MVMC (Mid- Voltage Mid-Current) LED Driver

Product Offering

LED driver capable of driving 10A with wide output voltage range (3 – 57V)

Adjustable max current setting

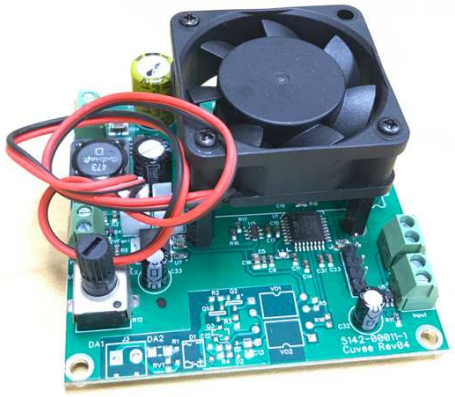
Accurate, deep dimming (0 – 100% range)
- PWM dimming
- 0-10V dimming

Flicker Free, virtually no current ripple

Active thermal management
- Monitor LED Temperature
- Back off drive current to maintain safe working temperatures

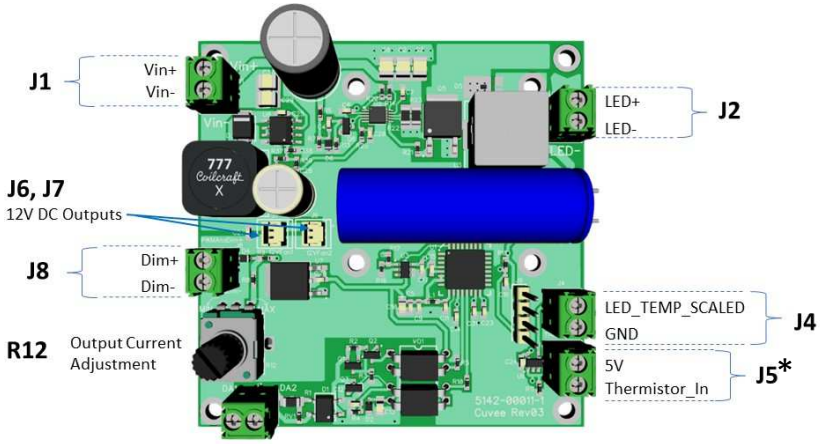
Open frame design for embedding into larger system

Driver size:
70 x 70 x 36mm
(including fan)



Input / Output Characteristics

Input Voltage	12 – 70 Vdc
Output Power (Max.)	> 500W
Output Voltage	Up to 55Vdc (I_{out}=10A) Up to 60Vdc (I_{out}=8.8A)
Output Current Range (onboard dial)	1 – 10A (static current) 8.8A @ 60Vout
Efficiency (with 1.2W fan)	92% (typ.)



PWM Dimming Characteristics (Dim+ / Dim-)

PWM Input Voltage	12V (Pk-Pk)
PWM Pulse Frequency	30 – 10,000Hz
Dimming Range	0 – 100% (with 1024 steps)

0-10V Dimming Characteristics (Dim+ / Dim-)

