EV5052C_S0_R0

18V/2A Sync. Step-Down Converter Evaluation Board

Parameters Subject to Change Without Notice

FEATURES

- 4V to 18V operating input range
  2Aoutput current
- Up to 95% efficiency
- High efficiency at light load
- Fixed 700kHz Switching frequency
- Input under voltage lockout
- Available in SOT23-6package
- Start-up current run-away protection
- Over current protection and Hiccup
- Thermal protection

APPLICATIONS

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

ELECTRICAL SPECIFICATIONS

Parameters	Symbol	Value	Unit
Input voltage	V_{IN}	4~18	V
Output voltage	V_O	3.3	V
Output current	I_O	0~2	A

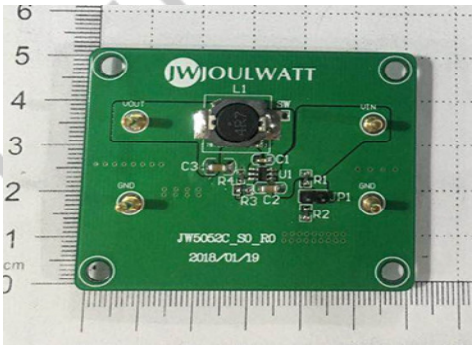
DESCRIPTION

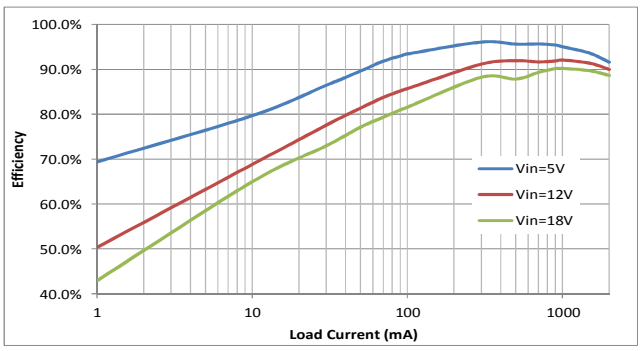
The®JW5052C is a current mode monolithic buck voltage converter. Operating with an input range of 4-18V, theJW5052C delivers 2A of continuous output current with two integrated N-Channel MOSFETs. At light loads, regulators operate in low frequency to maintain high efficiency and low output ripple.

The JW5052C guarantees robustness with over current protection, thermal protection, start-up current run-away protection, and input under voltage lockout.

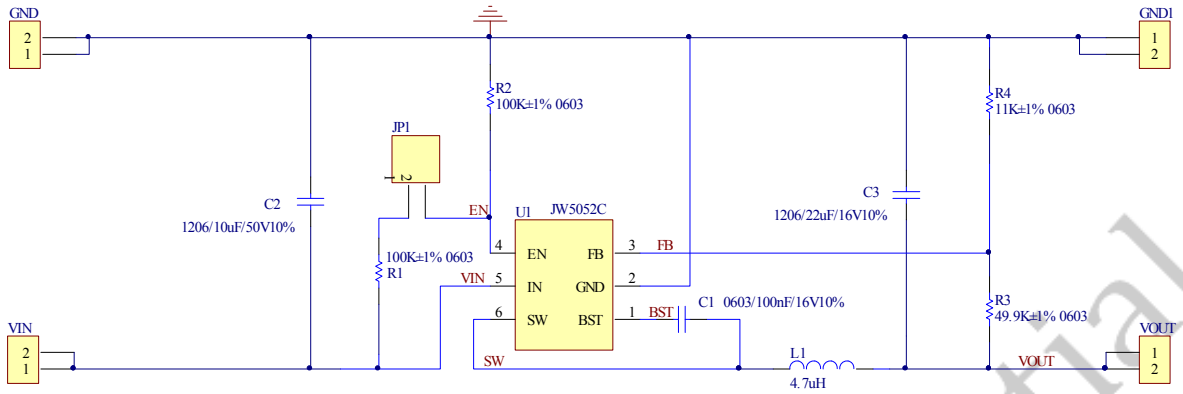
The JW5052C is available in a 6-pin SOT23-6 package, which provides a compact solution with minimum external components.

