500 V High-Voltage MOSFETs Built on Gen II Super Junction Technology Feature Extremely Low Conduction and Switching Losses

Product Benefits:

- Extremely low conduction and switching losses to meet higher efficiency levels (e.g. 80 PLUS efficiency standards)
- Built on second-generation Super Junction Technology
- Current from 12 A to 20 A
- Low on-resistance from 190 mΩ to 380 mΩ
- Offered in a variety of package options:
  - TO-220, TO-252, TO-263, TO-247AC, and the thin lead TO-220 FULLPAK, which offers a low profile optimized for slim consumer products
- Ultra-low gate charge from 22 nC to 45 nC
- Low gate charge times on-resistance, a key figure of merit (FOM) for MOSFETs used in power conversion applications
- RoHS compliant
- Withstand high energy pulse in the avalanche and commutation mode with guaranteed limits through 100 % UIS testing

Market Applications:

- Power factor correction (PFC), two-switch forward converter, and flyback converter applications in consumer products, lighting, and ATX / silver box PC SMPS

The News:

Vishay Intertechnology announces the addition of 11 new devices to its 500 V series of high-voltage MOSFETs optimized for operation in switch mode power supplies (SMPS) to 500 W. Featuring the same benefits of extremely low conduction and switching losses as the company's E Series 600 V and 650 V devices, the Vishay Siliconix MOSFETs were developed to assist customers in meeting stringent 80 PLUS efficiency standards.
The Key Specifications:

<table>
<thead>
<tr>
<th>Device</th>
<th>$I_D$ (A) @ 25 °C</th>
<th>$R_{DS(on)}$ (mΩ) @ 10 V (maximum)</th>
<th>$Q_G$ (nC) @ 10 V (typical)</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>SiHD12N50E</td>
<td>12</td>
<td>380</td>
<td>22</td>
<td>TO-252</td>
</tr>
<tr>
<td>SiHP12N50E</td>
<td>12</td>
<td>380</td>
<td>22</td>
<td>TO-220</td>
</tr>
<tr>
<td>SiHB12N50E</td>
<td>12</td>
<td>380</td>
<td>22</td>
<td>TO-263</td>
</tr>
<tr>
<td>SiHA12N50E</td>
<td>12</td>
<td>380</td>
<td>22</td>
<td>Thin lead TO-220 FULLPAK</td>
</tr>
<tr>
<td>SiHP15N50E</td>
<td>15</td>
<td>280</td>
<td>30</td>
<td>TO-220</td>
</tr>
<tr>
<td>SiHB15N60E</td>
<td>15</td>
<td>280</td>
<td>30</td>
<td>TO-263</td>
</tr>
<tr>
<td>SiHA15N50E</td>
<td>15</td>
<td>280</td>
<td>30</td>
<td>Thin lead TO-220 FULLPAK</td>
</tr>
<tr>
<td>SiHG20N50E</td>
<td>20</td>
<td>190</td>
<td>45</td>
<td>TO-247AC</td>
</tr>
<tr>
<td>SiHP20N50E</td>
<td>20</td>
<td>190</td>
<td>45</td>
<td>TO-220</td>
</tr>
<tr>
<td>SiHB20N50E</td>
<td>20</td>
<td>190</td>
<td>45</td>
<td>TO-263</td>
</tr>
<tr>
<td>SiHA20N50E</td>
<td>20</td>
<td>190</td>
<td>45</td>
<td>Thin lead TO-220 FULLPAK</td>
</tr>
</tbody>
</table>

The Perspective:

Built on second-generation Super Junction Technology to provide the same benefits of extremely low conduction and switching losses as Vishay's E Series 600 V and 650 V devices, the 11 new Vishay Siliconix 500 V MOSFETs provide a high-efficiency compliment to the company's existing 500 V D Series components based on standard planar technology. Developed to help designers meet stringent 80 PLUS standards, the devices' combination of low on-resistance and ultra-low gate charge result in a very favorable figure of merit (FOM) for power conversion applications. The MOSFETs' low on-resistance also helps improve power density, while their faster switching speeds increase efficiency in typical hard-switched topologies.

Availability: Samples and production quantities of the new 500 V power MOSFETs are available now, with lead times of 16 to 17 weeks.

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

http://www.vishay.com/ppg?91636  (SiHD12N50E)
http://www.vishay.com/ppg?91617  (SiHP12N50E)
http://www.vishay.com/ppg?91632  (SiHB12N50E)
http://www.vishay.com/ppg?91637  (SiHA12N50E)
http://www.vishay.com/ppg?91629  (SiHP15N50E)
http://www.vishay.com/ppg?91631  (SiHB15N60E)
http://www.vishay.com/ppg?91635  (SiHA15N50E)
http://www.vishay.com/ppg?91485  (SiHG20N50E)
http://www.vishay.com/ppg?91633  (SiHP20N50E)
http://www.vishay.com/ppg?91634  (SiHB20N50E)
http://www.vishay.com/ppg?91638  (SiHA20N50E)

Contact:

The Americas
Vishay Americas
One Greenwich Place
Shelton, CT 06484
HVM_Americas@vishay.com

Europe
Vishay Electronic GmbH
Geheimrat-Rosenthal-Strasse 100
95100 Selb, Germany
HVM_Europe@vishay.com

Asia
Vishay Intertechnology Asia Pte Ltd.
37A Tampines Street 92 #07-00
Singapore 528886
HVM_Asia@vishay.com