

# CAT4104AEVB

## CAT4104 LED Driver Evaluation Board User's Manual



ON Semiconductor®

<http://onsemi.com>

### EVAL BOARD USER'S MANUAL

#### Introduction

This document describes the CAT4104AEVB evaluation board for the ON Semiconductor CAT4104 quad channel constant current LED driver. The functionality and major parameters of the CAT4104 can be evaluated with the CAT4104AEVB board.

The CAT4104 is a LED driver with four matched current sinks capable of driving up to 175 mA per channel. All current sinks are programmed by a single resistor from the RSET pin to GND. Enable and dimming control is available via the EN/PWM pin. Additional details and electrical characteristics can be found in the CAT4104 data sheet.

#### Board Hardware

The evaluation board contains one CAT4104 in a typical application circuit. Four test points labeled T4 through T7 are available to connect the cathode side of an LED string to the CAT4104.

The VIN test point (T1) is connected to the VIN supply of the CAT4104. The voltage between test points VIN and GND (T2) should not exceed 6.0 V.

The EN/PWM test point is the enable and PWM input for the CAT4104. The control signal should be connected between test points EN/PWM and GND.

Trimmer potentiometer R2 can be adjusted to change the LED current. The RSET pin of the CAT4104 is a fixed 1.2 V reference and the LED current is set by changing the current through the RSET resistor (R1 + R2). The CAT4104 has a typical dropout voltage of 400 mV for 175 mA LED current.

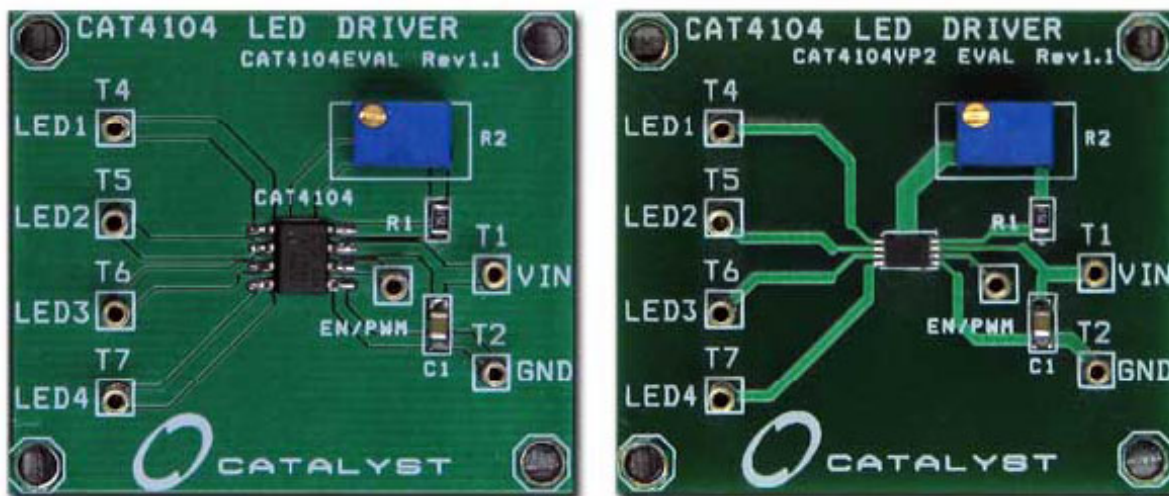


Figure 1. CAT4104AEVB Board (SOIC Package) and CAT4104VP2 Board (TDFN Package)

# CAT4104AEVB

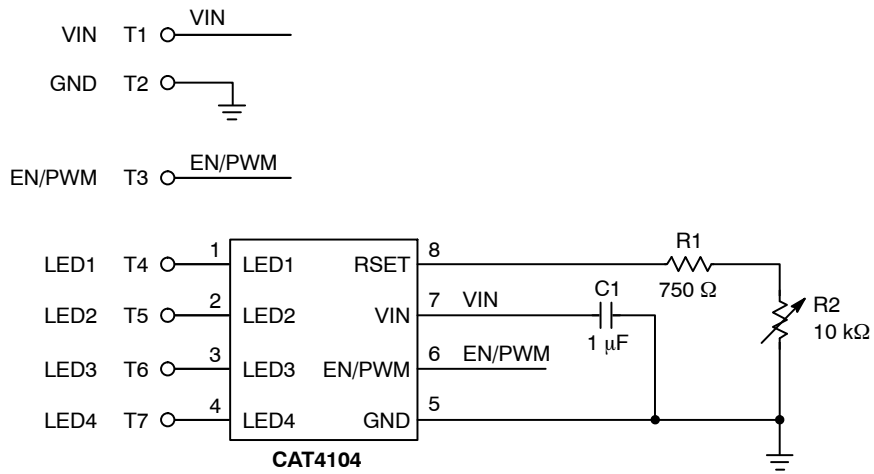


Figure 2. CAT4104AEVB Board Schematic

Table 1. CAT4104AEVB BOARD LIST OF COMPONENTS

Name	Manufacturer	Description	Part Number	Units
U1	ON Semiconductor	Quad Channel LED Driver in SOIC-8 or TDFN-8 package	CAT4104V or CAT4104VP2	1
C1	Taiyo Yuden	Ceramic Capacitor 1 μF/10 V, 10%, X7R, Size 0805	LMK212B7105KD-T	1
R1	Yageo	SMT Resistor 1/8 W, 750 Ω, Size 0805	RC0805FR-07560RL	1
R2	Vishay	Trimmer Potentiometer, 10 kΩ	T63YB103K	1

