

Application Note

AP1501(A) Application Information and Demo Board User Guide

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Application Note

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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

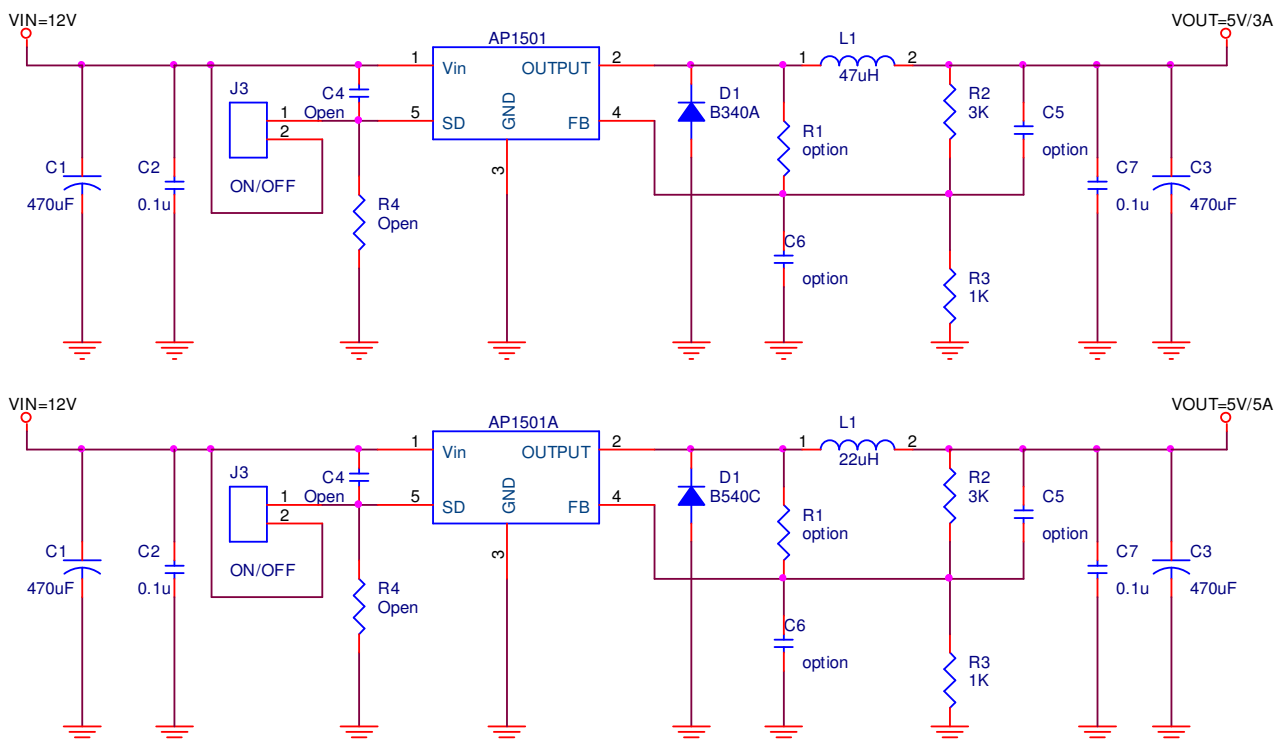


Figure 1. AP1501(A) schematic

Note :

