



# MicroPower Direct



2W, High Isolation, SIP  
Regulated, Short Circuit Protected  
DC/DC Converters  
**D200RPI Series**

## Key Features

- Miniature SIP Package
- Short Circuit Protected
- 1.5 MH MTBF
- 2.0W Output Power
- High Isolation
- 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	
Input Filter	π (Pi) Filter				
Reverse Polarity Input Current				0.3	A

### Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Accuracy				±2.0	%
Line Regulation	For Vin Min to Max			±0.5	%
Load Regulation	I <sub>out</sub> = 10% to 100%			±0.5	%
Ripple & Noise (20 MHz)				75	mV P - P
Output Power Protection		120			%
Temperature Coefficient				±0.02	%/°C
Output Short Circuit	Continuous				

### General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage	60 Seconds	3,000			VDC
Isolation Resistance	500 VDC	1,000			MΩ
Isolation Capacitance	100 kHz, 1V		60		pF
Switching Frequency			40		kHz

### Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-40	+25	+71	°C
Operating Temperature Range	Case	-40		+85	°C
Storage Temperature Range		-40		+125	°C
Cooling	Free Air Convection				
Humidity	RH, Non-condensing			95	%

### Physical

Case Size (5V & 12V Models)	1.26 x 0.32 x 0.55 Inches (32.0 x 8.0 x 14.0 mm)
Case Material	Non-Conductive Black Plastic
Weight (5V & 12V Input Models)	0.17 Oz (4.8g)

### Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	1.5			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			260	°C
Internal Power Dissipation	All Models			450	mW

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

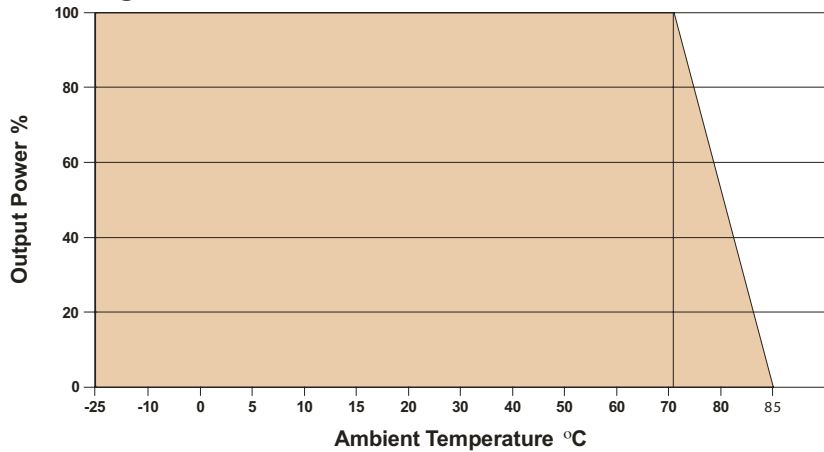
# Model Selection Guide

Model Number	Input				Output			Efficiency (% Typ)	Fuse Rating Slow-Blow (mA)
	Voltage (VDC)		Current (mA)		Voltage (VDC)	Current (mA, Max)	Current (mA, Min)		
	Nominal	Range	Full-Load	No-Load					
D201RPI	5	4.5 - 5.5	606	80	5.0	400.0	40.0	66	1,000
D202RPI	5	4.5 - 5.5	606	80	9.0	222.0	22.0	66	1,000
D203RPI	5	4.5 - 5.5	571	80	12.0	167.0	17.0	70	1,000
D204RPI	5	4.5 - 5.5	571	80	15.0	133.0	13.0	70	1,000
D205RPI	5	4.5 - 5.5	588	80	24.0	83.0	10.0	68	1,000
D211RPI	12	10.8 - 13.2	253	45	5.0	400.0	40.0	66	500
D212RPI	12	10.8 - 13.2	253	45	9.0	222.0	22.0	66	500
D213RPI	12	10.8 - 13.2	238	45	12.0	167.0	17.0	70	500
D214RPI	12	10.8 - 13.2	238	45	15.0	133.0	13.0	70	500
D215RPI	12	10.8 - 13.2	246	45	24.0	83.0	10.0	68	500
D221RPI	24	21.6 - 26.4	130	25	5.0	400.0	40.0	64	200
D222RPI	24	21.6 - 26.4	130	25	9.0	222.0	22.0	64	200
D223RPI	24	21.6 - 26.4	122	25	12.0	167.0	17.0	68	200
D224RPI	24	21.6 - 26.4	122	25	15.0	133.0	13.0	68	200
D225RPI	24	21.6 - 26.4	118	25	24.0	83.0	10.0	70	200

**Notes:**

1. These units do not require external components to operate, but the use of an input capacitor (10 µF) may enhance performance in some applications. An output capacitor (4.7 µF to 10 µF) may be used to reduce ripple.

### Derating Curve



### Capacitive Load

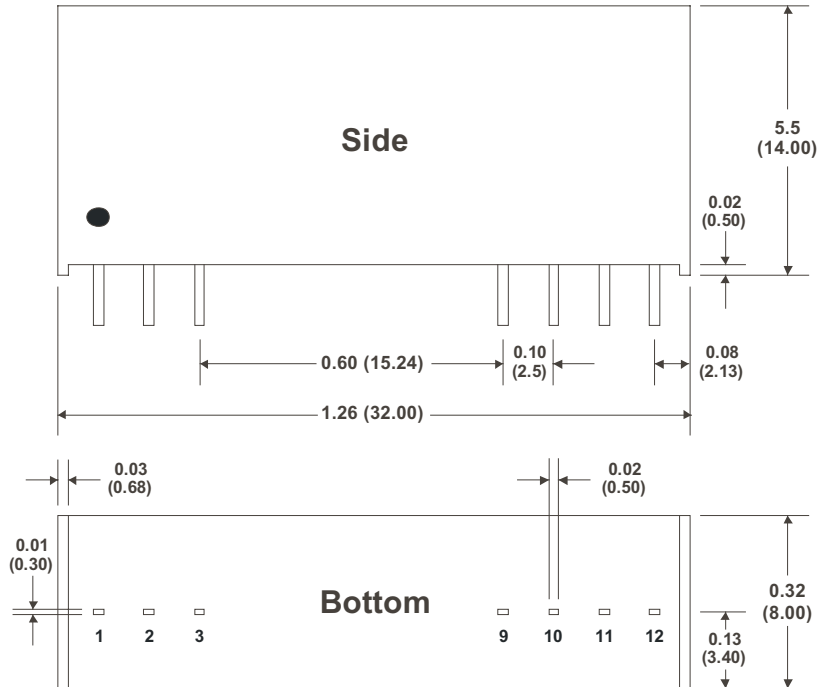
µF Max
470

### Pin Connections

Pin	Function
1	+Vin
2	-Vin
3	NC
9	NC
10	-Vout
11	+Vout
12	NC

NC: No Connection

### Mechanical Dimensions



**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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