

## Switching Regulator Operates With Input Up To 61 V

STMicroelectronics' A7987 automotive switching regulator has a wide input-voltage range that allows use in trucks and buses. It also has an adjustable output voltage that ensures flexibility and stable performance to power the numerous voltage rails in automotive applications such as body infotainment and telematics.

With a maximum input voltage of 61 V, the A7987 can operate from a 24-V battery in a conventional or hybrid/electric vehicle and maintain a regulated output despite disturbances such as load-dump. The output is adjustable from 0.8 V up to the input voltage, with low dropout, and can provide up to 3 A for a wide variety of loads from logic to lighting (see the figure).

The current limit and switching frequency up to 1.5 MHz are set with external pulldown resistors, letting designers create compact power modules by optimizing the output-inductor size. Pulse-by-pulse current sensing with digital frequency foldback in short-circuit minimizes stress on power components to enhance reliability. Thermal protection is built-in, with shutdown and auto-recovery to minimize reliance on external intervention.

The A7987 embeds a low-resistance n-channel power MOSFET. At light load, pulse skipping maintains output regulation and a bias-voltage input with integrated switchover allows powering analog circuitry from an external source for optimum efficiency.

A synchronization pin allows up to five regulators to coexist by switching out of phase to avoid noise effects and reduce the RMS current flowing in the input capacitor. An enable pin and a power-good indicator with adjustable delay permit power-up sequencing. There is also an adjustable soft-start function to limit inrush current (see Fig. 2).

AEC-Q100 certified, the A7987 switching regulator is in production now, in a 5-mm x 6.4-mm HTSSOP16 exposed-pad package, priced from \$2.00 for orders of 1000 pieces. ST has also released the STEVAL-ISA207V1 evaluation board, available now from the company [website](#) or distributors. See the A7987 product [page](#) for further information.

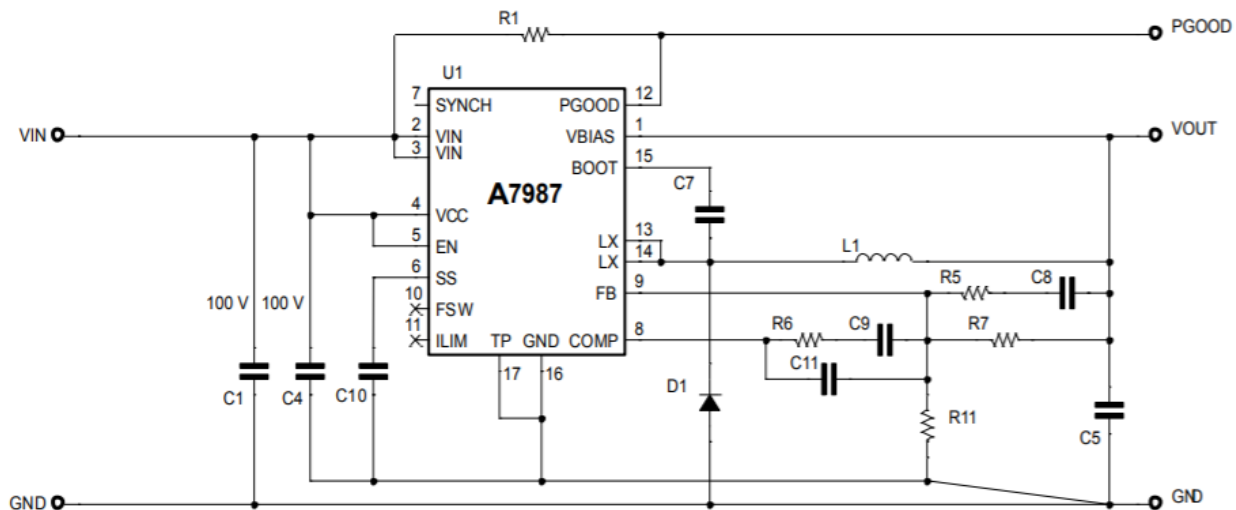


Figure. Designed for 24-V automotive battery systems and industrial and commercial vehicles, the A7987 switching regulator operates over a 4.5 to 61 V input voltage range, producing an adjustable output down to 0.8 V at up to 3 A.