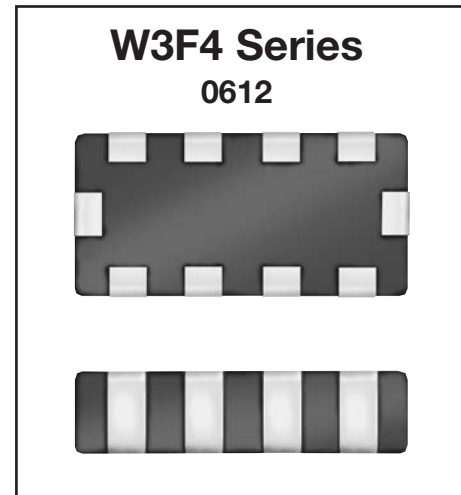


# Feedthru Filters – W2F4/W3F4 Series

## EMI Filtering, Broadband Filtering, LCD Filtering

### GENERAL DESCRIPTION

Available in a 4-Element 0508 and 0612 Feedthru Array package, AVX's line of Feedthrus is an ideal choice for EMI suppression, broadband I/O filtering, LCD filtering and  $V_{CC}$  power line conditioning. The unique construction of the Feedthru capacitor provides low parallel inductance and offers excellent decoupling capability for all high di/dt environments and provides significant noise reduction in digital circuits up to 5 GHz. A range of filtering characteristics is available. The Feedthru Array contains four elements with a common ground connection, making it an ideal choice for multi-line designs. Additional benefits of the multi-element array package are reduced placement costs, reduced component counts and PCB space savings. Feedthru filters can be used to meet IEC, MIL-STD-461E, FCC, and SAE radiated and conducted emission requirements.



### FREQUENCY CHARACTERISTICS

| Part Number  | Roll Off Frequency | Center Frequency | 10 db Point | 20 db Range |          |
|--------------|--------------------|------------------|-------------|-------------|----------|
| W3F41A2208AT | 270 MHz            | 2640 MHz         | 970 MHz     | 1780 MHz    | 3500 MHz |
| W3F41A4708AT | 65 MHz             | 2000 MHz         | 185 MHz     | 600 MHz     | 3400 MHz |
| W3F41A1018AT | 65 MHz             | 2030 MHz         | 185 MHz     | 560 MHz     | 3500 MHz |
| W3F45C2218AT | 35 MHz             | 1885 MHz         | 120 MHz     | 470 MHz     | 3300 MHz |
| W3F45C4718AT | 20 MHz             | 1860 MHz         | 60 MHz      | 220 MHz     | 3500 MHz |
| W2F43A2208AT | 208 MHz            | 4750 MHz         | 616 MHz     | 1407 MHz    | 7300 MHz |
| W2F43A4708AT | 110 MHz            | 2750 MHz         | 330 MHz     | 900 MHz     | 4600 MHz |
| W2F43A1018AT | 60 MHz             | 1300 MHz         | 179 MHz     | 501 MHz     | 7200 MHz |

### CAPACITOR VALUES & PERFORMANCE CHARACTERISTICS

| Part Number  | Typical Capacitance | Insulation Resistance | Temperature Characteristics |
|--------------|---------------------|-----------------------|-----------------------------|
| W3F41A2208AT | 22pF                | > 1000 M $\Omega$     | NP0                         |
| W3F41A4708AT | 47pF                | > 1000 M $\Omega$     | NP0                         |
| W3F41A1018AT | 100pF               | > 1000 M $\Omega$     | NP0                         |
| W3F45C2218AT | 220pF               | > 1000 M $\Omega$     | X7R                         |
| W3F45C4718AT | 470pF               | > 1000 M $\Omega$     | X7R                         |
| W2F43A2208AT | 22pF                | > 1000 M $\Omega$     | NP0                         |
| W2F43A4708AT | 47pF                | > 1000 M $\Omega$     | NP0                         |
| W2F43A1018AT | 100pF               | > 1000 M $\Omega$     | NP0                         |

### CASE SIZE & VOLTAGE RATINGS

| Part Number                                  | Case Size | Current Rating | DC Resistance  | Voltage Rating |
|----------------------------------------------|-----------|----------------|----------------|----------------|
| W3F41A2208AT<br>W3F41A4708AT<br>W3F41A1018AT | 0612      | 300 mA         | < 0.6 $\Omega$ | 100 V          |
| W3F45C2218AT<br>W3F45C4718AT                 | 0612      | 300 mA         | < 0.6 $\Omega$ | 50 V           |
| W2F43A2208AT<br>W2F43A4708AT<br>W2F43A1018AT | 0508      | 50 mA          | < 3.0 $\Omega$ | 25 V           |

