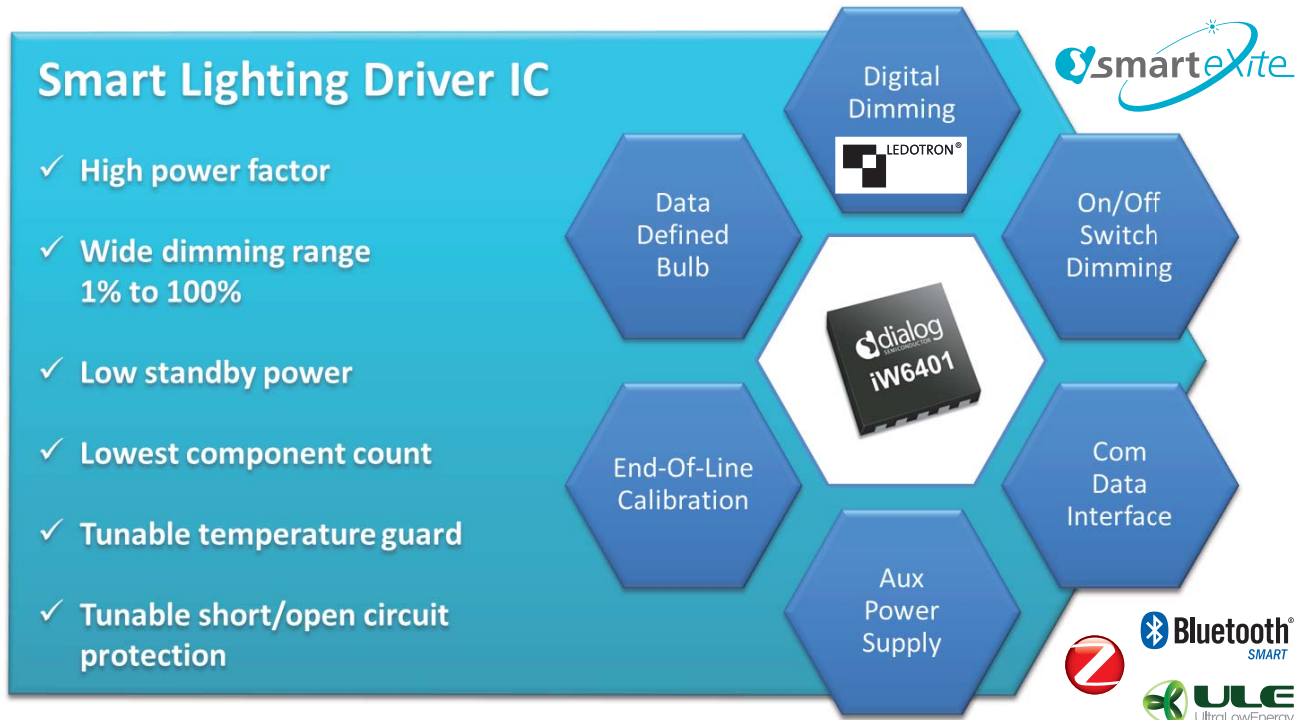


Product Brief (Preliminary)

iW6401 Smart Lighting LED Lamp Driver IC



General Description

iW6401 is a highly versatile digital processor IC for off-line LED drivers. With its high degree of configurability it serves as a “one size fits all” platform for a wide range of smart lighting LED applications. Multiple dimming interfaces are available to connect the power converter to home or building automation systems. The chip can serve as a power frontend for wireless communication modules, intelligent sensor devices or generic microcontrollers. When used with a peripheral controller a stable and regulated voltage supply unit provides power for external peripherals.

The chip has an all integrated DLT receiver module according to IEC 62756 to support dimming via the Ledotron™ dimming protocol. No software design is needed as all Ledotron™ related functions are built in. All operating parameters and functions are configurable using unique multi stage programming techniques. This enables ultimate speed for lamp design changes (multiple LED sources) and full flexibility in production line.

Digital control loops provide precise control of both input power and light output. High power factor can be achieved while maintaining absolutely stable and flicker-free light in an ultra-wide dimming range. iW6401 supports dimming via the mains on/off switching. Various options are available to configure toggle-switch based dimming operation. Dimming curves can be programmed for optimized end user experience.

Large tolerances of low budget LEDs can be compensated for using end-of-line calibration and diagnostics. Reading and setting of lamp-internal operating parameters allows spotting of material and manufacturing defects at the fastest rate. Post-assembly reconfiguration allows changing of settings of finished goods. Reprogramming of LED currents can be done even in the installed state which is ideally suitable for Zhaga (Z) compliant power supplies.

