LED Driver

LDU56 Series

- Constant Current Output
- LED Drive Current up to 1000 mA
- LED Strings from 2 V to 56 V
- PWM Dimming Control
- High Efficiency – up to 97%
- Open or Short Circuit LED Protection
- 3 Year Warranty

Specification

Input

Input Voltage	• 9-60 VDC
Input Filter	• Capacitor
Input Surge	• 65 VDC for 500 ms

Output

Output Voltage	• 2-56 V (Vin must be at least 4 V greater than Vout)
Output Current	• See tables
Output Current Accuracy	• See tables
Ripple & Noise	• See tables, measured with 20 MHz bandwidth
Short Circuit Protection	• Current is limited to the rated output
Capacitive Load	• 2.2 µF max
Temperature Coefficient	• ±0.03%/°C max
Remote On/Off	• On = 2.5-5.0 V or open circuit Off = ≤0.8 V (applied to control pin) Quiescent input current is 3 mA max,
Remote On/Off Signal Current	• 1 mA max

Dimming

PWM	
Output Current Range	• 1% to 100%
Operating Frequency	• 1 kHz max
On Time	• 50 µs min
Off Time	• 50 µs min
Amplitude	• 2.5 V, 5 V max

General

Efficiency	• See tables
Switching Frequency	• 40-1000 kHz variable
MTBF	• >2.0 MHrs to MIL-HDBK-217F at 25 °C, GB

Environmental

Operating Temperature	• -40 °C to +85 °C for 300/350 mA versions, -40 °C to +70 °C for others
Storage Temperature	• -40 °C to +125 °C
Humidity	• Up to 95%, non-condensing
Thermal Impedance	• 16.7 °C/W model dependant

EMC

Emissions	• EN55015 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
Conducted Immunity	• EN61000-4-6, level 2 Perf Criteria A
Magnetic Field	• EN61000-4-8, level 2 Perf Criteria A

Safety

Safety Approvals	• CE (Meets all applicable directives), UKCA (Meets all applicable legislation)

Models and Ratings

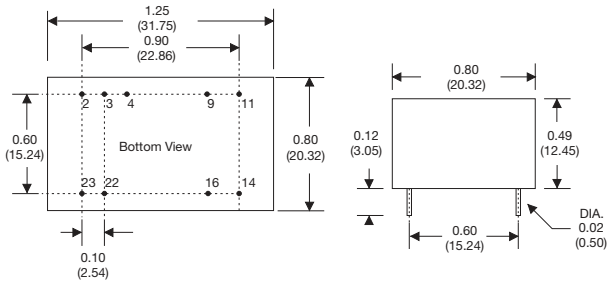
With Dimming Control

Output Power	Input Voltage Range	Output Voltage	Output Ripple & Noise	Output Current	Output Current Accuracy	Efficiency	Model Number[1]
16.8 W	9-60 V	2-56 V	250 mV	300 mA	±6%	97%	LDU5660S300
19.6 W	9-60 V	2-56 V	300 mV	350 mA	±5%	97%	LDU5660S350
28.0 W	9-60 V	2-56 V	350 mV	500 mA	±5%	97%	LDU5660S500
33.6 W	9-60 V	2-56 V	400 mV	600 mA	±5%	97%	LDU5660S600
39.2 W	9-60 V	2-56 V	400 mV	700 mA	±5%	97%	LDU5660S700
50.0 W	9-60 V	2-56 V	450 mV	1000 mA	±5%	97%	LDU5660S1000

1. Add suffix '-W' for wired version, e.g. LDU5660S500-W, or '-WD' for wired version with dimming function e.g. LDU5660S500-WD.

Mechanical Details

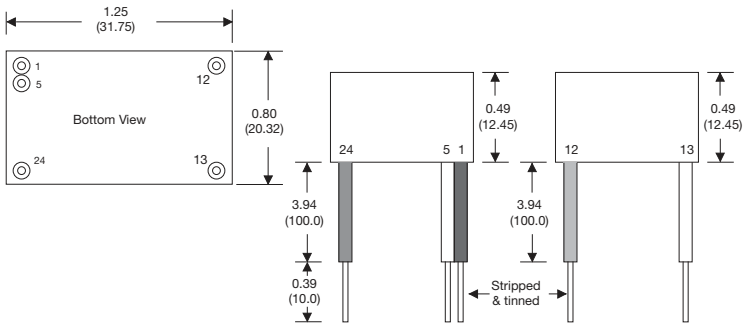
LDU56 – 24 Pin DIL



LDU56 Connections			
LDU56	LDU56-W	LDU56-WD	Function
2 & 3	1 (Black)	1 (Black)	-Vin: -DC supply
4	No Wire	5 (White)	Control
9 & 11	12 (Blue)	12 (Blue)	-Vout: LED cathode connection
14 & 16	13 (Yellow)	13 (Yellow)	+Vout: LED anode connection
22 & 23	24 (Red)	24 (Red)	+Vin: +DC supply

Note: Do not connect pins 2 & 3 (-Vin) to pins 9 & 11 (-Vout)

LDU56 – Wired versions



Notes

1. All dimensions are in inches (mm)
2. Weight: LDU56 - 0.04 lbs (17.7 g) approx.
   LDU56 (wired version) - 0.05 lbs (22.0 g) approx.
3. Pin diameter: 0.02±0.002 (0.5±0.05)
4. Pin pitch & length tolerance: ±0.014 (±0.35)
5. Case tolerance: ±0.02 (±0.5)

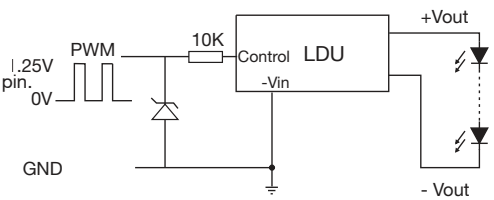
Application Notes

Output Current Adjustment by PWM

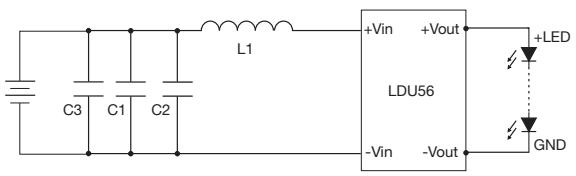
A Pulse Width Modulated (PWM) signal with duty cycle DPWM can be applied to the control pin.

The output current can be determined using the equation : Iout = Rated Max I x Dpwm

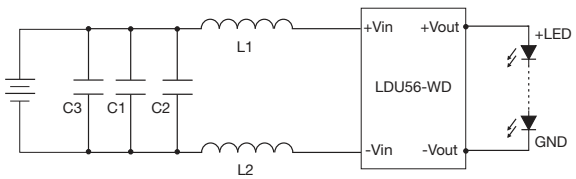
Dpwm = PWM duty cycle



Input Filter to meet Class B Conducted Emissions



	C1	C2	L	C3
LDU5660Sxxx	2220,475K,100V,X7R	2220,475K,100V,X7R	68 µH	100 µF/100 V



	C1	C2	L1, L2	C3
LDU5660Sxxx-WD	2220,475K,100V,X7R	2220,475K,100V,X7R	47 µH	100 µF/100 V