

# Military/Aerospace Multisection Filters



API Technologies' Spectrum Control brand will address virtually any requirement for a military/custom power product. Our engineering expertise and vertical integrations reduce your speed to market as well as saves you money. Our electromagnetic compatibility expertise in the tempest arena can help you meet MIL-PRF-15733 and MIL-STD 461 standard requirements.

## Features

- High common and differential mode attenuation
- Standard designs up to 400 Amps, higher limits available for custom designs
- Excellent insertion loss characteristics up to 10 GHz
- Voltage rating 115-250VAC and 400VDC up to 400 Hz
- Available to meet TEMPEST and FCC requirements
- Custom designs for application-specific requirements

## Applications

- Military
- Commercial and military/aerospace
- Secured communications
- Switching power supplies
- Data processing equipment
- Ruggedized computers
- Radar
- Electronic warfare
- Ground/air weapon systems
- Satellites
- Ship board systems
- Land based vehicles
- Fixed and mobile control stations

## Test Specifications

The high performance power line filters shown on pages 59 and 60 are designed to meet the following criteria.

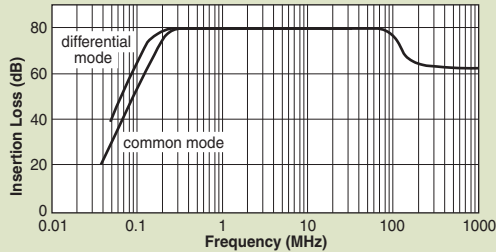
The information shown can be used as a basis for filter specifications. (Contact factory for additional details).

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-PRF-15733	Three percent of rated voltage max.
	2	Leakage Current	UL 1283	Per applicable specification
	3	Temperature Rise	MIL-PRF-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.

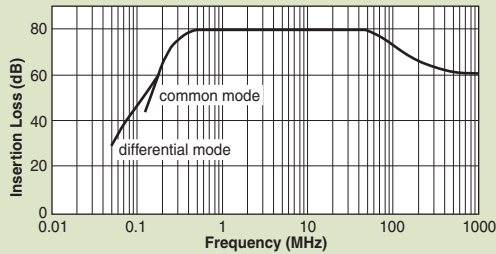
# Military/Aerospace Multisection Filters

## Insertion Loss

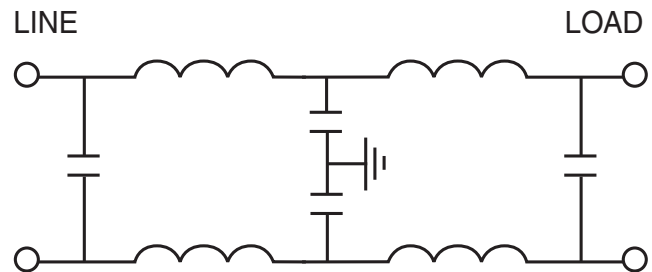
52-600-001



52-600-002

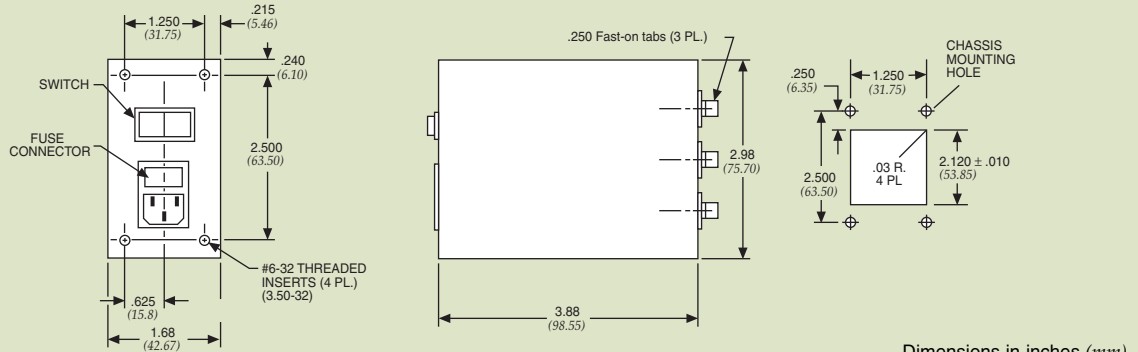


## Circuit Schematic



## Dimensions

52-600-001  
52-600-002



Dimensions in inches (mm)

