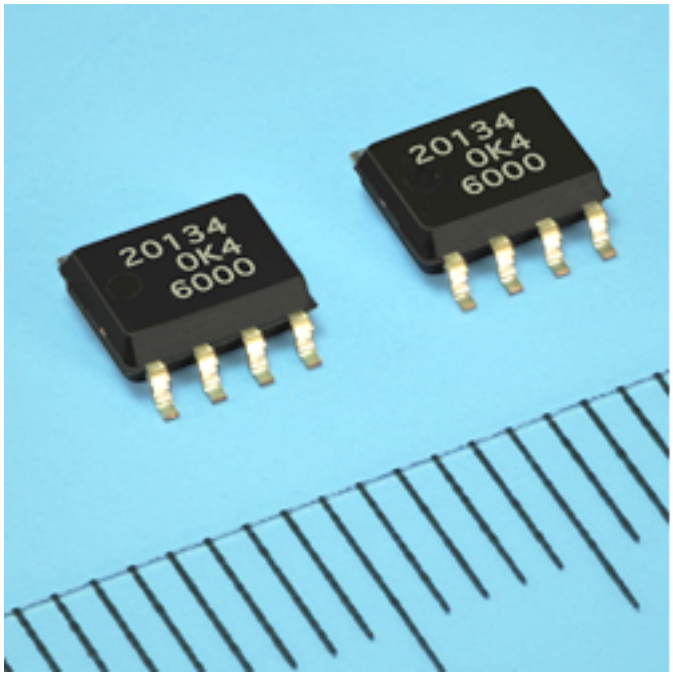
LED Driver IC Offers Reduced System Cost



Renesas Electronics America Inc. today announced the availability of its R2A20134 LED driver IC that supports LED lighting applications with high efficiency and a high power factor at low cost.

The market scale of the LED lighting field is expected to grow substantially, mainly spurred by the adoption of LED lighting as a replacement for incandescent light bulbs. Since LEDs use direct current drive, it is necessary to convert the commercial alternating current (AC) power supply to direct current (DC). This requirement to add AC-DC conversion circuits has brought to the forefront a demand for elements designed to address issues such as cost, conversion efficiency and power factor. In response, a variety of control methods for LED lighting drivers have been announced. Using exclusive voltage step-down control technology, Renesas Electronics has succeeded in developing an LED driver IC that delivers high efficiency and a high power factor at low cost.

Main features of the new R2A20134 LED driver IC

(1) Reduced system cost

Renesas Electronics' exclusive voltage step-down control technology (single-stage) provides a high line-to-ground voltage. In addition, the ability to select low-voltage MOSFETs (voltage tolerance of only 500 volts (V) to 300 V, rather than the typical 700 V) further contributes to lower system cost.

(2) High efficiency and a high power factor

The use of Renesas Electronics' exclusive high-voltage control and critical-

conduction mode (Note 1) enable zero-current switching at turn-on and switching in a low drain-source voltage state. As a result, the new LED driver IC enables reduction of power loss during switching and achieves the industry-leading power factor (Note 2) of 92 percent (Note 3) by reducing the power loss during switching. In addition, critical-conduction mode allows PFC (power factor correction) control using few external components and realizes a power factor of 0.9 or higher.

(3) Support for various LED control modes

A variety of control modes can be achieved by changing the configuration of the externally connected elements. Examples include buck-boost control, average-current control, peak-current control, and constant-input-power control.

Renesas Electronics' R2A20134 LED driver IC also can be employed in TRIAC dimmer applications by applying a voltage matched to the TRIAC phase to the FB (feedback) pin for constant-current control. The company additionally supplies drive MOSFETs meeting a variety of power and performance requirements.

Pricing and Availability

Samples of Renesas Electronics' new LED driver IC will be available starting in December 2010, priced at US$1 per unit. Mass production is scheduled to begin in March 2011 and is expected to reach 3,000,000 units per month. (Pricing and availability are subject to change without notice.)

More information about the product specifications can be found at http://www.renesas.com/press/news/news20101210_s.html [1].

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