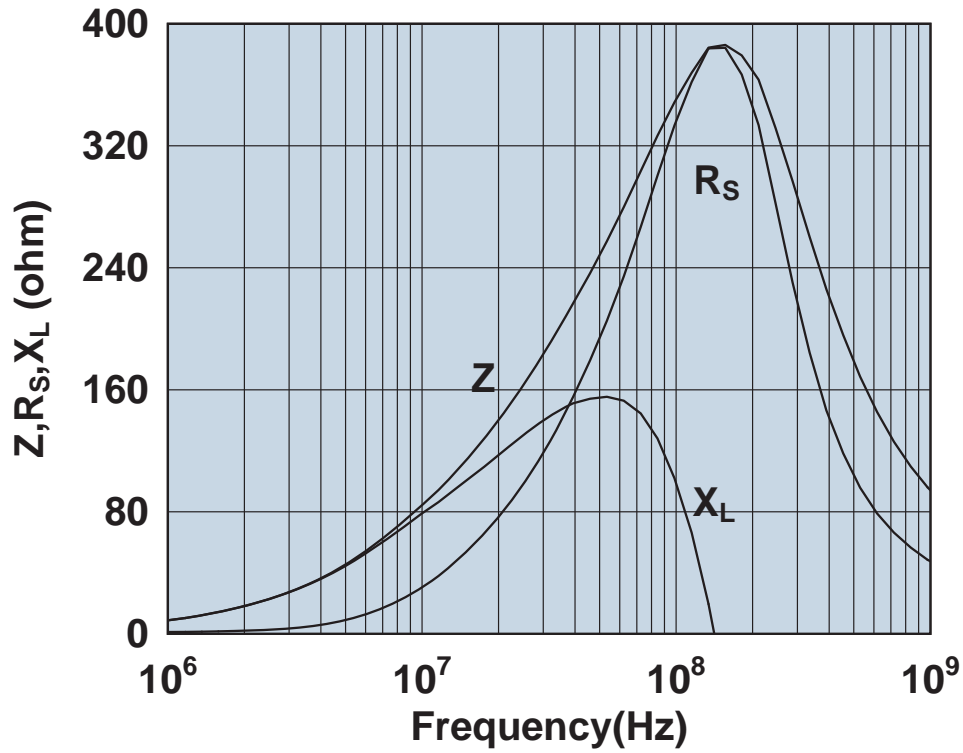


Impedance, reactance, and resistance vs. frequency.

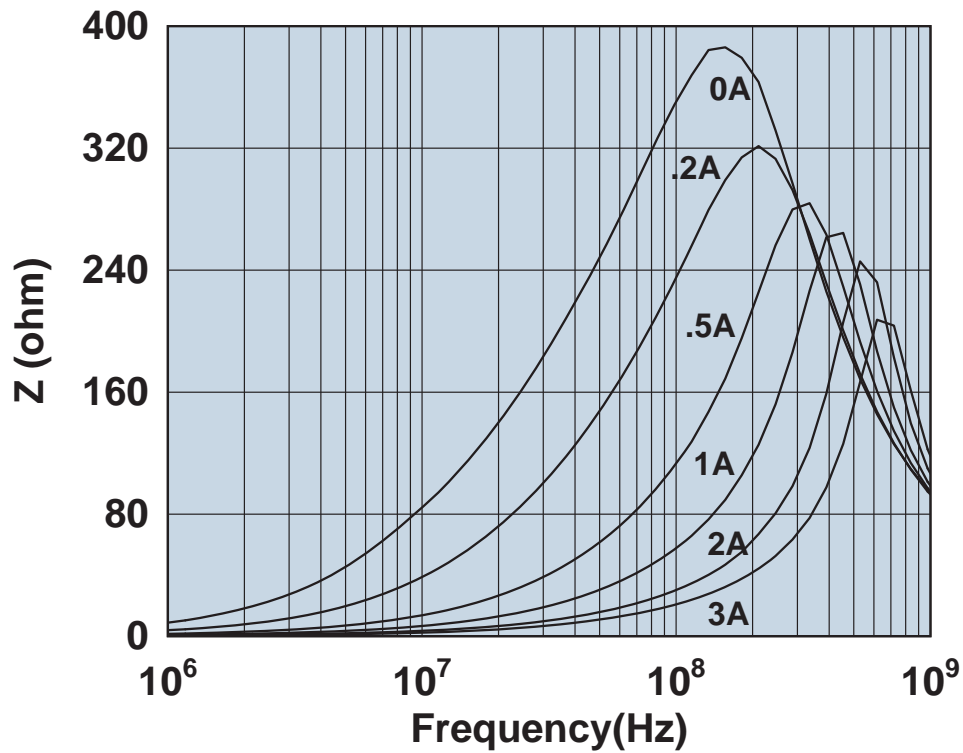


Impedance vs. frequency with dc bias.

# 2512063017Y3

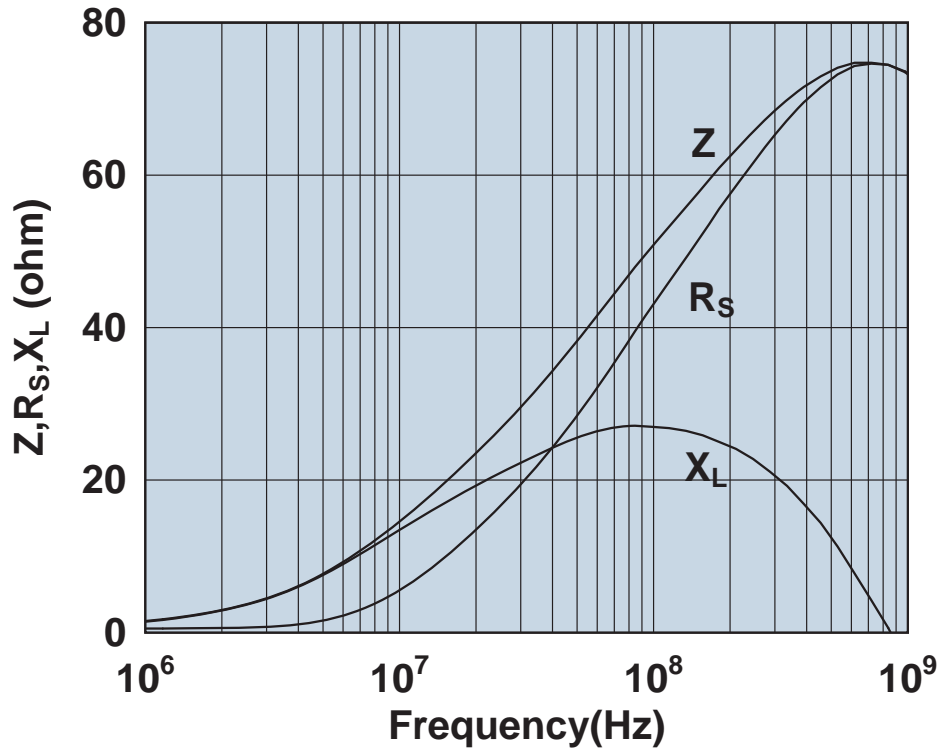


Impedance, reactance, and resistance vs. frequency.

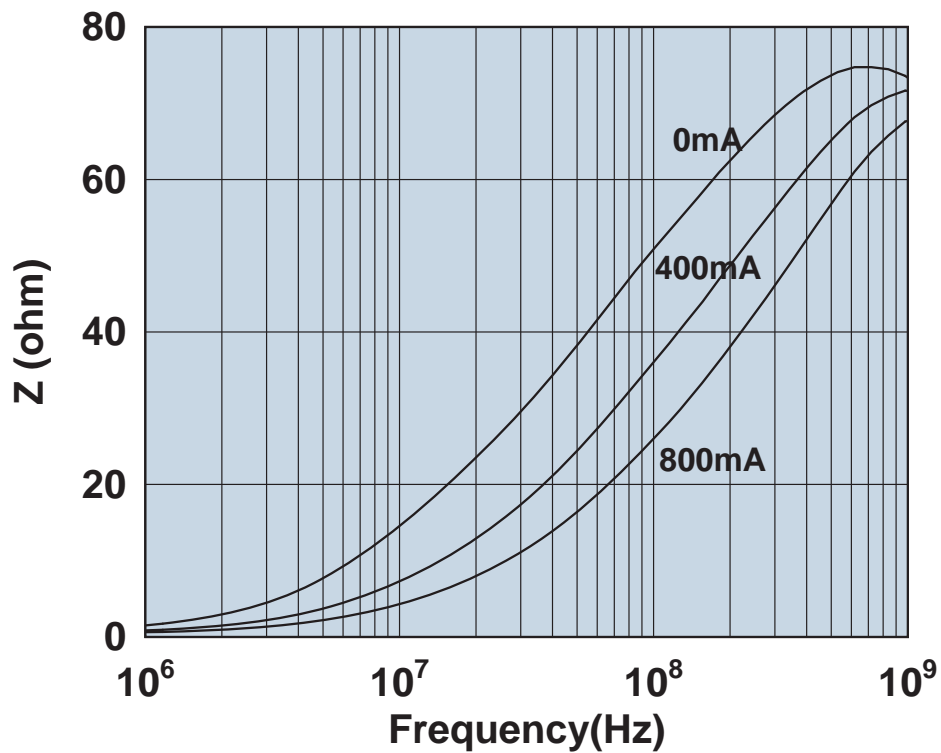


Impedance vs. frequency with dc bias.

# 2512065007Y0



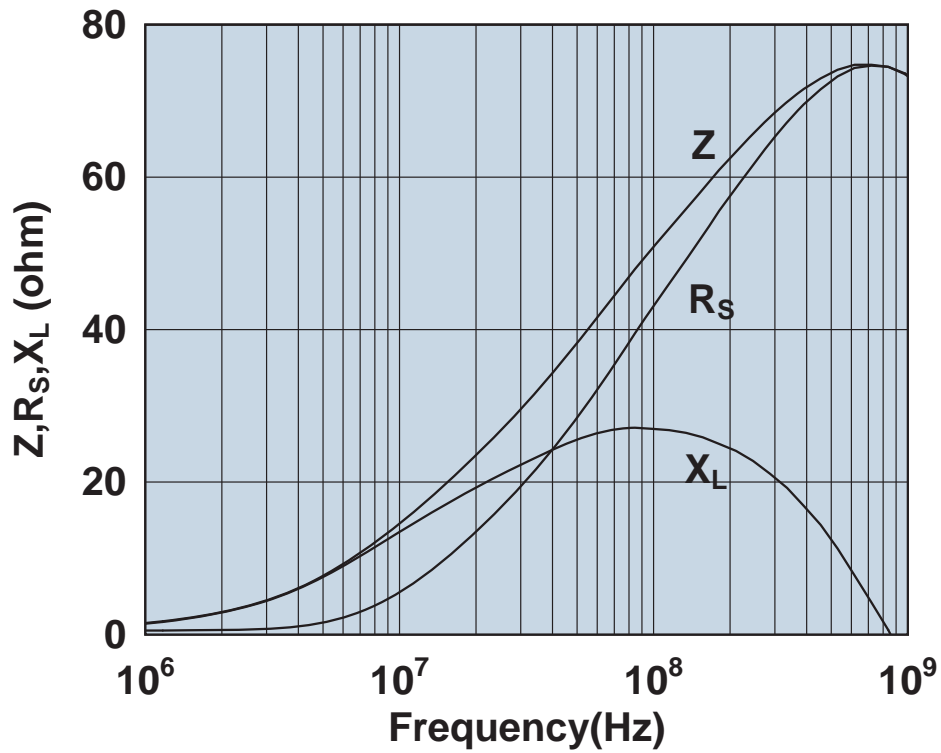
Impedance, reactance, and resistance vs. frequency.



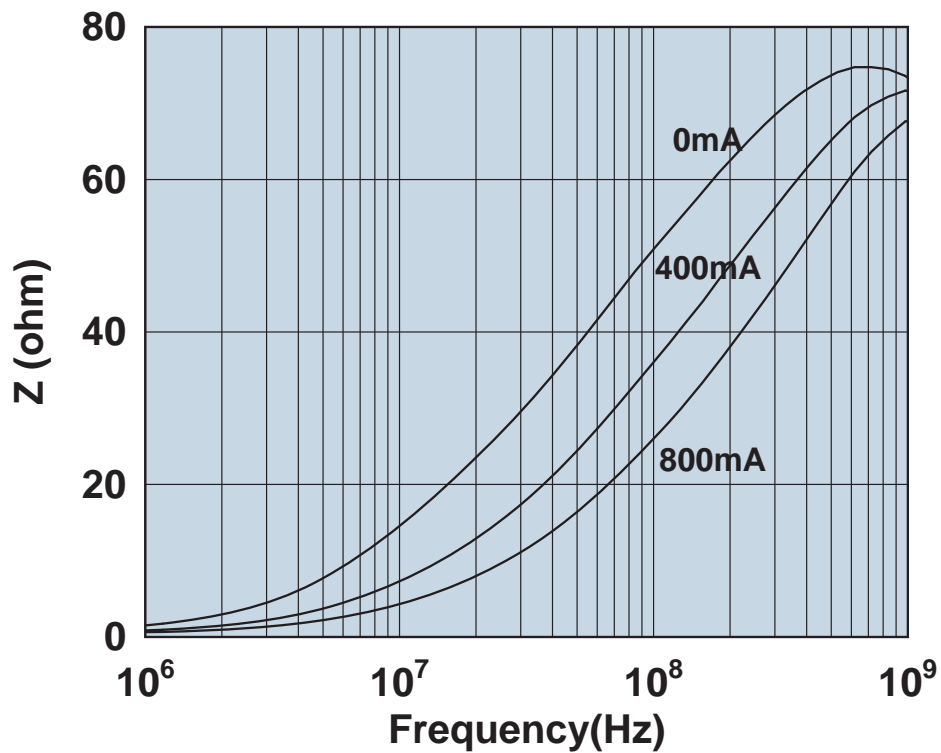
Impedance vs. frequency with dc bias.



# 2512065007Y0

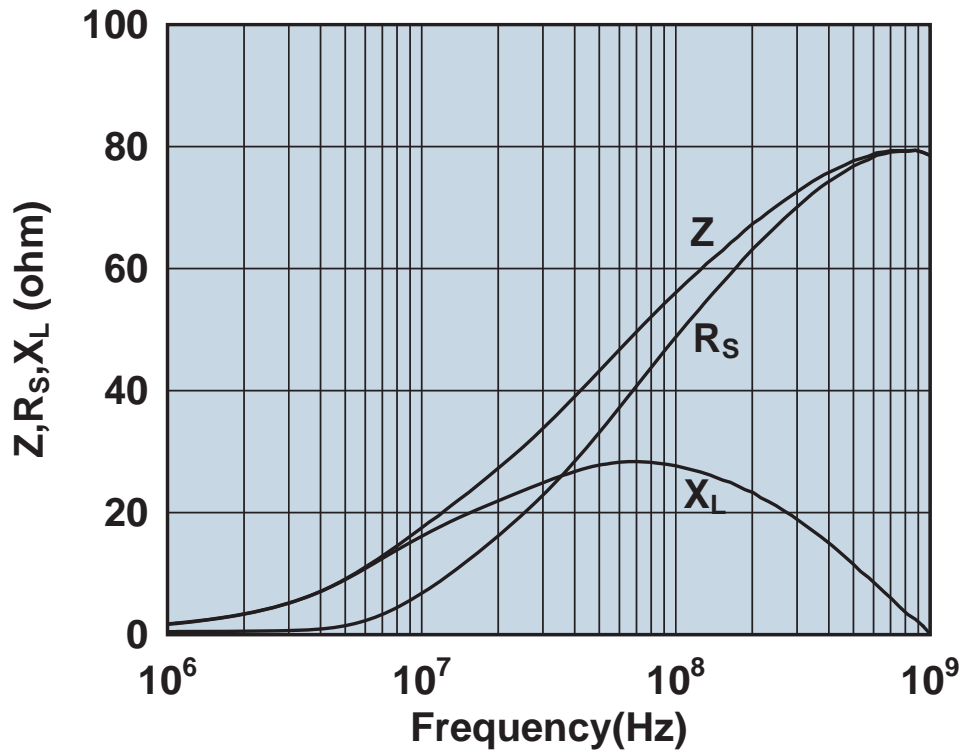


Impedance, reactance, and resistance vs. frequency.

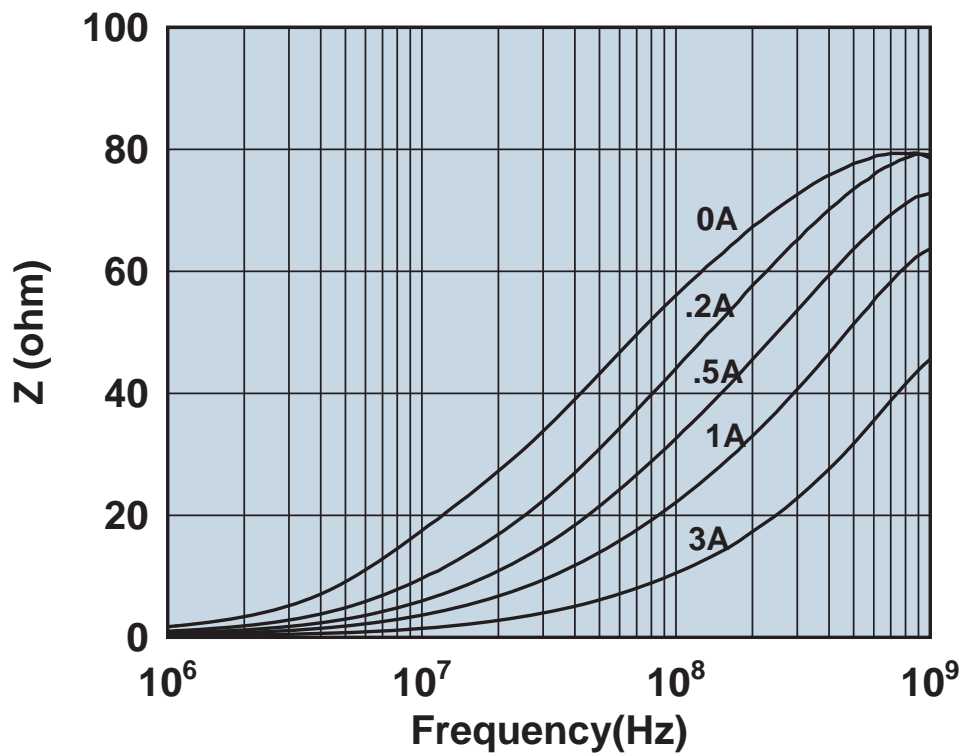


Impedance vs. frequency with dc bias.

2512065007Y3

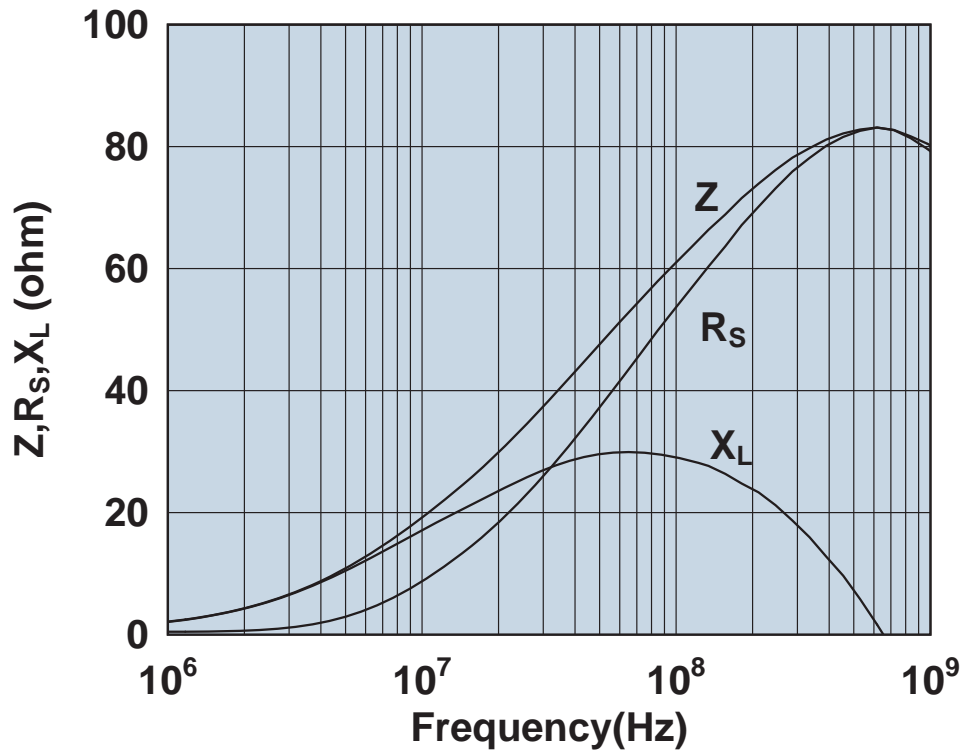


Impedance, reactance, and resistance vs. frequency.

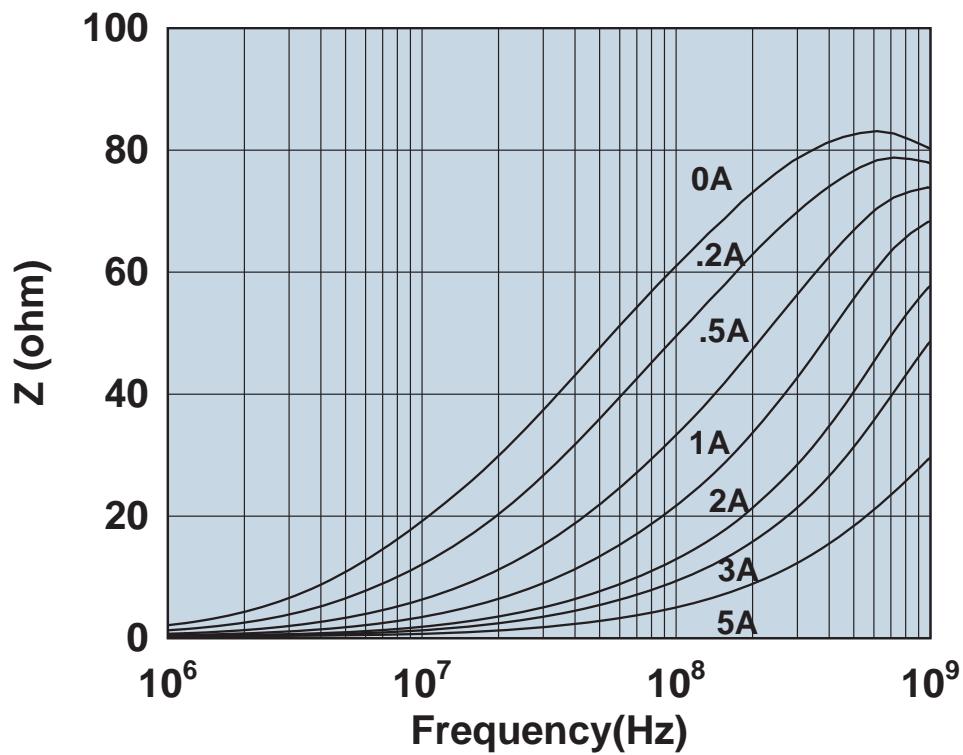


Impedance vs. frequency with dc bias.

# 2512065007Y6

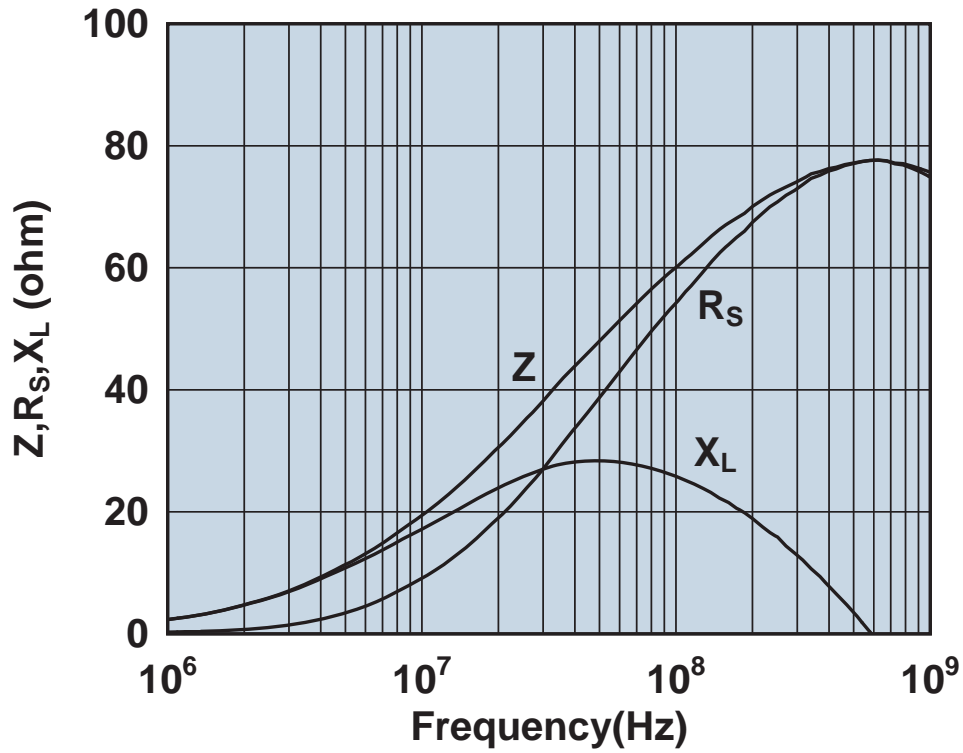


Impedance, reactance, and resistance vs. frequency.

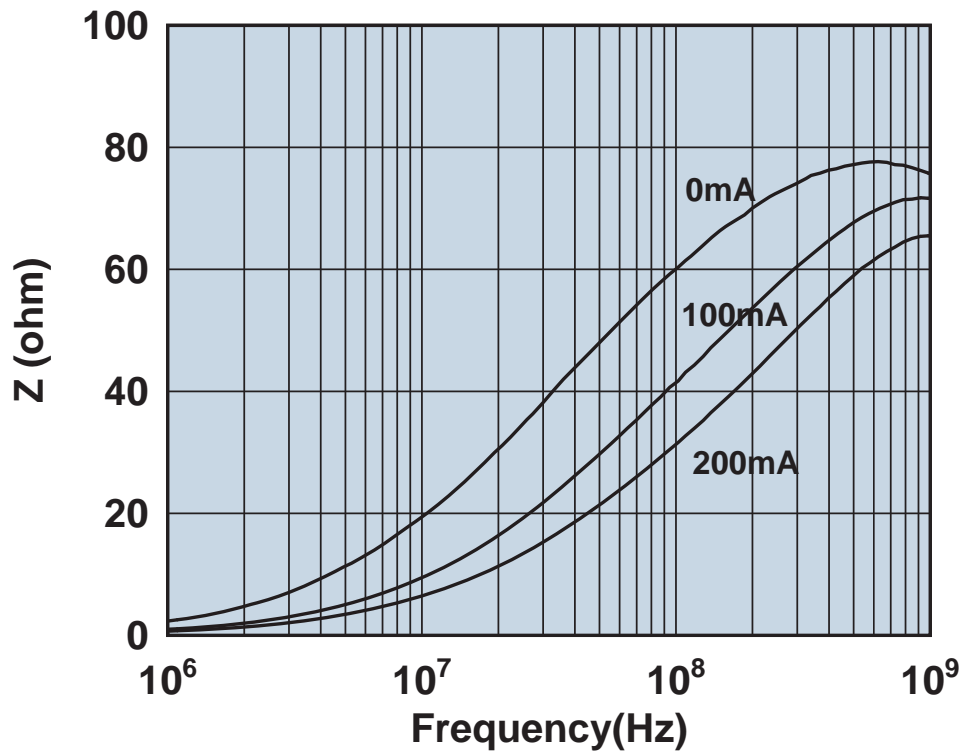


Impedance vs. frequency with dc bias.

# 2512066007Y0A4

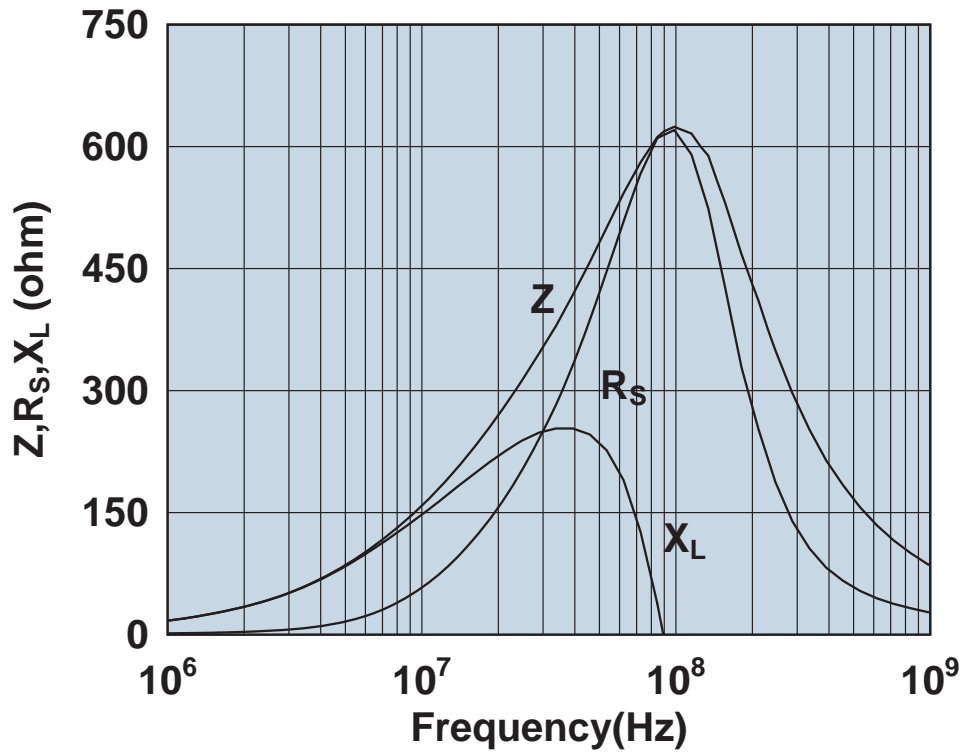


Impedance, reactance, and resistance vs. frequency.

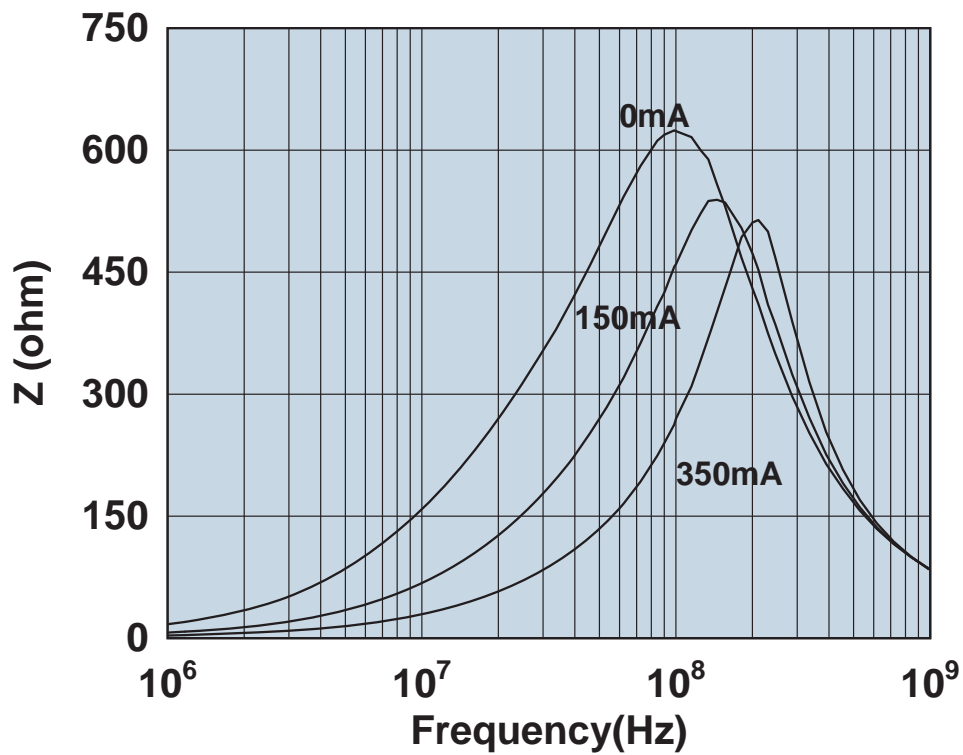


Impedance vs. frequency with dc bias.

# 2512066017Y0

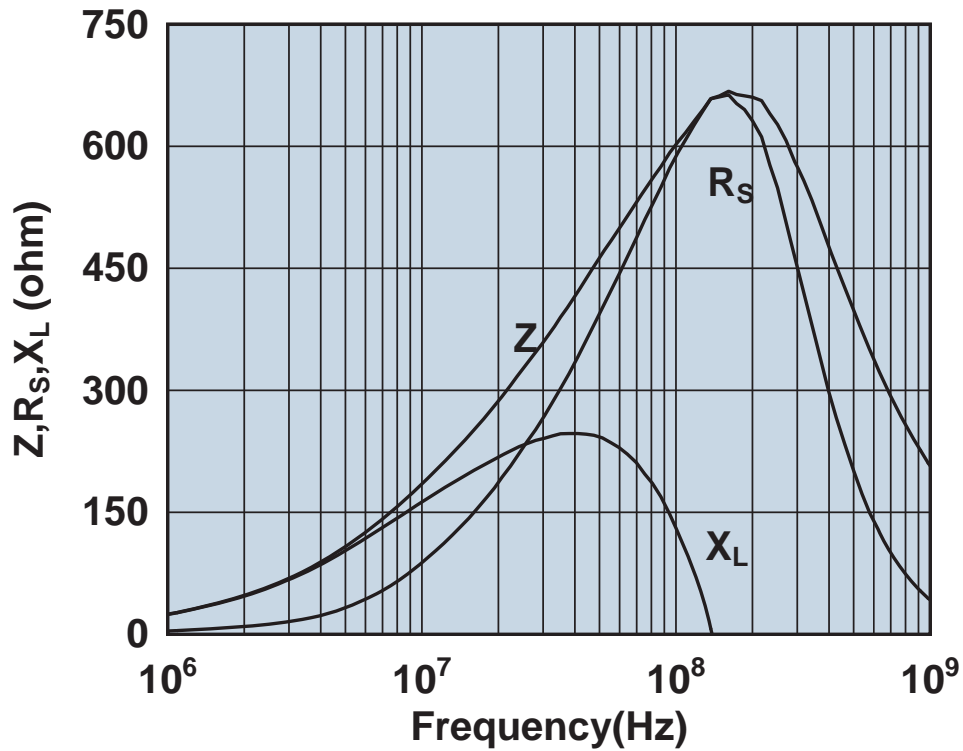


Impedance, reactance, and resistance vs. frequency.

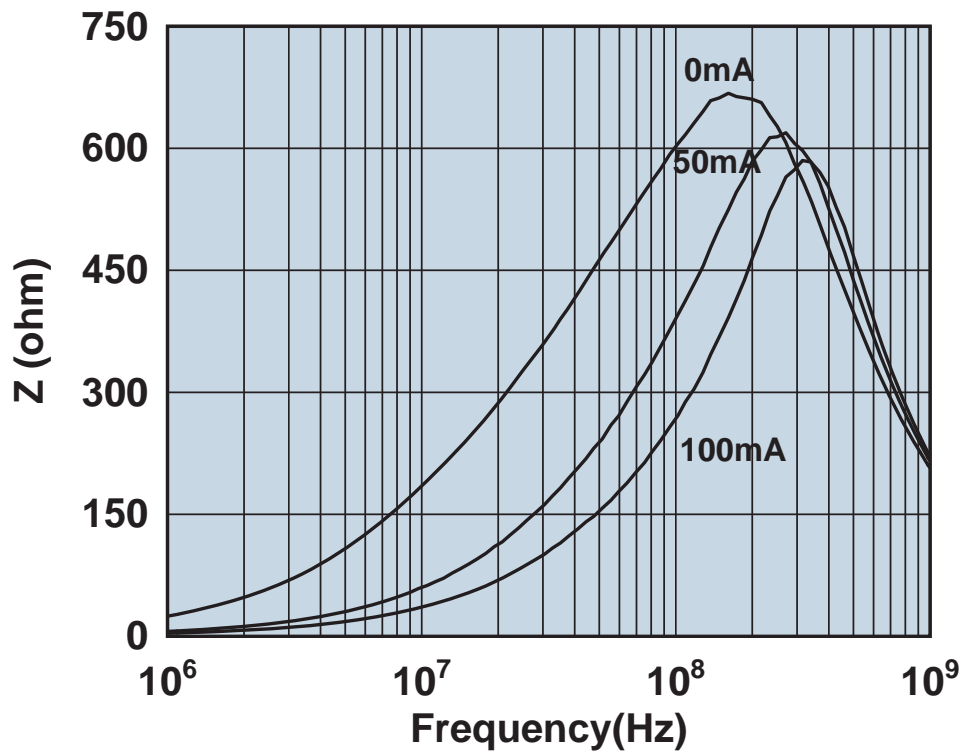


Impedance vs. frequency with dc bias.

