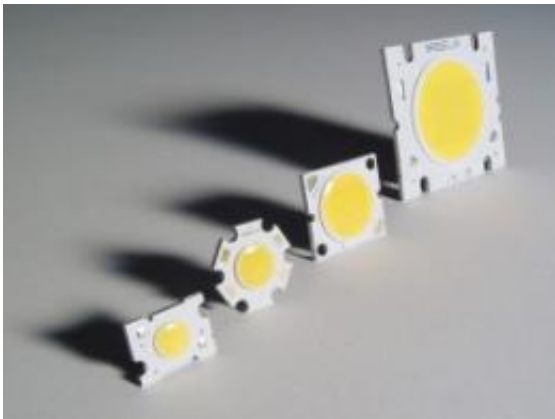


Bridgelux demonstrates silicon substrate LED that produces 135 lumens per watt

March 9 2011, by Katie Gatto



(PhysOrg.com) -- Silicon substrate LED's are cool, but you won't find them in your TV, or in the headlights of your car. They simply do not throw off enough light to be used in commercial applications. Or, at least they did not used to be able to.

Bridgelux Inc., a California-based developer of semiconductor technology and solid-state lighting, [has demonstrated](#) a silicon [substrate](#) LED with a [light](#) output of 135 lumens per watt. The company believes that this is the first time that anyone has created "commercial grade" performance from a [silicon substrate](#) LED.

The performance of 135 lumen per watt came to fruition by using a

single 1.5-mm diameter LED that is operated at 350-mA. The LED's have a color correlated temperature (CCT) of 4730K. In order to function the LEDs require a 2.9-V at 350-mA and less than 3.25-V at 1-A.

Instead of using the more commonly found sapphire or silicon carbide substrates to create the epitaxial wafers that are used to create the LED, Bridgelux decided to use the less expensive to produce, by growing, gallium nitride on low-cost [silicon wafers](#). These grown wafers come in 150-, 200- and 300-mm diameters that can, according to Bridgelux, deliver a 75 percent improvement in cost.

Products based on this technology are at least two to three years to come to market. Some of the potential applications for this technology include commercial and office lighting, residential lighting applications, and retrofit lamps that the company hopes will convert to the solid state lighting. No word as to any specifics as to when you can expect to buy a GaN-on-Silicon based LED lamp.

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