EMI FILTER
PFL 5000

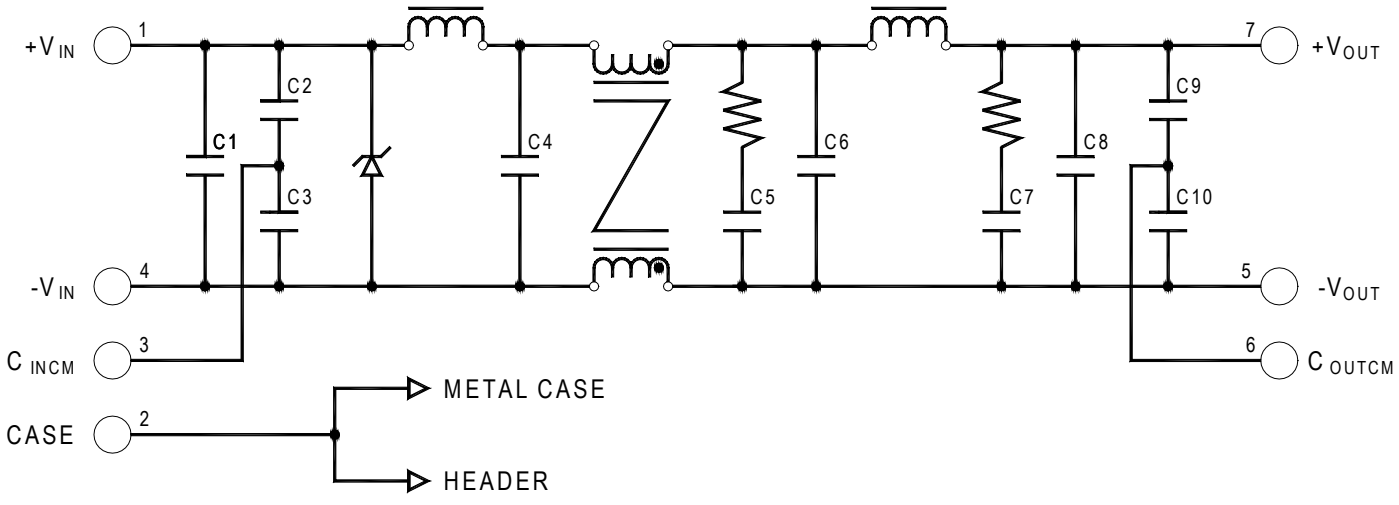
150 to 800 Watts Input Filter
Meets CS01, CE101, CE102 limits

Key Features

- Wide input voltage range 10 to 100 V
- 10 Amp Input/Output current
- 140 dB differential mode attenuation at 6kHz
- 60 dB minimum attenuation at 10kHz
- All capacitors are X7R stress relieved ceramic
- Six-sided shielding
- 1.01 x 10^6 MTBF @ Ground Mobile, +50C

Functional Description

The PFL5000 is an EMI filter designed to meet conducted and radiated emissions CS01,CE03 per MIL-STD-461-E and FCC class A and B .The PFL5000 is packaged in a 2.30”x2.42”x.50” metal case and operates from -40º to 100º C without derating. The filter is designed to filter EMI emissions. The PFL5000 can be used as an input filter for a DC/DC converter of 150W@15Vin and up to 750W@75Vin. For example, it can be used with a Q150S48/24 to offer an inexpensive solution to hybrid filters.



Typical Block Diagram

ABSOLUTE MAXIMUM RATINGS

PARAMETER	MIN	TYP	MAX	UNIT
Input voltage (continuous)			100	V
Input Voltage transient 1 sec.			100	V
Output current			10	A
Power Dissipation (Full load 100ºC)			.5	W
Operating Temperature	-40		+100	ºC
Storage Temperature	-65		+125	ºC

Electrical Specifications

INPUT SPECIFICATIONS

PARAMETER	CONDITION / NOTE	MIN	TYP	MAX	UNIT
Input Voltage Range	Continuous	10	28	100	Vdc
	Transient 1 sec.			100	Vdc
Input Current				10	Adc
Output Voltage (2)	Continuous		Vout=Vin-I_{IN} R_{DC}		
Output Current	Continuous			10	Adc
DC Resistance	Positive Rail @ 100 ºC		9	10	mΩ
	Negative Rail @100 ºC		3.5	4	mΩ
Common mode attentuation	See Figure 7		68		dB/dec
Differential mode attenuation	See Figure 8		98		dB/dec
Efficiency	Vin=28V, Iout=10A		99.5		%
Vz	Voltage Suppresor Breakdown	100	110	120	V
Noise Rejection	F= 80 KHZ See figure 5 through 12	40	60		dB
Capacitance	Pin to Case		2.0		nF
Isolation	Any Pin to Case 500 V	100			MΩ
MTBF	per MIL-HNBK-217F(Ground benign, +25 ºC)		$47.6x10^6$		hours
	per MIL-HNBK-217F(Ground benign, +50 ºC)		$17.8x10^6$		hours
	per MIL-HNBK-217F(Ground mobile, +50 ºC)		$1.01x10^6$		hours
Weight	TBD				

