

## LM150/LM350A/LM350

### 3-Amp Adjustable Regulators

#### General Description

The LM150 series of adjustable 3-terminal positive voltage regulators is capable of supplying in excess of 3A over a 1.2V to 33V output range. They are exceptionally easy to use and require only 2 external resistors to set the output voltage. Further, both line and load regulation are comparable to discrete designs. Also, the LM150 is packaged in standard transistor packages which are easily mounted and handled.

In addition to higher performance than fixed regulators, the LM150 series offers full overload protection available only in IC's. Included on the chip are current limit, thermal overload protection and safe area protection. All overload protection circuitry remains fully functional even if the adjustment terminal is accidentally disconnected.

Normally, no capacitors are needed unless the device is situated more than 6 inches from the input filter capacitors in which case an input bypass is needed. An output capacitor can be added to improve transient response, while bypassing the adjustment pin will increase the regulator's ripple rejection.

Besides replacing fixed regulators or discrete designs, the LM150 is useful in a wide variety of other applications. Since the regulator is "floating" and sees only the input-to-output differential voltage, supplies of several hundred volts can be regulated as long as the maximum input to output differential is not exceeded, i.e., avoid short-circuiting the output.

By connecting a fixed resistor between the adjustment pin and output, the LM150 can be used as a precision current

regulator. Supplies with electronic shutdown can be achieved by clamping the adjustment terminal to ground which programs the output to 1.2V where most loads draw little current.

The part numbers in the LM150 series which have a K suffix are packaged in a standard Steel TO-3 package, while those with a T suffix are packaged in a TO-220 plastic package. The LM150 is rated for  $-55^{\circ}\text{C} \leq T_J \leq +150^{\circ}\text{C}$ , while the LM350A is rated for  $-40^{\circ}\text{C} \leq T_J \leq +125^{\circ}\text{C}$ , and the LM350 is rated for  $0^{\circ}\text{C} \leq T_J \leq +125^{\circ}\text{C}$ .

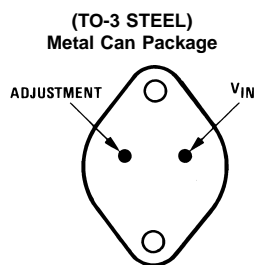
#### Features

- Adjustable output down to 1.2V
- Guaranteed 3A output current
- Guaranteed thermal regulation
- Output is short circuit protected
- Current limit constant with temperature
- P+ Product Enhancement tested
- 86 dB ripple rejection
- Guaranteed 1% output voltage tolerance (LM350A)
- Guaranteed max. 0.01%/V line regulation (LM350A)
- Guaranteed max. 0.3% load regulation (LM350A)

#### Applications

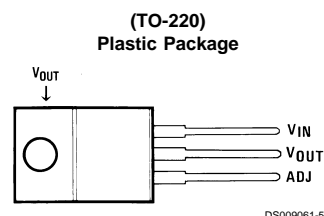
- Adjustable power supplies
- Constant current regulators
- Battery chargers

#### Connection Diagrams



Case is Output

**Bottom View**  
**Order Number LM150K STEEL**  
**or LM350K STEEL**  
**See NS Package Number K02A**  
**Order Number LM150K/883**  
**See NS Package Number K02C**



**Front View**  
**Order Number LM350AT or LM350T**  
**See NS Package Number T03B**