

D300RP Series

Short Circuit Protected Regulated, 3W SIP DC/DC Converters



Key Features:

- 3W Output Power
- Short Circuit Protection
- Tight Line/Load Regulation
- 1,000 VDC Isolation
- Miniature SIP Case
- >1.5 MHour MTBF
- 15 Standard Models

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	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 (Note 1)				±0.5	%
Ripple & Noise (20 MHz) (Note 2)				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	1,000			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	1.26 x 0.32 x 0.55 Inches (32.0 x 8.0 x 14.0 mm)				
Case Material	Non-Conductive Black Plastic (UL94-V0)				
Weight	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.

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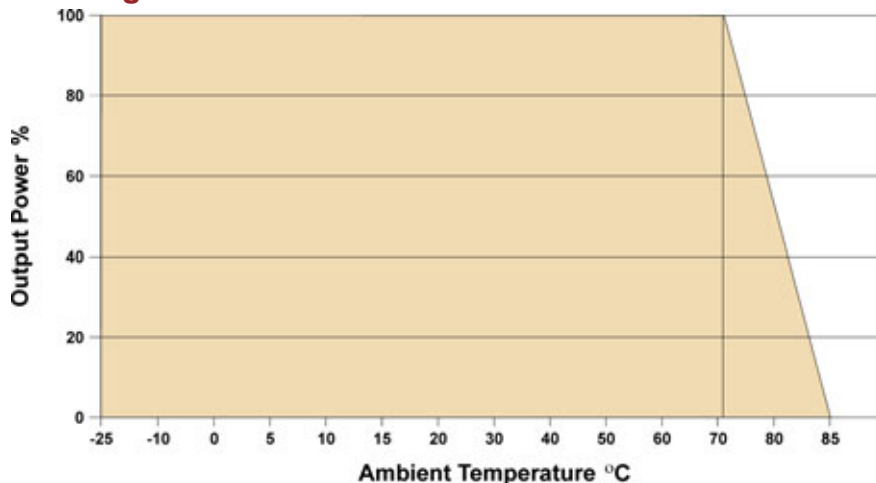
Model Selection Guide

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					
D301RP	5	4.5 - 5.5	895	90	5.0	600.0	60.0	67	1,500
D302RP	5	4.5 - 5.5	895	90	9.0	333.0	33.0	67	1,500
D303RP	5	4.5 - 5.5	833	90	12.0	250.0	25.0	72	1,500
D304RP	5	4.5 - 5.5	833	90	15.0	200.0	20.0	72	1,500
D305RP	5	4.5 - 5.5	857	90	24.0	125.0	12.5	70	1,500
D311RP	12	10.8 - 13.2	373	60	5.0	600.0	60.0	67	700
D312RP	12	10.8 - 13.2	373	60	9.0	333.0	33.0	67	700
D313RP	12	10.8 - 13.2	347	60	12.0	250.0	25.0	72	700
D314RP	12	10.8 - 13.2	347	60	15.0	200.0	20.0	72	700
D315RP	12	10.8 - 13.2	357	60	24.0	125.0	12.5	70	700
D321RP	24	21.6 - 26.4	192	30	5.0	600.0	60.0	65	350
D322RP	24	21.6 - 26.4	192	30	9.0	333.0	33.0	65	350
D323RP	24	21.6 - 26.4	179	30	12.0	250.0	25.0	70	350
D324RP	24	21.6 - 26.4	179	30	15.0	200.0	20.0	70	350
D325RP	24	21.6 - 26.4	174	30	24.0	125.0	12.5	72	350

Notes:

- Output load regulation is specified for a load change of 20% to 100%.
- When measuring output ripple, it is recommended that an external 0.33 μ F ceramic capacitor be placed from the +Vout pin to the -Vout pin.
- Operation at no-load will not damage these units. However, they may not meet all specifications.
- These do not require external components to operate, but the use of a low ESR capacitor (approximately 10 μ F, ESR <1.0 Ω at 100 kHz) mounted close to the converter input pins is recommended.
- 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.

Derating Curve



Capacitive Load

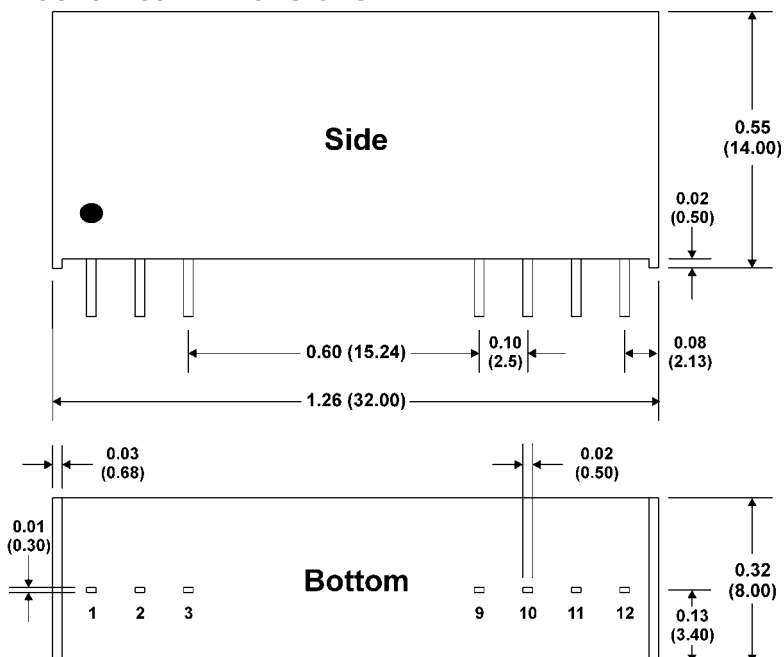
μ F Max
470

Pin Connections

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

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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