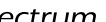


emi power filters



api 
technologies corp.
Spectrum Control

EMI Power Filters

find the ideal method to filter the AC or DC power entering your system to prevent radiated or conducted EMI with our line of standard power filters and custom power solutions



EMI Filter Expertise

We differentiate ourselves from typical filter suppliers by offering our customers an integrated approach to EMC problem solving through consulting, diagnostic testing, design and manufacturing.

- In-house test facilities to provide a total solution for your compliance issues – anechoic chamber, shielded room and NARTE certified engineers ready to test for European emission and immunity regulations, FCC Part 15 and MIL standards

Power Entry Modules, Power Line & 3 Phase Power Filters are designed in multiple configurations to cover a range of industrial applications. These have excellent attenuation for high voltage impulse, are available in single and dual stage and address FCC Part 15 regulations while meeting your power filtering needs... **PF5-PF6 & PF16-PF89**



Single Line Feed-Through (SLFT) Power Filters provide superior filtering in a compact, durable package with single, dual, and triple feed-throughs available. These filters are ideal for meeting broad frequency applications with a bolt-in style for easy installation... **PF7-PF14**



Military/Aerospace Multisection Filters provide excellent EMI filtering for demanding high reliability applications. We offer standard filters, as well as custom designed mechanical packages for unusual or tight fitting spaces and higher performance filtering and expanded voltage ratings... **PF91-PF98**



EMI Power Filter Solutions will lower your costs and reduce your time to market while providing your system with protection from radiated or conducted EMI. Our comprehensive consulting, diagnostic testing and world class manufacturing allows us to meet your design/project parameters... **PF99**



- Global manufacturing and design support with agency approved products available
- Engineering expertise and vertical integration reduce your time to market and save you money
- High reliability products with low leakage and nonmagnetic options available
- Available to meet MIL-PRF-15733 and MIL-STD-461 standards

Application Guidelines

Need for EMI suppression

Global regulatory agencies have established limits to the amount of noise that man-made electronic devices can radiate or conduct. These regulations have gained greater importance as the world's electronic population intensifies and the proximity of electronic devices becomes closer.

EMI can propagate through two basic avenues: Conducted and Radiated

Conducted refers to events where the EMI energy flowthrough power lines, data cables and other wiring that carries functional data or power.

Radiated refers to energy that is propagated by magnetic or electric fields, which originate from other electronic or electrical systems.

Interference types

There are two modes of conducted noise: differential mode (symmetrical or normal mode) and common mode (asymmetrical mode).

Differential mode interference signals are present on one side of the line, referenced to the other. The currents flow along one phase and return along another phase.

Common mode interference signals are present on both sides of the line referenced to ground. The current flows from the source to ground along the ground path and returns along the phases.

Sources of EMI

Electromagnetic interference can occur naturally or through electronic sources. Lightning discharges, precipitation, sand and dust storms, and cosmic noise are sources of natural EMI.

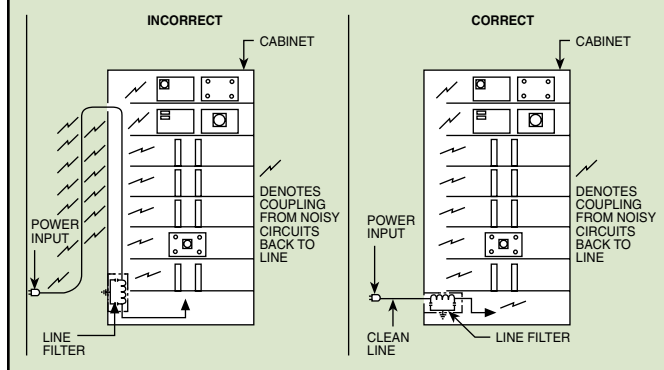
EMI generated from power electrical products cause the most concern. These man-made sources, such as power lines, rotating machinery, power supplies and electronic transmission devices, all have their own signatures and noise pollution.

EMI filters, insertion loss and attenuation

Power line EMI filters are designed to attenuate (or reduce) all radio frequency emissions or energy that is above the applicable EMC specification. Most power line EMI filters utilize inductor/capacitor "low pass" component configurations that pass all DC or low frequency AC necessary energy and attenuate (suppress) higher frequencies containing noise or unwanted energy.



Power Filter Installation



To insure a customer's "in system" unit to unit attenuation uniformity of power line filters, an insertion loss production line test is performed by API Technologies.

Each of the specific frequencies is measured using RF test equipment and the "reference signal level" of each frequency is stored. Some systems sweep the entire frequency range and store this "reference signal level". The filter to be measured, tested, or evaluated is then "inserted" between the generator and receiver that established the stored "reference signal level" on the RF test analyzer.

The measured difference without a filter ("the reference signal level") and with the filter "inserted" into the RF test equipment/analyzer is defined as insertion loss. The unit of measure for insertion loss is the decibel (dB). As noted on most curves in this bulletin, as frequency increases, the higher the insertion loss or dB value. The plot of frequency versus dB value establishes the typical insertion loss curve.

Installation Criteria

Proper installation of a filter network is critical to achieving successful filtering of electromagnetic interference. API recommends that power line filters be installed where the power line enters the equipment. The filter acts as a barrier between polluted energy and clean energy going into your equipment. It is important that the filter is connected to an effective ground plane and where proximity does not couple radiated noise to the clean lines.

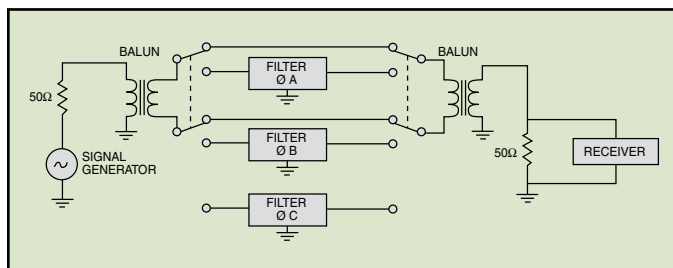
Measurement Guidelines

API Technologies has the capability to perform a wide range of tests for EMI filters. Unique custom testing systems designed by Spectrum assure the accuracy required in today's demanding environments. Testing is performed by employing a 50 ohm source and load impedance per MIL-STD-220. The individual filter performance is stated in terms of insertion loss. Overall attenuation reflects the filter's interaction within the system. Individual filter performance may differ from system to system and each application should be verified through system testing. Examples of various testing abilities and configurations are outlined below.

Differential (Normal or Symmetrical) Mode Insertion Loss

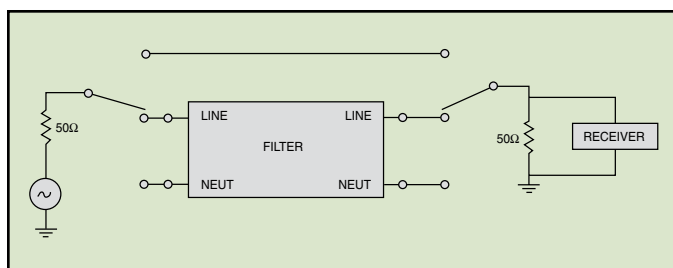
Differential mode noise is caused by non-sinusoidal conduction of rectifiers and other switching devices creating harmonic distortion.

This noise is predominant from the power frequency to approximately 10 MHz. Since it follows conventional current flow, it is considered to be of the same magnitude but opposite phase of the other line. Spectrum measures differential mode insertion loss in a 50 ohm system with Balun transformers as shown.



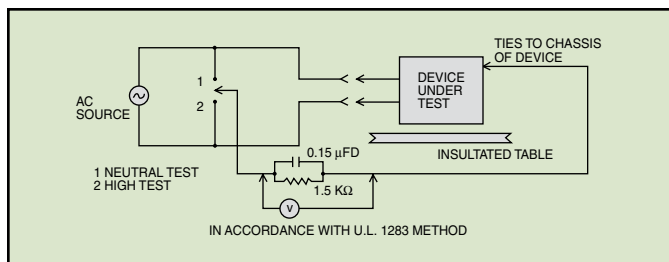
Common (Asymmetrical) Mode Insertion Loss

Since common mode insertion loss is of the same phase as the opposite line, they may not be of the same magnitude, depending on the end system circuitry. Spectrum Control tests common mode insertion loss on each line in a 50 ohm system as shown.



Leakage Current

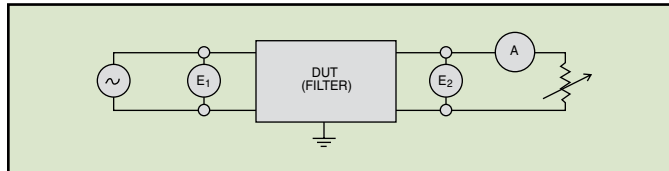
Leakage is a measurement of reactive current (capacitance) to ground per line. Spectrum uses the following test setup for leakage current measurement.



AC Voltage Drop

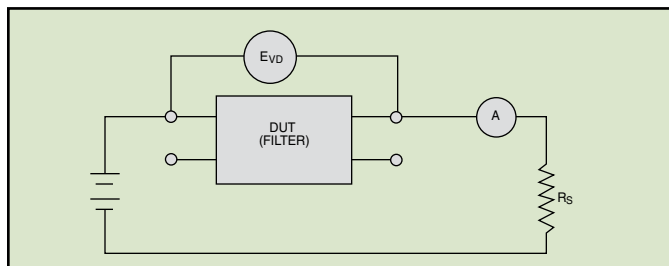
AC voltage drop is defined as $E_{in} - E_{out} = AC$ voltage drop.

Spectrum Control uses the following circuit for AC voltage drop testing:



DC Voltage Drop

DC voltage drop is performed on each line individually. This test provides the total DC voltage drop for that line of the filter. The following circuit is used in testing:



Power Entry Modules, Power Line Filters & 3 Phase Power Filters Part Numbering System

Part Numbering System

Example: **12-PMB-025-5-A**

Part number 12-PMB-025-5A represents a power line filter with threaded studs, current rated for 25 Amps and with a leakage current of 0.50 mA.

12	-	PMB	-	025	-	5	-	A
Product Line Series		Product Style		Current Rating		Leakage Current (Y Cap)		Outline Drawing/ Case Style
10 = Filtered IEC Inlets		BBF = 3 Phase, terminal block connection		001 = 1.0 Amp		250 VAC		1 Select case style from following
11 = Printed Circuit Board Mount		BFF = Bolt-in fused filter		002 = 2.0 Amps		0 = 0.075 mA	125VAC	* Cylindrical
12 = Power Line Filters		BPF = Bolt-in IEC w/Fast-on rear terminals		003 = 3.0 Amps		1 = 0.01 mA	DC = DC	* Power line w/Fast-on
13 = Three Phase Power Line Filters		BPL = Bolt-in IEC w/wire lead termination		005 = 5.0 Amps		2 = 0.20 mA		* Power line w/threaded studs
14 = Fused or Switched & Fused Power Entry Filters (250V)		BSF = Bolt-in switched & fused		006 = 6.0 Amps		3 = 0.35 mA		* Power line w/wire leads
15 = Switched & Dual Fused		CCL = Cylindrical, capacitive inputs w/Fast-ons		010 = 10 Amps		4 = 0.10mA		* PCB mount
16 = Single Phase (250V)		CLF = Cylindrical, inductive inputs w/wire leads		015 = 15 Amps		5 = 0.50 mA		* Large case 3 Phase delta
		MMB = Multiple stage filtering w/threading studs		016 = 16 Amps		6 = 0.60 mA		* Large case 3 Phase wye
		MMF = Multiple stage filtering w/Fast-on terminal		020 = 20 Amps		7 = 0.70 mA		* IEC Inlet
		MPC = Miniature PCB mountable		025 = 25 Amps		8 = 1.0 mA		
		PDB = 3 Phase, delta w/threaded studs		030 = 30 Amps		9 = 3.0 mA		
		PDF = 3 Phase, delta w/Fast-ons		035 = 35 Amps		10 = 2.0 mA		
		PDL = 3 Phase, delta w/wire leads		050 = 50 Amps		11 = 1.5 mA		
		PMB = Power line filter w/threaded studs		100 = 100 Amps		12 = 4.5 mA		
		PMF = Power line filter w/Fast-ons		150 = 150 Amps		13 = 9.0 mA		
		PML = Power line filter w/wire leads		160 = 16.0 Amps		14 = 20.0 mA		
		PWB = 3 Phase, wye w/threaded studs		200 = 200 Amps		15 = 15.0 mA		
		PWE = 3 Phase, wye w/busbar		300 = 300 Amps		17 = 33.0 mA		
		PWF = 3 Phase, wye w/Fast-ons		400 = 400 Amps		18 = 71.5 mA		
		PWL = 3 Phase, wye w/wire leads		500 = 500 Amps		DC = DC		
				600 = 600 Amps				

* Note: Not all series offer the product style, rating and leakage current

Power Entry Modules, Power Line Filters & 3 Phase Power Filters Part Numbering System

Part Numbering System

Example: **60-BPR-060-5-4**

Part number 60-BPR-060-5-4 represents a power entry module, bolt-in style with fast-on terminals, a current rating of 6 Amps, leakage current of 0.50 mA and capacitance of 0.047 μ F.

60	-	BPR	-	060	-	5	-	4
Product Line Series		Product Style		Current Rating		Leakage Current (Y Cap)		Capacitance (X Cap)
60 = Power Entry Modules		AFL = Appliance filter w/ inductive input		010 = 1.0 Amps	250 VAC	125VAC		0 = none
61 = Mini PCB Power Filters		AFC = Appliance filter w/ capacitive input		015 = 1.5 Amps	0 = 0.075 mA	0 = 0.035 mA		1 = 0.01 μ F
62 = Power Line Filters		ARL = AFL plus bleeder resistor		016 = 1.6 Amps	1 = 0.01 mA	1 = 0.005 mA		2 = 0.022 μ F
63 = Three Phase Power Line Filters		BFF = Fused filter w/ Fast-on terminals		020 = 2.0 Amps	2 = 0.20 mA	3 = 0.35 mA		3 = 0.033 μ F
64 = Fused or Switched & Fused Power Entry Filters (250V)		BFS = Fused filter w/solder lug terminals		030 = 3.0 Amps	3 = 0.35 mA	4 = 0.05 mA		4 = 0.047 μ F
65 = Fused or Switched & Fused Power Entry Filters (125V)		BHP = High frequency bolt-in for PCB		040 = 4.0 Amps	4 = 0.10 mA	5 = 0.50 mA		5 = 0.050 μ F
66 = Fused or Switched & Fused Low Leakage Power Entry Filters (250V)		BHS = High frequency bolt-in w/solder lugs		050 = 5.0 Amps	5 = 0.50 mA	6 = 0.60 mA		6 = 0.068 μ F
67 = Fused or Switched & Fused Low Leakage Power Entry Filters (125V)		BPF = Bolt-In right angle terminals		060 = 6.0 Amps	6 = 0.60 mA	7 = 0.70 mA		01 = 2 x 0.01 μ F
68 = Switched & Dual Fused Power Entry Filters		BPL = Bolt-in w/wire leads		080 = 8.0 Amps	7 = 0.70 mA	8 = 1.00 mA		02 = 0.10 μ F & 0.22 μ F
69 = Dual Fused Only or Dual Switched Only Power Entry Filters		BPP = Bolt-in PCB mount		100 = 10.0 Amps	8 = 1.00 mA	9 = 3.00 mA		04 = 2 x 0.22 μ F
		BPR = Bolt-in w/Fast-on tab terminals		150 = 15.0 Amps	9 = 3.00 mA			06 = 2 x 0.4 μ F & 0.22 μ F
		BPS = Bolt-in w/ solder lug terminals		160 = 16.0 Amps				10 = 0.15 μ F
		BSF = Bolt-in switched & fused		200 = 20.0 Amps				11 = 0.10 μ F
		MMF = Metal case w/fast-on tabs		300 = 30.0 Amps				12 = 0.22 μ F
		MPC = Miniature printed circuit board		400 = 40.0 Amps				13 = 0.33 μ F
		PMB = Metal case w/bolt-on terminals						14 = 0.47 μ F
		PMF = Metal case w/Fast-on tabs						16 = 0.22 μ F & 2 x 0.33 μ F
		PML = Metal case w/wire leads						21 = 1.00 μ F
		PPF = Plastic case w/Fast-on tabs						
		PQF = Plastic case w/Fast-on tabs						
		PRF = Plastic case w/Fast-on tabs						
		SOF = Switched filter w/ Fast-on tabs						
		SOS = Switched filter w/ solder tabs						
		SPL = Snap-in w/wire leads						
		SPR = Snap-in w/Fast-on terminals						
		SPS = Snap-in w/solder lug terminals						
		SSF = Snap-in switched & fused						
		ARC = AFC plus bleeder resistor						

* Note: Not all series offer the product style, rating and leakage current

High Current DC Single Line Feed-through Series

Features

- Voltage rating of 130VDC
- C configuration with Class Y4 capacitors
- Current rating up to 300 Amps
- Operating temperature range: -40°C to +85°C
- Excellent filtering in compact package
- Bolt-in style with D-shaped bushing for easy installation
- Low cost EMI solution
- Design flexibility
- UL and Semko approved

Applications

- Telecommunications (cellular base stations, telephone switching racks, etc.)
- Power supplies
- Medical equipment
- C.O.T.S. (Commercial-Off-The-Shelf) Military
- Industrial equipment controls
- Data transmission equipment

Specifications

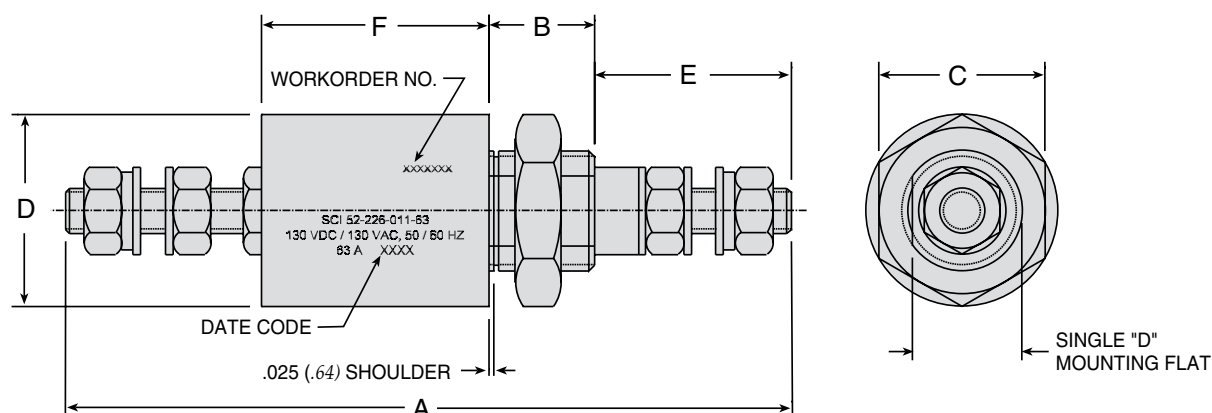
Part Number	Rated Current	Min. Cap.	Minimum Insertion Loss (db)*					
			.01MHz	.10MHz	1MHz	10MHz	100MHz	1000MHz
52F226-011-10	10A	10nF	-	-	4	21	41	60
52F226-011-16	16A							
52F226-011-32	32A							
52F226-011-63	63A							
52F226-011-100	100A	47nF		2	15	34	53	74
52F226-011-200	200A	100nF		5	21	40	60	85
52F226-011-250	250A							
52F226-011-300	300A							
52F226-021-16	16A	47nF		2	15	34	53	74
52F226-021-32	32A							
52F226-021-63	63A							
52F226-021-100	100A	100nF		5	21	40	60	85
52F226-021-200	200A	470nF	2	16	33	52	75	90
52F226-021-250	250A							
52F226-021-300	300A							
52F226-031-16	16A	100nF	-	5	21	40	60	85
52F226-031-32	32A							
52F226-031-63	63A							
52F226-031-100	100A	470nF	2	16	33	52	75	90
52F226-031-200	200A	1000nF	6	20	40	60	85	
52F226-031-250	250A							
52F226-031-300	300A							
52F226-041-16	16A	470nF	2	16	33	52	75	
52F226-041-32	32A							
52F226-041-63	63A							
52F226-041-100	100A	1000nF	6	20	40	60	85	
52F226-041-200	200A	4700nF	15	35	54	74	90	

* Optimum performance with proper installation



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High Current DC Single Line Feed-through Series



Dimensions

Part Number	A	B	C	D	E	F	
52F226-011-10	2.24 (57)	0.39 (10)	0.51 (13)	0.56 (14.29)	0.63 (16)	0.71 (18)	
52F226-011-16	2.48 (63)	0.47 (12)	0.67 (17)	0.75 (19.05)	0.71 (18)		
52F226-011-32							
52F226-011-63	3.78 (96)	0.55 (14)	0.87 (22)	1 (25.40)	1.02 (26)	1.18 (30)	
52F226-011-100	4.45 (113)	0.63 (16)	1.06 (27)	1.25 (31.75)	1.26 (32)	1.30 (33)	
52F226-011-200	5.12 (130)	0.75 (19)			1.57 (40)		
52F226-011-250	5.83 (148)		1.57 (40)	2 (50.80)	1.81 (46)	1.65 (42)	
52F226-011-300							
52F226-021-16	2.95 (75)	0.47 (12)	0.67 (17)	0.75 (19.05)	0.71 (18)	1.18 (30)	
52F226-021-32							
52F226-021-63	3.78 (96)	0.55 (14)	0.87 (22)	1 (25.40)	1.02 (26)		
52F226-021-100	4.45 (113)	0.63 (16)	1.06 (27)	1.25 (31.75)	1.26 (32)	1.30 (33)	
52F226-021-200	5.12 (130)	0.75 (19)			1.57 (40)		1.81 (46)
52F226-021-250	6.30 (160)		1.57 (40)	2 (50.80)	1.81 (46)	2.13 (54)	
52F226-021-300							
52F226-031-16	2.95 (75)	0.47 (12)	0.67 (17)	0.75 (19.05)	0.71 (18)	1.18 (30)	
52F226-031-32							
52F226-031-63	3.78 (96)	0.55 (14)	0.87 (22)	1 (25.40)	1.02 (26)		
52F226-031-100	4.45 (113)	0.63 (16)	1.06 (27)	1.25 (31.75)	1.26 (32)	1.30 (33)	
52F226-031-200	5.79 (147)	0.75 (19)		1.5 (38.10)	1.57 (40)	1.97 (50)	
52F226-031-250	7.01 (178)		1.57 (40)	2 (50.80)	1.81 (46)	2.83 (72)	
52F226-031-300							
52F226-041-16	3.23 (82)	0.63 (16)	1.06 (27)	1.25 (31.75)	0.71 (18)	1.30 (33)	
52F226-041-32					1.02 (26)		
52F226-041-63	3.98 (101)	0.75 (19)	1.57 (40)	1.5 (38.10)	1.26 (32)	1.97 (50)	
52F226-041-100	5.24 (133)				1.57 (40)		1.26 (32)
52F226-041-200	6.50 (165)				1.57 (40)	2 (50.80)	1.57 (40)

Dimensions in inches (mm)

High Current DC Single Line Pi Series

Features

- Voltage rating of 130VDC
- Pi configuration with Class Y4 capacitors
- Current rating up to 200 Amps
- Excellent filtering in compact package
- Bolt-in style with D-shaped bushing for easy installation
- Low cost EMI solution
- UL and Semko approved

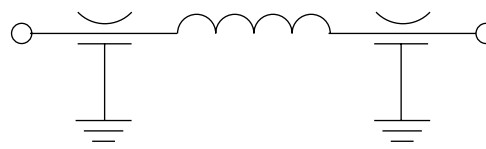
Applications

- Telecommunications (cellular base stations, telephone switching racks, etc.)
- Power supplies
- Medical equipment
- C.O.T.S. (Commercial-Off-The-Shelf) Military
- Industrial equipment controls
- Data transmission equipment



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Circuit Diagram

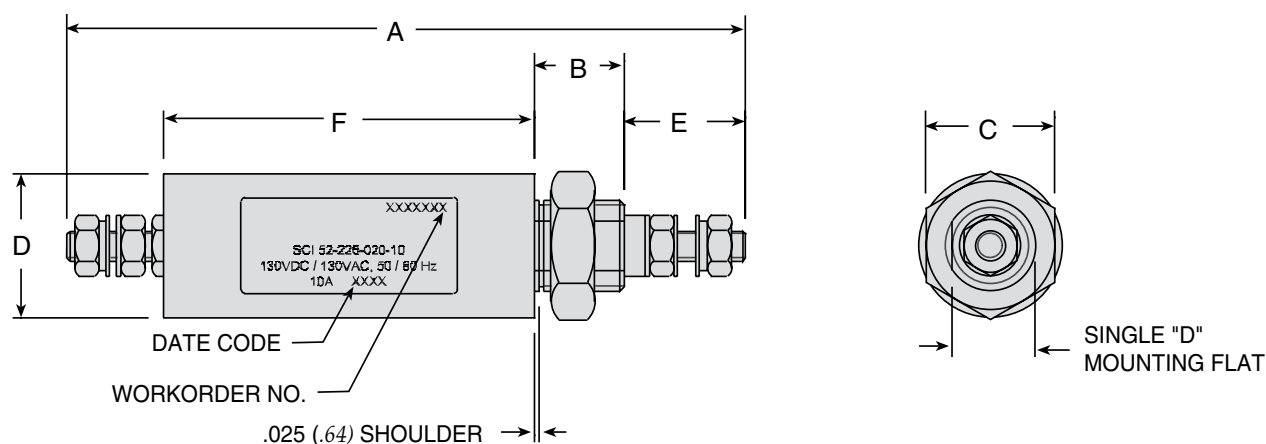


Specifications

Part Number	Rated Current	Min. Cap. (2X)	Minimum Insertion Loss (db) *								
			.01MHz	.10MHz	1MHz	10MHz	100MHz	1000MHz			
Standard Performance											
52F226-020-10	10A	10nF	-	0.5	8	23	70	90			
52F226-020-16	16A					35					
52F226-020-32	32A			2	10	23	50				
52F226-020-63	63A	100nF		8	27	67	90				
52F226-020-100	100A	470nF	4	21	70						
52F226-020-200	200A		7	23	30	60					
High Performance											
52F226-029-10	10A	100nF	-	8	25	75	90	90			
52F226-029-16	16A										
52F226-029-32	32A										
52F226-029-63	63A	470nF				4			21	35	70
52F226-029-100	100A	1000nF				8			26	57	73
52F226-029-200	200A	4700nF	20	40	85	90					

* Optimum performance with proper installation

High Current DC Single Line Pi Series



Dimensions

Part Number	A	B	C	D	E	F
Standard Performance						
52F226-020-10	3.54 (90)	0.47 (12)	0.67 (17)	0.75 (19.05)	0.63 (16)	1.93 (49)
52F226-020-16	3.86 (98)				0.71 (18)	2.09 (53)
52F226-020-32						
52F226-020-63	6.30 (160)	0.55 (14)	0.87 (22)	1 (25.40)	1.02 (26)	3.70 (94)
52F226-020-100	7.24 (184)	0.63 (16)	1.06 (27)	1.25 (31.75)	1.26 (32)	4.09 (104)
52F226-020-200	8.23 (209)	0.75 (19)		1.50 (38.10)	1.57 (40)	4.41 (112)
High Performance						
52F226-029-10	5.12 (130)	0.47 (12)	0.67 (17)	0.75 (19.05)	0.63 (16)	3.50 (89)
52F226-029-16	5.47 (139)				0.71 (18)	3.70 (94)
52F226-029-32						
52F226-029-63	6.81 (173)	0.63 (16)	1.06 (27)	1.25 (31.75)	1.02 (26)	4.13 (105)
52F226-029-100	8.98 (228)	0.75 (19)		1.50 (38.10)	1.26 (32)	5.71 (145)
52F226-029-200	11 (279)		1.57 (40)	2 (50.80)	1.57 (40)	7.17 (182)

Dimensions in inches (mm)

High Current AC Single Line Feed-through Series



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Features

- Voltage rating of 250VAC
- C configuration with Class Y2 capacitors
- Current rating up to 300 Amps
- Excellent filtering in compact package
- Bolt-in style with D-shaped bushing for easy installation
- Low cost EMI solution
- Design flexibility
- UL and Semko approvals pending

Applications

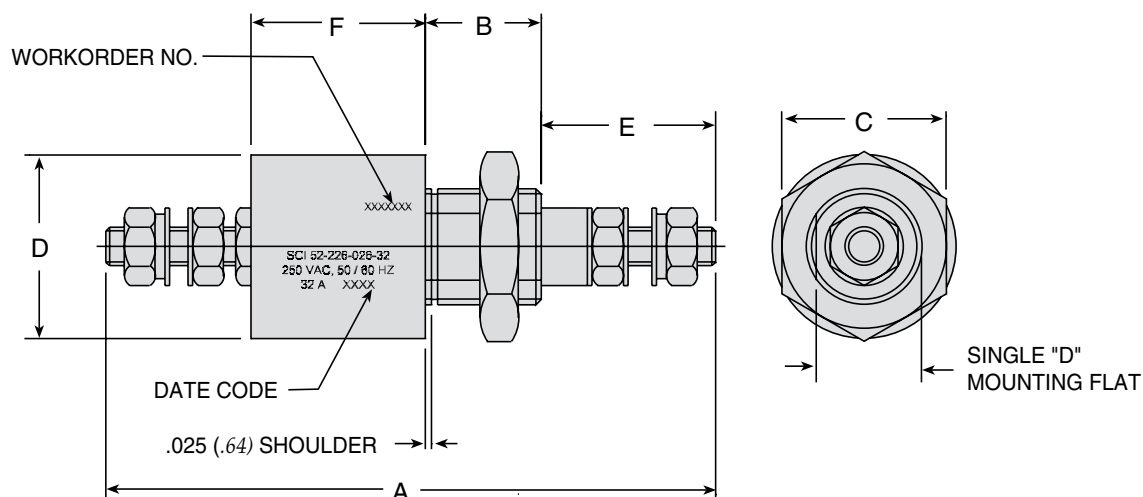
- Telecommunications (cellular base stations, telephone switching racks, etc.)
- Power supplies
- Medical equipment
- C.O.T.S. (Commercial-Off-The-Shelf) Military
- Industrial equipment controls
- Data transmission equipment

Specifications

Part Number	Rated Current	Min. Cap.	Minimum Insertion Loss (db) *						
			.01MHz	.10MHz	1MHz	10MHz	100MHz	1000MHz	
52F226-016-10	10A	2.2nF	-	-	-	9	30	45	
52F226-016-16	16A	4.7nF			2	15	34	54	
52F226-016-32	32A				4	21	41	60	
52F226-016-63	63A	10nF			2	15	34	53	74
52F226-016-100	100A	47nF		5	21	40	60	85	
52F226-016-200	200A	100nF			2	15	34	54	
52F226-016-250	250A				4	21	41	60	
52F226-016-300	300A			2	15	34	53	74	
52F226-026-10	10A	4.7nF		-	21	40	60	85	
52F226-026-16	16A	10nF			27	47	67	90	
52F226-026-32	32A			47nF	2	15	34	53	74
52F226-026-63	63A	47nF		3	16	35	53	90	
52F226-026-100	100A	100nF		5	21	40	60	85	
52F226-026-200	200A	220nF		10	27	47	67	90	
52F226-026-250	250A			2	15	34	53		74
52F226-026-300	300A			3	16	35	53		90
52F226-036-16	16A	47nF		5	21	40	60	85	
52F226-036-32	32A	33nF		10	27	47	67	90	
52F226-036-63	63A	100nF		2	16	33	52		75
52F226-036-100	100A	220nF		5	21	40	60		85
52F226-036-200	200A	470nF	2	16	33	52	75	90	
52F226-036-250	250A								
52F226-036-300	300A								
52F226-046-16	16A	100nF	-	5	21	40	60	85	
52F226-046-32	32A	47nF		2	15	34	53	74	
52F226-046-63	63A	220nF		10	27	47	67	90	
52F226-046-100	100A	470nF	2	16	33	52	75		
52F226-046-200	200A	1000nF	6	20	40	60	85		
52F226-046-250	250A								
52F226-046-300	300A								

* Optimum performance with proper installation

High Current AC Single Line Feed-through Series



Dimensions

Part Number	A	B	C	D	E	F
52F226-016-10	2.24 (57)	0.39 (10)	0.51 (13)	0.56 (14.29)	0.63 (16)	0.71 (18)
52F226-016-16	2.48 (63)	0.47 (12)	0.67 (17)	0.75 (19.05)	0.71 (18)	
52F226-016-32						
52F226-016-63	3.78 (96)	0.55 (14)	0.87 (22)	1 (25.40)	1.02 (26)	1.18 (30)
52F226-016-100	4.45 (113)	0.63 (16)	1.06 (27)	1.25 (31.75)	1.26 (32)	1.30 (33)
52F226-016-200	5.12 (130)	0.75 (19)		1.5 (38.10)	1.57 (40)	
52F226-016-250	5.83 (148)		1.57 (40)	2 (50.80)	1.81 (46)	1.65 (42)
52F226-016-300						
52F226-026-10	2.24 (57)	0.39 (10)	0.51 (13)	0.56 (14.29)	0.63 (16)	0.71 (18)
52F226-026-16	2.48 (63)	0.47 (12)	0.67 (17)	0.75 (19.05)	0.71 (18)	
52F226-026-32						
52F226-026-63	3.78 (96)	0.55 (14)	0.87 (22)	1 (25.40)	1.02 (26)	1.18 (30)
52F226-026-100	4.45 (113)	0.63 (16)	1.06 (27)	1.25 (31.75)	1.26 (32)	1.30 (33)
52F226-026-200	5.12 (130)	0.75 (19)		1.5 (38.10)	1.57 (40)	
52F226-026-250	5.83 (148)		1.57 (40)	2 (50.80)	1.81 (46)	1.65 (42)
52F226-026-300						
52F226-036-16	2.95 (75)	0.47 (12)	0.67 (17)	0.75 (19.05)	0.71 (18)	1.18 (30)
52F226-036-32						
52F226-036-63	3.78 (96)	0.55 (14)	0.87 (22)	1 (25.40)	1.02 (26)	
52F226-036-100	4.57 (116)	0.75 (19)	1.06 (27)	1.5 (38.10)	1.26 (32)	1.30 (33)
52F226-036-200	5.79 (147)		1.57 (40)		1.57 (40)	1.97 (50)
52F226-036-250	6.30 (160)			2 (50.80)	1.81 (46)	2.13 (54)
52F226-036-300						
52F226-046-16	3.03 (77)	0.55 (14)	0.87 (22)	1 (25.40)	0.71 (18)	1.18 (30)
52F226-046-32	2.95 (75)	0.47 (12)	0.67 (17)			
52F226-046-63	4.45 (113)	0.63 (16)	1.06 (27)	1.25 (31.75)	1.02 (26)	1.30 (33)
52F226-046-100	5.24 (133)	0.75 (19)		1.5 (38.10)	1.26 (32)	1.97 (50)
52F226-046-200	5.79 (147)		1.57 (40)	1.57 (40)		
52F226-046-250	6.30 (160)			2 (50.80)	1.81 (46)	2.13 (54)
52F226-046-300						

Dimensions in inches (mm)

High Current AC Single Line Pi Series

Features

- Voltage rating of 250VAC
- Pi configuration with Class Y2 capacitors
- Current rating up to 300 Amps
- Excellent filtering in compact package
- Bolt-in style with D-shaped bushing for easy installation
- Low cost EMI solution
- Design flexibility
- UL and Semko approvals pending

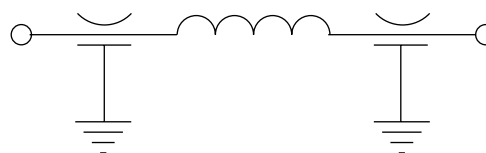
Applications

- Telecommunications (cellular base stations, telephone switching racks, etc.)
- Power supplies
- Medical equipment
- C.O.T.S. (Commercial-Off-The-Shelf) Military
- Industrial equipment controls
- Data transmission equipment



RoHS
COMPLIANT

Circuit Diagram

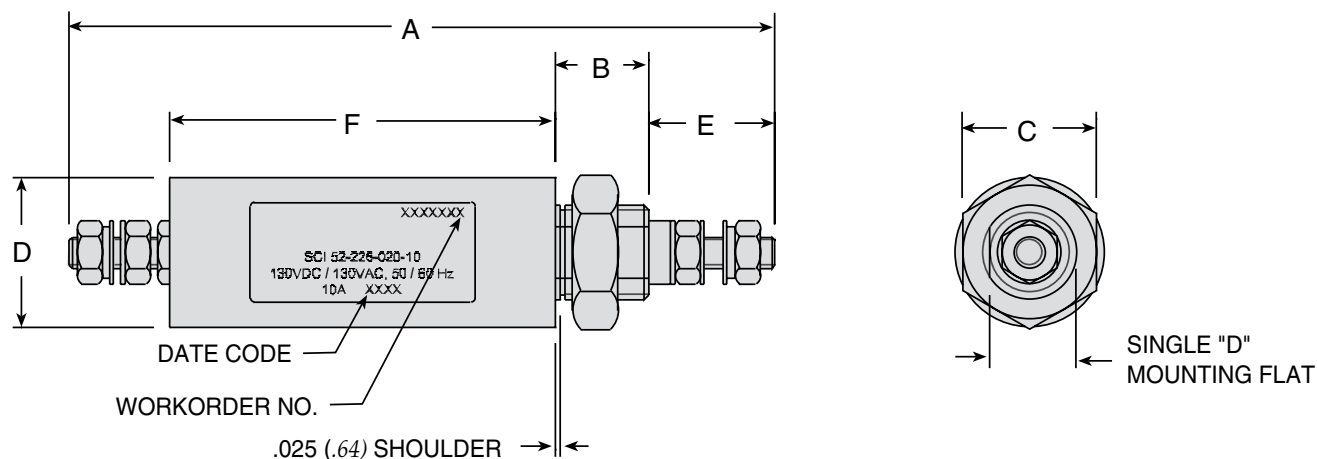


Specifications

Part Number	Rated Current	Min. Cap. (2X)	Minimum Insertion Loss (db) *					
			.01MHz	.10MHz	1MHz	10MHz	100MHz	1000MHz
Standard Performance								
52F226-037-10	10A	4.7nF	-	-	4	19	77	90
52F226-037-16	16A	10nF		1	8	22	50	
52F226-037-32	32A			4	21	52	80	
52F226-037-63	63A	47nF		8	25	73	90	
52F226-037-100	100A	100nF	1	9	26	75		
52F226-037-200	200A							
52F226-037-250	250A							
52F226-037-300	300A							
High Performance								
52F226-019-10	10A	10nF	-	1	9	30	80	90
52F226-019-16	16A	22nF		3	15	47		
52F226-019-32	32A			12	27	75	90	
52F226-019-63	63A	150nF	1	21	39	85		
52F226-019-100	100A	470nF	4		57			
52F226-019-200	200A							
52F226-019-250	250A							
52F226-019-300	300A							

* Optimum performance with proper installation

High Current AC Single Line Pi Series



Dimensions

Part Number	A	B	C	D	E	F	
Standard Performance							
52F226-037-10	3.86 (98)	0.47 (12)	0.67 (17)	0.75 (19.05)	0.63 (16)	2.24 (57)	
52F226-037-16	4.17 (106)				0.71 (18)	2.40 (61)	
52F226-037-32							
52F226-037-63	6.30 (160)	0.55 (14)	0.87 (22)	1 (25.40)	1.02 (26)	3.7 (94)	
52F226-037-100	7.24 (184)	0.63 (16)	1.06 (27)	1.25 (31.75)	1.26 (32)	4.09 (104)	
52F226-037-200	8.23 (209)	0.75 (19)		1.5 (38.10)	1.57 (40)	4.41 (112)	
52F226-037-250	7.87 (200)		1.81 (46)		3.66 (93)		
52F226-037-300							
High Performance							
52F226-019-10	4.21 (107)	0.47 (12)	0.67 (17)	0.75 (19.05)	0.63 (16)	2.6 (66)	
52F226-019-16	4.57 (116)	0.55 (14)	0.87 (22)	1 (25.40)	0.71 (18)	2.72 (69)	
52F226-019-32							
52F226-019-63	6.81 (173)	0.63 (16)	1.06 (27)	1.25 (31.75)	1.02 (26)	4.13 (105)	
52F226-019-100	8.98 (228)	0.75 (19)		1.5 (38.10)	1.26 (32)	5.71 (145)	
52F226-019-200	9.57 (243)		1.57 (40)		2 (50.80)	1.57 (40)	5.75 (146)
52F226-019-250	10.5 (267)						6.30 (160)
52F226-019-300							

Dimensions in inches (mm)

Power Entry Modules Bolt-in Rear Terminals

60-BPR & BPS Series

Features

- Ideally suited for products that must conform to FCC part 15 regulations
- Metal case offers high performance
- Meets over voltage of IEC 664 category II and complies with IEC 950
- Uses IEC connector that meets most safety standards
- Solder lug and Fast-on tab terminals available
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF17)
- UL approved low leakage version also available

Applications

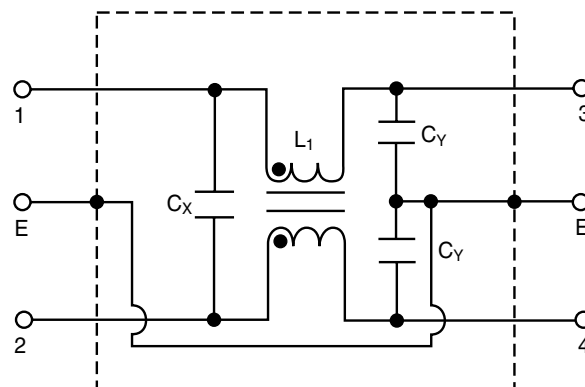
- Digital equipment
- Personal computers and peripherals
- Measuring instruments
- Monitor and display units



Tested and found to be
IAW VDE 0565 Part 3.



