

*Parameters Subject to Change Without Notice*

## FEATURES

- 4.7V to 24V operating input range  
2A output current
- Up to 95% efficiency
- High efficiency (>85%) at light load
- Fixed 570kHz Switching frequency
- Input under voltage lockout
- Feedback short protection
- SW pin short protection
- Current run-away protection
- Short circuit protection
- Thermal protection
- Available in TSOT23-6package

## APPLICATIONS

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

## DESCRIPTION

The JW5034 is a current mode monolithic buck switching regulator. Operating with an input range of 4.7V~24V, the JW5034 delivers 2A 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. Current mode control provides tight load transient response and cycle-by-cycle current limit.

The JW5034 guarantees robustness with short-circuit protection, thermal protection, current run-away protection, input under voltage lockout.

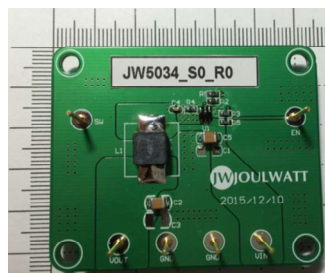
The JW5034 is available in 6-pin TSOT23-6 package, which provides a compact solution with minimal external components.

## ELECTRICAL SPECIFICATIONS

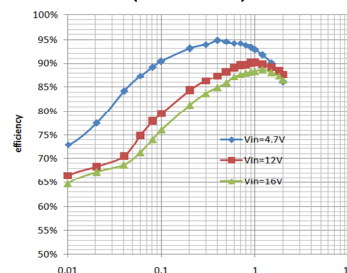
Parameter	Symbol	Value	Unit
Input Voltage	VIN	4.7~24	V
Output Voltage	VOUT	3.3	V
Output Current	IOUT	0~2	A

## EVALUATION BOARD AND TYPICAL PERFORMANCE

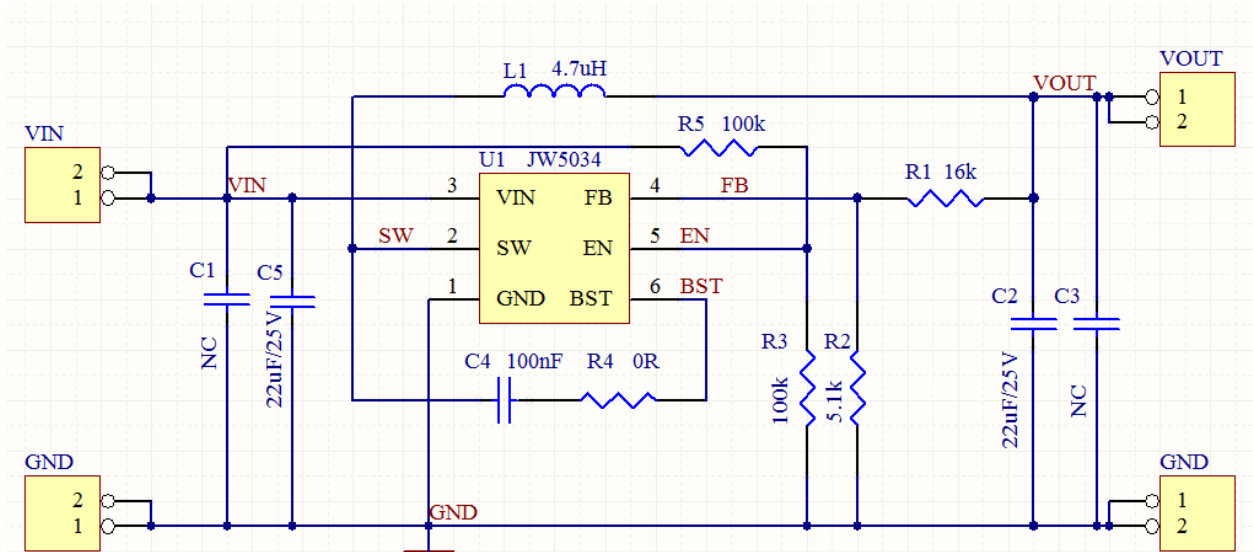
EV5034\_S0\_R0 60mm\*49mm



Efficiency vs Load Current  
(Vout = 3.3V)



