FEATURES

- 4V to 18V operating input range
- 4A output current
- Up to 95% efficiency
- High efficiency (>85%) at light load
- 600kHz switching frequency
- Internal soft-start
- Input under voltage lockout
- Feedback short protection
- Current run-away protection
- Output short protection
- Thermal protection
- Available in TSOT23-6 package

DESCRIPTION

The JW®5062T is a monolithic buck switching regulator based on I2 architecture for fast transient response. Operating with an input range of 4V~18V, JW5062T delivers 4A 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.

JW5062T guarantees robustness with output short protection, thermal protection, current run-away protection, input under voltage lockout, and FB short protection.

JW5062T is available in TSOT23-6 package, which provide a compact solution with minimal external components.

APPLICATIONS

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

ELECTRICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Voltage</td>
<td>VIN</td>
<td>4~18V</td>
<td>V</td>
</tr>
<tr>
<td>Output Voltage</td>
<td>VOUT</td>
<td>1.5 V</td>
<td></td>
</tr>
<tr>
<td>Output Current</td>
<td>IOUT</td>
<td>0~4 A</td>
<td></td>
</tr>
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</table>

EVALUATION BOARD AND TYPICAL PERFORMANCE
BILL OF MATERIALS

<table>
<thead>
<tr>
<th>Qty</th>
<th>Designator</th>
<th>Value</th>
<th>Description</th>
<th>Package</th>
<th>Manufacturer</th>
<th>Manufacturer P/N</th>
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<tbody>
<tr>
<td>1</td>
<td>C1</td>
<td>100nF</td>
<td>Ceramic capacitor 50V, X7R</td>
<td>0603C</td>
<td>SAMSUNG</td>
<td>CL10B104K08NNNC</td>
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<tr>
<td>1</td>
<td>C2</td>
<td>51pF</td>
<td>Ceramic capacitor 50V, X7R</td>
<td>0603C</td>
<td>MURATA</td>
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<tr>
<td>2</td>
<td>C3, C5</td>
<td>22uF</td>
<td>Ceramic capacitor 10V, X7R</td>
<td>1206C</td>
<td>MURATA</td>
<td>GRM31BR72H223KW10L</td>
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<tr>
<td>0</td>
<td>C4</td>
<td>NC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>C6, C8</td>
<td>10uF</td>
<td>Ceramic capacitor 50V, X7R</td>
<td>1206C</td>
<td>MURATA</td>
<td>GRM31BR72H223KW10L</td>
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<tr>
<td>2</td>
<td>C7, C9</td>
<td>10nF</td>
<td>Ceramic capacitor 50V, X7R</td>
<td>0603C</td>
<td>MURATA</td>
<td>GRM31BR72H223KW10L</td>
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<tr>
<td>1</td>
<td>L1</td>
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<td>Inductor</td>
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<td>WURTH</td>
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<tr>
<td>1</td>
<td>R1</td>
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<td>Resistor, 1%</td>
<td>0603R</td>
<td>uniohm</td>
<td>0805F3001T5E</td>
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<tr>
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<td>R2</td>
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<td>Resistor, 1%</td>
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<td>0805F3001T5E</td>
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<tr>
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<td>R3, R5</td>
<td>10k</td>
<td>Resistor, 5%</td>
<td>0603R</td>
<td>uniohm</td>
<td>0805F3001T5E</td>
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<tr>
<td>1</td>
<td>R4</td>
<td>1k</td>
<td>Resistor, 5%</td>
<td>0603R</td>
<td>uniohm</td>
<td>0805F3001T5E</td>
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<tr>
<td>1</td>
<td>R6</td>
<td>12k</td>
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<td>uniohm</td>
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<tr>
<td>1</td>
<td>VIN</td>
<td>4V~18V</td>
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<tr>
<td>1</td>
<td>VOUT</td>
<td>1.5V/4A</td>
<td>TEST-Pole</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>1</td>
<td>JW5062T</td>
<td>18V/4A</td>
<td>Buck</td>
<td>TSOT23-6</td>
<td>Joulwatt</td>
<td>JW5062T</td>
</tr>
</tbody>
</table>
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 supply and the evaluation board starts operating in normal condition.
4. The output voltage can be adjusted by varying the R6 and R2 on EVB. For example, Fixed R6 to 12K, when adjusting the output voltage to 5V, 
   \[ R2 = \frac{Vout}{0.765 \times R6} - R6. \]
5. For more information, please refer to the datasheet of JW5062T.
TYPICAL PERFORMANCE CHARACTERISTICS

Vin = 12V, Vout = 1.5V, L = 2.2μH, Cout = 44μF, TA = +25°C, unless otherwise noted

Steady State Test
VIN=12V, Vout=1.5V
Iout=4A

Startup through Enable
VIN=12V, Vout=1.5V
Iout=4A (Resistive load)

Shutdown through Enable
VIN=12V, Vout=1.5V
Iout=4A (Resistive load)

Heavy Load Operation
4A LOAD

Medium Load Operation
0.2A LOAD

Light Load Operation
0A LOAD

Short Circuit Protection
VIN=12V, Vout=1.5V
Iout=4A - Short

Short Circuit Recovery
VIN=12V, Vout=1.5V
Iout= Short-4A

Load Transient
2A LOAD → 4A LOAD → 2A LOAD
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