



## CRFB SERIES

## HIGH RELIABILITY FERRITE BEADS



RoHS VERSION AVAILABLE

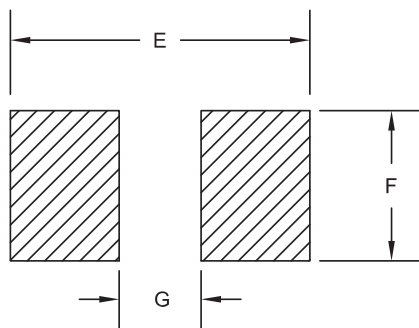
COTS+

## ELECTRICAL SPECIFICATIONS

- **Operating Temperature:**  $-55^{\circ}\text{C}$  to  $+130^{\circ}\text{C}$
- **Storage Temperature:**  $-55^{\circ}\text{C}$  to  $+130^{\circ}\text{C}$
- **Impedance tolerances available:**  
 $\pm 25\%$ ,  $\pm 20\%$ ,  $\pm 10\%$ ,  $\pm 5\%$   
 (Consult factory for 5% and 10% availability)
- **Closed, linear magnetic path to avoid crosstalk**

## FEATURES

- **Compact**, low profile, ideal for automatic placement
- **Terminations:** Tin-lead (over nickel)
- **Surface Mount Technology**
- **Moisture, Shock and Immersion Resistant**
- **Resistance to Soldering Heat:**  $265^{\circ}\text{C}$  for 10 secs

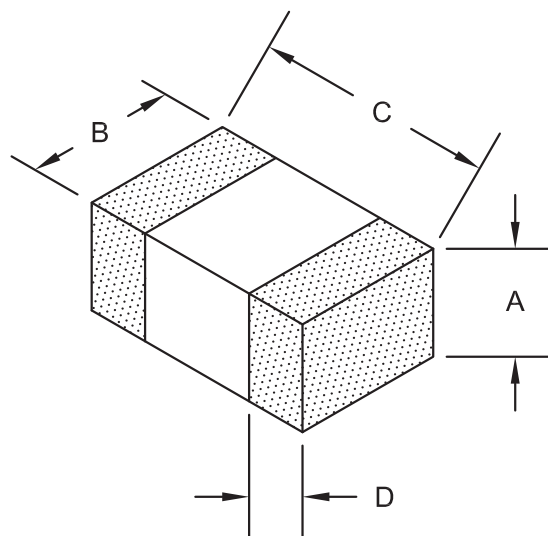
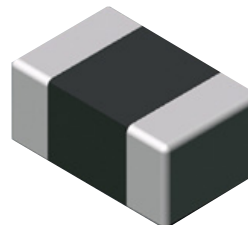


RECOMMENDED PAD LAYOUT

| Package | E               | F               | G               |
|---------|-----------------|-----------------|-----------------|
| 0603    | 0.102<br>(2.60) | 0.031<br>(0.80) | 0.023<br>(0.60) |
| 0805    | 0.118<br>(3.00) | 0.039<br>(1.00) | 0.039<br>(1.00) |
| 1206    | 0.173<br>(4.40) | 0.055<br>(1.40) | 0.086<br>(2.20) |

Dimensions are in inches (mm).

| Impedance ( $\Omega$ ) | DCR max ( $\Omega$ ) | Current Rating max (A) |
|------------------------|----------------------|------------------------|
| 10 to 2000             | 0.055 to 1.5         | 0.1 to 10              |



| Package | A                                        | B                                        | C                                        | D                                        |
|---------|------------------------------------------|------------------------------------------|------------------------------------------|------------------------------------------|
| 0603    | $0.031 \pm 0.006$<br>( $0.80 \pm 0.15$ ) | $0.031 \pm 0.006$<br>( $0.80 \pm 0.15$ ) | $0.063 \pm 0.006$<br>( $1.60 \pm 0.15$ ) | $0.014 \pm 0.006$<br>( $0.36 \pm 0.15$ ) |
| 0805    | $0.035 \pm 0.008$<br>( $0.90 \pm 0.20$ ) | $0.049 \pm 0.008$<br>( $1.25 \pm 0.20$ ) | $0.079 \pm 0.008$<br>( $2.00 \pm 0.20$ ) | $0.020 \pm 0.010$<br>( $0.51 \pm 0.25$ ) |
| 1206    | $0.043 \pm 0.008$<br>( $1.10 \pm 0.20$ ) | $0.063 \pm 0.008$<br>( $1.60 \pm 0.20$ ) | $0.126 \pm 0.008$<br>( $3.20 \pm 0.20$ ) | $0.020 \pm 0.010$<br>( $0.51 \pm 0.25$ ) |

Dimensions are in inches (mm).

CRFB SERIES





## DATA TABLE

| Vanguard P/N      | Impedance*<br>(Ω) | DCR<br>max<br>(Ω) | Current Rating<br>max<br>(A) | Package |
|-------------------|-------------------|-------------------|------------------------------|---------|
| CRFB0603-300**-** | 30                | 0.15              | 0.50                         | 0603    |
| CRFB0603-600**-** | 60                | 0.15              | 0.50                         | 0603    |
| CRFB0603-101**-** | 100               | 0.20              | 0.40                         | 0603    |
| CRFB0603-151**-** | 150               | 0.25              | 0.40                         | 0603    |
| CRFB0603-181**-** | 180               | 0.25              | 0.40                         | 0603    |
| CRFB0603-301**-** | 300               | 0.30              | 0.20                         | 0603    |
| CRFB0603-401**-** | 400               | 0.35              | 0.20                         | 0603    |
| CRFB0603-601**-** | 600               | 0.40              | 0.20                         | 0603    |
| CRFB0603-102**-** | 1000              | 0.60              | 0.20                         | 0603    |
| CRFB0805-300**-** | 30                | 0.02              | 4.00                         | 0805    |
| CRFB0805-500**-** | 50                | 0.08              | 2.00                         | 0805    |
| CRFB0805-600**-** | 60                | 0.15              | 1.50                         | 0805    |
| CRFB0805-700**-** | 70                | 0.15              | 1.50                         | 0805    |
| CRFB0805-101**-** | 100               | 0.20              | 1.00                         | 0805    |
| CRFB0805-121**-** | 120               | 0.20              | 1.00                         | 0805    |
| CRFB0805-151**-** | 150               | 0.20              | 1.00                         | 0805    |
| CRFB0805-221**-** | 220               | 0.20              | 1.00                         | 0805    |
| CRFB0805-331**-** | 330               | 0.25              | 1.00                         | 0805    |
| CRFB0805-471**-** | 470               | 0.25              | 1.00                         | 0805    |
| CRFB0805-601**-** | 600               | 0.30              | 1.00                         | 0805    |
| CRFB0805-102**-** | 1000              | 0.40              | 1.00                         | 0805    |
| CRFB1206-300**-** | 30                | 0.01              | 4.00                         | 1206    |
| CRFB1206-500**-** | 50                | 0.03              | 3.00                         | 1206    |
| CRFB1206-800**-** | 80                | 0.10              | 1.50                         | 1206    |
| CRFB1206-121**-** | 120               | 0.10              | 1.50                         | 1206    |
| CRFB1206-251**-** | 250               | 0.10              | 1.50                         | 1206    |
| CRFB1206-501**-** | 500               | 0.20              | 1.00                         | 1206    |
| CRFB1206-601**-** | 600               | 0.30              | 1.00                         | 1206    |

