B1000ERW Series

Low Cost 1 x 2 Inch 10W Wide Input Range DC/DC Converters



A Budget Saver!!

Key Features:

- 10W Output Power
- 2:1 Input Voltage Range
- 1,500 VDC Isolation
- Efficiency to 86%
- Compact 1 x 2 Inch Case
- Single & Dual Outputs
- Industry Standard Pin-Out
- ***Lowest Cost!!***

RoHS Compliant

Electrical Specifications

Specifications typical @ +25°C, nominal input voltage & rated output current, unless otherwise noted. Specifications subject to change without notice.

Input

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Voltage Range	12 VDC Input	9.0	12.0	18.0	VDC
	24 VDC Input	18.0	24.0	36.0	
	48 VDC Input	36.0	48.0	72.0	
Input Filter	π (Pi) Filter				
Short Circuit Input Power			1,500		mW

Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Accuracy				±3.0	%
Output Voltage Balance	Dual Output , Balanced Loads			±5.0	%
Line Regulation	Vin = Min to Max		±0.1	±0.2	%
Positive Load Regulation	Iout = 25% to 100%		0.2	0.5	%
Negative Load Regulation	Iout = 25% to 100%		3.0	5.0	%
Ripple	Bandwidth = 20 Hz to 300 kHz		30	50	mV P - P
Noise	Bandwidth = DC to 20 MHz			100	mV P - P
Output Power Protection		110			%
Transient Recovery Time (Note 1)	25% Load Step Change		200		µSec
Transient Response Deviation			±2.0		%
Temperature Coefficient			±0.01	±0.02	%/°C
Output Short Circuit	Continuous				

General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage	60 Seconds	1,500			VDC
Isolation Resistance	500 VDC	1,000			MΩ
Isolation Capacitance	100 kHz, 1V		130		pF
Switching Frequency			300		kHz

Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-40	+25	+71	°C
Operating Temperature Range	Case	-40	+25	+90	°C
Storage Temperature Range		-40		+125	°C
Cooling	Free Air Convection				
Humidity	RH, Non-condensing			95	%

Physical

Case Size	2.0 x 1.0 x 0.40 Inches (50.8 x 25.4 x 10.2 mm)
Case Material	Non-Conductive Black Plastic (UL94-V0)
Weight	1.06 Oz (30g)

Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	1.0			MHours

Absolute Maximum Ratings

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Voltage Surge (1 Sec)	12 VDC Input	-0.7		25.0	VDC
	24 VDC Input	-0.7		45.0	
	48 VDC Input	-0.7		100.0	
Lead Temperature	1.5 mm From Case for 10 Sec			300	°C
Internal Power Dissipation	All Models			5,000	mW

Caution: Exceeding Absolute Maximum Ratings may damage the module. These are not continuous operating ratings.

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Model Selection Guide

Model Number	Input				Output			Efficiency (%, Typ)	Fuse Rating Slow-Blow (mA)
	Voltage (VDC)		Current (mA)		Voltage (VDC)	Current (mA, Max)	Current (mA, Min)		
	Nominal	Range	Full-Load	No-Load					
B1001ERW	12	9.0 - 18.0	1,111	25	5	2,000	200	75	3,000
B1002ERW	12	9.0 - 18.0	1,068	25	12	832	83	78	3,000
B1003ERW	12	9.0 - 18.0	1,041	25	15	660	66	80	3,000
B1004ERW	12	9.0 - 18.0	1,157	25	±5	±1,000	±100	72	3,000
B1005ERW	12	9.0 - 18.0	1,082	25	±12	±416	±41	77	3,000
B1006ERW	12	9.0 - 18.0	1,041	25	±15	±333	±33	80	3,000
B1011ERW	24	18.0 - 36.0	555	8	5	2,000	200	75	1,500
B1012ERW	24	18.0 - 36.0	534	8	12	832	83	78	1,500
B1013ERW	24	18.0 - 36.0	520	8	15	660	66	80	1,500
B1014ERW	24	18.0 - 36.0	563	8	±5	±1,000	±100	74	1,500
B1015ERW	24	18.0 - 36.0	508	8	±12	±416	±41	82	1,500
B1016ERW	24	18.0 - 36.0	496	8	±15	±333	±33	84	1,500
B1021ERW	48	36.0 - 75.0	257	5	5	2,000	200	81	750
B1022ERW	48	36.0 - 75.0	242	5	12	830	83	86	750
B1023ERW	48	36.0 - 75.0	242	5	15	670	66	86	750
B1024ERW	48	36.0 - 75.0	264	5	±5	±1,000	±100	79	750
B1025ERW	48	36.0 - 75.0	245	5	±12	±416	±41	85	750
B1026ERW	48	36.0 - 75.0	245	5	±15	±333	±33	85	750

