

# Military/Aerospace Multisection Filters

## Features

- High common and differential mode attenuation
- Standard designs up to 100 Amps
- Excellent insertion loss characteristics up to 1 GHz
- Voltage rating 115-250VAC and 400VDC up to 400 Hz
- Available to meet MIL-F-15733 and MIL-STD-461 standards
- Available to meet TEMPEST and FCC requirements
- Custom designs available

## Applications

- Military
- Commercial & military/aerospace
- Secured communications
- Switching power supplies
- Data processing equipment
- Ruggedized computers
- Radar
- Electronic warfare
- Ground/air weapon systems
- Satellites

## Test Specifications

| Test Group | Order of Test | Examination or Test       | Test Method (Per MIL-STD-202)                                                              | Post Test Requirements                                                        |
|------------|---------------|---------------------------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| IIA        | 1             | Voltage Drop              | Paragraph 4.6.8 of MIL-F-15733                                                             | Three percent of rated voltage max.                                           |
|            | 2             | Leakage Current           | UL 1283                                                                                    | Per applicable specification                                                  |
|            | 3             | Temperature Rise          | MIL-F-15733 Paragraph 4.6.4                                                                | 25°C max.                                                                     |
|            | 4             | Terminal Strength         | Method 211, Condition A                                                                    | No evidence of loosening or rupture. 5 lb. applied force. Line Cords: 35 Lbs. |
| IIB        | 1             | Shock, Medium Impact      | Method 213, Condition G                                                                    | Must pass DWV and Insertion Loss                                              |
|            | 2             | Vibration, High Frequency | Method 204, Condition A                                                                    | Monitor for shorts or open                                                    |
|            | 3             | Thermal Shock             | Method 107, Test Condition A                                                               | Pass 90% DWV IR to be 30% of initial                                          |
|            | 4             | Humidity                  | Method 107, Condition B, except temperature equals 25°C                                    | Pass 90% DWV IR to be 30% of initial                                          |
| III        | 1             | Life                      | Method 108, Condition D 1.2 x Rated AC voltage at max. operating temp. or 1.4 x DC voltage | Pass 90% DWV insulation resistance to be 30% of initial.                      |



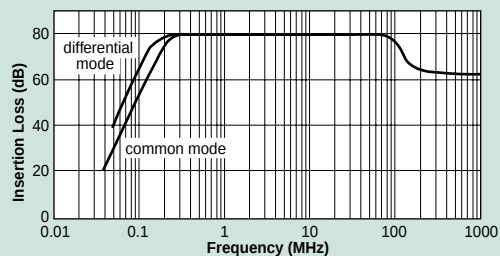
The High Performance Power Line Filters shown on pages 99 through 105 are designed to meet the following criteria.

The information shown can be used as a basis for filter specifications. (Contact factory for additional details).

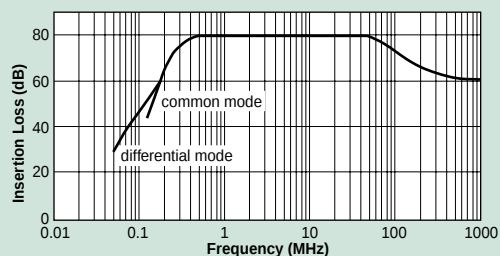
# Military/Aerospace Multisection Filters

