

SEMICONDUCTOR CIRCUITS

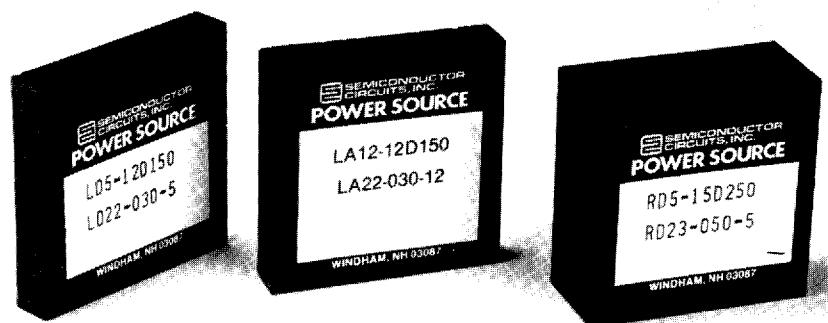
Low Profile, Industry Standard Regulated DC/DC Converters

**LD, LA,
RD, RA**

- LOW PROFILE CASES, ONLY 0.375" HIGH (LD, LA SERIES)
- HIGH PERFORMANCE INPUT FILTER
- OVERCURRENT-PROTECTED OUTPUTS

The LD, LA and RD, RA Series are economy priced, high performance DC/DC converters designed for all but the most demanding analog and digital applications. The LD and LA Series models feature low profile packaging for 0.5 inch on-center card file applications. The RD and RA Series models deliver greater output power from within a slightly higher profile case. Both families feature efficiency to 65%, a Pi input filter for minimum input reflected ripple as well as line transient protection and input spike attenuation. The series features a switching front end and series pass regulation on the outputs resulting in a high degree of efficiency and tight output regulation. All outputs are overcurrent protected. The LD, LA and RD, RA Series have MTBF's greater than 150,000 hours. They are packaged in very low profile cases (to 0.375") for on board use in tight spaces and deliver full power to +71°C. The series offers dual output tracking necessary for providing supply voltages to op amps and are ideally suited for RAM boards and μ P boards. Nominal input voltages are 5, 12, 24 and 48 Vdc.

Two industry standard pin configurations are available for ease of multiple sourcing.



Application Notes

A Pi input filter and low noise outputs make the LD, LA, RD, RA Series well suited for analog and digital communications applications. The overcurrent-protected outputs are capable of driving sensitive analog circuits while supplying the correct current for small μ P, μ C or memory systems. The low profile LA and LD (0.375" case height) is specifically designed for use in 0.5" card spacing.

General Specifications

Input Reflected Ripple
<1% E_{in} (max)

Output Voltage Tolerance
 $\pm 1\%$ (Fixed)

Regulation (Line/Load)
5V Out Models: 0.05/0.1%
ALL OTHER MODELS: 0.05/0.05%

Ripple and Noise
1mV RMS (max); 30mV p-p (typ)

Operating Temperature Range
-25°C to +71°C
Above 60°C derate:
V in 0.5%/°C *
P out 1%/°C *

Storage Temperature Range
-40°C to +85°C

Efficiency
50-65% (at nominal line, full load)

I/O Isolation
Voltage: 300 Vdc
Resistance: 100 Megohms

Oscillator Frequency Range
6-20 kHz

Temperature Coefficient
0.02%/°C (typical)

Dual Output Tracking
1mV/mV (typical)

Overcurrent Protection
Current Limiting

*In order to improve reliability and maintain a nearly constant case temperature from 60°C to 70°C it is recommended that V_{in} and P_{out} be derated as indicated.



