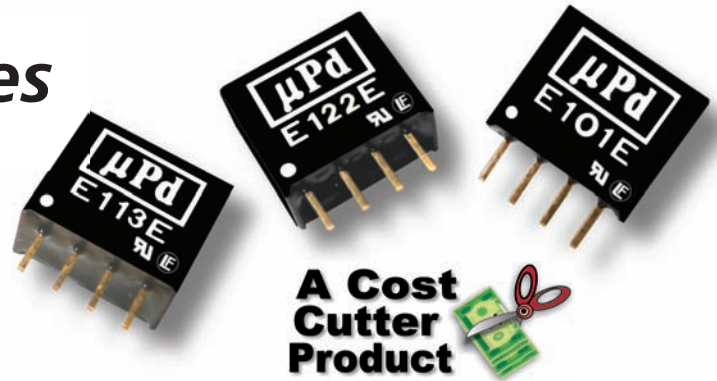


# E100E Series

## Low Cost, 1W Ultra-Miniature SIP DC/DC Converters



### Key Features:

- 1W Output Power
- Ultra-Miniature SIP Case
- UL Approved (File E245422)
- 1,000 VDC Isolation
- >3.5 MHour MTBF
- 5V, 12V & 24V Inputs
- **LOWEST COST!!**



RoHS Compliant



### MicroPower Direct

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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	5.5	VDC
	12 VDC Input	10.8	12.0	13.2	
	24 VDC Input	21.6	24.0	26.4	
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	For Vin Change of 1%			±1.2	%
Load Regulation (Note 1)	See Model Selection Guide				
Ripple & Noise (20 MHz) (Note 2)			75	150	mV P - P
Output Power Protection		120			%
Temperature Coefficient			±0.01	±0.03	%/°C
Output Short Circuit	Momentary (0.5 Sec.)				

#### General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage	60 Seconds	1,000			VDC
Isolation Resistance	1,000 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	0.46 x 0.23 x 0.40 Inches (11.7 x 6.0 x 10.2 mm)				
Case Material	Non-Conductive Black Plastic (UL-94V0)				
Weight	0.05 Oz (1.3g)				

#### Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	3.5			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			650	mW

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

## 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						
E101E	5	4.5 - 5.5	250	20	5.0	200.0	20.0	15	78	500
E102E	5	4.5 - 5.5	253	20	9.0	111.0	12.0	15	79	500
E103E	5	4.5 - 5.5	262	20	12.0	83.0	9.0	15	80	500
E104E	5	4.5 - 5.5	250	20	15.0	67.0	7.0	15	78	500
E111E	12	10.8 - 13.2	107	16	5.0	200.0	20.0	15	78	200
E112E	12	10.8 - 13.2	104	16	9.0	111.0	12.0	15	80	200
E113E	12	10.8 - 13.2	103	16	12.0	83.0	9.0	15	81	200
E114E	12	10.8 - 13.2	105	16	15.0	67.0	7.0	15	79	200
E121E	24	21.6 - 26.4	53	7	5.0	200.0	20.0	15	79	100
E122E	24	21.6 - 26.4	52	7	9.0	111.0	12.0	15	80	100
E123E	24	21.6 - 26.4	51	7	12.0	83.0	9.0	15	81	100
E124E	24	21.6 - 26.4	53	7	15.0	67.0	7.0	15	79	100
E125E	24	21.6 - 26.4	52	7	24.0	42.0	4.0	15	80	100

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

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

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.

- 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.

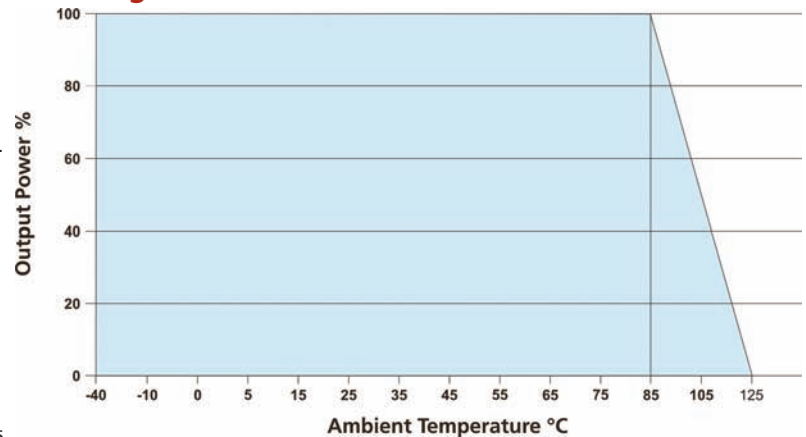
### Pin Connections

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

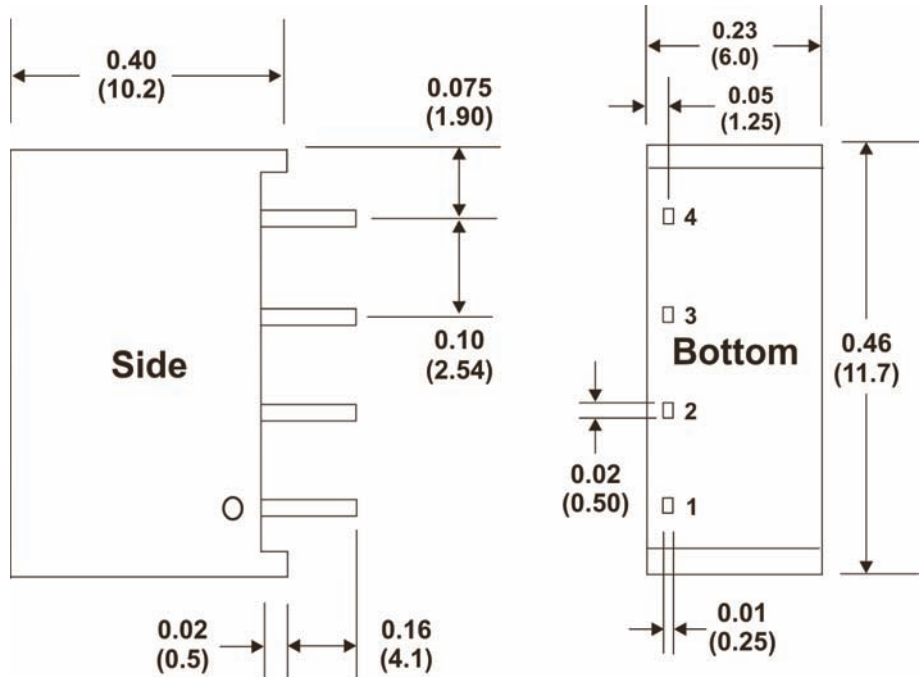
### Notes:

- 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



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