

L6585DE – one-chip solution for fluorescent ballast

Energy-saving ballast-control IC with integrated PFC



STMicroelectronics' L6585DE for lighting applications integrates all the functions required to ensure correct ballast operation. This combo IC generates more light from less energy, and is compliant with major safety and power consumption regulations.

The L6585DE one-chip solution replaces two separate ICs (a PFC and a ballast controller), greatly reducing design time and complexity, lowering costs and providing a flexible solution.

High programmability and a wide range of protection features help customers design cost-effective and reliable applications.

Key features

Half-bridge section

- Independently programmable preheating and ignition phases
- Ignition voltage control with choke saturation detection
- Half-bridge overcurrent control and hard switching detection
- Programmable and precise end-of-life (EOL) protection compliant with the two standard ballast configurations

PFC section

- Overvoltage and overcurrent protection
- Feedback disconnection and choke saturation detection
- Wide-range mains operation with THD always below 10%

Main applications

- Lighting: TL lamps such as T12, T8, T5 and industrial detachable CFLs

Competitive benefits

- Drives lamps of various types and sizes in series or parallel configuration
- Maximizes lamp life
- Increases ballast reliability
- Generates more light from less energy
- Provides design flexibility

L6585DE

The L6585DE is designed using ST's proprietary 600 V BCD offline technology and is housed in an SO20 package. It integrates a power factor corrector (PFC), a half-bridge controller and all the appropriate drivers and logic to build electronic ballasts for fluorescent lamps. Thanks to its high programmability, it can drive lamps of different types and sizes, providing a flexible solution. The high level of integration assures optimum internal signal management between the PFC section and ballast controller during the ignition sequence, run mode and when the lamp fails to ignite.

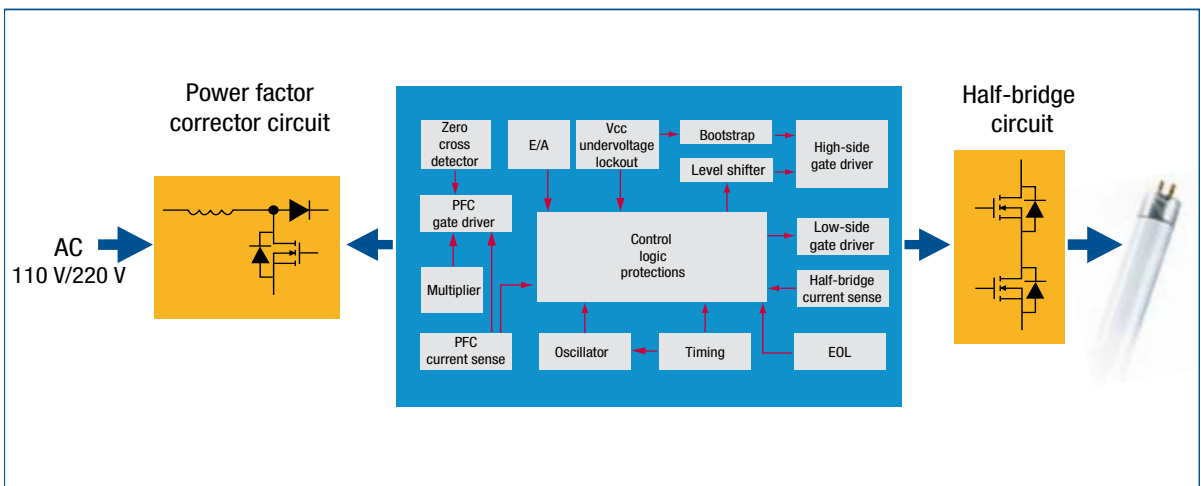
The device embeds features that increase system reliability, ensuring the correct integration of the two sections (PFC and half-bridge controller), in order to protect the ballast in case of external component failure. The PFC section allows the design of a high-performance

ballast for wide-range mains operation with an extremely low THD. In this way, a single ballast can support various lamp powers and mains voltages. Furthermore, the application is guarded against PFC overcurrents, overvoltages and choke saturation.

Patented detection circuitry makes the device capable of controlling the aging of the lamp (end-of-life) in both lamp-to-ground and block capacitor-to-ground configurations. The half-bridge section controls the ballast in all operating modes and makes it safe against overcurrents, choke saturation and hard switching.

Embedding the capabilities of multiple circuits, the L6585DE provides high-performance and reliable ballast, reducing component count and board size, and simplifying the design.

L6585DE block diagram



Evaluation boards



Part number	Features
STEVAL-ILB005V2 (L6585DE)	1 x 54 W T5 lamp demo board for wide-range mains (110 to 220 V)
STEVAL-ILB006V1 (L6585D)	2 x 58 W T8 lamp demo board for single-range mains (220 V)



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