

Wed, 15 June 2022
Weekly Newsletter


Lighting & ADAS

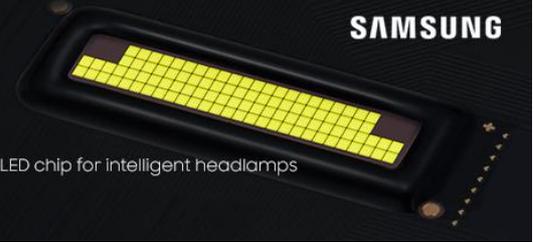
NEWSLETTER #755

PixCell LED

Ultimate precision in perfect alignment

100+ individual cells with just 25 μm spacing, perfectly matrixed onto a single LED chip for intelligent headlamps

SAMSUNG



Editorial

Tier 2's Endless Innovations

Without tier-2 innovation, tier-1 and automaker innovation would quickly stop dead. A month ago, I wrote an editorial emphasising the role of tier-2 lighting suppliers in the chain of innovation, and published an interview showcasing the innovations of one tier-2 supplier—a material maker—in optical silicone materials used to realise ADB.

Now, a month on, I bring you an article showing how an LED supplier is proposing an innovation to enhance safety and communication while reinforcing brand identity: miniLEDs as a new rear lamp solution. Read all about it! And that's just one example; there are numerous others bubbling up from tier-2 suppliers of light sources; optics; electronics; thermics; simulation tools, and software.

At the DVN US Workshop next week in Michigan, we will have two sessions dedicated to light sources with presentations and expositions by the likes of Samsung; Lumileds; Seoul Semiconductor, Texas Instruments; Kyocera SLD Laser; OLEDWorks, and many more.

Do register as soon you can; registrations are capped at 250 attendees for safety reasons.

Sincerely yours,


DVN CEO

In Depth Lighting Technology

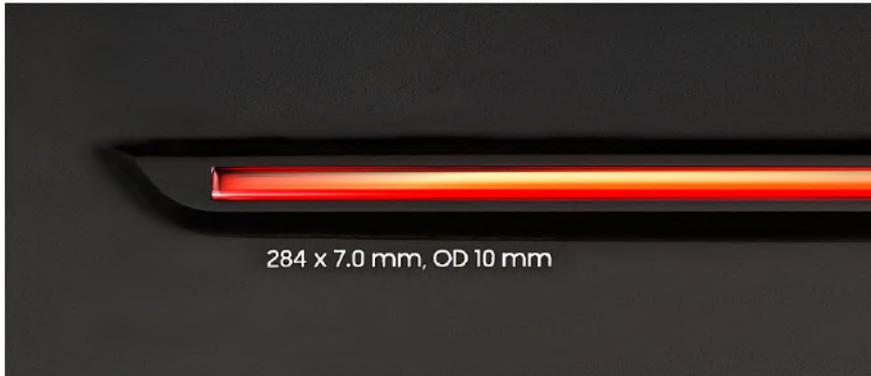
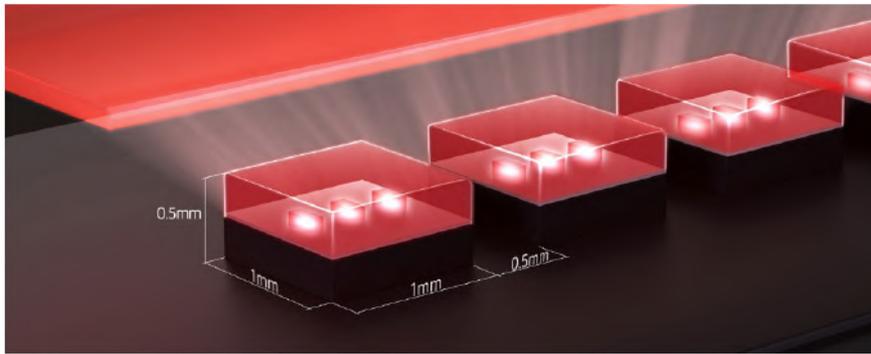


Samsung's MiniLED Rear Lamp Innovation



Rear lamps provide more than just functional lighting. In addition to their essential safety role, they are also a priority design feature. Automakers establish unique brand images through stylish rear lamps, and upgrade their communication capacity by adding various signal and animation effects. Vehicle lighting has expanded its role and function from simple illumination to a system that enhances safety and communication while reinforcing brand identity.

