

AN-2167 LMZ10501 SIMPLE SWITCHER® Nano Module Demo Board

1 Introduction

The LMZ10501 and LMZ10500 SIMPLE SWITCHER nano modules are easy-to-use DC-DC solutions optimized for space-constrained applications. The LMZ10501 is capable of driving up to 1A load with excellent power conversion efficiency, output voltage accuracy, line and load regulation. The LMZ10500 is a 650mA version module, pin-to-pin compatible with the LMZ10501.

The LMZ10501 Demo Board is configured for 1.8V output voltage from 2.7V to 5.5V input. The resistor voltage divider R_T and R_B set the output voltage. The external capacitor C_{VC} bypasses the V_{CON} pin. The bottom of the board has a 3 - pin header for V_{IN} , GND, and V_{OUT} connections. For component selection and device details, see the device-specific data sheet.

2 Board Specifications

- $V_{IN} = 2.7V$ to $5.5V$
- $V_{OUT} = 1.8V$
- 1A max load (LMZ10501)
- 650mA max load (LMZ10500)
- 2MHz switching frequency
- 2 layer PCB with 1oz copper
- 11 x 13 mm PCB size
- 5 x 7 mm solution size

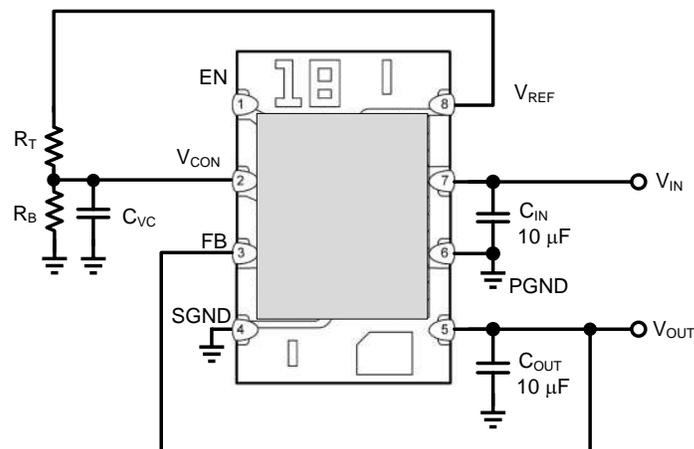


Figure 1. Schematic

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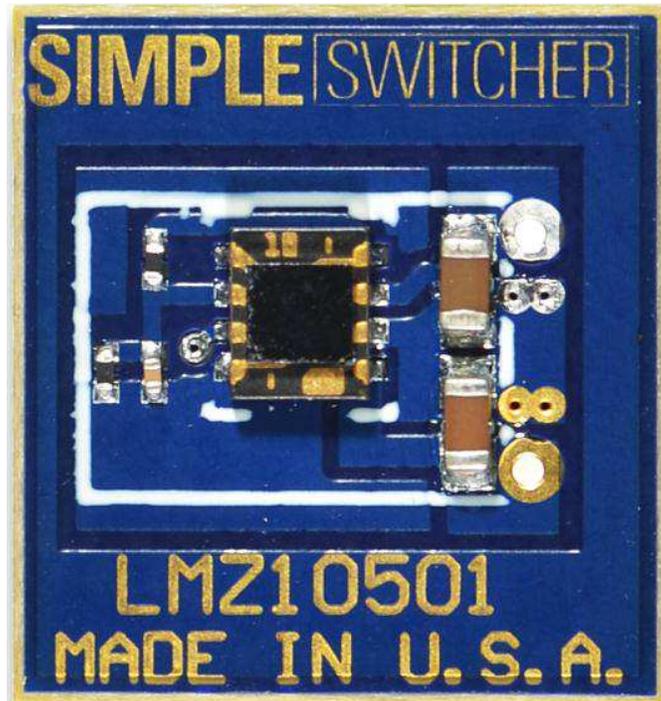


