



ACE735N

High Efficiency, 1.5A 40V Input Synchronous Step-Down Regulator

Description

ACE735N develops a high efficiency synchronous step-down DC-DC converter capable of delivering 1.5A load current. The ACE735N operate over a wide input voltage range from 4V to 40V and integrate main switch and synchronous switch with low $R_{DS(ON)}$ to minimize the conduction loss.

The ACE735N adopts peak current control scheme. The switching frequency is 2MHz. Low output voltage ripple and small external inductor and capacitor sizes are achieved with 2MHz switching frequency.

The device also features ultra low quiescent operating to achieve high efficiency under light load. And the internal soft-start limits inrush current during power on.

Features

- Low RDS(ON) for Internal Switches
(Top/Bottom):380mΩ/180mΩ
- 4.0-40V Input Voltage Range
- 1.5A Output Current Capability
- 2MHz Fixed Switching Frequency
- 0.8V±1.0% Reference Voltage
- Low Quiescent Current
- Internal Soft-start Limits the Inrush Current
- Hic-cup Mode Output Short Circuit Protection
- Thermal Shutdown and Auto Recovery
- Compact Package: SOT23-6

Applications

- LCD-TV
- Set Top Box
- Notebook
- Storage
- High Power AP Router
- Networking



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Absolute Maximum Ratings (Note1)

Parameter	Value	
Supply Input Voltage	40V	
BST to SW Voltage	4V	
All other pins	VIN + 0.3V	
Power Dissipation, PD@T _A =25°C	0.4 W	
Package Thermal Resistance (Note 2)	θ_{JA}	TBD°C/W
	θ_{JC}	TBD°C/W
Junction Temperature Range	150°C	
Lead Temperature (Soldering, 10sec.)	260°C	
Storage Temperature Range	-65°C to 150°C	

Note 1: Stresses beyond the “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only. Functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

Note 2: θ_{JA} is measured in the natural convection at T_A= 25°C on a low effective single layer thermal conductivity test board of JEDEC 51-7 thermal measurement standard.

Note 3: The device is not guaranteed to function outside its operating conditions.

Recommended Operating Conditions (Note 3)

Parameter	Value
Supply Input Voltage	4.5V to 40V
Junction Temperature Range	-40°C to 125°C
Ambient Temperature Range	-40°C to 85°C

Note 3: The device is not guaranteed to function outside its operating conditions.



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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 Electronics Co., LTD. As used 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 whose 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.