



Product brief

XDPL8210

High power factor constant current flyback IC with primary side regulation

The XDPL8210 is a digital, single-stage, quasi-resonant flyback controller with a high power factor and a high-precision primary-side-controlled constant current output. The device's limited power mode improves functional safety, while sophisticated algorithms provide flicker-free dimming below 1 percent. The driver fully supports IEC61000-3-2 class C designs.

Key advantages of designing with the XDPL8210 LED driver IC

Outstanding performance enabling more efficient designs and end-product differentiation

The device ensures power factor > 0.9 , THD $< 15\%$, and output power down to 30% of its nominal load. Output voltage can vary by a factor of 3 (e.g. 18 V – 54 V). Dim-to-off feature with low standby power < 100 mW reduces the non-active power consumption of the device.

Reduced BoM for minimized system cost and increased flexibility

Primary-side regulation, digital control loop, and other versatile built-in functions reduce the number of external components and the need for additional devices.

High reliability for a long driver lifetime

The XDPL8210 has adaptive temperature guard, which prevents the driver hardware from thermal wear-out. Comprehensive and configurable protections ensure the increased product quality and extensive set of features for a safe and robust functioning.

Fast design cycle reducing efforts for advanced value products

A versatile set of tools and documentations coupled with digital parameter configuration, ensuring real-time design changes, shortens the product development time and reduces time-to-market.

Supply chain efficiency optimizing stock keeping and ensuring high customization

The digital core of the XDPL8210 enables a variety of systems, based on the same device. The XDPL8210 allows customizable LED driver designs and simplifies the generation and maintenance of multiple board variants, without increasing the number of stock keeping units.

Key features

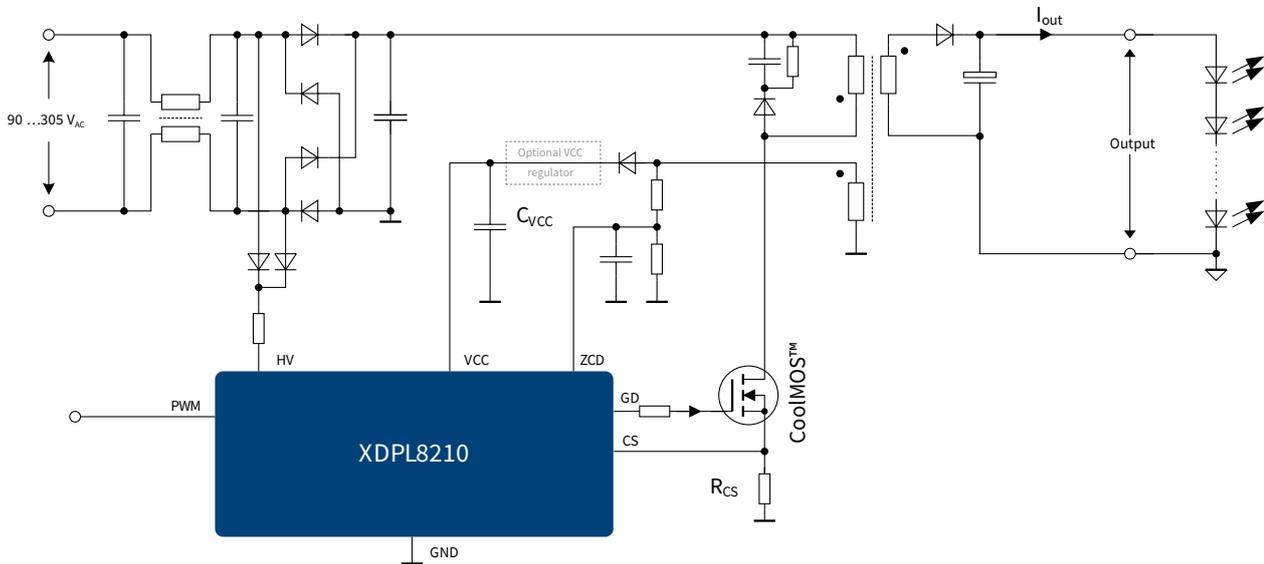
- > Universal nominal AC input voltage range ($\sim 100 - 277 V_{AC}$) or DC input load range ($\sim 127 - 430 V_{DC}$)
- > Three operation modes: quasi-resonant (QRM), discontinuous conduction (DCM), and active burst (ABM)
- > Digital control for automatic selection of the optimal operation mode depending on the operating condition
- > Monitoring and protection of all relevant error conditions for safe operation:
 - > Under-voltage
 - > Over-voltage
 - > Open load
 - > Output shorted
- > Available in DSO-8 package



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Typical application schematic



Design support for lighting applications using Infineon’s XDPL8210

Infineon’s XDPL8210 reference design demonstrate the performance of the XDPL8210 in a typical application. Thanks to the XDPL8210 digital platform, their parameters can be easily configured to meet any application requirement.

The **.dp Vision parameter tool** can be used together with the **.dp Interface Gen2** to connect to customer-specific designs based on the XDPL8210. This setup ensures faster prototyping as the tools allow fine-tuning and interactive changing of parameters as well as the development of multiple parameter sets.

XDPL8210 35 W reference design



Product portfolio

Type	Description	Ordering code
XDPL8210	Digital flyback constant current controller IC	SP001643692
REF-XDPL8210-U35W	35 W reference design with CDM10V isolated 0 V-10 V dimming interface	SP001886070

Published by
Infineon Technologies Austria AG
9500 Villach, Austria

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