

23V/2A Sync. Step-Down Converter Evaluation Board

Parameters Subject to Change Without Notice

FEATURES

- 3.7V to 23V operating input range
2A output current
- Up to 95% efficiency
- High efficiency (>80%) at light load
- Fixed 800kHz Switching frequency
- Input under voltage lockout
- Start-up current run-away protection
- Over current protection and Hiccup
- Thermal protection
- Available in TSOT23-6 package

APPLICATIONS

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

DESCRIPTION

The JW5031S is a current mode monolithic buck voltage converter. Operating with an input range of 3.7V-23V, the JW5031S 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 JW5031S guarantees robustness with short circuit protection, thermal protection, current run-away protection, and input under voltage lockout.

The JW5031S is available in a 6-pin TSOT23-6 package, which provides a compact solution with minimal external components.

ELECTRICAL SPECIFICATIONS

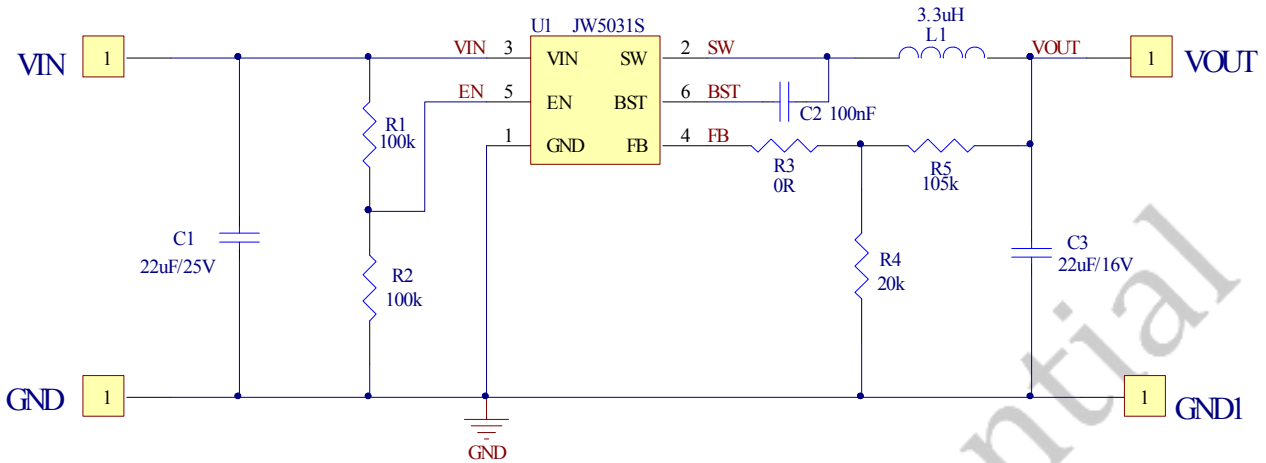
Parameter	Symbol	Value	Unit
Input Voltage	VIN	6~23	V
Output Voltage	VOUT	5	V
Output Current	IOUT	0~2	A

EVALUATION BOARD

EV5031S_S0_R0 60mm*49mm



SCHEMATIC



BILL OF MATERIALS

Qty.	Designator	Value	Description	Package	Manufacturer	Manufacturer P/N
1	C1	22uF	Ceramic capacitor 25V ,X5R	1210C	SAMSUNG	CL31A226KAHNNNE
1	C2	100nF	Ceramic capacitor 16V ,X7R	0603C	SAMSUNG	CL10B104KONC
1	C3	22uF	Ceramic capacitor 16V ,X5R	1206C	SAMSUNG	
1	L1	3.3uH/4.9A	Inductor	1038	WE	744066005
1	R1	100k	Resistor,5%	0603R	Uniohm	0603J0104T5E
1	R2	100k	Resistor,5%	0603R	Uniohm	0603J0104T5E
1	R3	0Ω	Resistor,5%	0603R	Uniohm	0603J0000T5E
1	R4	20k	Resistor,1%	0603R	Uniohm	0603F0203T5E
1	R5	105k	Resistor,1%	0603R	Uniohm	0603F1053T5E
1	VIN	6V~23V		TEST-Pole		
1	VOUT	5V/2A		TEST-Pole		
1	JW5031S	18V/2A	Buck	TSOT23-6	Joulwatt	JW5031S

PRINTED CIRCUIT BOARD LAYEROUT

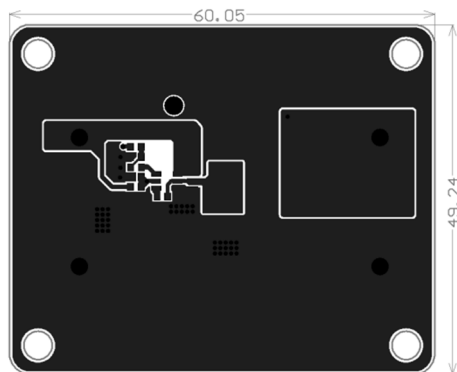


Figure1—Top Layer

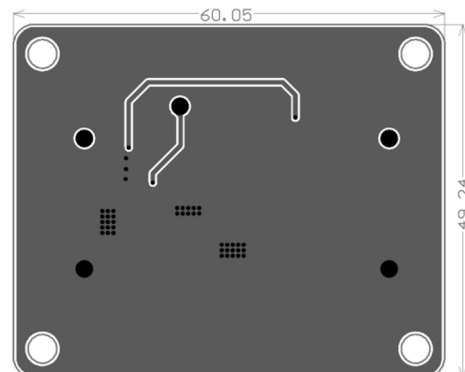


Figure2—Bottom Layer

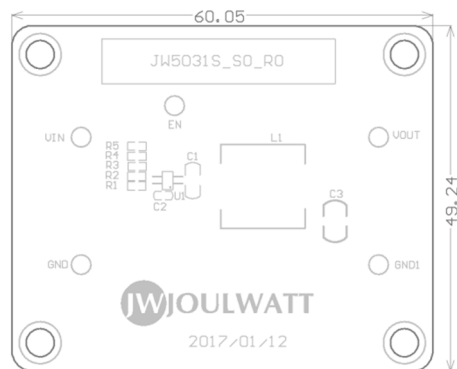


Figure3—Silk Layer

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 6V~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 R14 and R5 on EVB.
For example: Fixed R4 to 16K, when adjusting the output voltage to 3.3V,
 $R5 = V_{out} / 0.8 * R2 - R2$.
5. For more information, please refer to the datasheet of JW5031S

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