

# I1500RW Series

## Ultra-Miniature 15W Wide 2:1 Input Range DC/DC Converters



### Key Features:

- 15W Output Power
- 2:1 Input Range
- Ultra-Miniature Case
- Optional Remote Control
- 1,600 VDC Isolation
- >800 kHour MTBF
- Standard Pin-Out



### 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				

#### Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Accuracy	Positive		±2.0		%
Line Regulation	V <sub>in</sub> = Min to Max		±0.5		%
Load Regulation	I <sub>out</sub> = 10% to 100%		±1.0		%
Ripple (20 MHz) (Note 1)	3.3V, 5V Output Models			75	mV P - P
	12V, 15V Output Models			100	
Noise (20 MHz) (Note 1)	3.3V, 5V Output Models			100	mV P - P
	12V, 15V Output Models			125	
Output Power Protection	See Note 2	120			%
Over Voltage Protection	Zener Diode Clamp				
Temperature Coefficient			±0.02		%/°C
Output Short Circuit	Continuous (Autorecovery)				

#### General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage	60 Seconds	1,600			VDC
Isolation Resistance	500 VDC	100			MΩ
Isolation Capacitance	100 kHz, 1V		1,000		pF
Switching Frequency	3.3V, 5V Output Models		450		kHz
	12V, 15V Output Models		300		

#### Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-40	+25	+85	°C
Operating Temperature Range	Case			+105	°C
Storage Temperature Range		-55		+105	°C
Cooling	Free Air Convection				
Derating	See Curve				
Humidity	RH, Non-condensing			95	%

#### Physical

Case Size	1.00 x 1.00 x 0.433 Inches (25.4 x 25.4 x 11.0 mm)				
Case Material	Six-Sided Shielded Aluminum With Non-Conductive Base (UL94-V0)				
Weight	0.52 Oz (15g)				

#### Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	800			kHours

#### 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

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

### MicroPower Direct

292 Page Street  
Suite D  
Stoughton, MA 02072  
USA

T: (781) 344-8226

F: (781) 344-8481

E: sales@micropowerdirect.com

W: www.micropowerdirect.com



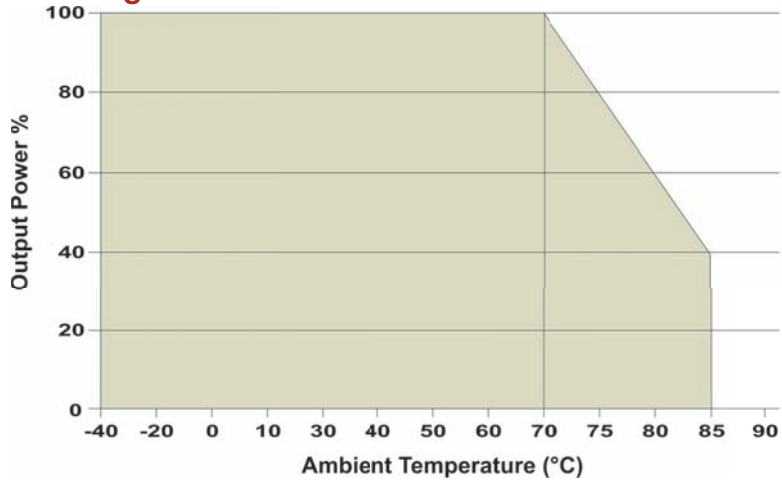
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Model Number	Input				Output			Efficiency (% Typ)	Capacitive Load (µF Max)	Fuse Rating Slow-Blow (mA)
	Voltage (VDC)		Current (mA)		Voltage (VDC)	Current (mA, Max)	Current (mA, Min)			
	Nominal	Range	Full-Load	No-Load						
I1501RW	12	9.0 - 18.0	1,470	30	3.3	3,500	350	85	1,600	3,000
I1502RW	12	9.0 - 18.0	1,404	30	5.0	3,000	300	89	1,600	3,000
I1503RW	12	9.0 - 18.0	1,420	30	12.0	1,250	125	88	470	3,000
I1504RW	12	9.0 - 18.0	1,420	30	15.0	1,000	100	88	330	3,000
I1511RW	24	18.0 - 36.0	727	20	3.3	3,500	350	86	1,600	1,500
I1512RW	24	18.0 - 36.0	702	20	5.0	3,000	300	89	1,600	1,500
I1513RW	24	18.0 - 36.0	702	20	12.0	1,250	125	89	470	1,500
I1514RW	24	18.0 - 36.0	702	20	15.0	1,000	100	89	330	1,500
I1521RW	48	36.0 - 75.0	372	10	3.3	3,500	350	84	1,600	750
I1522RW	48	36.0 - 75.0	355	10	5.0	3,000	300	88	1,600	750
I1523RW	48	36.0 - 75.0	355	10	12.0	1,250	125	88	470	750
I1524RW	48	36.0 - 75.0	355	10	15.0	1,000	100	88	330	750

