

B1000ERW Series

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



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
- **Low, Low Cost!!**



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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	75.0	
Input Filter	LC 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, See Note 1	Iout = 10% to 100%		0.2	0.5	%
Ripple	See Note 2		30	50	mV P - P
Noise		100	300	mV P - P	
Transient Recovery Time, See Note 3	25% Load Step Change		200		µSec
Transient Response Deviation		±2.0		%	
Temperature Coefficient			±0.02		%/°C
Output Short Circuit	Continuous (Autorecovery)				
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	+85	°C
Storage Temperature Range		-55		+125	°C
Cooling	Free Air Convection				
Humidity	RH, Non-condensing			95	%
Physical					
Case Size	2.0 x 1.0 x 0.44 Inches (50.8 x 25.4 x 11.2 mm)				
Case Material	Aluminum Alloy with Non-Conductive Base (UL94-V0) (UL94-V0)				
Weight	0.828 Oz (23.5g)				
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		20.0	VDC
	24 VDC Input	-0.7		40.0	
	48 VDC Input	-0.7		80.0	
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 Number	Input				Output			Efficiency (% Typ)	Capacitive Load (µF Max)	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	1,042	25	5	2,000	200	80	4,700	3,000
B1002ERW	12	9.0 - 18.0	1,016	25	12	832	83	82	690	3,000
B1003ERW	12	9.0 - 18.0	1,016	25	15	660	66	82	470	3,000
B1004ERW	12	9.0 - 18.0	1,016	25	±5	±1,000	±100	82	±680	3,000
B1005ERW	12	9.0 - 18.0	1,004	25	±12	±416	±41	83	±330	3,000
B1006ERW	12	9.0 - 18.0	992	25	±15	±333	±33	84	±110	3,000
B1007ERW	12	9.0 - 18.0	992	25	±24	±210	±21	84	±100	3,000
B1011ERW	24	18.0 - 36.0	502	8	5	2,000	200	83	4,700	1,500
B1012ERW	24	18.0 - 36.0	490	8	12	832	83	85	690	1,500
B1013ERW	24	18.0 - 36.0	496	8	15	660	66	84	470	1,500
B1014ERW	24	18.0 - 36.0	502	8	±5	±1,000	±100	83	±680	1,500
B1015ERW	24	18.0 - 36.0	490	8	±12	±416	±41	85	±330	1,500
B1016ERW	24	18.0 - 36.0	496	8	±15	±333	±33	84	±110	1,500
B1017ERW	24	18.0 - 36.0	490	8	±24	±210	±21	85	±100	1,500
B1021ERW	48	36.0 - 75.0	251	5	5	2,000	200	83	4,700	750
B1022ERW	48	36.0 - 75.0	242	5	12	830	83	86	690	750
B1023ERW	48	36.0 - 75.0	242	5	15	670	66	86	470	750
B1024ERW	48	36.0 - 75.0	251	5	±5	±1,000	±100	83	±680	750
B1025ERW	48	36.0 - 75.0	242	5	±12	±416	±41	86	±330	750
B1026ERW	48	36.0 - 75.0	242	5	±15	±333	±33	86	±110	750
B1027ERW	48	36.0 - 75.0	242	5	±24	±210	±21	86	±100	750

Notes:

- For dual output models with unbalanced loads, the output load regulation is specified at ±5% typ.
- Ripple & noise is specified for a bandwidth of 20 MHz. When operating these units, the addition of input/output capacitors will enhance stability and reduce output ripple. Recommended capacitor values are:

V _{OUT}	Input Capacitor	Output Capacitor
5 VDC	100 µF	220 µF
12 VDC	100 µF	100 µF
15 VDC	100 µF	100 µF
±5 VDC	100 µF	±100 µF
±12 VDC	100 µF	±47 µF
±15 VDC	100 µF	±47 µF
±24 VDC	100 µF	±22 µF

- Transient recovery is measured to within a 1% error band for a load step change of 75% to 100%.
- These units should not be operated with a load under 10% of full load. Operation at no-load may cause damage to the unit.
- Dual output units may be connected to provide a 10V, 24V, 30 VDC or 48 VDC output. To do this, connect the load across the positive (+V_{out}) and negative (-V_{out}) outputs and float the output common.
- 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.

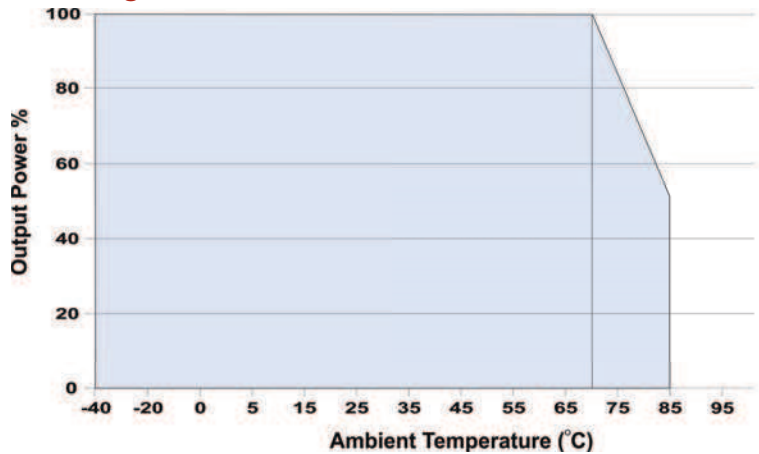
Pin Connections

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

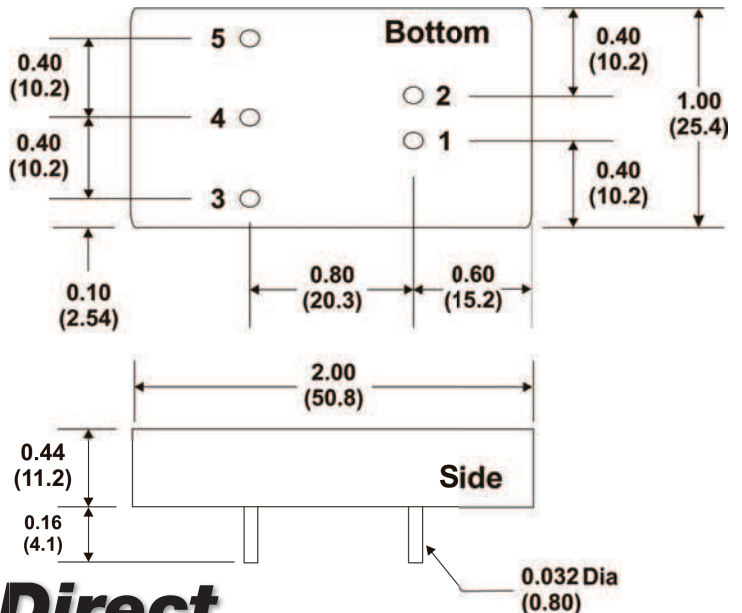
Mechanical Notes:

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

Derating Curve



Mechanical Dimensions



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