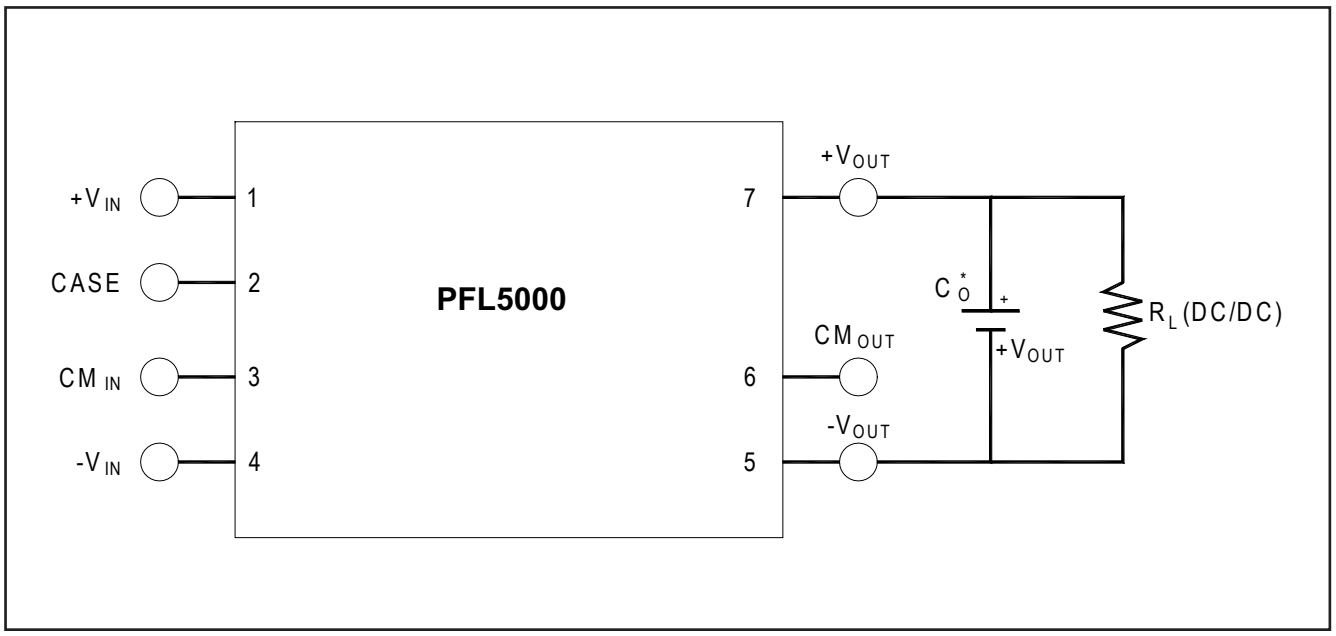


FIGURE 1: TYPICAL CONNECTION DIAGRAM OF PFL5000
*C_O is Optional For Higher Attenuation Of Noise

