

# D100EI Series

## Low Cost, 1W High Isolation SIP DC/DC Converters



### Key Features:

- 1W Output Power
- 3,000 VDC Isolation
- Miniature SIP Case
- Single & Dual Outputs
- >1 MHour MTBF
- 24 Standard Models
- **LOWEST COST!!**

### 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	5.5	VDC
	12 VDC Input	10.8	12.0	13.2	
	24 VDC Input	21.6	24.0	26.4	
Input Filter	Internal Capacitor				
Reverse Polarity Input Current				0.3	A

#### Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Accuracy			±1.0	±3.0	%
Output Voltage Balance	Dual Output , Balanced Loads		±0.1	±1.0	%
Line Regulation	For Vin Change of 1%		±1.2		%
Load Regulation (Note 1)	See Model Selection Guide				
Ripple & Noise (20 MHz) (Note 2)			50	75	mV P - P
Output Power Protection		120			%
Temperature Coefficient			±0.02	±0.03	%/°C
Output Short Circuit	Momentary (1.0 Sec.)				

#### General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage	60 Seconds	3,000			VDC
Isolation Resistance	500 VDC	1,000			MΩ
Isolation Capacitance	100 kHz, 1V		60		pF
Switching Frequency		100	150	200	kHz

#### Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-40	+25	+85	°C
Operating Temperature Range	Case	-40		+90	°C
Storage Temperature Range		-55		+125	°C
Cooling	Free Air Convection				
Humidity	RH, Non-condensing			95	%

#### Physical

Case Size	0.77 x 0.24 x 0.40 Inches (19.6 x 6.0 x 10.2 mm)				
Case Material	Non-Conductive Black Plastic (UL94-V0)				
Weight	0.07 Oz (2.1g)				

#### 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		9.0	VDC
	12 VDC Input	-0.7		18.0	
	24 VDC Input	-0.7		30.0	
Lead Temperature	1.5 mm From Case For 10 Sec			300	°C
Internal Power Dissipation	All Models			450	mW

**Caution:** Exceeding Absolute Maximum Ratings may damage the module. These are not continuous operating ratings.

### MicroPower Direct

232 Tosca Drive  
Stoughton, MA 02072  
USA

T: (781) 344-8226

F: (781) 344-8481

E: sales@micropowerelectronics.com

W: www.micropowerelectronics.com



## Model Selection Guide

Model Number	Input				Output			Load Regulation (% Max)	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						
D101EI	5	4.5 - 5.5	256	30	5.0	200.0	20.0	15	78	500
D102EI	5	4.5 - 5.5	256	30	9.0	111.0	12.0	15	78	500
D103EI	5	4.5 - 5.5	250	30	12.0	83.0	9.0	15	80	500
D104EI	5	4.5 - 5.5	247	30	15.0	67.0	7.0	15	81	500
D105EI	5	4.5 - 5.5	278	30	±5.0	±100.0	±10.0	15	72	500
D106EI	5	4.5 - 5.5	267	30	±9.0	±56.0	±6.0	15	78	500
D107EI	5	4.5 - 5.5	247	30	±12.0	±42.0	±5.0	15	81	500
D108EI	5	4.5 - 5.5	250	30	±15.0	±33.0	±4.0	15	80	500
D111EI	12	10.8 - 13.2	107	15	5.0	200.0	20.0	15	78	200
D112EI	12	10.8 - 13.2	104	15	9.0	111.0	12.0	15	80	200
D113EI	12	10.8 - 13.2	103	15	12.0	83.0	9.0	15	81	200
D114EI	12	10.8 - 13.2	104	15	15.0	67.0	7.0	15	80	200
D115EI	12	10.8 - 13.2	114	15	±5.0	±100.0	±10.0	15	75	200
D116EI	12	10.8 - 13.2	104	15	±9.0	±56.0	±6.0	15	80	200
D117EI	12	10.8 - 13.2	103	15	±12.0	±42.0	±5.0	15	81	200
D118EI	12	10.8 - 13.2	105	15	±15.0	±33.0	±4.0	15	79	200
D121EI	24	21.6 - 26.4	53	8	5.0	200.0	20.0	15	78	100
D122EI	24	21.6 - 26.4	53	8	9.0	111.0	12.0	15	79	100
D123EI	24	21.6 - 26.4	53	8	12.0	83.0	9.0	15	79	100
D124EI	24	21.6 - 26.4	53	8	15.0	67.0	7.0	15	79	100
D125EI	24	21.6 - 26.4	58	8	±5.0	±100.0	±10.0	15	72	100
D126EI	24	21.6 - 26.4	55	8	±9.0	±56.0	±6.0	15	78	100
D127EI	24	21.6 - 26.4	53	8	±12.0	±42.0	±5.0	15	78	100
D128EI	24	21.6 - 26.4	52	8	±15.0	±33.0	±4.0	15	80	100

