Diode solutions for on-board battery charger (OBC) applications for input bridge, power factor correction and LLC topologies

**ABSTRACT**

ST offers diode solutions for on-board battery charger (OBC) and charging station applications based on several common topologies:

- For input bridge: Our new 1200V STBR bridge rectifier diode provides ultra low Vf with very high robustness (Ifsm and ESD).
- For power factor correction (PFC): SiC diodes remain the best choice for high switching frequencies.
- For full-bridge LLC: Our new DC/DC 600V RQ series is the most suitable solution for high efficiency with optimized Vf/Qrr trade off.

**TOPOLOGIES**

**FEATURES AND BENEFITS**

**1200V STBR diodes for input bridge:**
- Ultra low Vf
- High Ifsm
- Products available in SMD & TH packages
- Vfmin = 600V @ -40°C (< > 650V @ 25°C) to be compliant with load dump test

**650V and 1200V SiC diodes for PFC:**
- 650V and 1200V SiC with mature technology
- Lowest Vf in the market
- Optimized Ifsm
- Wide range of packages

**600V ultrafast diode for DC-DC:**
- Optimized Vf/Qrr trade-off to cover wide range of output voltage and output current
- Soft behavior for good EMI results
- Vfmin = 600V @ -40°C (< > 650V @ 25°C) to be compliant with load dump test

During high current surges, the Vf is clamped and the temperature is controlled to avoid thermal runaway phenomena

ST SiC diodes present the new reference Vf to reach the highest overall efficiency

Good performance in secondary side of a LLC resonant topology used in OBC applications.

For more information on ST products and solutions, visit [www.st.com](http://www.st.com)