

Introduction

The SF200 is a MIL-STD-461 add-on EMI filter for one to four SA50-28 (28V input) isolated DC-to-DC converters. The SA50-28 modules do not have a full EMI filter built in, and thus require an external filter. Up to four SA50-28 modules may be connected to a single SF200-28-28S.

The SF200-28-28S is available in a 3.055" x 2.055" x 0.5" package. (The same footprint as the SA50 series modules.)

Benefits and Features

- Up to four SA50-28 modules may be connected
- 20 VDC to 40 VDC input range
- Currents up to 13A
- Low mass. 82g nominal
- Space flight proven technology
- This product is classified as EAR99

Radiation Performance

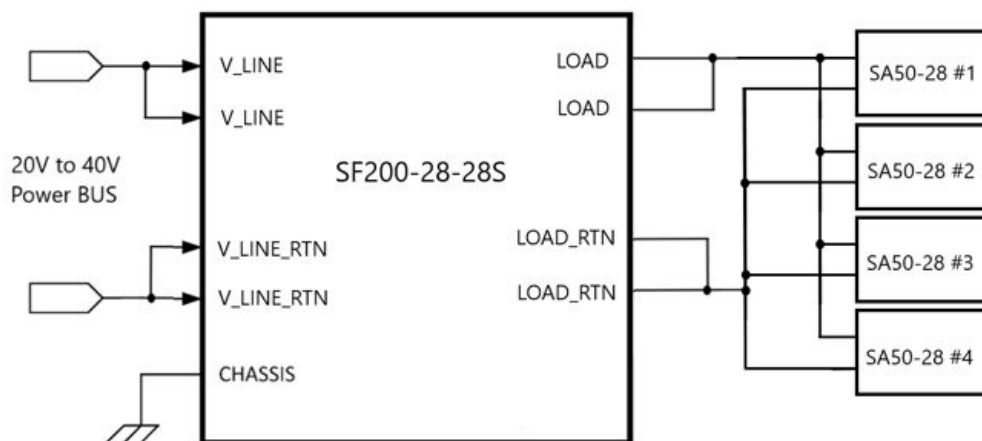
- No active components used. Passive components only (inherently radiation hard)

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1. Typical Application Circuit

Figure 1-1. SF200-28-28S Typical Application Circuit



2. Absolute Maximum Ratings

Rating	Value
V _{IN} range	-0.5 VDC to 60 VDC
Current	13A
Lead temperature	300 °C for 10 s
Operating temperature	-55 °C to 125 °C
Storage temperature	-55 °C to 125 °C
Shock	1500 g _{pk} , 0.5 ms, ½ sine
Constant acceleration	50 g
Random vibration	24.06 g _{rms} , 50 Hz to 2000 Hz

3. Performance Characteristics

This section shows the electrical parameters of the SF200-28-28S series device under the following conditions unless otherwise specified:

Parameter	Output	Conditions	Min	Nom	Max	Units
Input Voltage						
(V _{in})	—	—	20	28	40	V
DC Resistance						
(R)	—	—	—	25	—	mΩ
Filter Attenuation						
—	—	@325 kHz, I _{out} =100% rated load	—	60	—	dB
Isolation						
All pins to chassis	—	@25 °C and 100V all pins: (1, 2, 4, 5, 7, 8, 11, 12) to chassis (6)	100	—	—	MΩ
Mass						
—	—	Case types A, B	—	82	—	g

4. Pin Configuration

Figure 4-1. SF200-28-28S Pin Configuration



5. Pin Description

Pin	Name	Description
1	V_LINE	Line voltage input
2	V_LINE	Line voltage input
3	—	Unused
4	V_LINE_RTN	Line voltage input return
5	V_LINE_RTN	Line voltage input return
6	CHASSIS	Chassis return
7	—	Unused
8	LOAD_RTN	Load voltage output return
9	LOAD_RTN	Load voltage output return
10	—	Unused
11	LOAD	Load voltage output
12	LOAD	Load voltage output

6. Mechanical Outline – Axial Pins Package

Figure 6-1. Axial Pins and Thru-Hole Tabs Package (-A)

