



New Product Announcement

AL8890Q AL88902Q

Automotive 60V Synchronous Buck Converters with Adjustable Feedback Voltage for Analog Dimming

The AL8890Q/AL88902Q are automotive-compliant synchronous buck converters with internal compensation and a switching frequency adjustable up to 2.5MHz.

They integrate a 120mΩ high-side N-MOSFET and a 55mΩ low-side N-MOSFET, enabling high-efficiency DC-DC conversion.

The AL8890Q supports a continuous load current of up to 3.5A; the AL88902Q supports up to 2.5A, with efficiencies up to 95%. They utilize current mode control, which enables easy loop stabilization, supporting a wide range of output loads.

Their SS/TR multifunction pin, while supporting soft-start and tracking capability, also enables the AL8890Q and AL88902Q to function as LED drivers/constant-current (CC) drivers.

The AL8890Q/AL88902Q's high switching frequency, use of smaller size inductor, and built-in MOSFET simplifies board layout and reduces space requirements, making them ideal for power management.

The AL8890Q and AL88902Q are available in the TSSOP-16EP and the wettable flank U-QFN4040-16/SWP (Type UXB) packages.

Automotive-compliant - AEC qualified, manufactured in facilities certified to IATF 16949, supporting PPAP documents.

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The DIODES Advantage

The AL8890Q/AL88902Q synchronous buck converters with peak current control provide exceptional efficiency and output accuracy in very small solution sizes.

- **Wide V_{IN} range from 3.8V to 60V with Wide Output Voltage Range to Near 100% of V_{IN}**
Supports a wide range of power rail applications
- **Multi-Function SS/TR Pin Supports Constant Voltage and Constant Current Modes of Operation**
Allows the same device to be used as a high-current buck voltage converter, as well as an LED driver
- **Adjustable Switching Frequency up to 2.5MHz with External Clock Synchronization**
Reduces solution footprint and cost
- **Multiple Protection Features with Power Good**
Increases system reliability with reporting if the load goes out of regulation
- **Automatic Switchover Between PFM and PWM Modes**
Ensures high efficiency across all loads

Applications

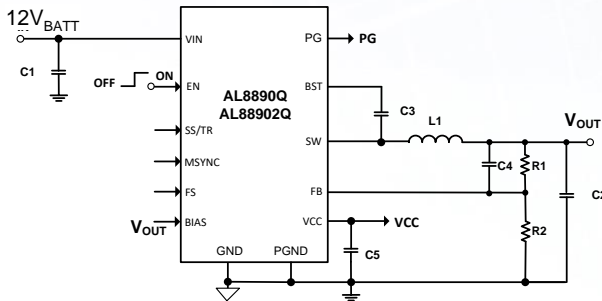
Point-of-load regulation in:

- Automotive infotainment
- Automotive motor controls
- Automotive ECUs

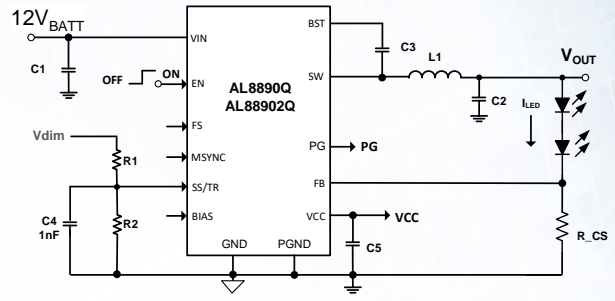
LED driving in:

- Automotive exterior and interior LED lighting systems

Typical Applications



Constant Voltage Configuration



LED Driver (Constant Current) Configuration

60V Automotive-Compliant Buck LED Driver Portfolio

Part Number	Min Input Voltage	Max Input Voltage	Max LED Current	Accuracy	Max Switching Frequency	Constant Current (CC)/ Voltage (CV)	Efficiency	Dimming		Inductor Current Limit	Sense/Feedback Voltage	Fault Flag/ Power Good	Temp Range	Package
	V	V	A	%	MHz			%	PWM					
AL88902Q	3.8	60	2.5	1	2.5	CV/CC	95	N	Y	-	800*	Y	-40 to +125	U-QFN4040-16/SWP (Type UXB), TSSOP-16EP
AL8890Q	3.8	60	3.5	1	2.5	CV/CC	95	N	Y	-	800*	Y	-40 to +125	U-QFN4040-16/SWP (Type UXB), TSSOP-16EP
AL8862Q	5	55	1	5	1	CC	95	Y	Y	Y	100	Y	-40 to +125	SO-8EP V-DFN3030-8/SWP

*Adjustable for use in LED driving/constant current mode

Ordering Information

Orderable Part Number	Compliance (Only Automotive Supports PPAPs)	Package	Moisture Sensitivity	Packing	
				Quantity	Carrier
AL88902QFVBW-13	Automotive	U-QFN4040-16/SWP (Type UXB)	MSL-1	3,000	13" Tape & Reel
AL88902QT16E-13	Automotive	TSSOP-16EP	MSL-1	3,000	13" Tape & Reel
AL8890QFVBW-13	Automotive	U-QFN4040-16/SWP (Type UXB)	MSL-1	3,000	13" Tape & Reel
AL8890QT16E-13	Automotive	TSSOP-16EP	MSL-1	3,000	13" Tape & Reel