Market News

Infineon launches the industry's first PFC and hybrid flyback combo IC driving performance in GaN-based USB-C adapters and chargers with EPR

Munich, Germany – 15 November, 2022 – USB power delivery (USB-PD) has emerged as the prevailing standard for fast charging and for supplying power to all kinds of mobile and battery-powered devices using the unified type-C connector. In its latest release, USB-PD rev 3.1, the Extended Power Range (EPR) specification supports a wide output voltage range with high power delivery. Key drivers for the evolution of the adapter and charger market are unification and high-power capability combined with small form factors at low system cost. Fostering this trend, Infineon Technologies AG (FSE: IFX / OTCQX: IFNNY) now introduces the novel XDP™ digital power XDPS2221. The highly-integrated combo controller IC for USB-PD supports high power designs in wide input and output voltage applications of up to 28 V output voltage.

The device integrates an AC-DC power factor correction (PFC) controller with a DC-DC hybrid flyback controller (HFB), also known as asymmetrical half-bridge (AHB), in one single package. Through the harmonized operation of the two stages, regulatory requirements can easily be met. In addition, the further integration of all gate drivers and a 600 V high voltage start-up cell for the initial IC voltage supply and the certified active X-capacitor discharge enable a low external bill of material (BOM) and component count. Based on a novel zero-voltage switching (ZVS) HFB topology in conjunction with GaN-based devices, it brings class-leading efficiency across various line/load conditions. Thanks to these features and inherent topology advantages, such as zero voltage switching and resonant energy transfer for transformer size reduction, system designs using XDPS2221 can achieve very high power densities.

Moreover, the new combo IC features a synchronous PFC and HFB burst mode operation for the lowest possible no-load input standby power performance. The quasi-resonant multimode PFC stage is enhanced with automatic PFC enable/disable functionality and adaptive PFC bus voltage control to maximize average and light load efficiency. Optionally, the integrated PFC function can also be disabled, to support the use case with any kind of external PFC Controller.

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The hybrid flyback stage uses peak current control operation for robust regulation and fast dynamic load response. To ensure ZVS operation under all conditions, the hybrid flyback features ZVS pulse insertion, including body diode cross-conduction prevention in discontinuous conduction mode. Additionally, XDPS2221 also provides easy to configure parameters via a graphical user interface to optimize system performance.

Availability

The new XDP digital power XDPS2221 combo controller for PFC-boost and DC-DC HFB is available in a DSO-14 package and can be ordered now. It will be shown at electronica 2022. More information is available at www.infineon.com/xdps2221.

More information about Infineon's contribution to energy efficiency: www.infineon.com/green-energy

Infineon at electronica 2022

At this year's electronica tradeshow in Munich, Infineon presents solutions for the major challenges of our time. Semiconductors contribute to the green and digital transformation in many ways and are at the heart of every networked application. At electronica 2022, Infineon is now making clear why they are also key elements for a better future and how they pave the way to climate neutrality. The company will present intelligent and energy-efficient solutions for the connected world of tomorrow in hall C3, booth 502 from November 15 to 18, under the motto: "Driving decarbonization and digitalization. Together." More information is available at www.infineon.com/electronica.

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