\* Impedance measured at 100 MHz

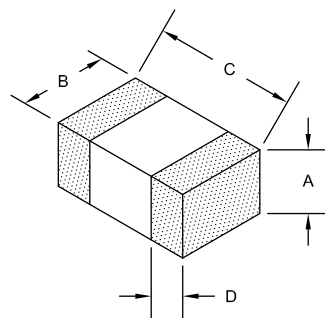
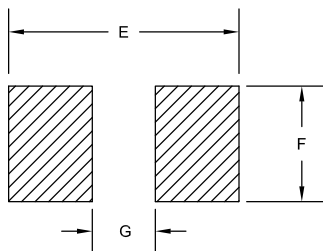
## CRFB SERIES





## ADDITIONAL VALUES AND RATINGS

RECOMMENDED PAD LAYOUT



| Package | E                | F               | G               |
|---------|------------------|-----------------|-----------------|
| 0402A   | 0.087<br>(2.20)  | 0.028<br>(0.70) | 0.016<br>(0.40) |
| 0603A   | 0.110<br>(2.80)  | 0.039<br>(1.00) | 0.024<br>(0.60) |
| 0805A   | 0.126<br>(3.20)  | 0.059<br>(1.50) | 0.024<br>(0.60) |
| 1206A   | 0.173<br>(4.40)  | 0.071<br>(1.80) | 0.047<br>(1.20) |
| 1806A   | 0.229<br>(5.82)  | 0.071<br>(1.80) | 0.079<br>(2.00) |
| 1812A   | 0.229<br>(5.82)  | 0.134<br>(3.40) | 0.079<br>(2.00) |
| 1813A   | 0.228<br>(5.80)  | 0.134<br>(3.40) | 0.079<br>(2.00) |
| 2218A   | 0.362<br>(9.20)  | 0.220<br>(5.60) | 0.118<br>(3.00) |
| 2219A   | 0.362<br>(9.20)  | 0.220<br>(5.60) | 0.118<br>(3.00) |
| 2220A   | 0.362<br>(9.20)  | 0.220<br>(5.60) | 0.118<br>(3.00) |
| 3312A   | 0.519<br>(13.20) | 0.134<br>(3.40) | 0.236<br>(6.00) |

Dimensions are in inches (mm).

| Package | A                              | B                              | C                              | D                              |
|---------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| 0402A   | 0.020 ± 0.002<br>(0.50 ± 0.05) | 0.020 ± 0.002<br>(0.50 ± 0.05) | 0.040 ± 0.002<br>(1.00 ± 0.05) | 0.010 ± 0.006<br>(0.25 ± 0.15) |
| 0603A   | 0.031 ± 0.006<br>(0.80 ± 0.15) | 0.031 ± 0.006<br>(0.80 ± 0.15) | 0.063 ± 0.006<br>(1.60 ± 0.15) | 0.016 ± 0.008<br>(0.40 ± 0.20) |
| 0805A   | 0.035 ± 0.008<br>(0.90 ± 0.20) | 0.049 ± 0.008<br>(1.25 ± 0.20) | 0.079 ± 0.008<br>(2.00 ± 0.20) | 0.020 ± 0.012<br>(0.50 ± 0.30) |
| 1206A   | 0.043 ± 0.008<br>(1.10 ± 0.20) | 0.063 ± 0.008<br>(1.60 ± 0.20) | 0.126 ± 0.008<br>(3.20 ± 0.20) | 0.028 ± 0.012<br>(0.70 ± 0.30) |
| 1806A   | 0.063 ± 0.008<br>(1.60 ± 0.20) | 0.063 ± 0.008<br>(1.60 ± 0.20) | 0.177 ± 0.008<br>(4.5 ± 0.20)  | 0.028 ± 0.012<br>(0.70 ± 0.30) |
| 1812A   | 0.059 ± 0.008<br>(1.50 ± 0.20) | 0.126 ± 0.008<br>(3.20 ± 0.20) | 0.177 ± 0.008<br>(4.5 ± 0.20)  | 0.028 ± 0.012<br>(0.70 ± 0.30) |
| 1813A   | 0.091 ± 0.010<br>(2.30 ± 0.25) | 0.126 ± 0.010<br>(3.20 ± 0.25) | 0.177 ± 0.010<br>(4.5 ± 0.25)  | 0.028 ± 0.012<br>(0.70 ± 0.30) |
| 2218A   | 0.071 ± 0.010<br>(1.80 ± 0.25) | 0.200 ± 0.010<br>(5.08 ± 0.25) | 0.220 ± 0.020<br>(5.59 ± 0.51) | 0.030 ± 0.014<br>(0.76 ± 0.35) |
| 2219A   | 0.078 ± 0.010<br>(1.97 ± 0.25) | 0.200 ± 0.010<br>(5.08 ± 0.25) | 0.220 ± 0.020<br>(5.59 ± 0.51) | 0.030 ± 0.014<br>(0.76 ± 0.35) |
| 2220A   | 0.126 ± 0.010<br>(3.20 ± 0.25) | 0.200 ± 0.010<br>(5.08 ± 0.25) | 0.220 ± 0.020<br>(5.59 ± 0.51) | 0.030 ± 0.014<br>(0.76 ± 0.35) |
| 3312A   | 0.090 ± 0.008<br>(2.28 ± 0.20) | 0.120 ± 0.008<br>(3.05 ± 0.20) | 0.335 ± 0.008<br>(8.5 ± 0.20)  | 0.043 ± 0.016<br>(1.09 ± 0.40) |

Dimensions are in inches (mm).