Circuit Diagram



Specifications

Model*	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Capacitance		Inductance (L ₁)	Temperature Rise (Max.)
				C _Y	C _X		
60-XXX-010-3-2	250VAC	1A	0.35mA	2200pF ± 20%	.022uF ± 20%	6.0mH	30°C
60-XXX-010-3-4					.047uF ± 20%		
60-XXX-010-5-2			0.50mA	3300pF ± 20%	.022uF ± 20%		
60-XXX-010-5-4					.047uF ± 20%		
60-XXX-020-3-2	250VAC	2A	0.35mA	2200pF ± 20%	.022uF ± 20%	2.4mH	30°C
60-XXX-020-3-4					.047uF ± 20%		
60-XXX-020-5-2			0.50mA	3300pF ± 20%	.022uF ± 20%		
60-XXX-020-5-4					.047uF ± 20%		
60-XXX-030-3-2	250VAC	3A	0.35mA	2200pF ± 20%	.022uF ± 20%	1.2mH	30°C
60-XXX-030-3-4					.047uF ± 20%		
60-XXX-030-5-2			0.50mA	3300pF ± 20%	.022uF ± 20%		
60-XXX-030-5-4					.047uF ± 20%		
60-XXX-060-3-2	250VAC	6A	0.35mA	2200pF ± 20%	.022uF ± 20%	0.53mH	45°C
60-XXX-060-3-4					.047uF ± 20%		
60-XXX-060-5-2			0.50mA	3300pF ± 20%	.022uF ± 20%		
60-XXX-060-5-4					.047uF ± 20%		
60-XXX-100-3-2	250VAC	10A	0.35mA	2200pF ± 20%	.022uF ± 20%	0.26mH	45°C
60-XXX-100-5-2			0.50mA	3300pF ± 20%	.022uF ± 20%		
60-BPR-150-3-11	250VAC	15A	0.35mA	2200pF ± 20%	.1uF ± 20%	0.15mH	45°C

Note: Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max. at rated current
Weight: 45g
Input: Compatible with IEC-320

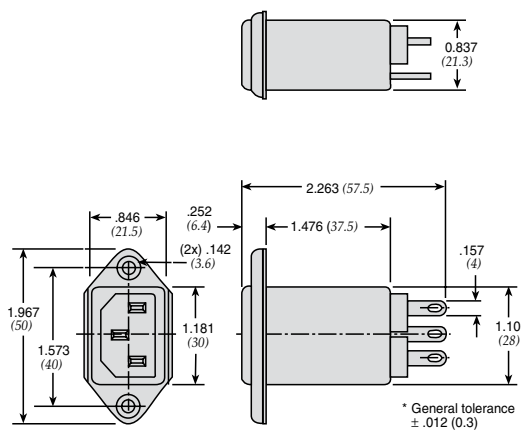
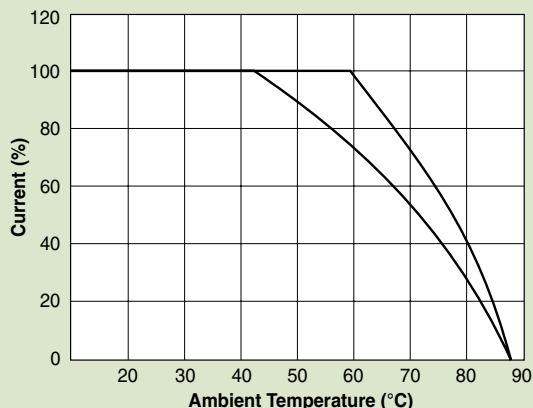
* Substitute BPR or BPS for XXX

BPS - Solder lug terminals
BPR - Fast-on tab terminals

Power Entry Modules Bolt-in Rear Terminals

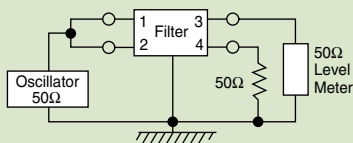
60-BPR & BPS Series

Temperature Characteristics

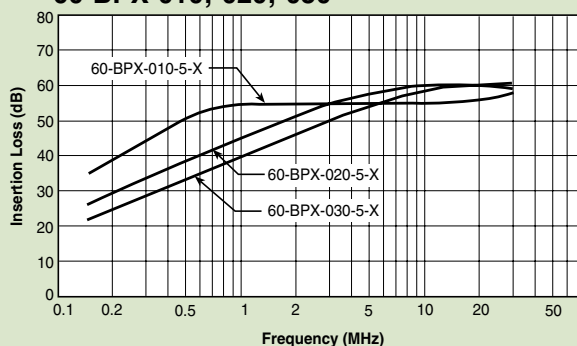


Dimensions in inches (mm)

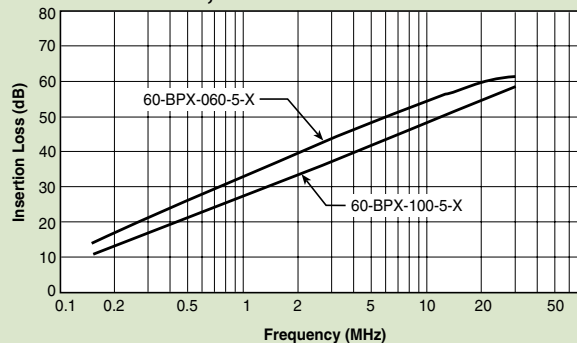
Common Mode



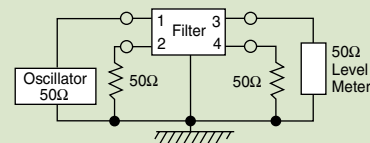
60-BPX-010;-020;-030



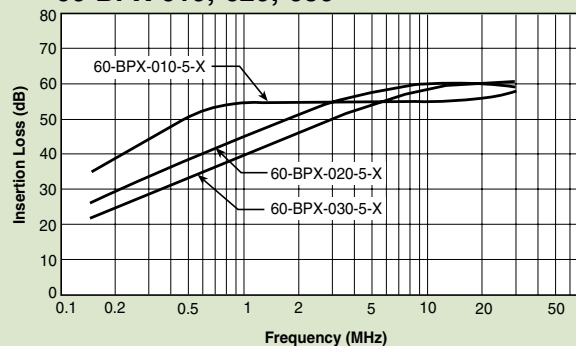
60-BPX-060;-100



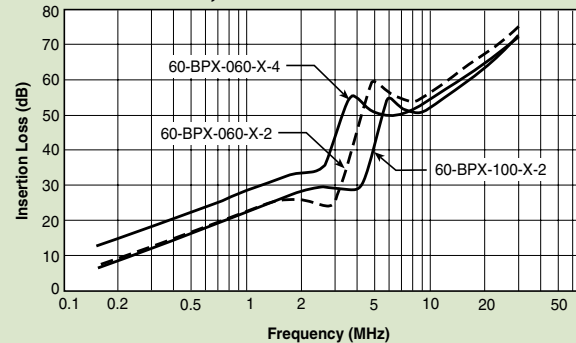
Normal Mode



60-BPX-010;-020;-030



60-BPX-060;-100



Power Entry Modules Bolt-in Right Angle Terminals

60-BPF Series

Features

- Ideally suited for products that must conform to FCC part 15 regulations
- Metal case offers high performance
- Meets over voltage of IEC 664 category II and complies with IEC 950
- Uses IEC connector that meets most safety standards
- PCB mounting types available (see page PF46)
- Length under tab is shortened for small spaces
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF19)
- UL approved low leakage version also available

Applications

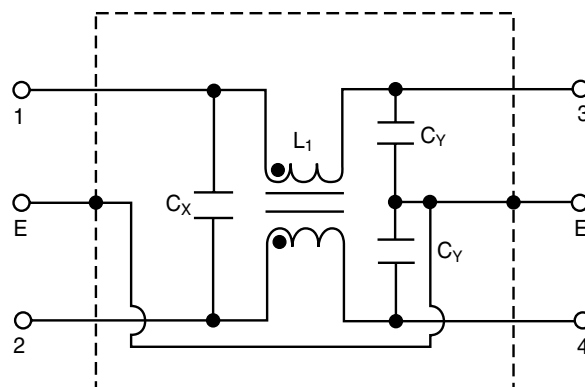
- Digital equipment
- Personal computers and peripherals
- Measuring instruments
- Monitor and display units



Tested and found to be
IAW VDE 0565 Part 3.



Circuit Diagram



Specifications

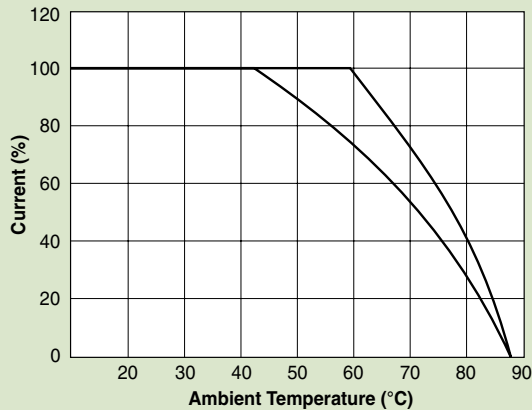
Model	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Capacitance		Inductance (L ₁)	Temperature Rise (Max.)
				C _Y	C _X		
60-BPF-010-3-2	250VAC	1A	0.35mA	2200pF ± 20%	.022uF ± 20%	6.0mH	30°C
60-BPF-010-3-4					.047uF ± 20%		
60-BPF-010-5-2			0.50mA	3300pF ± 20%	.022uF ± 20%		
60-BPF-010-5-4					.047uF ± 20%		
60-BPF-020-3-2	250VAC	2A	0.35mA	2200pF ± 20%	.022uF ± 20%	2.4mH	30°C
60-BPF-020-3-4					.047uF ± 20%		
60-BPF-020-5-2			0.50mA	3300pF ± 20%	.022uF ± 20%		
60-BPF-020-5-4					.047uF ± 20%		
60-BPF-030-3-2	250VAC	3A	0.35mA	2200pF ± 20%	.022uF ± 20%	1.2mH	30°C
60-BPF-030-3-4					.047uF ± 20%		
60-BPF-030-5-2			0.50mA	3300pF ± 20%	.022uF ± 20%		
60-BPF-030-5-4					.047uF ± 20%		
60-BPF-060-3-2	250VAC	6A	0.35mA	2200pF ± 20%	.022uF ± 20%	0.53mH	45°C
60-BPF-060-3-4					.047uF ± 20%		
60-BPF-060-5-2			0.50mA	3300pF ± 20%	.022uF ± 20%		
60-BPF-060-5-4					.047uF ± 20%		

Note: Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max. at rated current
Weight: 50g
Input: Compatible with IEC-320

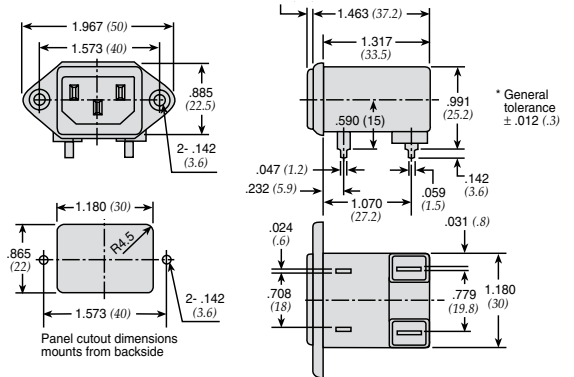
Power Entry Modules Bolt-in Right Angle Terminals

60-BPF Series

Temperature Characteristics

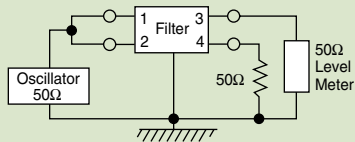


60-BPF Fast-on Terminals

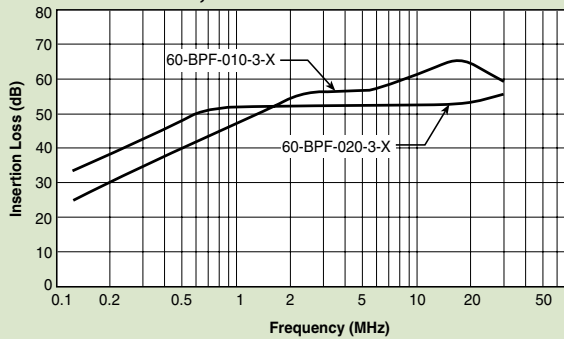


Dimensions in inches (mm)

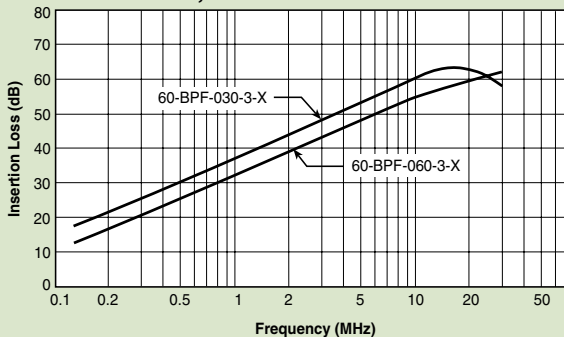
Common Mode



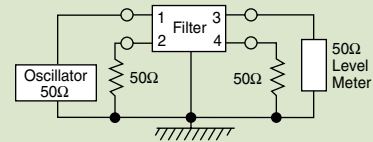
60-BPF-010;-020



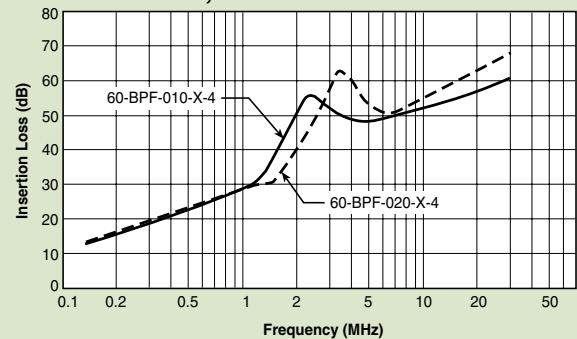
60-BPF-030;-060



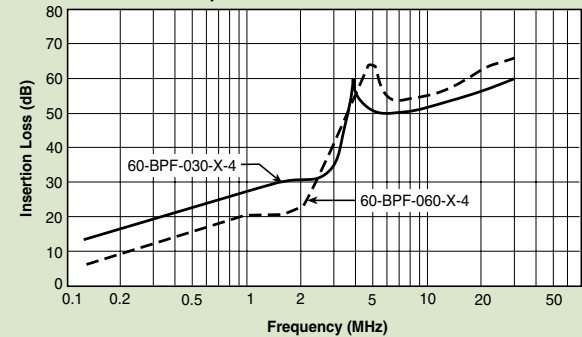
Normal Mode



60-BPF-010;-020



60-BPF-030;-060



Power Entry Modules High Frequency Attenuation

60-BHS Series

Features

- Ideally suited for products that must conform to FCC part 15 regulations
- Metal cased miniature filter offers high performance
- Meets over voltage of IEC 664 category II and complies with IEC 950
- PCB mounting types available (see page PF48)
- PCB mounting minimizes space and provides economical installation
- Excellent filtering characteristics for high frequencies
- Earth coil standard
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF21)

Applications

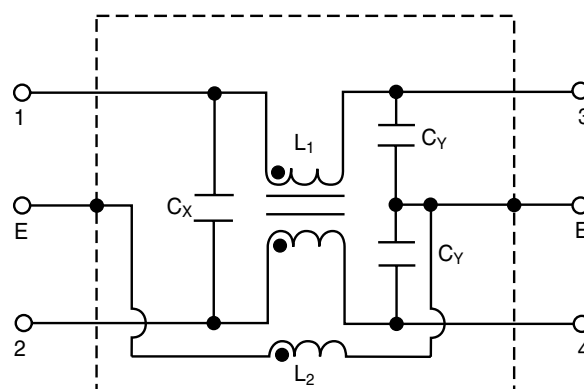
- Digital equipment
- Personal computers and peripherals
- Measuring instruments
- Monitor and display units



Tested and found to be
IAW VDE 0565 Part 3.



Circuit Diagram



Specifications

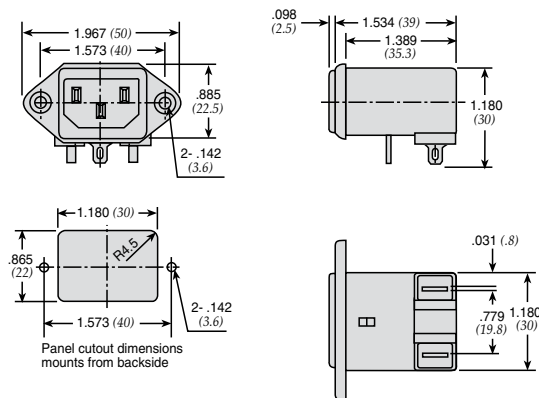
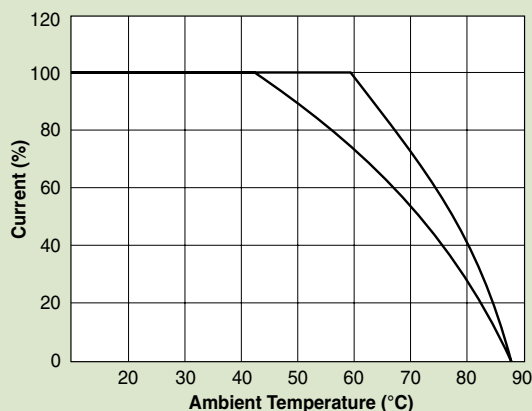
Model	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Capacitance		Inductance		Temperature Rise (Max.)
				C _Y	C _X	(L ₁)	(L ₂)	
60-BHS-010-3-11	250VAC	1A	0.35mA	2200pF ± 20%	0.1uF ± 20%	6mH	18.3uH	30°C
60-BHS-010-3-4					.047uF ± 20%			
60-BHS-010-5-11			0.50mA	3300pF ± 20%	0.1uF ± 20%			
60-BHS-010-5-4					.047uF ± 20%			
60-BHS-020-3-11	250VAC	2A	0.35mA	2200pF ± 20%	0.1uF ± 20%	2.4mH	18.3uH	30°C
60-BHS-020-3-4					.047uF ± 20%			
60-BHS-020-5-11			0.50mA	3300pF ± 20%	0.1uF ± 20%			
60-BHS-020-5-4					.047uF ± 20%			
60-BHS-030-3-11	250VAC	3A	0.35mA	2200pF ± 20%	0.1uF ± 20%	1.2mH	18.3uH	30°C
60-BHS-030-3-4					.047uF ± 20%			
60-BHS-030-5-11			0.50mA	3300pF ± 20%	0.1uF ± 20%			
60-BHS-030-5-4					.047uF ± 20%			
60-BHS-060-3-11	250VAC	6A	0.35mA	2200pF ± 20%	0.1uF ± 20%	.53mH	18.3uH	45°C
60-BHS-060-3-4					.047uF ± 20%			
60-BHS-060-5-11			0.50mA	3300pF ± 20%	0.1uF ± 20%			
60-BHS-060-5-4					.047uF ± 20%			

Note: Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max. at rated current
Weight: 50g
Input: Compatible with IEC-320

Power Entry Modules High Frequency Attenuation

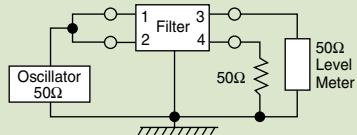
60-BHS Series

Temperature Characteristics

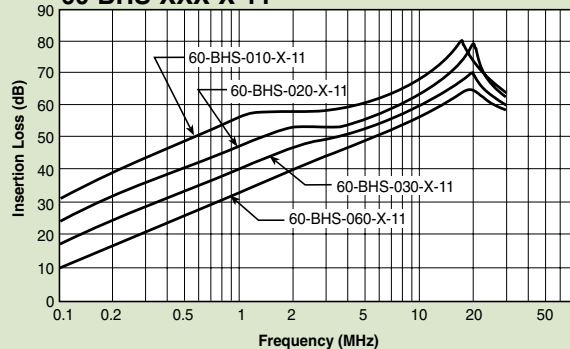


Dimensions in inches (mm)

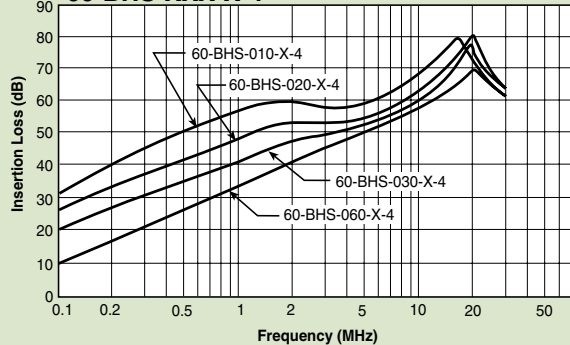
Common Mode



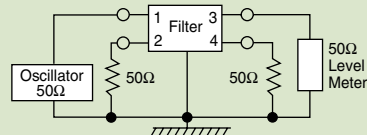
60-BHS-XXX-X-11



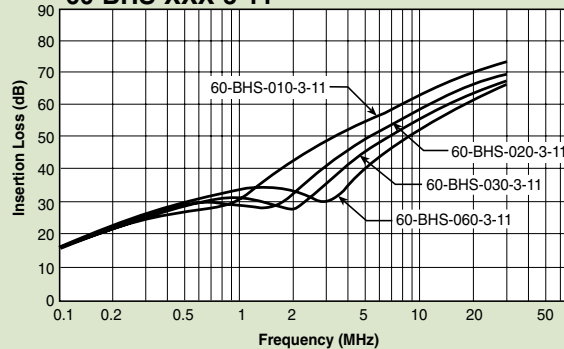
60-BHS-XXX-X-4



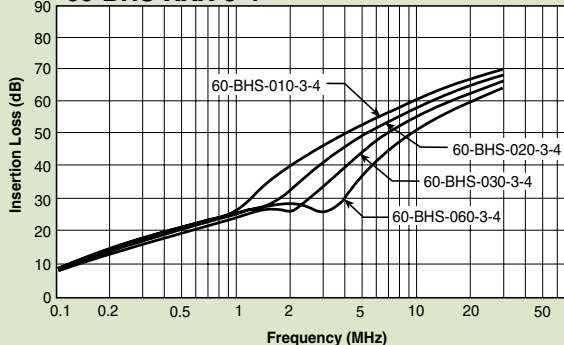
Normal Mode



60-BHS-XXX-3-11



60-BHS-XXX-3-4



Power Entry Modules Bolt-in Rear Terminals For General Purpose Applications

10-BPF Series



Features

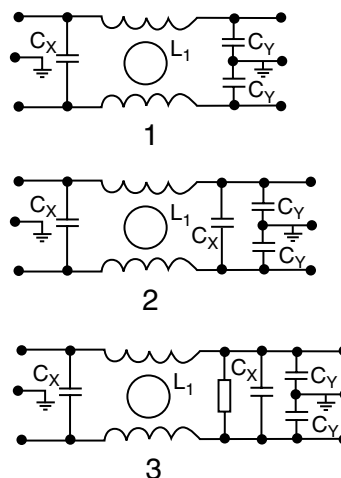
- Ideally suited for products that must conform to FCC part 15 regulations
- Metal case offers high performance
- Meets over voltage of IEC 664 category II and complies with IEC 950
- Uses IEC connector that meets most safety standards
- Operating temperature: -25°C to +70°C
- Compact configuration

Applications

- Digital equipment
- Personal computers and peripherals
- Measuring instruments
- Monitor and display units



Circuit Diagram



Specifications

Model	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Capacitance		Inductance (L ₁)	Circuit Diagram	Figure	Temperature Rise (Max.)		
10-BPF-001-5-A	120/250VAC	1A	0.50mA	3300pF	2200pF	3.0mH	1	A	30°C		
10-BPF-001-5-C								C			
10-BPF-003-5-A		3A		4700pF	0.01uF	1.5mH		2		A	
10-BPF-003-5-C										C	
10-BPF-003-5-D		6A		3300pF	3300pF & 0.01uF	0.5mH	1	A			
10-BPF-006-5-A								C			
10-BPF-006-5-C				3300pF		1.5mH	2	B			
10-BPF-006-5-D											
10-BPF-010-5-A		10A		3300pF	0.01uF	0.5mH	1	A			
10-BPF-010-5-D				3300pF & 0.01uF	3300pF & 0.01uF	1.5mH	3	B			

Note: Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max. at rated current
Weight: 45g
Input: Compatible with IEC-320

Figure A

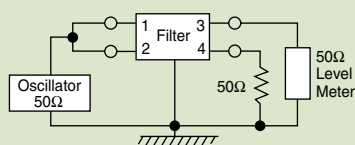
Figure 1: Dimensions of the connector. The figure shows three views of the connector: a front view, a side view, and a top view. The front view shows a rectangular connector with a central port and two side ports. The side view shows the profile of the connector with a height of 1.6 (40) and a width of 2.0 (52). The top view shows the connector from above with a width of 2.8 (72) and a height of 2.0 (52). Dimensions are given in millimeters (mm) and inches (in).

Figure C

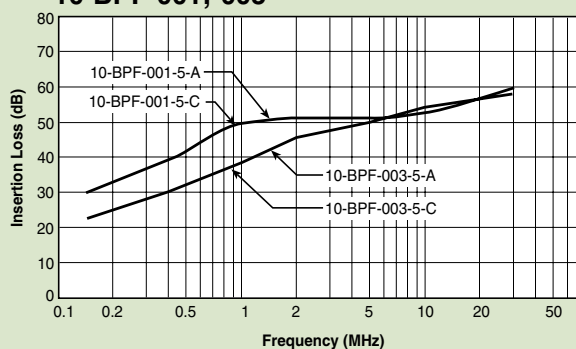
Figure C shows the dimensions of the 1000 Series 12VDC Solenoid. The dimensions are as follows:

- Top View Dimensions:
 - Overall Width: 1.25 (32)
 - Overall Height: 1.13 (3.5 (2X))
 - Base Width: 1.6 (40)
 - Base Length: 1.9 (50)
- Side View Dimensions:
 - Overall Height: 2.3 (62)
 - Base Height: 1.8 (46)
 - Base Width: 1.1 (27)
 - Base Thickness: .07 (2)

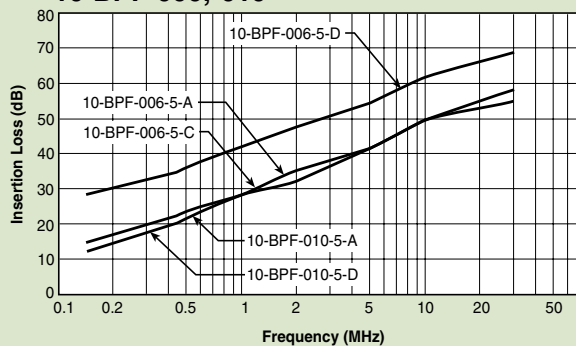
Common Mode



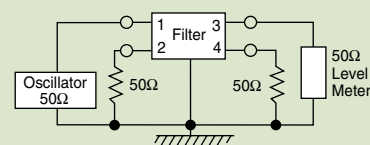
10-BPF-001;-003



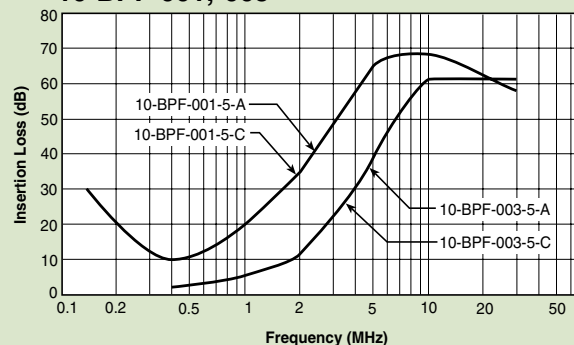
10-BPF-006;-010



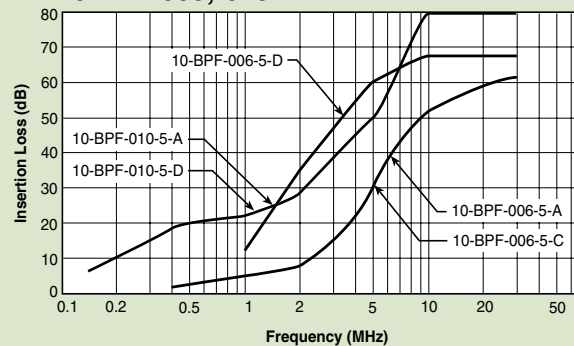
Normal Mode



10-BPF-001;-003



10-BPF-006;-010



Power Entry Modules Bolt-in Rear Terminals For Medical Purpose Applications

10-BPF Series



Features

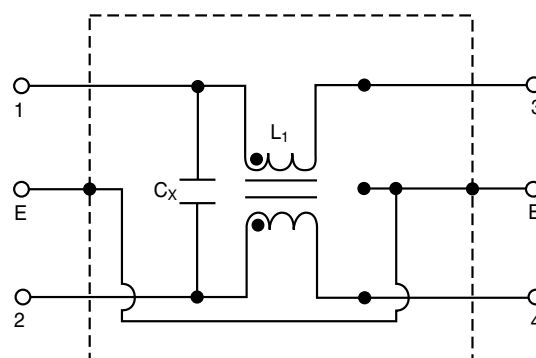
- Ideally suited for products that must conform to FCC part 15 regulations
- Metal case offers high performance
- Meets over voltage of IEC 664 category II and complies with IEC 950
- Uses IEC connector that meets most safety standards
- Operating temperature: -25°C to +70°C
- Compact configuration
- Low leakage current

Applications

- Digital equipment
- Personal computers and peripherals
- Measuring instruments
- Monitor and display units



Circuit Diagram



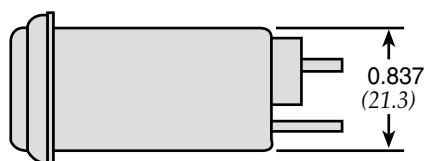
Specifications

Model	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Capacitance C_x	Inductance (L_1)	Circuit Diagram	Figure	Temperature Rise (Max.)
10-BPF-001-2-A	120/250VAC	1A	5uA	0.01uF	3.0mH	1	A	30°C
10-BPF-003-2-A		3A			1.5mH			
10-BPF-006-2-A		6A			0.5mH			

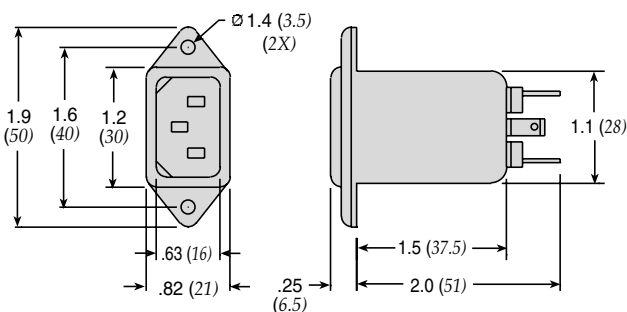
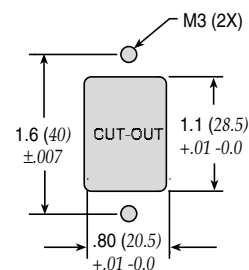
Note: Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max. at rated current
Weight: 45g
Input: Compatible with IEC-320

Power Entry Modules Bolt-in Rear Terminals For Medical Purpose Applications

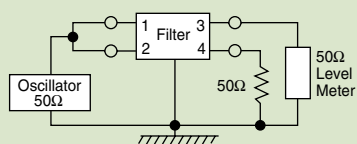
10-BPF Series



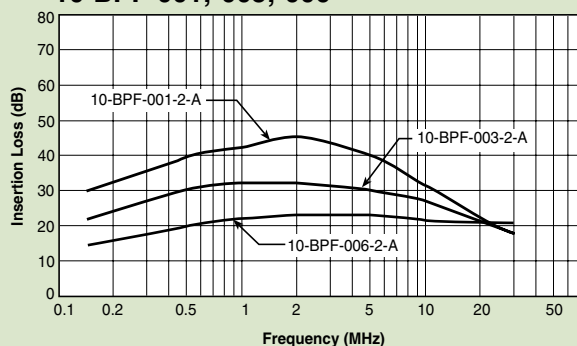
Dimensions in inches (mm)



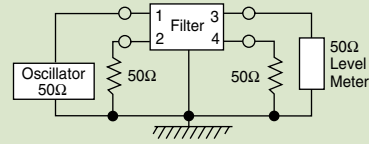
Common Mode



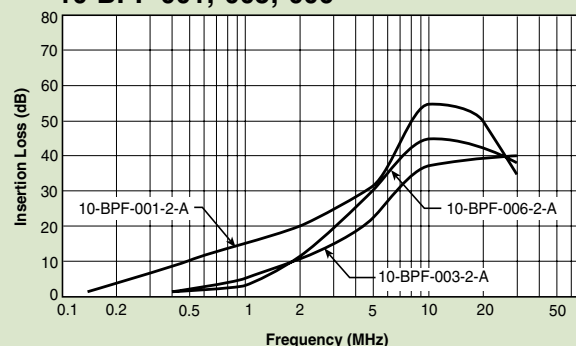
10-BPF-001;-003;-006



Normal Mode



10-BPF-001;-003;-006



Power Entry Modules Snap-in with Wire Leads

60-SPL Series

Features

- Ideally suited for products that must conform to FCC part 15 regulations
- Metal cased miniature filter offers high performance
- Meets over voltage of IEC 664 category II and complies with IEC 950
- Uses IEC connector that meets most safety standards
- Snap-in style saves labor and hardware inventory
- Wire output minimizes space and provides economical installation
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF27)

Applications

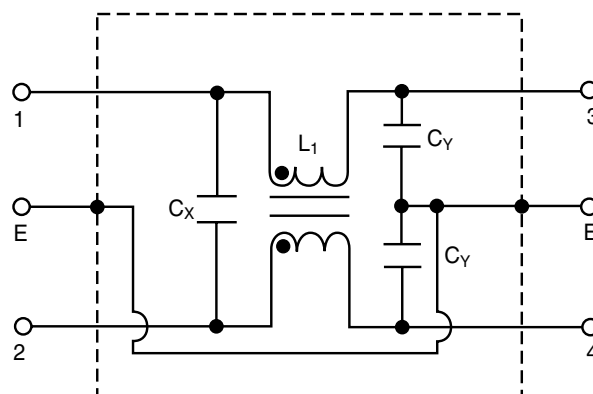
- Digital equipment
- Personal computers and peripherals
- Measuring instruments
- Monitor and display units



Tested and found to be
IAW VDE 0565 Part 3.



Circuit Diagram



Specifications

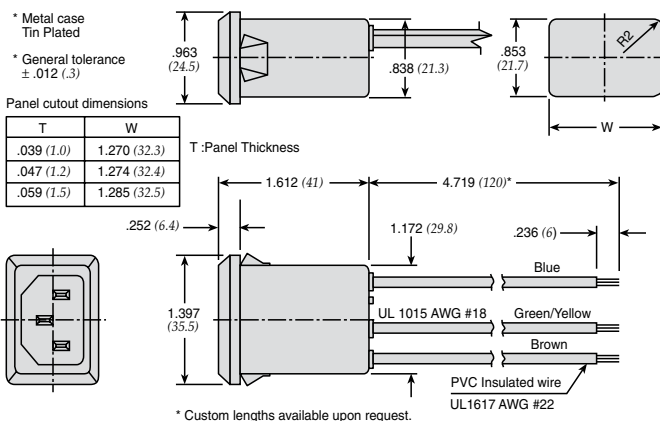
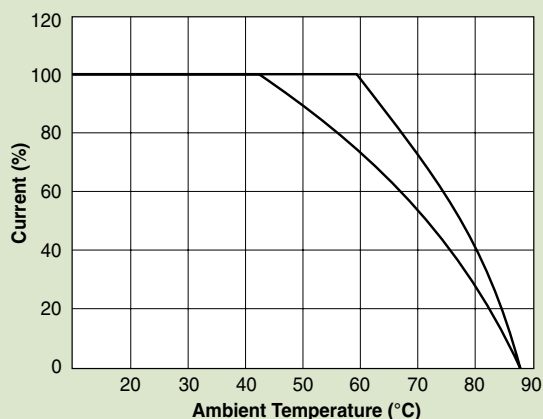
Model	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Capacitance		Inductance (L ₁)	Temperature Rise (Max.)
				C _Y	C _X		
60-SPL-010-3-2	250VAC	1A	0.35mA	2200pF ± 20%	22nF ± 20%	6.0mH	30°C
60-SPL-010-3-3					33nF ± 20%		
60-SPL-010-5-2			0.50mA	3300pF ± 20%	22nF ± 20%		
60-SPL-010-5-3					33nF ± 20%		
60-SPL-020-3-2	250VAC	2A	0.35mA	2200pF ± 20%	22nF ± 20%	2.4mH	30°C
60-SPL-020-3-3					33nF ± 20%		
60-SPL-020-5-2			0.50mA	3300pF ± 20%	22nF ± 20%		
60-SPL-020-5-3					33nF ± 20%		
60-SPL-030-3-2	250VAC	3A	0.35mA	2200pF ± 20%	.022uF ± 20%	1.2mH	30°C
60-SPL-030-3-3				3300pF ± 20%			
60-SPL-030-5-2			0.50mA	2200pF ± 20%	.033uF ± 20%		
60-SPL-030-5-3				3300pF ± 20%			
60-SPL-060-3-2	250VAC	6A	0.35mA	2200pF ± 20%	22nF ± 20%	0.53mH	45°C
60-SPL-060-3-3					33nF ± 20%		
60-SPL-060-5-2			0.50mA	3300pF ± 20%	22nF ± 20%		
60-SPL-060-5-3					33nF ± 20%		

Note: Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max. at rated current
Weight: 50g
Input: Compatible with IEC-320

Power Entry Modules Snap-in with Wire Leads

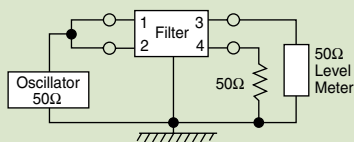
60-SPL Series

Temperature Characteristics

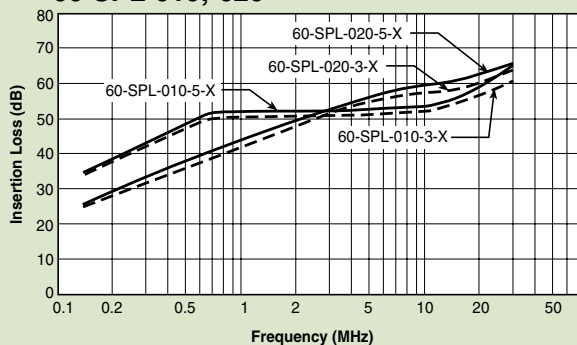


Dimensions in inches (mm)

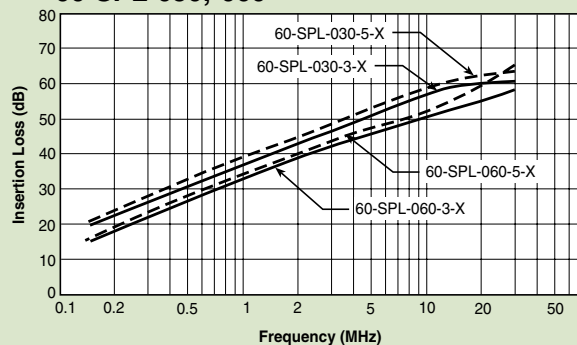
Common Mode



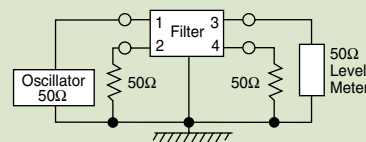
60-SPL-010;-020



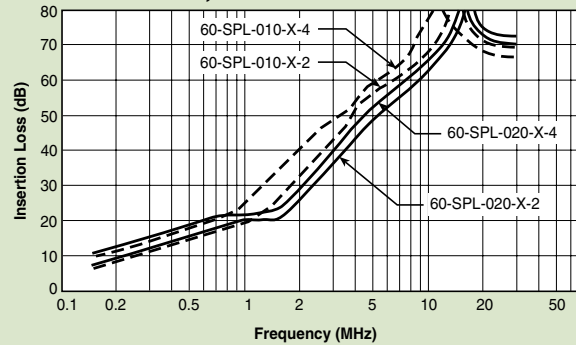
60-SPL-030;-060



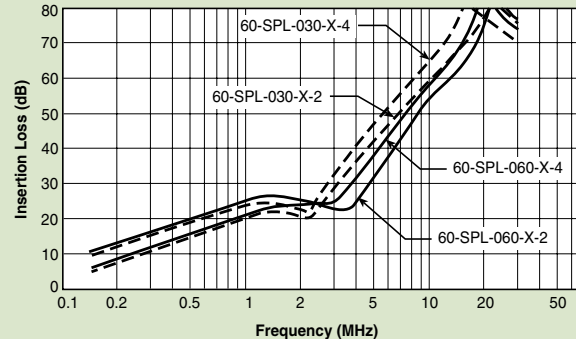
Normal Mode



60-SPL-010;-020



60-SPL-030;-060



Power Entry Modules Bolt-in with Wire Leads

60-BPL Series

Features

- Ideally suited for products that must conform to FCC part 15 regulations
- Metal case filter offers high performance
- Meets over voltage of IEC 664 category II and complies with IEC 950
- Uses IEC connector that meets most safety standards
- Wire output for minimizing space use and economical installation
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF28)

Applications

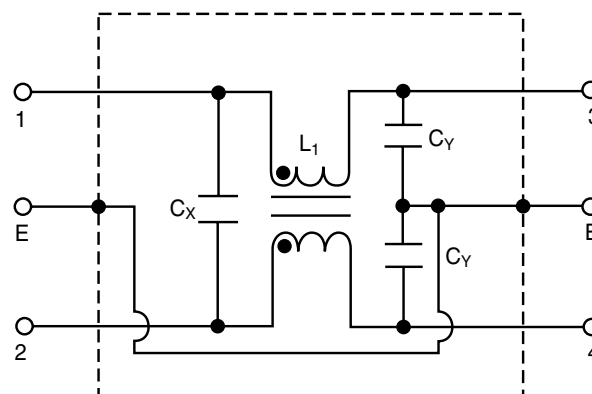
- Digital equipment
- Personal computers and peripherals
- Measuring instruments
- Monitor and display units



Tested and found to be
IAW VDE 0565 Part 3.