EVALUATION BOARD Efficiency@Vout=3.3V





SCHEMATIC



BILL OF MATERIALS

Quantity	Designator	Comment	Description	Footprint	Manufacturer	Manufacturer P/N
1	C1	100nF	Ceramic capacitor 16V ,X7R	0603C	SAMSUNG	'CL108104KO8NNNC
1	C2	10uF	Ceramic capacitor 50V ,X7R	1206C	SAMSUNG	CL31B106KBHNNNE
1	C3	22uF	Ceramic capacitor 10V ,X7R	1210C	SAMSUNG	CL31B226KOHNNNE
1	L1	4.7uH/5.2A	Inductor	L12*12	WurthElektronik	7447789004
1	R1	100k	Resistor,5%	0805R		
1	R2	100k	Resistor,5%	0805R		
1	R3	49.9k	Resistor,1%	0805R	uniohm	0805 J0513T5E
1	R4	11k	Resistor,1%	0805R	uniohm	0805F1102T5E
1	VIN	4V~18V		TEST-Pole		
1	VOUT	3.3V/2A		TEST-Pole		
1	JW5052C	18V/2A	Buck	SOT23-6	Joulwatt	JW5052C

PRINTED CIRCUIT BOARD LAYEROUT

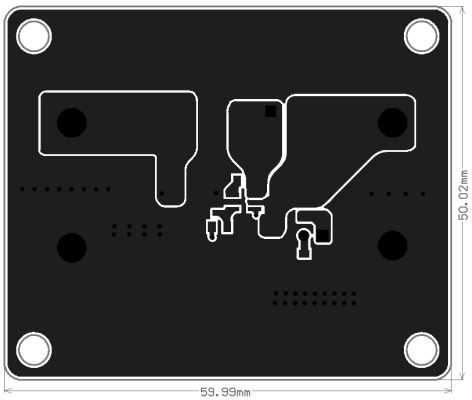


Figure1—Top Layer

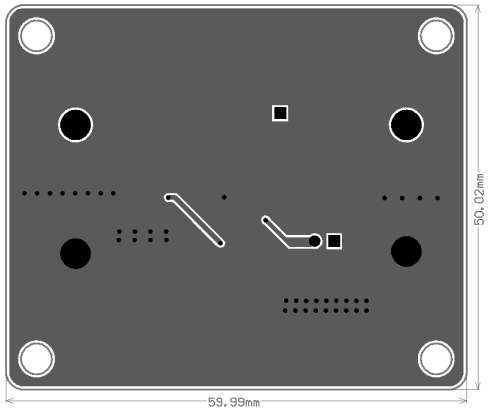


Figure2—Bottom Layer

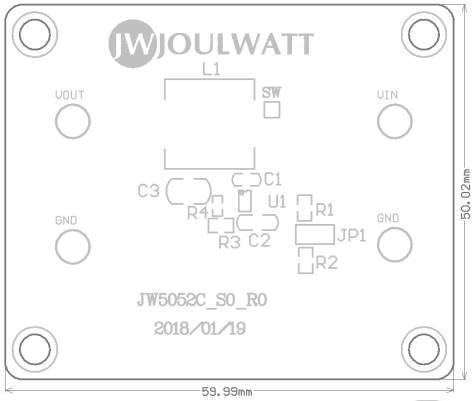


Figure3—Top Silk Layer

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~18V.**
3. **Turn on the power supplyand the evaluation board starts operating in normal condition.**
4. **The output voltage can be adjusted by varying the R3 and R4 on EVB.**
   For example：Fixed R4 to16K,when adjusting the output voltage to 5V，
   R3=Vout/0.6*R4-R4.
5. **For more information, please refer to the datasheet ofJW5052C**

