

Series AMLDW-RZ

Up to 1000mA | LED Driver



FEATURES:

- Step Down DC/DC LED driver
- Constant current output
- Ultra Wide (7:1) input voltage range
- High efficiency up to 97%
- IP67 Case
- Operating Temperature range -40°C to +85°C
- Open and Short LED Protection
- PWM / Digital Voltage dimming
- Output power up to 56 Watts



Models Single output

Model	Input Voltage (V)	Output Voltage (V)	Maximum Rated Current (mA)	Max Capacitive Load (uF)	Efficiency (%)	Ripple & Noise (mV p-p)
AMLDW-6030-RZ	9-60	2-56	300	2.2	97	250
AMLDW-6035-RZ	9-60	2-56	350	2.2	97	300
AMLDW-6050-RZ	9-60	2-56	500	2.2	97	350
AMLDW-6060-RZ	9-60	2-56	600	2.2	97	400
AMLDW-6070-RZ	9-60	2-56	700	2.2	97	400
AMLDW-60100-RZ	9-60	2-56	1000	2.2	97	450

NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.

Input Specifications

Parameters	Nominal	Typical	Maximum	Units
Voltage range	48	9-60		VDC
Filter	Capacitor			
Absolute Maximum Rating			65	VDC
Peak Input Voltage time			500	ms
DC/DC ON (Leave open if not used)	ON –Open or 2.5V< Vadj <5V			
DC/DC OFF	OFF(shutdown) – Vadj <0.8 or short wire 1, 5			
Quiescent Current in Shutdown	Vin = 60V		3	mA
Vadj pin input voltage range	Input voltage range	0-5		VDC
Vadj pin drive current	Vadj = 5V		1	mA
PWM dimming	Max PWM Frequency 1KHz, adjust output current from 1% to 100%			
No load input current			3	mA

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Current accuracy	300mA model		±6	%
	Other models		±5	%
Output Voltage range	V input = 60V	2-56		VDC
Output current	Vin – Vout > 4V	See model table above		
Short Circuit protection	Regulated at the rated current for each model			
Temperature coefficient			±0.03	%/°C

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load	40-1000		KHz
Operating temperature	300, 350mA models	-40 to +85		°C
	Other models	-40 to +71		°C
Storage temperature		-40 to +125		°C
Maximum case temperature			105	°C
Cooling	Free air convection			
Humidity			95	% RH
Case material	Non-Conductive Black Plastic (UL94V-0 rated)			
Weight		22		g
Dimensions (L x W x H)	1.25 x 0.80 x 0.49 inches	31.75 x 20.32 x 12.45 mm		
MTBF	> 950 000hrs (MIL-HDBK-217 F at +25°C)			
Maximum Soldering Temperature	1.5 mm from case for 10sec.		260	°C

NOTES:

1. Reversed polarity at the input power will damage the driver. The input ground must not be connected to the negative output.
2. Maximum output open voltage is equal to input voltage.

