

Contents

1. Description
2. Schematic
3. EVM Board and Efficiency
4. PCB Layout
5. Bill of Materials

Application Note

AP1501(A) Application Information and Demo Board User Guide

1. Description

The AP1501/A are a fully integrated step-down DC/DC converter, with the ability to drive 3A/5A load without the need of additional driver components. The AP1501/A operates at a switching frequency of 150KHZ enabling the use of small size filter components. As a result, board space is reduced and BOM costs are lowered.

2. EVM Schematic

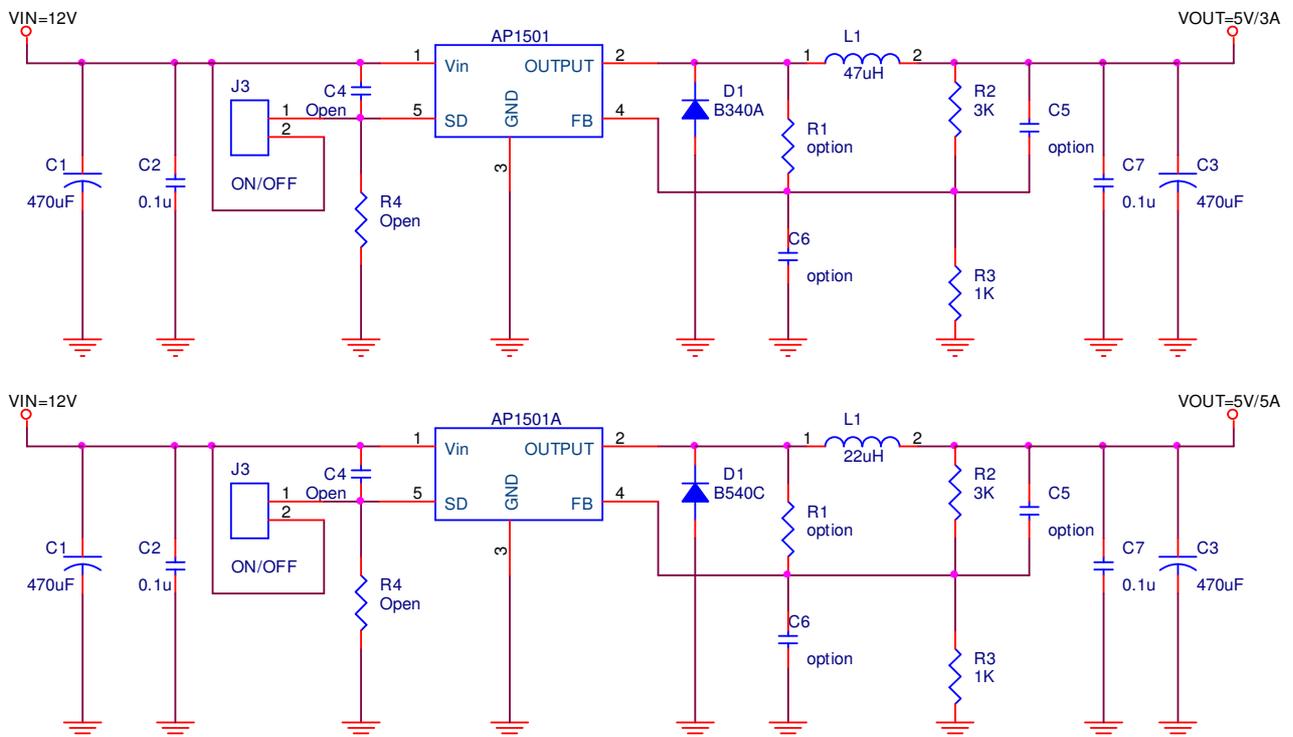


Figure 1. AP1501(A) schematic

Note :

