

Switcher IC Powers EV Subsystems Directly From 400-Vdc Bus

[Power Integrations](#) has announced an AEC-Q100-qualified version of its LinkSwitch-TN2 switcher IC for buck or nonisolated flyback applications. Featuring an integrated 750-V MOSFET, the automotive-qualified LinkSwitch-TN2 IC provides simple and reliable power for electric vehicle (EV) subsystems connected to the high-voltage bus, including HVAC, climate control, battery management, battery heater, dc-dc converter and on-board charger systems (Fig. 1). The surface-mount device requires no heatsink, needs few external components and occupies a very small PCB footprint.

The LinkSwitch-TN2 implements a flyback converter capable of 7-W output or a buck converter capable of 360-mA output while operating over a wide input voltage range of 60-Vdc to 550 Vdc, efficiently supporting the 400 Vdc bus in EV applications (Fig. 2). The power supply IC provides accurate regulation of better than $\pm 5\%$ across line voltage, load, temperature and component tolerances.

Comments Power Integrations' product marketing manager Edward Ong, "Our automotive switcher ICs reduce size while increasing the reliability and robustness of automotive sub-systems. By supplying auxiliary systems directly from the high-voltage bus with a LinkSwitch-TN2 power supply, automotive engineers can reduce the requirement for the conventional 12-V distributed rail, saving assembly and material cost."

Samples of the LNK3206GQ automotive-qualified LinkSwitch-TN2 IC are available now with prices starting at \$0.84 in 10,000-piece quantities. The ICs are offered in an SMD-8C package. Datasheet and reference design documentation is available from the Power Integrations [website](#).

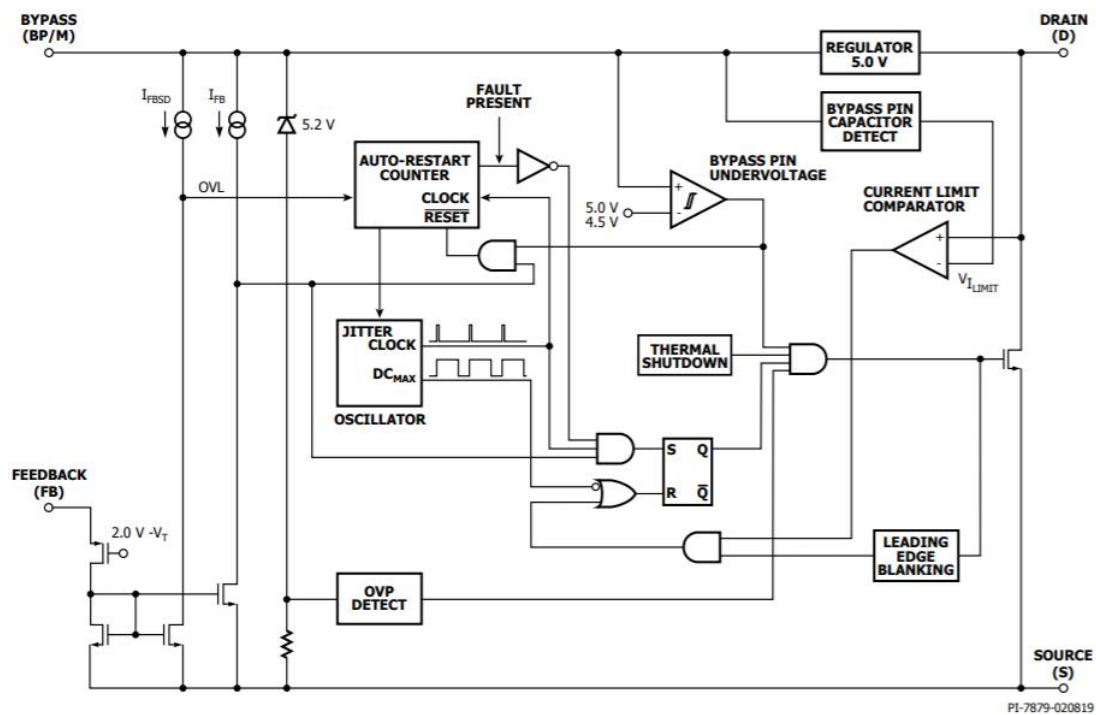


Fig. 1. The LinkSwitch-TN2 switcher IC for automotive supports buck, buck-boost and flyback converter topologies. Each device incorporates a 750-V power MOSFET, oscillator, on/off control, a high-voltage switched current source for self-biasing, frequency jittering, fast (cycle-by-cycle) current limit, hysteresic thermal shutdown, and output and overvoltage protection circuitry within a monolithic IC.

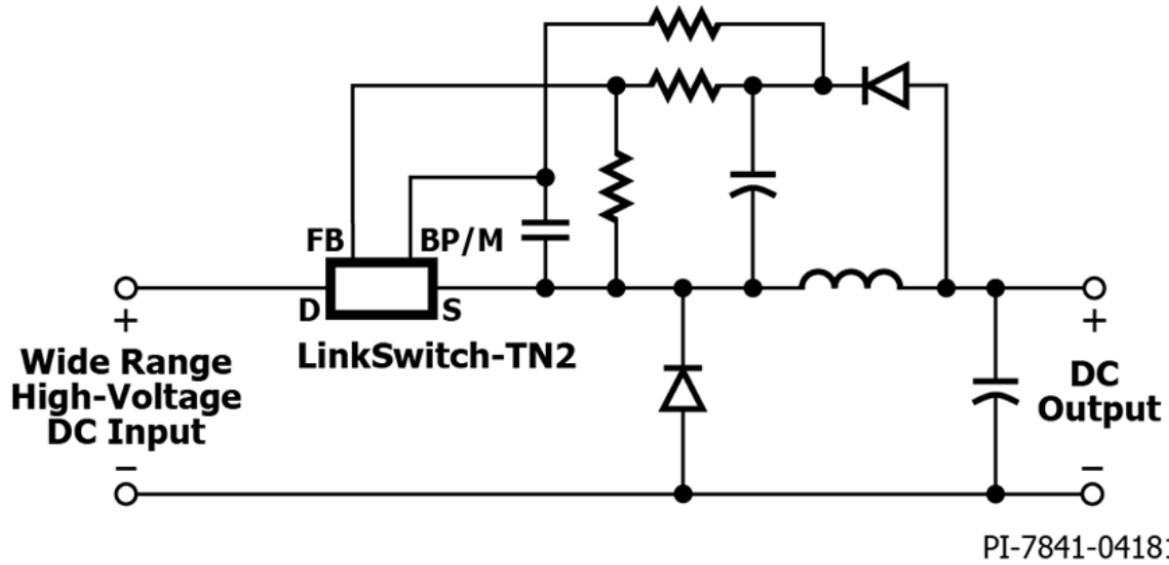


Fig. 2. The LinkSwitch-TN2 switcher IC provides significant reduction in component count compared to traditional discrete solutions. Capable of operating from a wide input voltage 60 V to 550 V dc, the switcher supports operation from the 400-V battery bus commonly seen in EVs. A typical buck converter application circuit is shown here.