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
- Remote On/Off Control
- 1,600 VDC Isolation
- >800 kHour MTBF
- Standard Pin-Out

RoHS

MicroPower Direct

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			±2.0		%
Line Regulation	Vin = Min to Max		±0.5		%
Load Regulation	Iout = 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.

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Model Selection Guide

Model Number	Input				Output			Over Voltage Protection (VDC)	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	1,132	90	3.3	3,500	350	3.9	85	1,600	3,000
I1502RW	12	9.0 - 18.0	1,404	90	5.0	3,000	300	6.2	89	1,600	3,000
I1503RW	12	9.0 - 18.0	1,420	50	12.0	1,250	125	15.0	88	470	3,000
I1504RW	12	9.0 - 18.0	1,420	50	15.0	1,000	100	18.0	88	330	3,000
I1511RW	24	18.0 - 36.0	560	45	3.3	3,500	350	3.9	86	1,600	1,500
I1512RW	24	18.0 - 36.0	702	45	5.0	3,000	300	6.2	89	1,600	1,500
I1513RW	24	18.0 - 36.0	702	25	12.0	1,250	125	15.0	89	470	1,500
I1514RW	24	18.0 - 36.0	702	25	15.0	1,000	100	18.0	89	330	1,500
I1521RW	48	36.0 - 75.0	287	28	3.3	3,500	350	3.9	84	1,600	750
I1522RW	48	36.0 - 75.0	355	28	5.0	3,000	300	6.2	88	1,600	750
I1523RW	48	36.0 - 75.0	355	15	12.0	1,250	125	15.0	88	470	750
I1524RW	48	36.0 - 75.0	355	15	15.0	1,000	100	18.0	88	330	750

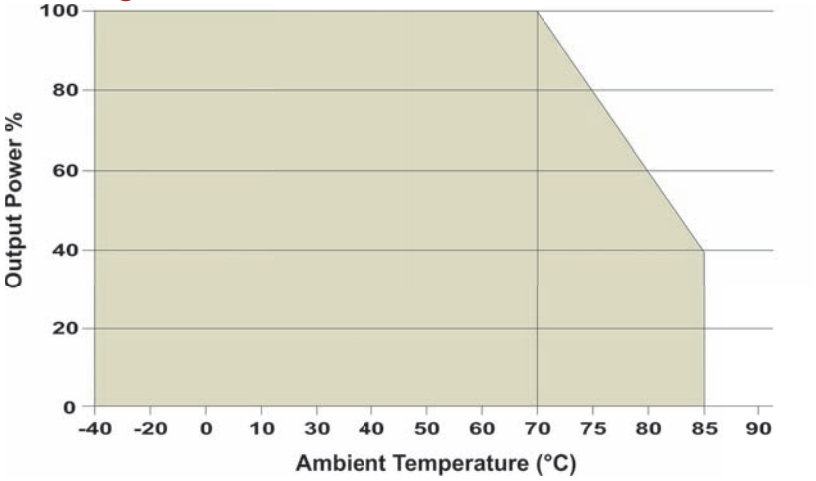
Notes:

1. 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.
2. Unit recovers automatically from an over power condition once the fault is removed.
3. Operation at no-load will not damage the unit, but they may not meet all specifications.
4. The On/Off Control input (Pin 3) is referenced to -Vin (Pin 1). If it is not used, the control pin should be left open.

	Min	Max
On	5.0 VDC	15.0 VDC
Off	0.0 VDC	0.3 VDC
In. Current (on)		-1 mA
In. Current (off)		1 mA

5. 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.

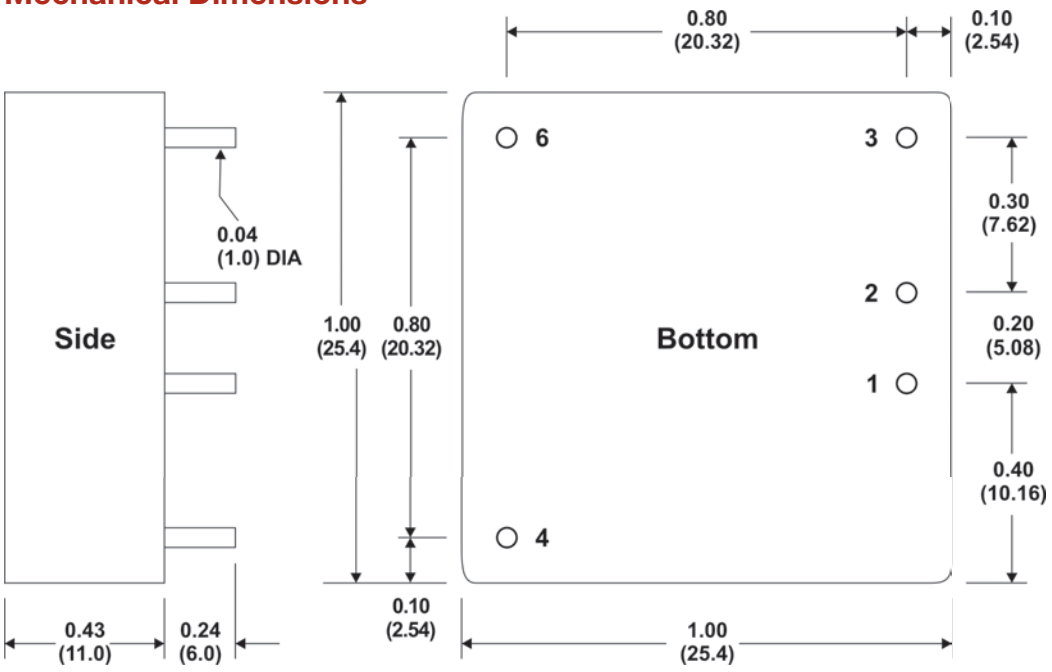
Derating Curve



Pin Connections

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

Mechanical Dimensions



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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