Figure 2. Board Top View

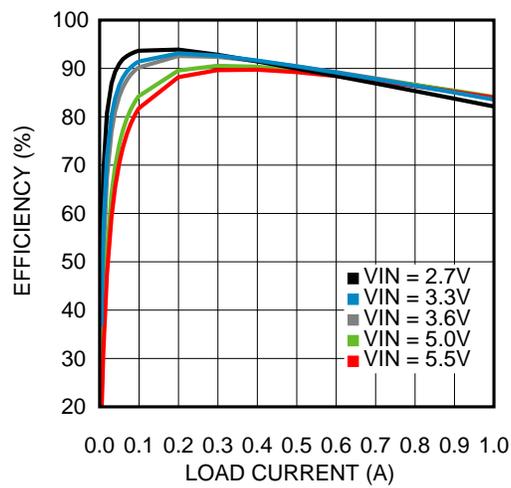


Figure 3. Efficiency $V_{OUT} = 1.8V$

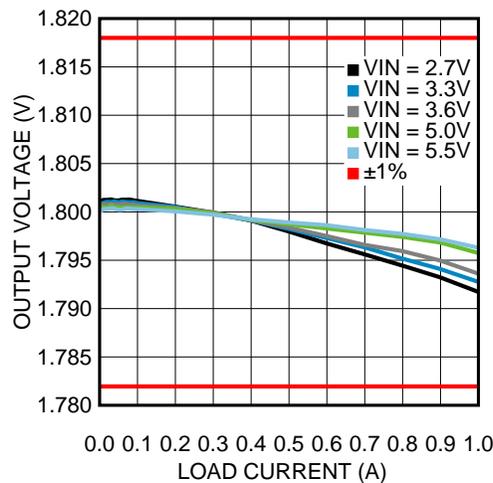


Figure 4. Line and Load Regulation

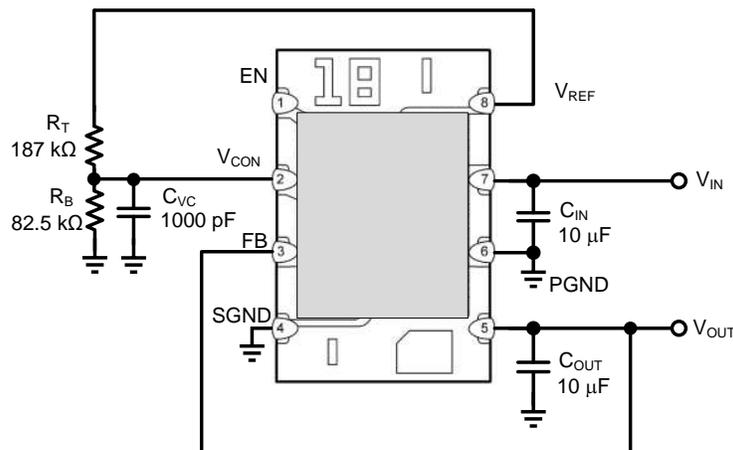


Figure 5. Demo Board Schematic

Table 1. LMZ10501 Demo Board Bill of Materials (BOM), VIN = 2.7V to 5.5V, VOUT = 1.8V, IOUT (MAX) = 1000mA

Quantity	Designator	Description	Case Size	Manufacturer	Manufacturer P/N
1	U1	SIMPLE SWITCHER Nano Module	SE08A	Texas Instruments	LMZ10501SE
2	CIN, COUT	10 μF, X5R, 10V	0603	TDK	C1608X5R1A106M
1	CVC	1000 pF	0201	TDK	C0603X7R1C102K
1	RB	82.5 kΩ	0201	Panasonic	ERJ-1GEF8252C
1	RT	187 kΩ	0201	Panasonic	ERJ-1GEF1873C
1	J1	3-Pin male header	2.54mm (0.1") pitch	Samtec, Inc	TSM-103-01-L-SV

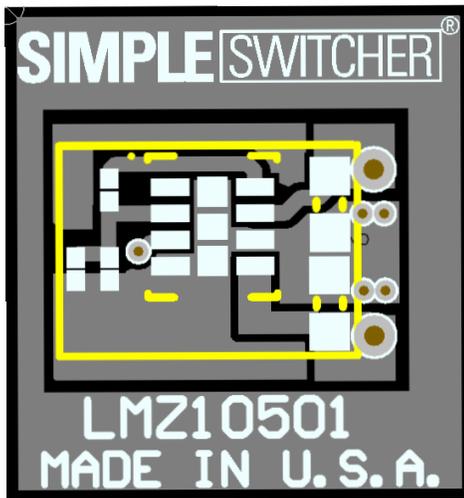


Figure 6. Demo Board Top Layer

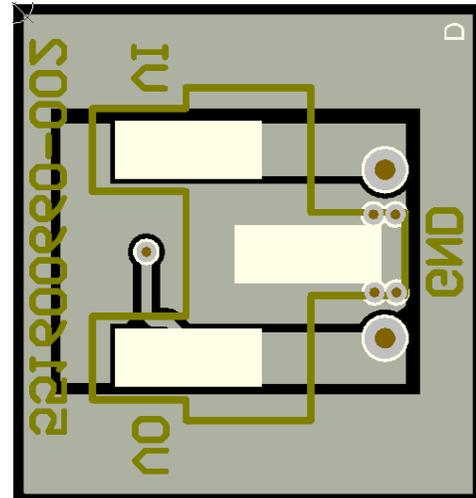


Figure 7. Demo Board Bottom Layer
Terminal Markings: VI = V_{IN} , VO = V_{OUT}

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