ISSUE: May 2025

SiC Schottky Diodes Deliver Low FOM

Diodes has expanded its SiC product portfolio with a series of five high-performance, low figure-of-merit (FOM) 650-V SiC Schottky diodes. Rated at 4 A, 6 A, 8 A, 10 A, and 12 A, the DSCxxA065LP series is housed in the ultra-thermally efficient T-DFN8080-4 package and is designed for high-efficiency power switching applications, such as dc-dc and ac-dc conversion, renewable energy, data centers (especially those that process heavy artificial intelligence (AI) workloads), and industrial motor drives (see the figure).

Described as industry-leading, the $Q_C \times V_F$ FOM is attributed to negligible switching losses resulting from the absence of reverse recovery current, a low capacitive charge (Q_C), and a low forward voltage. These characteristics make the SiC diodes well suited for high-speed switching circuits.

The diodes are also notable for their 20 µA max. reverse leakage (I_R), which is lowest in the industry, says the vendor. This minimizes heat dissipation and conduction losses, improving system stability and reliability, particularly in comparison to silicon Schottky devices.

The 4-A DSC04A065LP, 6-A DSC06A065LP, 8-A DSC08A065LP, 10-A DSC10A065LP, and 12-A DSC12A065LP are available at $1.25, $1.55, $1.80, $2.10, and $2.40, respectively, each in 2,500-piece quantities. For more information see the DSC04A065LP, DSC06A065LP, DSC08A065LP, DSC10A065LP, and DSC12A065LP pages.

Figure. The compact and low-profile T-DFN8080-4 surface mount package, which measures typ. 8 mm x 8 mm x 1 mm, incorporates a large underside heat pad that reduces thermal resistance. Requiring less board space and providing a larger heat pad, the T-DFN8080-4 is well suited as an alternative to the TO-252 (DPAK). This benefits circuit designs by increasing power density, reducing overall solution size, and lowering the cooling budget.