

Buck Converters Support Sensors And Cameras For Assisted Driving

[ROHM Semiconductor's](#) BD9S series automotive synchronous buck converters feature high reliability, low power consumption, compact form factor and wide operating temperature range (-40°C to +125°C), and a leadless package with wettable flanks. This combination makes them very suitable for using them in applications like radars, cameras and sensors which find application in assisted driving (see the figure).

The BD9S series is comprised of very compact, automotive-grade power supply ICs that include an enable function to adjust the startup time and a PGOOD output indication to improve system functional safety. The series includes five models—BD9S400MUF-C, BD9S300MUF-C, BD9S200MUF-C, BD9S100NUX-C and BD9S000NUX-C—which support output currents from 0.6 to 4.0 A. See the table.

These devices come in 2-mm x 2-mm and 3-mm x 3-mm space-saving packages that deliver highly efficient operation, resulting in what's described as a best-in-class power conversion efficiency of 90% (at 3.6-V input/1.8-V output). Additionally the converters' use of current-mode control ensures fast response to load transients and combined with a fixed 2.2-MHz switching frequency, prevents interference in the AM band. This higher frequency also allows use of smaller external components.

The BD9S series is available now. For more information, see the switching regulators [page](#) and scroll down to see details on the BD9S models.

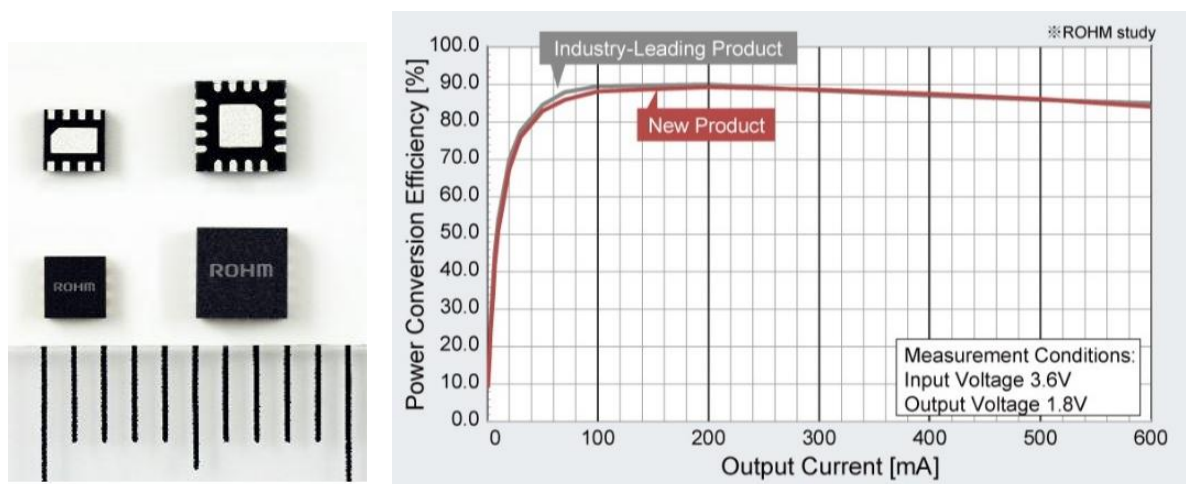


Figure. Supporting output current levels from 0.6 to 4 A, the BD9S series automotive synchronous buck converters boast class-leading miniaturization and efficiency including a 4-mm² device footprint and 90% efficiency when converting 3.6-V input to 1.8-V output. The current-mode control loop with fixed 2.2-MHz switching makes it possible to reduce the size of peripheral components and eliminate interference from the AM radio band. A dedicated light-load mode improves efficiency at lower load currents.

Table. Key specifications for members of the BD9S series automotive synchronous buck converters.

Part No.	Input Voltage Range	Output Voltage	Max. Output Current	Output Voltage Precision	Operating Frequency	Operating Temperature	Package
BD9S400MUF-C	2.7V to 5.5V	0.8V to 0.8*Vin	4.0A	±1.5%	2.2MHz ±0.2MHz	-40°C to 125°C	VQFN16FV3030 (3.0 x 3.0 x 1.0mm)
BD9S300MUF-C			3.0A				
BD9S200MUF-C			2.0A				
BD9S100NUX-C		0.8V to Vin	1.0A				VSON008X2020 (2.0 x 2.0 x 0.6mm)
BD9S000NUX-C			0.6A				
BD9S110NUX-C**			1.0A				
BD9S111NUX-C**			1.0A				

**BD9S110NUX-C and BD9S111NUX-C are available soon.