



New Vishay Intertechnology Gen 3 1200 V SiC Schottky Diodes Increase Efficiency and Reliability for Switching Power Designs

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Featuring an MPS Design, 5 A to 40 A Devices Offer Lower Forward Voltage Drop, Capacitive Charge, and Reverse Leakage Current

MALVERN, Pa., June 26, 2024 (GLOBE NEWSWIRE) -- Vishay Intertechnology, Inc. (NYSE: VSH) today introduced 16 new [Gen 3 1200 V silicon carbide \(SiC\) Schottky diodes](#). Featuring a merged PIN Schottky (MPS) design, the Vishay Semiconductors devices combine high surge current robustness with low forward voltage drop, capacitive charge, and reverse leakage current to increase efficiency and reliability in switching power designs.

The next-generation SiC diodes released today consist of 5 A to 40 A devices in the TO-220AC 2L, TO-247AD 2L, and TO-247AD 3L through-hole and D²PAK 2L (TO-263AB 2L) surface-mount packages. The diodes offer a low capacitance charge down to 28 nC, while their MPS structure — which features a backside thinned via laser annealing technology — delivers a reduced forward voltage drop of 1.35 V. In addition, the devices' low typical reverse leakage current down to 2.5 μ A at 25 °C reduces conduction losses, ensuring high system efficiency during light loads and idling. Unlike ultrafast diodes, the Gen 3 devices have virtually no recovery tail, which further improves efficiency.

Typical applications for the diodes will include AC/DC PFC and DC/DC ultra high frequency output rectification in FBPS and LLC converters for solar power inverters; energy storage systems; industrial drives and tools; and datacenters. For the harsh environments of these applications, the devices combine operating temperatures to +175 °C with forward surge ratings to 260 A for high robustness. In addition, diodes in the D²PAK 2L package feature a molding compound with a high CTI 600, ensuring excellent electrical insulation at elevated voltages.

Offering high reliability, the RoHS-compliant and halogen-free devices have passed higher temperature reverse bias (HTRB) testing of 2000 hours and temperature cycling testing of 2000 thermal cycles.

Device Specification Table:

Part #	I _{F(AV)} (A)	I _{FSM} (A)	V _F at I _F (V)	Q _C (nC)	Configuration	Package
VS-3C05ET12T-M3	5	42	1.35	28	Single	TO-220AC 2L
VS-3C10ET12T-M3	10	84	1.35	55	Single	TO-220AC 2L
VS-3C15ET12T-M3	15	110	1.35	81	Single	TO-220AC 2L
VS-3C20ET12T-M3	20	180	1.35	107	Single	TO-220AC 2L
VS-3C05ET12S2L-M3	5	42	1.35	28	Single	D ² PAK 2L
VS-3C10ET12S2L-M3	10	84	1.35	55	Single	D ² PAK 2L
VS-3C15ET12S2L-M3	15	110	1.35	81	Single	D ² PAK 2L
VS-3C20ET12S2L-M3	20	180	1.35	107	Single	D ² PAK 2L
VS-3C10EP12L-M3	10	84	1.35	55	Single	TO-247AD 2L
VS-3C15EP12L-M3	15	110	1.35	81	Single	TO-247AD 2L
VS-3C20EP12L-M3	20	180	1.35	107	Single	TO-247AD 2L
VS-3C30EP12L-M3	30	260	1.35	182	Single	TO-247AD 2L
VS-3C10CP12L-M3	2 x 5	42	1.35	28	Common cathode	TO-247AD 3L
VS-3C20CP12L-M3	2 x 10	84	1.35	55	Common cathode	TO-247AD 3L
VS-3C30CP12L-M3	2 x 15	110	1.35	81	Common cathode	TO-247AD 3L
VS-3C40CP12L-M3	2 x 20	180	1.35	107	Common cathode	TO-247AD 3L

Samples and production quantities of the new SiC diodes are available now, with lead times of 13 weeks.

Vishay manufactures one of the world's largest portfolios of discrete semiconductors and passive electronic components that are essential to innovative designs in the automotive, industrial, computing, consumer, telecommunications, military, aerospace, and medical markets. Serving customers worldwide, Vishay is **The DNA of tech**.[®] Vishay Intertechnology, Inc. is a Fortune 1,000 Company listed on the NYSE (VSH). More on Vishay at www.Vishay.com.

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