

# New SiHR080N60E 600 V E Series Power MOSFET in Compact Top-Side Cooling PowerPAK® 8 x 8LR Delivers Industry's Lowest $R_{DS(ON)} * Q_g$ FOM, Enables Higher Power Ratings and Density Than D<sup>2</sup>PAK, and Lowers Conduction and Switching Losses to Increase Efficiency

## Product Benefits:

- Compact top-side cooling PowerPAK 8 x 8LR package enables low thermal resistance for higher current and power density
- Gullwing leads provide excellent temperature cycle capability
- Low typical on-resistance of 0.074  $\Omega$  at 10 V
- Ultra low gate charge down to 42 nC
- Industry-low 3.1  $\Omega * nC$  on-resistance times gate charge figure of merit (FOM) translates into reduced conduction and switching losses to save energy and increase efficiency in power systems > 2 kW
- Low typical effective output capacitances  $C_{o(er)}$  and  $C_{o(tr)}$  of 79 pF and 499 pF, respectively improve switching performance in hard-switched topologies such as PFC, half-bridge, and two-switch forward designs
- Designed to withstand overvoltage transients in avalanche mode with guaranteed limits through 100 % UIS testing
- RoHS-compliant and halogen-free



## Market Applications:

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

## The News:

To provide higher efficiency and power density for telecom, industrial, and computing applications, Vishay Intertechnology introduces its first fourth-generation 600 V E Series power MOSFET in the new PowerPAK® 8 x 8LR package. Compared to previous-generation devices, the Vishay Siliconix n-channel SiHR080N60E slashes on-resistance by 27 % and resistance times gate charge, a key figure of merit (FOM) for 600 V MOSFETs used in power conversion applications, by 60 %, while providing higher current in a smaller footprint than devices in the D<sup>2</sup>PAK package.

- The SiHR080N60E's 10.42 mm by 8 mm by 1.65 mm PowerPAK 8 x 8LR package features a 50.8 % smaller footprint than the D<sup>2</sup>PAK, while offering a 66 % lower height. Due to its top-side cooling, the package delivers excellent thermal capability, with an extremely low junction to case thermal resistance of 0.25  $^{\circ}C/W$ . This allows for 46 % higher current than the D<sup>2</sup>PAK at the same on-resistance level, enabling dramatically higher power density
- Built on Vishay's latest energy-efficient E Series superjunction technology



- 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 SiHR080N60E and other devices in the fourth-generation 600 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: 600 V
- Typical on-resistance at 10 V: 0.074  $\Omega$
- Typical gate charge at 10 V: 42 nC
- Effective output capacitance:
  - $C_{o(er)}$  of 79 pF
  - $C_{o(tr)}$  of 499 pF
- Package: top-side cooling PowerPAK 8 x 8LR

## Availability:

Samples and production quantities of the SiHR080N60E 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?92494> (SiHR080N60E)

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