

## **Transphorm Awarded Landmark Patents for GaN Power Conversion**

*Patents essential to vast majority of high voltage power conversion circuits; Expands IP portfolio to over 1,100 world-wide fundamental patents and applications*

**Goleta, CA** –September 03, 2014–Transphorm Inc. today announced that it has secured fundamental patents in the area of Gallium Nitride (GaN) power conversion. The United States Patent and Trademark Office (USPTO) patent number 8,816,751 titled “Inductive Load Power Switching Circuits” was granted August 26, 2014 and the patent application number 13/887,204 titled “Bridge Circuits and Their Components” was allowed by the USPTO on August 27, 2014. Both are directed towards the operation and use of GaN transistors in a multitude of applications including half bridges, the basic building blocks of a variety of power conversion circuits. Counterparts of these patents have also issued in China, Taiwan and are pending in several other countries.

These patents belong to a bridge circuit patent family based on the TRANSPHORM DIODE-FREE™ GaN solution, wherein a GaN transistor also serves the function of the conventional anti-parallel or fly-back diode required in traditional approaches. This not only helps eliminate diode components, but also eliminates the cost, space and energy loss associated with them—resulting in compact, higher efficiency systems. Bridge circuits are used in virtually all power converters/inverters including PV inverters, motor drives, DC-DC blocks of power supplies, and many power factor correction (PFC) circuits such as ultra-high efficiency Totem-Pole PFCs. These bridge circuits cover more than 60% of the total market.

Over the last several years, GaN semiconductors have emerged as a leading technology enabler for the next wave of compact, energy-efficient power conversion systems – ranging from ultra-small adapters, high power density PCs, server and telecom power supplies, to highly efficient PV inverters and motion control systems. A strong IP position is essential to ramping any commercial GaN business.

Transphorm has established the next power conversion platform – demonstrating breakthrough performance and introducing the world’s first 600 Volt GaN products with its EZ-GaN™ platform. Its products are backed by a broad and deep intellectual property portfolio, comprising more than 450 independent patents/patent applications and more than 1,100 world-wide patents/patent applications—the most extensive IP portfolio in the GaN Power arena. “Based on my years of experience with patent portfolios of emerging semiconductor companies, Transphorm’s is the best and most complete I have ever encountered,” remarked Roger Borovoy, Transphorm’s IP counsel from Fish & Richardson.

“Transphorm’s patent portfolio comprises fundamental IP in all key areas, ranging from material growth of GaN-on-Silicon, device structures and fabrication, and packaging and circuits, with a particularly far reaching impact on the use of GaN in applications,” said Primit Parikh, co-founder and President of Transphorm. “No matter how other GaN providers manufacture their products, they will have to consider Transphorm’s GaN bridge circuit patent family for bridge applications, by far the largest market segment for high voltage GaN.”

Transphorm’s efficient, compact and easy-to-embed solutions simplify the design and manufacturing of a wide variety of electrical systems and devices, including power supplies and adapters, PV Inverters for solar panels, and motor drives and power conversion for electric vehicles. Transphorm’s access to high quality, high scale foundry manufacturing through its relationship with Fujitsu enables it to meet growing demand from global customers needing energy-saving GaN power conversion products. For customers looking for a low-risk roadmap to the next generation of power conversion technology, EZ-GaN™ provides a cost-effective, customizable and easy-to-use solution ready for commercial scale. For more information about Transphorm, visit [www.transphormusa.com](http://www.transphormusa.com).

## **About Transphorm**

Transphorm is redefining electric power conversion, providing cost-competitive and easy-to-embed power conversion modules that reduce costly energy loss by more than 50%, and simplify the design and manufacturing of motor drives, power supplies and inverters for solar panels and electric vehicles. From material technology and device fabrication to circuit design and module assembly, Transphorm designs and delivers its power conversion devices and modules to meet the needs of global customers. By creating an ecosystem of electrical systems manufacturers powered by Transphorm, the company accelerates the adoption of power devices and modules that pave the way for the next generation of electrical systems designed for optimal efficiency.

To learn more about Transphorm, please visit [www.transphormusa.com](http://www.transphormusa.com).

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