

LM2594

Buck Regulator, Switching, 0.5 A

Product Overview

For complete documentation, see the data sheet.

The LM2594 series of Buck Switching Regulators are monolithic integrated circuits that provide all the active functions for a step-down (buck) switching regulator, capable of driving a 1A load with excellent line and load regulation.

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

The LM2594 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 8-lead PDIP package and 8-lead SOIC surface mount package.

A standard series of inductors are available from several different manufacturers optimized for use with the LM2594 series. This feature greatly simplifies the design of switch-mode power supplies.

Other features include a guaranteed +/-4% tolerance on output voltage under specified input voltage and output load conditions, and +/-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. See LM2596 for 3.0A and LM2595 for 1.0A.

Features

- Adjustable output voltage range, 1.2V to 37V +/-4% max over line and load
 - Available in TO-220 and D2PAK packages
 - Guaranteed 0.5A output load current
 - Input voltage range up to 40V
 - Excellent line and load regulation specifications
 - 150 kHz fixed frequency internal oscillator
 - TTL shutdown capability
 - Low power standby mode, Iq typically 80 μ A
 - Uses readily available standard inductors
 - Thermal shutdown and current limit
- For more features, see the data sheet

Benefits

- Flexible to configure for different output voltages and applications
- Different mounting options
- High power density designs
- Can be used with several input voltage supplies (+12V, +24V, +36V)
- Provides a stable power supply
- No external component required to set frequency
- Easy to implement low power modes
- Power saving mode
- Quick and easy implementation
- Additional protection against faults

Applications

- Simple high-efficiency step-down (buck) regulator
- On-card switching regulators
- Positive to negative converter

End Products

- LCD-TV SMPS

Part Electrical Specifications

Product	Pricing (\$/Unit)	Compliance	Status	Topology	Control Mode	V _{CC} Min (V)	V _{CC} Max (V)	V _O Typ (V)	I _O Typ (A)	Efficiency (%)	f _{sw} Typ (kHz)	Package Type
LM2594DADJR2G	0.935		Active	Step-Down	Voltage Mode	4.5	40	1.23	0.5	85	150	SOIC-8

Application Diagram