Circuit Diagram



Specifications

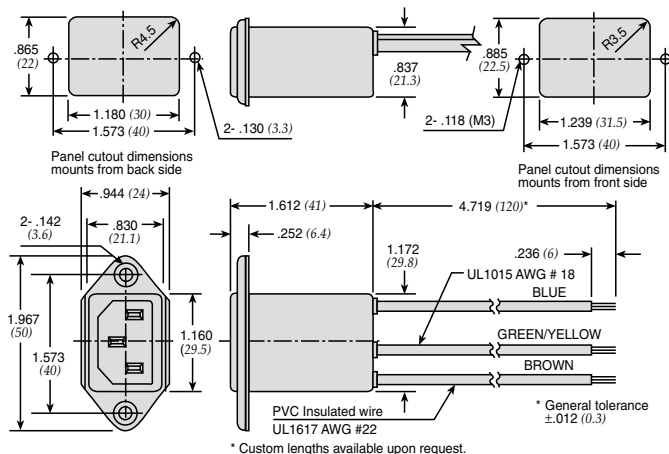
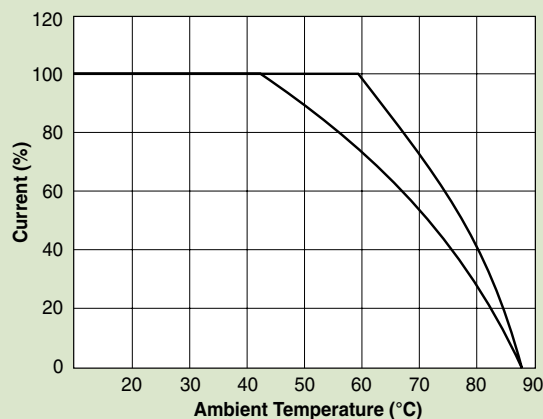
Model	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Capacitance		Inductance (L ₁)	Temperature Rise (Max.)
				C _Y	C _X		
60-BPL-010-3-2	250VAC	1A	0.35mA	2200pF ± 20%	22nF ± 20%	6.0mH	30°C
60-BPL-010-3-3					33nF ± 20%		
60-BPL-010-5-2			0.50mA	3300pF ± 20%	22nF ± 20%		
60-BPL-010-5-3					33nF ± 20%		
60-BPL-020-3-2	250VAC	2A	0.35mA	2200pF ± 20%	22nF ± 20%	2.4mH	30°C
60-BPL-020-3-3					33nF ± 20%		
60-BPL-020-5-2			0.50mA	3300pF ± 20%	22nF ± 20%		
60-BPL-020-5-3					33nF ± 20%		
60-BPL-030-3-2	250VAC	3A	0.35mA	2200pF ± 20%	.022uF ± 20%	1.2mH	30°C
60-BPL-030-3-3				3300pF ± 20%			
60-BPL-030-5-2			0.50mA	2200pF ± 20%	.033uF ± 20%		
60-BPL-030-5-3				3300pF ± 20%			
60-BPL-060-3-2	250VAC	6A	0.35mA	2200pF ± 20%	22nF ± 20%	0.53mH	45°C
60-BPL-060-3-3					33nF ± 20%		
60-BPL-060-5-2			0.50mA	3300pF ± 20%	22nF ± 20%		
60-BPL-060-5-3					33nF ± 20%		

Note: Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max. at rated current
Weight: 50g
Input: Compatible with IEC-320

Power Entry Modules Bolt-in with Wire Leads

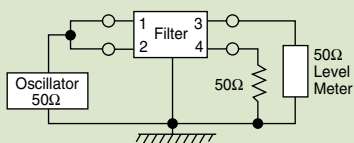
60-BPL Series

Temperature Characteristics

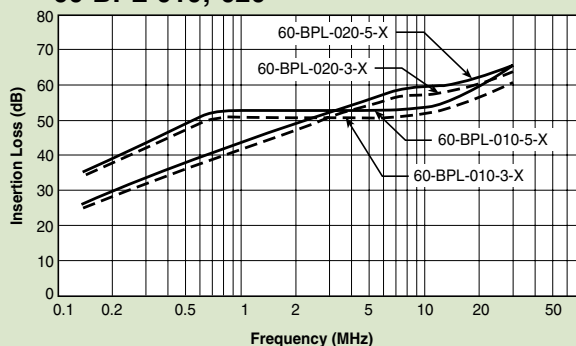


Dimensions in inches (mm)

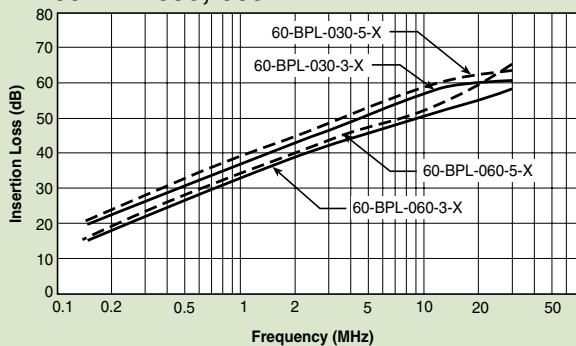
Common Mode



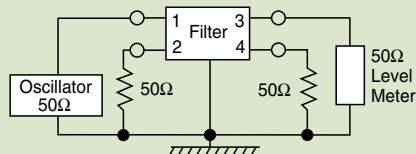
60-BPL-010;-020



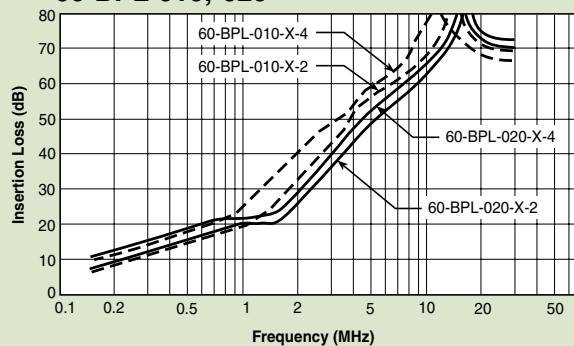
60-BPL-030;-060



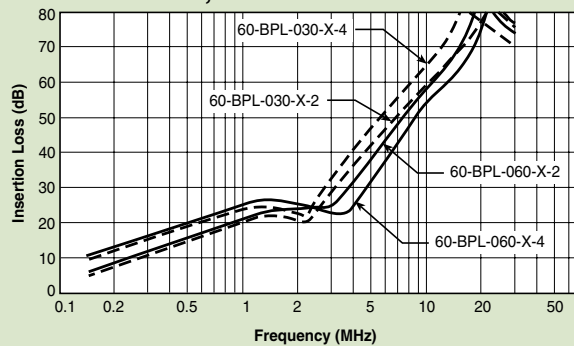
Normal Mode



60-BPL-010;-020



60-BPL-030;-060



Power Entry Modules Bolt-in with Wire Leads

10-BPL Series



Features

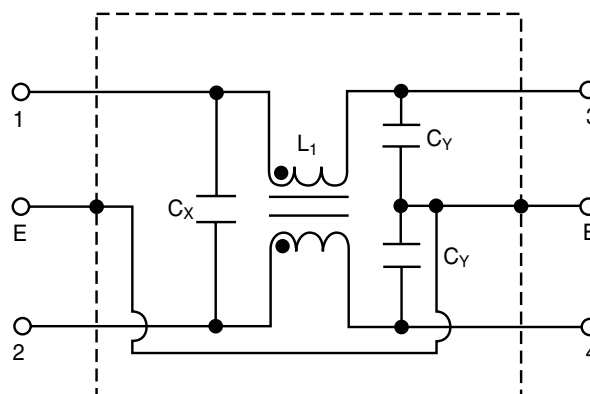
- Ideally suited for products that must conform to FCC part 15 regulations
- Metal case filter offers high performance
- Meets over voltage of IEC 664 category II and complies with IEC 950
- Uses IEC connector that meets most safety standards
- Wire output for minimizing space use and economical installation
- Operating temperature: -25°C to +70°C
- Compact configuration

Applications

- Digital equipment
- Personal computers and peripherals
- Measuring instruments
- Monitor and display units



Circuit Diagram



Specifications

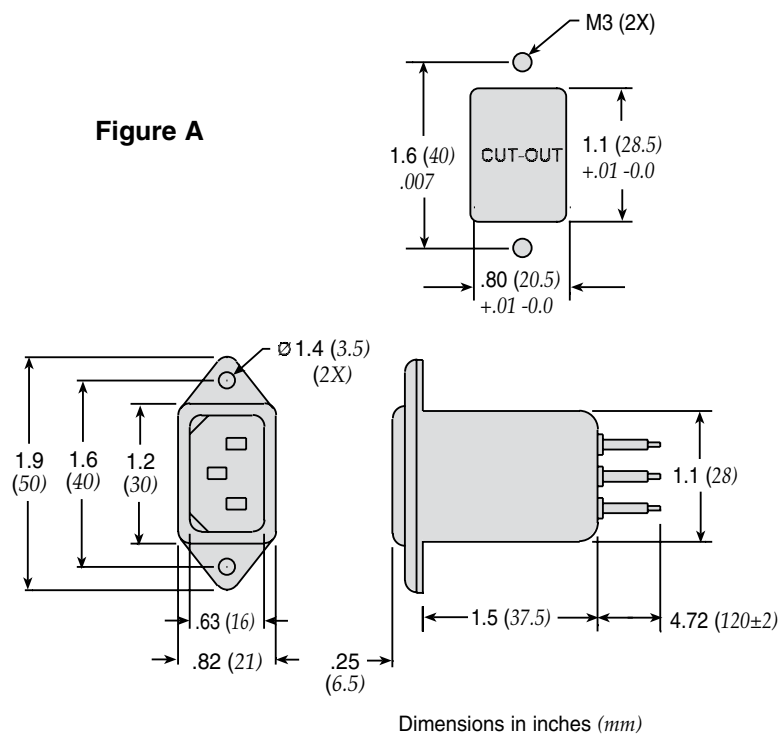
Model	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Capacitance		Inductance (L ₁)	Circuit Diagram	Figure	Temperature Rise (Max.)
				C _y	C _x				
10-BPL-001-5-B	250VAC	1A	0.50mA	3300pF	0.01uF	3.0mH	1	A	30°C
10-BPL-003-5-B		3A				1.5mH			
10-BPL-006-5-B		6A				0.5mH			

Note: Test voltage: 1500VAC one minute, line to ground
 Insulation resistance: 300 Mohm min. at 500VDC
 Voltage drop: 1V max. at rated current
 Weight: 50g
 Input: Compatible with IEC-320

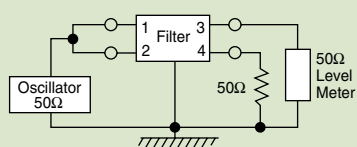
Power Entry Modules Bolt-in with Wire Leads

10-BPL Series

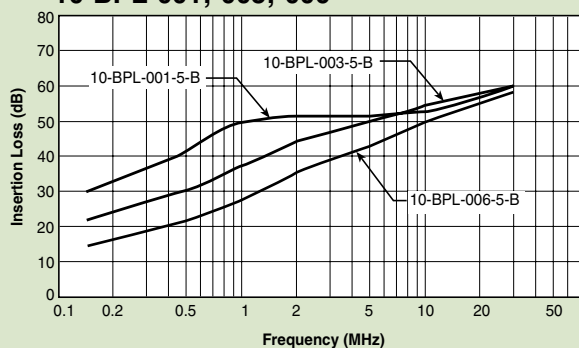
Figure A



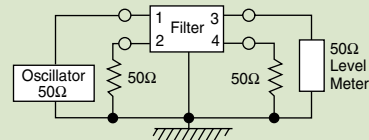
Common Mode



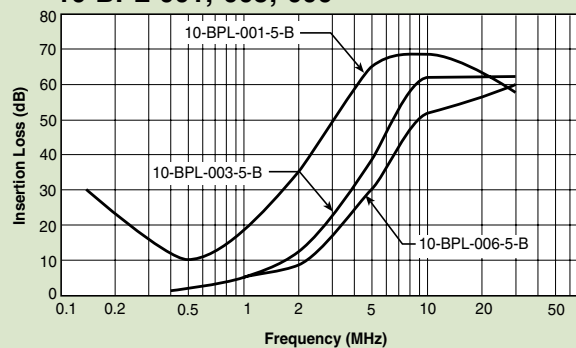
10-BPL-001;-003;-006



Normal Mode



10-BPL-001;-003;-006



Power Entry Modules Snap-in Mount

60-SPR & SPS Series

Features

- Ideally suited for products that must conform to FCC part 15 regulations
- Metal cased miniature filter offers high performance
- Meets over voltage of IEC 664 category II and complies with IEC 950
- Uses IEC connector that meets most safety standards
- Snap-in style saves labor and hardware inventory
- Solder lug and fast-on tab terminations available
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF33)
- UL approved low leakage version also available

Applications

- Digital equipment
- Personal computers and peripherals
- Measuring instruments
- Monitor and display units

Specifications

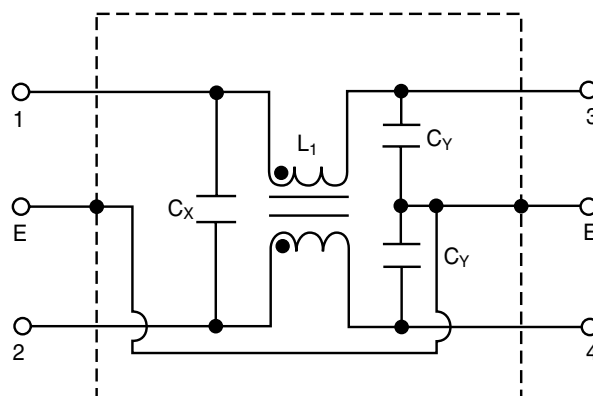
Model*	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Capacitance		Inductance (L ₁)	Temperature Rise (Max.)
				C _Y	C _X		
60-XXX-010-3-2	250VAC	1A	0.35mA	2200pF ± 20%	.022uF ± 20%	6.0mH	30°C
60-XXX-010-3-4					.047uF ± 20%		
60-XXX-010-5-2			0.50mA	3300pF ± 20%	.022uF ± 20%		
60-XXX-010-5-4					.047uF ± 20%		
60-XXX-020-3-2	250VAC	2A	0.35mA	2200pF ± 20%	.022uF ± 20%	2.4mH	30°C
60-XXX-020-3-4					.047uF ± 20%		
60-XXX-020-5-2			0.50mA	3300pF ± 20%	.022uF ± 20%		
60-XXX-020-5-4					.047uF ± 20%		
60-XXX-030-3-2	250VAC	3A	0.35mA	2200pF ± 20%	.022uF ± 20%	1.2mH	30°C
60-XXX-030-3-4					.047uF ± 20%		
60-XXX-030-5-2			0.50mA	3300pF ± 20%	.022uF ± 20%		
60-XXX-030-5-4					.047uF ± 20%		
60-XXX-060-3-2	250VAC	6A	0.35mA	2200pF ± 20%	.022uF ± 20%	0.53mH	45°C
60-XXX-060-3-4					.047uF ± 20%		
60-XXX-060-5-2			0.50mA	3300pF ± 20%	.022uF ± 20%		
60-XXX-060-5-4					.047uF ± 20%		
60-XXX-100-3-2	250VAC	10A	0.35mA	2200pF ± 20%	.022uF ± 20%	0.26mH	45°C
60-XXX-100-5-2			0.50mA	3300pF ± 20%			
60-SPR-150-3-11	250VAC	15A	0.35mA	2200pF ± 20%	.1uF ± 20%	0.15mH	45°C

Note: Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max. at rated current
Weight: 45g
Input: Compatible with IEC-320

* **Substitute SPR or SPS for XXX**
60-SPR - Fast-on terminals
60-SPS - Solder lug terminals



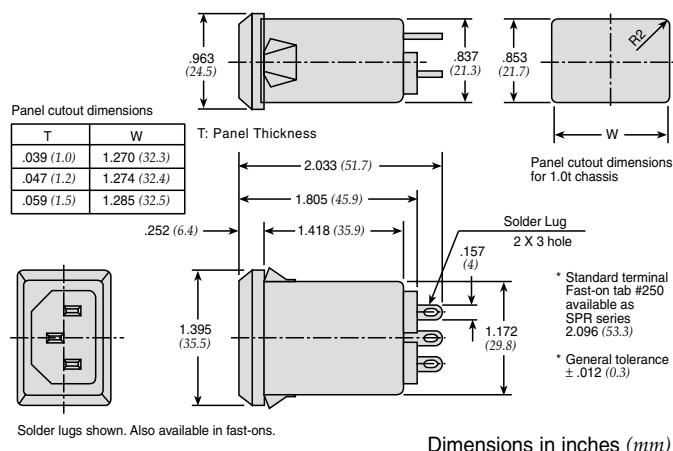
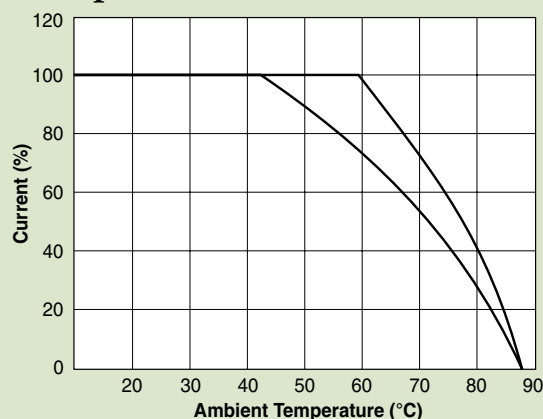
Circuit Diagram



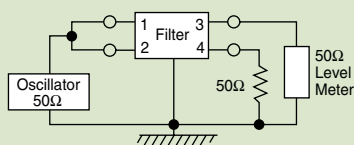
Power Entry Modules Snap-in Mount

60-SPR & SPS Series

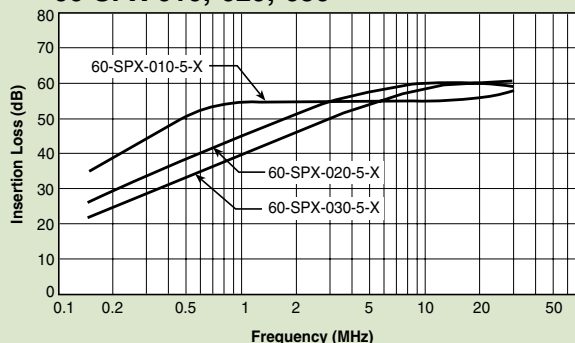
Temperature Characteristics



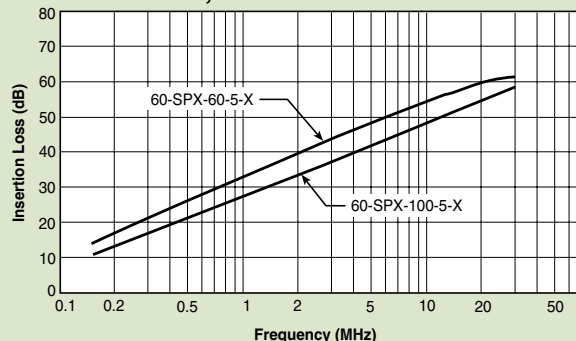
Common Mode



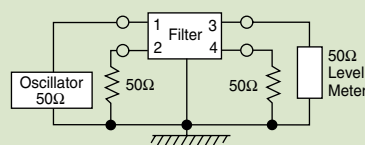
60-SPX-010;-020;-030



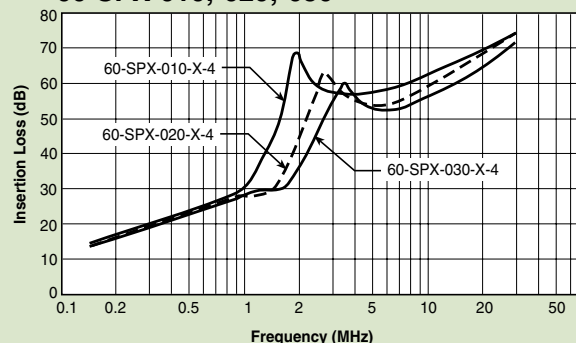
60-SPX-060;-100



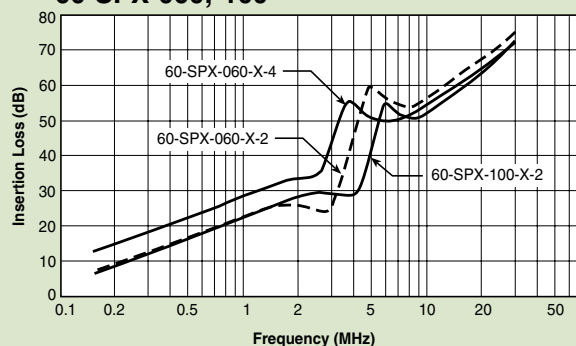
Normal Mode



60-SPX-010;-020;-030



60-SPX-060;-100



Fused Filtered Power Entry Modules For General Purpose Applications

64-65-BFF/64-65-BFS Series



Tested and found to be
IAW VDE 0565 Part 3.

Features

- North American and Metric fuse holders available
- Fuse holder provides effective EMI suppression of common and differential mode
- Suitable for products that must conform to FCC and FTZ requirements
- Meets over voltage category II of IEC 664 and complies with IEC 950
- Fast-on terminals or solder lug terminals
- Metal case provides effective EMI shielding
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF35)

Applications

- Computers and peripheral equipment
- Electronic equipment
- Digital equipment
- Measuring and testing instruments
- Telecommunications equipment

Specifications

Model*	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Capacitance		Inductance (L ₁)	Temperature Rise (Max.)
				C _Y	C _X		
64-XXX-020-3-11	250VAC	2A	0.35mA	2200pF ± 20%	0.1uF	6.5mH	40°C
64-XXX-020-5-11			0.50mA	3300pF ± 20%			
64-XXX-020-3-12			0.35mA	2200pF ± 20%	0.22uF		
64-XXX-020-5-12			0.50mA	3300pF ± 20%			
64-XXX-040-3-11	250VAC	4A	0.35mA	2200pF ± 20%	0.1uF	4.2mH	45°C
64-XXX-040-5-11			0.50mA	3300pF ± 20%			
64-XXX-040-3-12			0.35mA	2200pF ± 20%	0.22uF		
64-XXX-040-5-12			0.50mA	3300pF ± 20%			
64-XXX-060-3-11	250VAC	6A	0.35mA	2200pF ± 20%	0.1uF	1.6mH	45°C
64-XXX-060-5-11			0.50mA	3300pF ± 20%			
64-XXX-060-3-12			0.35mA	2200pF ± 20%	0.22uF		
64-XXX-060-5-12			0.50mA	3300pF ± 20%			
65-XXX-020-3-11	125VAC	2A	0.20mA	2200pF ± 20%	0.1uF	6.5mH	40°C
65-XXX-020-5-11			0.25mA	3300pF ± 20%			
65-XXX-020-3-12			0.20mA	2200pF ± 20%	0.22uF		
65-XXX-020-5-12			0.25mA	3300pF ± 20%			
65-XXX-040-3-11	125VAC	4A	0.20mA	2200pF ± 20%	0.1uF	4.2mH	45°C
65-XXX-040-5-11			0.25mA	3300pF ± 20%			
65-XXX-040-3-12			0.20mA	2200pF ± 20%	0.22uF		
65-XXX-040-5-12			0.25mA	3300pF ± 20%			
65-XXX-060-3-11	125VAC	6A	0.20mA	2200pF ± 20%	0.1uF	1.6mH	45°C
65-XXX-060-5-11			0.25mA	3300pF ± 20%			
65-XXX-060-3-12			0.20mA	2200pF ± 20%	0.22uF		
65-XXX-060-5-12			0.25mA	3300pF ± 20%			

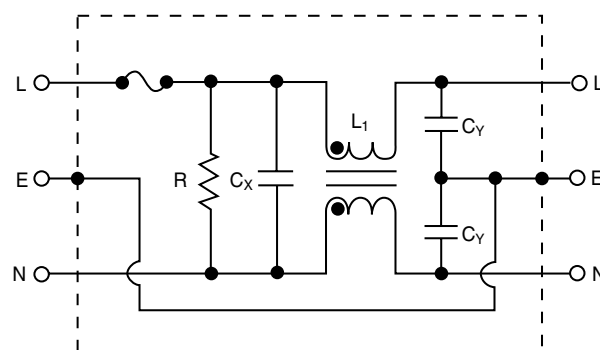
Note: Test Voltage 1500VAC one minute, line to ground
Insulation Resistance: 300 M min. at 500VDC
F(S) = Fast-on or (Solder lug terminals)

Voltage Drop: 1V max. at rated current
Weight: 78g
Inlet: Compatible with IEC-320

* **Substitute BFF or BFS for XXX**
BFF - Fast-on terminals
BFS - Solder lug terminals



Circuit Diagram

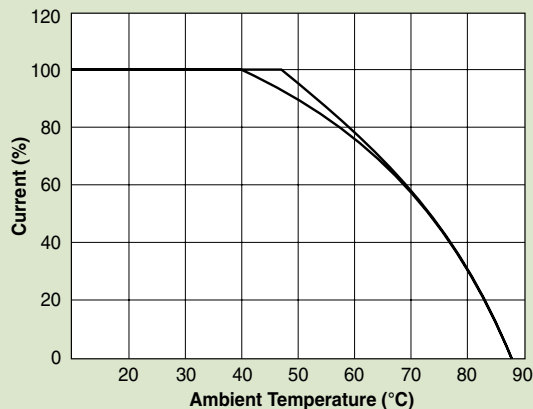


Fused Filtered Power Entry Modules

For General Purpose Applications

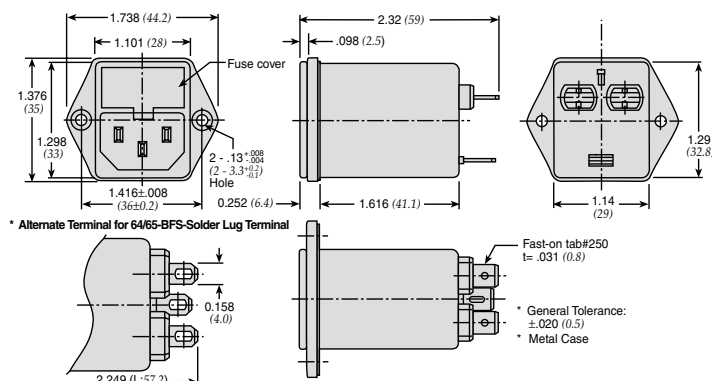
64-65-BFF/64-65-BFS Series

Temperature Characteristics



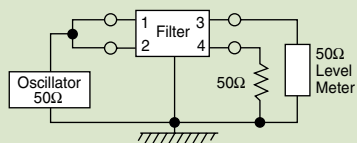
Dimensions

64/65-BFF Series

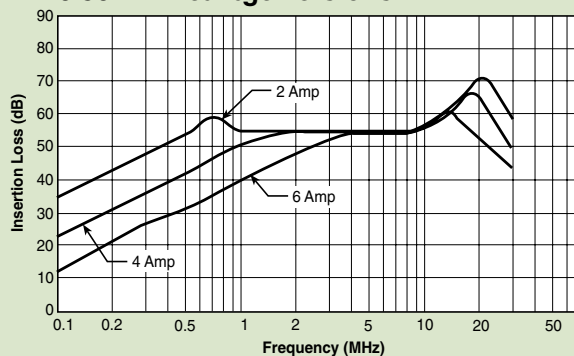


Dimensions in inches (mm)

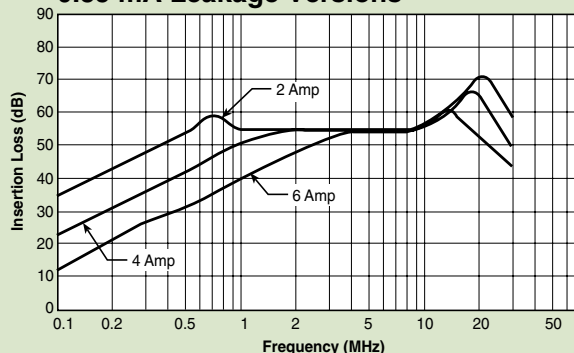
Common Mode



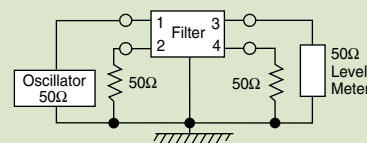
0.50 mA Leakage Versions



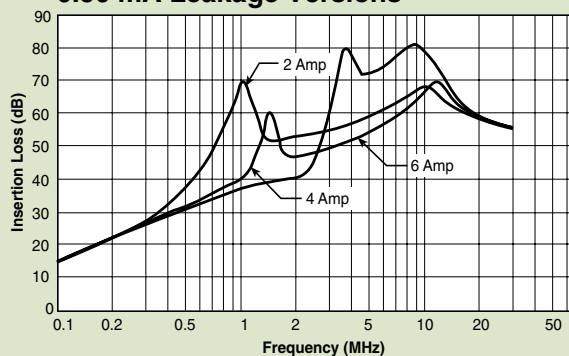
0.35 mA Leakage Versions



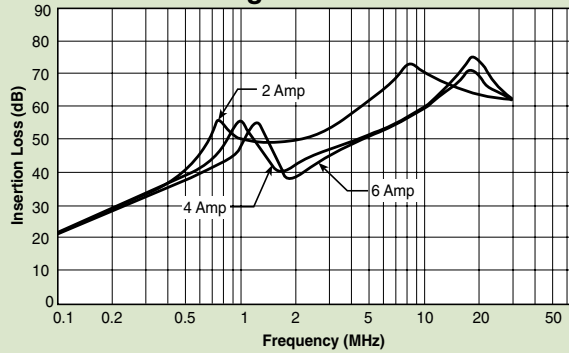
Normal Mode



0.50 mA Leakage Versions



0.35 mA Leakage Versions



Fused Filtered Power Entry Modules

For Medical or General Purpose Applications

66-67-BFF/66-67-BFS Series



Tested and found to be
IAW VDE 0565 Part 3.

Features

- Metric and North American fuse holders available
- Fuse holder provides effective EMI suppression of common and differential mode
- Suitable for products that must conform to FCC and FTZ requirements
- Meets over voltage category II of IEC 664 and complies with IEC 950
- Fast-on terminations or solder lug terminations
- Metal case provides effective EMI shielding
- Provides susceptibility protection without the leakage current associated with line-to-ground capacitance
- Reduces the line to ground capacitance in order to meet patient care requirements
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF37)

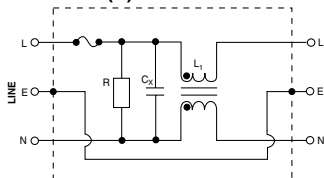


Applications

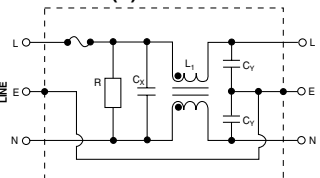
- Medical equipment
- Electronic equipment
- Digital equipment
- Industrial equipment
- Telecommunications equipment
- Measuring and testing instruments
- Personal computers and peripherals

Circuit Diagrams

66/67-BFF(S)-XXX-1-X Filter



66/67-BFF(S)-XXX-0-X and
66/67-BFF(S)-XXX-4-X Filters



Specifications

Model*	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Capacitance		Inductance (L ₁)	Temperature Rise (Max.)	
				C _Y	C _X			
66-XXX-020-1-11	250VAC	2A	0.01mA	none	0.1uF	6.5mH	40°C	
66-XXX-020-1-12					0.22uF			
66-XXX-020-0-11				0.075mA	330pF ± 20%			0.1uF
66-XXX-020-4-11				0.1mA	470pF ± 20%			
66-XXX-020-0-12				0.075mA	330pF ± 20%			
66-XXX-020-4-12				0.1mA	470pF ± 20%			
66-XXX-040-1-11	250VAC	4A	0.01mA	none	0.1uF	2.4mH	45°C	
66-XXX-040-1-12					0.22uF			
66-XXX-040-0-11				0.075mA	330pF ± 20%			0.1uF
66-XXX-040-4-11				0.1mA	470pF ± 20%			
66-XXX-040-0-12				0.075mA	330pF ± 20%			
66-XXX-040-4-12				0.1mA	470pF ± 20%			
66-XXX-060-1-11	250VAC	6A	0.01mA	none	0.1uF	1.6mH	45°C	
66-XXX-060-1-12					0.22uF			
66-XXX-060-0-11				0.075mA	330pF ± 20%			0.1uF
66-XXX-060-4-11				0.1mA	470pF ± 20%			
66-XXX-060-0-12				0.075mA	330pF ± 20%			
66-XXX-060-4-12				0.1mA	470pF ± 20%			
67-XXX-020-1-11	125VAC	2A	0.005mA	none	0.1uF	6.5mH	40°C	
67-XXX-020-1-12					0.22uF			
67-XXX-020-0-11				0.035mA	330pF ± 20%			0.1uF
67-XXX-020-4-11				0.05mA	470pF ± 20%			
67-XXX-020-0-12				0.035mA	330pF ± 20%			
67-XXX-020-4-12				0.05mA	470pF ± 20%			
67-XXX-040-1-11	125VAC	4A	0.005mA	none	0.1uF	2.4mH	45°C	
67-XXX-040-1-12					0.22uF			
67-XXX-040-0-11				0.035mA	330pF ± 20%			0.1uF
67-XXX-040-4-11				0.05mA	470pF ± 20%			
67-XXX-040-0-12				0.035mA	330pF ± 20%			
67-XXX-040-4-12				0.05mA	470pF ± 20%			
67-XXX-060-1-11	125VAC	6A	0.005mA	none	0.1uF	1.6mH	45°C	
67-XXX-060-1-12					0.22uF			
67-XXX-060-0-11				0.035mA	330pF ± 20%			0.1uF
67-XXX-060-4-11				0.05mA	470pF ± 20%			
67-XXX-060-0-12				0.035mA	330pF ± 20%			
67-XXX-060-4-12				0.05mA	470pF ± 20%			

Note: Test Voltage 1500VAC one minute, line to ground
Insulation Resistance: 300 M min. at 500VDC
F(S) = Fast-on or (Solder lug terminals)

Voltage Drop: 1V max. at rated current
Weight: 78g
Inlet: Compatible with IEC-320

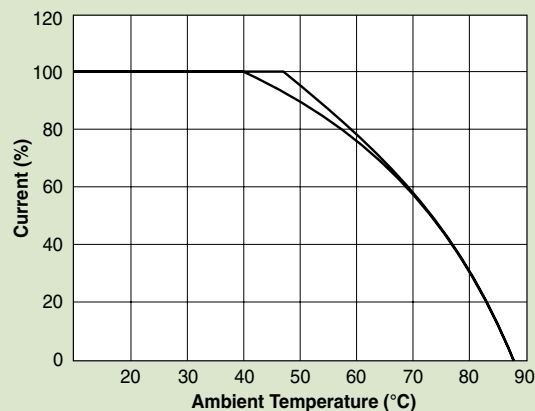
* **Substitute BFF or BFS for XXX**
BFF - Fast-on terminals
BFS - Solder lug terminals

Fused Filtered Power Entry Modules

For Medical or General Purpose Applications

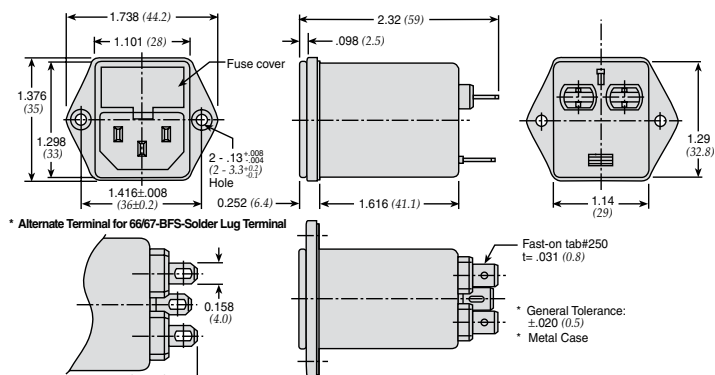
66-67-BFF/66-67-BFS Series

Temperature Characteristics



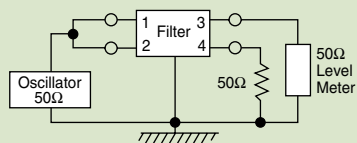
Dimensions

66-67-BFF/66-67-BFS Series

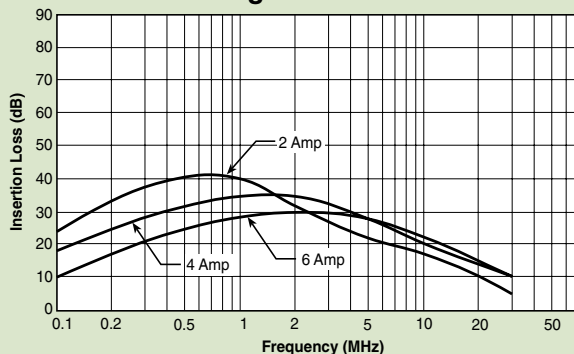


Dimensions in inches (mm)

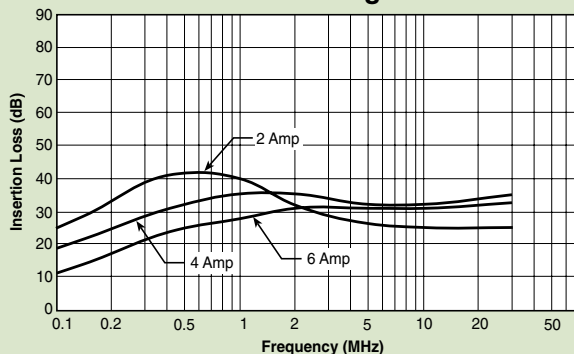
Common Mode



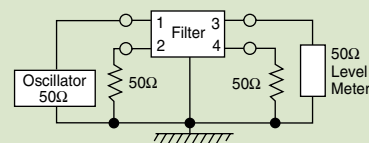
0.01 mA Leakage Current



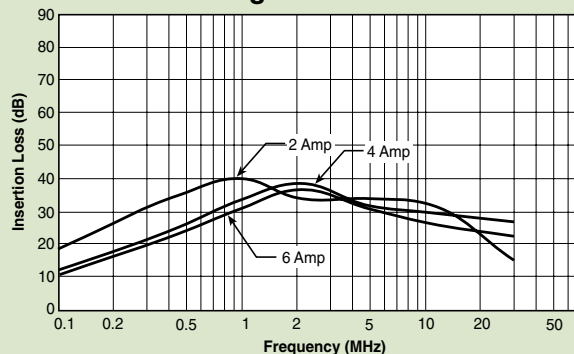
0.075 and 0.1 mA Leakage Current



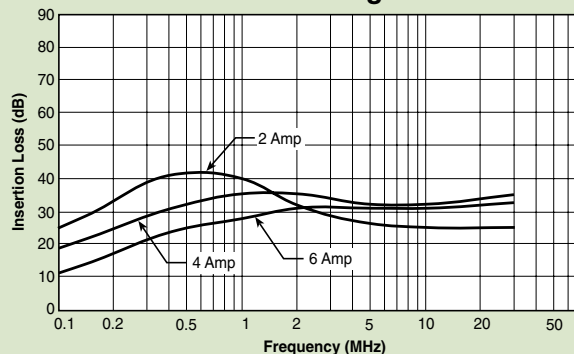
Normal Mode



0.01 mA Leakage Current



0.075 and 0.1 mA Leakage Current



Switched and Fused Filtered Power Entry Modules For General Purpose Applications

64-65-BSF/64-65-SSF Series

Features

- North American and Metric fuse holders available
- Fuse holder and double pole power ON/OFF switch provided in a convenient/compact package
- Suitable for products that must conform to FCC and FTZ requirements
- Meets over voltage category II of IEC 664 and complies with IEC 950
- Metal case provides effective EMI shielding
- Easy access fuse drawer with space for spare fuse
- Flange-mounted or snap-in styles available for quick mounting
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF39)



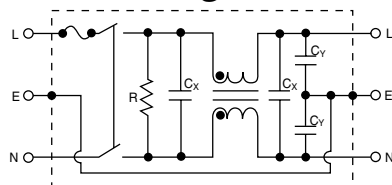
Tested and found to be
IAW VDE 0565 Part 3.