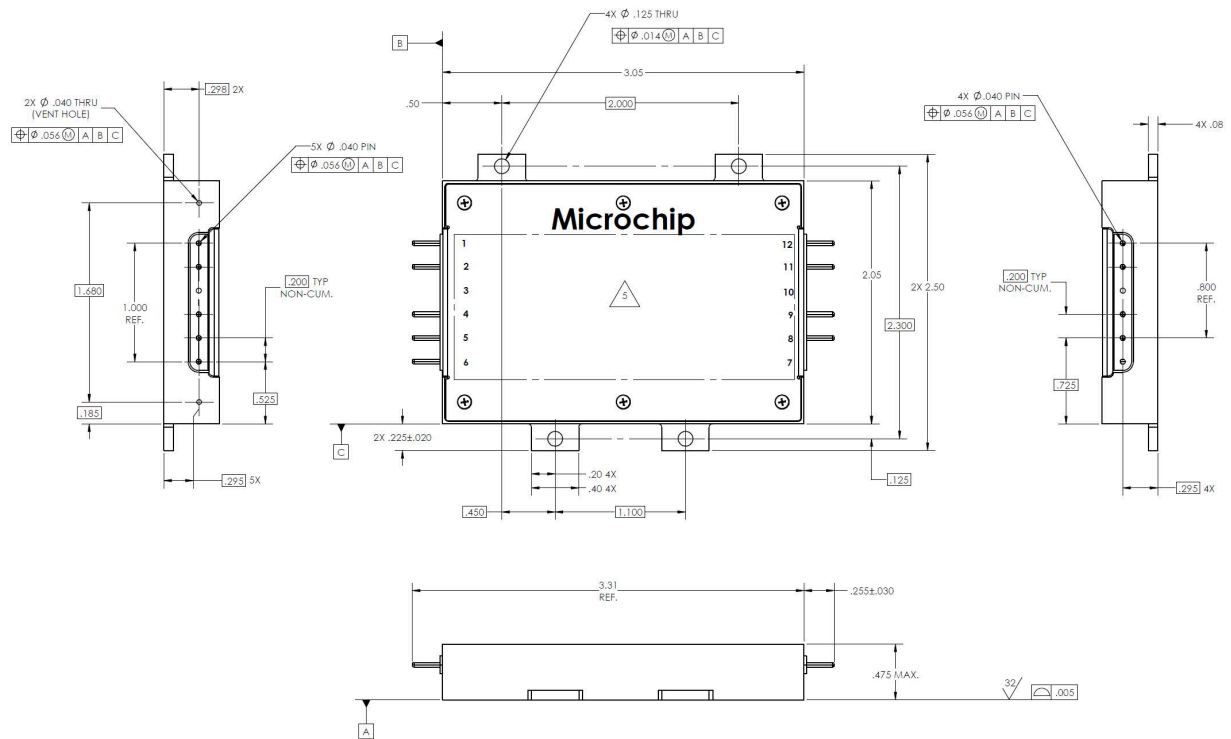
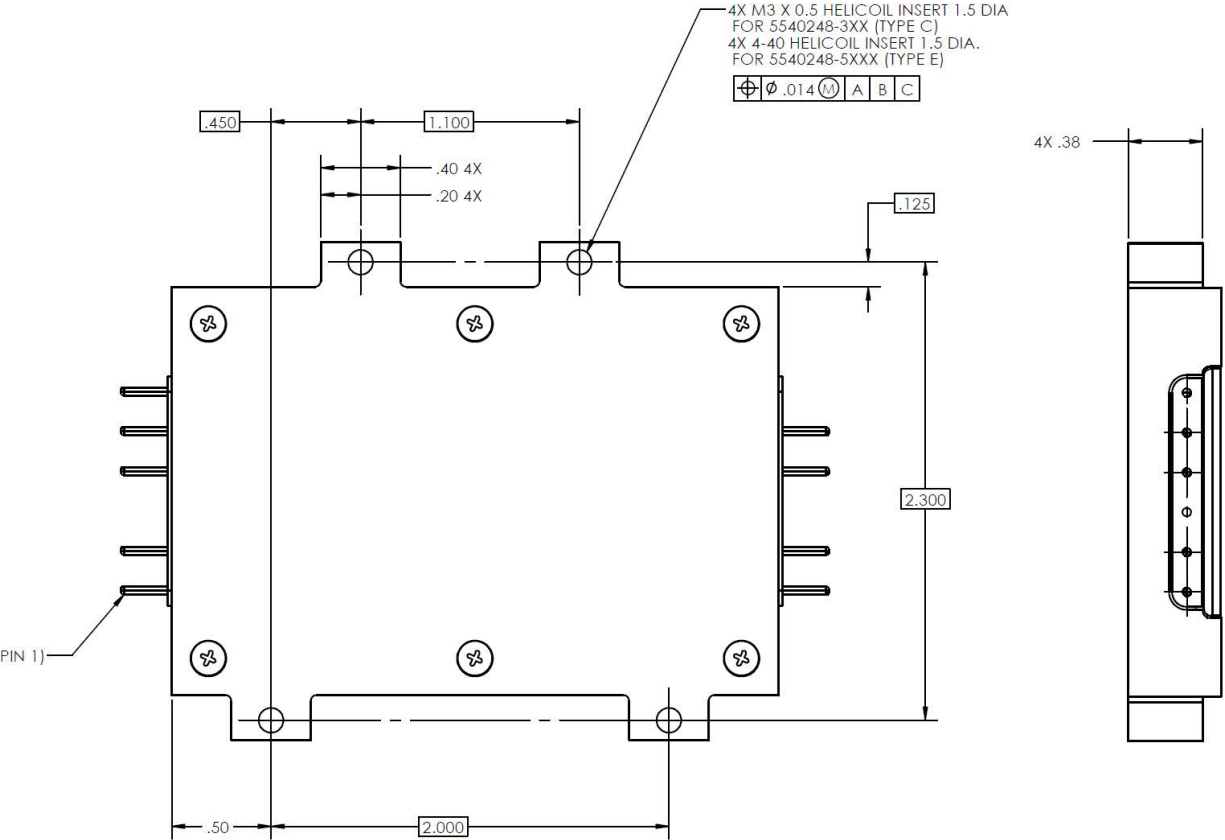


