

## **LED driver addresses cost and lifetime issues in price-sensitive retrofit bulbs**



[iWatt Inc.](#) [1] launched a digital AC/DC solid state lighting (SSL) LED driver platform designed specifically to address the key issues of cost and lifetime in price-sensitive, non-dimmable, residential SSL bulb applications. The first device in this new platform is the [iW3626](#) [2], a single-stage driver with output power up to 10W for 60W-equivalent, non-dimmable LED bulbs. The iW3626 allows SSL designers to reduce their bill of materials (BOM) cost as much as 20%<sup>(1)</sup> compared to competitive solutions and is believed to be the first SSL LED driver to offer an on-chip, user-configurable power factor correction (PFC) to manage the trade-off between PFC and output current ripple. Additionally, an internal, configurable over-temperature protection (OTP) and derating function enables a predictable and reliable bulb operating life. This combination of features gives LED bulb manufacturers a new approach for lower-cost, higher-performance, non-dimmable SSL incandescent bulb replacement applications.

The iW3626 was developed in close cooperation with several iWatt key customers, including Eastfield International Industries, Ltd., which has designed the iW3626 into its next-generation, non-dimmable SSL bulb product lines.

Regulations around the world mandate performance requirements, such as PFC and

input harmonics and these regulations vary by country and by application. In single-stage LED drivers, there is a correlation between improving PF and increasing output ripple. The patent-pending, user-configurable PFC feature in the iW3626 allows designers to configure the PF strength from  $> 0.7$  to  $> 0.9$ , enabling them to meet the various global mandates, while effectively managing the trade-off between power factor and output ripple. This helps ensure the required power factor can be achieved with low output ripple, minimizing both heat and flicker, with no impact to overall cost or size.

The on-chip, configurable over-temperature protection and derating feature of the iW3626 monitors the temperature inside the sealed SSL bulb. When thermal conditions reach a point set by the system designer, the iW3626 LED driver automatically reduces the current drive to the LEDs, lowering the power dissipation and resulting in cooler overall operation. This reduces the risk of thermal runaway and ensures the temperature rating of the electrolytic capacitors in the system is not exceeded, thereby helping ensure predictable bulb operating life. Additional built-in protection features include LED open/short, input over-voltage, over-current, and current-sense resistor short protections.

The iW3626 achieves up to 20% BOM cost savings via its highly integrated design features. It allows FETs to be replaced with lower-cost, bipolar junction transistors (BJTs), eliminating the need for high-voltage electrolytic capacitors, and includes the configurable over-temperature protection feature on board. Additionally, iWatt's patented PrimAccurate primary-side control eliminates the need for a secondary-side regulator and optical feedback isolator.

The iW3626 is packaged in a standard, low-cost, 6-lead SOT23 package, which can be used in single-layer PC boards for additional cost savings and a smaller design footprint.

### **iW3626 key features**

- Output power: 10W (for 60W equivalent bulbs)

## LED driver addresses cost and lifetime issues in price-sensitive retrofit bulb

Published on Electronic Component News (<http://www.ecnmag.com>)

---

- User-configurable power factor from > 0.7 to > 0.9
- PrimAccurate primary-side control reduces solution size, lowers BOM cost, increases reliability
- Up to 20% BOM savings<sup>(1)</sup>
- High efficiency > 85% at high line
- Tight LED current regulation better than  $\pm 5\%$
- LED over-temperature protection and derating
- Meets global standards, including European Union IEC61000-3-2<sup>(2)</sup> requirements
- Small SOT-23 package

### Pricing, availability

The iW3626 is available now in production quantities. Samples are available at \$0.35 in 1000-piece quantities. Product brief is available: [iW3626 Product Brief](#) [3].

For more information, visit <http://www.iwatt.com> [1]

### Source URL (retrieved on 07/01/2015 - 8:50am):

<http://www.ecnmag.com/product-releases/2013/01/led-driver-addresses-cost-and-lifetime-issues-price-sensitive-retrofit-bulbs>

### Links:

[1] <http://www.iwatt.com/>

[2] <http://www.iwatt.com/iw3626.php>

[3] [http://www.iwatt.com/pdf/prod\\_brief/iW3626\\_Product\\_Brief.pdf](http://www.iwatt.com/pdf/prod_brief/iW3626_Product_Brief.pdf)