

# Cree LED Redefines Video Display and Signage with Groundbreaking Innovations

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In the rapidly evolving world of video signage and screen technology, LEDs are the critical components that define the clarity, impact and overall reliability of large-format digital displays. Whether used for outdoor video screens, indoor displays or signage applications, specialized display LEDs play an essential role in capturing attention, delivering messages effectively and simplifying display design.

As a global innovator, Cree LED leads the industry in high-performance display LED components, recognized for its cutting-edge technologies and exceptional reliability. Highlighting its leadership in pioneering video LED advancements, several patented innovation milestones are summarized in the table below.

## Cree LED Innovation Milestones

Year	Patented Leadership Innovation	Initial Product
2006	Launched the first outdoor SMD LED	CLV6A LEDs
2007	Created first tilted viewing angle RGB LEDs for displays	P2 C4SMT LEDs
2008	Conceived a fully black coated LED for better contrast	CLMVA LEDs
2010	Introduced first “no cover” LEDs for displays and developed LED with enhanced waterproofing	CLY6X LEDs
2012	Conceived 4-sides coating of white SMD, reducing the need for dual molding	CLX6 LEDs
2013	Released common anode package to enable 2 mm pitch high-resolution displays, reduce package size and assembly time and cost	PLCC4 LEDs
2017	Launched 3-in-1 Lensed LED with multi-cavity design	CV94 SMD RGB LEDs
2024	Introduced FusionBeam™ packaging technology	CV28D LEDs

The patented CLV6A LEDs revolutionized display technology as the first IPX6 and IPX8-rated SMD LEDs for displays. These breakthrough components deliver dustproof, waterproof and submersible performance, ensuring unmatched visual quality, longevity and reliability in all weather conditions.

Further advancements in outdoor displays came with the introduction of patented CLY6 LEDs. Known for their high-contrast and high-intensity output, these LEDs set a new standard for outdoor video screens with features like IPX8 water resistance, wide viewing angles, high brightness and UV-resistant encapsulation.

In 2017, the groundbreaking 3-in-1 lensed CV94 SMD RGB LEDs were unveiled, featuring a multi-cavity design that enhances the color spectrum while replacing three LEDs with one. This innovation enabled smaller pixel pitches,

improved color mixing and superior contrast with its dark-body design. Dustproof and waterproof without the need for a cover, these LEDs simplified screen assembly and enhanced reliability. With three lens and tilt options, this LED once again set a benchmark for display solutions that continues to shape the industry today.

In 2024, Cree LED introduced the CV28D LED, marking a significant industry milestone as the first LED to combine the best of through-hole and SMD technologies. Featuring patented FusionBeam™ Technology, this innovative LED features a dark package to enhance contrast, delivering crisper text and sharper images. Its high resolution allows for dynamic displays of icons, photos, logos and video.

The company’s products have become the trusted choice for some of the most iconic and demanding LED installations worldwide. From large-scale video walls



## CV28D LEDs with patented FusionBeam™ Technology

High resolution, vivid colors and directional control

### HB SMD Multi-Color LEDs: Dynamic Lighting for High-Impact Displays

For applications requiring multi-color lighting effects, Cree LED HB SMD Multi-Color LED range is particularly well-suited for video screen and architectural lighting applications. These LEDs deliver vibrant, dynamic lighting, enhancing the visual experience for a wide range of installations.

#### Outdoor Video Screens

As a pioneer of IPX8-rated waterproof LEDs, Cree LED ensures that its products can withstand the harshest environmental conditions. From extreme temperatures

to moisture and dust, these LEDs continue to deliver high-intensity light for outdoor video screens, making them ideal for billboards, stadiums and transportation displays.

#### Indoor Video Screens

For indoor video applications that demand high resolution and reliability, Cree LED's multi-color LEDs are engineered to deliver superior performance. These LEDs provide vibrant colors, sharp images and long-lasting durability, making them the preferred choice for high-definition video walls and advertising displays.

#### Roadway and Variable Message Signs

One of Cree LED's key innovations is the CV94D SMD component, which replaces traditional through-hole P2 LEDs. This advancement enhances image quality and reduces assembly costs, making it an efficient solution for roadway signage and variable message displays.

#### Architectural Lighting

With Cree LED's industry leading RGBW, RGBA and RGB multi-color packages, designers can achieve stunning lighting effects. From illuminating skyscraper façade to creating dynamic public plaza displays, these LEDs offer unmatched color fidelity and brightness, bringing even the most ambitious designs to life.