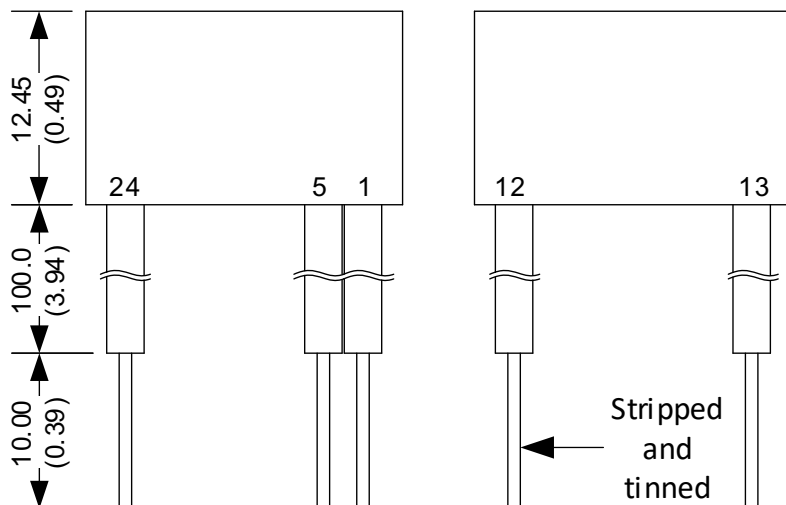
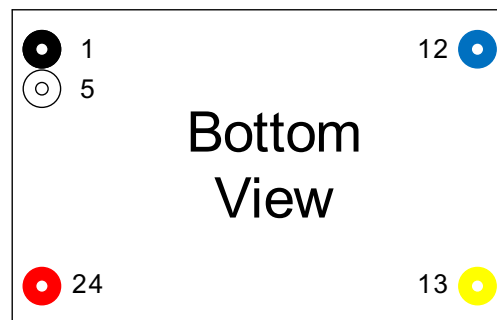
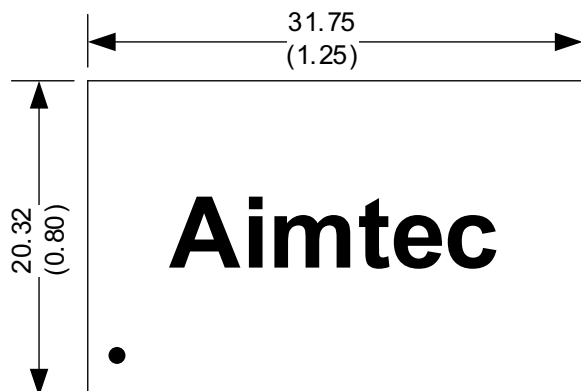
Safety Specifications

Parameters	
Agency approval	CE
Standards	Designed to meet IEC/EN 60950-1 EN 55015 (CISPR22) with recommended EMC circuit EN 61547 IEC 61000-4-2 (Perf. Criteria A) IEC 61000-4-3 (Perf. Criteria A) IEC 61000-4-4 (Perf. Criteria A) IEC 61000-4-6 (Perf. Criteria A) IEC 61000-4-8 (Perf. Criteria A)

Pin Out Specifications

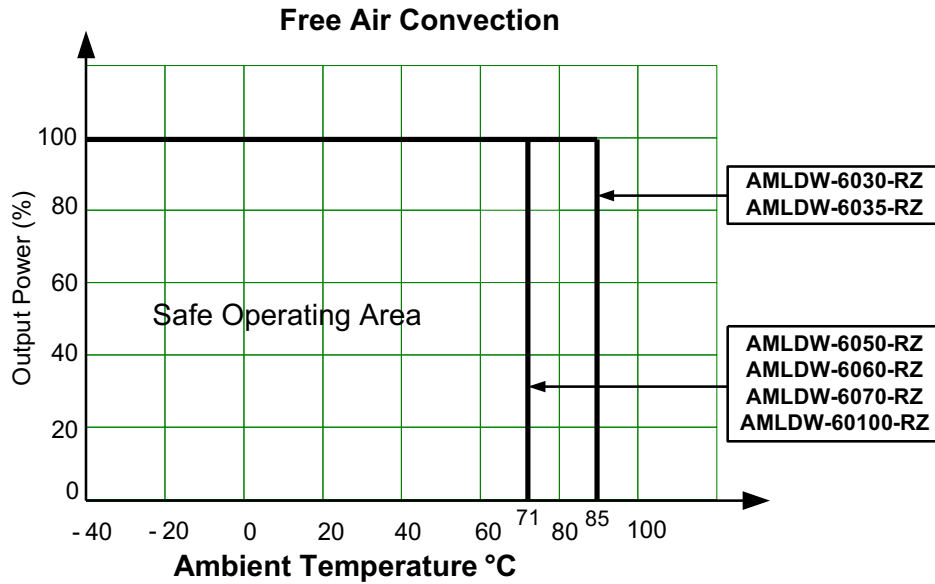
Pin	Color	Single	Description
1	Black	- V Input	- DC Supply
5	White	Vadj	PWM/ON/OFF or leave open
12	Blue	-V Output	LED Cathode Connection
13	Yellow	+ V Output	LED Anode connection
24	Red	+ V Input	+ DC Supply