## Insertion Loss

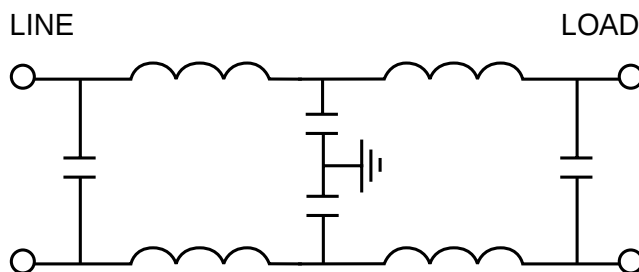
52-600-001



52-600-002

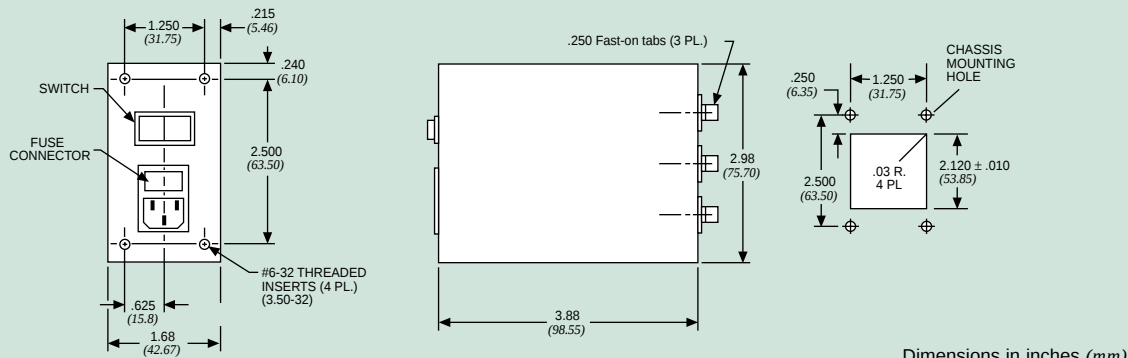


## Circuit Schematic



## Dimensions

52-600-001  
52-600-002



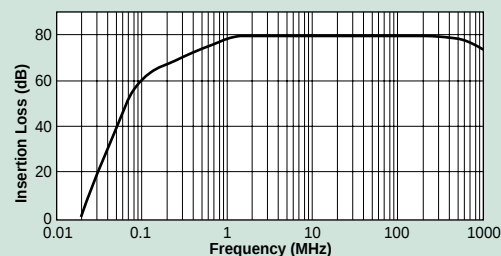
| Model      | Current Rating | Voltage Rating      | Temperature Rating | DCR. max. (ohms) | Leakage Current (max.) | Mode (max.) | Minimum Insertion Loss (db) Per MIL-STD-220 |      |      |    |     |      |    |
|------------|----------------|---------------------|--------------------|------------------|------------------------|-------------|---------------------------------------------|------|------|----|-----|------|----|
|            |                |                     |                    |                  |                        |             | 50K                                         | 150K | 300K | 1M | 10M | 100M | 1G |
| 52-600-001 | 5A             | 120/240VAC<br>60 Hz | -40°C to +65°C     | .20              | 1 mA                   | COMM        | 33                                          | 65   | 80   | 80 | 80  | 80   | 60 |
|            |                |                     |                    |                  |                        | DIFF        | 37                                          | 65   | 80   | 80 | 80  | -    | -  |
| 52-600-002 | 10A            | 120/240VAC<br>60 Hz | -40°C to +65°C     | .10              | 1 mA                   | COMM        | -                                           | 50   | 70   | 80 | 80  | 70   | 60 |
|            |                |                     |                    |                  |                        | DIFF        | 25                                          | 50   | 75   | 80 | 80  | -    | -  |

Consult factory for UL/CSA approval availability.

# Military/Aerospace Multisection Filters

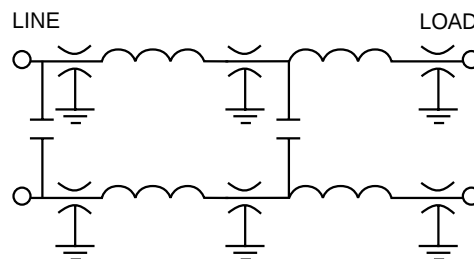
## Insertion Loss

52-523-002



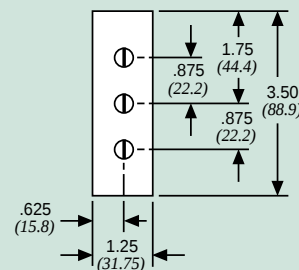
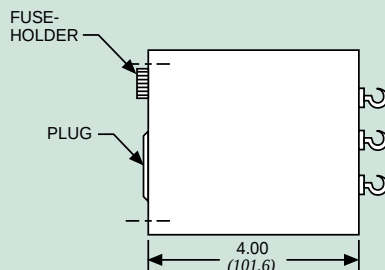
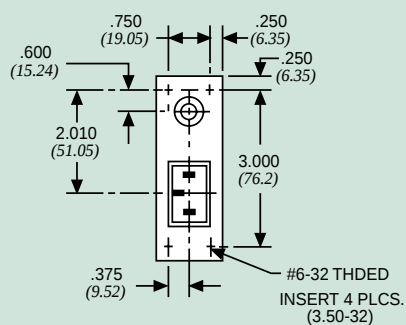
## Circuit Schematic