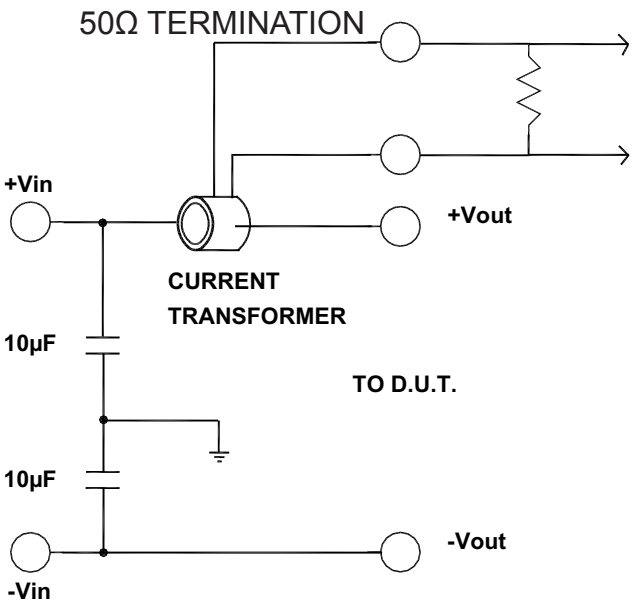


FIGURE 2: MIL-STD-461 E Measurement Method

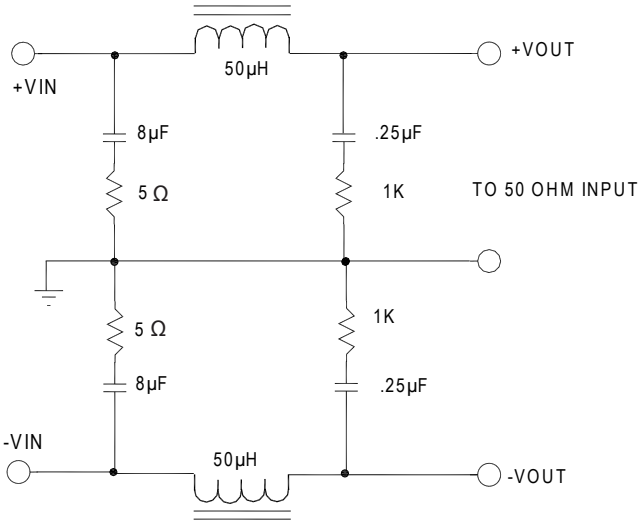


FIGURE 3: MIL-STD-461 E Measurement Method (LISN)

