

Microchip's Grid-Connected Solar Micro Inverter Reference Design Lowers the Cost and Improves the Efficiency of Solar Power Systems

Free Reference Design and dsPIC33 'GS' Family of Digital Power Devices Speed Development of Smart Energy Products for Worldwide Solar Power Market

CHANDLER, Ariz.--(BUSINESS WIRE)-- Microchip Technology Inc. (NASDAQ: MCHP), a leading provider of microcontroller, analog and Flash-IP solutions, today announced a fully digitally controlled, [Grid-Connected Solar Micro Inverter Reference Design](http://www.microchip.com/get/PLHH) with an advanced, high-efficiency topology. Complete documentation, including software, schematics and application note, can be downloaded for free today from Microchip's website at <http://www.microchip.com/get/PLHH>.

The solar power industry is evolving to meet the requirements of a changing landscape, as it moves from a cottage industry to mass production. Solar design engineers are being challenged to optimize energy harvesting, reduce installation costs, and improve system reliability and efficiency while standardizing their designs. This reference design enables them to achieve these goals through digital power conversion techniques, supported by the unique features of Microchip's [dsPIC33 'GS' series of digital-power Digital Signal Controllers \(DSCs\)](#). The reference design connects to any standard solar panel and converts the panel's DC output into AC power, which can then be fed into the public power grid. In a real-world application, multiple units can be connected together to achieve the desired power output.

"This reference design will help the solar power industry to quickly improve its inverter technology, through the use of more flexible and efficient digital power conversion techniques," said Sumit Mitra, vice president of Microchip's High Performance Microcontroller Division. "The transition to digital power will enable solar energy conversion to be maximized, while reducing the installation and overall costs of solar systems."

Additional features of Microchip's Grid-Connected Solar Micro Inverter Reference Design include:

- Peak efficiency of 95%
- Power factor of >0.95
- Output Current THD <3%
- Maximum power point tracking of 99.5%
- Nighttime power consumption of <1W
- System Islanding to detect grid failure
- Full Digital Control

This reference design works with any photovoltaic (PV) panel that supplies a maximum 220 watt output, and it comes in two versions supporting either 110V or 220V power grids. Both

versions of this reference design are implemented using a single dsPIC33 'GS' digital-power DSC, which provides fully digital control of the power-conversion and system-management functions.

Availability

Complete documentation, including software, schematics and application note, can be downloaded for free today from Microchip's Web site at <http://www.microchip.com/get/PLHH>. For additional information, contact any Microchip sales representative or authorized worldwide distributor.

About Microchip Technology

Microchip Technology Inc. (NASDAQ: MCHP) is a leading provider of microcontroller, analog and Flash-IP solutions, providing low-risk product development, lower total system cost and faster time to market for thousands of diverse customer applications worldwide. Headquartered in Chandler, Arizona, Microchip offers outstanding technical support along with dependable delivery and quality. For more information, visit the Microchip website at <http://www.microchip.com/get/RHHJ>.

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