

## ***Transformer Drivers Deliver High Efficiency In Industrial And Automotive Applications***

[Nexperia's](#) NXF6501-Q100, NXF6505A-Q100 and NXF6505B-Q100 are AEC-Q100 qualified, push-pull transformer drivers that enable the design of small, low-noise, and low-EMI isolated power supplies for a range of automotive applications like traction inverters and motor control, dc-dc converters, battery management systems and on-board chargers in electric vehicles (EVs). These transformer drivers are also suitable for use in industrial applications in telecommunications, medical applications, instrumentation and industrial automation equipment, solar inverters, energy meters, and programmable logic controllers.

The NXF650x(A/B)-Q100 series can drive low-profile, center-tapped transformers from a 2.25-V to 5.5-V power supply with high output current (1.2 A at 5 V) and high efficiency (up to 90%) (see Figs. 1 and 2). To enable small form factor designs, the devices have a 440-kHz (NXF6501 and NXF6505B) or 160-kHz (NXF6505A) internal oscillator and a gate drive circuit that produces complementary output signals to drive internal ground-referenced n-channel power switches.

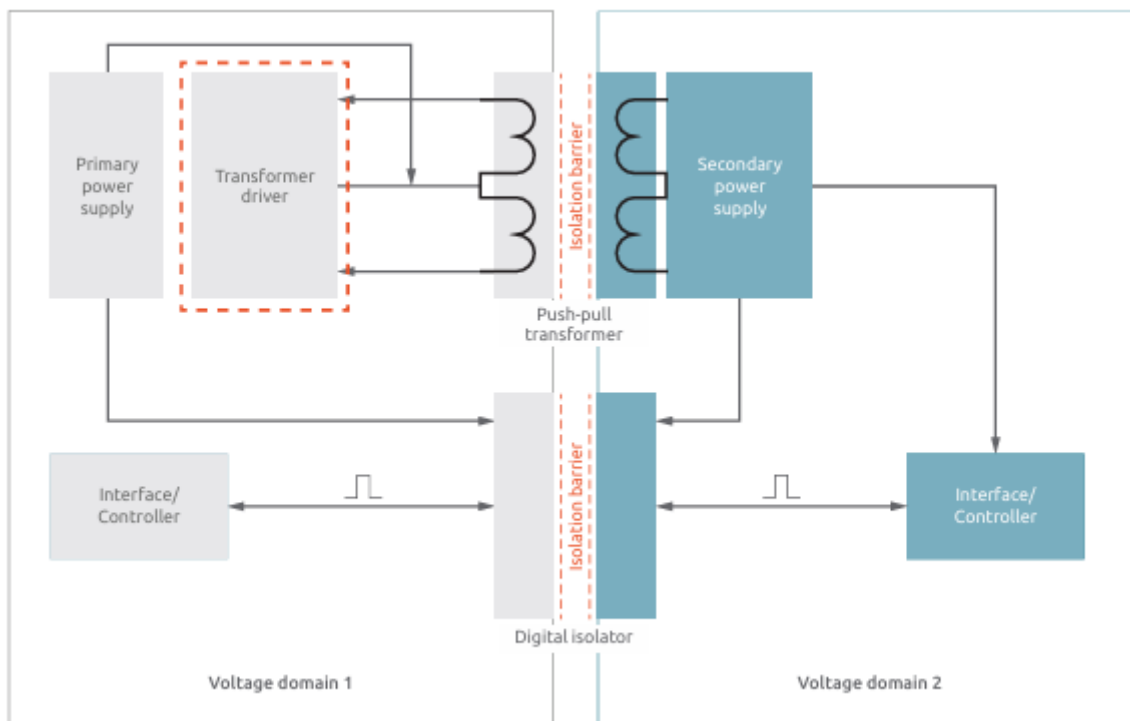
Alternatively, a clock signal can be applied externally to the NXF6505A and NXF6505B to enable precise control of switching harmonics or enable synchronization of multiple NXF6505x(A/B)-Q100 devices. Additionally, the NXF650x(A/B)-Q100 series employs slew rate control and spread-spectrum clocking (SSC) to deliver ultra-low noise and electromagnetic interference (EMI).

The NXF650x(A/B)-Q100 series also includes a comprehensive range of internal protection features such as overcurrent protection (1.7 A) with hiccup mode, undervoltage lockout, thermal shutdown, and break-before-make circuitry to ensure safe operation. Additionally, these transformer drivers have a soft-start (~5 ms) feature that prevents high inrush currents during power-up with large load capacitors. Lastly, these devices have fail-safe inputs that prevent back-powering of the local power supply and eliminate the need for power sequence management.

These devices are available in compact industry-standard footprints like the 5-pin SOT8098 (TSOT5) and 6-pin SOT8061 (TSOT6) package and safely operate in ambient temperatures ranging between -55°C and 125°C. For more information, see the transformer drivers [page](#).



*Fig. 1. The NXF6501-Q100, NXF6505A-Q100 and NXF6505B-Q100 push-pull transformer drivers enable 6 W of power delivery at up to 90% efficiency in a small, SOT package.*



*Fig. 2. The NXF650x(A/B) drivers are designed to provide isolated power from a single power source. They can drive low-profile, center-tapped transformers from a 2.25-V to 5-V dc power supply. They are used to provide isolated power to digital isolators and isolated interfaces, gate drivers and sensing systems.*