



MicroPower Direct



3W, Miniature SMT
Wide 2:1 Input Range
DC/DC Converters
LF300RW Series

Key Features

- 3W Output Power
- 1,500 VDC Isolation
- -401C to +711C Operation
- Miniature SMT Package
- Wide 2:1 Input Range
- Low Cost

Electrical Specifications

Specifications typical @ +251C with nominal input voltage & rated output current, unless otherwise noted. Specifications subject to change without notice.

Input

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Start Voltage	12 VDC Input	4.5	6.0	8.0	VDC
	24 VDC Input	8.0	12.0	16.0	
	48 VDC Input	16.0	24.0	32.0	
Reverse Polarity Input Current				0.5	A
Short Circuit Input Power				1,500	mW
Input Filter	π (Pi) Filter				

Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Accuracy			± 0.5	± 1.0	%
Output Voltage Accuracy	Dual Output, Balanced Load		± 0.5	± 1.0	%
Line Regulation	For V_{in} = Min to Max		± 0.1	± 0.3	%
Load Regulation	I_{out} = 20% to 100%		± 0.3	± 1.0	%
Ripple & Noise (20 MHz)			50	75	mV P - P
Ripple & Noise (20 MHz)				100	mV P - P
Ripple & Noise (20 MHz)				10	mV rms
Output Power Protection		120			%
Transient Response Time (Note 1)	25% Load Step Change		250	500	μ S
Transient Response Deviation			± 2.0	± 6.0	%
Temperature Coefficient			± 0.01	± 0.02	%/1C
Output Short Circuit	Continuous				

General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage	60 Seconds	1,500			VDC
Isolation Resistance	1,000 VDC	1,000			M Ω
Isolation Capacitance	100 kHz, 1V		65	100	pF
Switching Frequency			300		kHz

Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range		-40	+25	+71	1C
Storage Temperature Range		-40		+125	1C
Cooling	Free Air Convection				
Humidity	RH, Non-condensing			95	%

Physical

Case Size	1.27 x 0.74 x 0.40 Inches (32.3 x 28.8 x 10.2 mm)
Case Material	Non-Conductive Black Plastic
Weight	0.35 Oz (10g)

Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 251C, Gnd Benign		1.0		MHours

Absolute Maximum Ratings

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Voltage Surge (1 Sec)	12 VDC Input	-0.7		25.0	VDC
	24 VDC Input	-0.7		50.0	
	48 VDC Input	-0.7		100.0	
Internal Power Dissipation	All Models			2500	mW

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

Model Selection Guide

Model Number	Input				Reflected Ripple (mA, Typ)	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						
LF301RW	12	9.0 - 18.0	257	20	25	3.3	700.0	70.0	75	750
LF302RW	12	9.0 - 18.0	316	20	25	5.0	600.0	60.0	79	750
LF303RW	12	9.0 - 18.0	305	20	25	12.0	250.0	25.0	82	750
LF304RW	12	9.0 - 18.0	305	20	25	15.0	200.0	20.0	82	750
LF305RW	12	9.0 - 18.0	321	20	25	±5.0	±300.0	±30.0	78	750
LF306RW	12	9.0 - 18.0	309	20	25	±12.0	±125.0	±12.5	81	750
LF307RW	12	9.0 - 18.0	309	20	25	±15.0	±100.0	±10.0	81	750
LF311RW	24	18.0 - 36.0	127	5	15	3.3	700.0	70.0	76	350
LF312RW	24	18.0 - 36.0	156	5	15	5.0	600.0	60.0	80	350
LF313RW	24	18.0 - 36.0	151	5	15	12.0	250.0	25.0	83	350
LF314RW	24	18.0 - 36.0	151	5	15	15.0	200.0	20.0	83	350
LF315RW	24	18.0 - 36.0	158	5	15	±5.0	±300.0	±30.0	79	350
LF316RW	24	18.0 - 36.0	152	5	15	±12.0	±125.0	±12.5	82	350
LF317RW	24	18.0 - 36.0	152	5	15	±15.0	±100.0	±10.0	82	350
LF321RW	48	36.0 - 75.0	63	3	10	3.3	700.0	70.0	76	200
LF322RW	48	36.0 - 75.0	78	3	10	5.0	600.0	60.0	80	200
LF323RW	48	36.0 - 75.0	75	3	10	12.0	250.0	25.0	83	200
LF324RW	48	36.0 - 75.0	75	3	10	15.0	200.0	20.0	83	200
LF325RW	48	36.0 - 75.0	79	3	10	±5.0	±300.0	±30.0	79	200
LF326RW	48	36.0 - 75.0	79	3	10	±12.0	±125.0	±12.5	82	200
LF327RW	48	36.0 - 75.0	76	3	10	±15.0	±100.0	±10.0	82	200

