



# ACE73100N

## High Efficiency, 100V Input, 3A Asynchronous Step-Down Regulator

### Description

The ACE73100N develops a high efficiency, current mode adaptive constant off time controlled, asynchronous step-down DC/DC converter capable of delivering 3A output current. The ACE73100N operates over a wide input voltage range from 4.5V to 100V and integrates main switch with very low  $R_{DS(ON)}$  to minimize the conduction loss. The switching frequency is adjustable from 100kHz to 500kHz using an external resistor. And the device features cycle-by-cycle peak current limitation.

### Features

- Low  $R_{DS(ON)}$  for Internal N-channel Power FET(TOP):150m $\Omega$
- 4.5-100V Input Voltage Range
- 3A Output Current Capability
- Adjustable Switching Frequency Range: 100kHz to 500kHz
- Internal Soft-start Limits the Inrush Current
- Hic-cup Mode Output Short Circuit Protection
- EN ON/OFF Control with Accurate Threshold
- Cycle-by-cycle Peak Current Limit
- 0.8V $\pm$ 1 % Reference Voltage Accuracy
- Compact Package: ESOP-8

### Application

- Non-isolated Telecommunication Buck Regulator
- Secondary High Voltage Post Regulator
- Automotive Systems
- Electric Bicycle



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### Absolute Maximum Ratings (Note 1)

Parameter	Value	
Supply Input Voltage	-0.3V to 100V	
BS-LX Voltage	-0.3V to 6V	
EN, FS, FB, PG, LX Voltage	-0.3V to VIN + 0.3V	
Power Dissipation, PD @ TA = 25°C	2.38W	
Package Thermal Resistance (Note 2)	$\theta_{JA}$	42°C /W
	$\theta_{JC}$	4°C /W
Junction Temperature Range	-40°C to 150°C	
Lead Temperature (Soldering, 10 sec.)	260°C	
Storage Temperature Range	-65°C to 150°C	
Dynamic LX Voltage in 10 ns Duration	VIN + 3V to GND-5V	

### Recommended Operating Conditions (Note 3)

Parameter	Value
Supply Input Voltage	4.5V to 100V
Junction Temperature Range	-40°C to 125°C
Ambient Temperature Range	-40°C to 85°C

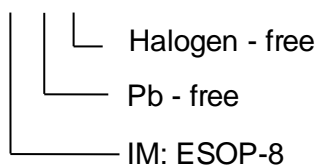
Note 1: Stresses beyond “Absolute Maximum Ratings” may cause permanent damage to the device. These are for stress ratings. Functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute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

Note 2:  $\theta_{JA}$  is measured in the natural convection at TA = 25°C on demo board.

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

### Ordering Information

ACE73100N XX + H

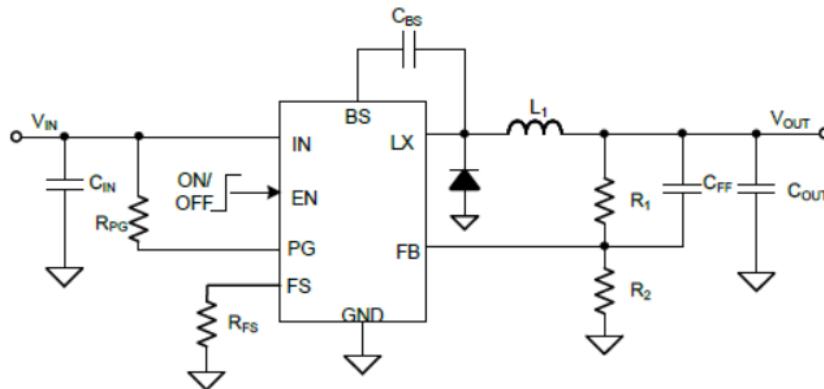




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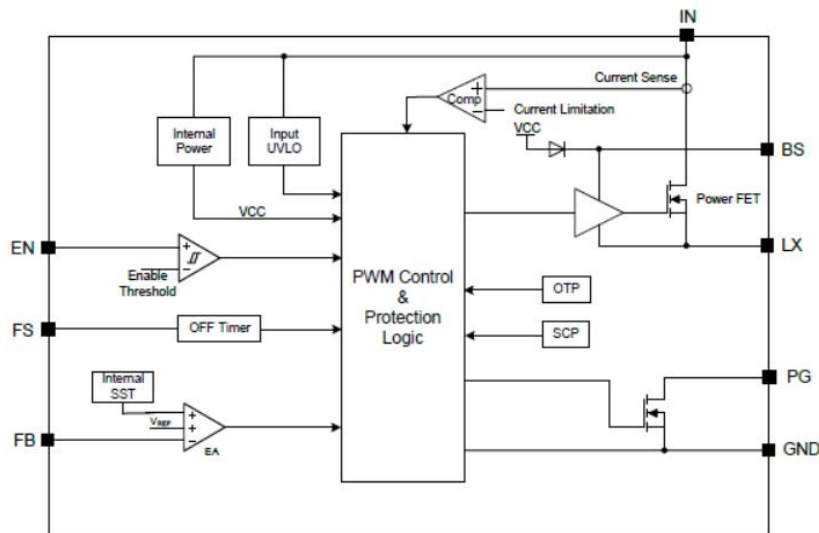
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## Typical Applications



Schematic Diagram

## Block Diagram





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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 Technology 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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