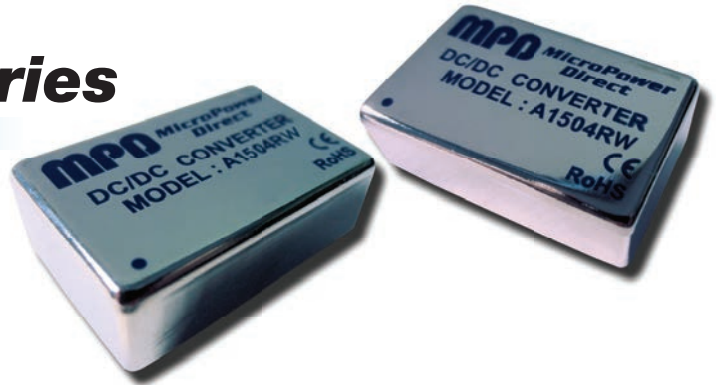


# A1500RW Series

## 2:1 Input Range, 15W Single & Dual Output DC/DC Converters



### Key Features:

- 15W Output Power
- 2:1 Input Voltage Range
- Compact DIP Case
- 1,600 VDC I/O Isolation
- Meets EN 55022 "A"
- Single & Dual Outputs
- 37.5 W/IN<sup>3</sup> Power Density
- Industry 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	π (Pi) Filter (Meets EN 55022 Class "A")					
Input Reflected Ripple Current			20.0		mA P - P	

Output						
Parameter	Conditions	Min.	Typ.	Max.	Units	
Output Voltage Accuracy			±1.0		%	
Line Regulation, V <sub>IN</sub> = Min to Max	Single Output			±0.2	%	
	Dual Output			±0.5		
Load Regulation, I <sub>OUT</sub> = 0% to 100%	Single Output			±0.5	%	
	Dual Output			±1.0		
Cross Regulation, Dual Output	See Note 1			±5.0	%	
Ripple & Noise (20 MHz)	See Note 2			60	mV P - P	
Output Power Protection			150		% I <sub>OUT</sub>	
Transient Recovery Time, See Note 3	25% Load Step Change		250		μSec	
Transient Response Deviation			±3.0		%	
Temperature Coefficient			±0.02		%/°C	
Output Short Circuit Protection	Continuous (Autorecovery)					

General						
Parameter	Conditions	Min.	Typ.	Max.	Units	
Isolation Voltage (Input/Output)	3 Seconds	1,600			VDC	
Isolation Voltage (Case/Input, Output)	3 Seconds	1,600			VDC	
Isolation Resistance	500 VDC	1,000			MΩ	
Isolation Capacitance	100 kHz/1V		2,000		pF	
Switching Frequency		250		330	kHz	

EMI Characteristics		
Parameter	Standard	Level
Radiated Emissions	EN 55022	Class A
Conducted Emissions	EN 55022	Class A
ESD	EN 61000-4-2	Criteria B
RS	EN 61000-4-3	Criteria A
EFT, See Note 4	EN 61000-4-4	Criteria B
Surge, See Note 4	EN 61000-4-5	Criteria B
CS	EN 61000-4-6	Criteria A
PFMF	EN 61000-4-8	Criteria A

Environmental						
Parameter	Conditions	Min.	Typ.	Max.	Units	
Operating Temperature Range	Ambient	-40		+85	°C	
Operating Temperature Range	Case			+105	°C	
Storage Temperature Range		-40		+125	°C	
Cooling	Free Air Convection					
Humidity	RH, Non-condensing		95		%	

Physical						
Case Size	1.25 x 0.80 x 0.40 Inches (31.8 x 20.3 x 10.2 mm)					
Case Material	Metal with Non-Conductive Base (UL94V-0)					
Weight	0.705 Oz (20g)					

Reliability Specifications						
Parameter	Conditions	Min.	Typ.	Max.	Units	
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	460			kHours	