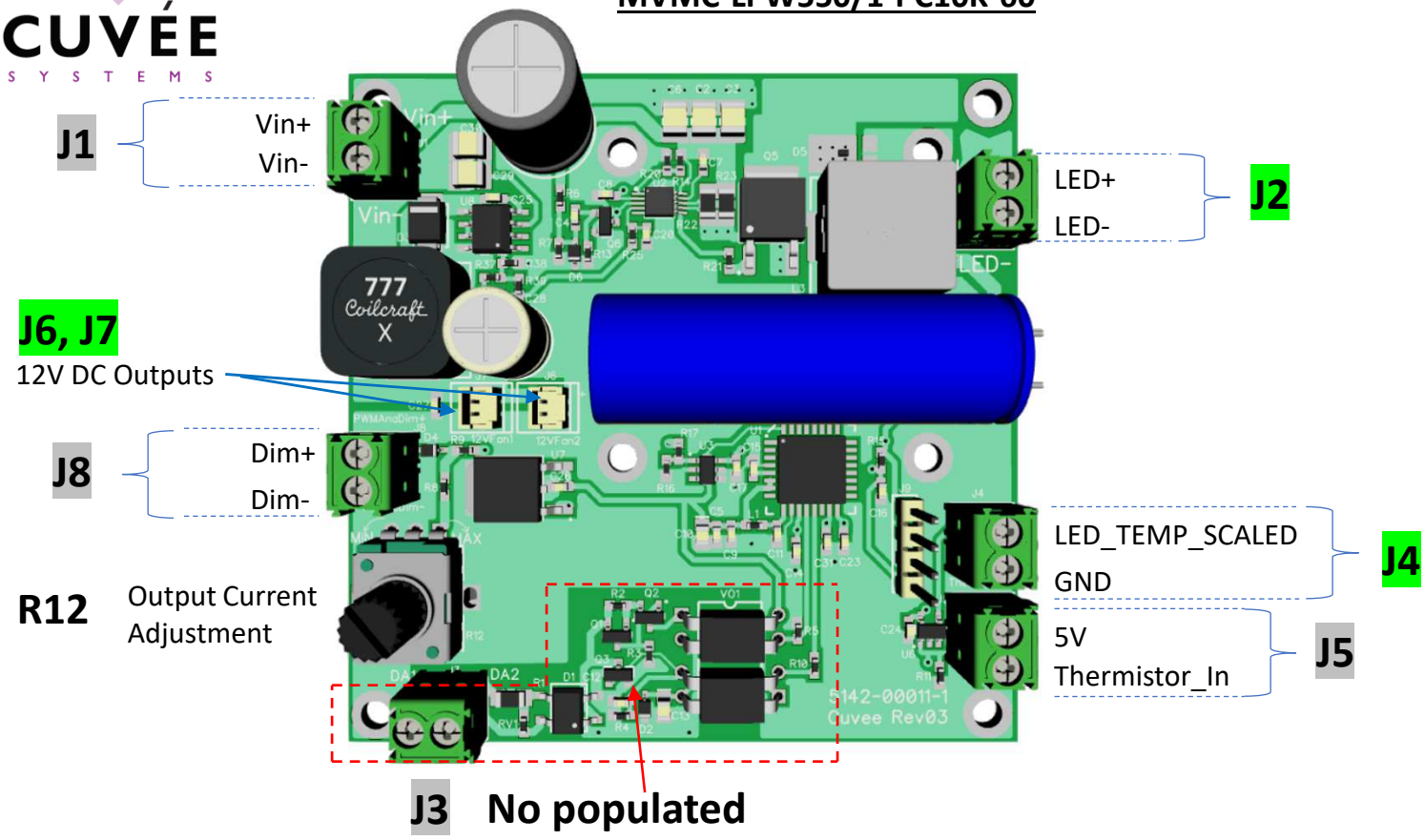
Dim+, Dim-	0 – 10V
Dim+ Current Source	< 1mA

Monitoring Features

LED Temp. Monitoring Input	Thermistor_IN
LED Temp. Monitoring Output	LED_TEMP_SCALED

** J5 - Thermistor input is required for driver operation. Driver will not deliver output current if no thermistor connection is detected.*
The LED thermal protection function can be bypassed by placing a 10KΩ resistor across J5. Note that in doing so, the MVMC driver will not be able to detect excessive high-temperature LED operation. Thermistor wiring is interchangeable (no polarity)

MVMC-LPW550/1-PC10K-60



Input		Ports	
VDC Input	[J1]	**Vin+** **Vin-**	• V_{in}= Max. 70V • Voltage level needs to choose appropriately according to LED voltage for driver safe operation. Please consult table 1.
Dimming Input	[J8]	**Dim+** **Dim-**	• 0 – 10V dimmer • 12V Pk-to-Pk PWM signal • Voltage Source (0 – 10Vdc, sink up to 1mA, Dim+ Current Source) • Resistor potentiometer
Thermistor Input	[J5]	**+5V** **Thermistor_IN**	• 10KΩ thermistor input • (calibrated with Murata NCP18XH103J03RB)

