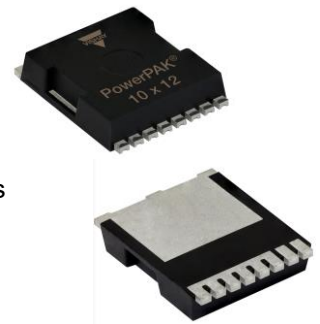




New SiHK045N60EF 600 V EF Series Fast Body Diode MOSFET in Low Profile PowerPAK® 10 x 12 Package Delivers Industry's Lowest $R_{DS(ON)} * Q_g$ FOM, Enables High Power Density, and Lowers Conduction and Switching Losses to Increase Efficiency

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 0.045Ω at 10 V results in a high power rating for applications ≥ 3 kW
- On-resistance times gate charge figure of merit (FOM) of $3.15 \Omega * nC$
- Fast body diode provides a low Q_{rr} of $0.8 \mu C$ for increased reliability in bridge topologies
- Low effective output capacitances $C_{o(er)}$ and $C_{o(tr)}$ of 171 pf and 1069 pF, respectively, improve switching performance in zero voltage switching (ZVS) topologies such as LLC resonant converters
- Low maximum junction to case thermal resistance rating of $0.45 \text{ }^\circ C/W$
- Offered in the PowerPAK® 10 x 12 package with a low 2.3 mm profile to increase power density
- Designed to withstand overvoltage transients in avalanche mode with guaranteed limits through 100 % UIS testing
- RoHS-compliant, halogen-free, and Vishay Green



Market Applications:

- Totem-pole bridgeless power factor correction (PFC) and subsequent DC/DC converter blocks for 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 600 V EF Series fast body diode MOSFET in the low profile PowerPAK® 10 x 12 package. Providing high efficiency and power density for telecom, industrial, and computing applications, the Vishay Siliconix n-channel SiHK045N60EF slashes on-resistance by 29 % compared with previous-generation devices, while delivering 60 % lower gate charge. This results in the industry's lowest on-resistance times gate charge for devices in the same class, a key figure of merit (FOM) for 600 V MOSFETs used in power conversion applications.

- Built on Vishay's latest energy-efficient E Series superjunction technology
- The SiHK045N60EF's low typical on-resistance of 0.045Ω at 10 V is 27 % lower than devices in the PowerPAK 8 x 8 package
- The device's FOM of $3.15 \Omega * nC$ is 2.27 % 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 98 % peak efficiency in telecom power supplies
- The MOSFET's $C_{o(tr)}$ is 8.79 % lower than the closest competing device in the same class
- With its low maximum junction to case thermal resistance rating, the SiHK045N60EF's PowerPAK 10 x 12 package offers the best thermal capability of any surface-mount package



- Compared to devices in the PowerPAK 8 x 8, the MOSFET provides 31 % lower thermal impedance
- 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 SiHK045N60EF and other devices in the fourth-generation 600 V EF 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 — totem-pole bridgeless power factor correction (PFC) and subsequent DC/DC converter blocks

The Key Specifications:

- Drain-source voltage: 600 V
- Typical on-resistance at 10 V: 0.045 Ω
- Typical gate charge at 10 V: 70 nC
- Effective output capacitance:
 - $C_{o(er)}$ of 171 pf
 - $C_{o(tr)}$ of 1069 pF
- Thermal resistance: 0.45 $^{\circ}\text{C}/\text{W}$
- Package: PowerPAK 10 x 12

Availability:

Samples and production quantities of the SiHK045N60EF are available now. Lead time information may be requested from your Vishay sales contact.

To access the product datasheet on the Vishay Website, go to <http://www.vishay.com/ppg?92438> (SiHK045N60EF)

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