

## AAT1265 EVAL: Low Voltage 2MHz Step-Up DC/DC Converter

### Introduction

The AAT1265 evaluation board provides a platform for the testing and evaluation of the AAT1265 low voltage 2MHz step-up regulator. The evaluation board demonstrates suggested size and placement of external components to maintain output voltage regulation for up to 250mA of output current. The external components are selected for small size to suit portable applications while the layout has been optimized to achieve high efficiency with the SC70JW-8 package. The design operates across an input voltage range of 0.8V to  $V_{OUT}$ . The AAT1265 EVAL demo board provides a 3.3V output at 250mA maximum output current for a dual AA cell input. This document provides details on the operation and testing of the AAT1265 evaluation board.

### Operating Specification

Specification	Description/Conditions	Min	Typ	Max	Units
Input Voltage		0.8		$V_{OUT}$	V
Output Voltage Accuracy	$V_{IN} = 0.8V$ to $2.5V$ , PWM Mode; $T_A = -40^{\circ}C$ to $+85^{\circ}C$	$V_{OUT} - 0.1V$		$V_{OUT} + 0.1V$	
Line Regulation	$0.8V \leq V_{IN} \leq 2.5V$ [ $\Delta V_{OUT} / V_{OUT} / \Delta V_{IN}$ ]		0.2		%/V
Load Regulation	$0mA \leq I_{OUT} \leq 100mA$ [ $\Delta V_{OUT} / V_{OUT}$ ]		1.5		%

Table 1: AAT1265 Evaluation Board Operating Specification.

### Schematic

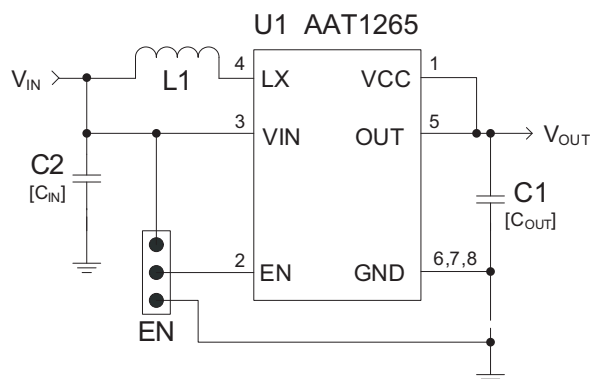


Figure 1: AAT1265 Evaluation Board Schematic.

### Bill of Materials (BOM)

Component	Part Number	Description	Manufacturer
U1	AAT1265IJS	Low Voltage 2MHz Step-Up Converter	AnalogicTech
C1, C2	C1608X5R1A475K	Ceramic Capacitor: 4.7 $\mu$ F, 10V, 0603	TDK
	LMK107BJ475K		Taiyo Yuden
	C2012X5R1A475K	Ceramic Capacitor: 4.7 $\mu$ F, 10V, 0805	TDK
	GRM21BR61A475K		Murata
	LMK212BJ475MG		Taiyo Yuden
EN	PRPN401PAEN	Connecting Header, 2mm	Sullins Electronics
L1	SD3118-2R2	2.2 $\mu$ H/1.62A Inductor	Cooper Bussmann
	CDRH2D14-2R2	2.2 $\mu$ H/1.50A Inductor	Sumida

Table 2: Component Listing

**AAT1265 EVAL: Low Voltage 2MHz Step-Up DC/DC Converter****Setup**

1. Configure the specified test equipment as shown in Figure 2, where Jumper 1 placement options are illustrated.
2. An additional 100 $\mu$ F or greater capacitor [ $C_{ADD}$  in Figure 2] may be required to decouple the input power supply and maintain stable operation. Solder the additional capacitor to the VIN and GND terminals on the AAT1265 evaluation board.
3. Input power supply with remote sense may be used. This simplifies the test procedure and maintains high accuracy of the input voltage across the loading range. Connect remote sense from input power source remote sense terminals to the VIN and GND terminals on the AAT1265 evaluation board (optional, not shown in Figure 2).