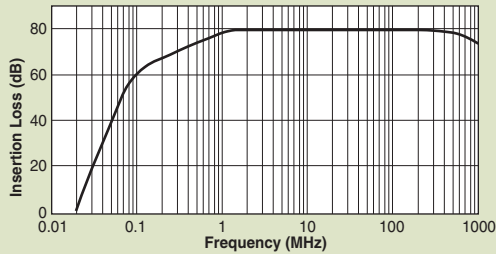
Model	Current Rating	Voltage Rating	Temperature Rating	DCR. max. (ohms)	Leakage Current (max.)	Mode (max.)	Minimum Insertion Loss (db) Per MIL-STD-220						
							50K	150K	300K	1M	10M	100M	1G
52-600-001	5A	120/240VAC 60 Hz	-40°C to +65°C	.20	1 mA	COMM	33	65	80	80	80	80	60
							37	65	80	80	80	-	-
52-600-002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

Consult factory for UL/CSA approval availability.

# Military/Aerospace Multisection Filters

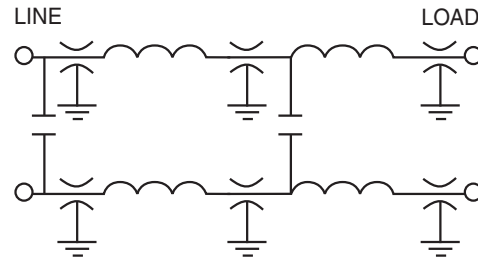
## Insertion Loss

52-523-002



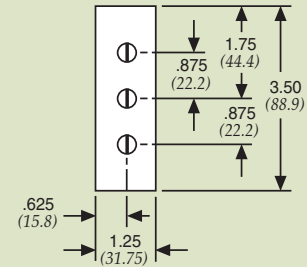
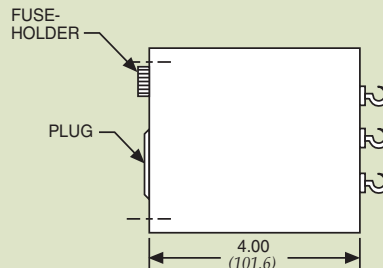
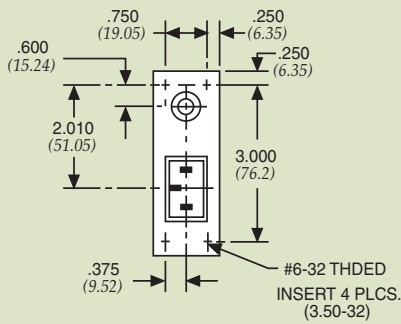
## Circuit Schematic

52-523-002



## Dimensions

52-523-002

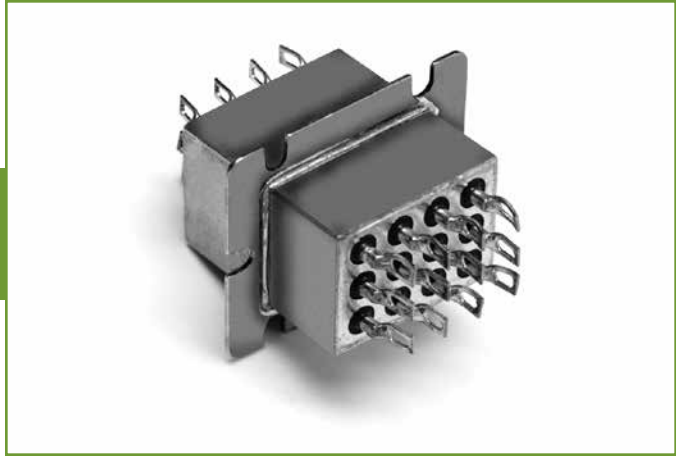


Dimensions in inches (mm)

