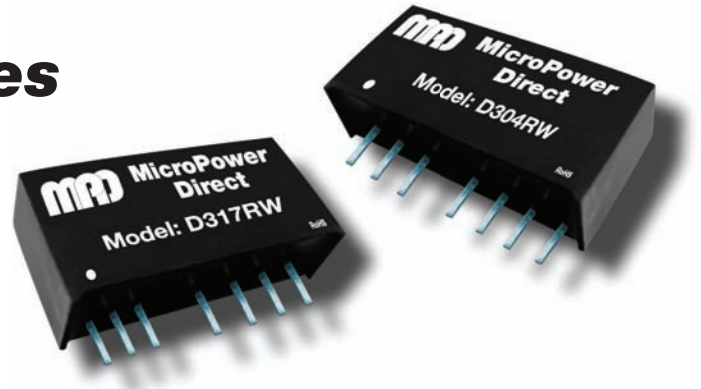


D300RW Series

Single & Dual Output 3W SIP, Wide Input DC/DC Converters



Key Features:

- 3W Output Power
- 2:1 Input Voltage Range
- 1,500 VDC Isolation
- Short Circuit Protected
- Miniature SIP Case
- Single & Dual Outputs
- 1.0 MH MTBF
- Industry Standard Pin-Out



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	
Short Circuit Input Power			1,500		mW

Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Accuracy			±1.0	±3.0	%
Output Voltage Balance			±1.0	±2.0	%
Line Regulation	V _{in} = Min to Max		±0.2	±0.5	%
Load Regulation, Single Output	I _{out} = 10% to 100%		±0.5	±0.75	%
Load Regulation, Dual Output	I _{out} = 10% to 100%		±0.5	±1.0	%
Ripple & Noise (20 MHz) (Note 1)			50	100	mV P - P
Output Power Protection		120			%
Temperature Coefficient				±0.03	%/°C
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 kHz, 1V		80		pF
Switching Frequency	I _{out} = 100%	200		500	kHz

Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-40	+25	+85	°C
Storage Temperature Range		-50		+125	°C
Cooling	Free Air Convection				
Humidity	RH, Non-condensing			95	%

Physical

Case Size	0.87 x 0.47 x 0.37 Inches (22.0 x 12.0 x 9.50 mm)				
Case Material	Non-Conductive Black Plastic (UL94-V0)				
Weight	0.20 Oz (6.0g)				

Reliability Specifications

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

Absolute Maximum Ratings

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Voltage Surge (1 Sec)	12 VDC Input	-0.7		22.0	VDC
	24 VDC Input	-0.7		40.0	
Lead Temperature	1.5 mm From Case For 10 Sec			300	°C
Internal Power Dissipation	All Models			1,800	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)		Voltage (VDC)	Current (mA, Max)	Current (mA, Min)		
	Nominal	Range	Full-Load	No-Load					
D301RW	12	9.0 - 18.0	320	22	5.0	600.0	60.0	78	700
D302RW	12	9.0 - 18.0	316	22	9.0	333.0	33.0	79	700
D303RW	12	9.0 - 18.0	312	22	12.0	250.0	25.0	80	700
D304RW	12	9.0 - 18.0	312	22	15.0	200.0	20.0	80	700
D305RW	12	9.0 - 18.0	320	22	±5.0	±300.0	±30.0	78	700
D306RW	12	9.0 - 18.0	316	22	±9.0	±167.0	±17.0	79	700
D307RW	12	9.0 - 18.0	312	22	±12.0	±125.0	±13.0	80	700
D308RW	12	9.0 - 18.0	312	22	±15.0	±100.0	±10.0	80	700
D311RW	24	18.0 - 36.0	160	10	5.0	600.0	60.0	78	350
D312RW	24	18.0 - 36.0	158	10	9.0	333.0	33.0	79	350
D313RW	24	18.0 - 36.0	156	10	12.0	250.0	25.0	80	350
D314RW	24	18.0 - 36.0	154	10	15.0	200.0	20.0	81	350
D315RW	24	18.0 - 36.0	160	10	±5.0	±300.0	±30.0	78	350
D316RW	24	18.0 - 36.0	158	10	±9.0	±167.0	±17.0	79	350
D317RW	24	18.0 - 36.0	156	8	±12.0	±125.0	±13.0	80	350
D318RW	24	18.0 - 36.0	154	8	±15.0	±100.0	±10.0	81	350

Notes:

- When measuring output ripple, it is recommended that an external ceramic capacitor (approx. 1 µF to 10 µF) be placed from the +Vout pin to the -Vout pin for single output units and from each output to common for dual output units.
- These units should not be operated with a load under 10% of full load. Operation at no-load may cause damage to the unit.
- 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 given in the table at right.

