

B1500ERW Series

Low Cost, 1 x 2 Inch 15W, 2:1 Input Range DC/DC Converters



Key Features:

- 15W Output Power
- 2:1 Input Voltage Range
- 1,500 VDC Isolation
- Single & Dual Outputs
- Efficiency to 87%
- Compact 1 x 2 Inch Case
- -40°C to +85°C Operation
- Industry Standard Pin-Out
- **Lowest 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			3,500		mW	

Output						
Parameter	Conditions	Min.	Typ.	Max.	Units	
Output Voltage Accuracy			±1.0	±3.0	%	
Output Trim Range			±10		%	
Line Regulation	Vin = Min to Max		±0.2	±0.5	%	
Load Regulation	Iout = 10% to 100%		0.5	1.0	%	
Ripple & Noise (20 MHz)	Note 1			150	mV P - P	
Output Power Protection		120	130	150	%	
Temperature Coefficient			±0.03		%/°C	
Output Short Circuit	Continuous (Autorecovery)					

General						
Parameter	Conditions	Min.	Typ.	Max.	Units	
Isolation Voltage	60 Seconds	1,500			VDC	
Isolation Resistance	500 VDC	500			MΩ	
Isolation Capacitance	100 kHz, 1V		1,000		pF	
Switching Frequency			500		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						
Parameter	Conditions	Min.	Typ.	Max.	Units	
Case Size		2.0 x 1.0 x 0.44 Inches (50.8 x 25.4 x 11.2 mm)				
Case Material	Metal With Non-Conductive Base (UL94-V0)					
Weight					1.06 Oz (30g)	

Remote On/Off						
Parameter	Conditions	Min.	Typ.	Max.	Units	
Unit On (Note 2)		3.5		40.0	VDC	
Unit Off (Note 2)		0		1.2	VDC	
Off Idle Current			5.0		mA	

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.

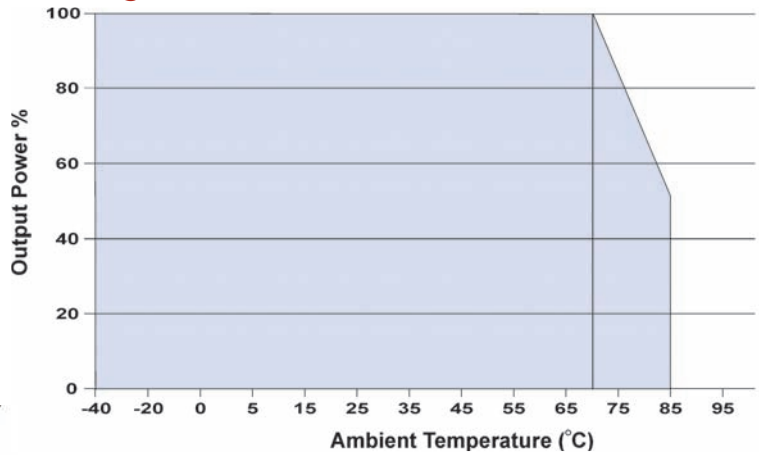
Model Selection Guide

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						
B1501ERW	12	9.0 - 18.0	1,524	25	5	3,000	300	82	4,020	3,000
B1502ERW	12	9.0 - 18.0	1,470	25	12	1,250	125	85	1,035	3,000
B1503ERW	12	9.0 - 18.0	1,488	25	15	1,000	100	84	705	3,000
B1504ERW	12	9.0 - 18.0	1,524	25	± 5	$\pm 1,500$	± 150	82	$\pm 1,020$	3,000
B1505ERW	12	9.0 - 18.0	1,470	25	± 12	± 625	± 63	85	± 495	3,000
B1506ERW	12	9.0 - 18.0	1,470	25	± 15	± 500	± 50	85	± 165	3,000
B1511ERW	24	18.0 - 36.0	753	8	5	3,000	300	83	4,020	1,500
B1512ERW	24	18.0 - 36.0	735	8	12	1,250	125	85	1,035	1,500
B1513ERW	24	18.0 - 36.0	735	8	15	1,000	100	85	705	1,500
B1514ERW	24	18.0 - 36.0	744	8	± 5	$\pm 1,500$	± 150	84	$\pm 1,020$	1,500
B1515ERW	24	18.0 - 36.0	726	8	± 12	± 625	± 63	86	± 495	1,500
B1516ERW	24	18.0 - 36.0	726	8	± 15	± 500	± 50	86	± 165	1,500
B1521ERW	48	36.0 - 75.0	376	5	5	3,000	300	83	4,020	750
B1522ERW	48	36.0 - 75.0	363	5	12	1,250	125	86	1,035	750
B1523ERW	48	36.0 - 75.0	363	5	15	1,000	100	86	705	750
B1524ERW	48	36.0 - 75.0	367	5	± 5	$\pm 1,500$	± 150	85	$\pm 1,020$	750
B1525ERW	48	36.0 - 75.0	359	5	± 12	± 625	± 63	87	± 495	750
B1526ERW	48	36.0 - 75.0	359	5	± 15	± 500	± 50	87	± 165	750