# Feedthru Filters — W2F4 / W3F4 Series

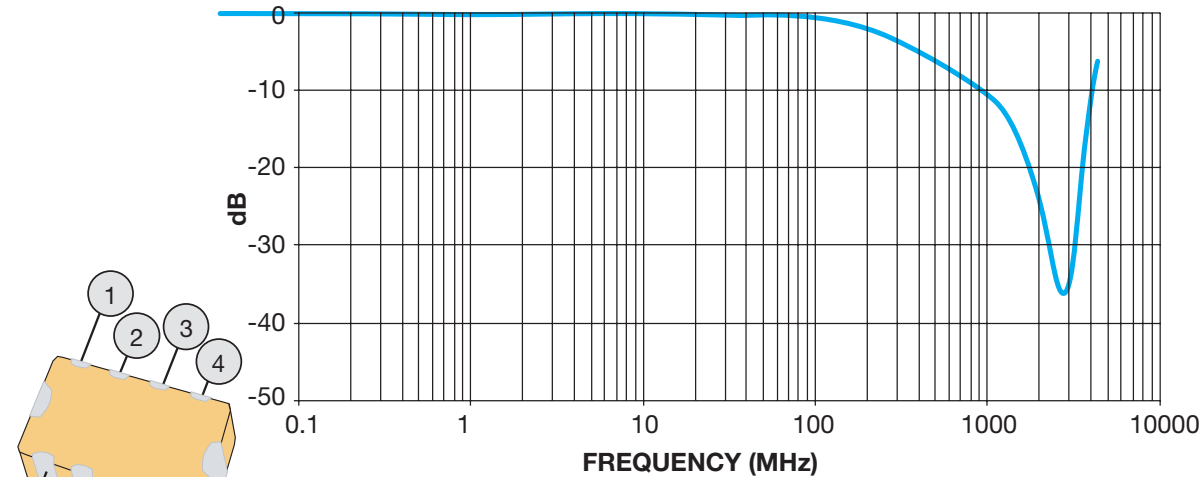


EMI Filtering, Broadband Filtering, LCD Filtering

## W3F41A2208AT $S_{21}$ Curves

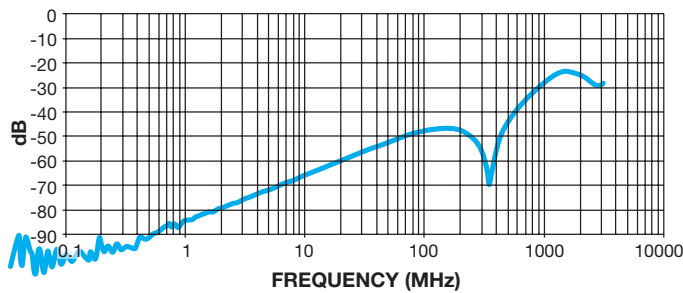
Preliminary

AVX W3F41A2208AT Typical  $S_{21}$

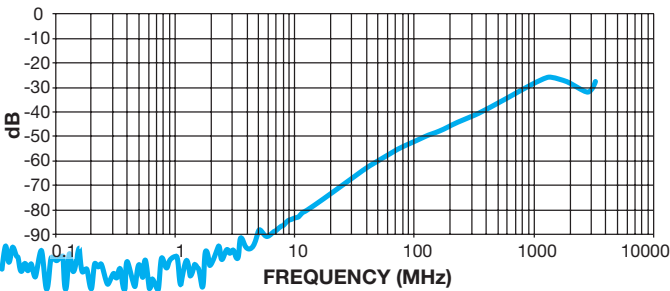


## Far Side Crosstalk

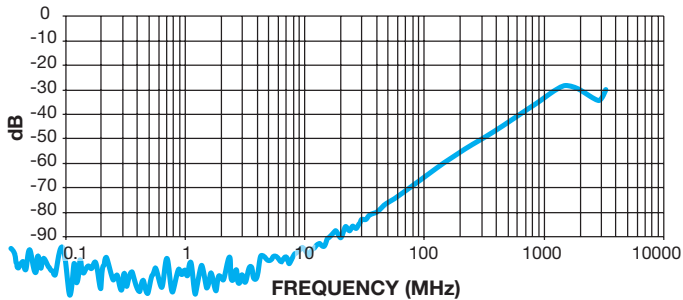
Preliminary  
AVX W3F41A2208AT  
Typical Far-side XTALK  
Elements 1 - 2



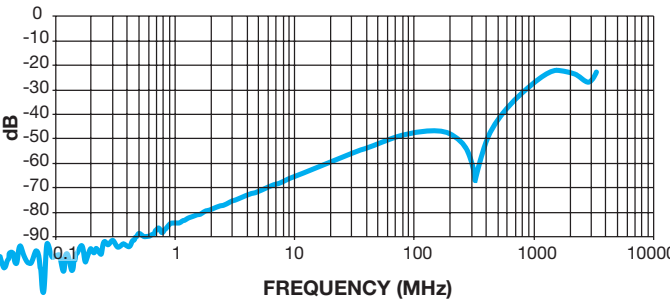
Preliminary  
AVX W3F41A2208AT  
Typical Far-side XTALK  
Elements 1 - 3



Preliminary  
AVX W3F41A2208AT  
Typical Far-side XTALK  
Elements 1 - 4



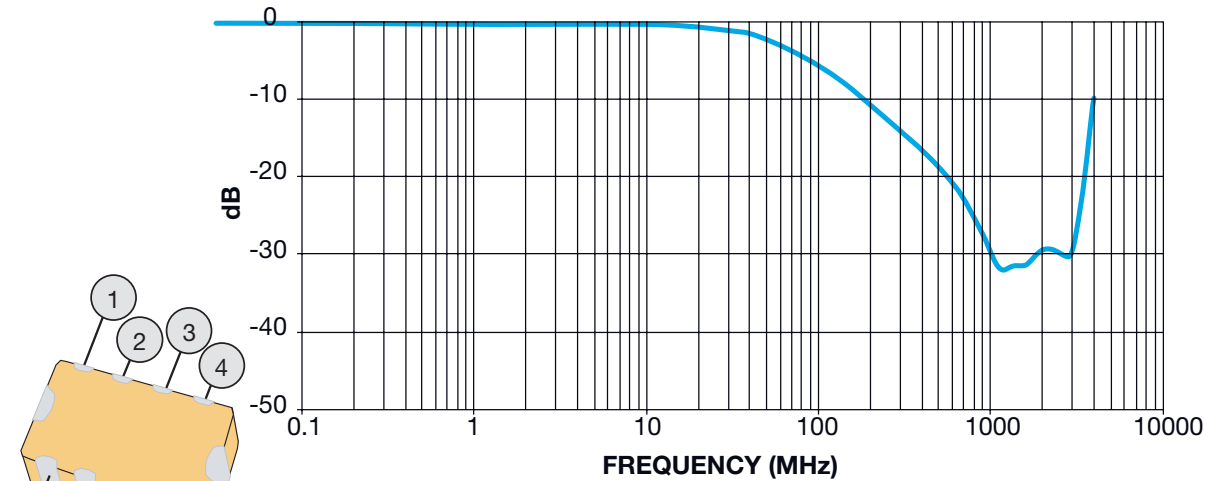
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Typical Far-side XTALK  
Elements 2 - 3



