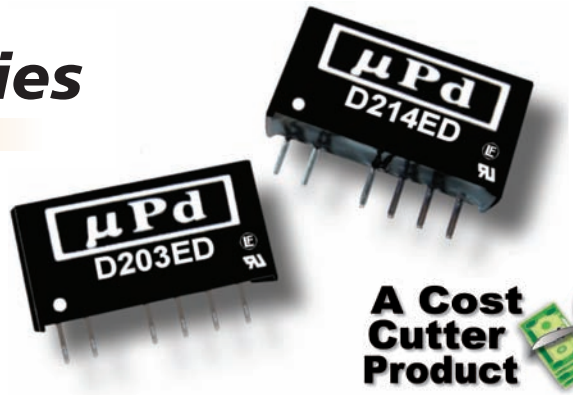
D200ED Series

Very Low Cost, 2W SIP Dual Isolated Output DC/DC Converters



A Cost Cutter Product

Key Features:

- 2W Output Power
- Miniature SIP Case
- UL Approved (File E245422)
- Dual Isolated Outputs
- 1,000 VDC Isolation
- >3.5 MHour MTBF
- 12 Standard Models
- Industry Standard Pin-Out
- ***LOWEST COST!!***

RoHS Compliant

c UL us

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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		%
Line Regulation	For Vin Change of 1%		±1.2		%
Load Regulation	Iout = 10% to 100%		±15.0		
Ripple (20 MHz)	See Note 2		75	150	mV P - P
Noise (20 MHz)	See Note 2		150	250	mV P - P
Output Power Protection		120			%
Temperature Coefficient			±0.01	±0.02	%/°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			70		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 0.28 x 0.39 Inches (19.6 x 7.0 x 10.0 mm)
Case Material	Non-Conductive Black Plastic (UL94-V0)
Weight	0.09 Oz (2.8g)

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 Selection Guide

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								
D201ED	5	4.5 - 5.5	500	30	5.0	200.0	20.0	5.0	200.0	20.0	80	1,000
D202ED	5	4.5 - 5.5	487	30	9.0	112.0	12.0	9.0	112.0	12.0	82	1,000
D203ED	5	4.5 - 5.5	487	30	12.0	83.0	9.0	12.0	83.0	9.0	82	1,000
D204ED	5	4.5 - 5.5	481	30	15.0	67.0	7.0	15.0	67.0	7.0	83	1,000
D211ED	12	10.8 - 13.2	208	12	5.0	200.0	20.0	5.0	200.0	20.0	80	500
D212ED	12	10.8 - 13.2	201	12	9.0	112.0	12.0	9.0	112.0	12.0	83	500
D213ED	12	10.8 - 13.2	196	12	12.0	83.0	9.0	12.0	83.0	9.0	85	500
D214ED	12	10.8 - 13.2	201	12	15.0	67.0	7.0	15.0	67.0	7.0	83	500
D221ED	24	21.6 - 26.4	102	7	5.0	200.0	20.0	5.0	200.0	20.0	81	250
D222ED	24	21.6 - 26.4	101	7	9.0	112.0	12.0	9.0	112.0	12.0	82	250
D223ED	24	21.6 - 26.4	99	7	12.0	83.0	9.0	12.0	83.0	9.0	84	250
D224ED	24	21.6 - 26.4	99	7	15.0	67.0	7.0	15.0	67.0	7.0	84	250

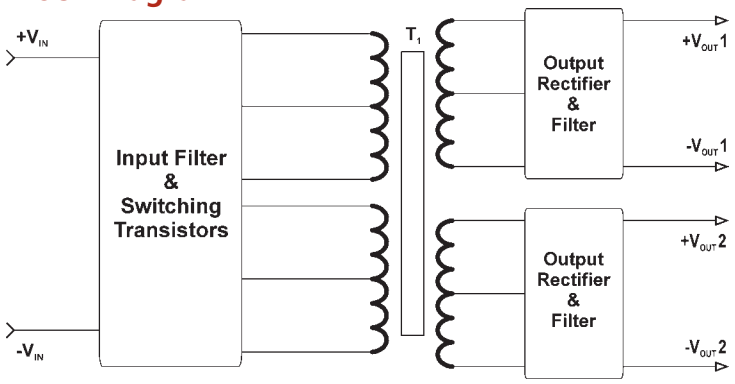
Notes:

