CS1107

Single Relay Driver IC

This ASIC provides up to 350 mA of drive current for driving a relay. On–chip diagnostic features include open and short circuit detection in the on state, duty cycle current limit control, and thermal shutdown. Faults are reported on the $\overline{\text{Fault}}$ lead. $\overline{\text{Fault}}$ is an active–low output. An on–chip zener provides protection from flyback pulses from the relay. Internal pull–down circuitry is provided to ensure the output pin turns off when the Control pin is floating.

Features

- Fault Detection
  - Open Circuit
  - Short Circuit
  - Overtemperature
- On–Chip Flyback Protection
- Low Standby Current
- Internally Fused Leads in SO–8 Package

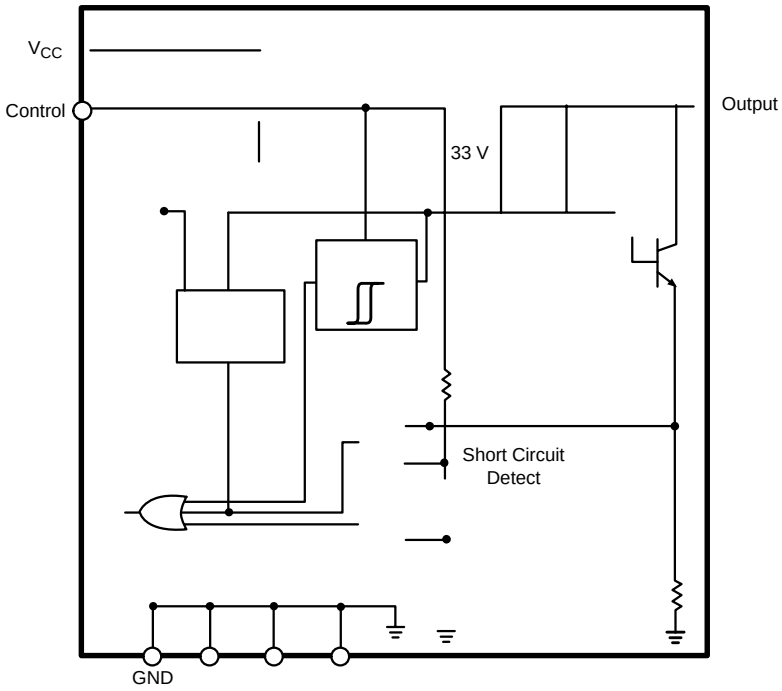

Figure 1. Block Diagram

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MAXIMUM RATINGS*

Rating	Value

CIRCUIT DESCRIPTION

The CS1107 relay driver IC provides up to 350 mA of drive current in a low–side configuration. The Output driver pin is controlled through the TTL compatible Control input pin. A high condition on the Control pin turns the output pin on.

The $\overline{\text{Fault}}$ pin reports short circuit, open circuit, and overtemperature conditions on the IC. If a fault is present, the open collector output $\overline{\text{Fault}}$ pin will be low. Typical numbers for faults are: exceeding 500 mA of drive current will report a short circuit. Less than 40 mA (typical) will report an open circuit. A temperature fault will be reported when the die temperature exceeds 180°C (typical). Faults are only reported when the Control pin is high, due to the low quiescent current when the Control pin is low and the output device is turned off.

Overcurrent protection is provided by duty cycle control. When the Output current exceeds the current limit threshold, the output enters duty cycle mode to reduce power dissipation of the IC to a safe level. The higher the threshold is exceeded the lower the duty cycle becomes.

A 33 V on–chip zener diode on the Output pin protects the device from flyback pulses when a relay is turned off. The saturation voltage of this pin will not exceed 1.5 V at 350 mA.

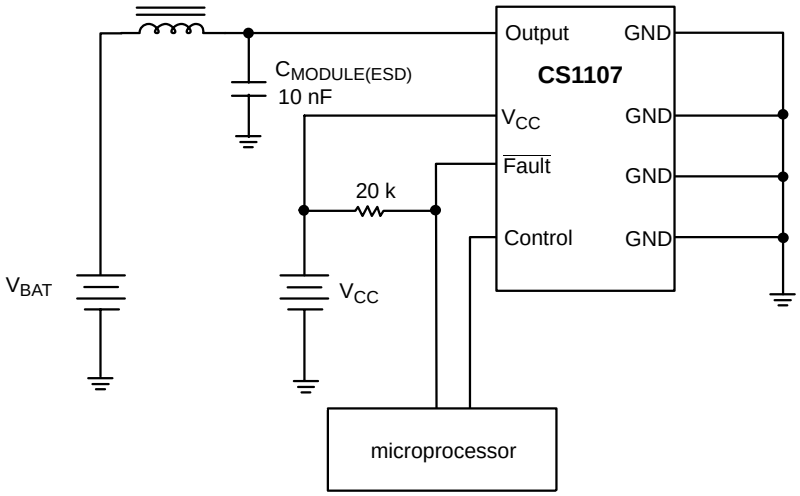

Figure 2. Applications Diagram

PACKAGE DIMENSIONS

SO–8
DF SUFFIX
CASE 751–07
ISSUE V