### W3F41A4708AT $S_{21}$ Curves

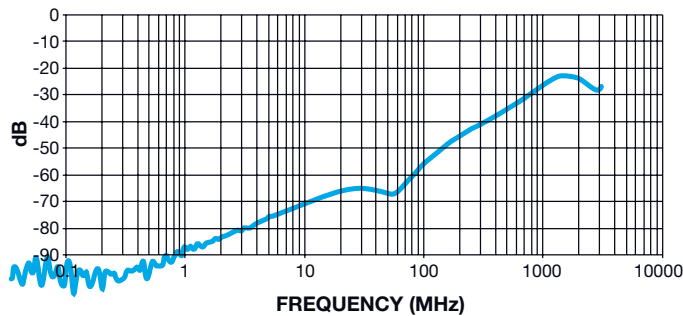
Preliminary

AVX W3F41A4708AT Typical  $S_{21}$

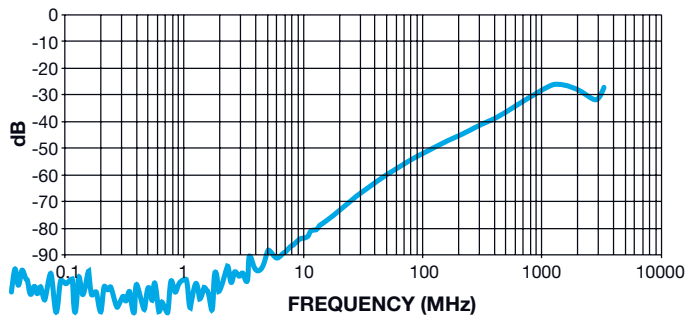


### Far Side Crosstalk

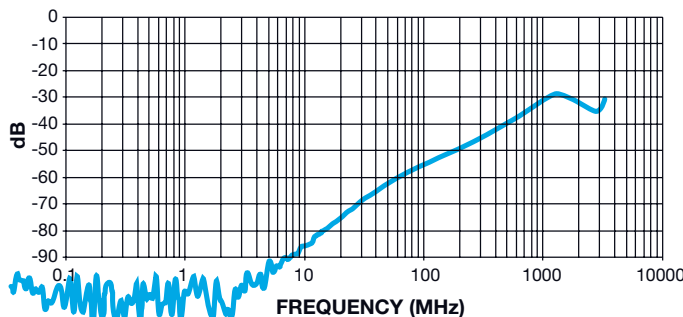
Preliminary  
AVX W3F41A4708AT  
Typical Far-side XTALK  
Elements 1 - 2



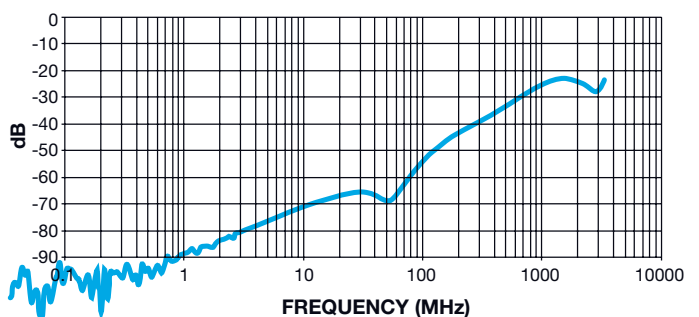
Preliminary  
AVX W3F41A4708AT  
Typical Far-side XTALK  
Elements 1 - 3



Preliminary  
AVX W3F41A4708AT  
Typical Far-side XTALK  
Elements 1 - 4



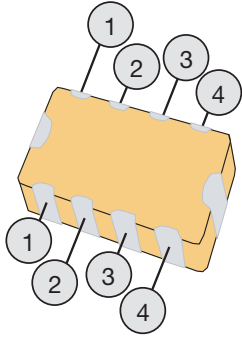
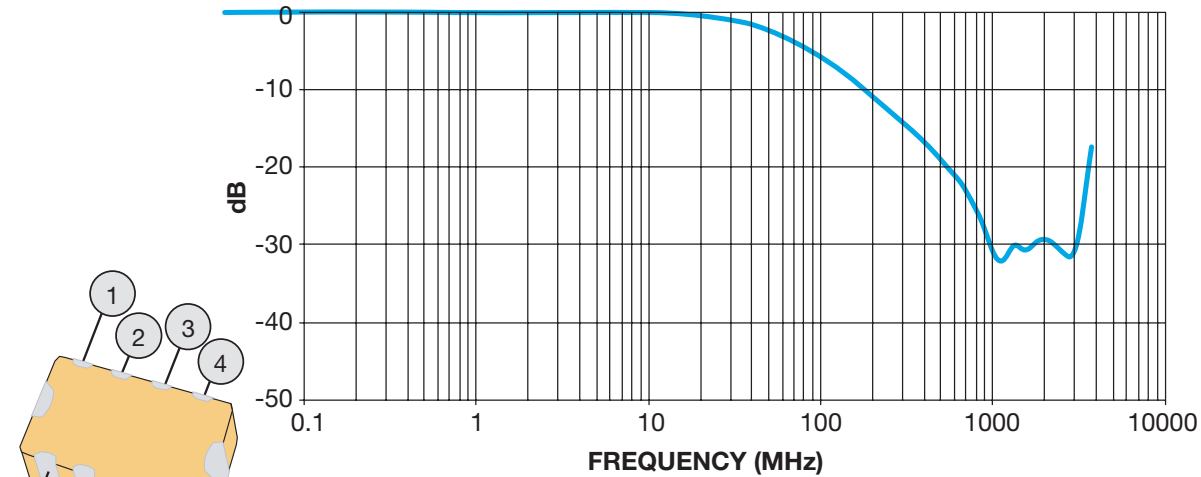
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AVX W3F41A4708AT  
Typical Far-side XTALK  
Elements 2 - 3



### W3F41A1018AT $S_{21}$ Curves

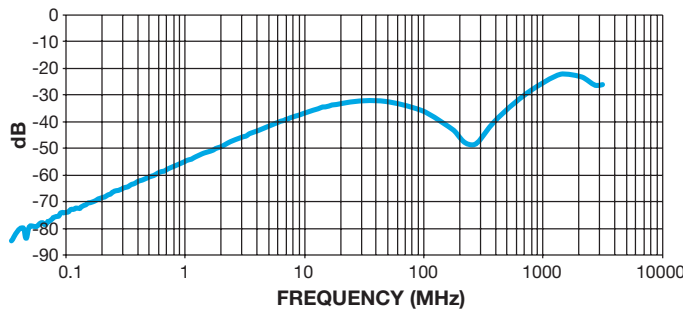
Preliminary

AVX W2F41A1018AT Typical  $S_{21}$

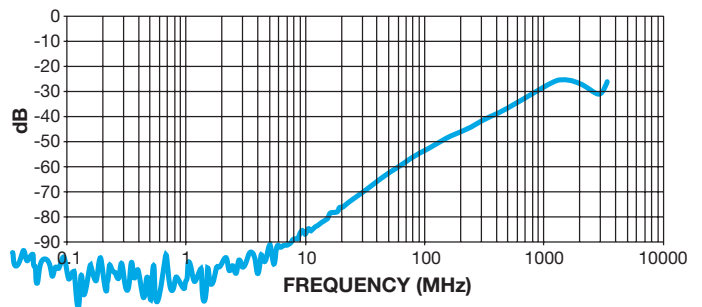


### Far Side Crosstalk

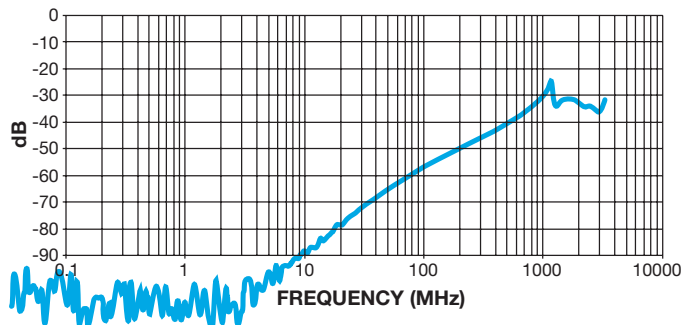
Preliminary  
AVX W3F41A1018AT  
Typical Far-side XTALK  
Elements 1 - 2