Output		Ports	
LED Output	[J2]	**LED+** **LED-**	• LED Output ports for LED connection
LED Temp. Monitoring Output [J4]		**LED_TEMP_SCALED**	• translates LED temperature into a voltage (calibrated with Murata NCP18XH103J03RB) (more details on p.7)
12VDC Output	[J6, J7]		2x 12V DC output connectors (J6 & J7) are provided
		+ / - [J6]	• Used – for driver on-board cooling fan
		+ / - [J7]	• Available for user – i.e. for LED cooling fan)

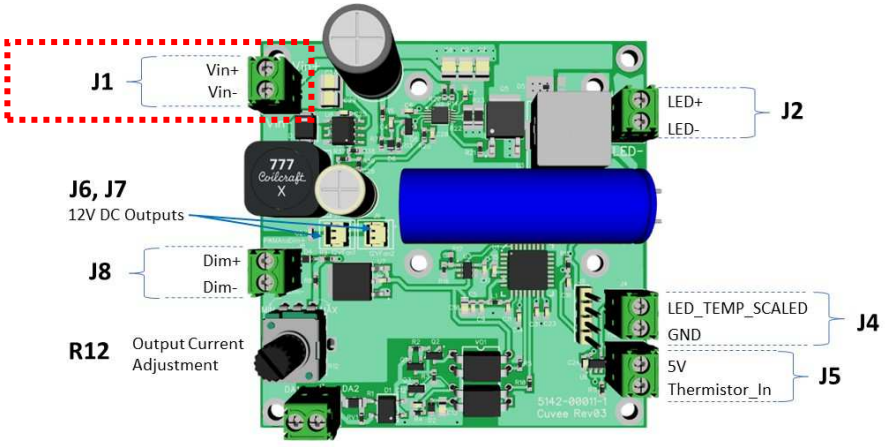


Table 1. Choose Vin Appropriately for Safe Operation

LED Rated Voltage	Vin 12.5	24	36	48	60	70
3						
6						
9						
12						
15						
18						
21						
24						
27						
30						
33						
36						
39						
42						
45						
48						
51						
54						
57						
60						

Note:

1. Green Boxes are where the driver can safely operate to full 10A current thermally.
2. Operation beyond the green boxes is possible with reduced LED output current from 10A.
3. Max LED current is 8.6A at Vin=70V, Vout=59V for Luminus CVM-45 LED.

