



MIC5295 Evaluation Board

Low Quiescent Current, 150mA LDO Regulator

General Description

The MIC5295 is a highly accurate 150mA low dropout regulator with wide input voltage range of 2.3V to 24V and ultra-low ground current of 18μA. This combination of high voltage and low ground current makes the MIC5295 ideal for portable electronic applications using 1-cell, 2-cell or 3-cell Li-Ion battery supplies.

Available in fixed and adjustable output voltage versions, the MIC5295 is offered in the TO-252-5 (D-Pak) package.

Requirements

The MIC5295 evaluation board requires an input power supply that is able to deliver at least 350mA at a voltage within the range of 2.3V to 24V. The output load can be either active or passive. MIC5295 is stable with either a ceramic or tantalum output capacitor of only 2.2μF for stability. The evaluation board includes an input capacitor of 10μF to compensate for long inductive test leads.

Precautions

The evaluation board does not have reverse polarity protection. Applying a negative voltage to the V_{IN} terminal may damage the device.

Getting Started

- 1. Connect an external supply to V_{IN} .** Apply the desired input voltage to the V_{IN} (J1) and ground terminal (J2) of the evaluation board, paying careful attention to polarity and supply voltage ($2.3V \leq V_{IN} \leq 24V$). An ammeter may be placed between the input supply and the V_{IN} terminal of the evaluation board. Ensure that the supply voltage is monitored at the V_{IN} terminal. The ammeter and power lead resistance can reduce the voltage supplied to the input.
- 2. Enable/Disable the MIC5295.** The MIC5295 comes with an active-high enable pin that allows the regulator to be disabled. To disable an output, simply jumper the EN terminal (J3) to the GND terminal (J2). The enable pin (J3) can be pulled as

high as V_{IN} (J1). Forcing the enable pin high enables the output voltage. Do not leave this pin floating as the output will be in indeterminate state.

- 3. Connect the loads to the V_{OUT} terminal (J4) and ground terminal (J5).** The load can be either a passive (resistor) or active (electronic load). Be sure to monitor the output voltage at the V_{OUT} (J4) terminal.
- 4. Adjust Pin.** The MIC5295YD can be adjusted from 1.24V to 20V by using two external resistors. R1 is connected between ADJ (J6) and V_{OUT} (J4). R1 should not exceed 300kΩ. Also R2 is connected from ADJ (J6) to GND (J5) with value of 100kΩ. The resistors set the output voltage based on the following equation:

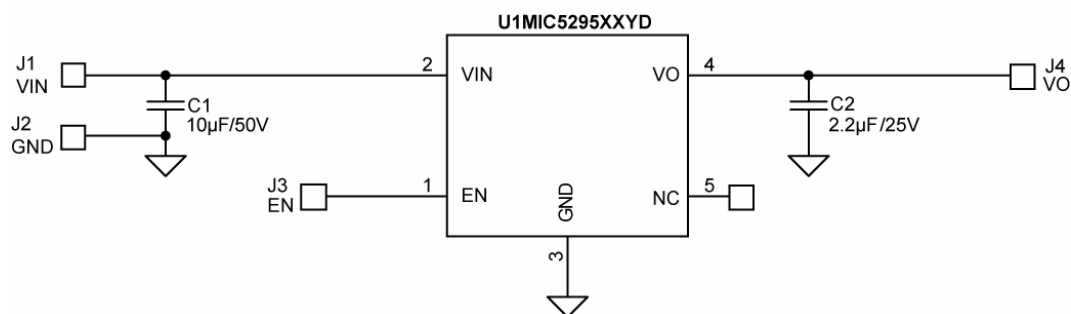
$$R1 = R2 \times \left(\frac{V_{OUT}}{1.24V} - 1 \right)$$

The reference voltage is set to 1.24V as shown in the equation. In this configuration V_{OUT} is set to approximately 5V.