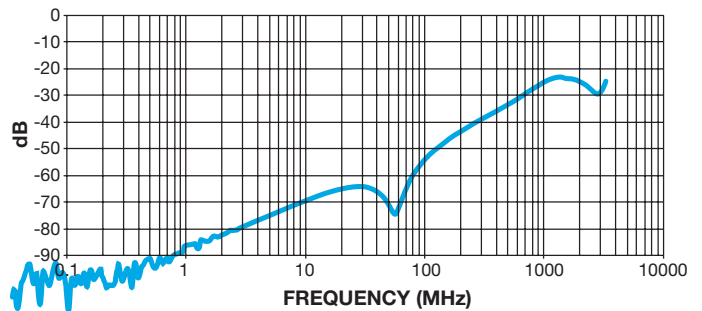
Preliminary  
AVX W3F41A1018AT  
Typical Far-side XTALK  
Elements 1 - 3



Preliminary  
AVX W3F41A1018AT  
Typical Far-side XTALK  
Elements 1 - 4



Preliminary  
AVX W3F41A1018AT  
Typical Far-side XTALK  
Elements 2 - 3



# Feedthru Filters — W2F4 / W3F4 Series

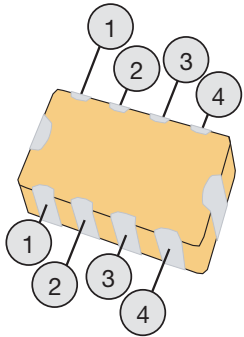
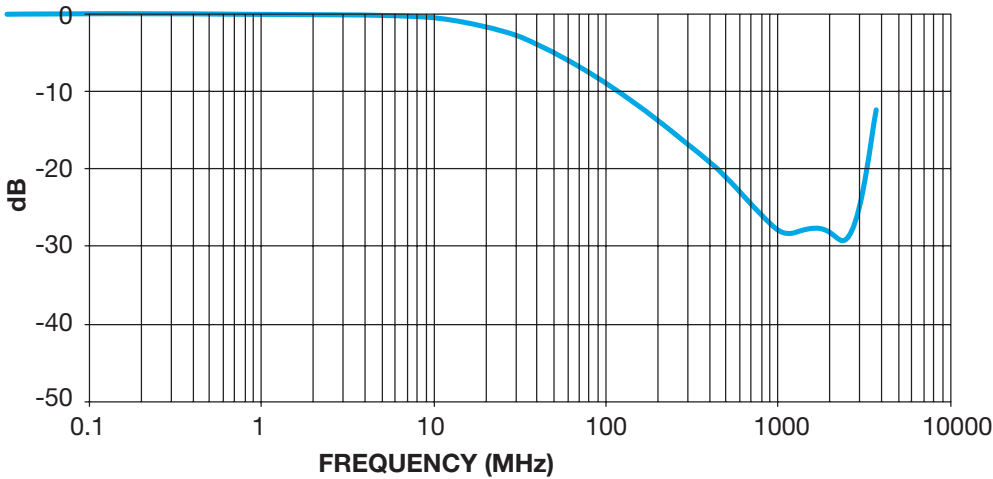


EMI Filtering, Broadband Filtering, LCD Filtering

## W3F45C2218AT $S_{21}$ Curves

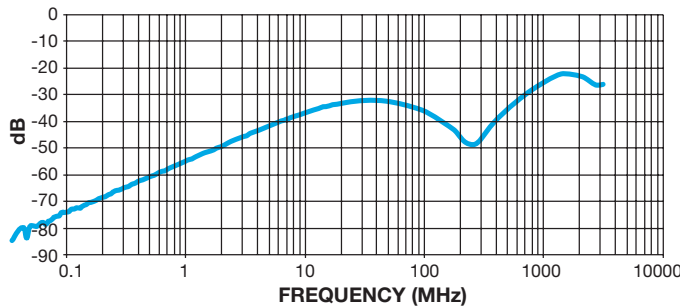
Preliminary

AVX W3F45C2218AT Typical  $S_{21}$

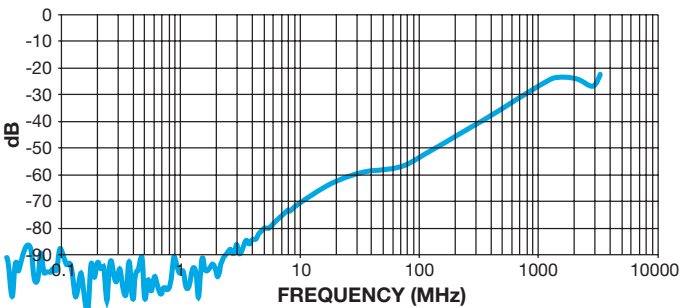


## Far Side Crosstalk

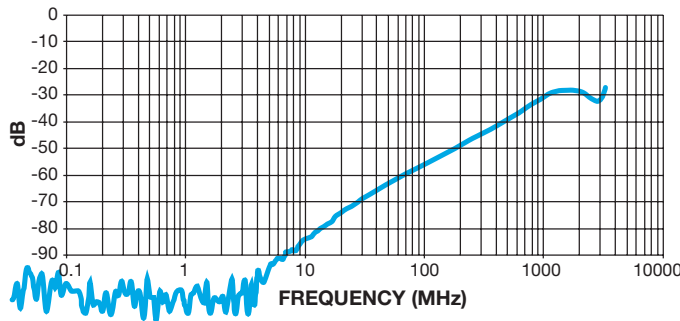
Preliminary  
AVX W3F45C2218AT  
Typical Far-side XTALK  
Elements 1 - 2



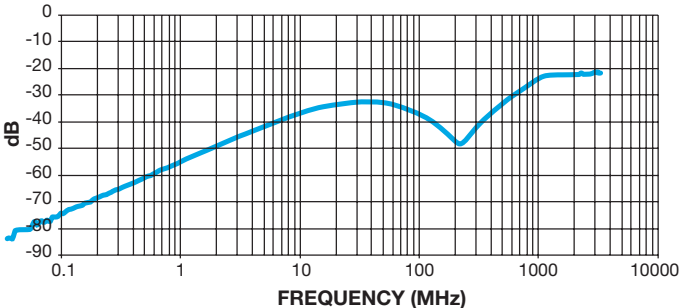
Preliminary  
AVX W3F45C2218AT  
Typical Far-side XTALK  
Elements 1 - 3