Absolute Maximum Ratings						
Parameter	Conditions	Min.	Typ.	Max.	Units	
Input Voltage Surge (1 Sec)	12 VDC Input	-0.7		36.0	VDC	
	24 VDC Input	-0.7		50.0		
	48 VDC Input	-0.7		100.0		
Lead Temperature	1.5 mm From Case For 10 Sec			260	°C	

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

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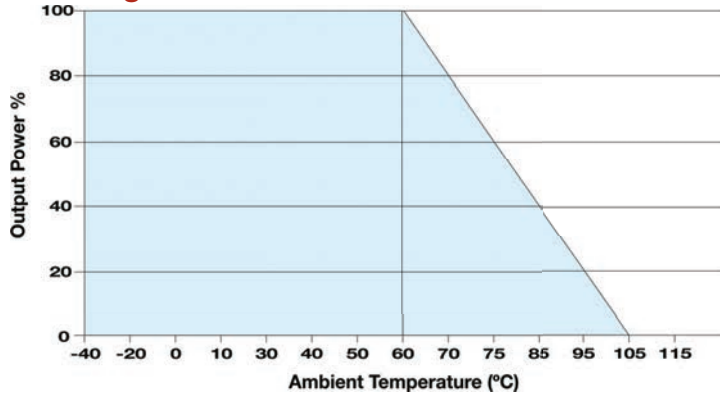
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Model Number	Input				Output			Over Voltage Protection (VDC)	Max Capacitive Load ( $\mu$ F Max)	Efficiency (% Typ)	Fuse Rating Slow-Blow (mA)
	Voltage (VDC)		Current (mA)		Voltage (VDC)	Current (mA, Max)	Current (mA, Min)				
	Nominal	Range	Full-Load	No-Load							
A1501RW	12	9.0 - 18.0	1,309	15	3.3	4,000	0.0	3.9	4,700	86	3,000
A1502RW	12	9.0 - 18.0	1,465	15	5.1	3,000	0.0	6.2	3,300	89	3,000
A1503RW	12	9.0 - 18.0	1,436	15	12.0	1,250	0.0	15.0	600	89	3,000
A1504RW	12	9.0 - 18.0	1,420	15	15.0	1,000	0.0	18.0	400	90	3,000
A1505RW	12	9.0 - 18.0	1,488	15	$\pm$ 5.0	$\pm$ 1,500	$\pm$ 0.0	$\pm$ 6.2	$\pm$ 1,500	86	3,000
A1506RW	12	9.0 - 18.0	1,420	15	$\pm$ 12.0	$\pm$ 625	$\pm$ 0.0	$\pm$ 15.0	$\pm$ 288	90	3,000
A1507RW	12	9.0 - 18.0	1,420	15	$\pm$ 15.0	$\pm$ 500	$\pm$ 0.0	$\pm$ 18.0	$\pm$ 200	90	3,000
A1511RW	24	18.0 - 36.0	647	10	3.3	4,000	0.0	3.9	4,700	87	1,500
A1512RW	24	18.0 - 36.0	732	10	5.1	3,000	0.0	6.2	3,300	89	1,500
A1513RW	24	18.0 - 36.0	710	10	12.0	1,250	0.0	15.0	600	90	1,500
A1514RW	24	18.0 - 36.0	702	10	15.0	1,000	0.0	18.0	400	91	1,500
A1515RW	24	18.0 - 36.0	744	10	$\pm$ 5.0	$\pm$ 1,500	$\pm$ 0.0	$\pm$ 6.2	$\pm$ 1,500	86	1,500
A1516RW	24	18.0 - 36.0	710	10	$\pm$ 12.0	$\pm$ 625	$\pm$ 0.0	$\pm$ 15.0	$\pm$ 288	90	1,500
A1517RW	24	18.0 - 36.0	710	10	$\pm$ 15.0	$\pm$ 500	$\pm$ 0.0	$\pm$ 18.0	$\pm$ 200	90	1,500
A1521RW	48	36.0 - 75.0	327	5	3.3	4,000	0.0	3.9	4,700	86	1,000
A1522RW	48	36.0 - 75.0	370	5	5.1	3,000	0.0	6.2	3,300	88	1,000
A1523RW	48	36.0 - 75.0	359	5	12.0	1,250	0.0	15.0	600	89	1,000
A1524RW	48	36.0 - 75.0	359	5	15.0	1,000	0.0	18.0	400	89	1,000
A1525RW	48	36.0 - 75.0	372	5	$\pm$ 5.0	$\pm$ 1,500	$\pm$ 0.0	$\pm$ 6.2	$\pm$ 1,500	86	1,000
A1526RW	48	36.0 - 75.0	359	5	$\pm$ 12.0	$\pm$ 625	$\pm$ 0.0	$\pm$ 15.0	$\pm$ 288	89	1,000
A1527RW	48	36.0 - 75.0	355	5	$\pm$ 15.0	$\pm$ 500	$\pm$ 0.0	$\pm$ 18.0	$\pm$ 200	90	1,000