Dimensions

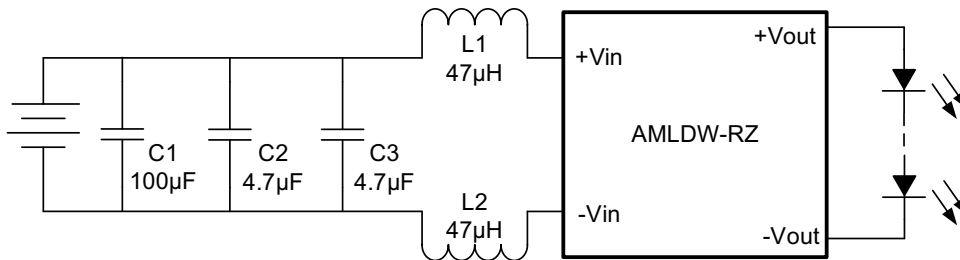


Unit: mm(inch)
 Case tolerance: $\pm 0.5(0.02)$
 Wire core diameter: $0.8 \pm 0.1(0.31 \pm 0.004)$
 Wire outer diameter: $2.4 \pm 0.1(0.094 \pm 0.004)$
 Wire: 22AWG UL1015/CSA TEM listed
 600V / 105°C Rated

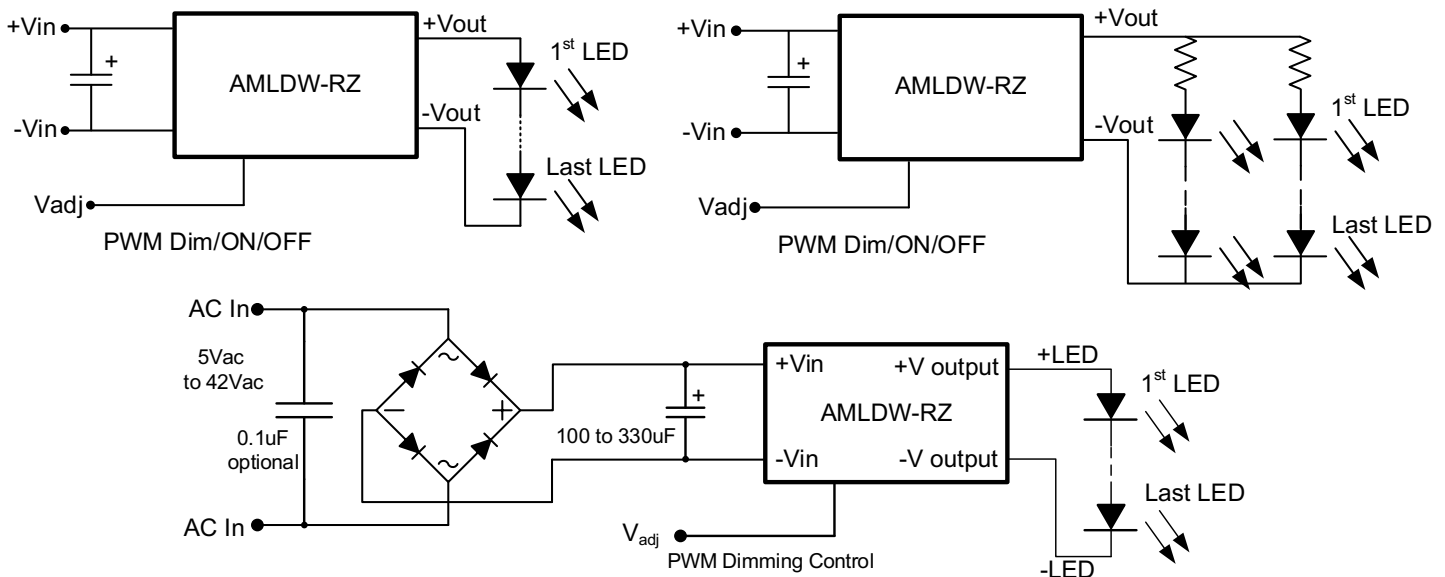
Derating



Recommended EMC Circuit:



Application circuit examples:



Output Current Adjustment by PWM Control: Driving VADJ Directly

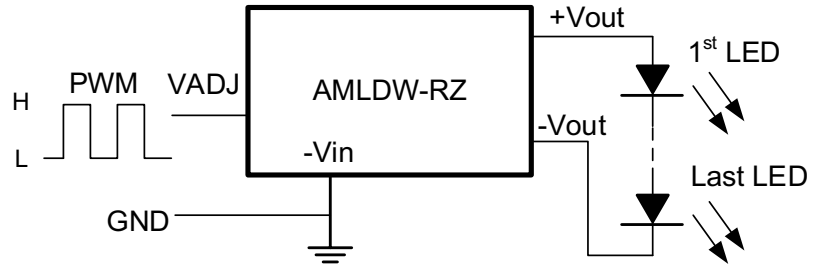
A Pulse Width Modulated (PWM) signal with a duty cycle of DPWM can be applied directly to VADJ pin as shown below.

