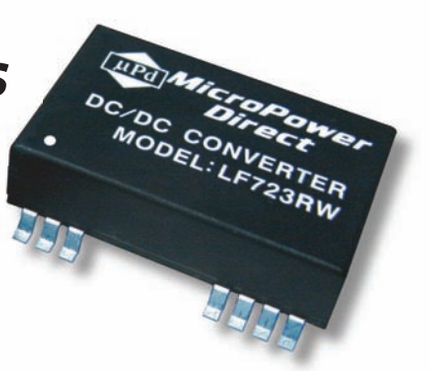
LF700RW Series

Wide Input, 7.5W SMT Single & Dual Output DC/DC Converters



Key Features:

- 7.5W Output Power
- Wide 2:1 Inputs
- Miniature SMT Case
- Tight Line/Load Regulation
- 1,500 VDC Isolation
- -40°C to +60°C Operation
- 21 Standard Models
- 1.0 MH MTBF Minimum
- 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 Start Voltage	12 VDC Input	7.5	8.0	9.0	VDC
	24 VDC Input	14.0	16.0	18.0	
	48 VDC Input	30.0	33.0	36.0	
Reverse Polarity Input Current				1.0	A
Short Circuit Input Power			1,000	3,000	mW
Input Filter	π (Pi) Filter (Meets EN55022 Class A)				

Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Accuracy			±0.5	±1.0	%
Output Voltage Balance	Dual Output, Balanced Load		±0.5	±2.0	%
Line Regulation	For Vin = Min to Max		±0.1	±0.3	%
Load Regulation	Iout = 20% to 100%		±0.3	±1.0	%
Ripple & Noise (20 MHz) (Note 1)			50	85	mV P - P
Ripple & Noise (20 MHz)				100	mV P - P
Ripple & Noise (20 MHz)				15	mV rms
Output Power Protection		115	140	165	%
Transient Response Time (Note 2)	25% Load Step Change		250	500	µS
Transient Response Deviation			±2	±6	%
Temperature Coefficient			±0.01	±0.02	%/°C
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			MΩ
Isolation Capacitance	100 kHz, 1V		650	750	pF
Switching Frequency		200	260	350	kHz

Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-40	+25	+60	°C
Operating Temperature Range	Case	-40		+90	°C
Storage Temperature Range		-40		+125	°C
Cooling	Free Air Convection				
Humidity	RH, Non-condensing			95	%

Physical

Case Size	1.31 x 0.81 x 0.40 Inches (33.4 x 20.6 x 10.2 mm)
Case Material	Non-Conductive Black Plastic (UL94-V0)
Weight	0.49 Oz (14g)

Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25°C, 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	
Lead Temperature	1.5 mm From Case For 10 Sec.			260	°C
Internal Power Dissipation	All Models			2,500	mW

