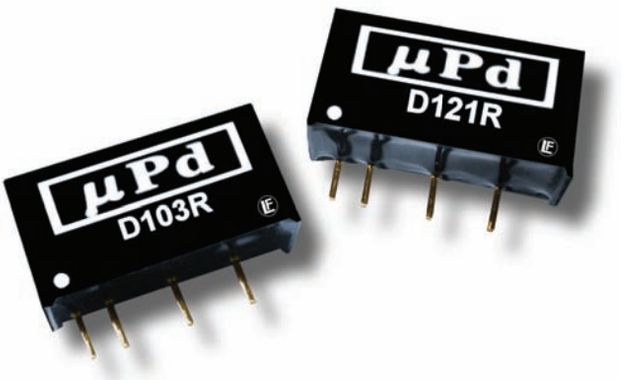
D100R Series

Tightly Regulated Miniature, 1W SIP DC/DC Converters



Key Features:

- 1W Output Power
- Tight Line/Load Regulation
- Miniature SIP Case
- 1,000 VDC Isolation
- >2 MHour MTBF
- 20 Standard Models
- Industry Standard Pin-Out

RoHS Compliant

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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	
	48 VDC Input	44.0	48.0	52.0	
Input Filter	Internal Capacitor				
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 (Note 1)				±0.5	%
Ripple & Noise (20 MHz) (Note 2)			50	75	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	60 Seconds	1,000			VDC
Isolation Resistance	500 VDC	1,000			MΩ
Isolation Capacitance	100 kHz, 1V		60		pF
Switching Frequency			60		kHz

Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-40	+25	+85	°C
Operating Temperature Range	Case	-40		+100	°C
Storage Temperature Range		-40		+125	°C
Cooling	Free Air Convection				
Humidity	RH, Non-condensing			95	%

Physical

Case Size	0.76 x 0.28 x 0.39 Inches (19.5 x 7.2 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	2.0			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	
	48 VDC Input	-0.7		55.0	
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					
D101R	5	4.5 - 5.5	322	28	3.3	200.0	20.0	62	500
D102R	5	4.5 - 5.5	298	28	5.0	200.0	20.0	67	500
D103R	5	4.5 - 5.5	298	26	9.0	111.0	11.0	67	500
D104R	5	4.5 - 5.5	285	26	12.0	83.0	9.0	70	500
D105R	5	4.5 - 5.5	285	38	15.0	66.0	7.0	70	500
D111R	12	10.8 - 13.2	136	16	3.3	200.0	20.0	61	200
D112R	12	10.8 - 13.2	128	16	5.0	200.0	20.0	65	200
D113R	12	10.8 - 13.2	124	16	9.0	111.0	11.0	67	200
D114R	12	10.8 - 13.2	119	16	12.0	83.0	9.0	70	200
D115R	12	10.8 - 13.2	119	16	15.0	66.0	7.0	70	200
D121R	24	21.6 - 26.4	66	9	3.3	200.0	20.0	63	100
D122R	24	21.6 - 26.4	61	9	5.0	200.0	20.0	68	100
D123R	24	21.6 - 26.4	65	9	9.0	111.0	11.0	68	100
D124R	24	21.6 - 26.4	59	9	12.0	83.0	9.0	70	100
D125R	24	21.6 - 26.4	59	9	15.0	66.0	7.0	70	100
D131R	48	44.0 - 52.0	33	7	3.3	200.0	20.0	63	100
D132R	48	44.0 - 52.0	32	7	5.0	200.0	20.0	65	100
D133R	48	44.0 - 52.0	32	7	9.0	111.0	11.0	67	100
D134R	48	44.0 - 52.0	30	7	12.0	83.0	9.0	70	100
D135R	48	44.0 - 52.0	30	7	15.0	66.0	7.0	70	100

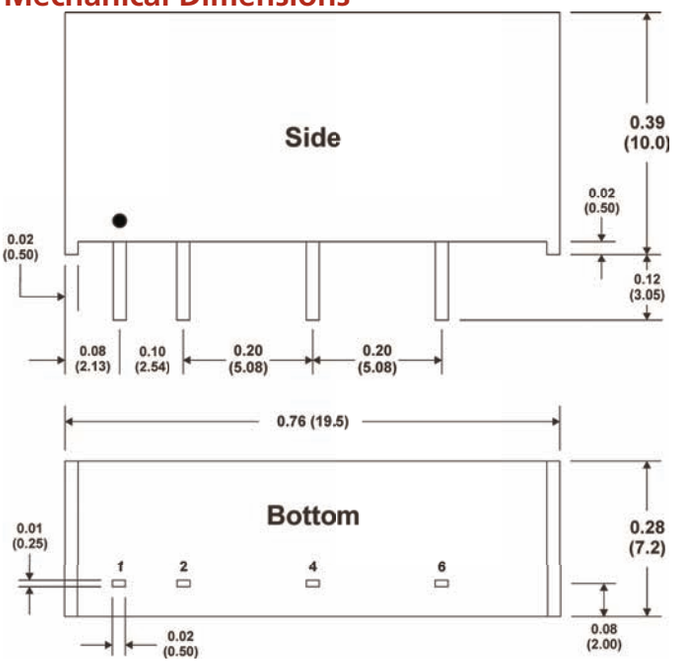
Notes:

1. Output load regulation is specified for a load change of 20% to 100%.
2. When measuring output ripple, it is recommended that an external ceramic capacitor (approx 10 µF) be placed from the +Vout pin to the -Vout pin.
3. The 5V, 12V and 24V input 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 (1.0 μF to 10 μF) may be used to reduce ripple. The 48V input models require an input capacitor of 4.7 μF to 47 μF (dependent upon the application).
4. It is recommended that a fuse be used on the input of a power supply for protection. See the table above for the correct rating.

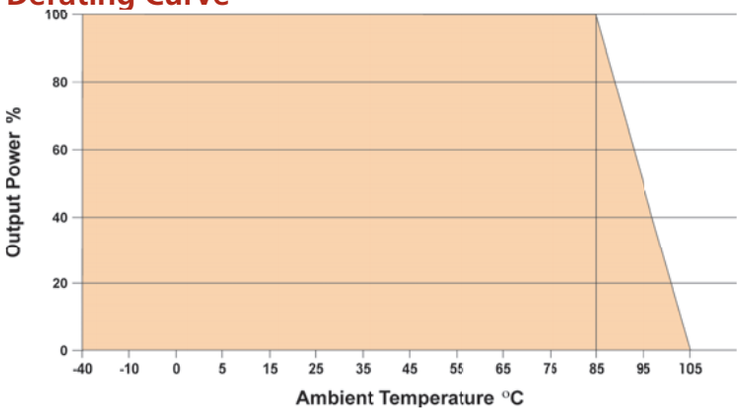
Pin Connections

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

Mechanical Dimensions



Derating Curve



Capacitive Load

(µF Max)
220

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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