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# DID YOU KNOW? SiC DIODES FOR HIGH END PFC



Vishay now offers a complete family of SiC Schottky diodes with breakdown voltage of 650 V in through-hole 2L TO-220AC single-package or TO-247AD 3L dual-package in common cathode configurations.

This family includes single devices from 4 A to 20 A and 16 A to 40 A dual common cathode devices.

## SiC Technology

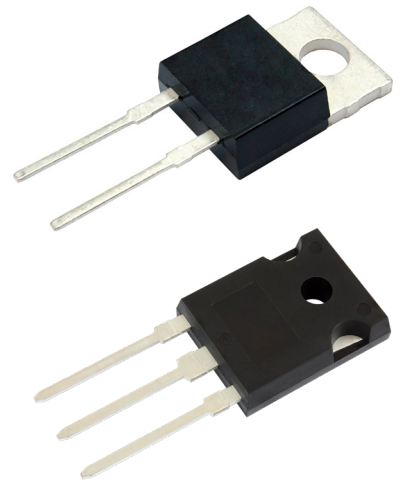
Wide band gap SiC-based Schottky diodes are designed for high performance AC/DC and DC/DC converters like PFC and output rectification in an ultra high frequency DC/DC. The SiC diode is a step ahead in the efficiency of the converter, improving power density and reliability. When applied instead of Si, this technology reduces the switching losses of the active switch, reducing turn-on stress. It is possible to increase the switching frequency and power density without a cooling issue.

The Vishay MPS structure guarantees high surge capability, so it is possible use a SiC device, without special precautions, instead of an ultrafast diode where the recovery behavior of the Si diode shows excessive recovery losses.

## Benefits of Vishay SiC Technology

The SiC diode offers:

- Virtually zero reverse recovery losses, invariant with temperature and working condition
- Purely capacitive switching, no losses inside the diode
- Good current surge
- High ratio between forward current and diode capacitance
- Low leakage at high temperature
- Low induced losses in the active switch
- Improved EMI



## Vishay SiC Diode Family

The Vishay SiC portfolio covers the most common current rating from small to large. All devices have breakdown voltages of 650 V and maximum  $T_j$  of 175 °C. The packages available are 2L TO-220AC single-diode or TO-247AD 3L dual common cathode configurations.

	Current Rating (A)	$V_F$ at $I_F$ , 150 °C (V)	$I_{FSM}$ 10 ms and $T_C = 25$ °C (A)	Total $Q_C$ , (0 V to 400 V) (nC)	Breakdown Voltage $V_{BR}$ (V)	Leakage at 650 V, 175 °C ( $\mu$ A)	Package
<a href="#">VS-C04ET07T-M3</a>	4	1.75	26	11	650	2.5	2L TO-220AC
<a href="#">VS-C06ET07T-M3</a>	6	1.70	39	17	650	4.4	
<a href="#">VS-C08ET07T-M3</a>	8	1.70	57	23	650	5	
<a href="#">VS-C10ET07T-M3</a>	10	1.75	68	28	650	5	
<a href="#">VS-C12ET07T-M3</a>	12	1.65	80	33	650	10	
<a href="#">VS-C16ET07T-M3</a>	16	1.65	120	45	650	10	
<a href="#">VS-C20ET07L-M3</a>	20	1.60	160	68	650	35	
<a href="#">VS-C16CP07T-M3</a>	2 x 8	1.70	53	21.5	650	5	TO-247AD 3L
<a href="#">VS-C20CP07L-M3</a>	2 x 10	1.75	64	29	650	10	
<a href="#">VS-C40CP07L-M3</a>	2 x 20	1.55	160	68	650	35	