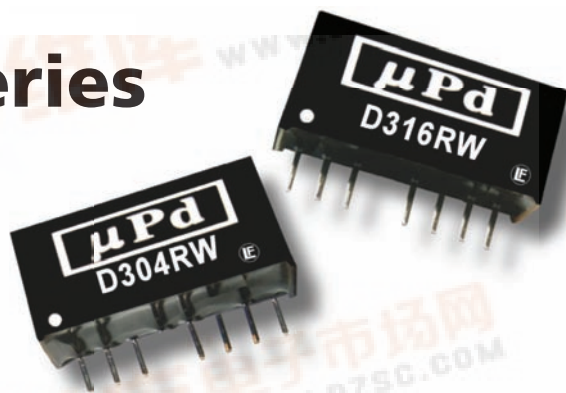


# D300RW Series

查询"D316RW"供应商

## 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

### MicroPower Direct

292 Page Street  
Suite D  
Stoughton, MA 02072  
USA

T: (781) 344-8226  
F: (781) 344-8481  
E: sales@micropowereirect.com  
W: www.micropowereirect.com

### 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

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| Model Number | Voltage (VDC) |             | Current (mA) |         | Output        |                   |                   | Efficiency (% Typ) | Fuse Rating Slow-Blow (mA) |
|--------------|---------------|-------------|--------------|---------|---------------|-------------------|-------------------|--------------------|----------------------------|
|              | Nominal       | Range       | Full-Load    | No-Load | Voltage (VDC) | Current (mA, Max) | Current (mA, Min) |                    |                            |
| 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                        |

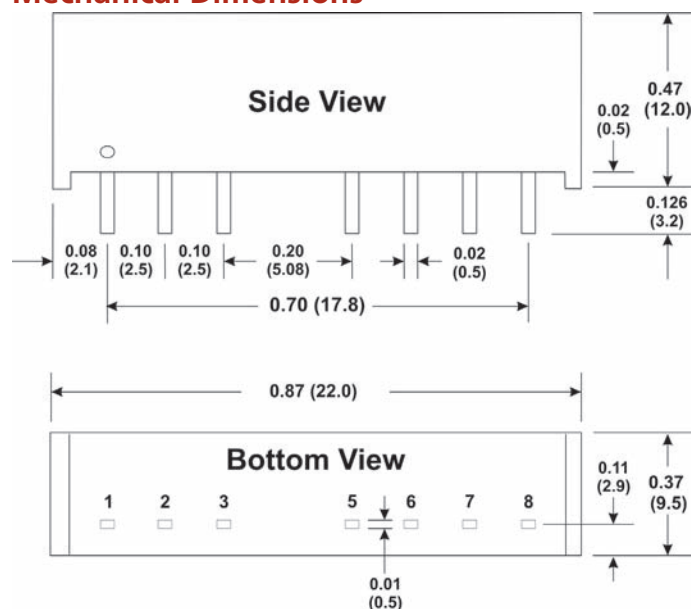
### Notes:

- 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 $\mu\text{F}$      |

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

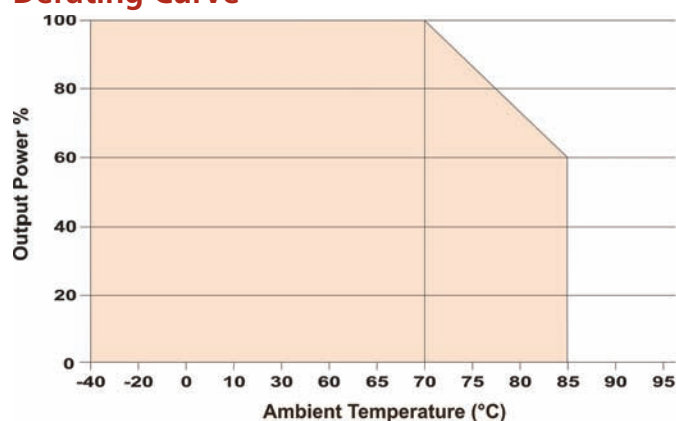
## Mechanical Dimensions



### Mechanical Notes:

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

## Derating Curve



## 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



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