



Product Brief

ICL8201

AC/DC Buck Controller with high Power Factor for LED Tubes

The ICL8201 is a cascode structure current mode controller for non-isolated floating buck topologies. The cascode topology enables lower system cost and higher system efficiency.

Lower system cost:

- No auxiliary winding is required to power the IC
- No high voltage start up depletion Mosfet is required, fast time to light can be achieved inherently with cascode topology

Higher system efficiency & reliability:

- No start up resistor is required that would cause significant losses during the entire operation. These losses can be eliminated by using the cascode topology which increases the system efficiency and lifetime.

ICL8201 can provide up to 500mA output current that can cover the entire power range for LED tubes. The device is tailored for LED tube applications and provides constant current operation with low output ripple in a real universal input voltage range as well as load compensation for a wide output voltage range.

The high level of integration enables a minimum of effort for addition of external components. The control concept of the IC supports DC and AC input as well as high Power Factor Correction (PFC), high efficiency levels and reduced EMI design in Critical Conduction operation Mode without zero crossing detection winding.

Integrated Over-Temperature Protection supports high reliability and long lifetime of the LED lamps. An external NTC is not required which helps to reduce the system cost. The SOT23-6 package supports small form factors and low-cost designs.

Applications

- T8 lamp
- GU10 lamp
- A-lamp
- Downlights



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Key Features

- Cascode topology enables lower system cost and higher system efficiency
- Supports wide range AC or DC input
- Power factor > 90 %, THD < 20 %
- Line/load regulation capabilities $\pm 5\%$
- LED output current up to 500 mA

Key Benefits

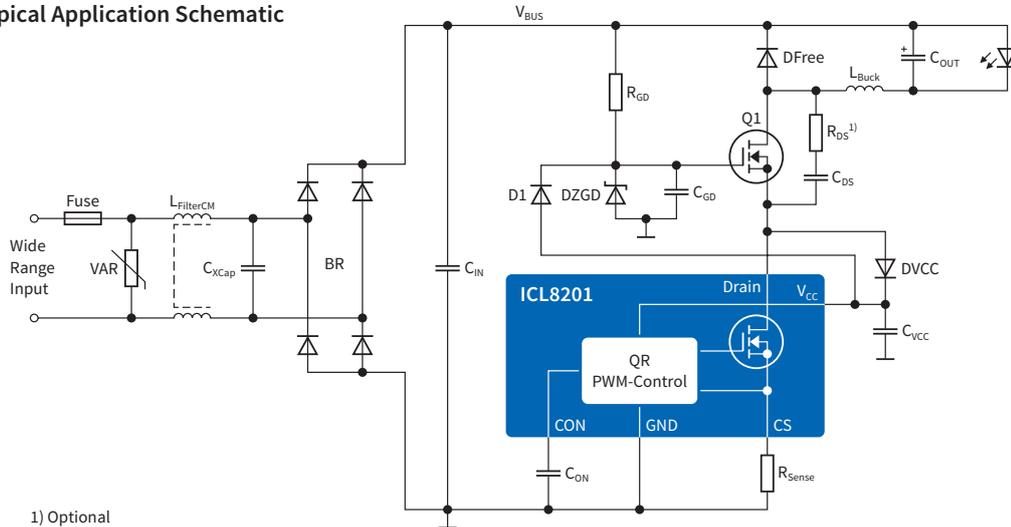
- Minimum external components supporting small form factors and easy design-in
- IC concept supports single inductors without aux winding
- Advanced cascode topology eliminating the need for a HV cell at universal input from 90–305 V_{AC}
- Full set of protection modes including intelligent Over-Temperature Protection



ICL8201

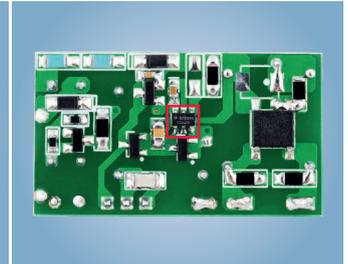
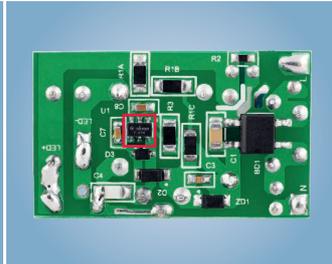
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Typical Application Schematic



1) Optional

Design Support Tools



Reference Design Board GU10 – EVALLEDICL8201F1 with MOSFET 500V CoolMOST™ CE (IPU50R3K0CE)
 Size (L x W x H): 33 x 20 x 18 mm, Power 7.5 W
 Order Number: SP001339448

Reference Design Board T8 – EVALLEDICL8201F2 with MOSFET 650V CoolMOST™ CE (IPS65R1K5CE)
 Size (L x W x H): 42 x 20 x 15 mm, Power 18W
 Order Number: SP001339450

Product Summary

Type	Description	Package	Ordering Code
ICL8201	AC/DC buck controller with PFC	SOT23-6	SP001067934

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