



AWL5764 Evaluation Board User Guide

FEATURES

Input voltage Range: 2.7V to 20V

Output Current: 3A

Operating Quiescent Current: 2.7mA (Typ.)

Low Dropout Voltage: 300mV at 3A Load

Low Noise: 15 μ V_{RMS} (10Hz to 100kHz)

Full-featured evaluation board for AWL5764

- Shutdown Function
- OCP
- Thermal Shutdown

EQUIPMENT NEEDED

Power supply up to 20 V

Oscilloscope

Multimeter

GENERAL DESCRIPTION

The EVAL-AWL5764 (Shown in Fig.1) is designed for the evaluation of high-performance LDO AWL5764. The AWL5764 can operate over a wide input voltage range from 2.7V to 20V with low operating current.

Standard features, such as enable/shutdown control, line and load regulation, dropout voltage and over current protection can be demonstrated by this evaluation board.

For full details on the AWL5764 LDO regulator, see the AWL5764 data sheets.



Fig.1 Evaluation Board Picture

EVAL-AWL5764

ELECTRICAL SPECIFICATION

Table 1. EVAL-AWL5764 Electrical Specifications

Version	Name	Pin	Description	Min.	Typ.	Max.	Unit
AWL5764-ADJ	VIN	P1	Input Voltage Supply	2.7		20	V
	VOUT	P2	Output Voltage		1.21		V
AWL5764-18	VIN	P1	Input Voltage Supply	2.8		20	
	VOUT	P2	Output Voltage		1.8		
AWL5764-25	VIN	P1	Input Voltage Supply	3.5		20	
	VOUT	P2	Output Voltage		2.5		
AWL5764-33	VIN	P1	Input Voltage Supply	4.3		20	
	VOUT	P2	Output Voltage		3.3		
AWL5764-50	VIN	P1	Input Voltage Supply	6		20	
	VOUT	P2	Output Voltage		5		

TEST POINTS and JUMPER DEFINITION

Table 2. Test Points Definition

Pins	Description
TP_SHDN	Enable/Shutdown Pin
TP_VIN	Input Voltage
TP_OUT	Output Voltage

BENCH SETUP

In order to prepare the evaluation board for operation, several steps should be completed before the initial use:

1. Connect power supply which is capable of 20V/3A to the input terminals VIN and GND, DO NOT turn on the power supply.
2. Connect an electronic load which is capable of sinking more than 3A to the output terminals VOUT and GND, and set load current to 0A.
3. Turn on the input power supply, make sure the input voltage never exceeds 20V.
4. It is highly recommended that an ammeter should be put in series with the input power supply and the electronic load to measure supply and load current, a voltmeter should be placed on the input and output capacitors to get an accurate input and output voltage (See Fig.2).
5. Once a proper output voltage is established, gradually adjust the load current or the input voltage within operating range to observe

EVAL-AWL5764

regulation, ground pin current, dropout voltage and other parameters.



Fig.2 Bench Setup

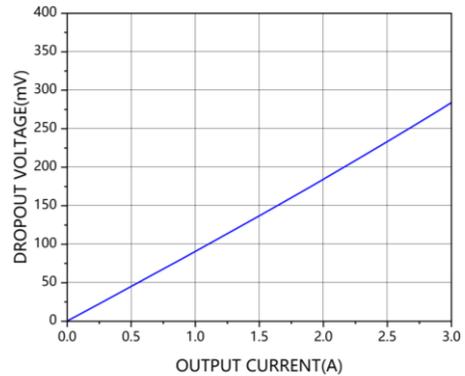


Fig.4 Dropout Voltage with ILoad

TEST PROCEDURE AND RESULT

Dropout Voltage

1. To satisfy requirements for minimum input voltage, the AWL5764 (adjustable version) is tested and specified for these conditions with an external resistor divider (two 4.12k resistors) for an output voltage of 2.42V. 2. Set $V_{IN}=2.4V$ and turn on input power supply. Follow the procedures in Fig.3
3. Turn on the electronic load, gradually increase the load current from 0A to 3A, measure output voltage and calculate dropout voltage with load current.

The measured dropout voltage is shown in Fig 4.

