

SiC DIODES IMPROVE EFFICIENCY



PowerFLAT™ HV SMDs enable power integration for SiC diodes



650V SiC diodes in a PowerFLAT™ HV package (8x8 mm) ease design in low-space environments, combining compactness with improved total capacitive charge and low forward voltage.

As a wide band gap material, silicon-carbide diodes are the undisputed technology for increasing the efficiency and robustness of applications such as servers or telecom equipment.

Offering excellent thermal performance, ST's 650V SiC diodes in a PowerFLAT™ HV package (8x8 mm) are the ultimate step to fully benefit from the space-saving already achieved by downsizing coils.

KEY FEATURES & BENEFITS

- Less-than-1mm height package
- High creepage package
- Temperature independent switching behavior
- Low forward voltage drop
- High forward surge capability
- MSL1
- ECOPACK®2
- Space saving
- Very low power losses
- High system reliability – Reduced field maintenance
- Increase productivity as MSL1 SMD package

KEY APPLICATIONS

- SMPS for telecoms, servers, factory automation, and renewable energy
- UPS equipment
- DIN Rail
- High frequency inverters for Boost PFC, bootstrap or clamping functions

Efficient, integrated, robust

Very low conduction losses

ST's STPSCxxH065DLF ultra-high-performance power Schottky diodes in a PowerFLAT™ HV package have a lower maximum forward voltage (I_O , 150°C) of 550mV compared to previous DO-220, D²PAK and DPAK products. This has been achieved while increasing I_{FSM} (10 μ s, 25°C) performance by at least 1.5, positioning this range of device as benchmark reference on both V_F/I_{FSM} trade-off.

Best compactness for hardware performance

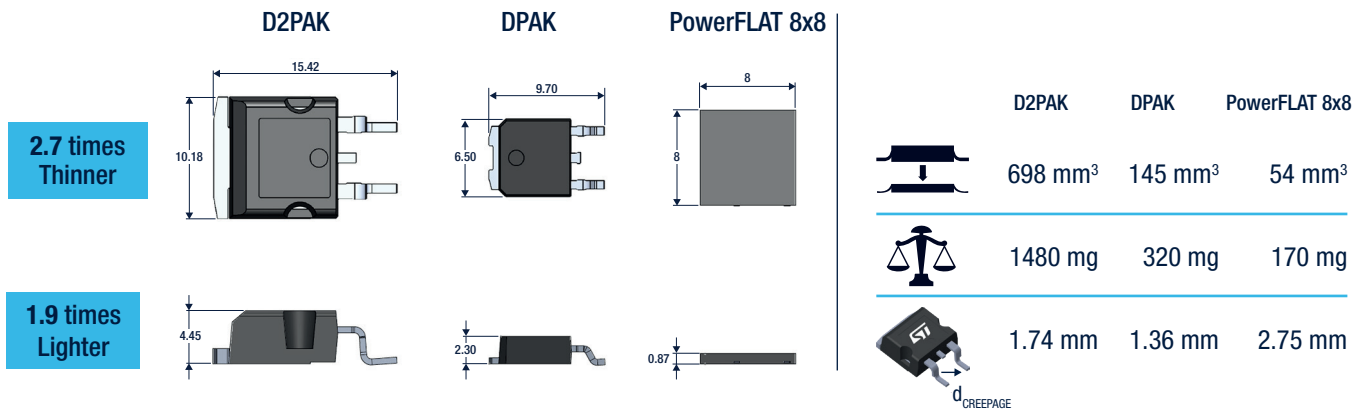
These 4A, 6A, 8A and 10A, 650V SiC diodes in a PowerFLAT™ HV package not only cut power losses but provide robustness and high-efficiency performance in a 60% more compact space compared to existing DPAK solutions.

In addition to compactness, this package ensures higher creepage distance than DPAK with 2.75mm Anode to Cathode distance for no compromise with safety in applications.

Robustness

The enhanced performance of the SiC diode in a PowerFLAT™ HV package shows very good mounting capability, as shown in AN5436 Thermal behavior and printed circuit board assembly recommendations for STMicroelectronics PowerFLAT 8x8 HV package. Indeed, no failures have been observed after 2000 thermal cycles on packages reported on printed circuit boards.

Release SiC diode technology in Thinner, Lighter package



650V SiC Diodes range in PowerFLAT™ 8x8 HV

Part numbers	V_{RRM} (V)	$I_{F(avg)}$ (A)	V_F (V) max 25°C	V_F (V) max 150°C	I_{FSM} (A) 10 μ s, 25°C	I_{FSM} (A) 10ms, 125°C	Q_{cj} (nC) $V_R=400V$	Package
STPSC4H065DLF	650	4	1.55	1.95	400	35	14.3	PowerFlat 8x8 HV
STPSC6H065DLF	650	6	1.55	1.95	600	52	19.9	PowerFlat 8x8 HV
STPSC8H065DLF	650	8	1.55	1.95	800	69	26	PowerFlat 8x8 HV
STPSC10H065DLF	650	10	1.55	1.95	850	80	32	PowerFlat 8x8 HV
STPSC10065DLF	650	10	1.45	1.65	210	39	34	PowerFlat 8x8 HV



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