



## Transphorm Releases 3 kW Inverter Board with Microchip's Digital Signal Controller, Continuing High Power GaN Leadership

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*Evaluation Board with SuperGaN® FET and dsPIC® DSC Simplifies and Quickens Development of High Voltage Power Systems*

GOLETA, Calif.--(BUSINESS WIRE)--Mar. 20, 2023-- [Transphorm, Inc.](#) (Nasdaq: TGAN)—a pioneer in and global supplier of high reliability, high performance gallium nitride (GaN) power conversion products—today announced availability of its third high-power GaN design tool using a digital signal controller from [Microchip Technology](#). The [TDINV3000W050B-KIT](#) is a 3.0 kW DC-to-AC non-isolated full-bridge inverter evaluation board. It pairs Transphorm's [TP65H050G4WS](#) SuperGaN® FET with Microchip's [dsPIC33CK](#) digital signal controller (DSC) board, which includes pre-programmed firmware that can be easily customized per end application requirements. Use of the new board highlights Transphorm's GaN superior performance and enables an understanding of how GaN can be used for Broad Industrial and Renewables power systems.

As with the previous two SuperGaN/Microchip DSC evaluation boards (the 4 kW [TDTP4000W066C-KIT](#)) and the 2.5 kW [TDTP2500B066B-KIT](#)), the single-phase 3.0 kW inverter board is backed by access to Microchip's worldwide technical support team for [firmware development assistance](#).

"Our dsPIC® digital signal controllers and firmware customization expertise complements Transphorm's GaN technology and helps accelerate development while simplifying the design" said Joe Thomsen, Vice President, MCU16 Business Unit, Microchip. "Working together with Transphorm, we are proud to enable flexible and highly efficient power conversion to address a wide range of sustainability applications."

"High voltage power systems such as EV Chargers, UPS, and Solar Inverters are quickly becoming rapid growth markets for GaN. Transphorm's GaN platform was developed with such applications in mind," said Philip Zuk, SVP of Business Development and Marketing, Transphorm. "Working with Microchip on the firmware side enables us to support important, sustainable customer power system projects in a highly efficient manner. It removes potential limitations that may be experienced with firmware programming, simplifying development and speeding time to market. This collaboration allows renewables and other industries to easily leverage all our GaN has to offer."

### Technical Specifications

The TDINV3000W050B-KIT features:

- TP65H050G4WS: 650 V 50 mΩ SuperGaN FET in a TO-247 package
- Power efficiency: ~99%
- Input voltage: 0 V<sub>DC</sub> to 400 V<sub>DC</sub>
- Output voltage: V<sub>DC</sub> /  $\sqrt{2}$ V<sub>RMS</sub> at 50/60Hz (programmable)
- Output power: Up to 3000 W
- Auxiliary supply voltage: 12 V<sub>CC</sub>

The board is designed around Microchip's dsPIC33CK digital power plug in module (PIM) to control the PFC powertrain, with the following pre-programmed PIM features:

- Microchip's AEC-Q100-qualified dsPIC33CK256MP506 digital signal controller
- 100 MHz dsPIC® DSC core with integrated DSP and enhanced on-chip peripherals
- Dual Flash Panels – to enable live update of code while power supply runs
- High analog integration for reduced BOM costs and minimum system size
- 8 independent PWMs pairs with 250 ps resolution

Firmware updates for the dsPIC33CK PIM will be [available for download](#) from Microchip's website.

Microchip's dsPIC® DSCs are supported by a set of embedded design tools created to empower developers, even those with limited expertise. These tools provide intuitive graphical user interface for device initialization in Microchip's free MPLAB® X Integrated Development Environment. The software tools are complemented by a full line of programmer, debugger and emulator accessories.

### Availability & Market Applications

The TDINV3000W050B-KIT is available through [Digi-Key](#) and [Mouser](#).

The evaluation board is designed for use when developing vehicle-to-grid (V2G) charging systems, solar or photovoltaic (PV) inverters, uninterruptible power supplies (UPSes), and other high voltage power applications.

### About Transphorm

Transphorm, Inc., a global leader in the GaN revolution, designs and manufactures high performance and high reliability GaN semiconductors for high voltage power conversion applications. Having one of the largest Power GaN IP portfolios of more than 1,000 owned or licensed patents, Transphorm produces the industry's first JEDEC and AEC-Q101 qualified high voltage GaN semiconductor devices. The Company's vertically integrated device business model allows for innovation at every development stage: design, fabrication, device, and application support. Transphorm's innovations

move power electronics beyond the limitations of silicon to achieve over 99% efficiency, 40% more power density and 20% lower system cost. Transphorm is headquartered in Goleta, California and has manufacturing operations in Goleta and Aizu, Japan. For more information, please visit [www.transphormusa.com](http://www.transphormusa.com). Follow us on Twitter [@transphormusa](https://twitter.com/transphormusa) and WeChat @ Transphorm\_GaN.

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