

General Description

The demonstration board can be used to evaluate both the MIC5301 and MIC5318 low dropout linear regulators. The MIC5301 and MIC5318 are offered in fixed and adjustable outputs. Fixed output versions add bypass pin functionality, allowing reduced output noise. The adjustable version allows for the use of a resistor divider network to adjust for the desired output voltage. The evaluation board accommodates the fixed version.

Requirements

The MIC5301/18 requires a power supply that is able to deliver 300mA with an input voltage range of 2.3V to 6V. The output load can be either an active or passive load.

Circuit Description

The MIC5301/18 single Ultra Low Dropout (ULDO™) linear regulator is easy to use. A minimum output capacitance of 1 μ F is required.

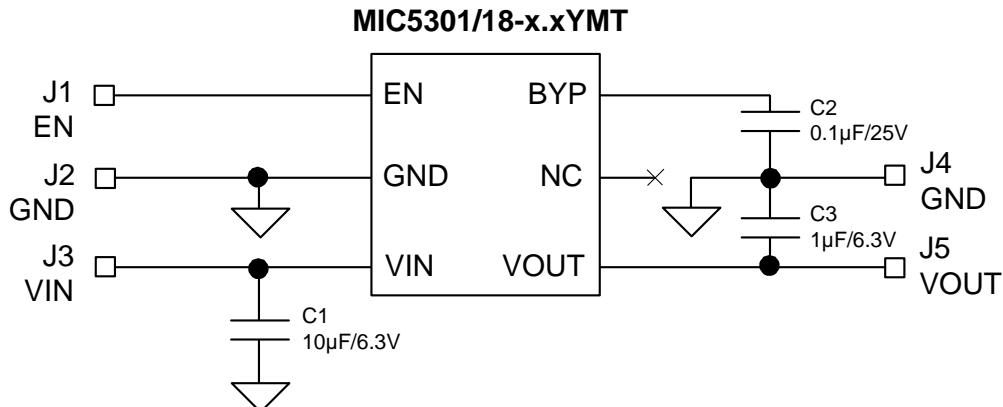
An input capacitor is required when the power supply is more than 4" away from the device. All evaluation boards include an input capacitor within 1" of the device. This is the minimum recommended distance from the device that the capacitor should be placed.

The evaluation board has a 10 μ F ceramic on the V_{IN} pin. 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.

Data sheets and support documentation can be found on Micrel's web site at: www.micrel.com.

Getting Started

1. **Connect an external supply to V_{IN} terminal.** Apply V_{IN} (J3) and ground (J2 and J4) terminals of the evaluation board, paying careful attention to polarity and supply voltage (2.3V to 6V). Be sure to monitor the supply voltage at the V_{IN} terminal.
2. **Enable the MIC5301/18.** Force the enable pin (J1) high to enable the output. Do not leave the enable pin floating. A floating enable pin may cause an indeterminate state on the output.
3. **Connect the load to V_{OUT} terminal (J5) and ground terminals (J4 or J2).** The load can be either passive (resistor) or active (electronic load). Be sure to monitor the output voltage at the V_{OUT} terminal.



