

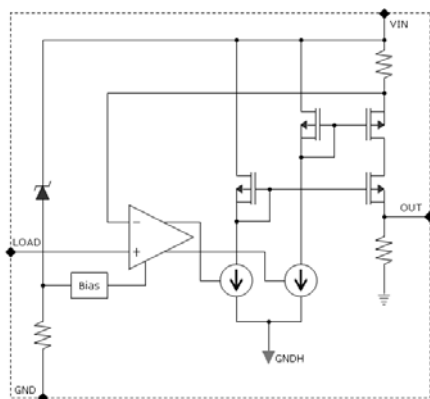
Features

- Wide working voltage range : 10V to 420V
- Fast rise/fall time: 0.3/0.6 μ S
- Voltage Gain: 1 \pm 1 (typical)
- Quiescent current: 200 μ A (typically)
- Output Voltage: 500mV (maximum)

Applications

- SMPS current monitor
- Battery current monitor

Equivalent Block Diagram



Package Pin out



Note: please do not connected any wire to N/C pins

General Description

The LD7511 is a fast high side current monitor producing an output voltage measured from high side resistor with voltage gain of one. It provides a wide working voltage range from 10V to 420V. Also the rise time and fall time of output is less than 1 μ S. Its features include a 5-terminal fixed output voltage version in SOT-89-5 package.

Ordering Information

| | | Packing Options | |
|----------|----------|-----------------|-----------------|
| Part No. | Package | Bag(BG) | Tape & Reel(TR) |
| LD7511 | SOT-89-5 | LD7511L6-BG | LD7511L6-TR |

- Package material default is "Green" package.

Product Marking

| | |
|----------|--------------------------------------|
| LD8888 | ◇ Line 1 – "LD" is a fixed character |
| SSSSS... | 8888: product name |
| ● | ◇ Line 2 – SSSSS...: lot number |

Absolute Maximum Ratings

| Parameter | Value | Units |
|---------------------------------|-------------|-------|
| V_{IN}, V_{LOAD} to GND | -0.5 ~ 420 | V |
| V_{OUT} to GND | -0.5 ~ +10 | V |
| $V_{SENSE} = V_{IN} - V_{LOAD}$ | -0.3 ~ +5 | V |
| I_{LOAD} | -10 ~ +10 | mA |
| Junction temperature range | -40 to +125 | °C |
| Storage temperature range | -55 to +150 | °C |

The values beyond the boundaries of absolute maximum rating may cause the damage to the device. Functional operation in this context is not implied. Continuous use of the device at the absolute rating level might influence device reliability. All voltages have their reference to device ground.

Thermal Characteristics

| Package | Power Dissipation @ $T_A=25^{\circ}C$ | θ_{JC} °C/W | θ_{JA} °C/W |
|----------|--|-----------------------|-----------------------|
| SOT-89-5 | 1.0W | 8 | 180 |