In keeping with this trend, Samsung have been working on miniLED rear lamps. As its name suggests, miniLEDs are very small; at just 1×1 mm, they're only one-ninth the size of a conventional PLCC type LED (3.2×2.8 mm). MiniLEDs can be placed with a 1.5-millimetre pitch, much closer than traditional LEDs, to enable ultra-slim and uniform lamp designs.



MiniLEDs offer distinct advantages in tail, stop and CHMSL applications. Samsung's engineers devised unusually thin panels to elegantly execute lamp functions while successfully customize dark areas with uniform optical design. Voilà: improved light quality and new avenues for creativity by designers unshackled from old design constraints.



MiniLED technology offers an ideal solution for future matrix-animated rear lamps, with exceptional performance and reliability. When building a matrix rear lamp with miniLEDs, high resolution can be achieved thanks to that small 1.5-mm pixel spacing, thus increasing design freedom and allowing for greater customizability.



Communication Displays with RGB MiniLEDs

With miniLED displays, drivers will be able to communicate in a way never before possible. RGB miniLEDs produce full-colour displays that can deliver more vivid signals and information (though certain colours have long been difficult for RGB LEDs to produce). As mobile technology advances, miniLEDs will be increasingly applied in a wider range of applications around the car. In the future, they can be applied anywhere on the exterior body of the vehicle to support more diversified and detailed communication.



Samsung miniLED product range

	R	RRR	RRR	RGB
Colour	Red (1 chip)	Red (3 chips)	Red (3 chips)	Red, Green, Blue
PSR	White	White	Black	Black
Size (mm)	1.0 x 1.0 x 0.5			
I _v (mcd)	200 @ 7 mA	600 @ 21 mA	450 @ 21 mA	R140/G330/ B80 @ 7 mA
Dom. Wave-length (nm)	621	621	621	R621/ G521 / B469
V _f (V)	2.2	2.2	2.2	R2.2/G3.0/B3.1
T _j	125 °C			

Lighting News

Integrated Silicon Solution's New LED Drive Chip

LIGHTING NEWS



Integrated Silicon Solution have announced a new single-chip driver for vehicle interior lighting.

Their IS32LT3175 is a feature-rich AEC-Q100 (Automotive Electronics Council) certified linear LED driver enabling reduced BOM for compact, low-cost designs. The chip integrates a single-channel LED driver with a programmable 150-mA current source; pushbutton control; courtesy signal input, and integrated programmable fade-in/fade-out lighting control. The device is designed for use in LED courtesy lights; dome lights; door lights, and other such applications.

It integrates all functions, eliminating the need for a microcontroller and several discrete components. Individual resistors are all that is required to adjust the LED current from 10 to 150 mA as well as the fade up/down ramp speed; there is no software programming required. The LED driver can be controlled by either a momentary contact switch or a courtesy signal input. An integrated debounce and latch circuit conditions the switch input so a single press of the mechanical switch does not appear like multiple presses.

Hella's Newest Ambient Interior

LIGHTING NEWS



HELLA IMAGE

The new Hella Slim Light system can indirectly set the scene for the interior and also enable wide-area lighting, such as in the door. The most striking feature of this system is its slim design and light weight. It can be embedded between several layers. The 8-mm system can thus also illuminate previously-unused space in the dashboard; headliner, or door. It can provide indirect or wide-area illumination.

Various surface materials and designs are possible, per customer requirements. Up to four LED modules can be used to display individual colours and dynamic lighting scenarios. A light guide ensures even light distribution, while the Hella High Power Module provides day and night visibility; it is said to offer around eight times more light output than standard RGB LED modules.

According to Hella, the installation space gained can be used for the integration of further sensor functions. In combination with smart lights integrated into the instrument panel; trim; or doors, the system can also support communication between occupants and the vehicle. For example, a light strip in the door could provide visual warnings for the blind spot assistant; a light bar could dynamically light up in turquoise when a phone call comes in, or a light bar below the windshield could flash red to warn the driver they are too close to the car ahead.