$$V_{OUT} = V_{FB} * (1 + R2/R3)$$

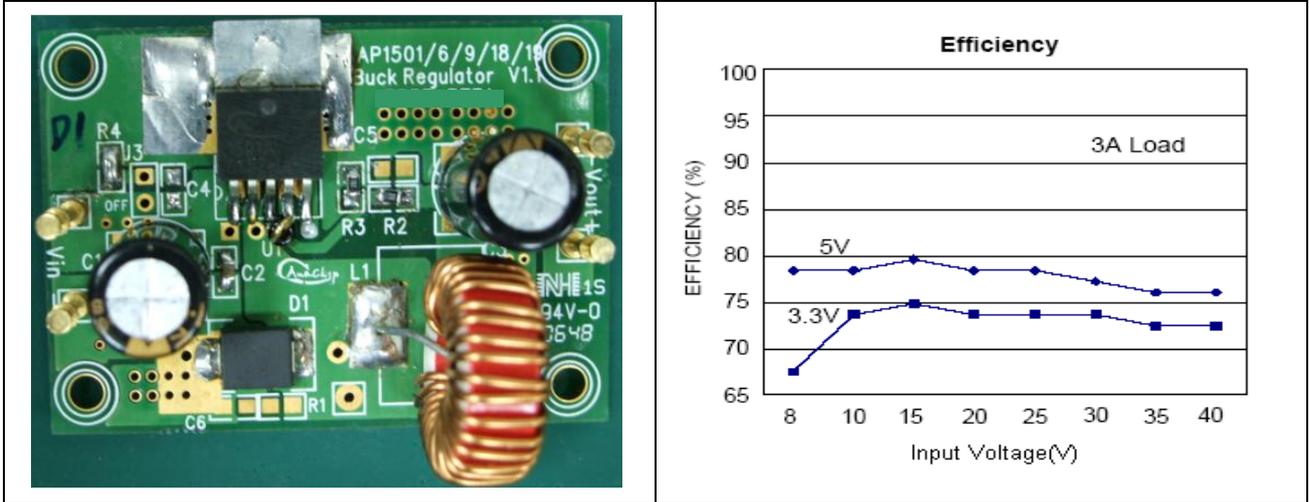
$$V_{FB} = 1.23V$$

$$R3 = 1K \sim 3K$$

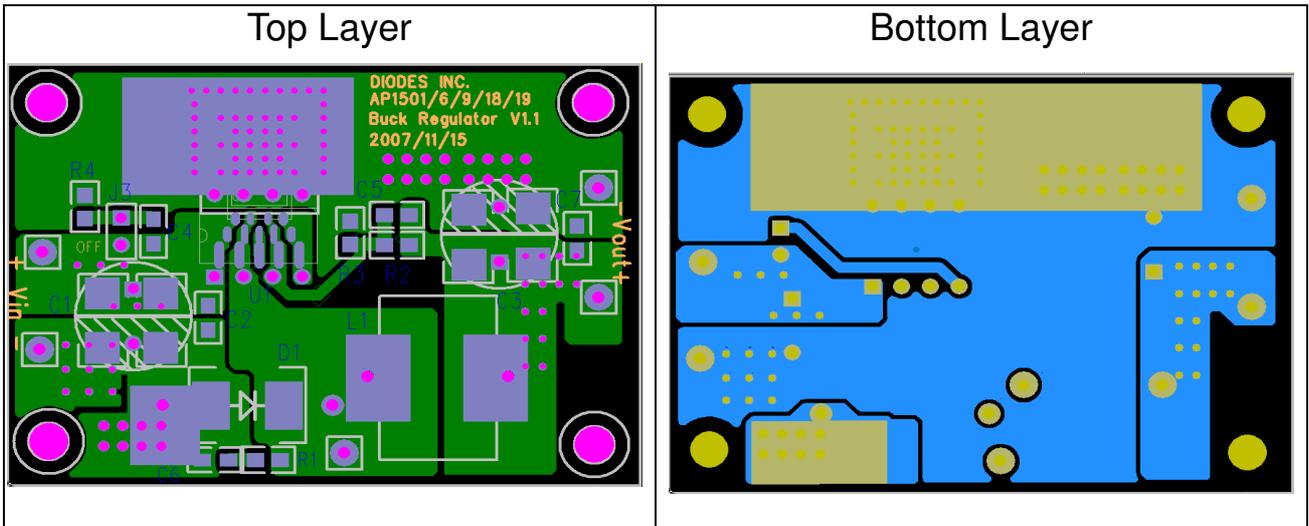
Application Note

AP1501(A) Application Information and Demo Board User Guide

3. EVM board and Efficiency



4. Board Layout



This application note contains new product information. Diodes, Inc. reserves the right to modify the product specification without notice. No liability is assumed as a result of the use of this product. No rights under any patent accompany the sale of the product.

Application Note

AP1501(A) Application Information and Demo Board User Guide

5. Bill of Materials

For AP1501

| Component Location | Quantity | Specification | Mark | Maker Part No. | Size |
|--------------------|----------|------------------------------------|-------------------|----------------|----------|
| C1,C3 | 2 | 470uF/25V (Aluminum Capacitors) | G-LUXON | | 10X15 |
| C2,C7 | 2 | Ceramic capacitor 0.1uF/50V,Y5V | TAIYO YUDEN | UMK107F104ZA-T | C0603 |
| L1 | 1 | 47uH/3A | Würth Electronics | 744132 | 21X9.5 |
| R2 | 1 | 3K(1%) | YAGEO | | R0805 |
| R3 | 1 | 1K(1%) | YAGEO | | R0805 |
| R4 | 1 | Short | - | - | R0805 |
| D1 | 1 | Schottky diode 40V 3A* | Diodes | B340A | SMA |
| U1 | 1 | 150KHz, 3A PWM buck converter* | Diodes | AP1501 | TO263-5L |
| Vin, Vout | 4 | HEADER_1 | - | - | 2X2X13 |

For AP1501A

| Component Location | Quantity | Specification | Mark | Maker Part No. | Size |
|--------------------|----------|------------------------------------|-------------------|----------------|-----------|
| C1,C3 | 2 | 470uF/25V (Aluminum Capacitors) | G-LUXON | | 10X15 |
| C2,C7 | 2 | Ceramic capacitor 0.1uF/50V,Y5V | TAIYO YUDEN | UMK107F104ZA-T | C0603 |
| L1 | 1 | 22uH/5A | Würth Electronics | 744150 | 28.5X14.5 |
| R2 | 1 | 3K(1%) | YAGEO | | R0805 |
| R3 | 1 | 1K(1%) | YAGEO | | R0805 |
| R4 | 1 | Short | - | - | R0805 |
| D1 | 1 | Schottky diode 40V 5A* | Diodes | B540C | SMC |
| U1 | 1 | 150KHz, 5A PWM buck converter* | Diodes | AP1501A | TO263-5L |
| Vin, Vout | 4 | HEADER_1 | - | - | 2X2X13 |

This application note contains new product information. Diodes, Inc. reserves the right to modify the product specification without notice. No liability is assumed as a result of the use of this product. No rights under any patent accompany the sale of the product.