



MIC2225

2MHz PWM Synchronous Buck Regulator with 300mA LDO

General Description

The Micrel MIC2225 is a dual output regulator featuring a high efficiency 2MHz PWM synchronous buck (step-down) regulator and a 300mA LDO. The MIC2225 allows an ultra-low noise, small size, and high efficiency solution.

Note: This evaluation board is for fixed output applications. Refer data sheet for available outputs and corresponding part number.

In PWM mode, the MIC2225 operates with a constant frequency 2MHz PWM control. The MIC2225 operates from 2.7V to 5.5V input and features internal power MOSFETs that can supply up to 600mA output current in PWM mode.

Requirements

The MIC2225 evaluation board requires an input power source that is able to deliver greater than 1A at 2.7V.

Precautions

The evaluation board does not have reverse polarity protection. Applying a negative voltage to the V_{IN} (J1) terminal may damage the device.

The MIC2225 evaluation board is tailored for a 2.7V to 5.5V input voltage range. The input voltage range should not exceed 5.5V on the input.

Getting Started

Connect an external supply to the 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 ($2.7V \leq V_{IN} \leq 5.5V$). 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.

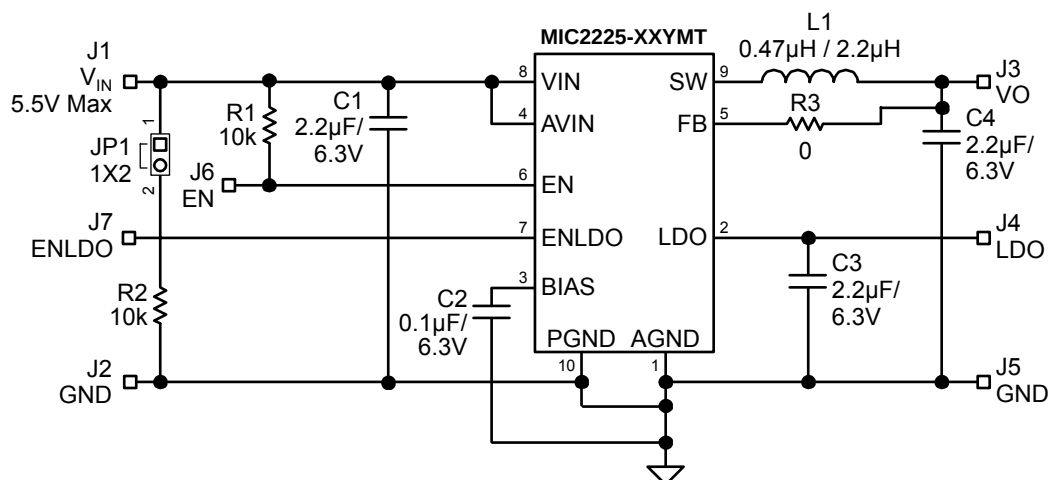
1. **Enabling the MIC2225.** The MIC2225 has two enable pins. EN for buck (step-down) regulator and ENLDO for LDO.

EN: A logic high will turn on the switching regulator and a logic low will shut down the switching regulator reducing the quiescent current to less than 5 μ A.

ENLDO: A logic high will turn on the switching regulator and a logic low will shut down the switching regulator reducing the quiescent current to less than 5 μ A.

Ordering Information

Part Number	Description
MIC2225-XXYMT EV	Evaluation board with the MIC2225-XXYMT device



Schematic Diagram

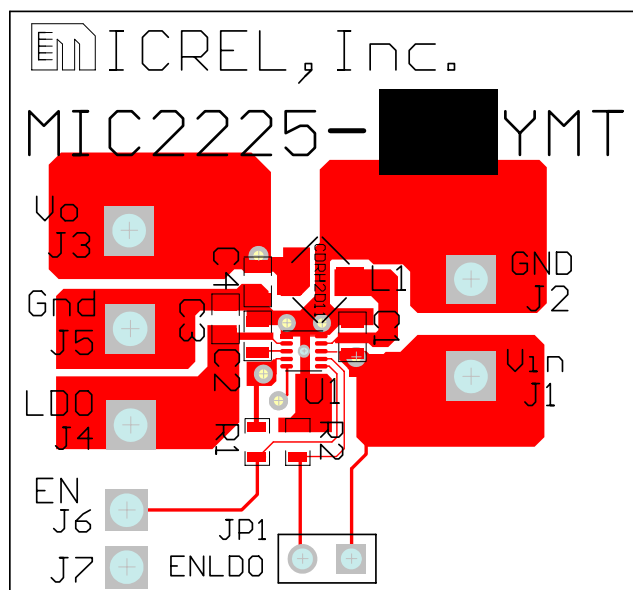
Bill of Materials

Item	Part Number	Manufacturer	Description	Qty.
C1	C1608X5R0J225K	TDK ⁽¹⁾	2.2µF/6.3V, X5R	1
C2	VJ0402Y104KXQCW1BC	Vishay Vitramon ⁽²⁾	0.1µF/6.3V, X7R	1
C3	C1608X5R0J225K	TDK ⁽¹⁾	2.2µF/6.3V, X5R	1
C4	C1608X5R0J225K	TDK ⁽¹⁾	2.2µF/6.3V, X5R	1
R1	CRCW06031002FKEYE3	Vishay Dale ⁽²⁾	10k, 0603, 1/16W, 1%	1
R2	CRCW06031002FKEYE3	Vishay Dale ⁽²⁾	10k, 0603, 1/16W, 1%	1
R3	CRCW08050000FKEYE3	Vishay Dale ⁽²⁾	0, 0805, 1/8W, 1%	1
L1	CDRH2D11/HPNP-2R2NC	Sumida ⁽³⁾	2.2µH, 1.1A (Isat)	1
U1	MIC2225-XXYMT	Micrel, Inc. ⁽⁴⁾	2Mhz PWM Synchronous Buck Regulator with 300mA LDO	1

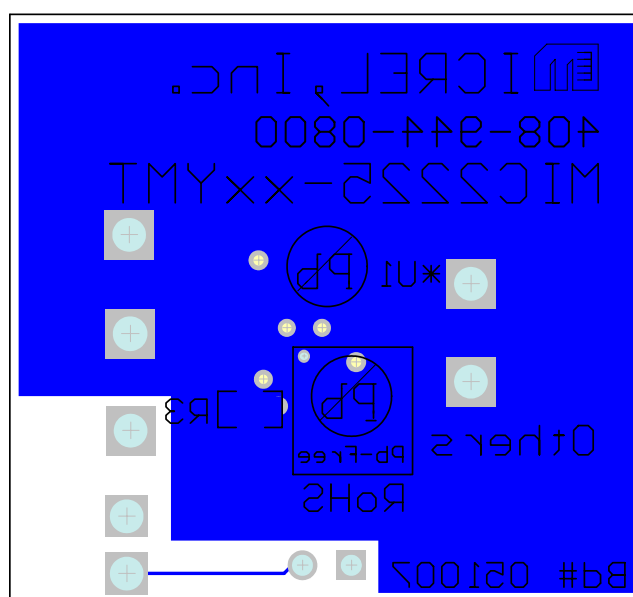
Notes:

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

PCB Layout Recommendations



Top Layer



Bottom Layer

Note:

The above figures demonstrate the recommended layout for the MIC2225 fixed output option.

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