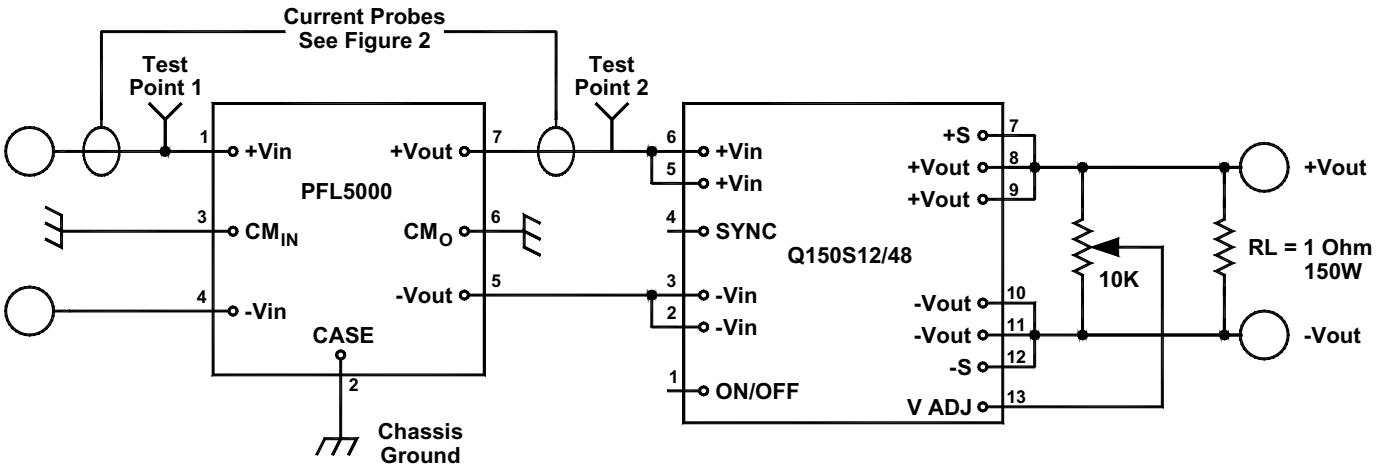


FIGURE 4: CONNECTION DIAGRAM OF EMI FILTER PFL5000 WITH A Q150S12/48

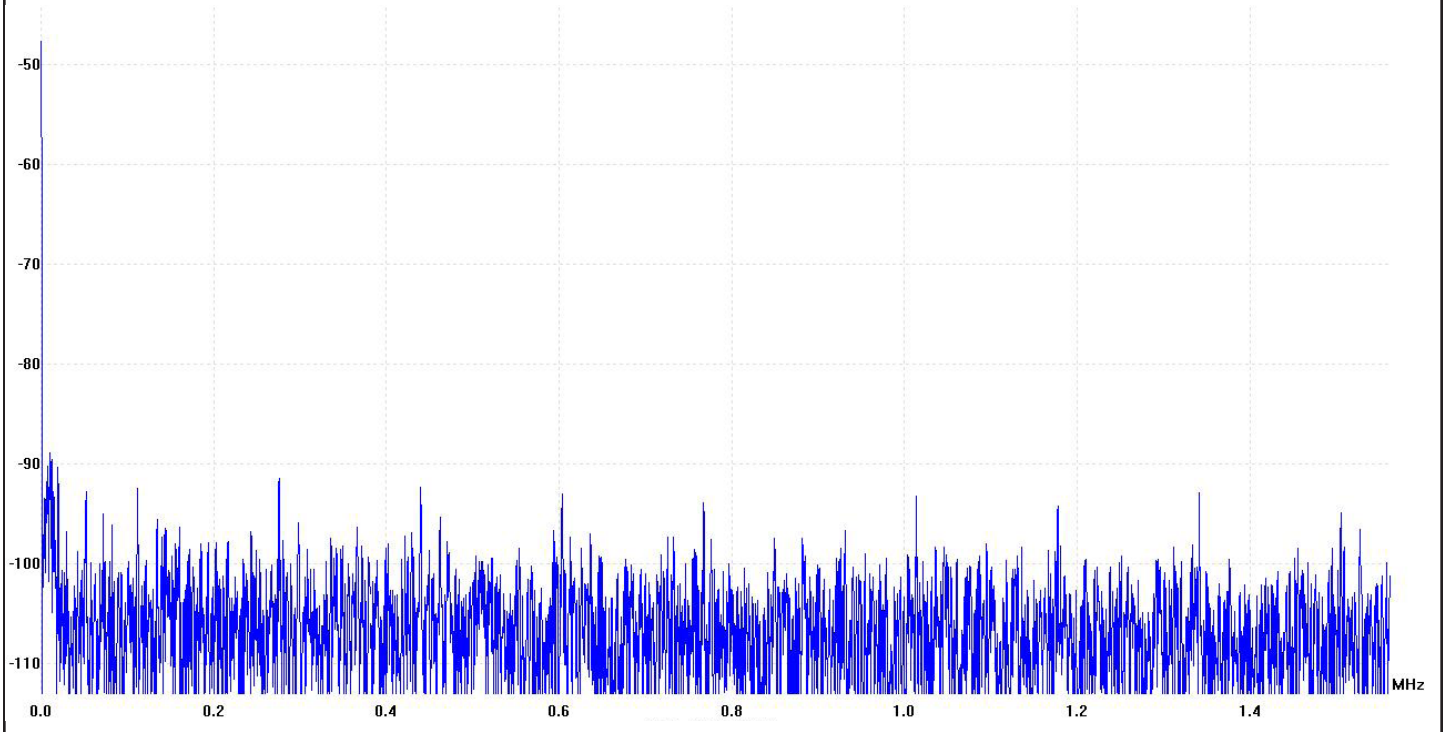