2512066017Y0A4

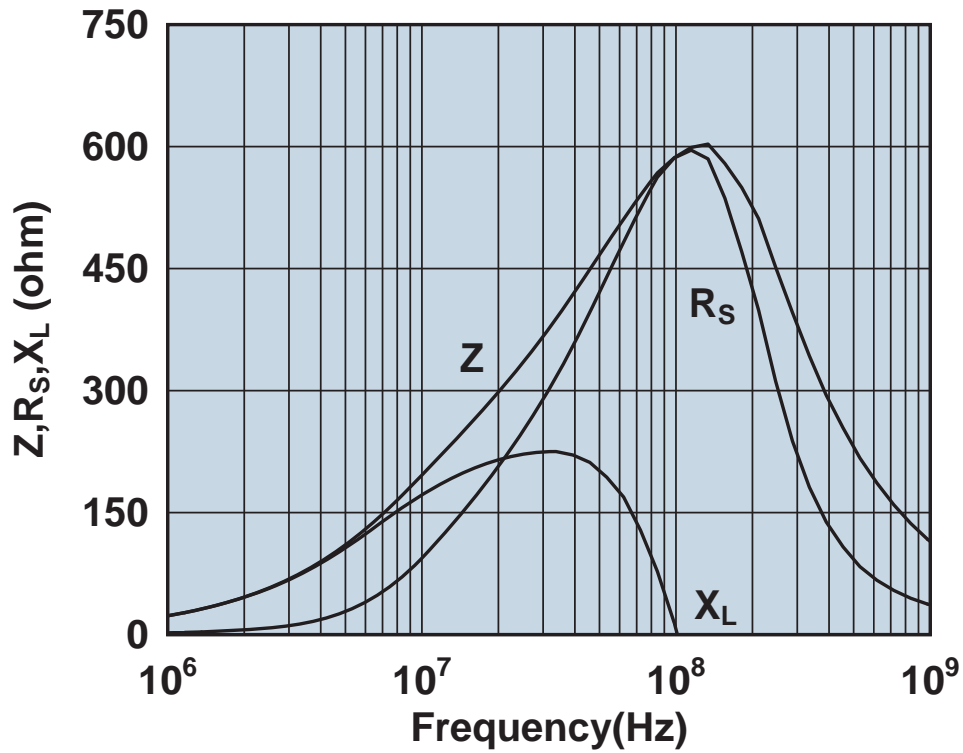


Impedance, reactance, and resistance vs. frequency.

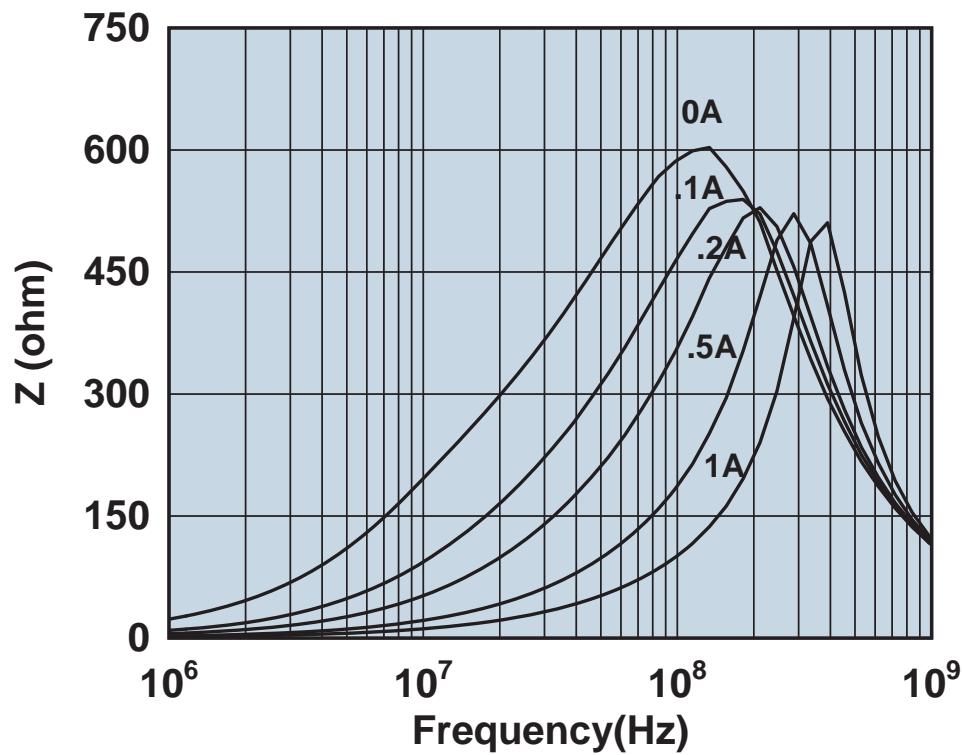


Impedance vs. frequency with dc bias.

# 2512066017Y1

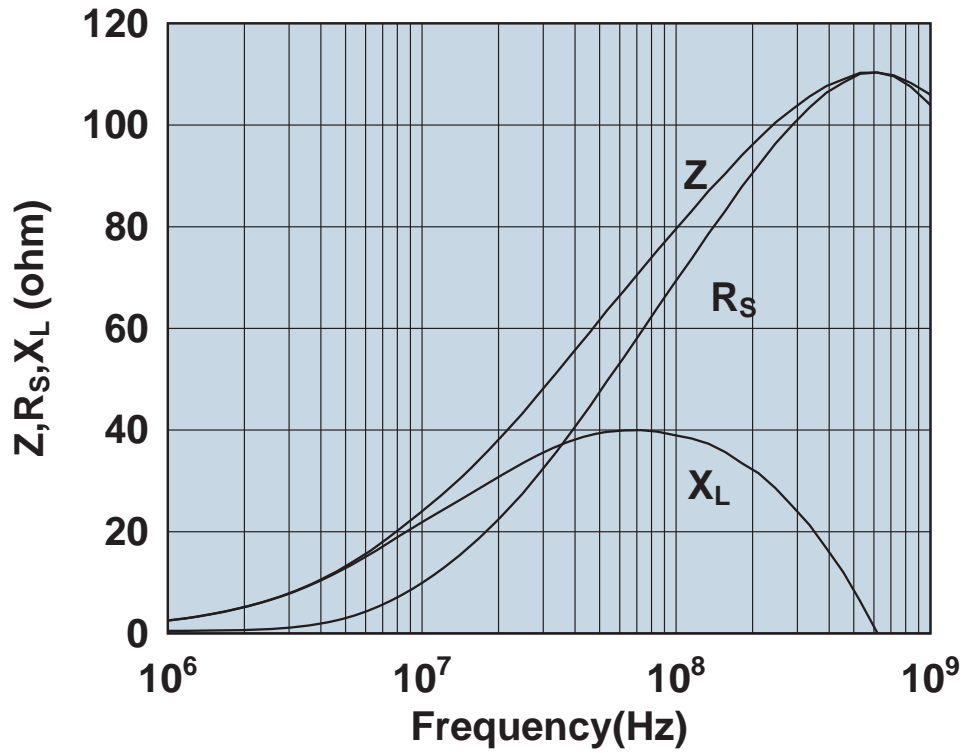


Impedance, reactance, and resistance vs. frequency.

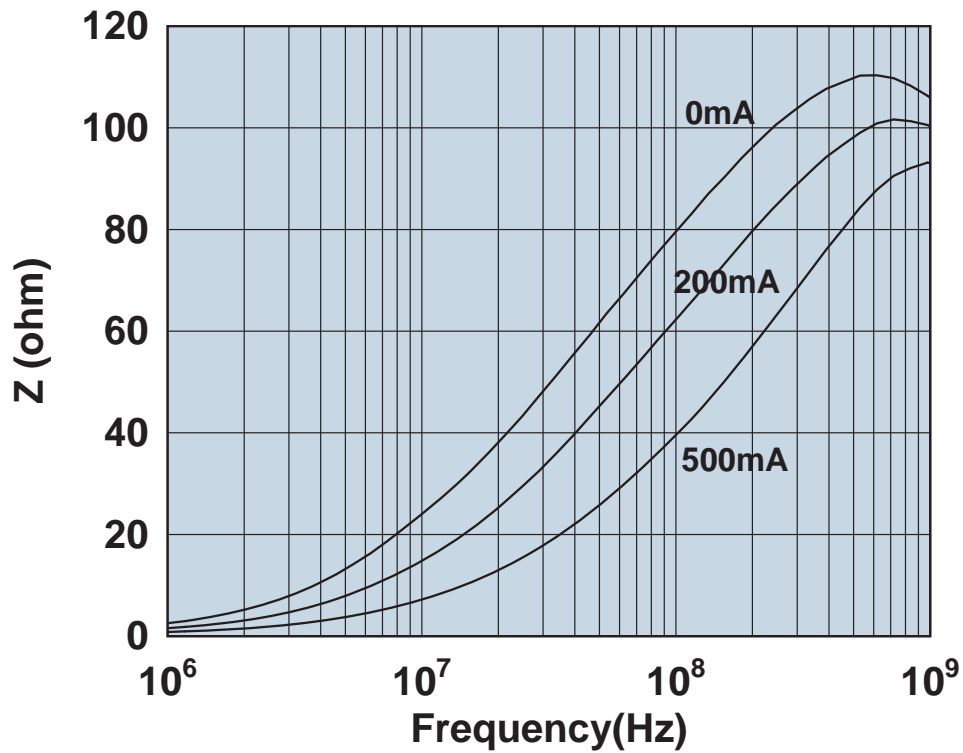


Impedance vs. frequency with dc bias.

2512067007Y0



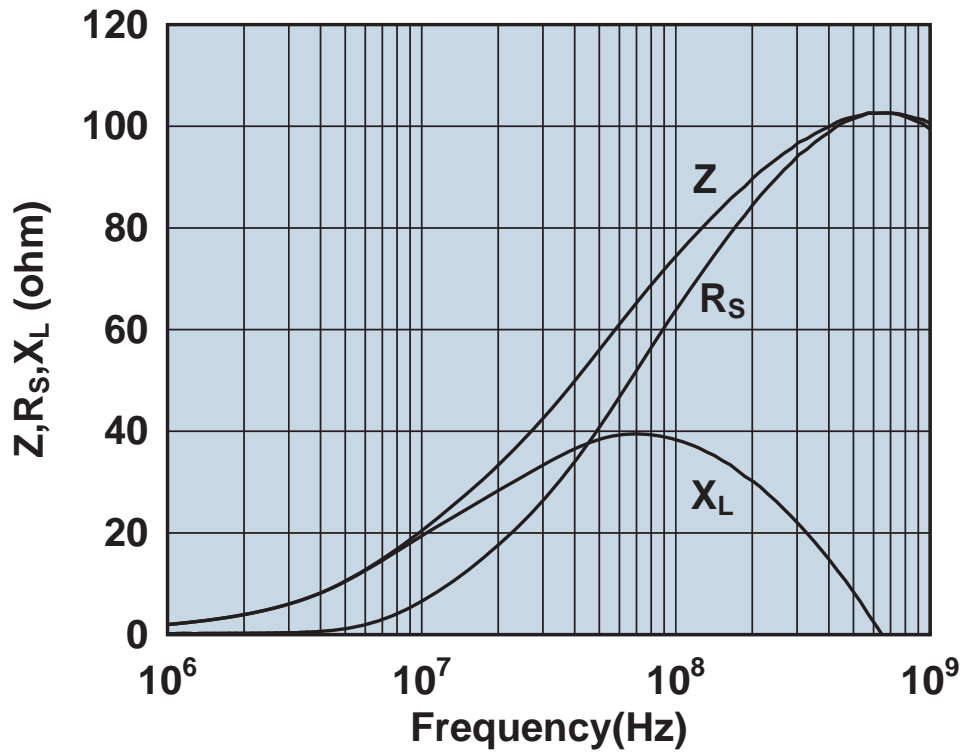
Impedance, reactance, and resistance vs. frequency.



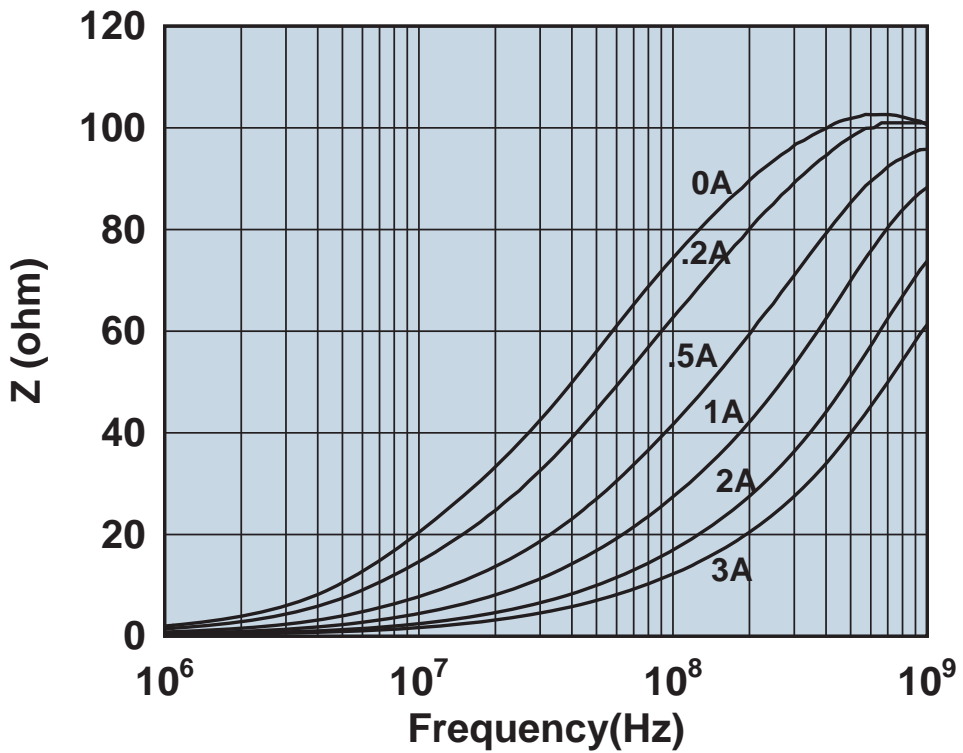
Impedance vs. frequency with dc bias.



# 2512067007Y3

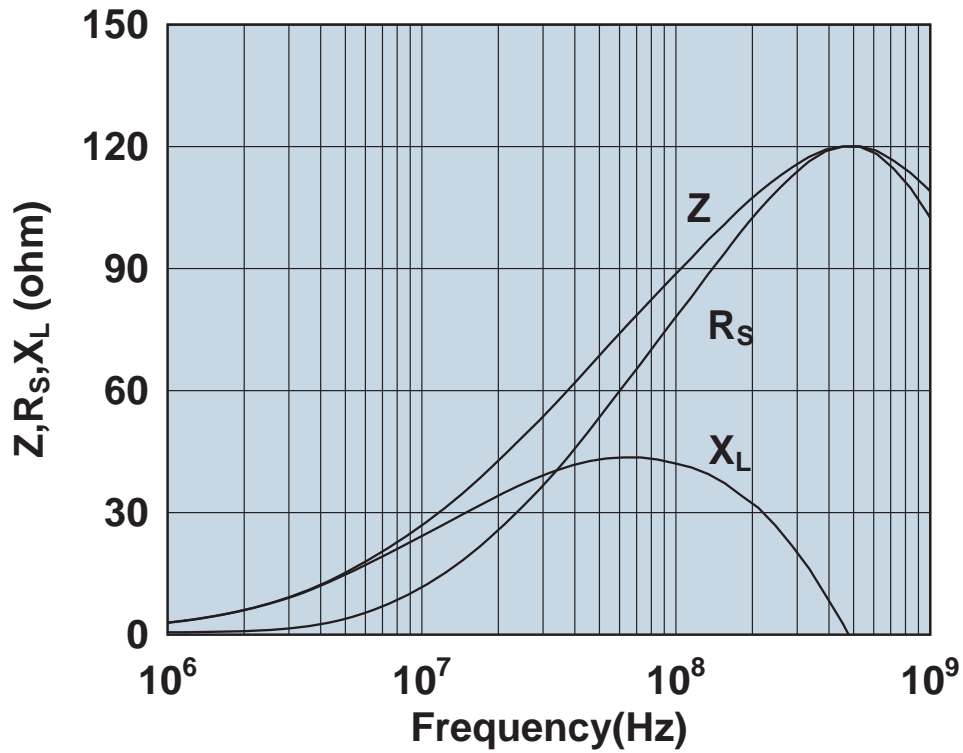


Impedance, reactance, and resistance vs. frequency.

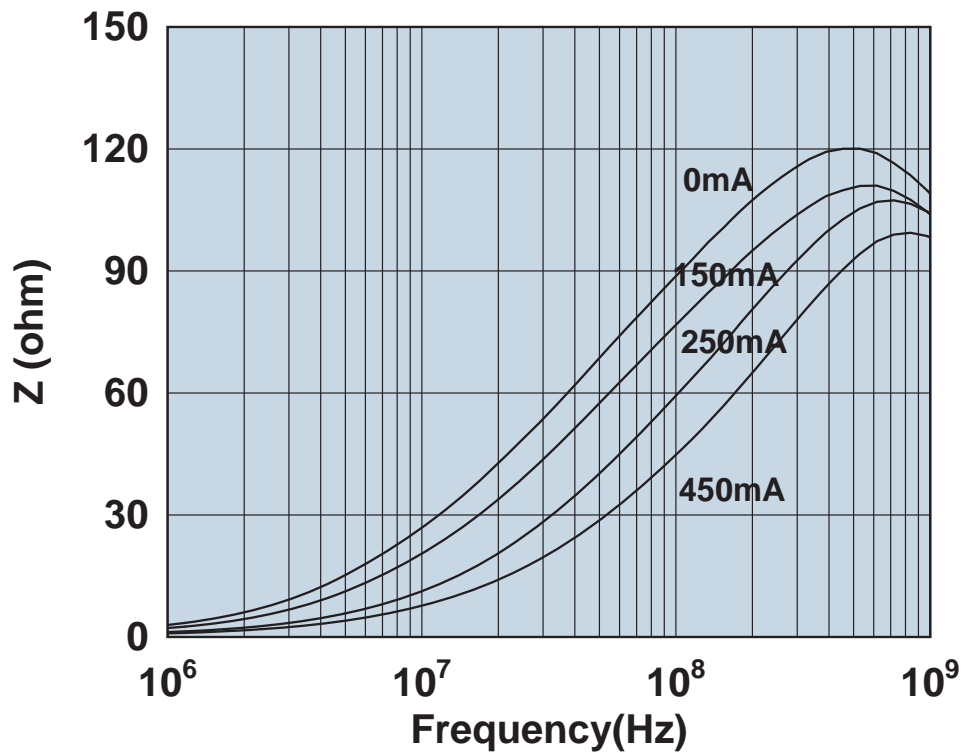


Impedance vs. frequency with dc bias.

# 2512069007Y0

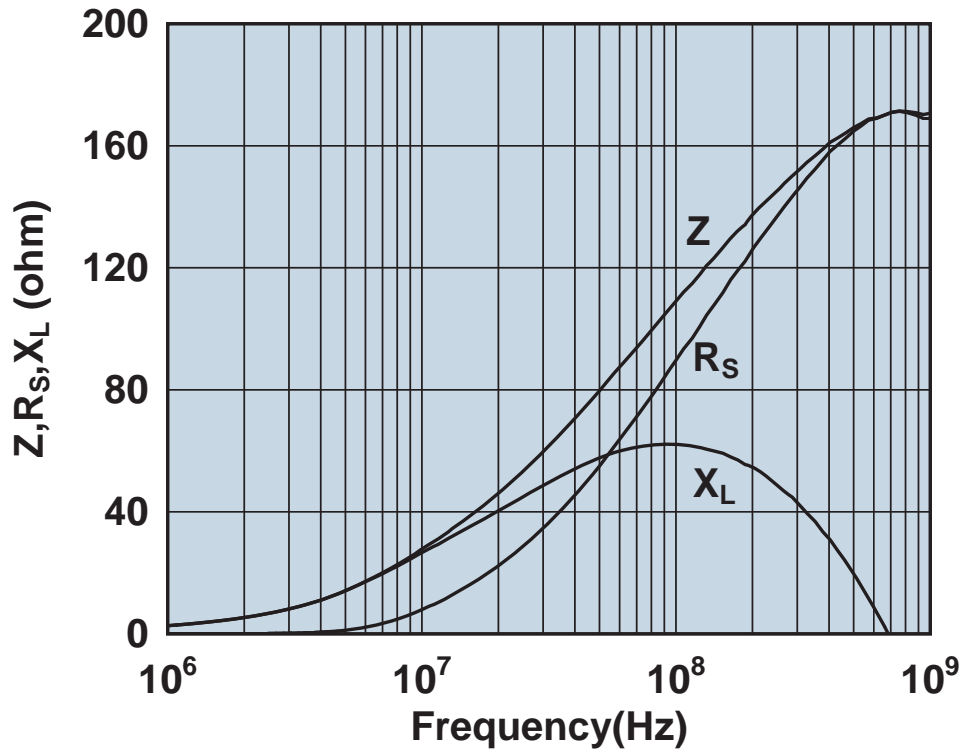


Impedance, reactance, and resistance vs. frequency.

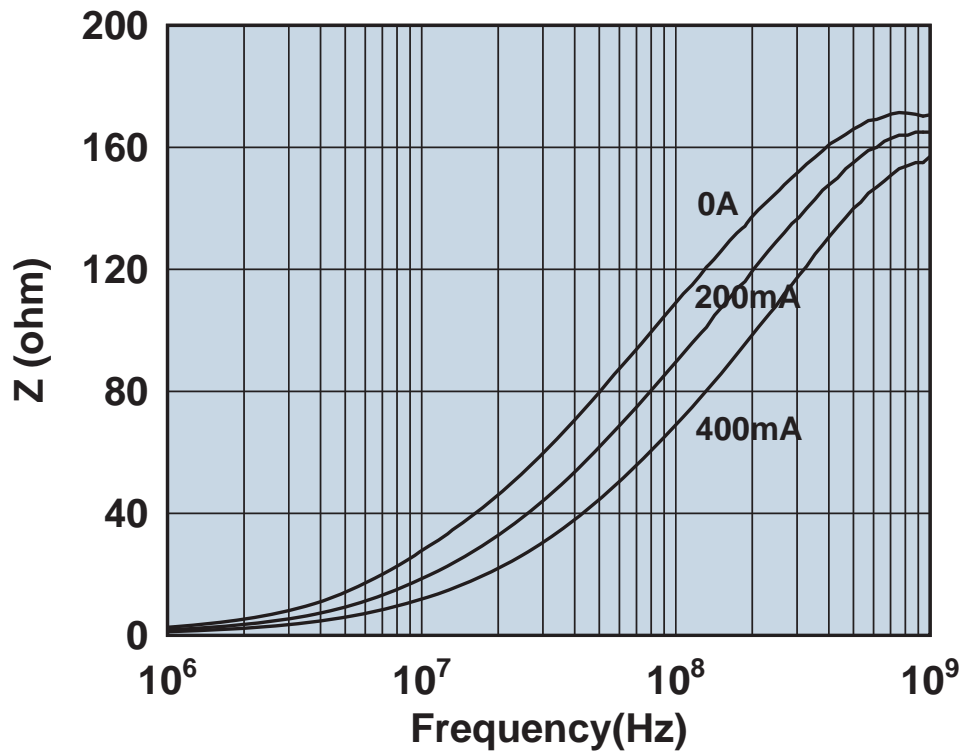


Impedance vs. frequency with dc bias.

# 2518061017Y0

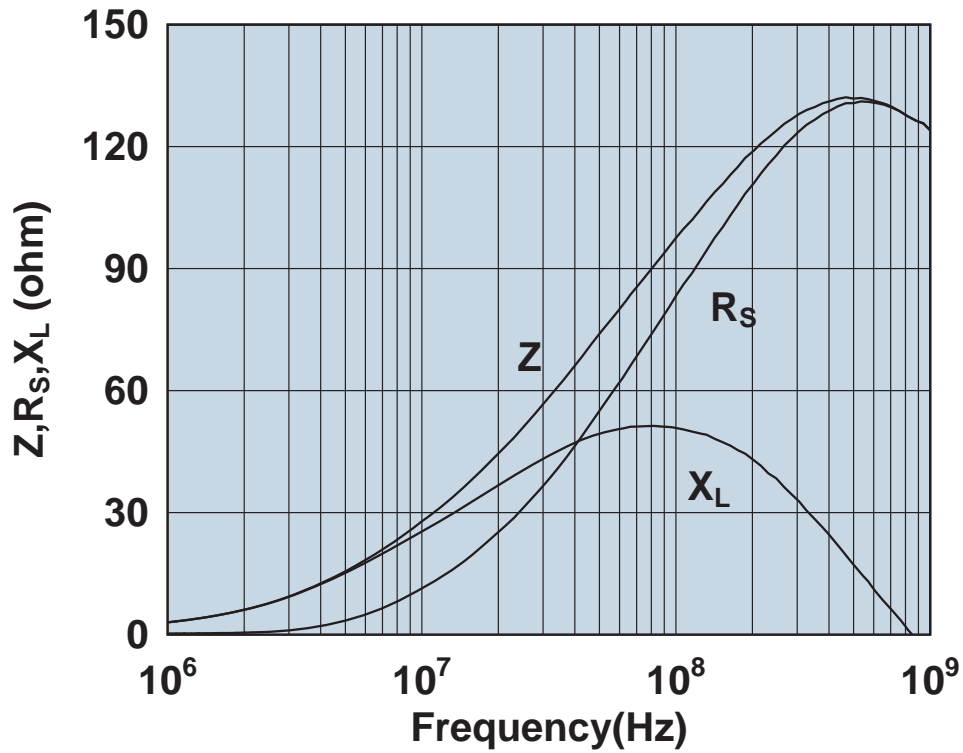


Impedance, reactance, and resistance vs. frequency.

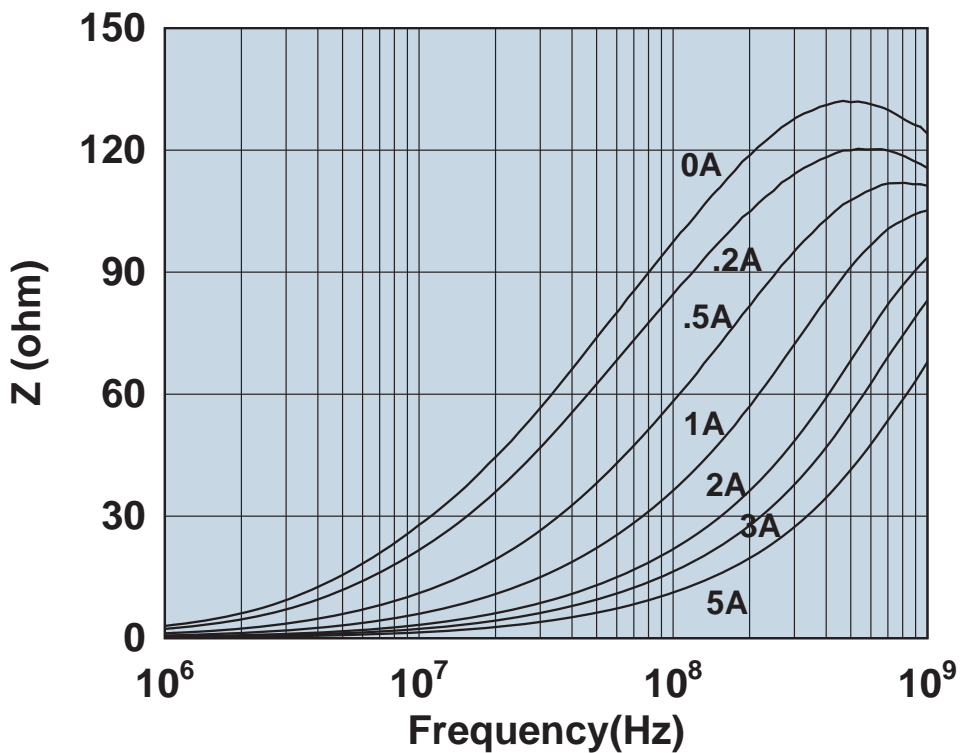


Impedance vs. frequency with dc bias.

# 2518061017Y6

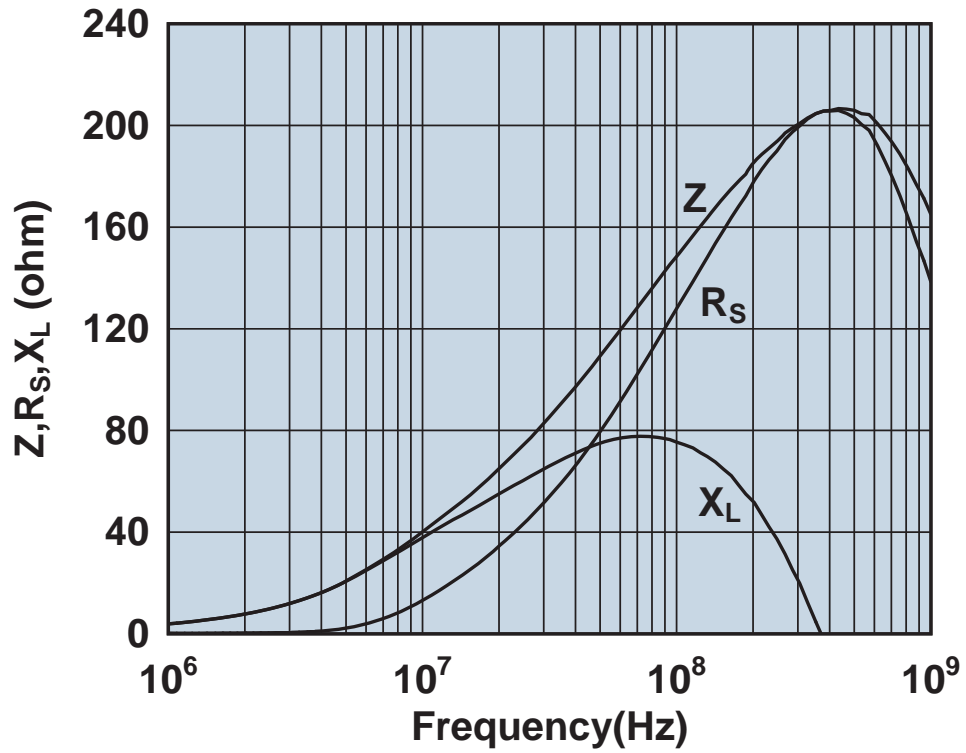


Impedance, reactance, and resistance vs. frequency.

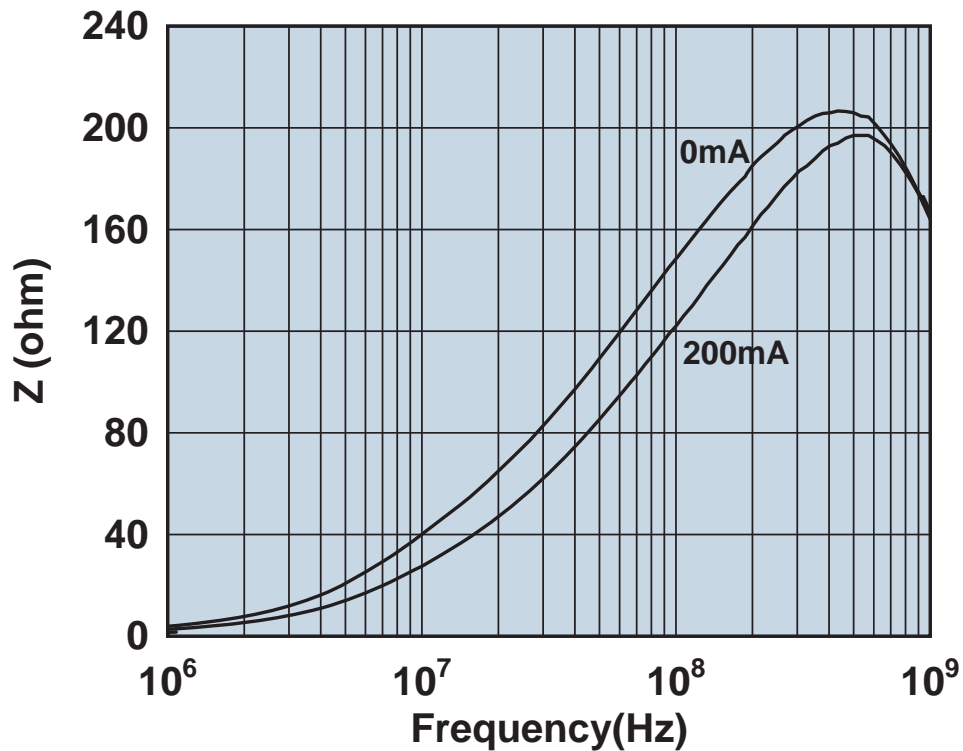


Impedance vs. frequency with dc bias.

# 2518061517Y0

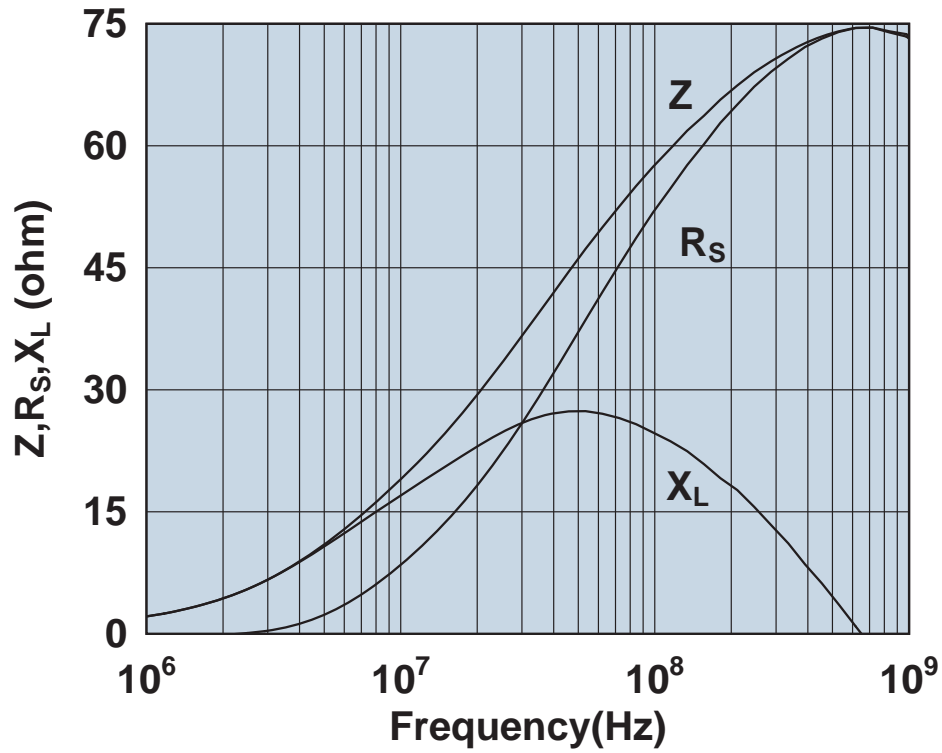


Impedance, reactance, and resistance vs. frequency.

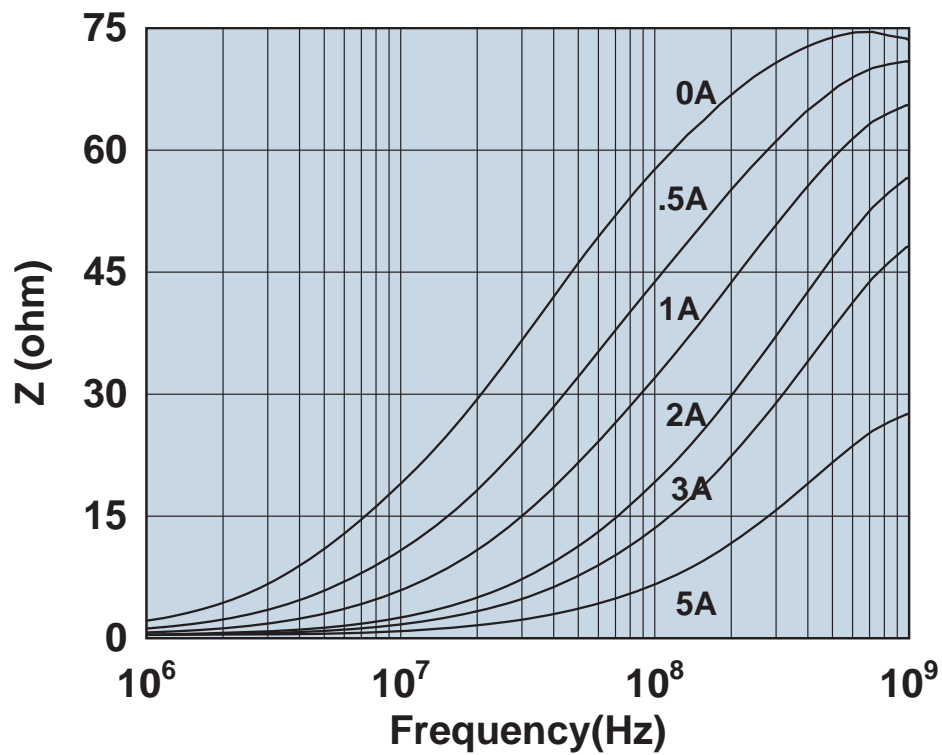


Impedance vs. frequency with dc bias.

