New SiHP054N65E 650 V E Series Power MOSFET Delivers Industry's Lowest $R_{DS(ON)}$*Q_g and $R_{DS(ON)}$*$C_{o(er)}$ FOMs, Enables High Power Ratings and Density, and Lowers Conduction and Switching Losses to Increase Efficiency

Product Benefits:

- Ultra low on-resistance and gate charge reduce conduction and switching losses to save energy and increase efficiency
- Low typical on-resistance of 0.051 Ω at 10 V results in a higher power rating for applications > 2 kW and allows the device to address the Open Compute Project's Open Rack V3 (ORV3) standards
- On-resistance times gate charge figure of merit (FOM) of 3.67 Ω*nC
- Low typical effective output capacitances $C_{o(er)}$ and $C_{o(tr)}$ of 115 pF and 772 pF, respectively, improve switching performance in hard-switched topologies such as PFC, half-bridge, and two-switch forward designs
- Industry-low resistance times $C_{o(er)}$ FOM of 5.87 Ω*pF
- Offered in the TO-220AB package
- Provides increased dv/dt ruggedness
- Designed to withstand overvoltage transients in avalanche mode with guaranteed limits through 100 % UIS testing
- RoHS-compliant, halogen-free, and Vishay Green

Market Applications:

- Power factor correction (PFC) and subsequent DC/DC converter blocks in servers, edge computing, and data storage; UPS; high intensity discharge (HID) lamps and fluorescent ballast lighting; solar inverters; welding equipment; induction heating; motor drives; and battery chargers

The News:

Vishay Intertechnology introduces a new fourth-generation 650 V E Series power MOSFET that delivers high efficiency and power density for telecom, industrial, and computing applications. Compared to previous-generation devices, the Vishay Siliconix n-channel SiHP054N65E slashes on-resistance by 48.2 %, while offering a 59 % lower resistance times gate charge, a key figure of merit (FOM) for 650 V MOSFETs used in power conversion applications.

- Built on Vishay's latest energy-efficient E Series superjunction technology
- The device's on-resistance times gate charge FOM is 1.1 % lower than the closest competing MOSFET in the same class, allowing it to address the specific titanium efficiency requirements in server power supplies or reach 96 % peak efficiency in telecom power supplies
- Vishay offers a broad line of MOSFET technologies that support all stages of the power conversion process, from high voltage inputs to the low voltage outputs required to power the latest high tech equipment. With the SiHP054N65E and other devices in the fourth-generation 650 V E Series family, the company is addressing the need for efficiency and power density improvements in two of the first stages of the power system architecture — power factor correction (PFC) and subsequent DC/DC converter blocks

The Key Specifications:

- Drain-source voltage: 650 V
- Typical on-resistance at 10 V: 0.051 Ω
- Typical gate charge at 10 V: 72 nC
- Effective output capacitance:
  - $C_{o(er)}$ of 115 pf
  - $C_{o(tr)}$ of 772 pF
- Package: TO-220AB

Availability:
Samples and production quantities of the SiHP054N65E are available now. For lead time information, please contact your local sales office.

To access the product datasheet on the Vishay Website, go to
http://www.vishay.com/ppg?92490 (SiHP054N65E)

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