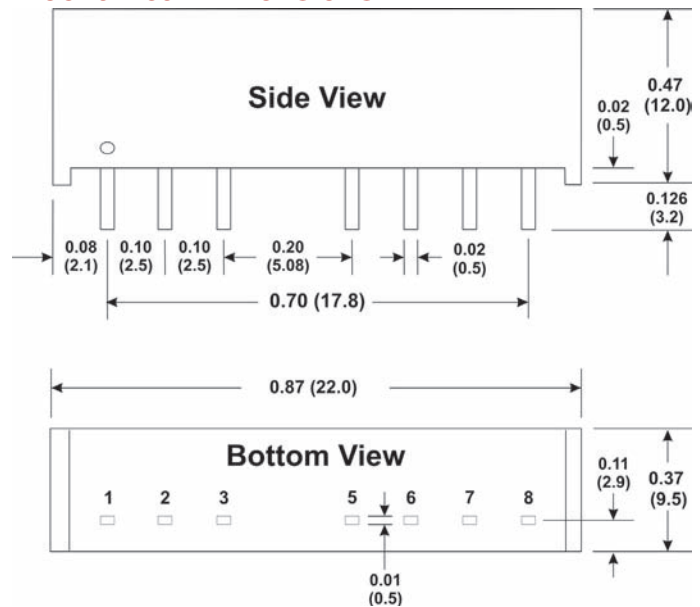
Vin	Input Capacitor	Vout	Output Capacitor	
			0 - 70°C (Electrolytic)	-40 - 85°C (Tantalum)
12 VDC	100 µF	5 VDC	100 µF	47 µF
24 VDC	10 - 47 µF	9 VDC	100 µF	47 µF
		12 VDC	100 µF	47 µF
		15 VDC	100 µF	47 µF

Using simple LC filter networks on the input/output will provide further improvement. This only requires the addition of small inductors to the input/output filter circuits. Recommended values are 4.7 µH to 120 µH for an input inductor and 2.2 µH to 10 µH for an output inductor. Output ripple on single output units may be further enhanced by using the CS terminal (single output units operated at 50% load or below should use this function). A low ESR capacitor is connected between the CS pin and the -Vout pin (the anode of the capacitor is connected to the -Vout pin). Recommended capacitor values are given in the table at right. If not used, the CS pin should be left open.

CS	Output Voltage			
	5V	9V	12V	15V
	47 µF - 100 µF	22 µF - 47 µF		
- Dual output units may be connected to provide a 10V, 18V, 24V or 30VDC output. To do this, connect the load across the +Vout and -Vout outputs and float the output common.
- The remote on/off control pin is referenced to the -Vin pin (pin 1). Input current to the pin should be between 5 - 10 mA with a maximum of 20 mA.
- 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.

	Min	Max
On	<0.6 VDC to Open Circuit	
Off	2.7 VDC	15.0 VDC

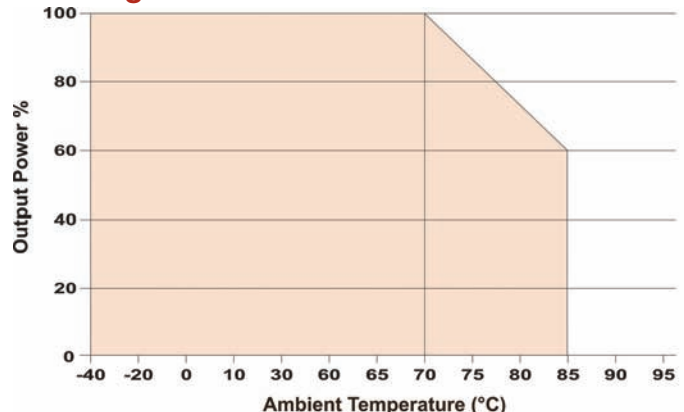
Mechanical Dimensions



Mechanical Notes:

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

Derating Curve



Capacitive Load

Output	Max Cap Load
5.0 VDC	2,200 µF
9.0 VDC	1,000 µF
12.0 VDC	820 µF
15.0 VDC	680 µF
±5.0 VDC	±560 µF
±9.0 VDC	±470 µF
±12.0 VDC	±330 µF
±15.0 VDC	±220 µF

Pin Connections

Pin	Single	Dual
1	-Vin	-Vin
2	+Vin	+Vin
3	Remote ON/OFF	
5	NF	NF
6	+Vout	+Vout
7	-Vout	Common
8	CS	-Vout

NF = No Function



MicroPower Direct
We Power Your Success - For Less!