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25-V And 80-V MOSFETs Come In DFNs With Double-Sided Cooling

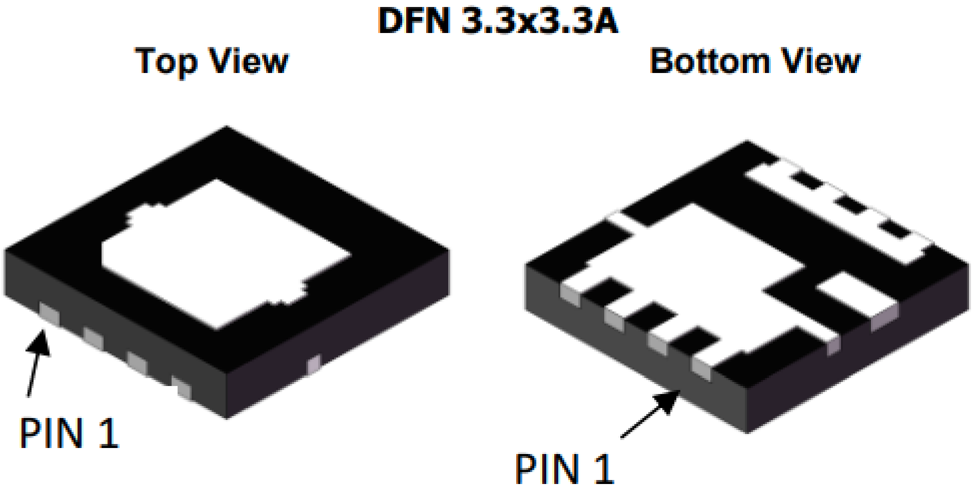
Alpha and Omega Semiconductor's AONC40202 25-V MOSFET and AONC68816 80-V MOSFET are available in DFN 3.3-mm x 3.3-mm double-sided-cooling source-down packaging. Designed to support high power density in intermediate bus converters (IBCs) in AI servers, the AONC40202 and AONC68816 meet the stringent thermal requirements of AI servers and data centers, says the vendor.

"AOS designed these latest MOSFETs to specifically satisfy intensifying AI server power needs. In particular, the double-sided-cooling DFN 3.3 x 3.3 source-down packaging delivers superior heat transfer and thermal performance compared to traditional DFN 3.3 x 3.3 packaging solutions. Beyond their thermal advantages, the AONC40202 and AONC68816 use the latest AlphaSGT silicon technology. This combination of enhanced thermal and silicon technology offers AI power designers a more effective solution to increase power density while also enhancing manufacturability and overall application reliability," said Peter H. Wilson, Sr. director of MOSFET product line at AOS.

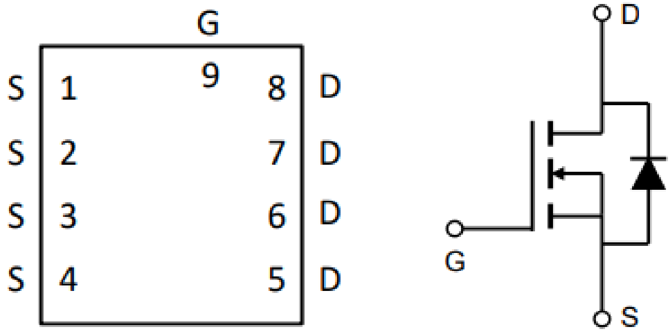
The AONC40202 and AONC68816 feature an optimized top-clip design for the exposed drain contact. This double-sided thermal interface will remove heat from the heatsinks, keeping the parts cooler. The packaging technology used in the AONC40402 25-V and AONC68816 80-V MOSFETs features a large top clip, which enables a low thermal resistance rate value of Rthc-top(max) to be 0.9°C/W (see the figure).

What's more, the AONC40202 has a continuous current capability of up to 405 A, with a maximum junction temperature of 175°C. These capabilities provide significant system-level improvements such as enhanced thermal management, support higher power density, and afford increased operational efficiencies. In addition, the source-down packaging technology provides a larger source contact to the PCB, and its center-gate pin layout allows easier PCB routing, so the gate driver connection can be minimized. Key specs are noted in the table.

The AONC40202 and AONC68816 are immediately available in production quantities with a lead time of 14 to 16 weeks. The unit prices in 1,000-piece quantities are $1.85 and 1.95, respectively. For more information, see the AONC40202 and AONC68816 product pages.



(a)



(b)

Figure. Designed to support high-power density and enhanced thermal performance, the AONC40202 and AONC68816 MOSFETs in DFN 3.3 x 3.3 double-sided-cooling source-down packaging feature center gate technology for easier routing on the PCB. Top and bottom views of the package are shown in (a) while the pinout is shown in (b).

Table. Key specifications for the AONC40202 and AONC68816 MOSFETs in the DFN3.3x3.3A package.

Part Number	**V_{DS} (V)**	**V_{GS} (±V)**	**T_J (°C)**	**R_{thjc} max (C/W)**		**Drain current (A) at 25°C**		**$R_{DS(ON)}$ max (mΩ) at 10 V**
				Top	**Bottom**	**Continuous**	**Pulsed**	
AONC40202	25	12	175	0.9	1.1	405	644	0.7
AONC68816	80	20	175	0.9	1.1	119	476	4.7