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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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## 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

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### 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 $\mu$ F max
Temperature Coefficient	• $\pm 0.03\%/^{\circ}\text{C}$ max
Remote On/Off	• On = 2.5-5.0 V or open circuit Off = $\leq 0.8$ V (applied to control pin) Quiescent input current is 3 mA max,
Remote On/Off Signal Current	• 1 mA max

### Dimming

<b>PWM</b>	
Output Current Range	• 1% to 100%
Operating Frequency	• 1 kHz max
On Time	• 50 $\mu$ s min
Off Time	• 50 $\mu$ s 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 $^{\circ}\text{C}$ , GB

### Environmental

Operating Temperature	• -40 $^{\circ}\text{C}$ to +85 $^{\circ}\text{C}$ for 300/350 mA versions, -40 $^{\circ}\text{C}$ to +70 $^{\circ}\text{C}$ for others
Storage Temperature	• -40 $^{\circ}\text{C}$ to +125 $^{\circ}\text{C}$
Humidity	• Up to 95%, non-condensing
Thermal Impedance	• 16.7 $^{\circ}\text{C}/\text{W}$ 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

## Models and Ratings

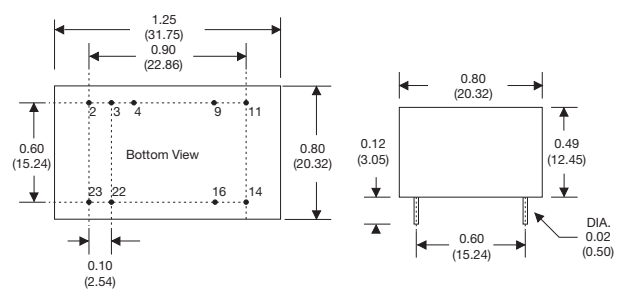
### With Dimming Control

Output Power	Input Voltage Range	Output Voltage	Output Ripple & Noise	Output Current	Output Current Accuracy	Efficiency	Model Number <sup>(1)</sup>
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

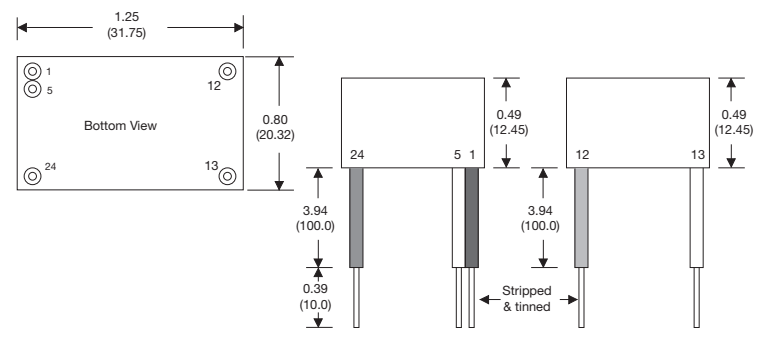
1. Add suffix '-W' for wired version, e.g. LDU5660S500-W, or '-WD' for wired version with dimming function e.g. LDU5660S500-WD.

## Mechanical Details

### LDU56 - 24 Pin DIL



### LDU56 - Wired versions



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)

### Notes

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

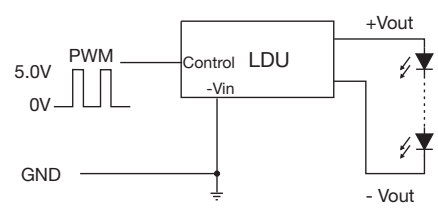
## Application Notes

### Output Current Adjustment by PWM

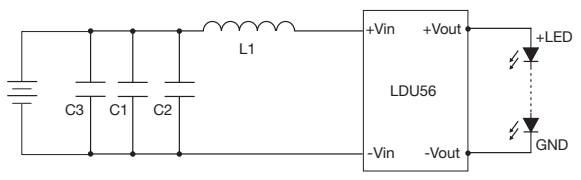
A Pulse Width Modulated (PWM) signal with duty cycle DPWM can be applied to the control pin.

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

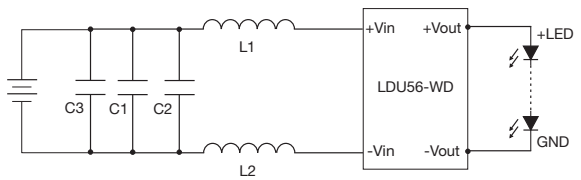
$D_{pwm}$  = PWM duty cycle



### 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