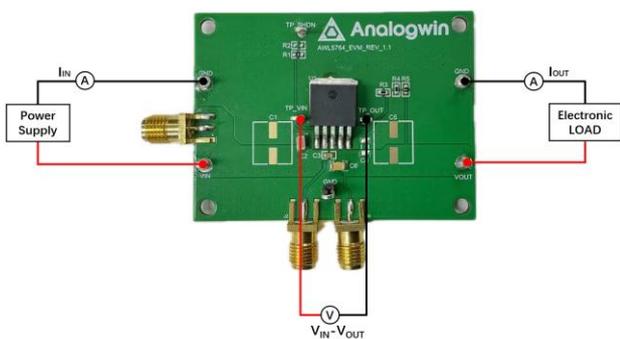
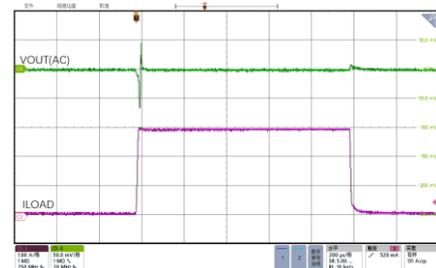


Fig.3 Dropout Voltage Bench Setup

Load Transient

1. Follow the procedures in Fig.6.
2. Set $V_{IN}=2.7V$ and turn on input power supply.
3. Set electronic load to dynamic mode and set load step from 10mA to 3A with a slew rate of 0.3A/us, use oscilloscope to observe output voltage and load current. The measured load transient is shown in Fig.4, it recommended to use minimized measurement loop (shown in Fig.5) to evaluate the load transient performance.