Preliminary  
AVX W3F45C2218AT  
Typical Far-side XTALK  
Elements 1 - 4



Preliminary  
AVX W3F45C2218AT  
Typical Far-side XTALK  
Elements 2 - 3



# Feedthru Filters — W2F4 / W3F4 Series

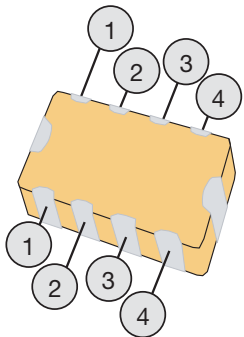
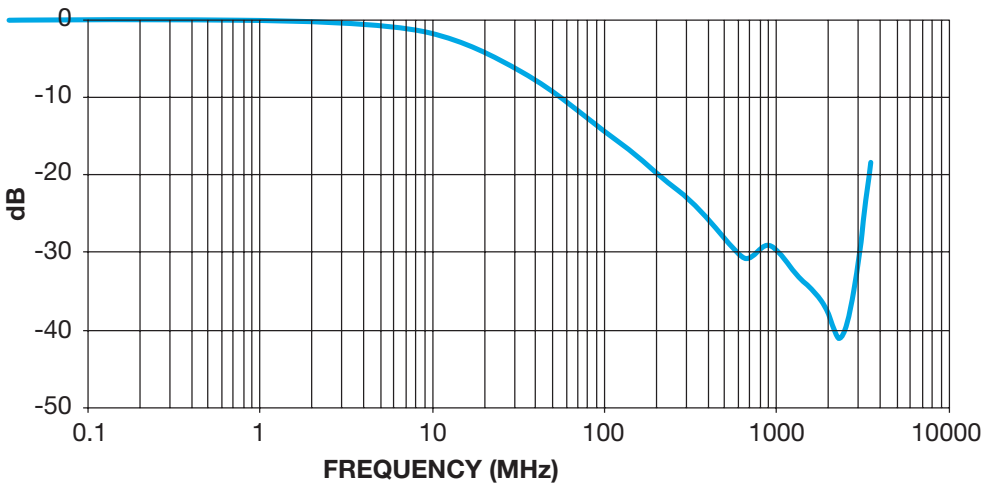


EMI Filtering, Broadband Filtering, LCD Filtering

## W3F45C4718AT $S_{21}$ Curves

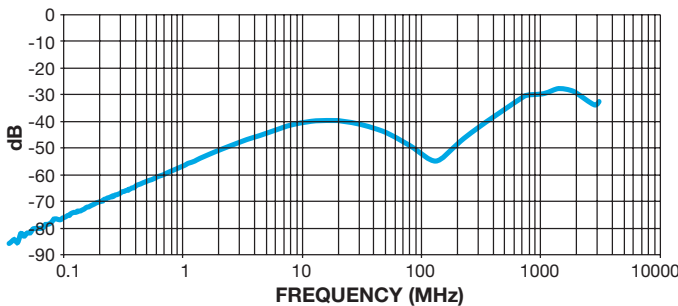
Preliminary

AVX W3F45C4718AT Typical  $S_{21}$

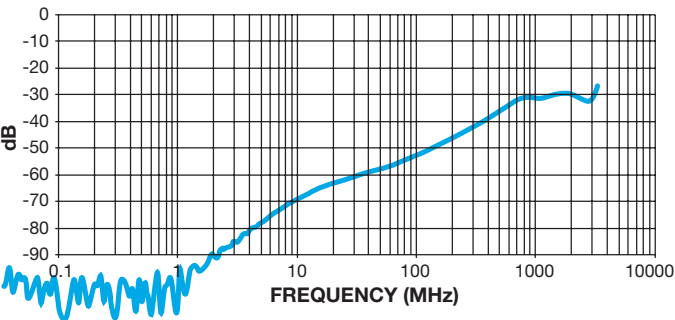


## Far Side Crosstalk

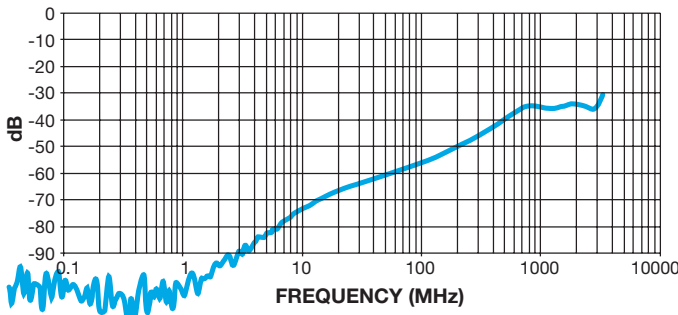
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AVX W3F45C4718AT  
Typical Far-side XTALK  
Elements 1 - 2



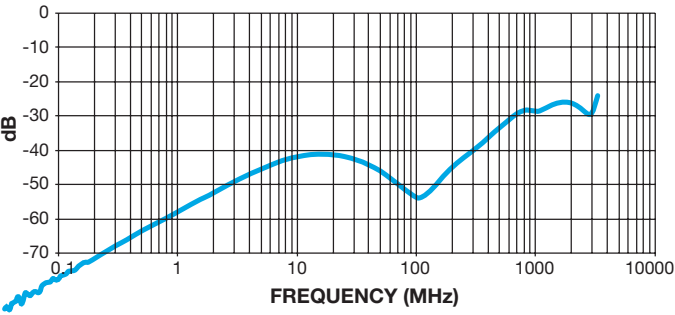
Preliminary  
AVX W3F45C4718AT  
Typical Far-side XTALK  
Elements 1 - 3



