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600-V Standard And 60-V to 200-V Schottky Rectifiers In The DFN33A

Vishay Intertechnology is offering 27 standard and Trench MOS Barrier Schottky (TMBS) surface-mount rectifiers in the low-profile DFN33A package with wettable flanks. Providing space-saving, high efficiency solutions for commercial, industrial, telecom, and automotive applications, the standard devices are said to be the industry's first in this package size and provide current ratings up to 6 A (see the figure).

Meanwhile the TMBS devices are said to deliver industry-best current ratings up to 9 A. Offering a wide range of voltage options from 60 V to 200 V for TMBS and up to 600 V for standard rectifiers, the devices are available in automotive-grade, AEC-Q101-qualified versions (see the table).

The latest package in Vishay's Power DFN family, the DFN33A features a compact 3.3-mm by 3.3-mm footprint and an extremely low typical height of 0.88 mm, allowing the Vishay General Semiconductor rectifiers to make more efficient use of PCB space. Compared to the conventional SMB (DO-214AA) and eSMP series SMPA (DO-220AA), the package's size is 44% and 20% smaller, respectively.

In addition, the device's low profile is 2.6x thinner than the SMB (DO-214AA) and SMC, and 7% thinner than the SMPA (DO-220AA). At the same time, the rectifiers' optimized copper mass design and advanced die placement technology allow for superior thermal performance that enables operation at higher current ratings.

The devices are intended for low-voltage, high-frequency inverters, dc-dc converters, freewheeling diodes, and polarity and rail-to-rail protection in hot swap circuits for baseband antennas and power over Ethernet (PoE) for switches, routers, and optical network equipment. For these applications, the rectifiers offer high temperature operation up to +175°C, while their exceptionally low forward voltage drop and low leakage current enhance design efficiency. The wettable flanks of their DFN33A package allow for automatic optical inspection (AOI), eliminating the need for X-ray inspection.

Well suited for automated placement, the rectifiers offer an MSL moisture sensitivity level of 1, per J-STD-020, LF maximum peak of 260°C. The devices are RoHS-compliant and halogen-free, and their matte tin-plated leads meet the JESD 201 class 2 whisker test.

Samples and production quantities of the standard and TMBS rectifiers in the DFN33A package are available now, with lead times of eight weeks. For more information see the product pages linked to in the table.

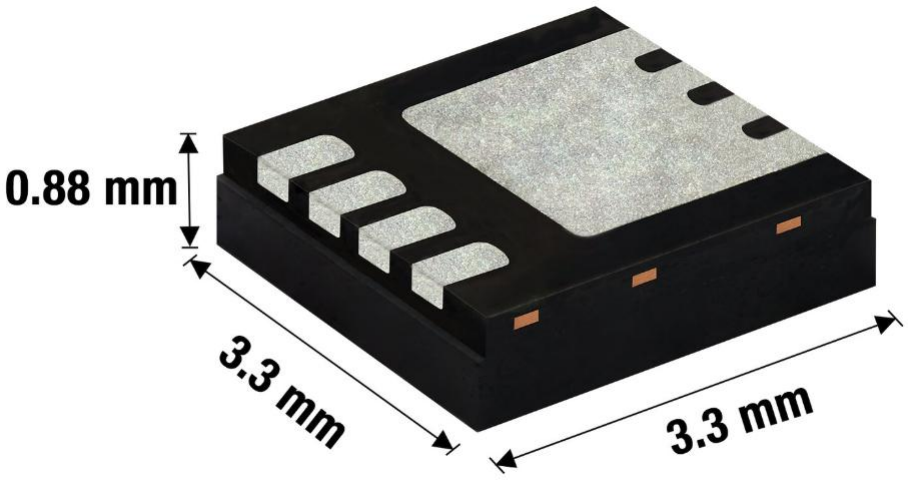

Figure. Featuring a low 0.88-mm profile and wettable flanks, Vishay's standard and Trench MOS barrier Schottky (TMBS) surface-mount rectifiers are space-saving devices that provide improved thermal performance and efficiency

Table. Key specs for Vishay Intertechnology's standard and Trench MOS Barrier Schottky (TMBS) rectifiers in the DFN33A package with wettable flanks.

Part #	Type	Rev. voltage (V)	IF(AV) (A)	VF at IF (V)	IFSM (A)	TJ max. (°C)
SE40N3D	Standard	200	4	0.84	70	+175
SE40N3G	Standard	400	4	0.84	70	+175
SE40N3J	Standard	600	4	0.84	70	+175
SE60N3D	Standard	200	6	0.88	80	+175
SE60N3G	Standard	400	6	0.88	80	+175
SE60N3J	Standard	600	6	0.88	80	+175
V5N3103	TMBS	100	5	0.43	100	+150
V5N3202	TMBS	200	5	0.58	100	+175
V5N3L63	TMBS	60	5	0.34	100	+150
V5N3M103	TMBS	100	5	0.45	100	+175
V5N3M153	TMBS	150	5	0.54	100	+175
V5N3M63	TMBS	60	5	0.4	100	+175
V6N3103	TMBS	100	6	0.45	100	+150
V6N3M103	TMBS	100	6	0.48	100	+175
V7N3103	TMBS	100	7	0.45	120	+150
V7N3L63	TMBS	60	7	0.37	120	+150
V7N3M103	TMBS	100	7	0.49	120	+175
V7N3M153	TMBS	150	7	0.56	120	+175
V7N3M63	TMBS	60	7	0.43	120	+175
V8N3170	TMBS	170	8	0.62	100	+175
V8N3M103S	TMBS	100	8	0.52	100	+175
V9N3103	TMBS	100	9	0.43	150	+150
V9N3202	TMBS	200	9	0.6	150	+175
V9N3L63	TMBS	60	9	0.36	150	+150
V9N3M103	TMBS	100	9	0.47	150	+175
V9N3M153	TMBS	150	9	0.56	150	+175
V9N3M63	TMBS	60	9	0.42	150	+175

Note: Base P/N-M3 for commercial grade, base P/NHM3 for AEC-Q101 qualified and automotive grade