

High Voltage LED Driver (Output Power Level <25W)

High voltage low power LED driver can connect to universal off-line input (85V to 265V AC input) directly. These drivers can provide up to 1A driving depends on designer application. Most for the drivers have non-isolated configuration, with proper design, those controllers can perform very high efficiency in compact size to fit various lighting fixture form factor.



► FEATURES

- Universal input
- Low feedback voltage
- Some controller with build-in MOSFET
- Wide output voltage and current range
- Precious current regulation

► BENEFITS

- High efficiency
- Long life
- Compact packaging
- Design flexibility
- Compact size
- Jitter mode reduce EMI
- Valley switching enhance efficiency

► APPLICATIONS

- Emergency lighting
- Outdoor architectural lighting
- Entertainment lighting
- General lighting
- LED ballast

► SUPPLIERS



Supplier	NXP	TI	NS	NXP	NXP	ON Semi	ON Semi	Fairchild	Fairchild	Fairchild	ST	ST	Infineon
Part No.	SSL2101	SN0901026	LM3445	SSL152X	SSL162X	NCP1027	NCP101X	FSEZ1016	FSDM311	FSDM0265	Viper12/ 22	L6562A	ICE3B0565
ACDC/DCDC	ACDC	ACDC	ACDC	ACDC	ACDC	ACDC	ACDC	ACDC	ACDC	ACDC	ACDC	ACDC	ACDC
Min. Input Voltage	80Vac	90Vac	90Vac	80Vac	70Vac	85Vac	85Vac	85Vac	85Vac	85Vac	85Vac	85Vac	85Vac
Max. Input Voltage	132V/ 270V	270Vac	132V/ 270V	265Vac	265Vac	265Vac	265Vac	265Vac	265Vac	265Vac	265Vac	132V/ 270V	265Vac
Output Voltage	50Vmax	50Vmax	15 - 100V	DC50Vmax	DC50Vmax	DC50Vmax	DC50Vmax	DC50Vmax	DC50Vmax	DC50Vmax	DC50Vmax	DC50Vmax	DC50Vmax
Max. Output Power	10W - 15W	10W - 50W	8 - 10W	12W	25W	15W	7W	10W	8W/ 12W - open frame	20W	5W/ 10W	15W	12W
Est Efficiency	80% or above	80% or above	85% or above	80 - 85%	80 - 85%	82 - 86%	80 - 85%	80 - 85%	80 - 85%	80 - 85%	80 - 85%	82 - 85%	82 - 86%
Switching Frequency	User defined	Freq modulation	User defined	User defined	User defined	65KHz/ 100KHz	65KHz/ 100KHz / 130KHz	100KHz	67KHz	50KHz	60KHz	User defined	67KHz
Feedback	Isense 0.25V	0.7V	1.27V	2.5V	1V	2.5V	2.5V	2.5V	2.5V	6V	2.5V	2.5V	2.5V
Built-in MOSFET	Yes (6.5 Ohm)	No	No	Yes (6.5 - 48 Ohm)	Yes (6.5 Ohm)	Yes (5.8 Ohm)	Yes (11 Ohm)	Yes (10 Ohm)	Yes (14 Ohm)	Yes (8 Ohm)	Yes (15 Ohm)	No	Yes (4.7 Ohm)
Topology	Flyback/ buck	Flyback	Non-isolated buck	Flyback	Flyback	Flyback	Flyback	Flyback	Flyback	Flyback	Flyback	Flyback	Flyback
Package	DIP16	DIP8	DIP8	DIP8/ SO14	SO8	DIP8	DIP8	DIP8	DIP8	DIP8	DIP8	DIP8	DIP8
No. of LED	10 - 15	Up to 15	Up to 15	10	20	10	6	8	8	10	5 - 10	10	10
Build-in Dimming Control	Yes, triac dimming compatible	Yes, triac dimming compatible	Yes, triac dimming compatible	No, require external circuit	No, require external circuit	No, require external circuit	No, require external circuit	No, require external circuit	No, require external circuit	No, require external circuit	No, require external circuit	No, require external circuit	No, require external circuit
1K Pcs. Ref. Price (USD) **	0.98	0.80	1.66	0.25 - 0.44	0.33 - 0.55	0.50	0.26	0.24	0.26	0.36	0.15 - 0.18	0.21	0.40
Remark	Triac dim, very good linearity, build in MOSFET and avoid E cap	High efficiency and PFC, compatible with triac dimming	PPFC by valley fill, front end dimming	Valley switching increase efficiency	Valley switching increase efficiency	Freq jitter for EMI, creepage for HV	Freq jitter for EMI, creepage for HV	Optocoupler free design, jitter mode	Internal SS	Internal SS and frequency modulation	4 x drain pin for heat dissipation	Very high PF	Lowest rds and freq jitter

* Green highlight means best in class

** 1K pcs order price is for reference only. Please consult Arrow sales representative for quotation.

High Voltage LED Driver (Output Power Level >25W)

High voltage, high power LED driver can connect to universal off-line input (85V to 265V AC input) directly and able to deliver over a hundred watt of electrical power. These drivers can provide very high output current and voltage and also energy efficient. Meanwhile, these controller and solution also implement various protection features makes the driver more reliable. The following controllers simplified designs, more cost effective and suit application in streetlight and outdoor illumination application.