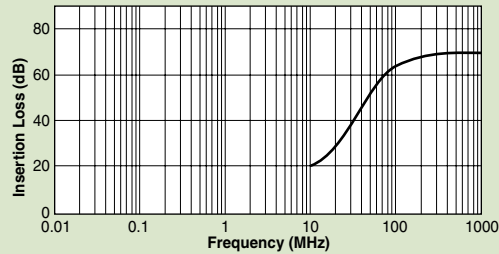
Model	Current Rating	Voltage Rating	Temperature Rating	DCR max. (ohms)	Leakage Current (max.)	Mode (max.)	Minimum Insertion Loss (db) Per MIL-STD-220						
							50K	150K	300K	1M	10M	100M	1G
52-523-002	5A	120/240VAC 60 Hz	-40°C to +65°C	.25	1 mA	COMM	-	55	60	80	80	70	60
							-	50	60	80	80	-	-

Consult factory for UL/CSA approval availability.

# Military/Aerospace Multisection Filters

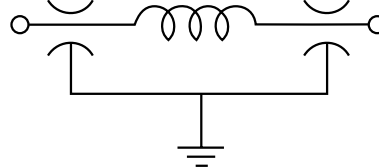


**Insertion Loss**  
1212-0502



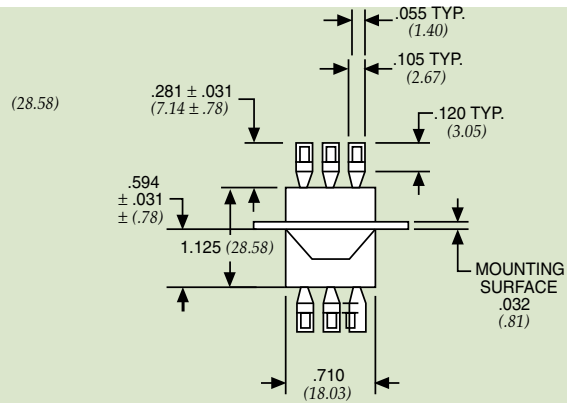
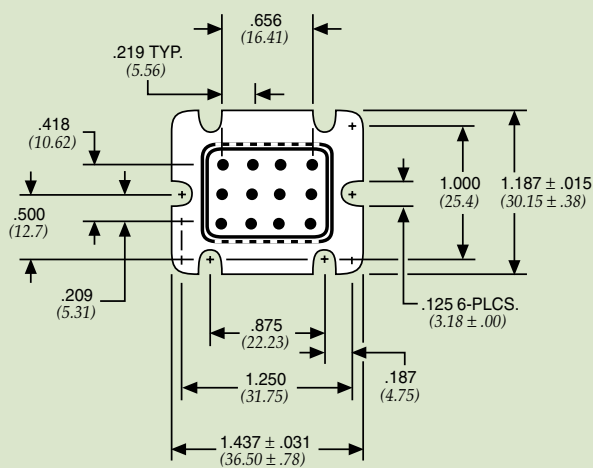
## Circuit Schematic

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 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

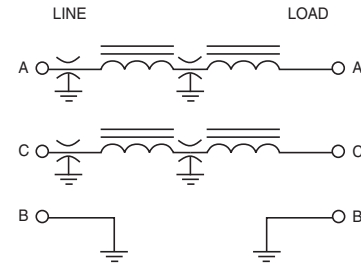
API's electromagnetic compatibility expertise in the secure communication or "TEMPEST" arena is represented by this group of high performance filters. These units are especially well suited for use in MIL-STD-461 applications to reduce conducted emissions. The filters are manufactured with glass sealed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

## Features

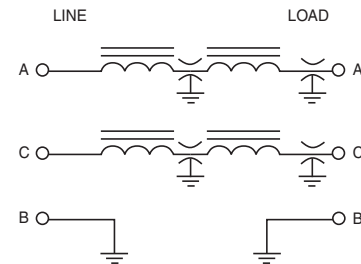
- Excellent insertion loss profile
- Available for DC & AC applications up to 400 Hz
- Available for 3-14 Amp applications
- Custom systems can be designed to your specific needs



