



# MicroPower Direct



3W, Ultra-Wide Input  
High Isolation  
DC/DC Converters  
**A300RUI Series**

## Key Features

- 4:1 Input Range
- 3W Output Power
- Tight Line/Load Regulation
- 3.5 kVDC I/O Isolation
- Single & Dual Outputs
- Low Cost

## Electrical Specifications

Specifications typical @ +25°C with 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	4.5	6.0	8.5	VDC
	48 VDC Input	8.5	12.0	17.0	
Input Filter	π (Pi) Filter				
Short Circuit Input Power				2,000	mW

### Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Accuracy			±0.5	±1.0	%
Output Voltage Balance	Dual Output , Balanced Loads		±0.5	±1.0	%
Line Regulation	V <sub>in</sub> = Min to Max		±0.2	±0.5	%
Load Regulation	I <sub>out</sub> = 10% to 100%		±0.2	±0.5	%
Ripple & Noise (20 MHz)				60	mV P - P
Output Power Protection		120			%
Transient Recovery Time (Note 1)	25% Load Step Change		150	500	μSec
Transient Response Deviation			±2.0		%
Temperature Coefficient			±0.01	±0.02	%/°C
Output Short Circuit	Continuous				

### General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage	60 Seconds	3,500			VDC
Isolation Resistance	500 VDC	1,000			MΩ
Isolation Capacitance	100 kHz, 1V		390		pF
Leakage Current			1.0		mA
Switching Frequency			300		kHz

### Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range		-40		+85	°C
Storage Temperature Range		-40		+125	°C
Cooling	Free Air Convection				
Humidity	RH, Non-condensing		90		%

### 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				
Weight	0.74 Oz (21g)				

### Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	950			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	
Internal Power Dissipation	All Models			2,500	mW

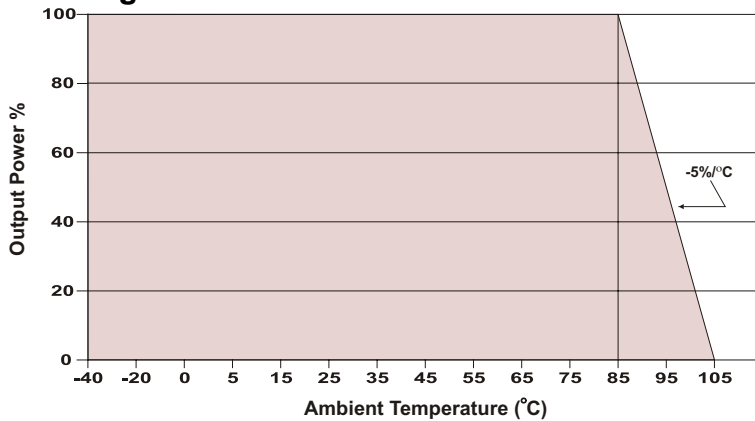
**Caution:** Exceeding Absolute Maximum Ratings may damage the module. These are not continuous operating ratings.

## Model Selection Guide

Model Number	Input				Reflected Ripple Current (mA, Typ)	Output			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						
A301RUI	24	9.0 - 36.0	166	12	5	5.0	600	60.0	75	1,000
A302RUI	24	9.0 - 36.0	158	12	5	12.0	250	25.0	79	1,000
A303RUI	24	9.0 - 36.0	158	12	5	15.0	200	20.0	79	1,000
A304RUI	24	9.0 - 36.0	166	12	5	±5.0	±300	±30.0	75	1,000
A305RUI	24	9.0 - 36.0	158	12	5	±12.0	±125	±12.0	79	1,000
A306RUI	24	9.0 - 36.0	158	12	5	±15.0	±100	±10.0	79	1,000
A311RUI	48	18.0 - 72.0	83	7	5	5.0	600	60.0	75	500
A312RUI	48	18.0 - 72.0	80	7	5	12.0	250	25.0	78	500
A313RUI	48	18.0 - 72.0	79	7	5	15.0	200	20.0	78	500
A314RUI	48	18.0 - 72.0	83	7	5	±5.0	±300	±30.0	76	500
A315RUI	48	18.0 - 72.0	80	7	5	±12.0	±125	±12.0	79	500
A316RUI	48	18.0 - 72.0	80	7	5	±15.0	±100	±10.0	79	500

- Notes:**
- Transient recovery is measured to within a 1% error band for a load step change of 75% to 100%.
  - Dual output units may be connected to provide a 10V, 24V or 30V output. To do this connect the load across the positive (+Vout) and negative (-Vout) outputs and float the output common.

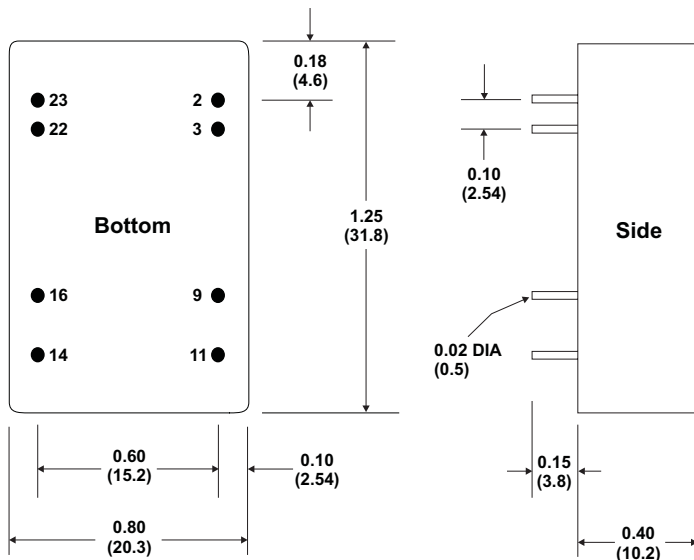
### Derating Curve



### Capacitive Load

Single Output (μF Max)	Dual Output (μF Max)
1,000	±220

### Mechanical Dimensions



### Pin Connections

Pin	Single	Dual
2, 3	-Vin	-Vin
9	No Pin	Common
11	NC	-Vout
14	+Vout	+Vout
16	-Vout	Common
22, 23	+Vin	+Vin

NC: No Connection

### Notes:

All dimensions are typical in inches (mm)

Tolerance x.xx = ±0.01 (±0.25)

Pin 1 is marked by a "dot" or indentation on the top of the unit



**MicroPower  
Direct**

232 Tosca Drive, Stoughton, MA 02072  
[www.micropowerdirect.com](http://www.micropowerdirect.com)  
[sales@micropowerdirect.com](mailto:sales@micropowerdirect.com)  
 phone: (781) 344 - 8226 • fax: (781) 344 - 8481