



ACE7377N

High Efficiency, 3A, 23V, 500kHz Synchronous Step Down Regulator

Description

The ACE7377N is a high efficiency 500 kHz synchronous step-down DC-DC converter capable of delivering 3A current. The ACE7377N operates over a wide input voltage range from 4.5V to 23V and integrates main switch and synchronous switch with very low $R_{DS(ON)}$ to minimize the conduction loss. Low output voltage ripple and small external inductor and capacitor sizes are achieved with 500 kHz switching frequency. It adopts the instant PWM architecture to achieve fast transient responses for high step down applications

Features

- low $R_{DS(ON)}$ for internal switches (top/bottom): 105m Ω /50m Ω
- 4.5-23V input voltage range
- 3A output current capability
- 500 kHz switching frequency
- Instant PWM architecture to achieve fast transient responses.
- Cycle-by-cycle peak current limitation
- Internal softstart limits the inrush current
- Hic-cup mode output short circuit protection
- $\pm 1.5\%$ 0.6V reference

Application

- Set Top Box
- Portable TV
- Access Point Router
- DSL Modem
- LCD TV



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Absolute Maximum Ratings (Note 1)

Parameter	Value	
Supply Input Voltage	25V	
BS-LX, SS	4V	
All other pins	VIN + 0.3V	
Power Dissipation, PD @ T _A = 25°C	1.5W	
Package Thermal Resistance (Note 2)	θ_{JA}	66°C/W
	θ_{JC}	15°C/W
Junction Temperature Range	150°C	
Lead Temperature (Soldering, 10 sec.)	260°C	
Storage Temperature Range	-65°C to 150°C	

Recommended Operating Conditions (Note 3)

Parameter	Value
Supply Input Voltage	4.5V to 23V
Junction Temperature Range	-40°C to 125°C
Ambient Temperature Range	-40°C to 85°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 two-layer Silergy Evaluation Board.

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.

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