

LM2936 Ultra-Low Quiescent Current LDO Voltage Regulator

1 Features

- LM2936 Operating V_{IN} range of 5.5 V to 40 V
- LM2936HV Operating V_{IN} range of 5.5 V to 60 V
- Ultra Low Quiescent Current ($I_Q \leq 15 \mu A$ for $I_{OUT} = 100 \mu A$)
- Fixed 3-V, 3.3-V or 5-V with 50-mA Output
- $\pm 2\%$ Initial Output Tolerance
- $\pm 3\%$ Output Tolerance Over Line, Load, and Temperature
- Dropout Voltage Typically 200 mV at $I_{OUT} = 50$ mA
- -24 -V Input Voltage Protection
- -50 -V Input Transient Protection
- Internal Short Circuit Current Limit
- Internal Thermal Shutdown Protection
- Shutdown Pin Available with LM2936BM Package

2 Applications

- Automotive
- Industrial Controls
- Point of Load
- *Wife's CFAP*

3 Description

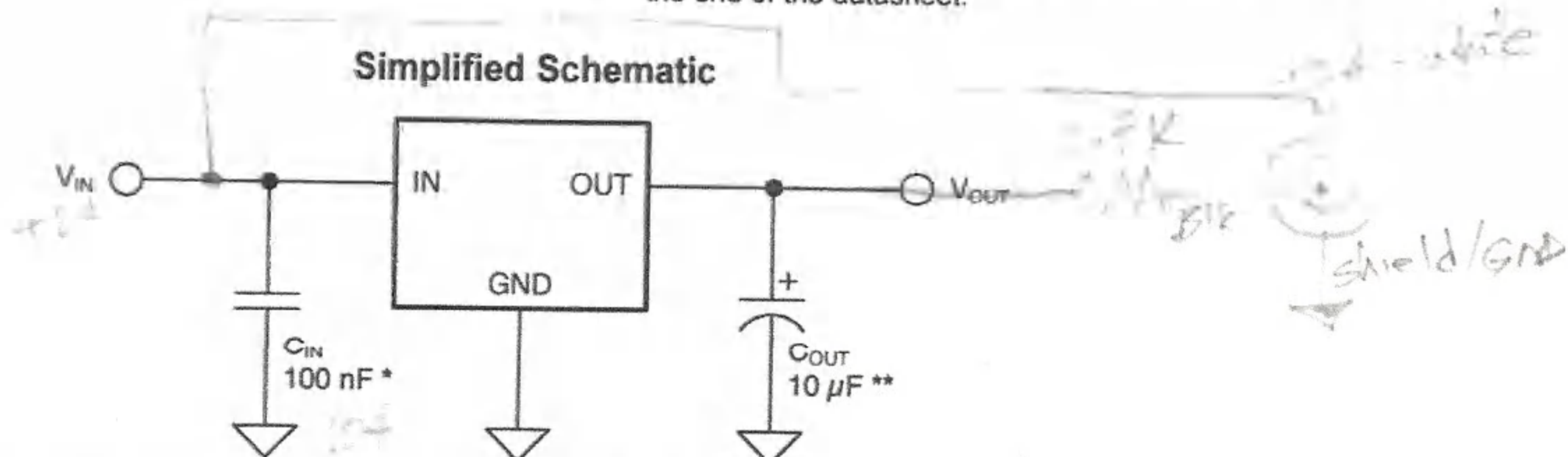
The LM2936 ultra-low quiescent current regulator features low dropout voltage and low current in the standby mode. With less than 15- μA quiescent current at a 100- μA load, the LM2936 is ideally suited for automotive and other battery operated systems. The LM2936 retains all of the features that are common to low dropout regulators including a low dropout PNP pass device, short circuit protection, reverse battery protection, and thermal shutdown. The LM2936 has a 40-V maximum operating voltage limit, a $-40^\circ C$ to $125^\circ C$ operating temperature range, and $\pm 3\%$ output voltage tolerance over the entire output current, input voltage, and temperature range. The LM2936 is available in a TO-92 through-hole package, as well as SOIC-8, VSSOP, SOT-223, and TO-252 surface mount packages.

Device Information⁽¹⁾

PART NUMBER	PACKAGE	BODY SIZE (NOM)
LM2936	SOIC (8)	4.90 mm x 3.91 mm
	TO-252 (3)	6.10 mm x 6.58 mm
	VSSOP (8)	3.00 mm x 3.00 mm
	SOT-223 (4)	6.50 mm x 3.50 mm
	TO-92 (3)	4.30 mm x 4.30 mm

(1) For all available packages, see the orderable addendum at the end of the datasheet.

IN GND OUT
3 2 1
Bottom View



* Required if regulator is located more than 2" from power supply filter capacitor.
 ** Required for stability. See *Electrical Characteristics for 3-V LM2936* for required values. Must be rated over intended operating temperature range. Effective series resistance (ESR) is critical, see *Typical Characteristics*. Locate capacitor as close as possible to the regulator output and ground pins. Capacitance may be increased without bound.

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Resistor R10 34V 50mA 100mA & Sense Circuit

