

B1500ERU Series

Ultra-Wide Input 15W Single & Dual Output DC/DC Converters



Key Features:

- 15W Output Power
- 4:1 Input Voltage Range
- 1,500 VDC Isolation
- Compact 1 x 2 Inch Case
- Single & Dual Outputs
- Remote ON/OFF
- Industry Standard Pin-Out



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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 Start Voltage	24 VDC Input		8.8	9.0	VDC
	48 VDC Input		17.8	18.0	
Input Filter	π (Pi) Filter				
Start-Up Time			10		mS

Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Accuracy			±1.0	±2.0	%
Output Voltage Balance	Dual Output , Balanced Loads		±0.5		%
Line Regulation	Vin = Min to Max		±0.2	±0.5	%
Load Regulation	Iout = 10% to 100%		±0.5	±1.0	%
Cross Regulation				±5.0	%
Ripple & Noise (20 MHz) (Note 1)		55	75	150	mV P - P
Output Power Protection		120		150	%
Transient Recovery Time (Note 2)	25% Load Step Change		200	300	µSec
Transient Response Deviation			±3.0	±5.0	%
Temperature Coefficient			±0.01	±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		1,000		pF
Switching Frequency			300		kHz

Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-40	+25	+85	°C
Storage Temperature Range		-55		+105	°C
Cooling	Free Air Convection (See Curves on Page 2)				
Humidity	RH, Non-condensing			95	%
RFI	Six-Side Shielded Metal Case				

Physical

Case Size	2.0 x 1.0 x 0.43 Inches (50.8 x 25.4 x 11.0 mm)
Case Material	Metal with Non-Conductive Base
Weight	1.13 Oz (32g)

Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	700			kHours

Absolute Maximum Ratings

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Voltage Surge (1 Sec)	24 VDC Input	-0.7		50.0	VDC
	48 VDC Input	-0.7		100.0	
Lead Temperature	1.5 mm From Case For 10 Sec			300.0	°C

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

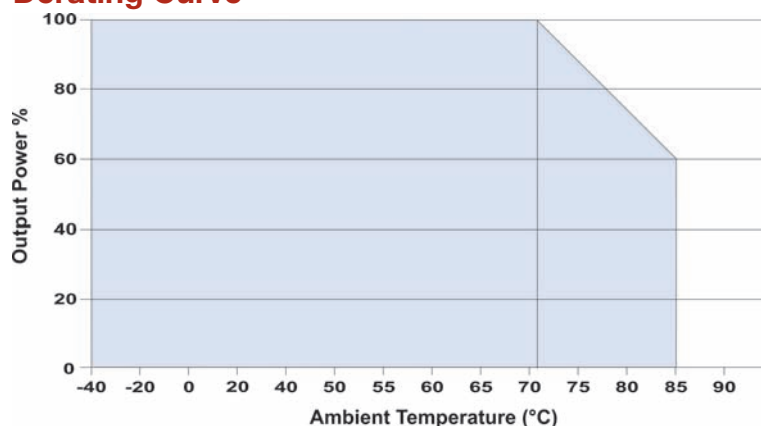
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Model Number	Input				Reflected Ripple Current (mA, Typ)	Output			Efficiency (%, Typ)	Capacitive Load (μF Max)	Fuse Rating Slow-Blow (mA)
	Voltage (VDC)		Current (mA)			Voltage (VDC)	Current (mA, Max)	Current (mA, Min)			
	Nominal	Range	Full-Load	No-Load							
B1501ERU	24	9.0 - 36.0	528	25	40	3.3	4,000	400.0	78	10,200	2,500
B1502ERU	24	9.0 - 36.0	762	25	40	5.0	3,000	300.0	82	4,020	2,500
B1503ERU	24	9.0 - 36.0	744	25	40	12.0	1,250	125.0	84	1,035	2,500
B1504ERU	24	9.0 - 36.0	744	25	40	15.0	1,000	100.0	84	705	2,500
B1505ERU	24	9.0 - 36.0	762	25	40	±5.0	±1,500	±150.0	82	±1,020	2,500
B1506ERU	24	9.0 - 36.0	735	25	40	±12.0	±625	±62.5	85	±495	2,500
B1507ERU	24	9.0 - 36.0	735	25	40	±15.0	±500	±50.0	85	±165	2,500
B1511ERU	48	18.0 - 75.0	264	15	30	3.3	4,000	400.0	78	10,200	1,250
B1512ERU	48	18.0 - 75.0	381	15	30	5.0	3,000	300.0	82	4,020	1,250
B1513ERU	48	18.0 - 75.0	372	15	30	12.0	1,250	125.0	84	1,035	1,250
B1514ERU	48	18.0 - 75.0	372	15	30	15.0	1,000	100.0	84	705	1,250
B1515ERU	48	18.0 - 75.0	381	15	30	±5.0	±1,500	±150.0	82	±1,020	1,250
B1516ERU	48	18.0 - 75.0	368	15	30	±12.0	±625	±62.5	85	±495	1,250
B1517ERU	48	18.0 - 75.0	368	15	30	±15.0	±500	±50.0	85	±165	1,250