Applications

- Computers and peripheral equipment
- Digital equipment
- Electronic equipment
- Measuring and testing instruments
- Telecommunications equipment

Circuit Diagram



Specifications

Model*	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Capacitance			Inductance (L ₁)	Temperature Rise (Max.)
				C _y	C _{x1}	C _{x2}		
64-XXX-020-3-12	250VAC	2A	0.35mA	2200pF	0.22uF	NONE	10.5mH	45°C
64-XXX-020-3-04					0.22uF	NONE		
64-XXX-020-3-14					0.47uF	NONE		
64-XXX-020-3-06			0.50mA	3300pF	0.22uF	NONE		
64-XXX-020-5-12					0.22uF	0.22uF		
64-XXX-020-5-04					0.47uF	NONE		
64-XXX-020-5-14	250VAC	4A	0.35mA	2200pF	0.22uF	NONE	4.2mH	45°C
64-XXX-020-5-06					0.22uF	NONE		
64-XXX-040-3-12					0.47uF	NONE		
64-XXX-040-3-04			0.50mA	3300pF	0.22uF	NONE		
64-XXX-040-3-14					0.22uF	0.22uF		
64-XXX-040-3-06					0.47uF	NONE		
64-XXX-040-5-12	250VAC	6A	0.35mA	2200pF	0.22uF	NONE	1.6mH	45°C
64-XXX-040-5-04					0.22uF	0.22uF		
64-XXX-040-5-14					0.47uF	NONE		
64-XXX-060-3-12			0.50mA	3300pF	0.22uF	NONE		
64-XXX-060-3-04					0.22uF	0.22uF		
64-XXX-060-3-14					0.47uF	NONE		
65-XXX-020-3-12	125VAC	2A	0.20mA	2200pF	0.22uF	NONE	10.5mH	45°C
65-XXX-020-3-04					0.22uF	NONE		
65-XXX-020-3-14					0.47uF	NONE		
65-XXX-020-3-06			0.25mA	3300pF	0.22uF	NONE		
65-XXX-020-5-12					0.22uF	0.22uF		
65-XXX-020-5-04					0.47uF	NONE		
65-XXX-020-5-14	125VAC	4A	0.20mA	2200pF	0.22uF	NONE	4.2mH	45°C
65-XXX-020-5-06					0.22uF	NONE		
65-XXX-040-3-12					0.47uF	NONE		
65-XXX-040-3-04			0.25mA	3300pF	0.22uF	NONE		
65-XXX-040-3-14					0.22uF	0.22uF		
65-XXX-040-3-06					0.47uF	NONE		
65-XXX-040-5-12	125VAC	6A	0.20mA	2200pF	0.22uF	NONE	1.6mH	45°C
65-XXX-040-5-04					0.22uF	0.22uF		
65-XXX-040-5-14					0.47uF	NONE		
65-XXX-060-3-12			0.25mA	3300pF	0.22uF	NONE		
65-XXX-060-3-04					0.22uF	0.22uF		
65-XXX-060-3-14					0.47uF	NONE		

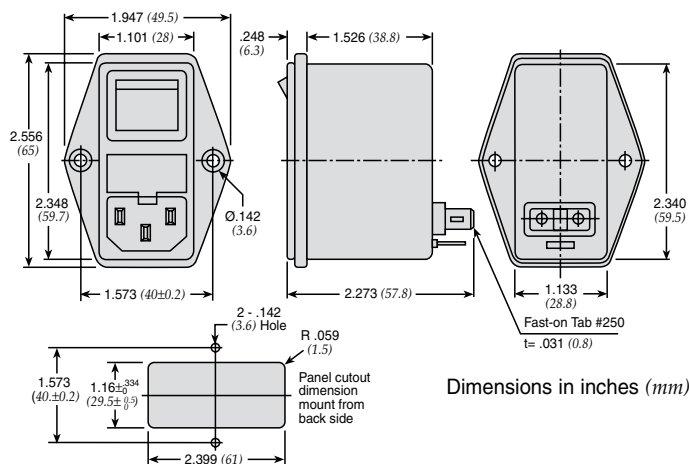
Note: Test Voltage 1500VAC one minute, line to ground
Insulation Resistance: 300 M min. at 500VDC
B(S) = Bolt-in terminals or (Snap-in terminals)

Voltage Drop: 1V max. at rated current
Weight: 130g
Inlet: Compatible with IEC-320

* **Substitute BSF or SSF for XXX**
BSF - Bolt-in switched and fused
SSF - Snap-in switched and fused

Ambient Temperature (°C)	Current (%)
0	100
10	100
20	100
30	100
40	100
50	100
60	80
70	60
80	40
90	0

64/65-BSF Series



Technical drawings of the R-079 panel cutout showing front, side, and rear views with dimensions in inches and millimeters.

Front View Dimensions:

- Top width: 1.313 (33.4)
- Top width (inner): 1.101 (28)
- Left height: 2.556 (65)
- Bottom height: 2.348 (59.7)

Side View Dimensions:

- Top width: 1.154 (38.8)
- Left height: .248 (6.3)
- Fast-on tab #250, t = .031 (0.8)
- Bottom width: 2.273 (57.8)

Rear View Dimensions:

- Top width: 1.133 (28.8)
- Right height: 2.340 (59.5)

Panel Cutout Dimensions:

- Left height: R.079 (2.0)
- Bottom width: 1.16^{±.02} (29.5^{±0.5})
- Panel cutout dimension mount from back side

Thickness of Panel	A
.031 (0.8)	2.430 (61.8±0.1)
.039 (1.0)	2.446 (62.2±0.1)
.047 (1.2)	2.462 (62.6±0.1)
.059 (1.5)	2.470 (62.8±0.1)
.071 (1.8)	2.473 (62.9±0.1)
.079 (2.0)	2.477 (63.0±0.1)

* General Tolerance ± .039 (1.0)
* Metal Case

The graph plots Insertion Loss (dB) on the y-axis (0 to 90) against Frequency (MHz) on the x-axis (0.1 to 50). Three curves are shown for different current levels: 2 Amp, 4 Amp, and 6 Amp. All curves show a general increase in insertion loss with frequency, with a prominent peak around 15 MHz. The 6 Amp curve has the highest peak, followed by the 4 Amp and then the 2 Amp curve.

Frequency (MHz)	2 Amp (dB)	4 Amp (dB)	6 Amp (dB)
0.1	25	30	40
0.5	35	45	60
1.0	40	50	50
2.0	40	50	50
5.0	40	50	50
10.0	40	50	50
15.0	65	70	78
20.0	50	50	50

The graph plots Insertion Loss (dB) on the y-axis (0 to 90) against Frequency (MHz) on the x-axis (0.1 to 50). Three curves are shown: 2 Amp, 4 Amp, and 6 Amp. The 2 Amp curve starts at ~38 dB at 0.1 MHz, peaks at ~62 dB at 0.5 MHz, and has a sharp peak of ~78 dB at 20 MHz. The 4 Amp curve starts at ~32 dB at 0.1 MHz, peaks at ~48 dB at 0.5 MHz, and has a sharp peak of ~70 dB at 20 MHz. The 6 Amp curve starts at ~20 dB at 0.1 MHz, rises steadily to ~45 dB at 10 MHz, and then rises to ~62 dB at 50 MHz.

Frequency (MHz)	2 Amp (dB)	4 Amp (dB)	6 Amp (dB)
0.1	38	32	20
0.2	45	38	28
0.5	62	48	35
1	50	45	40
2	50	45	45
5	50	45	45
10	50	45	45
20	78	70	55
50	55	55	62

[illegible]

Frequency (MHz)	2 Amp (dB)	4 Amp (dB)	6 Amp (dB)
0.1	10	15	20
0.2	25	30	35
0.5	35	40	45
1.0	45	50	55
2.0	55	60	65
5.0	65	68	70
10.0	68	70	70
20.0	65	65	65
50.0	60	60	60

Switched and Fused Filtered Power Entry Modules

For Medical or General Purpose Applications

66-67-BSF/66-67-SSF Series



Tested and found to be
IAW VDE 0565 Part 3

Features

- Metric and North American fuse holders available
- Fuse holder and a double pole power ON/OFF switch provides a convenient/compact package
- Suitable for products that must conform to FCC and FTZ requirements
- Meets over voltage category II of IEC 664 and complies with IEC 950
- Provides susceptibility protection without the leakage current associated with line-to-ground capacitors
- Designed to meet requirements for non-patient and patient care equipment
- Metal case provides effective EMI shielding
- Easy access fuse drawer - space for spare fuse
- Flange-mounted or snap-in styles available for quick mounting
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF41)

Specifications

Model*	Rated Voltage 50/60Hz	Rated Current	Leakage Current (Max.)	Capacitance			Temp. Induct. (L ₁)	Rise (Max.)
			C _Y	C _{X1}	C _{X2}			
66-XXX-020-0-12	250 VAC	2A	.075mA	330pF	0.22uF	NONE	10.5mH	40°C
66-XXX-020-0-04					0.22uF			
66-XXX-020-0-14					NONE			
66-XXX-020-0-06					0.22uF			
66-XXX-020-1-12					NONE			
66-XXX-020-1-04					0.22uF			
66-XXX-020-1-14			NONE	NONE	10.5mH	40°C		
66-XXX-020-1-06				0.22uF				
66-XXX-020-4-12				0.22uF				
66-XXX-020-4-04				0.22uF				
66-XXX-020-4-14			0.1mA	470pF	NONE	45°C		
66-XXX-020-4-06					0.22uF			
66-XXX-040-0-12		0.22uF						
66-XXX-040-0-04		0.22uF						
66-XXX-040-0-14		NONE						
66-XXX-040-0-06		0.22uF						
66-XXX-040-1-12		NONE						
66-XXX-040-1-04		0.22uF						
66-XXX-040-1-14		NONE	470pF	NONE	4.2mH			
66-XXX-040-1-06				0.22uF				
66-XXX-040-4-12				0.22uF				
66-XXX-040-4-04				0.22uF				
66-XXX-040-4-14		0.1mA	470pF	NONE	45°C			
66-XXX-040-4-06				0.22uF				
66-XXX-060-0-12				0.22uF				
66-XXX-060-0-04				0.22uF				
66-XXX-060-0-14				NONE				
66-XXX-060-0-06				0.22uF				
66-XXX-060-1-12				NONE				
66-XXX-060-1-04				0.22uF				
66-XXX-060-1-14		NONE	470pF	NONE	1.6mH			
66-XXX-060-1-06				0.22uF				
66-XXX-060-4-12				0.22uF				
66-XXX-060-4-04				0.22uF				
66-XXX-060-4-14		0.1mA	470pF	NONE	45°C			
66-XXX-060-4-06				0.22uF				

Note: Test Voltage: 1500VAC one minute, line to ground
Insulation Resistance: 300 MΩ min. at 500VDC
Voltage Drop: 1V max. at rated current

Weight: 130g
Inlet: Compatible with IEC-320
B(S) = Bolt-in terminals or (Snap-in terminals)

* Substitute BSF or SSF for XXX
BSF = Bolt-In Switched and Fused
SSF = Snap-In Switched and Fused

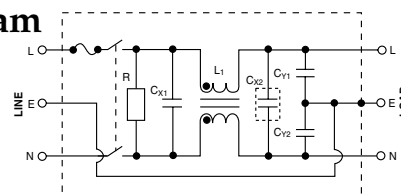


Applications

- Medical equipment
- Industrial equipment
- Telecommunications equipment
- Measuring and testing instruments
- Digital equipment (including switching power supplies)
- General purpose filter for susceptibility or high frequency "clean up" applications

Circuit Diagram

Note: C_{y1} and C_{y2} capacitors
omitted on 66/67
B(S)F-XXX-1-X Filters



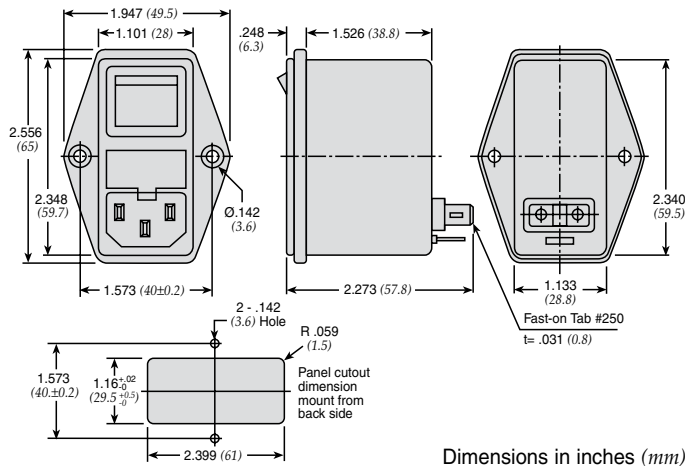
Model*	Rated Voltage 50/60Hz	Rated Current	Leakage Current (Max.)	Capacitance C _Y C _{X1} C _{X2}			Temp. Induct. (L ₁)	Rise (Max.)
67-XXX-020-0-12	125 VAC	2A	0.04mA	330pF	0.22uF	NONE	10.5mH	40°C
67-XXX-020-0-04					0.22uF			
67-XXX-020-0-14					NONE			
67-XXX-020-0-06					0.22uF			
67-XXX-020-1-12					NONE			
67-XXX-020-1-04					0.22uF			
67-XXX-020-1-14			.005mA	NONE	0.47uF	NONE		
67-XXX-020-1-06					0.22uF			
67-XXX-020-4-12					0.22uF			
67-XXX-020-4-04					0.22uF			
67-XXX-020-4-14			0.05mA	470pF	0.47uF	NONE		
67-XXX-020-4-06					0.22uF			
67-XXX-040-0-12		4A			0.22uF	4.2mH		
67-XXX-040-0-04					0.22uF			
67-XXX-040-0-14					0.47uF			
67-XXX-040-0-06					0.22uF			
67-XXX-040-1-12					0.22uF			
67-XXX-040-1-04					0.22uF			
67-XXX-040-1-14		.005mA	NONE	0.47uF	NONE			
67-XXX-040-1-06				0.22uF				
67-XXX-040-4-12				0.22uF				
67-XXX-040-4-04				0.22uF				
67-XXX-040-4-14		0.05mA	470pF	0.47uF	NONE			
67-XXX-040-4-06				0.22uF				
67-XXX-060-0-12				6A			0.22uF	1.6mH
67-XXX-060-0-04							0.22uF	
67-XXX-060-0-14							0.47uF	
67-XXX-060-0-06							0.22uF	
67-XXX-060-1-12							0.22uF	
67-XXX-060-1-04							0.22uF	
67-XXX-060-1-14		.005mA	NONE	0.47uF	NONE			
67-XXX-060-1-06				0.22uF				
67-XXX-060-4-12				0.22uF				
67-XXX-060-4-04				0.22uF				
67-XXX-060-4-14		0.05mA	470pF	0.47uF	NONE			
67-XXX-060-4-06				0.22uF				

Switched and Fused Filtered Power Entry Modules

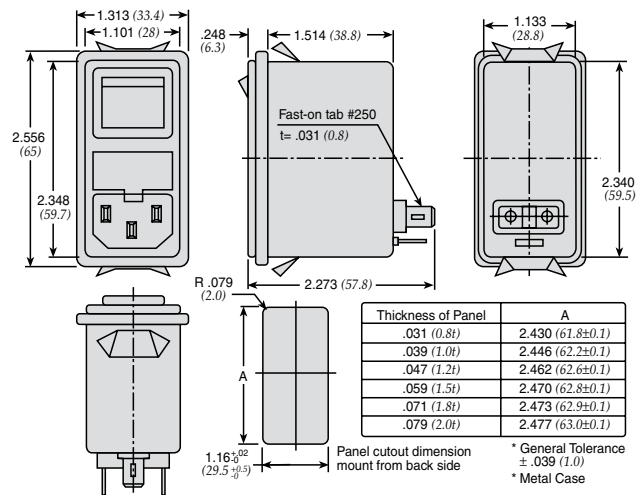
For Medical or General Purpose Applications

Dimensions

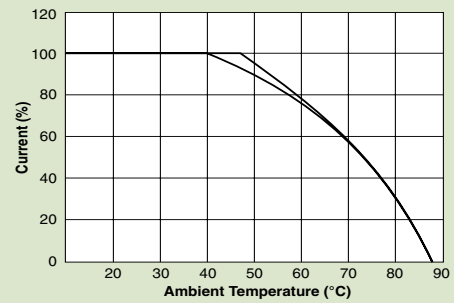
66/67-BSF Series



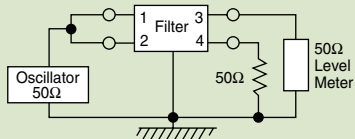
66/67-SSF Series



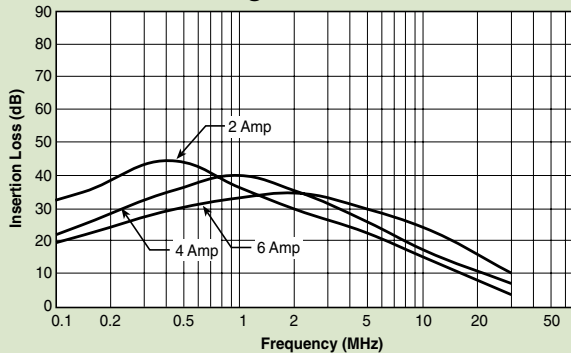
Temperature Characteristics



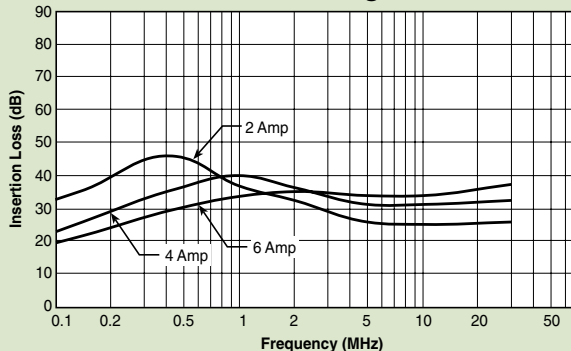
Common Mode



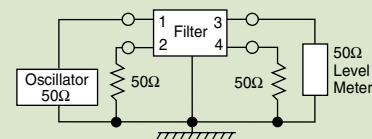
0.01 mA Leakage Current



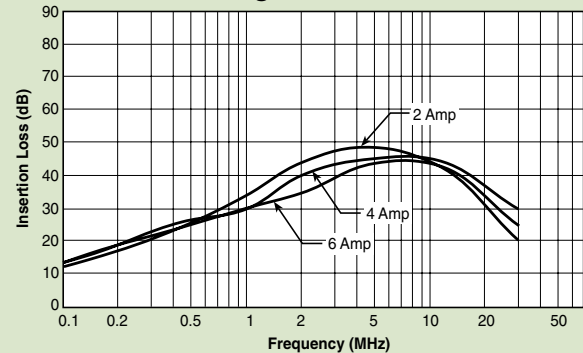
0.075 and 0.1 mA Leakage Current



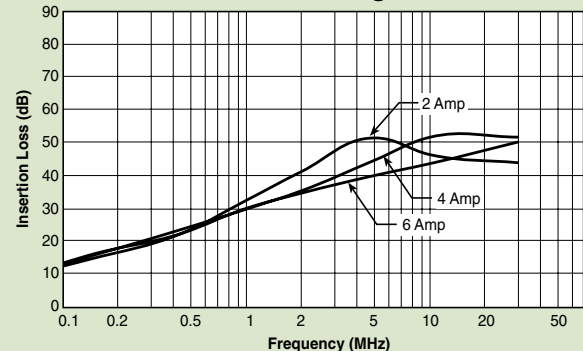
Normal Mode



0.01 mA Leakage Current



0.075 and 0.1 mA Leakage Current



Switched and Fused Filtered Power Entry Modules

Dual Fuse for European Applications

68-BSF Series

Features

- Dual fuse for European applications
- Fuse holder and double pole power ON/OFF switch provides a convenient/compact package
- Suitable for products that must conform to FCC and FTZ requirements
- Meets over voltage category II of IEC 664 and complies with IEC 950
- Metal case provides effective EMI shielding
- IEC connector meets the safety standards of most certifying agencies
- Easy access fuse drawer
- Flange-mounted
- UL, CSA, and SEMKO approved
- Designed to be in accordance with VDE 0565, part 3
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF43)

Applications

- Computers and peripheral equipment
- Electronic equipment
- Digital equipment
- Measuring and testing instruments
- Telecommunications equipment

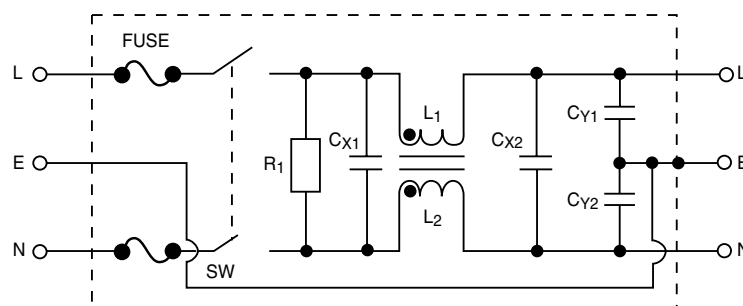
Specifications

Model	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	C _{Y1}	Capacitance			Inductance (L ₁)	Temperature Rise (Max.)
					C _{Y2}	C _{X1}	C _{X2}		
68-BSF-020-3-01	250VAC	2A	0.35mA	2200pF	2200pF	0.1uF	0.1uF	10.5mH	45°C
68-BSF-020-3-04						0.22uF	0.22uF		
68-BSF-040-3-01		4A				0.1uF	0.1uF	4.2mH	
68-BSF-040-3-04						0.22uF	0.22uF		
68-BSF-060-3-01		6A				0.1uF	0.1uF	1.6mH	
68-BSF-060-3-04						0.22uF	0.22uF		

Note: Test Voltage 1500VAC one minute, line to ground
Insulation Resistance: 300 MΩ min. at 500VDC
Voltage Drop: 1V max. at rated current
Weight: 130g
Inlet: Compatible with IEC-320
B(S) = Bolt-in terminals



Circuit Diagram

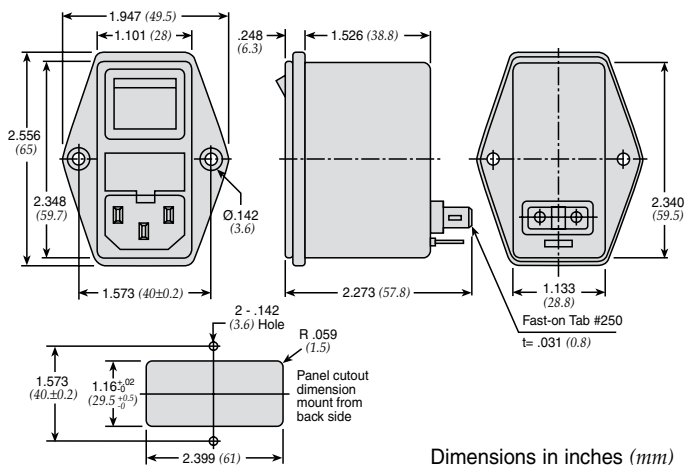
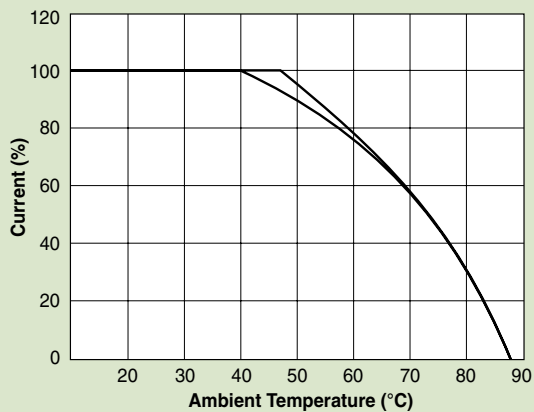


Switched and Fused Filtered Power Entry Modules

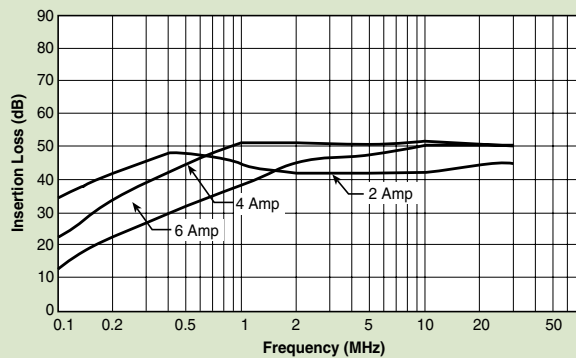
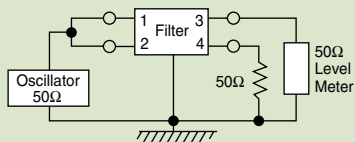
Dual Fuse for European Applications

68-BSF Series

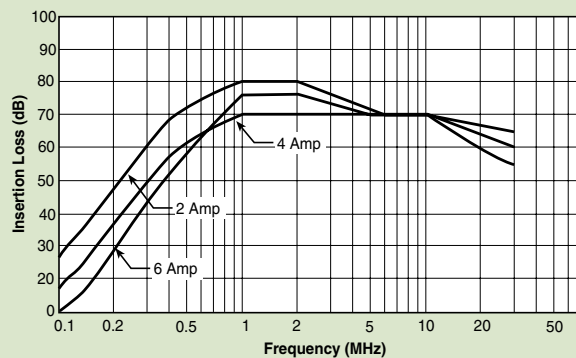
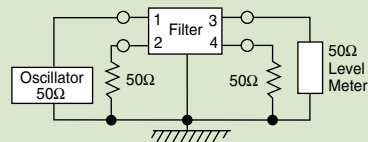
Temperature Characteristics



Common Mode



Normal Mode



PCB Power Filters Miniature Printed Circuit Board

61-MPC Series



Tested and found to be
IAW VDE 0565 Part 3

Features

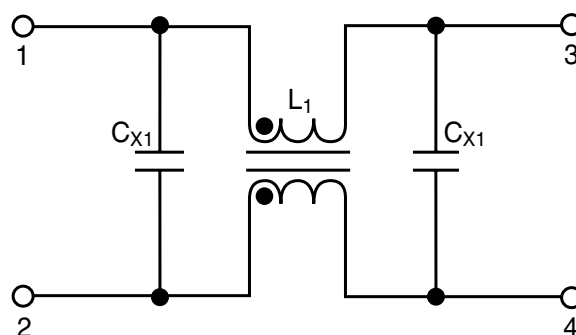
- Miniature general purpose PCB mounted filter
- Requires minimal PCB real estate space
- Low cost
- Designed for two wire cord systems
- For three wire cord systems, Y capacitors can be attached externally
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF45)

Applications

- Personal computers and peripherals
- Digital equipment
- Measuring instruments and medical equipment
- TV & VCR monitors and display units
- Home appliances



Circuit Diagram



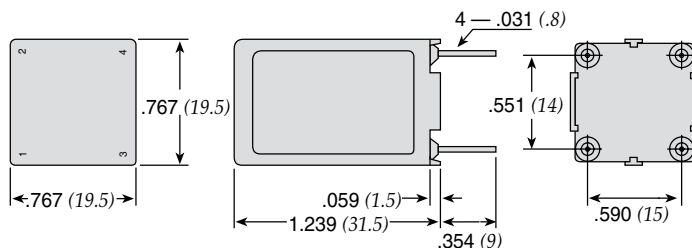
Specifications

Model	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Capacitance		Inductance (L ₁)	Temperature Rise (Max.)
				C _{x1}	C _{x2}		
61-MPC-010-1-11	250VAC	1A	0.1mA	0.1uF	0.1uF	11mH	40°C
61-MPC-016-1-11		1.6A				6.0mH	
61-MPC-025-1-11		2.5A				2.4mH	
61-MPC-036-1-11		3.6A				1.2mH	

Note: Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max. at rated current
Weight: 17.5g

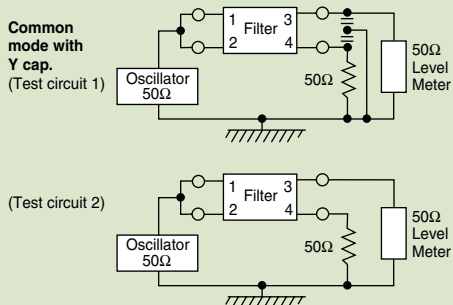
PCB Power Filters Miniature Printed Circuit Board

61-MPC Series

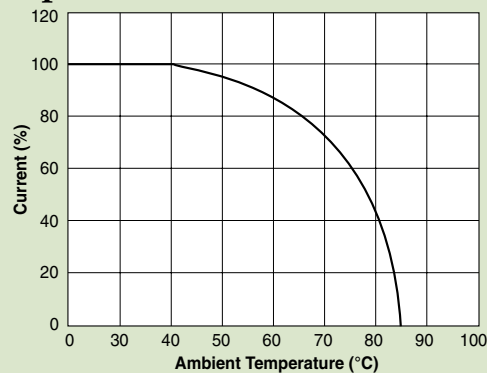


Dimensions in inches (mm)

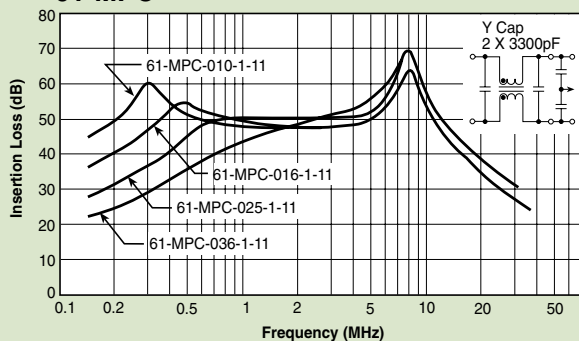
Common Mode



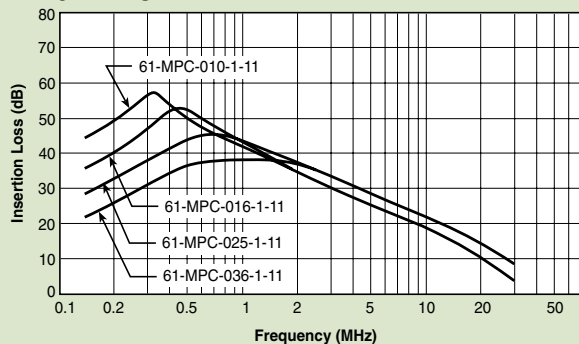
Temperature Characteristics



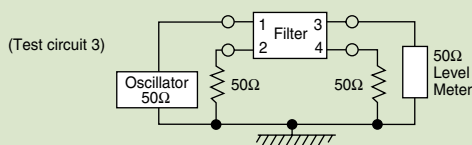
61-MPC



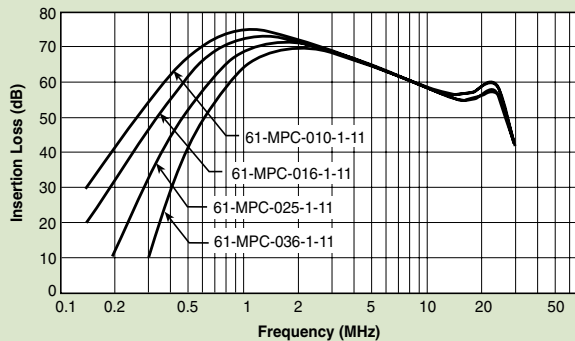
61-MPC



Normal Mode



61-MPC



Power Entry Modules Bolt-in Right Angle Terminals for PCB Applications

60-BPP Series



Tested and found to be
IAW VDE 0565 Part 3

Features

- Ideally suited for products that must conform to FCC part 15 regulations
- Metal case offers high performance
- Meets over voltage of IEC 664 category II and complies with IEC 950
- Uses IEC connector that meets most safety standards Solder lug, Fast-on tab styles available (see page PF18)
- PCB mounting style minimizes space and provides economical installation
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF47)
- UL approved low leakage version also available

Applications

- Digital equipment
- Personal computers and peripherals
- Measuring instruments
- Monitor and display units

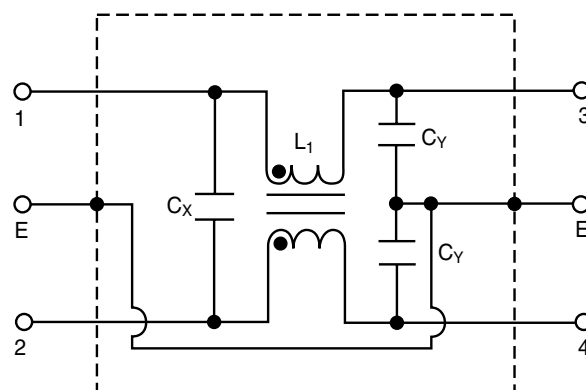
Specifications

Model	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Capacitance		Inductance (L ₁)	Temperature Rise (Max.)
				C _Y	C _X		
60-BPP-010-3-2	250VAC	1A	0.35mA	2200pF	0.022uF	6.0mH	30°C
60-BPP-010-3-4					0.047uF		
60-BPP-010-5-2			0.50mA	3300pF	0.022uF		
60-BPP-010-5-4					0.047uF		
60-BPP-020-3-2		2A	0.35mA	2200pF	0.022uF	2.4mH	
60-BPP-020-3-4					0.047uF		
60-BPP-020-5-2			0.50mA	3300pF	0.022uF		
60-BPP-020-5-4					0.047uF		
60-BPP-030-3-2		3A	0.35mA	2200pF	0.022uF	1.2mH	
60-BPP-030-3-4					0.047uF		
60-BPP-030-5-2			0.50mA	3300pF	0.022uF		
60-BPP-030-5-4					0.047uF		
60-BPP-060-3-2		6A	0.35mA	2200pF	0.022uF	0.53mH	45°C
60-BPP-060-3-4					0.047uF		
60-BPP-060-5-2			0.50mA	3300pF	0.022uF		
60-BPP-060-5-4					0.047uF		

Note: Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max. at rated current
Weight: 50g
Input: Compatible with IEC-320



Circuit Diagram

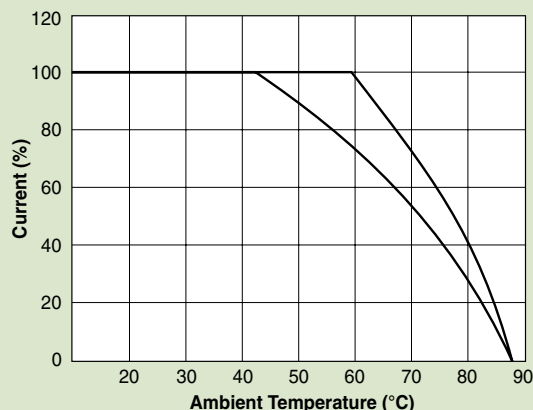


Power Entry Modules Bolt-in Right Angle Terminals

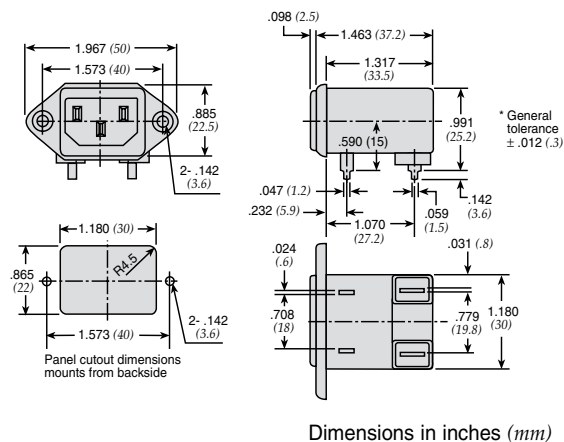
for PCB Applications

60-BPP Series

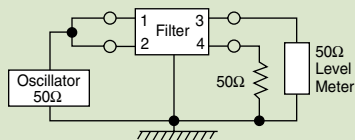
Temperature Characteristics



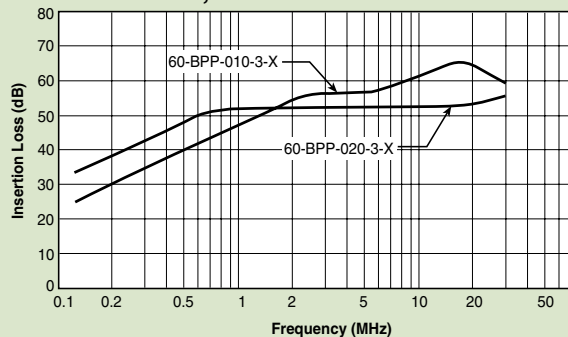
60-BPP PCB Mounting Type



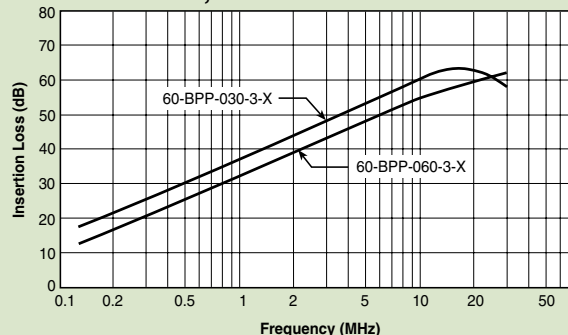
Common Mode



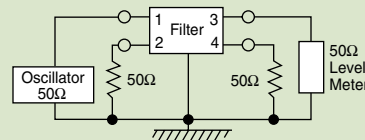
60-BPP-010;-020



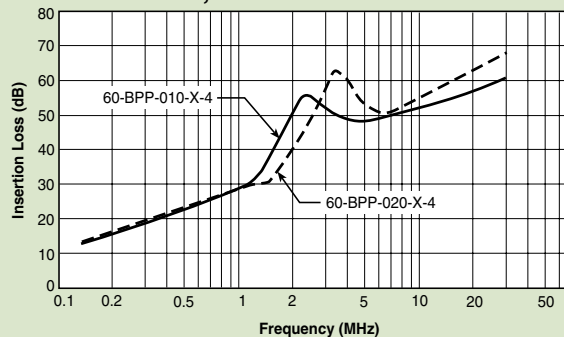
60-BPP-030;-060



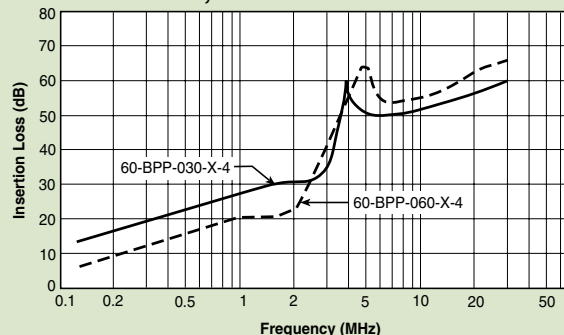
Normal Mode



60-BPP-010;-020



60-BPP-030;-060



Power Entry Modules High Frequency Attenuation

Bolt-in for PCB Applications

60-BHP Series



Tested and found to be
IAW VDE 0565 Part 3

Features

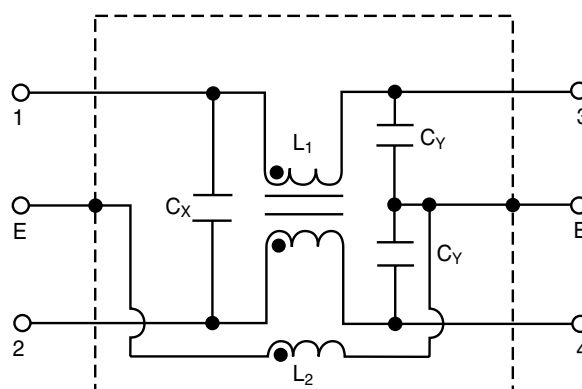
- Ideally suited for products that must conform to FCC part 15 regulations
- Metal cased filter offers high performance
- Meets over voltage of IEC 664 category II and complies with IEC 950
- Solder lug, Fast-on tab styles available (see page PF20)
- PCB mounting minimizes space and provides economical installation
- Excellent filtering characteristics for high frequencies
- Earth coil standard
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF49)

Applications

- Digital equipment
- Personal computers and peripherals
- Measuring instruments
- Monitor and display units



Circuit Diagram



Specifications

Model	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Capacitance		Inductance		Temperature Rise (Max.)
				C _Y	C _X	(L ₁)	(L ₂)	
60-BHP-010-3-11	250VAC	1A	0.35mA	2200pF±20%	0.1uF±20%	6mH	18.3 uH	30°C
60-BHP-010-3-4					.047uF±20%			
60-BHP-010-5-11			0.50mA	3300pF±20%	0.1uF±20%			
60-BHP-010-5-4					.047uF±20%			
60-BHP-020-3-11		2A	0.35mA	2200pF±20%	0.1uF±20%	2.4mH		
60-BHP-020-3-4					.047uF±20%			
60-BHP-020-5-11			0.50mA	3300pF±20%	0.1uF±20%			
60-BHP-020-5-4					.047uF±20%			
60-BHP-030-3-11		3A	0.35mA	2200pF±20%	0.1uF±20%	1.2mH		
60-BHP-030-3-4					.047uF±20%			
60-BHP-030-5-11			0.50mA	3300pF±20%	0.1uF±20%			
60-BHP-030-5-4					.047uF±20%			
60-BHP-060-3-11		6A	0.35mA	2200pF±20%	0.1uF±20%	0.53mH		45°C
60-BHP-060-3-4					.047uF±20%			
60-BHP-060-5-11			0.50mA	3300pF±20%	0.1uF±20%			
60-BHP-060-5-4					.047uF±20%			

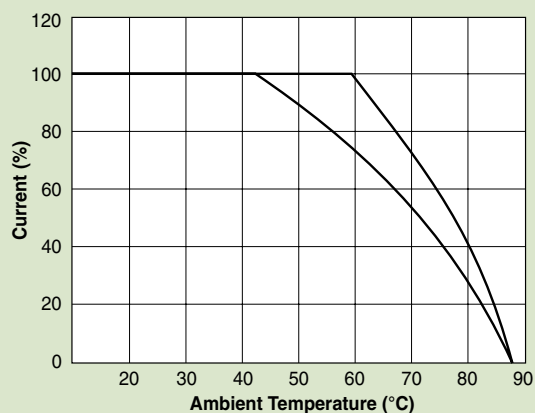
Note: Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max. at rated current
Weight: 50g
Input: Compatible with IEC-320

