

# CAT4201 LED Driver Evaluation Board

## INTRODUCTION

This document describes the CAT4201EVAL2 evaluation board for the CAT4201 high efficiency step-down LED driver. Boards equipped with a 9V battery and separate LED module can be used for demonstrations (see Fig. 1).

The CAT4201 is a high efficiency step-down LED driver from Catalyst Semiconductor. This device is designed to drive high brightness LEDs up to 350mA from a power supply up to 28V. The LED brightness is controlled by a single resistor from the RSET pin to GND. Analog dimming and idle mode control are available through the CTRL input. An external circuit is provided on the CAT4201EVAL2 for PWM dimming.

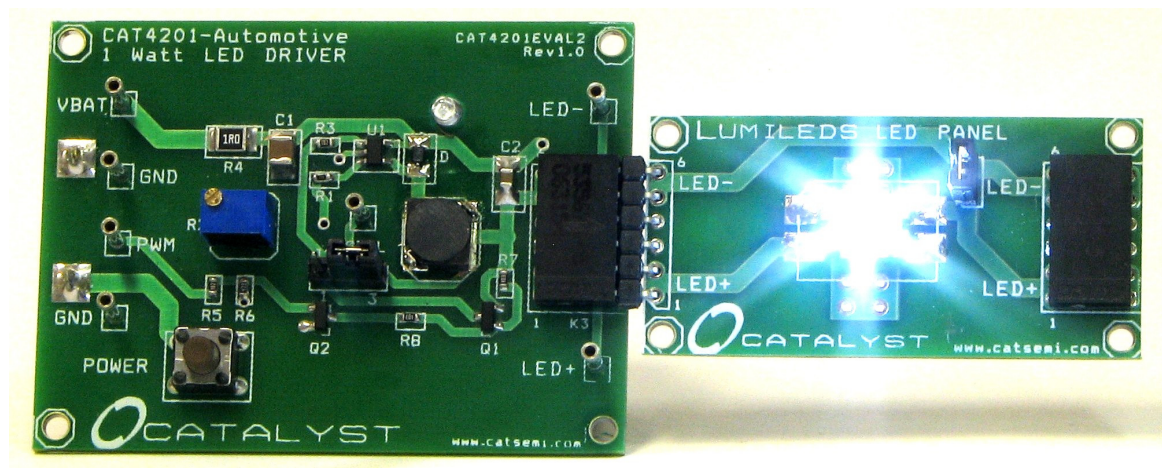
## OPERATION PROCEDURE

The CAT4201EVAL2 board has two modes of operation. The first is normal operation and the second is operation with PWM dimming. Normal operation is set by placing jumper J1 in the right side position with pins 2 and 3 tied together. In this mode, the CTRL pin is pulled up to the LED cathode (LED-). The LED(s) will be at full brightness as long as the CTRL pin is greater than 3V. LED current can be set from 70mA to 350mA by adjusting potentiometer R2.

