

## Product brief

# ICL8800, ICL8810 and ICL8820

## Single-stage flyback LED controllers for constant voltage output

The ICL88xx family of single-stage flyback controllers for constant voltage output is tailored for LED lighting applications to meet the required performance cost-effectively.

All three ICs offer benchmarking performance for power factor correction and total harmonic distortion at full-load as well as at low-load conditions. With their comprehensive set of protection features (compare table below) and bottom-up design, they are easy to design in and require a minimum number of external components. The controllers are optimized as secondary-side regulated (SSR) constant voltage (CV) output flyback controllers and are also well suited for primary-side regulation (PSR).

The controllers' low standby power due to the integrated BM (in ICL8810, ICL8820) is ideally suited for smart lighting systems' requirements. The jitter function (in ICL8820) eases the design of emergency lighting LED drivers without additional circuitry. It fulfills EMI requirements in DC operation and improves the EMI performance.

### Overview of features

Product feature	ICL8800	ICL8810	ICL8820
Start-up-control	x	x	x
Power limitation	x	x	x
Input OVP	x	x	x
Secondary side OVP	x	x	x
Brown in/out	x	x	x
Soft-start	x	x	x
THD-enhancement	x	x	x
OCP	x	x	x
OVP	x	x	x
Light load frequency reduction	x	x	x
Burst mode		x	x
DC-input jitter			x

### Key features

- > Optimized for SSR CV output flyback operation, additionally suited for PSR
- > PF > 0.9 and THD < 10% across a wide load range (AC input up to 277 V<sub>rms</sub>)
- > CCM and QRM with smart valley hopping

#### ICL8810 contains additionally

- > Burst mode (BM) to ensure low standby power (< 100mW)

#### ICL8820 contains additionally

- > Built-in jitter function

### Key benefits

- > Low BOM for a wide range of applications with dual-stage topologies and PFC functionality
- > Enables platform design and window drivers
- > Optimum efficiency and low EMI at low BOM without compromising light quality

#### ICL8810 contains additionally

- > Smart lighting in connection with microcontrollers (standby power < 500 mW, i.e. more power budget for additional components)

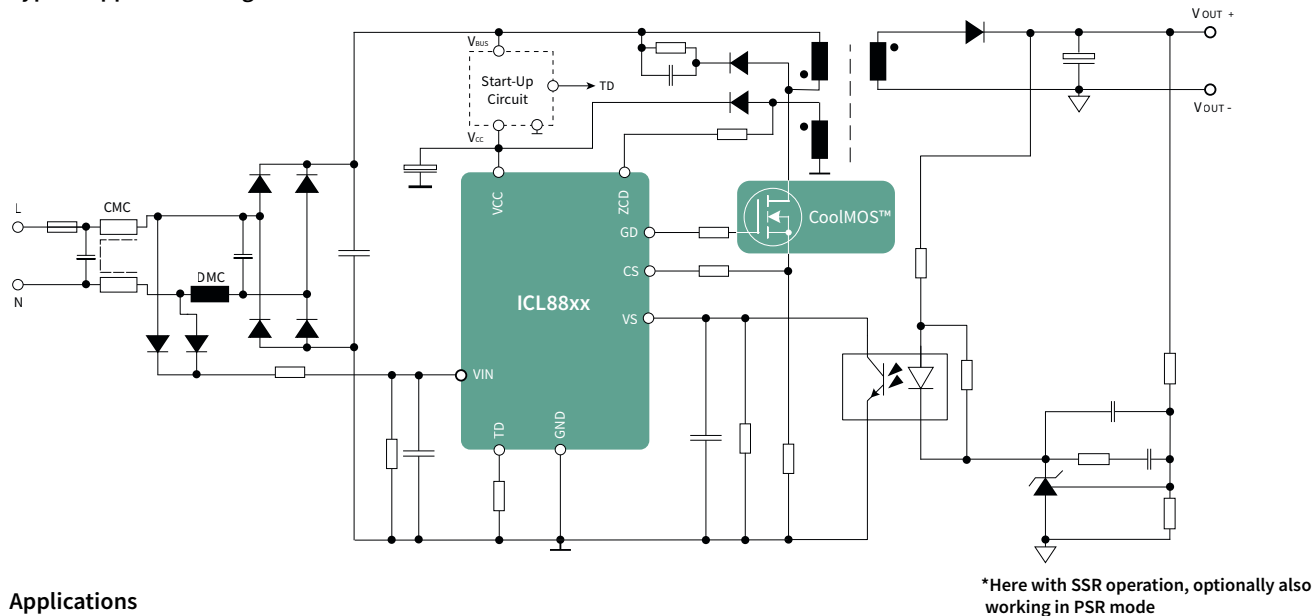
#### ICL8820 contains additionally

- > Fulfillment complying with EMI regulations in DC operation at low cost and effort

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Typical application diagram\*



### Applications

- › LED driver and luminaires up to 125 W
- › Adapter, charger, flat TV, all-in-one PC, monitor up to 125 W

ICL8810 can additionally be used for smart lighting

ICL8820 can additionally be used for emergency lighting

### Ordering information

Product	Package	Description	OPN
ICL8800	PG-DSO-8	Single-stage flyback controller for constant voltage output	ICL8800XUMA1
REF_ICL8800_LED_43W	Board	43 W reference design with ICL8800	REFICL8800LED43W
ICL8810	PG-DSO-8	Single-stage flyback controller for constant voltage output with burst mode	ICL8810XUMA1
REF_ICL8810_LED_43W_BM	Board	43 W reference design with ICL8810	REFICL8810LED43WBM
REF_ICL8810_LED_42W_PSR	Board	42 W reference design with ICL8810 for PSR	REFICL8810LED42WPSR
ICL8820	PG-DSO-8	Single-stage flyback controller for constant voltage output with burst mode and jitter function	ICL8820XUMA1
REF_ICL8820_LED_43W_JT	Board	43 W reference design with ICL8820	REFICL8820LED43WJT

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