

AC-DC Converter ICs Ease Design For Appliances, Sensors And Meters

[Power Integrations'](#) LNK3207 ICs are the newest members of the company's LinkSwitch-TN2 ac-dc converter family. These chips facilitate higher-power offline buck converter designs for appliances and industrial applications by increasing the available output current from 360 mA to 575 mA, while also delivering greater than 80% efficiency and no-load consumption of less than 30 mW (see Fig. 1 and the table). Additionally, these ac-dc converter ICs reduce BOM count.

Silvestro Fimiani, product marketing manager at Power Integrations said: "These new LinkSwitch-TN2 ICs are pin-to-pin compatible with previous generations, making it simple for customers to upgrade to higher-power designs. A high-current buck converter can be created using a minimal number of easily available components while saving at least one diode over previous solutions."

Each monolithic LNK3207 IC incorporates a 725-V power MOSFET, oscillator, on/off control for high efficiency at light load, a high-voltage switched current source for self-biasing, frequency jittering, fast (cycle-by-cycle) current limit, hysteretic thermal shutdown, and output and input overvoltage protection circuitry.

The new LinkSwitch-TN2 ICs target mass-market appliances such as washers, dryers and coffee makers, which benefit from their design simplicity. They are also suitable for sensor-based devices that require low power such as home security cameras and smart thermostats, as well as metering and IoT installations. Devices are available in three packages, PDIP-8C, SMD-8C and SO-8C, for design flexibility. The SMD-8C package is well suited for high-temperature ambient 85°C and 105°C applications.

A new reference design, RDR-912 describes a 6.6-W nonisolated buck converter with universal 85-Vac to 265-Vac input and 12-V, 550-mA output built using the lowest possible component count.

The LNK3207 ac-dc converter ICs are priced at \$0.60 in volume product quantities. For more information see the LinkSwitch-TN2 [page](#) and the RDR-912 [page](#). For further inquiries contact a Power Integrations sales representative or one of the company's authorized worldwide distributors: [Digi-Key](#), [Farnell](#), and [Mouser](#).

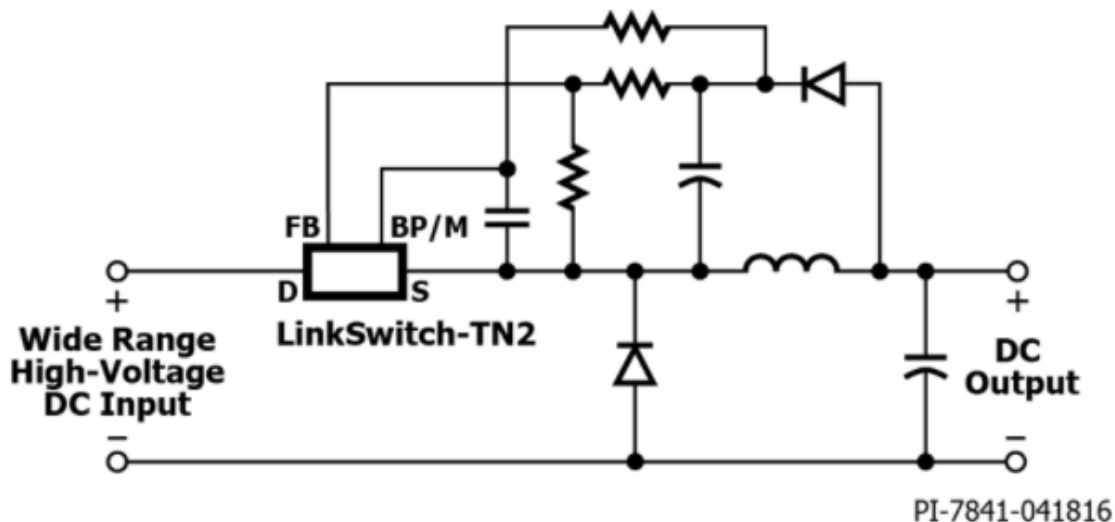


Fig. 1. The LinkSwitch-TN2 devices are highly efficient offline switcher ICs with integrated 725-V or 900-V MOSFET and system-level protection for low component-count power supplies. The new members of the LinkSwitch-TN2 family, LNK3207, incorporate a 725-V power switch with lower $R_{DS(ON)}$ than previous models, which allows them to deliver 60% higher current in CCM mode (see the table).

Table. Comparing ratings of the new LNK3207 with the previously introduced members of the LinkSwitch-TN2 ac-dc converter IC family.