Ordering Information

Part Number	Description
MIC5295-3.0YD EV	150mA LDO Evaluation Board
MIC5295-3.3YD EV	150mA LDO Evaluation Board
MIC5295-5.0YD EV	150mA LDO Evaluation Board
MIC5295YD EV	150mA Adjustable LDO Evaluation Board

Evaluation Board Schematic (Fixed Output)



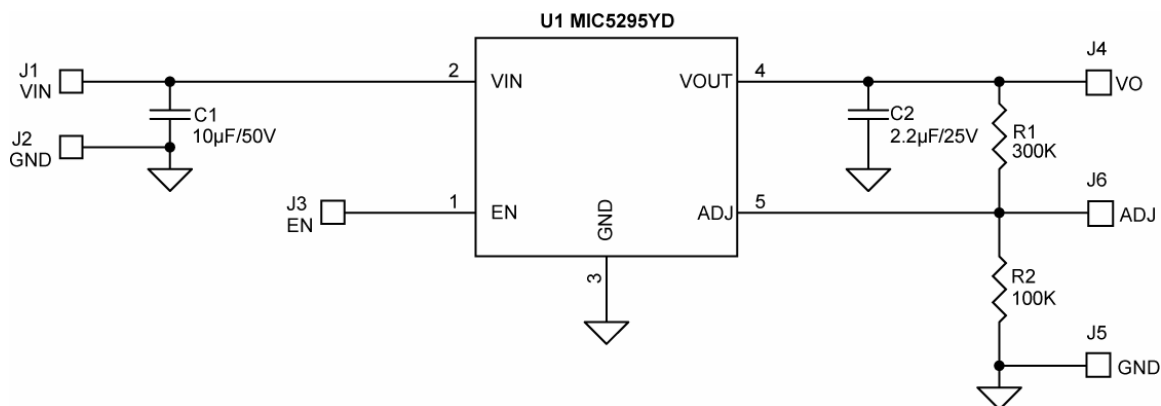
Bill of Materials

Item	Part Number	Manufacturer	Description	Qty.
C1	UMK325BJ106KM-T	Taiyo Yuden ⁽¹⁾	Capacitor, 10µF, 50V, X5R, Size 1210	1
C2	TMK212BJ225KG-T	Taiyo Yuden	Capacitor, 2.2µF, 25V, X5R, Size 0805	1
U1	MIC5295-XXYD	Micrel, Inc. ⁽²⁾	Low Quiescent Current, 150mA LDO Regulator	1

Notes:

1. Taiyo Yuden: www.t-yuden.com
2. Micrel, Inc.: www.micrel.com.

Evaluation Board Schematic (Adjustable Output)



