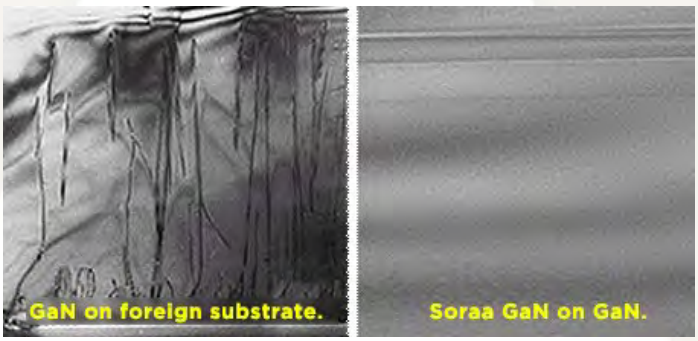
TECHNOLOGY

GAN ON GAN

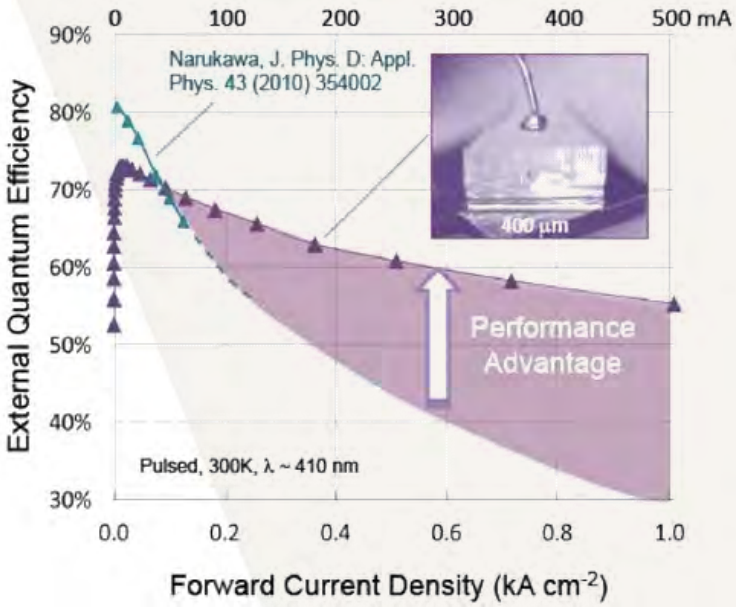


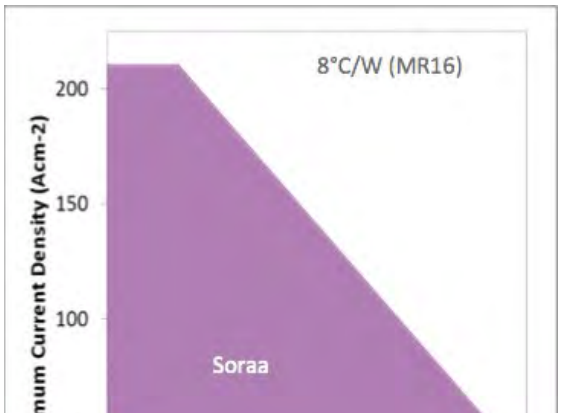
10x Higher Output

The main advantage of Soraa's GaN on GaN (Gallium Nitride on Gallium Nitride) LED material is that it allows reliable operation at very high current densities. It has 1000x fewer defects than conventional LEDs, which have GaN layers on cheaper foreign substrates like sapphire, silicon carbide, or silicon. This enbles Soraa LEDs to emit 10x more light per unit area of LED material than conventional LEDs. GaN on GaN's optical transparency and high thermal and electrical conductivity also enable a very robust, simple LED design that delivers maximum light output and performance.

Gen 2 LED Performance

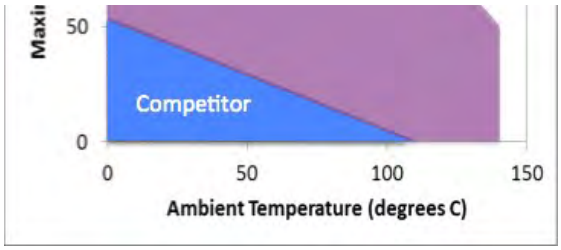
In February 2013, Soraa announced world-record performance from its GaN on GaN LEDs. For applications that require very high light output from tiny form factors – e.g. MR16 lamps – Soraa's Gen 2 LEDs deliver unprecedented performance and color rendering. The SORAA PREMIUM 2 and VIVID 2 LED MR16 lamps use these Gen 2 LEDs.