Efficiency vs Output Power

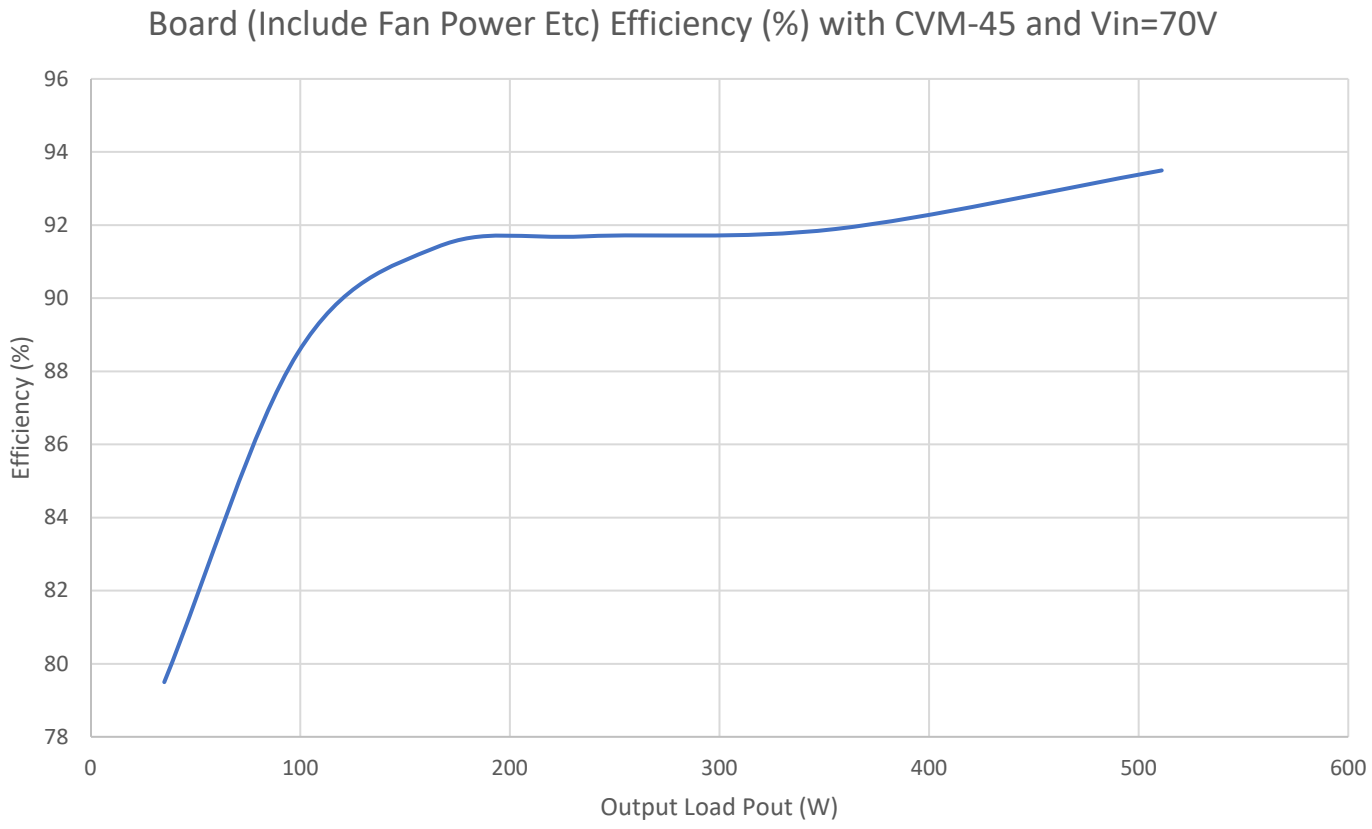
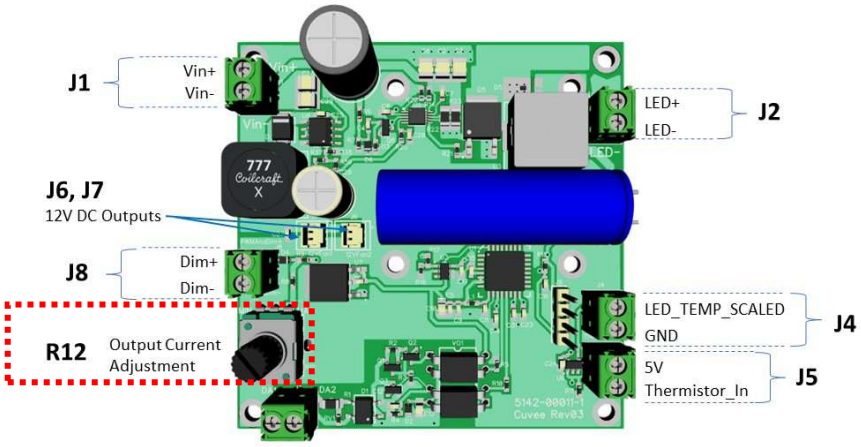
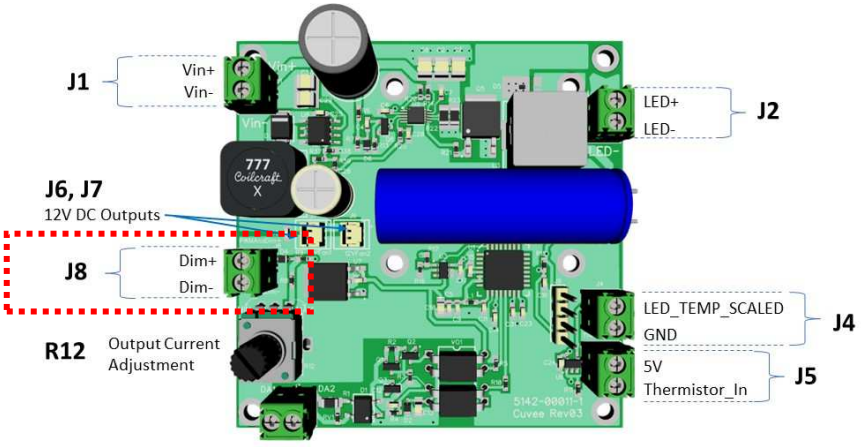


