

Drop-In EMI Filtering for High-Current Power Interfaces

Spectrum Control Filter Power Plates provide drop-in EMI suppression for high-current power interfaces by integrating feedthrough capacitor filtering into a rugged bulkhead-mounted design. Compatible with industry-standard 3.96 mm (.156") pitch power connectors, including KK396-style systems, they reduce conducted emissions without requiring system redesigns.

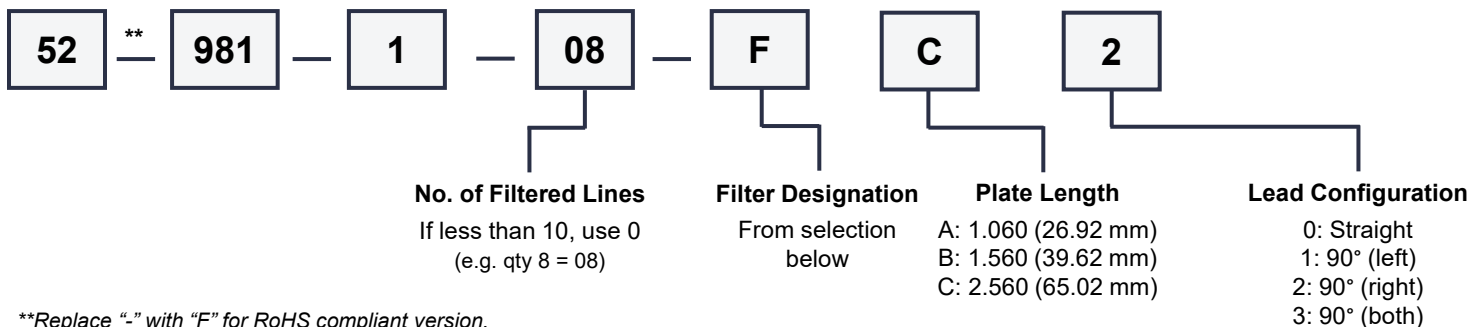
Featuring high-current capability, compact packaging, and connector-level filtering, these power plates deliver effective EMI performance in aerospace, defense, industrial, and other high-reliability applications. A patented coining feature on larger plate sizes enhances structural rigidity and mechanical stability.

Feature	Benefit
3.96 mm (.156") pitch compatibility	Drop-in filtering solution for industry-standard power interfaces
Up to 7.5 A current handling	Supports higher-current power distribution applications
EMI suppression from 5 MHz to 1 GHz	Reduces conducted emissions at the source
Integrated connector-level filtering	Eliminates need for discrete PCB filtering
Up to 12 filtered lines per plate	Flexible multi-line configurations
Bolt-in bulkhead mounting	Simplifies installation and grounding
RoHS-compliant options available	Supports modern environmental requirements

Ordering information

Example: 52-981-1-08-F-C-2

The part number shown represents a 3.96 mm pitch bolt-in style filter plate with 1 row, 8 filters per row. Filter circuits are C style with capacitance of 1000 pF. The plate length is 2.560", and the leads are bent 90° to the right side.



**Replace "-" with "F" for RoHS compliant version.

Filter Designation	Filter Circuits	Capacitance		3 dB Max Cut-off Frequency (MHz)*	Working Voltage DC -55°C to 125°C	Minimum Insertion Loss - Decibels (dB) 50-ohm system per MIL-STD-220 (no load)							
		Value	Tolerance			5 MHz	10 MHz	20 MHz	50 MHz	100 MHz	200 MHz	500 MHz	1 GHz
B	C	100 pF	±25%	50.3	100V	-	-	-	-	1	6	13	19
D	C	470 pF	±25%	10.7	100V	-	-	2	7	13	18	25	27
F	C	1000 pF	±25%	5.1	100V	-	2	7	14	20	25	32	35
H	C	2500 pF	+100/-0%	1.26	100V	5	11	17	23	29	35	38	40
I	C	4000 pF	+100/-0%	0.8	100V	9	15	21	27	34	38	42	46

*3dB cut-off frequency calculated at the maximum capacitance.

