

Adjustable Constant Current LED Driver AMC7136

General Description

The AMC7136 is a constant current regulator for driving LEDs with low quiescent current and low dropout voltage. The current is adjustable from 10mA to 400mA with an external resistor.

Only one external resistor is required to achieve a constant current LED driver.

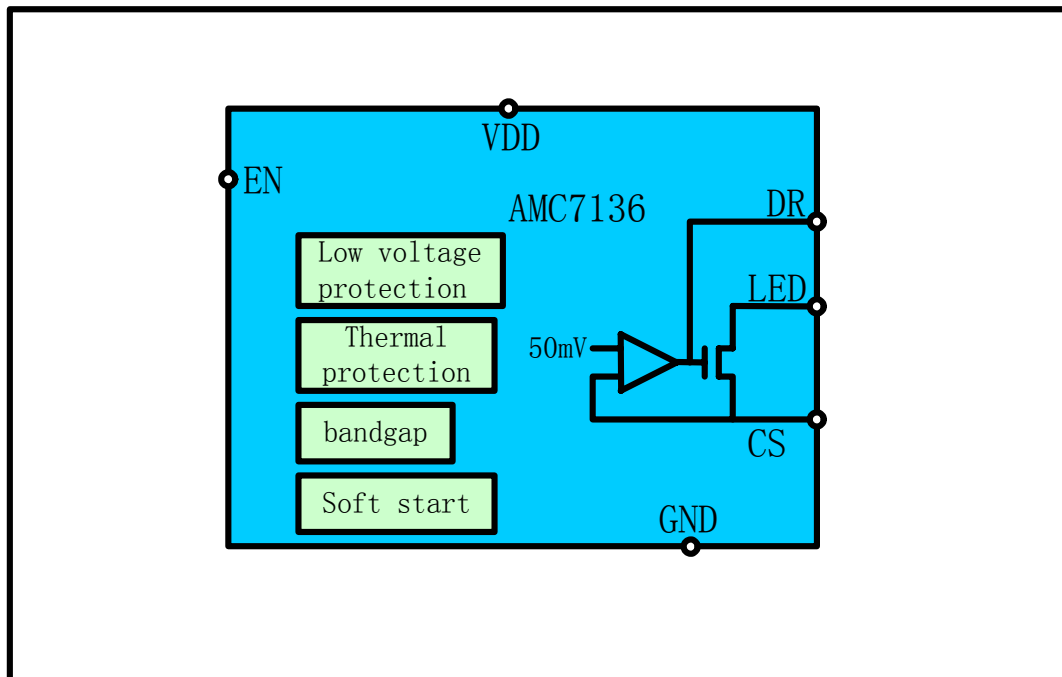
Soft start, thermal protection and low voltage protection are also provided.

A driver pin DR is provided for current and voltage extension. Adding an external NMOS or NPN transistor to this pin can extend current and voltage range.

Ordering Information

AMC7136

Block Diagram



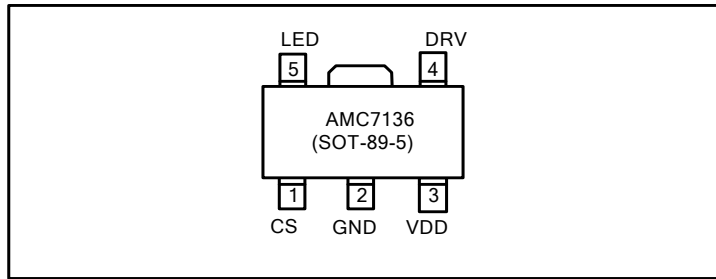
Features

- Sink current: 10mA to 400mA adjustable with an external resistor
- Current and voltage range extendable by adding an external NMOS or NPN transistor
- Power supply voltage: 2.7-6V
- Low drop out voltage: 100mV@350mA
- Low quiescent current: 250uA
- Thermal protection
- Soft start
- Low voltage protection: 2.5V
- SOT-89-5 package

