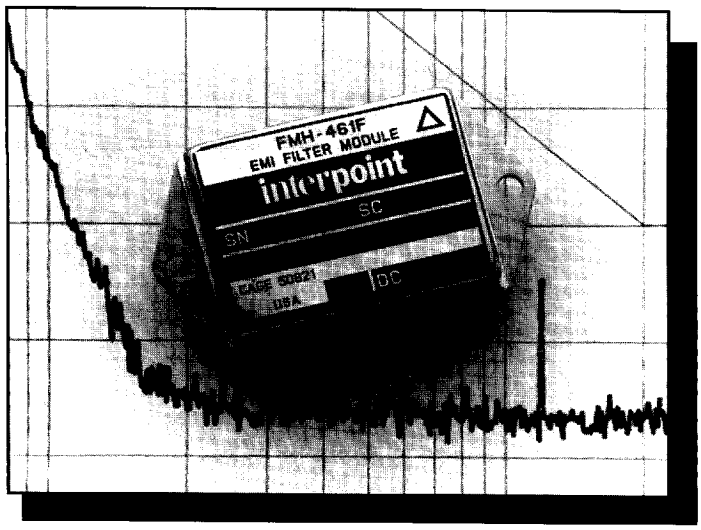
FMH-461 EMI Filter



General Description

Interpoint specifically designed the FMH-461™ EMI filter to reduce the input line reflected ripple current of the following high frequency DC/DC converters: MHD, MHF, MHF+, MHV, MSA*, and MTR series converters. It will also reduce EMI for several of Interpoint's lower frequency converters: MHE/MLP, MHL, MTO, and MTW series. The FMH-461 filter is ideal for use in applications which must meet MIL-STD-461 levels of conducted and radiated emissions. Throughput current is 1.5 amps and at 16 VDC input (lowline), the filter provides 24 watts of throughput power.

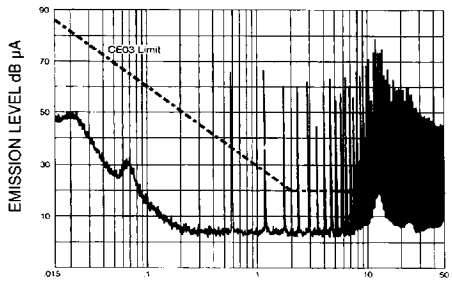
MIL-STD Noise Management

When used in conjunction with Interpoint converters, the FMH-461 EMI filter reduces input ripple current by 35 dB or greater at 200 kHz and by at least 50 dB at 500 kHz (see figures and data table). This attenuation gives the converter/filter combination performance which exceeds MIL-STD-461C's CE03 test.

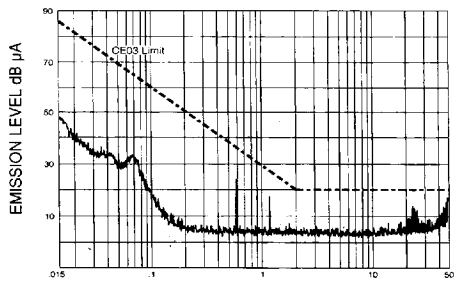
Filter Operation

FMH-461 filters are rated for full power operation from -55°C to +125°C baseplate temperature. Operation is offered up to the absolute maximum of +135°C with derating as defined on the reverse in note 1. The maximum DC insertion loss at full load and nominal input voltage (28 VDC) represents a power loss of less than 2%.

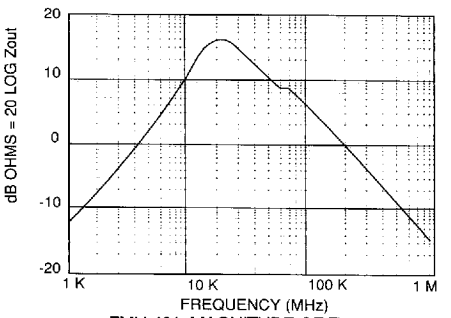
* MSA models may require an inductor in series with the MSA's positive input. 2 µH is the suggested value.



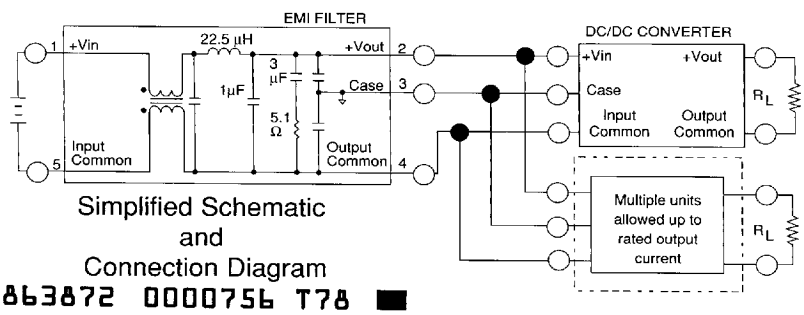
MHF+2805S CONVERTER WITHOUT FILTERING



MHF+2805S CONVERTER WITH FMH-461 FILTERING



FMH-461: MAGNITUDE OF TYPICAL OUTPUT IMPEDANCE (Z) WITH INPUT SHORTED



Simplified Schematic and Connection Diagram

4863872 0000756 T78

interpoint

PREMIER POWER SOLUTIONS

FMH-461 EMI FILTER

- -55°C to +125°C operation
- 50 dB minimum attenuation at 500 kHz
- 1.5 amps throughput current
- Optional environmental and MIL-STD-883 screening
- Meets MIL-STD-461 CE03 standards
- MIL-STD-704D power bus compatibility

To order, call

1-800-822-8782

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P.O. Box 97005
Redmond, WA 98073-9705
TEL: (800) 822-8782
(206) 882-3100
FAX: (206) 882-1990
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CHARACTERISTICS: Tc = 25°C, nominal input voltage, unless otherwise specified.