CRFB SERIES





## DATA TABLE

| Vanguard P/N      | Impedance*<br>(Ω) | DCR<br>max<br>(Ω) | Current Rating<br>max<br>(A) | Package |
|-------------------|-------------------|-------------------|------------------------------|---------|
| CRFB0402A-100**-* | 10                | 0.055             | 0.5                          | 0402A   |
| CRFB0402A-600**-* | 60                | 0.5               | 0.2                          | 0402A   |
| CRFB0402A-121**-* | 120               | 0.6               | 0.2                          | 0402A   |
| CRFB0402A-301**-* | 300               | 0.8               | 0.1                          | 0402A   |
| CRFB0402A-471**-* | 470               | 1.3               | 0.25                         | 0402A   |
| CRFB0402A-601**-* | 600               | 1.2               | 0.05                         | 0402A   |
| CRFB0402A-102**-* | 1000              | 1.6               | 0.05                         | 0402A   |
| CRFB0603A-070**-* | 7                 | 0.12              | 0.9                          | 0603A   |
| CRFB0603A-100**-* | 10                | 0.12              | 0.9                          | 0603A   |
| CRFB0603A-300**-* | 30                | 0.041             | 3                            | 0603A   |
| CRFB0603A-600**-* | 60                | 0.041             | 3                            | 0603A   |
| CRFB0603A-800**-* | 80                | 0.18              | 0.4                          | 0603A   |
| CRFB0603A-101**-* | 100               | 0.18              | 0.4                          | 0603A   |
| CRFB0603A-121**-* | 120               | 0.06              | 2                            | 0603A   |
| CRFB0603A-151**-* | 150               | 0.18              | 0.4                          | 0603A   |
| CRFB0603A-221**-* | 220               | 0.85              | 2                            | 0603A   |
| CRFB0603A-301**-* | 300               | 0.31              | 0.4                          | 0603A   |
| CRFB0603A-331**-* | 330               | 0.125             | 0.05                         | 0603A   |
| CRFB0603A-601**-* | 600               | 0.14              | 2                            | 0603A   |
| CRFB0603A-102**-* | 1000              | 0.58              | 0.3                          | 0603A   |
| CRFB0805A-110**-* | 11                | 0.11              | 0.3                          | 0805A   |
| CRFB0805A-300**-* | 30                | 0.11              | 0.3                          | 0805A   |
| CRFB0805A-500**-* | 50                | 0.16              | 0.3                          | 0805A   |
| CRFB0805A-600**-* | 60                | 0.031             | 3                            | 0805A   |
| CRFB0805A-900**-* | 90                | 0.021             | 6                            | 0805A   |
| CRFB0805A-101**-* | 100               | 0.16              | 0.3                          | 0805A   |
| CRFB0805A-121**-* | 120               | 0.21              | 0.3                          | 0805A   |
| CRFB0805A-181**-* | 180               | 0.027             | 6                            | 0805A   |
| CRFB0805A-221**-* | 220               | 0.052             | 3                            | 0805A   |
| CRFB0805A-301**-* | 300               | 0.21              | 0.3                          | 0805A   |
| CRFB0805A-601**-* | 600               | 0.1               | 2                            | 0805A   |
| CRFB0805A-102**-* | 1000              | 0.32              | 1                            | 0805A   |
| CRFB0805A-152**-* | 1500              | 0.71              | 0.3                          | 0805A   |
| CRFB0805A-202**-* | 2000              | 0.35              | 1                            | 0805A   |
| CRFB1206A-300**-* | 30                | 0.031             | 3                            | 1206A   |
| CRFB1206A-500**-* | 50                | 0.0085            | 6                            | 1206A   |
| CRFB1206A-700**-* | 70                | 0.042             | 3                            | 1206A   |
| CRFB1206A-900**-* | 90                | 0.017             | 0.3                          | 1206A   |
| CRFB1206A-101**-* | 100               | 0.021             | 0.45                         | 1206A   |
| CRFB1206A-121**-* | 120               | 0.028             | 5                            | 1206A   |

\*Impedance measured at 100 MHz

\*\*Impedance measured at 30 MHz

## CRFB SERIES





## DATA TABLE

| Vanguard P/N       | Impedance*<br>(Ω) | DCR<br>max<br>(Ω) | Current Rating<br>max<br>(A) | Package |
|--------------------|-------------------|-------------------|------------------------------|---------|
| CRFB1206A-151**-** | 150               | 0.053             | 3                            | 1206A   |
| CRFB1206A-301**-** | 300               | 0.06              | 3                            | 1206A   |
| CRFB1206A-601**-** | 600               | 0.22              | 1                            | 1206A   |
| CRFB1206A-102**-** | 1000              | 0.31              | 1                            | 1206A   |
| CRFB1206A-152**-** | 1500              | 0.4               | 0.35                         | 1206A   |
| CRFB1206A-202**-** | 2000**            | 0.62              | 0.2                          | 1206A   |
| CRFB1806A-500**-** | 50                | 0.011             | 6                            | 1806A   |
| CRFB1806A-600**-** | 60                | 0.045             | 3                            | 1806A   |
| CRFB1806A-800**-** | 80                | 0.045             | 3                            | 1806A   |
| CRFB1806A-101**-** | 100               | 0.023             | 6                            | 1806A   |
| CRFB1806A-151**-** | 150               | 0.51              | 0.2                          | 1806A   |
| CRFB1812A-700**-** | 70                | 0.045             | 3                            | 1812A   |
| CRFB1812A-121**-** | 120               | 0.025             | 6                            | 1812A   |
| CRFB1813A-101**-** | 100               | 0.008             | 8                            | 1813A   |
| CRFB2218A-181**-** | 180               | 0.045             | 5                            | 2218A   |
| CRFB2219A-551**-** | 550               | 0.038             | 4                            | 2219A   |
| CRFB2220A-271**-** | 270               | 0.038             | 4                            | 2220A   |
| CRFB3312A-101**-** | 100               | 0.035             | 10.00                        | 3312A   |

\*Impedance measured at 100 MHz

\*\*Impedance measured at 30 MHz

### VE PART NUMBER STRUCTURE KEY

EXAMPLE: CRFB0603-300KS-1-T

#### IMPEDANCE (Ω)

The first two digits are significant. The last digit specifies zeros to follow:

