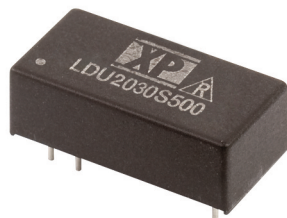


LDU20 Series



- Constant Current Output
- LED Drive Current up to 700 mA
- LED Strings from 2 V to 28 V
- PWM & Analog Dimming Control
- High Efficiency – up to 95%
- Open or Short Circuit LED Protection
- 3 Year Warranty

Specification

Input

- | | |
|---------------|--------------------|
| Input Voltage | • 7-30 VDC |
| Input Filter | • Capacitor |
| Input Surge | • 40 VDC for 0.5 s |

Output

- | | |
|------------------------------|---|
| Output Voltage | • See tables
(V_{in} must be at least 2 V greater than V_{out}) |
| Output Current | • See tables |
| Output Current Trim | • 25-100% |
| Output Current Accuracy | • ± 10 |
| Ripple & Noise | • 450 mV pk-pk max,
measured with 20 MHz bandwidth |
| Short Circuit Protection | • Current is limited to the rated output |
| Temperature Coefficient | • $\pm 0.05\%/^{\circ}\text{C}$ max |
| Remote On/Off | • On = 0.3-1.25 V or open circuit
Off = ≤ 0.15 V (applied to control pin)
Quiescent input current is 25 μA max, |
| Remote On/Off Signal Current | • 1 mA max |

Dimming

- | | |
|----------------------|---------------|
| PWM | |
| Output Current Range | • 25% to 100% |
| Operating Frequency | • 1 kHz max |
| On Time | • 200 ns min |
| Off Time | • 200 ns min |
| Amplitude | • 1.25 V max |

DC Voltage Control

- | | |
|----------------------|---------------------|
| Output Current Range | • 25% to 100% |
| Control Input | • 0.3 to 1.25 V max |

Variable Resistor

- | | |
|----------------------|---------------|
| Output Current Range | • 25% to 100% |
|----------------------|---------------|

General

- | | |
|---------------------|---|
| Efficiency | • See tables |
| Switching Frequency | • 70-450 kHz variable |
| MTBF | • > 1.6 Mhrs to MIL-HDBK-217F at 25 $^{\circ}\text{C}$, GB |

Environmental

- | | |
|-----------------------|---|
| Operating Temperature | • -40 $^{\circ}\text{C}$ to +70 $^{\circ}\text{C}$ |
| Storage Temperature | • -40 $^{\circ}\text{C}$ to +125 $^{\circ}\text{C}$ |
| Humidity | • Up to 95%, non-condensing |
| Thermal Impedance | • 40 $^{\circ}\text{C}/\text{W}$ |

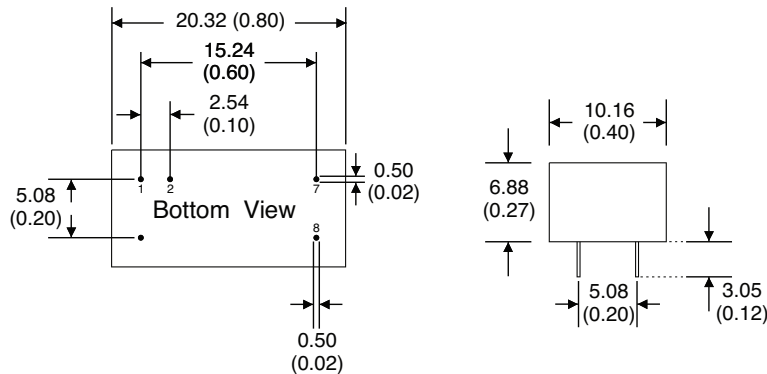
EMC

- | | |
|--------------------|---|
| Emissions | • EN55022 class B conducted & radiated with external components - see application notes |
| ESD Immunity | • EN61000-4-2, level 2 Perf Criteria A |
| Radiated Immunity | • EN61000-4-3, level 2 Perf Criteria A |
| EFT/Burst | • EN61000-4-4, level 2 Perf Criteria A |
| Surge | • EN61000-4-5, level 2 Perf Criteria A |
| Conducted Immunity | • EN61000-4-6, level 2 Perf Criteria A |

Models and Ratings

Output Power	Input Voltage Range	Output Voltage	Output Current	Efficiency	Model Number
14 W	7-30 V	2-28 V	500 mA	95%	LDU2030S500
17 W	7-30 V	2-28 V	600 mA	95%	LDU2030S600
20 W	7-30 V	2-28 V	700 mA	95%	LDU2030S700

Mechanical Details



Pin Connections		
1	-V Input	-DC supply
2	Control	PWM/ON/OFF or not used
7	-V Output	LED cathode connection
8	+V Output	LED anode connection
14	+V Input	+DC supply

Note: Do not connect pin 1 (-Vin) to pin 7 (-Vout)

Notes

1. All dimensions are in inches (mm)
2. Weight: 0.006 lbs (2.6 g) approx.
3. Pin diameter: 0.02±0.002 (0.5±0.05)
4. Pin pitch tolerance: ±0.014 (±0.35)
5. Case tolerance: ±0.02 (±0.5)

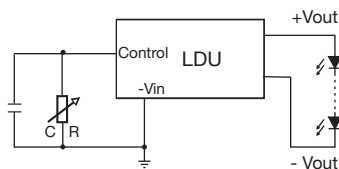
Application Notes

Output Current Adjustment by Variable Resistor

By connecting a variable resistor between Control and GND, simple dimming can be achieved. Capacitor C is optional for HF noise rejection, recommended value is 0.22 µF.

The output current can be determined using the equation:
$$I_{out} = \frac{\text{Rated Max } I \times R}{(R + 200 \text{ k})}$$

Where the value of R is between 0 and 2 MΩ, the maximum adjustment range of output current is 25% to 90% (For Vin-Vout < 20 VDC)



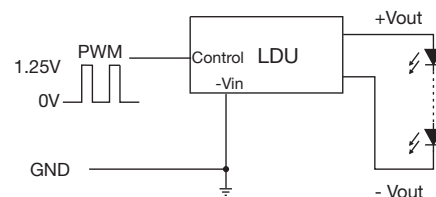
Shorting out the Control pin to GND will turn the output off.

Output Current Adjustment by PWM

A Pulse Width Modulated (PWM) signal with duty cycle DPWM can be applied to the control pin.

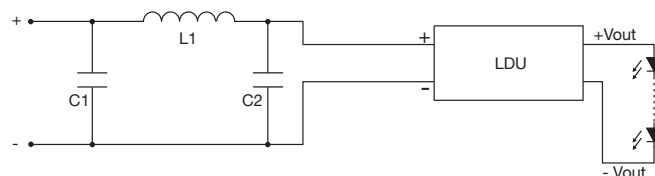
The output current can be determined using the equation: $I_{out} = \text{Rated Max } I \times D_{pwm}$

D_{pwm} = PWM duty cycle



A Control Voltage lower than 0.15 V will turn the output off

Input Filter to meet Class B Conducted Emissions



C1	10 µF
C2	47 µF
L1	68 µH