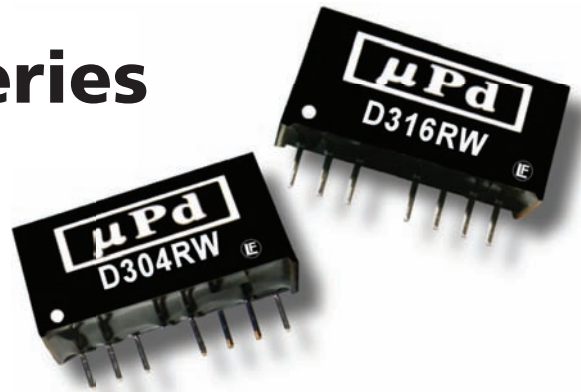


# D300RW Series

## 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



RoHS Compliant

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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	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	Vin = Min to Max		±0.2	±0.5	%
Load Regulation, Single Output	Iout = 10% to 100%		±0.5	±0.75	%
Load Regulation, Dual Output	Iout = 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	Iout = 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  $\mu\text{F}$  to 10  $\mu\text{F}$ ) 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. 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  $\mu\text{H}$  to 120  $\mu\text{H}$  for an input inductor and 2.2  $\mu\text{H}$  to 10  $\mu\text{H}$  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 above. If not used, the CS pin should be left open.
- Dual output units may be connected to provide a 10V, 18V, 24V or 30 VDC 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.

Vin	Input Capacitor	Vout	Output Capacitor	
			0 - 70°C (Electrolytic)	-40 - 85°C (Tantalum)
12 VDC	100 $\mu\text{F}$	5 VDC	100 $\mu\text{F}$	47 $\mu\text{F}$
24 VDC	10 - 47 $\mu\text{F}$	9 VDC	100 $\mu\text{F}$	47 $\mu\text{F}$
		12 VDC	100 $\mu\text{F}$	47 $\mu\text{F}$
		15 VDC	100 $\mu\text{F}$	47 $\mu\text{F}$

CS	Output Voltage			
	5V	9V	12V	15V
	47 $\mu\text{F}$ - 100 $\mu\text{F}$	22 $\mu\text{F}$ - 47 $\mu\text{F}$		

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

### Capacitive Load

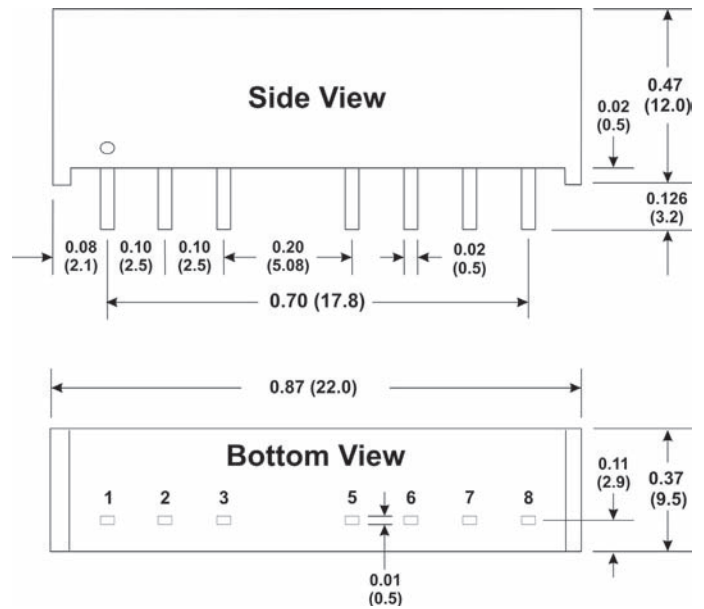
Output	Max Cap Load
5.0 VDC	2,200 $\mu\text{F}$
9.0 VDC	1,000 $\mu\text{F}$
12.0 VDC	820 $\mu\text{F}$
15.0 VDC	680 $\mu\text{F}$
±5.0 VDC	±560 $\mu\text{F}$
±9.0 VDC	±470 $\mu\text{F}$
±12.0 VDC	±330 $\mu\text{F}$
±15.0 VDC	±220 $\mu\text{F}$

### 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

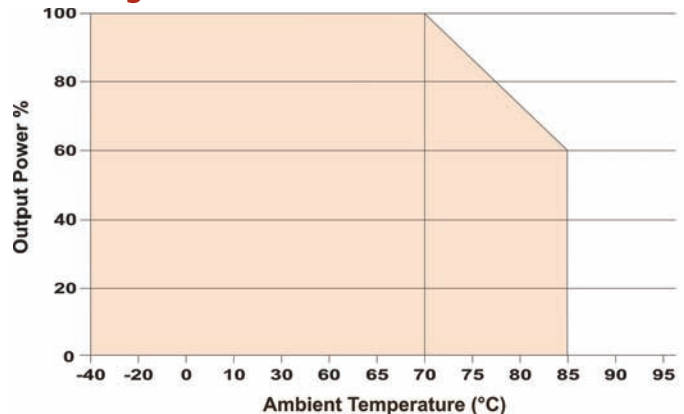
## Mechanical Dimensions



### Mechanical Notes:

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

## Derating Curve



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