

# E100EI Series

## 1W, High Isolation Ultra-Miniature SIP DC/DC Converters



### Key Features:

- 1W Output Power
- Ultra-Miniature SIP Case
- 3,000 VDC Isolation
- 14 Standard Models
- >3.5 MHour MTBF
- 3.3V, 5V, 12V & 24V Inputs
- **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	3.3 VDC Input	2.97	3.3	3.63	VDC
	5 VDC Input	4.50	5.0	5.50	
	12 VDC Input	10.80	12.0	13.20	
	24 VDC Input	21.60	24.0	26.40	
Reverse Polarity Input Current				0.3	A
Input Filter	Internal Capacitor				

#### Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Accuracy			±1.0	±3.0	%
Line Regulation, 3.3V Input Models	For Vin Change of 1%			±1.5	%
		All Other Models		±1.2	
Load Regulation, See Note 1	See Model Selection Guide				
Ripple & Noise (20 MHz)	See Note 3		100	150	mV P - P
Temperature Coefficient			±0.01	±0.03	%/°C
Output Short Circuit, See Note 4	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		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	0.45 x 0.23 x 0.295 Inches (11.5 x 6.0 x 7.5 mm)				
Case Material	Non-Conductive Black Plastic (UL-94V0)				
Weight	0.04 Oz (1.1g)				

#### Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	3.5			MHours
Shock & Vibration, See Note 5	Meets MIL-STD-202F, IEC68-2-6				

#### Absolute Maximum Ratings

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Voltage Surge (1 Sec)	3.3 VDC Input	-0.7		7.0	VDC
	5 VDC Input	-0.7		9.0	
	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			650	mW

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

### MicroPower Direct

292 Page Street  
Suite D  
Stoughton, MA 02072  
USA

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



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Model Number	Input				Output			Load Regulation		Efficiency (% Typ)	Fuse Rating Slow-Blow (mA)
	Voltage (VDC)		Current (mA)		Voltage (VDC)	Current (mA, Max)	Current (mA, Min)	(% Typ)	(% Max)		
	Nominal	Range	Full-Load	No-Load							
E101EI	5	4.5 - 5.5	290	50	5.0	200.0	20.0	12.8	15.0	69	500
E102EI	5	4.5 - 5.5	263	50	9.0	111.0	12.0	8.3	15.0	76	500
E103EI	5	4.5 - 5.5	256	50	12.0	83.0	9.0	6.8	15.0	78	500
E104EI	5	4.5 - 5.5	256	50	15.0	67.0	7.0	6.3	15.0	78	500
E111EI	12	10.8 - 13.2	117	21	5.0	200.0	20.0	12.8	15.0	71	200
E112EI	12	10.8 - 13.2	113	21	9.0	111.0	12.0	8.3	15.0	74	200
E113EI	12	10.8 - 13.2	107	21	12.0	83.0	9.0	6.8	15.0	78	200
E114EI	12	10.8 - 13.2	105	21	15.0	67.0	7.0	6.3	15.0	79	200
E121EI	24	21.6 - 26.4	58	17	5.0	200.0	20.0	12.8	15.0	72	100
E122EI	24	21.6 - 26.4	54	17	9.0	111.0	12.0	8.3	15.0	77	100
E123EI	24	21.6 - 26.4	54	17	12.0	83.0	9.0	6.8	15.0	77	100
E124EI	24	21.6 - 26.4	53	17	15.0	67.0	7.0	6.3	15.0	79	100
E151EI	3.3	2.97 - 3.63	432	76	3.3	303.0	30.0	15.0	20.0	70	200
E152EI	3.3	2.97 - 3.63	415	76	5.0	200.0	20.0	12.8	15.0	73	200