The interaction of lighting solutions and sensor technology brings more intelligence into the vehicle and, in turn, ensures greater comfort, wellbeing, and safety. Hella have put an initial concept into series production for two vehicle models in the North American market.

DVN Lidar Newsletter: Interview with Yole

LIGHTING NEWS



In an interview published in the monthly DVN Lidar newsletter, Pierrick Boulay—a lighting and display senior technology and market analyst in Yole Intelligence’s Photonics and Sensing division—provided great insight about the automotive lidar market. Here are two takeaways:

Consolidation of suppliers

"If you make the comparison with the camera and radar markets that are quite mature, you clearly see that four or five suppliers control 75 per cent of the market. We expect a similar landscape when lidar matures. We should see more mergers between lidar suppliers, and tier-1s acquiring lidar makers. It is too soon to tell if one technology will prevail. There are still some improvements to be made at the emitter or receiver levels, and ToF lidar at 905nm is still improving. To reach long range, we have seen several lidar manufacturers using a 1,550nm architecture".

Integration of lidar sensors with car lamps

"There are multiple locations where lidar could be integrated. lidars were initially integrated into the front grille, but recently other positions—such as the roof; the windshield; fenders; bumpers, or headlamps have become possible. The main advantage of lidar integrated into the lamps is the location on the corners of the car, enabling a very large field of view. The protection offered by the lamp cover is a clear advantage, and front cleaning systems can be re-used on headlamps. Another advantage is linked to the wiring, as the wiring of the head or rear lamps can be used for the lidar. As wiring is one of the heaviest components in cars, this is something to consider.

In terms of drawbacks, however, implementing lidar in headlamps would mean doubling the number of lidars necessary for L^3 , as only one lidar may be enough if placed in a central position (roof, windshield, grille). Heat issues will also have to be faced as LED modules also produce heat, and active cooling is already necessary in some cases. We also see a trend to a slim design of head or rear lamps. Implementing lidar in headlamps could be possible, but only for higher levels of automation when more lidars per car would be necessary".

Hella Voted Best Brand in ETM Reader Awards

LIGHTING NEWS



Hella has once again been voted Best Brand in this year's readers'-choice category as put forth by publisher EuroTransportMedia (ETM). A total of around 6,000 readers of the magazines Trans Aktuell; Lastauto Omnibus, Fernfahrer, and eurotransport.de voted for their respective favourites in a total of 29 different categories. In the lighting category, around 58 per cent of voters picked Hella—one of the top values this year.

Hella's independent-aftermarket marketing chief Jörg Harjes says "We are very pleased about this award and the great trust that customers have in our brand. Our goal is to offer high-quality products and services that provide customers with clear added value. The fact that we are now able to accept the award once again and by a large margin is confirmation of our work. For us, clear customer focus is and remains the measure of all things. In recent years, we have therefore further expanded our digital communication channels, among other things. With them, we help our customers to quickly and easily find the right products for the respective application. In this way, we have created additional added value and further increased customer loyalty. We will consistently build on this in the coming years".

EuroTransportMedia (ETM) are a leading trade publisher for commercial vehicles. Since 1997, they have annually called on commercial vehicle professionals to vote for their favourite models and brands.

Driver Assistance News

DVN Lidar Think Tank 2: Another Grand Success

DRIVER ASSISTANCE NEWS



ATTENDEES ON LIVE

DVN successfully held its second DVN Think Tank seminar on 30-31 May in Frankfurt-Sulzbach, with more than 30 companies and institutes participating. The presentations and break-out groups were centred round the topics of standardization, testing, and regulation. Professor Ling Ming from Shanghai University of Engineering Science and Mr. Li Pu, Great Wall's Intelligent Driving department director shared their topical views, and the session was completed with a talk of Adrian Zlocki from FKA / Aachen University, introducing an initiative aiming to generate a DIN/SAE standard. Three important takeaways:

- China is heavily pushing for a national standard of lidar systems as an enabler for autonomous vehicles;
- Even with a variety of lidar technologies still in an early innovation phase, some Chinese automakers have already integrated lidars on their vehicles to gather road and traffic situation data to build knowledge in advance of the publication of national standards or regulations;
- Testing methods as presented by FKA Aachen, dedicated to a neutral evaluation of lidar performance, will pave the way for automotive lidar to gain traction. These testing tools can represent criteria for automakers to make the best choices for their perception system.