Preliminary  
AVX W3F45C4718AT  
Typical Far-side XTALK  
Elements 1 - 4



Preliminary  
AVX W3F45C4718AT  
Typical Far-side XTALK  
Elements 2 - 3



# Feedthru Filters — W2F4 / W3F4 Series

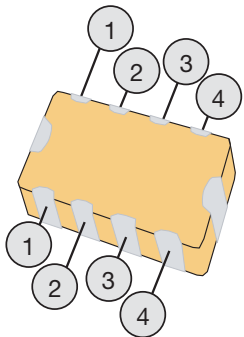
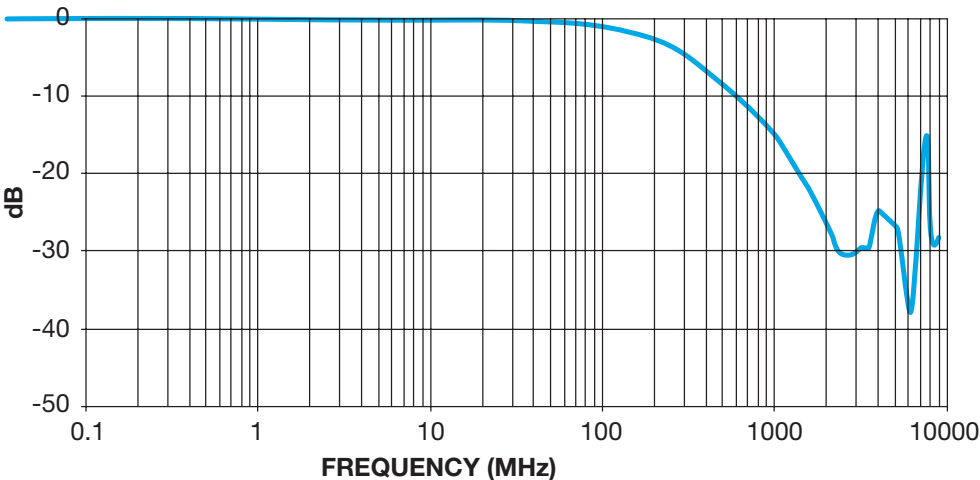


EMI Filtering, Broadband Filtering, LCD Filtering

## W2F43A2208AT S<sub>21</sub> Curves

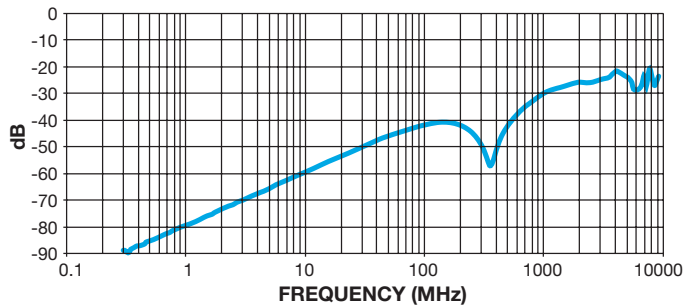
Preliminary

AVX W2F43A2208AT Typical S<sub>21</sub>

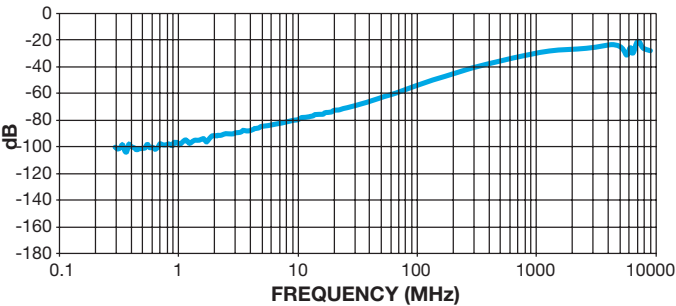


## Far Side Crosstalk

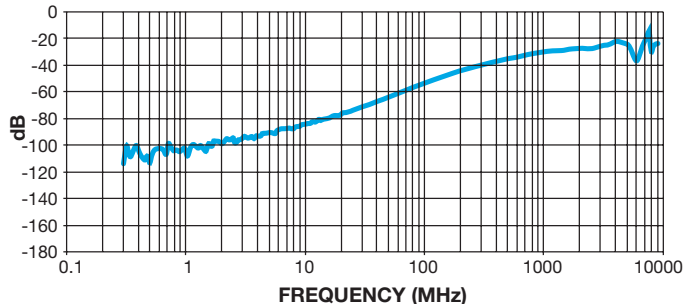
Preliminary  
AVX W2F43A2208AT  
Typical Far-side XTALK  
Elements 1 - 2



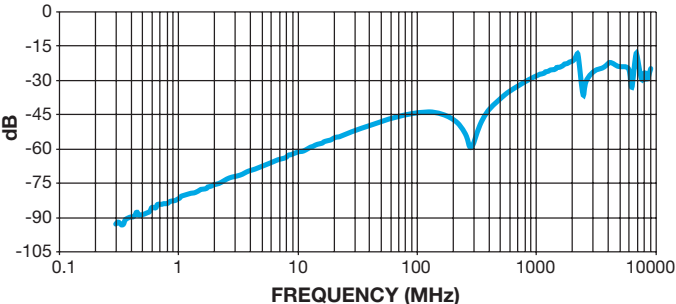
Preliminary  
AVX W2F43A2208AT  
Typical Far-side XTALK  
Elements 1 - 3



Preliminary  
AVX W2F43A2208AT  
Typical Far-side XTALK  
Elements 1 - 4



Preliminary  
AVX W2F43A2208AT  
Typical Far-side XTALK  
Elements 2 - 3



# Feedthru Filters — W2F4 / W3F4 Series

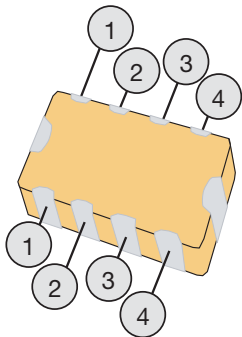
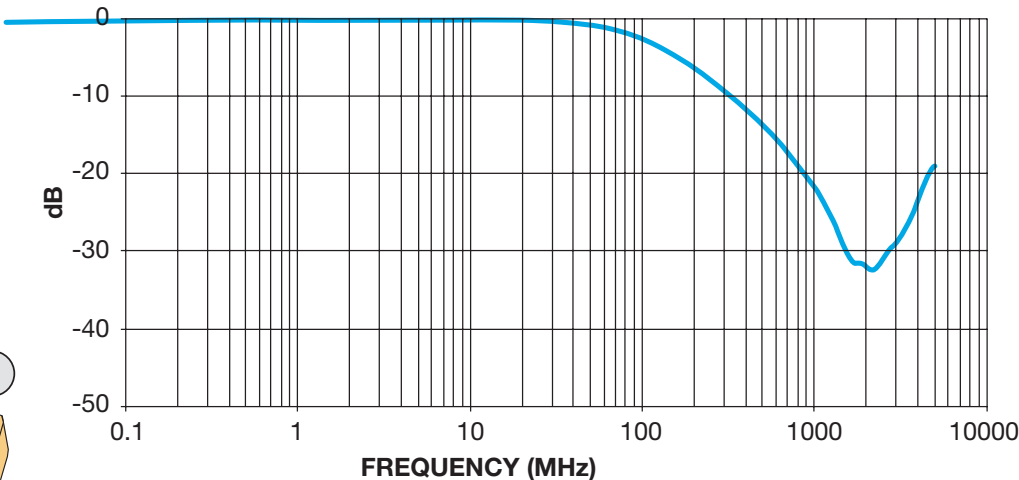