300 = 30 Ohms  
301 = 300 Ohms

#### TOLERANCE (%)

|   |      |
|---|------|
| J | ± 5  |
| K | ± 10 |
| M | ± 20 |
| P | ± 25 |

Consult factory for availability on 5% and 10%

#### TERMINATION

|   |          |
|---|----------|
| S | SnPb     |
| R | Pure Tin |

#### RELIABILITY

|   |       |
|---|-------|
| 1 | COTS  |
| 7 | Other |

#### PACKAGING (Default Bulk)

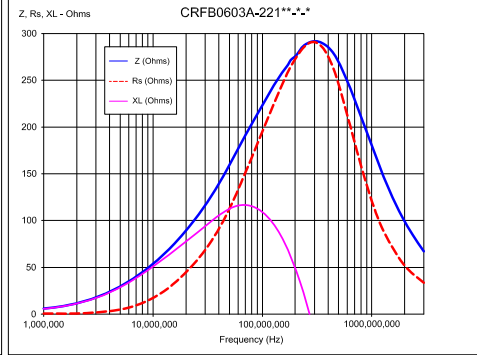
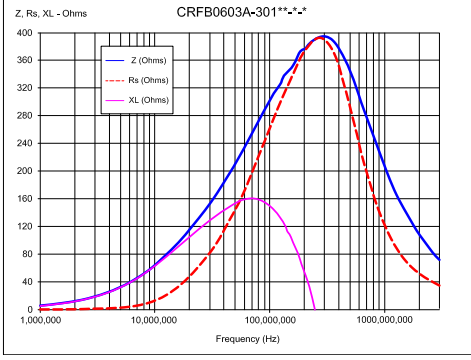
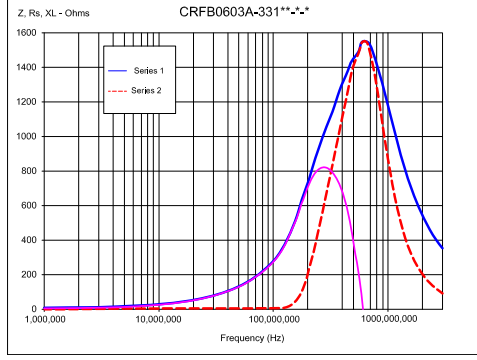
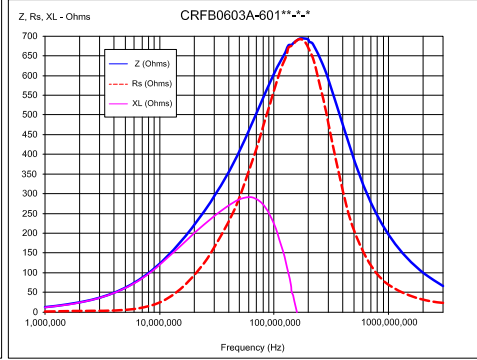
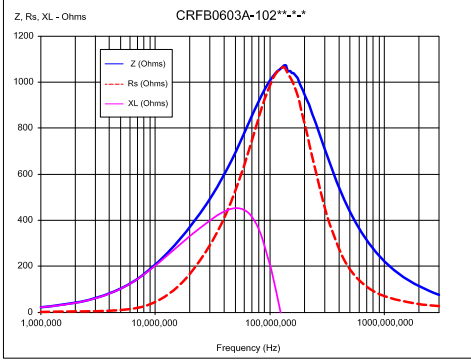
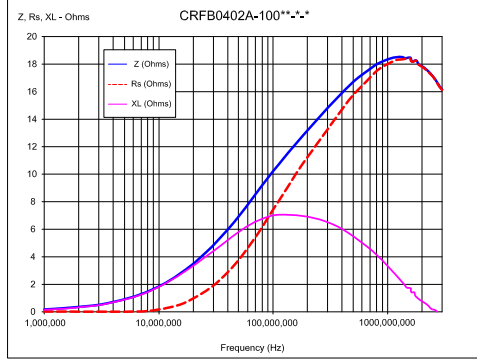
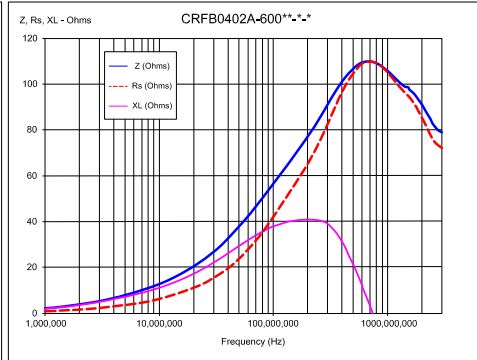
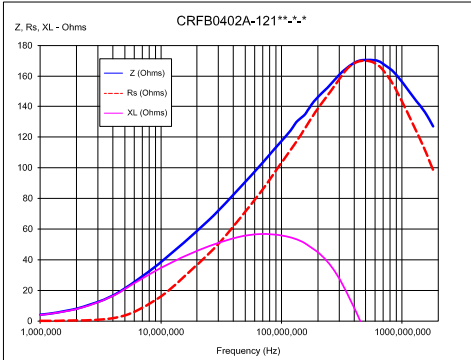
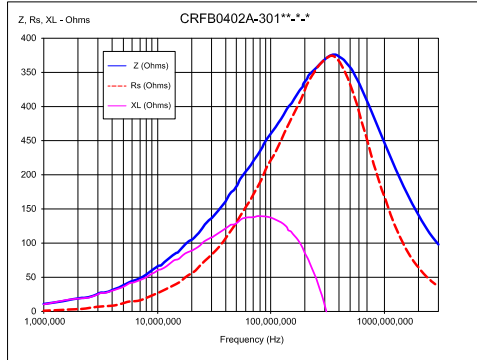
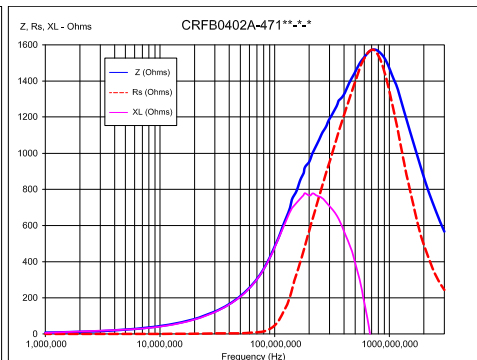
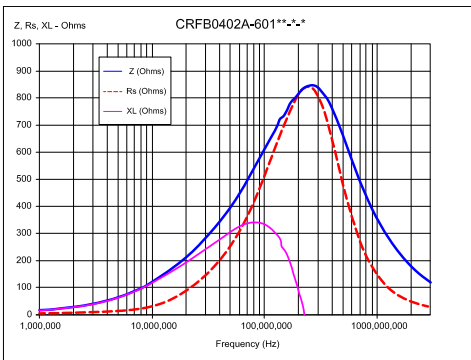
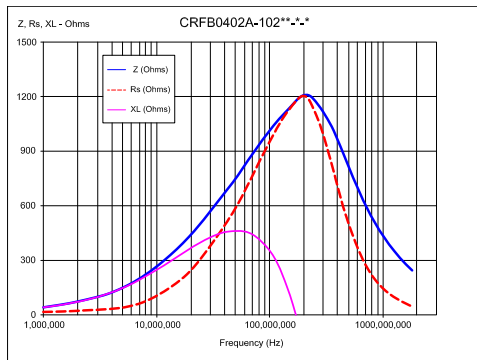
|   |               |
|---|---------------|
| B | Bulk          |
| T | Tape and Reel |