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
INPUT VOLTAGE	STEADY STATE	0	28	40	VDC
	TRANSIENT (50 msec max.)	—	—	50	VDC
INPUT CURRENT[1]	DC	—	—	1.5	A
OUTPUT VOLTAGE[2]	STEADY STATE	$V_{out} = V_{in} - I_{in}$ (RDC)			VDC
OUTPUT CURRENT[1]	RIPPLE	—	—	.3	A rms
	STEADY STATE	—	—	1.5	A
DC RESISTANCE (RDC)	T = 25°C	—	.20	0.35	Ohms
POWER DISSIPATION	MAX. CURRENT	—	.5	.8	W
NOISE REDUCTION	200 kHz	35	40	—	dB
	500 k Hz	50	60	—	dB
CAPACITANCE	ANY PIN TO CASE	—	—	0.024	µF
ISOLATION	ANY PIN TO CASE, 500 VDC	100	—	—	M Ohm
OPERATING TEMP.[1]	CASE BASEPLATE	-55	—	+125	°C
STORAGE TEMP.	CASE BASEPLATE	-65	—	+150	°C
WEIGHT		—	22	28	Grams

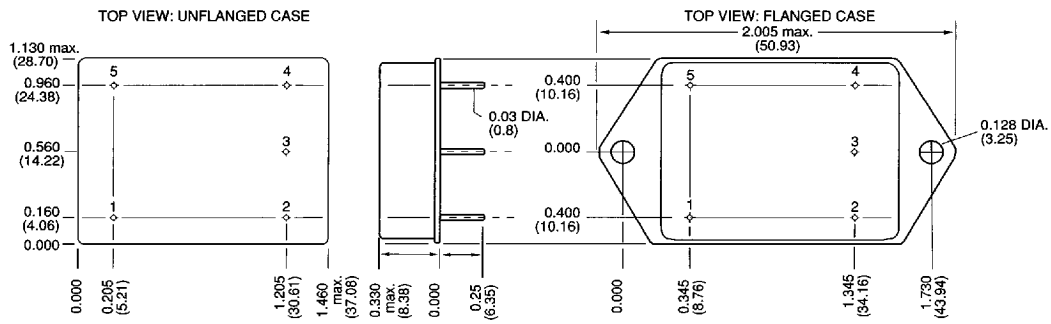
1. Derate current linearly from 100% at 125°C to 0 at 135°C. 2. Typical applications result in V_{out} within 2% of V_{in}

DESC/QML/SMD/MIL-STD 883

Interpoint is a fully qualified MIL-STD-1772 manufacturer and is listed on the Defense Electronics Supply Center's (DESC) Qualified Manufacturers List (QML) for DC/DC converters. Interpoint has an expanding line of fully qualified MIL-STD-883 products including models available from Standard Military Drawings (SMDs). Call your Interpoint representative for status.

STANDARD MILITARY DRAWING	FMH-461 SIMILAR PART
5915-9500301HXC	FMH-461/883
5915-9500301HZX	FMH-461F/883

METAL HERMETIC PACKAGE



FMH-461 CASE DRAWING

NOMINAL CASE DIMENSIONS IN INCHES (MM) — Tolerance ±0.005 (±0.13) for three decimal places, ±0.01 (±0.3) for two decimal places. To order the flanged case, add an "F" to the model number: FMH-461**F**, FMH-461F/ES, FMH-461F/883. The flange thickness is 0.05 (1.3) max.

Designation	Pins
Positive input	1
Positive output	2
Case Ground	3
Output Common	4
Input Common	5

Caution:
Heat from reflow of wave soldering may damage the filter. Solder pins individually with heat application NOT exceeding 300°C for 10 seconds per pin.

OPTIONAL ENVIRONMENTAL SCREENING

TEST	/ES	/883	TEST	/ES	/883
PRE-CAP INSPECTION Method 2017, 2032	•	•	FINAL VISUAL INSPECTION Method 2009	•	•
TEMPERATURE CYCLE (10 times) Method 1010, Cond. C, -65°C to +135°C Method 1010, Cond. B, -55°C to +125°C	•	•	FINAL ELECTRICAL TEST MIL-PRF-38534, Group A Subgroups 1 through 6: -55°C, +25°C, +125°C Subgroups 1 and 4: +25°C case	•	•
CONSTANT ACCELERATION Method 2001, Cond. A, 5000 g Method 2001, 500 g	•	•	HERMETICITY TESTING Fine Leak, Method 1014, Cond. A Gross Leak, Method 1014, Cond. C	• •	• •
BURN-IN Method 1015, 160 hours at 125°C 96 hours at 125°C case (typ.)	•	•	To order model options, enter screening designation as a suffix to the part number. For example, FMH-461/883. All products have a screening code block. On products with standard screening, the block is blank or marked "01"; on /ES products the block is marked "02" or "/ES"; on /883 products the block is marked "883". Custom screening may have additional screening code marking.		

FMH-461 is a trademark of Interpoint Corporation.

All technical information in this data sheet has been carefully checked and is believed to be accurate, but no responsibility is assumed for errors or omissions. Interpoint reserves the right to make changes without notice in products or specifications.

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