



MIC5313 Evaluation Board

Low Voltage Dual 300mA LDO

General Description

The MIC5313 is a dual low input voltage, low dropout regulator. The MIC5313 provides two high-performance 300mA LDOs in a 2mm x 2mm Thin MLF[®] package.

Requirements

The MIC5313 evaluation board requires two power supplies. The first supply must be able to provide a minimum of 600mA with a voltage range of 1.7V to 5.5V to the V_{IN1} and V_{IN2} terminals. The second supply is required to provide the V_{BIAS} current. Although typical V_{BIAS} current is 40 μ A, in dropout conditions V_{BIAS} currents can reach as high as a few mA. The V_{BIAS} supply should be able to provide a voltage in the range of 2.5V to 5.5V. Alternatively, a single power supply may be used to power both V_{IN} and V_{BIAS} . The output load can be either an active or passive load.

Circuit Description

The MIC5313 dual linear regulator is easy to use. A minimum output capacitance of 1 μ F for each of the outputs is required.

The MIC5313 is a high-performance, high bandwidth device. Therefore, it requires a well-bypassed input supply for optimal performance. A 1 μ F capacitor is required from the input to ground to provide stability. The evaluation board includes the footprint for two 10 μ F ceramic capacitors (C1 and C6) connected to the V_{IN1} and V_{IN2} pins. Although this is much larger than required for the device, this was designed to allow for the long inductive test leads that will be attached to the evaluation board.

Precautions

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

Getting Started

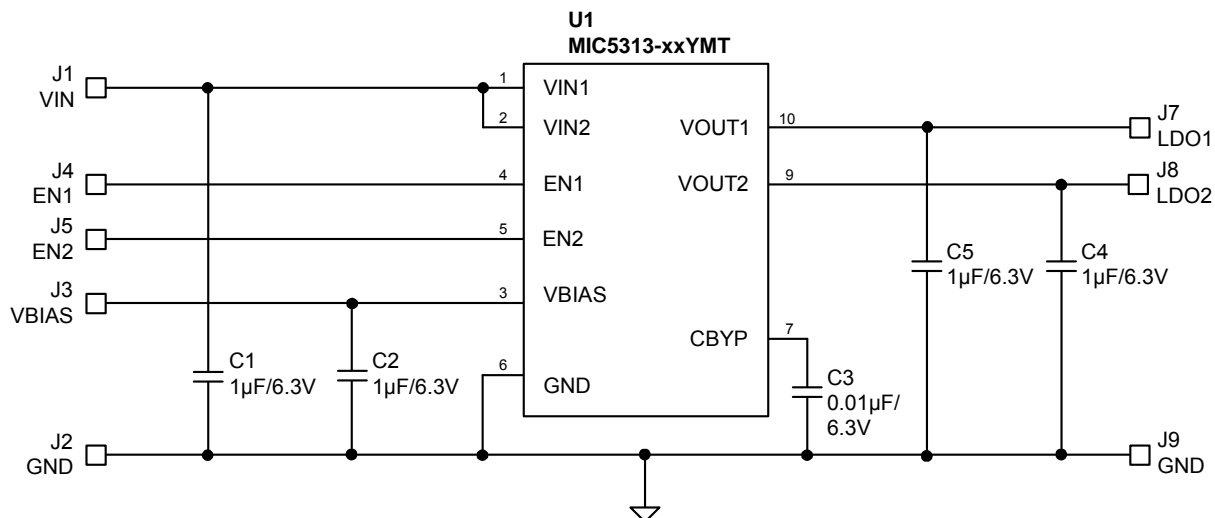
1. **Connect an external supply to V_{BIAS} .** Apply desired input voltage to the V_{BIAS} (J3) and ground (J2) terminals of the evaluation board, paying careful attention to polarity and supply voltage ($2.5V \leq V_{BIAS} \leq 5.5V$).
2. **Connect an external supply to V_{IN} .** Apply desired input voltage to the V_{IN} (J1) and ground (J2) terminals of the evaluation board, paying careful attention to polarity and supply voltage ($1.7V \leq V_{IN} \leq V_{BIAS}$). An ammeter may be placed between the input supply and the V_{IN} terminal to the evaluation board. Ensure that the supply voltage is monitored at the V_{IN} terminal. The ammeter and/or power lead resistance can reduce the voltage supplied to the input.
3. **Enable/Disable the MIC5313.** The evaluation board is provided with 100k pull up resistors on both of the enable pins (EN1 and EN2) to V_{IN} . To disable an output, simply jumper the EN terminal (J4 for LDO1, J5 for LDO2) to the GND terminal (J2). The enable pins must be either pulled high or low. Removing the pull up resistors and leaving the pins floating will cause the regulators to operate in an indeterminate state.
4. **Connect the loads to the V_{OUT} terminals (J7 for LDO1, J8 for LDO2) and ground terminal (J9).** The load can be either a passive (resistor) or active (electronic load). Be sure to monitor the output voltage at the V_{OUT} (J7 and J8) terminals.