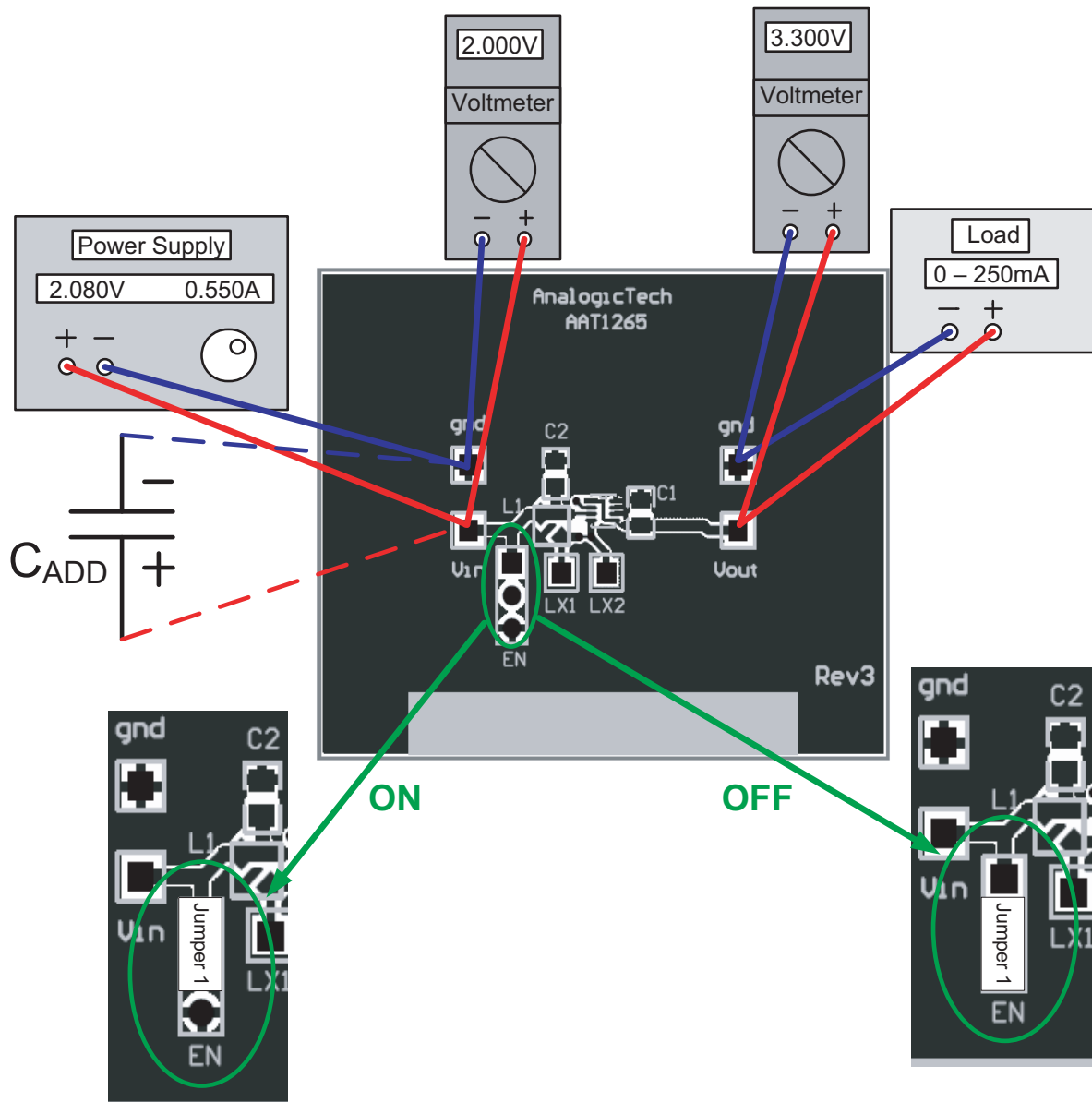


Figure 2: AAT1265 Evaluation Board Connection Diagram with Jumper 1 Settings.

**AAT1265 EVAL: Low Voltage 2MHz Step-Up DC/DC Converter****Evaluation/Testing**

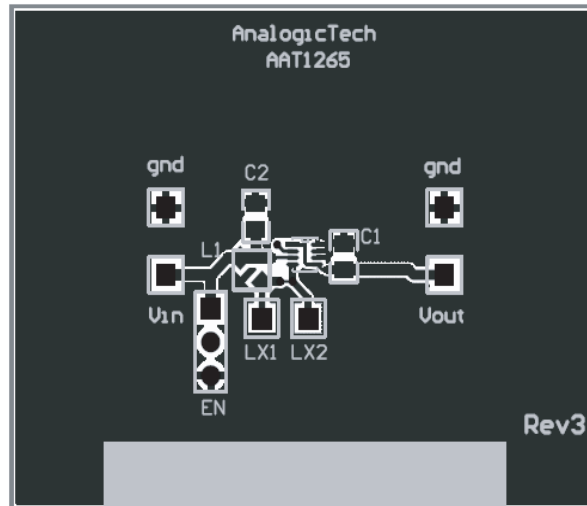
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**Enabling [Jumper 1 initially in ON position on EN]**

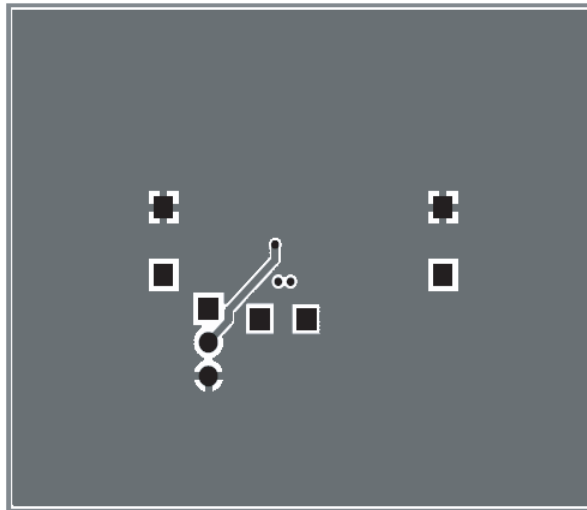
1. Turn-Off  
With input voltage applied, remove Jumper 1 and re-insert in the OFF position on EN. The output voltage should decay to zero.
2. Turn-On  
With input voltage applied, remove Jumper 1 on EN and re-insert in the ON position on EN. The output voltage should recover to its nominal DC value of 3.3V.

**Load and Line Regulation**

1. Enable the AAT1265 by placing Jumper 1 in the ON position on EN, as shown in Figure 2.
2. Turn on the input power supply and set to desired input voltage based on the DC voltmeter.
3. Vary the output load from 0 to 250mA (for a dual AA cell input) and vary the input voltage from 0.8V to  $V_{OUT}$  while monitoring the output voltage.

**AAT1265 EVAL: Low Voltage 2MHz Step-Up DC/DC Converter****Printed Circuit Board**

**Figure 3: AAT1265 Evaluation Board Top Layer (not to scale).**



**Figure 4: AAT1265 Evaluation Board Bottom Layer (not to scale).**

**Advanced Analogic Technologies, Inc.**  
 3230 Scott Boulevard, Santa Clara, CA 95054  
 Phone (408) 737-4600  
 Fax (408) 737-4611



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