ACE7360X

Step-Down WLED-Current Controller with Wide 6v to 60v input Voltage

Description

The ACE7360X is a high-efficiency step-down controller. It is designed to operate in continuous current mode (CCM) to power LEDs of high-brightness with a wide input voltage range of 6V to 60V.

The ACE7360X employs a hysteretic control architecture that accurately regulates LED current with a feedback coming from an external high-side current-sense resistor. This control scheme optimizes circuit stabilization and fast response time without loop compensation. Its low 200mV average feedback voltage reduces power loss and improves the converter's efficiency. The ACE7360X implements PWM and analog dimming together through the EN/DIM pin.

The ACE7360X includes thermal overload protection in case of output overload.

The ACE7360X is available in SOT23-6 package.

Features

- Wide 6V to 60V Input Range
- Able to Drive >1A LED Load
- Hysteresis Control
- High Efficiency (>95%)
- 2500:1 PWM Dimming Ratio
- Open LED Protection
- Short LED Protection
- Thermal Shutdown
- RoHS and Halogen free compliance.

Application

- Low Voltage Halogen Replacement
- Low Voltage General Illumination
- Automotive/Decorative LED Lighting
- Signs/Emergency Lighting
- LED Backlighting

Absolute Maximum Rating (TA = 25°C) (2)

Parameter		Rating
V_{IN}		V to +65V
V_{RS}		(V_{IN} - 5V) to V_{IN}
All Other Pins		V to +6.5V
Continuous Power Dissipation		0.6W
Junction Temperature		150°C
Lead Temperature		260°C
Storage Temperature		-65°C to 150°C
Thermal Resistance (3)	θ_{JA}	170°C/W
	θ_{JC}	75°C/W

Notes:

1. Exceeding these ratings may damage the device.
2. The maximum allowable power dissipation is a function of the maximum junction temperature T_J(MAX), the junction-to-ambient thermal resistance θ_{JA}, and the ambient temperature T_A. The maximum allowable continuous power dissipation at any ambient temperature is calculated by P_D(MAX)=(T_J(MAX)-T_A)/ θJ_A. Exceeding the maximum allowable power dissipation will cause excessive die temperature, and the regulator will go into thermal shutdown. Internal thermal shutdown circuitry protects the device from permanent damage.
3. Measured on JESD51-7, 4-layer PCB.

Recommended Operating Conditions (Note)

Parameter	Rating
Supply Voltage V_{IN}	V to 60V
Operating Junction Temp. (TJ)	-40°C to 125°C

Note: The device is not guaranteed to function outside of its operation conditions.

Notes

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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.