



MicroPower Direct



1.5W High Isolation SIP,
Regulated, Short Circuit Protected
DC/DC Converters
D100RPI Series

Key Features

- Miniature SIP Package
- Short Circuit Protected
- 1.5 MH MTBF
- 1.5W Output Power
- 3,000VDC 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 _{out} = 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	-25	+25	+71	°C
Operating Temperature Range	Case	-25		+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.

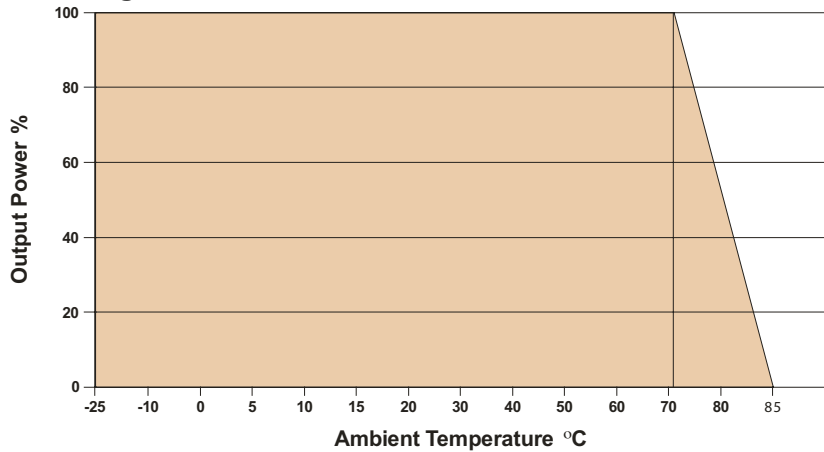
Model Selection Guide

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					
D101RPI	5	4.5 - 5.5	454	80	5.0	300.0	30.0	66	500
D102RPI	5	4.5 - 5.5	454	80	9.0	167.0	20.0	66	500
D103RPI	5	4.5 - 5.5	428	80	12.0	125.0	12.5	70	500
D104RPI	5	4.5 - 5.5	428	80	15.0	100.0	10.0	70	500
D105RPI	5	4.5 - 5.5	441	80	24.0	63.0	10.0	68	500
D111RPI	12	10.8 - 13.2	83	45	5.0	300.0	30.0	66	200
D112RPI	12	10.8 - 13.2	83	45	9.0	167.0	20.0	66	200
D113RPI	12	10.8 - 13.2	88	45	12.0	125.0	12.5	70	200
D114RPI	12	10.8 - 13.2	88	45	15.0	100.0	10.0	70	200
D115RPI	12	10.8 - 13.2	85	45	24.0	63.0	10.0	68	200
D121RPI	24	21.6 - 26.4	53	25	5.0	300.0	30.0	64	100
D122RPI	24	21.6 - 26.4	53	25	9.0	167.0	20.0	64	100
D123RPI	24	21.6 - 26.4	56	25	12.0	125.0	12.5	68	100
D124RPI	24	21.6 - 26.4	56	25	15.0	100.0	10.0	68	100
D125RPI	24	21.6 - 26.4	58	25	24.0	63.0	10.0	70	100

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

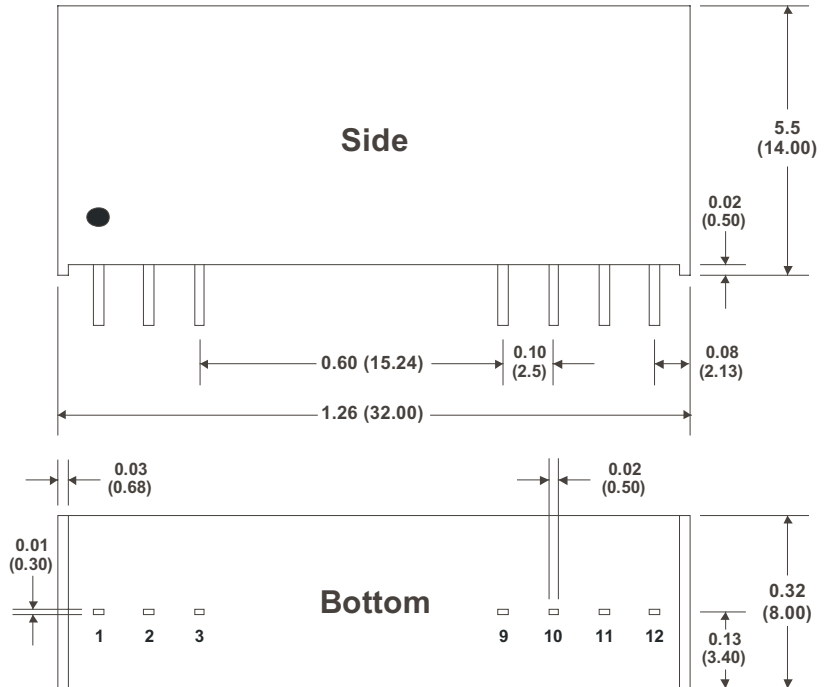
µF Max
470

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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