

Top Ten Myths of LEDs: #8 - "LEDs are best left to China"

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I have been in the LED business for almost twenty years, and each year I hear a comment along the lines of "LEDs are a commodity product". What's the definition of a commodity product? It's one that is very cheap, undifferentiated, anybody can make it, and margins are low. And each year, I look at the margins of top-tier LEDs, which are 30%+ and the highest of any products in the solid-state lighting supply chain, and think "why do people say that? "

The LED is the heart and soul of any solid-state lighting product. Its efficacy determines the light output and heat load, its spectral characteristics determine the color quality, its size determines the available beam angles and overall product dimensions, and its lumen and color maintenance characteristics determine those of the final product as well. In fact, getting all of these aspects right is very difficult, as it requires deep technical understanding and know-how in epitaxial growth, semiconductor device physics, optics, luminescent materials, packaging, integration, etc. And we are far from reaching the limit of what LEDs can do. Entitlement on LED efficacy is more than two times where we are today, the sources sizes can be much smaller, and the light output can be much higher. With so much headroom for improvement left, there's still enormous opportunity for innovation and technology advancement that will continue to spearhead change in the lighting industry, and the LEDs derived from this will continue to command high margins as they provide enormous value at the system level.

Here at Sora in California, I am proud to be surrounded by a world class team of engineers and scientists who really get this, and relentlessly drive performance in every aspect of our [GaN on GaN](#) [1] LEDs. Rather than copy what others have done, they dig deep into each technical area, innovate, and develop new and better approaches, as demonstrated by dramatic advances in LED performance (+40% in less than 8 months) which have delivered the brightest retrofit MR16 lamps in the market - hands down, not to mention unsurpassed color rendering and unique, breakthrough performance in whiteness rendering.

While analysts continue to wait for the day when LEDs become a commodity, we

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quietly innovate and advance the technology in ways they could not imagine, transforming a previously stale industry into a cutting-edge one, while improving peoples' lives by making unprecedented quality of light widely available with dramatic energy savings. Meanwhile, the majority of subsidized MOCVD reactors in China sit unqualified and idle, as LED newcomers in that land struggle with the fact that, unlike a solar panel based on a fully matured silicon material system, the LED is technically very challenging, with more complicated materials and device physics aspects, and no 'off-the-shelf' processing to deliver world class performance.

“Commodity”, indeed...

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[1] <http://www.soraa.com/technology/gan-on-gan>