FIGURE 5: Reflected ripple spectrum of a single Q150S12/48 at TP1

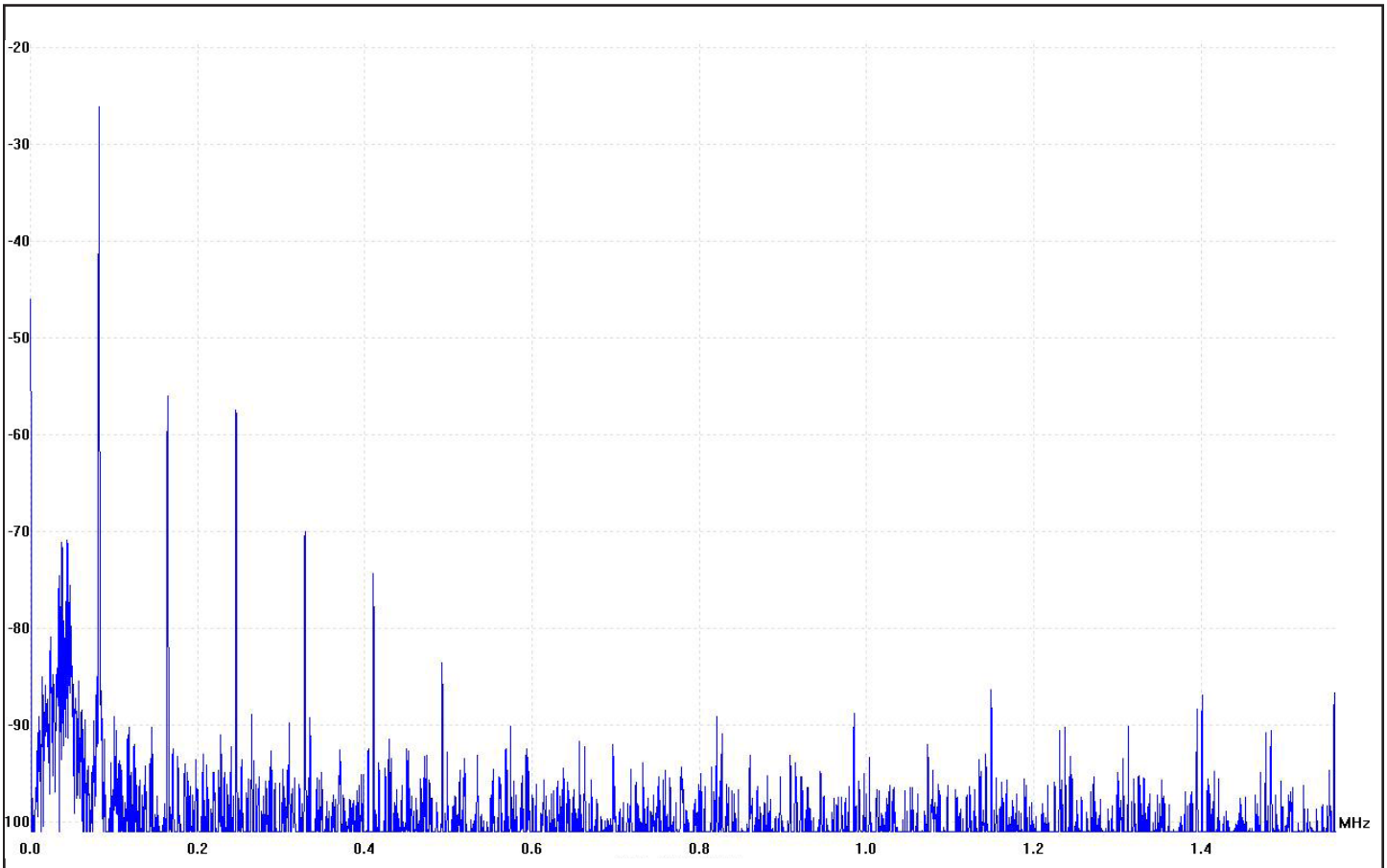


FIGURE 6: Reflected ripple spectrum of a single Q150S12/48 at TP2

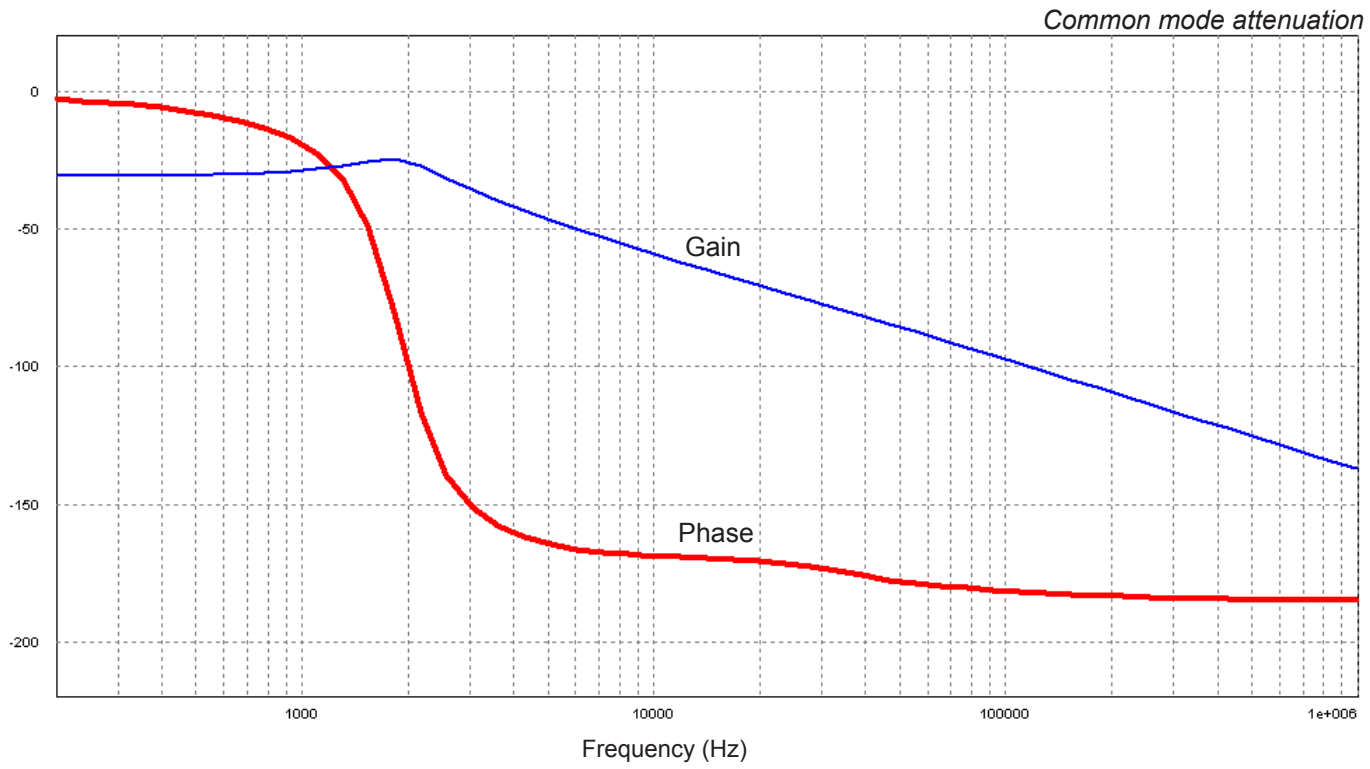


