



MicroPower Direct



2 - 3 Watts High Isolation
Single and Dual Output
DC/DC Converters

A200RI/A300RI Series

Key Features

- 24 Pin DIP Compatible Case
- Input π Filter
- 3000 VDC I/O Isolation
- 20 Single/Dual Output Models
- Short Circuit Protected
- 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	Nominal Input	Min.	Typ.	Max.	Units
Input Voltage Range	5 VDC Input Models	4.75	5.0	5.25	VDC
	12 VDC Input Models	10.8	12.0	13.2	
	24 VDC Input Models	21.6	24.0	26.4	
	48 VDC Input Models	43.2	48.0	52.8	
Input Filter	π Filter				
Short Circuit Input Power	All Models			2500	mW

Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Accuracy			±2.0	±4.0	%
Output Voltage Balance	Dual Output, Balanced Load		±1.0	±3.0	%
Line Regulation	For V_{in} = Min to Max		±0.2	±0.5	%
Load Regulation	For I_{out} = 10% to 100%		±0.2	±0.5	%
Ripple & Noise (20 MHz)			40	50	mV Pk-Pk
Ripple & Noise (20 MHz)	Over Line, Load & Temp.			75	mV Pk-Pk
Ripple & Noise (20 MHz)				5	mV rms
Output Power Protection		120			%
Temperature Coefficient			±0.01	±0.02	%/°C
Output Short Circuit Protection	Continuous				

General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage	60 Seconds	3000			VDC
Isolation Resistance	500 VDC	1000			MΩ
Isolation Capacitance	100 kHz, 1V		20	50	pF
Switching Frequency		40	80		kHz

Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature		-25	+25	+71	°C
Storage Temperature		-40		+125	°C
Humidity				95	%
Cooling	Free Air Convection				

Physical Characteristics

Case Size	1.25 x 0.8 x 0.40 Inches (31.8 x 20.3 x 10.2 mm)
Case Material	Non-Conductive Black Plastic
Weight	0.42 Oz (12.0g)

Absolute Maximum Ratings

Parameter	Nominal Input	Min.	Typ.	Max.	Units
Input Voltage Surge (1Sec)	5 VDC Input Models	-0.7		7.5	VDC
	12 Vdc Input Models	-0.7		15.0	
	24 VDC Input Models	-0.7		30.0	
	48 VDC Input Models	-0.7		55.0	
Internal Power Dissipation	All Models			3000	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.
	Nominal Voltage (VDC)	Current (mA)		Reflected Ripple Current (mA, Typ.)	Voltage (VDC)	Current (mA, Max.)	
		Full-Load	No-Load				
A201RI	5	666.0	120.0	67.0	5.0	400	60
A202RI	5	660.0	120.0	67.0	12.0	165	63
A203RI	5	665.0	120.0	67.0	15.0	133	63
A204RI	5	664.0	120.0	67.0	±12.0	±83	62
A205RI	5	660.0	120.0	66.0	±15.0	±66	62
A211RI	12	277.0	50.0	28.0	5.0	400	60
A212RI	12	275.0	50.0	28.0	12.0	165	63
A313RI	12	416.0	50.0	42.0	15.0	200	63
A214RI	12	276.0	50.0	28.0	±12.0	±83	63
A315RI	12	416.0	50.0	42.0	±15.0	±100	62
A221RI	24	138.0	25.0	14.0	5.0	400	60
A222RI	24	137.0	25.0	14.0	12.0	165	63
A323RI	24	208.0	25.0	21.0	15.0	200	63
A224RI	24	138.0	25.0	14.0	±12.0	±83	62
A325RI	24	208.0	25.0	21.0	±15.0	±100	62
A231RI	48	69.0	15.0	7.0	5.0	400	60
A232RI	48	69.0	15.0	7.0	12.0	165	63
A333RI	48	104.0	15.0	11.0	15.0	200	63
A234RI	48	69.0	15.0	7.0	±12.0	±83	62
A335RI	48	104.0	15.0	11.0	±15.0	±100	62

Note: For proper operation, a minimum output load of 10% must be maintained on each output.

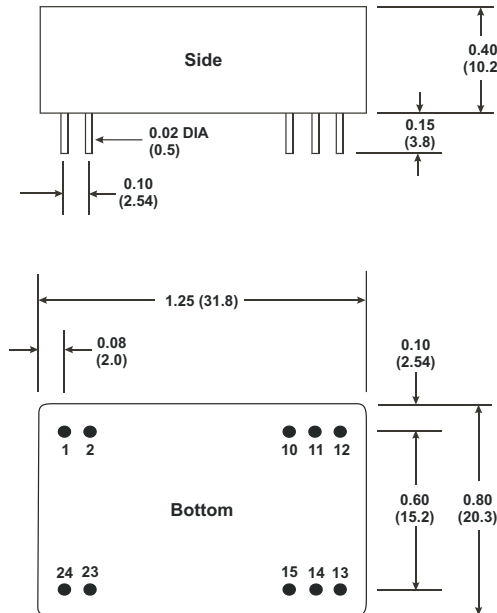
Input Voltage Range Vs Output Load

Nominal Input	Input Voltage Range vs Output Load @:			
	20% Load	40% Load	60% Load	100% Load
5 VDC	4.35 - 6.0	4.75 - 5.7	4.65 - 5.6	4.75 - 5.25
12 VDC	10.3 - 15.0	10.4 - 14.6	10.7 - 13.6	10.7 - 13.2
24 VDC	20.4 - 30.3	20.6 - 29.0	21.0 - 27.0	21.6 - 26.4
48 VDC	41.3 - 60.0	42.0 - 58.0	42.3 - 54.4	43.2 - 52.8

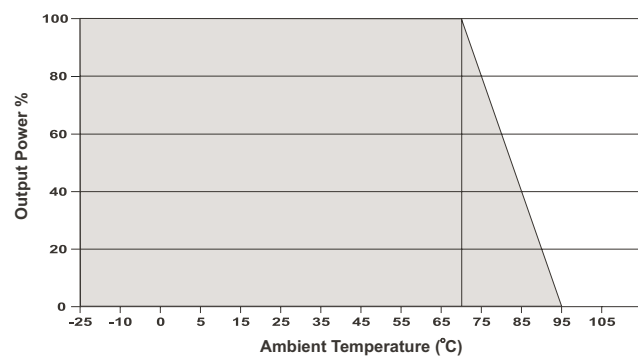
Pin Connections

Pin	Single Output	Dual Output
1, 2	+V _{in}	+V _{in}
10,11	No Connection	Common
12	-V _{out}	No Connection
13	+V _{out}	-V _{out}
14	No Connection	No Connection
15	No Connection	+V _{out}
23,24	-V _{in}	-V _{in}

Mechanical Dimensions



Derating Curve



Note: 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



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