Notes:

- When measuring output ripple, it is recommended that an external 4.7 μF ceramic capacitor be placed from the +Vout pin to the -Vout pin for single output units and from each output to common for dual output units.
- 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. Recommended capacitor values are 100 μF for C_{IN} and 100 - 220 μF for C_{OUT}.
- Transient recovery is measured to within a 1% error band for a load step change of 75% to 100%.
- The maximum control current at the on/off pin (pin 6) during a logic high is 50 μA. The maximum control current to the on/off pin at logic low (-0.7V to 0.8V) is 1 mA. If the on/off pin is left open, the unit operates. If it is grounded, the unit will shut off.
- Operation at no-load will not damage these units. However, they may not meet all specifications.
- Dual output units may be connected to provide a 10 VDC, 24 VDC or 30 VDC output. To do this, connect the load across the positive (+Vout) and negative (-Vout) 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 table above for the correct rating.

Derating Curve



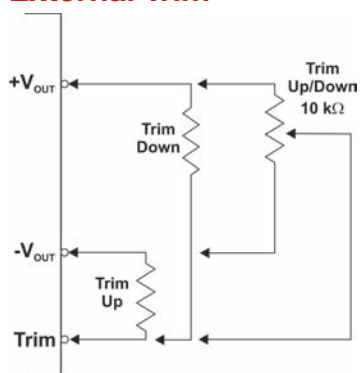
Remote ON/OFF

Parameter	Min	Max	Units
Supply On	3.5	12.0 or Open	VDC
Supply Off	Grnd	1.2	VDC
Control Common	Referenced to Gnd		

Remote ON/OFF Notes:

- Maximum sink current at the on/off pin (pin 6) during a logic low is 100 μA.
- Maximum allowable leakage current of a switch connected to the on/off terminal (Pin 6) at logic high (2.5V to 100V) is 5 μA.

External Trim



A simple external circuit may be used to adjust the converter output (single output models only). 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.

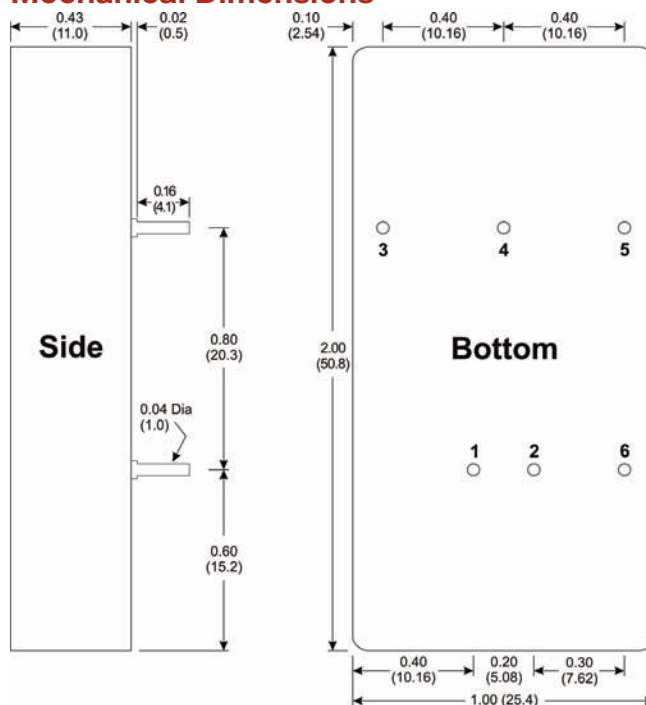
For UP/Down trimming capability, connect a 10 kW potentiometer between the plus and minus outputs with the wiper arm connected to the Vout trim pin.

The trim range is ±10%.

Pin Connections

Pin	Single	Dual	Pin	Single	Dual
1	+Vin	+Vin	4	Trim	Comm.
2	-Vin	-Vin	5	-Vout	-Vout
3	+Vout	+Vout	6	ON/OFF	ON/OFF

Mechanical Dimensions



Mechanical Notes:

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



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