FIGURE 7: Transfer Characteristics for PFL5000 Common Mode Attenuation (Simulated)

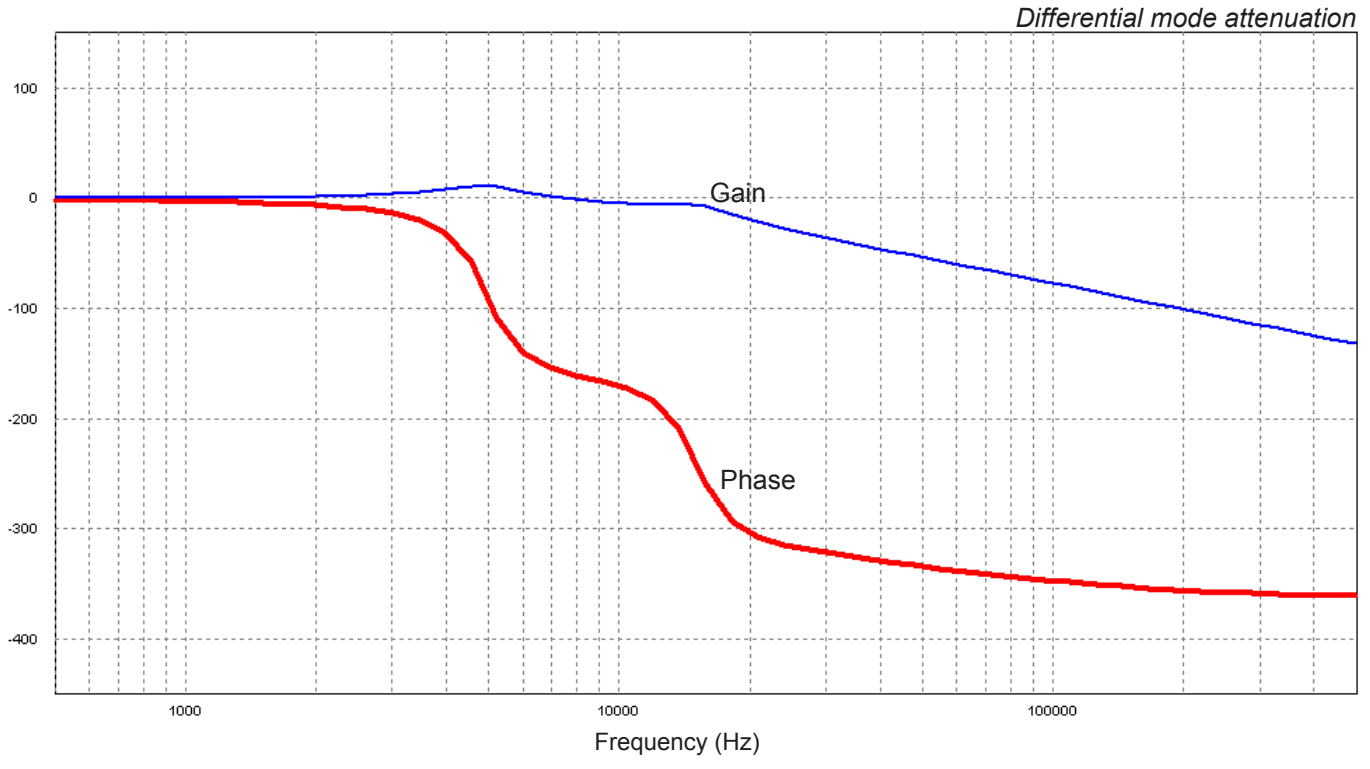
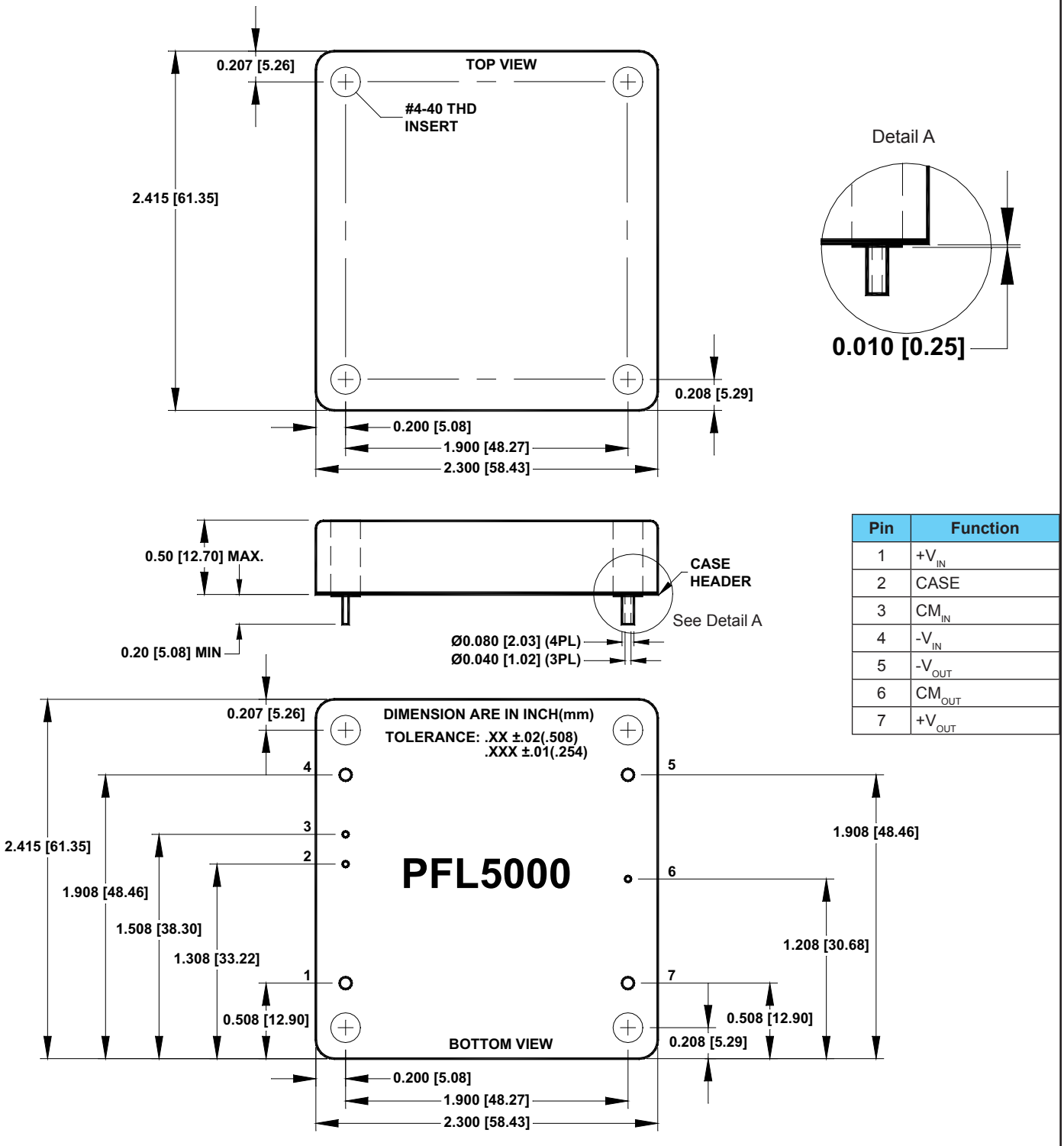


