

White LED Boost Converter with PWM Dimming and Single-Wire Interface

DESCRIPTION

The EUP2961A is a constant current step-up converter specifically designed to drive white LEDs. With a 40V rated integrated switch FET, the step-up converter supports up to 10 white LEDs in series connection, so the LED currents are identical for uniform brightness. The boost converter runs at 1.2MHz fixed switching frequency with 1.3A switch current limit, and allows for the use of a high brightness LED in general lighting. The maximum white LED current is set with the external sensor resistor R_{FB} , and the feedback voltage is regulated to 200mV, as shown in the typical application. During the operation, the LED current can be controlled through the EN pin in two modes. With a 8KHz or higher frequency PWM dimming signal on EN pin, EUP2961A operates in PWM dimming mode, which the duty cycle determines the feedback reference voltage. EUP2961A can operate in digital dimming mode also, which a Single Wire interface on the EN pin is integrated to adjust the FB voltage in 32 steps. In either digital or PWM mode, the EUP2961A does not generate audible noises on the output capacitor. For the over voltage protection, the EUP2961A provides 38V OVP to prevent damage from LED open.

The EUP2961A is available in a space-saving 2mm×2mm TDFN package.

FEATURES

- 2.7V to 5.5 V Input Voltage Range
- 38V Output Over Voltage Protection
- Integrated 40V N-MOSFET
- Internal Soft-Start
- Single-Wire Serial Pulse Interface to Set LED Current with 32-Step Scale
- External PWM Dimming with 8kHz to 300kHz Frequency Range
- Over Thermal Protection
- V_{IN} Under Voltage Lockout
- Available in 2mm×2mm TDFN-6 package
- RoHS Compliant and 100% Lead (Pb)-Free Halogen-Free

APPLICATIONS

- Mobile Phones
- GPS Navigation Systems
- Portable Media Players
- Handheld Devices, Digital Camera
- Portable Game Machines

Typical Application Circuit

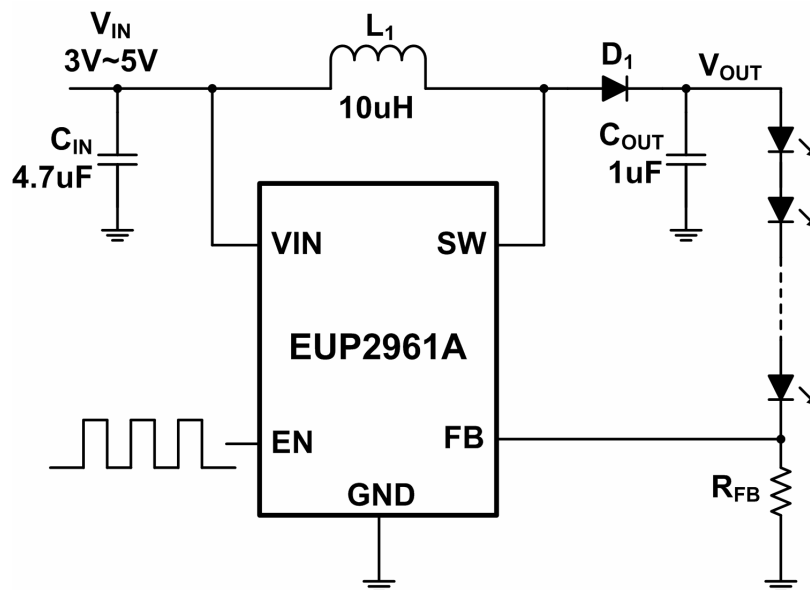


Figure 1. WLED Application