# 2518065007Y6

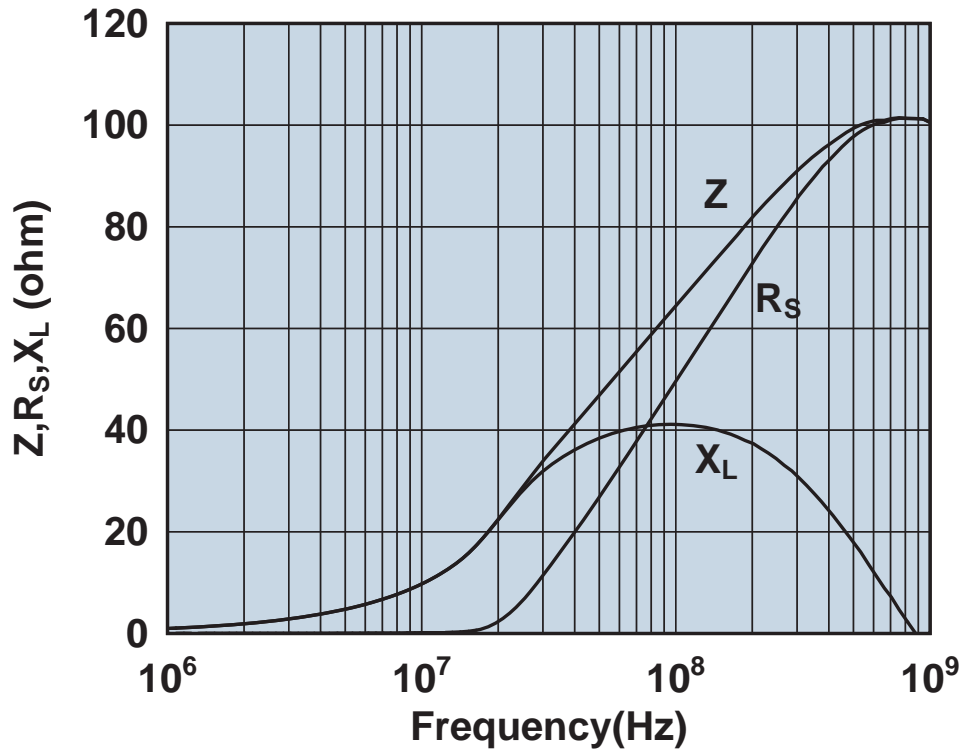


Impedance, reactance, and resistance vs. frequency.

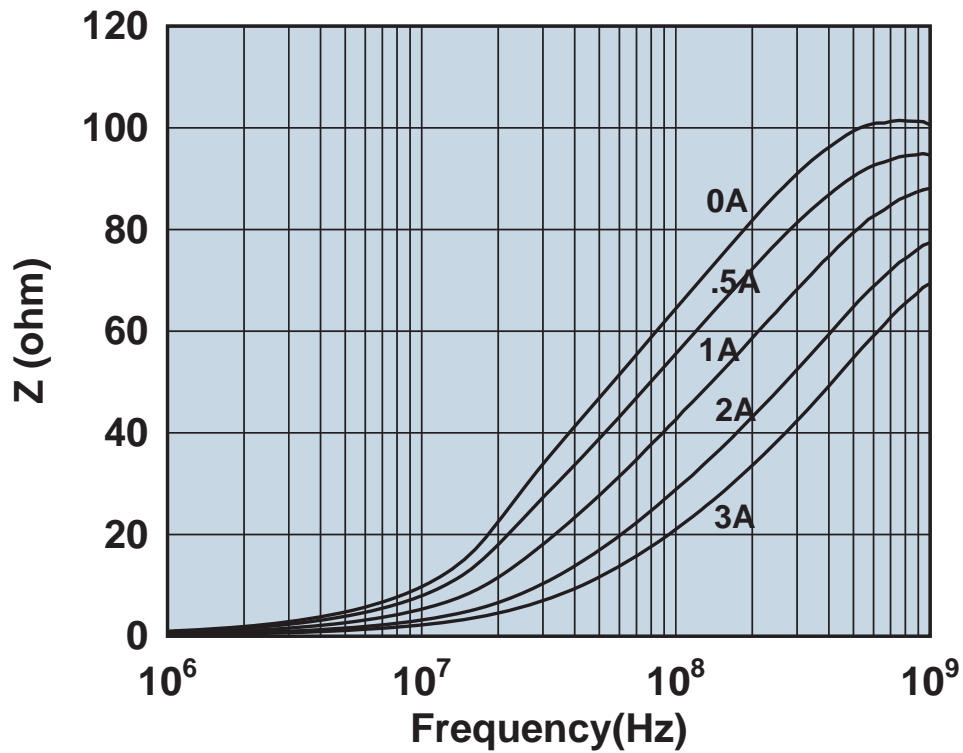


Impedance vs. frequency with dc bias.

2518066007Y3

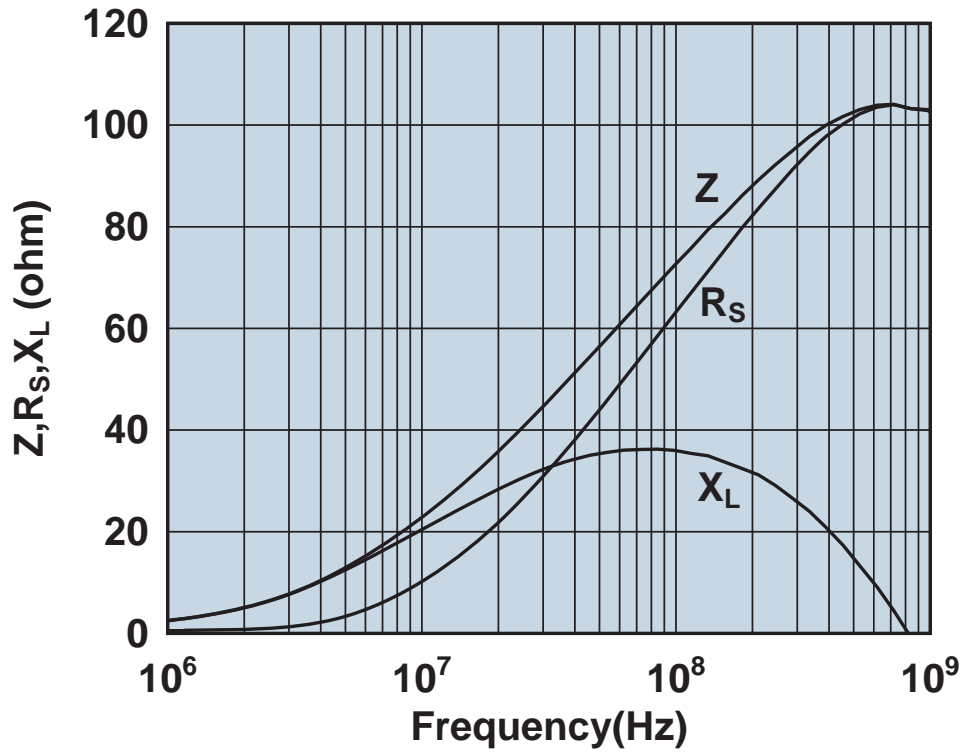


Impedance, reactance, and resistance vs. frequency.

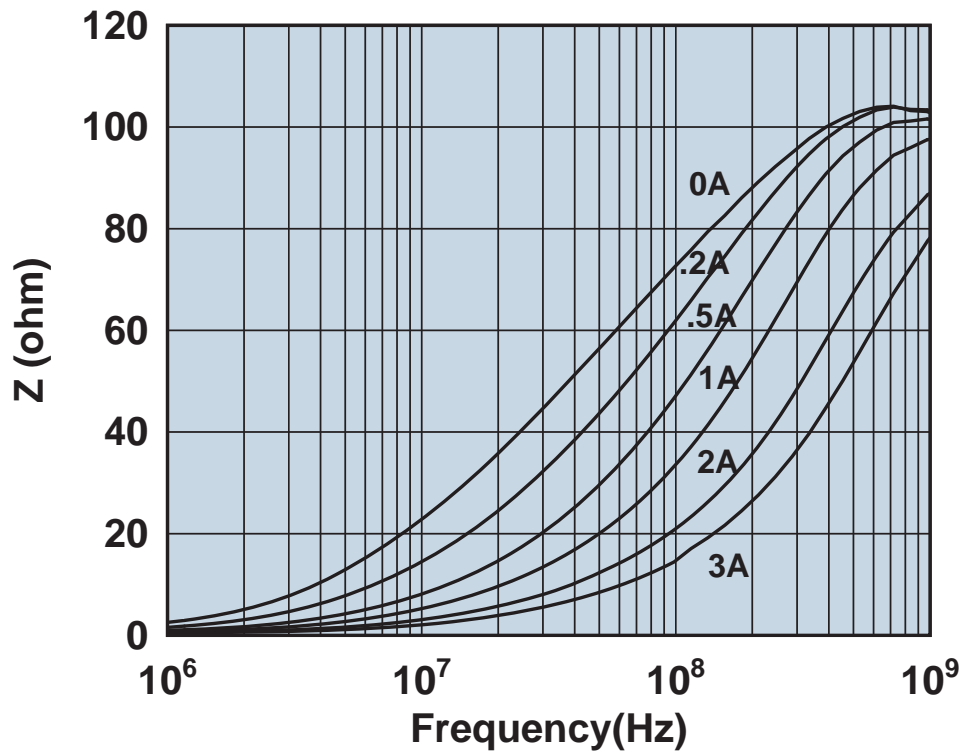


Impedance vs. frequency with dc bias.

# 2518068007Y3



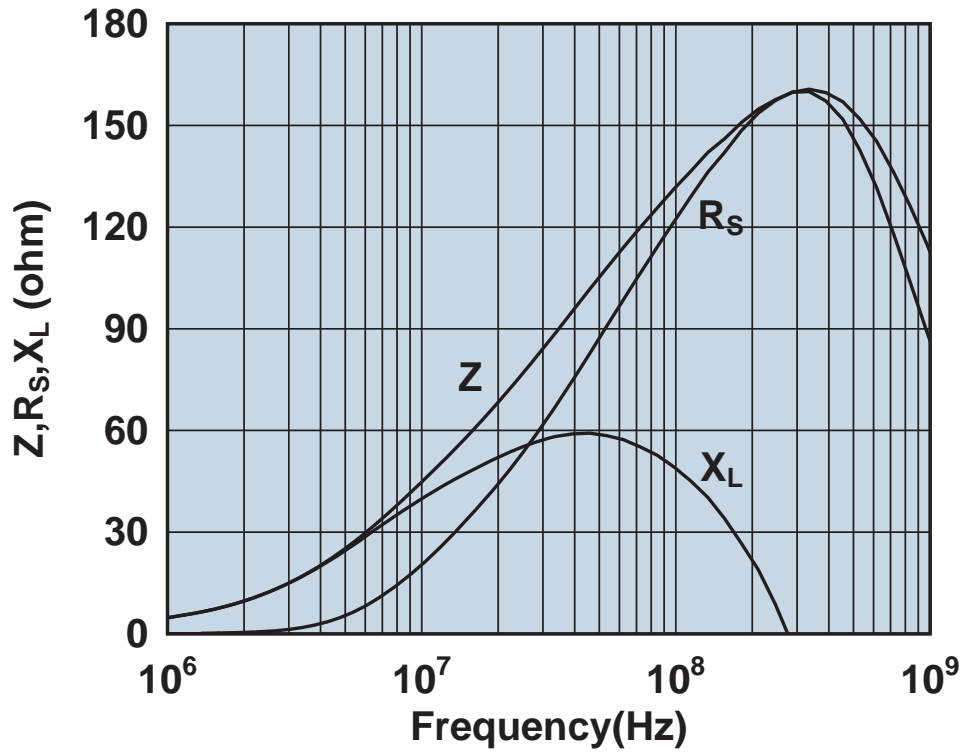
Impedance, reactance, and resistance vs. frequency.



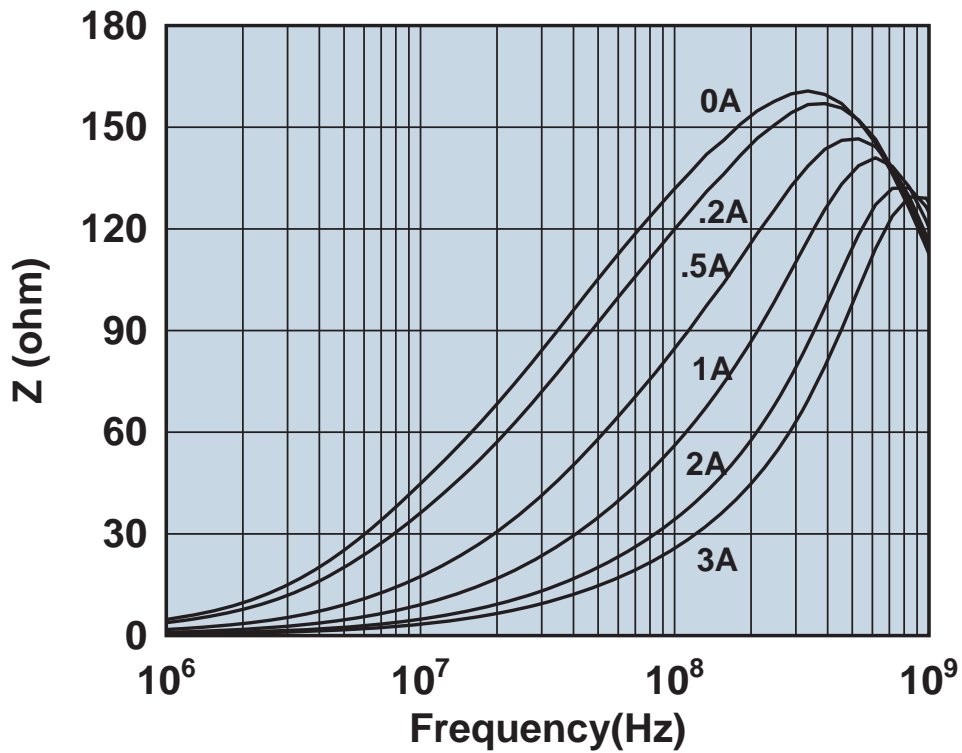
Impedance vs. frequency with dc bias.



# 2518121217Y3

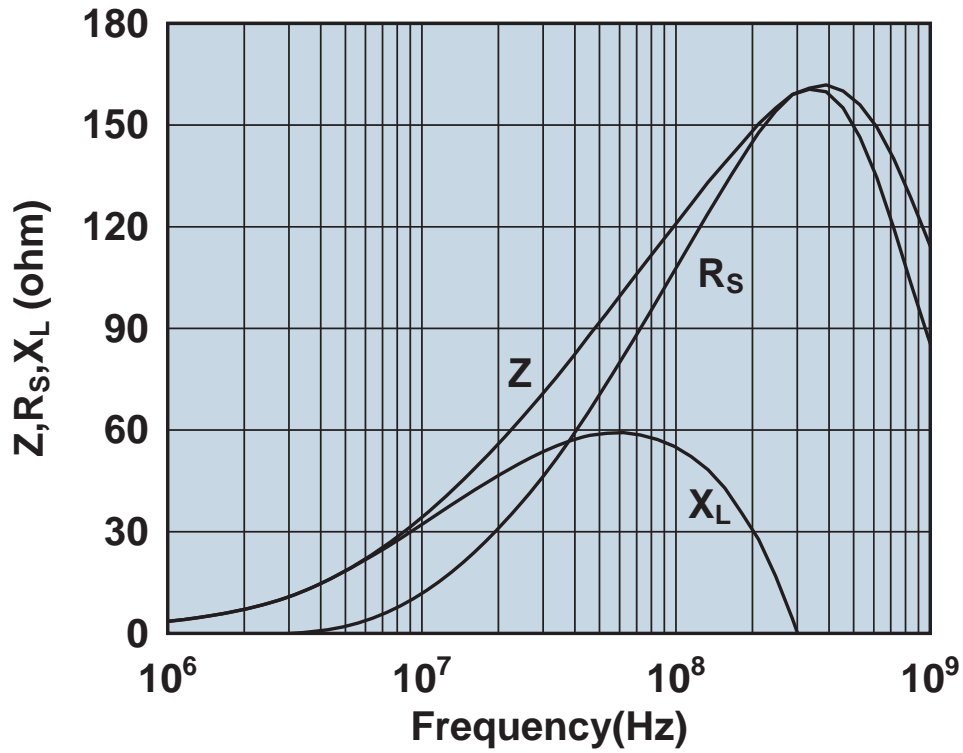


Impedance, reactance, and resistance vs. frequency.

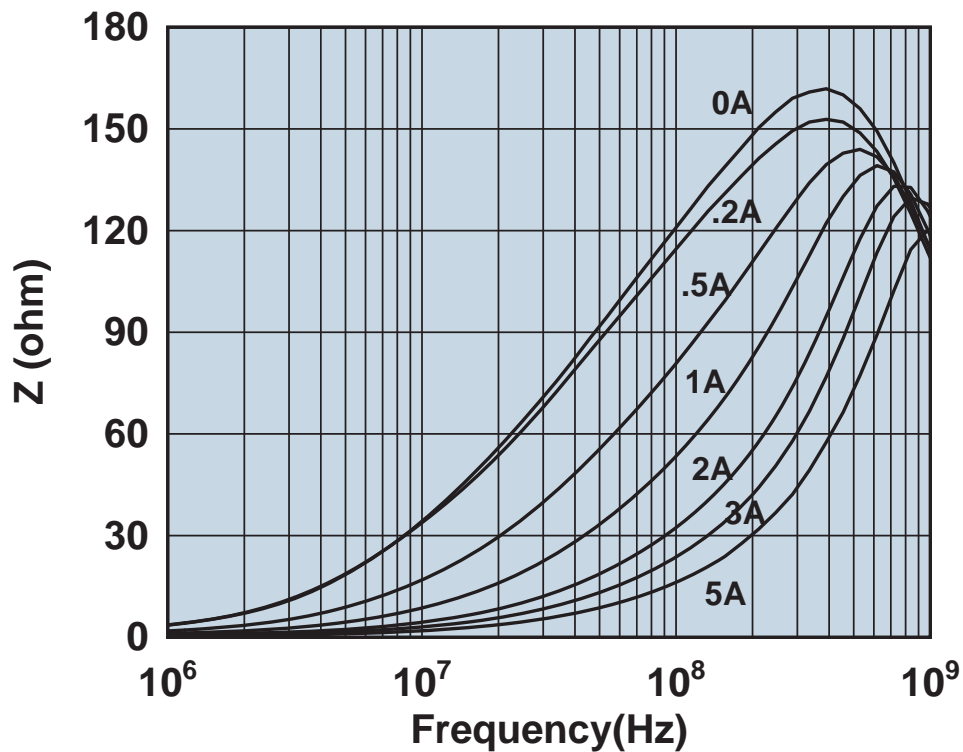


Impedance vs. frequency with dc bias.

2518121217Y6

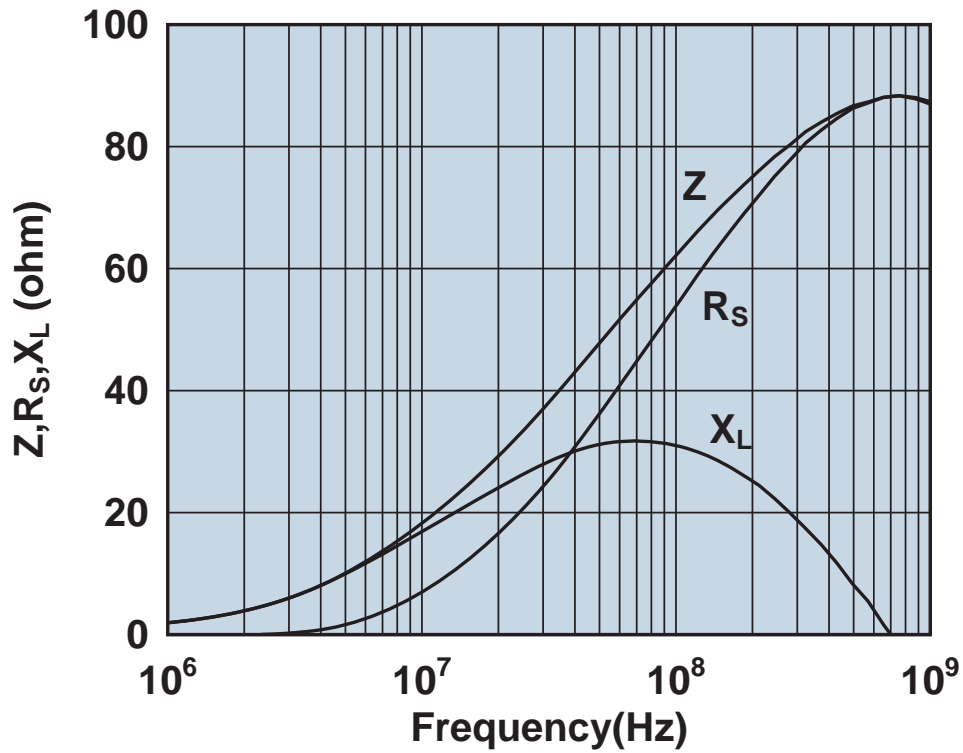


Impedance, reactance, and resistance vs. frequency.

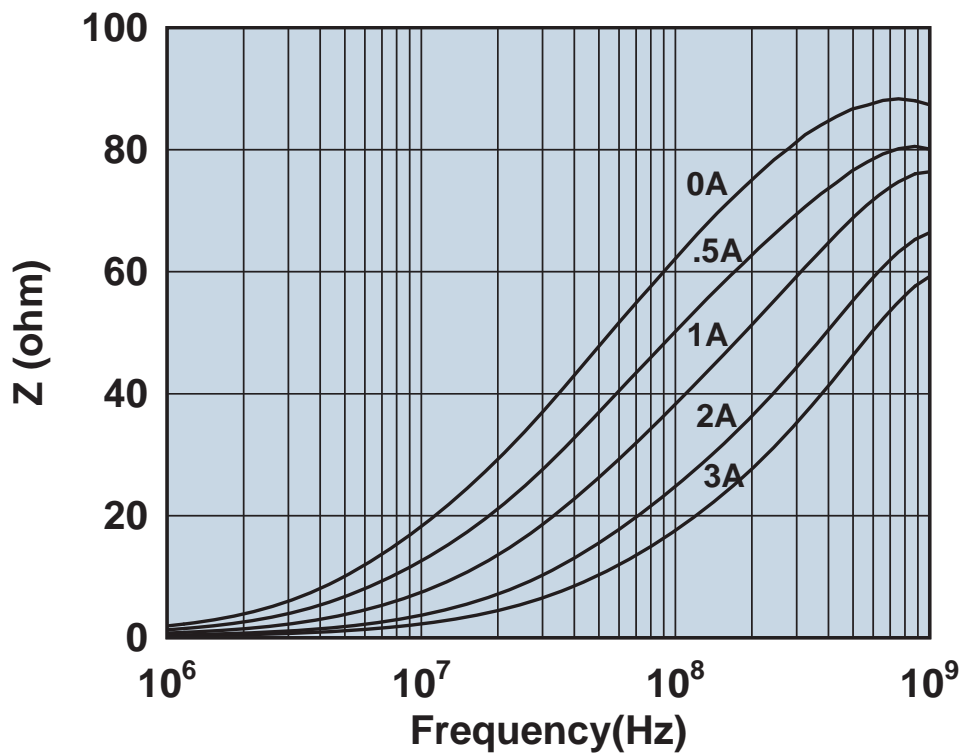


Impedance vs. frequency with dc bias.

2518127007Y3

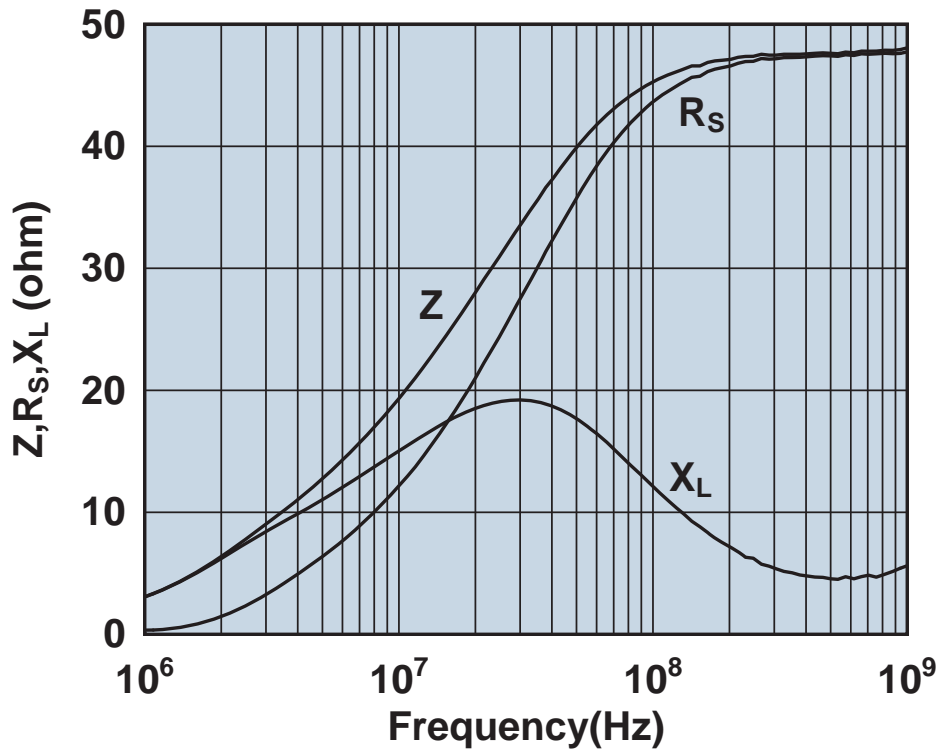


Impedance, reactance, and resistance vs. frequency.

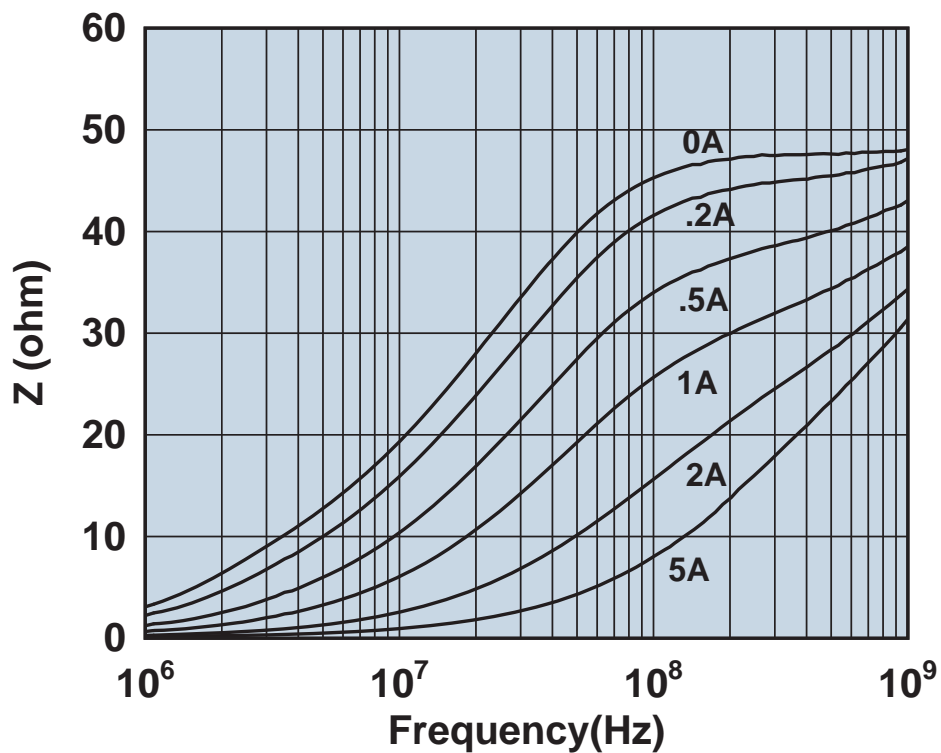


Impedance vs. frequency with dc bias.

2743019447

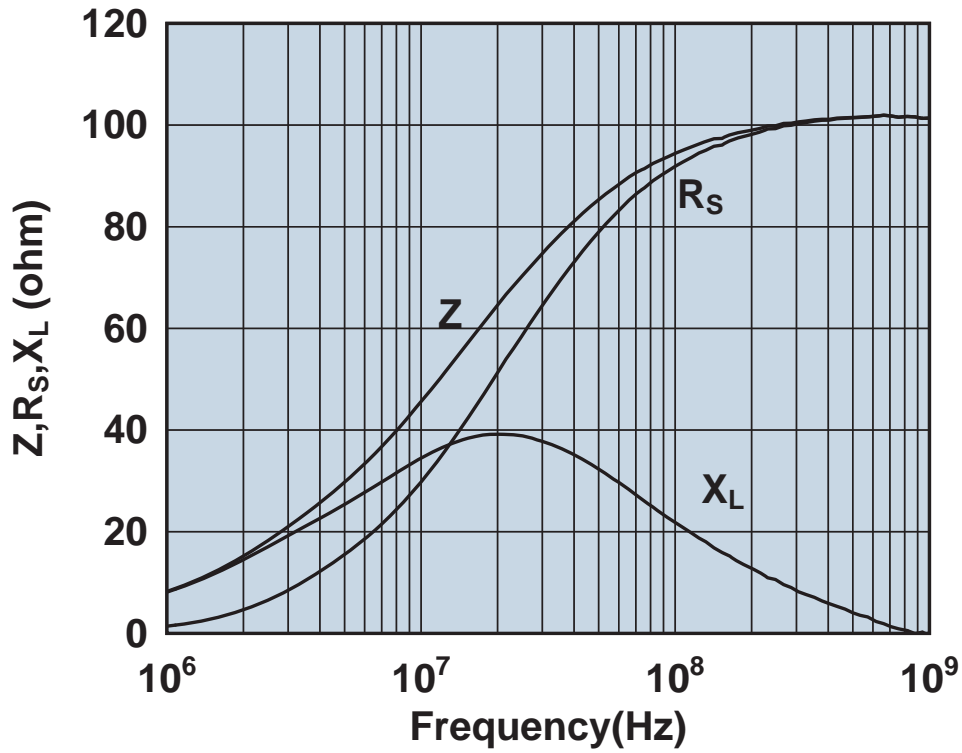


Impedance, reactance, and resistance vs. frequency.

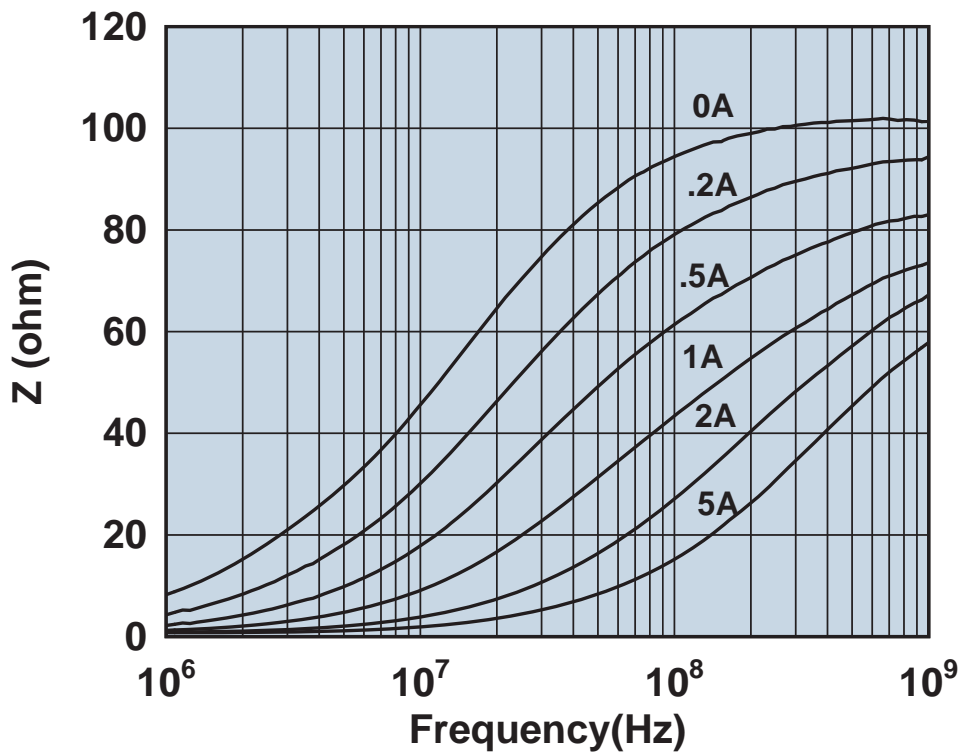


Impedance vs. frequency with dc bias.

2743021447

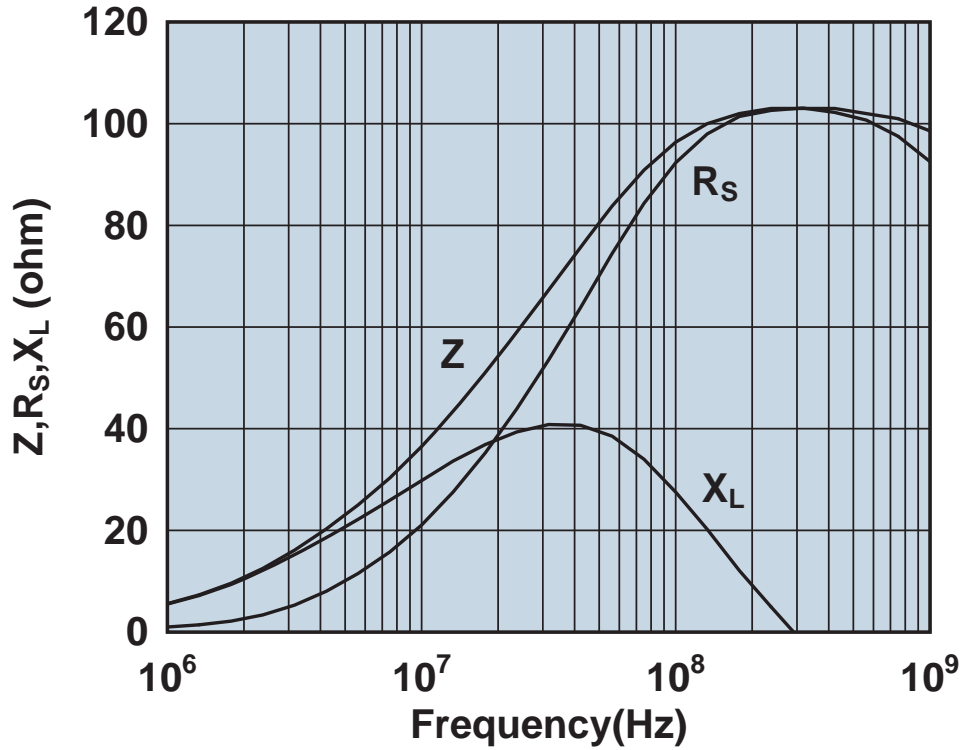


Impedance, reactance, and resistance vs. frequency.

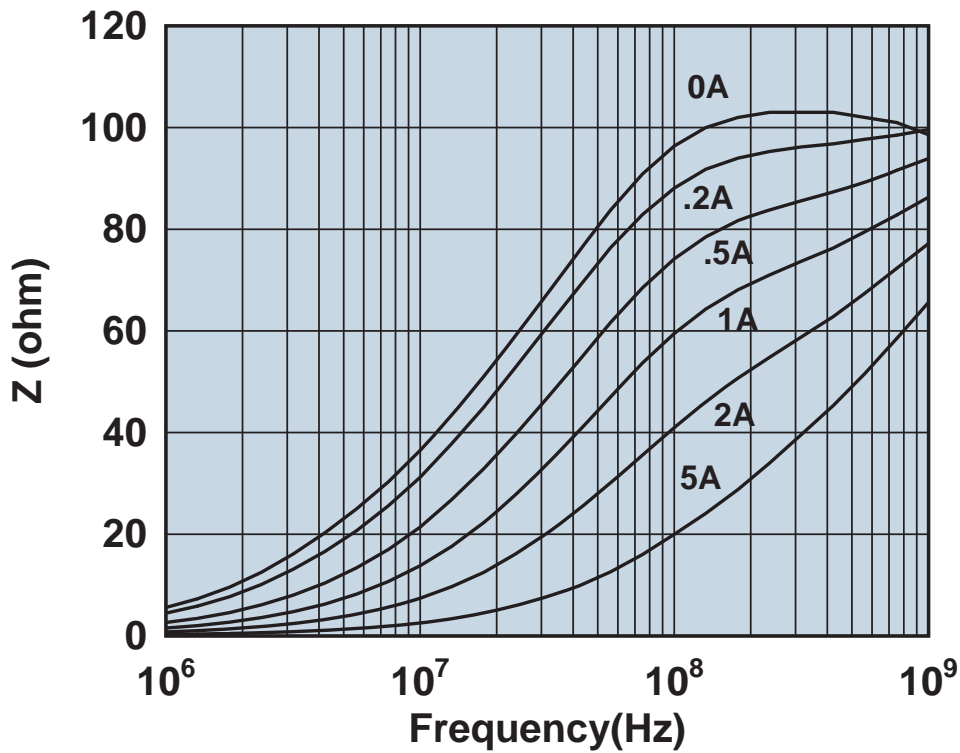


Impedance vs. frequency with dc bias.

2743037447

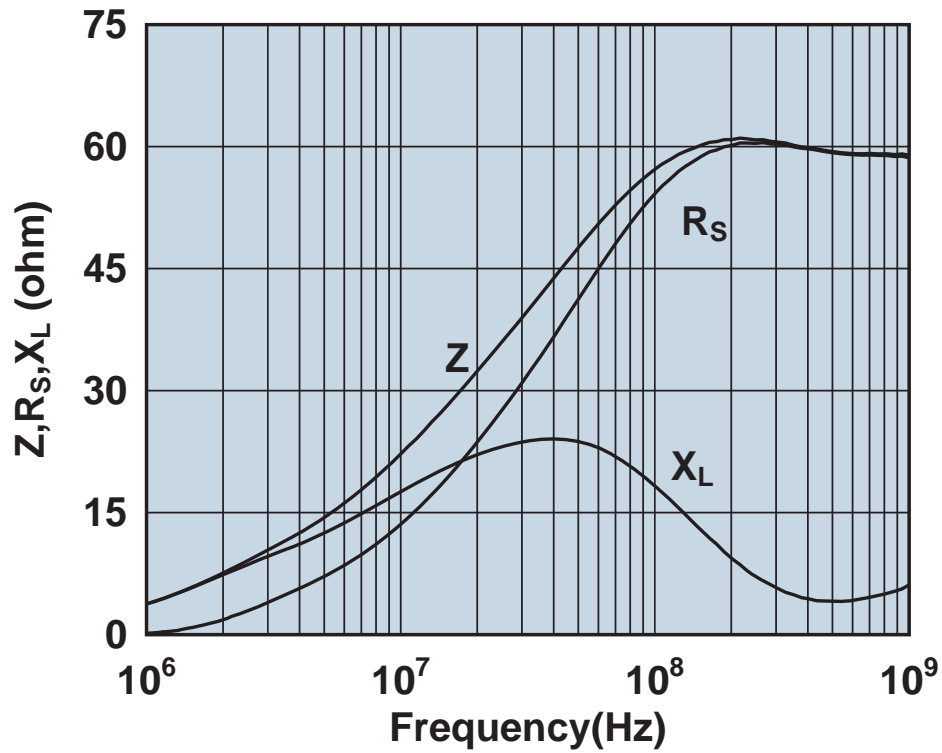


Impedance, reactance, and resistance vs. frequency.