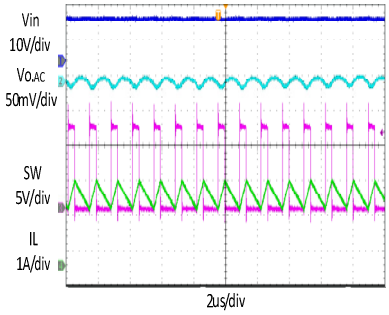
TYPICAL PERFORMANCE CHARACTERISTICS

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

Steady State Test

VIN=12V, Vout=3.3V

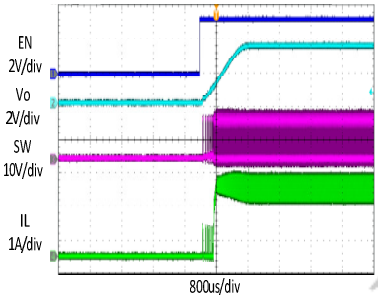
Iout=2A



Startup through Enable

VIN=12V, Vout=3.3V

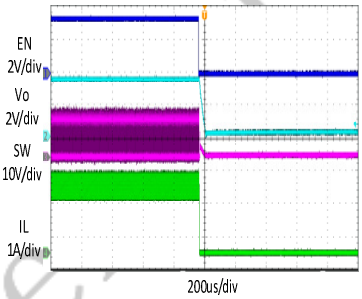
Iout=2A(Resistive load)



Shutdown through Enable

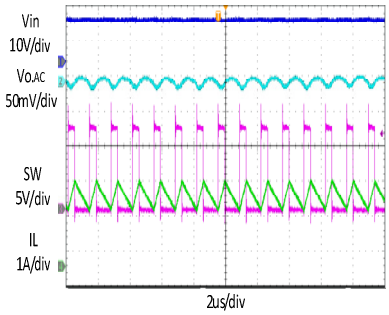
VIN=12V, Vout=3.3V

Iout=2A (Resistive load)



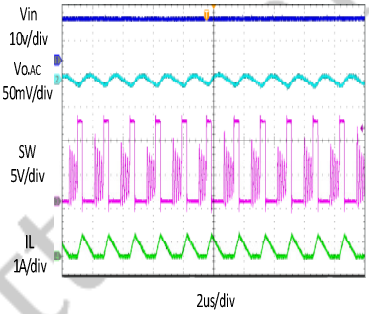
Heavy Load Operation

2A LOAD



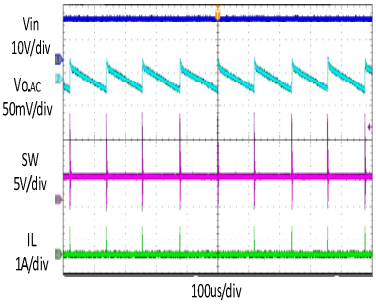
Medium Load Operation

0.2A LOAD



Light Load Operation

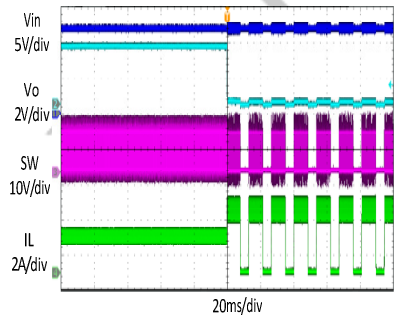
0A LOAD



Short CircuitProtection

VIN=12V, Vout=3.3V

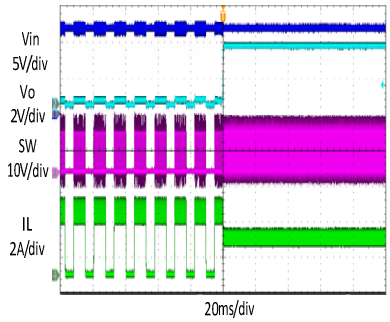
Iout=2A- Short



Short CircuitRecovery

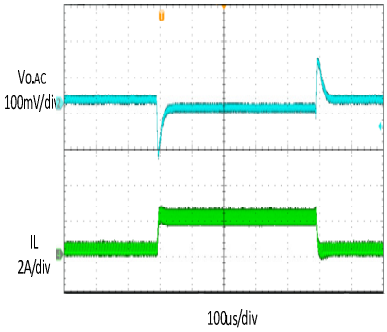
VIN=12V, Vout=3.3V

Iout= Short-2A



Load Transient

0.2A LOAD→2A LOAD→ 0.2A LOAD



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