Highest Operating Temperature

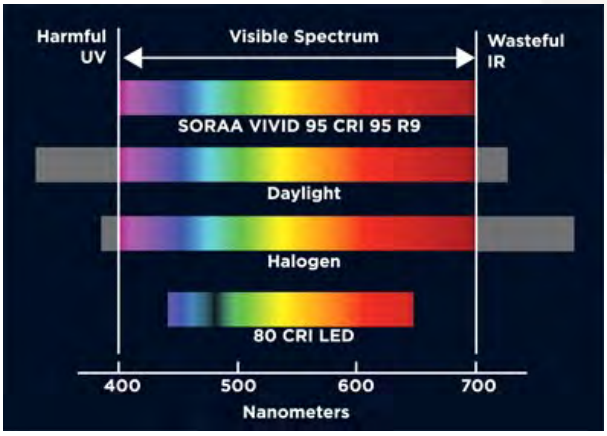
Soraa's GaN on GaN LEDs can tolerate much higher temperatures than first generation LEDs. This, in turn, enables a simple and elegant lamp design – no fan, only a heatsink – that produces light output equivalent to the brightest halogen lamp and operates reliably at lamp temperatures of up to 120°C, a requirement for use in the most constrained fixtures.



Perfect Spectrum Light

Conventional LEDs use a blue emitter pumping two phosphors to make white light. The resulting spectrum does not exactly match the black body curve for visible light – it has a high blue spike and is missing important parts of the spectrum in violet and cyan. These LEDs can also have values either above or below the black body curve, making their light greener or pinker. GaN on GaN enables Soraa's LEDs to use a violet LED emitter pumping three phosphors, thus achieving a closer match to the black body curve, and delivering a perfectly balanced full-visible-spectrum light closest to daylight - in fact even better, as it has no ultraviolet or infrared emission.

LEARN MORE ABOUT PERFECT SPECTRUM LIGHT



FIND YOUR PERFECT LAMP

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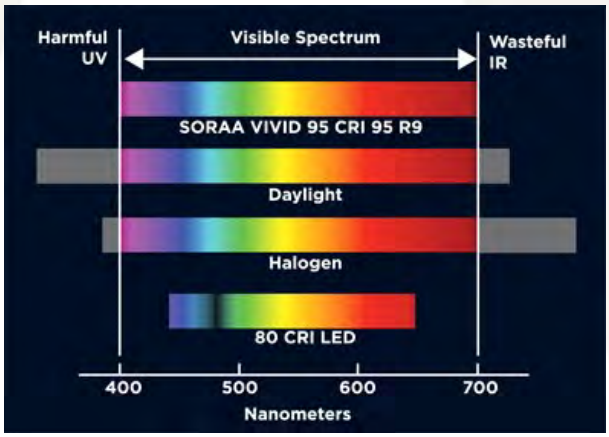
QUALITY OF LIGHT



Perfect Spectrum Light

What do we mean by "perfect spectrum" in man-made light sources? Most of us think of daylight when we think of the perfect light source. Daylight does provide beautiful light, but must be constantly mitigated, as it contains harmful ultraviolet radiation, and can be overpoweringly bright and glaring. A perfect spectrum contains only the wavelengths visible to us- no ultraviolet (UV) or infrared (IR) radiation. This makes it both beautiful and efficient, as energy is not wasted producing unnecessary heat or unbalanced amounts of light in different parts of the spectrum.

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Perfect Colors

When light sources with low color rendering capabilities are compared side by side with perfect spectrum light sources, the difference is dramatic. Soraa Vivid lamps, with 95 CRI and 95 R9, render parts of the spectrum missing from first generation Low CRI LEDs, such as deep reds, cyans, and violet. Many of the things that are most important to us in our environment- faces, food, fabrics, furniture, and finishes- contain complex colors that don't look quite right unless they are lit with full spectrum light containing these essential colors.

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Perfect Whites

An often overlooked characteristic of light sources is their ability to render white, arguably as important as color rendering. Soraa's GaN on GaN technology provides a full-spectrum light source, with continuous emission from violet through deep red. The violet emission properly excites the fluorescing agents present in fabrics and fibers and renders white materials properly, just like they were designed for under natural light sources such as incandescence and sunlight.

Perfect Beam

Most lamps have irregular beam patterns with many artifacts and poor center-to-edge color consistency. So when choosing an LED MR16 lamp, it's important to evaluate all the features of usable light, including Center Beam Candle Power (CBCP), field, beam shape, and color over angle. Only Soraa's LED MR16 lamp delivers a perfect circular beam, with the right amount of CBCP and field, minimal spill, soft transitions and high center-to-edge color consistency.

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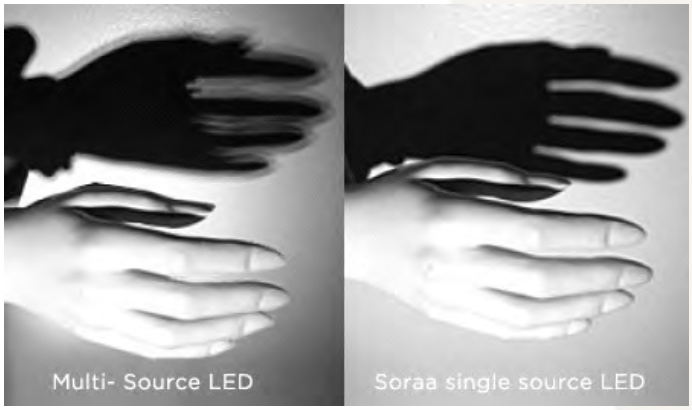

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