ACE5D3115P

60V/1.5A Step-down High Brightness LED Driver

Description

The ACE5D3115P is an inductive step-down converter that uses continuous conduction mode, specifically designed for single or multiple string LED drives. Due to the use of a DC/DC switching buck converter architecture, the efficiency is superior to traditional linear drive power supplies. It can work under a wide input voltage range of 6V~60V, and can support a maximum LED driving current of 1.5A. It also provides dimming control pin to dynamically adjust the LED current.

The ACE5D3115P adopts a high-Side current detection circuit, which sets the average operating current of the LED light under normal conditions through an external detection resistor, and adjusts the current over a wide range by setting it to DC voltage or PWM pulse through the DIM voltage regulator pin. You can also turn off the LED by lowering or pulling down the DIM pin, allowing the chip to enter low- power standby mode. This low-level voltage only needs to be less than or equal to 0.3V. The chip Integrates power MOSFET for switch control.

The ACE5D3115P is available in SOT89-5L package, with excellent heat dissipation performance.

Features

- Simple low parts count
- Wide input voltage range：6V~60V
- High efficiency (up to 97%)
- Up to 1.5A output current
- Single pin on/off and brightness control
- Up to 1MHz switching frequency
- Typical 3% output current accuracy
- Inherent open-circuit LED protection and Rs open protection
- High-Side Current Sense
- Adjustable Constant LED Current
- Over temperature protection and thermal shutdown

Application

- Low voltage halogen replacement LEDs
- Automotive lighting
- Low voltage industrial lighting
- LED back-up lighting
- Illuminated signs

Absolute Maximum Ratings

Symbol	Items	Value	Unit
VIN	Input voltage	-0.3~60	V
SW	Drain of the internal power switch	-0.3~60	V
CSN	Current sense input	-6~0.3	V
DIM	Logic level dimming input	-0.3~6	V
I_{SW}	Switch output current	1.5	A
P_D	Dissipation power	1.2	W
θ_{JA}	Thermal resistance	80	°C /W
T_J	Junction temperature	-40~150	°C
T_{OPR}	Ambient temperature	-40~85	°C
T_{STG}	Storage temperature	-55~150	°C
T_{SOLDER}	Package lead soldering temperature	260°C, 10s	
ESD	HBM	±2	KV

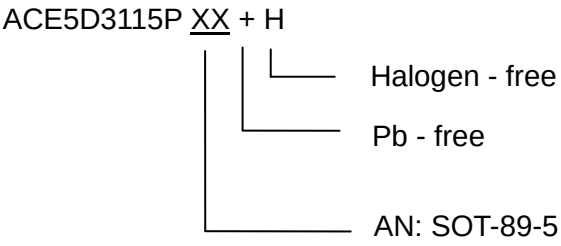
Recommended Operating Range

Symbol	Items	Min.	Max.	Unit
VIN	Input voltage	6	50	V
T_{OPR}	Operating Temperature	0	85	°C

Note：

1. Exceed these limits to damage to the device. Exposure to absolute maximum rating conditions may affect device reliability.
2. The maximum allowable power consumption will decay with increasing temperature, and the influencing factors include environmental temperature Ta and thermal resistance θ_{JA} and junction temperature T_J The calculation formula for maximum power consumption is $P_{DMAX} = (T_{JMAX} - T_A)/ \theta_{JA}$。

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.