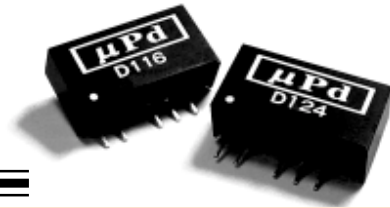




# MicroPower Direct



1W, Miniature SIP  
Single & Dual Output  
DC/DC Converters  
**D100 Series**

## Key Features

- 1,000 VDC Isolation
- 1W Output Power
- Wide Model Selection
- 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	%
Output Voltage Balance	Dual Output, Balanced Loads		±0.1	±1.0	%
Line Regulation	For VIN Change of 1%		±1.2	±1.5	%
Load Regulation	See Model Selection Guide				
Ripple & Noise (20 MHz)			50	75	mV P-P
Ripple & Noise (20 MHz)	Over Line Load & Temp.			150	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		70	100	120	kHz

### Environmental

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

### Physical

Case Size (5V & 12V Models)	0.77 x 0.24 x 0.40 inches (19.5 x 6.1 x 10.2 mm)
Case Size (24V Models)	0.77 x 0.28 x 0.40 inches (19.5 x 7.1 x 10.2 mm)
Case Material	Non-Conductive Black Plastic
Weight (5V & 12V Models)	0.07 Oz (2.1g)
Weight (24V Models)	0.09 Oz (2.6g)

### Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL STD 217F, 25 °C, Grnd Benign		3.9		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

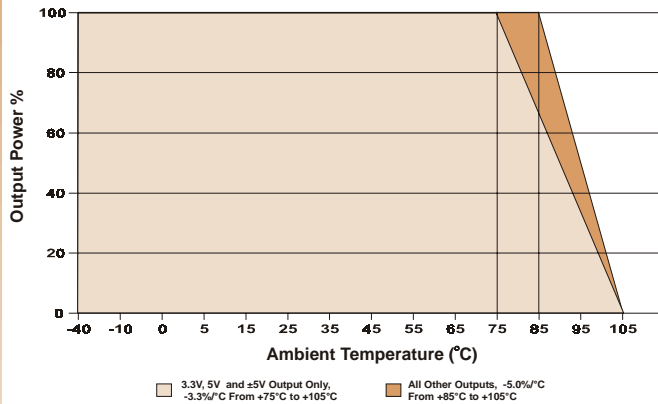
**Caution:** Exceeding these values can damage the module. These are not continuous operating ratings.

## 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					
D101	5.0	4.5 - 5.5	235.0	30.0	3.3	260.0	5.0	10	73
D102	5.0	4.5 - 5.5	281.0	30.0	5.0	200.0	4.0	10	71
D103	5.0	4.5 - 5.5	260.0	30.0	9.0	110.0	2.0	8	76
D104	5.0	4.5 - 5.5	258.0	30.0	12.0	84.0	1.5	7	78
D105	5.0	4.5 - 5.5	258.0	30.0	15.0	67.0	1.0	7	78
D106	5.0	4.5 - 5.5	278.0	30.0	±5.0	±100.0	±2.0	10	72
D107	5.0	4.5 - 5.5	262.0	30.0	±9.0	±56.0	±1.0	8	77
D108	5.0	4.5 - 5.5	258.0	30.0	±12.0	±42.0	±0.8	7	78
D109	5.0	4.5 - 5.5	258.0	30.0	±15.0	±34.0	±0.7	7	79
D111	12.0	10.8 - 13.2	96.0	12.0	3.3	260.0	5.0	8	74
D112	12.0	10.8 - 13.2	114.0	12.0	5.0	200.0	4.0	8	73
D113	12.0	10.8 - 13.2	106.0	12.0	9.0	110.0	2.0	5	78
D114	12.0	10.8 - 13.2	105.0	12.0	12.0	84.0	1.5	5	80
D115	12.0	10.8 - 13.2	104.0	12.0	15.0	67.0	1.0	5	80
D116	12.0	10.8 - 13.2	113.0	12.0	±5.0	±100.0	±2.0	8	74
D117	12.0	10.8 - 13.2	106.0	12.0	±9.0	±56.0	±1.0	5	79
D118	12.0	10.8 - 13.2	104.0	12.0	±12.0	±42.0	±0.8	5	81
D119	12.0	10.8 - 13.2	105.0	12.0	±15.0	±34.0	±0.7	5	81
D121	24.0	21.6 - 26.4	49.0	7.0	3.3	260.0	5.0	8	73
D122	24.0	21.6 - 26.4	59.0	7.0	5.0	200.0	4.0	8	71
D123	24.0	21.6 - 26.4	54.0	7.0	9.0	110.0	2.0	5	76
D124	24.0	21.6 - 26.4	54.0	7.0	12.0	84.0	1.5	5	78
D125	24.0	21.6 - 26.4	53.0	7.0	15.0	67.0	1.0	5	79
D126	24.0	21.6 - 26.4	58.0	7.0	±5.0	±100.0	±2.0	8	72
D127	24.0	21.6 - 26.4	55.0	7.0	±9.0	±56.0	±1.0	5	76
D128	24.0	21.6 - 26.4	53.0	7.0	±12.0	±42.0	±0.8	5	79
D129	24.0	21.6 - 26.4	53.0	7.0	±15.0	±34.0	±0.7	5	80

**Notes:** 1. For further protection, it is recommended that an external slow-blow fuse be added to the converter input line. The fuse rating should be 500 mA for 5V input models, 200 mA for 12V input models or 100 mA for 24V input models.

### Derating Curve



### Pin Connections

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

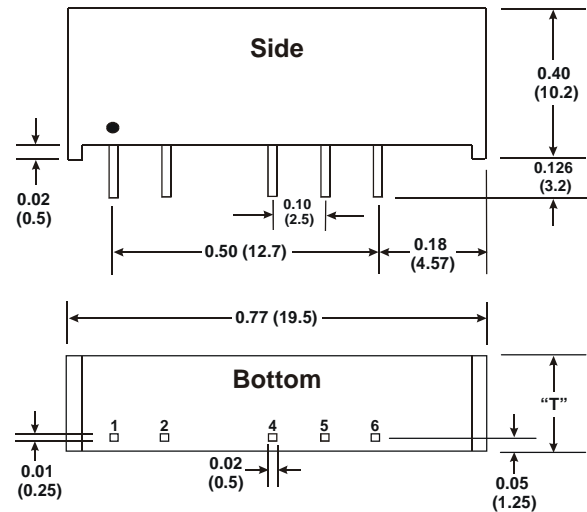
#### Notes:

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

### Mechanical Dimensions



**MicroPower  
Direct**

171 Tosca Drive, Stoughton, MA 02072  
 www.micropowerdirect.com  
 sales@micropowerdirect.com  
 phone: (781) 344 - 8226 • fax: (781) 344 - 8481