Note:

- Transient recovery is measured to within a 1% error band for a load step change of 75% to 100%.
- Load regulation is measured for an output change of 75% to 100%.
- Dual output units may be connected to provide a 10 VDC, 24 VDC or 30 VDC output. To do this, connect the load across the positive (+Vout) and negative (-Vout) outputs and float the output common.

Capacitive Load

Single Output μF Max
4,700

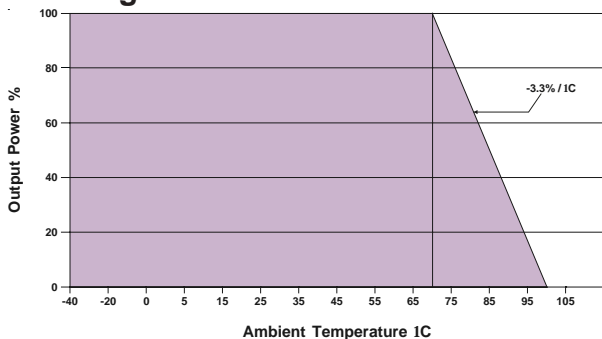
Dual Output μF Max
±180

Pin Connections

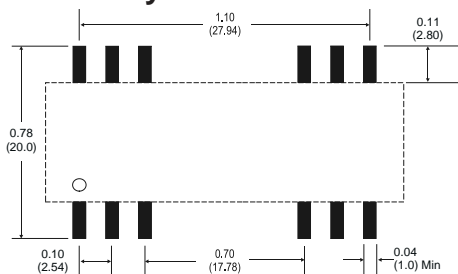
Pin	Single	Dual
1, 2	-Vin	-Vin
3, 11	NC	NC
10	NC	Common
12	NC	-Vout
13	+Vout	+Vout
14,22	NC	NC
15	-Vout	Common
23, 24	+Vin	+Vin

NC: No Connection

Derating Curve



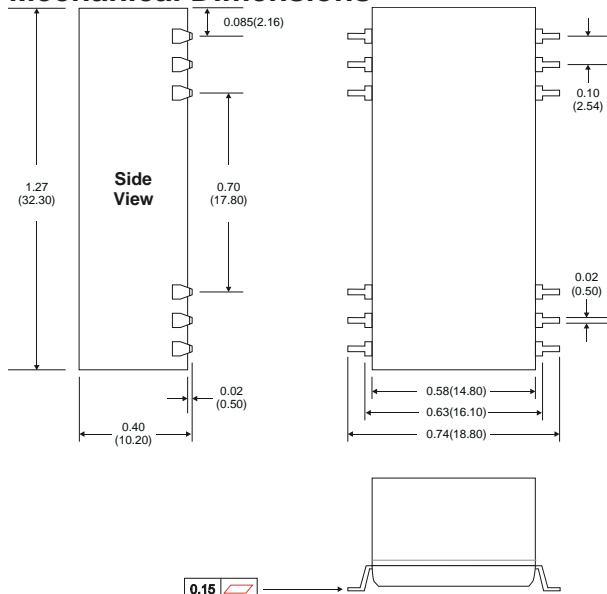
Board Layout



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 unit

Mechanical Dimensions



MicroPower Direct

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