**SCHEMATIC**



**BILL OF MATERIALS**

Qty	Designator	Value	Description	Package	Manufacturer	Manufacturer P/N
0	C1, C3	NC				
1	C2	22uF	Ceramic capacitor 25V ,X5R	1210C	SAMSUNG	CL31A226KAHNNNE
1	C5	22uF	Ceramic capacitor 6.3V ,X5R	1206C	SAMSUNG	
1	C4	100nF	Ceramic capacitor 16V ,X7R	0603C	SAMSUNG	CL10B104KONC
1	L1	4.7uH/4.9A	Inductor	1038	WE	744066005
1	R1	16k	Resistor,1%	0603R	Uniohm	0603F1602T5E
1	R2	5.1k	Resistor,1%	0603R	Uniohm	0603F5101T5E
1	R4	0Ω	Resistor,5%	0603R	Uniohm	0603J0000T5E
1	R3	100k	Resistor,5%	0603R	Uniohm	0603J0104T5E
1	R5	100k	Resistor,5%	0603R	Uniohm	0603J0104T5E
1	VIN	4.7V~24V		TEST-Pole		
1	VOUT	3.3V/2A		TEST-Pole		
1	JW5034	24V/2A	Buck	TSOT23-6	Joulwatt	JW5034

## PRINTED CIRCUIT BOARD LAYEROUT

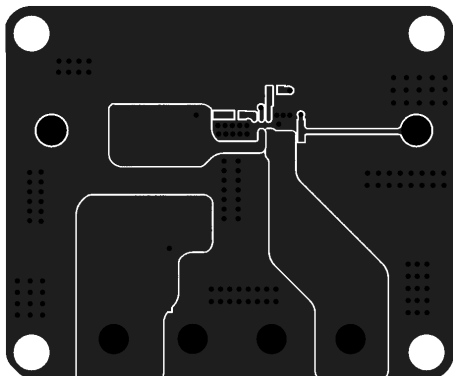


Figure1—Top Layer

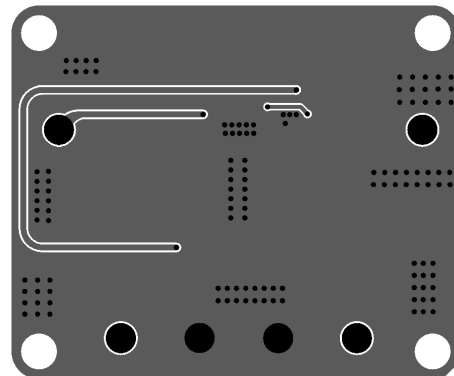


Figure2—Bottom Layer

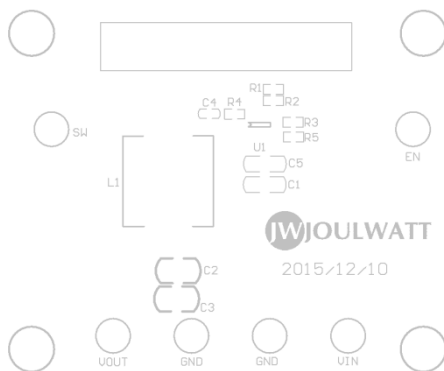


Figure3—Silk Layer

## QUICK START GUIDE

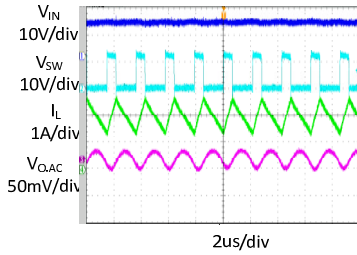
1. Connect the positive terminal and negative terminal of the load to Vout and GND of EVB, respectively.
2. Connect a power supply between VIN and GND with the supply in “OFF” state. Set the output voltage of the power supply to 0.8V~18V.
3. Turn on the power supply and the evaluation board starts operating in normal condition.
4. The output voltage can be adjusted by varying the R1 and R2 on EVB.  
For example: Fixed R2 to 5.1K, when adjusting the output voltage to 5V,  
 $R1 = V_{out} / 0.8 * R2 - R2$ .
5. For more information, please refer to the datasheet of JW5034