EMI Filtering, Broadband Filtering, LCD Filtering

## W2F43A4708AT $S_{21}$ Curves

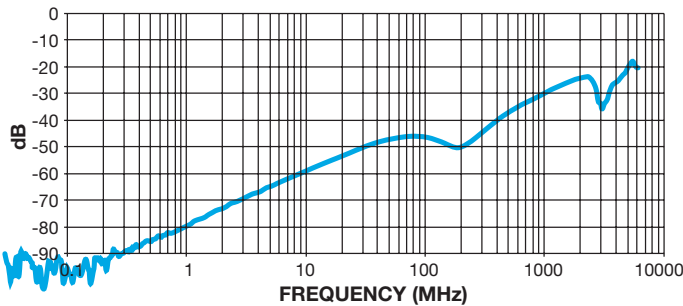
Preliminary

AVX W2F43A4708AT Typical  $S_{21}$

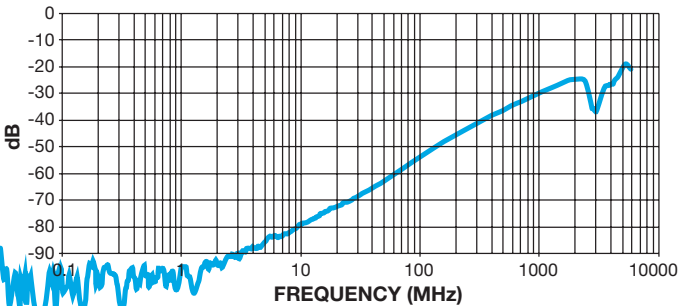


## Far Side Crosstalk

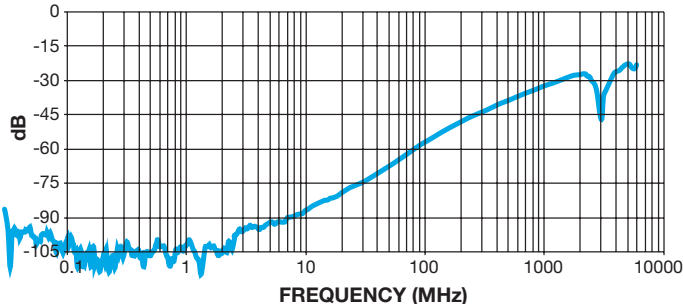
Preliminary  
AVX W2F43A4708AT  
Typical Far-side XTALK  
Elements 1 - 2



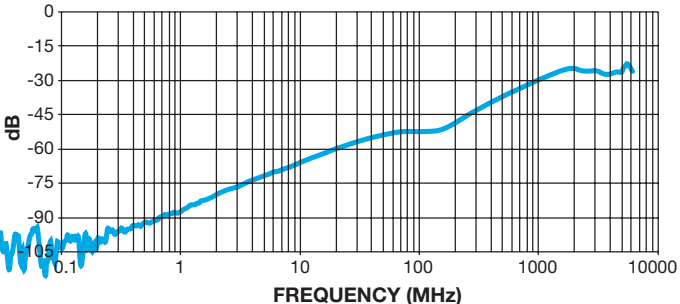
Preliminary  
AVX W2F43A4708AT  
Typical Far-side XTALK  
Elements 1 - 3



Preliminary  
AVX W2F43A4708AT  
Typical Far-side XTALK  
Elements 1 - 4



Preliminary  
AVX W2F43A4708AT  
Typical Far-side XTALK  
Elements 2 - 3



# Feedthru Filters — W2F4 / W3F4 Series

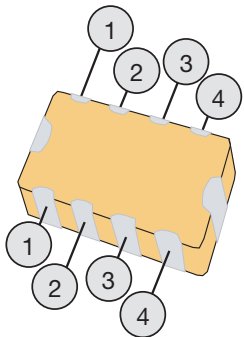
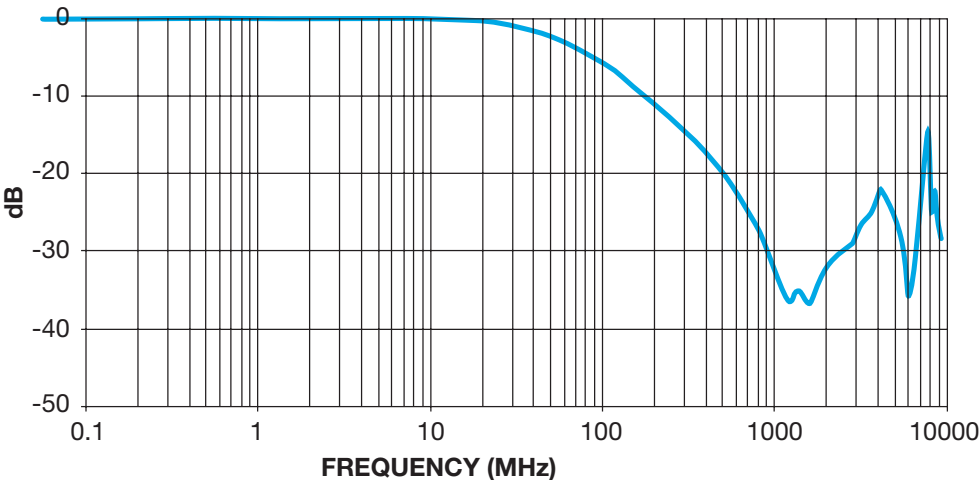