**SEMICONDUCTOR
CIRCUITS, INC.**

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**LD,LA
RD,RA**

Ordering Information

Input Voltage Range (Vdc)	Output Voltage (Vdc)	Output Current (Vdc)	Pkg. (Fig.)	New Model Number	Old Model Number
4.5- 5.5	5V	1000	1-C 2-C	RD11-100-5 RA11-100-5	RD5-5S1000 RA5-5S1000
10.8-13.2			1-C 2-C	RD11-100-12 RA11-100-12	RD12-5S1000 RA12-5S1000
21.6-26.4			1-C 2-C	RD11-100-24 RA11-100-24	RD24-5S1000 RA24-5S1000
42.0-56.0			1-C 2-C	RD11-100-48 RA11-100-48	RD48-5S1000 RA48-5S1000
4.5- 5.5 10.8-13.2 21.6-26.4	12V	300	1-B 1-B 1-B	LD12-030-5 LD12-030-12 LD12-030-24	LD5-12S300 LD12-12S300 LD24-12S300
4.5- 5.5 10.8-13.2 21.6-26.4 42.0-56.0		500	1-C 1-C 1-C 1-C	RD12-050-5 RD12-050-12 RD12-050-24 RD12-050-48	RD5-12S500 RD12-12S500 RD24-12S500 RD48-12S500
4.5- 5.5	±12V	±150	1-B 2-B	LD22-030-5 LA22-030-5	LD5-12D150 LA5-12D150
10.8-13.2			1-B 2-B	LD22-030-12 LA22-030-12	LD12-12D150 LA12-12D150
21.6-26.4			1-B 2-B	LD22-030-24 LA22-030-24	LD24-12D150 LA24-12D150
4.5- 5.5		±250	1-C 2-C	RD22-050-5 RA22-050-5	RD5-12D250 RA5-12D250
10.8-13.2			1-C 2-C	RD22-050-12 RA22-050-12	RD12-12D250 RA12-12D250
21.6-26.4			1-C 2-C	RD22-050-24 RA22-050-24	RD24-12D250 RA24-12D250
42.0-56.0			1-C 2-C	RD22-050-48 RA22-050-48	RD48-12D250 RA48-12D250
4.5- 5.5	±15V	±150	1-B 2-B	LD23-030-5 LA23-030-5	LD5-15D150 LA5-15D150
10.8-13.2			1-B 2-B	LD23-030-12 LA23-030-12	LD12-15D150 LA12-15D150
21.6-26.4			1-B 2-B	LD23-030-24 LA23-030-24	LD24-15D150 LA24-15D150
4.5- 5.5		±250	1-C 2-C	RD23-050-5 RA23-050-5	RD5-15D250 RA5-15D250
10.8-13.2			1-C 2-C	RD23-050-12 RA23-050-12	RD12-15D250 RA12-15D250
21.6-26.4			1-C 2-C	RD23-050-24 RA23-050-24	RD24-15D250 RA24-15D250
42.0-56.0			1-C 2-C	RD23-050-48 RA23-050-48	RD48-15D250 RA48-15D250

*Other versions available, please consult factory.
Socket Information: Fig. 1, RD, LD use socket P/N #100038
For socket dimensional information refer to page 23

Dimensions and Connections

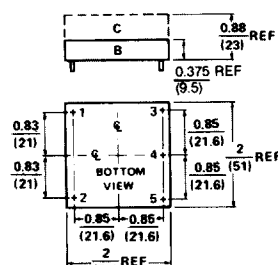


Fig. 1

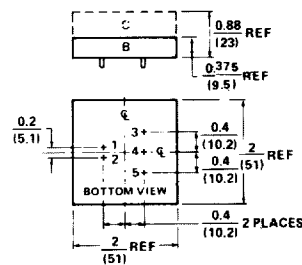


Fig. 2

Connections
Single Outputs
PIN 1 +Vdc in
2 -Vdc in
3 +Vdc out
4 Do Not Connect
5 -Vdc out

Dual Outputs
PIN 1 +Vdc in
2 -Vdc in
3 +Vdc out
4 Common out
5 -Vdc out

Notes:
1. Five Pins 0.040 (1.0) Dia x 0.2 (5.1) Lg Min
2. All Dimensions are in Inches and (mm)

Specifications Subject to Change Without Notice.