## Filter Schematic A



## Filter Schematic B



## Dimensions

**52-378-002**

#8-32 UNC THD. INSERTS (4.17-32) .350 DEEP, 2 PLACES (8.89)

CONNECTOR #8001-14S-7P-A3 MATES WITH MS-3106-14S-7S

Dimensions in inches (mm)

### Insertion Loss

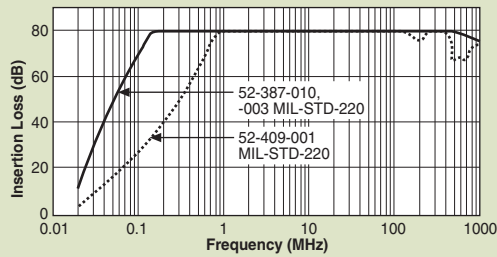
**52-378-002, -004 MIL-STD-220**

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

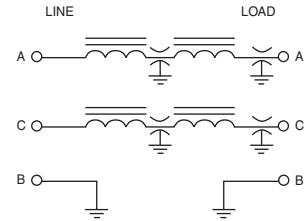
# Military/Aerospace Multisection Filters

## Insertion Loss

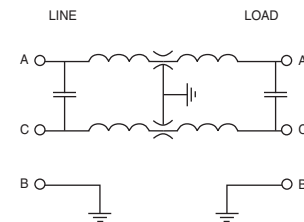
52-387-010, -003 MIL-STD-220  
52-409-001 MIL-STD-220



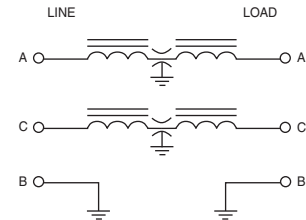
## Filter Schematic C



## Filter Schematic D

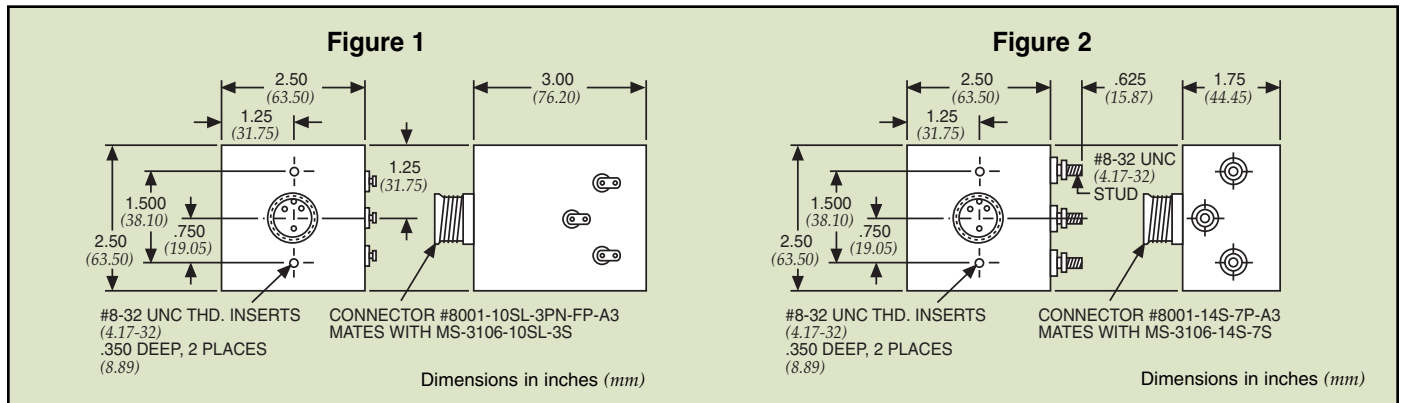


## Filter Schematic E



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

# Military/Aerospace Multisection Filters

## Secure Communications

### Features

- Meets applicable sections of MIL-PRF-15733
- Excellent performance
- Integral IEC connector
- Available with integral fused IEC connector and two pole switch
- Current ratings to 15 Amps
- Custom designs available