Output Current Table ¹				
Product ⁴	725 V MOSFET			
	230 VAC ±15%		85-265 VAC	
	MDCM ²	CCM ³	MDCM ²	CCM ³
LNK3202P/G/D	63 mA	80 mA	63 mA	80 mA
LNK3204P/G/D	120 mA	170 mA	120 mA	170 mA
LNK3205P/G/D	175 mA	270 mA	175 mA	270 mA
LNK3206P/G/D	225 mA	360 mA	225 mA	360 mA
LNK3207P/G/D	360 mA	575 mA	360 mA	575 mA
Product ⁴	900 V MOSFET			
	230 VAC ±15%		85-265 VAC	
	MDCM ²	CCM ³	MDCM ²	CCM ³
LNK3294P/G	120 mA	170 mA	120 mA	170 mA
LNK3296P/G	225 mA	360 mA	225 mA	360 mA

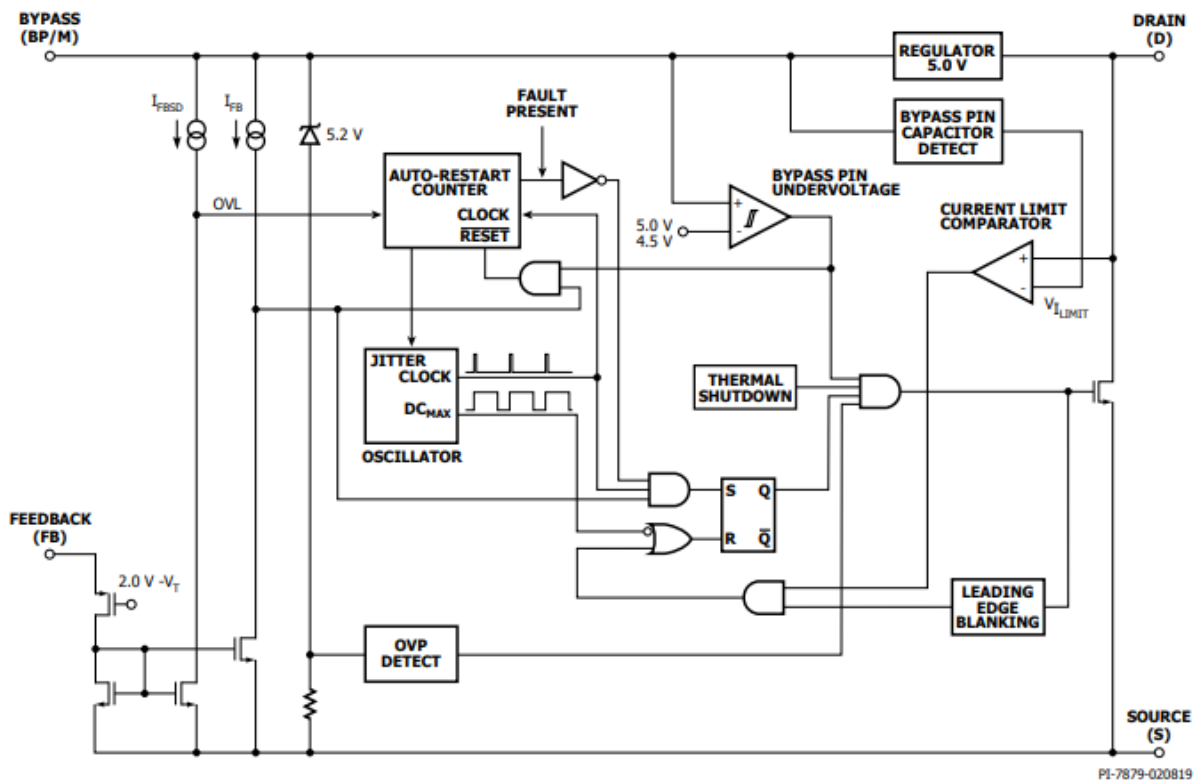


Fig. 2. The LinkSwitch-TN2 family of ICs for nonisolated offline power supplies is said to provide dramatically improved performance compared to traditional linear or cap-dropper solutions. Designs using the highly integrated LinkSwitch-TN2 ICs are more flexible and feature increased efficiency, comprehensive system-level protection and higher reliability. The device family supports buck, buck-boost and flyback converter topologies. Along with the 725-V or 900-V power MOSFET, each device in this family incorporates an oscillator, on/off control for highest efficiency at light load, a high-voltage switched current source for self-biasing, frequency jittering, fast (cycle-by-cycle) current limit, hysteretic thermal shutdown, and output and input overvoltage protection circuitry.