Speed Limit Auto-Compliance Tech from Ford

DRIVER ASSISTANCE NEWS



It's more or less routine now for cars to be able to detect where they are and what the speed limit is—now Ford are trialing a system that goes beyond simply displaying the speed limit for the driver: it leverages this awareness to self-enforce speed limits. It's called the Geofencing Speed Limit Control system, and Ford are considering it as a possible future feature on passenger and commercial vehicles.

GSLC requires a vehicle with advanced connected systems and some degree of driver-assist functionality—so far so good; that describes most new vehicles these days. The GSLC software gets dynamic information on speed limits and once the vehicle enters a specific zone, the speed is automatically reduced to match the limit. Rather than electronically reading road signs and adjusting the vehicle speed on that basis, Ford's system relies on the virtual zone being established and the vehicle's position identified via GPS.

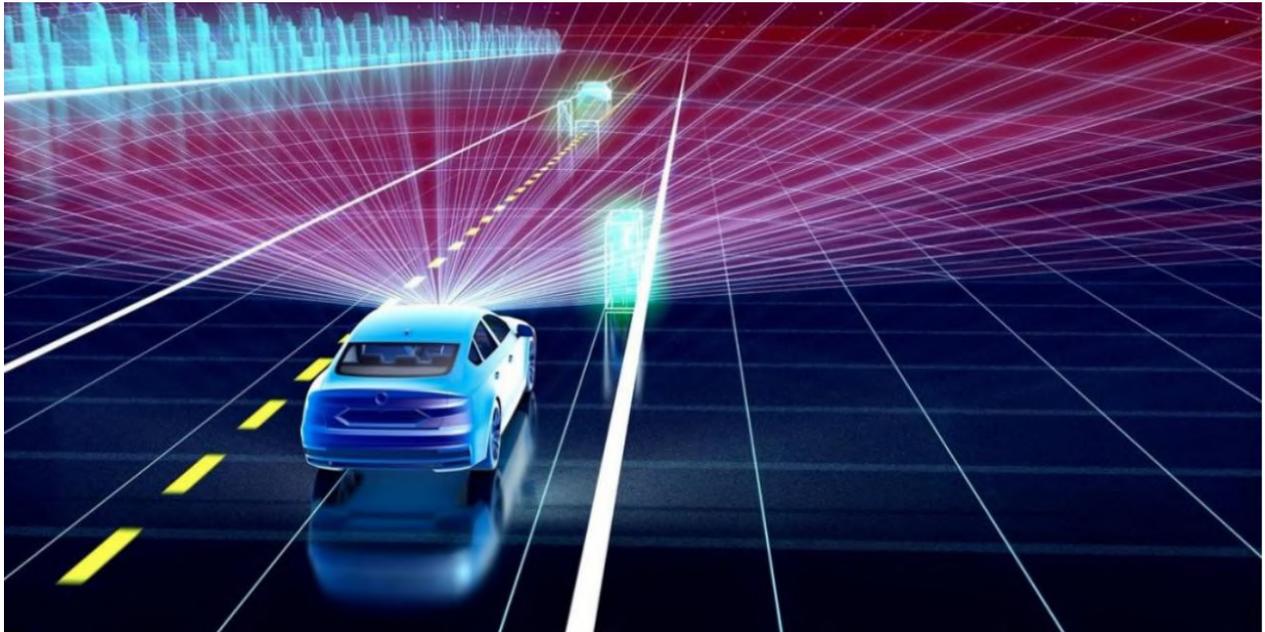
They've partnered with waste disposal company AWB to test Ford E-Transit vans. The 12-month trial is limited to 30-km/h zones in the centre of Cologne and in special 50- and 30-km/h zones elsewhere in the city. It is designed to look at how such a system works (or doesn't) and interacts with other vehicles on the road—it's all very well for an equipped Ford van to slow down to exactly the number on the sign and not a bit faster, but it raises questions about impeding traffic flow and potentially increasing the risk of other types of accidents, not to mention road rage. The targeted areas and speeds appear to have been chosen thoughtfully.

