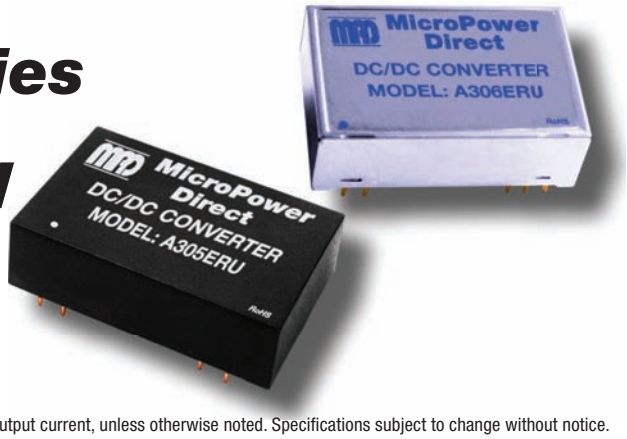
A300ERU Series

Low Cost, 4:1 Input 3W Single & Dual Output DC/DC Converters



Key Features:

- 3W Output Power
- 4:1 Input Voltage Range
- 1,500 VDC Isolation
- -40ºC to +85ºC Temp Range
- Compact DIP Case
- Single & Dual Outputs
- 1.0 MH MTBF
- Industry Standard Pin-Out
- ***Low, Low Cost!***

Another Cost Cutter Product From MPD

RoHS

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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 Voltage Range (See Note 1)	24 VDC Input	9.0	24.0	36.0	VDC
	48 VDC Input	18.0	48.0	72.0	
Input Filter	Capacitors				
Short Circuit Input Power			2,000		mW

Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Accuracy	See Note 2		±1.0	±3.0	%
Output Voltage Balance	Dual Output , Balanced Loads		±3.0		%
Line Regulation	Vin = Min to Max		±0.2	±0.5	%
Load Regulation	Iout = 10% to 100%		±0.5	±1.0	%
Ripple & Noise (20 MHz)	See Note 3		75	150	mV P - P
Output Power Protection		120			%
Temperature Coefficient				±0.03	%/ºC
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		pF
Switching Frequency			300		kHz

Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-40		+85	ºC
Storage Temperature Range		-55		+125	ºC
Cooling	Free Air Convection				
Humidity	RH, Non-condensing		95		%

Physical

Case Size (See Note 4)	1.25 x 0.80 x 0.37 Inches (31.8 x 20.3 x 9.5 mm)
Case Material (See Note 4)	Non-Conductive Black Plastic (UL94V-0)
Weight	0.52 Oz (15g)

Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25ºC, Gnd Benign	1.0			MHours

Absolute Maximum Ratings

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Voltage Surge (1 Sec)	24 VDC Input	-0.7		40.0	VDC
	48 VDC Input	-0.7		80.0	
Lead Temperature	1.5 mm From Case For 10 Sec			300	ºC
Internal Power Dissipation	All Models			2,500	mW

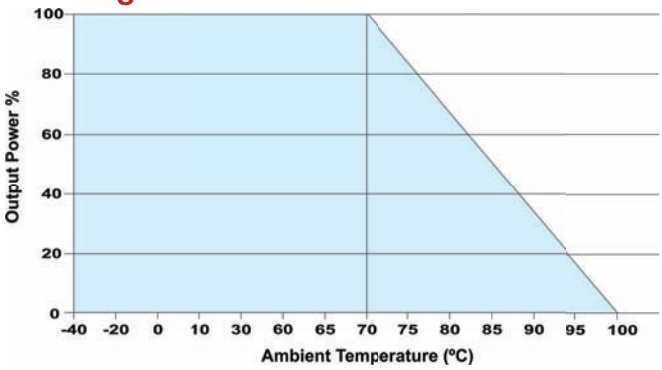
Caution: Exceeding Absolute Maximum Ratings may damage the module. These are not continuous operating ratings.