Power Entry Modules High Frequency Attenuation

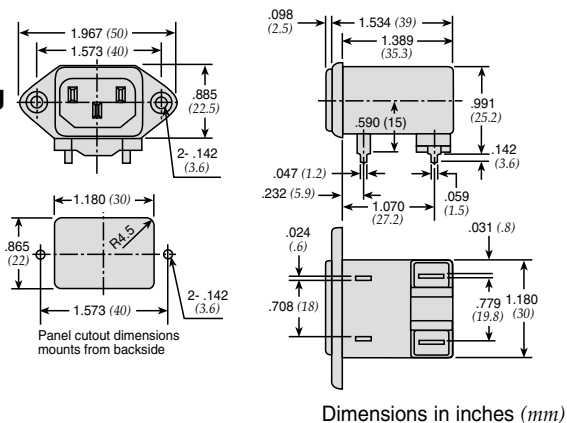
Bolt-in for PCB Applications

60-BHP Series

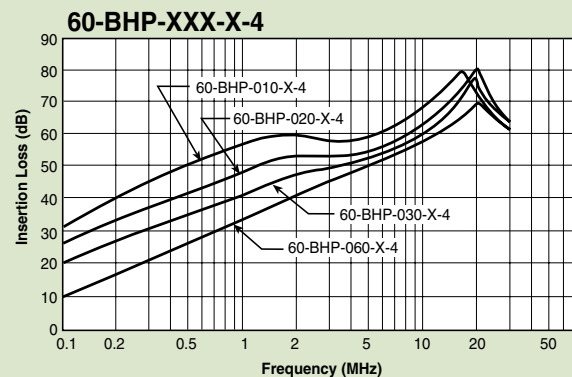
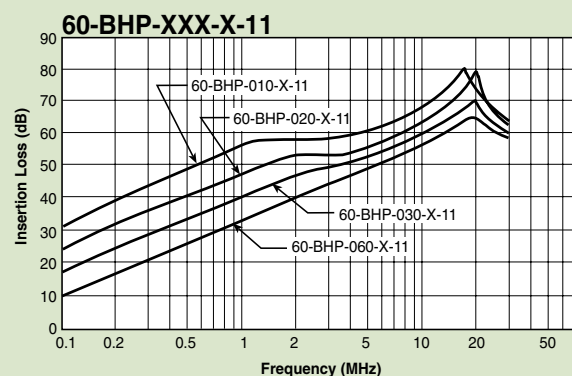
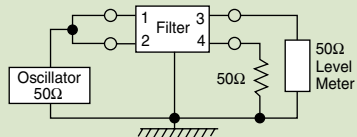
Temperature Characteristics



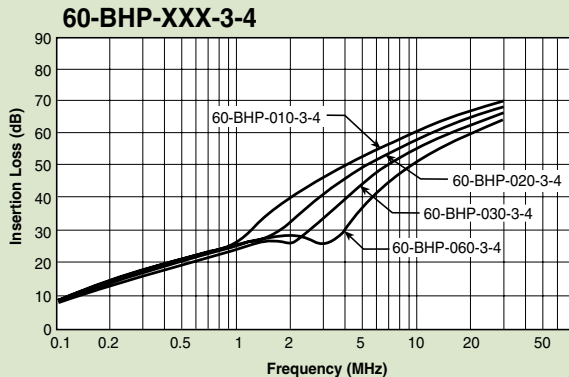
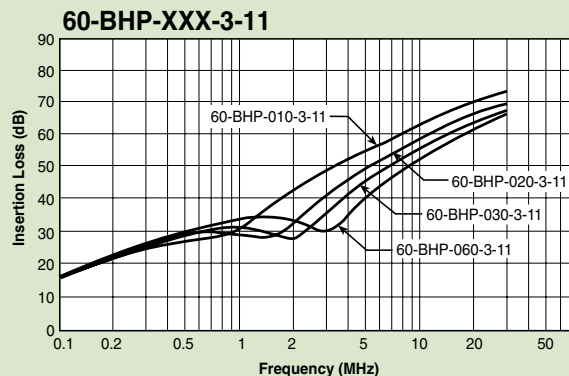
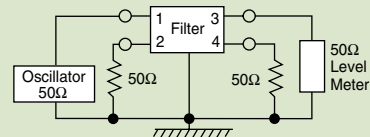
60-BHP PCB Mounting Type



Common Mode



Normal Mode



Power Line Filters Appliance Filters

11-MPC Series

Features

- Miniature general purpose PCB mounted filter
- Requires minimal PCB real estate space
- Low cost
- Operating temperature: -25°C to +70°C
- Two forms of cases are available:
metal case and plastic case

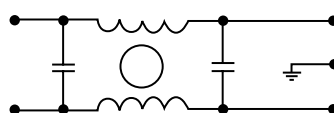
Applications

- Personal computers and peripherals
- Digital equipment
- Measuring instruments and medical equipment
- TV & VCR monitors and display units
- Home appliances

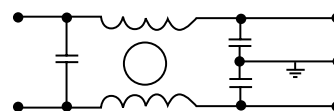


Circuit Diagram

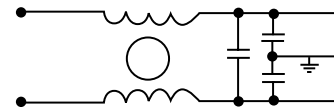
Circuit 1



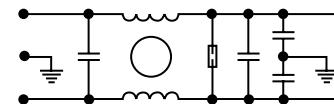
Circuit 2



Circuit 3



Circuit 4



Specifications

Model	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Circuit Diagram	Figure	Temperature Rise (Max.)
11-MPC-001-2-B	120/250VAC	1A	5uA	1	A1	30°C
11-MPC-001-5-A			0.50mA	2	A	
11-MPC-001-5-B					A1	
11-MPC-002-5-B		2A		3	D	
11-MPC-002-5-D					E	
11-MPC-003-5-E		6A		2	A1	
11-MPC-006-5-B					C	
11-MPC-006-5-C		16A	0.2mA	4	B	
11-MPC-016-5-B						

Note: Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max. at rated current
Weight: 17.5g

PCB Power Filters Miniature Printed Circuit Board

11-MPC Series

Figure A

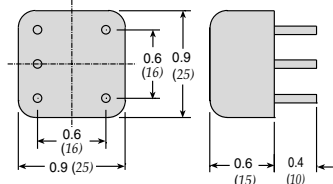


Figure A1

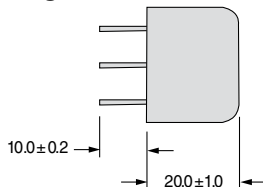


Figure B

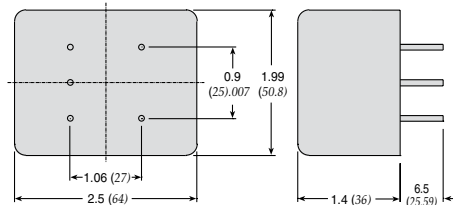


Figure C

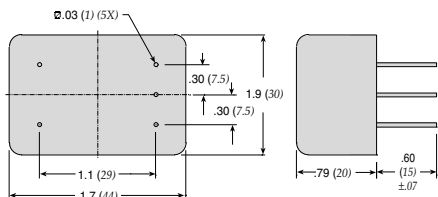


Figure D

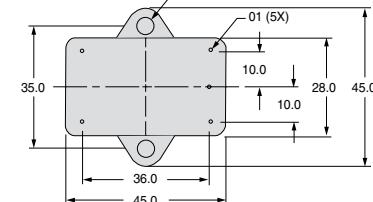
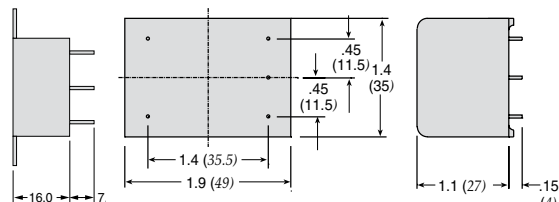
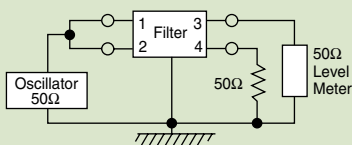


Figure E

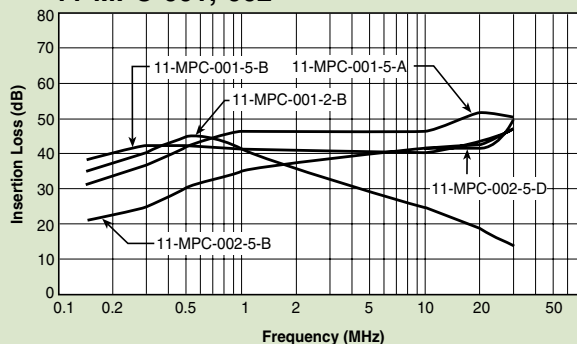


Dimensions in inches (mm)

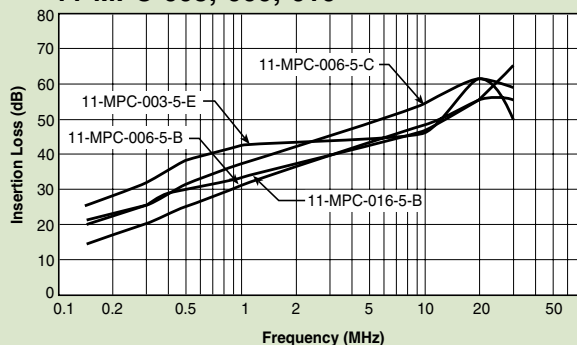
Common Mode



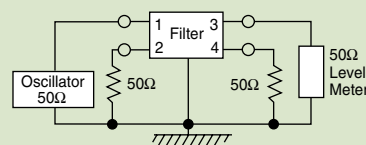
11-MPC-001;-002



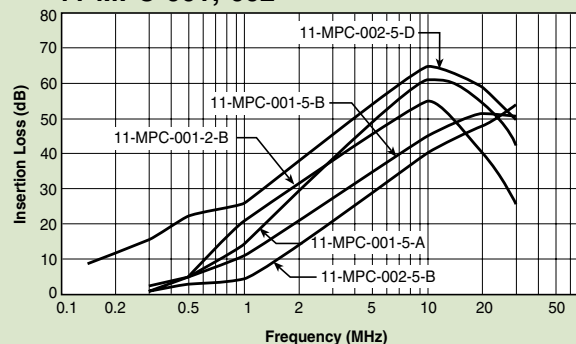
11-MPC-003;-006;-016



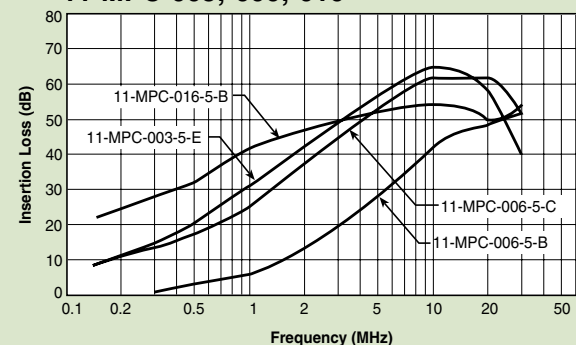
Normal Mode



11-MPC-001;-002



11-MPC-003;-006;-016



Power Line Filters Appliance Filters

62-AL/62-AC Series



Tested and found to be
IAW VDE 0565 Part 3

Features

- Low-cost plastic case
- Compact design requires minimal real estate space
- Suitable for products that must conform to FCC regulations
- Wide variety of circuit and filtering options
- Good filtering characteristics for both normal mode and common mode
- Epoxy molded for reliability
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF53)

Applications

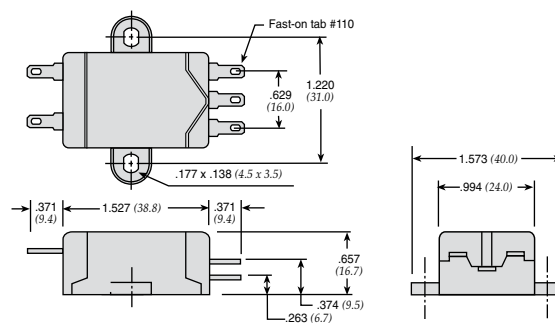
- Personal computers and peripherals
- Digital equipment
- Industrial equipment
- Vending machines
- Home appliances
- Office equipment

Specifications

Model*	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Capacitance		Inductance (L ₁)	Temperature Rise (Max.)
				C _Y	C _X		
62-AFL-010-3-11	250VAC	1.0A	0.35mA		0.1uF	11.0mH	40°C
62-AFC-010-3-11			0.50mA				
62-AFL-010-5-11		1.6A	0.35mA	2200pF		6.0mH	
62-AFC-010-5-11			0.50mA	3300pF			
62-AFL-016-3-11		3.0A	0.35mA	2200pF		2.4mH	
62-AFC-016-3-11			0.50mA	3300pF			
62-AFL-016-5-11		4.5A	0.35mA	2200pF		1.0mH	
62-AFC-016-5-11			0.50mA	3300pF			
62-AFL-030-3-11		6.0A	0.35mA	2200pF		0.53mH	
62-AFC-030-3-11			0.50mA	3300pF			
62-AFL-030-5-11							
62-AFC-030-5-11							
62-AFL-045-3-11							
62-AFC-045-3-11							
62-AFL-045-5-11							
62-AFC-045-5-11							
62-AFL-060-3-11							
62-AFC-060-3-11							
62-AFL-060-5-11							
62-AFC-060-5-11							

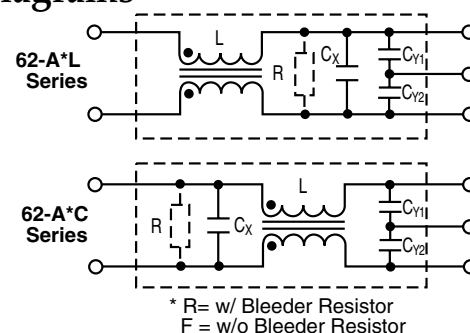
Note: All types are designed to meet the requirement of UL 1283, CSA 22.2. VDE 0565-3
Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max.

* Available with bleeder resistor
Replace F with R for part number



Dimensions in inches (mm)

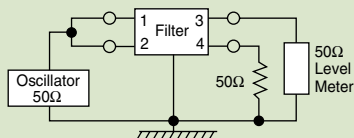
Circuit Diagrams



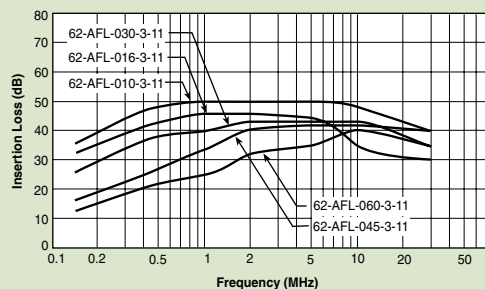
Power Line Filters Appliance Filters

62-AL/62-AC Series

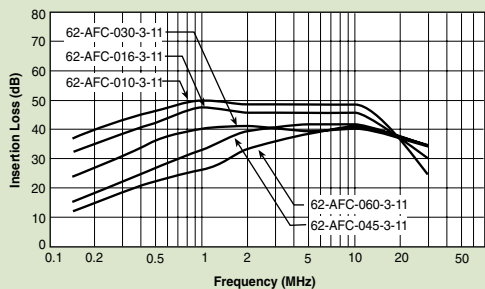
Common Mode



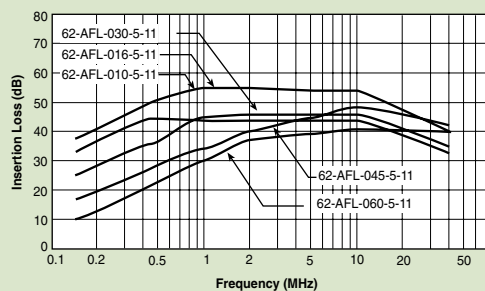
62-AFL-xxx-3-11



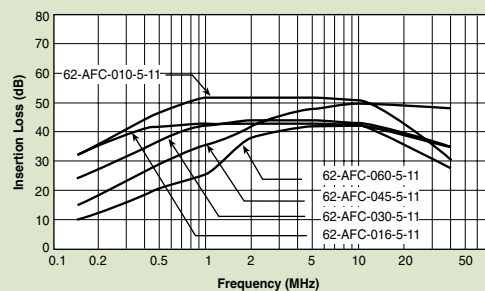
62-AFC-XXX-3-11



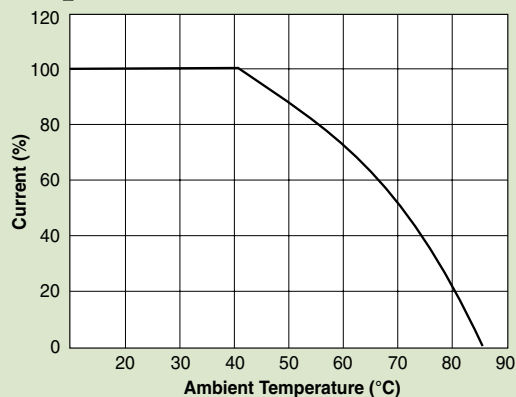
62-AFL-xxx-5-11



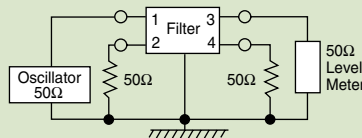
62-AFC-xxx-5-11



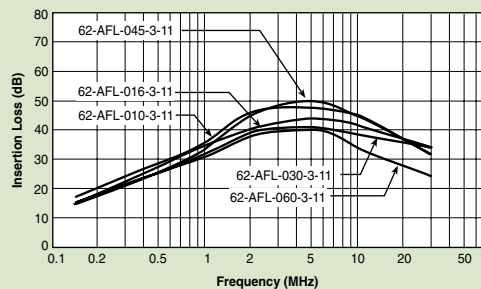
Temperature Characteristics



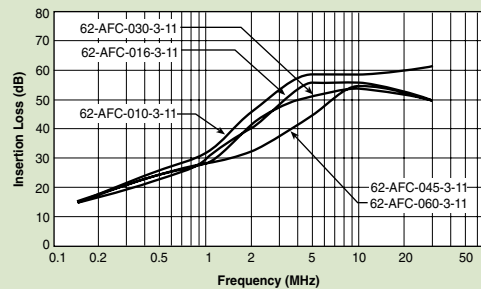
Normal Mode



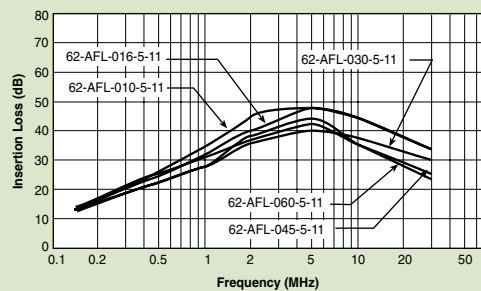
62-AFL-XXX-3-11



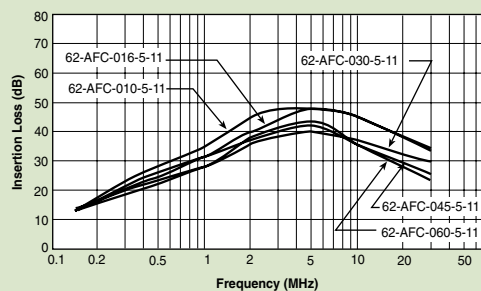
62-AFC-XXX-3-11



62-AFL-xxx-5-11



62-AFC-xxx-5-11



Power Line Filters Single Stage

62-PPF/PQF/PRF Series



Tested and found to be
IAW VDE 0565 Part 3

Features

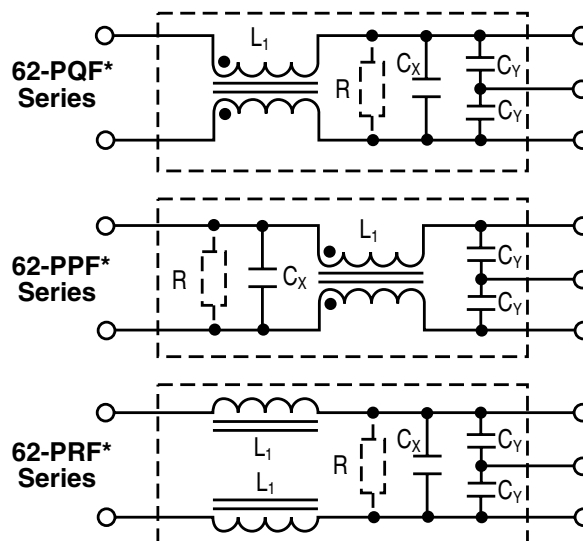
- Low-cost plastic case
- Compact design requires minimal real estate space
- Suitable for products that must conform to FCC and FTZ regulations
- Wide variety of circuit and filtering options
- Good filtering characteristics for both normal mode and common mode
- Epoxy molded for reliability
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF55)

Applications

- Personal computers and peripherals
- Digital equipment
- Industrial equipment
- Vending machines
- Office equipment



Circuit Diagrams



* Bleeder Resistor is available only for
62-P(Q/R/P)F-XXX-X-12

Specifications

Model	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Capacitance		Inductance (L ₁)	Temperature Rise (Max.)
				C _Y	C _X		
62-PQF-020-5-11	250VAC	2A	0.50mA	3300pF	0.1uF	15mH	30°C
62-PQF-020-5-12					.22uF		
62-PPF-020-5-11					0.1uF		
62-PPF-020-5-12					.22uF		
62-PQF-030-5-11		3A			0.1uF	8mH	
62-PQF-030-5-12					.22uF		
62-PPF-030-5-11					0.1uF		
62-PPF-030-5-12					.22uF		
62-PQF-060-5-11		6A			0.1uF	2.1mH	
62-PQF-060-5-12					.22uF		
62-PPF-060-5-11					0.1uF		
62-PPF-060-5-12					.22uF		
62-PRF-010-5-11		1A			0.1uF	486uH	
62-PRF-010-5-12					.22uF		
62-PRF-020-5-11		2A			0.1uF	181uH	
62-PRF-020-5-12					.22uF		
62-PRF-030-5-11		3A			0.1uF	97uH	
62-PRF-030-5-12					.22uF		

Note: All types are designed to meet the requirement of UL 1283, CSA 22.2. VDE 0565-3

Test voltage: 1500VAC one minute, line to ground

Insulation resistance: 300 Mohm min. at 500VDC

Voltage drop: 1V max. (except 62-PRF-010-5-11) at rated current

62-PRF-010-5-11: 1.5V max. at rated current

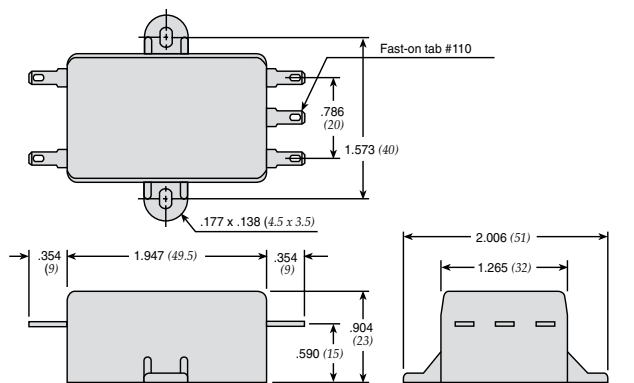
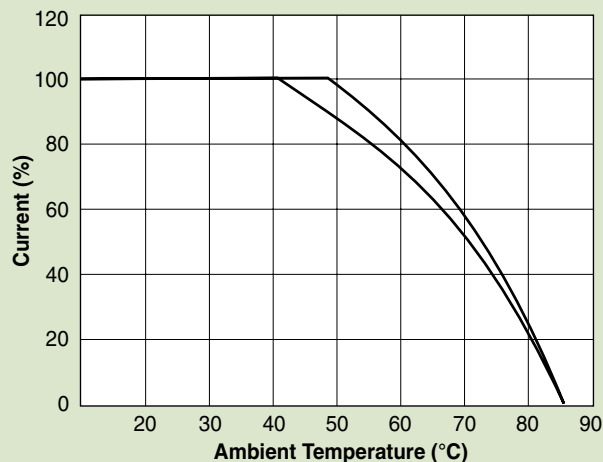
Weight: 62-PPF & PQF Series: 2.11 ounces (60 grams)

62-PRF Series: 1.76 ounces (50 grams)

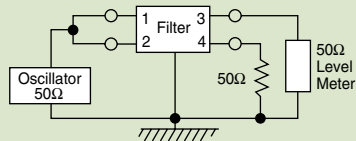
Power Line Filters Single Stage

62-PPF/PQF/PRF Series

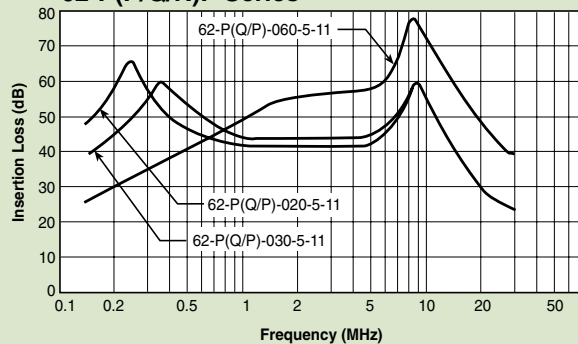
Temperature Characteristics



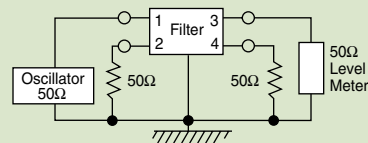
Common Mode



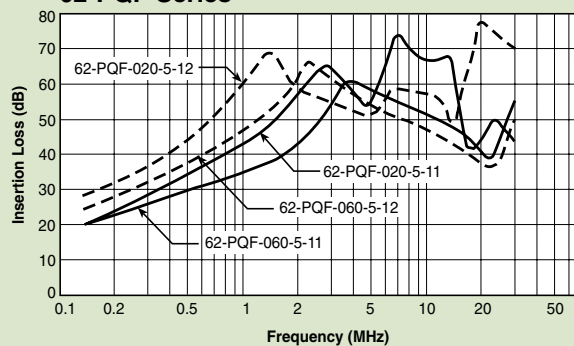
62-P(P/Q/R)F Series



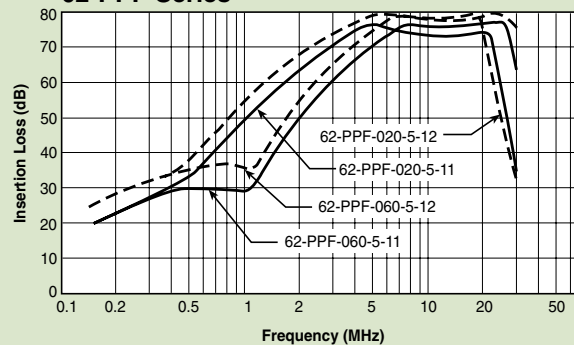
Normal Mode



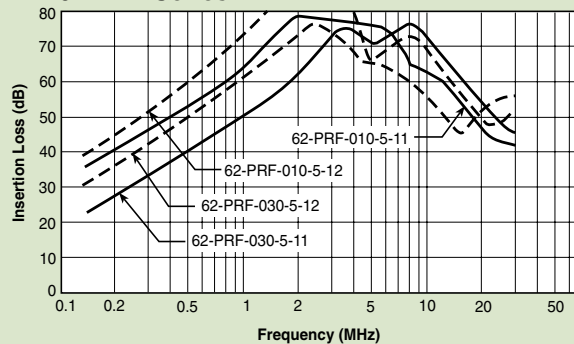
62-PQF Series



62-PPF Series



62-PRF Series



Power Line Filters Single Stage Wire Leads

62-PML Series



Tested and found to be
IAW VDE 0565 Part 3

Features

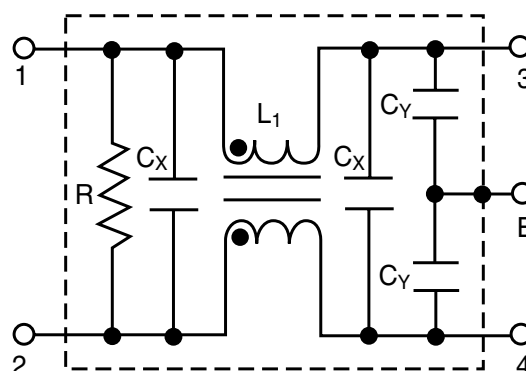
- Compact design requires minimal real estate space
- Suitable for products that must conform to FCC and FTZ regulations
- Excellent attenuation for high voltage impulse
- Metal case provides effective shielding
- Excellent filtering characteristics for both normal mode and common mode
- Structure provides effective shielding for noise generated externally and internally
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF57)

Applications

- Digital equipment
- Personal computers and peripherals
- Measuring instruments
- Medical equipment
- Factory automation equipment



Circuit Diagram



Specifications

Model	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Capacitance		Inductance (L ₁)	Temperature Rise (Max.)
				C _Y	C _X		
62-PML-015-3-11	250VAC	1.5A	0.35mA	2200pF	0.1uF	10.0mH	30°C
62-PML-015-5-11			0.50mA	3300pF			
62-PML-030-3-11		3A	0.35mA	2200pF		4.3mH	
62-PML-030-5-11			0.50mA	3300pF			
62-PML-050-3-11		5A	0.35mA	2200pF		2.4mH	
62-PML-050-5-11			0.50mA	3300pF			

Note: All types are designed to meet the requirement of UL 1283, CSA 22.2. VDE 0565-3

Test voltage: 1500VAC one minute, line to ground

Insulation resistance: 300 Mohm min. at 500VDC

Voltage drop: 1V max. at rated current

Weight: 62-PML-015 Series: 3.06 ounces (87 grams)

62-PML-030 Series: 3.17 ounces (90 grams)

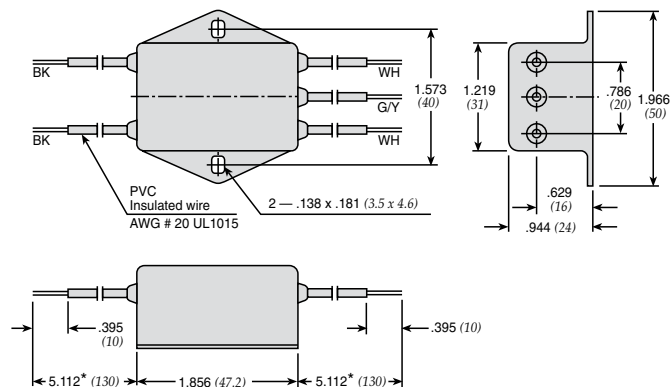
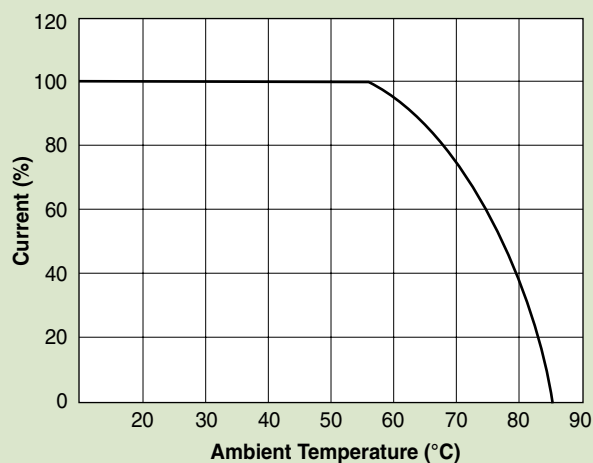
62-PML-050 Series: 3.28 ounces (93 grams)

Discharge time: 0.4 sec. max.

Power Line Filters Single Stage Wire Leads

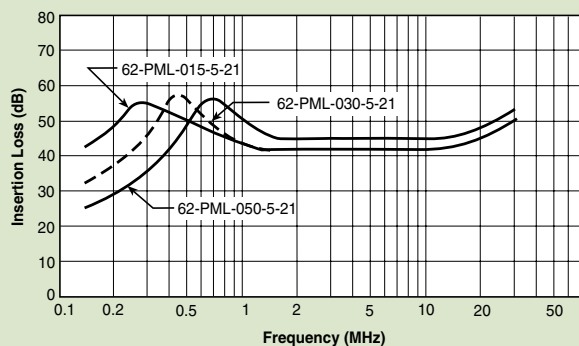
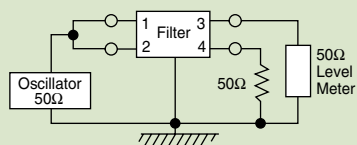
62-PML Series

Temperature Characteristics

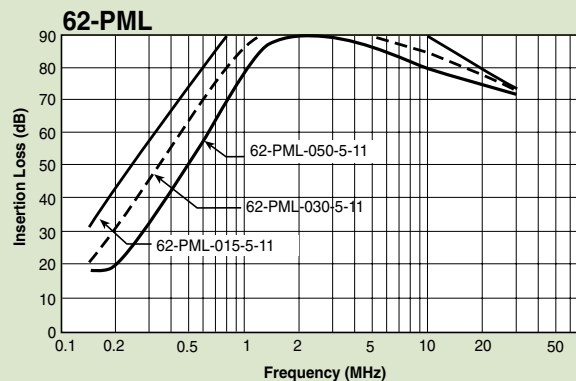
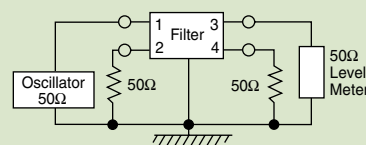


* Custom lengths available upon request. Dimensions in inches (mm)

Common Mode



Normal Mode



Power Line Filters Single Stage Wire Leads

for Medical Purpose Applications

12-PML & 12-PMF Series



Features

- Compact design requires minimal real estate space
- Suitable for products that must conform to FCC and FTZ regulations
- Excellent attenuation for high voltage impulse
- Metal case provides effective shielding
- Excellent filtering characteristics for both normal mode and common mode
- Structure provides effective shielding for noise generated externally and internally
- Operating temperature: -25°C to +70°C
- Low leakage current

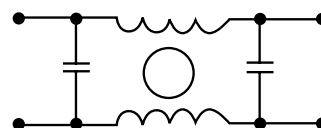
Applications

- Digital equipment
- Personal computers and peripherals
- Measuring instruments
- Medical equipment
- Factory automation equipment

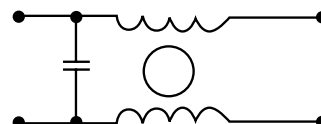


Circuit Diagram

Circuit 1



Circuit 2



Specifications

Model	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Circuit Diagram	Figure	Temperature Rise (Max.)	
12-PML-001-2-A	120/250VAC	1A	5uA	1	A	30°C	
12-PML-002-2-A		2A					
12-PML-006-2-A		6A					
12-PML-010-2-A		10A					
12-PMF-001-2-B		1A		2	B		
12-PMF-002-2-B		2A					
12-PMF-006-2-B		6A					
12-PML-001-2-C		1A		1	C		

Note: All types are designed to meet the requirement of UL 1283, CSA 22.2. VDE 0565-3

Test voltage: 1500VAC one minute, line to ground

Insulation resistance: 300 Mohm min. at 500VDC

Voltage drop: 1V max. at rated current

Discharge time: 0.4 sec. max.

Power Line Filters Single Stage Wire Leads

for Medical Purpose Applications

12-PML & 12-PMF Series

Figure A

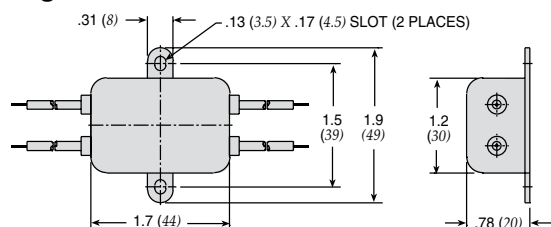


Figure C

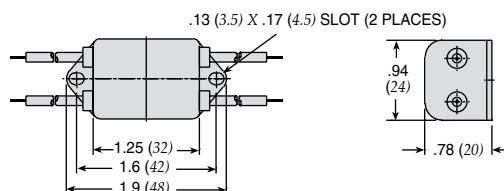
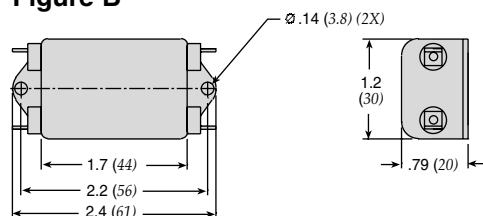
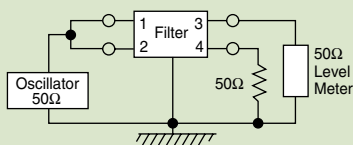


Figure B

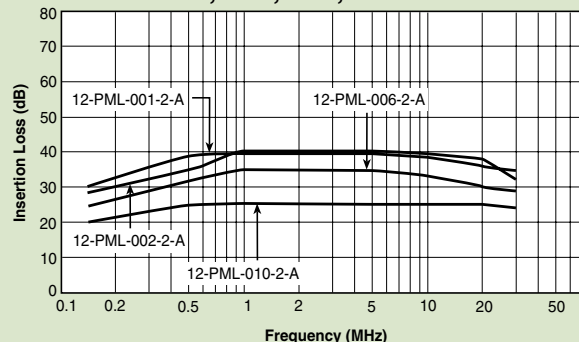


Dimensions in inches (mm)

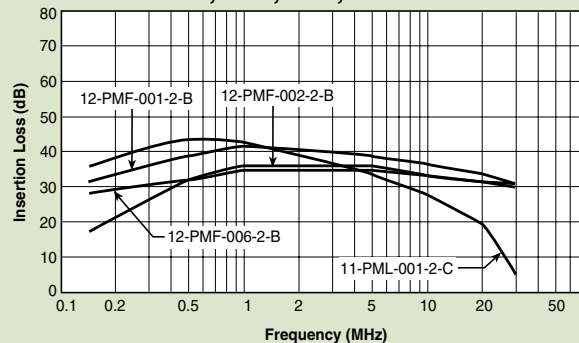
Common Mode



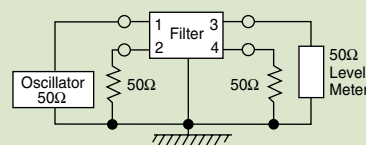
12-PML-001;-002;-006;-010



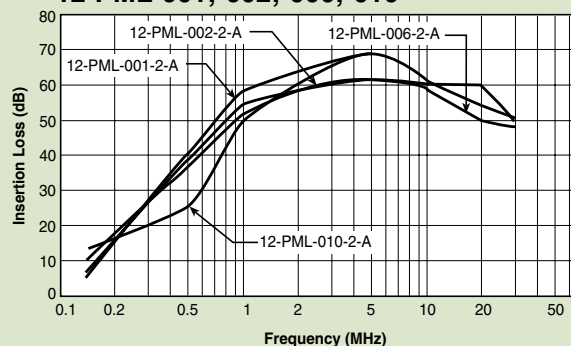
12-PMF-001;-002;-006;-010



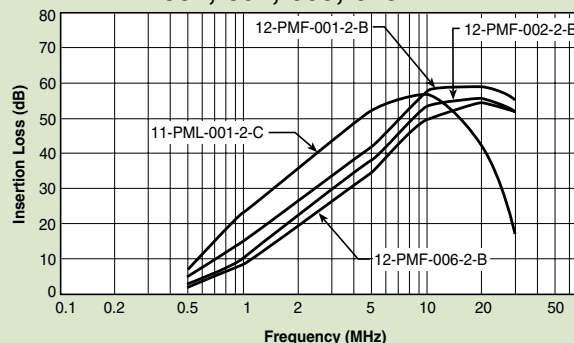
Normal Mode



12-PML-001;-002;-006;-010



12-PMF-001;-002;-006;-010



Power Line Filters Single Stage

62-LMF & LMB Series

Features

- Space saving, compact designs
- Suitable for products that must conform to FCC and FTZ regulations
- Excellent filtering characteristics for both normal mode and common mode
- Structure provides effective shielding for noise generated externally and internally
- Metal case provides effective shielding
- Rugged construction
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF61)

Applications

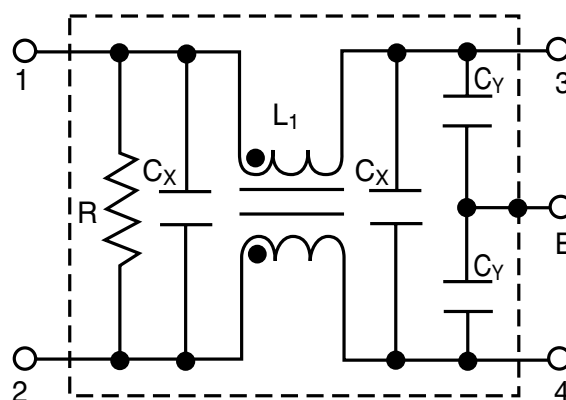
- Digital equipment
- Office automation equipment, such as copy and fax machines
- Computers and peripherals
- Instrumentation and controls



Tested and found to be
IAW VDE 0565 Part 3



Circuit Diagram



Specifications

Model*	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Capacitance		Inductance (L ₁)	Temperature Rise (Max.)				
				C _Y	C _X						
62-LMB-030-5-11	250VAC	3A	0.50mA	3300pF	0.1uF	14mH	45°C				
62-LMF-030-5-11		5A			0.1uF & .22uF			7.0mH			
62-LMB-050-5-11											
62-LMF-050-5-11		8A			.22uF			4.2mH			
62-LMB-080-5-11											
62-LMF-080-5-11		10A			.33uF			2.2mH			
62-LMB-100-5-11											
62-LMF-100-5-11											

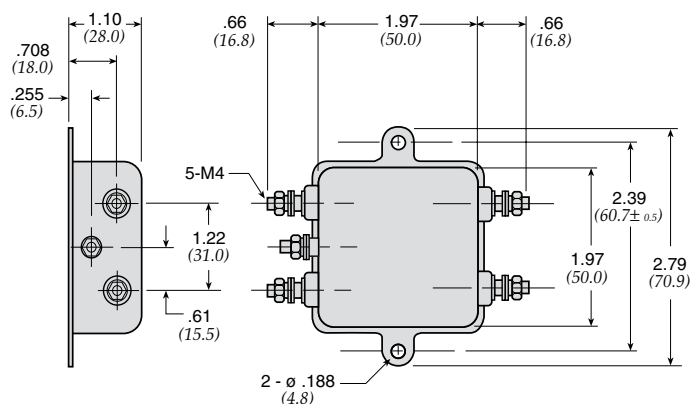
Note: Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max. at rated current
Discharge time: 0.4 sec. max.
Weight: 5.3 ounces (150 grams)