## CRFB SERIES





## DATA CURVES

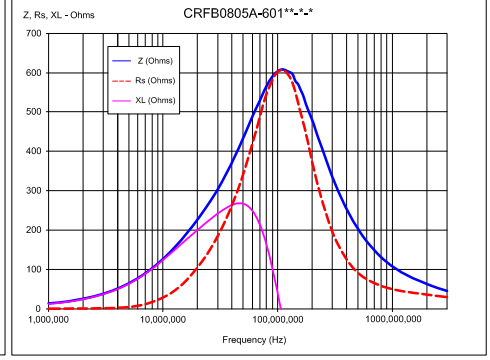
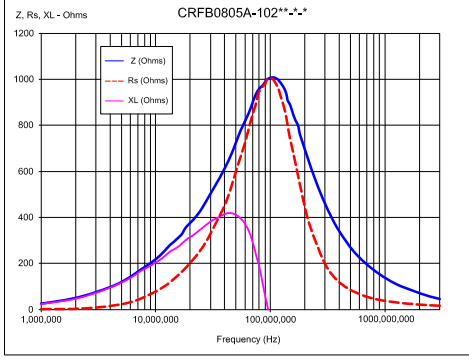
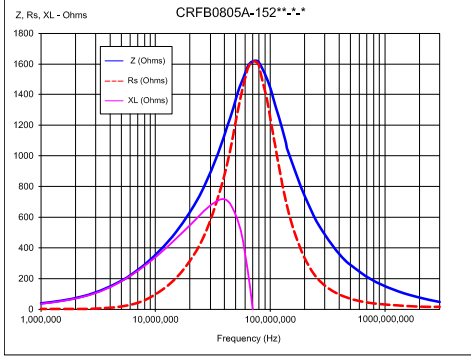
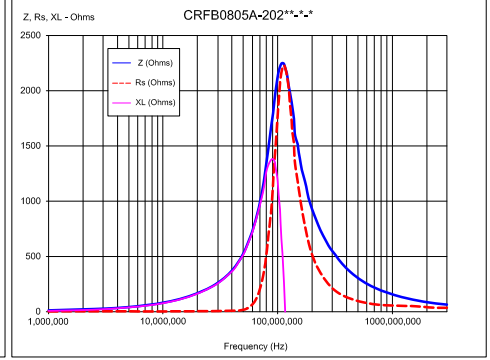
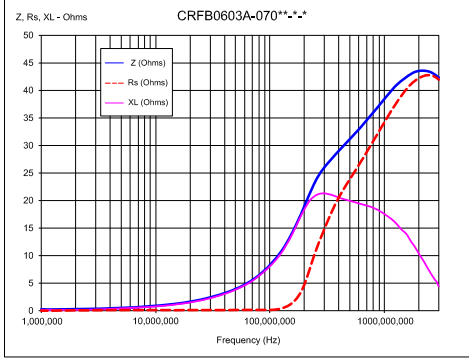
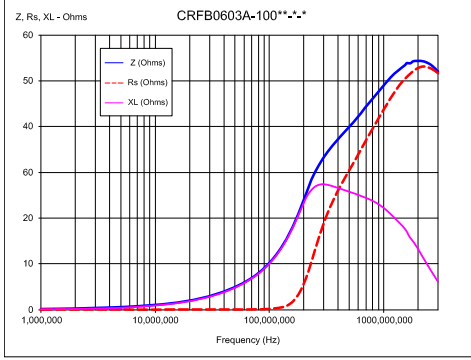
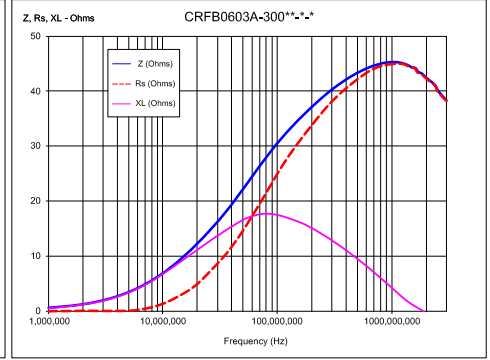
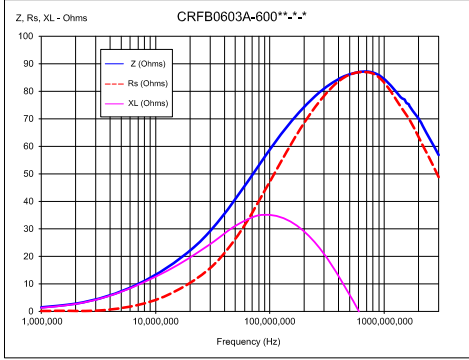
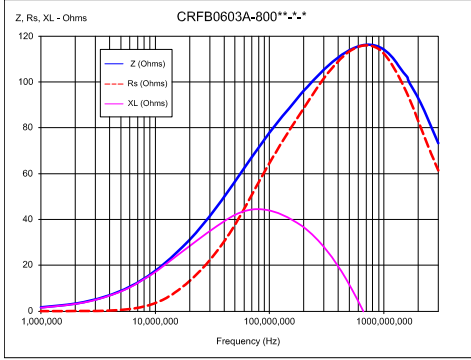
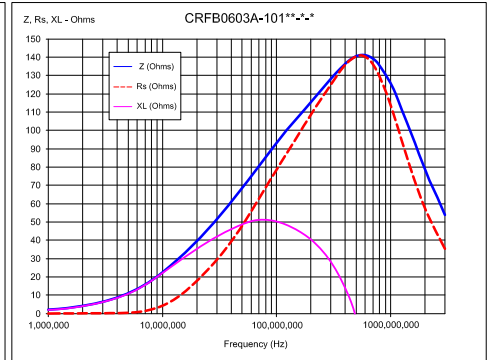
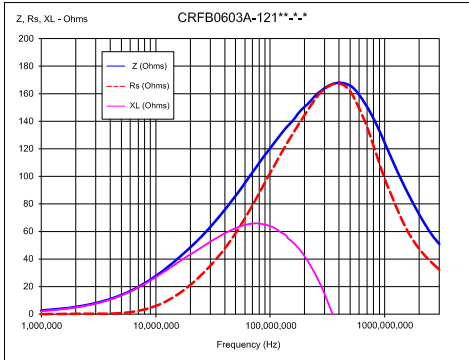
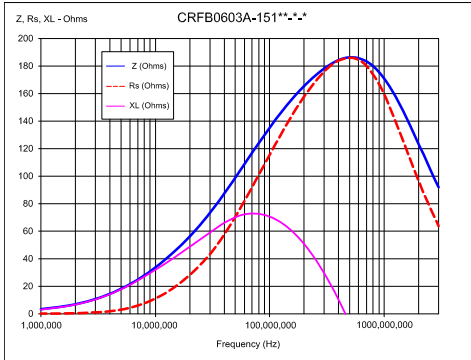


