ACE7445LA

42V, 1.6MHz, 600mA Step-Down Converter

Description

The ACE7445LA is a wide input range, high- efficiency, and high frequency DC-to-DC step- down switching regulator, capable of delivering up to 0.6A of output current.

With a fixed switching frequency of 1.6MHz, this current mode PWM controlled converter allows the use of small external components, such as ceramic input and output caps, as well as small inductors.

Including cold crank and double battery jump- starts, the minimum input voltage may be as low as 4.5V and the maximum up to 42V, with even higher transient voltages. With these high input voltages, linear regulators cannot be used for high supply currents without overheating the regulator. Instead, high efficiency switching regulators such as ACE7445LA must be used to minimize thermal dissipation.

ACE7445LA is available SOT23-6 Packages.

Features

- Wide Input Operating Range from 4.5V to 42V
- 435mΩ internal NMOS
- Up to 94% Efficiency at 18V in 12V out L=47uH with 350mA loading
- Internal compensation
- Capable of Delivering 600mA continuous output current
- Fixed 1.6MHz PWM operation
- Internal soft start
- Output voltage adjustable down to 0.795V
- Cycle-by-cycle current limit
- Current Mode control
- Short-circuit protection
- Logic Control Shutdown EN can be short to VIN
- Thermal shutdown and UVLO
- Available in SOT23-6 Package

Application

- Smart/Industrial/Power Meters
- Industrial Applications
- Automotive Applications

Absolute Maximum Rating

Parameter	Value
Input Voltage Range	-0.3V-45V
Max Operating Junction Temperature (Tj)	150°C
SW, EN Voltage	–0.3V to VIN+0.3V
BST Voltage	–0.3V toSW+6V
FB Voltage	–0.3V to 6V
SW to ground current	Internally limited
Operating Temperature (To)	-40°C –85°C
Package Thermal Resistance (θjc)	110°C / W
Storage Temperature (Ts)	-55°C - 150°C
ESD Rating	2000V

(Note: Exceeding these limits may damage the device. Exposure to absolute maximum rating conditions for long periods may affect device reliability.)

Notes

ACE does not assume any responsibility for use as critical components in life support devices or systems without the express written approval of the president and general counsel of ACE Technology Co., LTD. As sued herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and shoes failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.