The output current is given by:

$$I_{outnom} = I_{out} \times DPWM$$

$$H: 2.5V < V_{adj} < 5V$$

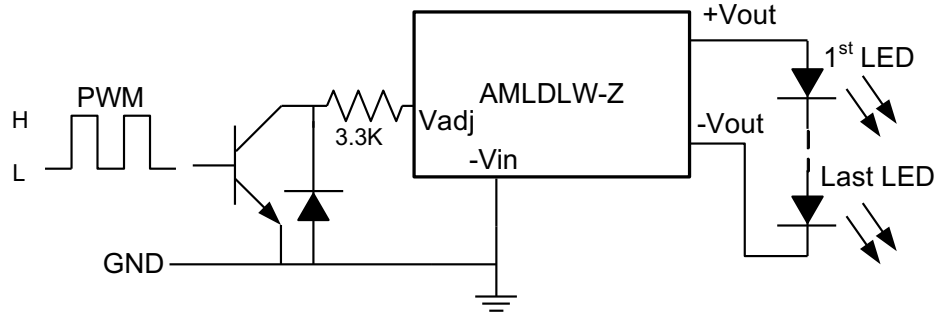
$$L: V_{adj} < 0.8V$$



Driving VADJ Via Open Collector Transistor

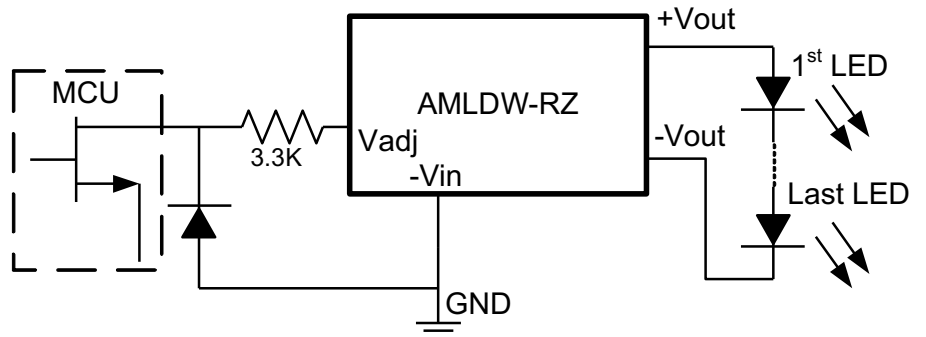
The VADJ can also be driven via an open collector transistor as shown below.

The diode and resistor serve to suppress any possible high amplitude negative voltage spikes to the VADJ input resulting from the collector to emitter capacitance of the transistor. Any negative voltage spikes will cause errors in output current and/or unstable driver operation.