## CRFB SERIES





## DATA CURVES

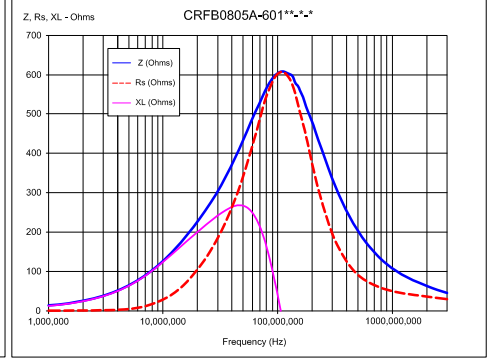
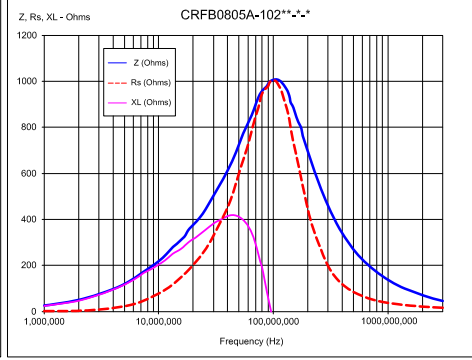
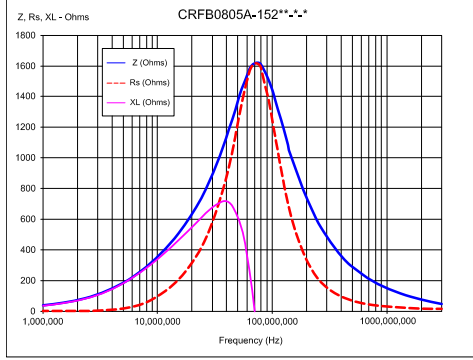
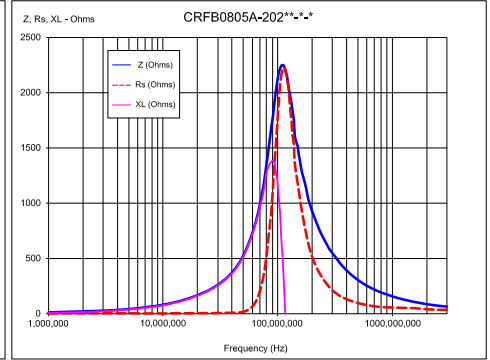
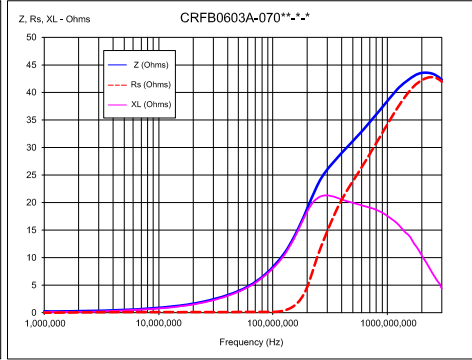
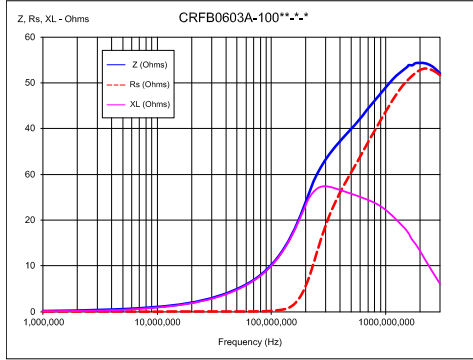
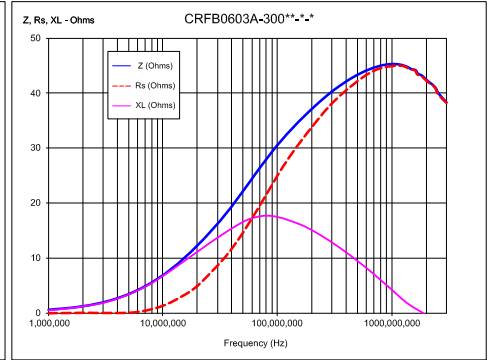
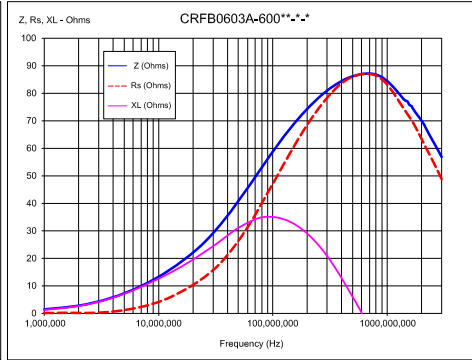
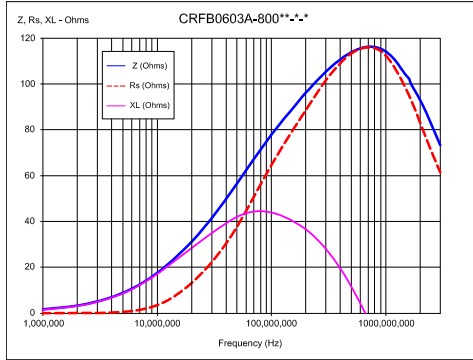
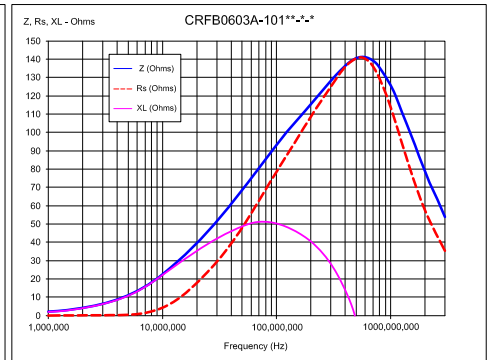
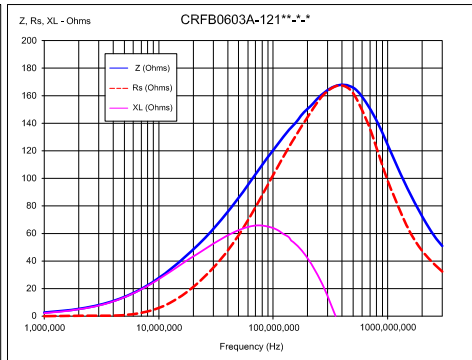
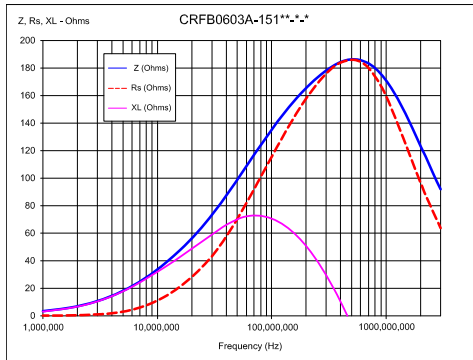