52-523-002



## Dimensions

52-523-002



Dimensions in inches (mm)

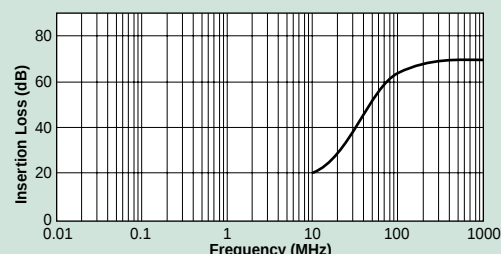
| Model      | Current Rating | Voltage Rating      | Temperature Rating | DCR max. (ohms) | Leakage Current (max.) | Mode (max.) | Minimum Insertion Loss (db) Per MIL-STD-220 |      |      |    |     |      |    |
|------------|----------------|---------------------|--------------------|-----------------|------------------------|-------------|---------------------------------------------|------|------|----|-----|------|----|
|            |                |                     |                    |                 |                        |             | 50K                                         | 150K | 300K | 1M | 10M | 100M | 1G |
| 52-523-002 | 5A             | 120/240VAC<br>60 Hz | -40°C to +65°C     | .25             | 1 mA                   | COMM        | —                                           | 55   | 60   | 80 | 80  | 70   | 60 |
|            |                |                     |                    |                 |                        | DIFF        | —                                           | 50   | 60   | 80 | 80  | —    | —  |

Consult factory for UL/CSA approval availability.

# Military/Aerospace Multisection Filters

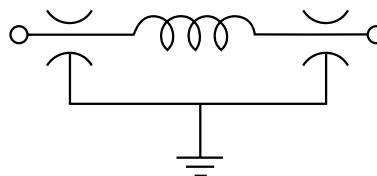


**Insertion Loss**  
**1212-0502**



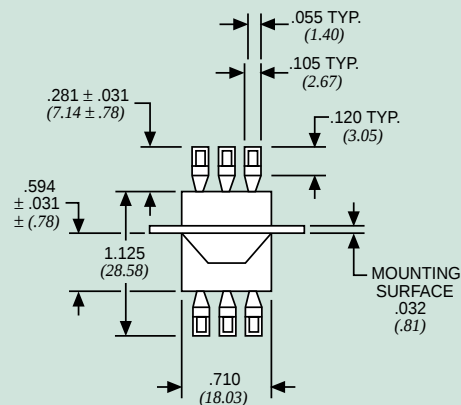
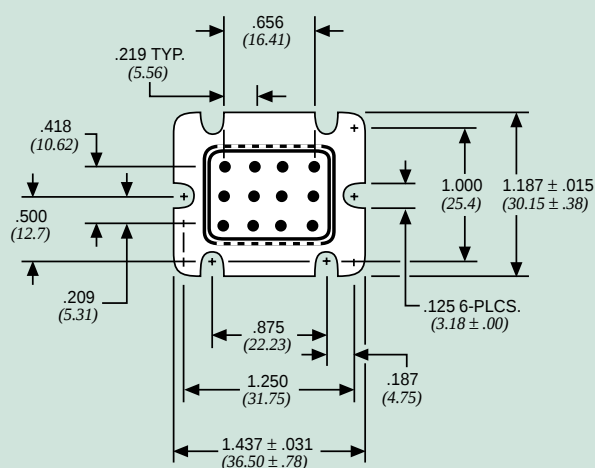
**Circuit Schematic**

**1212-0502**



## Dimensions

**1212-0502**



Dimensions in inches (mm)

| Model     | Current Rating | Voltage Rating         | Temperature Rating | DCR max. (ohms) | Leakage Current (max.) | C <sub>x</sub> Value | Minimum Insertion Loss (db) Per MIL-STD-220 |      |      |    |
|-----------|----------------|------------------------|--------------------|-----------------|------------------------|----------------------|---------------------------------------------|------|------|----|
|           |                |                        |                    |                 |                        |                      | 10M                                         | 100M | 500M | 1G |
| 1212-0502 | 10A            | 350VDC<br>240VAC 60 Hz | -55°C to +125°C    | .01             | 1 mA                   | 5000pF               | 20                                          | 65   | 70   | 70 |

Consult factory for UL/CSA approval availability.

