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Ideal Power Reports Semiconductor Fabricator Successfully Tested Its B-TRAN Technology

Third Party Testing of First B-TRAN Semiconductor Structures Validate Key Performance Characteristics

AUSTIN, TX -- (Marketwired) -- 04/18/16 -- Ideal Power Inc. (NASDAQ: IPWR), a developer of innovative power conversion technologies, reported its semiconductor fabricator successfully tested Bi-Directional Bi-Polar Junction TRANSistor (B-TRAN™) silicon dies and test results validate key characteristics of the semiconductor power switch. The test results can be found in the company's updated [B-TRAN White Paper](#). The results confirm central B-TRAN™ elements and operational modes are consistent with third party device simulations that predict significant performance and efficiency improvements over conventional power switches such as SCRs, IGBTs and MOSFETs.

Ideal Power currently has 12 issued and over 40 patents pending in the United States and abroad related to the B-TRAN™ device, which is a symmetric double-sided structure that presents unique opportunities for high current density operation at high efficiency. B-TRANs have potential uses in a wide range of power conversion and control applications, including very low loss AC power control and in power converters from Ideal Power and other power converter OEMs.

"This validation of key characteristics of the B-TRAN™ technology is a significant step forward in demonstrating B-TRAN's ability to improve energy efficiency across a wide range of products and applications," said Dr. Richard Blanchard, B-TRAN™ co-inventor and holder of over 200 patents primarily related to power semiconductors including the widely used trench MOSFET. "The device has tremendous implications for the power industry."

"These exciting results of the first tested B-TRAN™ structures validate key characteristics of the device and confirm our belief that B-TRANs can be a disruptive new force in many power conversion applications," said Bill Alexander, CTO of Ideal Power and co-inventor of the B-TRAN™. "The predicted extremely low forward voltage drop and fast, low loss switching of the B-TRAN™ are each approximately ten times better than conventional switches. B-TRAN's high current density and native bi-directional capability can lead to very high efficiency power control and conversion at very low cost points. We expect these anticipated efficiency improvements to translate to a substantial cost-performance advantage over current generation power semiconductor devices, which opens a multi-billion dollar market opportunity for the B-TRAN™ and is generating licensing inquiries from power

semiconductor companies."

Ideal Power plans to introduce the B-TRAN™ into the rapidly growing power semiconductor market, estimated to be \$17 billion in 2015 according to research firm IHS Technology. The next major milestone for commercializing the B-TRAN™ will be testing a fully-packaged device.

Ideal Power believes its new B-TRAN™ technology can potentially address up to 50% of the power semiconductor market as a replacement for older, less efficient power switch technologies such as IGBTs and MOSFETs, as well as the newer gallium nitride (GaN) and silicon carbide (SiC) devices. Potential addressable markets for B-TRAN-based products include very low loss solid-state DC and AC contactors, electric vehicle drivetrains, variable frequency drives, solar photovoltaic inverters, bi-directional energy storage and microgrid power conversion systems, matrix converters and other power conversion products.

Based on third party simulations and testing to date, the Company expects the B-TRAN to deliver 10 to 200 times the cost-performance of current power semiconductor switches, depending on the switch type and configuration, with cost-performance being defined as the combination of device cost and on-state resistance. For a given cost, the B-TRAN™ is expected to have 10 to 200 times lower on-state resistance, while simultaneously having up to 10 times faster switching than other silicon-based switches.

About Ideal Power Inc.

Ideal Power Inc. (NASDAQ: IPWR) has developed a novel, patented power conversion technology called Power Packet Switching Architecture™ (PPSA). PPSA improves the size, cost, efficiency, flexibility and reliability of electronic power converters. PPSA can scale across several large and growing markets, including commercial grid storage, combined solar and storage, microgrids, and electrified vehicle charging. Ideal Power also has a capital-efficient business model that can enable it to address these markets simultaneously. Ideal Power has won multiple grants for its PPSA technology, including a \$2.5 million grant from the Department of Energy's Advanced Research Projects Agency - Energy (ARPA-E) program, and market-leading customers are incorporating PPSA as a key component of their systems. For more information, visit www.IdealPower.com.

Safe Harbor Statement

All statements in this release that are not based on historical fact are "forward looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995 and the provisions of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Specific forward-looking statements include our comments about expected performance of B-TRAN™ products, potential technical advantages compared to competing technologies, potential markets we could address with our B-TRAN™ technology, and the potential market impact of this technology in these markets. While management has based any forward looking statements included in this release on its current expectations, the information on which such expectations were based may change. These forward looking statements rely on a number of assumptions concerning future events and are subject to a number of risks, uncertainties and other factors, many of which are outside of our control that could cause actual results to materially differ from such statements. Such risks, uncertainties, and other factors include, but are not limited to, whether the patents for our technology provide adequate protection and whether we can be successful in maintaining, enforcing and defending our patents, whether a

demand for energy storage products will grow, whether demand for our products, which we believe are disruptive, will develop and whether we can compete successfully with other manufacturers and suppliers of energy conversion products, both now and in the future, as new products are developed and marketed. The B-TRAN™ is a new and novel technology. We may encounter difficulties manufacturing the B-TRAN™ (or having the B-TRAN™ manufactured) in commercial quantities with acceptable margins or at all, and commercially manufactured B-TRAN™ devices may not achieve the technical performance improvements we expect based on preliminary tests conducted to date. There are risks that the device might not achieve market acceptance in these markets. In addition, competitors may offer products based upon competing technologies that outperform the B-TRAN™. The costs of manufacturing, marketing and selling the B-TRAN™ may exceed our expectations so that we may not realize acceptable, or any, profit margins related to B-TRAN™ sales or license revenue. Furthermore, we operate in a highly competitive and rapidly changing environment where new and unanticipated risks may arise. Accordingly, investors should not place any reliance on forward-looking statements as a prediction of actual results. We disclaim any intention to, and undertake no obligation to, update or revise forward-looking statements.

Ideal Power Media Contact:

Mercom Communications

www.mercomcapital.com

Wendy Prabhu

[Email Contact](#)

1.512.215.4452

Ideal Power Inc. Investor Relations Contact:

MZ North America

www.mzgroup.us

Matt Hayden

[Email Contact](#)

1.949.259.4986

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