**onsemi**, **Onsemi**, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi**'s product/patent coverage may be accessed at [www.onsemi.com/site/pdf/Patent-Marking.pdf](http://www.onsemi.com/site/pdf/Patent-Marking.pdf). **onsemi** is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

The evaluation board/kit (research and development board/kit) (hereinafter the "board") is not a finished product and is not available for sale to consumers. The board is only intended for research, development, demonstration and evaluation purposes and will only be used in laboratory/development areas by persons with an engineering/technical training and familiar with the risks associated with handling electrical/mechanical components, systems and subsystems. This person assumes full responsibility/liability for proper and safe handling. Any other use, resale or redistribution for any other purpose is strictly prohibited.

**THE BOARD IS PROVIDED BY ONSEMI TO YOU "AS IS" AND WITHOUT ANY REPRESENTATIONS OR WARRANTIES WHATSOEVER. WITHOUT LIMITING THE FOREGOING, ONSEMI (AND ITS LICENSORS/SUPPLIERS) HEREBY DISCLAIMS ANY AND ALL REPRESENTATIONS AND WARRANTIES IN RELATION TO THE BOARD, ANY MODIFICATIONS, OR THIS AGREEMENT, WHETHER EXPRESS, IMPLIED, STATUTORY OR OTHERWISE, INCLUDING WITHOUT LIMITATION ANY AND ALL REPRESENTATIONS AND WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE, NON-INFRINGEMENT, AND THOSE ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE CUSTOM OR TRADE PRACTICE.**

**onsemi** reserves the right to make changes without further notice to any board.

You are responsible for determining whether the board will be suitable for your intended use or application or will achieve your intended results. Prior to using or distributing any systems that have been evaluated, designed or tested using the board, you agree to test and validate your design to confirm the functionality for your application. Any technical, applications or design information or advice, quality characterization, reliability data or other services provided by **onsemi** shall not constitute any representation or warranty by **onsemi**, and no additional obligations or liabilities shall arise from **onsemi** having provided such information or services.

**onsemi** products including the boards are not designed, intended, or authorized for use in life support systems, or any FDA Class 3 medical devices or medical devices with a similar or equivalent classification in a foreign jurisdiction, or any devices intended for implantation in the human body. You agree to indemnify, defend and hold harmless **onsemi**, its directors, officers, employees, representatives, agents, subsidiaries, affiliates, distributors, and assigns, against any and all liabilities, losses, costs, damages, judgments, and expenses, arising out of any claim, demand, investigation, lawsuit, regulatory action or cause of action arising out of or associated with any unauthorized use, even if such claim alleges that **onsemi** was negligent regarding the design or manufacture of any products and/or the board.

This evaluation board/kit does not fall within the scope of the European Union directives regarding electromagnetic compatibility, restricted substances (RoHS), recycling (WEEE), FCC, CE or UL, and may not meet the technical requirements of these or other related directives.

FCC WARNING – This evaluation board/kit is intended for use for engineering development, demonstration, or evaluation purposes only and is not considered by **onsemi** to be a finished end product fit for general consumer use. It may generate, use, or radiate radio frequency energy and has not been tested for compliance with the limits of computing devices pursuant to part 15 of FCC rules, which are designed to provide reasonable protection against radio frequency interference. Operation of this equipment may cause interference with radio communications, in which case the user shall be responsible, at its expense, to take whatever measures may be required to correct this interference.

**onsemi** does not convey any license under its patent rights nor the rights of others.

LIMITATIONS OF LIABILITY: **onsemi** shall not be liable for any special, consequential, incidental, indirect or punitive damages, including, but not limited to the costs of requalification, delay, loss of profits or goodwill, arising out of or in connection with the board, even if **onsemi** is advised of the possibility of such damages. In no event shall **onsemi**'s aggregate liability from any obligation arising out of or in connection with the board, under any theory of liability, exceed the purchase price paid for the board, if any.

The board is provided to you subject to the license and other terms per **onsemi**'s standard terms and conditions of sale. For more information and documentation, please visit [www.onsemi.com](http://www.onsemi.com).

## ADDITIONAL INFORMATION

### TECHNICAL PUBLICATIONS:

Technical Library: [www.onsemi.com/design/resources/technical-documentation](http://www.onsemi.com/design/resources/technical-documentation)  
onsemi Website: [www.onsemi.com](http://www.onsemi.com)

ONLINE SUPPORT: [www.onsemi.com/support](http://www.onsemi.com/support)

For additional information, please contact your local Sales Representative at [www.onsemi.com/support/sales](http://www.onsemi.com/support/sales)