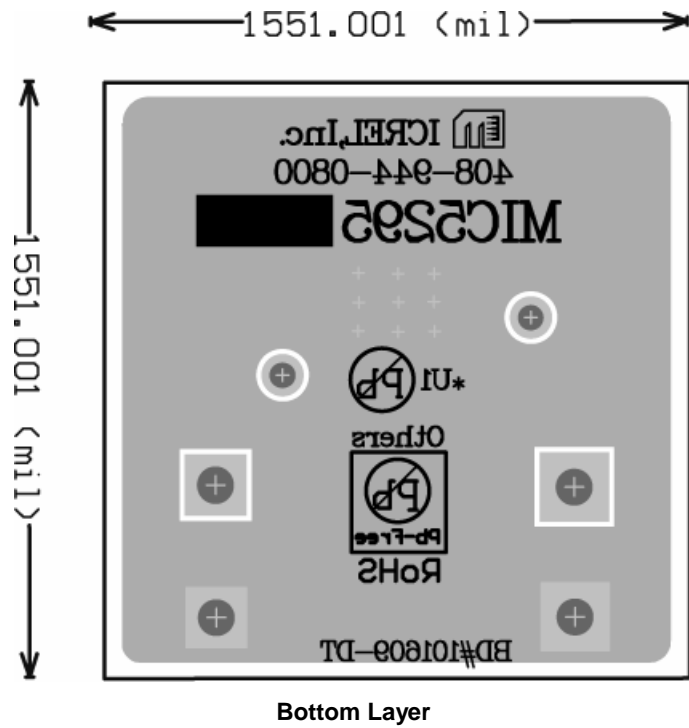
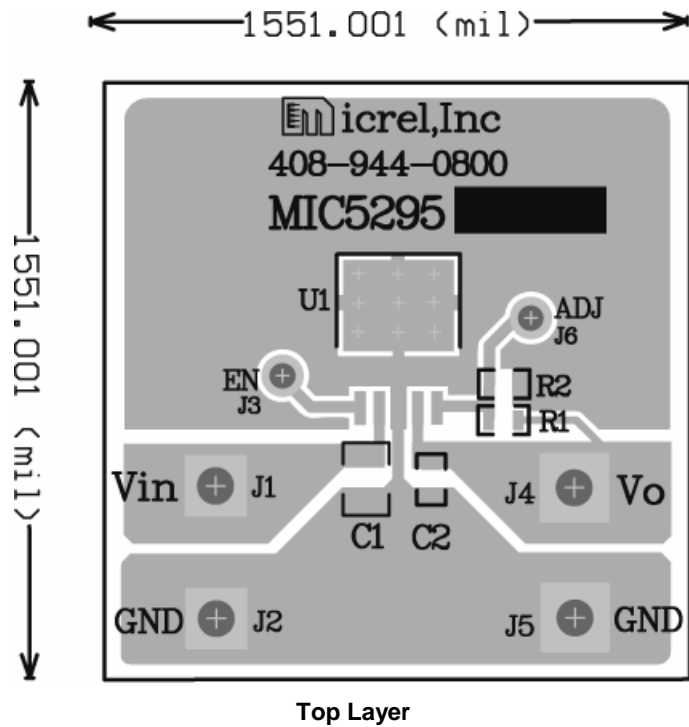
Bill of Materials

Item	Part Number	Manufacturer	Description	Qty.
C1	UMK325BJ106KM-T	Taiyo Yuden ⁽¹⁾	Capacitor, 10 μ F, 50V, X5R, Size 1210	1
C2	TMK212BJ225KG-T	Taiyo Yuden	Capacitor, 2.2 μ F, 25V, X5R, Size 0805	1
R1	CRCW06033003FKEYE3	Vishay Dale ⁽²⁾	Resistor, 300k, 1%. 1/16W, Size 0603	1
R2	CRCW06031003FKEYE2	Vishay Dale	Resistor, 100k, 1%. 1/16W, Size 0603	1
U1	MIC5295YD	Micrel, Inc. ⁽³⁾	Low Quiescent Current, 150mA Adjustable LDO Regulator	1

Notes:

1. Murata: www.t-yuden.com
2. Vishay: www.vishay.com.
3. Micrel, Inc.: www.micrel.com.

Evaluation Board Layout



MICREL, INC. 2180 FORTUNE DRIVE SAN JOSE, CA 95131 USATEL +1 (408) 944-0800 FAX +1 (408) 474-1000 WEB <http://www.micrel.com>

The information furnished by Micrel in this data sheet is believed to be accurate and reliable. However, no responsibility is assumed by Micrel for its use. Micrel reserves the right to change circuitry and specifications at any time without notification to the customer.

Micrel Products are not designed or authorized for use as components in life support appliances, devices or systems where malfunction of a product can reasonably be expected to result in personal injury. Life support devices or systems are devices or systems that (a) are intended for surgical implant into the body or (b) support or sustain life, and whose failure to perform can be reasonably expected to result in a significant injury to the user. A Purchaser's use or sale of Micrel Products for use in life support appliances, devices or systems is a Purchaser's own risk and Purchaser agrees to fully indemnify Micrel for any damages resulting from such use or sale.

© 2010 Micrel, Incorporated.