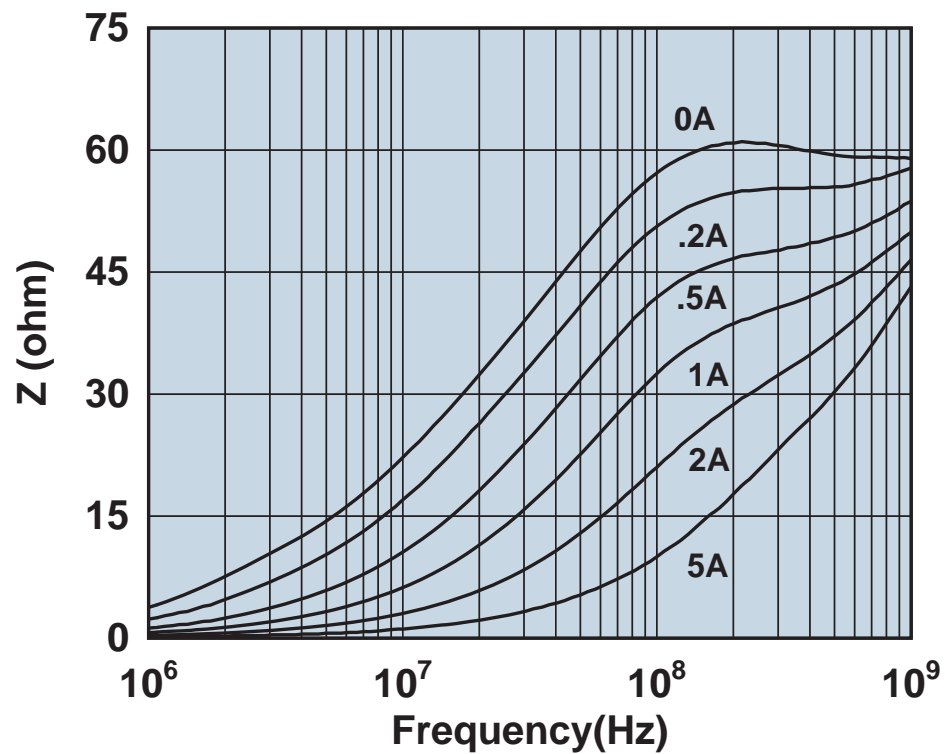
Impedance vs. frequency with dc bias.

2744040447



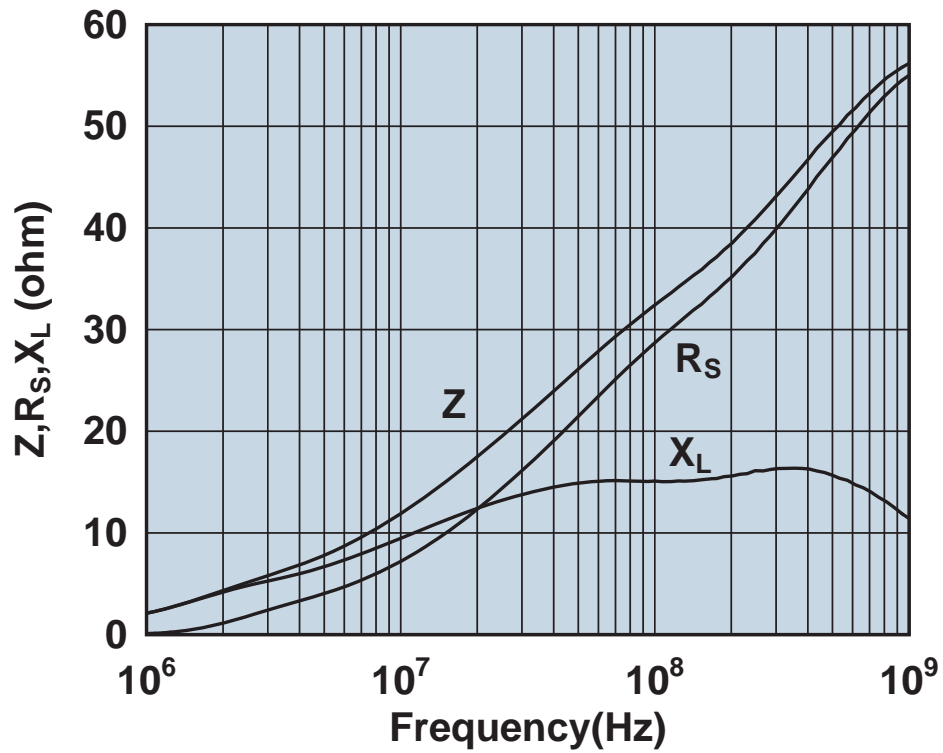
Impedance, reactance, and resistance vs. frequency.

2744040447

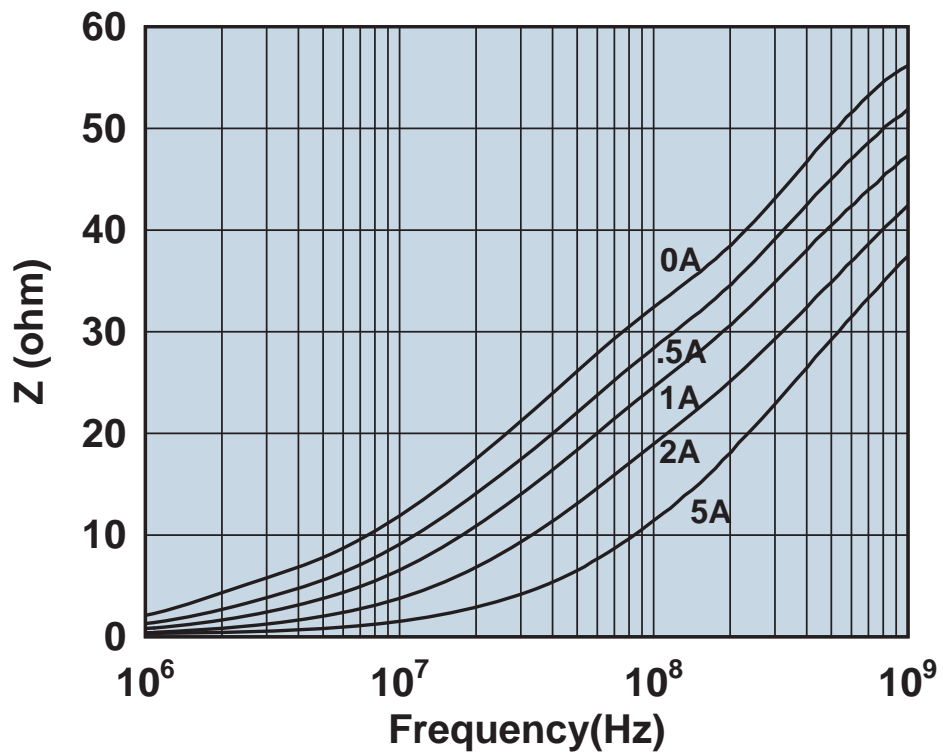


Impedance vs. frequency with dc bias.

2744041447



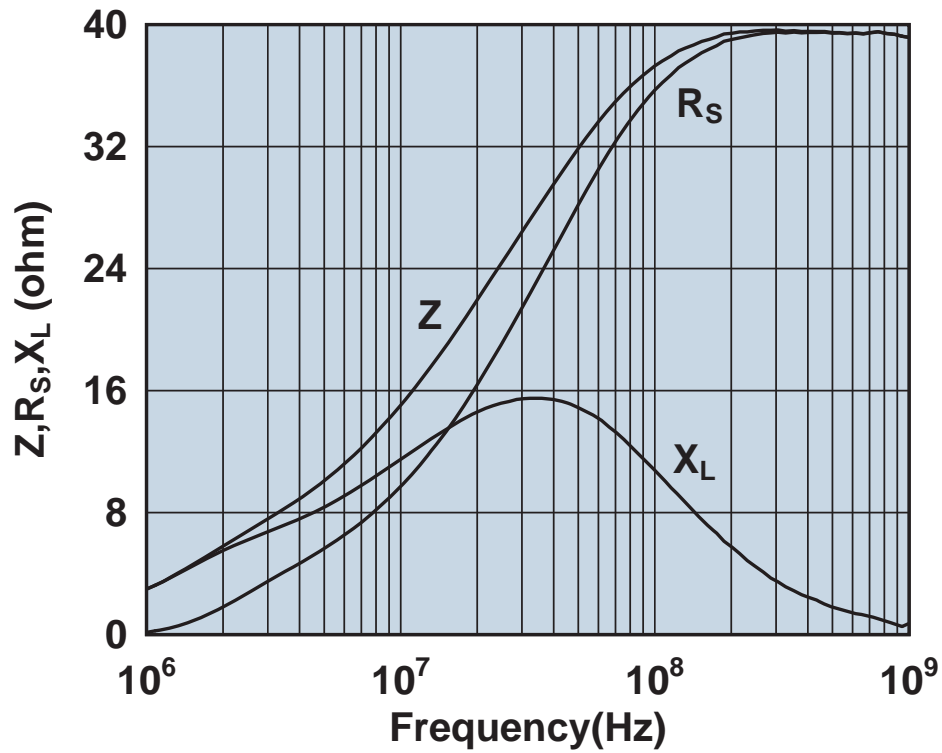
Impedance, reactance, and resistance vs. frequency.



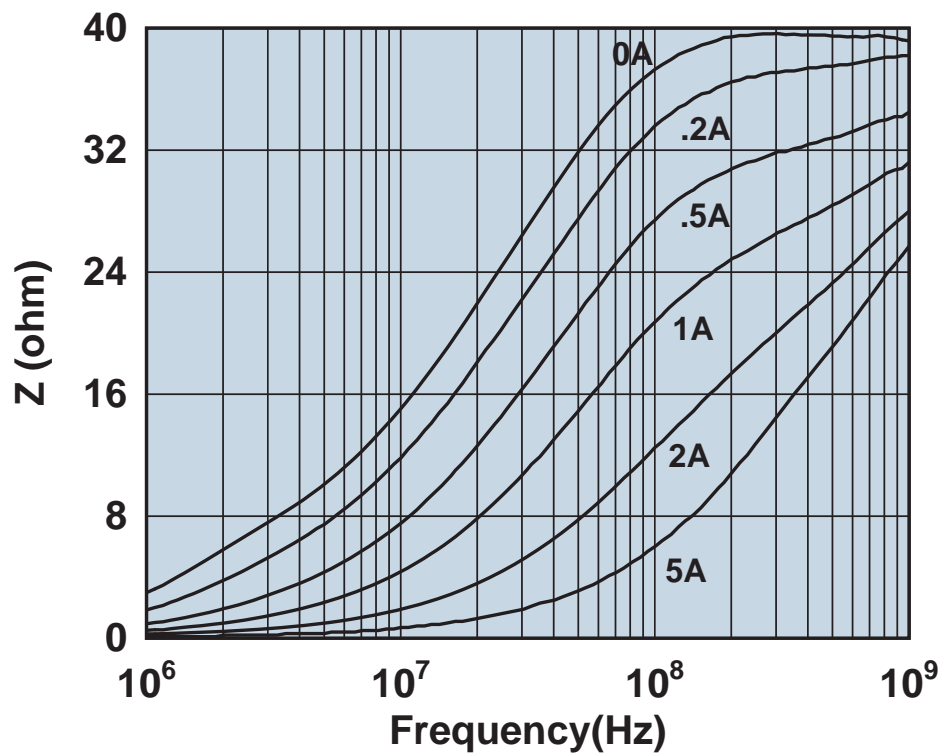
Impedance vs. frequency with dc bias.



274404447

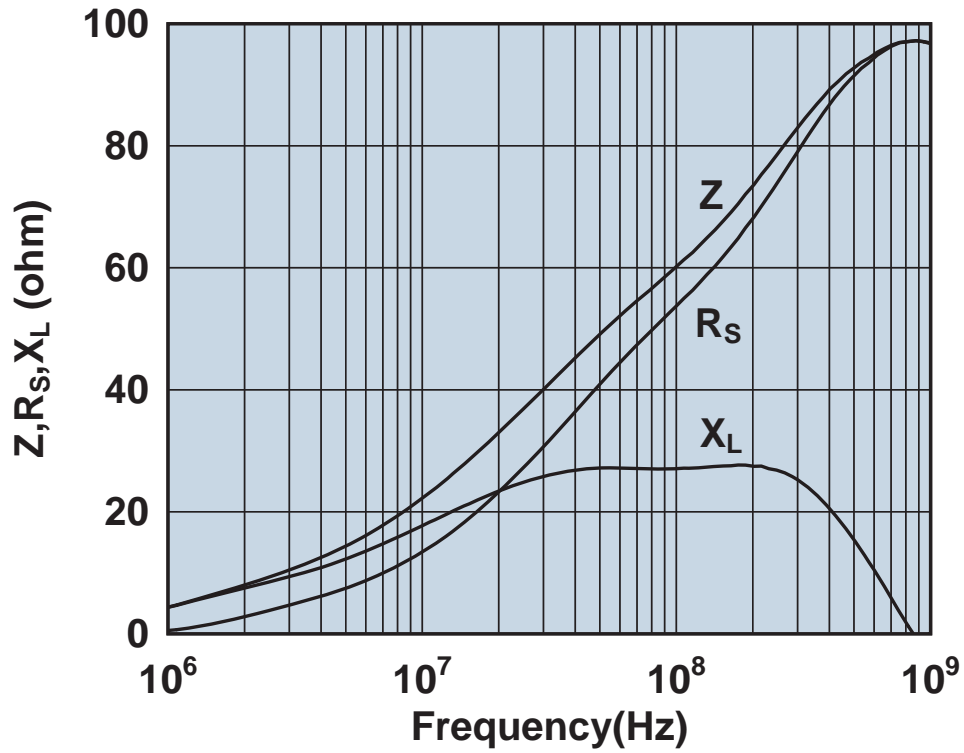


Impedance, reactance, and resistance vs. frequency.

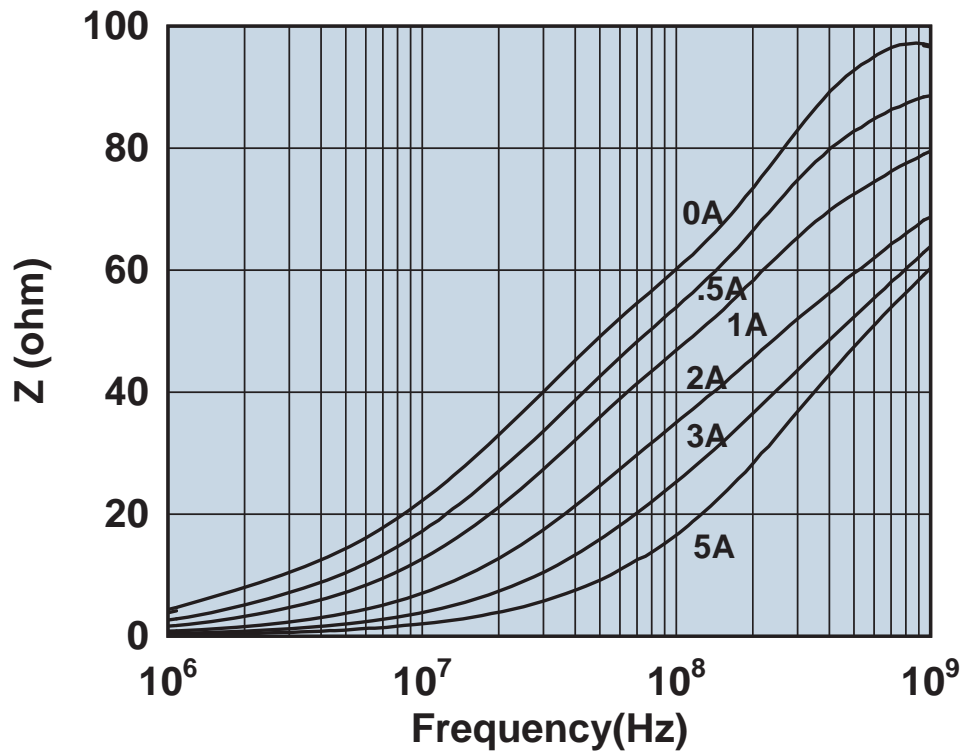


Impedance vs. frequency with dc bias.

2744045447

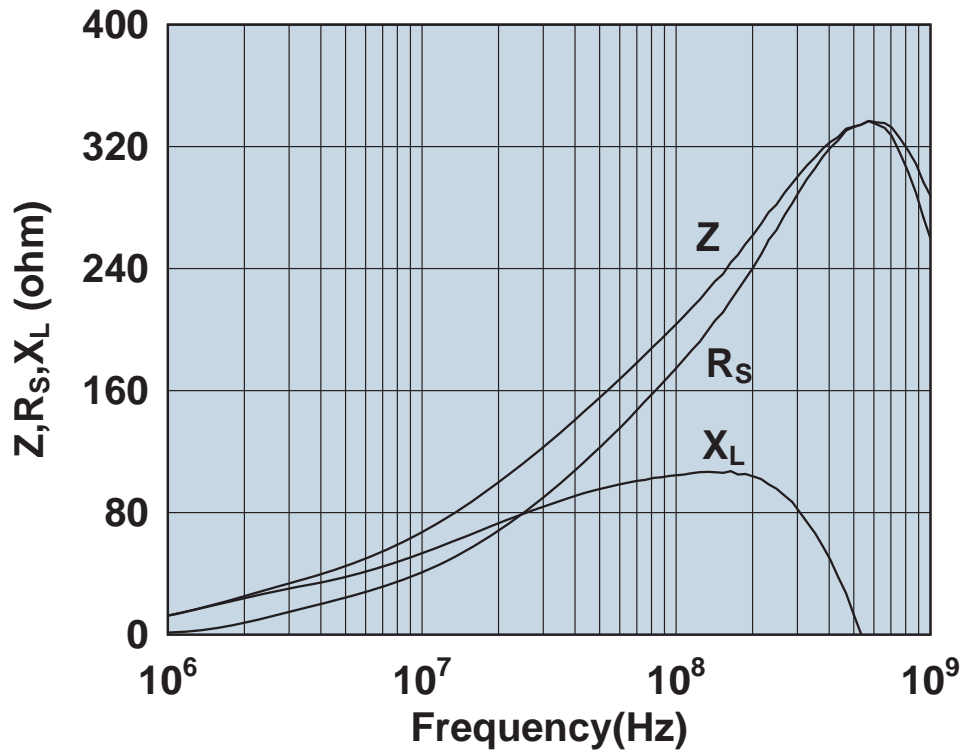


Impedance, reactance, and resistance vs. frequency.

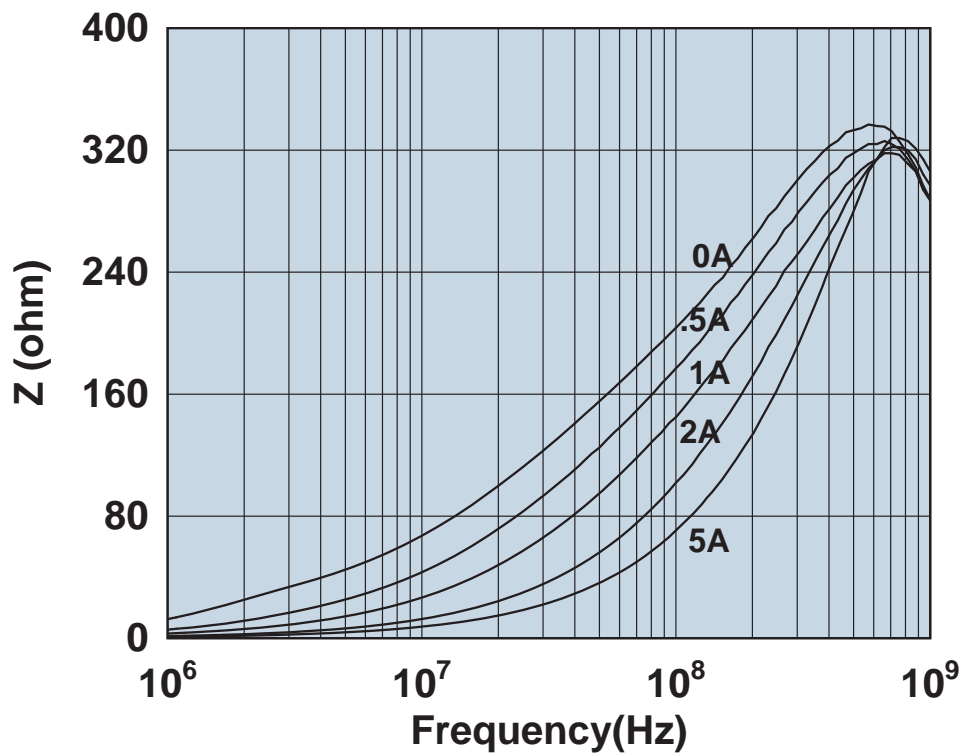


Impedance vs. frequency with dc bias.

2744051447

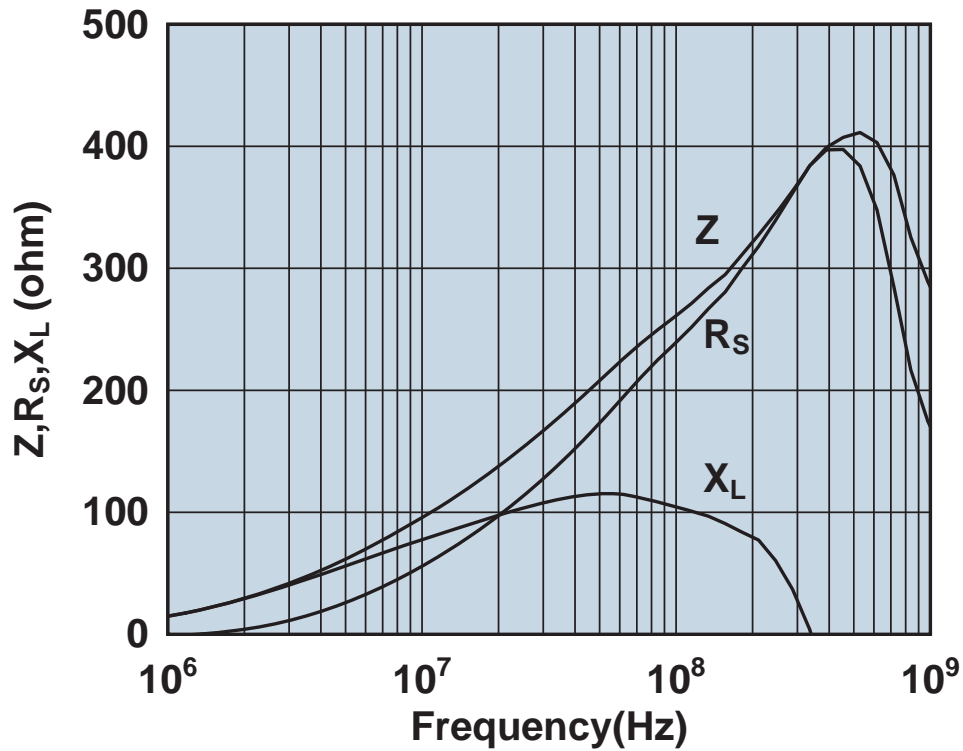


Impedance, reactance, and resistance vs. frequency.

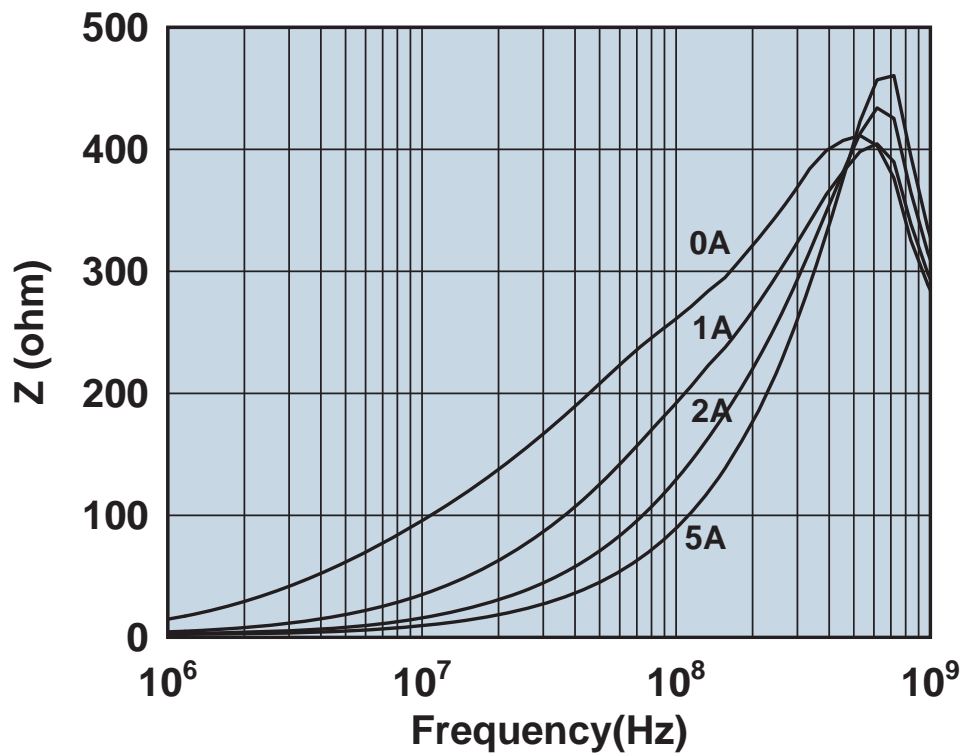


Impedance vs. frequency with dc bias.

2744065447

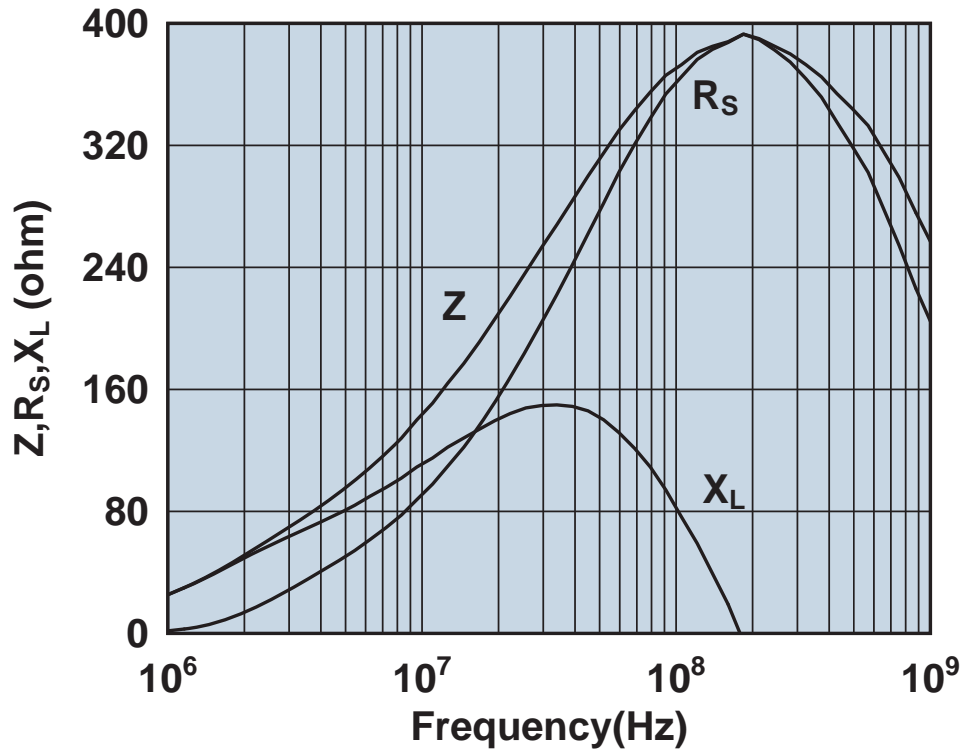


Impedance, reactance, and resistance vs. frequency.

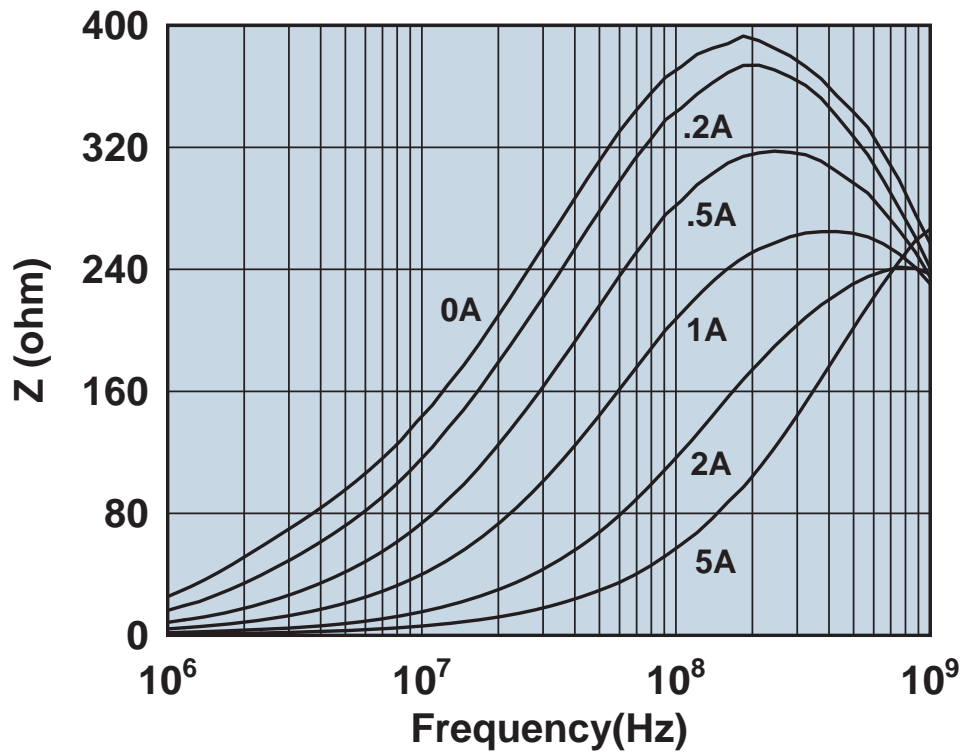


Impedance vs. frequency with dc bias.

274455567

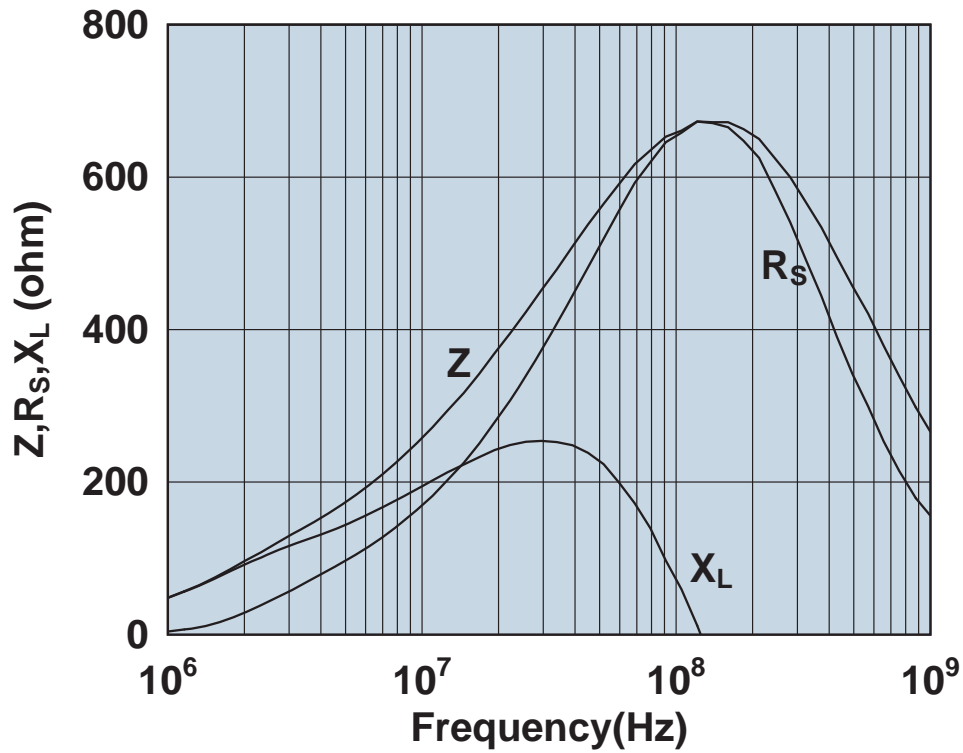


Impedance, reactance, and resistance vs. frequency.



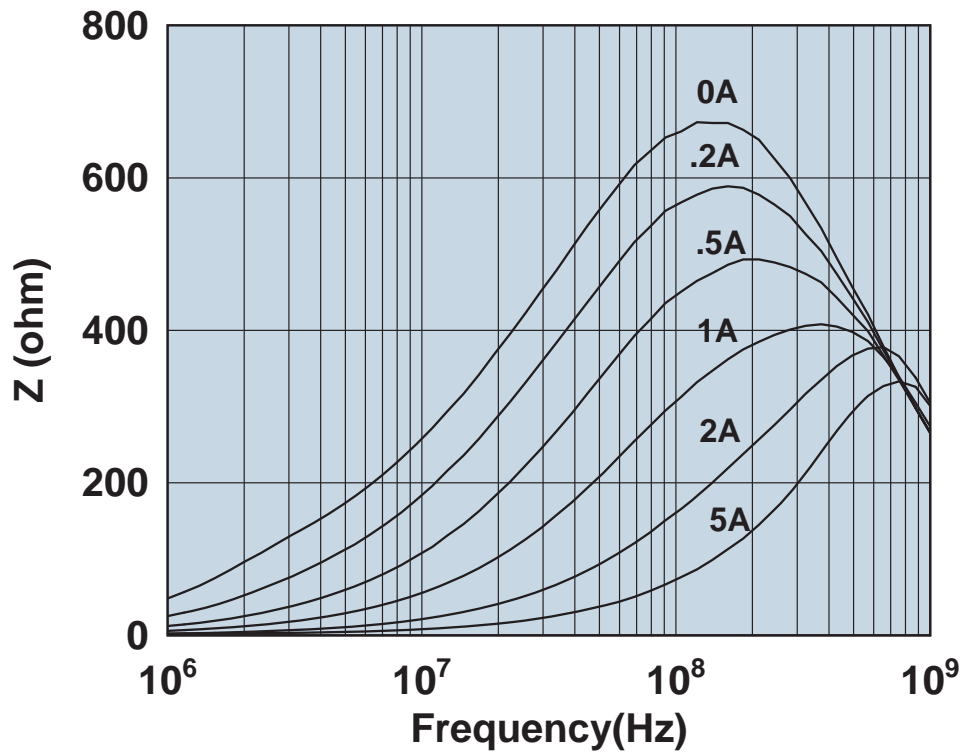
Impedance vs. frequency with dc bias.

274455577



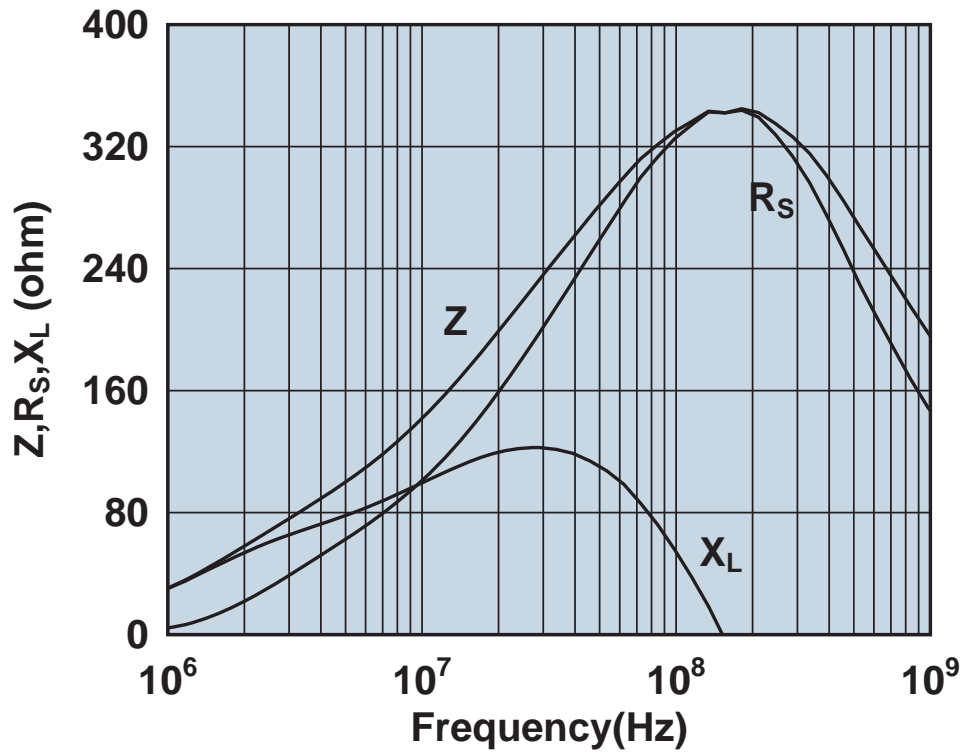
Impedance, reactance, and resistance vs. frequency.

