

P R B X

POWERBOX Industrial Line PHB50W Series 25-50W 4:1 Single Output DC/DC Converter

Features

25W-50W isolated output
 Efficiency to 87%
 300KHz switching frequency
 4 : 1 input range
 Regulated outputs
 Continuous short circuit protection
 Five-sided shield metal case
 Half-brick size meet industrial standard

Input

Voltage range	24V	9-36VDC
	48V	18-75VDC
Input surge voltage (100ms max)	24V	50VDC max
	48V	100VDC max
Under voltage lockout	24Vin power up	8.8V typ
	24Vin power down	8.0V typ
	48Vin power up	17V typ
	48Vin power down	16V typ
Postive logic remote ON/OFF ^{3,4}		
Input filter	Pi type.	

Output

Voltage accuracy ⁷	±1% max.
Transient response	<500u sec.
External trim adj. range	±10%.
Ripple and noise ⁵	3.3V & 5V: 40mV rms max, 100mV pk-pk max.
20MHz BW	12V & 15V: 60mV rms max, 150mV pk-pk max.
	24V: 100mV rms max, 240mV pk-pk max.
	48V: 200mV rms, max, 480mV pk-pk, max.
Temperature coefficient	±0.03%/°C max.
Short circuit protection	Continuous.
Line regulation ^{1,7}	±0.2% max.
Load regulation ^{2,7}	±0.2% max.
Overvoltage protection	115-140%, trip range, % Vo nom.
Current limit	110-160% nominal output.
Start up time	5ms typical.

Environmental

Operating temperature	-40°C to +100°C.
Storage temperature	-55°C to +105°C.
Thermal shutdown	Case temperature 100°C typical.
Humidity	95% RH max, non condensing.



General

MTBF	MIL-STD-217F, GB, 25°C, full load 1000khrs typ.
Efficiency	See table.
Isolation voltage	1500VDC min input/output
	1500VDC min input/case
	1500VDC min, output/case.
Isolation resistance	10 ⁷ ohms, min.
Switching frequency	300KHz typ.
Case material	Aluminum.
Dimensions	57.9 x 61.0 x 12.7 mm.
Weight	94g.

Standards

Safety standards	UL60950-1 approval.
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Note:

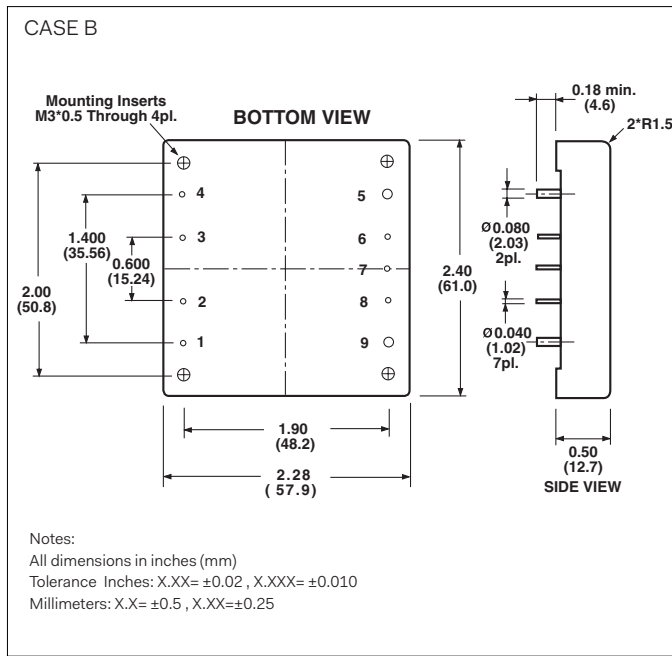
1. Measured From High Line to Low Line
2. Measured from full load to zero load.
3. Logic compatibility: Open collector ref to -Input. Module ON Open Circuit. Module OFF < 0.8Vdc.
4. Suffix "N" to the Model Number with Negative Logic Remote ON/OFF.
5. Output Ripple and Noise measured with 10uF tantalum and 1uF ceramic capacitor across output. (48V: 1uF ceramic cap. Only)
6. Suffix "-C" to the Model Number with Clear Mounting Insert (3.2mm DIA.)
7. Require a 47uF Aluminum Capacitor Connected Between +Vout and -Vout for 48Vout Models.

POWERBOX Industrial Line
PHB50W Series
25-50W 4:1 Single Output
DC/DC Converter

Model Number	Input Voltage	Output Voltage	Output Current		Input Current		Efficiency	Capacitor Load Max
			Min	Max	No Load	Full Load		
PHB50W-24S33	9-36 VDC	3.3 VDC	0 mA	10 A	50 mA	1740 mA	79%	10000uF
PHB50W-24S05	9-36 VDC	5 VDC	0 mA	10 A	50 mA	2570 mA	81%	10000uF
PHB50W-24S12	9-36 VDC	12 VDC	0 mA	4.16 A	50 mA	2510 mA	83%	4160uF
PHB50W-24S15	9-36 VDC	15 VDC	0 mA	3.33 A	50 mA	2448 mA	85%	3330uF
PHB50W-24S24	9-36 VDC	24 VDC	0 mA	2.08 A	50 mA	2476 mA	84%	2080uF
PHB50W-24S48	9-36 VDC	48 VDC	0 mA	1.04 A	50 mA	2506 mA	83%	4700uF
PHB50W-48S33	18-75 VDC	3.3 VDC	0 mA	10 A	50 mA	848 mA	81%	10000uF
PHB50W-48S05	18-75 VDC	5 VDC	0 mA	10 A	50 mA	1255 mA	83%	10000uF
PHB50W-48S12	18-75 VDC	12 VDC	0 mA	4.16 A	50 mA	1223 mA	85%	4160uF
PHB50W-48S15	18-75 VDC	15 VDC	0 mA	3.33 A	50 mA	1196 mA	87%	3330uF
PHB50W-48S24	18-75 VDC	24 VDC	0 mA	2.08 A	50 mA	1209 mA	86%	2080uF
PHB50W-48S48	18-75VDC	48 VDC	0 mA	1.04 A	50 mA	1238 mA	84%	4700uF

Note:
 Nominal input voltages 24 or 48 VDC.

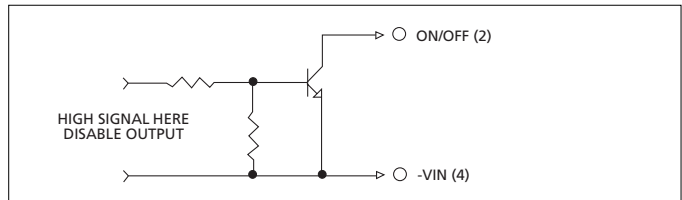
Mechanical



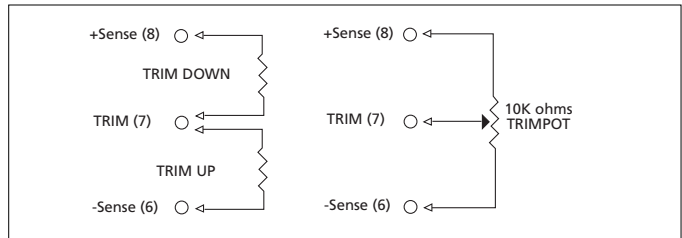
Pin Connection

Pin	Function
1	+V Input
2	ON/OFF
3	CASE
4	-V Input
5	-V Output
6	-Sense
7	Trim
8	+Sense
9	+V Output

Remote On/Off Control



External Output Trimming



Specifications are subject to change without notice.