Figure 1

LED Output Current Setting [R12]

- LED output current is set by turning R12
  - clockwise to increase current
  - counterclockwise to decrease current





Dimming Inputs [J8]

- ❖ **Dim +**
- ❖ **Dim -**

- 0 – 10V dimmer
- 12V Pk-to-Pk PWM signal
- Voltage Source (0 – 10Vdc)
- Resistor potentiometer

0-10V Dimming on J8

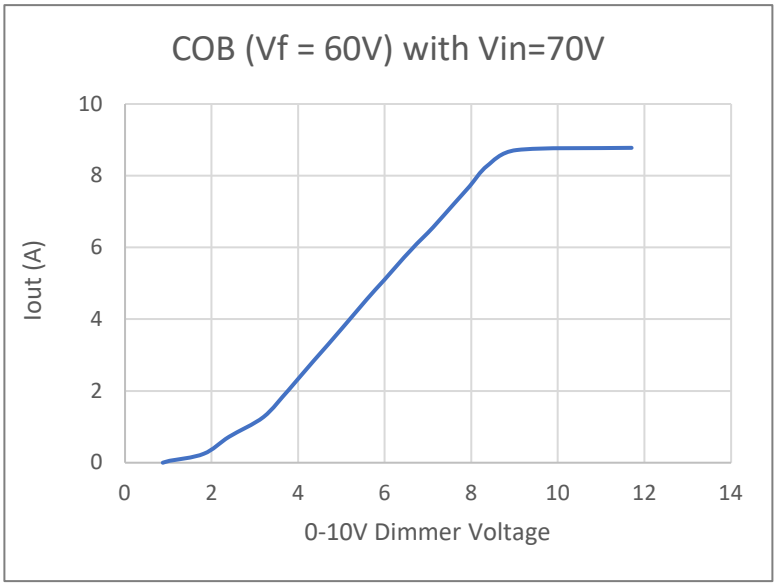


Figure 2

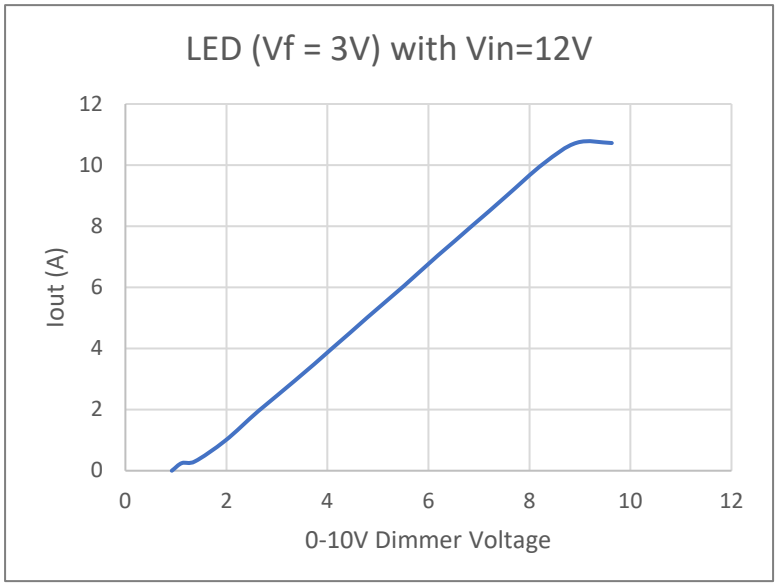


Figure 3

Resistance Dimming on J8

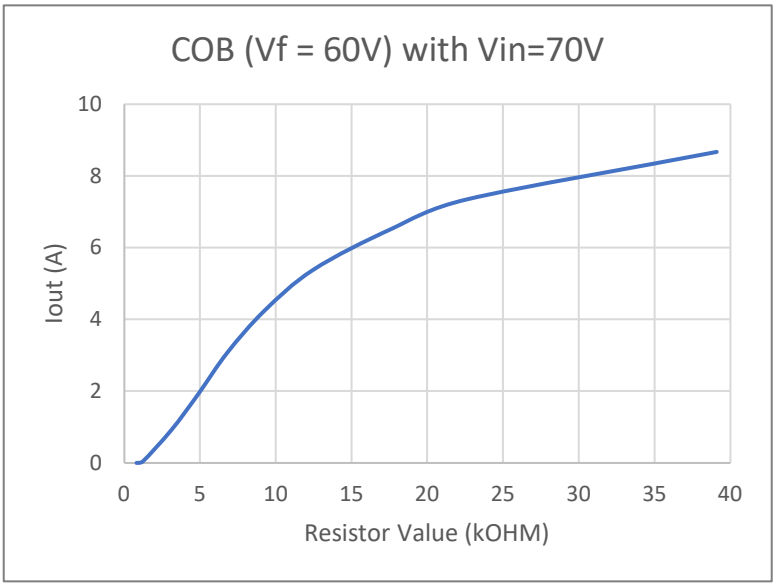


Figure 4

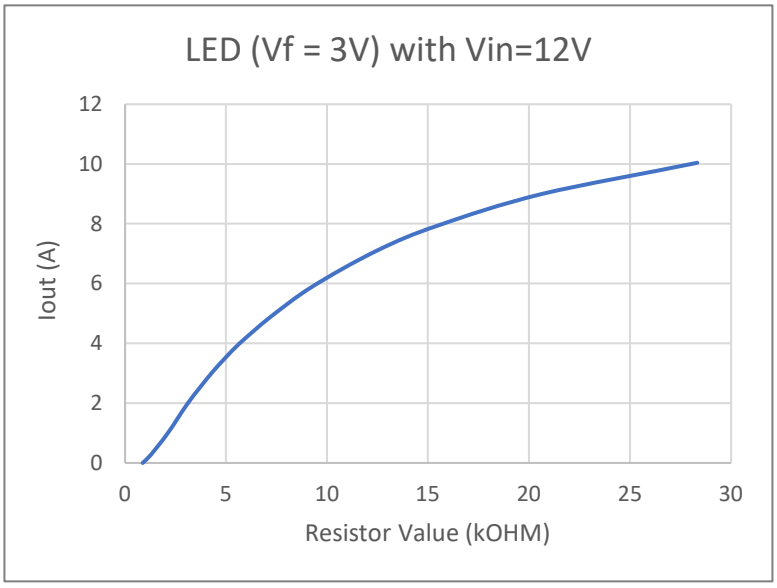


Figure 5

PWM Dimming on J8