EMI Filtering, Broadband Filtering, LCD Filtering

## W2F43A1018AT $S_{21}$ Curves

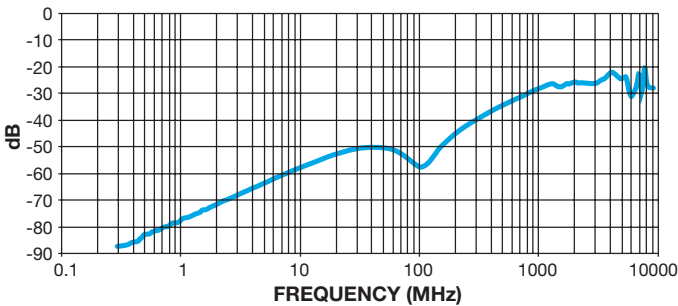
Preliminary

AVX W2F43A1018AT Typical  $S_{21}$

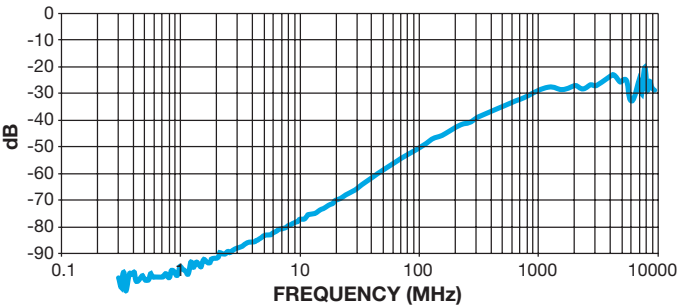


## Far Side Crosstalk

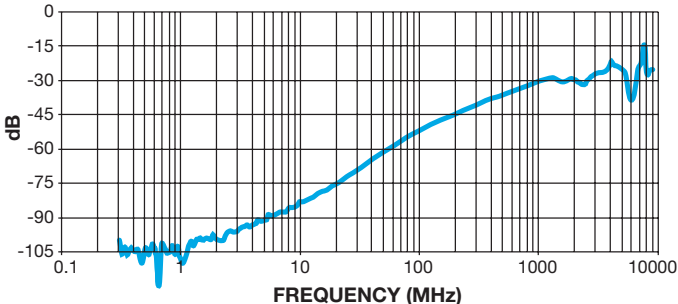
Preliminary  
AVX W2F43A1018AT  
Typical Far-side XTALK  
Elements 1 - 2



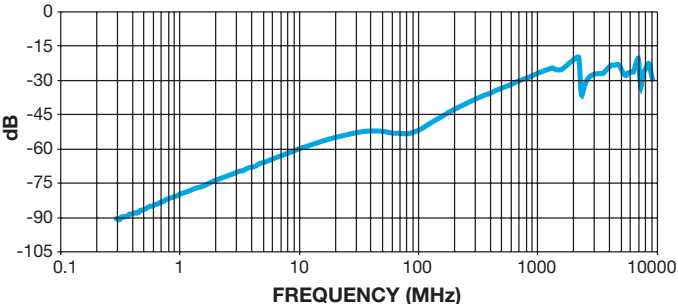
Preliminary  
AVX W2F43A1018AT  
Typical Far-side XTALK  
Elements 1 - 3



Preliminary  
AVX W2F43A1018AT  
Typical Far-side XTALK  
Elements 1 - 4



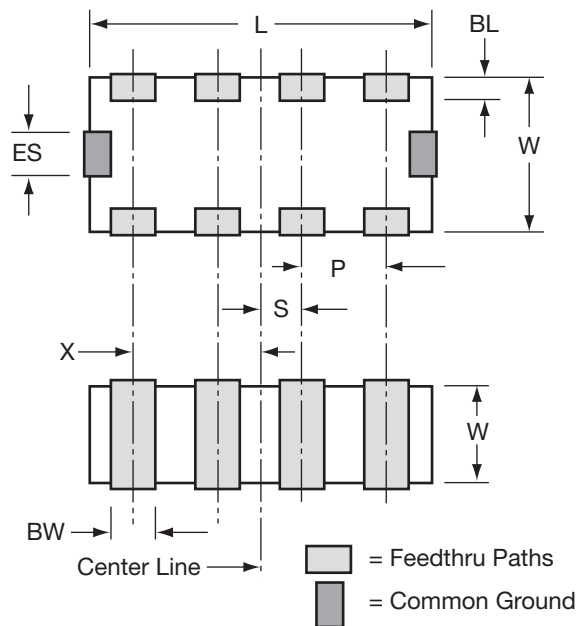
Preliminary  
AVX W2F43A1018AT  
Typical Far-side XTALK  
Elements 2 - 3



# Feedthru Filters — W2F4 / W3F4 Series



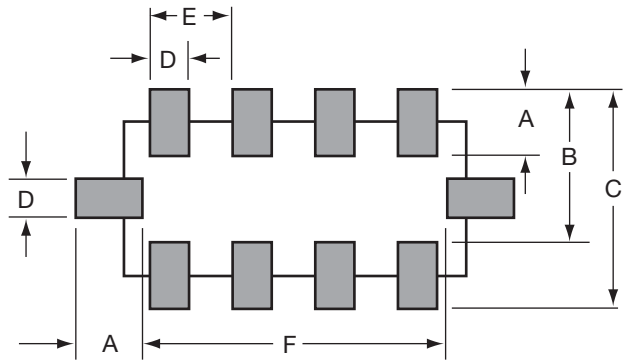
EMI Filtering, Broadband Filtering, LCD Filtering



## DIMENSIONS

millimeters (inches)

| L                          | W                          | T                       | BW                         | BL             | P                         | X                          | S                          | ES                         |
|----------------------------|----------------------------|-------------------------|----------------------------|----------------|---------------------------|----------------------------|----------------------------|----------------------------|
| 3.25±0.15<br>(0.128±0.006) | 1.60±0.20<br>(0.063±0.008) | 1.22 max<br>(0.048 max) | 0.41±0.10<br>(0.016±0.004) | 0.18<br>(0.007 | 0.76 REF.<br>(0.030 REF.) | 1.14±0.10<br>(0.045±0.004) | 0.38±0.10<br>(0.015±0.004) | 0.41±0.10<br>(0.016±0.004) |
| 2.10±0.15<br>(0.083±0.006) | 1.30±0.20<br>(0.051±0.006) | 1.02 max<br>(0.040 max) | 0.25±0.10<br>(0.010±0.004) | 0.18<br>(0.007 | 0.50 REF.<br>(0.020 REF.) | 0.75±0.10<br>(0.030±0.004) | 0.25±0.10<br>(0.010±0.004) | 0.25±0.10<br>(0.010±0.004) |



## PAD LAYOUT DIMENSIONS

millimeters (inches)

| CASE SIZE | A            | B            | C            | D            | E            | F            |
|-----------|--------------|--------------|--------------|--------------|--------------|--------------|
| 0612      | 0.6 (0.024)  | 1.6 (0.064)  | 2.2 (0.088)  | 0.35 (0.014) | 0.76 (0.030) | 2.6 (0.104)  |
| 0508      | 0.56 (0.022) | 1.32 (0.052) | 1.88 (0.074) | 0.25 (0.010) | 0.50 (0.020) | 1.80 (0.071) |

