

**23V/8A Sync. Step-Down Converter Evaluation Board**

*Parameters Subject to Change Without Notice*

**FEATURES**

- 4V to 23V operating input range  
8A continuous / 16A peak output current
- Up to 95% efficiency
- High efficiency at light load
- 500kHz switching frequency
- External bypass input
- Programmable valley current limit
- Power good indicator
- Input under voltage lockout
- Output discharge function
- Output Over Voltage latch off protection
- Output short protection
- Thermal protection
- RoHS Compliant and Halogen Free
- Available in QFN3X3-20 package

**APPLICATIONS**

- Distributed Power Systems
- Networking Systems
- FPGA, DSP, ASIC Power Supplies
- Notebook Computers
- Green Electronics/ Appliances

**DESCRIPTION**

The JW<sup>®</sup>5068A is a monolithic buck switching regulator based on I2 architecture for fast transient response. Operating with an input range of 4V~23V, JW5068A delivers 8A of continuous output current with two integrated N-Channel MOSFETs. The internal synchronous power switches provide high efficiency without the use of an external Schottky diode. At light loads, the regulator operates in low frequency to maintain high efficiency and low output ripples.

JW5068A guarantees robustness with output short protection, thermal protection, current run-away protection, and input under voltage lockout.

JW5068A is available in QFN3X3-20 package, which provide a compact solution with minimal external components.

**ELECTRICAL SPECIFICATIONS**

Parameter	Symbol	Value	Unit
Input Voltage	VIN	4~23	V
Output Voltage	VOUT	3.3	V
Output Current	IOUT	0~8	A

**EVALUATION BOARD AND TYPICAL PERFORMANCE**



## PRINTED CIRCUIT BOARD LAYEROUT

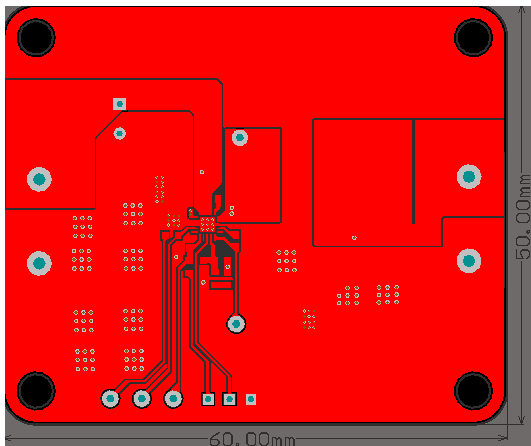


Figure1—Top Layer

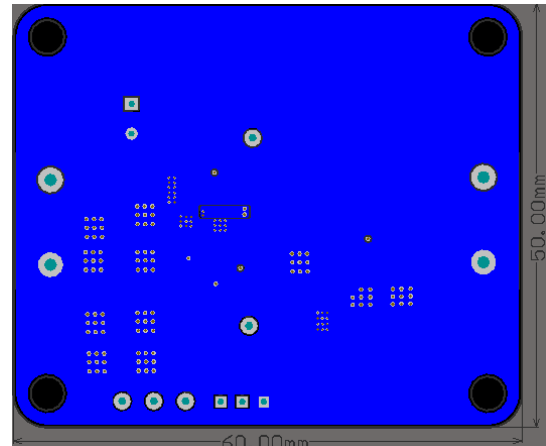


Figure2—Bottom Layer

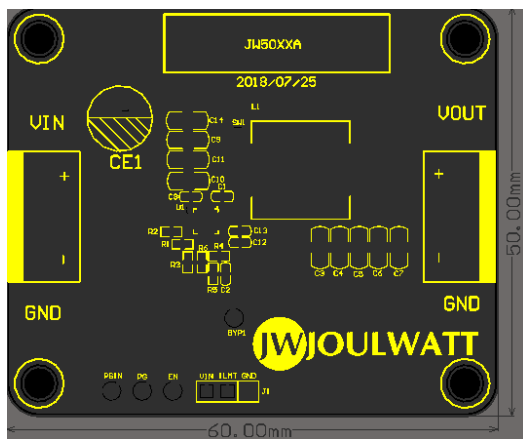


Figure3—Top Silk Layer

## QUICK START GUIDE

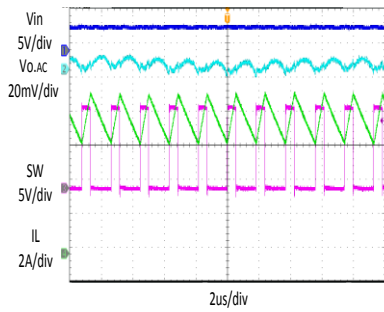
1. Connect the positive terminal and negative terminal of the load to Vout and GND of EVB, respectively.
2. Connect a power supply between VIN and GND with the supply in “OFF” state. Set the output voltage of the power supply to 4V~23V.
3. Turn on the power supply and the evaluation board starts operating in normal condition.
4. The output voltage can be adjusted by varying the R6 and R4 on EVB.  
For example: Fixed R6 to 16K, when adjusting the output voltage to 5V,  
 $R4 = V_{out} / 0.6 * R6 - R6$ .
5. For more information, please refer to the datasheet of JW5068A.

