



ACE7238N

High Efficiency, 1MHz, 3A, 18V Input Synchronous Step Down Regulator

Description

The ACE7238N is a high efficiency 1MHz synchronous step down DC/DC converter capable of delivering 3A current. The ACE7238N operates over a wide input voltage range from 4.5V to 18V 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 1MHz 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): 80m Ω /40m Ω
- 4.5-18V Input Voltage Range
- 3A Output Current Capability
- 1MHz Switching Frequency
- Instant PWM Architecture to Achieve Fast Transient Responses.
- Internal Softstart Limits the Inrush Current
- $\pm 1.5\%$ 0.6V Reference
- TSOT23-6 Package

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	18V	
Enable Voltage	VIN+0.3V	
FB Voltage	4V	
Power Dissipation, PD @ TA = 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	
Dynamic SW voltage in 10ns duration	IN+3V to GND-4V	

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 TA = 25°C on a two-layer Silergy Evaluation Board.

Recommended Operating Conditions (Note 3)

Parameter	Value
Supply Input Voltage	4.5V to 18V
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 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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