Ch 4: V_{out} (AC) 10mV/div Ch 3: ILoad 1A/div

Fig.5 Load Transient

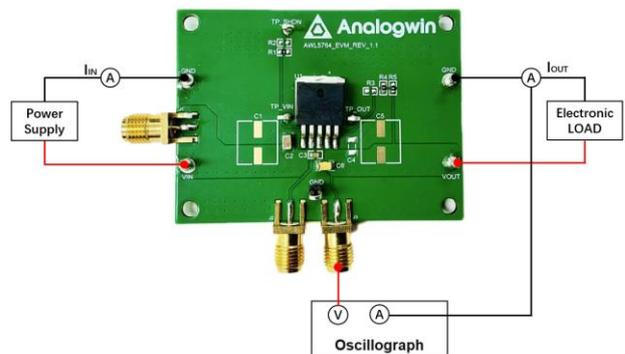


Fig.6 Minimized Measurement Loop

EVAL-AWL5764

SCHEMATIC

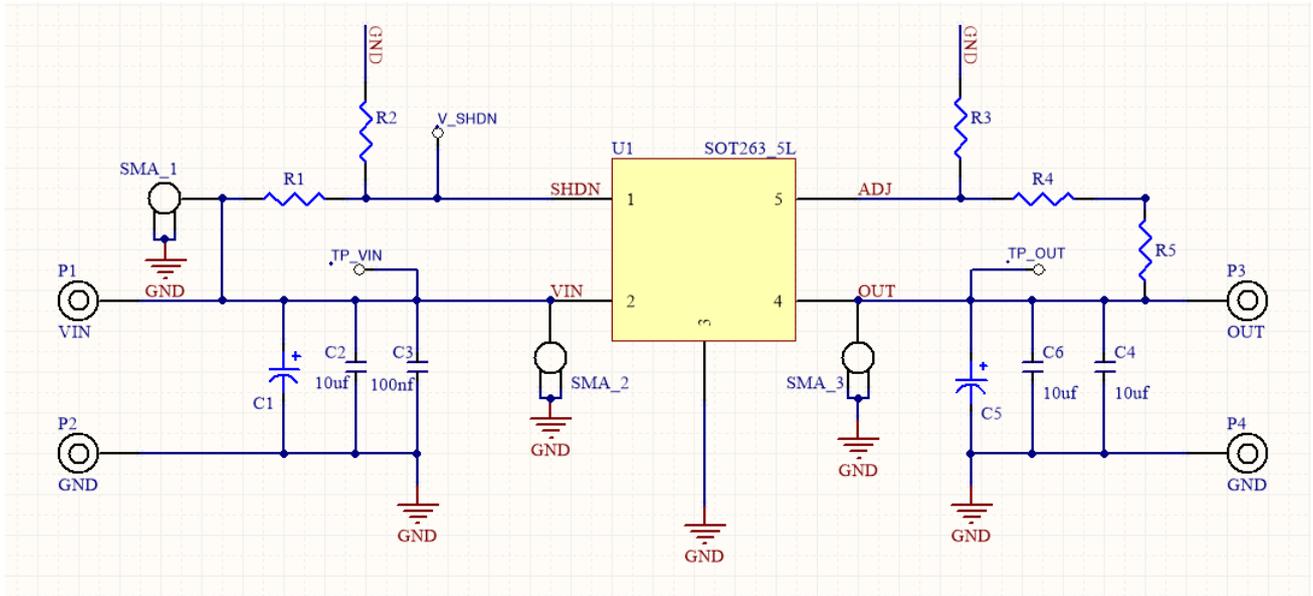


Fig.7 EVAL-AWL5764 Schematic

LAYOUT DIAGRAMS

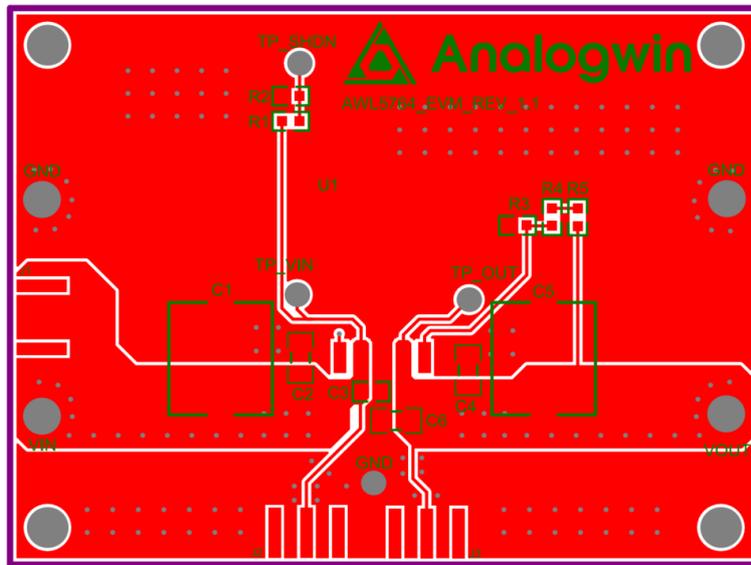


Fig.8 Top Layer

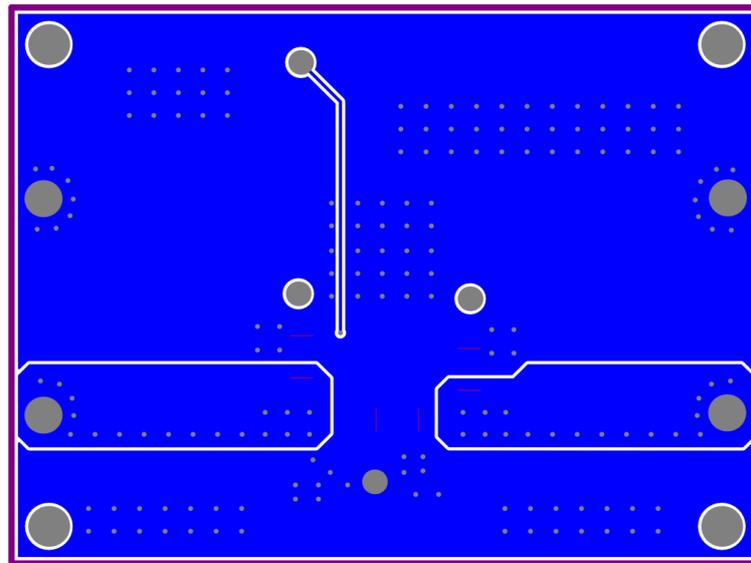


Fig.9 Bottom Layer

EVAL-AWL5764

BILL OF MATERIAL

Item	Quantity	Reference	Part	Footprint
1	1	U1	SOT263_5L	
2	1	C3	100nf/25V	C0603
3	1	C2	10uf/50V	C1206
4	1	C6	10uf/50V	C1206
5	3	R1, R4, R5	0R	R0603
6	1	J9	BWSMA-KE-P001	SMA
7	1	J3	BWSMA-KE-P001	SMA
8	1	J0	BWSMA-KE-P001	SMA
9	3	TP_OUT, TP_VIN, V_SHDN	TEST POINT-SMALL	TEST POINT-SMALL
10	2	P2, P4	GND	接线柱
11	1	P1	VIN	接线柱
12	1	P3	OUT	接线柱