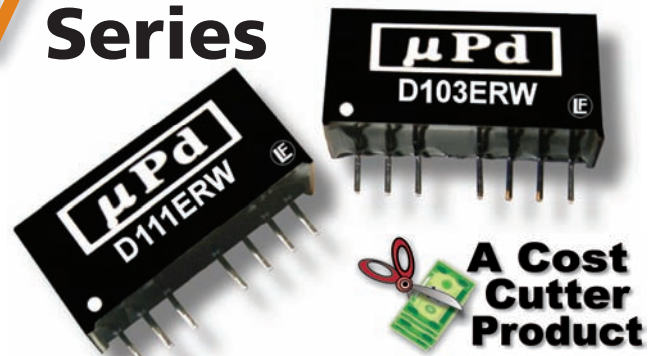


# D100ERW Series

## Low Cost, Miniature 1W SIP, Wide Input DC/DC Converters



### Key Features:

- 1W 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
- **Low Low Cost!!**



**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	5 VDC Input	4.5	5.0	9.0	VDC
	12 VDC Input	9.0	12.0	18.0	
	24 VDC Input	18.0	24.0	36.0	
	48 VDC Input	36.0	48.0	72.0	
Reverse Polarity Input Current				1.0	A
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)			25	100	mV P - P
Output Power Protection		120			%
Temperature Coefficient				±0.03	%/°C
Output Short Circuit	Continuous with 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%	180		550	kHz

#### Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-40	+25	+85	°C
Storage Temperature Range		-55		+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	0.19 Oz (5.5g)

#### 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)	5 VDC Input	-0.7		11.0	VDC
	12 VDC Input	-0.7		22.0	
	24 VDC Input	-0.7		40.0	
	48 VDC Input	-0.7		80.0	
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					
D101ERW	5	4.5 - 9.0	303	40	3.3	303.0	30.0	66	750
D102ERW	5	4.5 - 9.0	286	40	5.0	200.0	20.0	70	750
D103ERW	5	4.5 - 9.0	273	40	12.0	83.0	8.0	73	750
D104ERW	5	4.5 - 9.0	277	40	15.0	67.0	12.0	72	750
D105ERW	5	4.5 - 9.0	286	40	24.0	42.0	4.0	70	750
D106ERW	5	4.5 - 9.0	282	40	±5.0	±100.0	±10.0	71	750
D107ERW	5	4.5 - 9.0	273	40	±12.0	±42.0	±4.0	73	750
D108ERW	5	4.5 - 9.0	273	40	±15.0	±33.0	±3.0	73	750
D109ERW	5	4.5 - 9.0	282	40	±24.0	±21.0	±2.0	71	750
D111ERW	12	9.0 - 18.0	122	20	3.3	303.0	30.0	68	400
D112ERW	12	9.0 - 18.0	111	20	5.0	200.0	20.0	75	400
D113ERW	12	9.0 - 18.0	106	20	12.0	83.0	8.0	78	400
D114ERW	12	9.0 - 18.0	106	20	15.0	67.0	12.0	78	400
D115ERW	12	9.0 - 18.0	108	20	24.0	42.0	4.0	77	400
D116ERW	12	9.0 - 18.0	111	20	±5.0	±100.0	±10.0	75	400
D117ERW	12	9.0 - 18.0	108	20	±12.0	±42.0	±4.0	77	400
D118ERW	12	9.0 - 18.0	110	20	±15.0	±33.0	±3.0	76	400
D119ERW	12	9.0 - 18.0	108	20	±24.0	±21.0	±2.0	77	400
D121ERW	24	18.0 - 36.0	60	10	3.3	303.0	30.0	70	150
D122ERW	24	18.0 - 36.0	57	10	5.0	200.0	20.0	73	150
D123ERW	24	18.0 - 36.0	53	10	12.0	83.0	8.0	78	150
D124ERW	24	18.0 - 36.0	55	10	15.0	67.0	12.0	76	150
D125ERW	24	18.0 - 36.0	54	10	24.0	42.0	4.0	77	150
D126ERW	24	18.0 - 36.0	55	10	±5.0	±100.0	±10.0	76	150
D127ERW	24	18.0 - 36.0	54	10	±12.0	±42.0	±4.0	78	150
D128ERW	24	18.0 - 36.0	53	10	±15.0	±33.0	±3.0	78	150
D129ERW	24	18.0 - 36.0	53	10	±24.0	±21.0	±2.0	78	150
D131ERW	48	36.0 - 72.0	29	5	3.3	303.0	30.0	71	75
D132ERW	48	36.0 - 72.0	29	5	5.0	200.0	20.0	73	75
D133ERW	48	36.0 - 72.0	27	5	12.0	83.0	8.0	78	75
D134ERW	48	36.0 - 72.0	27	5	15.0	67.0	12.0	76	75
D135ERW	48	36.0 - 72.0	27	5	24.0	42.0	4.0	78	75
D136ERW	48	36.0 - 72.0	28	5	±5.0	±100.0	±10.0	75	75
D137ERW	48	36.0 - 72.0	27	5	±12.0	±42.0	±4.0	78	75
D138ERW	48	36.0 - 72.0	27	5	±15.0	±33.0	±3.0	78	75
D139ERW	48	36.0 - 72.0	27	5	±24.0	±21.0	±2.0	76	75

### 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.

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 $\mu\text{F}$
15 VDC	100 $\mu\text{F}$	12 VDC	100 $\mu\text{F}$	47 $\mu\text{F}$
24 VDC	10 $\mu\text{F}$	15 VDC	100 $\mu\text{F}$	47 $\mu\text{F}$
48 VDC	10 $\mu\text{F}$			

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.

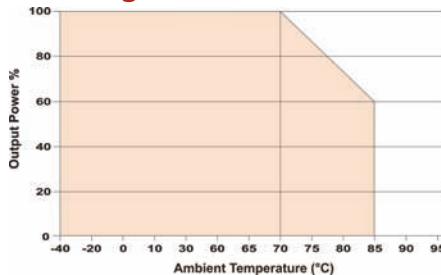
	Output Voltage				
	3.3V	5V	12V	15V	24V
CS	47 $\mu\text{F}$ - 100 $\mu\text{F}$		22 $\mu\text{F}$ - 47 $\mu\text{F}$		

- Dual output units may be connected to provide a 10V, 24V, 30V or 48 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. 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.

### Mechanical Notes:

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

## Derating Curve

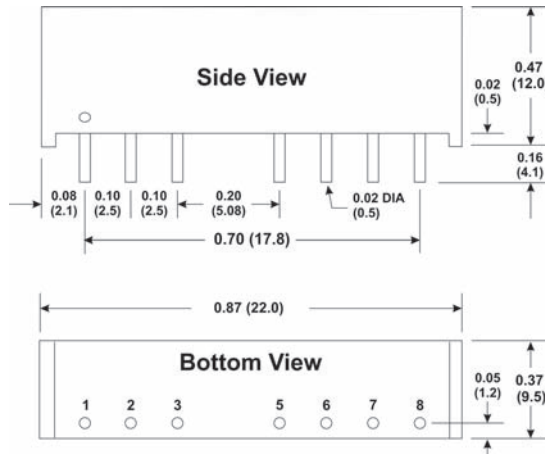


## Pin Connections

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



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