LED Driver 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

General

Specification

Input

Input Voltage	• 7-16 VDC	Efficiency	See tables
Input Filter	Capacitor	Switching Frequency	 LDU05: 60-300 kHz variable
Input Surge	• 20 VDC for 0.5 s		LDU07: 120-350 kHz variable LDU14: 90-400 kHz variable
Output		MTBF	 >3.3 MHrs to MIL-HDBK-217F at 25 °C,
Output Voltage	 See tables (Vin must be at least 2 V greater than Vout) 		GB
Output Current	See tables	Environmental	
Output Current Trim	• 25-100%	Operating Temperature	• -40 °C to +85 °C except LDU14
Output Current	See tables		1000 mA unit: -40 °C to +70 °C,
Accuracy		Storage Temperature	 -40 °C to +125 °C
Ripple & Noise	 See tables, measured with 20 MHz bandwidth 	Humidity	 Up to 95%, non-condensing
Short Circuit Protectio	n • Current is limited to the rated output	Thermal Impedance	 35 °C/W model dependant
Temperature	• ±0.03%/°C max		
Coefficient		EMC	
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, 	Emissions	• EN55022 class B conducted & radiated with external components - see application notes
Remote On/Off Signal Current	• 1 mA max	ESD Immunity	EN61000-4-2, level 2 Perf Criteria A
Dimensioner		Radiated Immunity	EN61000-4-3, level 2 Perf Criteria A
Dimming	-	EFT/Burst	 EN61000-4-4, level 2 Perf Criteria A
PWM		Surge	 EN61000-4-5, level 2 Perf Criteria A
Output Current Range		Conducted Immunity	 EN61000-4-6, level 2 Perf Criteria A
Operating Frequency	• 1 kHz max		
On Time	• 200 ns min		
Off Time	• 200 ns min		



Amplitude

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

Variable Resistor

Output Current Range • 25% to 100%

• 1.25 V max



LDU05/07/14 XP

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



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 $\mu\text{F}.$

The output current can be determined using the equation: Iou

$$ut = \frac{\text{Rated Max I x R}}{(\text{R} + 200 \text{ k})}$$

Where the value of R is between 0 and 2 M Ω , 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 : lout = Rated Max I x Dpwm

Dpwm = PWM duty cycle

Input Filter to meet Class B Conducted Emissions



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		

1.25

Notes

1. All dimensions are in inches (mm)

2. Weight: 0.003 lbs (1.8 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)

Output Current Adjustment by DC Voltage

Control Voltage Range: 0.3 V to 1.25 VDC

The output current is given by: Iout nom = Rated Max I x Control Voltage



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