### Electrical Specifications

*Rated current ranges* ..... 3, 6, 10, 15 Amps

*Rated voltage*..... 115-250VAC

*Operating frequency*..... 50-60 Hz

*Maximum leakage current*

@ 115VAC 60 Hz..... 1.2 mA

@ 250VAC 50 Hz..... 2.5 mA

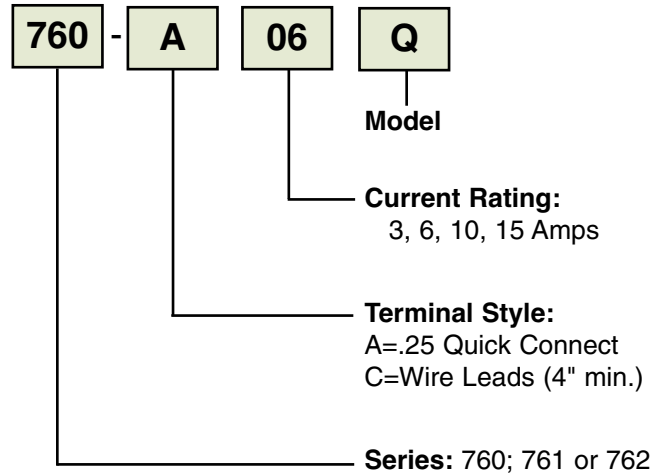
*Test voltage*

Line-to-Line..... 1450VDC

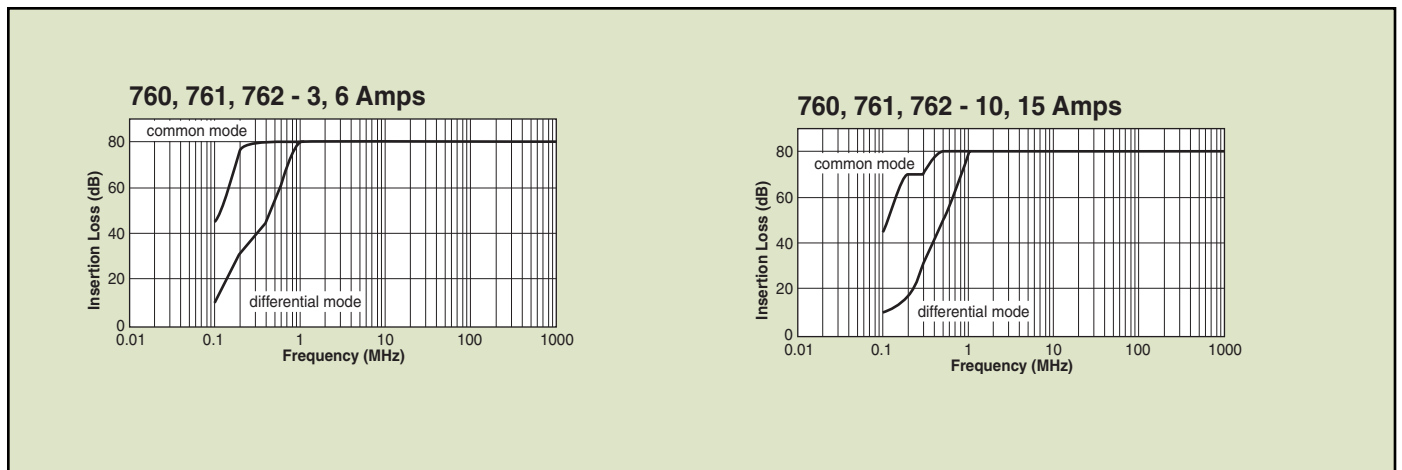
Line-to-Ground..... 2250VDC



### Part Numbering System:



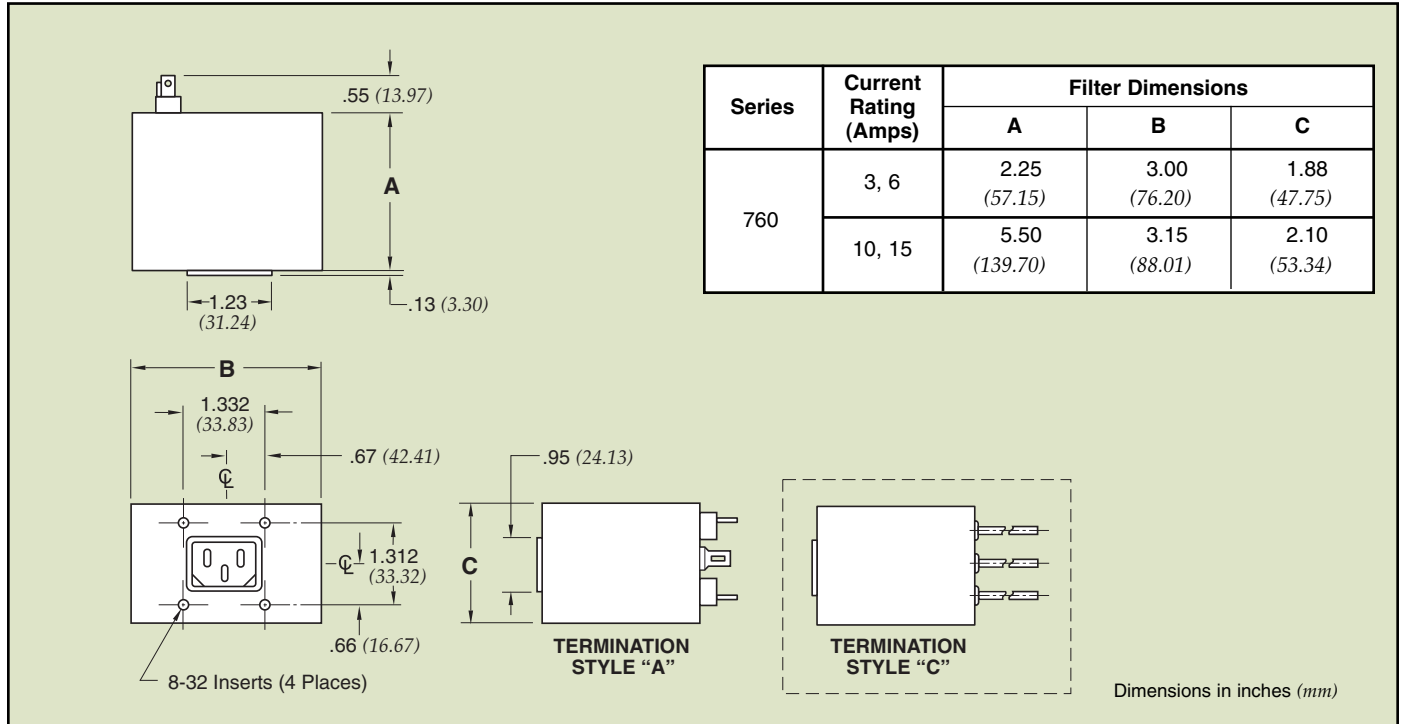
