



Company

Seoul Semiconductor

Press Release

## Press Release

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### World's First One Pixel Micro LED 4K Resolution TV from 42" to 220"

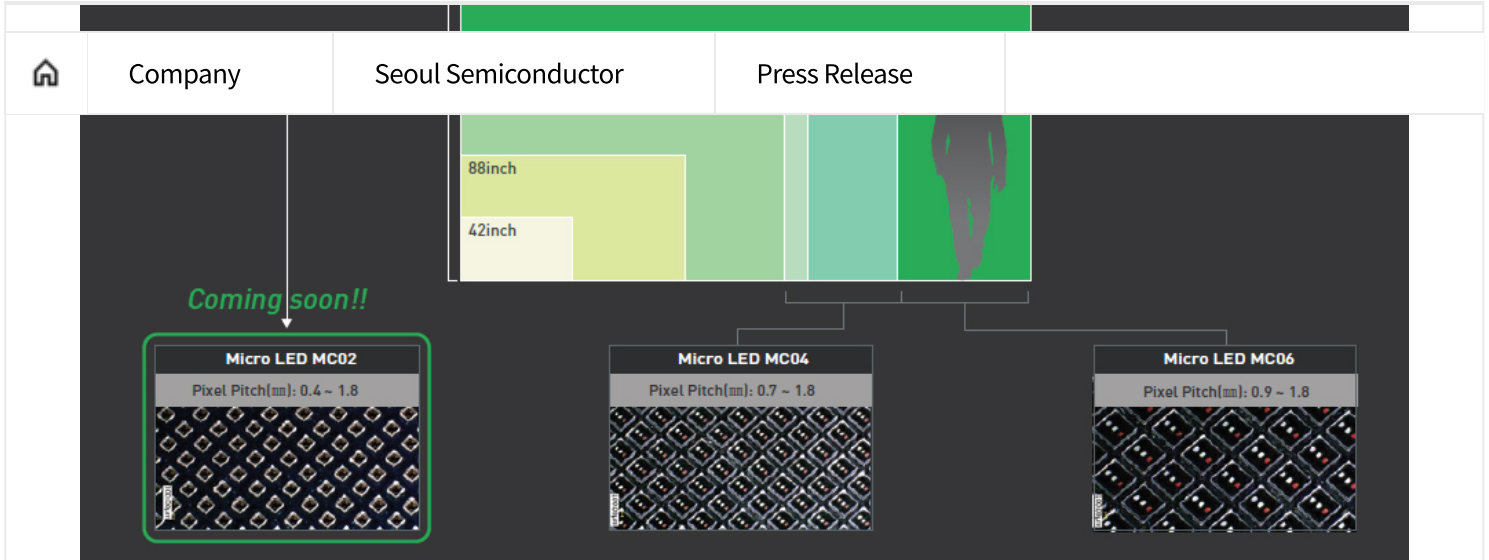
2020-01-06

- Next generation light source to lead \$100 billion display market, Micro LED is ready for mass production
- Complete in-house production from RGB EPI substrate growth to transfer
- One pixel RGB LED implementation to lead performance and cost innovation
- Showing a fighting spirit by not cutting his hair in spreading the culture of respecting intellectual property rights to set an example for young entrepreneurs and start-ups

LAS VEGAS & ANSAN, South Korea (JANUARY 6, 2020) – Seoul Viosys Co., Ltd. (CEO Young Joo Lee) and Seoul Semiconductor Co., Ltd. (CEO Chung Hoon Lee), leading global innovators of LED and UV LED technologies, announced the new concept display, 'Micro Clean LED' at CES 2020, the biggest global consumer electronics and technology show, running from January 7th through January 10th.

The new concept of Micro Clean LED, which Seoul Viosys developed, is the technology that realizes 4K resolution TV sizes from 42 inch to 220 inch with 1 RGB LED per pixel and is ready for mass production. The Micro Clean LED solutions for a smart watch display also will be demonstrated at CES 2020 to main strategic partners by appointment.

Seoul Viosys possesses the necessary technologies, from MOCVD for EPI growth of all 3 colors, RGB, to the transfer solution of small-sized micro( $\mu$ ) level RGB Chip. Seoul Semiconductor also possesses the tiling technology, substrate connectivity technology, for large-screen display by preparing SMT, surface mounted technology, manufacturing process at the customer's request in its own factory.



