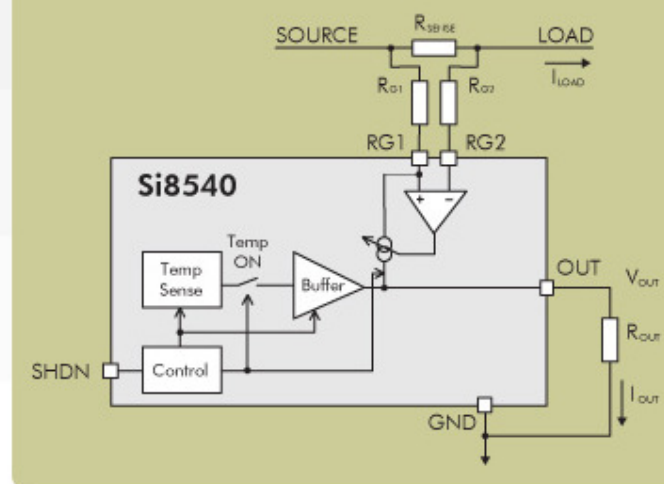


High-Side DC Current Sensors

Si8540

The Si8540 is a complete, uni-directional, high voltage high-side current sense amplifier for use in portable PCs, cellular infrastructure equipment, high-end routers, smart battery packs, automotive applications and other power management applications that require current monitoring and current control loops. The Si8540 is designed to be an extremely cost-effective, value-added current sense amplifier that has low power requirements, can sense a wide range of currents with different resistor values and comes in an extremely compact 5-pin SOT-23 or 8-pin SOIC package.

Block Diagram



Features

- +5 to +36 V supply operation
- 0.2% full scale accuracy
- 90 μ A max supply current
- 9 μ A shutdown current
- Internal temperature sensor output option for temperature measurement
- Operating temperature range -40 to +85 $^{\circ}$ C

Applications

- Battery chargers
- DC motor control
- Smart battery packs
- Backup systems
- Current control applications



Product Matrix

| Part Number | Available Documents | Full Scale Current (A) | Full Scale Error(% of Reading) | Output Mode | Pin 7 Function | Package |
|-------------|---------------------|------------------------|--------------------------------|--------------|----------------|-----------------|
| Si8540 | | Programmable | ±0.2% | Programmable | - | 5 or 8-pin SOIC |

The Si8540 measures the voltage drop across a sense resistor in the high voltage side of a line. Large values of current can be measured by using a small resistor value and keeping the series voltage drop low across the sense resistor. The Si8540 operates from a single supply +5 to +36 V and has a current output that can be converted to a ground referenced voltage with a resistor ROUT. The amplification factor of the current sense can be adjusted with a choice of external resistor ratios. A special feature of the Si8540 is the provision of an output voltage which is proportional to ambient temperature. This can be used for compensating the temperature coefficient of the sense resistor, thus allowing the possibility of using a PCB trace as an inexpensive sense resistor.



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