Ordering Information

Part Number ⁽¹⁾	Description
MIC5313-G4YMT EV	Evaluation board with the 300mA Dual LDO ($V_{OUT1}=1.8V$, $V_{OUT2}=1.2V$).

1. For other output voltage options contact Micrel Marketing.

Evaluation Board Schematic



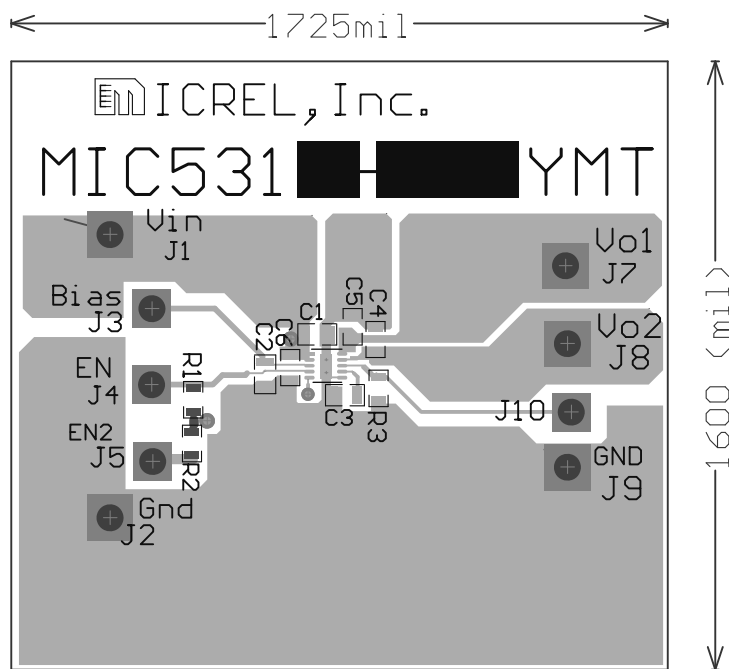
Bill of Materials

Item	Part Number	Manufacturer	Description	Qty
C1, C2, C4, C5	C1608X5R1A105K	TDK ⁽¹⁾	Capacitor, 1µF Ceramic, 10V, X5R, Size 0603	4
C3	VJ0603Y103KXAAT	Vishay ⁽²⁾	Capacitor, 0.01µF, 50V, X7R, Size 0603	1
C6	C1608X5R0J106M	TDK ⁽¹⁾	Open	1
U1	MIC5313-xxYMT	Micrel⁽³⁾	Low Voltage Dual 300mA LDO	1

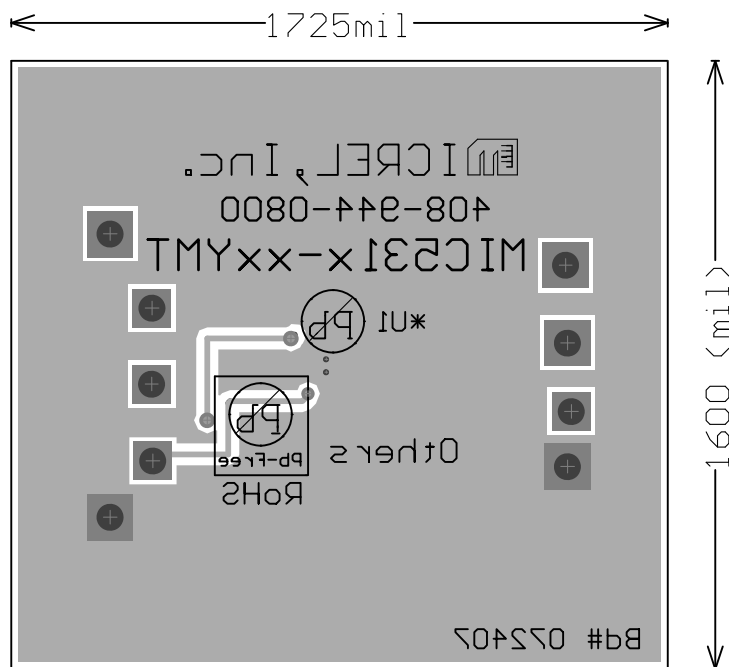
Notes:

1. TDK: www.tdk.com
2. Vishay: www.vishay.com
3. Micrel, Inc.: www.micrel.com

PCB Layout Recommendations



Top Layer



Bottom Layer

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