TYPICAL PERFORMANCE CHARACTERISTICS

Vin =12V, Vout = 3.3V, L = 4.7μH, Cout = 22μF, TA = +25°C, unless otherwise noted

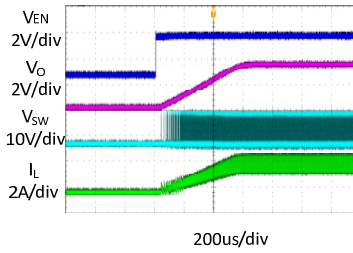
Steady State Test

VIN=12V, Vout=3.3V  
Iout=2A



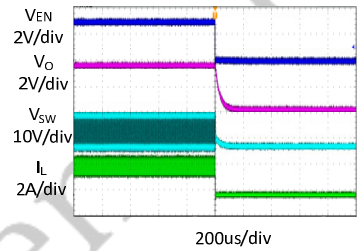
Startup through Enable

VIN=12V, Vout=3.3V  
Iout=2A(Resistive load)



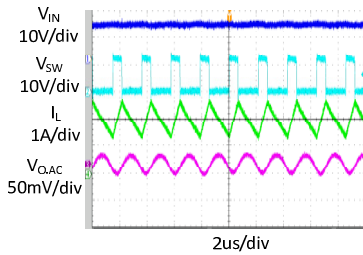
Shutdown through Enable

VIN=12V, Vout=3.3V  
Iout=2A (Resistive load)



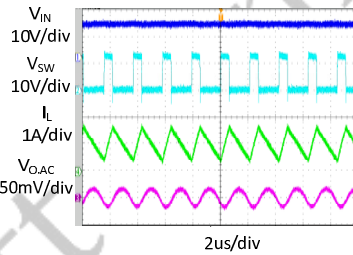
Heavy Load Operation

2A LOAD



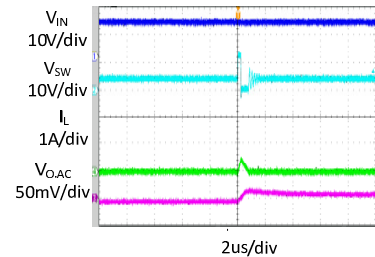
Medium Load Operation

1A LOAD



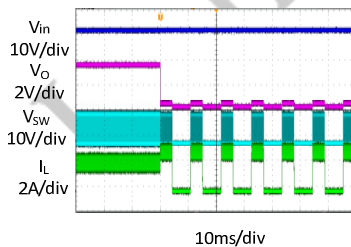
Light Load Operation

0 A LOAD



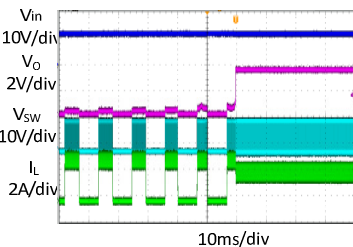
Short Circuit Protection

VIN=12V, Vout=3.3V  
Iout=2A- Short



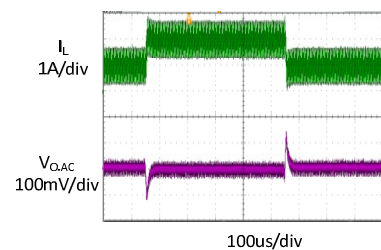
Short Circuit Recovery

VIN=12V, Vout=3.3V  
Iout= Short-2A



Load Transient

1A LOAD → 2A LOAD → 1A LOAD



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