*62-LMF - designates Fast-on terminals
62-LMB - designates Bolt-in terminals
62-LML - wire lead in/outputs also available

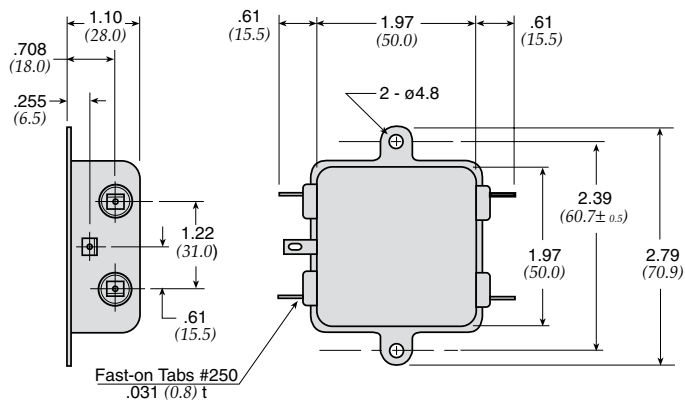
Power Line Filters Single Stage

62-LMF & LMB Series

62-LMB

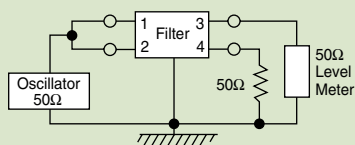


62-LMF

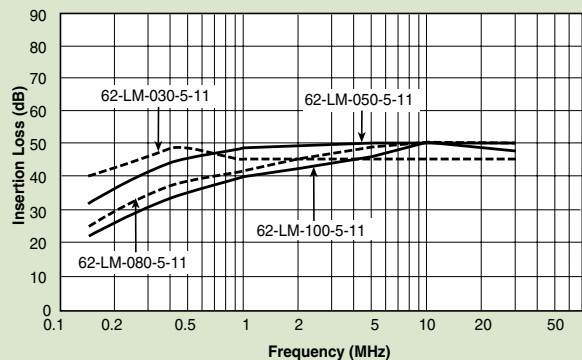


Dimensions in inches (mm)

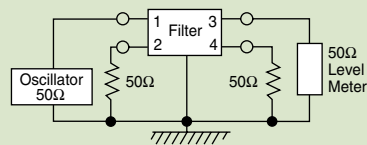
Common Mode



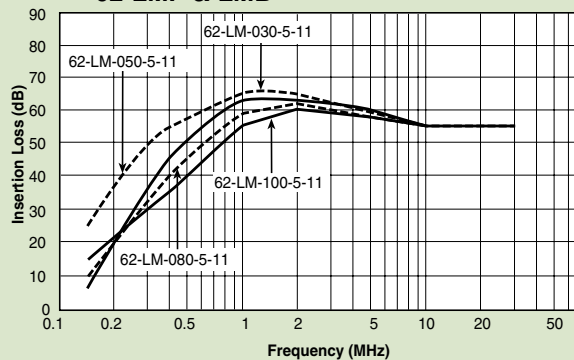
62-LMF & LMB



Normal Mode



62-LMF & LMB



Power Line Filters Single Stage

62-PMF & PMB Series



Tested and found to be
IAW VDE 0565 Part 3

Features

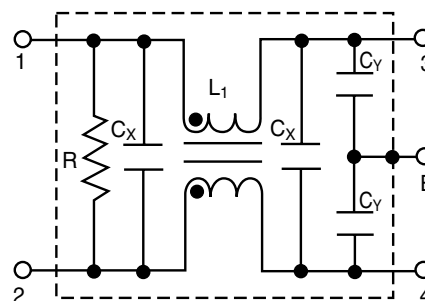
- Space-saving, compact designs
- Suitable for products that must conform to FCC regulations
- Excellent attenuation for high voltage impulse
- Metal case provides effective EMI shielding
- Excellent filtering characteristics for both normal mode and common mode
- Epoxy molded for internal component reliability
- Structure provides effective shielding for noise generated externally and internally
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF63)

Applications

- Digital equipment
- Computers and peripherals
- Measuring instruments
- Medical equipment
- Equipment requiring very high impulse attenuation
- Factory automation equipment
- Industrial equipment such as UPS, inverters and converters
- Telecommunications equipment
- Office automation equipment, such as copy and fax machines



Circuit Diagram



Specifications

Model*	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Capacitance		Inductance (L ₁)	Temperature Rise (Max.)
				C _Y	C _X		
62-PMB-050-5-11	250VAC	5A	0.50mA	3300pF	0.1uF	14mH	30°C
62-PMF-050-5-11		8A			.1uF	7.0mH	
62-PMB-080-5-11							
62-PMF-080-5-11							
62-PMB-100-5-12		10A			.22uF	4.2mH	
62-PMF-100-5-12		15A			.33uF	2.2mH	35°C
62-PMB-150-5-13							
62-PMF-150-5-13							
62-PMB-200-5-13		20A			1.8mH	45°C**	
62-PMF-200-5-13							

Note: Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max.
Discharge time: 0.4 sec. max.
Weight: 8.82 ounces (250 grams)

* PMF - designates Fast-on terminals

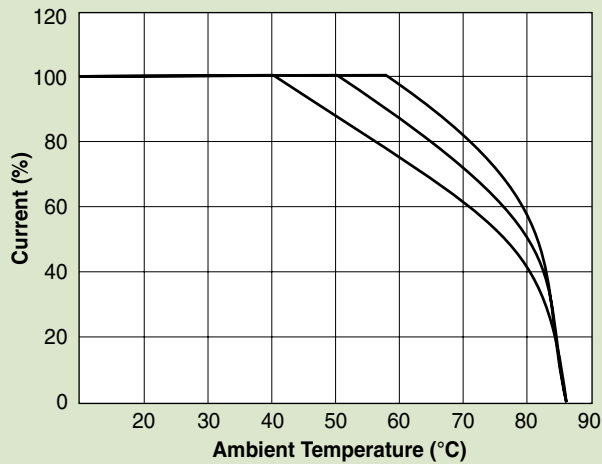
PMB - designates Bolt-in terminals

** The temperature rise of 20 amp units can be decreased to 30°C by mounting on 200 X 200 x 1.0(mm) steel chassis

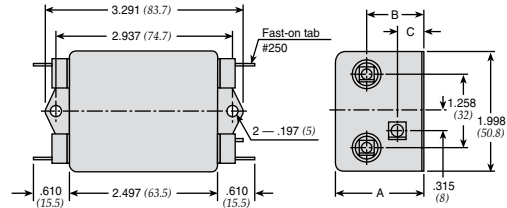
Power Line Filters Single Stage

62-PMF & PMB Series

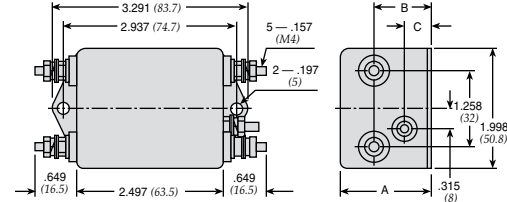
Temperature Characteristics



62-PMF



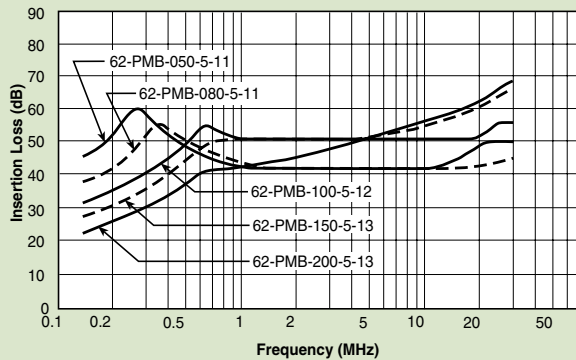
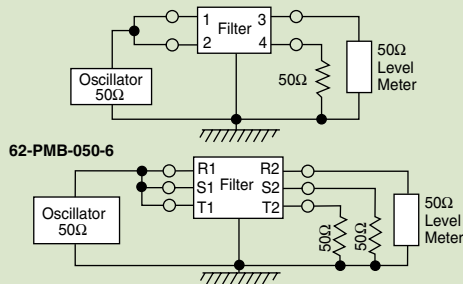
62-PMB



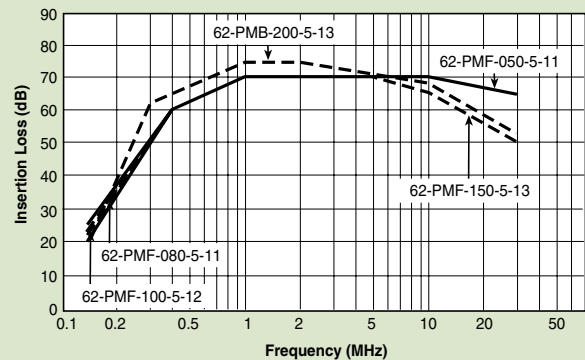
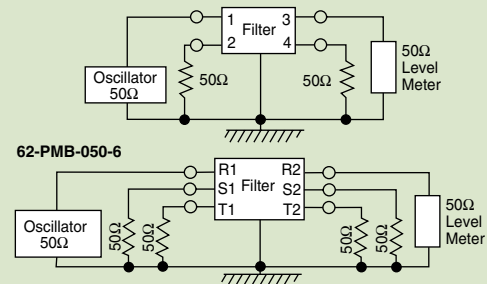
MODEL	A	B	C
62-PMF/PMB-100-200	1.490 (38)	.944 (24)	.433 (11)
62-PMF/PMB-050-080	1.258 (32)	.786 (20)	0 (0)

Dimensions in inches (mm)

Common Mode



Normal Mode



Power Line Filters

Single Stage

12-PMF Series



Features

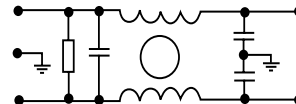
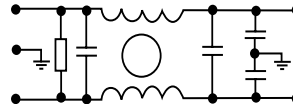
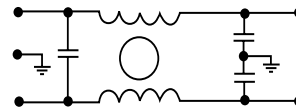
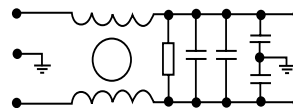
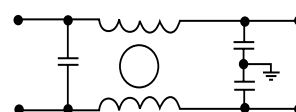
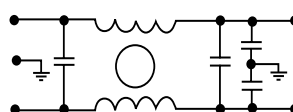
- Space-saving, compact designs
- Suitable for products that must conform to FCC regulations
- Excellent attenuation for high voltage impulse
- Metal case provides effective EMI shielding
- Excellent filtering characteristics for both normal mode and common mode
- Epoxy molded for internal component reliability
- Structure provides effective shielding for noise generated externally and internally
- Operating temperature: -25°C to +85°C

Applications

- Digital equipment
- Computers and peripherals
- Measuring instruments
- Medical equipment
- Equipment requiring very high impulse attenuation
- Factory automation equipment
- Industrial equipment such as UPS, inverters and converters
- Telecommunications equipment
- Office automation equipment, such as copy and fax machines



Circuit Diagram



Specifications

Model	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Circuit Diagram	Figure	Temperature Rise (Max.)
12-PMF-001-5-A	120/250VAC	1A	0.5mA	1	A	30°C
12-PMF-002-5-B		2A		2	B	
12-PMF-003-5-A		3A		4	A	
12-PMF-003-5-B				2	B	
12-PMF-006-5-A		6A		4	A	
12-PMF-006-5-C				1	C	
12-PMF-006-5-D				6	D	
12-PMF-010-5-A		10A		2	A	
12-PMF-010-5-C				3	C	
12-PMF-015-5-C		15A		5	E	
12-PMF-015-5-E					C	
12-PMF-020-5-C		D				
12-PMF-020-5-D		D				
12-PMF-020-5-E		E				

Note: Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max.
Discharge time: 0.4 sec. max.

Power Line Filters Single Stage

12-PMF Series

Figure A

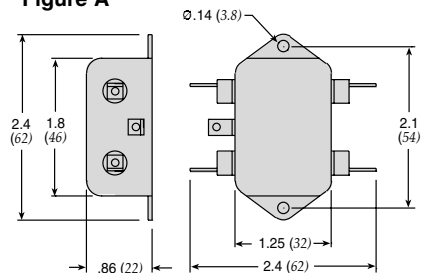


Figure B

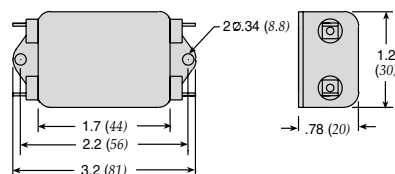


Figure C

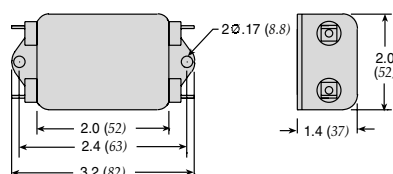


Figure D

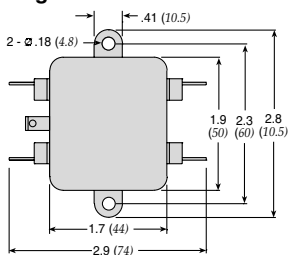
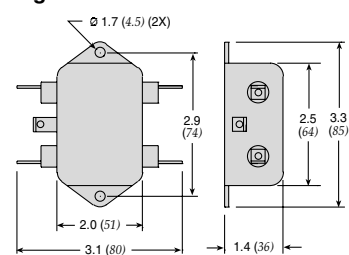
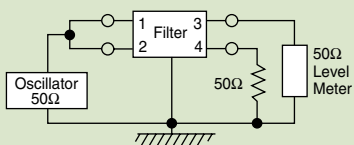


Figure E

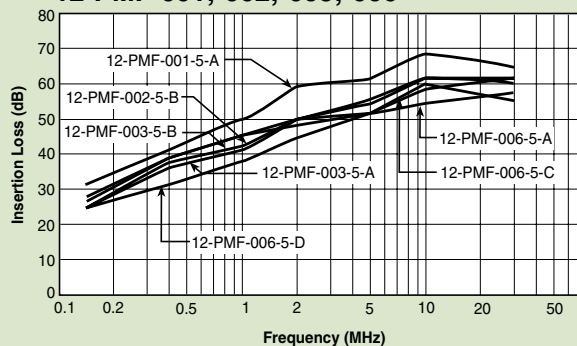


Dimensions in inches (mm)

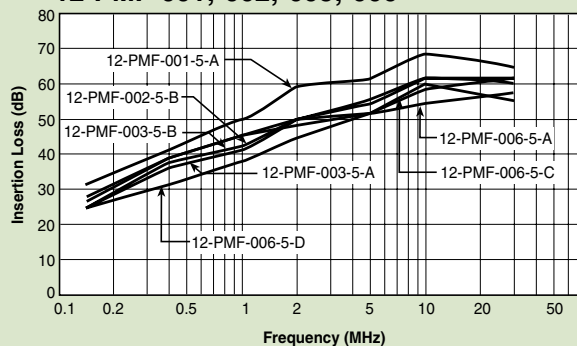
Common Mode



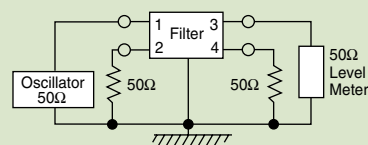
12-PMF-001;-002;-003;-006



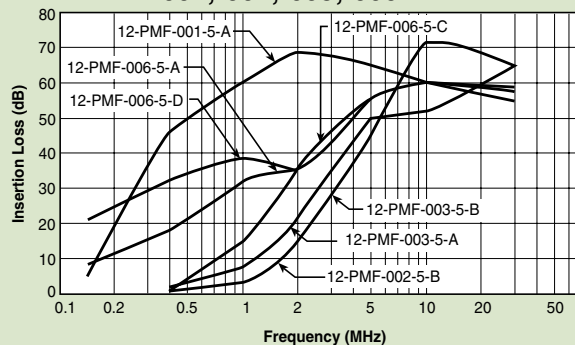
12-PMF-001;-002;-003;-006



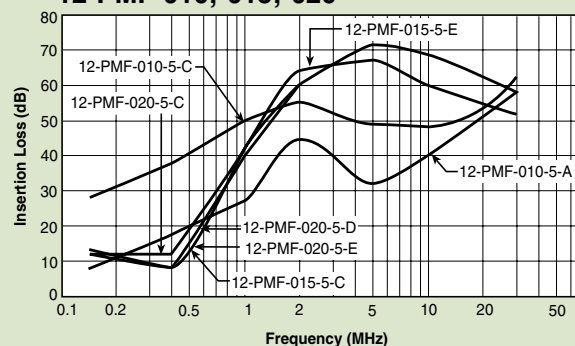
Normal Mode



12-PMF-001;-002;-003;-006



12-PMF-010;-015;-020



Power Line Filters Single Stage - Higher Current

62-PMB Series

Features

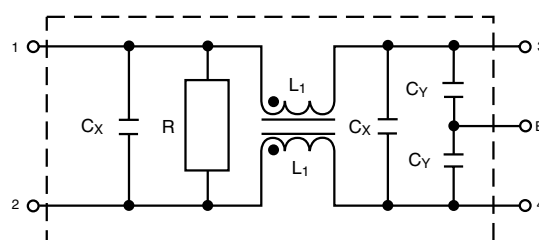
- Space-saving, compact designs
- Suitable for products that must conform to FCC regulations
- Excellent attenuation for high voltage impulse
- Metal case provides effective shielding
- Excellent filtering characteristics for both normal mode and common mode
- Epoxy molded for internal component reliability
- Structure provides effective shielding for noise generated externally and internally
- Safety agency approvals pending
- Designed to be in accordance with VDE 0565 Part 3
- Operating temperature: -25°C to +85°C (including temperature rise)

Applications

- Digital equipment
- Computers and peripherals
- Measuring instruments
- Medical equipment
- Equipment requiring very high impulse attenuation
- Factory automation equipment
- Industrial equipment such as UPS, inverters and converters
- Telecommunications equipment
- Office automation equipment, such as copy and fax machines



Circuit Diagram



Specifications

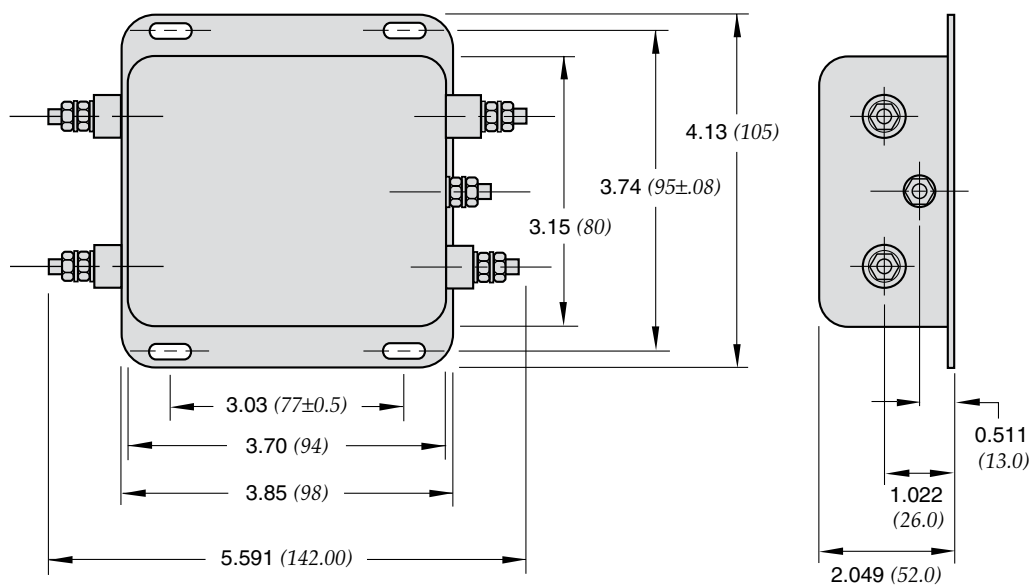
Model	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Capacitance		Inductance (L ₁)	Temperature Rise (Max.)
				C _Y	C _X		
62-PMB-300-5-14	250VAC	30A	0.50mA	3300pF	.47uF	1.6mH	45°C
62-PMB-400-5-14		40A				0.8mH	

Note: Test voltage: 1500VAC one minute, line to earth
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max.
Discharge time: 0.4 sec. max.
Weight: 8.82 ounces (250 grams)

Power Line Filters Single Stage - Higher Current

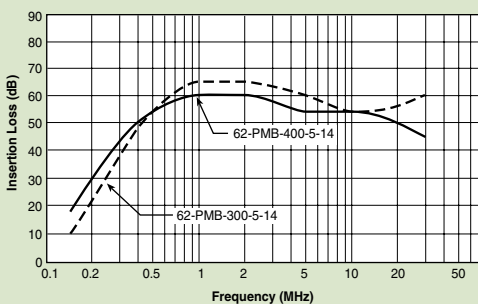
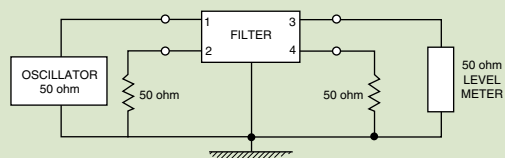
62-PMB Series

62-PMB-300-5-14 and 62-PMB-400-5-14

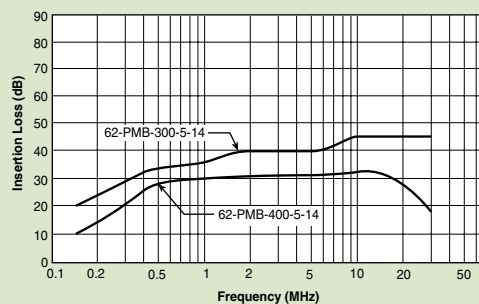
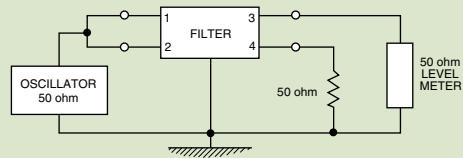


Dimensions in inches (mm)

Normal Mode



Common Mode



Power Line Filters Single Stage - Higher Current

12-PMB Series

Features

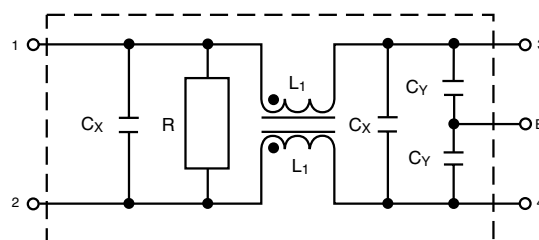
- Space-saving, compact designs
- Suitable for products that must conform to FCC regulations
- Excellent attenuation for high voltage impulse
- Metal case provides effective shielding
- Excellent filtering characteristics for both normal mode and common mode
- Epoxy molded for internal component reliability
- Structure provides effective shielding for noise generated externally and internally
- Designed to be in accordance with VDE 0565 Part 3
- Operating temperature: -25°C to +85°C

Applications

- Digital equipment
- Computers and peripherals
- Measuring instruments
- Medical equipment
- Equipment requiring very high impulse attenuation
- Factory automation equipment
- Industrial equipment such as UPS, inverters and converters
- Telecommunications equipment
- Office automation equipment, such as copy and fax machines



Circuit Diagram



Specifications

Model	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Circuit Diagram	Figure	Temperature Rise (Max.)			
12-PMB-025-5-A	120/250VAC	25A	0.5mA	1	A	30°C			
12-PMB-030-5-A		30A			B				
12-PMB-035-5-B		35A							
12-PMB-050-5-B		50A			C				
12-PMB-100-8-C		100A	1.0mA						
12-PMB-120-8-C		120A							

Note: Test voltage: 1500VAC one minute, line to earth
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max.
Discharge time: 0.4 sec. max.
Weight: 8.82 ounces (250 grams)

Power Line Filters Single Stage - Higher Current

12-PMB Series

Figure A

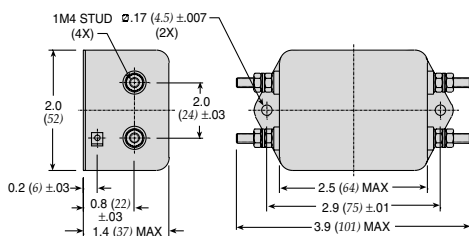


Figure B

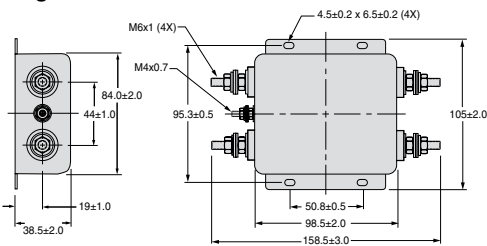
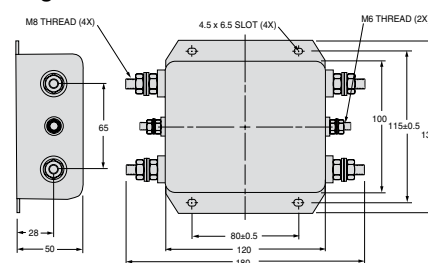
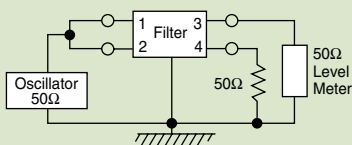


Figure C

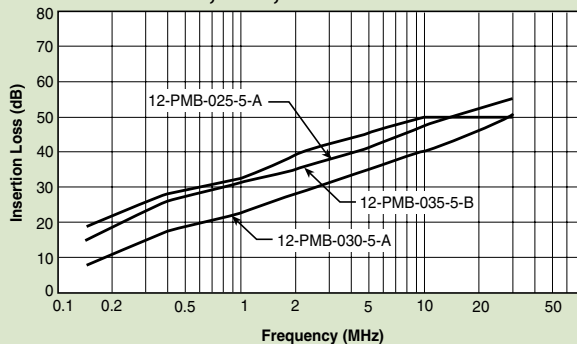


Dimensions in inches (mm)

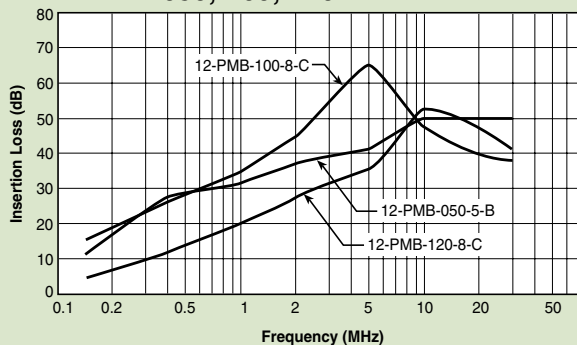
Common Mode



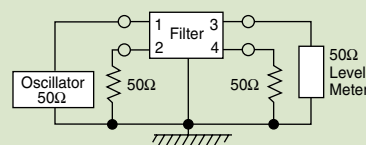
12-PMB-025;-030;-035



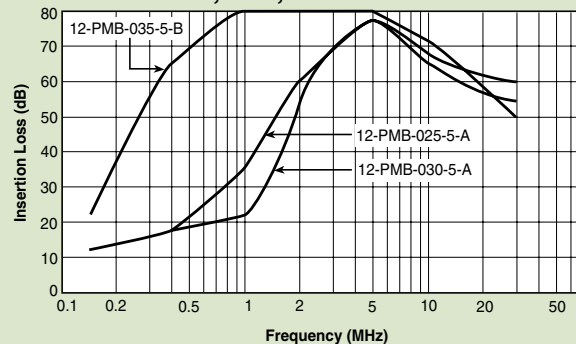
12-PMB-050;-100;-120



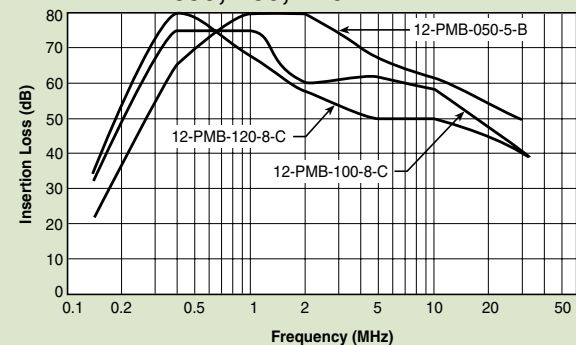
Normal Mode



12-PMB-025;-030;-035



12-PMB-050;-100;-120



Power Line Filters DC - Higher Current

12-PMF & 12 PMB DC Series

Features

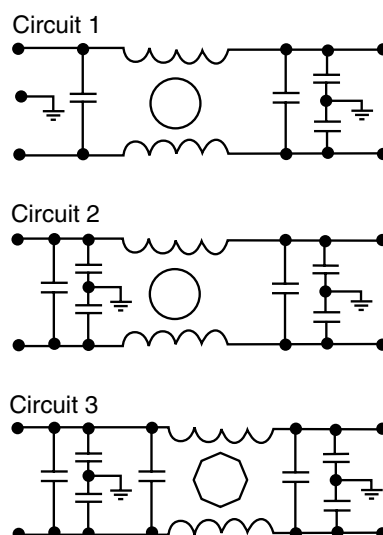
- Space-saving, compact designs
- Suitable for products that must conform to FCC regulations
- Excellent attenuation for high voltage impulse
- Metal case provides effective shielding
- Excellent filtering characteristics for both normal mode and common mode
- Epoxy molded for internal component reliability
- Structure provides effective shielding for noise generated externally and internally
- Designed to be in accordance with VDE 0565 Part 3
- Operating temperature: -40°C to +85°C

Applications

- Digital equipment
- Computers and peripherals
- Measuring instruments
- Equipment requiring very high impulse attenuation
- Factory automation equipment
- Industrial equipment such as UPS, inverters and converters
- Telecommunications equipment



Circuit Diagram



Specifications

Model	Rated Voltage (@ 50/60Hz)	Rated Current	Circuit Diagram	Figure	Temperature Rise (Max.)
12-PMF-006-DC-C	48/250 VDC	6A	1	A	30°C
12-PMF-010-DC-C		10A			
12-PMF-015-DC-C		15A			
12-PMF-020-DC-C		20A			
12-PMF-025-DC-D		25A		B	
12-PMB-025-DC-F		30A		C	
12-PMB-030-DC-F		35A			
12-PMB-035-DC-F		40A		D	
12-PMB-040-DC-F		50A			
12-PMB-040-DC-B		60A			
12-PMB-050-DC-B		80A	2	E	
12-PMB-060-DC-B		100A	3	F	
12-PMB-080-DC-G		120A			
12-PMB-080-DC-C		140A			
12-PMB-100-DC-C		180A	2	G	
12-PMB-120-DC-C		200A			
12-PMB-140-DC-C		260A			
12-PMB-180-DC-E					
12-PMB-200-DC-E					
12-PMB-260-DC-E					

Note: Test voltage: 1500VAC one minute, line to earth
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max.

Discharge time: 0.4 sec. max.
Weight: 8.82 ounces (250 grams)

Power Line Filters DC - Higher Current

12-PMF & 12-PMB DC Series

Figure B

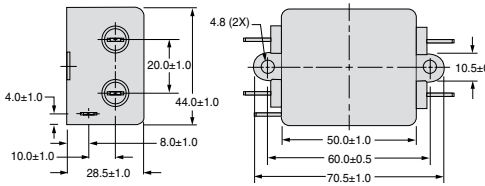


Figure C

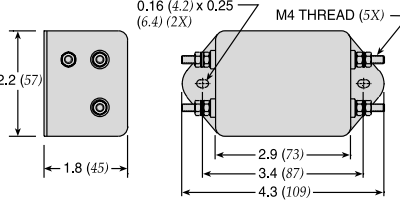


Figure A

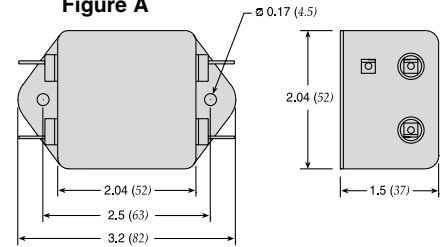


Figure D

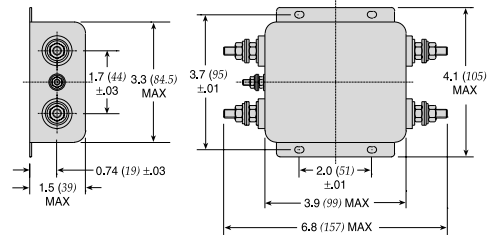


Figure E

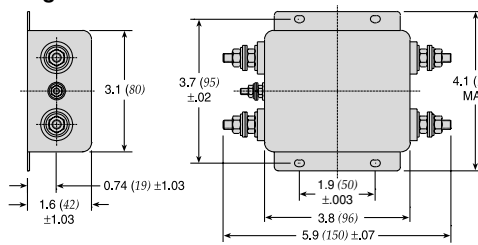


Figure F

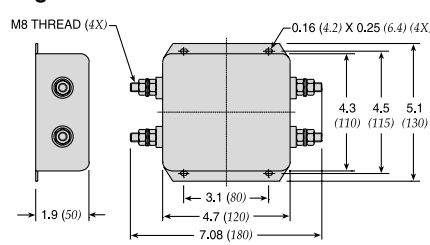
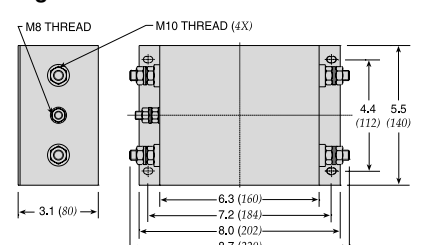
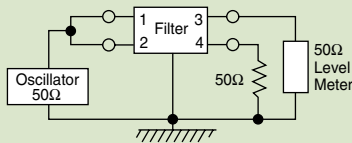


Figure G

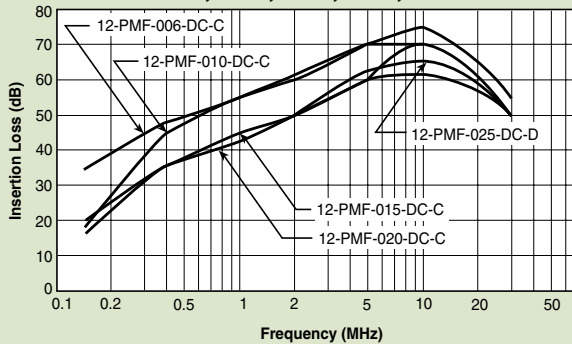


Dimensions in inches (mm)

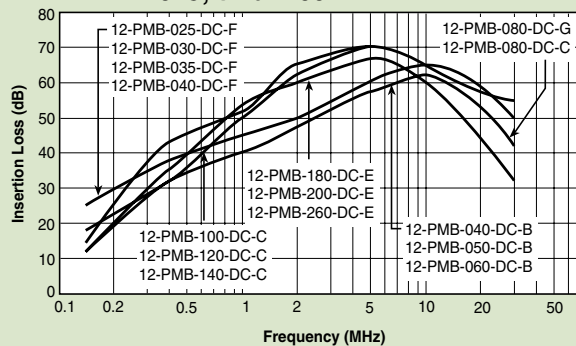
Common Mode



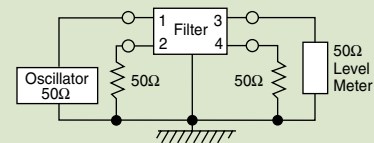
12-PMF-006;-010;-015;-020;-025



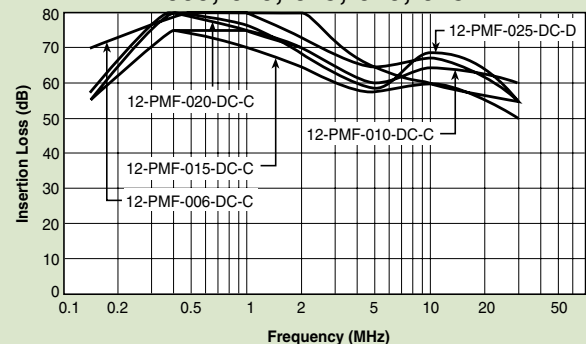
12-PMB-025; thru -260



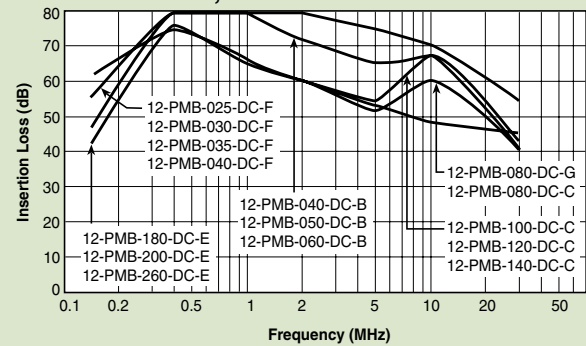
Normal Mode



12-PMF-006;-010;-015;-020;-025



12-PMB-025; thru -260



Power Line Filters Dual Stage

62-MMF Series

Features

- Suitable for products that must conform to FCC regulations
- Excellent attenuation for high voltage impulse
- Metal case provides effective EMI shielding
- Two stages for excellent filtering characteristics
- Epoxy molded for reliability
- Structure provides effective shielding for noise generated both externally and internally
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF73)

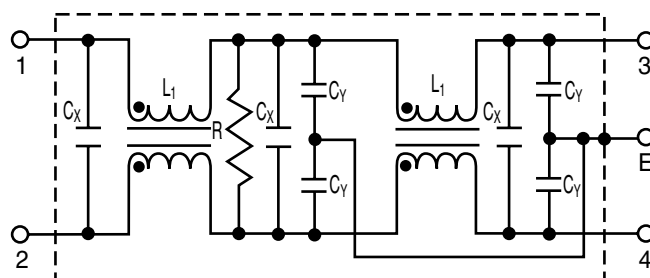
Applications

- Digital equipment
- Personal computers and peripherals
- Measuring instruments and medical equipment
- Telecommunications equipment
- Equipment requiring very high noise attenuation



Circuit Diagram

62-MMF-XXX-7-11



Specifications

Model	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Capacitance			Inductance (L ₁) (2X)	Temperature Rise (Max.)
				C _{Y1}	C _{Y2}	C _X		
62-MMF-030-7-11	250VAC	3A	.7mA	3300pF	1000pF	0.1uF	3.7mH	30°C
62-MMF-050-7-11	250VAC	5A	.7mA	3300pF	1000pF	0.1uF	2.9mH	30°C

Note: All types are designed to meet the requirement of UL 1283, CSA 22.2, VDE 0565-3

Test voltage: 1500VAC one minute, line to ground

Insulation resistance: 300 Mohm min. at 500VDC

Leakage current: 0.7 mA max.

Voltage drop: 1V max.

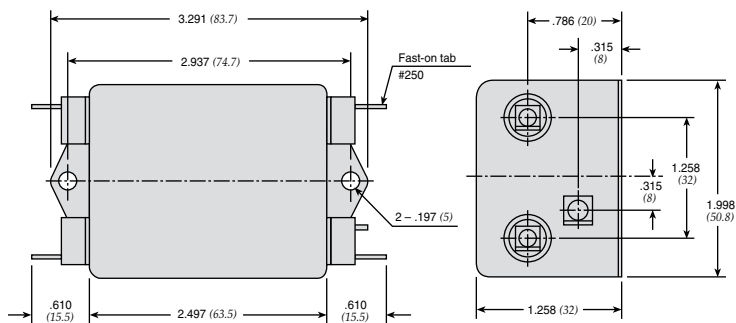
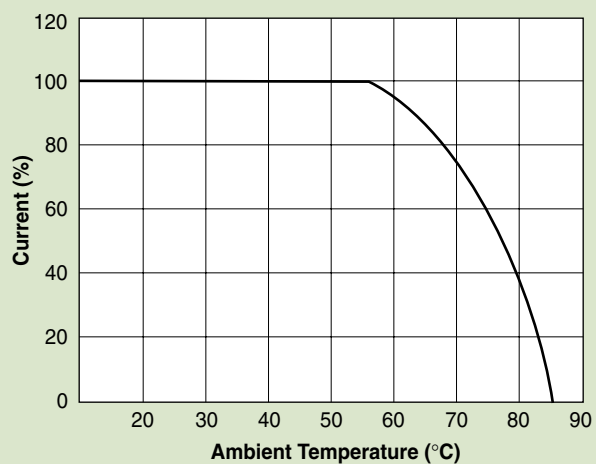
Discharge time: 0.4 sec. max.

