Lighting

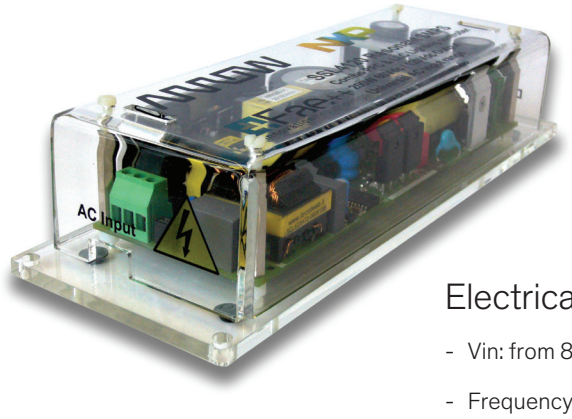
Components – EMEA

ARW200 200W

The ARW200 200W Reference Design

This reference design is a demo board of the NXP SSL4120 combo PFC&LLC controller for lighting. The output voltage is selectable for 60V or 120V via jumper solder on the bottom side of the board and has an universal input range.

This design has a very high efficiency (95% at $230V_{AC}$), is power factor corrected and has a low power stand by. The technical documentation includes: electrical diagram, part list, PCB layout and custom magnetic component description.



Electrical Specifications

- Vin: from 85 (AC) to 264V (AC)
- Frequency: 50/60Hz
- Hold up: 1,5mS
- Vout: configurable at 60V or 120V
- Iout: 1,65A/3,3A (2A/4A pick 200mS) (120V/60V)
- Temperature: -20°C to 60°C
- MTBF: 50000hr full load 60°C
- Efficiency: 95 % at 230 V_{AC}
- PF: >0,95 full load (min 0,9 between 50% of load and full load)
- Stand by: <300mW

The reference design is available in few samples to demonstrate the proof of concept, tested but not CE certified and not for sale as it is. All source files are available from Arrow. Please contact your Arrow representative for more information.

In Cooperation with:

Board Information

The SSL4120T integrates controllers for the PFC and an HBC. The board provides the drive function for the discrete MOSFET of the up-converter two discrete power MOSFETs in a resonant half-bridge configuration

The internal high-voltage resonant controller provides Zero-Voltage Switching (ZVS) of the LLC resonant converter. The SSL4120T includes a high-voltage level-shift circuit and several protection features such as:

- OverCurrent Protection (OCP)
- Open-Loop Protection (OLP)
- Capacitive Mode Protection (CMP)
- General-purpose latched protection input

In addition to the resonant controller, the SSL4120T contains a PFC controller. Efficient PFC operation is achieved using:

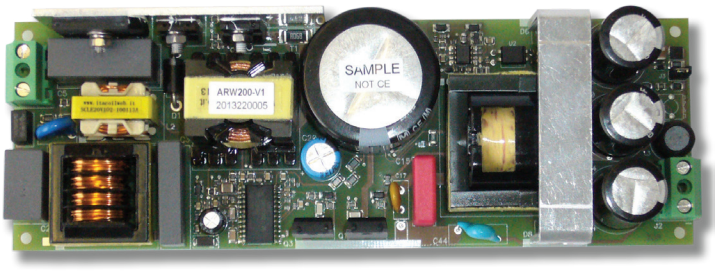
- Quasi-resonant operation at high-power levels;
- Quasi-resonant operation with valley skipping at lower power levels;

Safe operation under all conditions is guaranteed using:

- OverCurrent Protection (OCP)
- OverVoltage Protection (OVP)
- Demagnetization sensing

The proprietary high-voltage BCD power logic process makes efficient direct start-up from the rectified universal mains voltage possible. A second low-voltage Silicon-On-Insulator (SOI) IC is used for accurate, high speed protection functions and control.

The combination of PFC and a resonant controller in one IC makes the SSL4120T an interesting component for very efficient and small LED driver applications.



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