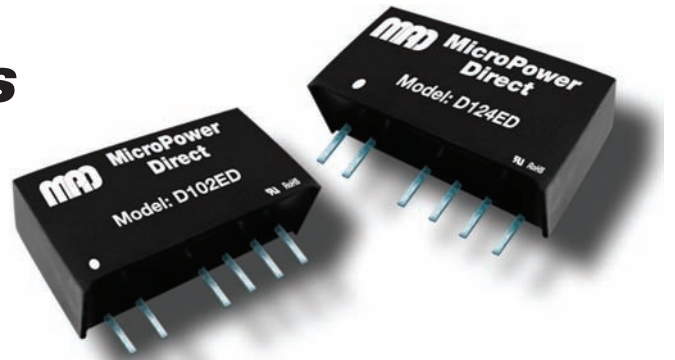


# D100ED Series

## Very Low Cost, 1W SIP Dual Isolated Output DC/DC Converters



### Key Features:

- 1W Output Power
- Miniature SIP Case
- UL Approved (File E245422)
- Dual Isolated Outputs
- 1,000 VDC Isolation
- >3.5 MHour MTBF
- Alternate Pin-Out Available
- Industry Standard Pin-Out
- **LOWEST COST!!**

RoHS



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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	
Input Filter	Internal Capacitor				
Reverse Polarity Input Current				0.3	A

#### Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Accuracy			±3.0	±3.0	%
Line Regulation	For Vin Change of 1%		±1.2		%
Load Regulation	I <sub>out</sub> = 10% to 100%		±15.0		
Ripple (20 MHz)	See Note 2		50	75	mV P - P
Noise (20 MHz)	See Note 2		75	150	mV P - P
Output Power Protection		120			%
Temperature Coefficient				±0.03	%/°C
Output Short Circuit	Momentary (0.5 Sec.)				

#### General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage, Input/Output	60 Seconds	1,000			VDC
Isolation Voltage, Output/Output		1,000			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	0.77 x 0.24 x 0.39 Inches (19.6 x 6.0 x 10.0 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	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			450	mW

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

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Model Number	Input				Output 1			Output 2			Efficiency (% Typ)	Fuse Rating Slow-Blow (mA)
	Voltage (VDC)		Current (mA)		Voltage (VDC)	Current (mA, Max)	Current (mA, Min)	Voltage (VDC)	Current (mA, Max)	Current (mA, Min)		
	Nominal	Range	Full-Load	No-Load								
D101ED(N)	5	4.5 - 5.5	285	30	5.0	100.0	10.0	5.0	100.0	10.0	70	500
D102ED(N)	5	4.5 - 5.5	263	30	9.0	56.0	6.0	9.0	56.0	6.0	76	500
D103ED(N)	5	4.5 - 5.5	259	30	12.0	42.0	4.2	12.0	42.0	4.2	77	500
D104ED(N)	5	4.5 - 5.5	256	30	15.0	33.0	3.3	15.0	33.0	3.3	78	500
D111ED(N)	12	10.8 - 13.2	115	12	5.0	100.0	10.0	5.0	100.0	10.0	72	250
D112ED(N)	12	10.8 - 13.2	107	12	9.0	56.0	6.0	9.0	56.0	6.0	78	250
D113ED(N)	12	10.8 - 13.2	107	12	12.0	42.0	4.2	12.0	42.0	4.2	78	250
D114ED(N)	12	10.8 - 13.2	104	12	15.0	33.0	3.3	15.0	33.0	3.3	80	250
D121ED(N)	24	21.6 - 26.4	58	7	5.0	100.0	10.0	5.0	100.0	10.0	71	125
D122ED(N)	24	21.6 - 26.4	54	7	9.0	56.0	6.0	9.0	56.0	6.0	77	125
D123ED(N)	24	21.6 - 26.4	55	7	12.0	42.0	4.2	12.0	42.0	4.2	76	125
D124ED(N)	24	21.6 - 26.4	55	7	15.0	33.0	3.3	15.0	33.0	3.3	76	125

To select the alternate pin-out, add an "N" to the end of the model number (i.e. D101EDN).  
 Note: Alternate pin-out units do not have EN60950 Approval