Notes:

- When measuring output ripple, it is recommended that an external ceramic capacitor (approx 0.1 µF) be placed from the +Vout pin to the -Vout pin.
- Unit recovers automatically from an over power condition once the fault is removed.
- It is recommended that the units 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.
- 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.

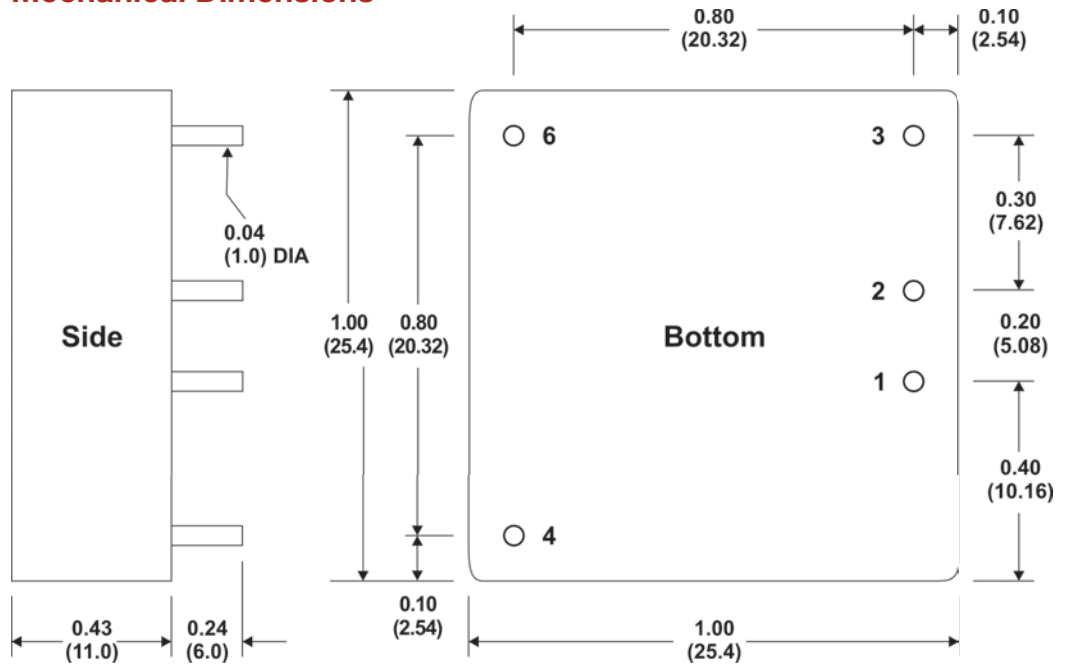
Derating Curve



Mechanical Dimensions

Pin Connections

Pin	Function
1	+Vin
2	-Vin
3	Control (Optional)
4	+Vout
5	No Pin
6	-Vout



Notes:

- All dimensions are typical in inches (mm)
- Tolerance x.xx = ±0.01 (±0.25)
- Pin 1 is marked by a "dot" on the top of the unit



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