Model Selection Guide

Model Number	Input					Output			Efficiency (%, Typ)	Fuse Rating Slow-Blow (mA)
	Voltage (VDC)		Current (mA)		Reflected Ripple Current (mA, Typ)	Voltage (VDC)	Current (mA, Max)	Current (mA, Min)		
	Nominal	Range	Full-Load	No-Load						
A301ERU	24	9.0 - 36.0	169	16	10	3.3	909	90.0	74	750
A302ERU	24	9.0 - 36.0	164	16	10	5.0	600	60.0	76	750
A303ERU	24	9.0 - 36.0	157	16	10	12.0	250	25.0	80	750
A304ERU	24	9.0 - 36.0	157	16	10	15.0	200	20.0	80	750
A305ERU	24	9.0 - 36.0	164	16	10	±5.0	±300	±30.0	76	750
A306ERU	24	9.0 - 36.0	157	16	10	±12.0	±125	±12.0	80	750
A307ERU	24	9.0 - 36.0	157	16	10	±15.0	±100	±10.0	80	750
A311ERU	48	18.0 - 72.0	84	8	10	3.3	909	90.0	74	500
A312ERU	48	18.0 - 72.0	80	8	10	5.0	600	60.0	78	500
A313ERU	48	18.0 - 72.0	78	8	10	12.0	250	25.0	80	500
A314ERU	48	18.0 - 72.0	78	8	10	15.0	200	20.0	80	500
A315ERU	48	18.0 - 72.0	82	8	10	±5.0	±300	±30.0	76	500
A316ERU	48	18.0 - 72.0	78	8	10	±12.0	±125	±12.0	80	500
A317ERU	48	18.0 - 72.0	78	8	10	±15.0	±100	±10.0	80	500

For models with a metal case, add an "M" to the model number (ie: A315ERUM)

Derating Curve



Notes:

1. Exceeding the input range by a significant margin may damage the units. For 24V input the input voltage should not exceed 40V; for 48V models it should not exceed 80V.
2. Voltage accuracy for the negative output on Dual output models is typically ±3% with a max of ±5%.
3. Maximum ouput noise for dual output units is 150 mV P-P. When measuring output ripple, it is recommended that an external 0.33 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.
4. The optional metal package is nickel plated steel. The dimensions of the metal package are 1.25 x 0.80 x 0.39 Inches (31.8 x 20.3 x 10.0 mm).
5. These units should not be operated with a load under the specified minimum. Operation at no-load will increase ripple significantly and may cause damage to the unit.
6. 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:
   Vin: 10 µF - 47 µF
   Vout: 10 µF/100 mA
   For applications requiring very low output noise levels, a simple LC filter should be effective.
7. The maximum load capacitance is:

Vout	Maximum Load Capacitance	Vout	Maximum Load Capacitance
3.3 VDC	2,200 µF	±5 VDC	2,200 µF
5 VDC	1,000 µF	±12 VDC	1,000 µF
12 VDC	470 µF	±15 VDC	470 µF
15 VDC	330 µF		

8. 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.

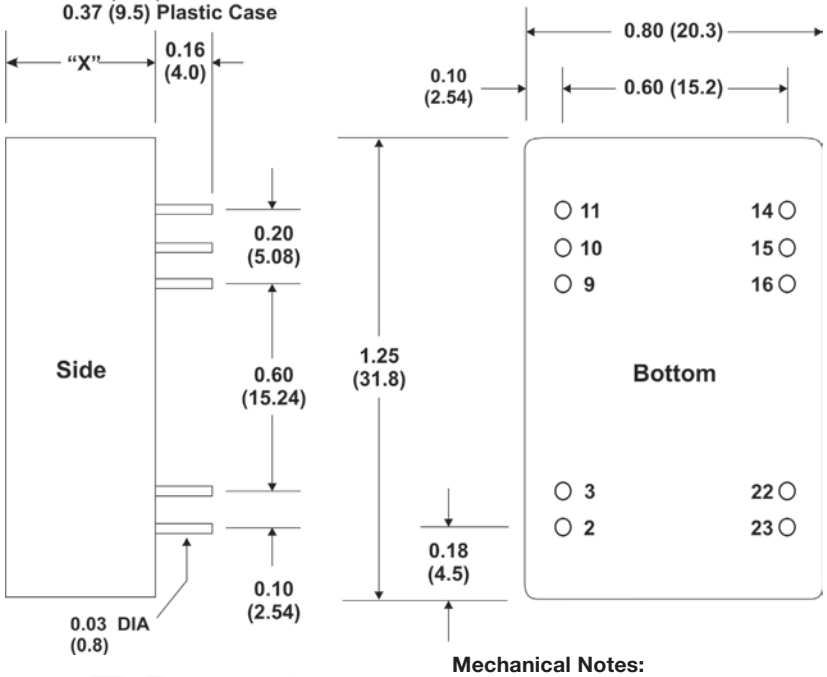
Pin Connections

Pin	Single	Dual
2, 3	-Vin	-Vin
9	NC	Common
10	NC	NC
11	NC	-Vout
14	+Vout	+Vout
15	NC	NC
16	-Vout	Common
22, 23	+Vin	+Vin

NC: No Connection

Mechanical Dimensions

"X" = 0.39 (10.0) Metal Case
0.37 (9.5) Plastic Case



Mechanical Notes:

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

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