# Military/Aerospace Multisection Filters

## Secure Communications

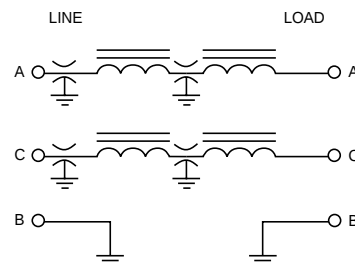
Spectrum's electromagnetic compatibility expertise in the secure communication or "TEMPEST" arena is represented by this group of high performance filters. These units are especially well suited for use in MIL-STD-461 applications to reduce conducted emissions. The filters are manufactured with glass sealed terminals and connectors.

## Features

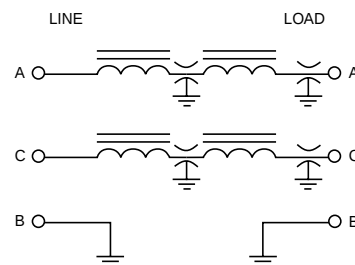
- Excellent insertion loss profile
- Available for DC & AC applications up to 400 Hz
- Available for 3-14 Amp applications
- Custom systems can be designed to your specific needs
- QPL to MIL-F 15733/63-0001



## Filter Schematic A

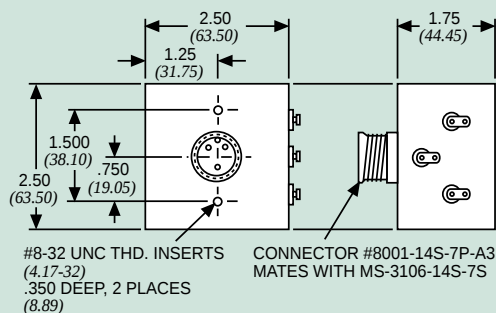


## Filter Schematic B



## Dimensions

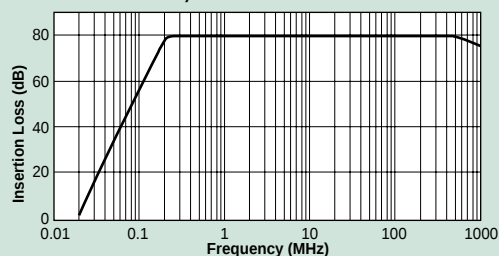
52-378-002



Dimensions in inches (mm)

## Insertion Loss

52-378-002, -004 MIL-STD-220

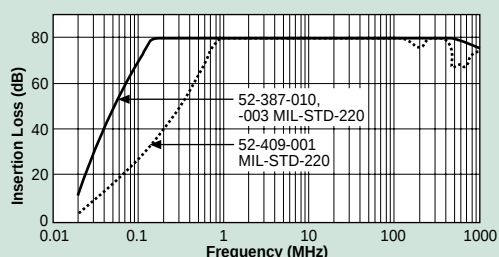


| Model      | Current Rating | Voltage Rating            | Temperature Range | DCR max. (ohms) | Leakage Current (max.) | Schematic | Minimum Insertion Loss (db) |         |         |       |        |         |       |
|------------|----------------|---------------------------|-------------------|-----------------|------------------------|-----------|-----------------------------|---------|---------|-------|--------|---------|-------|
|            |                |                           |                   |                 |                        |           | 50 KHz                      | 150 KHz | 300 KHz | 1 MHz | 10 MHz | 100 MHz | 1 GHz |
| 52-378-001 | 3 Amps         | 240VAC 60 Hz Line to Line | -55°C to 85°C     | .3              | 50 mA                  | A         | 30                          | 60      | 70      | 80    | 80     | 70      | 70    |
| 52-378-002 | 5 Amps         | 240VAC 60 Hz Line to Line | -55°C to 85°C     | .2              | 50 mA                  | B         | 24                          | 64      | 70      | 80    | 80     | 70      | 70    |
| 52-378-004 | 5 Amps         | 240VAC 60 Hz Line to Line | -55°C to 85°C     | .2              | 50 mA                  | A         | 34                          | 64      | 70      | 80    | 80     | 70      | 70    |
| 52-378-005 | 3 Amps         | 240VAC 60 Hz Line to Line | -55°C to 85°C     | .3              | 50 mA                  | B         | 40                          | 70      | 80      | 80    | 80     | 70      | 60    |