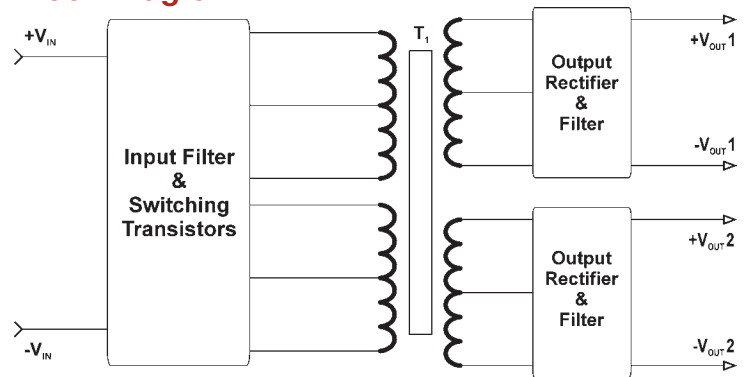
**Notes:**

- Output load regulation is specified for a load change of 10% to 100%.
- When measuring output ripple, it is recommended that an external ceramic capacitor (approx 1  $\mu$ F to 10  $\mu$ F) be placed from each output to common.
- 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 are specified for operation without external components. However, in some applications the addition of input/output capacitors will enhance stability and reduce output ripple. Recommended capacitor values are:

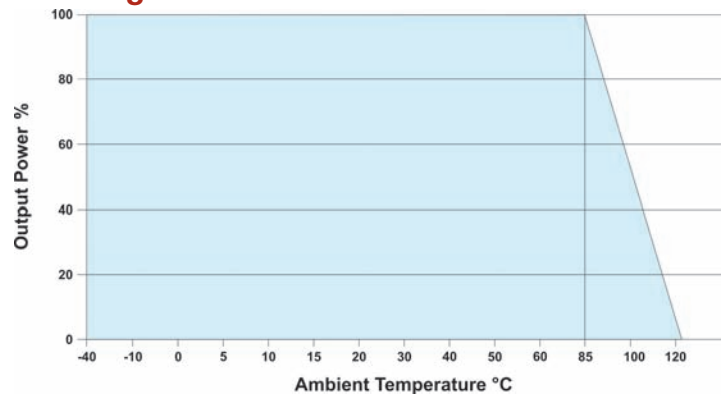
Vin	Input Capacitor	Vout	Output Capacitor
5 VDC	4.7 $\mu$ F	5 VDC	4.7 $\mu$ F
12 VDC	2.2 $\mu$ F	9 VDC	2.2 $\mu$ F
24 VDC	1.0 $\mu$ F	12 VDC	1.0 $\mu$ F
		15 VDC	0.47 $\mu$ F

- 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.

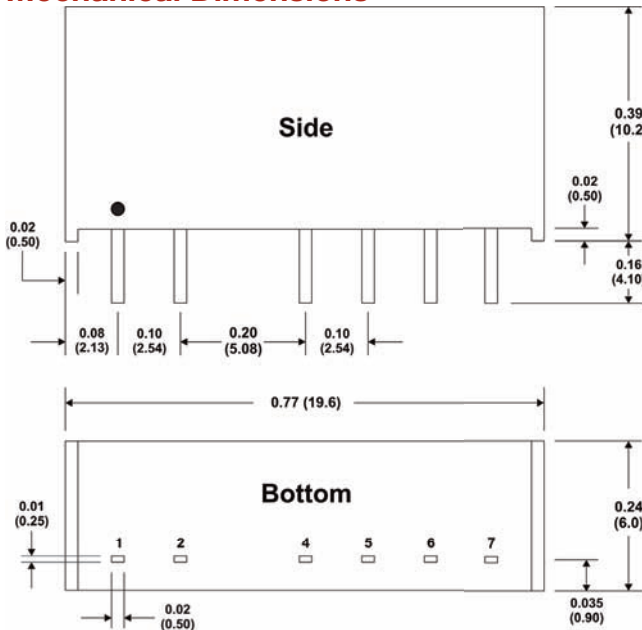
**Block Diagram**



**Derating Curve**



**Mechanical Dimensions**



**Pin Connections**

Pin	D100ED	D100EDN
1	+Vin	+Vin
2	-Vin	-Vin
4	-Vout 1	+Vout 1
5	+Vout 1	-Vout 1
6	-Vout 2	+Vout 2
7	+Vout 2	-Vout 2

**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



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