

Marvell's Breakthrough Deep Dimming LED Driver IC Accelerates Mass Adoption Of Energy Efficient LED Retrofit Bulbs

Marvell's 88EM8183 LED Driver IC, Tested for Dimmer Compatibility by Lighting Control Leader Lutron, Offers Advanced Deep Dimming Technology, the Highest Dimmer Compatibility in the Industry, and Cuts Component Counts in Half

SANTA CLARA, Calif., Feb. 7, 2012 /PRNewswire/ -- [Marvell](#) (Nasdaq: MRVL) today announced the Marvell® 88EM8183 deep dimming single-stage AC/DC LED driver integrated circuit (IC). The 88EM8183 LED driver IC delivers the highest dimmer compatibility and lowest component count in the industry, while providing superior light quality and dimming performance comparable to incandescent bulbs.

(Logo: https://investor.marvell.com/image/Marvell_logo.jpg)

To ensure the dimming compatibility of the 88EM8183 IC, Marvell engineering worked closely with Lutron, the industry leader in lighting controls, testing various dimmers from Lutron including the C-L series dimmer, which is rated for LED as well as traditional lamps.

Leveraging Marvell's unique mixed-signal architecture and advanced dimming control technology, the highly integrated 88EM8183 LED driver IC is designed to achieve smooth deep dimming as low as 1 percent LED current, a significant performance improvement compared to competitive LED driver solutions that typically achieve 10 to 20 percent dimming, which the human eye does not perceive as a significant drop in light level. The 88EM8183 IC is also designed to be compatible with more than 100 different types of (TRIAC) wall box dimmers from various manufacturers around the world, providing consumers an out-of-the-box dimming experience that exceeds that of previous solutions, and provides an exceptional LED dimming experience. Additionally, the 88EM8183 IC reduces the number of components needed for LED drivers by more than half, dramatically shrinking needed board space, allowing OEMs and ODMs to bring LED lighting to all kinds of lamp form-factors, including A19, PAR, BR, GU10 and Candle, without compromising dimming performance.

"As consumers replace legacy lighting solutions such as incandescent bulbs with energy saving LEDs, they expect the same or better lighting experience. Unfortunately, they often discover issues with dimming capability, resulting in the perception that the LED lamps are barely dimming, or flickering when dimmed. Many LED bulbs are also not compatible with existing wall dimmers already installed in homes," said Kishore Manghnani, Vice President of Green Energy Products at Marvell Semiconductor, Inc. "Marvell's new 88EM8183 deep dimming LED driver IC offers OEMs and ODMs the most compatible dimming solution with the vast majority of dimmers on the market, and also superior light quality, decreasing consumer dissatisfaction and returns."

Moreover, the 88EM8183 IC supports universal AC input and a wide range of LED output wattages from a few watts up to 100 watts. This capability allows lighting OEMs and ODMs to dramatically reduce design efforts and improve operational efficiency by taking a product platform approach, which reduces the number of LED lamp SKUs and streamlines inventory management.

Marvell and Lutron

To ensure the dimming compatibility of the 88EM8183 IC, Marvell engineering worked closely with Lutron, the industry leader in lighting controls. Extensive testing on a pre-silicon reference design has shown Marvell's 88EM8183 will work with Lutron's popular C-L dimmer family, Grafik Eye QS, RadioRa 2, and other system products.

"A major complaint we receive from retailers regarding the transition from incandescent to LED lighting solutions is consumer dissatisfaction with high-performance dimming capabilities in retrofitted bulbs," said Ed Blair, Vice President and General Manager of Lutron. "For excellent dimming performance, and a great customer experience, we recommend the use of the Lutron C-L dimmer family, which has shown good performance with Marvell's 88EM8183 solution. While finished designs still need to be tested against applicable safety and performance criteria, LED lighting products which use the 88EM8183 driver chip should yield excellent dimming performance on approved Lutron controls."

Marvell 88EM8183 Key Highlights

Marvell's 88EM8183 IC:

- Implements advanced dimming control algorithms to comply with the National Electrical Manufacturers Association Solid State Lighting 6 (NEMA SSL 6) dimming standard.
- Employs Marvell's unique primary side current control method, which eliminates the need for an opto-coupler and associated feedback circuit while delivering high regulation accuracy over wide range AC input.
- Integrates a high voltage start-up circuit to supply power to the chip during power up, eliminating an external field-effect transistor (FET) and associated power circuits.
- Monitors dimmer status and manages dimmer load to maintain proper operations through the internal digital core and analog circuit, eliminating external dimmer bleeder circuits required by existing solutions on the market.
- Delivers up to 90 percent efficiency, power factor above 0.95 and lower than 20 percent total harmonics distortion via unique design techniques, enabling lighting OEMs and ODMs to easily exceed ENERGY STAR requirements.
- Supports both fly-back and buck-boost topologies for isolated and non-isolated bulbs

Availability:

Marvell is currently sampling 88EM8183 silicon and reference designs for different types of LED and retrofit lamps to leading LED lighting OEM partners.

Related Links:

- 88EM8183 Product Information: <http://www.marvell.com/green-technology/led/88EM8183/>
- Information on LED lighting approved for high-performance dimming with Lutron controls: www.lutron.com/dimcflled.
- Marvell media materials: http://www.marvell.com/company/press_kit/

About Marvell

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