Figure 6-2. Axial Pins and Threaded Tabs Package Bottom View (-C or -E)



7. Mechanical Outline – Radial Pins Package

Figure 7-1. Radial Pins and Thru-Hole Tabs Package (-D)

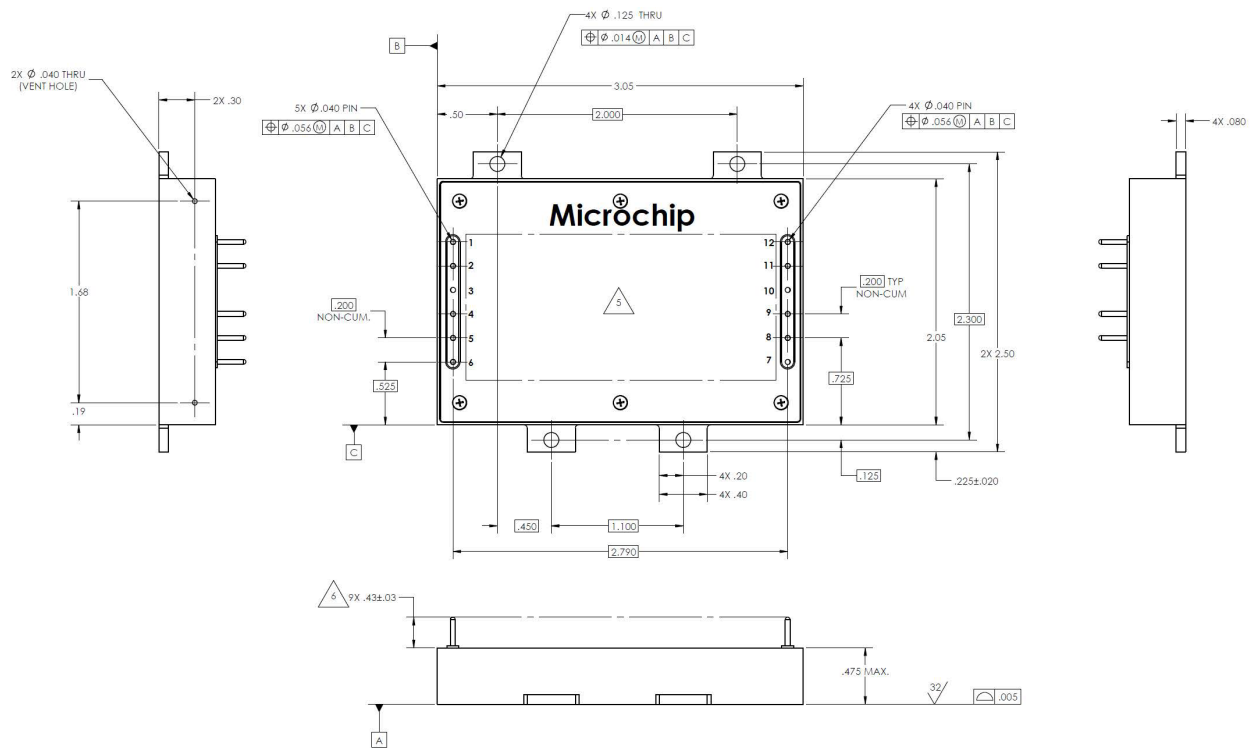
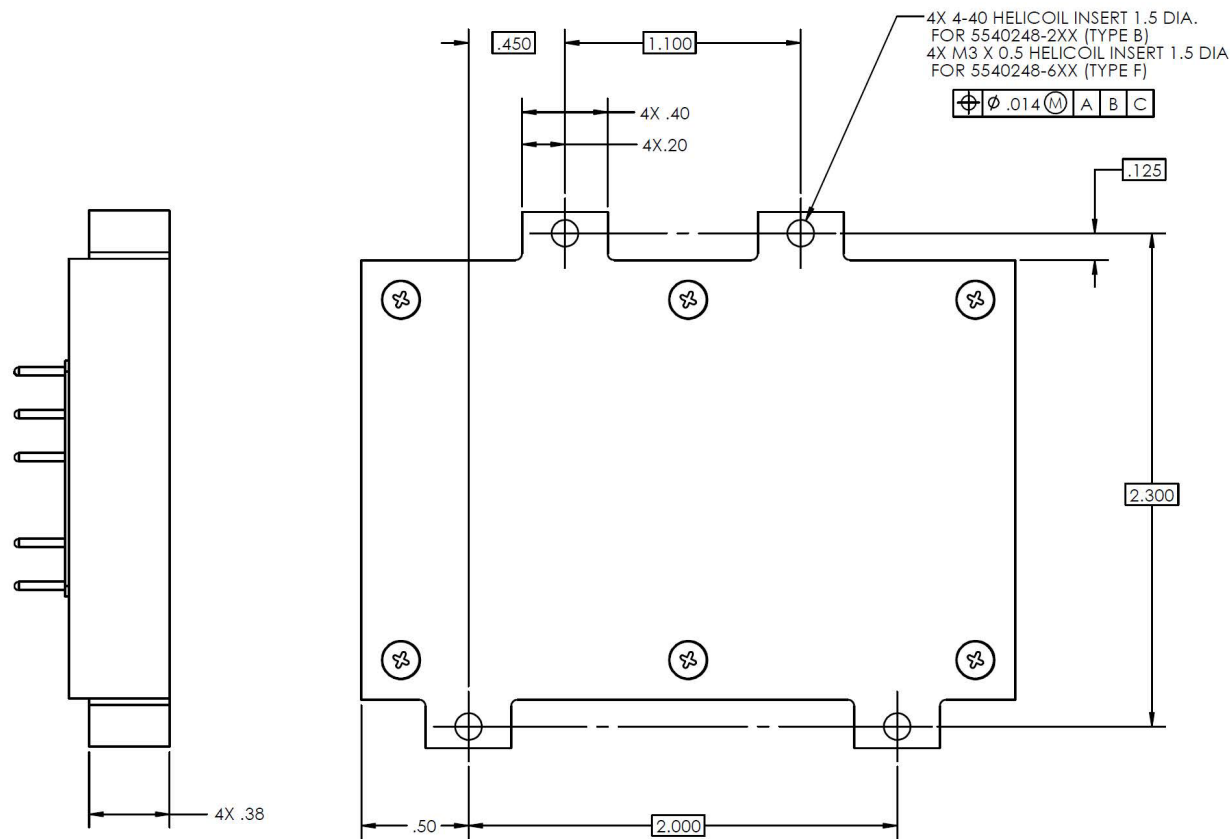


