MIC5320/1 Evaluation Board

High Performance Dual 150mA µCap ULDO™

General Description

The MIC5320 and MIC5321 are tiny dual output, ultra low dropout linear regulators. The MIC5320 regulator provides two independent enable pins, to disable each output separately. The MIC5321 regulator provides a single enable pin for both outputs as well as a bypass pin to reduce the output voltage noise. The MIC5320/1 provides two high performance 150mA LDOs in a tiny 6 pin 1.6mm x 1.6mm Thin MLF® package.

The MIC5320/1 dual Ultra Low Dropout (ULDO™) linear regulator is easy to use. A small output capacitance of only 1µF for each of the outputs is required. A bypass capacitor of 0.01µF is included on the evaluation board for the MIC5321 to reduce the output voltage noise and improve the Power Supply Rejection Ratio (PSRR).

An input capacitor may be required when the power supply is more than 4-inches away from the device. The evaluation board includes an input capacitor of 10µF to compensate for long inductive test leads.

Requirements

The MIC5320/1 evaluation board requires an input power source that is able to deliver at least 300mA at a voltage within the range of 2.3V to 5.5V. The output load can be either active or passive.

Precautions

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

The evaluation board is tailored for a Li-Ion range input supply voltage. It should not exceed 5.5V on the input.

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 ($2.3V \le V_{IN} \le 5.5V$). An ammeter may be placed between the input supply and the V_{IN} terminal to the evaluation board to accurately monitor the input current. The ammeter and/or power lead resistance can reduce the voltage supplied to the input so monitor the supply voltage at the V_{IN} terminal.

2. **Enable/Disable the MIC5320**. The evaluation board is set up for "Default Enable" on both outputs with a 10k pull up resistor on each of the enable pins (EN1 and EN2) to V_{IN}. To disable an output, simply jumper the EN terminal (J7 for LDO1, J3 for LDO2) to the GND terminal (J2 or J5). The enable pins must be either pulled high or low for proper operation. Removing the pull up resistors and leaving the pins floating will cause the regulators to operate in an indeterminate state. The MIC5321 has a single enable pin (J7) to control both outputs of the regulator.

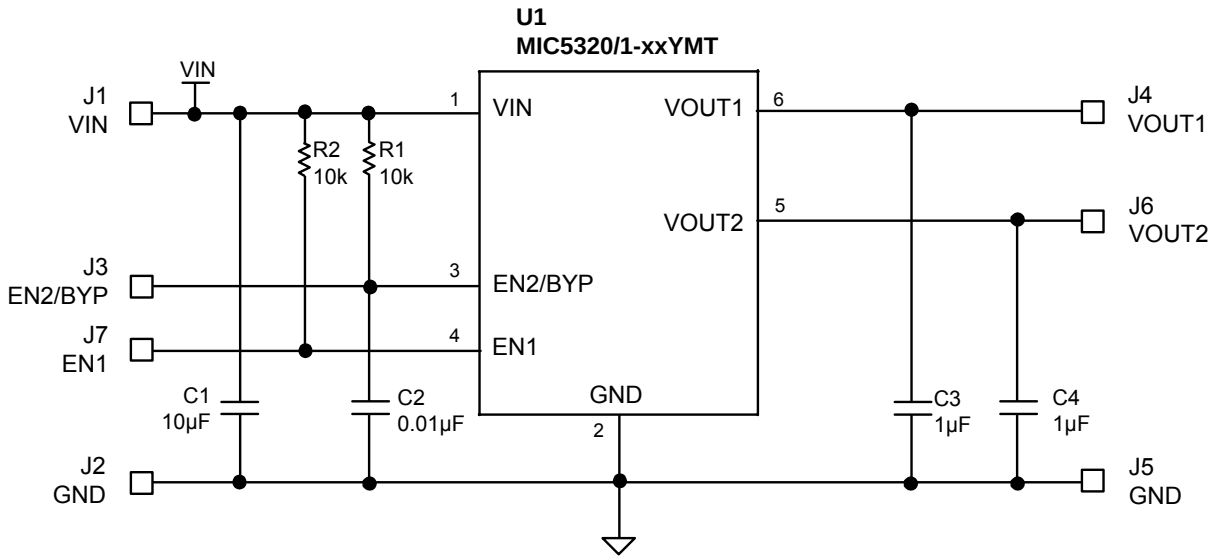
3. **Connect the loads to the V_{OUT} terminals (J4 for LDO1, J6 for LDO2) and ground terminal (J5).** The load can be either a passive (resistor) or active (electronic load). Be sure to monitor the output voltage at the V_{OUT} (J4 and J6) terminals.

