

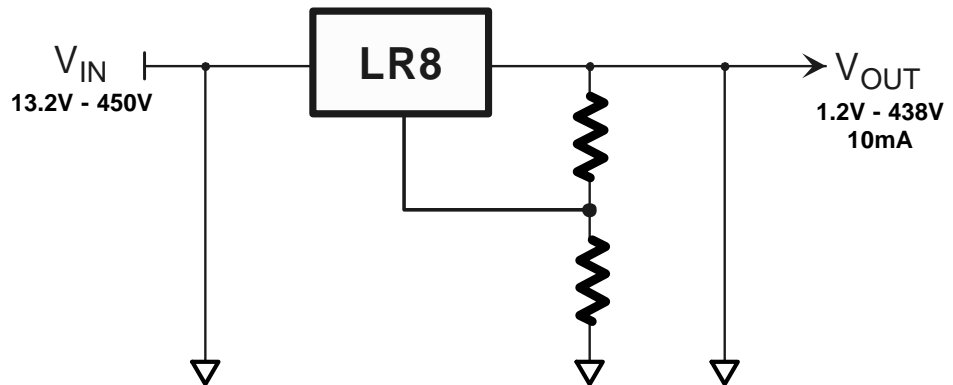
Product Summary Sheet

LR8 High Voltage, Off-Line Adjustable Three-pin Linear Regulator

Now available in space-saving D-Pak

Applications

- ◆ Trickle battery chargers
- ◆ High voltage linear power supplies for ATE, controls and instrumentation
- ◆ LED and Relay drivers for instrumentation & control equipment (*constant current operation*)
- ◆ Lighting controls and consumer appliances
- ◆ Meter reader supply
- ◆ Switch mode power supply start-up (*especially space constrained applications*)
- ◆ MEMs biasing supplies
- ◆ "Universal" input power supplies



Product Overview:

The LR8 is the industry's first D-Pak three-pin, high voltage linear regulator with adjustable output voltages (1.20V to 438V). The LR8 is designed for applications that require operation between 120VAC and 240VAC. The LR8 gives designers the flexibility to incorporate higher current capabilities at higher input voltages for a wide variety of cost-sensitive applications where board space is at a premium. The device offers a 13.2V to 450V input voltage range, making it ideal for universal off-line uses.

Features:

Wide Supply Voltage Range

Current Limit and Over Temperature Protection

Adjustable Output Voltage

TO-92, SOT-89 and D-Pak packages

Low Quiescent Current

Benefits:

Eliminates need for voltage selector switch in "Universal" input power supplies and allows worldwide usage with one design

Tolerates circuit faults without blowing fuses

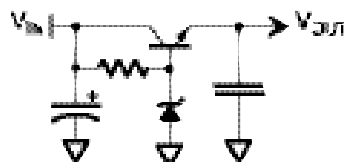
Accommodates many output voltage requirements

Conserves valuable PCB real estate

Efficient with low loads

When used for SMPS start-up, power consumption goes to nearly zero after start-up

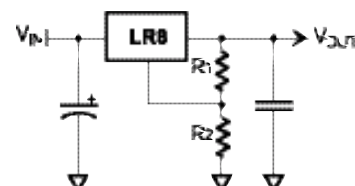
Discrete Implementation vs. LR8 Implementation:



Discrete Implementation

Disadvantages:

- High Quiescent Current
- Poor Regulation
- No Current Limit
- No Overtemperature Protection
- Zener used to set regulation



LR8 Implementation

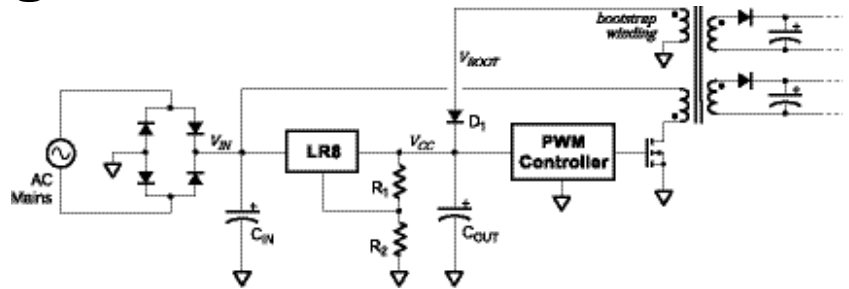
Advantages:

- Lower Quiescent Current
- Better Regulation
- Built-in Current Limiting
- Overtemperature Protection
- 2 resistors set regulation
- Higher efficiency

LR8 High Voltage, Off-Line Adjustable Three-pin Linear Regulator

Operation:

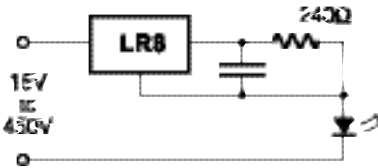
Except for its higher voltage capability, the LR8 operates like any other three-terminal adjustable linear regulator. A simple resistive voltage divider sets output voltage. A capacitor at the output is required for transient response and regulator stability. If applicable, a capacitor is required at the input to provide energy storage for rectified AC input.



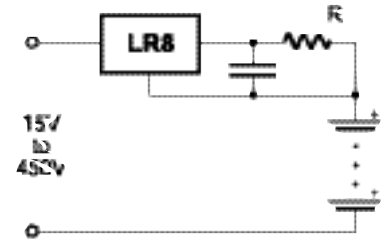
Startup Circuit for Switching Power Supply

Constant Current Operation:

The LR8 may be configured to provide a constant current output. The current is independent of both supply voltage and load impedance. Constant current operation allows this new device to be used in driving LEDs and trickle-charging NiCad batteries, as shown below. The trickle charger is used for applications that require battery backup (i.e. no cycling) such as emergency lights.



Constant Current LED Driver



NiCad Battery Trickle Charger

Main Specifications:

Input Voltage Range:	13.2V to 450V	Output Current:	10mA max.
Output Voltage Range:	1.2V to ($V_{\text{INPUT}} - 10\text{V}$)	Load Regulation:	3.0%
Output Voltage Accuracy:	+5%	Line Regulation:	0.01%/V
Power Dissipation:	TO-92: 0.74W TO-243AA: 1.6W TO-252: 2.5W	Supply Regulation:	60dB typ. @ 120Hz

Ordering Information / Availability:

Part Number	Datasheet	Samples	Lead Time	Package Options
LR8	LR8 Now	LR8N3, LR8N8, LR8K4 Now	4 - 6 weeks ARO	LR8N3 - TO-92 LR8N8 - TO-243AA LR8K4 - TO-252

Product Contact

If you have any questions regarding the LR8 or samples, contact Supertex Applications at:

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Supertex Sales:

Contact your local Supertex Sales Office

LR8K4 D-Pak