### Notes:

- Output load regulation is specified for a load change of 10% to 100%.
- 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 will operate without external components. However, when measuring output ripple, it is recommended that an external ceramic capacitor be placed

Vin	Input Capacitor	Vout	Output Capacitor	
			Single	Dual
5 VDC	4.7 $\mu$ F	5 VDC	10.0 $\mu$ F	4.7 $\mu$ F
12 VDC	2.2 $\mu$ F	9 VDC	4.7 $\mu$ F	2.2 $\mu$ F
24 VDC	1.0 $\mu$ F	12 VDC	2.2 $\mu$ F	1.0 $\mu$ F
		15 VDC	1.0 $\mu$ F	0.47 $\mu$ F

from the +Vout pin to the -Vout pin for single output units and from each output to common for dual output units. An input capacitor will enhance stability over temperature and input line variations. Recommended capacitor values are given in the table above. For applications requiring very low output noise levels, a simple LC filter should be effective.

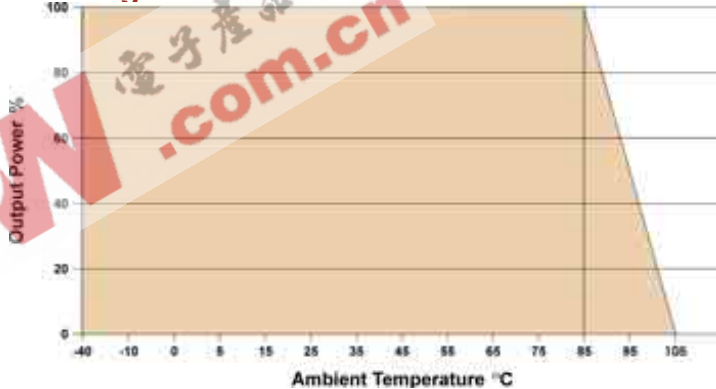
- Dual output units may be connected to provide a 10V, 18V, 24V or 30 VDC output. To do this, connect the load across the positive (+Vout) and negative (-Vout) outputs and float the output common
- It is recommended that a fuse be used on the input of a power supply for protection. See the Model Selection table above for the correct rating.

### Pin Connections

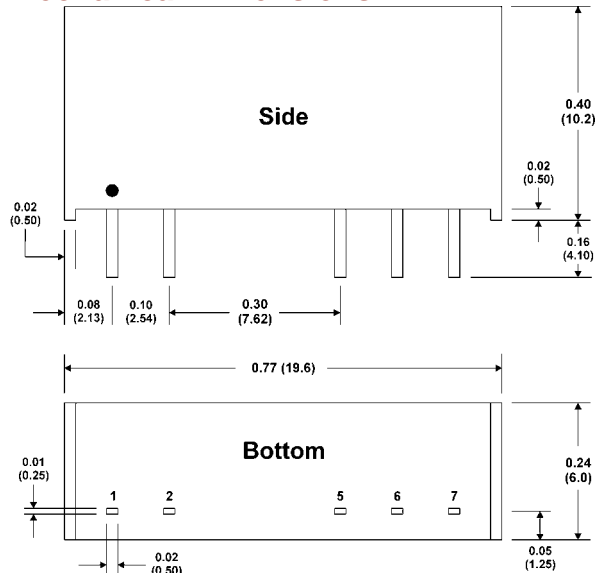
Pin	Single	Dual	Pin	Single	Dual
1	+Vin	+Vin	6	No Pin	Common
2	-Vin	-Vin	7	+Vout	+Vout
5	-Vout	-Vout			

**Notes:** All dimensions are typical in inches (mm)  
Tolerance x.xx =  $\pm 0.01$  ( $\pm 0.25$ )  
Pin 1 is marked by a "dot" or indentation on the side of the unit

### Derating Curve



### Mechanical Dimensions



**MicroPower Direct**  
www.micropowerdirect.com