274455577

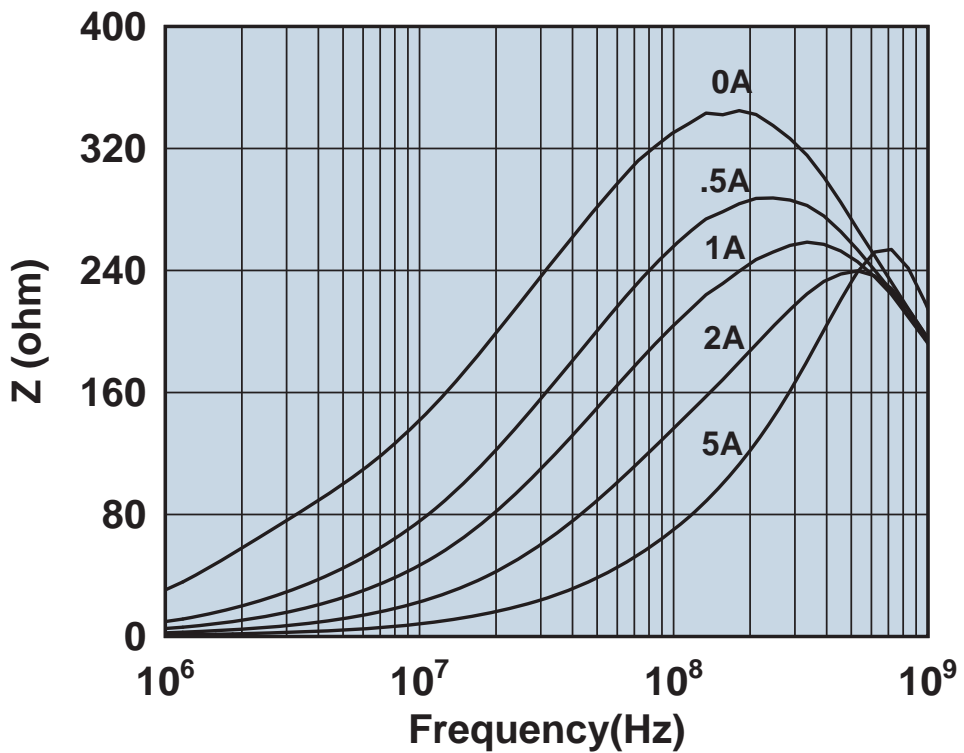


Impedance vs. frequency with dc bias.

2744770347

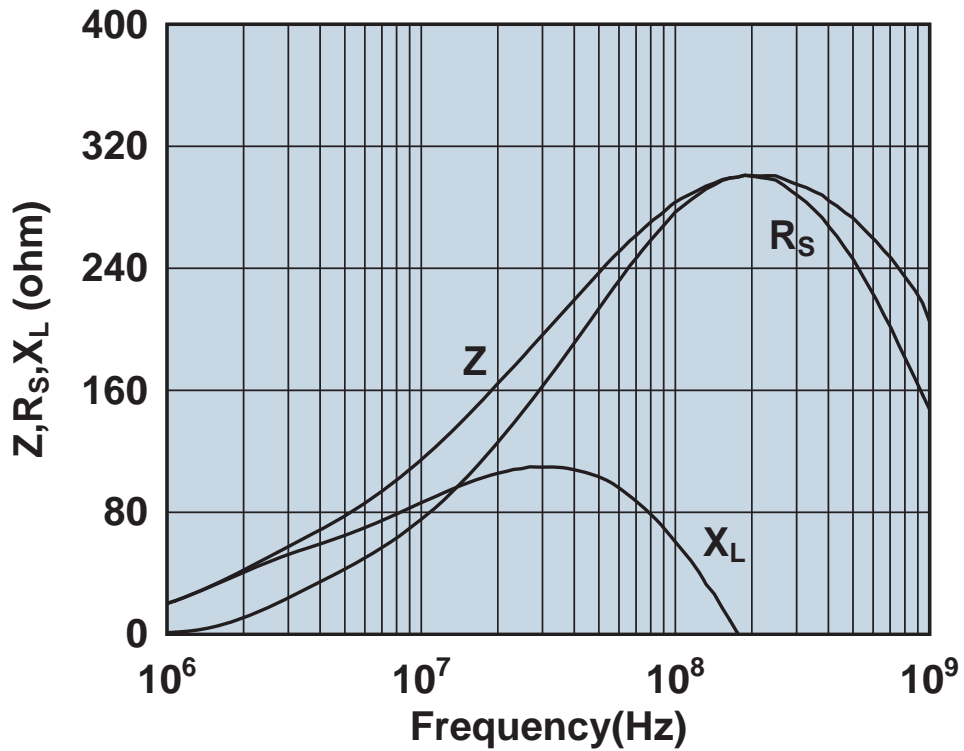


Impedance, reactance, and resistance vs. frequency.

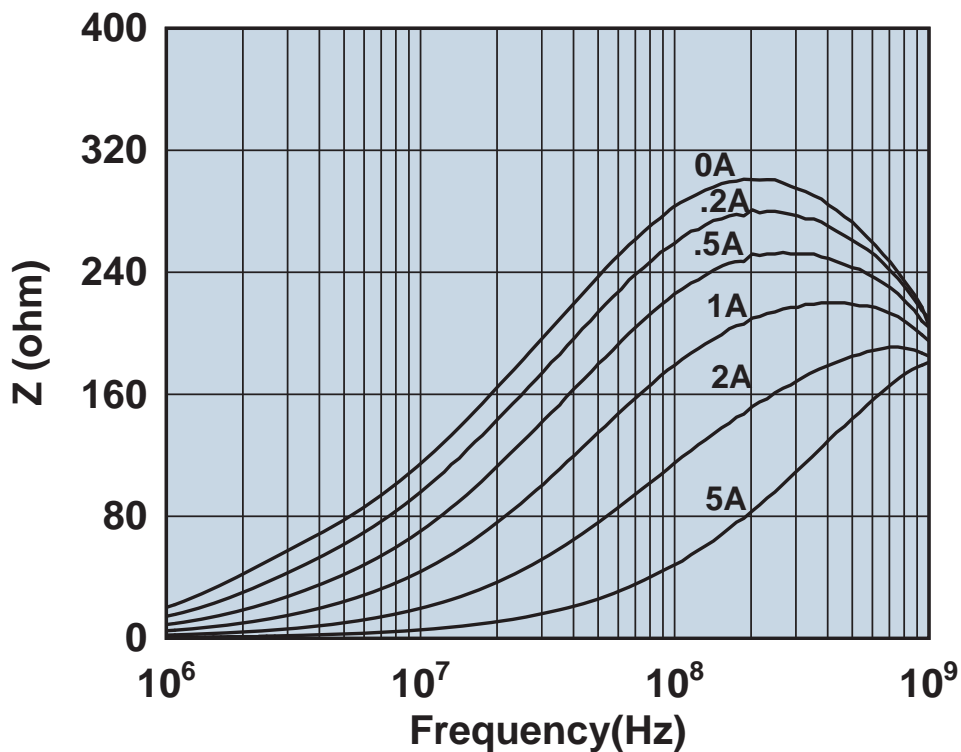


Impedance vs. frequency with dc bias.

2744776147



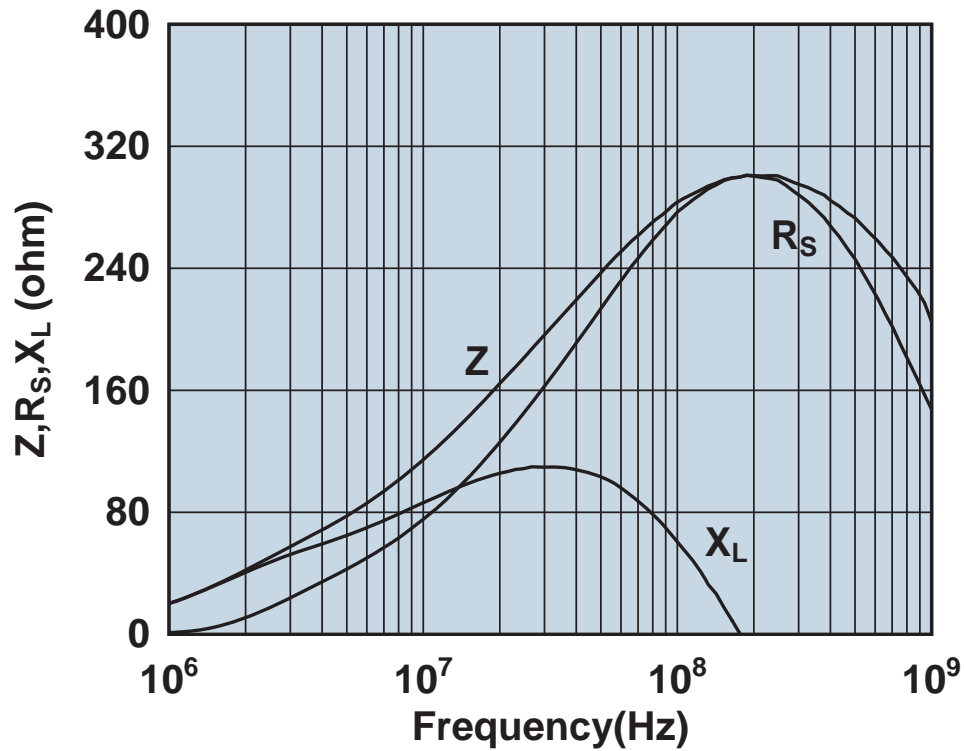
Impedance, reactance, and resistance vs. frequency.



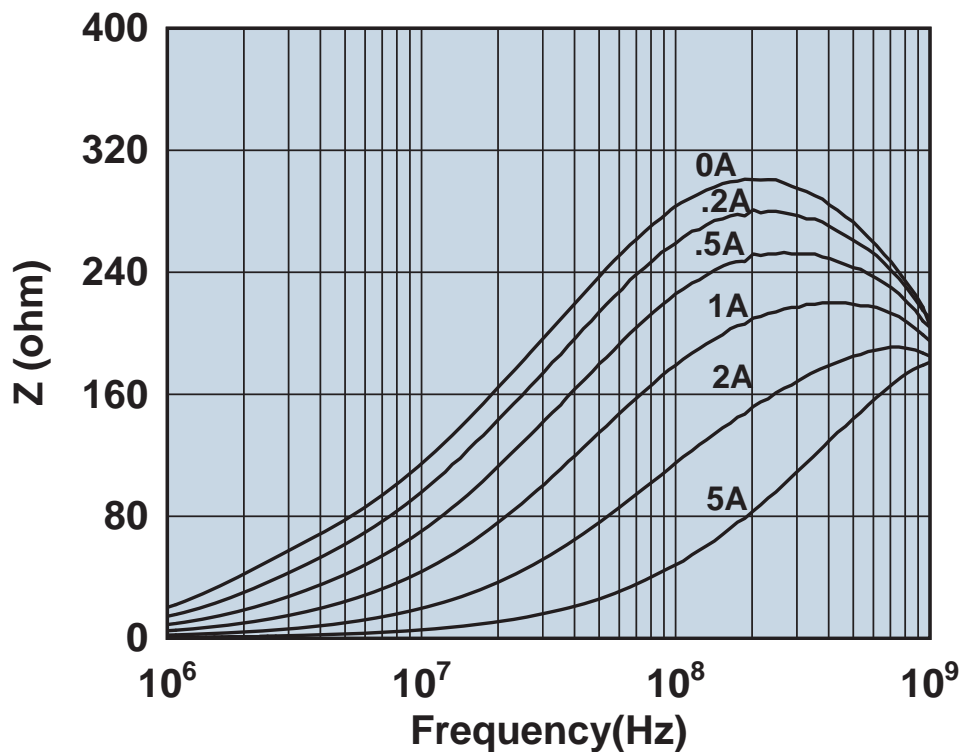
Impedance vs. frequency with dc bias.



2744778147

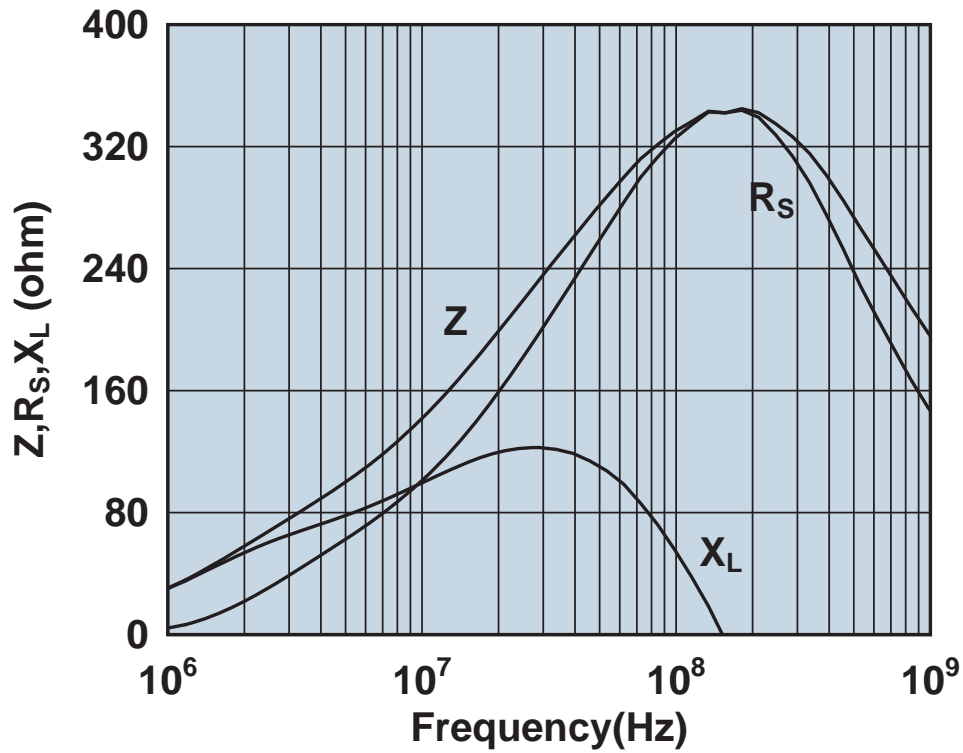


Impedance, reactance, and resistance vs. frequency.

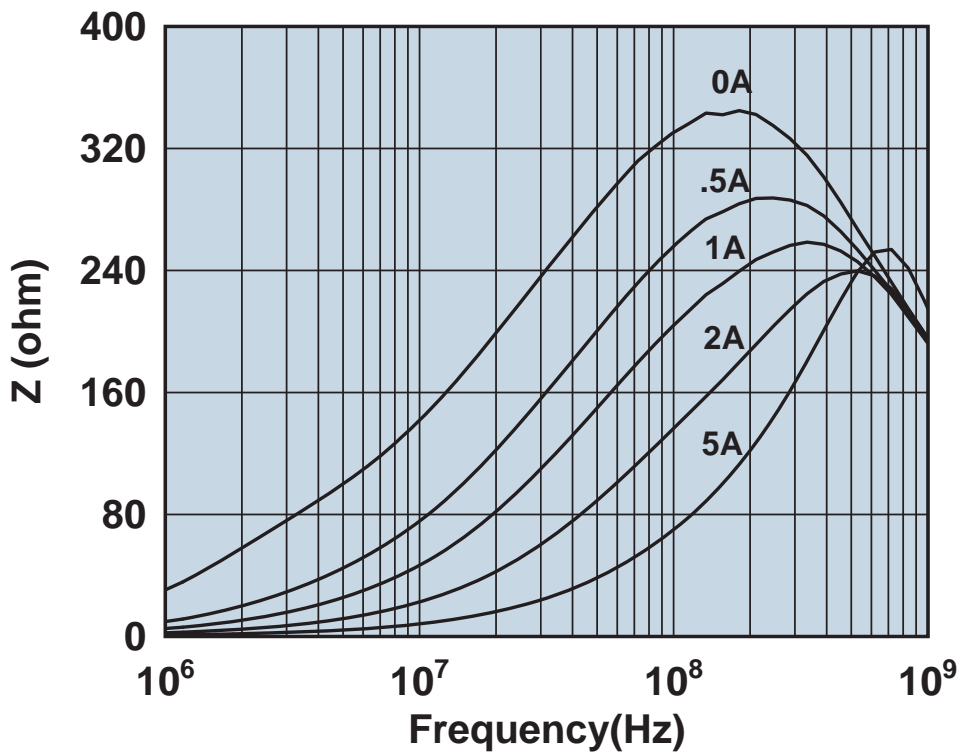


Impedance vs. frequency with dc bias.

2744778347

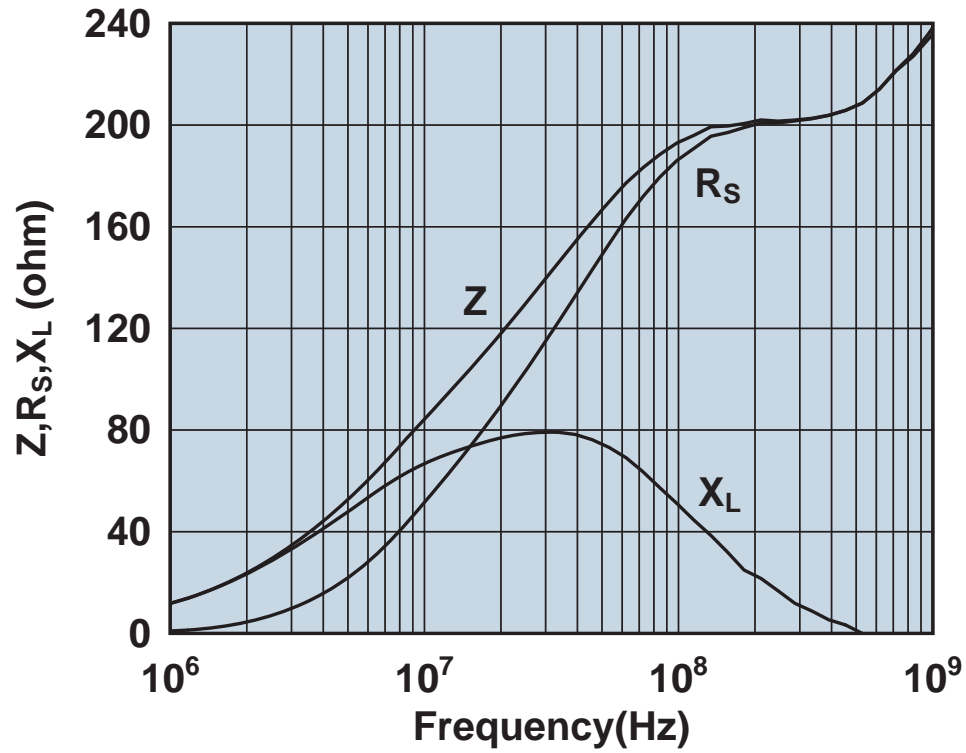


Impedance, reactance, and resistance vs. frequency.

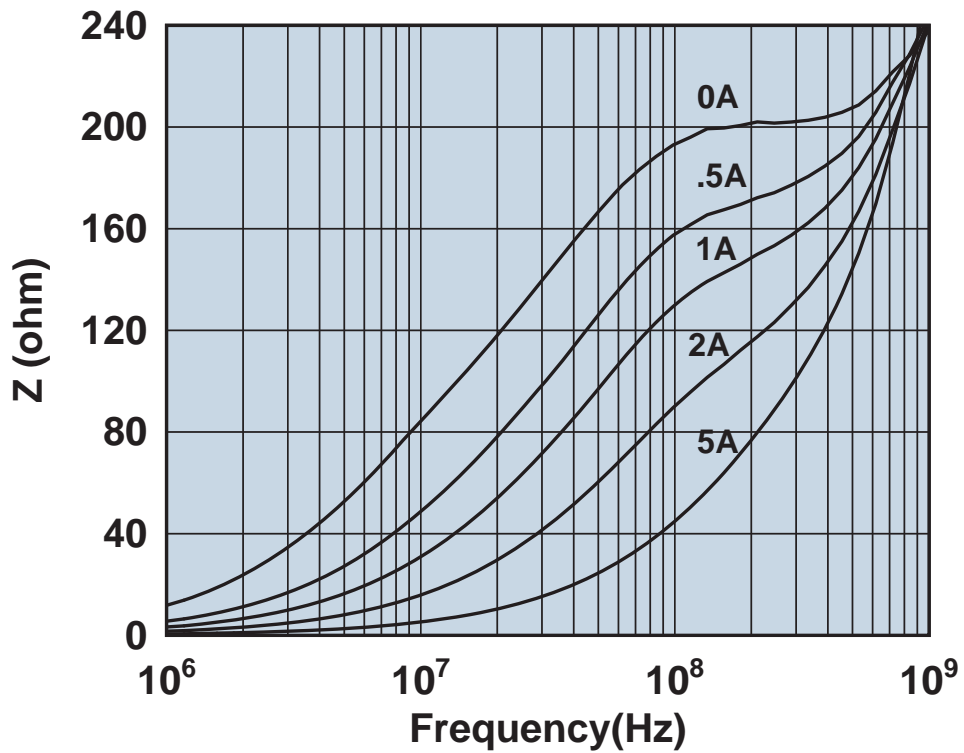


Impedance vs. frequency with dc bias.

2744780347

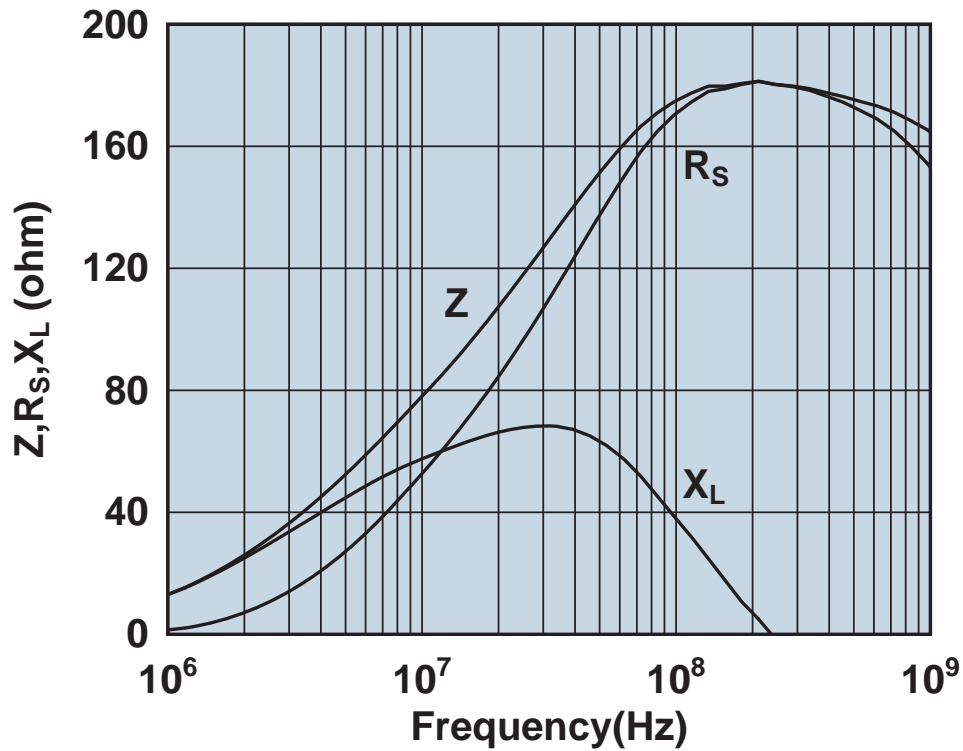


Impedance, reactance, and resistance vs. frequency.

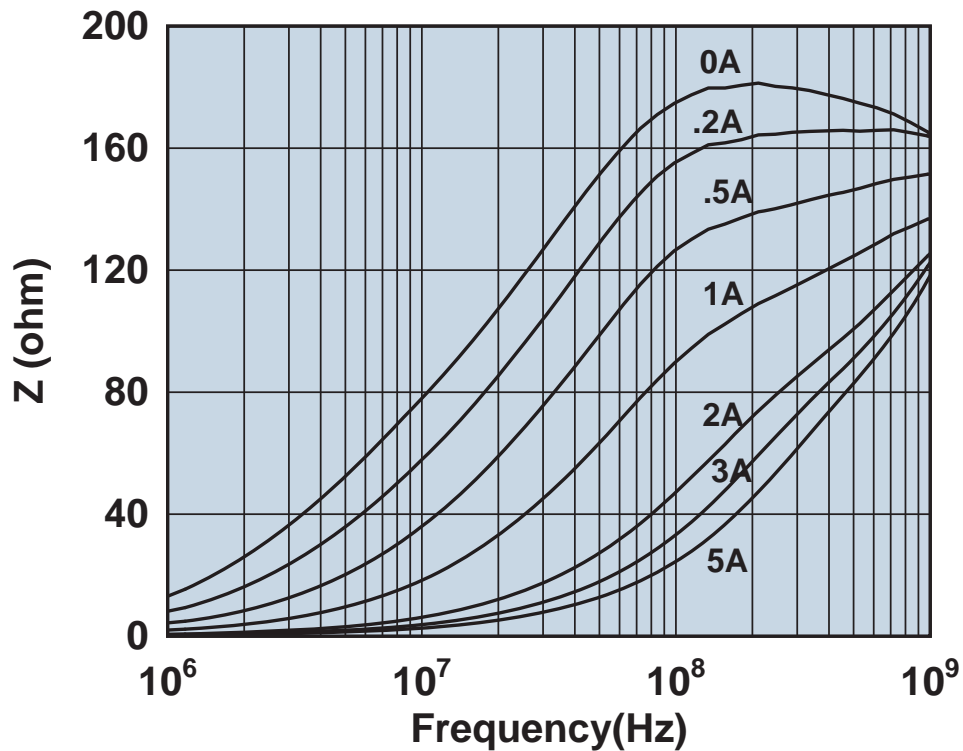


Impedance vs. frequency with dc bias.

2744786147

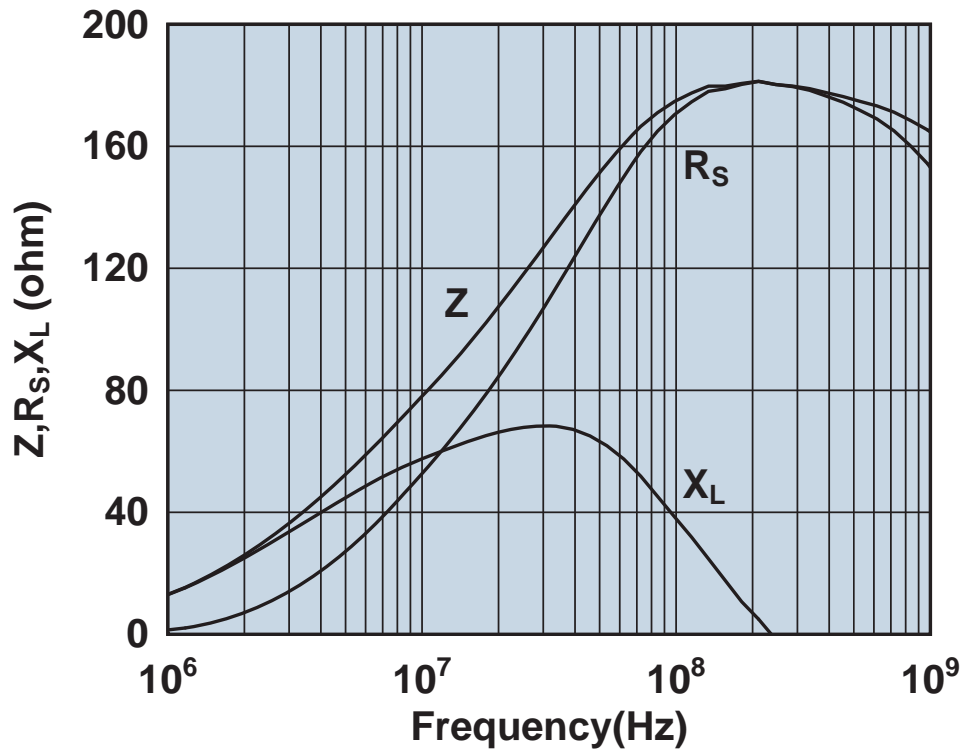


Impedance, reactance, and resistance vs. frequency.

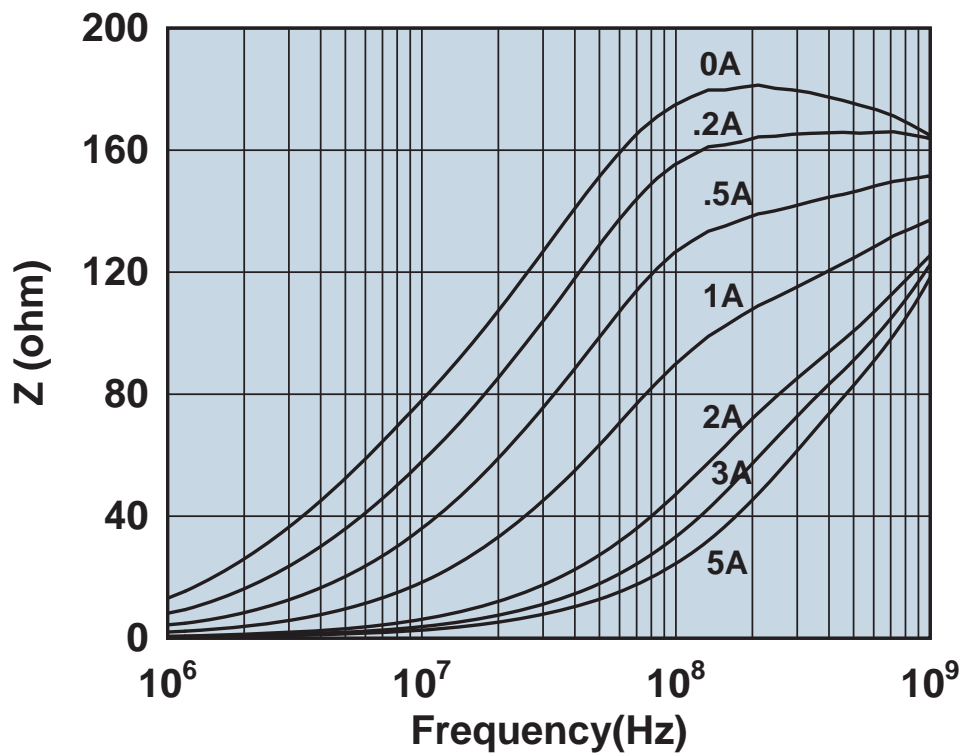


Impedance vs. frequency with dc bias.

2744788147

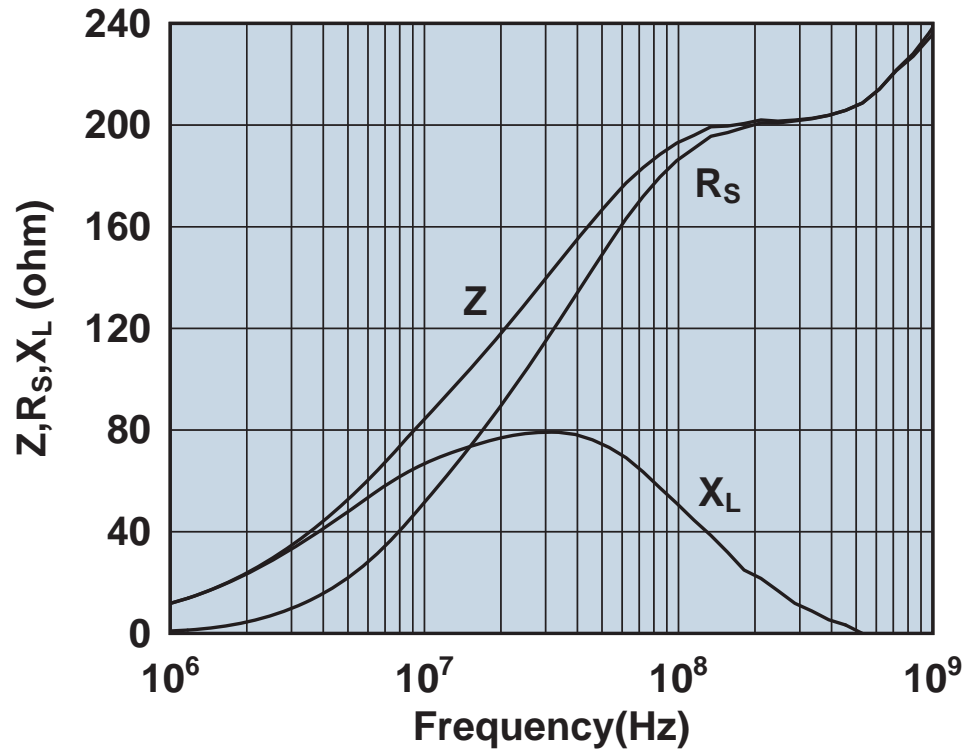


Impedance, reactance, and resistance vs. frequency.

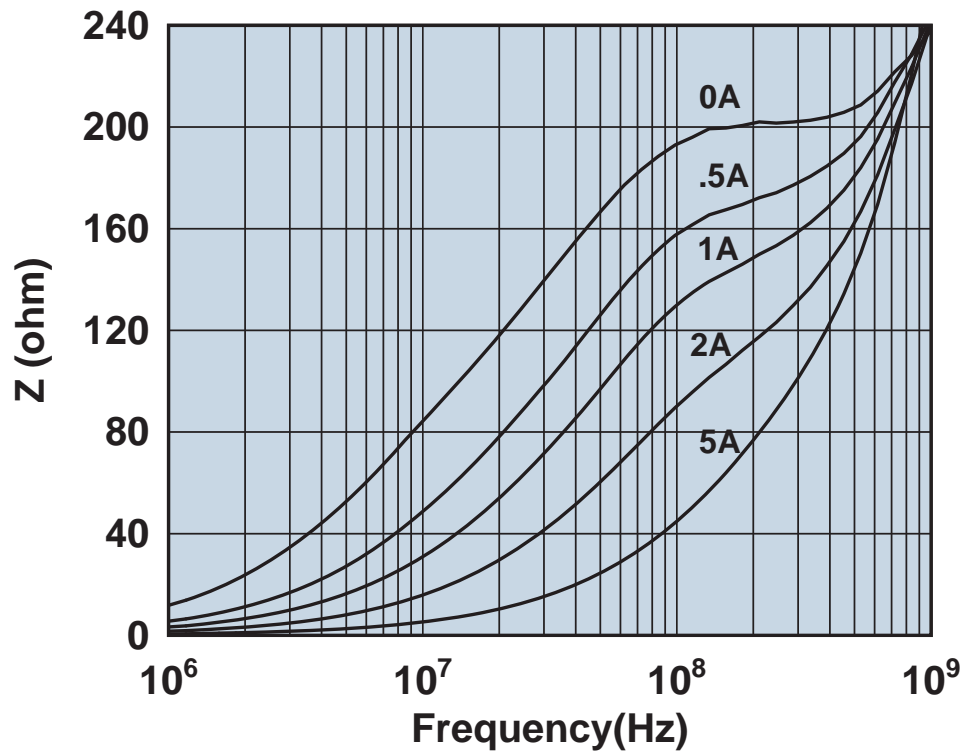


Impedance vs. frequency with dc bias.

2744788347

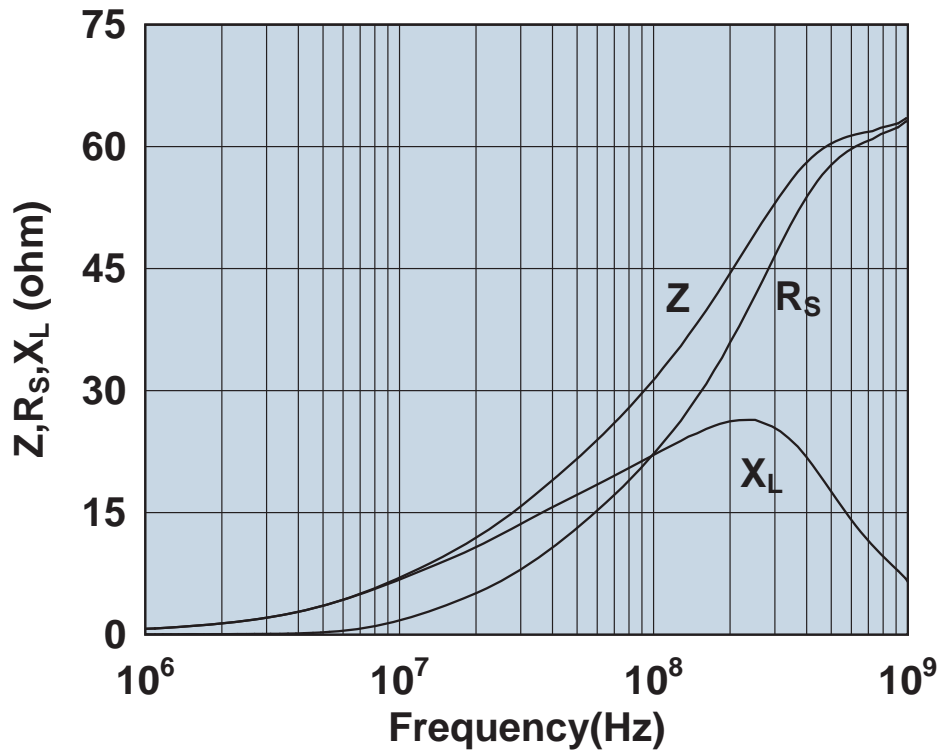


Impedance, reactance, and resistance vs. frequency.