## CRFB SERIES





## DATA CURVES

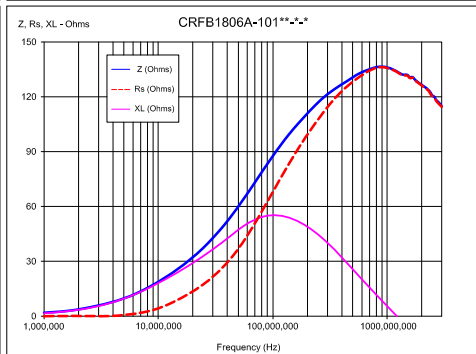
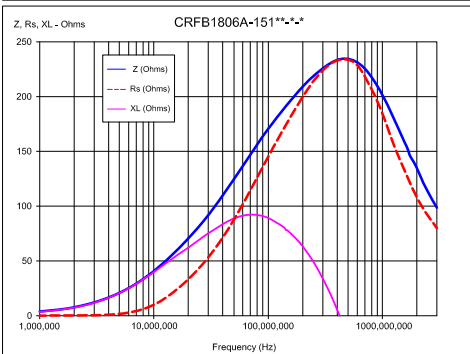
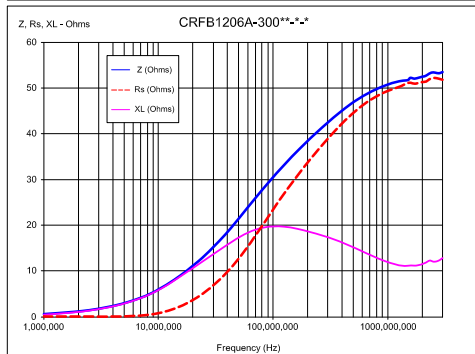
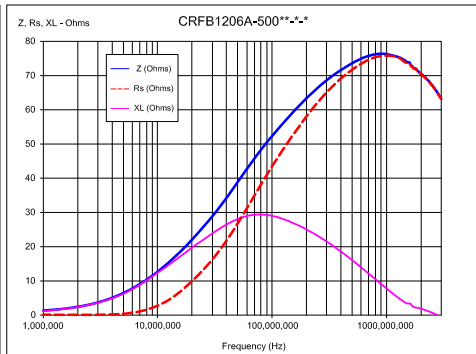
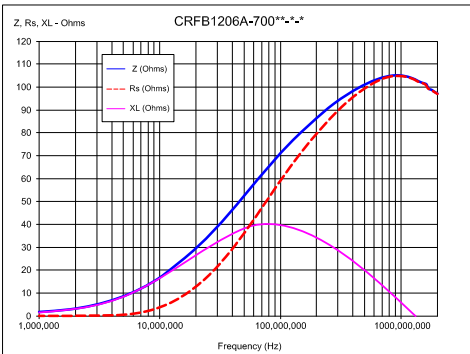
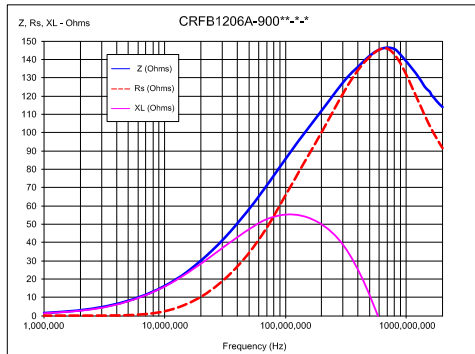
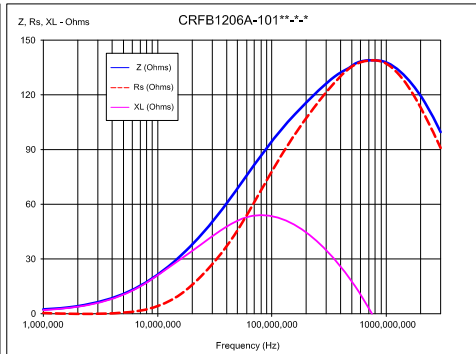
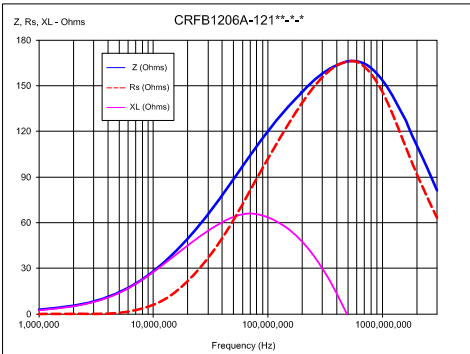
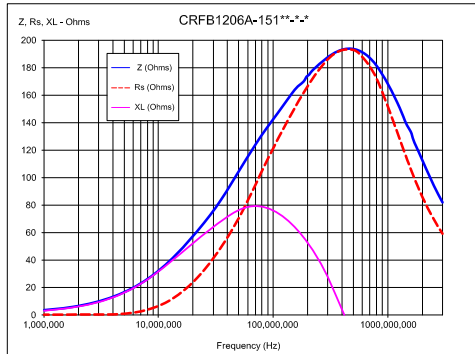
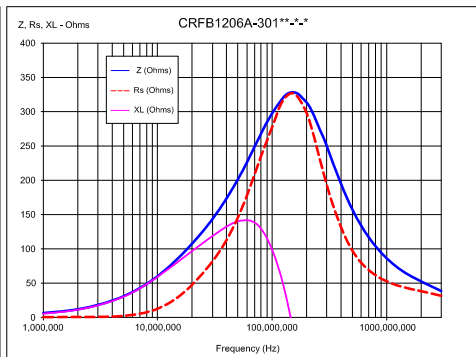
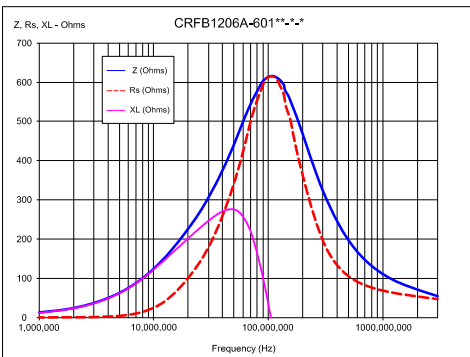
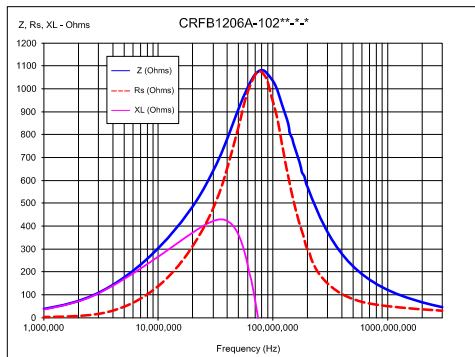


