MIC5387 Evaluation Board

Ultra-Small Triple 150mA Output LDO

General Description

The MIC5387 is an advanced, general purpose triple-output, linear regulator offering high power supply rejection (PSRR) in an ultra-small 6 pin 1.6mm x 1.6mm Thin MLF® package. The MIC5387 is capable of 150mA from each output and offers high PSRR, making it an ideal solution for any portable electronic application.

Ideal for battery powered applications, the MIC5387 offers 2% initial accuracy, low dropout voltage (180mV @ 150mA), and low ground current (typically 32µA per output).

The MIC5387 is available in a lead-free (RoHS compliant) 1.6mm x 1.6mm 6 pin Thin MLF® occupying only 2.56mm^2 of PCB area, a 36% reduction in board area compared to a 2mm x 2mm Thin MLF® package.

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

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

Requirements

The MIC5387 evaluation board requires an input power supply that is capable of delivering a minimum 600mA at a voltage range of 2.5V to 5.5V. The output load can be either active or passive.

Precautions

The MIC5387 evaluation board does not have reverse polarity protection. Applying a negative voltage to the V_{IN} terminal may damage the device.

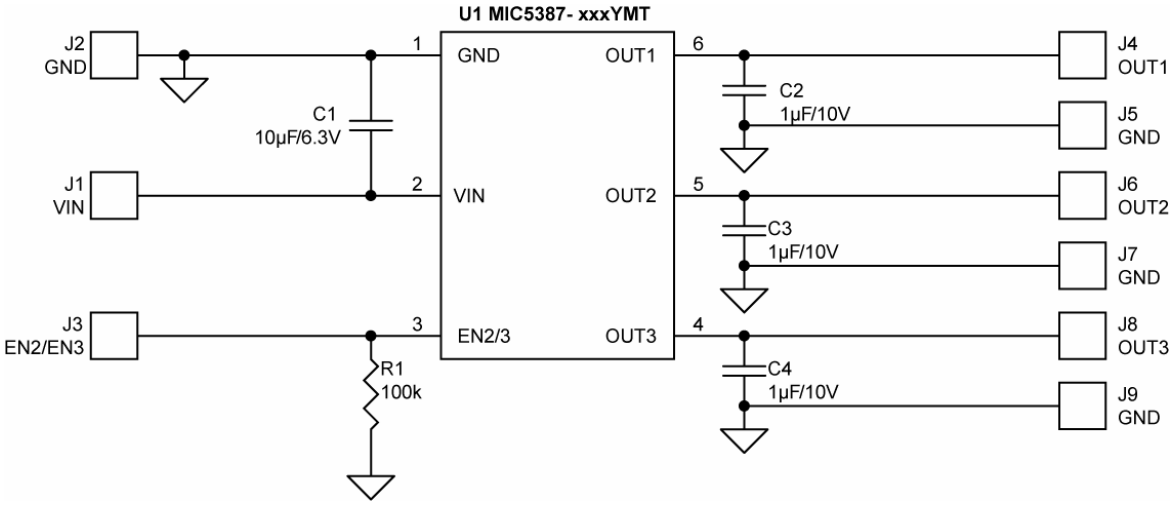
Getting Started

- **Connect an External Supply to V_{IN}**. Apply the desired input voltage to the V_{IN} (J1) and ground (J2) terminal of the evaluation board, paying careful attention to polarity and supply voltage (2.5V ≤ V_{IN} ≤ 5.5V). An ammeter can 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/or power-lead resistance can reduce the voltage supplied to the input.
- **Enable/Disable the MIC5387**. To enable the MIC5387 jumper the enable terminal (J3 for LDO2 and LDO3) to V_{IN}. LDO1 does not have an enable pin and is always enabled when V_{IN} is above the UVLO threshold. To disable outputs 2 and 3, simply remove the jumper from the EN2/3 terminal. The enable pin must be either pulled high or low. Leaving the pin floating will cause the regulator to operate in an indeterminate state. The evaluation board is supplied with 100KΩ pull-down resistor on the EN2/3 pin for default off state of LDO2 and LDO3.
- **Connect the Load.** Connect the loads to the V_{OUT} Terminals (J4 for LDO1, J6 for LDO2 and J8 for LDO3) and Ground Terminals (J5, J7, or J9). The loads can be either passive (resistor) or active (electronic load). Be sure to monitor the output voltage at the V_{OUT} (J5, J7 and J9) terminals.