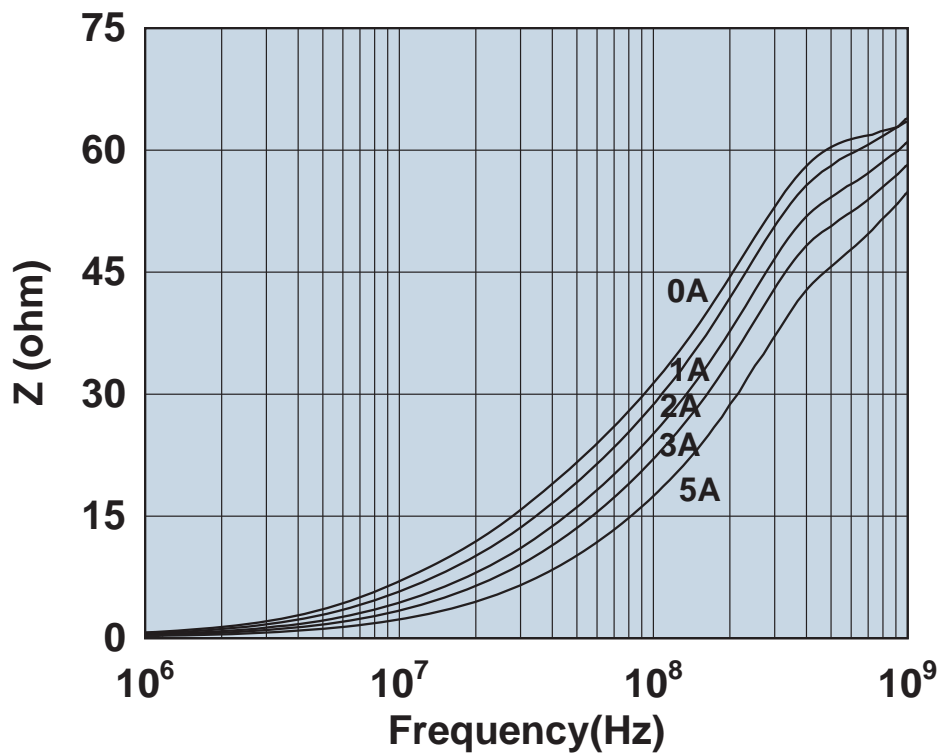


Impedance vs. frequency with dc bias.

2752041447

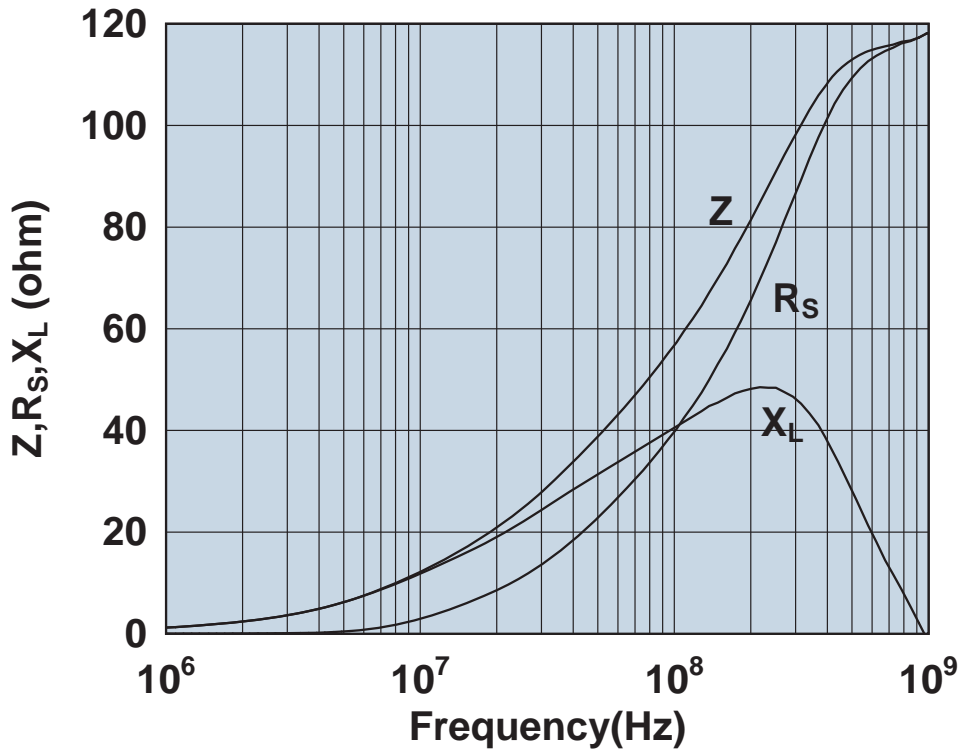


Impedance, reactance, and resistance vs. frequency.

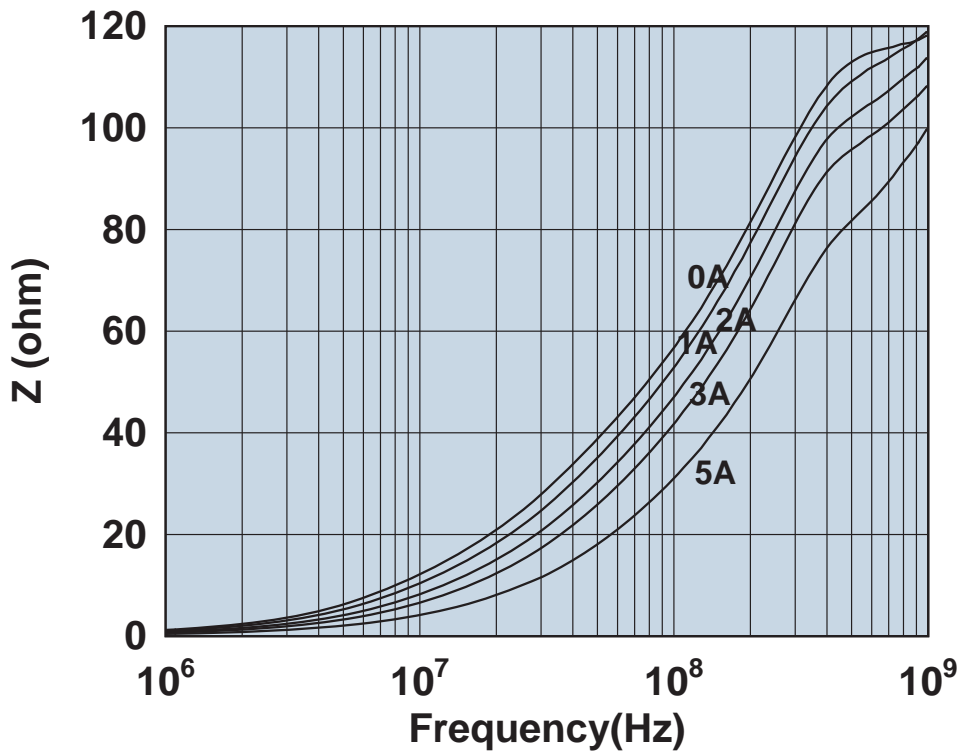


Impedance vs. frequency with dc bias.

2752045447



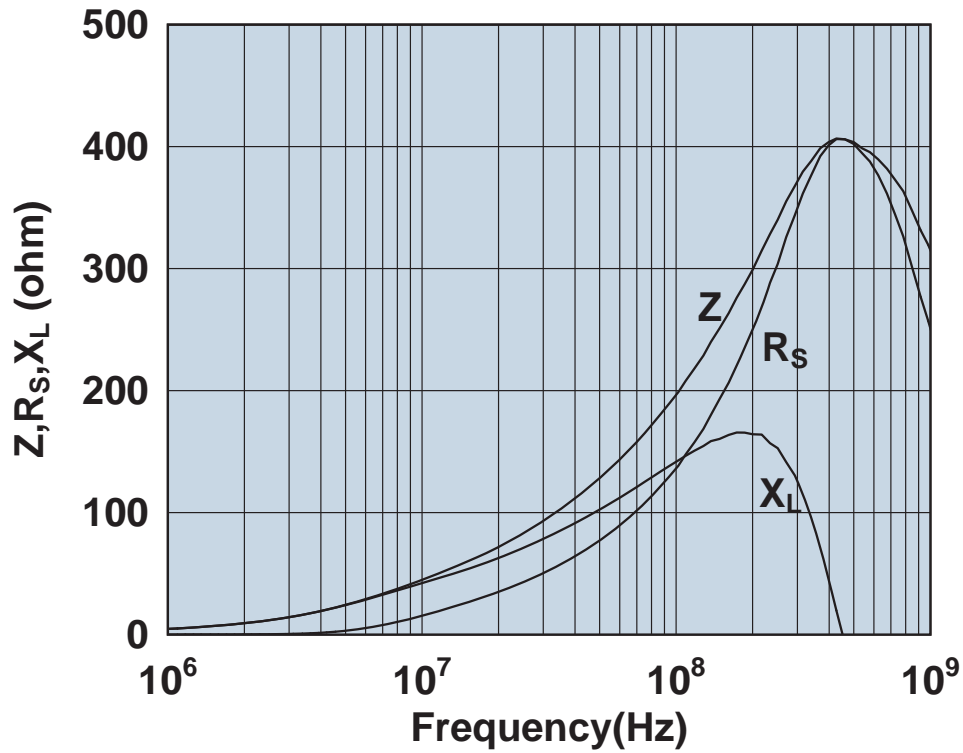
Impedance, reactance, and resistance vs. frequency.



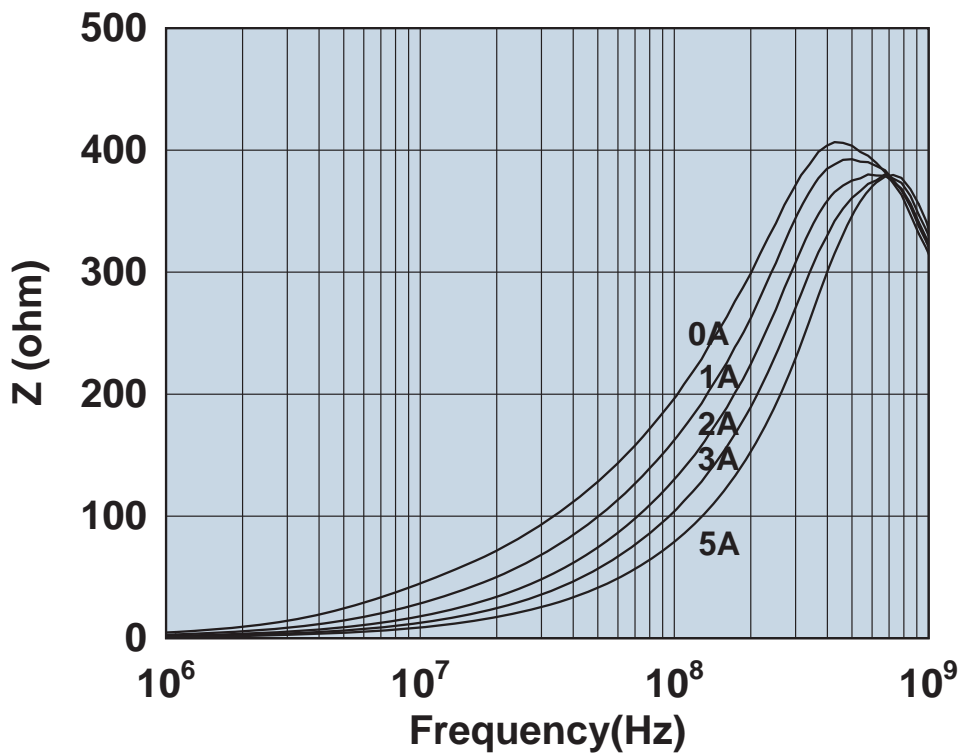
Impedance vs. frequency with dc bias.



2752051447

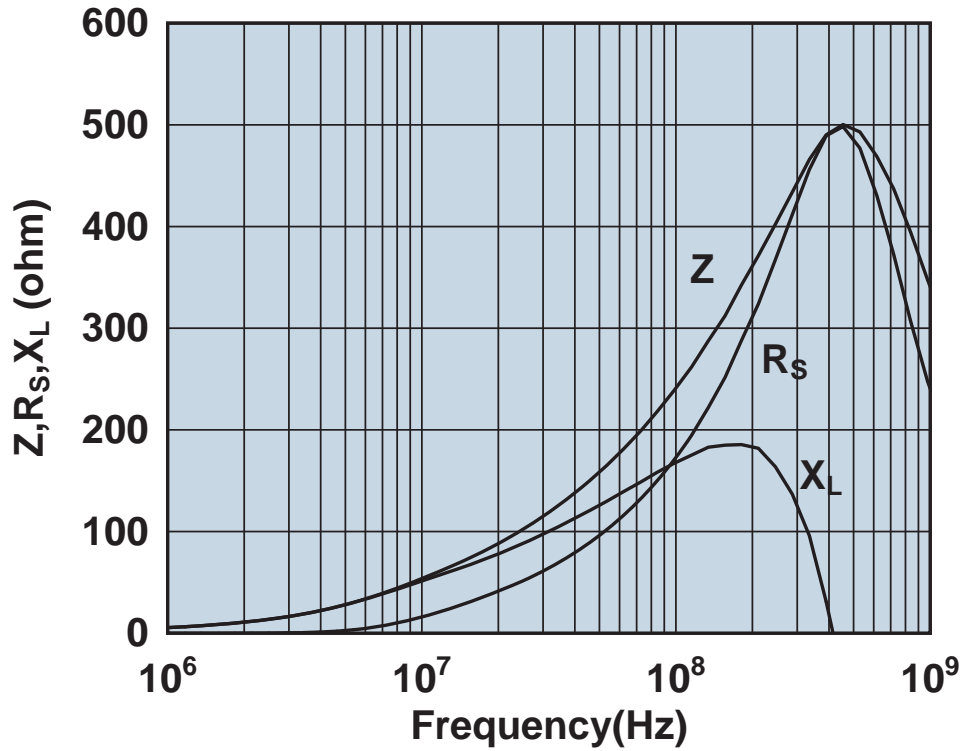


Impedance, reactance, and resistance vs. frequency.

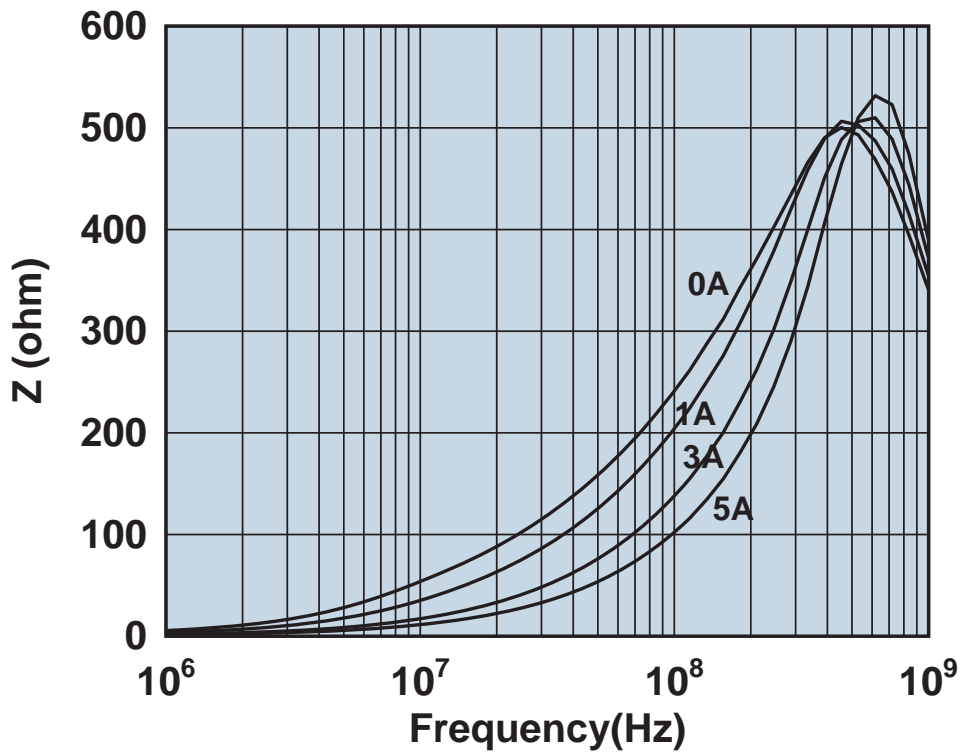


Impedance vs. frequency with dc bias.

2752065447

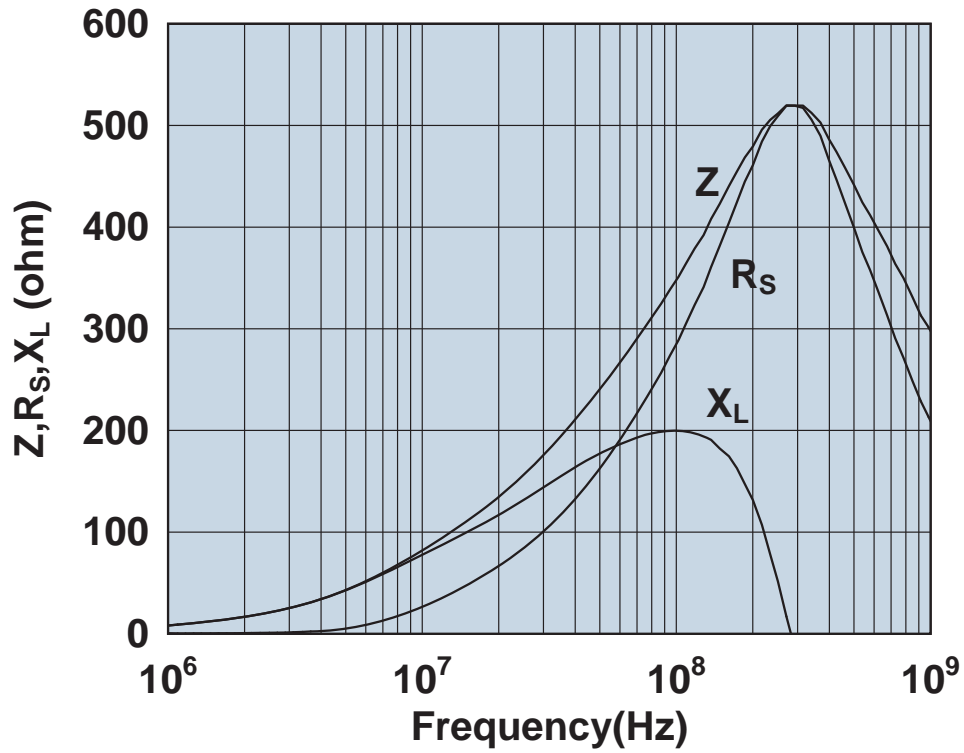


Impedance, reactance, and resistance vs. frequency.

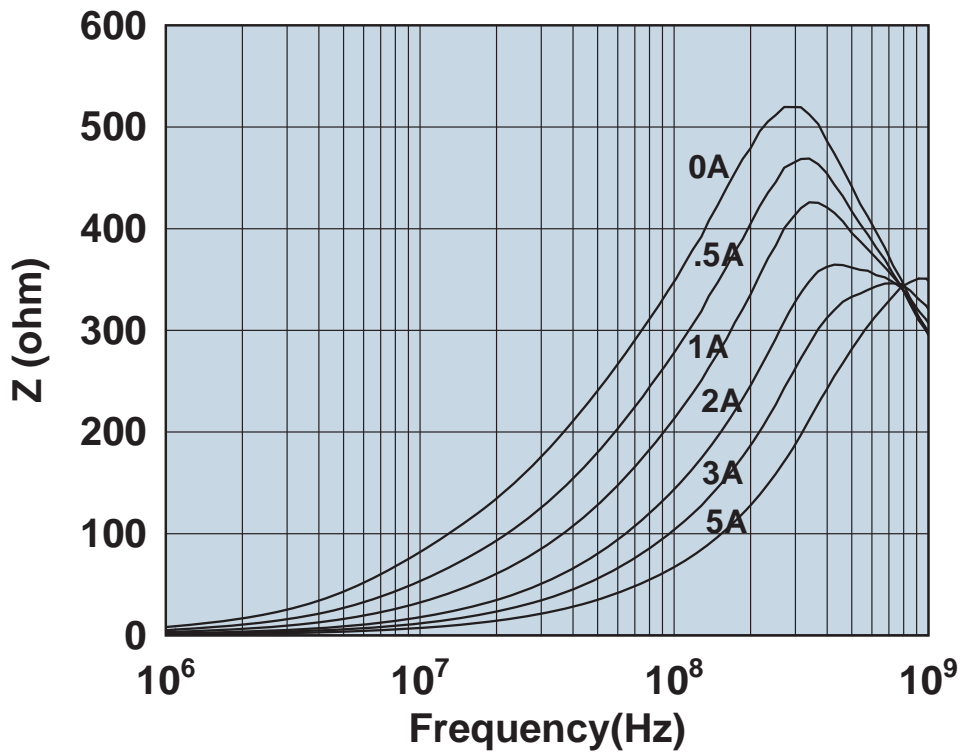


Impedance vs. frequency with dc bias.

2752555567

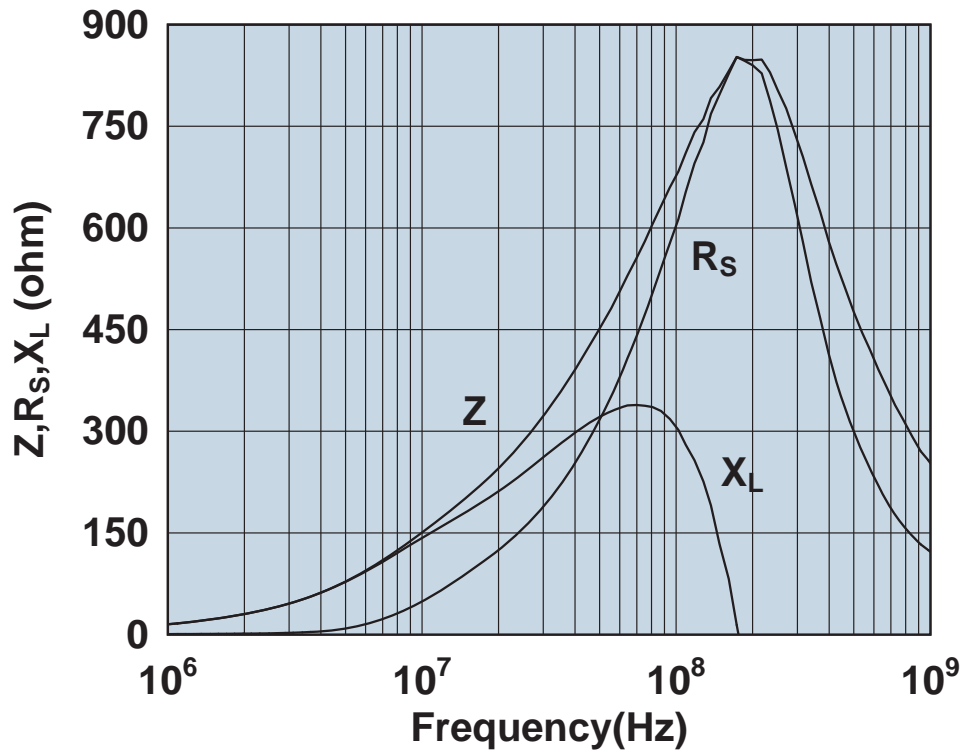


Impedance, reactance, and resistance vs. frequency.

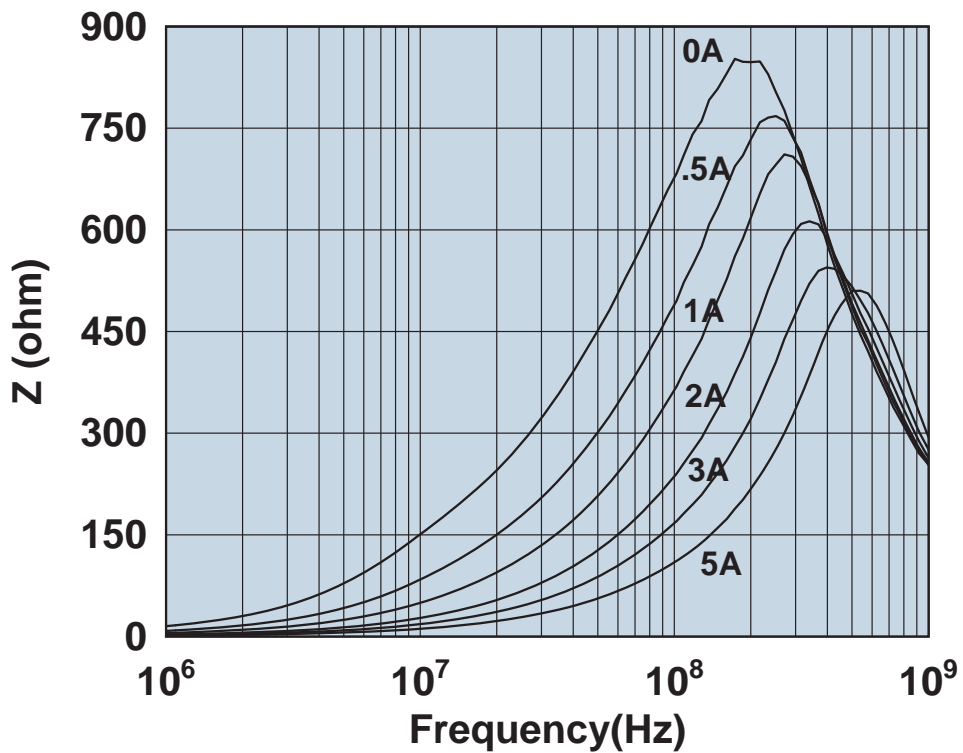


Impedance vs. frequency with dc bias.

275255577

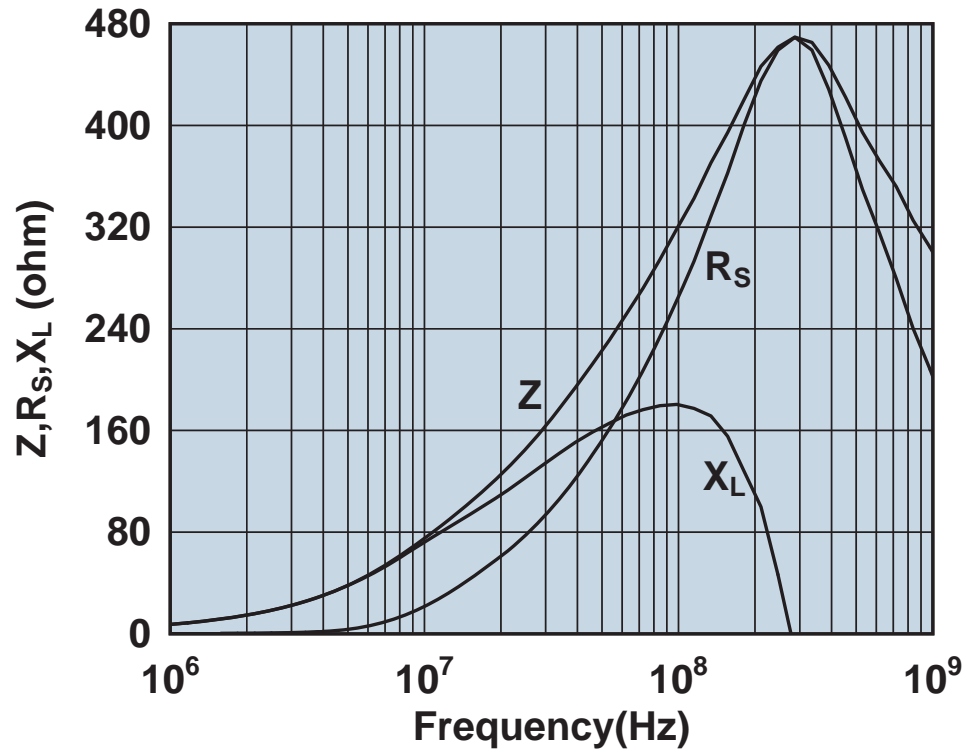


Impedance, reactance, and resistance vs. frequency.

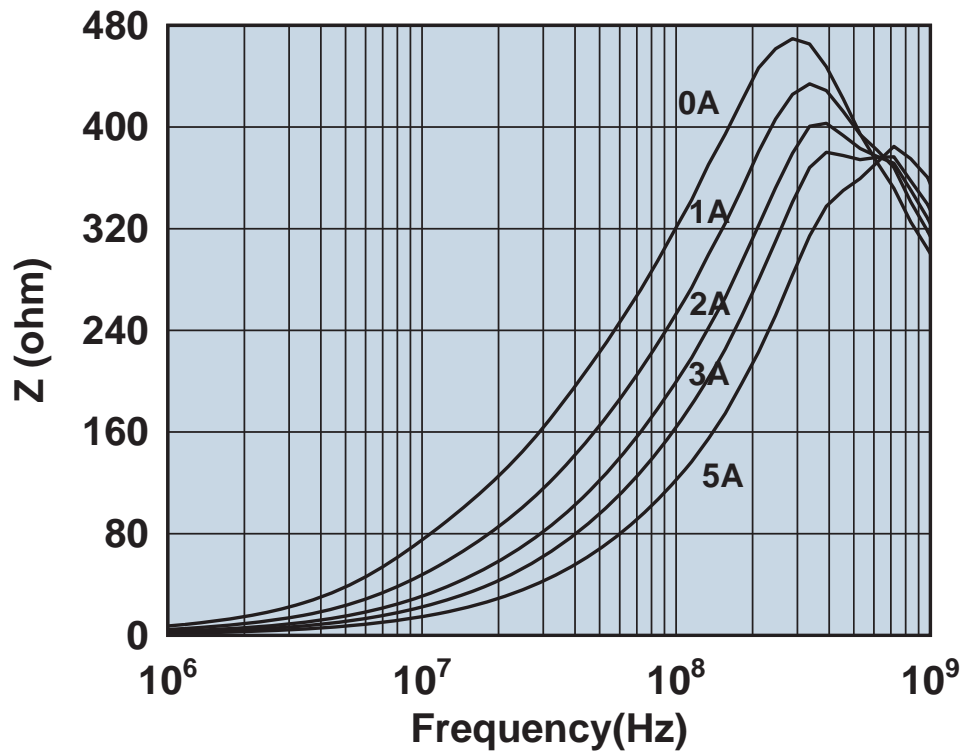


Impedance vs. frequency with dc bias.

2752770347

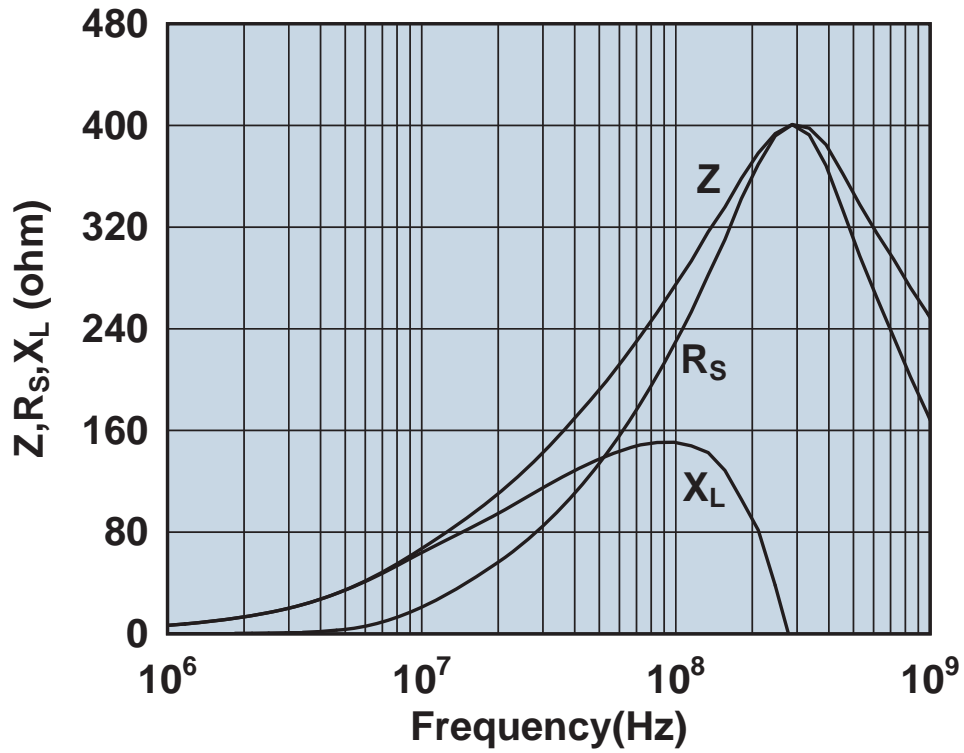


Impedance, reactance, and resistance vs. frequency.

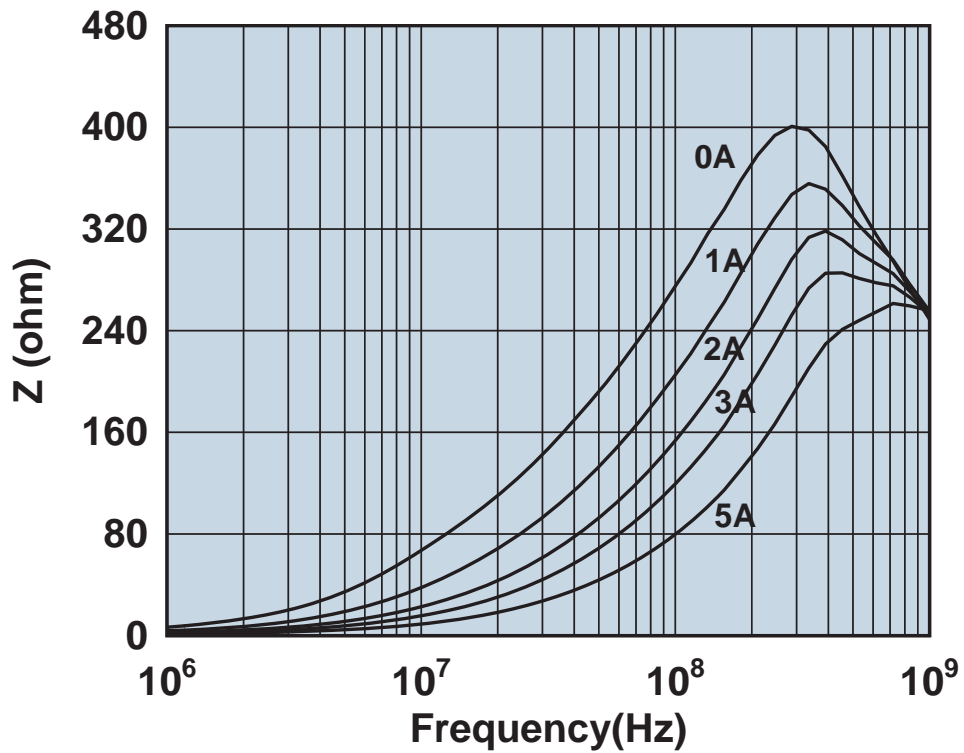


Impedance vs. frequency with dc bias.

2752776147

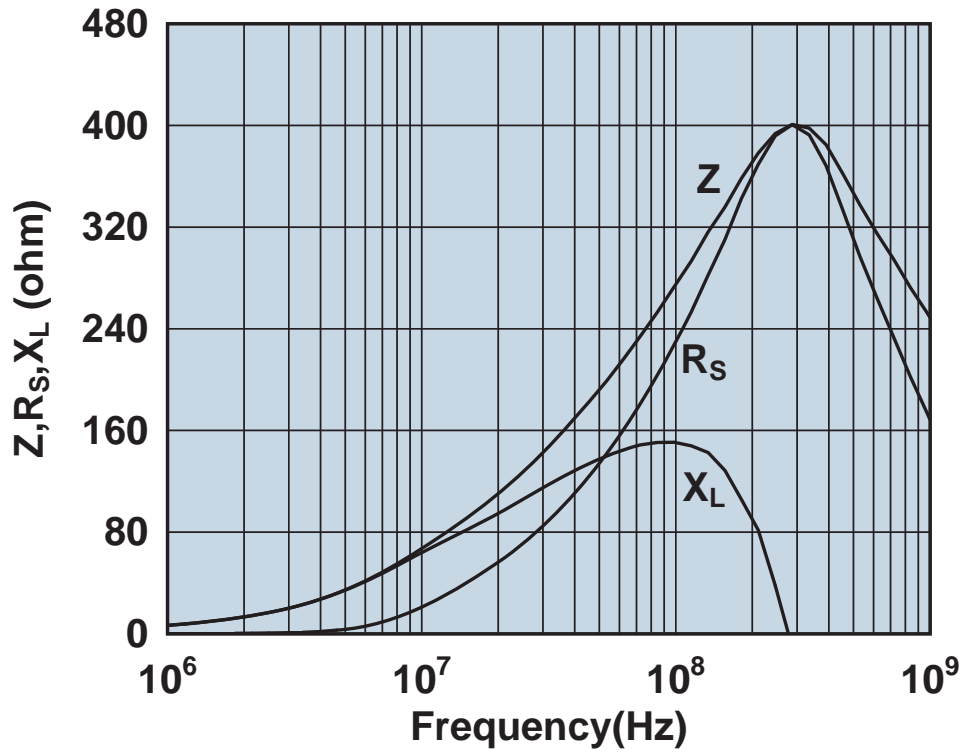


Impedance, reactance, and resistance vs. frequency.

