ACE31855N

0.85V Minimum Input and 5. 5V Maximum Output High Efficiency 700nA Ultra Low IQ, 1A Synchronous Boost Advanced Design Specification

Description

ACE31855N is a high efficient, 700nA low IQ, synchronous, Boost converter designed for one-cell Li-Ion or Li-polymer, or a two to three-cell alkaline Ni-Cd or Ni-MH battery powered applications. It can convert down to 0.85V input voltage. It adopts NMOS for the main switch and PMOS for the synchronous switch.

ACE31855N can disconnect the output from input during the shutdown mode. When input voltage exceeds the regulated output voltage, ACE31855N enters bypass mode automatically.

Features

- 0.85V Minimum Input Voltage
- Adjustable Output Voltage From 1.8V to 5.5V
- Min 1A Valley Current Limit
- 700nA Low Quiescent Current
- 5V/0.5A Output Capability
- Load Disconnect During Shutdown
- Low RDS(ON) (Main Switch/Synchronous Switch) at 3.3V Output: 120/200mΩ
- Output OVP
- RoHS Compliant and Halogen Free
- Auto Bypass Mode When VIN ≥VOUT
- Compact Package SOT23-6

Applications

- All Single Cell Li or Dual Cell Battery Operated Products as MP-3 Player, PDAs, and Other Portable Equipment

Absolute Maximum Ratings (Note1)

Parameter		Value
FB, IN, OUT, EN		-0.3V to 6.0V
LX		-0.3V (*1) to 6.0V(*2)
Power Dissipation, PD@T_A=25°C		1W
Package Thermal Resistance (Note 2)	θ_{JA}	100°C/W
	θ_{JC}	30°C/W
Junction Temperature Range		-40°C to 150°C
Lead Temperature (Soldering, 10sec.)		260°C
Storage Temperature Range		-65°C to 150°C

(*1) LX Voltage tested down to -3V< 20ns

(*2) LX Voltage tested up to +7V< 20ns

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 may affect device reliability.

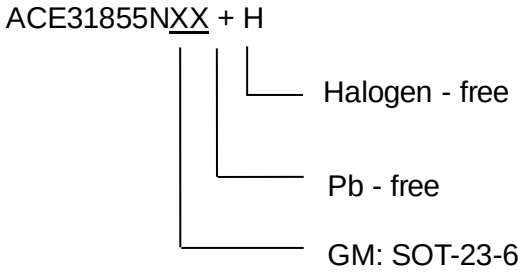
Note 2: Package thermal resistance is measured in the natural convection at TA = 25°C.

Recommended Operating Conditions (Note 3)

Parameter	Value
IN	0.85V to 5.5V
OUT	1.8V to 5.5V
EN	0V to V_{OUT}+0.3V
Supply Input Voltage	2.8V 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.

Ordering information



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 sued 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 shoes 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.