



MicroPower Direct



1W, Ultra-Miniature SIP
Unregulated, Single Output
DC/DC Converters
E100 Series

Key Features

- 1,000 VDC Isolation
- 1W Output Power
- 5V, 12V, 24V Inputs
- Ultra-Miniature SIP Package
- High Efficiency
- Low Cost

Electrical Specifications

Specifications typical @ +25°C with 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	±1.5	%
Load Regulation	See Model Selection Guide				
Ripple & Noise (20 MHz)			100	150	mV P-P
Ripple & Noise (20 MHz)	Over Line Load & Temp.			200	mV P-P
Ripple & Noise (20 MHz)				5	mV rms
Output Power Protection		120			%
Temperature Coefficient			±0.01	±0.02	%/°C
Output Short Circuit				0.5	Sec.

General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage	60 Seconds	1,000			VDC
Isolation Resistance	500 VDC	1,000			MΩ
Isolation Capacitance	100 KHz, 1V		60	100	pF
Switching Frequency		50	90	110	kHz

Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range		-40	+25	+75	°C
Storage Temperature Range		-40		+125	°C
Cooling	Free Air Convection				
Humidity	RH, Non-condensing			95	%

Physical

Case Size (5V & 12V Input)	0.45 x 0.24 x 0.40 inches (11.5 x 6.1 x 10.2 mm)				
Case Size (24V Input)	0.45 x 0.28 x 0.40 inches (11.5 x 7.1 x 10.2 mm)				
Case Material	Non-Conductive Black Plastic				
Weight (5V & 12V Input)	0.05 Oz (1.3g)				
Weight (24V Input)	0.06 Oz (1.7g)				

Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL STD 217F, 251C, Grnd Benign		4.4		M Hours

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	
Internal Power Dissipation	All Models			450	mW

Caution: Exceeding these values can damage the module. These are not continuous operating ratings.

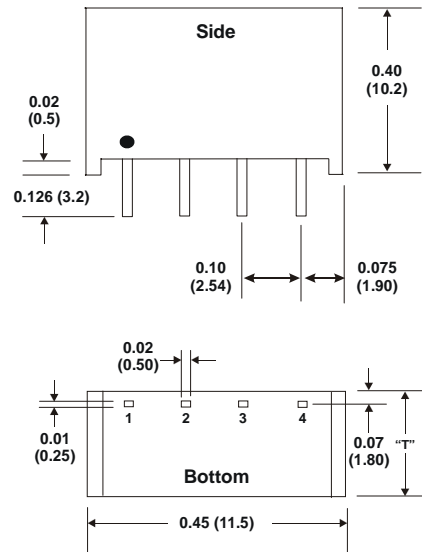
Model Selection Guide

Model Number	Input				Output			Load Regulation % (Max.)	Efficiency %, Typ.
	Voltage (VDC)		Current (mA)		Voltage (VDC)	Current (mA, Max.)	Current (mA, Min.)		
	Nominal	Range	Full-Load	No-Load					
E101	5.0	4.5 - 5.5	290.0	30.0	5.0	200.0	4.0	11	69
E102	5.0	4.5 - 5.5	260.0	30.0	9.0	110.0	2.0	8	76
E103	5.0	4.5 - 5.5	262.0	30.0	12.0	84.0	1.5	7	77
E104	5.0	4.5 - 5.5	258.0	30.0	15.0	67.0	1.0	6	78
E111	12.0	10.8 - 13.2	117.0	13.0	5.0	200.0	4.0	9	71
E112	12.0	10.8 - 13.2	107.0	13.0	9.0	110.0	2.0	5	77
E113	12.0	10.8 - 13.2	106.0	13.0	12.0	84.0	1.5	5	79
E114	12.0	10.8 - 13.2	105.0	13.0	15.0	67.0	1.0	4	80
E121	24.0	21.6 - 26.4	60.0	7.0	5.0	200.0	4.0	8	70
E122	24.0	21.6 - 26.4	54.0	7.0	9.0	110.0	2.0	5	76
E123	24.0	21.6 - 26.4	53.0	7.0	12.0	84.0	1.5	4	79
E124	24.0	21.6 - 26.4	53.0	7.0	15.0	67.0	1.0	4	79

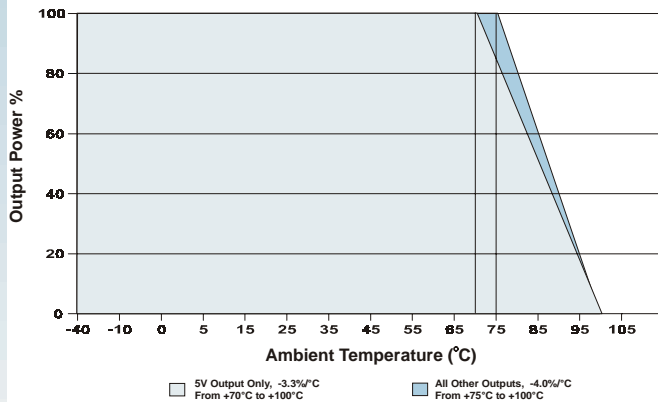
Notes: 1. Load regulation is measured for an output change of 20% to 100%.

2. For applications requiring lower output ripple levels, the addition of a simple LC filter circuit externally will provide good results. Using component values of 4.7 uH and 4.7 uF will lower output ripple to about 35 mV pk - pk.

Mechanical Dimensions



Derating Curve



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 top of the unit

NC = No Connection



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