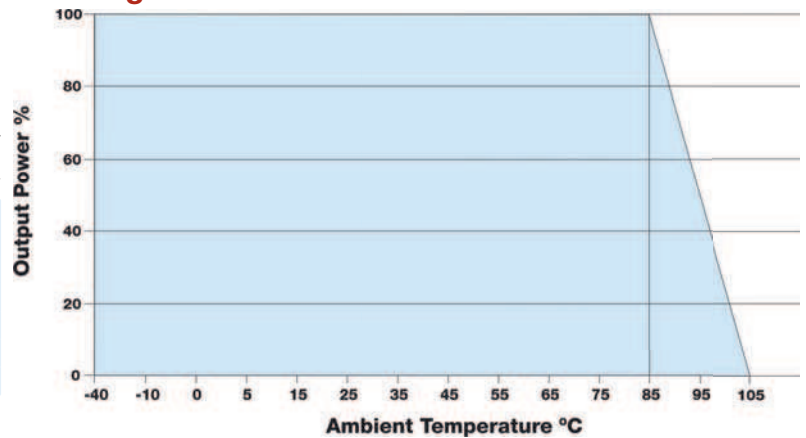
Other input/output combinations are available (i.e. 3.3 VDC). Contact the factory for details at: [sales@micropowerdirect.com](mailto:sales@micropowerdirect.com)

**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 from the +Vout pin to the -Vout pin. 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.
- After an output short circuit, the input power must be recycled to operate the unit.
- Given for frequency range of 5 to 500 Hz and PSD of 0.0248 g<sup>2</sup>/Hz. Tested on X, Y & Z axis for 60 minutes.
- 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
3.3 VDC	4.7 μF	3.3 VDC	10.0 μF
5 VDC	4.7 μF	5 VDC	10.0 μF
12 VDC	2.2 μF	9 VDC	4.7 μF
24 VDC	1.0 μF	12 VDC	2.2 μF
		15 VDC	1.0 μF

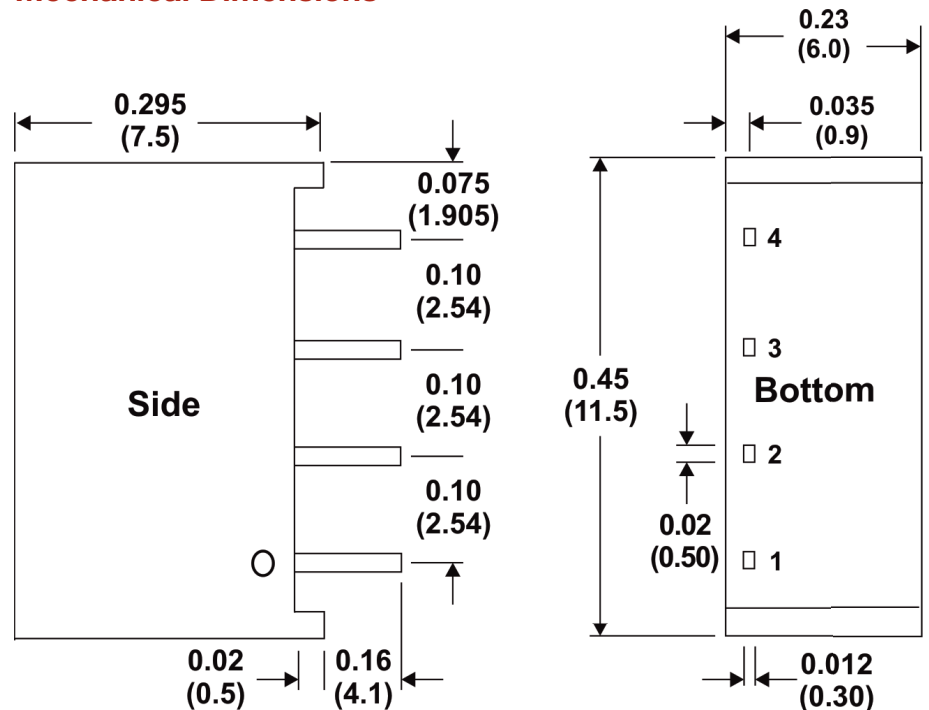
**Derating Curve**



**Mechanical Dimensions**

**Pin Connections**

Pin	Description
1	-Vin
2	+Vin
3	-Vout
4	+Vout



**Notes:**

- All dimensions are typical in inches (mm)
- Tolerance x.xx = ±0.01 (±0.25)
- Pin 1 is marked by a "dot" or indentation on the side of the unit



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