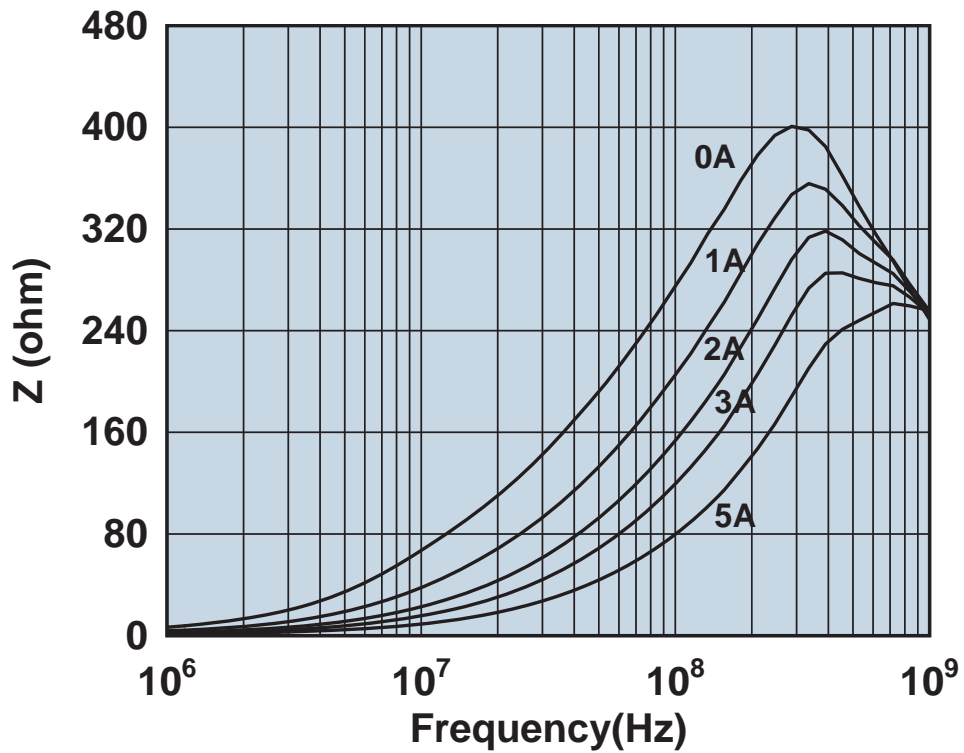


Impedance vs. frequency with dc bias.

2752778147

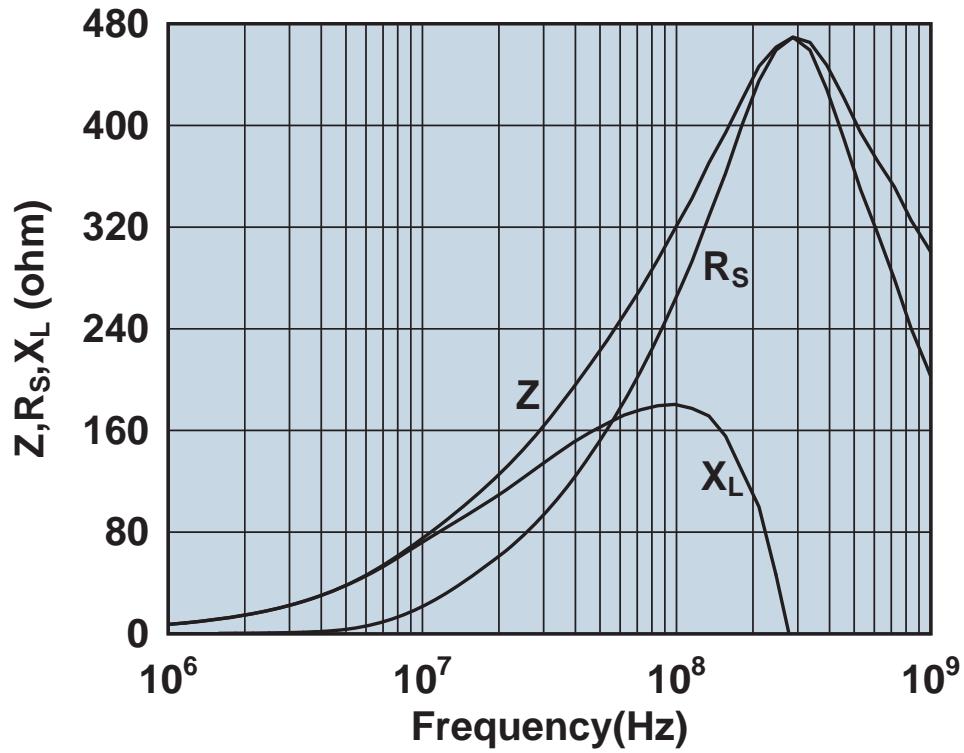


Impedance, reactance, and resistance vs. frequency.

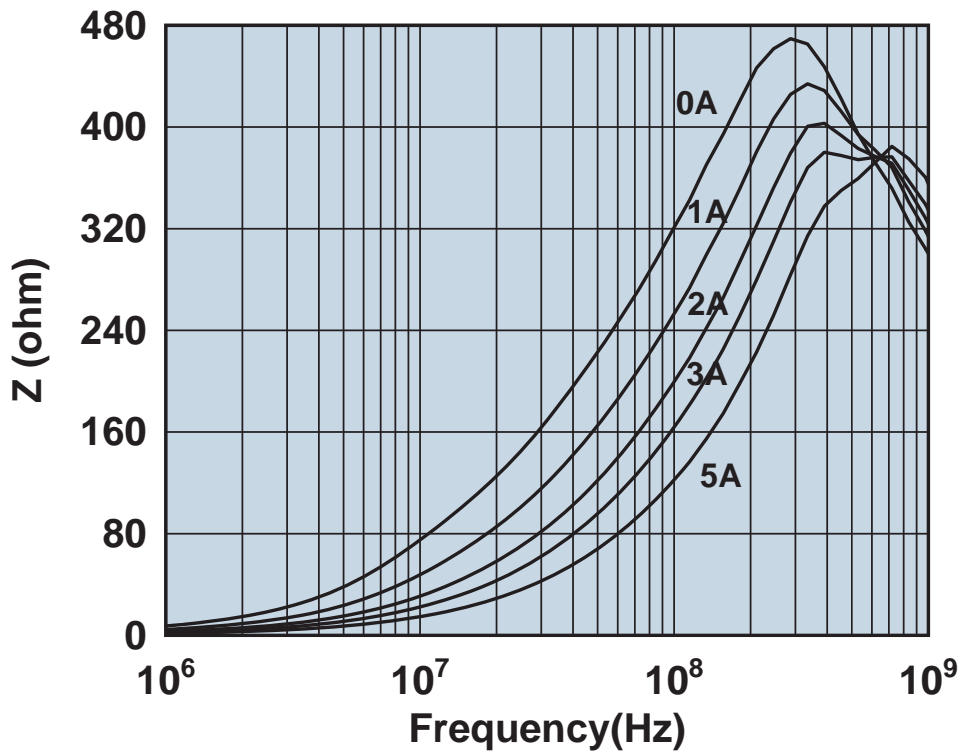


Impedance vs. frequency with dc bias.

2752778347



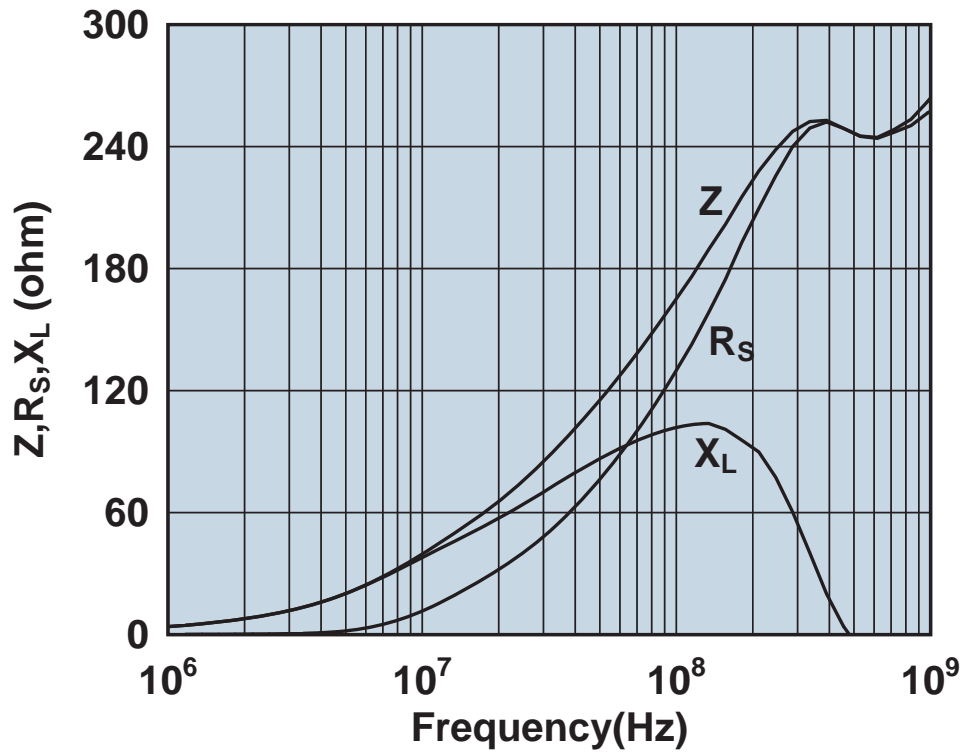
Impedance, reactance, and resistance vs. frequency.



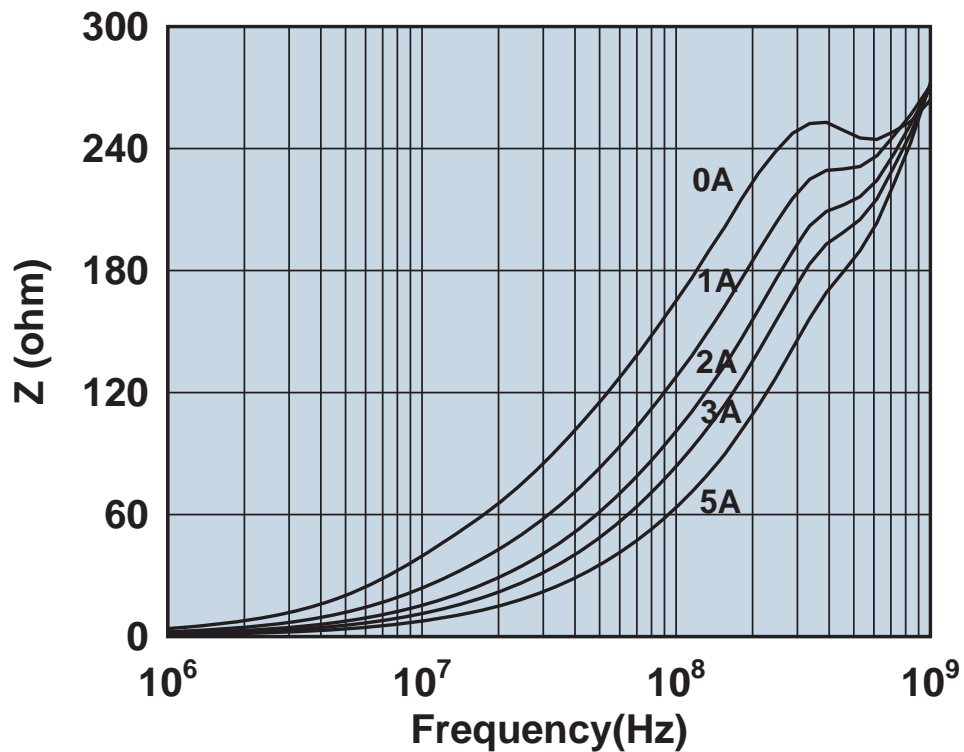
Impedance vs. frequency with dc bias.



2752780347

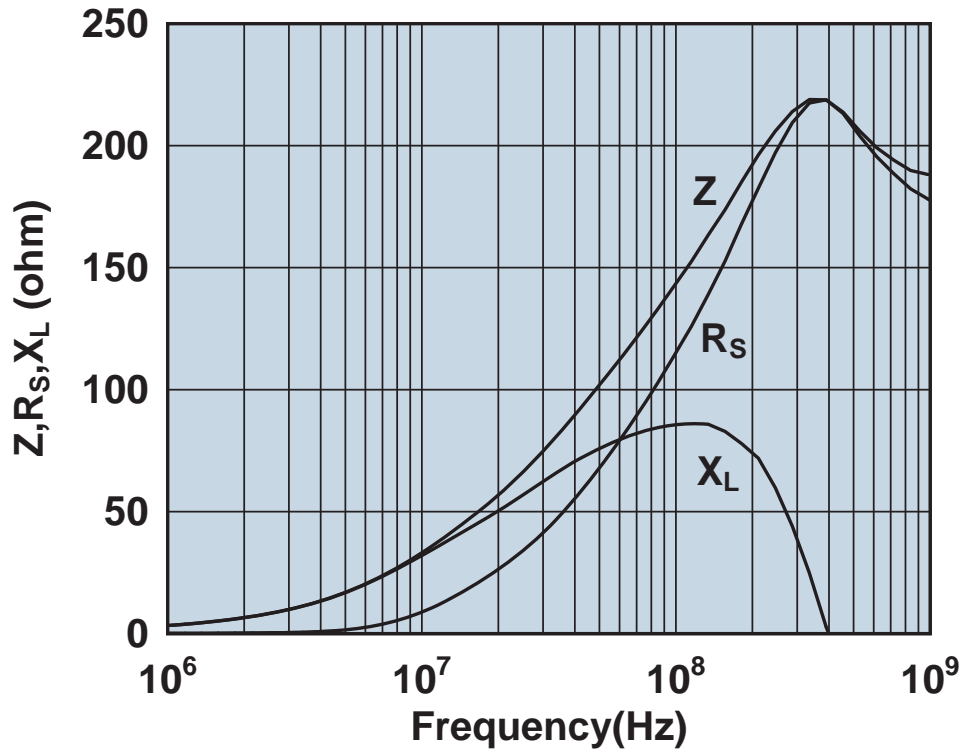


Impedance, reactance, and resistance vs. frequency.

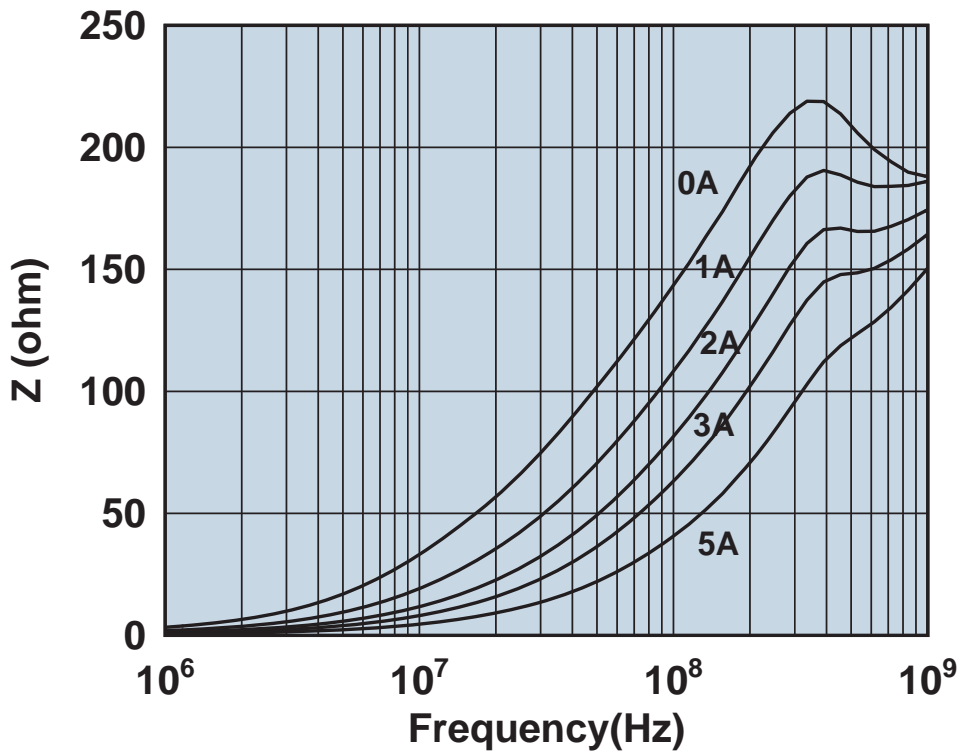


Impedance vs. frequency with dc bias.

2752786147

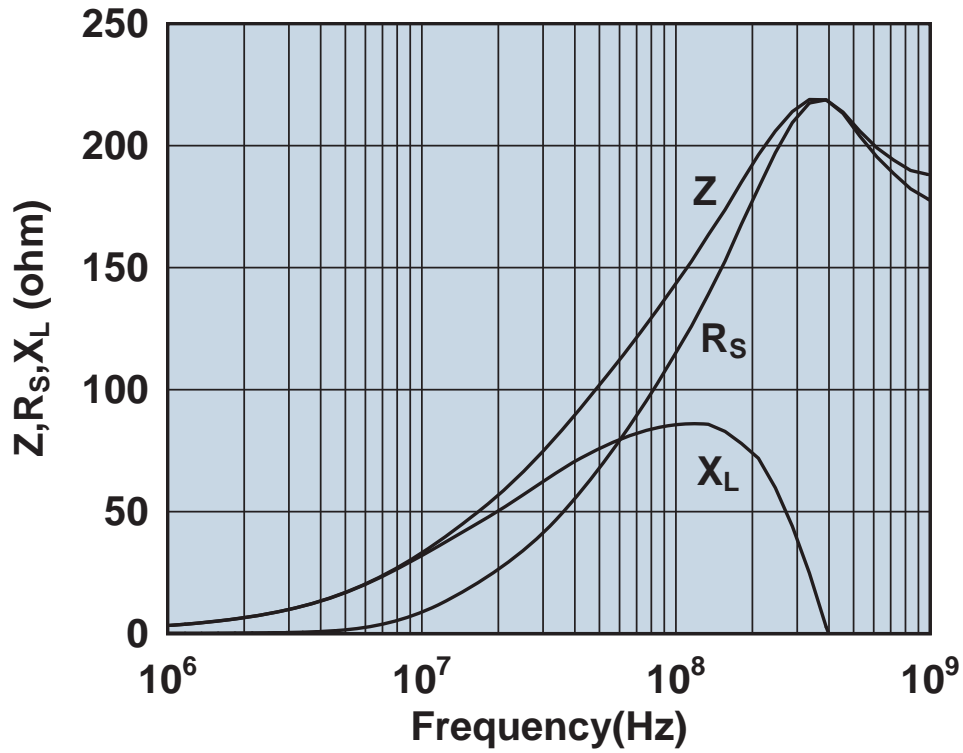


Impedance, reactance, and resistance vs. frequency.

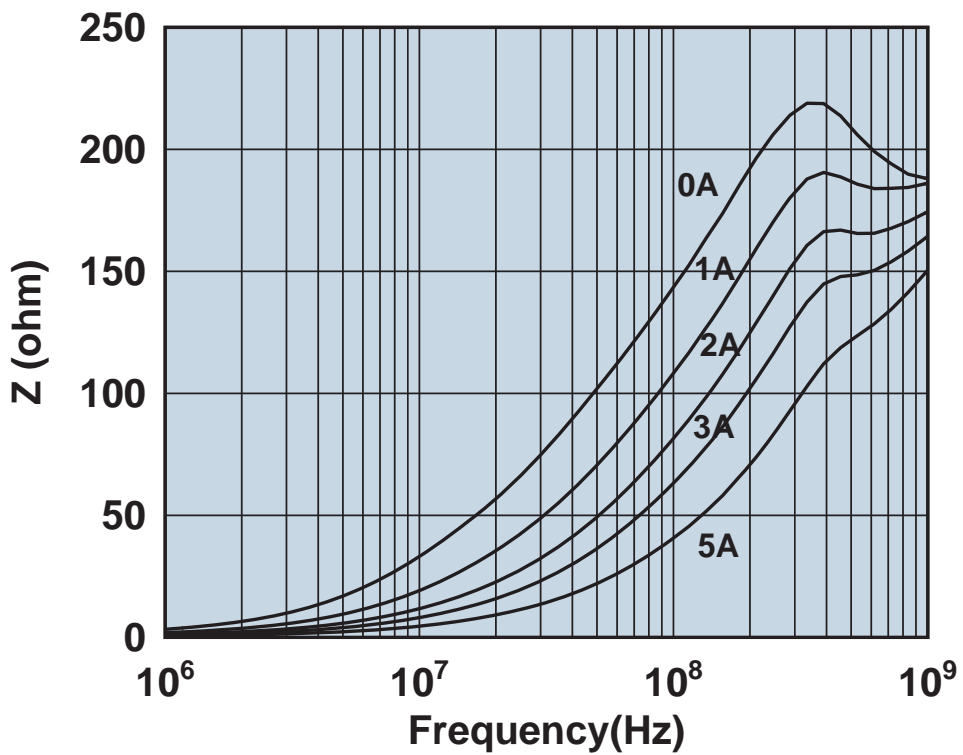


Impedance vs. frequency with dc bias.

2752788147

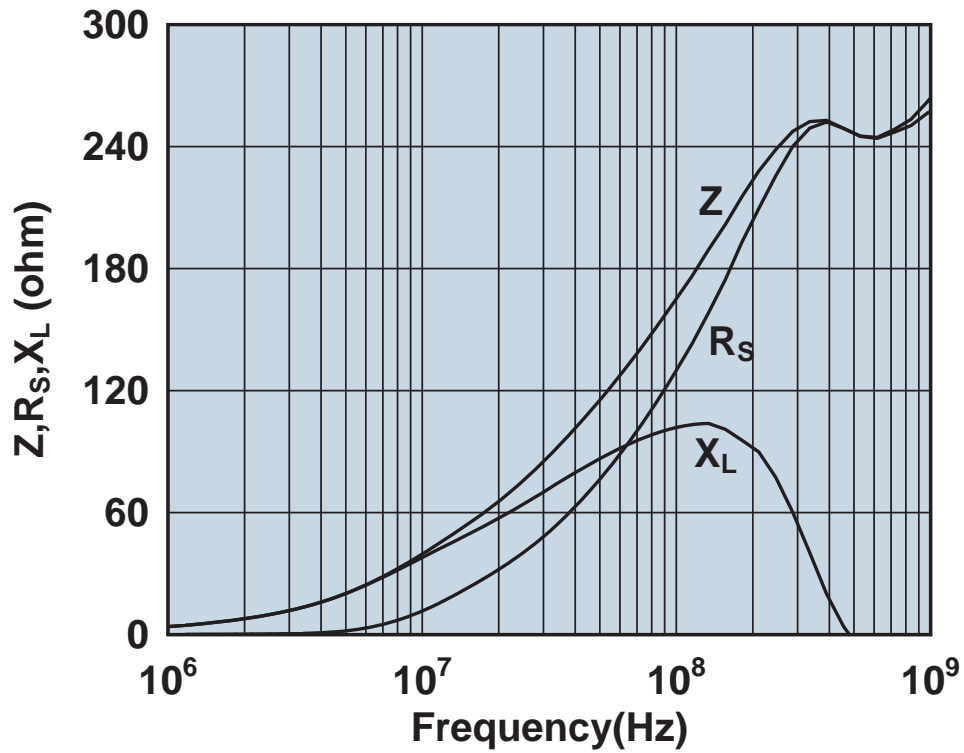


Impedance, reactance, and resistance vs. frequency.

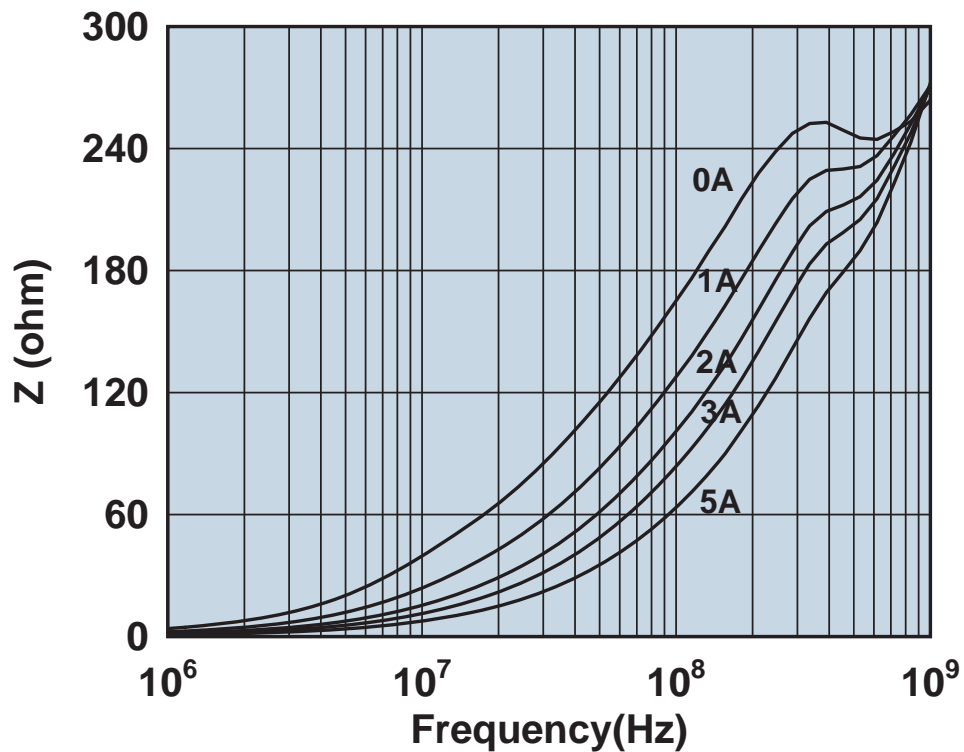


Impedance vs. frequency with dc bias.

2752788347

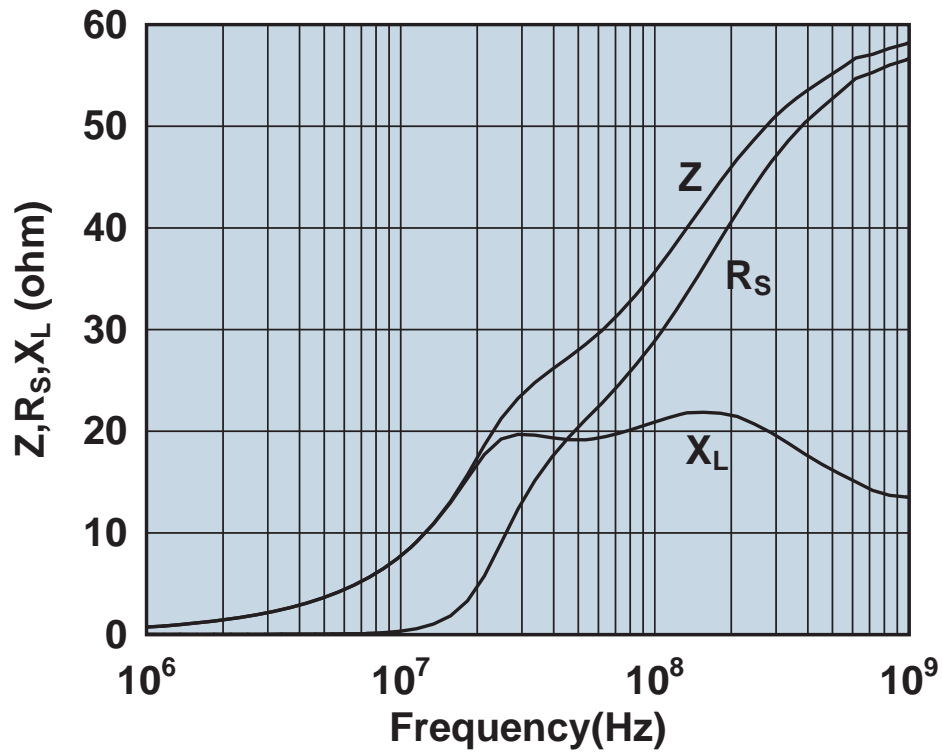


Impedance, reactance, and resistance vs. frequency.

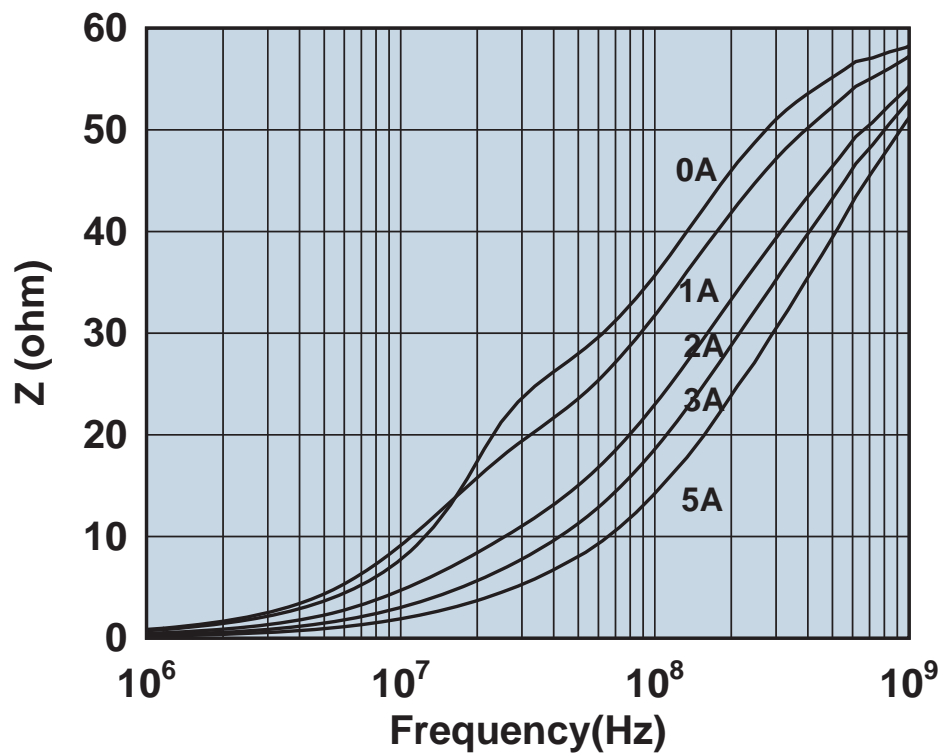


Impedance vs. frequency with dc bias.

2761019447

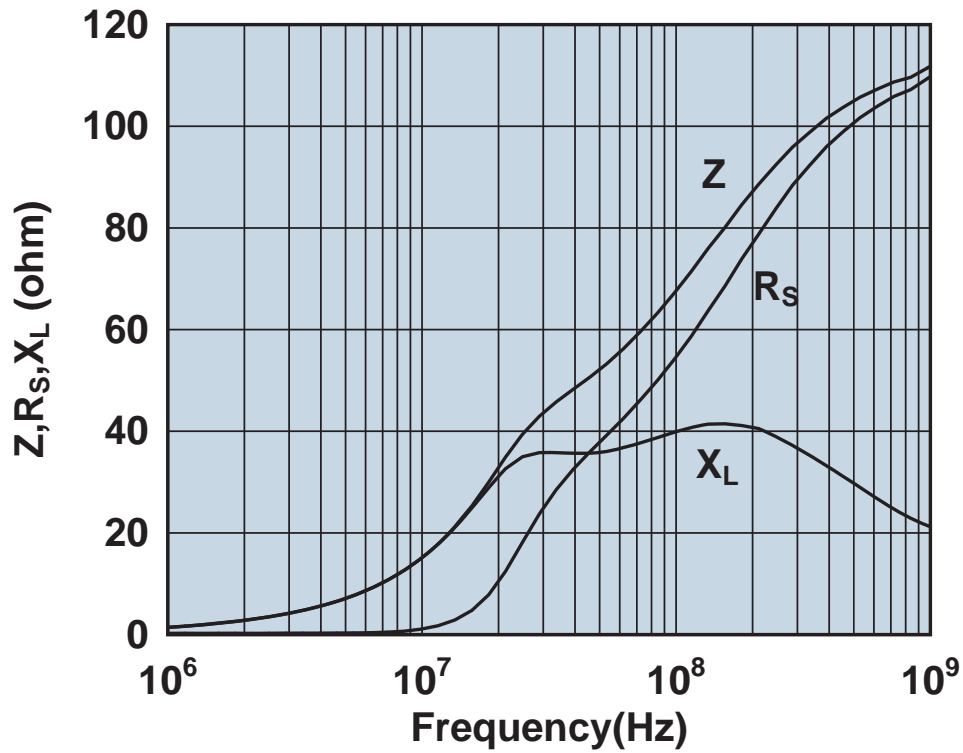


Impedance, reactance, and resistance vs. frequency.

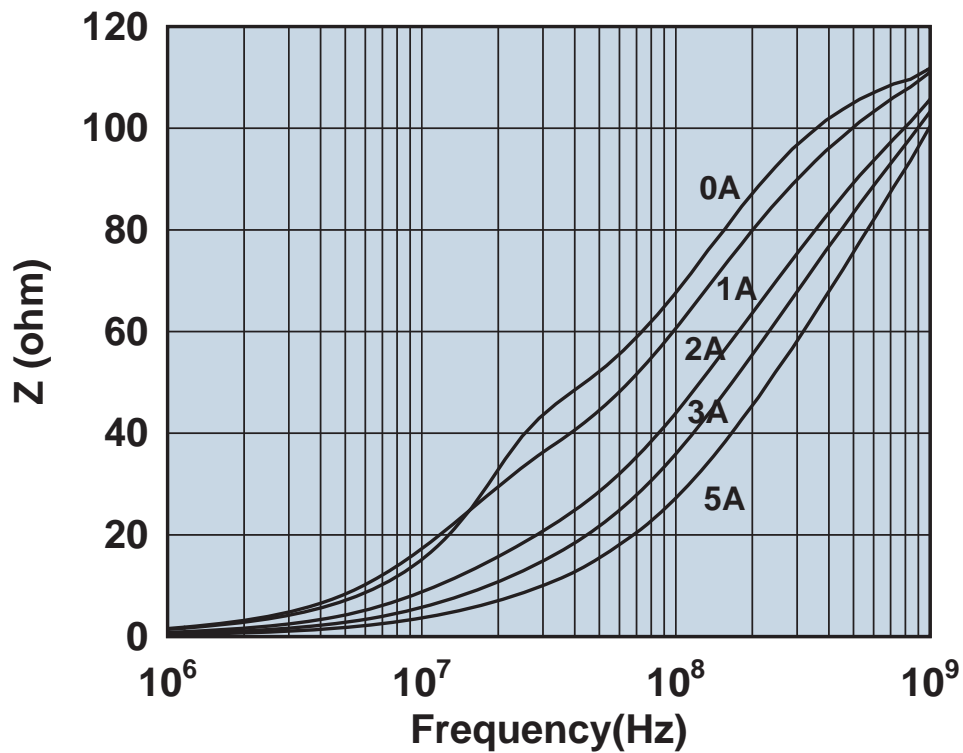


Impedance vs. frequency with dc bias.

2761021447

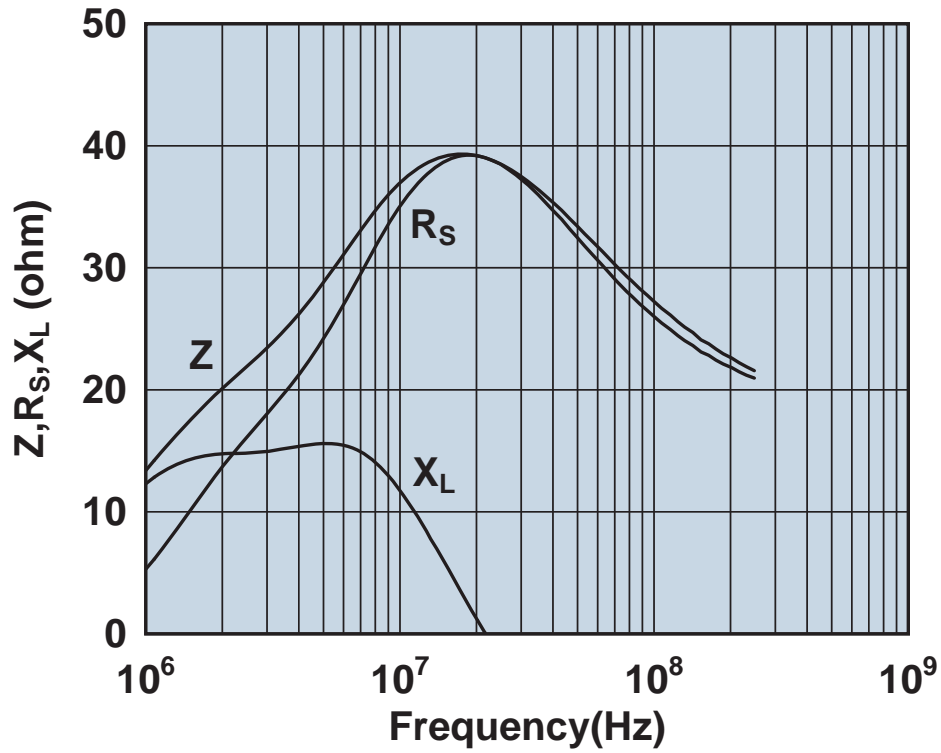


Impedance, reactance, and resistance vs. frequency.

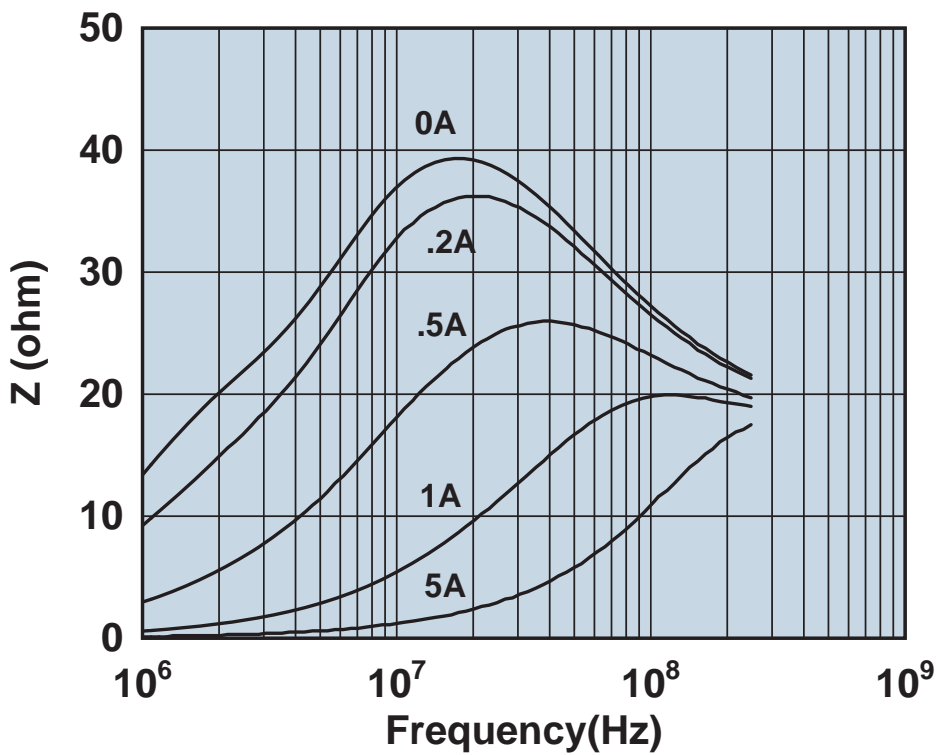


Impedance vs. frequency with dc bias.