Figure 7-2. Radial Pins and Threaded Tabs Package Bottom View (-B or -F)



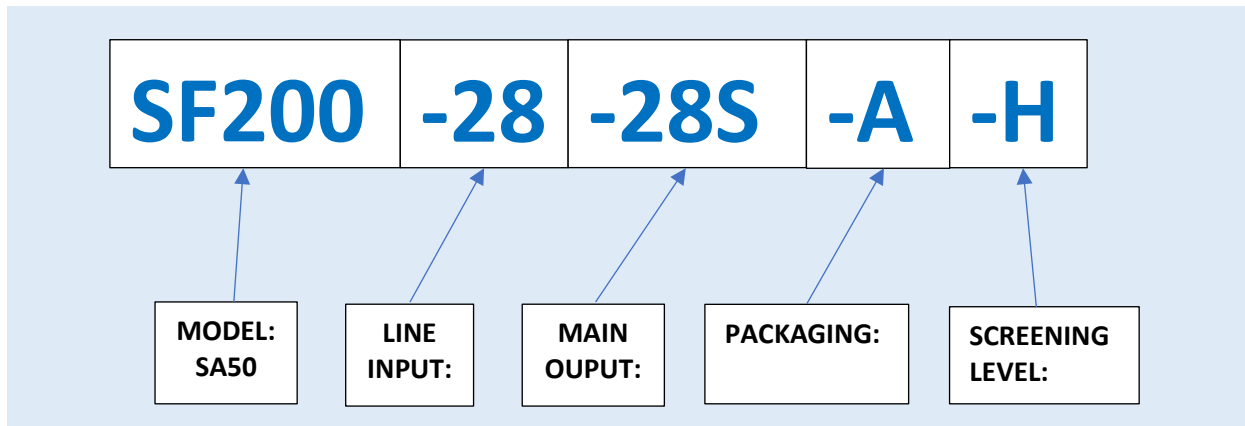
8. ATP Screening Test –(H) Radiation Hardened

Requirement	Test Method/Condition
External Visual	O&M – dimensions and mass
Initial Electrical	Full performance at +25 °C
Vibration	Workmanship non-operating vibration. MIL-STD-202, Method 214, Condition II-A, 6.21 grms random vibration, 50–2000 Hz, 1-minute perpendicular to the board
Post Vibration Electrical	Full performance at +25 °C
Temperature Cycle	MIL-STD-883, Method 1010, Condition A, 1 cycle , +85 °C to –55 °C, operating outputs monitored during thermal cycles
Burn-in	40 Hrs at 105 °C, 50% of rated load (outputs monitored)
Final Electrical	Full performance at +25 °C (deliverable data)
External Visual	No damage

9. Ordering Information

The following chart defines the part number nomenclature.

Figure 9-1. Part Number Example



Example part number: **SF200-28-28S-A-H**

Model	SF200-28-28S	Standard Filter 200W 28V input, 28V output modules		
Mechanical Package	-A	Axial	0.125in through	Mechanical packaging options. Electrical connections are either through the Top or the Side. And mounting holes are drilled through or tapped.
	-B	Radial	4-40 thread	
	-C	Axial	M3 thread	
	-D	Radial	0.125in through	
	-E	Axial	4-40 thread	
	-F	Radial	M3 thread	
Screening	-H	Standard screening		

We offer a thermal interface, the ST-2X3. This is a non-silicon, space-approved thermal interface, Datasheet available upon request.

10. Revision History

The revision history describes the changes that were implemented in the document. The changes are listed by revision, starting with the most current publication.

Revision	Date	Description
B	08/2023	- Updated filter attenuation information in Performance Characteristics. - Updated Mechanical Outline – Axial Pins Package and Mechanical Outline – Radial Pins Package. - Updated vibration information in ATP Screening Test –(H) Radiation Hardened Requirement. - Made grammar and style updates throughout the document.
A	11/2021	Initial Revision

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