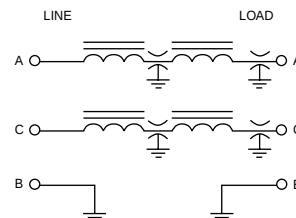
# Military/Aerospace Multisection Filters

## Insertion Loss

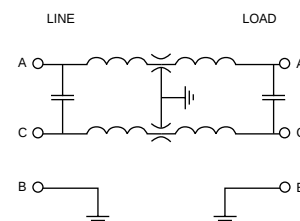
52-387-010, -003 MIL-STD-220  
52-409-001 MIL-STD-220



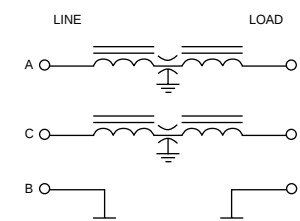
## Filter Schematic C



## Filter Schematic D

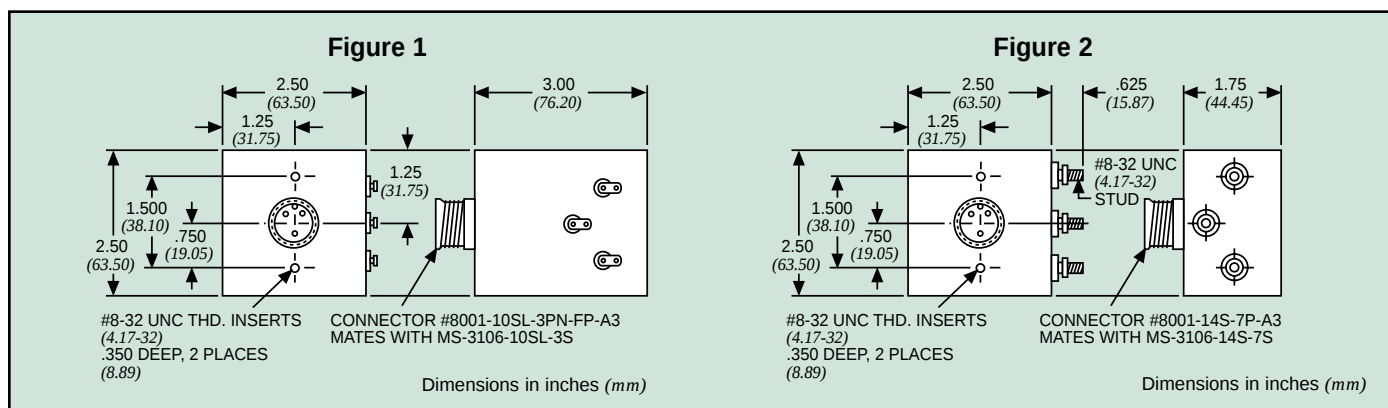


## Filter Schematic E



3 Phase and 400 Hz models available.  
Please consult the factory.

## Dimensions



| Model      | Fig. | Current Rating | Voltage Rating             | Temperature Range | DCR max. (ohms) | Leakage Current (max.) | Sch. | Mode         | Minimum Insertion Loss (db) |         |         |         |        |         |       |
|------------|------|----------------|----------------------------|-------------------|-----------------|------------------------|------|--------------|-----------------------------|---------|---------|---------|--------|---------|-------|
|            |      |                |                            |                   |                 |                        |      |              | 50 KHz                      | 150 KHz | 300 KHz | 1.0 MHz | 10 MHz | 100 MHz | 1 GHz |
| 52-387-010 | 1    | 10 Amps        | 240VAC 60 Hz Line to Line  | -55°C to 85°C     | .2              | 50 mA                  | C    | common       | 24                          | 60      | 70      | 80      | 80     | 70      | 70    |
| 52-387-012 | 1    | 5 Amps         | 240VAC 400 Hz Line to Line | -55°C to 85°C     | .2              | 5 mA                   | D    | common       | 34                          | 64      | 70      | 80      | 80     | 70      | 70    |
|            |      |                |                            |                   |                 |                        |      | differential | 30                          | 30      | 70      | 80      | 80     | -       | -     |
| 52-409-001 | 2    | 14 Amps        | 240VAC 60 Hz Line to Line  | -55°C to 85°C     | .04             | 50 mA                  | E    | common       | 14                          | 30      | 45      | 80      | 80     | 70      | 60    |