Ford say the system could, in future, allow drivers to set their own geofencing zones at speeds as low as 20 km/h in places like depots and private facilities, and that vehicle-self-policed speed limits could also be programmed to self-adjust dynamically, to take into account local hazards; road construction, and the time of day.

General News

Lidar Gains Traction With Automakers for ADAS, L3

GENERAL NEWS



R&D efforts are coming to fruition on the lidar front. Models from Audi, Mercedes-Benz, and Honda have been equipped with Valeo lidar sensors. BMW's iNEXT cars have Innoviz lidars, and Lexus cars have Continental and Denso lidar hardware at the centre of their L^3 autonomous driving systems. Car companies plan to continue using lidar technologies to achieve autonomous driving in 2022 for improved safety and autonomous emergency braking (AEB) performance. For example, Volvo plan to apply long-range lidar technologies to highway driving, while Hyundai will announce the Genesis G90 featuring lidar. And Chinese EV makers tend to be more active in applying lidar to ADAS and L^3 autonomous driving. Lidar sensors are considered indispensable for L^4 and L^5 . Accordingly, makers have been striving for lidar use to build comprehensive databases and enhance sensor accuracy.

Automotive lidar sensors are also installed in autonomous buses; robo-taxis, and trucks gearing up for L^4 and L^5 capability. These vehicles are developed for road shuttle and point-to-point transport to overcome labor shortages as well as reduce labor and transport costs. Major manufacturers of robo-taxis include Waymo, Cruise, and Argo AI. Waymo provide autonomous driving services mainly in Phoenix, Arizona. As the pandemic fades down, they've resumed robo-taxi services, aiming to make San Francisco their second largest market by 2025. Cruise have recently got approval to run robo-taxis across California, while Argo AI intend to launch a robo-taxi service of their own in Miami, Florida and Austin, Texas.

Shanghai Reimposes Lockdowns

GENERAL NEWS



China's putative "zero-Covid" policy has sent Shanghai back into hard lockdown in an effort to combat renewed community transmission of the virus—this after the city was released from a two-month lockdown just last week. 11 new infections were detected last week, of which six outside the city's mass quarantine centres. The lockdown applies to eight of the financial hub's 16 districts, including Pudong, one of the worst-hit areas at the start of the lockdown.

Three cases were detected in the Red Rose beauty parlour in the city centre, prompting health authorities to test more than 90,000 people close to the salon. The city government's lockdown directive means residents in the affected areas will not be allowed out of their compounds during the rounds of mass testing. The reintroduction of restrictions just days after the city's residents flooded back onto Shanghai's streets underscored the difficulty of squashing the highly infectious Omicron variant through mass testing and strict lockdowns.

Any decision to extend the lockdown beyond the weekend will be predicated on how many community cases are uncovered by mass testing. Covid testing has become a regular part of life in China. Cities have introduced mandates that anyone wishing to enter a public venue has to undergo regular testing. Shanghai has established about 15,000 testing sites for its 26mn people. Experts said the huge expenditure on the testing programmes and expansion of existing quarantine facilities was a sign that policymakers planned to stick with the zero-Covid strategy well into 2023, despite its high economic toll.

Tesla Dominates US Luxury Segment

GENERAL NEWS



Tesla continued to dominate new U.S. EV registrations overall, with 140,000 in the January-April period, more than a 50 per cent increase from a year earlier. Tesla also dominated luxury vehicle registrations, regardless of fuel type. BMW was second with 106,000 total new registrations, a decrease of 6 per cent from a year earlier.

Lexus was in third place in total luxury registrations with 89,000. Mercedes took the № 4 slot, with 83,000 new luxury registrations, according to Experian. Audi was fifth at 51,000 registrations in the four-month period, including the 10 per cent of Audi's registrations involving the e-tron line of electric vehicles. Rivian had 1,145 new registrations of their R1T pickup truck, and Lucid had 582 registrations of their Air sedan from January to April.