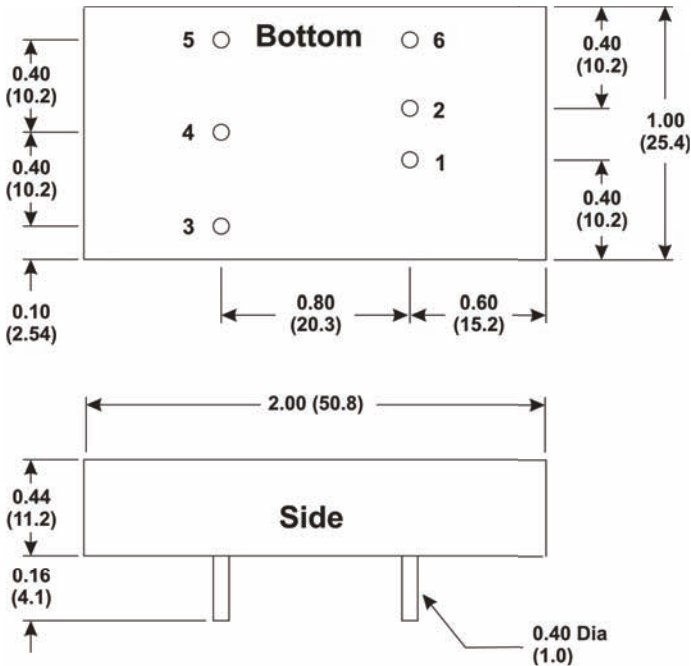
Notes:

- When measuring output ripple, it is recommended that an external ceramic capacitor (approx 1 μF to 10 μF) be placed from the +Vout to the -Vout pins.
- The remote On/Off control is referenced to ground. It is recommended that connection to the pin be made through a 1k Ω resistor and diode (1N4148). If it is not used, the control pin should be left open.
- These units should not be operated with a load under 10% of full load. Operation at no-load will not damage the unit, but they may not meet all specifications.
- These converters are specified for operation without external components. However, in some applications the addition of input/output capacitors will enhance stability and reduce output ripple. For applications requiring very low output noise levels, a simple LC filter should be effective.
- These units should not be operated over +85°C (see derating curve). Exceeding +85°C may damage the unit.
- 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



Mechanical Dimensions



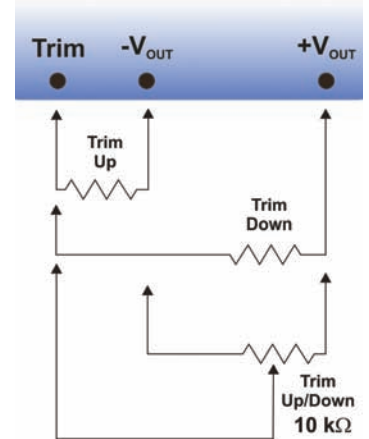
Pin Connections

Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	Trim	Common
5	-Vout	-Vout
6	Remote On/Off	Remote On/Off

Mechanical Notes:

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

External Trim



On single output units, a simple external circuit may be used to adjust the converter output. To adjust the output DOWN, connect a 5%, 3W resistor between the plus output pin and the Vout trim pin. To adjust the output UP, connect a 5%, 3W resistor between the minus output pin and the Vout trim pin.

For UP/Down trimming capability, connect a 10 kW potentiometer between the plus and minus outputs with the wiper arm connected to the Vout trim pin.



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