MIC5301/18YMT Schematic

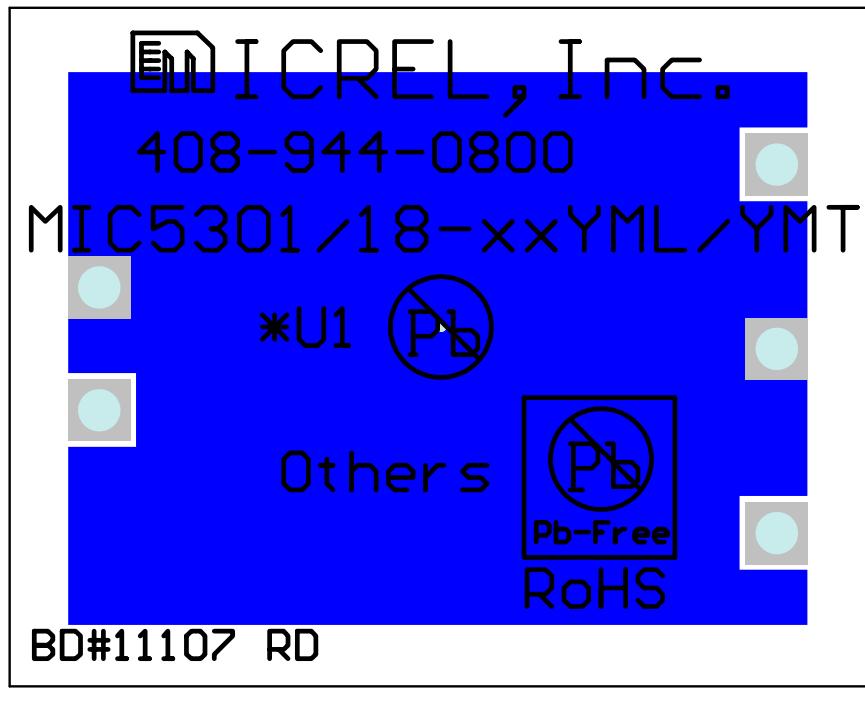
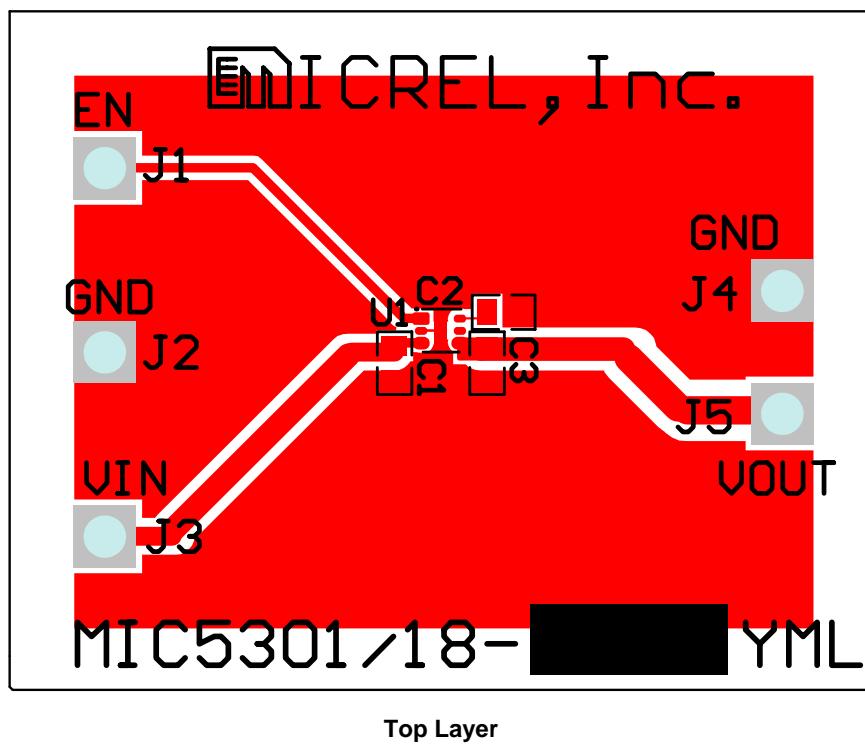
Bill of Materials

Item	Part Number	Manufacturer	Description	Qty.	
C1	C1608X5R0J106M	TDK ⁽¹⁾	10µF, ceramic capacitor, 0603, 6.3V	1	
	GRM188R60J106K	muRata ⁽²⁾			
	VJ0805G106KXYCW1BC	Vishay ⁽³⁾			
	JMK107BJ106MA	Taiyo Yuden ⁽⁴⁾			
	06036D106MAT2A	AVX ⁽⁵⁾			
C2	C1608X5R1E104M	TDK ⁽¹⁾	0.1µF, ceramic capacitor, 0603, 6.3V	1	
	GRM188R61E104KA01D	muRata ⁽²⁾	0.1µF, ceramic capacitor, 0603, 25V		
	VJ0603Y104KXX	Vishay ⁽³⁾			
C3	C1608X5R0J105M	TDK ⁽¹⁾	1µF, ceramic capacitor, 0603, 6.3V	1	
	GRM188R60J105KE19D	muRata ⁽²⁾			
	VJ0603G105KXYCW1BC	Vishay ⁽³⁾			
U1	MIC5301YMT or MIC5318YMT	Micrel, Inc.⁽⁶⁾	ULDO with Single Output	1	

Notes:

1. TDK: www.tdk.com
2. muRata: www.murata.com
3. Vishay: www.vishay.com
4. Taiyo Yuden: www.t-yuden.com
5. AVX: www.avxcorp.com
6. **Micrel, Inc.**: www.micrel.com

PCB Layout



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>

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.

© 2007 Micrel, Incorporated.