**Notes:**

- When measuring cross regulation, the load on one output is varied from 25% to 100% while the other output is held at 100%.
- When measuring output ripple, it is recommended that an external 1.0  $\mu$ F 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. For noise sensitive applications, the use of 3.3  $\mu$ F capacitors will reduce the output ripple.
- Transient recovery is measured to within a 1% error band for a load step change of 75% to 50% to 25%.
- To meet the requirements of EN 61000-4-4 and EN 61000-4-5, an external filter capacitor is required. It is recommended that a 680  $\mu$ F/100V (or two 330  $\mu$ F/100V capacitors connected in parallel) be used.
- 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	3.0	12 or Open	VDC
Supply Off	0.0	1.2	VDC
Standby Input Current	5 mA Typical		
Control Common	Referenced to Neg. Input (pin 2,3)		

**Pin Connections**

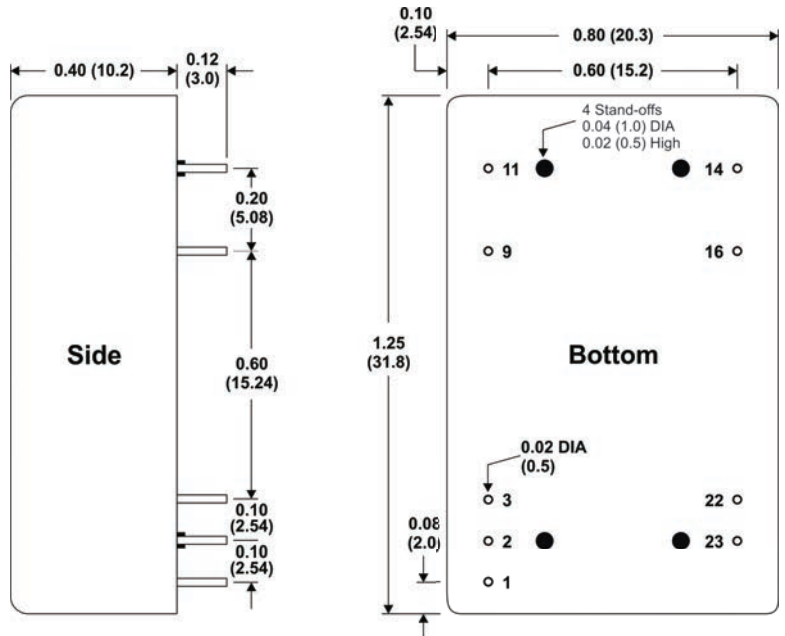
Pin	Single	Dual
1	Remote On/Off	Remote On/Off
2	-VIN	-VIN
3	-VIN	-VIN
9	No Pin	Common
11	NC	-VOUT
14	+VOUT	+VOUT
16	-VOUT	Common
22	+VIN	+VIN
23	+VIN	+VIN

NC: No Connection

**Mechanical Notes:**

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

**Mechanical Dimensions**



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