2773019447

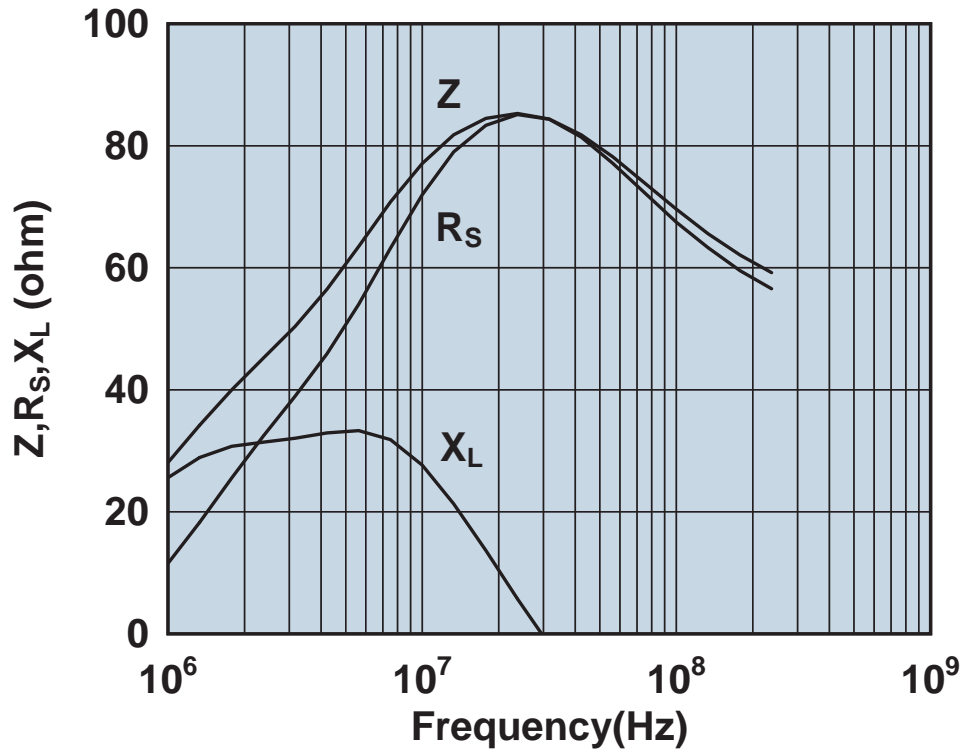


Impedance, reactance, and resistance vs. frequency.

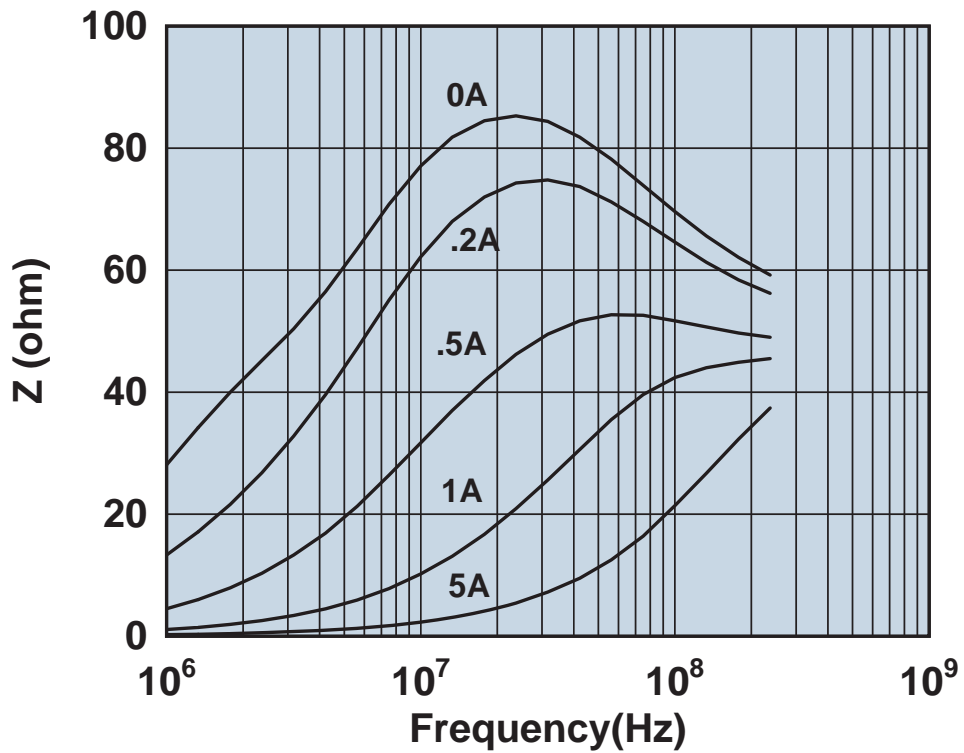


Impedance vs. frequency with dc bias.

2773021447



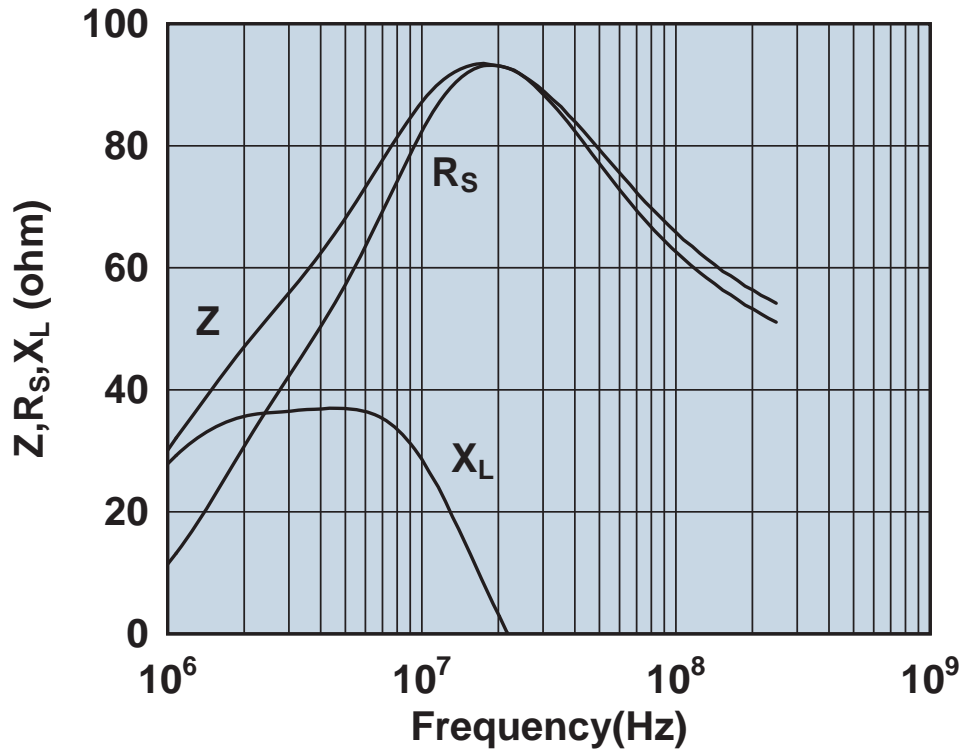
Impedance, reactance, and resistance vs. frequency.



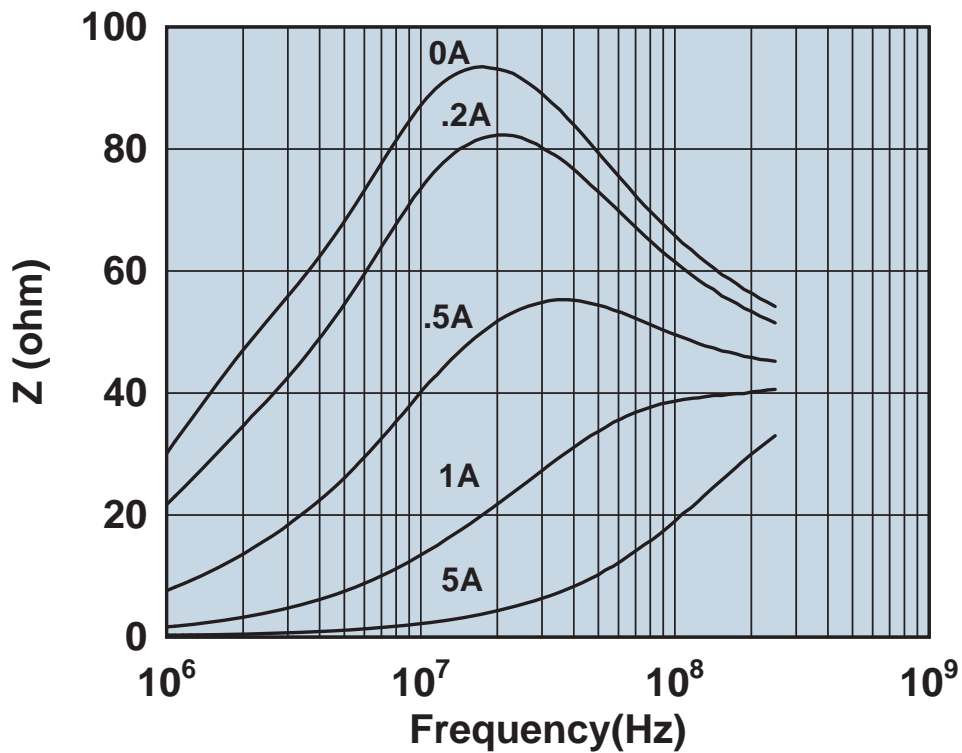
Impedance vs. frequency with dc bias.



2773037447

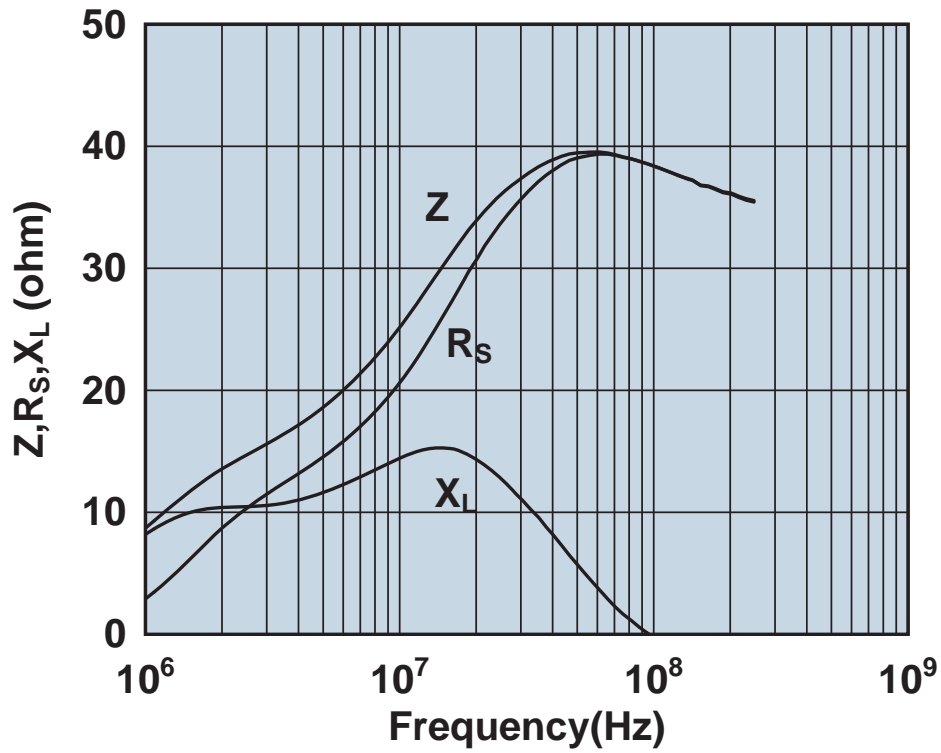


Impedance, reactance, and resistance vs. frequency.

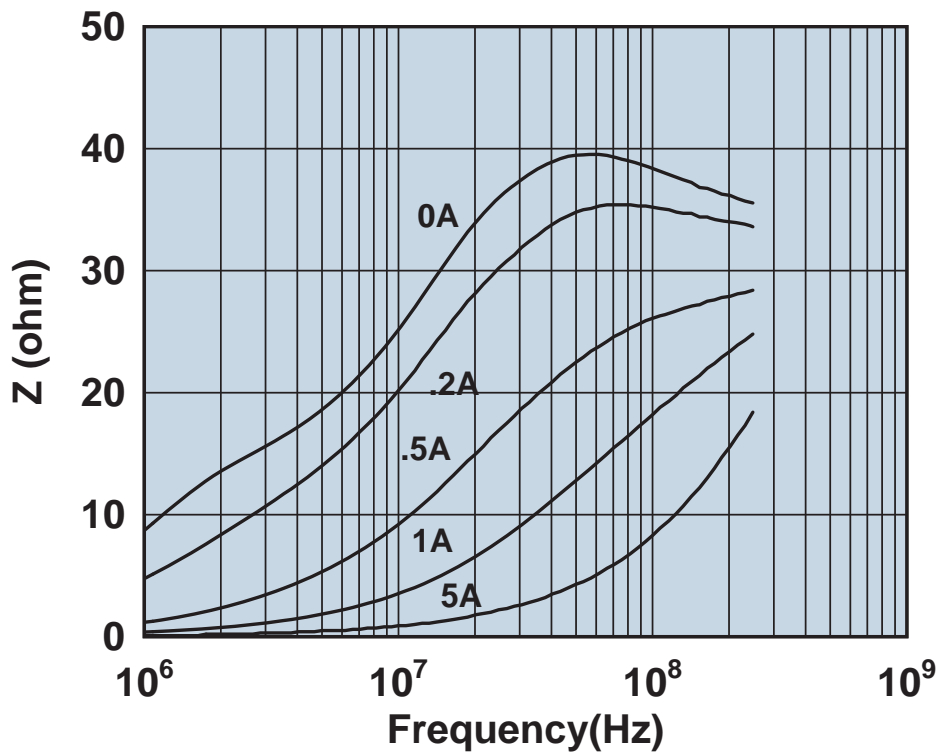


Impedance vs. frequency with dc bias.

277304447

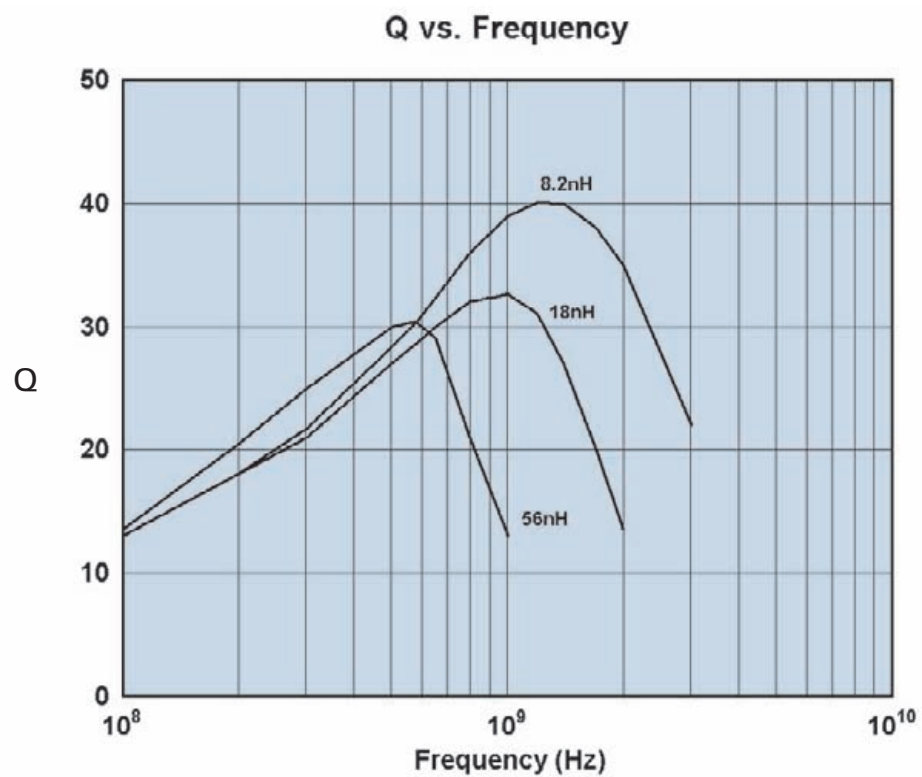
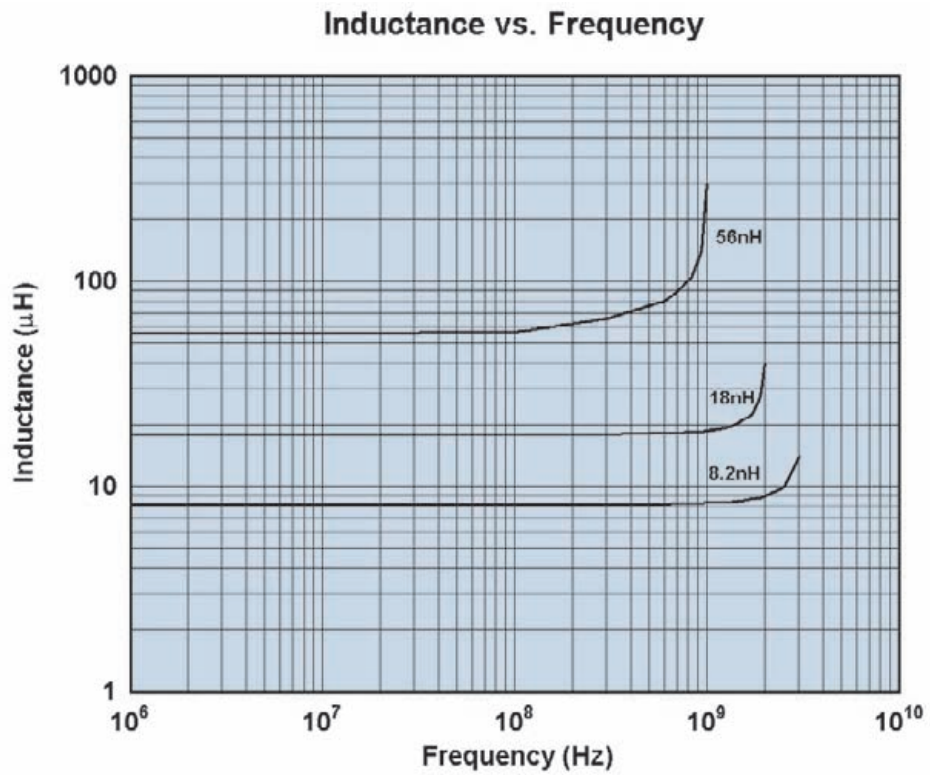


Impedance, reactance, and resistance vs. frequency.

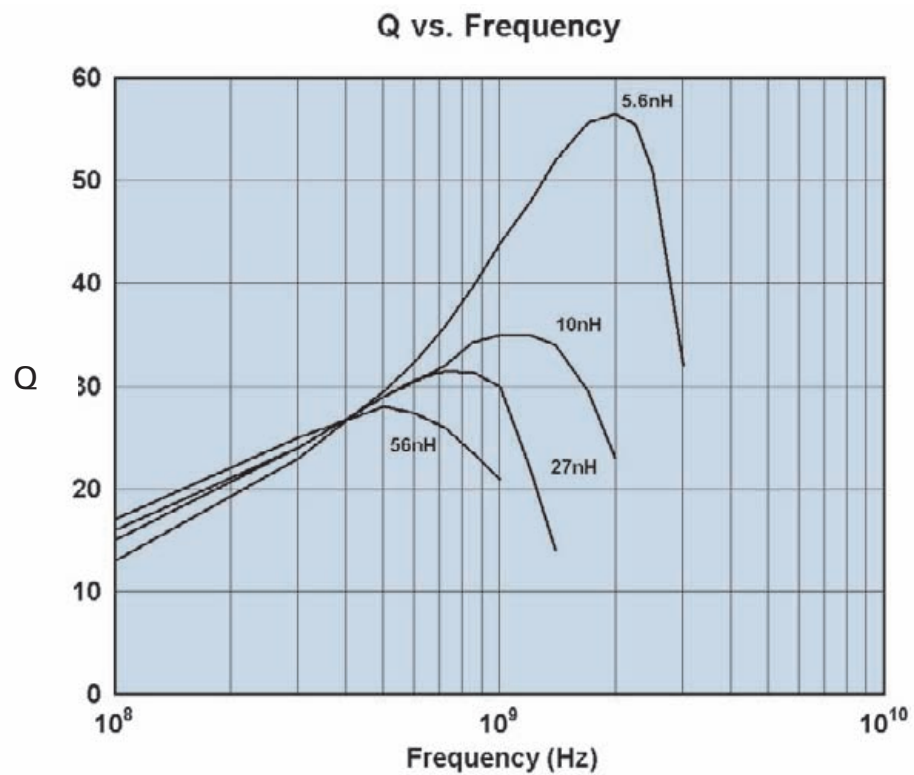
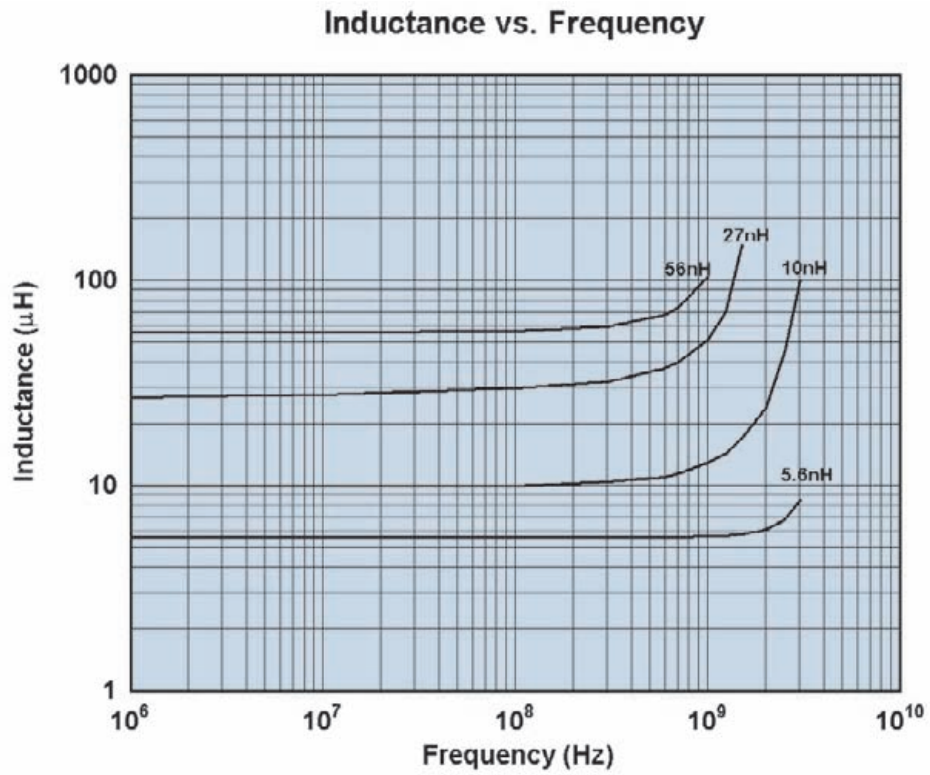


Impedance vs. frequency with dc bias.

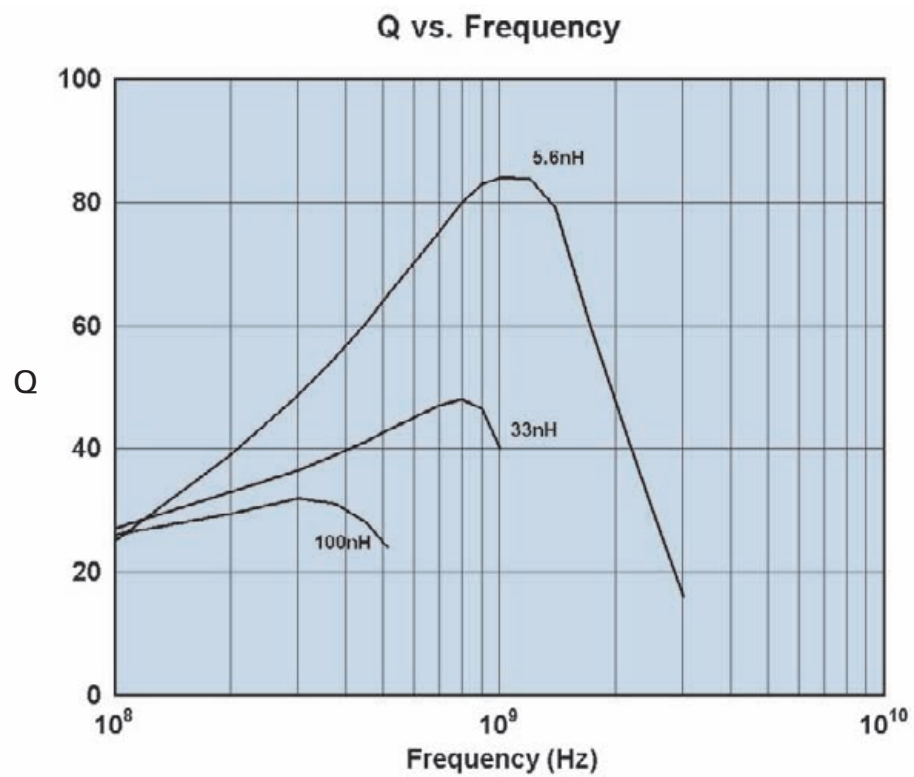
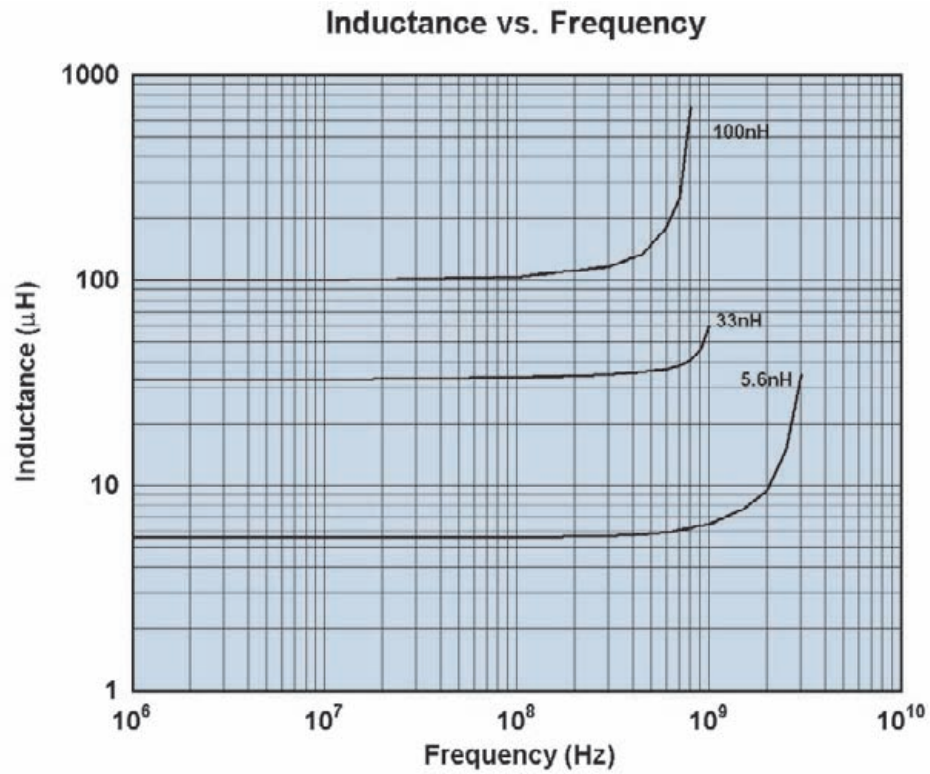
# Typical 0402 Chip Inductors (Ceramic)



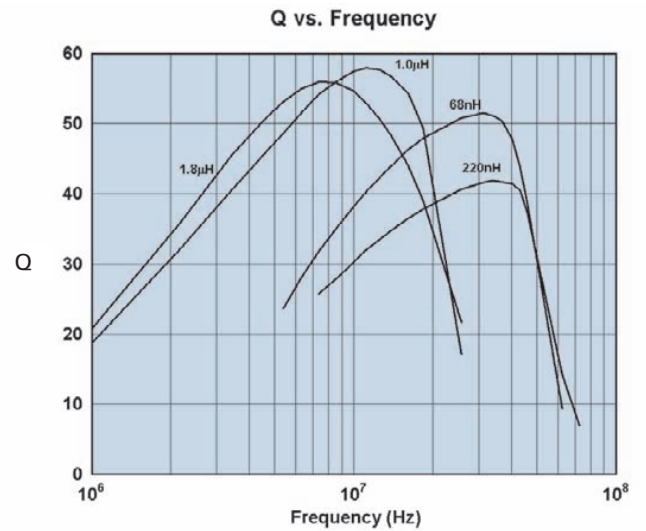
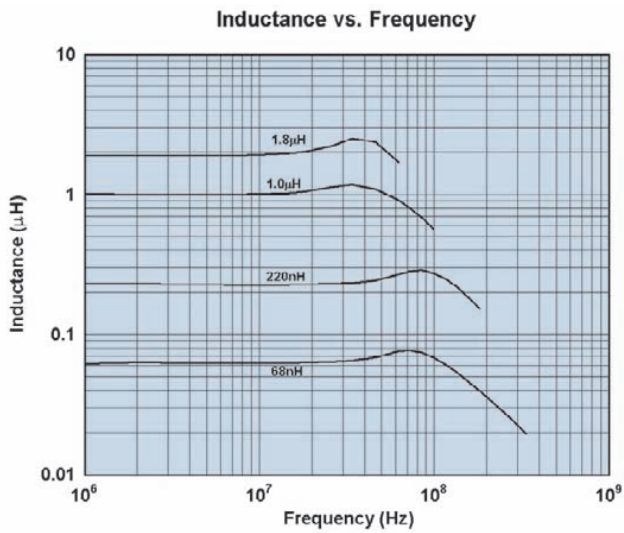
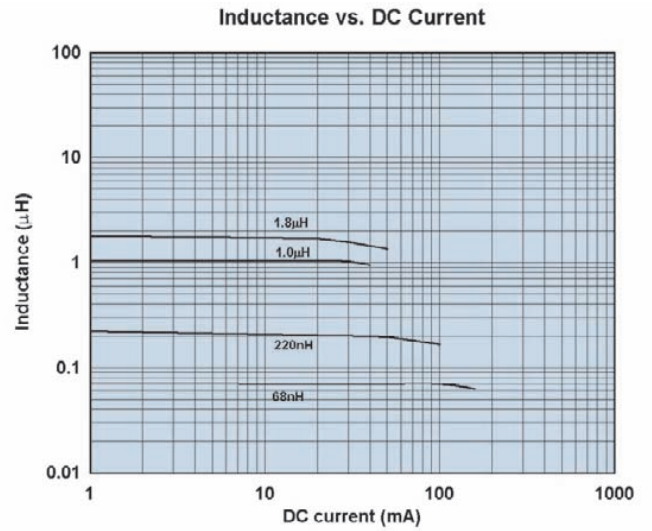
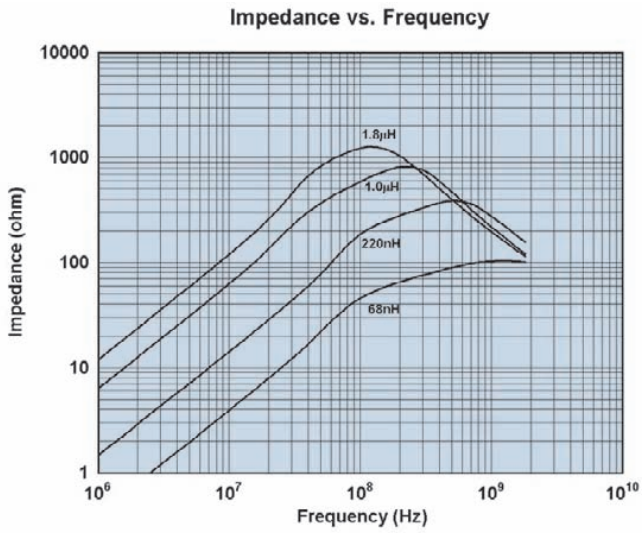
# Typical 0603 Chip Inductors (Ceramic)



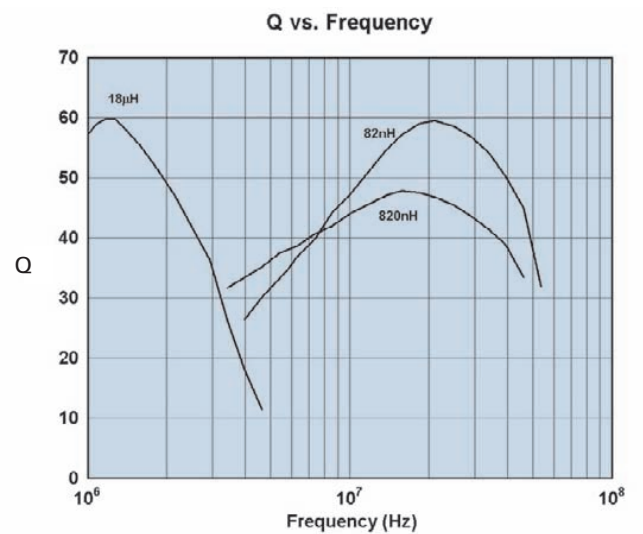
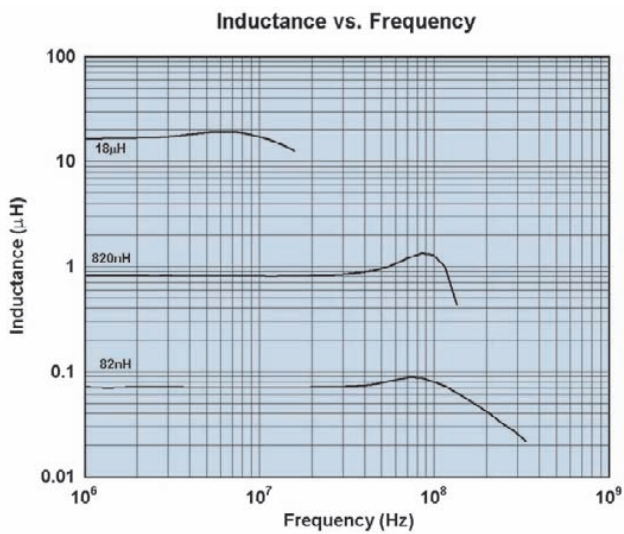
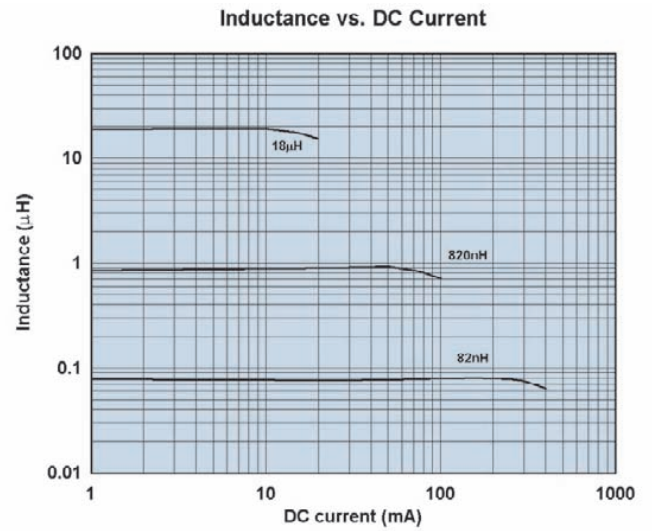
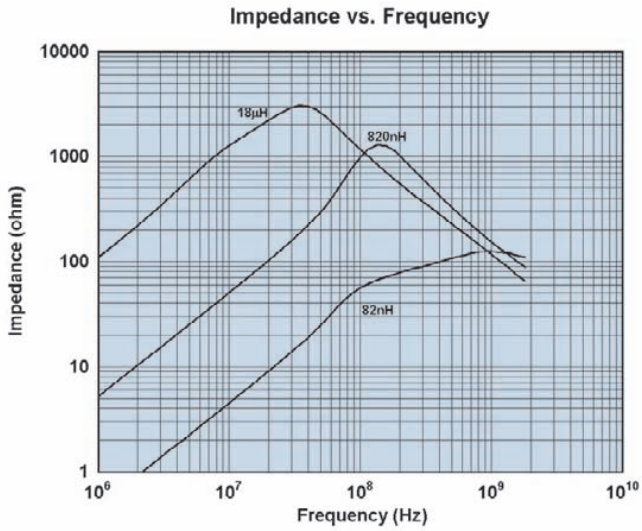
# Typical 0805 Chip Inductors (Ceramic)



## Typical 0603 Chip Inductors (Ferrite)



## Typical 0805 Chip Inductors (Ferrite)



## Typical 1206 Chip Inductors (Ferrite)