### Insertion Loss



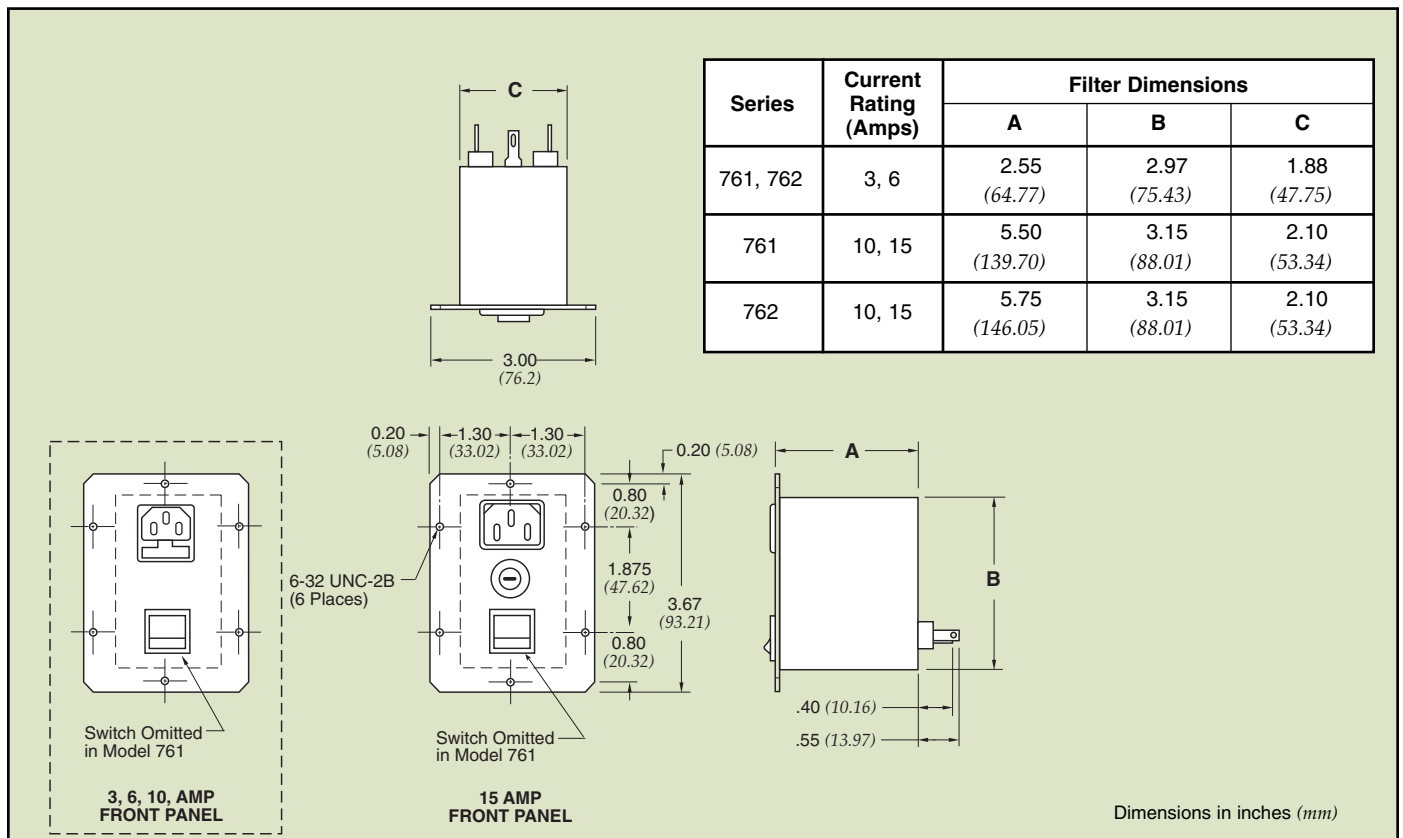
Common Mode (CM) is tested in a 50 ohm system with all lines tied together on the line and load sides of the filter.  
Differential Mode (DM) is tested in a 50 ohm system using a 180° phase splitter on both sides of the filter.

# Military/Aerospace Multisection Filters

## Dimensions - 760 Series



## Dimensions - 761, 762 Series





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[2443-007-X5S0-102MLF](#) [2443-007-X5W0-502ZLF](#) [1609990-8](#) [1609991-3](#) [1609992-1](#) [1609992-3](#) [1609993-1](#) [1609993-7](#) [200AFC6-P](#)  
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[001-X5U0-102PLF](#) [2499-003-X5S0-152MLF](#) [32AFC6-H](#) [4100-000LF](#) [4201-050LF](#) [4204-001LF](#) [4253-002LF](#) [4305-001LF](#) [4306-019LF](#)  
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[1609992-8](#) [1-1609990-1](#) [1-1609991-1](#) [FN7510-16-M4](#)