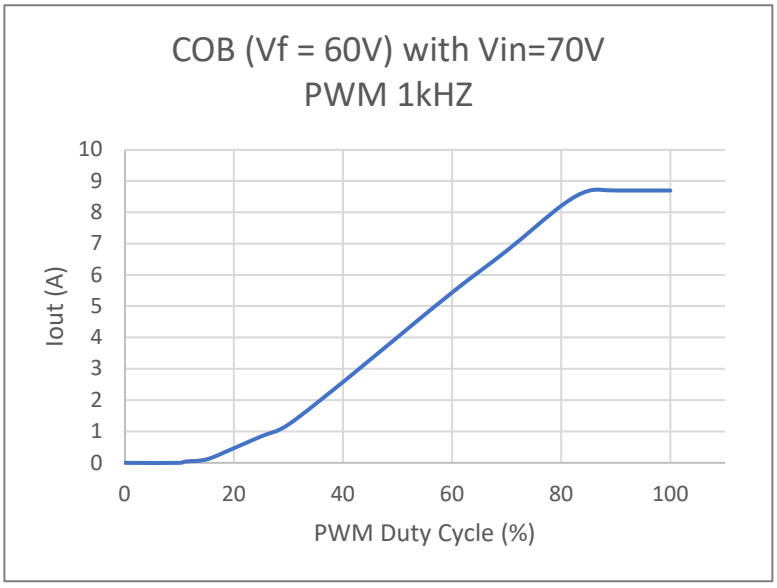


Figure 6

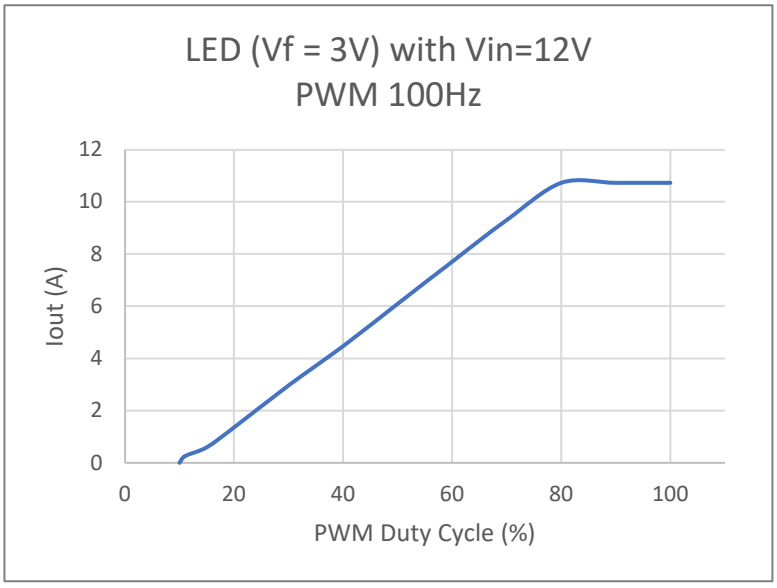
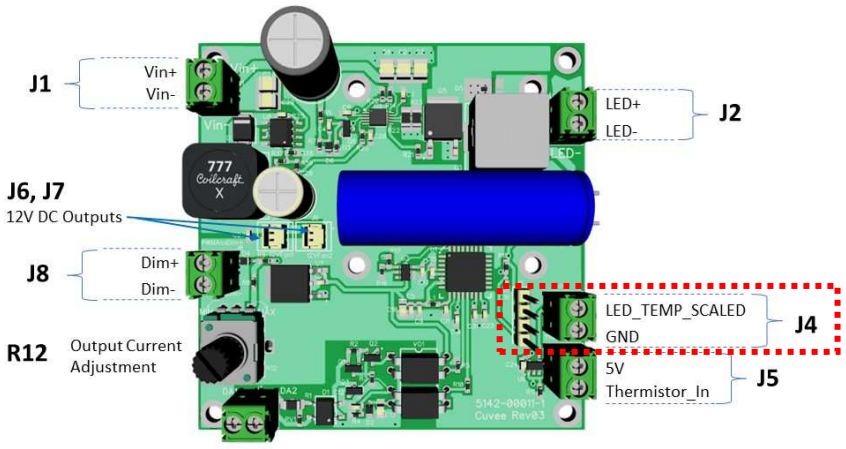


Figure 7



LED Temperature Monitoring [J4]

- **LED_TEMP_SCALED**
  - Translates LED temperature into a voltage (calibrated with Murata NCP18XH103J03RB)

