



ACE7085D

Low Quiescent Current Synchronous Boost Regulator

Description

The ACE7085D is a compact, high-efficiency, synchronous step-up DC-DC converter. This family of devices provides an easy-to-use power supply solution for applications powered by either one-cell, two-cell or three-cell alkaline, NiCd, NiMH, one-cell Li-Ion or Li-Polymer batteries. It stays in operation with supply voltage down to 0.7V. The ACE7085D adopts hysteresis current control topology to adjust the output voltage by keeping inductor current constant which makes the output voltage ripple very small. High efficiency is accomplished by integrating the low-resistance N-Channel boost switch and synchronous P-Channel switch. All compensation and protection circuitry are integrated to minimize external components. Output voltage is set by a small external resistor divider.

Features

- Up to 96% Typical Efficiency
- 400mA Typical Peak Input Current Limit:
 - $I_{OUT} > 50\text{mA} @ 1.8\text{V } V_{OUT}, 0.9\text{V } V_{IN}$
 - $I_{OUT} > 100\text{mA} @ 3.3\text{V } V_{OUT}, 1.5\text{V } V_{IN}$
 - $I_{OUT} > 200\text{mA} @ 5.0\text{V } V_{OUT}, 4.2\text{V } V_{IN}$
- Low Device Quiescent Current:
 - Output Quiescent Current: $5\mu\text{A}$ typical, device is not switching ($V_{OUT} > V_{IN}$)
 - Input Sleep Current: $<1\mu\text{A}$
- Shutdown Current: $<1\mu\text{A}$
- Low Start-up Voltage: 0.8V
- Low Operating Input Voltage: down to 0.7V
- Operating Input Voltage From 0.8V to 5.0V
- Adjustable Output Voltage Range: 1.8V to 5.5V
- Feedback Voltage: 1.0V
- Internal Synchronous Rectifier
- Internal Compensation
- Over Temperature Protection
- Over Output Voltage Protection
- Input Undervoltage Lockout
- Adaptive Switching Frequency
- Available Packages: SOT-23-6. SC-70-6

Applications

- Solar Cell Applications
- Bias for Status LEDs
- Cell Alkaline and NiMH/NiCd Portable Products



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Absolute Maximum Ratings (Ta=25°C, unless otherwise specified)

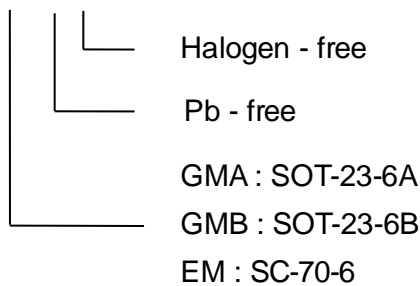
Parameter	Symbol	Ratings	Units	
Input Voltage	V _{IN}	-0.3 ~ 6	V	
SW Voltage		-0.3 ~ 6	V	
CE, FB Voltage		-0.3 ~ 6	V	
Output Voltage	V _{OUT}	-0.3 ~ 6	V	
Power Dissipation	PD	SOT-23-6	400	mW
		SC-70-6	250	mW
Ambient Temp. With Power Applied	T _{opr}	-40 ~ 85	°C	
Operating Junction Temperature	T _{stg}	-40 ~ 125	°C	
Soldering Temperature	T _{solder}	-65 ~ 150	°C	
ESD Rating	Human Body Model -(HBM)	2	KV	
	Machine Model -(MM)	200	V	

Note:

Stresses above those listed under “Maximum Ratings” may cause permanent damage to the device. This is a stress rating only and functional operation of the device at those or any other conditions above those indicated in the operational sections of this specification is not intended. Exposure to maximum rating conditions for extended periods may affect device reliability.

Ordering Information

ACE7085D XXX + H





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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.