## CRFB SERIES





## DATA CURVES

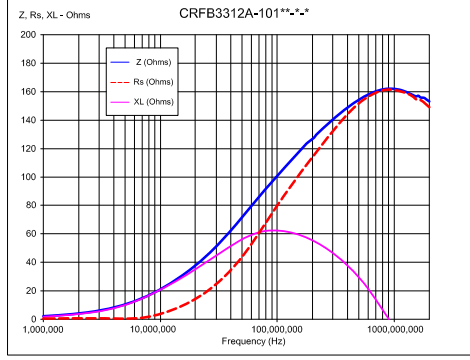
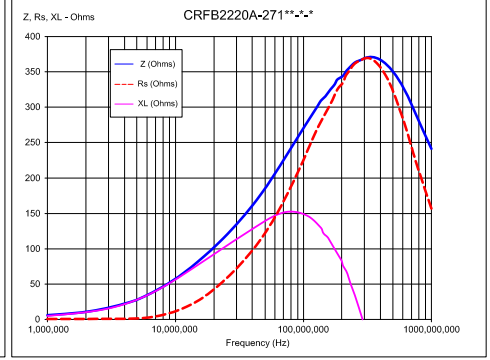
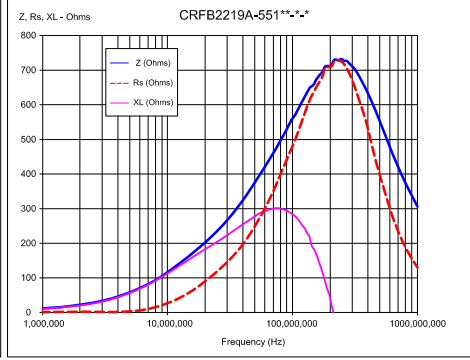
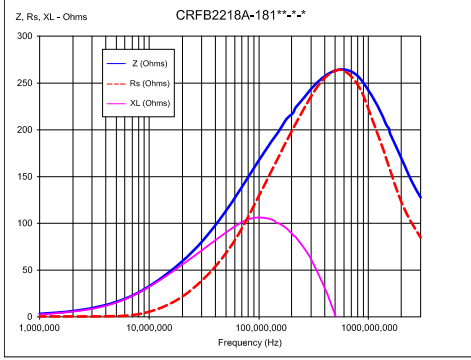
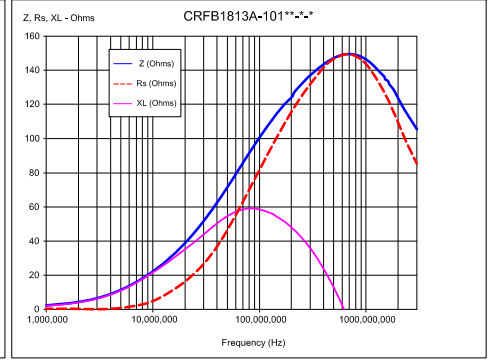
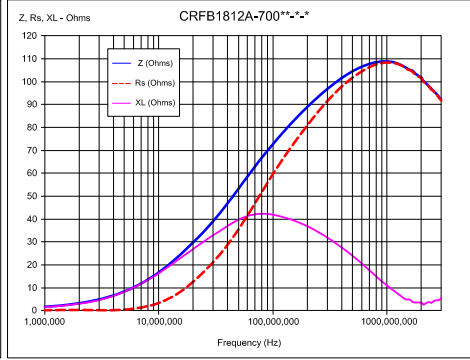
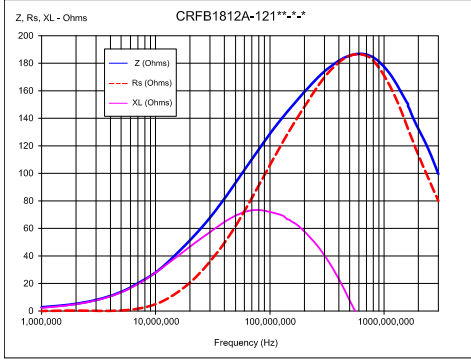
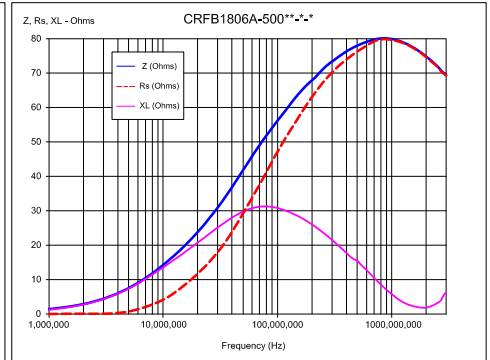
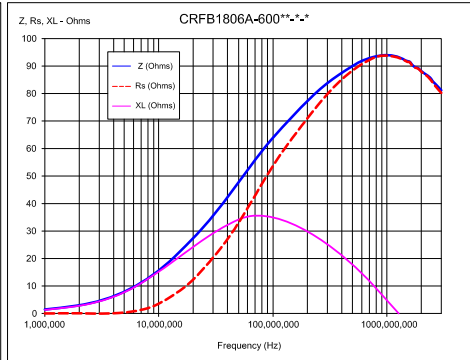
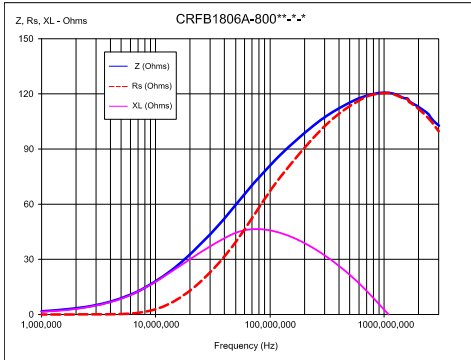


## CRFB SERIES





## DATA CURVES



## CRFB SERIES