Weight: 6.0 ounces (170 grams)

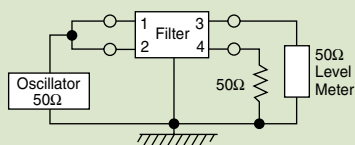
Power Line Filters Dual Stage

62-MMF Series

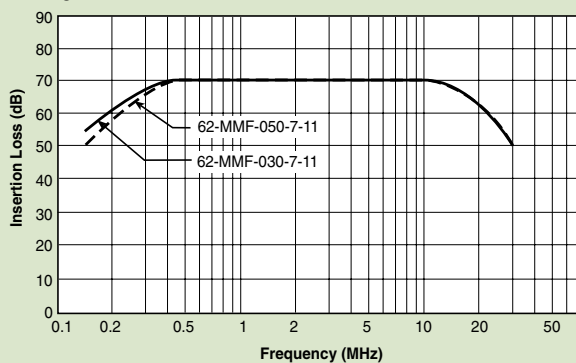
Temperature Characteristics



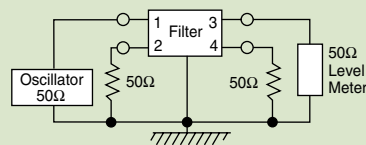
Common Mode



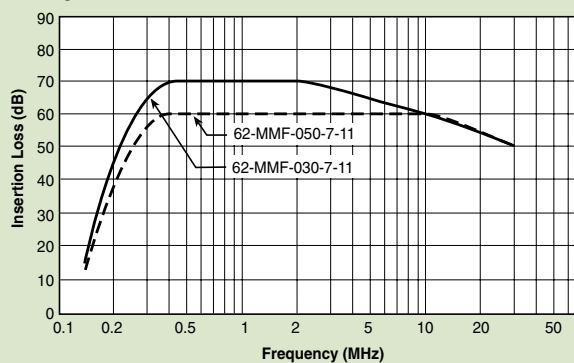
62-MMF



Normal Mode



62-MMF



Power Line Filters Dual Stage

12-MMF & 12-MMB Series

Features

- Suitable for products that must conform to FCC regulations
- Excellent attenuation for high voltage impulse
- Metal case provides effective EMI shielding
- Two stages for excellent filtering characteristics
- Structure provides effective shielding for noise generated both externally and internally
- Operating temperature: -40°C to +85°C
- High performance
- Low leakage current

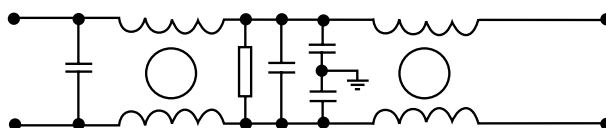
Applications

- Digital equipment
- Switching power supplies
- Personal computers and peripherals
- Measuring instruments and medical equipment
- Telecommunications equipment
- Equipment requiring very high noise attenuation

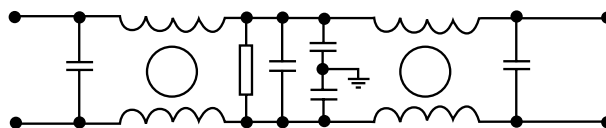


Circuit Diagram

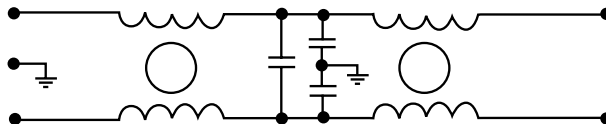
Circuit 1



Circuit 2



Circuit 3



Specifications

Model	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Circuit Diagram	Figure	Temperature Rise (Max.)
12-MMF-002-5-F	120/250VAC	2A	0.25mA@120VAC/ 0.5mA@250VAC	1	A	30°C
12-MMF-003-5-F		3A			A	
12-MMF-003-5-A				3	B	
12-MMF-006-5-F		6A		2	A	
12-MMF-006-5-G					C	
12-MMF-008-5-B		8A			A	
12-MMF-010-5-F		10A			A1	
12-MMF-010-5-G					C	
12-MMF-012-5-B		12A			D	
12-MMB-015-5-E		15A			G	
12-MMB-020-5-F		20A			E	
12-MMB-030-5-D		30A			F	
12-MMB-050-5-C		50A				

Note: All types are designed to meet the requirement of UL 1283, CSA 22.2, VDE 0565-3

Test voltage: 1500VAC one minute, line to ground

Insulation resistance: 300 Mohm min. at 500VDC

Voltage drop: 1V max.

Discharge time: 0.4 sec. max.

Power Line Filters Dual Stage

12-MMF & 12-MMB Series

Figure B

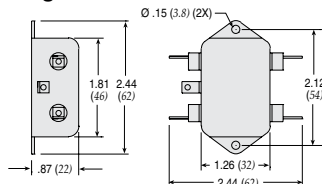


Figure C

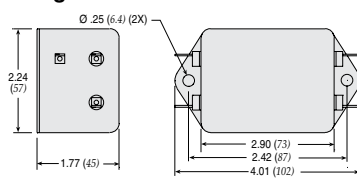


Figure A

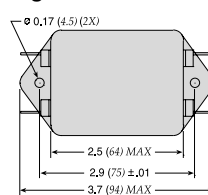


Figure A1

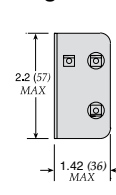


Figure D

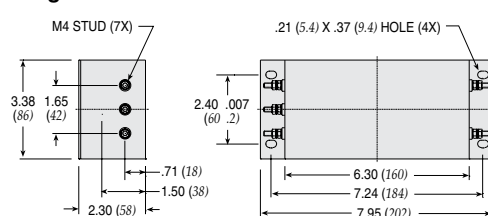


Figure E

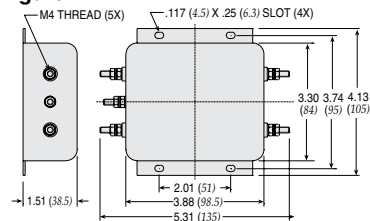


Figure F

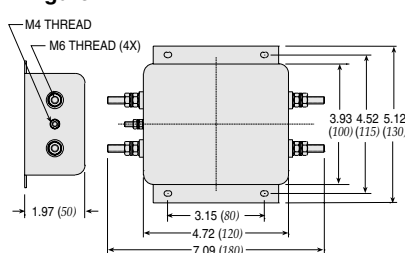
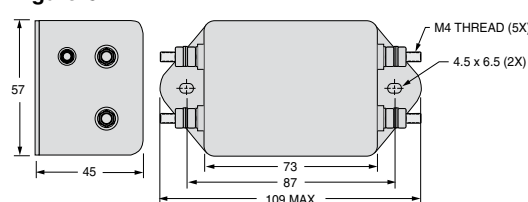
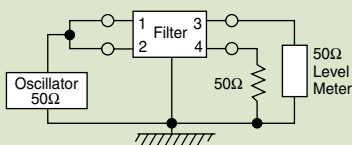


Figure G

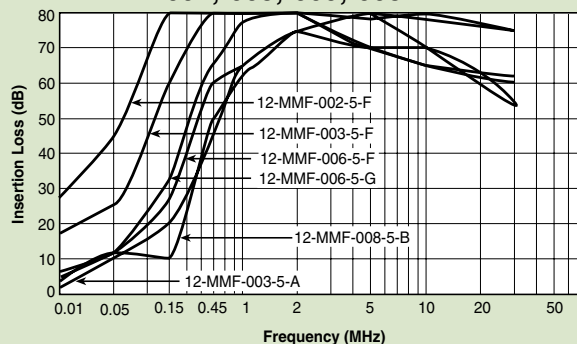


Dimensions in inches (mm)

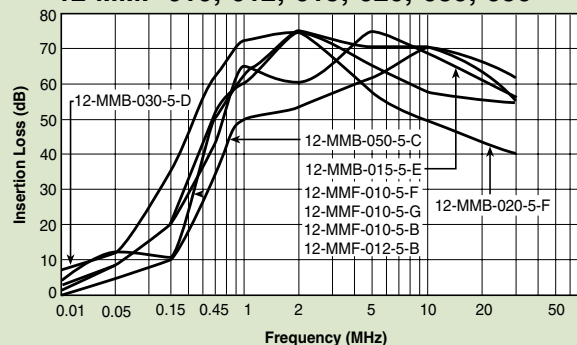
Common Mode



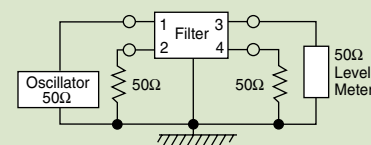
12-MMF-002;-003;-006;-008



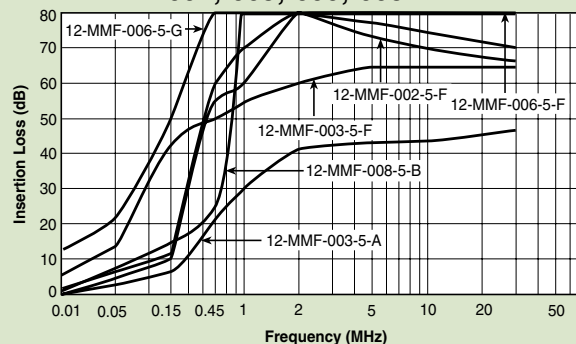
12-MMF-010;-012;-015;-020;-030;-050



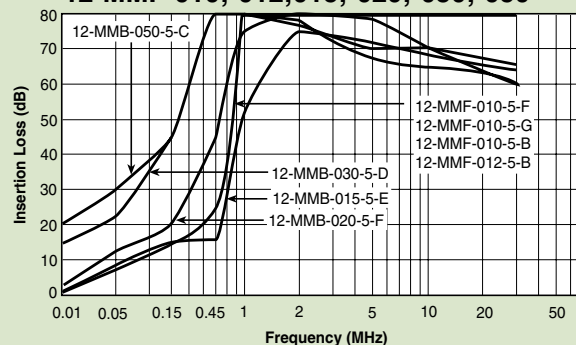
Normal Mode



12-MMF-002;-003;-006;-008



12-MMF-010;-012;-015;-020;-030;-050



Power Line Filters Dual Stage

12-MMF & 12-MMB Series

Features

- Suitable for products that must conform to FCC regulations
- Excellent attenuation for high voltage impulse
- Metal case provides effective EMI shielding
- Two stages for excellent filtering characteristics
- Structure provides effective shielding for noise generated both externally and internally
- Operating temperature: -40°C to +85°C
- High performance

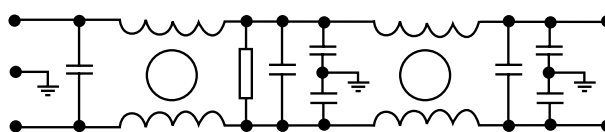
Applications

- Digital equipment
- Personal computers and peripherals
- Measuring instruments and medical equipment
- Telecommunications equipment
- Equipment requiring very high noise attenuation

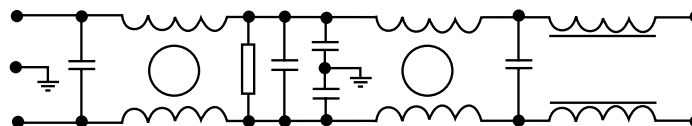


Circuit Diagram

Circuit 1



Circuit 2



Specifications

Model	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Circuit Diagram	Figure	Temperature Rise (Max.)
12-MMF-003-11-F	120/250VAC	3A	1.5mA	1	A	30°C
12-MMF-006-11-F		6A			C	
12-MMF-010-11-F		10A			B	
12-MMF-015-11-G		15A		1	D	
12-MMB-020-11-D		20A			E	
12-MMB-030-11-D		30A		2	F	
12-MMB-040-11-B		40A		1		
12-MMB-040-11-E		40A				
12-MMB-050-11-H		50A				

Note: All types are designed to meet the requirement of UL 1283, CSA 22.2. VDE 0565-3

Test voltage: 1500VAC one minute, line to ground

Insulation resistance: 300 Mohm min. at 500VDC

Leakage current: 0.7 mA max.

Voltage drop: 1V max.

Discharge time: 0.4 sec. max.

Weight: 6.0 ounces (170 grams)

Power Line Filters Dual Stage

12-MMF & 12-MMB Series

Figure A

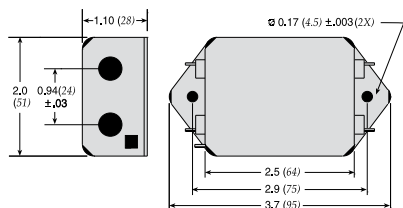


Figure B

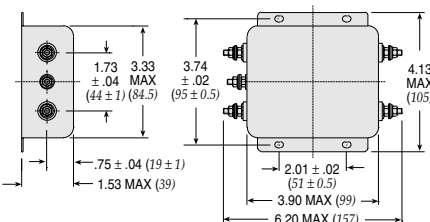


Figure C

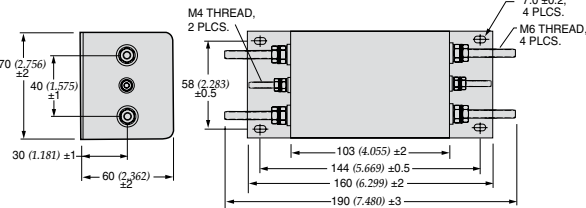


Figure D

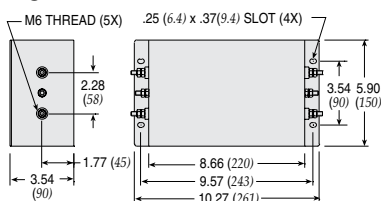


Figure E

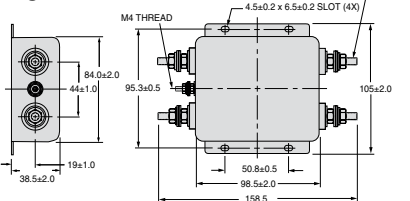
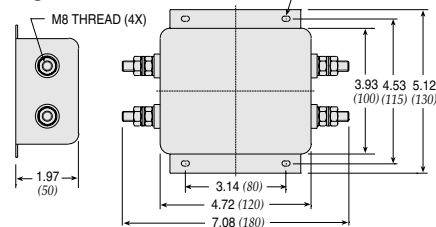
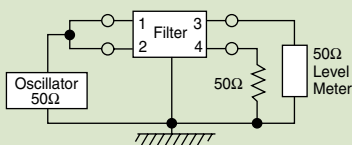


Figure F

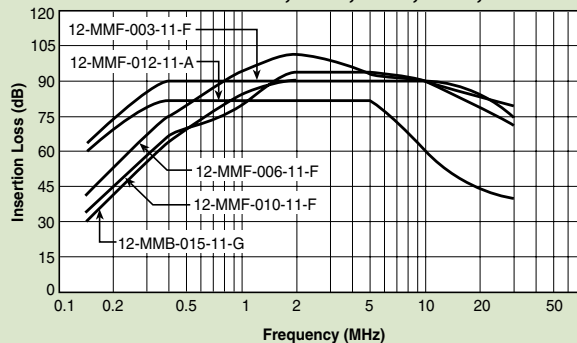


Dimensions in inches (mm)

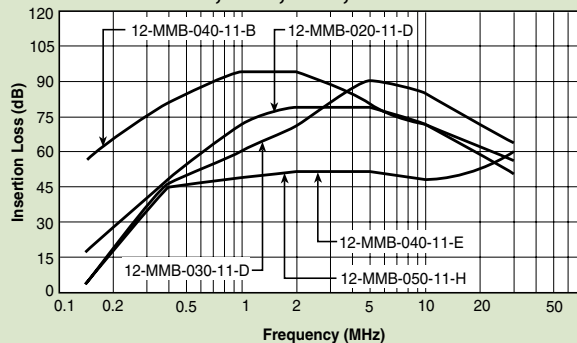
Common Mode



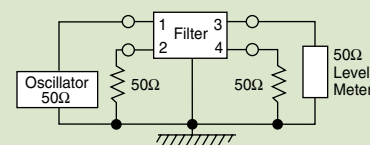
12-MMF/MMB-003;-006;-010;-012;-015



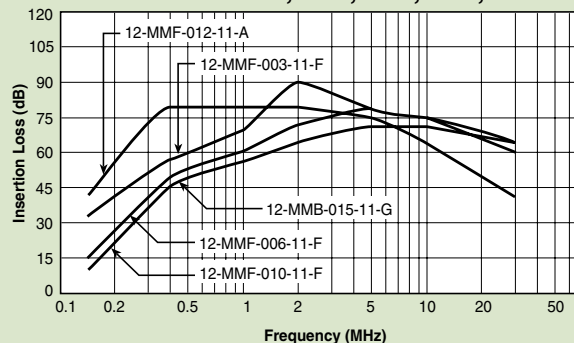
12-MMB-020;-030;-040;-050



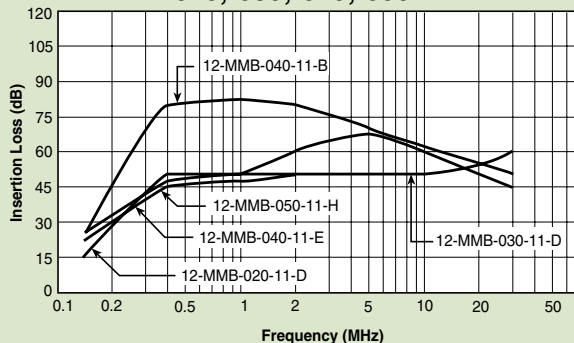
Normal Mode



12-MMF/MMB-003;-006;-010;-012;-015



12-MMB-020;-030;-040;-050



Power Line Filters Dual Stage

12-MMF & 12-MMB Series

Features

- Suitable for products that must conform to FCC regulations
- Excellent attenuation for high voltage impulse
- Metal case provides effective EMI shielding
- Two stages for excellent filtering characteristics
- Epoxy molded for reliability
- Structure provides effective shielding for noise generated both externally and internally
- Operating temperature: -25°C to +85°C

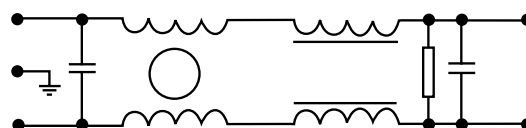
Applications

- Digital equipment
- Personal computers and peripherals
- Measuring instruments and medical equipment
- Telecommunications equipment
- Equipment requiring very high noise attenuation

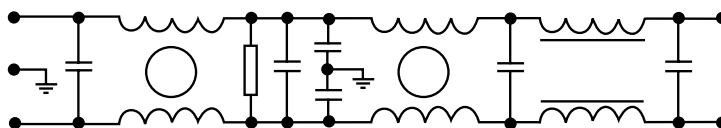


Circuit Diagram

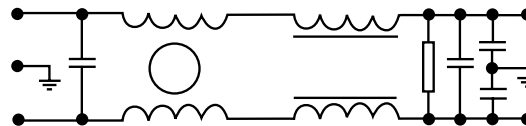
Circuit 1



Circuit 2



Circuit 3



Specifications

Model	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Circuit Diagram	Figure	Temperature Rise (Max.)
12-MMF-001-5-F	120/250VAC	1A	0.5mA	3	A	30°C
12-MMF-003-5-G		3A			5uA	
12-MMF-003-2-G						
12-MMF-006-5-G		6A	0.5mA	2	C	
12-MMB-010-5-D		10A			D	
12-MMB-015-5-E		15A				
12-MMB-020-5-E		20A				
12-MMB-030-5-E		30A				

Note: All types are designed to meet the requirement of UL 1283, CSA 22.2, VDE 0565-3
 Test voltage: 1500VAC one minute, line to ground
 Insulation resistance: 300 Mohm min. at 500VDC
 Leakage current: 0.7 mA max.
 Voltage drop: 1V max.
 Discharge time: 0.4 sec. max.
 Weight: 6.0 ounces (170 grams)

Power Line Filters Dual Stage

12-MMF & 12-MMB Series

Figure A

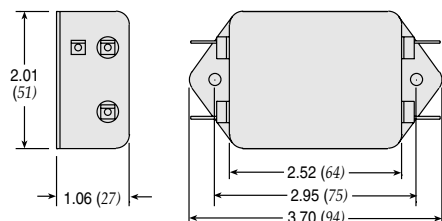


Figure B

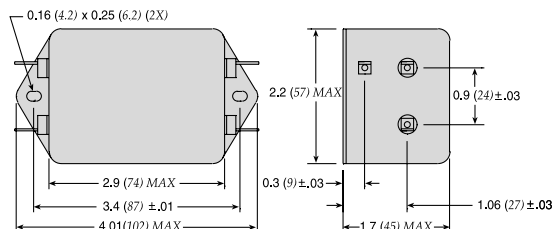


Figure C

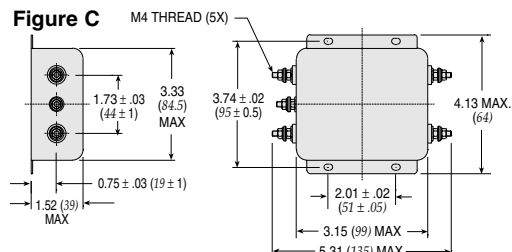
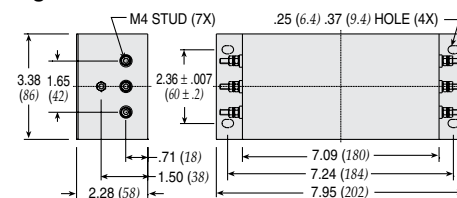
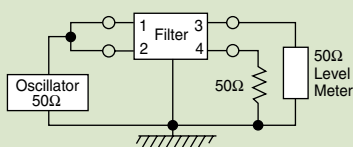


Figure D

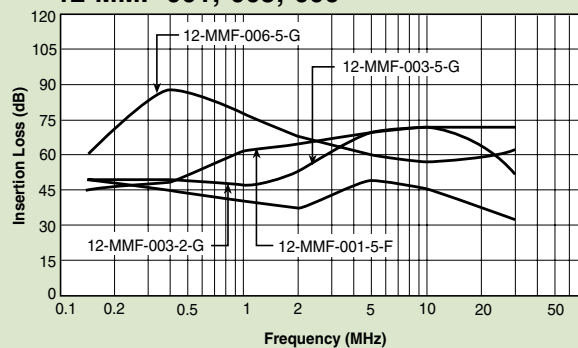


Dimensions in inches (mm)

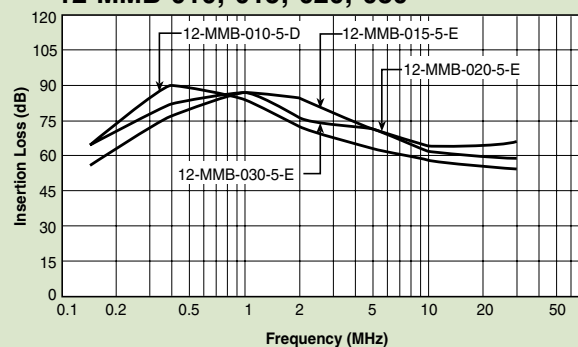
Common Mode



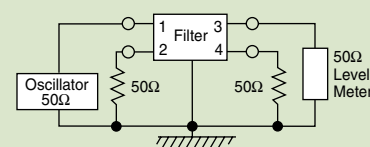
12-MMF-001;-003;-006



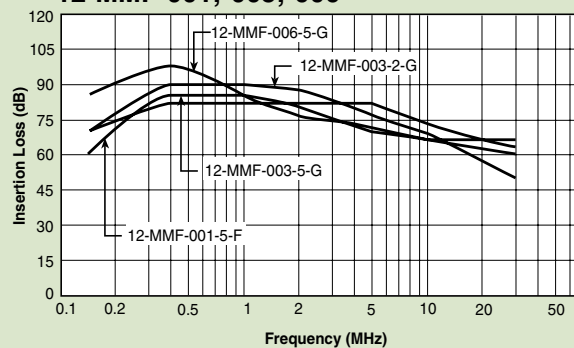
12-MMB-010;-015;-020;-030



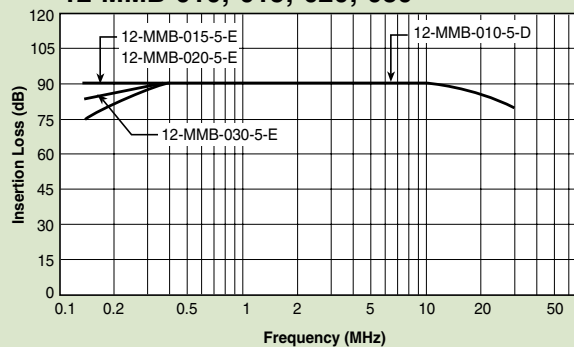
Normal Mode



12-MMF-001;-003;-006



12-MMB-010;-015;-020;-030



Power Line Filters Three Phase

Low Current/High Performance

62-PMB/63-PMF Series

Features

- Excellent attenuation for high voltage impulse
- Effective for both balanced and unbalanced three-phase loads
- Metal case provides effective EMI shielding
- Epoxy molded for internal component reliability
- Compact and economical
- Excellent filtering characteristics for both normal and common mode
- Various current ratings available: 3, 5, 8 and 16 Amps
- Safety agency approvals pending
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF81)

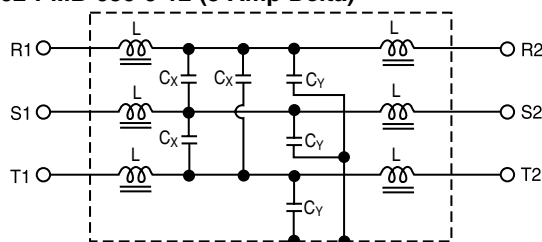
Applications

- Digital equipment
- Industrial equipment (UPS, inverters and converters)
- Automation equipment
- Computerized washing machines

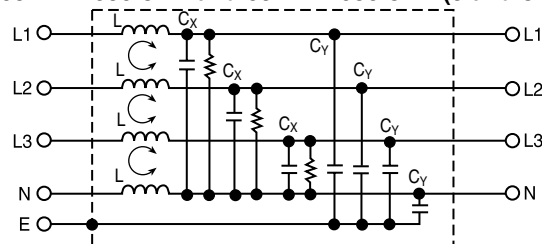


Circuit Diagram

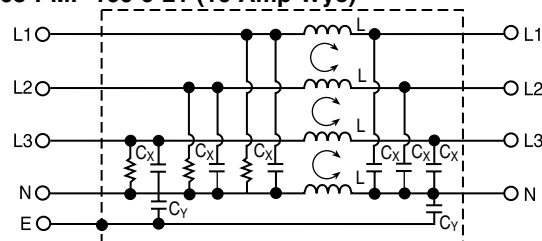
62-PMB-050-6-12 (5 Amp Delta)



63-PMF-030-8-14 and 63-PMF-080-8-14 (3 and 8 Amp Wye)



63-PMF-160-9-21 (16 Amp Wye)



Specifications

Model	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Capacitance		Inductance (L ₁)	Temperature Rise (Max.)
				C _Y	C _X		
62-PMB-050-6-12	250VAC	5A	0.6mA	2200pF	0.22uF	115mH	45°C
63-PMF-030-8-14	480VAC	3A	1.0mA	4700pF (4X)	470uF (3X)	1.0mH (4X)	30°C
63-PMF-080-8-14		8A				0.74mH (4X)	40°C
63-PMF-160-9-21		16A	3.0mA	0.015uF (2X)	1.0uF (6X)	1.2mH (4X)	45°C

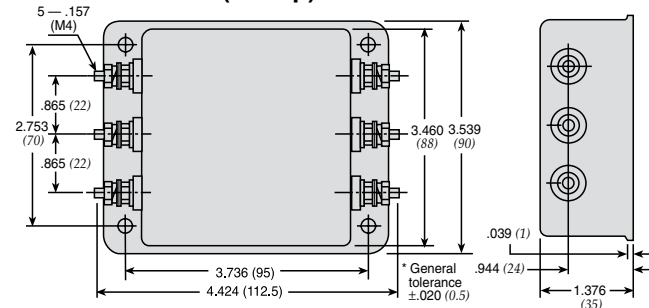
Note: Test Voltage 1500VAC one minute, line to ground.
Insulation Resistance: 300 MΩ min. at 500VDC.
Voltage Drop: 1V max. at rated current.
Weight: 8.82 ounces (250 grams) for 63-PMF-030-8-14 and 63-PMF-080-8-14
19.4 ounces (550 grams) for 62-PMB-050-6-12
51.5 ounces (1450 grams) for 63-PMF-160-9-21

Power Line Filters Three Phase

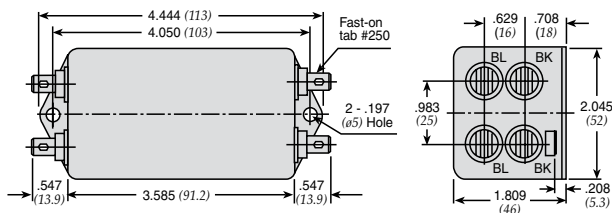
Low Current/High Performance

62-PMB/63-PMF Series

62-PMB-050-6-12 (5 Amp)

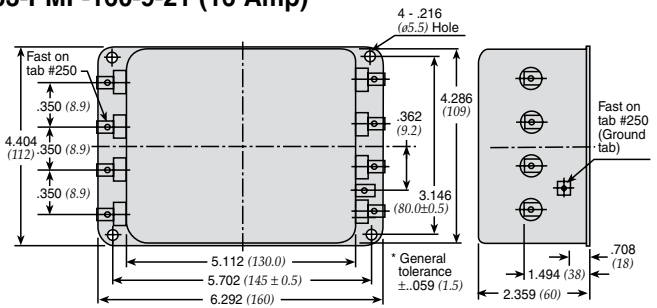


63-PMF-030-8-14 and 63-PMF-080-8-14 (3 and 8 Amp)



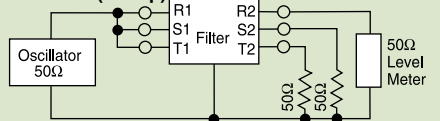
Dimensions in inches (mm)

63-PMF-160-9-21 (16 Amp)

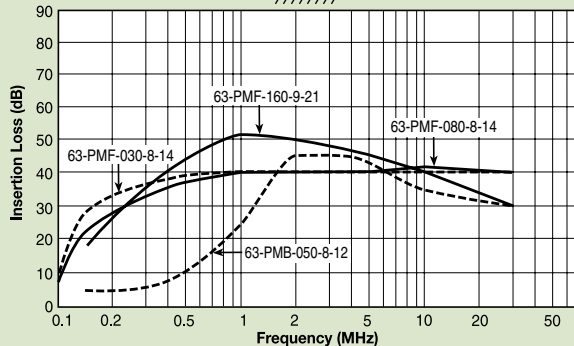
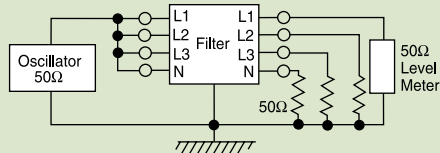


Common Mode

62-PMB-050-6-12 (5 Amp)

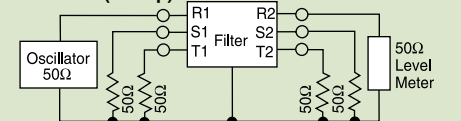


63-PMF (3, 8 and 16 Amp)

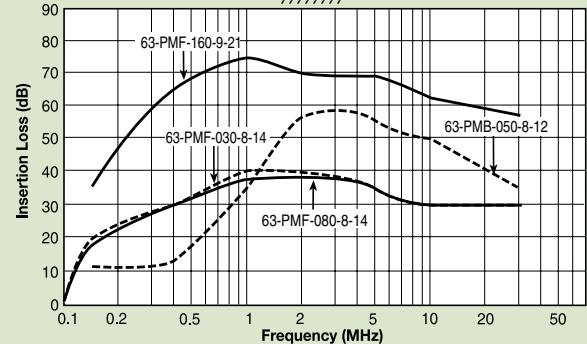
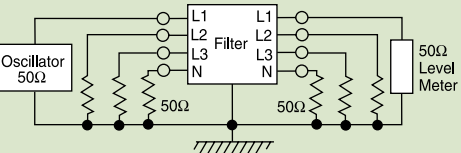


Normal Mode

62-PMB-050-6-12 (5 Amp)



63-PMF (3, 8 and 16 Amp)



Power Line Filters Three Phase

13-PWF/PWL/PWB Series

Features

- Excellent attenuation for high voltage impulse
- Effective for both balanced and unbalanced three-phase loads
- Metal case provides effective EMI shielding
- Epoxy molded for internal component reliability
- Suitable for both Wye and Delta connection
- Excellent filtering characteristics for both normal and common mode
- Operating temperature: -40°C to +85°C
- Designed for 3-phase 4-line power supply systems

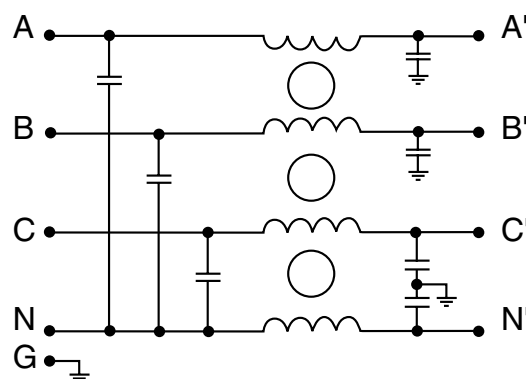
Applications

- Digital equipment
- Industrial equipment (UPS, inverters and converters)
- Automation equipment
- Computerized washing machines

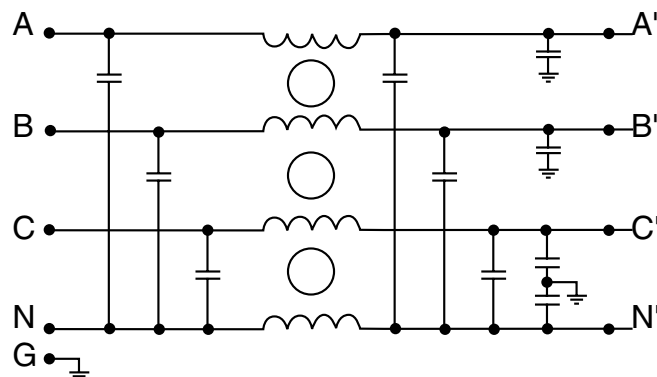


Circuit Diagram

Circuit 1



Circuit 2



Specifications

Model	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Circuit Diagram	Figure	Temperature Rise (Max.)		
13-PWF-005-12-H	440/250VAC	5A	1.5mA	1	A	30°C		
13-PWL-005-12-C					B			
13-PWF-010-12-H		10A			A			
13-PWL-010-12-C					B			
13-PWB-010-12-D		15A		2	C			
13-PWB-015-12-D								
13-PWB-020-12-D								
13-PWB-025-12-D								
13-PWB-030-12-D								

Note: Test Voltage 1500VAC one minute, line to ground.
Insulation Resistance: 300 MΩ min. at 500VDC.
Voltage Drop: 1V max. at rated current.

Power Line Filters Three Phase

13-PWF/PWL/PWB Series

Figure A

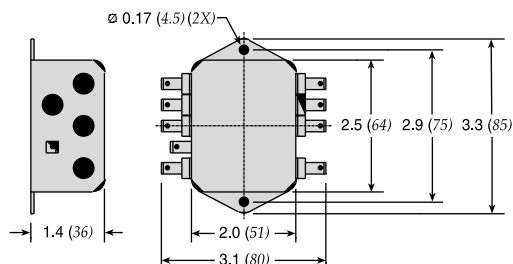


Figure B

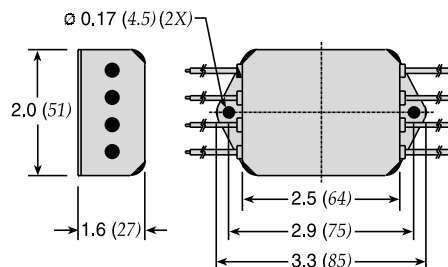
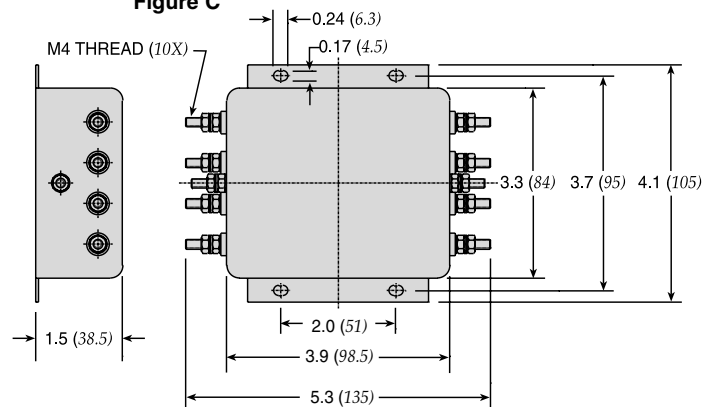
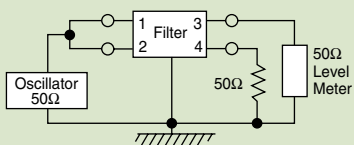


Figure C

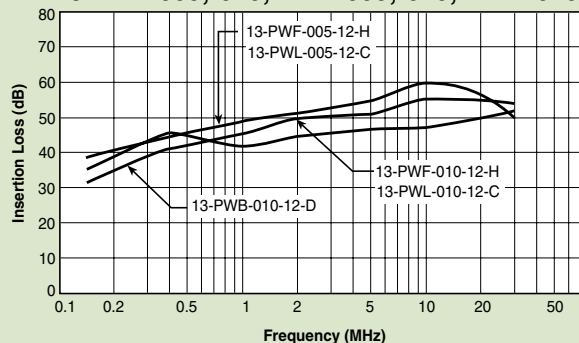


Dimensions in inches (mm)

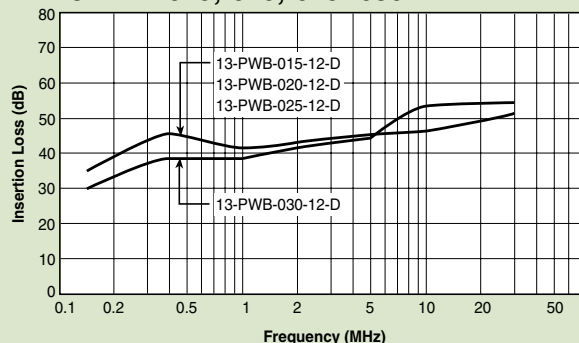
Common Mode



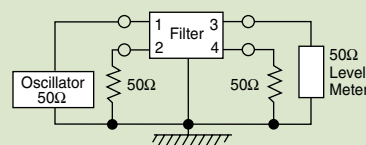
13-PWF-005;-010;-PWL-005;-010;-PWB-010



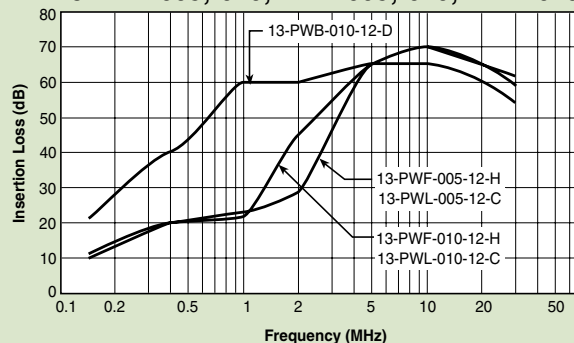
13-PWB-015;-020;-025;-030



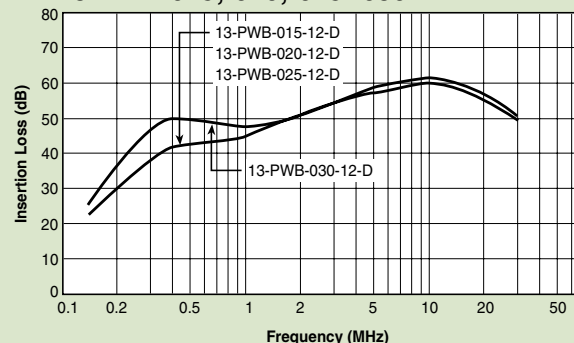
Normal Mode



13-PWF-005;-010;-PWL-005;-010;-PWB-010



13-PWB-015;-020;-025;-030



Power Line Filters Three Phase

High Performance

13-PDF/PDL/PDB Series

Features

- Excellent attenuation for high voltage impulse
- Effective for both balanced and unbalanced three-phase loads
- Metal case provides effective EMI shielding
- Epoxy molded for internal component reliability
- Compact and economical
- Excellent filtering characteristics for both normal and common mode
- Operating temperature: -40°C to +85°C
- Designed for 3-phase, 3-Delta connection system

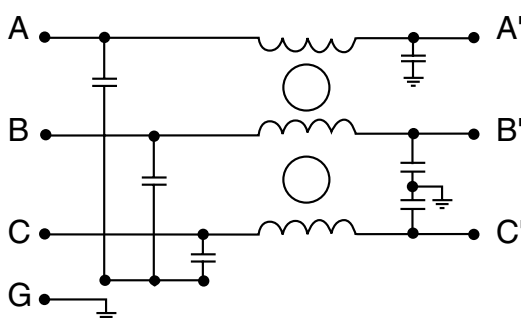
Applications

- Digital equipment
- Industrial equipment (UPS, inverters and converters)
- Automation equipment
- Switching power supplies

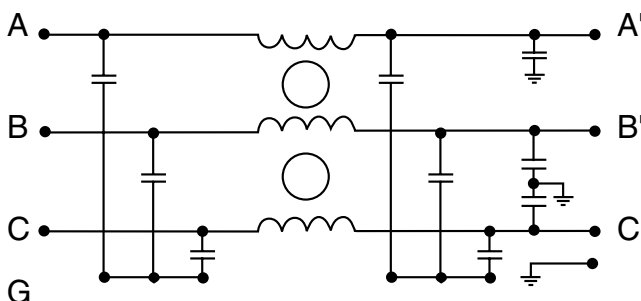


Circuit Diagram

Circuit 1



Circuit 2



Specifications

Model	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Circuit Diagram	Figure	Temperature Rise (Max.)		
13-PDF-005-11-J	440/250VAC	5A	1.5mA	1	A	30°C		
13-PDL-005-11-D					B			
13-PDF-010-11-J		10A			A			
13-PDL-010-11-D					B			
13-PDB-010-11-D		15A		2	C			
13-PDB-015-11-D								
13-PDB-020-11-D								
13-PDB-025-11-D								
13-PDB-030-11-D								

Note: Test Voltage 1500VAC one minute, line to ground.
Insulation Resistance: 300 MΩ min. at 500VDC.
Voltage Drop: 1V max. at rated current.

