ACE7136U

36V Boost LED Driver with PWM and single wire interface dimming

Description

The ACE7136U is a highly integrated LED driver IC capable of driving 10 WLEDs in series. It is composed of a current mode boost converter integrated with a 38V/1A power switch. The ACE7136U supports a wide input voltage range from 2.8Vto 5.5V and runs at a fixed frequency of 1MHz. The LED current is set via an external resistor and the feedback voltage is regulated to 200mV. During operation, the LED current is controlled by the duty cycle of the $\overline{\text{SHDN}}$ input signal, which determines the feedback reference voltage.

The ACE7136U can modify dimming to support 64-step pulse dimming. More details are shown in the Timing Diagram section.

The ACE7136U also has internal overvoltage protection setting to prevent the output from exceeding the absolute maximum ratings during open LED conditions. It is available in Green SOT-23-6 package and operates over an ambient temperature range of -40°C to 85°C.

Features

- Flashlight lighting scheme use
- High Output Voltage: Up to 36V
- Internal Soft-Start and Compensation
- 200mV Reference Voltage
- PWM Dimming and Frequency Range from 500Hzto 50kHz
- 64-Step Pulse Dimming
- Open LED Protection
- Internal Over Voltage Protection Setting
- Over Temperature Protection
- Current Limit Protection
- RoHS Compliant and Halogen Free

Application

- Mobile Phone and Smart Phone
- Digital Camera and GPS
- Portable DVD Player

Absolute Maximum Ratings

Symbol	Parameter		Value	Unit
V_{IN}	Supply Voltage on V_{IN} (Note 2)		-0.3 to 6V	V
V_{FB}, $V_{\overline{SHDN}}$	Voltages on FB, $\overline{SHDN}$(Note 2)		-0.3 to 6V	V
V_{SW},V_{OVP}	Voltages on SW, OVP(Note 2)		-0.3 to 42V	V
P_D	Power Dissipation	T_A = 25°C	0.684	W
		T_A = 70°C	0.447	
θ_{JA}	Package Thermal Resistance(Note 3)		190	°C/W
T_J	Operating Junction Temperature		+155	°C
T_{STG}	Storage Temperature Range		-65 to 150	°C
T_L	Maximum Lead Temperature (Soldering , 10s)		260	°C

Note :

1. Stresses beyond those listed under absolute maximum ratings may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under recommended operating conditions is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.
2. All voltage values are with respect to network ground terminal.
3. Junction to Ambient thermal Resistance is highly dependent on PCB layout.
4. θ_{JA} is measured in the convection at T_A=25℃(or T_A=70℃)on a High effective thermal conductivity test board of JESD51-7 thermal measurement standard
5. The maximum recommended junction temperature (T_J) of the ACE7136U is 155°C,the thermal resistance of the ACE7136U is θ_{JA}=190°C/W, specified regulator operation is assured to a maximum ambient temperature T_A of 25°C .there for the maximum power dissipation is calculated as below:

$$P_{D(MAX)}= (T_{J(MAX)} - T_{A)} / \theta_{JA} = (155 - 25) / 190 = 0.684W$$

6. The device is not guaranteed to function properly beyond absolute maximum ratings.

Ordering Information

ACE7136U XX + H

- Halogen - free
- Pb - free
- GM : SOT-23-6

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.