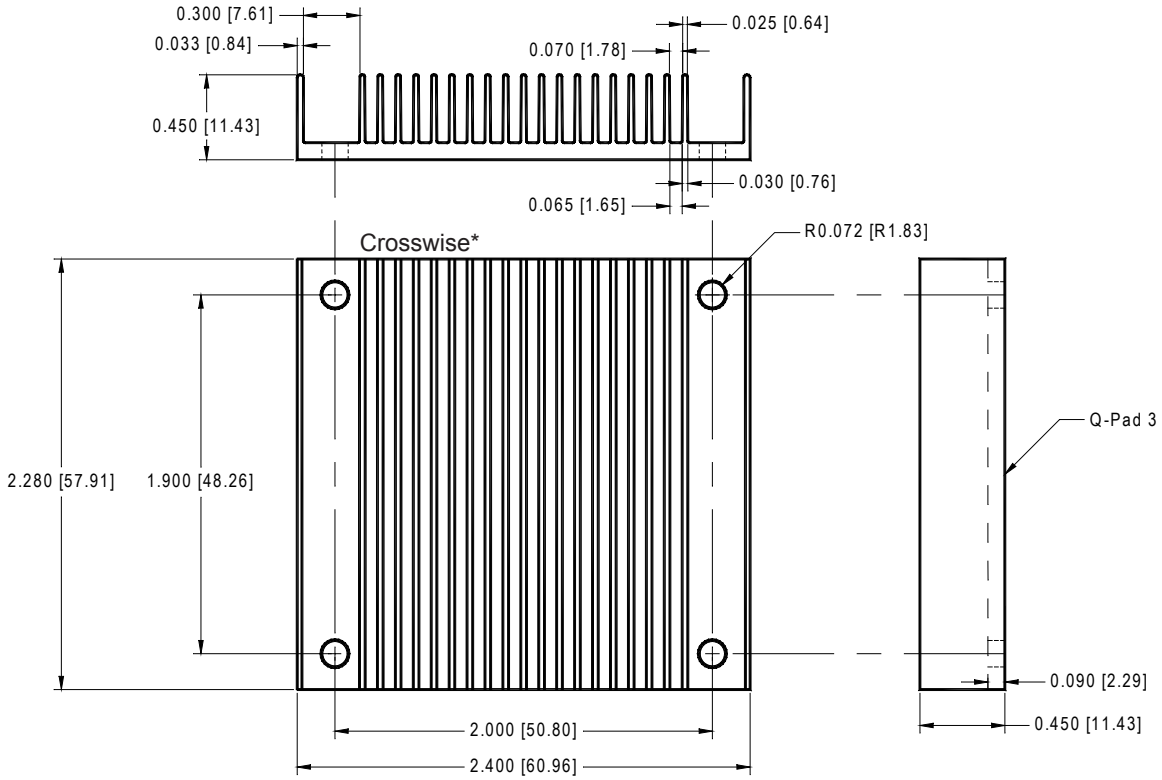
FIGURE 8: Transfer Characteristics for PFL5000 Differential Mode Attenuation (Simulated)

