80-V Buck LED Drivers Perform Highly Accurate Dimming

Infineon Technologies' ILD8150/E LED driver ICs feature an innovative hybrid dimming mode for achieving 0.5% of the target current. With a supply voltage range from 8 Vdc up to 80 Vdc, the driver ICs provide a high safety voltage margin for applications operating close to safe extra-low voltage (SELV) limits. The driver ICs are ideally suited for general and professional LED lighting applications with high dimming requirements.

The ILD8150/E offer a deep dimming performance without flicker and prevent audible noise. A PWM input signal between 250 Hz and 20 kHz controls the LED current in analog dimming output mode from 100% to 12.5% and from 12.5% to 0.5% percent in hybrid dimming mode, with a flicker-free modulation frequency of 3.4 kHz. The digital PWM dimming detection with high resolution and the low power shutdown match the ILD8150/E to microcontrollers. The devices also have a dim-to-off function and a pull-down transistor to avoid LED glowing in dim-to-off mode.

The ILD8150/E drive up to 1.5 A using a high-side integrated switch featuring a low $R_{DS(ON)}$ of 290 mΩ, enabling high power designs with an efficiency of more than 95%. The drivers incorporate a soft-start function to protect the primary stage from abrupt current requests and a shunt resistor for adjustable maximum output current.

Precise output current accuracy of typical 3% from one device to another under all load and input voltage conditions make the ICs well suited for applications such as tunable white and flat panel designs where current must be identical. Additionally, undervoltage lockout (UVLO) for the bootstrap voltage and overtemperature protection functions are beneficial for professional LED lighting solutions.

The LED driver ICs are both packaged in a DSO-8, which enables wave soldering (see the figure). However, the ILD8150E's DSO-8 package features an exposed pad, which allows better thermal performance. Both variants can be ordered now. For more information, see the ILD8150 product page and the ILD8150E product page.

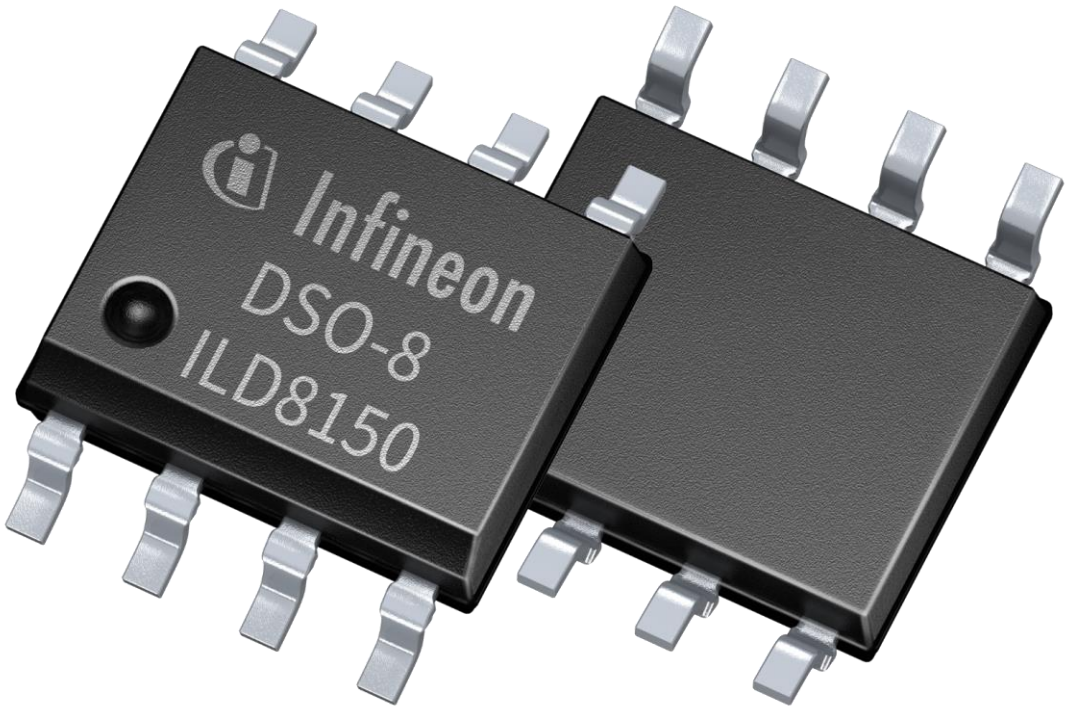

Figure. The ILD8150/E buck LED driver ICs offer deep dimming performance without flicker and prevent audible noise. A PWM input signal between 250 Hz and 20 kHz controls the LED current in analog dimming output mode from 100% to 12.5% and from 12.5% to 0.5% percent in hybrid dimming mode, with a flicker-free modulation frequency of 3.4 kHz.