



The Future of Analog IC Technology®

# MP1472

## 2A, 18V Synchronous Rectified Step-Down Converter

### DESCRIPTION

The MP1472 is a monolithic synchronous buck regulator. The device integrates a 175mΩ high-side MOSFET and a 115mΩ low-side MOSFET that provide 2A of continuous load current over a wide input voltage of 4.75V to 18V. Current mode control provides fast transient response and cycle-by-cycle current limit.

An adjustable soft-start prevents inrush current at turn-on, and in shutdown mode the supply current drops to 1µA.

This device, available in an 8-pin TSOT23-8 package, provides a very compact solution with minimal external components.

### FEATURES

- 2A Output Current
- Wide 4.75V to 18V Operating Input Range
- Integrated Power MOSFET Switches
- Output Adjustable from 0.923V to 15V
- Up to 95% Efficiency
- Programmable Soft-Start
- Stable with Low ESR Ceramic Output Capacitors
- Fixed 340kHz Frequency
- Cycle-by-Cycle Over Current Protection
- Input Under Voltage Lockout
- 8-Pin TSOT23-8

### APPLICATIONS

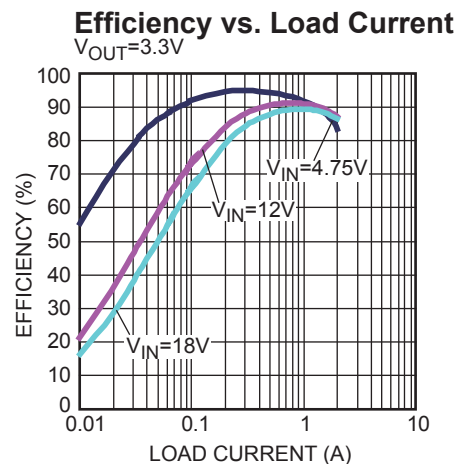
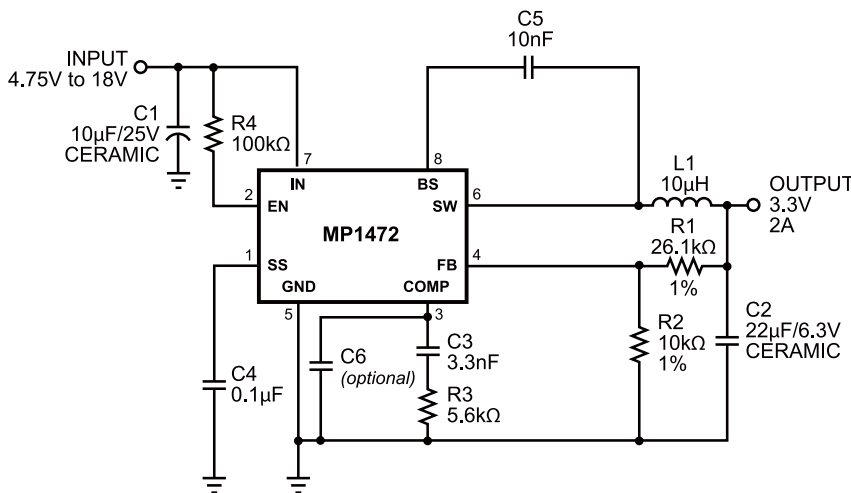
- Distributed Power Systems
- Networking Systems
- FPGA, DSP, ASIC Power Supplies
- Green Electronics/ Appliances
- Notebook Computers

### EVALUATION BOARD REFERENCE

| Board Number | Dimensions            |
|--------------|-----------------------|
| EV1472GJ-00A | 2.5"X x 2.5"Y x 0.5"Z |

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### TYPICAL APPLICATION

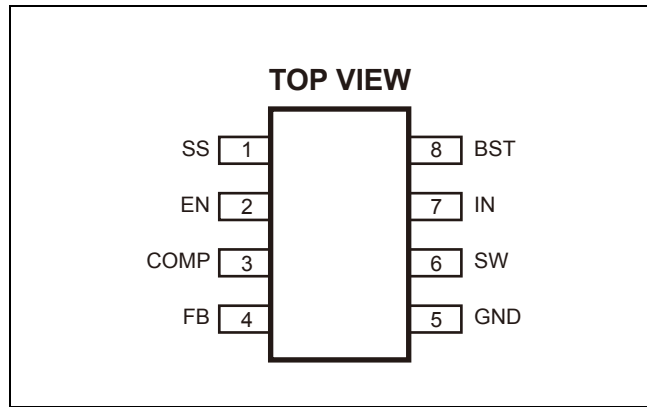


### ORDERING INFORMATION

| Part Number | Package  | Top Marking |
|-------------|----------|-------------|
| MP1472GJ*   | TSOT23-8 | ACW         |

\*For Tape & Reel, add suffix -Z (e.g. MP1472GJ-Z);

### PACKAGE REFERENCE



#### **ABSOLUTE MAXIMUM RATINGS** <sup>(1)</sup>

|  |                                  |
|--|----------------------------------|
| Supply Voltage $V_{IN}$ .....  | -0.3V to +20V                    |
| Switch Node Voltage $V_{SW}$ .....   | 21V                              |
| Boost Voltage $V_{BS}$ .....   | $V_{SW} - 0.3V$ to $V_{SW} + 6V$ |
| All Other Pins .....   | -0.3V to +6V                     |
| Junction Temperature .....   | 150°C                            |
| Continuous Power Dissipation ( $T_A = +25^\circ C$ )<br><sup>(2)</sup> ..... | 1.25W                            |
| Lead Temperature .....   | 260°C                            |
| Storage Temperature .....  | -65°C to +150°C                  |

#### **Recommended Operating Conditions** <sup>(3)</sup>

|  |               |
|--|---------------|
| Input Voltage $V_{IN}$ .....           | 4.75V to 18V  |
| Output Voltage $V_{OUT}$ .....         | 0.923V to 15V |
| Maximum Junction Temp. ( $T_J$ ) ..... | +125°C        |

|  |               |               |
|--|---------------|---------------|
| <b>Thermal Resistance</b> <sup>(4)</sup> | $\theta_{JA}$ | $\theta_{JC}$ |
| TSOT23-8 .....                           | 100 .....     | 55... °C/W    |

**Notes:**

- 1) Exceeding these ratings may damage the device.
- 2) The maximum allowable power dissipation is a function of the maximum junction temperature  $T_J(MAX)$ , the junction-to-ambient thermal resistance  $\theta_{JA}$ , and the ambient temperature  $T_A$ . The maximum allowable continuous power dissipation at any ambient temperature is calculated by  $P_D(MAX) = (T_J(MAX) - T_A) / \theta_{JA}$ . Exceeding the maximum allowable power dissipation will cause excessive die temperature, and the regulator will go into thermal shutdown. Internal thermal shutdown circuitry protects the device from permanent damage.
- 3) The device is not guaranteed to function outside of its operating conditions.
- 4) Measured on JESD51-7 4-layer PCB.