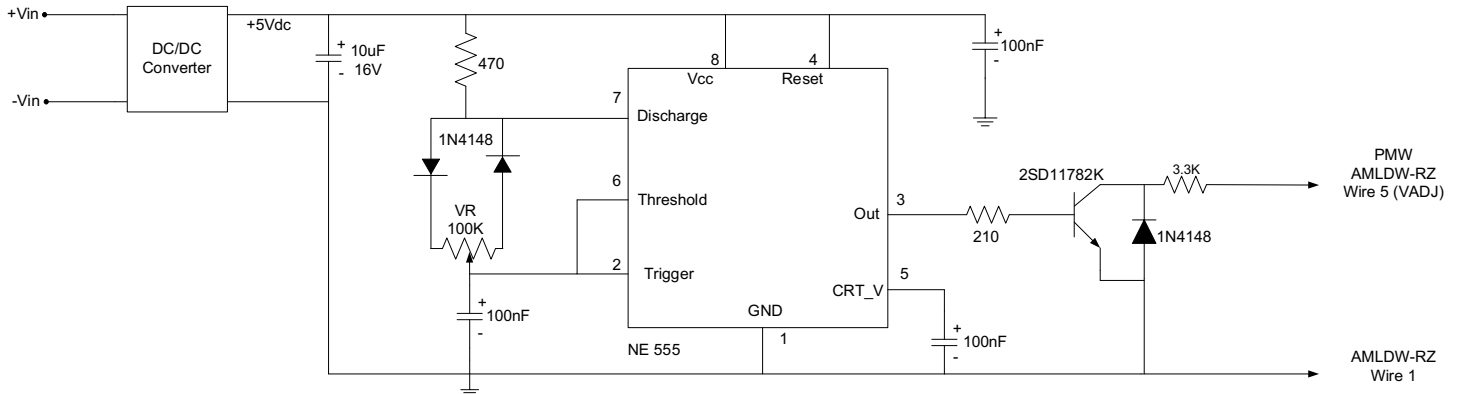
Driving the VADJ from a Microcontroller

The VADJ can be driven from an open drain output of a microcontroller as shown below. The diode and resistor serve to suppress any possible high amplitude negative voltage spikes to the VADJ input resulting from the drain to source capacitance of the FET. Any negative voltage spikes will cause errors in output current and/or unstable driver operation.

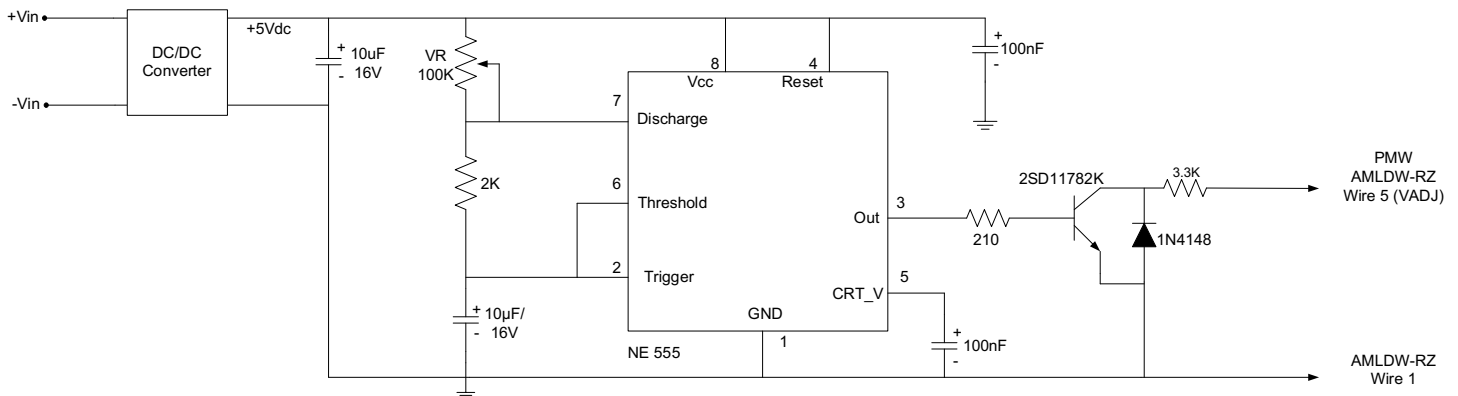


Output Current Adjustment by PWM Control (Dimming):

A PWM signal must have a frequency of greater than 100Hz to prevent any visible flicker.



Output Current Adjustment by PWM Control (Flash):



NOTE: 1. Datasheets are updated as needed and as such, specifications are subject to change without notice. Once printed or downloaded, datasheets are no longer controlled by Aimtec; refer to www.aimtec.com for the most current product specifications. 2. Product labels shown, including safety agency certifications on labels, may vary based on the date manufactured. 3. Mechanical drawings and specifications are for reference only. 4. All specifications are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified. 5. Aimtec may not have conducted destructive testing or chemical analysis on all internal components and chemicals at the time of publishing this document. CAS numbers and other limited information are considered proprietary and may not be available for release. 6. This product is not designed for use in critical life support systems, equipment used in hazardous environments, nuclear control systems or other such applications which necessitate specific safety and regulatory standards other the ones listed in this datasheet. 7. Warranty is in accordance with Aimtec's standard Terms of Sale available at www.aimtec.com.