► FEATURES

- Universal input
- Low feedback voltage
- PFC and DC/DC combo chip or single stage flyback PFC
- Wide output voltage and current range
- PWM dimming compatible

► BENEFITS

- High efficiency
- Long life
- Compact packaging
- Design flexibility
- High output power delivery
- Good thermal management
- High reliable
- Ease of EMI/ safety approval

► APPLICATIONS

- Emergency lighting
- Outdoor architectural lighting
- Entertainment lighting
- Street lamp
- Transport lighting
- Garden lighting

► SUPPLIERS



Supplier	TI	TI	NXP	NXP	ON Semi	ON Semi	ON Semi	Fairchild	IR	IR	Infineon
Part No.	UCC28810	UCC28811	SSL1750/ SSL1751	SSL1530	NCP1207	NCP1351	NCP1652	FAN7602	IRS2540	IRS2541	ICE2QS01
ACDC/ DCDC	ACDC	ACDC	ACDC	ACDC	ACDC	ACDC	ACDC	ACDC	ACDC, DCDC	ACDC, DCDC	ACDC
Min. Input Voltage	85Vac	-	70Vac	70Vac	85Vac	85Vac	85Vac	85Vac	9V	9V	85Vac
Max. Input Voltage	276Vac	-	276Vac	265Vac	265Vac	265Vac	276Vac	265Vac	200VDC	600VDC	265Vac
Output Voltage	PFC output voltage varies depends on loading	Up to 150V	DC80V/ low voltage constant voltage source	DC80V/ low voltage constant voltage source	DC80V/ low voltage constant voltage source	DC80V/ low voltage constant voltage source	DC80V/ low voltage constant voltage source	DC80V/ low voltage constant voltage source	10% - 90% Input voltage	10% - 90% Input voltage	DC80V/ low voltage constant voltage source
Max. Output Power	Up to 200W	up to 200W	250W	60W	60W	60W	250W	60W	250W	>500W	150W
Est Efficiency	90% or above	90% or above	88 - 92%	86 - 88%	86 - 88%	84 - 88%	85% or above	84 - 88%	84 - 88%	84 - 88%	84 - 88%
Switching Frequency	Self oscillating	Self oscillating	125KHz	63KHz	Free running	User defined set by ct	User defined set by ct	65KHz	500KHz	500KHz	Free running
Feedback	2.5V	2.5V	3.5V	1V	2.5V	2.5V	0.6V	2.5V	500mV	500mV	2.5V
Topology	Boost/ buck	Boost/ buck	PFC + flyback (combo chip)	Flyback	Flyback	Flyback	Flyback (PFC single stage)	Flyback	Buck	Buck	Flyback
Package	SO8	SO8	SO16	SO8	DIP8	SOIC8	SOIC16	DIP8	DIP8/ SOIC8	DIP8/ SOIC8	DIP8
No. of LED	30	30	100 - 150	25	20	20	20 - 100	30	more than 100	more than 100	30
Build-in Dimming Control	No, require external circuit	No, require external circuit	No, require external circuit	No, require external circuit	No, require external circuit	No, require external circuit	No, require external circuit	No, require external circuit	Yes	Yes	No, require external circuit
1K Pcs. Ref. Price (USD) **	0.56	0.56	0.78	0.25	0.26	0.20	1.00	1.26	0.60	0.66	0.44
Remark	Transition mode PFC	Non-isolated buck	PFC flyback combo chip	Fixed freq flyback	Free running quasi resonant flyback	Variable freq offtime flyback	Single stage flyback PFC	Flyback with freq modulation	Non-isolated buck	Non-isolated buck	Quasi resonant

* Green highlight means best in class

** 1Kpcs reference price is for reference only, please consult Arrow sales representative for quotation.

Remark:

i) Two key parametric differences between TI UCC28810 and UCC28811, the UVLO turn-on threshold and the gM amplifier source current. The UVLO turn-on threshold of UCC28810 is 15.8 V and for the UCC28811 it is 12.5 V. The gM amplifier source current for UCC28810 is typically 1.3 mA, and for the UCC28811 it is 300mA.

ii) The major differences between SSL1750 and SSL1751. In the SSL1751 a dual boost implemented. Where the SSL1750 has a fixed output voltage for the PFC. At low power conditions, the SSL1750 flyback controller switches the PFC to burst mode to maintain a relative high voltage on the output capacitor of the PFC (input voltage for flyback). The SSL1751 switches off the PFC at low load conditions. And flyback operate on the rectified mains.