### HB SMD Single-Color LEDs: Precision and Reliability for Critical Applications

A standout offering within Cree LED's HB product line is the SMD Single-Color LEDs. These LEDs are designed to deliver superior intensity and reliability across various applications, including LED video screens, single-color information displays and signal or architectural lighting.

to dynamic architectural lighting systems, they consistently deliver excellence in design, performance and durability, making the company a cornerstone of the LED video signage and screen industry.

To learn more about advancements in video LED technology, visit: <https://www.cree-led.com/news/hb-innovation/>

## Industry-Leading High Brightness LED Solutions

At the core of Cree LED's success in display applications is the High Brightness (HB) product family – a comprehensive range of LEDs designed to deliver superior intensity, reliability and longevity. Whether for indoor video displays, outdoor billboards or architectural installations, the HB family combines cutting-edge innovation and performance to meet diverse application needs.

Widely recognized for delivering maximum visual impact with best-in-class reliability, these high-brightness products have become the preferred choice for video screens, signage, architectural lighting and specialty lighting. Offering both multi-color and single-color options, the HB product family provides a broad range of footprints and performance levels, ensuring an ideal solution for every project.

- **Brightest and Most Reliable LEDs:** Renowned for intensity and reliability, these solutions ensure consistent performance, even in harsh environmental conditions.
- **Innovative Design:** As a leader in LED technology, Cree LED incorporates industry-first advancements, redefining the capabilities of LED lighting for video signage and display.
- **Versatile Product Range:** With single-color and multi-color packages, the HB family caters to the diverse requirements of the signage industry. From expansive outdoor installations to intricate indoor displays, these tailored solutions are designed to maximize visual impact.

## Key Features

- Available in a wide variety of colors and package styles, these LEDs provide designers and engineers with the flexibility to create custom visual experiences.
- Offered in a range of beam angles, they can be optimized for specific lighting needs, such as directional signage.
- Featuring industry-leading intensity, these LEDs ensure that displays are visible and vibrant, even in challenging lighting conditions.

Cree LED's SMD single-color LEDs have been trusted in high-profile installations worldwide, demonstrating exceptional reliability and performance in both indoor and outdoor environments.

## HB Through-Hole LEDs: Legacy of Excellence and Innovation

While surface-mount LEDs dominate many modern applications, through-hole LEDs remain essential for specific signage and video display applications. Known for their industry-leading performance, these LEDs offer unmatched durability, brightness and environmental resistance.

Cree LED's Screen Master® 4-mm and 5-mm oval LEDs are designed to deliver high-intensity light with precise beam control, making them ideal for full-color video screens, digital billboards and passenger-information signs. Their matched horizontal radiation pattern ensures uniform light distribution across large displays.

For white and single-color applications, the P2 LED series provides a wide variety of beam angles, enabling designers to customize lighting for specific requirements. Built with advanced optical-grade epoxy, these LEDs deliver exceptional resistance to high temperatures and moisture, ensuring long-lasting performance in outdoor environments.

## A Proven Track Record in High-Profile Projects

What sets Cree LED apart from its competitors is a proven track record in delivering LED solutions for large, high-profile projects worldwide. From Times Square displays to major sports arenas, their products are trusted to provide the intensity, reliability and performance required for high-visibility installations.

The ability to introduce industry-first innovations while maintaining best-in-class reliability has positioned Cree LED as the preferred partner for architectural lighting, video screens and digital signage in some of the most iconic locations around the globe. Their focus on developing cutting-edge technologies with resilient-rated LEDs ensures they remain at the forefront of the industry, consistently setting new standards for performance and efficiency.

## Conclusion

In today's fast-paced world of video signage and screen technology, where clarity, brightness and reliability are paramount, Cree LED stands as a global leader. With a comprehensive range of high-performance LED solutions, they continue to push the boundaries of what is possible in outdoor and indoor displays, architectural lighting and specialty applications.



A commitment to innovation, performance and reliability has solidified Cree LED's position as the go-to provider of resilient-rated LEDs, offering the durability required for long-term customer satisfaction in high-brightness LED applications worldwide. For video signage professionals and lighting designers seeking cutting-edge solutions that deliver maximum impact, they remain the trusted partner for next-generation LED technology. Learn more: <https://www.cree-led.com/products/leds/hb/>