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

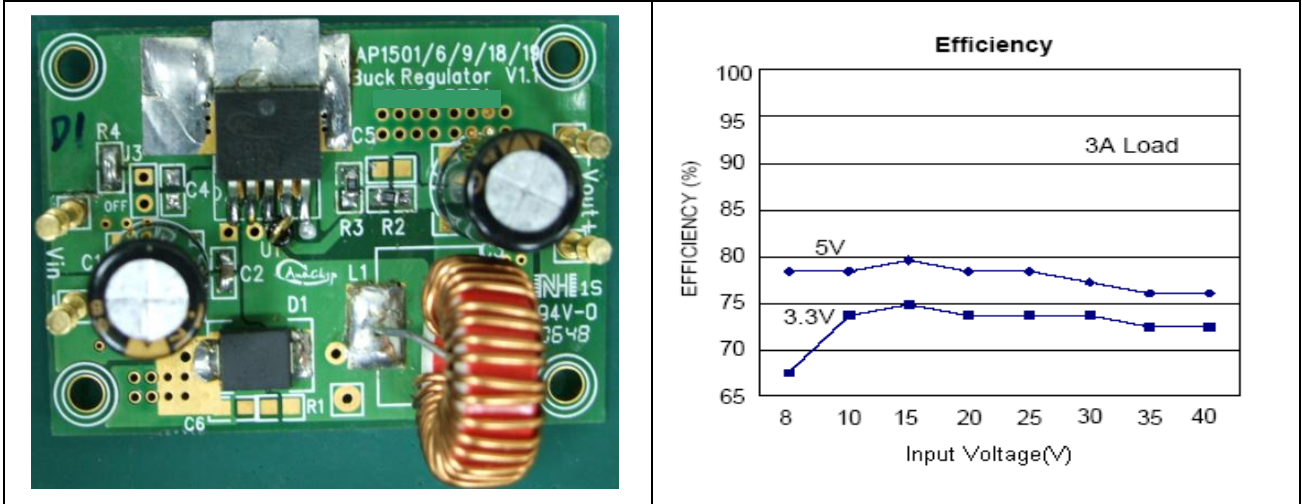
$$V_{FB} = 1.23V$$

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

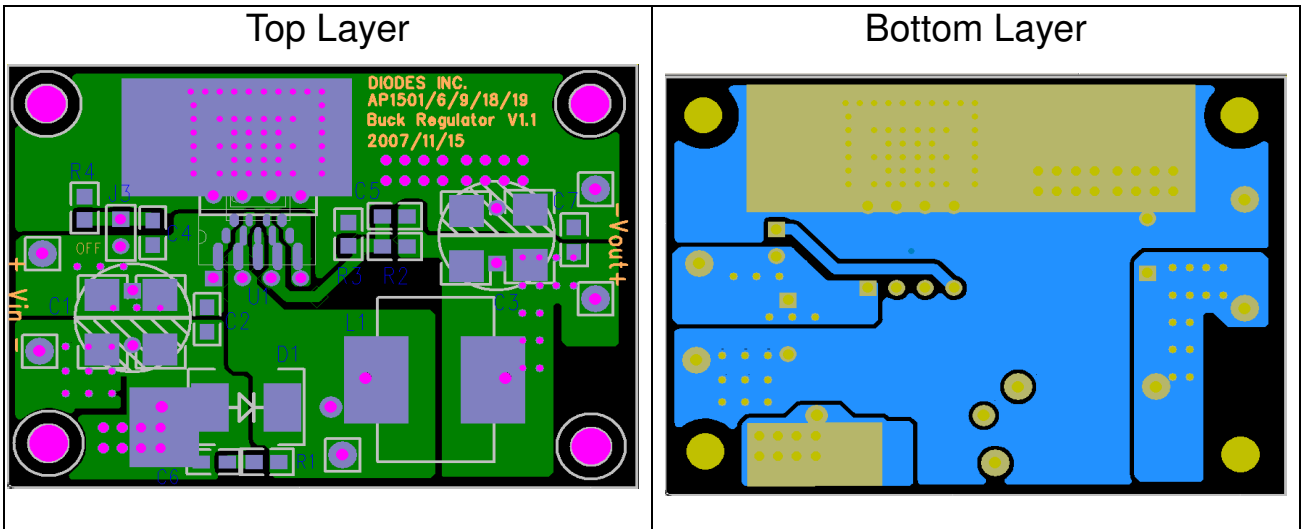
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3. EVM board and Efficiency



4. Board Layout



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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

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