**TYPICAL PERFORMANCE CHARACTERISTICS**

Vin =12V, Vout = 3.3V, L = 1.5μH, Cout = 5\*22μF, C2=10pF,R5=0Ω , TA = +25°C, unless otherwise noted

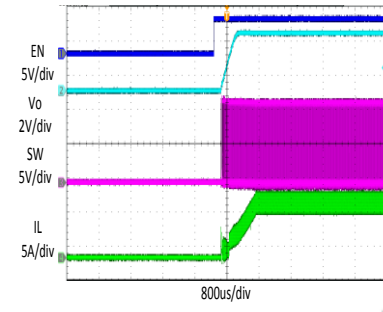
**Steady State Test**

VIN=12V, Vout=3.3V  
Iout=8A



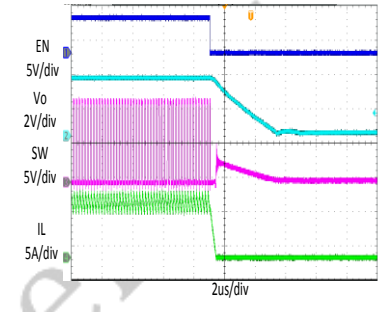
**Startup through Enable**

VIN=12V, Vout=3.3V  
Iout=8A(Resistive load)



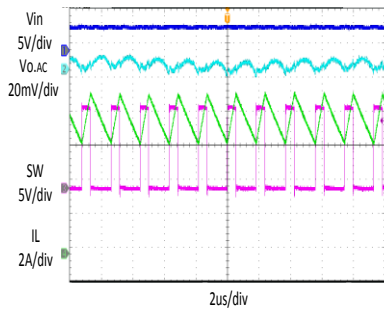
**Shutdown through Enable**

VIN=12V, Vout=3.3V  
Iout=8A (Resistive load)



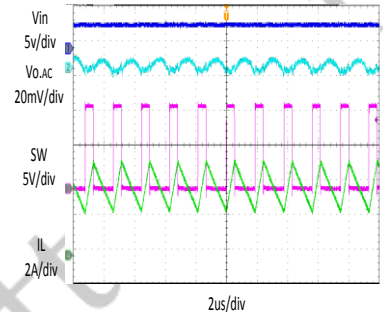
**Heavy Load Operation**

8A LOAD



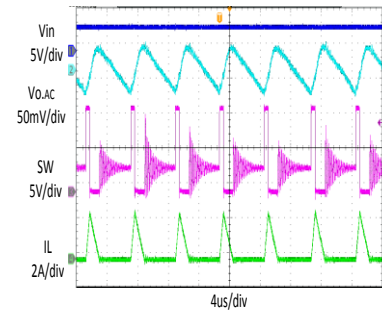
**Medium Load Operation**

4A LOAD



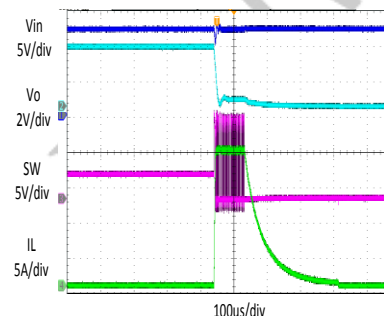
**Light Load Operation**

0.4 A LOAD



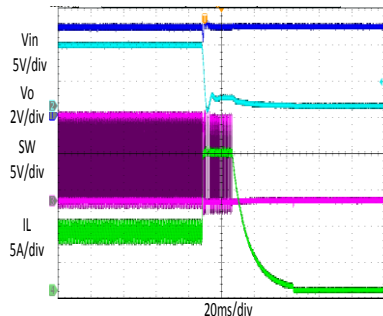
**Short Circuit Protection**

VIN=12V, Vout=3.3V  
Iout=0A- Short



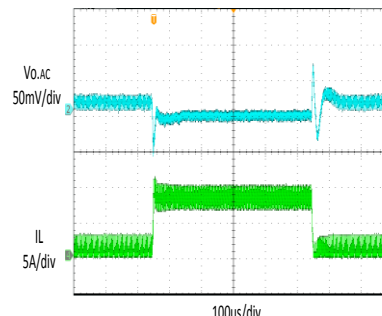
**Short Circuit Protection**

VIN=12V, Vout=3.3V  
Iout= 8A- Short



**Load Transient**

C2=10pF,R5=0k  
0.8A LOAD → 8A LOAD → 0.8A LOAD



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