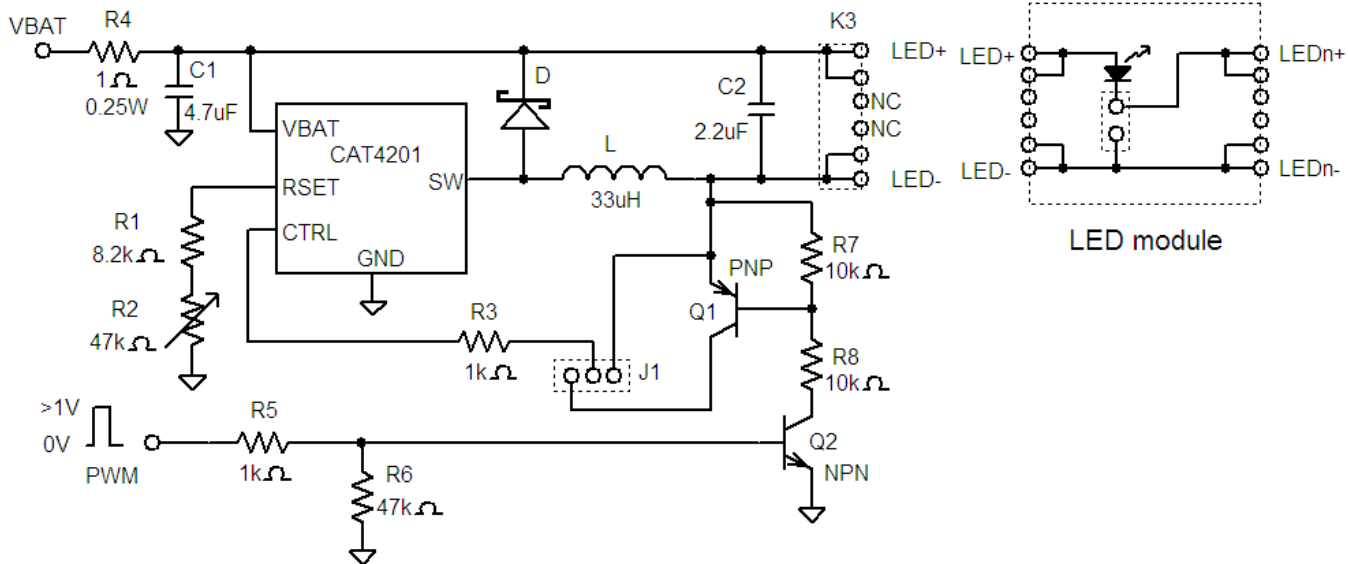
To set the board for PWM dimming, jumper J1 should be placed in the left side position with pins 1 and 2 tied together. A PWM signal can be applied to the PWM pin to dim the LED brightness. The amplitude of the PWM signal should be greater than 1V.

## DEVICE DEMONSTRATION

To set up the CAT4201EVAL2 for demonstrations, the board should be set up for normal operation with a 9V battery securely placed in the holder. A separate LED module should also be plugged into the 6-pin connector. To turn on the LED, press and hold the *POWER* button. The LED will turn off once the button is released.



**Figure 1. CAT4201EVAL2 with LED Module**

**CAT4201EVAL2**
**SCHEMATIC**

**Figure 2. CAT4201EVAL2 Schematic**
**BILL OF MATERIALS**

Name	Manufacturer	Description	Part Number	Units
U1	Catalyst	High Efficiency Step-Down LED Driver, SOT-23-5	CAT4201	1
Q1	OnSemi	PNP Bipolar Transistor -45V / -500mA, SOT-23	BC807-25LT1G	1
Q2	OnSemi	NPN Bipolar Transistor 45V / 100mA, SOT-23	BC847CLT1G	1
D	Zetex	Schottky Diode 40V / 400mA, Size SOD-323	ZHCS400	1
C1	Murata	Ceramic Capacitor 4.7uF / 50V, X7R, Size 1210	GRM32ER71H475KA88L	1
C2	Murata	Ceramic Capacitor 2.2uF / 25V, X5R, Size 0805	GRM219R61E225KA12D	1
L	Sumida	Inductor 33uH, low DCR, 0.97A	CDRH6D28-330	1
R1	Yageo	SMT Resistor 1/10W, 8.2kΩ, 0603	9C06031A8201FKHFT	1
R2	Vishay	Trim Pot. 47kΩ	T63YB473K	1
R3,R5	Yageo	SMT Resistor 1/10W, 1kΩ, 0603	9T06031A1001FBHFT	2
R4	Panasonic	SMT Resistor 1Ω / 500mW Size 1210	ERJ-P14J1R0U	1
R6	Yageo	SMT Resistor 1/10W, 47kΩ, 0603	9T06031A4702FBHFT	1
R7, R8	Yageo	SMT Resistor 1/10W, 10kΩ, 0603	9T06031A1002FBHFT	2
J1	Tyco	3 Pin Header Connector 0.1" Pitch	640452-3	1
	Tyco	2 Pin Header Connector 0.1" Pitch	640452-2	1
K3	Tyco	6 Pin Header Receptacle 0.1" Pitch	535676-5	1
	HDK	SPST Pushbutton Switch	KSM0631A	1
	Keystone	9V Battery Holder (optional)	1294	1

## REVISION HISTORY

Date	Rev.	Reason
05/21/07		

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Catalyst Semiconductor, Inc.  
Corporate Headquarters  
2975 Stender Way  
Santa Clara, CA 95054  
Phone: 408.542.1000  
Fax: 408.542.1200  
www.catsemi.com

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