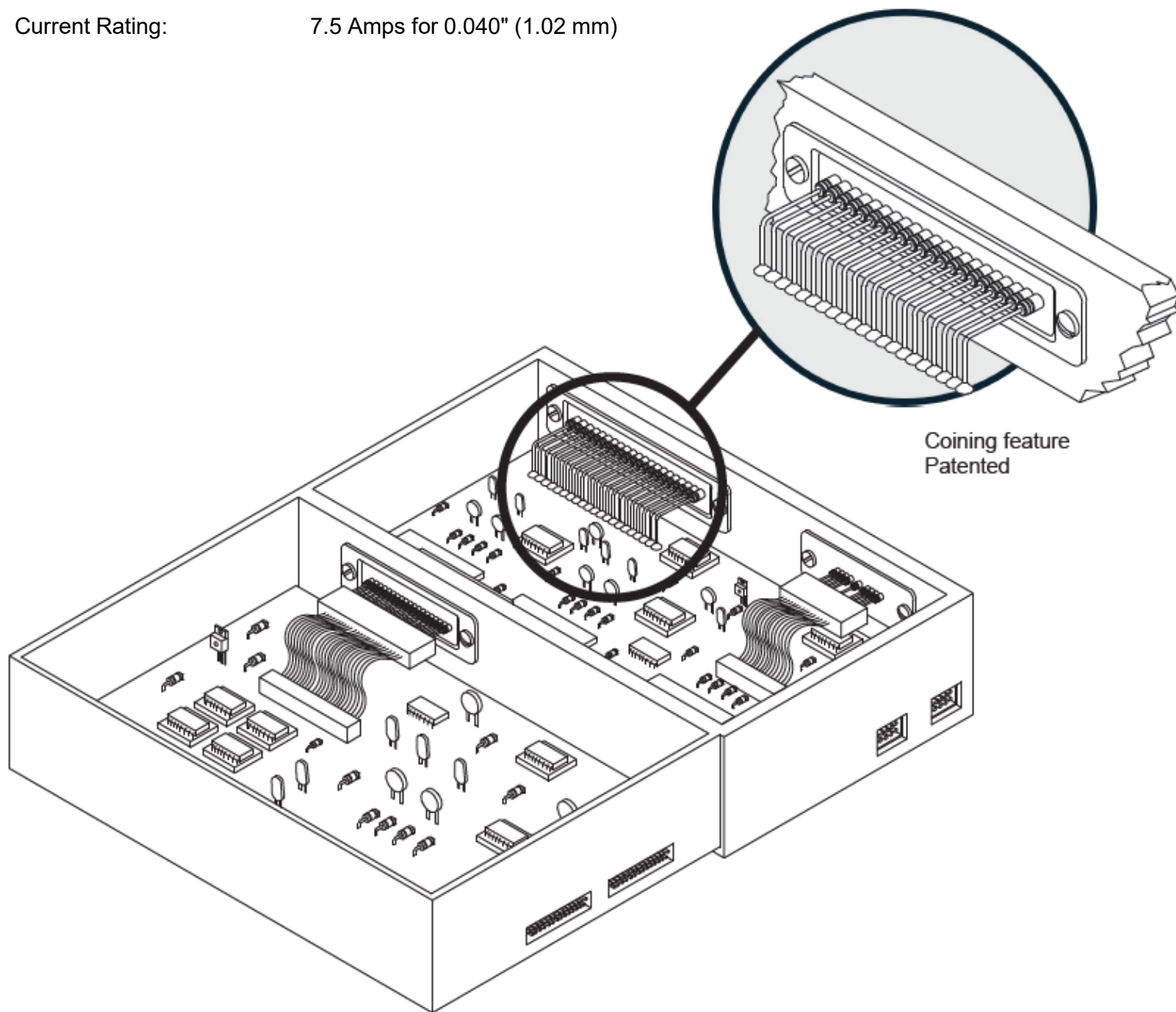
To request selective line filtering, a mechanical configuration or material specification not shown in this catalog, please contact Spectrum Control. We will review your request and provide you with a part number.

Specifications

Filter Power Plate: 3.96 mm Pitch Bolt-in EMI Filter Series

Mechanical Specifications

Base Plate Material:	Brass UNS C26000/C27000
Base Plate Thickness:	0.020 inches (.51 mm)
Plating:	Tin (standard); silver (RoHS version)
Lead Material:	Copper alloy
Lead Plating:	Gold plate
Lead Diameter:	∅ 0.040" (1.02 mm) for 0.156" (3.96 mm) centers
Current Rating:	7.5 Amps for 0.040" (1.02 mm)