1. Output load regulation is specified for a load change of 10% to 100%.
2. When measuring output ripple, it is recommended that an external ceramic capacitor (approx approx 1 μF to 10 μF) be placed from each output to common.
3. These units should not be operated with a load under 10% of full load. Operation at no-load may cause damage to the unit.
4. These converters are specified for operation without external components. However, in some applications the addition of input/ouput capacitors will enhance stability and reduce output ripple. Recommended capacitor values are:

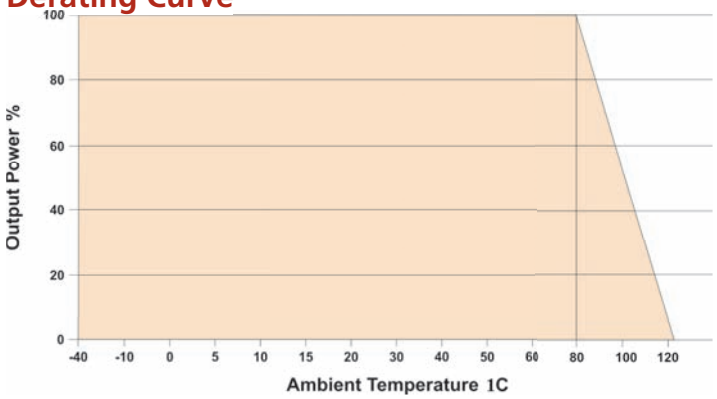
Vin	Input Capacitor	Vout	Output Capacitor
5 VDC	4.7 μF	5 VDC	4.7 μF
12 VDC	2.2 μF	9 VDC	2.2 μF
24 VDC	1.0 μF	12 VDC	1.0 μF
		15 VDC	0.47 μF

   For applications requiring very low output noise levels, a simple LC filter should be effective.
5. 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.

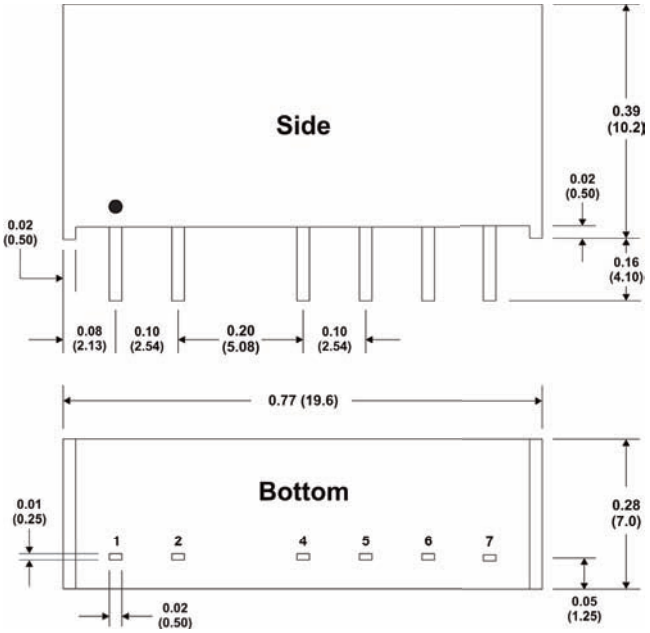
Block Diagram



Derating Curve



Mechanical Dimensions



Pin Connections

Pin	Function
1	+Vin
2	-Vin
4	-Vout 1
5	+Vout 1
6	-Vout 2
7	+Vout 2

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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