



New Product Announcement

DSCxxA065LP

650V SiC Schottky Diodes with Exceptionally Low FOM Provide Highest Efficiency for Power Solutions

Diodes Incorporated has extended its silicon carbide (SiC) portfolio with a series of five high-performance low figure-of-merit (FOM) 650V SiC Schottky diodes.

Rated at 4A, 6A, 8A, 10A, and 12A, the DSCxxA065LP series is packaged in the ultra-thermally efficient T-DFN8080-4 and is designed for high-efficiency power switching applications, such as DC-to-DC and AC-to-DC conversion, renewable energy, data centers (especially those that process heavy artificial intelligence (AI) workloads), and industrial motor drives.

These SiC Schottky diodes offer superior power switching performance compared to silicon alternatives. They have negligible switching losses due to the absence of reverse recovery current and their low capacitive charge (Q_C), making them suitable for high-speed switching circuits. Their low forward voltage (V_F) minimizes conduction losses and further increases overall power efficiency. These combine to provide an exceptionally low FOM, expressed as:

$$FOM = Q_C \times V_F$$

The devices' compact and low-profile T-DFN8080-4 (typ. 8mm x 8mm x 1mm) surface mount package incorporates a large underside heat pad, providing reduced thermal resistance. This benefits circuit designs with increased power density, reduced overall solution size, and a lower cooling budget. T-DFN8080-4 is an ideal alternative for TO252 (DPAK).

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The DIODES Advantage

These low-loss devices boost power density and efficiency, reducing cooling needs in compact designs.

- **Exceptionally Low FOM ($Q_C \times V_F$)**
Enables higher system efficiency designs, reducing running and cooling costs
- **Minimal Reverse Leakage Current ($I_R = 20\mu\text{A Max.}$)**
Minimizes heat dissipation
- **High Temperature Operation up to 175°C**
Enhances system reliability in harsh environments
- **Forward Voltage Positive Temperature Coefficient**
Ensures operational stability and supports device paralleling
- **High Surge Current Capability**
Boosts robustness
- **Totally Lead-Free and Fully RoHS Compliant**
Promotes environmentally responsible designs

Applications

- Power factor correction
- AC/DC & DC/DC converters
- Solar inverters
- Switched-mode power supplies
- AI server PSU, data centers
- Uninterruptible power supplies
- Motor drives

Circuit Functions

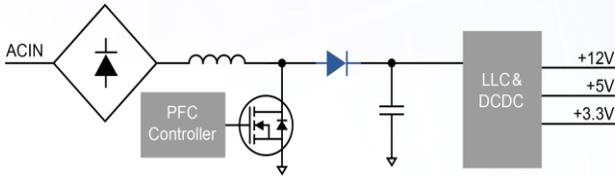
- PFC boost diodes
- Reverse-polarity protection
- Electrical over-stress protection
- Free-wheeling diodes
- Snubber circuits



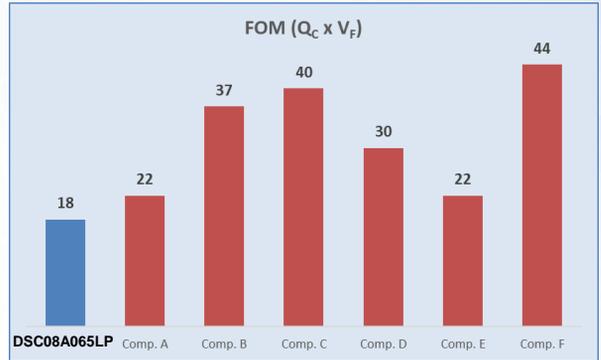
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Typical Application



PFC boost converter diode in SMPSU



Exceptionally low FOM enables higher system efficiency

Product Portfolio

Part Number	V _{RRM}	I _O	I _{FSM}	V _F (Max.)	I _R (Typ.)	I _R (Max.)	QC	CT	FOM Q _c x V _f	T _J	Package
	V	A	A	V	μA	μA	nC	pF		°C	
DSC04A065LP	650	4	29	1.5	0.11	20	6	193	9	-55 to +175	T-DFN8080-4
DSC06A065LP	650	6	38	1.5	0.27	20	8	295	12	-55 to +175	T-DFN8080-4
DSC08A065LP	650	8	47	1.5	0.1	20	12	414	18	-55 to +175	T-DFN8080-4
DSC10A065LP	650	10	55	1.5	0.19	20	14	516	21	-55 to +175	T-DFN8080-4
DSC12A065LP	650	12	55	1.7	0.19	20	14	516	23.8	-55 to +175	T-DFN8080-4

See respective datasheets for test conditions

Ordering Information

Orderable Part Number	Package	Packing	
		Quantity	Carrier
DSC04A065LP-13	T-DFN8080-4	2,500	Reel
DSC06A065LP-13	T-DFN8080-4	2,500	Reel
DSC08A065LP-13	T-DFN8080-4	2,500	Reel
DSC10A065LP-13	T-DFN8080-4	2,500	Reel
DSC12A065LP-13	T-DFN8080-4	2,500	Reel