Power Line Filters Three Phase

High Performance

13-PWB Series

Features

- Excellent attenuation for high voltage impulse
- Metal case provides effective EMI shielding
- Epoxy molded for internal component reliability
- Excellent filtering characteristics for both normal and common mode
- Various current ratings available: from 5 to 150 Amps
- Operating temperature: -40°C to +85°C
- Designed for 3-phase, 4-line power systems

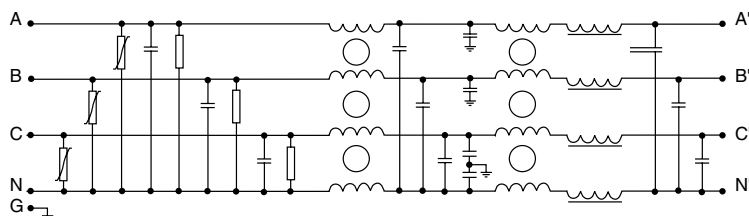
Applications

- Power supplies for data systems
- Industrial equipment (UPS, inverters and converters)
- Automation equipment
- Telecommunications systems and equipment

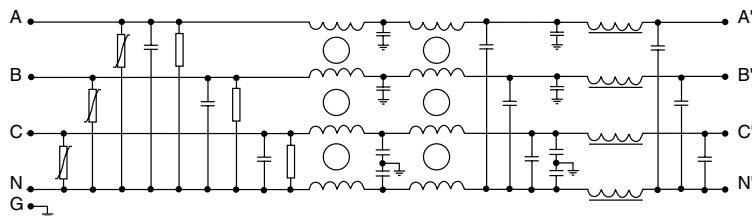


Circuit Diagram

Circuit 1



Circuit 2



Specifications

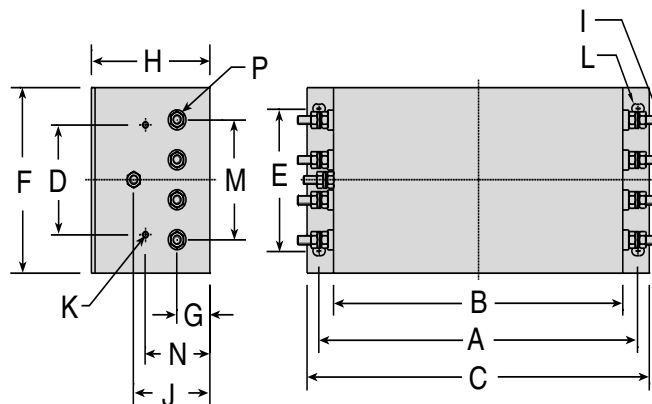
Model	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Circuit Diagram	Temperature Rise (Max.)
13-PWB-005-12-A	480/277VAC	5A	4.5mA	1	30°C
13-PWB-010-12-B		10A			
13-PWB-020-12-B		20A			
13-PWB-035-12-C		35A			
13-PWB-050-13-C		50A	9.0mA	2	
13-PWB-080-14-D		80A	20mA		
13-PWB-100-14-D		100A			
13-PWB-150-14-E		150A			

Note: Test Voltage 1500VAC one minute, line to ground.
Insulation Resistance: 300 MΩ min. at 500VDC.
Voltage Drop: 1V max. at rated current.

Power Line Filters Three Phase

High Performance

13-PWB Series

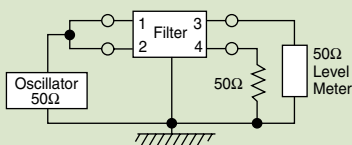


Dimensions

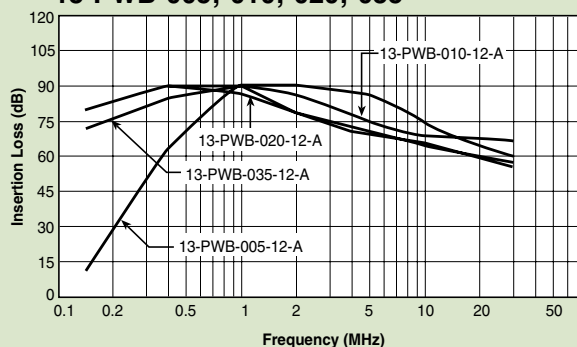
Dimensions in inches (mm)

Model	A	B	C	D	E	F	G	H	I	J	K	M	N	P	L	
13-PWB-005-12-A	7.2 (184)	6.3 (160)	7.9 (202)	2.4 (60)	1.7 (44)	3.5 (86)	.70 (18)	2.3 (58)	M4	1.5 (38)	—	—	—	M4	.25 x .37 (6.4 x 9.4)	
13-PWB-010-12-B	9.6 (243)	8.7 (220)	10.3 (261)			3.9 (100)	.98 (25)	3.5 (90)		1.8 (45)					.25 x .37 (6.4 x 9.5)	
13-PWB-020-12-B						.25 x .38 (6.4 x 9.6)										
13-PWB-035-12-C				3.1 (81)	3.8 (96)	4.9 (125)			M6	2.3 (58)	2.9 (74)	1.9 (49)	M6	.25 x .38 (6.4 x 9.7)		
13-PWB-050-13-C	13.9 (354)	12.6 (320)	15.1 (384)	3.9 (99)	6.1 (155)	7.3 (185)	1.2 (30)	3.9 (100)		M8	2.4 (62)	3.4 (86)		2.2 (56)	M8	.25 x .36 (6.4 x 9.10)
13-PWB-080-14-D											.25 x .38 (6.4 x 9.8)					
13-PWB-100-14-D									.25 x .39 (6.4 x 9.9)							
13-PWB-150-14-E					7.5 (190)	8.7 (220)	1.4 (35)					2.4 (61)			.25 x .36 (6.4 x 9.11)	

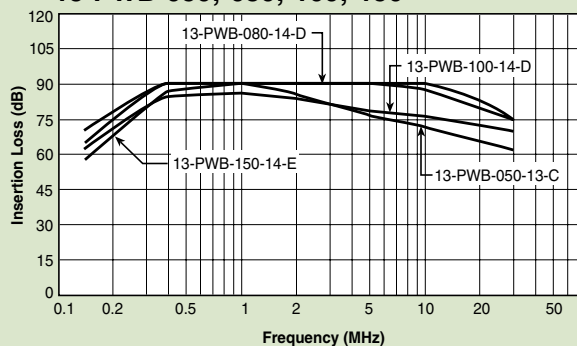
Common Mode



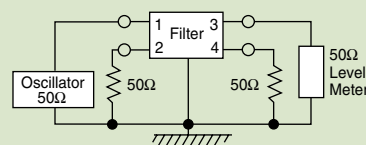
13-PWB-005;-010;-020;-035



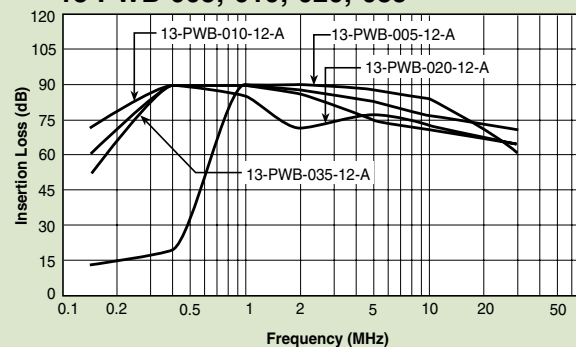
13-PWB-050;-080;-100;-150



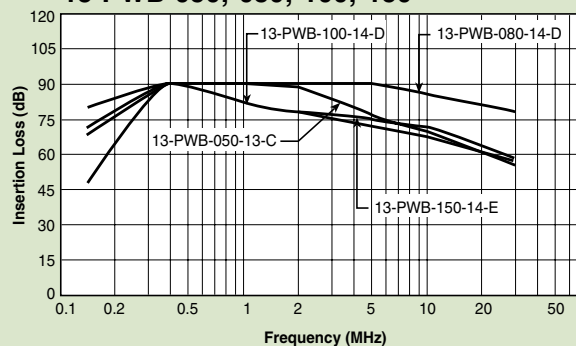
Normal Mode



13-PWB-005;-010;-020;-035



13-PWB-050;-080;-100;-150



Power Line Filters Three Phase

High Performance

13-PDB Series

Features

- Excellent attenuation for high voltage impulse
- Metal case provides effective EMI shielding
- Epoxy molded for internal component reliability
- Excellent filtering characteristics for both normal and common mode
- Various current ratings available: from 5 to 200 Amps
- Operating temperature: -40°C to +85°C
- Designed for 3-phase, 3-line connection systems

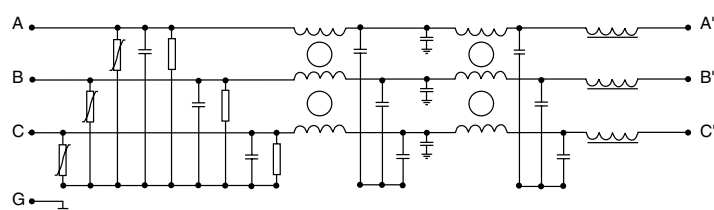
Applications

- Digital equipment
- Industrial equipment (UPS, inverters and converters)

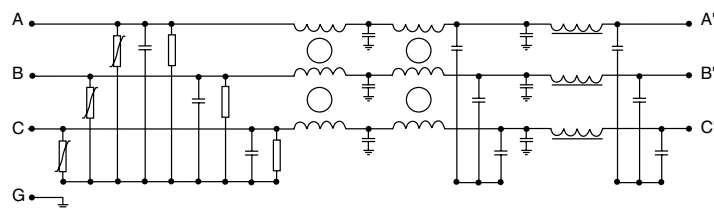


Circuit Diagram

Circuit 1



Circuit 2



Specifications

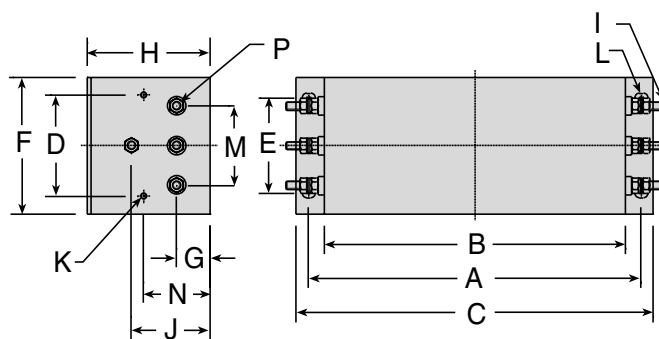
Model	Rated Voltage (@ 50/60Hz)	Rated Current	Leakage Current (Max.)	Circuit Diagram	Temperature Rise (Max.)
13-PDB-005-12-A	480/277VAC	5A	4.5mA	1	30°C
13-PDB-010-12-A		10A			
13-PDB-020-12-B		20A			
13-PDB-035-12-B		35A			
13-PDB-050-12-B		50A	9.0mA		
13-PDB-080-13-C		80A			
13-PDB-100-14-C		100A	20mA	2	
13-PDB-150-14-C		150A			
13-PDB-200-14-D		200A			

Note: Test Voltage 2250VDC one minute, line to ground.
Insulation Resistance: 500MΩ.

Power Line Filters Three Phase

High Performance

13-PDB Series

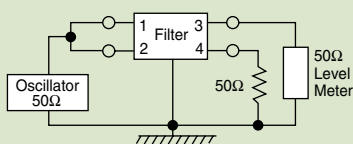


Dimensions

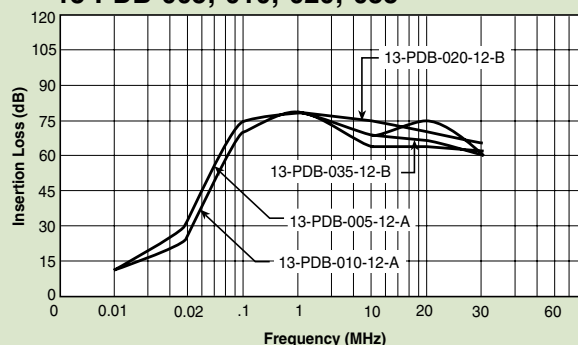
Dimensions in inches (mm)

Model	A	B	C	D	E	F	G	H	I	J	K	M	N	P	L
13-PDB-005-12-A	7.2 (184)	6.3 (160)	7.9 (202)	1.6 (42)	2.4 (60)	3.3 (86)	.70 (18)	2.3 (58)	M4	1.5 (38)	—	—	—	M4	.25 x .37 (6.4 x 9.4)
13-PDB-010-12-A															.25 x .37 (6.4 x 9.5)
13-PDB-020-12-B															.25 x .38 (6.4 x 9.6)
13-PDB-035-12-B	9.6 (243)	8.7 (220)	10.3 (261)	2.3 (58)	2.7 (70)	3.9 (100)	.98 (25)		M6	2.3 (58)		2.9 (74)	1.9 (49)	M6	.25 x .38 (6.4 x 9.7)
13-PDB-050-12-B															.25 x .38 (6.4 x 9.8)
13-PDB-080-13-C								3.5 (90)							.25 x .39 (6.4 x 9.9)
13-PDB-100-14-C					6.1 (155)	7.3 (185)	1.2 (30)								.25 x .36 (6.4 x 9.10)
13-PDB-150-14-C	13.9 (354)	12.6 (320)	15.1 (384)	2.5 (66)					M8	2.4 (62)		3.3 (86)	2.2 (56)	M8	.25 x .36 (6.4 x 9.11)
13-PDB-200-14-D					7.5 (190)	8.6 (220)	1.4 (35)	3.9 (100)					2.4 (61)		.25 x .36 (6.4 x 9.12)

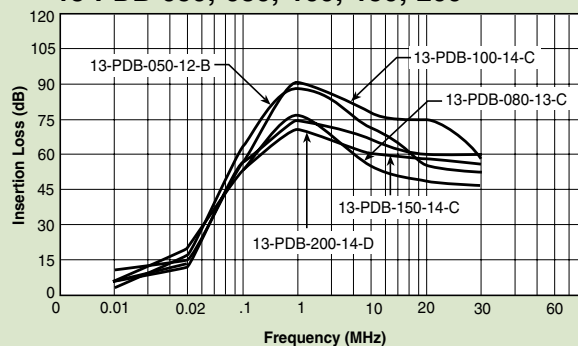
Common Mode



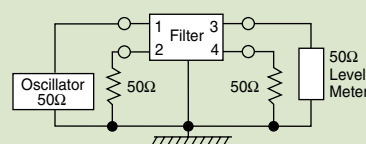
13-PDB-005;-010;-020;-035



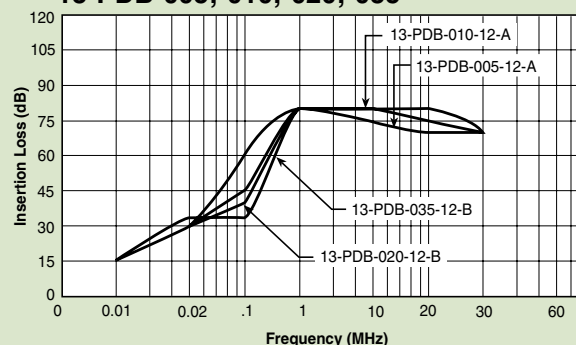
13-PDB-050;-080;-100;-150;-200



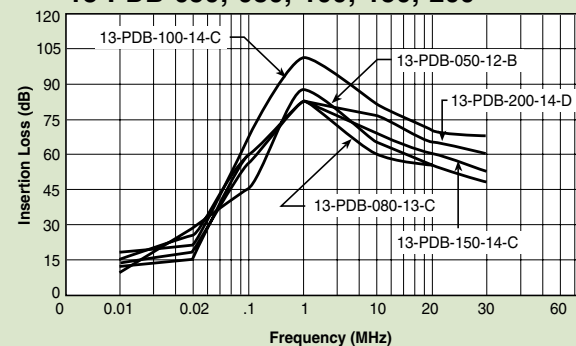
Normal Mode



13-PDB-005;-010;-020;-035



13-PDB-050;-080;-100;-150;-200

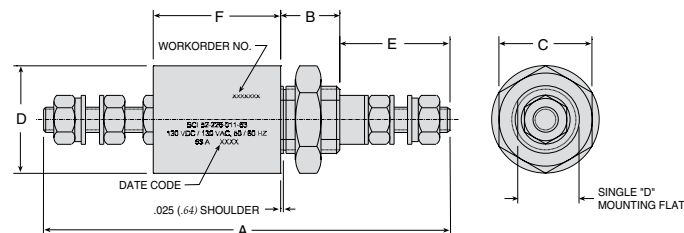


Commercial-Off-The-Shelf (COTS) Filters

API Technologies' Spectrum Control brand now offers COTS single line feed-through EMI filters that are the commercial equivalent to M15733-PRF/72, M15733-PRF/73 and M15733-PRF/74. These reliable AC and DC high performance filters provide an excellent source of filtering in a compact package and are well suited for the military and aerospace industries. They filter up to 500 A with an attenuation of 40 to 90 dB from 1 MHz to 1 GHz and voltage rating of 130 VDC to 250 VAC. Please reference API mechanical drawing.



Dimensions



MIL part M15733/	Part Number	A ±0.100	B ±0.032	C ±0.010	D ±0.010	E ±0.100	F Max	Mounting Flat ±0.015
72-0034	5004-7053-100-A	6.750	0.375	0.930	1.500	0.750	4.875	0.656
72-0046	5004-7053-100-A	6.750	0.375	0.930	1.500	0.750	4.875	0.656
72-0043	5004-7053-100-A	6.750	0.375	0.930	1.500	0.750	4.875	0.656
72-0049	5004-7059-100-A	7.250	0.375	0.930	2.000	0.750	5.375	0.656
72-0053	5004-7065-100-A	8.781	0.531	1.625	2.250	1.000	6.250	1.046
73-0034	5004-7058-125-A	7.250	0.375	0.930	2.000	0.750	5.375	0.656
73-0043	5004-7058-125-A	7.250	0.375	0.930	2.000	0.750	5.375	0.656
73-0046	5004-7052-125-A	6.750	0.375	0.930	1.500	0.750	4.875	0.656
73-0049	5004-7058-125-A	7.250	0.375	0.930	2.000	0.750	5.375	0.656
73-0051	5004-7059-250-A	7.250	0.375	0.930	2.000	0.750	5.375	0.656
73-0053	5004-7064-125-A	8.781	0.531	1.625	2.250	1.000	6.250	1.046
74-0030	5004-7041-250-A	4.750	0.310	0.616	1.000	0.600	3.400	0.437
74-0036	5004-7047-250-A	6.500	0.310	0.616	1.000	0.750	4.750	0.473
74-0042	5004-7053-250-A	6.750	0.375	0.930	1.500	0.750	4.875	0.656
74-0045	5004-7059-250-A	7.250	0.375	0.930	2.000	0.750	5.375	0.656

Shielded Filters

API has developed a new MRI filter product line which provides MRI/RF shielding solutions for medical, commercial and government applications. Offers 100 dB insertion loss per MIL-STD 220 from 14 KHz to 10 GHZ.

Shielded Room Filters

P/N Series	Configuration*	Description
52-1490	1 x 5	1 x 5 A, 277 VAC
	1 x 30	1 x 30 A, 277 VAC
	1 x 100	1 x 100 A, 277 VAC
	1 x 150	1 x 150 A, 277 VAC
	1 x 200	1 x 200 A, 277 VAC
	1 x 225	1 x 225 A, 277 VAC
	2 x 0.5	Speaker Filter
	2 x 1 ALRM	Fire Alarm Filter
	2 x 5	2 x 5 A, 277 VAC
	2 x 20	2 x 20 A, 277 VAC
	2 x 30	2 x 30 A, 277 VAC
	2 x 50	2 x 50 A, 277 VAC
	2 x 60	2 x 60 A, 277 VAC

* Add to P/N series (eg. 52-1490-1x5)

Options are available with or without discharge light "L" at the end of the part (52-1490-1x5L). Custom configurations are available. Consult factory.



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-F-15733 and MIL-STD 461 standard requirements.

Features

- High common and differential mode attenuation
- Standard designs up to 400 Amps
- 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

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).



Applications

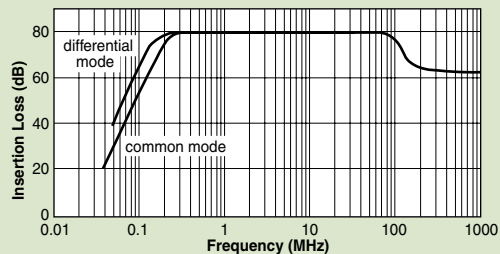
- Military
- Commercial and military/aerospace
- Secured communications
- Switching power supplies
- Data processing equipment
- Ruggedized computers
- Radar
- Electronic warfare
- Ground/air weapon systems
- Satellites
- Ship board systems
- Land based vehicles
- Fixed and mobile control stations

Test 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.

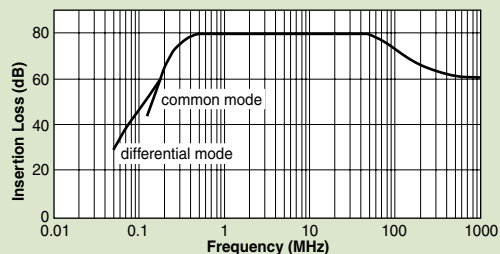
Military/Aerospace Multisection Filters

Insertion Loss

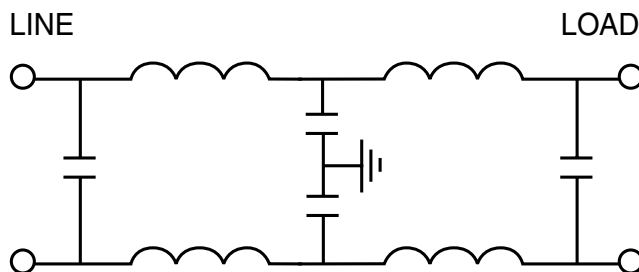
52-600-001



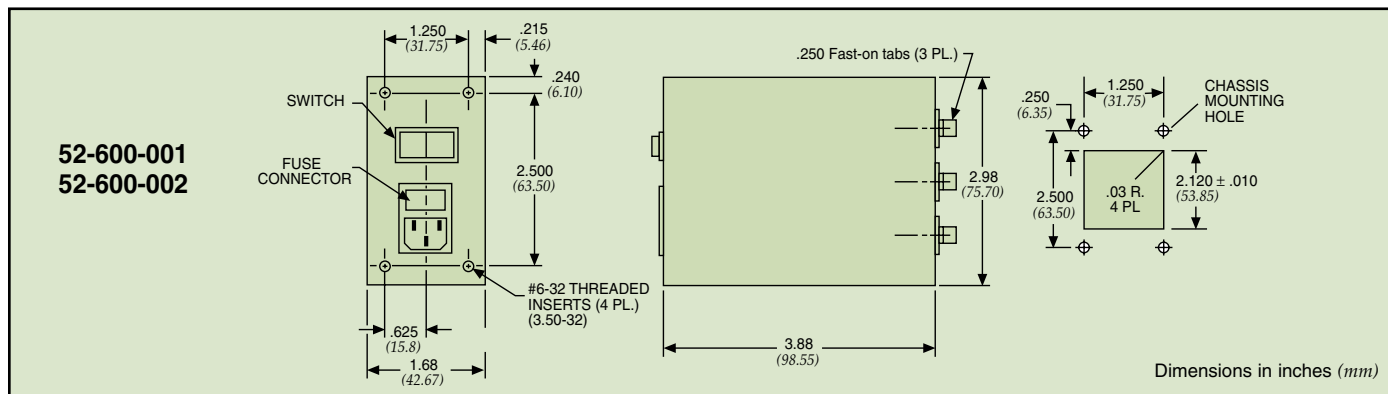
52-600-002



Circuit Schematic



Dimensions



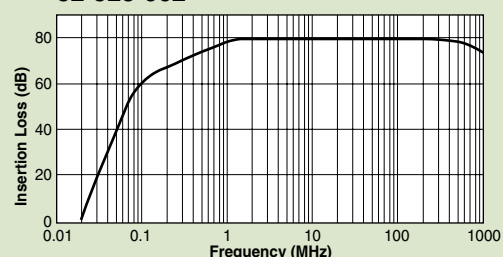
Model	Current Rating	Voltage Rating	Temperature Rating	DCR. max. (ohms)	Leakage Current (max.)	Mode (max.)	Minimum Insertion Loss (db) Per MIL-STD-220						
							50K	150K	300K	1M	10M	100M	1G
52-600-001	5A	120/240VAC 60 Hz	-40°C to +65°C	.20	1 mA	COMM	33	65	80	80	80	80	60
						DIFF	37	65	80	80	80	-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

Consult factory for UL/CSA approval availability.

Military/Aerospace Multisection Filters

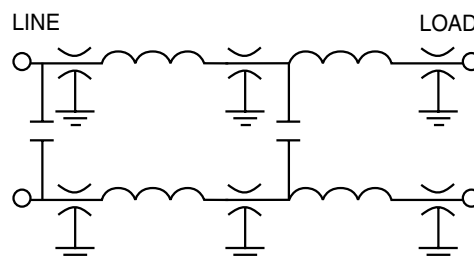
Insertion Loss

52-523-002



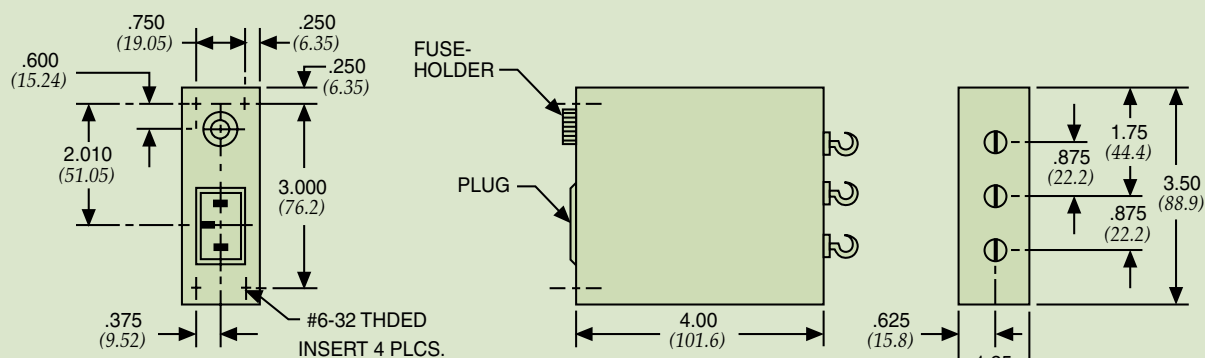
Circuit Schematic

52-523-002



Dimensions

52-523-002



Dimensions in inches (mm)

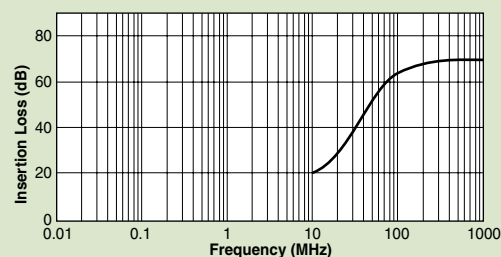
Model	Current Rating	Voltage Rating	Temperature Rating	DCR max. (ohms)	Leakage Current (max.)	Mode (max.)	Minimum Insertion Loss (db) Per MIL-STD-220						
							50K	150K	300K	1M	10M	100M	1G
52-523-002	5A	120/240VAC 60 Hz	-40°C to +65°C	.25	1 mA	COMM	—	55	60	80	80	70	60
						DIFF	—	50	60	80	80	—	—

Consult factory for UL/CSA approval availability.

Military/Aerospace Multisection Filters

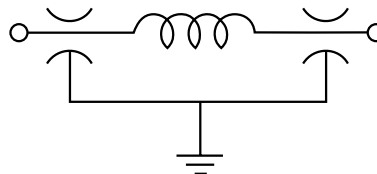


**Insertion Loss
1212-0502**



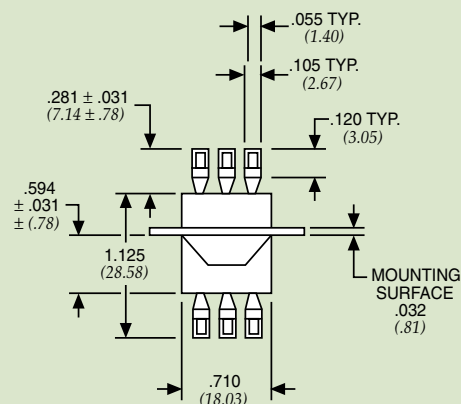
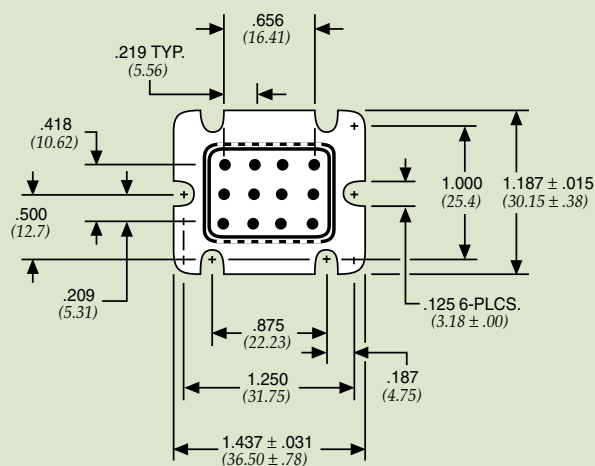
Circuit Schematic

1212-0502



Dimensions

1212-0502



Dimensions in inches (mm)

Model	Current Rating	Voltage Rating	Temperature Rating	DCR max. (ohms)	Leakage Current (max.)	C _x 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

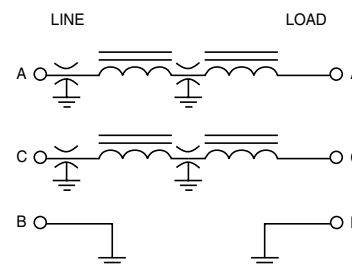
API's electromagnetic compatibility expertise in the secure communication or "TEMPEST" arena is represented by this group of high performance filters. These units are especially well suited for use in MIL-STD-461 applications to reduce conducted emissions. The filters are manufactured with glass sealed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

Features

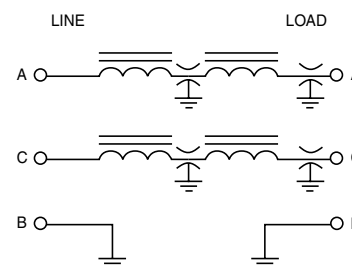
- Excellent insertion loss profile
- Available for DC & AC applications up to 400 Hz
- Available for 3-14 Amp applications
- Custom systems can be designed to your specific needs



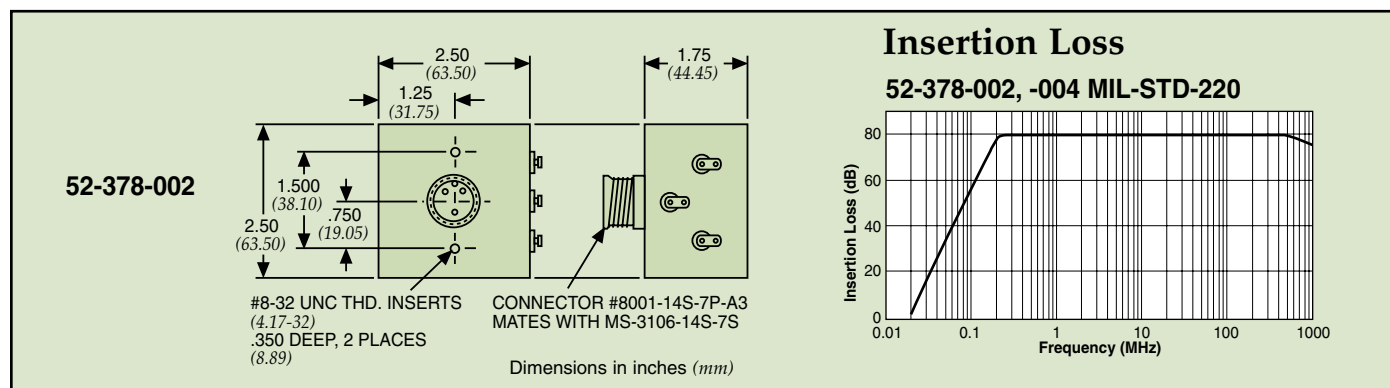
Filter Schematic A



Filter Schematic B



Dimensions

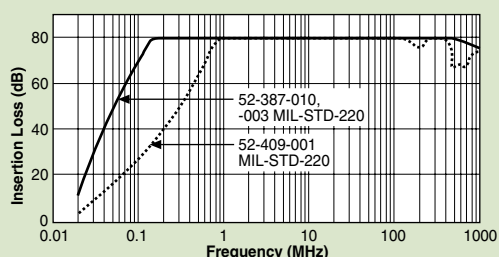


Model	Current Rating	Voltage Rating	Temperature Range	DCR max. (ohms)	Leakage Current (max.)	Schematic	Minimum Insertion Loss (db)						
							50 KHz	150 KHz	300 KHz	1 MHz	10 MHz	100 MHz	1 GHz
52-378-001	3 Amps	240VAC 60 Hz Line to Line	-55°C to 85°C	.3	50 mA	A	30	60	70	80	80	70	70
52-378-002	5 Amps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

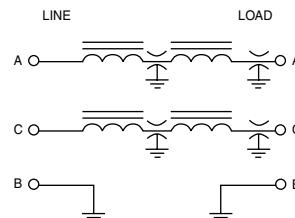
Military/Aerospace Multisection Filters

Insertion Loss

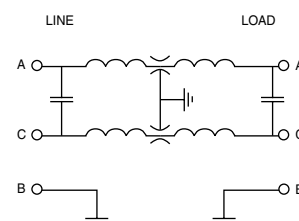
52-387-010, -003 MIL-STD-220
52-409-001 MIL-STD-220



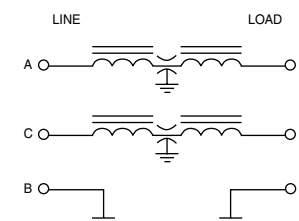
Filter Schematic C



Filter Schematic D

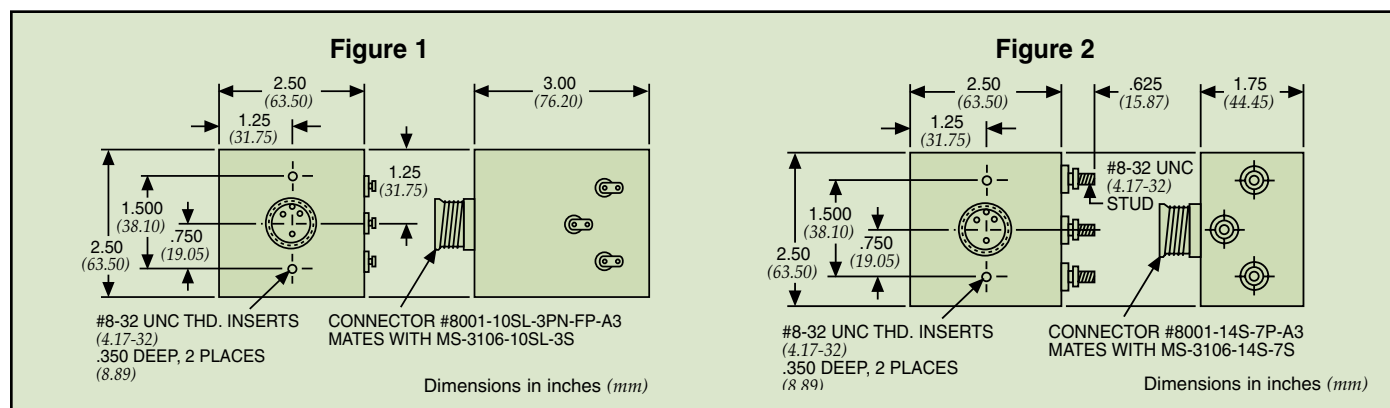


Filter Schematic E



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 70	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	
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 60	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	

Military/Aerospace Multisection Filters

Secure Communications

Features

- Meets applicable sections of MIL-F-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

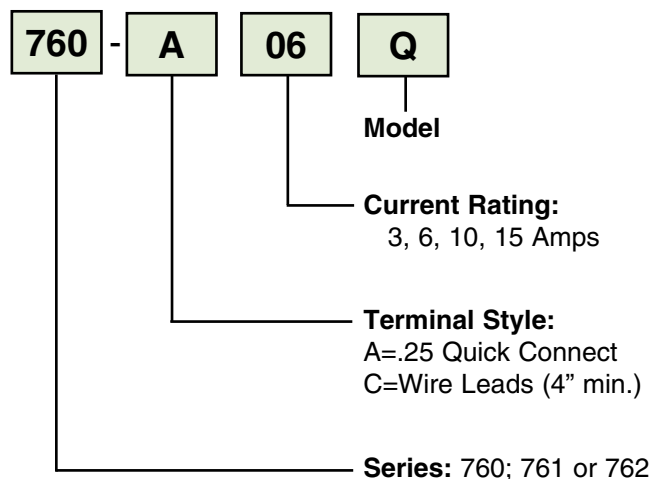
Test voltage

Line-to-Line 1450VDC

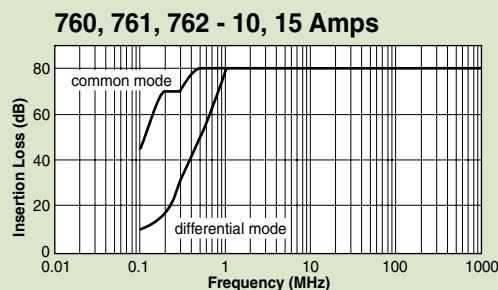
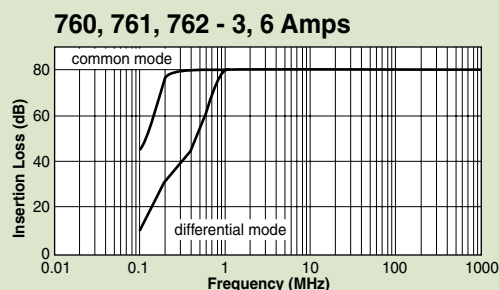
Line-to-Ground 2250VDC



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.

EMI Power Filter Solutions

Military and Aerospace

API Technologies has a long history of partnering with leading suppliers of the defense industry. Our ability to find solutions to suppress or eliminate electromagnetic interference (EMI) allows us to provide the high reliability filters required for military and aerospace applications. API's Spectrum Control brand can design your custom filter with a unique mechanical package for those unusual or tight fitting spaces, higher performance filtering and the voltage rating you need to address all of your AC and DC power issues.

Communications

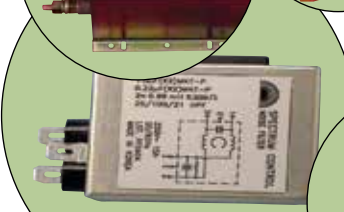
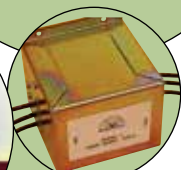
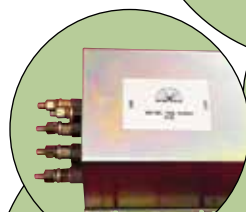
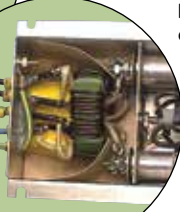
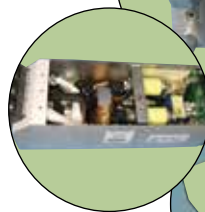
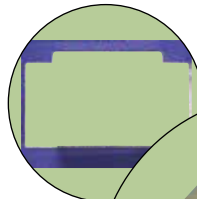
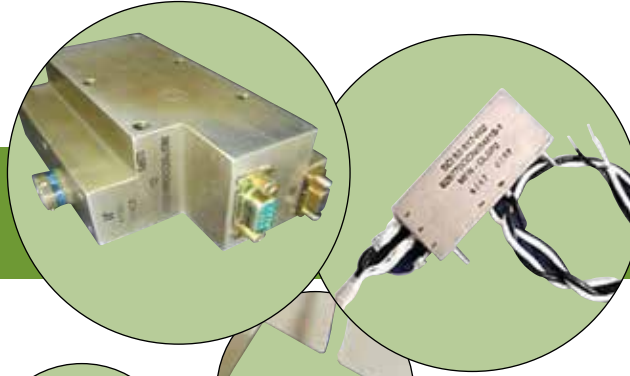
API's Spectrum line of power filter solutions can create an agency-approved product that will filter and condition the power to your communications infrastructure equipment, as well as eliminate emissions that can contaminate your distributed AC and DC power. Our custom power filters will incorporate all the components and the filtering in one complete package to save you space, time and money. And as a vertically integrated supplier, API offers global low cost manufacturing which allows us to produce fast prototypes and a quicker time to market.

Medical

Our many years of experience in providing EMI/RFI solutions has given us the know-how to design products to meet the specific constraints and requirements of the medical industry. Much of the medical equipment used today requires complete suppression of any and all EMI, as well as low-leakage, nonmagnetic properties to prevent negatively affecting surrounding equipment. We will design and build a high reliability, high performance custom power filter to meet your system and all EN requirements.

Industrial

At API, we do everything from package design and metalworking to EMI filtering to EMC testing, which means a lower cost for you. Our engineers will design and build a custom power filter that will satisfy global EMC regulations, improve speed-to-market times, overcome space constraints and withstand harsh environmental conditions. Our plug-and-play designs cover a range of industrial and instrumentation applications that will address any of your power filtering needs with current ratings as high as 500 Amps.



- Unique mechanical packages addressing specific size and space constraints
- Customized and fully integrated assemblies incorporating filters, circuit components and connectors
- Custom application-specific filters that meet MIL standard environmental conditions
- Complex, multifunctional designs that incorporate the filtering and custom circuitry into one easy to install package
- Designs with selective line filtering, high voltages and agency approvals
- High reliability filters with low-leakage and nonmagnetic options meet EN testing requirements
- Vertically integrated solutions include packaging, circular connectors and filter plates
- Compact, space-saving assembly optimized for the welding industry
- Ruggedized construction and design flexibility allow our filters to meet demanding environmental and performance requirements

Mouser Electronics

Authorized Distributor

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[52F226-036-100](#)