Ordering Information

Part Number	Description
MIC5387-SGFYMT EV	Triple-Output LDO Evaluation Board. V_{OUT1} = 3.3V, V_{OUT2} = 1.8V, V_{OUT3} = 1.5V.
MIC5387-SG4YMT EV	Triple-Output LDO Evaluation Board. V_{OUT1} = 3.3V, V_{OUT2} = 1.8V, V_{OUT3} = 1.2V.
MIC5387-GMGYMT EV	Triple-Output LDO Evaluation Board. V_{OUT1} = 1.8V, V_{OUT2} = 2.8V, V_{OUT3} = 1.8V.
MIC5387-GMMYMT EV	Triple-Output LDO Evaluation Board. V_{OUT1} = 1.8V, V_{OUT2} = 2.8V, V_{OUT3} = 2.8V.

Evaluation Board Schematic



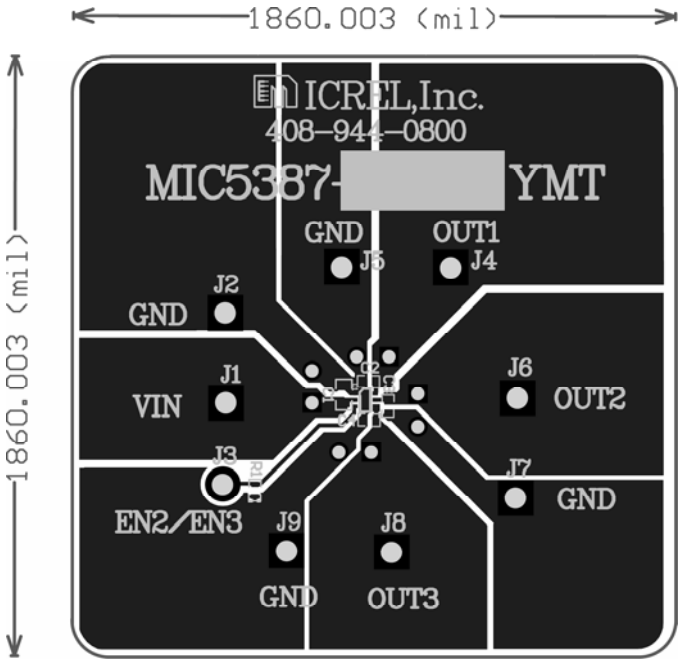
Bill of Materials

Item	Part Number	Manufacturer	Description	Qty.
C1	C1608X5R0J106K	TDK[1]	10µF, Ceramic, 6.3V, X5R, Size 0603 Capacitor	1
C2, C3, C4	GRM155R1A1055KE19D	Murata[2]	1µF, Ceramic, 10V, X5R, Size 0402 Capacitor	3
	0402ZD105KAT2A	AVX[3]	1µF, Ceramic, 10V, X5R, Size 0402 Capacitor	
	LMK105BJ105KV-F	Taiyo Yuden[4]	1µF, Ceramic, 10V, X5R, Size 0402 Capacitor	
R1, R2, R3	CRCW0402100KFKEA	Vishay[5]	100KΩ, 1%, 1/16W, Size 0402 Resistor	3
U1	**MIC5387-xxxYMT**	**Micrel, Inc.[6]**	**High-Performance, Triple-Output, 150mA LDO**	**1**

Notes:

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

PCB Layout Recommendations



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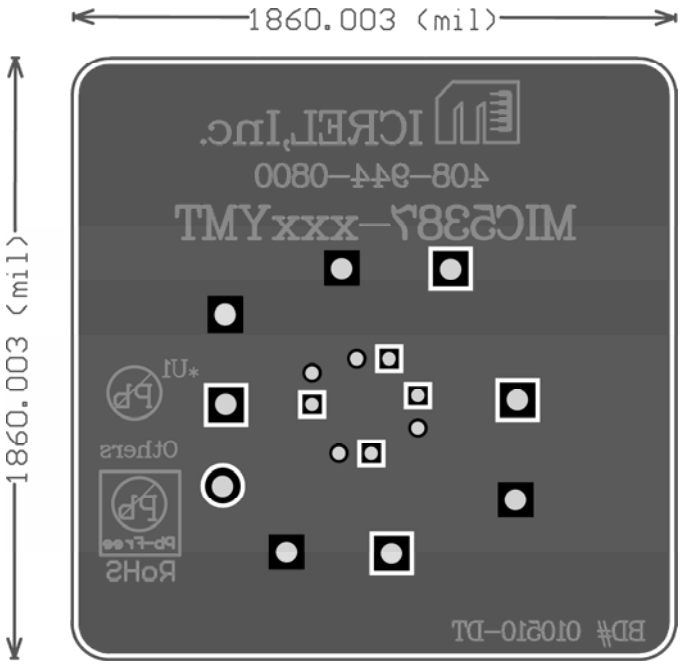

Bottom Layer

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