New 15 A to 75 A AEC-Q101 Qualified FRED Pt®
Gen 5 600 V Hyperfast and Ultrafast Rectifiers Offer
Best in Class Reverse Recovery Losses, Increasing
the Efficiency of AC/DC and DC/DC Converters in
EV / HEV On-Board Chargers

Product Benefits:
• AEC-Q101 qualified
• Forward currents of 15 A, 30 A, 60 A, and 75 A
• Offered in TO-247AD and TO-220AC packages
• Available in X-type Hyperfast and H-type Ultrafast speed classes
  • X-type devices offer the advantage of lower $Q_{RR}$
  • H-type rectifiers feature lower forward voltage
• High temperature operation to +175 °C
• RoHS-compliant and halogen-free

Market Applications:
• High speed LLC output rectification stages for EV / HEV on-board chargers

The News:

Vishay Intertechnology introduces 10 new AEC-Q101 qualified FRED Pt® Gen 5 600 V Hyperfast and Ultrafast rectifiers for automotive applications. Offering the best reverse recovery performance for devices in their class, the 15 A, 30 A, 60 A, and 75 A Vishay Semiconductors rectifiers are designed to increase the efficiency of AC/DC and DC/DC converters and of hard- and soft-switched or resonant designs.
• The devices offer 30 % lower reverse recovery losses than the closest competing rectifiers and 48 % lower than previous-generation FRED Pt solutions, while maintaining low conduction and switching losses
  • The result is improved light- and full-load efficiency
The Key Specifications:

<table>
<thead>
<tr>
<th>Part #</th>
<th>$V_R$ (V)</th>
<th>$I_{F(AV)}$ (A)</th>
<th>$V_F$ typ. (V)</th>
<th>$Q_{RR}$ typ. (nC)$^2$</th>
<th>Speed class</th>
<th>$t_r$ typ. (ns)$^3$</th>
<th>$T_J$ max. (°C)</th>
<th>Package</th>
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<tbody>
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<td>VS-E5TH1506THN3</td>
<td>600</td>
<td>15</td>
<td>1.15</td>
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<td>H</td>
<td>22</td>
<td>175</td>
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<td>175</td>
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</table>

1$I_F$ = rated current, $T_J = 125$ °C  
2$T_J = 125$ °C, $I_F$ = rated current A, $V_R = 400$ V, $dl_I/dt = 1000$ A/μs  
3$T_J = 25$ °C $I_F = 1$ A $dl_I/dt = 100$ A/μs, $V_R = 30$ V

Availability:  
Samples and production quantities of the new FRED Pt rectifiers are available now, with lead times of 12 weeks.

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


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