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

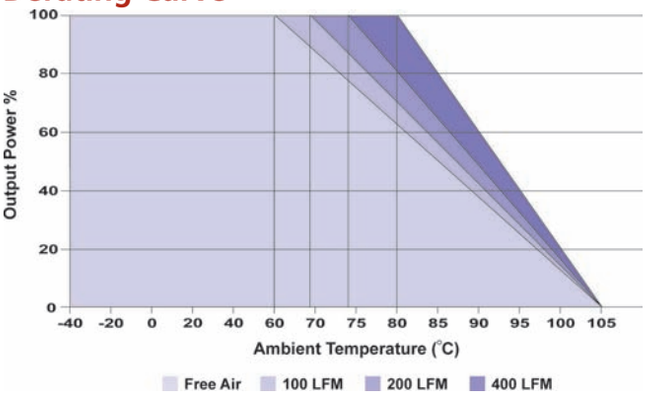
Model Selection Guide

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					
LF701RW	12	9.0 - 18.0	417	25	3.3	1,200	90.0	79	1,500
LF702RW	12	9.0 - 18.0	595	25	5.0	1,200	60.0	84	1,500
LF703RW	12	9.0 - 18.0	718	25	12.0	625	32.0	87	1,500
LF704RW	12	9.0 - 18.0	710	25	15.0	500	25.0	88	1,500
LF705RW	12	9.0 - 18.0	496	25	±5.0	±500	±25.0	84	1,500
LF706RW	12	9.0 - 18.0	717	25	±12.0	±312	±15.5	87	1,500
LF707RW	12	9.0 - 18.0	710	25	±15.0	±250	±12.5	88	1,500
LF711RW	24	18.0 - 36.0	206	10	3.3	1,200	90.0	80	700
LF712RW	24	18.0 - 36.0	294	10	5.0	1,200	60.0	85	700
LF713RW	24	18.0 - 36.0	355	10	12.0	625	32.0	88	700
LF714RW	24	18.0 - 36.0	355	10	15.0	500	25.0	88	700
LF715RW	24	18.0 - 36.0	245	10	±5.0	±500	±25.0	85	700
LF716RW	24	18.0 - 36.0	355	10	±12.0	±312	±15.5	88	700
LF717RW	24	18.0 - 36.0	351	10	±15.0	±250	±12.5	89	700
LF721RW	48	36.0 - 75.0	103	8	3.3	1,200	90.0	80	350
LF722RW	48	36.0 - 75.0	147	8	5.0	1,200	60.0	85	350
LF723RW	48	36.0 - 75.0	178	8	12.0	625	32.0	88	350
LF724RW	48	36.0 - 75.0	178	8	15.0	500	25.0	88	350
LF725RW	48	36.0 - 75.0	123	8	±5.0	±500	±25.0	85	350
LF726RW	48	36.0 - 75.0	178	8	±12.0	±312	±15.5	88	350
LF727RW	48	36.0 - 75.0	178	8	±15.0	±250	±12.5	88	350

Notes:

1. When measuring output ripple, it is recommended that an external 0.47 µF ceramic capacitor be placed from the +Vout pin to the -Vout pin for single output units and from each output to common for dual output units. For noise sensitive applications, the use of 3.3 µF capacitors will reduce the output ripple.
2. Transient recovery is measured to within a 1% error band for a load step change of 75% to 100%.
3. Operation at no-load will not damage these units. However, they may not meet all specifications.
4. 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.
5. The converter should be connected to a low ac-impedance source. An input source with a highly inductive impedance may affect the stability of the converter. In applications where the converter output loading is high and input power is supplied over long lines, it may be necessary to use a capacitor on the input to insure start-up. In this case, it is recommended that a low ESR (ESR <1.0Ω at 100 kHz) capacitor be mounted close to the converter. For 12V input units a 4.7 µF is recommended, and for 24V & 48V units a 2.2 µF.
6. 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.

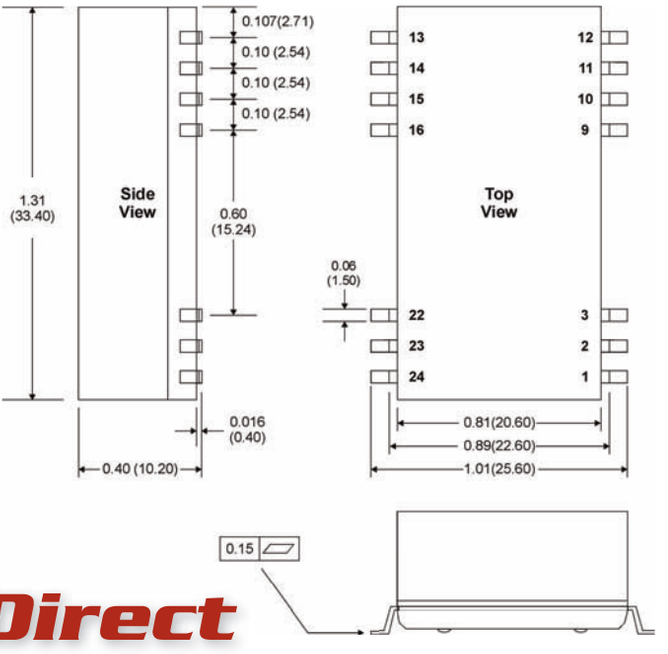
Derating Curve



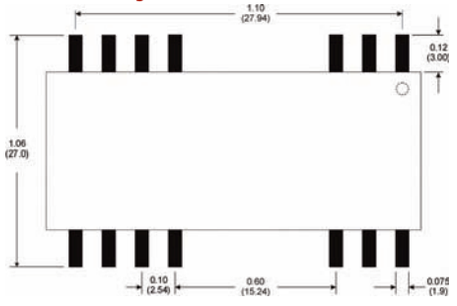
Capacitive Load

3.3 VDC Output (Max)	5 VDC Output (Max)	12 ,15 VDC Output (Max)	±5 VDC Output (Max)	±12, ±15 VDC Output (Max)
680 µF	1,500 µF	100 µF	±680 µF	±100 µF

Mechanical Dimensions



Board Layout



Pin Connections

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

NC: No Connection

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

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