Enphase S280 VA Solar Microinverter: Technology Analysis

Description: In a continuously expanding market, with a forecast compound annual growth rate of 5.9% through to 2021, Enphase Energy remains the world's leading solar microinverter company. It has shipped more than 11 million units to date, with 460,000 residential and commercial photovoltaic installations worldwide.

Designed for high-powered, 60-cell modules, the advanced grid-ready Enphase S280 Microinverter achieves the highest efficiency for module-level power electronics and reduces the cost per watt. With its all-AC approach, the S280 simplifies design and installation for 280VA installations, and delivers optimal energy harvest. The S280 is compatible with storage systems, including battery management systems.

This inverter is the result of Enphase's desire to enhance integration with a new generation of dedicated application specific integrated circuit (ASIC) in its topology. This approach reduces the size and number of components and improves reliability, safety and functionality.

Based on a complete teardown analysis of the Enphase S280, this report provides the system's complete bill of materials (BOM) and manufacturing cost. Physical and cost analysis of the microinverter ASIC is also included in the report.

A comparison with Enphase's previous microinverters is provided, highlighting the improvement made at the hardware level resulting in a shorter bill of material and significant cost reduction.

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