[Figure 1] Comparison of one micro pixel and existing signage micro LED

Furthermore, since it is developed as 1 pixel, it resolves 3 main challenges for micro LED, which are transfer technology, color mixing and individual color and intensity of light control. By resolving these 3 challenges, the cost can be reduced by 1/3, and the product reliability test is also completed.

In the LED market, the 1st wave was adoption of LED technology in mobile phone applications in 2000s. The 2nd wave was with LED TV and lighting applications in 2010s. As the 3rd wave grows to \$100B market with LCD and OLED, the micro LED is expected to take a good portion of next generation display. It is also suitable for light source in VR/AR and MR market. The micro LED is the world's only light source that can deliver 1,000 times faster response time, 30% reduction of internal and external power consumption and infinite contrast range compared to existing LCD and OLED display.

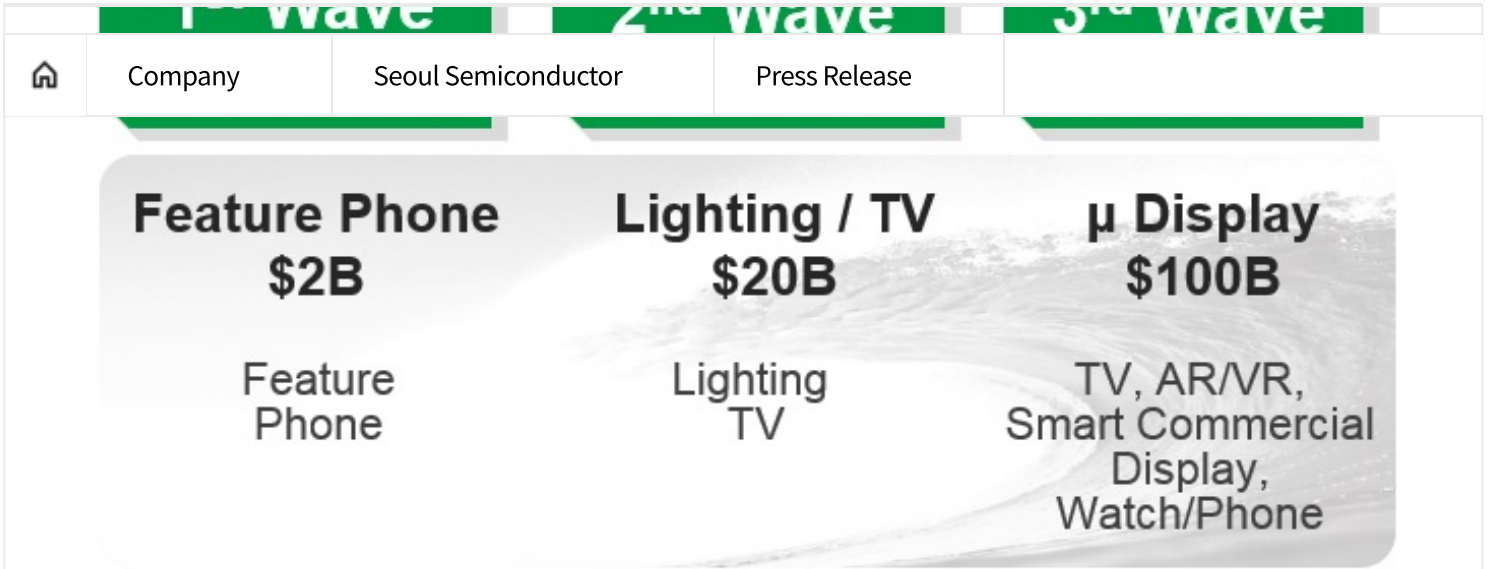


Figure 2] Next generation micro LED to lead \$100B display market

Seoul Viosys and Seoul Semiconductor already have been accumulating hundreds of patent applications and registrations for more than 10 years. Seoul Semiconductor’s patent portfolio is very well-known in the world with winning all 32 lawsuits in 7 countries in the world by using 72 patents of 14,000 patent technology in past 2 years, 4 exceptional legal cases resulted in injunctions against the sales and product recalls.

Seoul Semiconductor CEO Chung Hoon Lee said, “By not cutting my hair, I am showing my strong will to protect the intellectual property rights and pledge to fight technology hijackers to the end and reveal their greed to the world.” He also mentioned, “I was born as a son of a farmer but able to form a billion dollar company. Through research and development and patent respect activities, I believe that we can give hope to young people who challenge under difficult circumstances.”



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