The iW6401 can be configured to actively manage lamp temperature using on-chip or off-chip temperature sensors and a configurable control state machine. With accurate temperature settings the lamp design can be optimized thermally giving substantially lower cost on cooling parts. Many other system supervision functions such as short circuit and open load can be easily configured via memory.

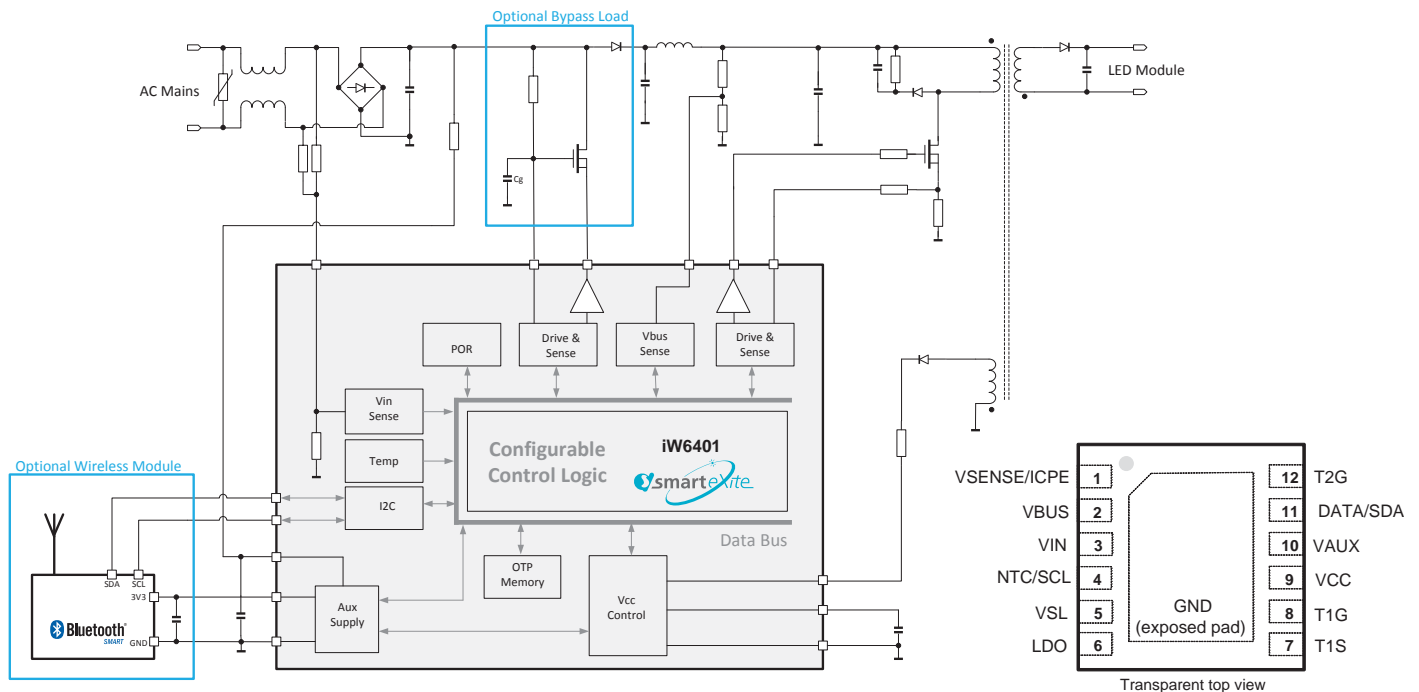
Features

- High performance wide range dimming engine
- PrimAccurate control technology
- Digital dim and control interface
- Power management for external controller
- Quasi-resonant (soft) switching
- Programmable soft start
- OTP memory for configuration parameters
- End of Line calibration
- In circuit programming
- Programmable thermal control and protection
- DLT/Ledotron dimming
- Configurable linear load current driver
- Programmable dimming curves
- Low power Standby mode
- Mains switch based event sensing and action
- Adaptive chip supply management
- True 1% to 100% dimming range
- Active PFC control
- Open/short LED protection
- Small leadless DFN12 package

Target applications

- Retrofit LED lamp bulbs
- Linear retrofit LED lamps
- Ledotron enabled drivers / power supplies
- Wireless controlled LED drivers

iW6401 Typical Application Diagram



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