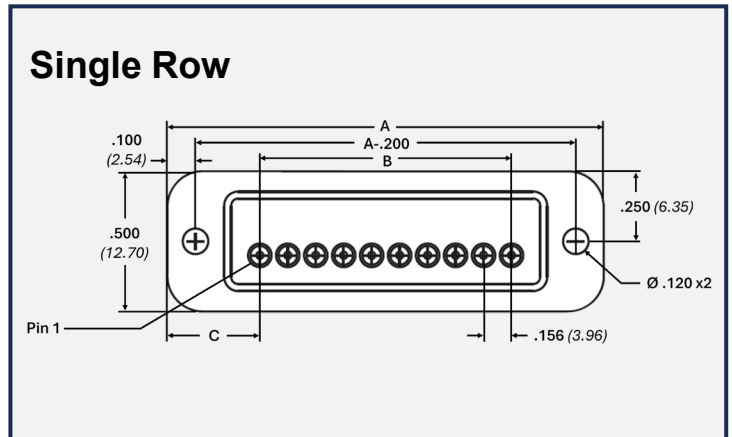
Specifications

Filter Power Plate: 3.96 mm Pitch Bolt-in EMI Filter Series

Dimensions: Inches (*mm*)

Lead Spacing: 3.96 mm

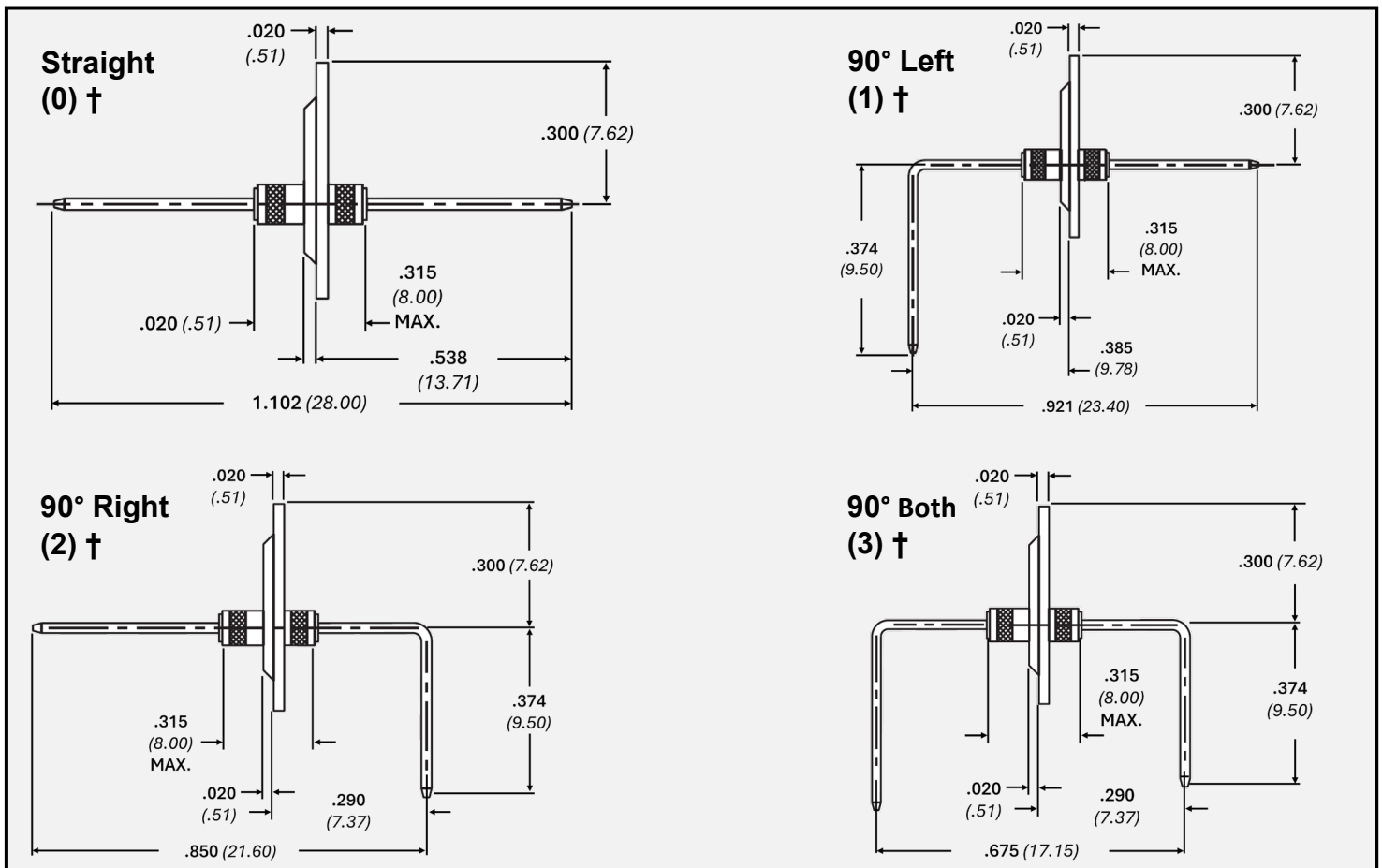
Plate length (A)	No. of filtered lines per row	52-981-XXX-XXX	
		B	C
1.06	2	0.16 (3.96)	0.45 (11.48)
	3	0.31 (7.92)	0.37 (9.50)
	4	0.47 (11.9)	0.30 (7.52)
1.56	5	0.62 (15.8)	0.47 (11.89)
	6	0.78 (19.8)	0.39 (9.91)
2.56	7	0.94 (23.8)	0.81 (20.63)
	8	1.09 (27.7)	0.73 (18.65)
	9	1.25 (31.7)	0.66 (16.67)
	10	1.40 (35.6)	0.58 (14.69)
	11	1.56 (39.6)	0.50 (12.71)
	12	1.71 (43.6)	0.42 (10.73)