Ordering Information

Part Number	Description
MIC5320-XXYMT EV	Evaluation board with the 150mA Dual ULDO™ device
MIC5321-XXYMT EV	Evaluation board with the 150mA Dual ULDO™ device with bypass

Micrel Inc. • 2180 Fortune Drive • San Jose, CA 95131 • USA • tel +1 (408) 944-0800 • fax + 1 (408) 474-1000 • http://www.micrel.com

Evaluation Board Schematic



Bill of Materials MIC5320-XXYMT

Item	Part Number	Manufacturer	Description	Qty
C1	C1608X5R0J106M	TDK[1]	Capacitor, 10µF Ceramic, 6.3V, X5R, Size 0603	1
C2	OPEN		Do not populate	
C3, C4	C1608X5R0J105M	TDK[1]	Capacitor, 1µF Ceramic, 6.3V, X5R, Size 0603	2
R1, R2	CRCW06031002FKEYE3	Vishay[2]	Resistor, 10kΩ, 1%, 1/16W, Size 0603	2
U1	**MIC5320-XXYMT**	**Micrel[3]**	**UCAP LDO, Dual 150mA, Size 1.6mm x 1.6mm Thin MLF®**	**1**

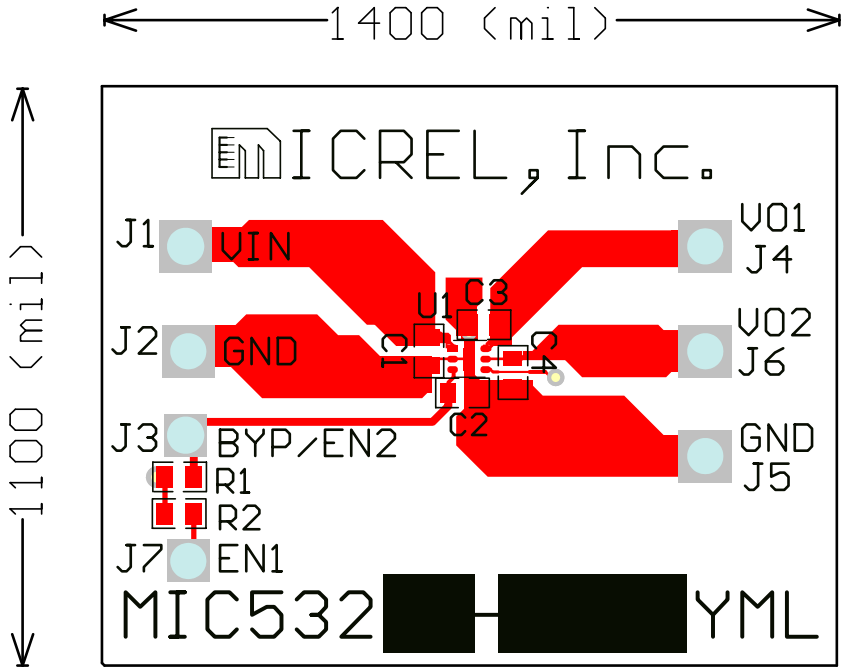
Bill of Materials MIC5321-XXYMT

Item	Part Number	Manufacturer	Description	Qty
C1	C1608X5R0J106M	TDK[1]	Capacitor, 10µF Ceramic, 6.3V, X5R, Size 0603	1
C2	VJ0603Y103KXQ	Vishay[2]	Capacitor, 0.01µF Ceramic, 10V, X7R, Size 0603	1
C3, C4	C1608X5R0J105M	TDK[1]	Capacitor, 1µF Ceramic, 6.3V, X5R, Size 0603	2
R1	OPEN		Do not populate	
R2	CRCW06031002FKEYE3	Vishay[2]	Resistor, 10kΩ, 1%, 1/16W, Size 0603	1
U1	**MIC5321-XXYMT**	**Micrel[3]**	**UCAP LDO, Dual 150mA, Size 1.6mm x 1.6mm Thin MLF®**	**1**

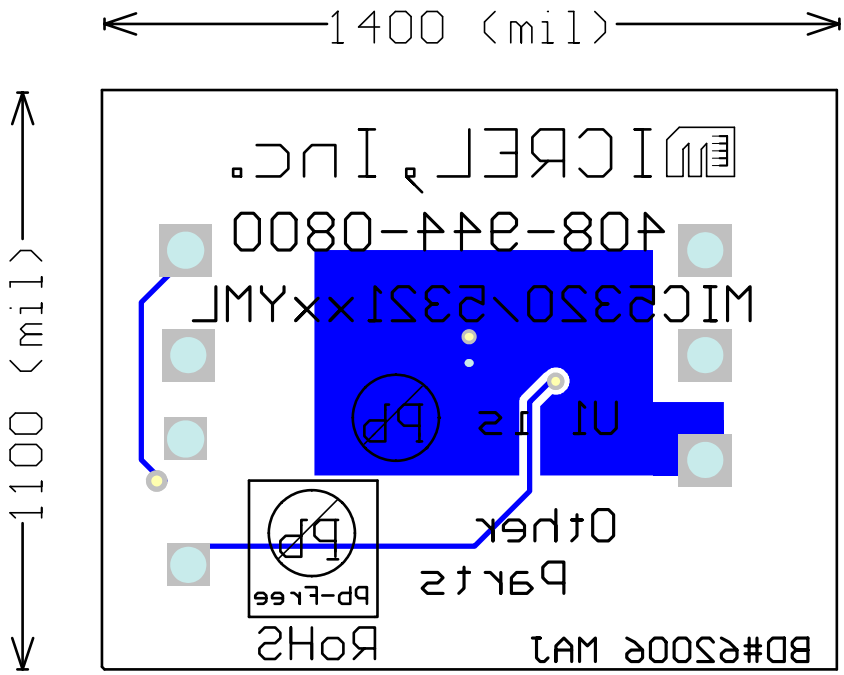
Notes:

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

PCB Layout Recommendations



Top Layer



Bottom Layer

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