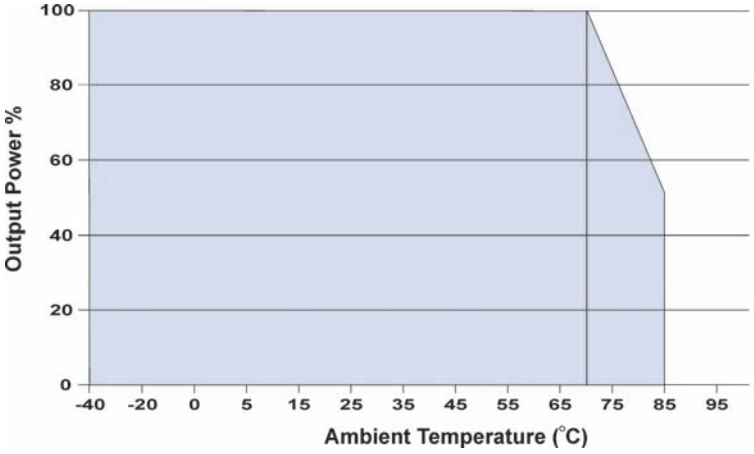
Notes:

1. Transient recovery is measured to within a 1% error band for a load step change of 75% to 100%.
2. Output load regulation is specified for a load change of 25% to 100%.
3. When measuring output ripple, it is recommended that an external ceramic capacitor (approx approx 1 µF to 10 µF) be placed from the +Vout pin to the -Vout pin for single output units and from each output to common for dual output units.
4. These units should not be operated with a load under 10% of full load. Operation at no-load may cause damage to the unit.
5. These converters are specified for operation without external components. However, in some applications the addition of input/ouput capacitors will enhance stability and reduce output ripple. Recommended capacitor values are:

Vin	Input Capacitor	Output Capacitor
12 VDC	100 µF	100 µF per 1A of Iout
24 VDC	100 µF	100 µF per 1A of Iout
48 VDC	100 µF	100 µF per 1A of Iout

   For applications requiring very low output noise levels, a simple LC filter should be effective.
6. Dual output units may be connected to provide a 10V, 24V or 30 VDC output. To do this, connect the load across the positive (+Vout) and negative (-Vout) outputs and float the output common.
7. It is recommended that a fuse be used on the input of a power supply for protection. See the Model Selection table above for the correct rating.

Derating Curve



Capacitive Load

Single Output (µF Max)
400

Dual Output (µF Max)
±200

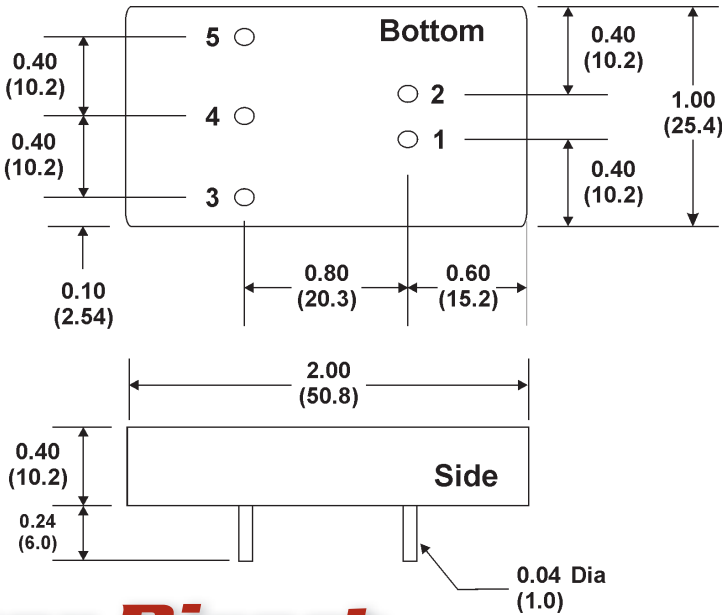
Pin Connections

Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	No Pin	Common
5	-Vout	-Vout

Mechanical Notes:

- All dimensions are typical in inches (mm)
- Tolerance x.xx = ±0.01 (±0.25)

Mechanical Dimensions



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