Coining feature patented.

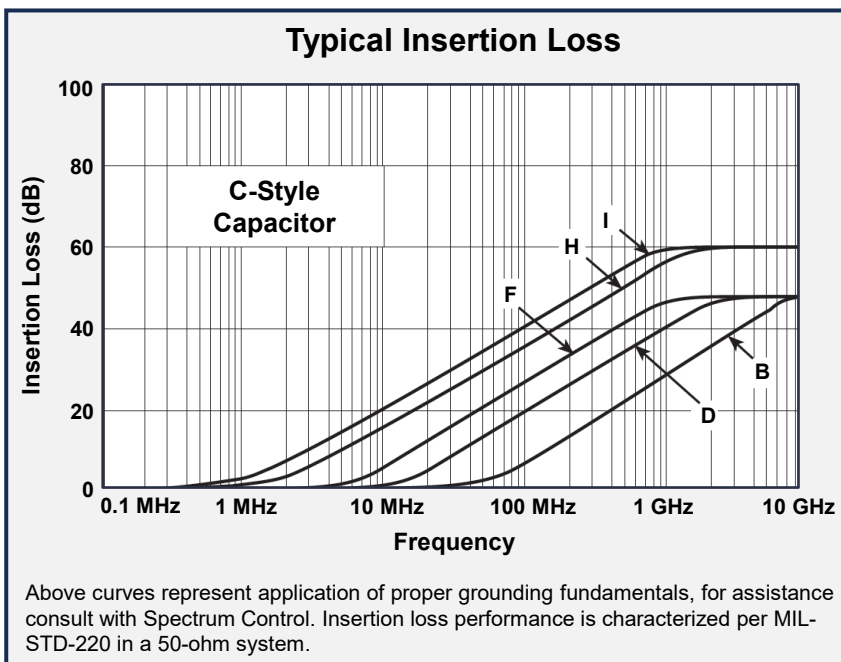
† Refers to lead configuration for part number/ordering information.

* For plate widths 1.060 and 1.560 there will be no coining. For these plates, increase dimensions to the right .020". Thus, any dimension on left will be reduced by .020".



Target Applications

- Power supply interfaces
- Internal subsystem power distribution
- Chassis bulkhead filtering
- Aerospace and defense electronics
- VPX and modular electronics
- Industrial motor drives
- Test and instrumentation systems
- Medical electronic equipment



C-Style Capacitor Filters

Spectrum Control intentionally utilizes capacitor-only filtering for these higher-current power applications. Ferrite-based Pi filters may saturate under elevated current conditions, reducing filtering effectiveness.

Recommended Application by Filter Value

- Sensitive analog electronics: 470 pF
- General power rail filtering: 1000 pF
- Switching power supplies: 2500 pF
- High-frequency noise suppression: 4000 pF

Why Engineers Choose Filter Power Plates

Design Challenge	Traditional Solution	Spectrum Control Solution
EMI failures late in qualification	PCB redesign	Drop-in filtered interface
Ferrites saturate under power current	Reduced effectiveness	Stable capacitor-based filtering
Limited PCB real estate	Large discrete filters	Connector-level integration
Complex filter installation	Multiple components	Single integrated assembly
Harness redesign risk	Mechanical changes	Maintains existing interface geometry

Why Spectrum Control

- Connector-level EMI expertise
- High-current filtered interconnect solutions
- Custom selective filtering capability heritage
- Rugged defense and aerospace heritage
- Configurable platform architecture
- Rapid engineering support

Additional Support

- Custom filtering, selective loading, alternate configurations, and application-specific solutions.
- Application engineering assistance
 - Custom filter solutions
 - Qualification support
 - EMI mitigation guidance
 - CAD models and configurator access