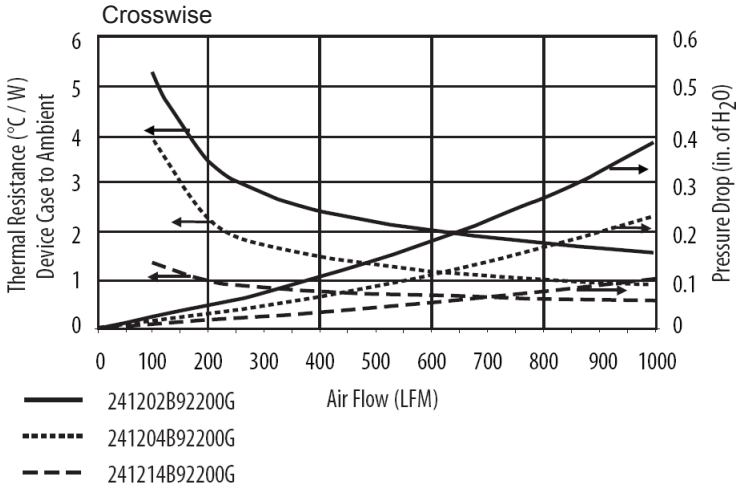
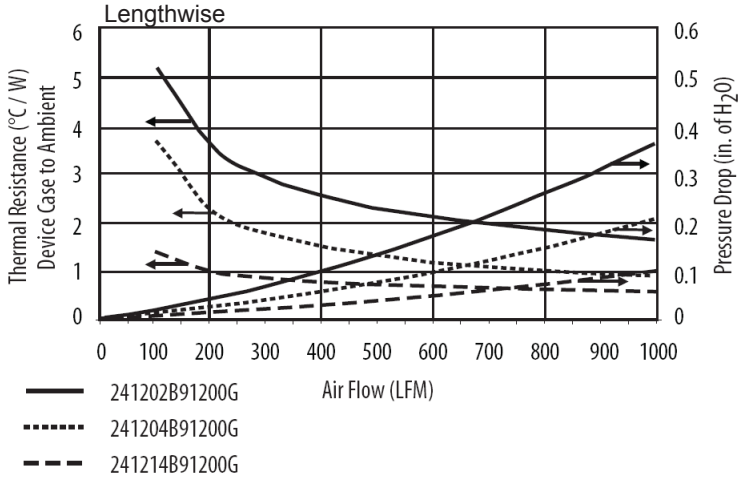
Mechanical Specifications



Pin	Function
1	$+V_{IN}$
2	CASE
3	CM_{IN}
4	$-V_{IN}$
5	$-V_{OUT}$
6	CM_{OUT}
7	$+V_{OUT}$

Heatsink Specifications





Note: *Also available lengthwise