

# Semiconductor Technology Revolutionized! Unprecedented Performance Leads the World

*Perovskite semiconductors have a high light absorption coefficient and carrier mobility, making them potentially valuable in devices.*

HONG KONG, CHINA, September 13, 2023 /EINPresswire.com/ -- Perovskite [semiconductors](#) have a high light absorption coefficient and carrier mobility, making them potentially valuable in devices such as solar cells, photodetectors, and light-emitting diodes (LEDs). Compared to traditional silicon-based semiconductor materials, perovskite semiconductors have a lower production cost and higher efficiency.

Recently, a team of researchers from Pohang University of Science and Technology in South Korea developed world-class perovskite transistors by utilizing three different perovskite cation processes, which will reshape semiconductor technology.

The team successfully developed a high-quality p-type perovskite semiconductor layer with fewer defects. Based on this achievement, they realized transistors with a high hole mobility (70 cm<sup>2</sup>/Vs) and on/off current ratio (10 to the power of 8), achieving faster computation with lower power consumption. These results represent the highest performance level of p-type perovskite transistors reported so far.

The research group stated that they have once again successfully developed the world's best-performing transistor, surpassing last year's performance.

"If the performance of the low-temperature process p-type semiconductor can be improved to a level comparable to that of n-type semiconductors, faster electronic circuits can be manufactured, greatly improving data processing speed. We hope this research can find wide applications in the field of electrical and electronic engineering, utilizing the potential of semiconductors and transistors," they said.

## Perovskite Cells Can Achieve High Conversion Efficiency

Perovskite cells are third-generation solar cells that use perovskite-type organic metal halide semiconductors as light-absorbing materials. Perovskite materials have stronger light absorption than silicon materials, so perovskite cells can achieve high conversion efficiency. In addition to high conversion efficiency, perovskite cells also have the advantages of low cost, low investment,

and simple preparation.

## Direction and Trend of Technological Development in Photovoltaic Power Generation Industry: Cost Reduction and Efficiency Improvement

In August 2022, the Ministry of Industry and Information Technology and five other departments jointly issued the "Action Plan for Accelerating the Green and Low-Carbon Innovation Development of Power Equipment". The plan proposes to focus on the development of high-efficiency, low-cost photovoltaic cell technology in the field of solar equipment over the next 5-8 years. This includes promoting the industrialization of crystalline silicon solar cell technologies such as TOPCon, HJT, IBC, and perovskite and tandem cell module technologies, as well as conducting research and application of new high-efficiency, low-cost photovoltaic cell technologies.

It is clear that the future development of photovoltaic power generation technology will aim to reduce costs and increase efficiency. On the one hand, due to the current photovoltaic cells gradually approaching the highest theoretical conversion efficiency, cells with higher conversion efficiency will become the direction of photovoltaic cell technology development. On the other hand, the improvement of photovoltaic module conversion efficiency and the reduction of manufacturing costs are key factors in reducing the cost of photovoltaic power station construction and ultimately reducing the cost of photovoltaic power generation.

If you want to learn more, you can visit our [website](#).

JAK Electronics  
JAK Electronics  
+852 9140 9162  
[email us here](#)

---

This press release can be viewed online at: <https://www.einpresswire.com/article/655387772>

EIN Presswire's priority is source transparency. We do not allow opaque clients, and our editors try to be careful about weeding out false and misleading content. As a user, if you see something we have missed, please do bring it to our attention. Your help is welcome. EIN Presswire, Everyone's Internet News Presswire™, tries to define some of the boundaries that are reasonable in today's world. Please see our Editorial Guidelines for more information.

© 1995-2023 Newsmatics Inc. All Right Reserved.