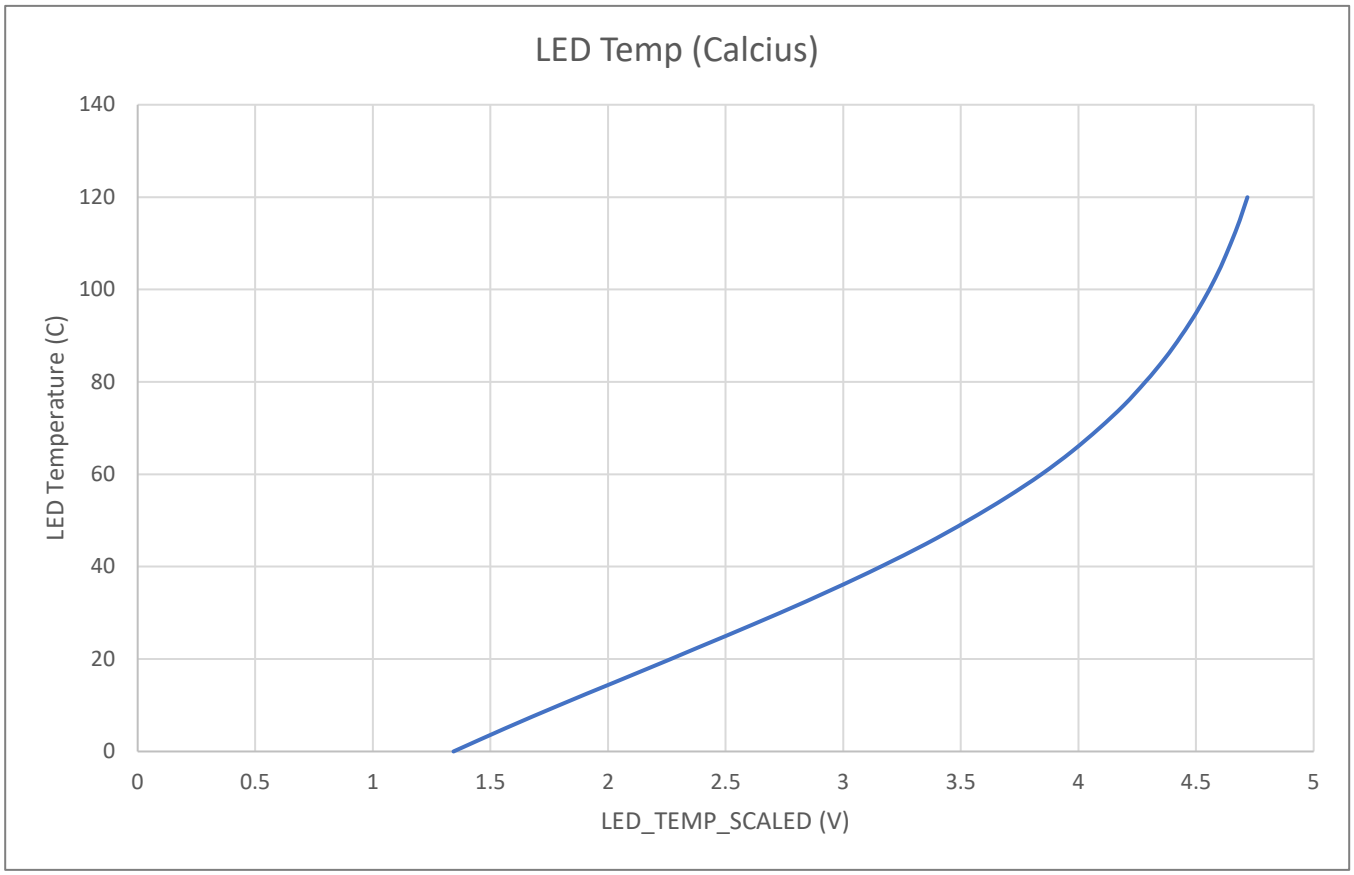


Figure 8