SMFA Asymmetric Series

Asymmetrical TVS for SiC MOSFET gate protection

Problem/Solution

The SMFA Series are Asymmetrical TVS diodes designed specifically to protect SiC MOSFETs gates from overvoltage events. The faster switching speeds of SiC MOSFETs (as compared to Silicon MOSFETs and IGBTs) combined with layout and parasitic elements causes ringing and overshoot phenomena on the gate drive circuit that can be mitigated by the SMFA Series.

As SiC MOSFETs have a different negative gate voltage rating from the positive one, the asymmetrical SMFA Series is ideal in offering a single component solution.

Technical Resources:

Series Page | Datasheet | Tech-Info | Product Brief | Application Note | Video

Benefits

- Reduced part-count
- Reduced PCB-space
- Lower complexity, paired with higher reliability
- Precisely defined voltage levels

Features

- Single component SiC MOSFET gate protection with asymmetrical gate voltage protection
- Low clamping voltage for negative gate drive, VC < 8 V @ 2 A (10/1000 µs)
- Variety of positive standoff voltages, VBR 15 ~ 20 V compatible with popular SiC MOSFETS
- Stable capacitance over wide range of operating frequency (2 MHz) compatible with SiC MOSFET applications
- Compact, 1mm low profile, SOD123-FL package

Markets/Applications

- AI / Data center server power supplies
- High-efficiency power for EVI
- High-reliability semiconductor / industrial power supplies

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