



New MOSFET and Diode Power Modules Offer Complete Solution for On-Board Charging Applications, Feature Variety of Circuit Configurations in Compact EMIPAK 1B Package With PressFit Pin Locking Technology

Product Benefits:

- Combine high efficiency fast body diode MOSFETs and SiC, FRED Pt®, and MOAT diode technologies in the compact EMIPAK 1B package
- Offer all the circuit configurations required for AC/DC, DC/DC, and DC/AC conversion in on-board charging applications — input / output bridges, full-bridge inverters, and power factor correction (PFC) — across a wide range of power ratings
- Compliant with the AQG-324 automotive guideline
- Patented PressFit pin locking technology allows for easy PCB mounting and reduces mechanical stress on the substrate
- Exposed Al₂O₃ direct bond copper (DBC) substrate provides improved thermal performance
- Optimized layout helps to minimize stray inductance for better EMI performance
- Baseless structure increases reliability by reducing the number of solder interfaces



Market Applications:

- AC/DC, DC/DC, and DC/AC conversion for:
 - On-board chargers in electric (EV) and hybrid electric (HEV) vehicles, in addition to eBikes, agricultural equipment, railways, and more
 - Power stages for industrial and renewable energy applications, including welding, plasma cutting, UPS, solar inverters, and wind turbines

The News:

Vishay Intertechnology introduces seven new MOSFET and diode power modules designed specifically for on-board charger applications. Offered in a variety of circuit configurations, the integrated solutions combine high efficiency fast body diode MOSFETs and SiC, FRED Pt, and MOAT diode technologies in the compact EMIPAK 1B package featuring patented PressFit pin locking technology.

- The flexible modules can be combined to provide a complete solution for on-board chargers in automotive applications
- Based on a matrix approach, the devices' EMIPAK package can accommodate a range of custom circuit configurations in the same compact 63 mm by 34 mm by 12 mm footprint
 - Enables higher power density than utilizing discrete solutions
 - Provides the flexibility to use each module in different power stages for industrial and renewable energy applications
- Vishay offers a complete lineup of power modules built on silicon technologies:
 - Includes Si and SiC diodes, thyristors, IGBTs, and MOSFETs, as well as passive components such as capacitors, shunts, and NTC and PTC thermistors
 - Available in a wide range of topologies — standard solder pin and PressFit connections — with broad power spectrums



- Compliant to industry standards, and customizable to meet specific application requirements, the power modules are highly flexible, cost-effective, and help designers reduce time to market and improve overall system performance

Module Configurations:

Part number	Circuit configuration
VS-ENK025C65S	Dual-boost PFC MOSFET and full-bridge MOSFET inverter
VS-ENV020F65U	Six independent Ultrafast rectifier legs for output rectification
VS-ENW30S120T	Full-bridge SiC diodes
VS-ENY050C60	Full-bridge inverter MOSFET
VS-ENV020M120M	Six independent diode legs for AC line input rectification
VS-ENM040M60P	Half-controlled input bridge plus boost PFC leg MOSFET and half-bridge inverter MOSFET
VS-ENZ025C60N	Double-interleaved bridgeless PFC (four channels) with individual return diodes

Availability:

Samples of the new power modules are available now. Production quantities are available with lead times of 26 weeks.

To access the product datasheets on the Vishay Website, go to

<http://www.vishay.com/ppg?96860> (VS-ENK025C65S)

<http://www.vishay.com/ppg?96854> (VS-ENM040M60P)

<http://www.vishay.com/ppg?96880> (VS-ENV020F65U)

<http://www.vishay.com/ppg?96857> (VS-ENV020M120M)

<http://www.vishay.com/ppg?96873> (VS-ENW30S120T)

<http://www.vishay.com/ppg?96716> (VS-ENY050C60)

<http://www.vishay.com/ppg?96879> (VS-ENZ025C60N)

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