

## Automotive Boost Controller Shrinks Class-D Audio Amplifier

[Analog Devices'](#) MAX25203 is a highly efficient multi-phase synchronous boost controller that regulates high-power Class-D amplifiers in automotive infotainment systems. The MAX25203 features both programmable gate drive voltage and current limit blanking time, as well as accurate current balancing, and operates at a high switching frequency to reduce the bill-of-materials cost and shrink PCB space by 36%, according to the vendor.

The controller starts with a battery input voltage from 4.5 V to 42 V and operates down to 1.8 V after start-up. It sustains an absolute maximum output voltage of up to 70 V and features a low shutdown supply current of 5  $\mu$ A.

Useful to generate backlight and Class-D audio amplifier voltages, the MAX25203 offers I<sup>2</sup>C bus diagnostics including die temperature, phase current monitoring and optional true shutdown to improve system reliability. Output voltage is scalable via the PWM input or I<sup>2</sup>C interface and a sync-out feature supports additional phases for higher-power systems.

The MAX25203 provides a factory-programmable gate-drive voltage from 5.5 V to 10 V, which increases power density by reducing MOSFET R<sub>DS(ON)</sub> loss for higher efficiency and lower cost. It also offers a programmable current limit blanking time, which supports short peak current events without power supply overdesign for lower solution cost.

Other features include  $\pm$ 5% current-share accuracy from phase-to-phase for reduced inductor size and a resistor-programmable switching frequency up to 2.1 MHz, which improves EMI and reduces external components' size and count.

The MAX25203 is available now in a 32-lead TQFN-CU as is an evaluation board, the (MAX25203EVKIT). For more information see the [MAX25203 product page](#).

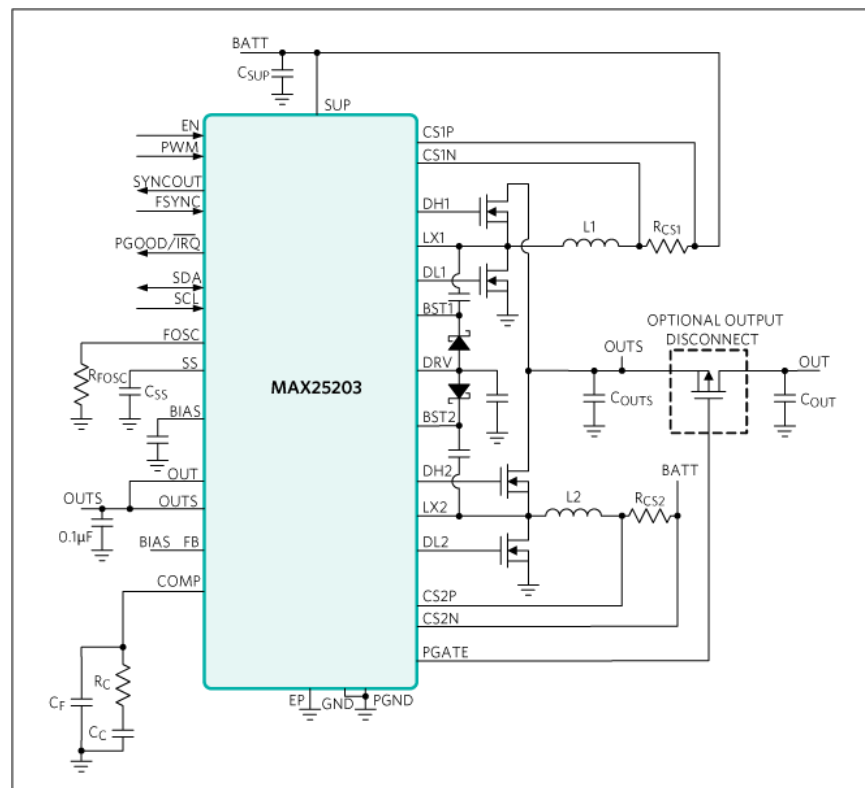


Figure. A simplified application diagram. The MAX25203 automotive dual-phase synchronous boost controller with programmable gate drive and I<sup>2</sup>C can be used to generate backlight voltage and Class D audio amplifier voltages. With its other features such as current-limit blanking time and accurate current balancing, and its ability to operate at a switching frequency as high as 2.1 MHz, this controller is said to reduce PCB space by 36%.