

AT2596

Simple Switcher Power Converter 150KHz

3A Step-Down Voltage Regulator



Immense Advance Tech.

FEATURES

- 3.3V, 5V, 12V and Adjustable output versions
- Adjustable version output voltage range, 1.23V to 35V \pm 4% max over line and load conditions
- Guaranteed 3A output load current
- Requires only 4 external components
- Excellent line and load regulation specifications
- 150kHz fixed frequency internal oscillator
- TTL shutdown capability
- Low power standby mode, I_o typically 80 μ A
- High efficiency
- Uses readily available standard inductors
- Thermal shutdown and current limit protection

APPLICATIONS

- Pre-regulator for linear regulators
- High-efficiency step-down (buck) regulator
- On-card/board switching regulators
- Positive to negative converter
- Industry products: LCD TV / LCD monitor / CCTV / Network camera

DESCRIPTION

The AT2596 series of regulators are monolithic integrated circuits that provide all the active functions for a step-down (buck) switching regulator, capable of driving a 3A load with excellent line and load regulation. These devices are available in fixed output voltages of 3.3V, 5V, 12V, and an adjustable output version.

Requiring a minimum number of external components, these regulators are simple to use and include internal frequency compensation, and a fixed-frequency oscillator.

The AT2596 series operates at a switching frequency of 150 kHz thus allowing smaller sized filter components than what would be needed with lower frequency switching regulators. Available in a standard 5-lead TO-220 package with several different lead bend options, and a 5-lead TO-263 surface mount package.

A standard series of inductors are available from several different manufacturers optimized for use with the AT2596 series. This feature greatly simplifies the design of switch-mode power supplies.

Other features include a guaranteed \pm 4% tolerance on output voltage under specified input voltage and output load conditions, and \pm 15% on the oscillator frequency. External shutdown is included, featuring typically 80 μ A standby current. Self protection features include a two stage frequency reducing current limit for the output switch and an over temperature shutdown for complete protection under fault conditions.

TYPICAL APPLICATION CIRCUITS (Fixed Output Voltage Versions)