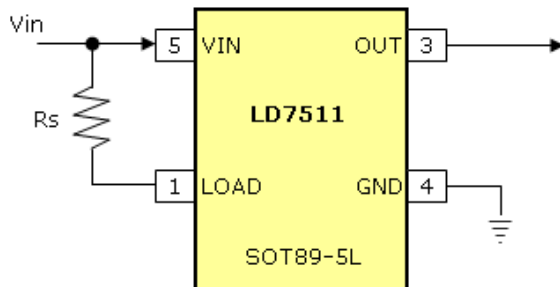
Electrical Characteristics

Test conditions unless otherwise specified: $T_A=25^{\circ}C$

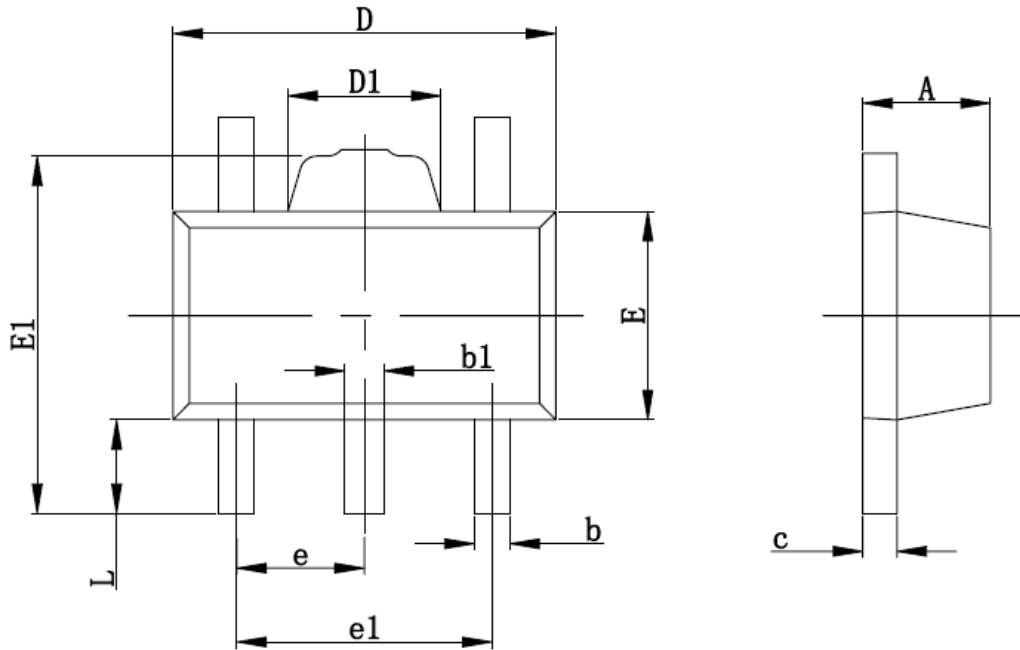
| Parameter | Symbol | Condition | Min | Typ | Max | Units |
|--|------------|--|-----|-----|-----|------------|
| Supply voltage range | V_{IN} | – | 10 | – | 420 | V |
| Quiescent supply current | I_Q | $V_{IN}= 10\sim 420V, V_{SENSE}= 0mV$ | – | – | 200 | μA |
| Output Resistance | R_{OUT} | – | – | 2.5 | – | K Ω |
| Output Voltage while $V_{SENSE} = 350mV$ | V_{OUT} | Bin1 Category | 310 | 320 | 330 | mV |
| | | Bin2 Category | 330 | 340 | 350 | |
| | | Bin3 Category | 350 | 360 | 370 | |
| Output Voltage $V_{SENSE} =$ other ranges | V_{OUT} | $V_{SENSE} = 0mV$ | 0 | – | 20 | mV |
| | | $V_{SENSE} = 100mV$ | 79 | – | 121 | |
| | | $V_{SENSE} = 500mV$ | 470 | – | 530 | |
| Output rise time | t_{RISE} | V_{SENSE} step 5mV to 500mV, $V_{IN}= 24V$ | – | – | 0.3 | μS |
| | | V_{SENSE} step 500mV to 0mV, $V_{IN}= 24V$ | – | – | 0.6 | |
| Output fall time | t_{FALL} | V_{SENSE} step 500mV to 0mV, $V_{IN}= 24V$ | – | – | 0.6 | μS |

Note: $V_{SENSE} = V_{IN} - V_{LOAD}$

Typical Application Circuit



Package Outline



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 1.400 | 1.600 | 0.055 | 0.063 |
| b | 0.320 | 0.520 | 0.013 | 0.020 |
| b1 | 0.360 | 0.560 | 0.014 | 0.022 |
| c | 0.350 | 0.440 | 0.014 | 0.017 |
| D | 4.400 | 4.600 | 0.173 | 0.181 |
| D1 | 1.400 | 1.800 | 0.055 | 0.071 |
| E | 2.300 | 2.600 | 0.091 | 0.102 |
| E1 | 3.940 | 4.250 | 0.155 | 0.167 |
| e | 1.500TYP | | 0.060TYP | |
| e1 | 2.900 | 3.100 | 0.114 | 0.122 |
| L | 0.900 | 1.100 | 0.035 | 0.043 |

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