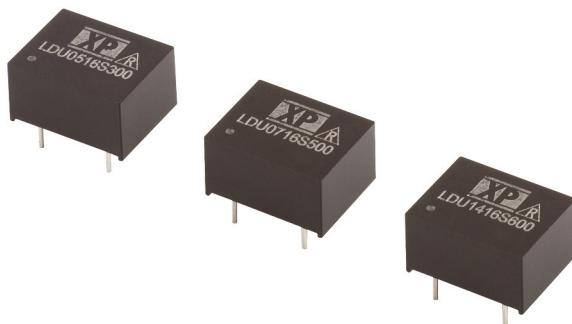


LDU05/07/14 Series



- Constant Current Output
- LED Drive Current up to 1000 mA
- LED Strings from 2 V to 14 V
- PWM & Analog Dimming Control
- High Efficiency – up to 93%
- Open or Short Circuit LED Protection
- 3 Year Warranty

Specification

Input

Input Voltage • 7-16 VDC
 Input Filter • Capacitor
 Input Surge • 20 VDC for 0.5 s

Output

Output Voltage • See tables
 (Vin must be at least 2 V greater than Vout)
 Output Current • See tables
 Output Current Trim • 25-100%
 Output Current Accuracy • See tables
 Ripple & Noise • See tables,
 measured with 20 MHz bandwidth
 Short Circuit Protection • Current is limited to the rated output
 Temperature Coefficient • $\pm 0.03/\text{ }^{\circ}\text{C}$ 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 • LDU05: 60-300 kHz variable
 LDU07: 120-350 kHz variable
 LDU14: 90-400 kHz variable
 MTBF • >3.3 MHrs to MIL-HDBK-217F at 25 $^{\circ}\text{C}$,
 GB

Environmental

Operating Temperature • -40 $^{\circ}\text{C}$ to +85 $^{\circ}\text{C}$ except LDU14
 1000 mA unit: -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 • 35 $^{\circ}\text{C/W}$ model dependant

EMC

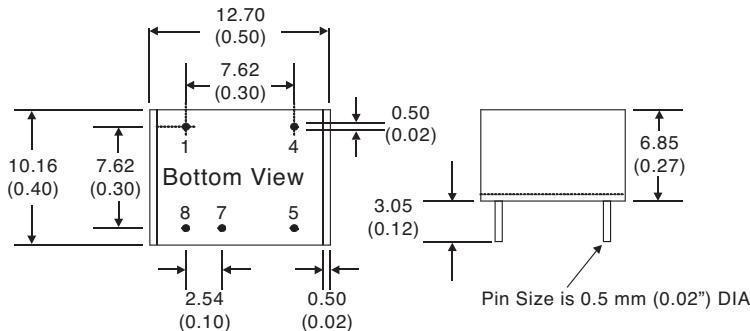
Emissions • EN55022 class B conducted & radiated
 with external components - see
 application notes
 ESD Immunity • EN61000-4-2, level 2 Perf Criteria A
 Radiated Immunity • EN61000-4-3, level 2 Perf Criteria A
 EFT/Burst • EN61000-4-4, level 2 Perf Criteria A
 Surge • EN61000-4-5, level 2 Perf Criteria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

Models and Ratings

With Dimming Control

Output Power	Input Voltage Range	Output Voltage	Output Ripple & Noise	Output Current	Output Current Accuracy	Efficiency	Model Number
4.2 W	7-16 V	2-14 V	120 mV	300 mA	±5%	93%	LDU0516S300
4.9 W	7-16 V	2-14 V	150 mV	350 mA	±6%	93%	LDU0516S350
7.0 W	7-16 V	2-14 V	200 mV	500 mA	±7%	93%	LDU0716S500
8.4 W	7-16 V	2-14 V	200 mV	600 mA	±7%	93%	LDU1416S600
9.8 W	7-16 V	2-14 V	250 mV	700 mA	±7%	93%	LDU1416S700
14.0 W	7-16 V	2-14 V	250 mV	1000 mA	±8%	93%	LDU1416S1000

Mechanical Details



Pin Connections		
1	+V Input	+DC supply
4	+V Output	LED anode connection
5	-V Output	LED cathode connection
7	V Adj	Dimming Control
8	-V Input	-DC supply

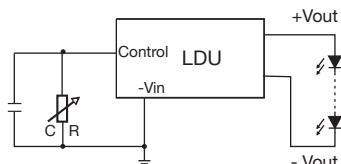
Application Notes

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 μ F.

The output current can be determined using the equation:

Where the value of R is between 0 and $2\text{ M}\Omega$, the maximum adjustment range of output current is 25% to 90% (For $V_{in}-V_{out} < 20\text{ VDC}$)

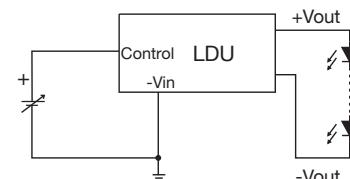


Shorting out the Control pin to GND will turn the output off.

Output Current Adjustment by DC Voltage

Control Voltage Range: 0.3 V to 1.25 VDC

The output current is given by: $I_{out\ nom} = \text{Rated Max I} \times \text{Control Voltage}$



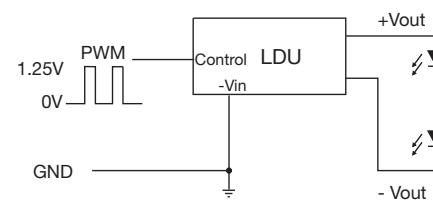
A Control Voltage lower than 0.15 V will turn the output off.

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



Input Filter to meet Class B Conducted Emissions

