



MicroPower Direct



2W, Miniature SIP
Single & Dual Output
DC/DC Converters
D200 Series

Key Features

- 1,000 VDC Isolation
- 2W 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	Pi Filter				

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)			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		80	120	pF
Switching Frequency		50	80	100	KHz

Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range		-40	+25	+70	°C
Storage Temperature Range		-40		+125	°C
Cooling	Free Air Convection				
Humidity	RH, Non-condensing			95	%

Physical

Case Size	0.77 x 0.30 x 0.40 inches (19.5 x 7.6 x 10.2 mm)
Case Material	Non-Conductive Black Plastic
Weight	0.09 Oz. (2.7g)

Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL STD 217F, 25°C, Grnd Benign		3.6		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			650	mW

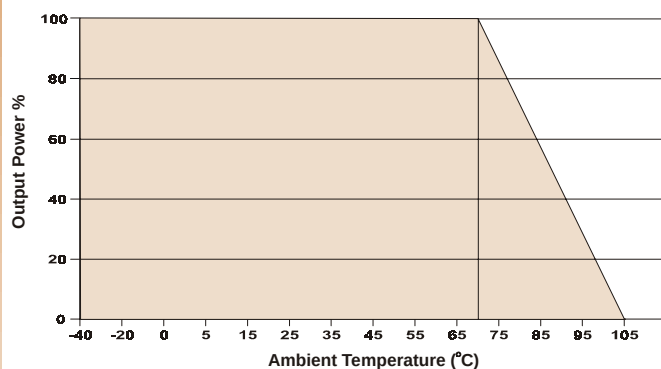
Caution: Exceeding these values can damage the module. These are not continuous operating ratings.

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					
D201	5.0	4.5 - 5.5	452.0	60.0	3.3	500.0	10.0	11	73
D202	5.0	4.5 - 5.5	526.0	60.0	5.0	400.0	8.0	11	76
D203	5.0	4.5 - 5.5	495.0	60.0	12.0	165.0	3.0	7	80
D204	5.0	4.5 - 5.5	499.0	60.0	15.0	133.0	2.5	7	80
D205	5.0	4.5 - 5.5	519.0	60.0	±5.0	±200.0	±4.0	10	77
D206	5.0	4.5 - 5.5	504.0	60.0	±12.0	±83.0	±1.5	7	79
D207	5.0	4.5 - 5.5	501.0	60.0	±15.0	±66.0	±1.0	7	79
D211	12.0	10.8 - 13.2	185.0	30.0	3.3	500.0	10.0	8	74
D212	12.0	10.8 - 13.2	212.0	30.0	5.0	400.0	8.0	8	78
D213	12.0	10.8 - 13.2	200.0	30.0	12.0	165.0	3.0	5	82
D214	12.0	10.8 - 13.2	200.0	30.0	15.0	133.0	2.5	5	83
D215	12.0	10.8 - 13.2	210.0	30.0	±5.0	±200.0	±4.0	8	79
D217	12.0	10.8 - 13.2	201.0	30.0	±12.0	±83.0	±1.5	5	82
D218	12.0	10.8 - 13.2	200.0	30.0	±15.0	±66.0	±1.0	5	82
D221	24.0	21.6 - 26.4	92.0	15.0	3.3	500.0	10.0	8	74
D222	24.0	21.6 - 26.4	108.0	15.0	5.0	400.0	8.0	8	77
D223	24.0	21.6 - 26.4	101.0	15.0	12.0	165.0	3.0	5	81
D224	24.0	21.6 - 26.4	101.0	15.0	15.0	133.0	2.5	5	82
D225	24.0	21.6 - 26.4	105.0	15.0	±5.0	±200.0	±4.0	8	79
D226	24.0	21.6 - 26.4	102.0	15.0	±12.0	±83.0	±1.5	5	81
D227	24.0	21.6 - 26.4	100.0	15.0	±15.0	±66.0	±1.0	5	82

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 1500 mA for 48V input models or 3000 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

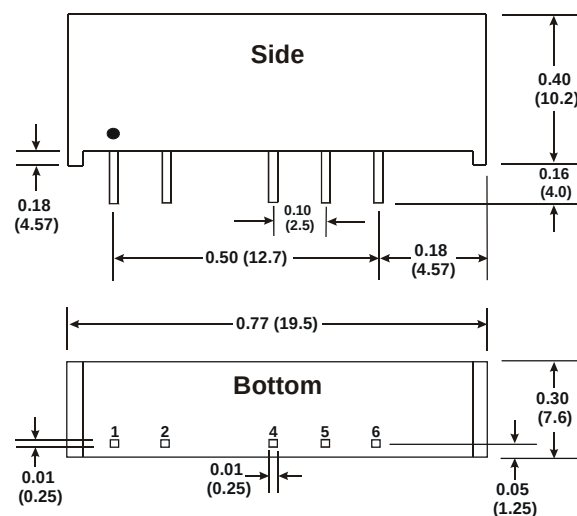
Notes:

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



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