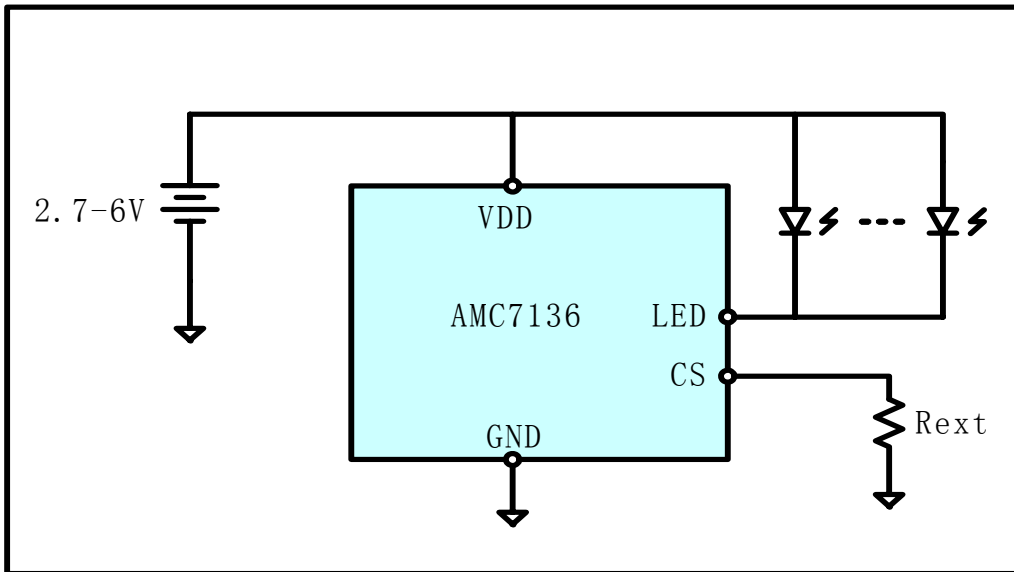
Applications

- Power Led driver

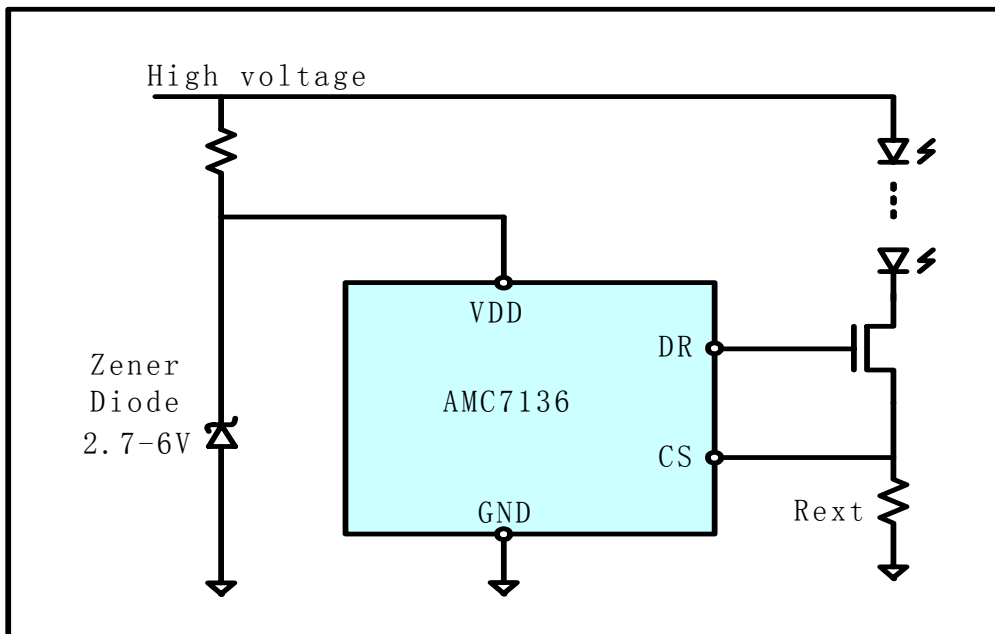
Pin Configurations



Typical Application



Low voltage Application



High voltage application

Absolute Maximum Ratings

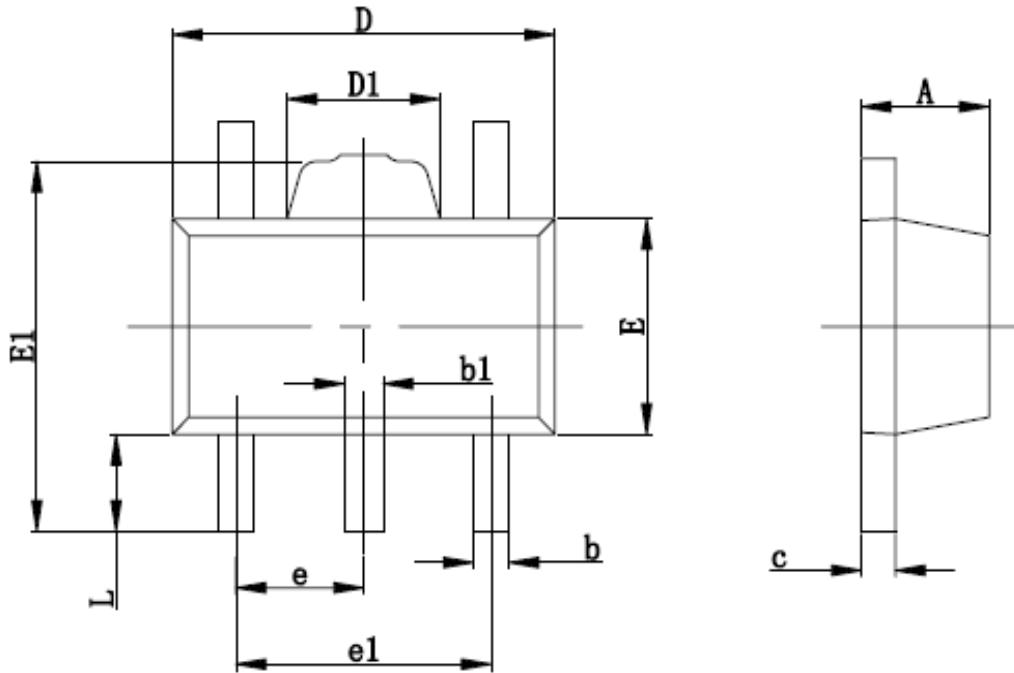
| Type | Symbol | Description | Value | Unit |
|-------------------|----------------------|---|--------------|------|
| Voltage | V_{\max} | Maximum voltage on VDD, LED, EN, DR and CS pins | 8 | V |
| | $V_{\min-\max}$ | Voltage range on LED pin | -0.3~VDD+0.3 | V |
| Current | $I_{LED_{\max}}$ | Maximum current on LED pin | 500 | mA |
| Power dissipation | $P_{SOT-89-5}$ | Maximum Power dissipation for SOT-89-3 package | 0.5 | W |
| Thermal | $T_{\min-\max}$ | Operation temperature range | -20~85 | °C |
| | T_{storage} | Storage temperature range | -40~165 | °C |
| ESD | VESD | ESD voltage for human body model | 2000 | V |

Electronic Characteristics

| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|------------------------|--------------------------|--|-----|-----|-----|------|
| Sink current range | | VDD=3.6 | 10 | | 400 | mA |
| VDD range | | I _{LED} =350mA | 2.7 | | 6.0 | V |
| CS voltage | V_{CS} | | 47 | 50 | 53 | mV |
| Sink current accuracy | $\Delta I_{LED}/I_{LED}$ | AMC5201X350 | -5 | | 5 | % |
| Load regulation | | V _{LED} =0.2V to 3V VDD=3.6V | | | 2 | mA/V |
| Line regulation | | VDD=3V to 5.5V | | | 2 | mA/V |
| Output dropout voltage | V_{DO} | | | 100 | | mV |
| Supply current | I_{DD} | | | 250 | | uA |
| Low voltage protection | | | 2.3 | 2.5 | 2.7 | V |

Package Information

SOT-89-5L PACKAGE OUTLINE DIMENSIONS



| 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 |